



Fermilab

TM-1062
0120.000

FERMILAB PRESSURE VESSEL DIRECTORY

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1. INTRODUCTION *****

A procedure, RUNTANK, has been written to manage the information pertaining to the vacuum tanks and pressure vessels for which the laboratory is responsible. This information 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 four files from the Cyber disk, a masterfile or directory, containing all the pertinent information, an update file, with new data records to be entered, a special extract file, to be explained later, and a program.

2. TYPICAL RECORD *****

IND023 IND SIL1 GR 0 10 77 78 810110 U ES 7 25275

*
ITEM: LIQUID HELIUM DEWAR DXL 060X0180 CRYENCO
FUNCTION: LIQUID HELIUM DEWAR
DESIGN PRESSURE (PSIG) 0050 AT 100 F OPERATING PRESSURE (PSIG) 0025
INNER SV 001X001 SET 36 ORF 2 CFM 0166 ANDERSON GREENWOOD
INNER RD 002X002 SET 59 ORF 2 CFM 0320 BS&B
OUTER SV 003X003 SET 59 ORF 3 CFM 0480 CRYOLAB
REMARKS: RELIEF VALVE TO COMPRESSOR SUCTION THRU-25 FT. OF 2 IN PIPE.
REMARKS: RUPTURE DISC TO OUTSIDE THRU-15 FT OF 6 IN. PIPE
*

 3. DATA STRUCTURE *****

The preceeding is an example of a typical data record, describing the characteristics of INDO23, a vessel belonging to the Energy Saver Division and located at 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	INDO23
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	10
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 50-57	OWNER	ES
Line 1 Columns 60-67	NATIONAL BOARD SERIAL NUMBER	7
Line 1 Columns 70-79	FERMILAB SERIAL NUMBER	25275
Line 2 Columns 01-01	ASTERISK	*
Line 3 Columns 07-35	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 24-27	DESIGN PRESSURE (PSIG)	0050
Line 5 Columns 33-35	DESIGN TEMPERATURE (DEGREES FAHRENHEIT)	100
Line 5 Columns 67-70	OPERATING PRESSURE (PSIG)	0025
Line 6 Columns 08-09	TYPE OF PRESSURE RELIEF- SV, RD, RP	SV
Line 6 Columns 11-17	DIMENSIONS OF RELIEF DEVICE (INCHES)	001X001
Line 6 Columns 24-28	SET PRESSURE OF RELIEF DEVICE (PSIG)	36
Line 6 Columns 34-38	ORIFICE SIZE OF RELIEF DEVICE	2
Line 6 Columns 44-49	CAPACITY OF RELIEF DEVICE (CFM)	0166
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 11-17	DIMENSIONS OF RELIEF DEVICE (INCHES)	002X002
Line 7 Columns 24-28	SET PRESSURE OF RELIEF DEVICE (PSIG)	59
Line 7 Columns 34-38	ORIFICE SIZE OF RELIEF DEVICE	2
Line 7 Columns 44-49	CAPACITY OF RELIEF DEVICE (CFM)	0320
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 11-17	DIMENSIONS OF RELIEF DEVICE (INCHES)	003X003
Line 8 Columns 24-28	SET PRESSURE OF RELIEF DEVICE (PSIG)	59
Line 8 Columns 34-38	ORIFICE SIZE OF RELIEF DEVICE	3
Line 8 Columns 44-49	CAPACITY OF RELIEF DEVICE (CFM)	0480
Line 8 Columns 51-79	MANUFACTURER OF RELIEF DEVICE	CRYOLAB
Line 9 Columns 10-79	REMARKS	TEX-
Line 10 Columns 10-79	REMARKS	TEXT
Line 11 Columns 01-01	ASTERISK	*

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

- 0=OKAY
- 1=DOUBTFUL
- 2=DELETED

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 Line 6 format type, concerning relief devices, is repeated whenever there's more than one relief device on the vessel. The comment line is repeated whenever there's an extension of remarks. In these cases, the subsequent line numbers are necessarily altered, but the bottom line of each record must always be an asterisk.

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 SPSP0 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** Village Lab Where **=Last Two Digits.
 VIL SVHW Winnebago House (Helium).
 VIL SVMS Village Model Shop.
 VIL SVVMG Village Vehicle Maintenance Garage.
 VIL SVFB Village Fire Barn.
 VIL SVB 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, if so desired.
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 directory on the terminal.
6. Makes an abridged listing on the terminal- headers only.
7. Lists the directory on the terminal, vessel by vessel, so that user may carefully scrutinize the record before directing the program to continue or to return.
8. Permits user to merge old masterfile with update file to create new masterfile.

- 9. Creates special or extract files on disk which are subsets of the main directory.
- 10. Sets and clears status word indicating whether the vessel is okay, doubtful, or deleted.
- 11. 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: G, RUNTANK.

The terminal will respond with a slash: /

User must then type: RUNTANK.

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

- TYPE (ALTER) TO ALTER ANY RECORD!
- TYPE (CREATE) TO CREATE NEW RECORD!
- TYPE (FIND) TO FIND ANY RECORD!
- TYPE (LIST) TO LIST ANY FILE!
- TYPE (MERGE) TO MERGE TWO FILES!
- 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 header record and interrogate you, field by field, as to the changes you may wish to make. After the changes are made, it will reprint the header record, as altered, and ask you to verify it. If you aren't satisfied with the changes, it will go back to give you another chance to alter the record and will continue to do so until you indicate that the changes made are satisfactory. It will then allow you to exit or to proceed to the next line, which will be handled in much the same way. When all the changes are 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; otherwise it will start all over again from scratch.

8. 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. Otherwise, it will go to the beginning and you'll have to start from scratch.

9. FIND *****

If you type (FIND) to display any specific record on the screen, the terminal will ask you first to designate the data file where the desired record is to be found, and then it will ask you to enter the name of the appropriate 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 this record at your leisure. In either case, to proceed, type a carriage return.

10. LIST *****

If you type (LIST) to list one of the data files on the screen, the terminal will first ask you to specify the file, and then it will ask what kind of listing you require, a complete listing of everything in the file, an abridged listing with header records only, or a vessel by vessel listing, allowing you to examine the record at leisure after which you direct the program to continue or to return.

11. MERGE *****

If you type (MERGE) to merge the masterfile with an update file, be sure that both masterfile and update file reside on the Cyber disk as permanent files under the names (MASTER) and (UPDATE). Make sure also that there are no duplicate records and that every vessel in the masterfile is different from every vessel in the update file. Unless these precautions are observed, the procedure will be aborted. The original files will remain intact and no harm will be done, but nothing will have been accomplished. In any case, as soon as you type (MERGE), the program will rewind both files, merge them, and copy the result into the masterfile. It will then notify user that the files have been successfully merged.

12. SPECIAL *****

If you type (SPECIAL) to extract from the directory vessels with special characteristics, vessels belonging to a given division or experiment, for example, or vessels located in a given place, the terminal will ask you which subset of the general directory you require. As soon as you respond, the program will extract all the records pertaining to the vessels in that particular subset, place them in a special file, and notify you that the special file has been created. When you exit from the program, the special file will be a permanent file on the Cyber disk with the name (SPECIAL). If you wish to save it, you must 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.

13. 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.

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??

g.runtank
/runtank

TYPE (ALTER) TO ALTER ANY RECORD!
TYPE (CREATE) TO CREATE NEW RECORD!
TYPE (FIND) TO FIND ANY RECORD!
TYPE (LIST) TO LIST ANY FILE!
TYPE (MERGE) TO MERGE TWO FILES!
TYPE (SPECIAL) TO EXTRACT SPECIAL FILE!
TYPE CARRIAGE RETURN TO EXIT!

? alter

ENTER NAME OF DESIGNATED VESSEL!

? ind001

VESSEL	LOCATIONCODE	? ##	YR	YR	TAGGED	XXX	PROPERTY	SERIAL##	FERMILAB##
IND001	IND SIL1	00 0 07	77		810100	U	ES	48368	25705

TYPE Y TO REGISTER CHANGE OF LOCATION!

?

VESSEL	LOCATIONCODE	? ##	YR	YR	TAGGED	XXX	PROPERTY	SERIAL##	FERMILAB##
IND001	IND SIL1	00 0 07	77		810100	U	ES	48368	25705

TYPE Y TO REGISTER CHANGE OF OWNERSHIP!

? y

ENTER NEW OWNER!

? acc

VESSEL	LOCATIONCODE	? ##	YR	YR	TAGGED	XXX	PROPERTY	SERIAL##	FERMILAB##
IND001	IND SIL1	00 0 07	77		810100	U	ACC	48368	25705

TYPE A TO ENTER OR CHANGE STATUS!
TYPE B TO ENTER OR CHANGE YEAR MANUFACTURED!
TYPE C TO ENTER OR CHANGE YEAR TESTED!
TYPE D TO ENTER OR CHANGE DATE TAGGED!
TYPE E TO ENTER OR CHANGE CODE NUMBER!
TYPE F TO ENTER OR CHANGE NATIONAL BOARD NUMBER!
TYPE G TO ENTER OR CHANGE FERMILAB NUMBER!
TYPE P TO PROCEED!
TYPE X TO EXIT!

? a

TYPE A TO INDICATE STATUS OKAY!
TYPE B TO INDICATE STATUS DOUBTFUL!
TYPE C TO INDICATE STATUS DELETED!

? b

VESSEL LOCATIONCODE ? ## YR YR TAGGED XXX PROPERTY SERIAL## FERMILAB##
IND001 IND SIL1 00 1 07 77 810100 U ACC 48368 25705

TYPE A TO ENTER OR CHANGE STATUS!
TYPE B TO ENTER OR CHANGE YEAR MANUFACTURED!
TYPE C TO ENTER OR CHANGE YEAR TESTED!
TYPE D TO ENTER OR CHANGE DATE TAGGED!
TYPE E TO ENTER OR CHANGE CODE NUMBER!
TYPE F TO ENTER OR CHANGE NATIONAL BOARD NUMBER!
TYPE G TO ENTER OR CHANGE FERMILAB NUMBER!
TYPE P TO PROCEED!
TYPE X TO EXIT!

? p

ITEM: PROPANE STORAGE VESSEL DXL 120X0540 RILEY BEAIRD INC.

TYPE A TO CHANGE ITEM DESCRIPTION!
TYPE B TO CHANGE DIMENSIONS!
TYPE C TO CHANGE MANUFACTURER!
TYPE P TO PROCEED!
TYPE X TO EXIT!

? b

ENTER DIAMETER IN INCHES-3 CHARACTER MAX!

? 60

ENTER LENGTH IN INCHES-4 CHARACTER MAX!

? 270

ITEM: PROPANE STORAGE VESSEL DXL 060X0270 RILEY BEAIRD INC.

TYPE A TO CHANGE ITEM DESCRIPTION!
TYPE B TO CHANGE DIMENSIONS!
TYPE C TO CHANGE MANUFACTURER!
TYPE P TO PROCEED!
TYPE X TO EXIT!

? p

FUNCTION: HELIUM GAS STORAGE

TYPE A TO CHANGE FUNCTION DESCRIPTION!
TYPE P TO PROCEED!
TYPE X TO EXIT!

? p

DESIGN PRESSURE (PSIG) 0250 AT 100 F OPERATING PRESSURE (PSIG)

TYPE A TO CHANGE DESIGN PRESSURE!
TYPE B TO CHANGE DESIGN TEMPERATURE!
TYPE C TO CHANGE OPERATING PRESSURE!
TYPE P TO PROCEED!
TYPE X TO EXIT!

? c

ENTER OPERATING PRESSURE!

? 125

DESIGN PRESSURE (PSIG) 0250 AT 100 F OPERATING PRESSURE (PSIG) 0125

TYPE A TO CHANGE DESIGN PRESSURE!
TYPE B TO CHANGE DESIGN TEMPERATURE!
TYPE C TO CHANGE OPERATING PRESSURE!
TYPE P TO PROCEED!
TYPE X TO EXIT!

? p

INNER SV 001X001 SET 265 DRF CFM ANDERSON GREENWOOD

TYPE A TO CHANGE TYPE OF PRESSURE RELIEF!
TYPE B TO CHANGE DIMENSIONS OF RELIEF DEVICE!
TYPE C TO CHANGE SET PRESSURE OF RELIEF DEVICE!
TYPE D TO CHANGE ORIFICE SIZE OF RELIEF DEVICE!
TYPE E TO CHANGE CAPACITY OF RELIEF DEVICE-CFM!
TYPE F TO CHANGE MANUFACTURER OF RELIEF DEVICE!
TYPE P TO PROCEED!
TYPE X TO EXIT!

? p

REMARKS: CODE DESIGN AND BUILT VESSEL USED AT DESIGN CONDITIONS

TYPE A TO CHANGE REMARKS!
TYPE P TO PROCEED!
TYPE X TO EXIT!

? p

VESSEL	LOCATION	CODE	? ##	YR	YR	TAGGED	XXX	PROPERTY	SERIAL##	FERMILAB##
IND001	IND SIL1	00	1 07	77	810100	U	ACC		48368	25705

*
ITEM: PROPANE STORAGE VESSEL DXL 060X0270 RILEY BEAIRD INC.
FUNCTION: HELIUM GAS STORAGE
DESIGN PRESSURE (PSIG) 0250 AT 100 F OPERATING PRESSURE (PSIG) 0125
INNER SV 001X001 SET 265 DRF CFM ANDERSON GREENWOOD
REMARKS: CODE DESIGN AND BUILT VESSEL USED AT DESIGN CONDITIONS

* THAT'S IT! OKAY? TYPE Y OR N!

? y

RECORD ALTERED!

?

TYPE (ALTER) TO ALTER ANY RECORD!
TYPE (CREATE) TO CREATE NEW RECORD!
TYPE (FIND) TO FIND ANY RECORD!
TYPE (LIST) TO LIST ANY FILE!
TYPE (MERGE) TO MERGE TWO FILES!
TYPE (SPECIAL) TO EXTRACT SPECIAL FILE!
TYPE CARRIAGE RETURN TO EXIT!

? create

ENTER NAME PREFIX-3 CHARACTERS!

? neu

ENTER LOCATION PREFIX-3 CHARACTERS!

? neu

ENTER LOCATION SUFFIX-5 CHARACTER MAX!

? snla

ENTER SUBLOCATION-2 CHARACTERS!

? gr

FE Y IF VESSEL SHOULD BE FLAGGED!

? y

ENTER YEAR OF MANUFACTURE-LAST 2 DIGITS!

? 69

ENTER YEAR RETESTED-LAST 2 DIGITS!

? 76

ENTER DATE TAGGED-6 DIGITS-YYMMDD!

? 810110

ENTER DESIGN CODE!

? dot

ENTER OWNER-SECTION OR EXPERIMENT!

? acc

ENTER NATIONAL BOARD SERIAL NUMBER!

? 17

ENTER FERMILAB SERIAL NUMBER!

? 54321

VESSEL LOCATIONCODE ? ## YR YR TAGGED XXX PROPERTY SERIAL## FERMILAB##
NEU NEU SNLA GR 1 69 76 810110 DOT ACC 17 54321

THAT'S IT! TYPE Y TO PROCEED!

? y

ENTER ITEM DESCRIPTION!

? liquid hydrogen dewar

ENTER DIAMETER IN INCHES-3 CHARACTER MAX!

? 060

ENTER LENGTH IN INCHES-4 CHARACTER MAX!

? 120

ENTER MANUFACTURER!

? anderson greenwood

ITEM: LIQUID HYDROGEN DEWAR
THAT'S IT! TYPE Y TO PROCEED!

DXL 060X0120 ANDERSON GREENWOOD

? y

ENTER FUNCTION DESCRIPTION!

? liquid helium dewar

FUNCTION: LIQUID HELIUM DEWAR
THAT'S IT! TYPE Y TO PROCEED!

?

ENTER FUNCTION DESCRIPTION!

? liquid hydrogen dewar

FUNCTION: LIQUID HYDROGEN DEWAR
THAT'S IT! TYPE Y TO PROCEED!

? y

ENTER DESIGN PRESSURE!

? 50

ENTER DESIGN TEMPERATURE!

? 100

ENTER OPERATING PRESSURE!

? 25

DESIGN PRESSURE (PSIG) 0050 AT 100 F OPERATING PRESSURE (PSIG) 0025
THAT'S IT! TYPE Y TO PROCEED!

? y

INNER VESSEL! DATA? TYPE Y OR N!

? y

ENTER TYPE OF PRESSURE RELIEF-SV, RD, RP!

? sv

ENTER DIMENSIONS OF RELIEF DEVICE!

? 001x001

ENTER SET PRESSURE OF RELIEF DEVICE!

? 36

ENTER ORIFICE SIZE OF RELIEF DEVICE!

? 2

ENTER CAPACITY OF RELIEF DEVICE (CFM)!

? 166

ENTER MANUFACTURER OF RELIEF DEVICE!

? anderson greenwood

INNER SV 001X001 SET 36 ORF 2 CFM 166 ANDERSON GREENWOOD
THAT'S IT! TYPE Y TO PROCEED!

? y

INNER VESSEL! DATA? TYPE Y OR N!

n

OUTER VESSEL! DATA? TYPE Y OR N!

? n

ENTER REMARKS ON THIS LINE!

? this is a non-existent vessel.

REMARKS THIS IS A NON-EXISTENT VESSEL.
THAT'S IT! TYPE Y TO PROCEED!

? y

FURTHER REMARKS? TYPE Y OR N!

? n

VESSEL	LOCATION	CODE	? ##	YR	YR	TAGGED	XXX	PROPERTY	SERIAL##	FERMILAB##
NEU	NEU	SNLA	GR	1 07	69 76	810110	DOT	ACC	17	54321

*
ITEM: LIQUID HYDROGEN DEWAR DXL 060X0120 ANDERSON GREENWOOD
FUNCTION: LIQUID HYDROGEN DEWAR
DESIGN PRESSURE (PSIG) 0050 AT 100 F OPERATING PRESSURE (PSIG) 0025
INNER SV 001X001 SET 36 ORF 2 CFM 166 ANDERSON GREENWOOD
REMARKS THIS IS A NON-EXISTENT VESSEL.

*
THAT'S IT! TYPE Y TO PROCEED!

? y

RECORD CREATED!

TYPE (ALTER) TO ALTER ANY RECORD!
TYPE (CREATE) TO CREATE NEW RECORD!
TYPE (FIND) TO FIND ANY RECORD!
TYPE (LIST) TO LIST ANY FILE!
TYPE (MERGE) TO MERGE TWO FILES!
TYPE (SPECIAL) TO EXTRACT SPECIAL FILE!
TYPE CARRIAGE RETURN TO EXIT!

? find

TYPE (MASTER) TO EXAMINE MASTER FILE!
TYPE (UPDATE) TO EXAMINE UPDATE FILE!
TYPE (SPECIAL) TO EXAMINE SPECIAL FILE!
TYPE CARRIAGE RETURN TO EXIT!

? master

ENTER NAME OF DESIGNATED VESSEL!

? fms099

NO SUCH VESSEL!

?

TYPE (MASTER) TO EXAMINE MASTER FILE!
TYPE (UPDATE) TO EXAMINE UPDATE FILE!
TYPE (SPECIAL) TO EXAMINE SPECIAL FILE!
TYPE CARRIAGE RETURN TO EXIT!

? master

ENTER NAME OF DESIGNATED VESSEL!

? fms021

VESSEL	LOCATIONCODE	? ##	YR	YR	TAGGED	XXX	PROPERTY	SERIAL##	FERMILAB##
FMS021	FMS SHLB GR	0 07	77		810400	U	ES		
* ITEM: HEAT EXCHANGER					DXL 010X0058 SULZER				
FUNCTION: OIL AFTERCOOLER									
DESIGN PRESSURE (PSIG) 0375					AT	F	OPERATING PRESSURE (PSIG)		
INNER	SET	ORF	CFM						
REMARKS: SULZER EQUIPMENT CODE DESIGN VESSEL.									
*									

?

TYPE (MASTER) TO EXAMINE MASTER FILE!
TYPE (UPDATE) TO EXAMINE UPDATE FILE!
TYPE (SPECIAL) TO EXAMINE SPECIAL FILE!
TYPE CARRIAGE RETURN TO EXIT!

? master

ENTER NAME OF DESIGNATED VESSEL!

? fms003

VESSEL	LOCATIONCODE	? ##	YR	YR	TAGGED	XXX	PROPERTY	SERIAL##	FERMILAB##
FMS003	FMS SHLB GR	1 08	55		810400	U	ES		
* ITEM: BUFFER TANK					DXL 024X0074 FLUOR CORP				
FUNCTION: 3RD STAGE BUFFER TANK ON HELIUM COMPRESSOR, NORTH TANK, A.									
DESIGN PRESSURE (PSIG) 0500					AT	400 F	OPERATING PRESSURE (PSIG) 0166		
INNER	SV 002X003	SET 0200	ORF 0.80	CFM	ANDERSON GREENWOOD				
REMARKS: FLUOR NO. 19475-33, VESSEL MODIFIED BY FNAL.									
REMARKS: OPERATED BELOW DESIGN CONDITIONS; NO DOCUMENTATION.									
*									

?

TYPE (ALTER) TO ALTER ANY RECORD!
 TYPE (CREATE) TO CREATE NEW RECORD!
 TYPE (FIND) TO FIND ANY RECORD!
 TYPE (LIST) TO LIST ANY FILE!
 TYPE (MERGE) TO MERGE TWO FILES!
 TYPE (SPECIAL) TO EXTRACT SPECIAL FILE!
 TYPE CARRIAGE RETURN TO EXIT!

? list

TYPE (MASTER) TO LIST MASTER FILE!
 TYPE (UPDATE) TO LIST UPDATE FILE!
 TYPE (SPECIAL) TO LIST SPECIAL FILE!
 TYPE CARRIAGE RETURN TO EXIT!

? master

TYPE (LIST) TO LIST FILE-HEADERS ONLY!
 TYPE (DUMP) TO DUMP FILE-ALL DATA!
 TYPE (PROMPT) TO LIST VESSELS SEPARATELY!

? list

VESSEL	LOCATION	CODE	?	##	YR	YR	TAGGED	XXX	PROPERTY	SERIAL##	FERMILAB##
FMS001	FMS	SHLB	GR	1	08	55	810400	U	ES		
FMS002	FMS	SHLB	GR	1	08	55	810400	U	ES		
FMS003	FMS	SHLB	GR	1	08	55	810400	U	ES		
FMS004	FMS	SHLB	GR	1	08	55	810400	U	ES		
FMS005	FMS	SHLB	GR	1	08	55	810400	U	ES		
FMS006	FMS	SHLB	GR	1	08	55	810400	U	ES		
FMS007	FMS	SHLB	GR	0	08	55	810400	U	ES		
FMS008	FMS	SHLB	GR	0	08	55	810400	U	ES		
FMS009	FMS	SHLB	GR	0	07	77	810400	U	ES	53247	
FMS010	FMS	SHLB	GR	0	07	77	810400	U	ES	74	37112
FMS011	FMS	SHLB	GR	1	08	55	810400	U	ES		
FMS012	FMS	SHLB	GR	0	07	77	810400	U	ES		
FMS013	FMS	SHLB	GR	0	07	77	810400	U	ES	4935	
FMS014	FMS	SHLB	GR	0	07	77	810400	U	ES	4934	
FMS015	FMS	SHLB	GR	0	07	77	810400	U	ES		
FMS016	FMS	SHLB	GR	0	07	77	810400	U	ES		
FMS017	FMS	SHLB	GR	0	07	77	810400	U	ES		
FMS018	FMS	SHLB	GR	0	07	77	810400	U	ES		
FMS019	FMS	SHLB	GR	0	07	77	810400	U	ES		
FMS020	FMS	SHLB	GR	0	07	77	810400	U	ES		

VESSEL	LOCATION	CODE	?	##	YR	YR	TAGGED	XXX	PROPERTY	SERIAL##	FERMILAB##
FMS021	FMS	SHLB	GR	0	07	77	810400	U	FSS		
FMS022	FMS	SHLB	GR	0	07	77	810400	U	FSS	26921	
FMS023	FMS	SHLB	GR	0	07	77	810400	U	FSS	374394	
FMS024	FMS	SHLB	GR	0	07	80	810400	U	FSS	30754	
FMS025	FMS	SHLB	GR	0	07	78	810400	U	FSS	3382	
FMS026	FMS	SHLB	GR	0	08	56	810400	U	FSS		
FMS027	FMS	SHLB	GR	1	07	77	810400	U	FSS		
FMS028	FMS	SHLB	GR	0	07	77	810400	U	FSS		
FMS029	FMS	SHLB	GR	0	07	77	810400	U	FSS		
FMS030	FMS	SHLB	GR	0	08	56	810400	U	FSS		
FMS031	FMS	SHLB	GR	0	08	56	810400	U	FSS		
FMS032	FMS	SHLB	GR	0	08	56	810400	U	FSS		
FMS033	FMS	SHLB	GR	0	08	56	810400	U	FSS		
FMS034	FMS	SHLB	GR	0	08	55	810400	U	FSS		
FMS035	FMS	SHLB	GR	0	08	55	810400	U	FSS		
FMS036	FMS	SHLB	GR	1	10	56	810400	U	FSS		21180
FMS037	FMS	SHLB	GR	0	07	77	810400	U	FSS	51247	26086
FMS038	FMS	SHLB	GR	0	07	78	810400	U	FSS	216	
FMS039	FMS	SHLB	GR	0	07	77	810400	U	FSS	26934	
FMS040	FMS	SHLB	GR	0	07	77	810400	U	FSS	26941	

?

VESSEL	LOCATION	CODE	?	##	YR	YR	TAGGED	XXX	PROPERTY	SERIAL##	FERMILAB##
FMS041	FMS	SHLB	GR	0	07	77	810400	U	FSS	26938	
FMS042	FMS	SHLB	GR	0	07	77	810400	U	FSS	26939	
FMS043	FMS	SHLB	GR	0	07	77	810400	U	FSS	26940	
FMS044	FMS	SHLB	GR	0	08	55	810400	U	FSS		
FMS045	FMS	SHLB	GR	0	08	55	810400	U	FSS		
FMS046	FMS	SHLB	GR	0	07	77	810400	U	FSS	10670	
FMS047	FMS	SHLB	GR	0	07	77	810400	U	FSS	10670	
FMS048	FMS	SHLB	GR	0	07	77	810400	U	FSS	26935	
IND001	IND	SIL1	GR	1	07	77	810100	U	ACC	48368	25705
IND002	IND	SIL1	GR	0	07	76	810100	U	FSS	6355	
IND003	IND	SIL1	GR	0	07	76	810100	U	FSS	6355	
IND004	IND	SIL1	GR	0	07	76	810100	U	FSS	835155	
IND005	IND	SIL1	GR	0	07	69	810100	U	FSS	80005	
IND006	IND	SIL1	GR	0	08	70	810100	U	FSS	16726	
IND007	IND	SIL1	GR	0	08	74	810100	U	FSS	719314	
IND008	IND	SIL1	MZ	0	07	73	810100	U	FSS	22508	27107
IND009	IND	SIL1	MZ	0	07	73	810100	U	FSS	22509	27108
IND010	IND	SIL1	GR	0	07	76	810100	U	FSS	354	
IND011	IND	SIL1	GR	0	07	77	810100	U	FSS		
IND012	IND	SIL1	GR	0	07	77	810100	U	FSS	8001	

?

VESSEL	LOCATION	CODE	?	##	YR	YR	TAGGED	XXX	PROPERTY	SERIAL##	FERMILAB##
IND013	IND	SIL1	GR	0	07	77	810100	U	FSS	8002	
IND014	IND	SIL1	GR	0	08	67	810100	U	FSS	672	
IND015	IND	SIL1	GR	1	07	73	810100	U	FSS		
IND016	IND	SIL1	GR	0	07	77	810100	U	FSS		
IND017	IND	SIL1	GR	1	07	77	810100	U	FSS		
IND018	IND	SIL1	GR	1	07	77	810100	U	FSS		
IND019	IND	SIL1	GR	0	07	76	810100	U	FSS	37723	
IND020	IND	SIL1	GR	0	07	80	810100	U	FSS	850	
IND021	IND	SIL1	GR	0	07	80	810100	U	FSS	852	
IND022	IND	SIL1	GR	0	07	80	810100	U	FSS	849	
IND023	IND	SIL1	GR	0	10	77	810100	U	FSS	7	25275
IND024	IND	SIL1	GR	0	09	79	810100	U	FSS	67	
IND025	IND	SIL1	GR	0	09	79	810100	U	FSS	68	
IND026	IND	SIL1	GR	1	07		810100	U	FSS		
IND027	IND	SIL1	GR	1	07		810100	U	FSS		
IND028	IND	SIL1	GR	0	09	59	810100	U	FSS	UW52A	
IND029	IND	SIL1	GR	0	09	62	810100	U	FSS	41	
VIL001	VIL	SVL02	GR	1	08		810113	U	FSS		
VIL002	VIL	SVHW	GR	1	08	63	810200	U	FSS		
VIL003	VIL	SVL02	GR	0	07	68	810113	U	FSS	364056	

?

VESSEL	LOCATION	LOCATIONCODE	GR	?	##	YR	YR	TAGGED	XXX	PROPERTY	SERIAL#	FERMILAB##
VESSEL	LOCATION	LOCATIONCODE	GR	?	##	YR	YR	TAGGED	XXX	PROPERTY	SERIAL#	FERMILAB##
VIL0004	SVHM	00	GR	1	08	63		810200	U	ESS		
VIL0005	SVHM	GR	GR	0	08	73		810113	U	ESS		
VIL0007	SVHM	GR	GR	0	09	63		810113	U	ESS		
VIL0008	SVL02	00	GR	1	09	73		810113	U	ESS		
VIL0010	SVL05	GR	GR	0	07	69		810113	U	ESS		
VIL0011	SVL02	GR	GR	0	09	63		810113	U	ESS		
VIL0012	SVL02	GR	GR	0	08	63		810113	U	ESS		
VIL0014	SVHM	GR	GR	0	08	63		810113	U	ESS		
VIL0015	SVHM	GR	GR	0	08	63		810113	U	ESS		
VIL0017	SVHM	GR	GR	0	08	63		810113	U	ESS		
VIL0019	SVHM	GR	GR	0	07	63		810113	U	ESS		
VIL0020	SVHM	GR	GR	0	09	76		810113	U	ESS		
VIL0021	SVL02	GR	GR	1	09	77		810113	U	ESS		
VIL0022	SVL02	GR	GR	1	09	77		810113	U	ESS		
VIL0024	SVHM	GR	GR	0	07	70		810113	U	ESS		

VESSEL	LOCATION	LOCATIONCODE	GR	?	##	YR	YR	TAGGED	XXX	PROPERTY	SERIAL#	FERMILAB##
VESSEL	LOCATION	LOCATIONCODE	GR	?	##	YR	YR	TAGGED	XXX	PROPERTY	SERIAL#	FERMILAB##
VIL0025	SVHM	GR	GR	0	08	59		810113	U	ESS		
VIL0026	SVHM	GR	GR	0	08	75		810113	U	ESS		
VIL0027	SVHM	GR	GR	0	08	75		810113	U	ESS		
VIL0028	SVHM	GR	GR	0	08	75		810113	U	ESS		
VIL0029	SVHM	GR	GR	0	07	59		810113	U	ESS		
VIL0030	SVHM	GR	GR	0	07	59		810113	U	ESS		
VIL0031	SVHM	GR	GR	0	07	59		810113	U	ESS		
VIL0032	SVHM	GR	GR	0	07	59		810113	U	ESS		
VIL0033	SVHM	GR	GR	0	07	59		810113	U	ESS		
VIL0034	SVHM	GR	GR	0	07	59		810113	U	ESS		
VIL0035	SVHM	GR	GR	0	07	59		810113	U	ESS		
VIL0036	SVHM	GR	GR	0	07	59		810113	U	ESS		
VIL0037	SVHM	GR	GR	0	07	59		810113	U	ESS		
VIL0038	SVHM	GR	GR	0	07	59		810113	U	ESS		
VIL0039	SVHM	GR	GR	0	07	72		810113	U	ESS		
VIL0040	SVHM	GR	GR	0	07	72		810113	U	ESS		
VIL0041	SVL02	GR	GR	0	09	73		810113	U	ESS		
VIL0042	SVL02	GR	GR	1	09	75		810113	U	ESS		
VIL0043	SVL02	GR	GR	0	10	73		810113	U	ESS		
VIL0044	SVL02	GR	GR	0	10	73		810113	U	ESS		

VESSEL	LOCATION	LOCATIONCODE	GR	?	##	YR	YR	TAGGED	XXX	PROPERTY	SERIAL#	FERMILAB##
VESSEL	LOCATION	LOCATIONCODE	GR	?	##	YR	YR	TAGGED	XXX	PROPERTY	SERIAL#	FERMILAB##
VIL0045	SVL02	GR	GR	0	09	73			U	ES	470037	13188
VIL0046	SVMS	GR	GR	0	07	70			U	ES		6062

TYPE (ALTER) TO ALTER ANY RECORD!
TYPE (CREATE) TO CREATE NEW RECORD!
TYPE (FIND) TO FIND ANY RECORD!
TYPE (LIST) TO LIST ANY FILE!
TYPE (MERGE) TO MERGE TWO FILES!
TYPE (SPECIAL) TO EXTRACT SPECIAL FILE!
TYPE CARRIAGE RETURN TO EXIT!

? merge

DUPLICATE VESSELS:

FMS001	FMS SHLB	GR	1	08	55	810400	U	ES
FMS001	FMS SHLB	GR	1	08	55	810400	U	ES

PROCEDURE INTENTIONALLY ABORTED!

ERROR NUMBER 52 DETECTED BY ABORT AT LINE 8

CALLED FROM MERGE AT LINE 21

CALLED FROM SWITCH AT LINE 40

CALLED FROM TANK1 AT LINE 15

1.171 CP SECONDS EXECUTION TIME.

*REVERT, ABORT. CCL

Dialin

For hardwired terminals 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									STATUS	NO. OF RECORDS	YEAR BUILT	YEAR RETESTED	VERIFIED			DESIGN CODE	OWNER CODE	NATIONAL BOARD NO.	FERMILAB I.D. NO.																																																																																																				
	PREFIX	SUFFIX	NO.	YEAR	MONTH	DAY																																																																																																																		
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																																									
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7	D E S I G N P R E S S U R E (P S I G)																																								A T																																								F O P E R A T I N G P R E S S U R E (P S I G)																																							
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