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Technical Evaluation Report

Design and Implementation of Project-Specific Document and Drawing Database Systems

December 1985

Prepared for the U.S. Nuclear Regulatory Commission
under Contract DE-AC06-76RLO 1830
NRC FIN B2952

Pacific Northwest Laboratory
Operated for the U.S. Department of Energy
by Battelle Memorial Institute



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**DESIGN AND IMPLEMENTATION OF PROJECT-SPECIFIC DOCUMENT
AND DRAWING DATABASE SYSTEMS**

December 1985

Prepared for
the U.S. Nuclear Regulatory Commission
Division of Licensing
Office of Nuclear Reactor Regulation
under Contract DE-AC06-76RLO 1830
NRC FIN B2952

Project Title: Assessment of Diesel Engine
Reliability/Operability

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FOREWORD

This report is supplied as part of the Technical Assistance Project, Assessment of Diesel Engine Reliability/Operability, being conducted for the U.S. Nuclear Regulatory Commission, Office of Nuclear Reactor Regulation, Division of Licensing, by the Pacific Northwest Laboratory. The U.S. Nuclear Regulatory Commission funded this work under authorization B&R 20-19-40-42-1 FIN No. B2952.

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DESIGN AND IMPLEMENTATION
OF
PROJECT-SPECIFIC DOCUMENT
AND DRAWING DATABASE SYSTEMS

1.0 INTRODUCTION

The Pacific Northwest Laboratory (PNL) is supporting the U.S. Nuclear Regulatory Commission (NRC) staff in addressing questions regarding the reliability and operability of Transamerica Delaval, Inc. (TDI) diesel engines used to provide standby power in some nuclear power plants. The objective of PNL's Assessment of Diesel Engine Reliability/Operability (ADERO) project is to provide a technical assessment of information submitted by NRC licensees and the TDI Diesel Generator Owners' Group documenting their efforts to establish the acceptability of their TDI diesels for nuclear service.

The ADERO project involves multiple parties including NRC, TDI, PNL, the Owners' Group, individual member utilities, special interest groups, and the private

consultants to each. Early on, it was recognized that the documentation associated with the actions of, and interactions among, these parties would be voluminous. It was also recognized that these documents should be readily identifiable by cross-referencing, and quickly accessible to all users.

These three factors suggested that a traditional "library" filing system would be inadequate to meet project needs. Instead, a computer-based system was deemed necessary to provide project staff ready access to relevant documents and drawings.

This report describes the computerized document and drawing databases created for the ADERD project. The developmental effort is reviewed in Section 2.0. In Section 3.0, an overview of the document database content, organization, capabilities, and limitations is provided. Section 4.0 comprises the user's manual for the document database, with specific instructions for cataloging and retrieving documents, generating various types of summary reports, and maintaining/updating

the database. Section 5.0 describes the drawing database features and presents user instructions. A complete program listing is contained in Appendix A. Appendix B presents a list of all documents filed in the document database as of September 30, 1985. The drawings included in the drawing database are similarly listed in Appendix C.

The primary purpose of this document is to provide subsequent users with the instructions and other information necessary to interact successfully with the two databases. In addition, the review of system development (Section 2.0) and the program listing (Appendix A) are intended to assist persons involved in developing similar systems.

2.0 DATABASE SYSTEMS DEVELOPMENT

This section reviews the development of the ADERO document and drawing database systems. The primary goal was to develop computerized database systems that would enable rapid selection and retrieval of specific documents and drawings from a large collection. Design objectives were to allow flexible searches on a wide variety of conditions and to provide a logical scheme for manually filing the documents and drawings.

A large number of documents and drawings were on hand immediately subsequent to PNL's initial involvement with the project. Hence, the databases had to be designed "on the fly". They had to be usable almost immediately while remaining modifiable as needs dictated. Uncertainties regarding the duration of the project and the total number of documents to be included also indicated need for system flexibility.

The following sections describe how the database systems evolved to meet the needs of the ADERO project.

2.1 HARDWARE AND SOFTWARE SELECTION

In deciding which type of documentation control system to implement at the outset of the project, three possibilities were considered:

- a manual system
- a pre-packaged mainframe computer-based system
- a microcomputer-based system using a commercially available database software package.

It was determined that a manual system could neither effectively handle the large number of documents anticipated for this project, nor provide the desired searching capabilities.

The mainframe computer-based systems considered were the KWIC (for keyword in context) and KWOC (for keyword out of context) systems offered through the Hanford Technical Library. These pre-packaged document cataloging systems are implemented on a UNIVAC computer operated by Boeing Computer Services-Richland. Based on discussions with personnel from the

Hanford Technical Library, the PNL team decided that both mainframe systems lacked the flexibility and accessibility that could be provided by a microcomputer-based system.

Consequently, temporary access to an IBM-PC with the dBase II software package was obtained. This equipment and software were chosen primarily because of the author's favorable experience with this system configuration.

After work had started on the database design, it became clear that the ADERO project was going to extend beyond FY84. As a result, steps were taken to procure a microcomputer system specifically for project use.

PNL researchers have used dBase II extensively for organizing large sets of related data. The dBase II software simplifies the creation and manipulation of databases, provides a report-generating package, and has a built-in programming language, similar to BASIC, that enables very flexible and specific manipulation and modification of data. However, dBase II

requires substantial user training and has some moderate constraints on the size and number of records that can be included in a database.

In 1984 Ashton-Tate released an upgraded version of dBase II referred to as dBase III. The new dBase version greatly increases the size and number of records that may be put into a database, simplifies the programming language, and introduces new functions, commands, and variable types. dBase III also runs faster than dBase II. In addition, dBase III comes with a utility to convert dBase II databases and programs to dBase III files, so the work done already on the project databases could be converted easily to dBase III. After reviewing these features, PNL project staff determined that dBase III would be the more effective software for meeting ADERO project needs.

Meanwhile, the document database was growing as new documents were received. The database was rapidly approaching the maximum size that could be handled with a floppy disk drive system. It was therefore

determined that a hard disk drive would be required.

The final system configuration selected for this project consists of an IBM-PC, a Tallgrass 12.5-MByte hard disk, an IDS P-132 dot matrix printer, and the dBase III software package. This computer/hard disk/printer system configuration is used at PNL for similar applications and has been found to function very well.

2.2 DOCUMENT DATABASE DESIGN

Designing a database consists of selecting the types of information to record and defining the format for these items in the database. This requires anticipating the future uses of the database. It was decided to design the document database to enable document searches based on a wide variety of information.

Some of the data items (fields) that were included in the document database are described briefly below. All of the document database fields are described in detail in Section 3.1.

Basic information about each document, such as title, date, author, to whom it was written, and number of pages, is included in the database. In addition, each document is coded according to type. For example, PNL technical reviews are coded as "03" while letters of transmittal are coded as "20". The specific issue addressed by each document is coded separately as well.

A convenient filing system was then devised by assigning a file number beginning with the document type code concatenated to the issue code. As a result, all documents on a given issue are filed together and, within each issue, similar documents are filed together. This system often allowed PNL staff to find desired documents easily by accessing the hard copy files directly. Fields showing the nuclear power plant sites to which each document applied were also incorporated.

Data format can also impact the ease of use of the database. Examples of specific formatting decisions in the ADERO databases are:

- all entries are in capital letters only
- names are presented last name first
- dates are entered in the standard format mm-dd-yy with zeros used as place holders.

As mentioned earlier, the document database evolved as the project progressed. Some of the features just described were not included in the original database design but were added later to improve the system's ability to meet staff needs.

2.3 DRAWING DATABASE DESIGN

A second database was developed to accommodate the TDI diesel engine component drawings and purchase specifications provided to NRC and PNL by the Owners' Group. The cover letter (March 23, 1984) accompanying the 1877-item package transmitted to PNL requested that the drawings be

accorded proprietary status pursuant to the Rules of Practice, 10 CFR 2.790.

A relatively comprehensive structure was initially envisioned for the DGDRAW database. This structure included fields to specify component function and the engine system to which the component applied. The original database was designed to also readily accept new drawings, with fields to specify the date of receipt and the sender of the drawing. However, it was determined that the demand for this level of sophistication was insufficient to warrant the level of effort required for its development.

As designed, the DGORAW database contains the drawing title and number, with a PNL-assigned file number for each drawing. Each drawing hard copy is marked with its appropriate file number and filed numerically according to this file number.

3.0 DOCUMENT DATABASE FEATURES

Every document received or generated by PNL in conjunction with the ADERO project is logged into the document database. This section describes how the documents are catalogued and filed, using the software and programs mentioned in Section 2.0. This section provides background information necessary to use the database. Detailed user instructions are provided in Section 4.0.

Before proceeding, a few simple terms that refer to the basic elements of any database must be understood. The relevant terms are FIELD, RECORD, and DATABASE.

A FIELD is a specific data item that will be recorded in the database. For example, in the document database the author of each document is recorded, so AUTHOR is one field. Other examples of fields are the document publication date, the document title, and the number of pages in the document.

The collection of fields for a single item (in this case a document) is termed a

RECORD. Thus, data for each document in the database are recorded in a collection of fields that make up a record.

A DATABASE consists of the entire assemblage of records.

In conventional databases, the fields comprising a record must be defined very specifically. In dBase III each field is given a name (e.g., TITLE, DATE, AUTHOR), a length indicating the number of characters in the field, and a data type. The data types allowed in dBase III are character, numeric, logical, date, and memo. The latter two data types are not used in either ADERO database. Character fields may contain any alpha-numeric characters, numeric fields may contain only numbers, and logical fields may take on only one of two values--true or false.

The FIELDS that comprise the RECORD for each document are detailed in Section 3.1. Sections 3.2 and 3.3 describe how project documents are categorized by specific type and topic, respectively. Section 3.4 explains how a file number is assigned to each document.

3.1 DATABASE FIELDS

The fields that make up the records in the document database are listed and defined in Table 3.1. The site abbreviations (fields SNPS through MP) used in Table 3.1 are explained in Table 3.2.

The fields listed in Table 3.1 represent the basic targets for performing searches. Types of searches possible with the document database system include:

- a speed search mode for use when specific information about a document (e.g., author, date, file number, or title) is known
- a keyword search mode for use when information on specific topics is desired
- a Boolean search mode for more complex searches involving multiple fields.

Several of the fields (DOC_TYP, ISSUE, and FILE_NUM) allow functional searches as well. These fields are described more fully in the next three subsections.

3.2 TYPE CATEGORIZATION

All documents are functionally categorized using a two-digit code in the DOC_TYP field. The DOC_TYP codes and their significance are listed in Table 3.3.

These categories are designed to be sufficiently general so that each document will fit logically into some category. However, personal discretion was sometimes necessary to determine exactly which category best fit a given document.

3.3 ISSUE CATEGORIZATION

Similar to the functional coding employed in DOC_TYP, coding according to the specific issue addressed by the document was also incorporated into the database. The ISSUE codes used in the document database are listed in Table 3.4. Initially these codes were based on the list of components identified by the Owners' Group as having problems with potential generic applicability. This initial code list was subsequently expanded

TABLE 3.1. Fields Used in the Document Database

<u>Field</u>	<u>Description</u>	<u>Type</u>	<u>Length</u>
TITLE	The document title. If no explicit title, then one is derived from other information available on the document.	Character	100
AUTHOR	The name of the document originator: last name, first name or initials	Character	50
ORG	The company or organization with whom the document author is associated	Character	4
DATED	The date (mm-dd-yy) on the document	Character	8
TO	The name of the person to whom the document was written: last name, first name or initials	Character	50
TO_ORG	The company or organization with whom the document recipient is associated	Character	4
SOURCE	The organization from which PNL received the document	Character	3
VEND_NUM	The document number (if any) used by the organization originating the document	Character	15
DOC_TYP	A two-digit numerical code that categorizes the document according to its function (see Section 3.2)	Numeric	2
ISSUE	A three-digit code that categorizes the document according to the topic or issue it addresses (see Section 3.3)	Character	3

TABLE 3.1. (contd)

Field	Description	Type	Length
FILE_NUM	A number used to file the document (based on DOC_TYP and ISSUE, as described in Section 3.4)	Character	8
DATE_REC	The date (mm-dd-yy) on which the document was received at PNL, estimated when not known exactly	Character	8
DESCRIP	A brief (less than 255-character) description of the document	Character	254
PAGES	Number of pages in the document	Character	5
SNPS GGNS CPSES SONGS RBS RSNGS SHNPP CNS PNPP BNP WNP VEGP MP	Abbreviations for each of the 13 nuclear power plants with TDI diesel generators. These fields indicate if the document is applicable to the specified power plant site.	Logical	1

TABLE 3.2. Key to Nuclear Power Plant Field Abbreviations

<u>Field</u>	<u>Power Plant</u>	<u>Owner Utility</u>
SNPS	Shoreham Nuclear Power Station	Long Island Lighting Company
GGNS	Grand Gulf Nuclear Station	Mississippi Power & Light
CPSES	Comanche Peak Steam Electric Station	Texas Utilities Generating Company
SONGS	San Onofre Nuclear Generating Station	Southern California Edison
RBS	River Bend Station	Gulf States Utilities
RSNGS	Rancho Seco Nuclear Generating Station	Sacramento Municipal Utility District
SHNPP	Shearon Harris Nuclear Power Plant	Carolina Power & Light
CNS	Catawba Nuclear Station	Duke Power Company
PNPP	Perry Nuclear Power Plant	Cleveland Electric Illuminating
BNP	Bellefonte Nuclear Plant	Tennessee Valley Authority
WNP	Washington Nuclear Plant	Washington Public Power Supply System
VEGP	Vogtle Electric Generating Plant	Georgia Power Company
MP	Midland Plant	Consumers Power Company

TABLE 3.3. Type Codes Used in the Document Database

<u>Code</u>	<u>Description</u>
1	Recovery Program Description
2	Technical Analysis
3	Report Evaluation by PNL
4	Report Evaluation by PNL Reviewer
5	Technical Specification
6	Test Description
7	Inspection of TDI
8	Journal Article
9	Engine Inspection
10	Other Technical
11	Operational History (Except Marine)
12	Literature Reference
13	Meeting Minutes and Summary
14	Meeting Handout, Slide and Note
15	Marine Operational History
16	Other Letter and Memo
17	Monthly Report
18	Personnel Qualification
19	Financial/Contractual Document
20	Letter of Transmittal
21	Legal and Deposition
22	Trip Report (Except Engine Inspection)
23	Design Review and Quality Revalidation Report
24	NRC Report (e.g., SER)

TABLE 3.4. Issue Codes Used in the Document Database

<u>Code</u>	<u>Description</u>
320	Review and Preparation of Owners' Group Program Plan Technical Evaluation Report
330	Piston Skirts
331	Crankshafts
332	Connecting Rod Bearing Shells
333	Cylinder Heads
335	Cylinder Block and Liners
336	Engine Base and Bearing Caps
337	Cylinder Head Studs
338	Push Rods
339	Rocker Arm Capscrews
340	Connecting Rods
341	Wiring and Terminations
342	Fuel Oil Injection Tubing
343	Turbochargers
344	Jacket Water Pumps
345	Air Start Valve Capscrews
350	Grand Gulf Nuclear Station
351	Catawba Nuclear Station
352	Shoreham Nuclear Power Station
353	Comanche Peak Steam Electric Station
354	San Onofre Nuclear Generating Station
355	River Bend Station
356	Shearon Harris Nuclear Power Plant
357	Vogtle Electric Generating Plant
358	Perry Nuclear Power Plant

to include plant-specific categorization. Expanding the ISSUE code in this manner improved the filing scheme for the document hard copies as described in Section 3.4.

Many documents could not be categorized according to issue, either because they did not pertain to any of the issues listed or because they covered more than one of the specified issues. In these cases, the issue code was set to "000". Generally, documents that addressed a "generic" component at a specific nuclear station were categorized using the component issue code.

3.4 FILE NUMBERS

The file numbers (FILE_NUM) are used to file the physical (hard copy) documents. FILE_NUM consists of a four-digit base number followed by a dash and a sequence number. The four-digit base number is derived from the DOC_TYP and ISSUE codes by concatenating the two-digit DOC_TYP code to the last two digits of the

ISSUE code. The sequence number simply provides an identifier to make the FILE_NUM unique.

As an example, the Failure Analysis Associates (FaAA) report, Design Review of Connecting Rod Bearing Shells for Transamerica Delaval Enterprise Engines (FaAA-84-3-1), was a technical analysis performed by FaAA. The ISSUE code is 332 (connecting rod bearing shells) and the DOC_TYP code is 2 (technical analysis). Because this report was the second document with these characteristics received by PNL, the sequence number is 2. Therefore, the FILE_NUM for this document is 3202-2.

When FILE_NUM is used as the basis for filing the hard copy of each document, all documents related to the same issue and document type are filed together. Hence, all technical analyses on connecting rod bearing shells will be filed together. This feature of the filing system greatly enhances its usability.

The reader should note that the sequence numbers may not be exactly sequential; that is, there may be gaps between these numbers. These gaps are due to PNL's quality assurance procedures. When duplicate document entries are removed, or when incorrectly coded documents are repaired, the system does not reassign these old file numbers.

4.0 DOCUMENT DATABASE USER'S INSTRUCTIONS

This section provides step-by-step instructions for accessing and using the ADERO document database. You will be given specific guidance on:

- steps necessary before running the database
- searching the database
- using the reporting functions
- maintaining and adding to the database
- recovering from unexpected loss of data.

The instructions are illustrated with samples of screen displays and hard copy output.

4.1 BEFORE BEGINNING

The following components must be assembled and initiated properly prior to beginning interaction with the database:

- IBM-PC (or equivalent), including a monitor, 512-K RAM, and at least one floppy disk drive

- hard disk drive
- printer.

The dBase III programs, ADERO databases, and related programs should reside on the same directory of the hard disk. The dBase III master disk must be in the floppy disk drive whenever the dBase program is started.

The computer files that should be on the hard disk are listed in Table 4.1. Standard dBase conventions for naming the ADERO files have been followed. Database files have been named with an extension (last three characters) of "DBF". Similarly, index files that modify the logical ordering of the records within the database have been given the extension "NDX". The program files that contain the source coding are given the extension "PRG". Files that control the format of the record displayed on the screen are given the extension "FMT", and files created with the dBase III report-generating utility are given the extension "FRM".

TABLE 4.1. Computer Files Needed to Run the Document Database

<u>dBase III and System Files</u>	<u>Document Database Files</u>
DBASE.EXE	DG.DBF
DBASE.OVL	CHANGES.DBF
CONFIG.SYS	ISSUE.DBF
CONFIG.DB	AUTHOR.NDX
	DATE.NDX
	FILE.NDX
	TITLE.NDX
	DGPROC.PRG
	DG.PRG
	DGSTO.FMT
	DGTHR.FMT
	DGFOR.FMT
	TDDF.FRM
	EXPRT.FRM

With these components properly assembled, enter the hard disk drive designator followed by a colon. This entry will

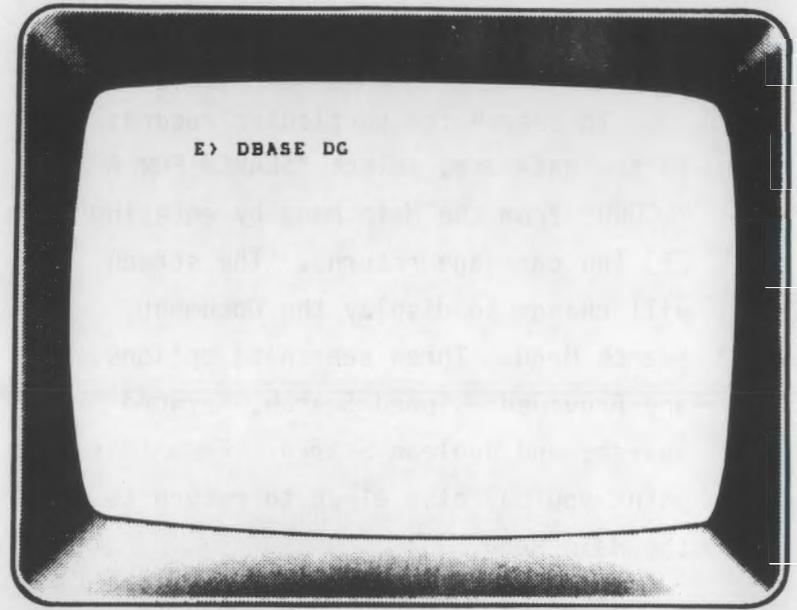
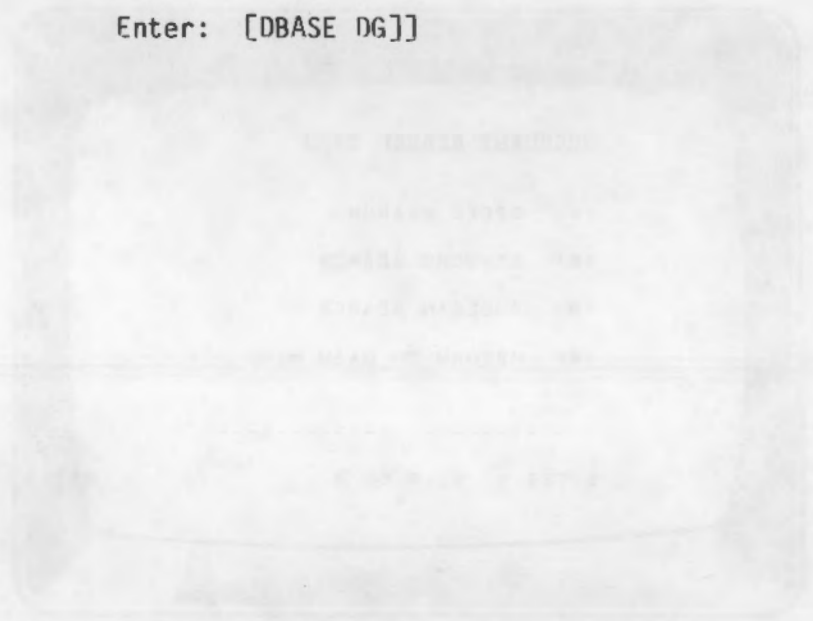
usually be C:, D:, or E:. If the database is in a subdirectory other than the current default directory, then you must change directories (i.e., CD\DBIII\ADERO).

The dBase and ADERO files should now be listed when you type DIR. The document database system is now ready to be used.

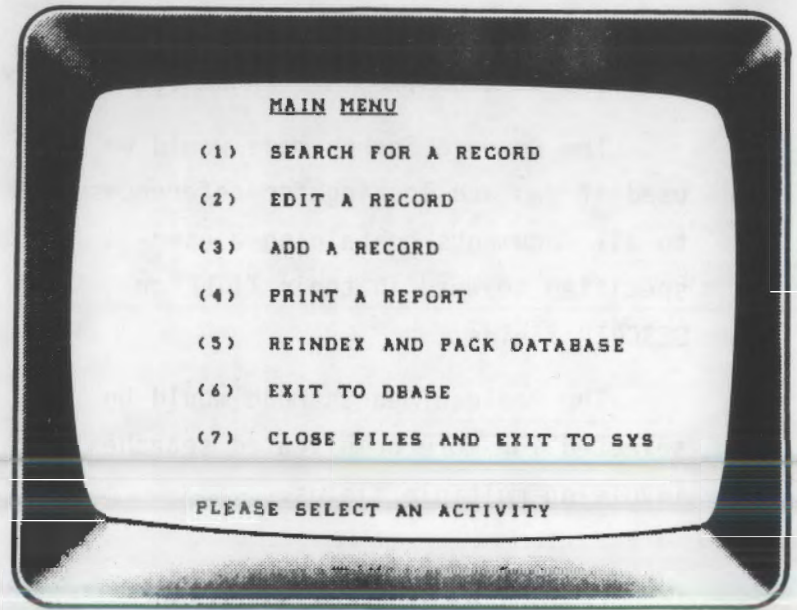
In the user instructions that follow, the commands you are to enter appear on the left-hand side of the page, along with explanatory notes. Keyboard entries are enclosed in square brackets; a second right-hand bracket is used to indicate a carriage return. The resulting computer screen contents are portrayed on the right-hand side of the page, to illustrate what happens when each command is entered.

To begin, proceed as described on the following page.

Enter: [DBASE DG]]



After a few seconds (and a brief caveat from Ashton-Tate) the Main Menu will be displayed on the screen.



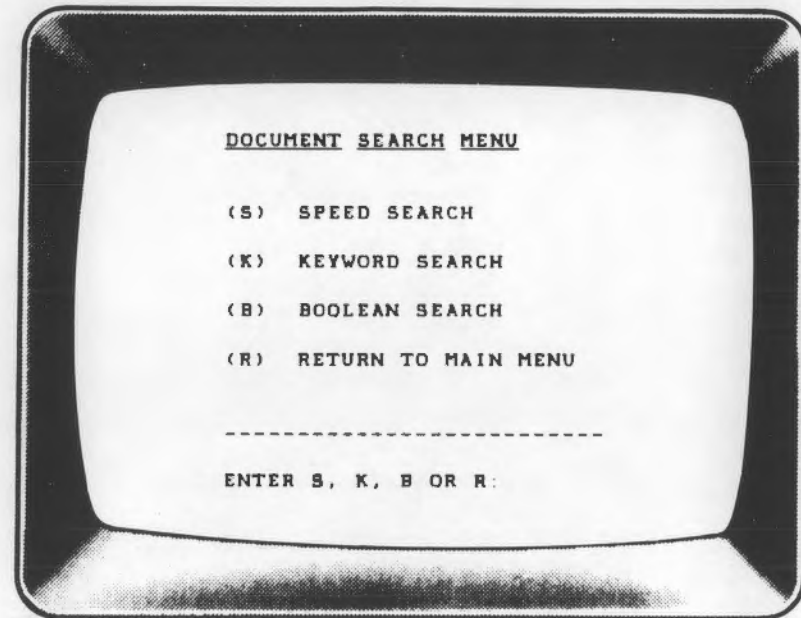
4.2 SEARCHING THE DATABASE

To search for particular records in the database, select "SEARCH FOR A RECORD" from the Main Menu by entering [1] (no carriage return). The screen will change to display the Document Search Menu. Three searching options are provided: Speed Search, Keyword Search, and Boolean Search. From this point you may also elect to return to the Main Menu.

The Speed Search mode would be used when the specific title, author, date, or file number of a desired document is known.

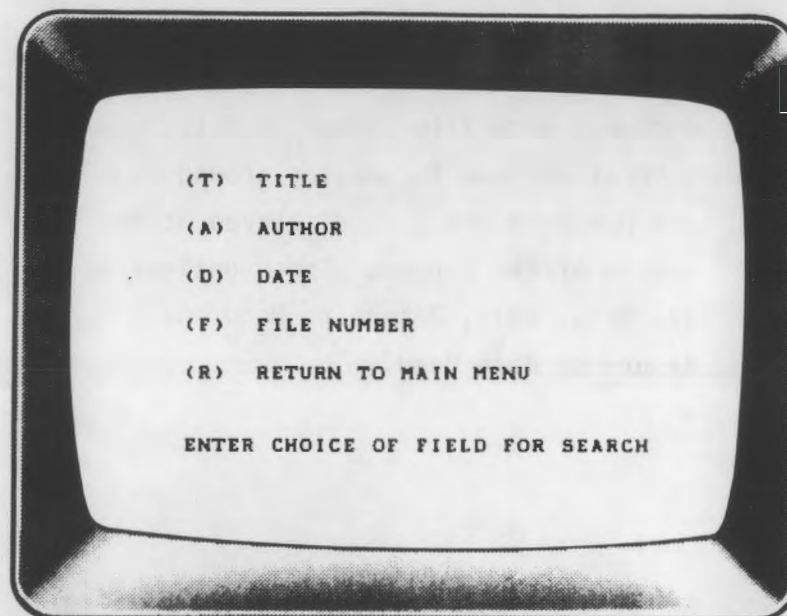
The Keyword Search mode would be used if you are looking for references to all documents containing a user-specified keyword in their TITLE or DESCRIP fields.

The Boolean Search mode would be selected for more complicated searches involving multiple fields.

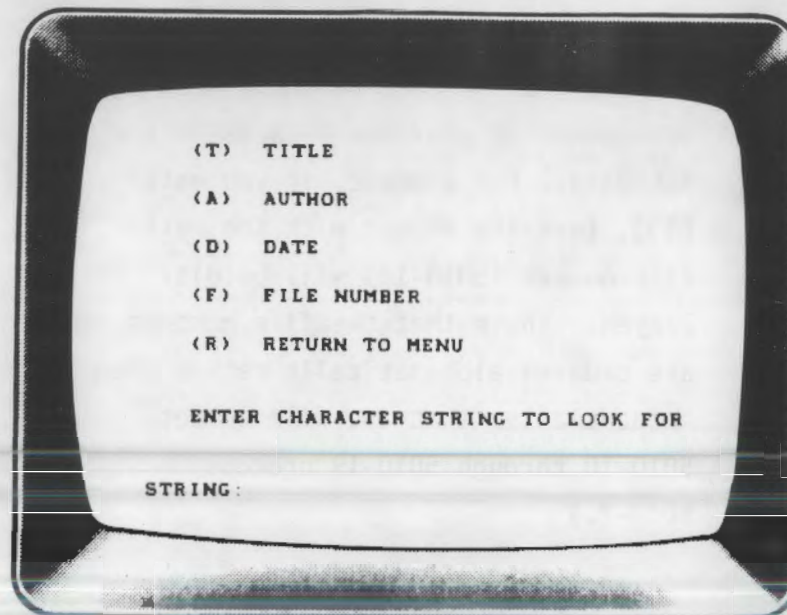


4.2.1 Speed Search Mode

To use the Speed Search mode, enter the letter [S] from the Document Search Menu. The system will respond by displaying the Speed Search options--Title, Author, Date, and File Number--and requesting your selection.



All four options function in exactly the same way. As an example, enter [F] for File Number. You will now be requested to enter a character string. At this point, enter the file number [5010-1]] (followed by a carriage return).



Displayed on the screen now will be the information pertaining to the document with file number 5010-1. Several options for moving around in the database are also displayed at the bottom of the screen. These options are Skip, Edit, Return to Menu and Return to Main Menu.

RECORD NUMBER: 358

TITLE: RESPONSES TO (NRC) POWER SYSTEMS ...
TION-TDI DG EVALUATION GGNS

AUTHOR: MP&L

TO:

DATE: 11-04-83 FILE 5010-1

DESCRIPTION: THIS REPORT CONTAINS, IN TWO ...
VEST FOR ADDITIONAL INFORMATI...
GGNS UNIT 1.

(S)-SKIP (E)-EDIT (R)-RETURN (M)-MAIN MENU
ENTER SELECTION AND (RETURN)

The Skip option will allow you to look at the information contained in subsequent or previous records in the database. For example, if you enter [S]], then the record with the next file number (5010-10) will be displayed. (Note that the file numbers are ordered alphabetically rather than sequentially; that is, file numbers 5010-10 through 5010-19 precede 5010-2.)

RECORD NUMBER: 1089

TITLE: GGNS UNITS 1&2 LICENSE NO. NPF-13 ...
REPORT AND STATUS

AUTHOR: MCGAUCY, JAMES P MP&L

TO: DENTON, H NRC

DATE: 02-20-84 FILE: 5010-10

DESCRIPTION: MP&L IS PROVIDING THIS SUBMITT...
TION TO DESCRIBE THE COMPREHEN...
ENHANCE AND VERIFY THE RELIABI...
DIESEL GENERATORS INSTALLED AT...

(S)-SKIP (E)-EDIT (R)-RETURN (M)-MAIN MENU
ENTER SELECTION AND (RETURN)

Entering [S10]] will display the tenth record following the currently displayed record, and entering [S-10]] will display the tenth record preceding the currently displayed record. Also, simply entering a carriage return will skip to the next record (equivalent to an [S]] or an [S1]]).

Similarly, if you had searched on date rather than file number, the [S] would skip to the record with the next date (or to the next record with the same date). Thus, the logical ordering of the records will be dependent on the field that is being searched.

Return now to the previous example (file number 5010-1). Entering [E]] will allow you to correct or update the contents of the record. The FILE_NUM cannot be modified in this mode, as it provides reference to the location of a hard copy of the subject document. The DOC_TYP and ISSUE codes also cannot be modified because they are used to determine the file number.

```
TITLE:  RESPONSES TO (NRC) POWER SYSTEMS ...  
        TION-TDI DG EVALUATION GCNS  
  
AUTHOR:                                     ORG:  MP&L  
  
TO:                                           TO_ORG:  
  
DATED:  11-04-83                             DATE_REC: 03-05-84  
  
SOURCE:  NRC                                 VEND_NUM:  
  
                                           PAGES: 150  
  
DESCRIP:  THIS REPORT CONTAINS, IN TWO PARTS...  
          R ADDITIONAL INFORMATION CONCERNIN...  
  
SITES:  SNPS F   GCNS T   CPSES F   SONG...  
        PNPF F   VEGP F   RSNCS F   SHNP...  
  
        MP   F
```

Changes in the file number can be made only by entering the Edit mode from the Main Menu as described in Section 4.3.2.

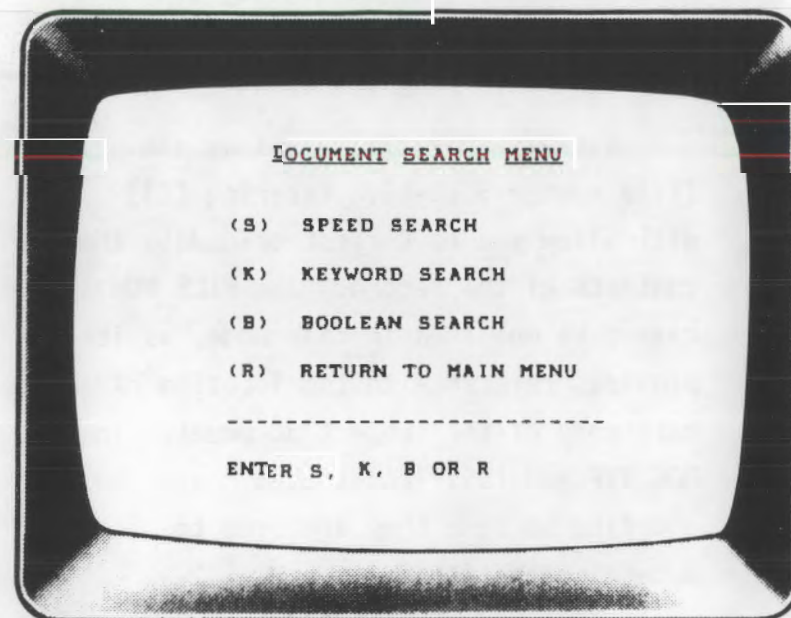
To exit this mode, you must either depress the "Ctrl" and "W" keys simultaneously (to save the changes) or depress the "Ctrl" and "Q" keys simultaneously (to abandon the changes).

The Return option [R]] will return you to the point at which the field to be searched was specified. Entering [M]] will return you to the Main Menu.

4.2.2 Keyword Search Mode

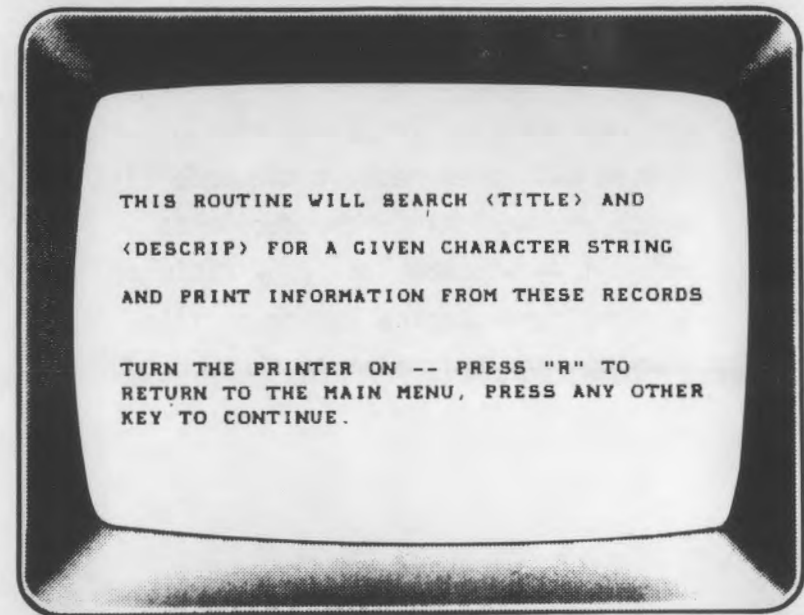
The Keyword Search mode will find all records with a user-specified keyword contained anywhere in the TITLE or DESCRIP fields.

To enter the Keyword Search mode, enter the letter [K] from the Document Search Menu.

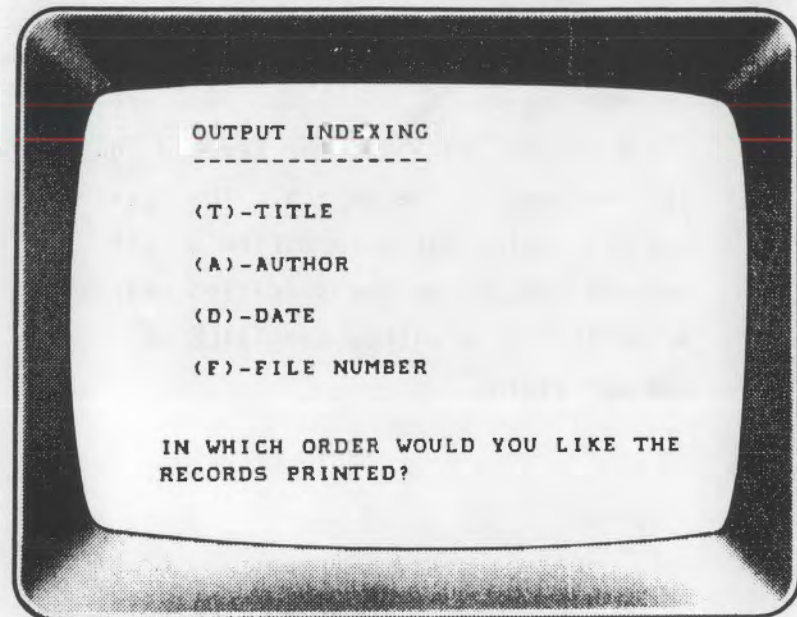
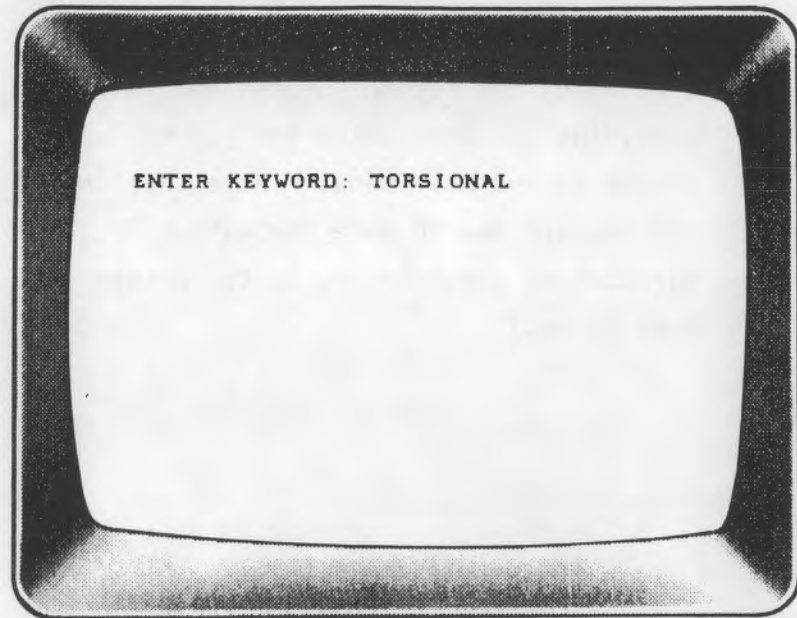


The system will respond by briefly explaining the Keyword Search mode and providing an opportunity for you to return to the Main Menu. (Note that in the Keyword Search mode the output is directed to the printer, so the printer must be on.)

As requested on the screen, depress any key to continue. You are now requested to input the keyword that will be used in the search. The system will print out information on all records containing the specified character string in either the TITLE or DESCRIP fields.

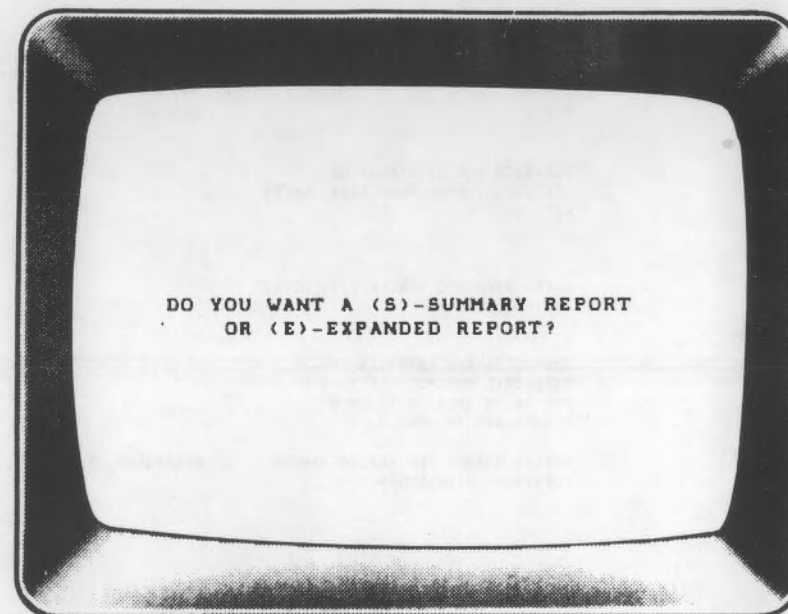


As an example, in response to the system prompt "ENTER KEYWORD", enter the character string [TORSIONAL]]. The system will then request the order in which you would like the documents printed -- alphabetically by title or author, chronologically, or by file number. For this example, enter [0].



The system will now give a choice of reporting formats: a summary format (S) highlighting the record information or an expanded format (E) giving more detailed information.

Make sure that the printer is ready, and enter your selection.



The first page of the output resulting from this example using the summary format is presented in Figure 4.1. The corresponding output for the expanded format appears as Figure 4.2.

When the search is complete, you will be returned to the Main Menu.

--- SUMMARY OF REPORTS FROM THE ADERO DATABASE ---

TITLE	AUTHOR	DATE	DESCRIPTION	FILE
EXHIBITS FOR TESTIMONY OF BERLINGER, BUSH HENRIKSEN, LAITY AND SARSTEN			"BASED ON THE SUBMITTED TEST DATA, AND ON SUBMITTED SERVICE EXPERIENCE WITH SIMILAR ENGINES HAVING SIMILAR TORSIONAL CRITICAL SPEED ARRANGEMENT, WE ADVISE THAT WE WOULD HAVE NO OBJECTION TO THE SUBMITTED TORSIONAL CRITICAL SPEED ARRANGEMENT..."	5221-29
SHAFT HARMONIC ANALYSIS BY MODAL SUPERPOSITION			CRANKSHAFT TORSIONAL VIBRATION ANALYSIS OF 13/12 INCH CRANKSHAFT INDICATOR DIAGRAM FROM LILCO 13X12 TEST AT 100% LOAD MEASURED IN CYLINDER FIRING CHARACTERISTICS	3102-28
STIFFNESS AND INERTIAS FOR TORSIONAL DYNAMIC ANALYSIS OF DSR-48 13 INCH BY 12 INCH CRANKSHAFT AT RBS			INCLUDES: INERTIA LOCATION, INERTIA, AND STIFFNESS	3102-34
HOLZER METHOD FOR FORCED-DAMPED TORSIONAL VIBRATIONS	SPAETGENS, T.W.	03-01-50	THE FORCED AND RESONANT-VIBRATION CHARACTERISTICS OF A TORSIONAL SYSTEM ARE EASILY ENOUGH DETERMINED BY THE WELL-KNOWN HOLZER METHODS, IN THE CASE WHERE THE ONLY MAJOR DAMPING INFLUENCES AVAILABLE IN THE SYSTEM ARE THOSE OF THE PRIME-MOVER ITSELF,	0008-11
TORSIONAL AND LATERAL CRITICAL SPEED ANALYSIS		03-05-75	COPY TAKEN FROM MICROFILM	3102-32
TORSIOGRAPH OF CLEVELAND ELECTRIC ILLUMINATING COMPANY ENGINE NO. 75051 GEN SET DSRV-14-4, 9750 BHP	CHRISTIANSEN, ED	04-12-78	"PURPOSE - TO VERIFY CALCULATED FREQUENCY AND STRESS LEVEL OF THE TORSIONAL MASS ELASTIC SYSTEM" PERRY NUCLEAR POWER PLANT	5806-2
PROPOSED TORSIONAL AND LATERAL CRITICAL SPEED ANALYSIS	YANG, ROLAND	08-22-83	ANALYSES OF ENGINE NUMBERS 74010/12 DELAVAL-ENTERPRISE ENGINE MODEL DSR-48 3500 KW/4889 BHP AT 450 RPM FOR SWEC	3102-4
LILCO DEFICIENCY REPORT 2199 REGARDING CRANKSHAFT EDG 103	HERLIHY, M	03-12-84	DISPOSITION DETAILS: SURFACE STAINS HAVE BEEN PREVIOUSLY IDENTIFIED DURING RECOVERY FROM THE TORSIONAL TESTING PERFORMED ON ENC-103 AND ARE ACCEPTABLE ON ALL JOURNAL SURFACES "	5210-16
REPORT ON CRANKSHAFT TORSIONAL STRESSES - TDI MODEL DSR-48 SERIAL NO 74010/74012	YANG, ROLAND	04-04-84	THIS REPORT CONSISTS OF FOUR SECTIONS AND CONTAINS CALCULATIONS, TEST DATA AND OPERATING EXPERIENCE, WHICH TDI CONSIDERS RELEVANT MATERIAL TO ESTABLISH THE ADEQUACY OF THESE DSR-48 ENGINE GENERATOR SETS.	3102-21
TDI DSR-48 DIESEL ENGINE/GENERATOR FOR LILCO SHOREHAM PLANT REPORT ON CRANKSHAFT TORSIONAL STRESSES	HANNAN, WM	05-03-84	REVIEW OF AMERICAN BUREAU OF SHIPPING REPORT FOR OG.	3102-11
LETTER TO BERLINGER ON REQUEST FOR APPROVAL OF INDEPENDANT TORSIONAL ANALYSIS OF CRANKSHAFT	DAHLGREN, S.D.	05-14-84	"IN LIGHT OF OUR CONCERN OVER THE POTENTIAL FOR UNACCEPTABLE TORSIONAL VIBRATIONS IN THE SHOREHAM DIESEL ENGINE CRANKSHAFTS, WE REQUEST YOUR APPROVAL TO OBTAIN AN INDEPENDENT TORSIONAL VIBRATION ANALYSIS FROM THE FIRM OF RICARDO IN ENGLAND."	3114-5

FIGURE 4.1. Sample Output Produced by Keyword Search, Summary Format Option

KEYWORD SEARCH ON: TORSIONAL

EXTENDED PRINT-OUT OF THE TDI DATABASE

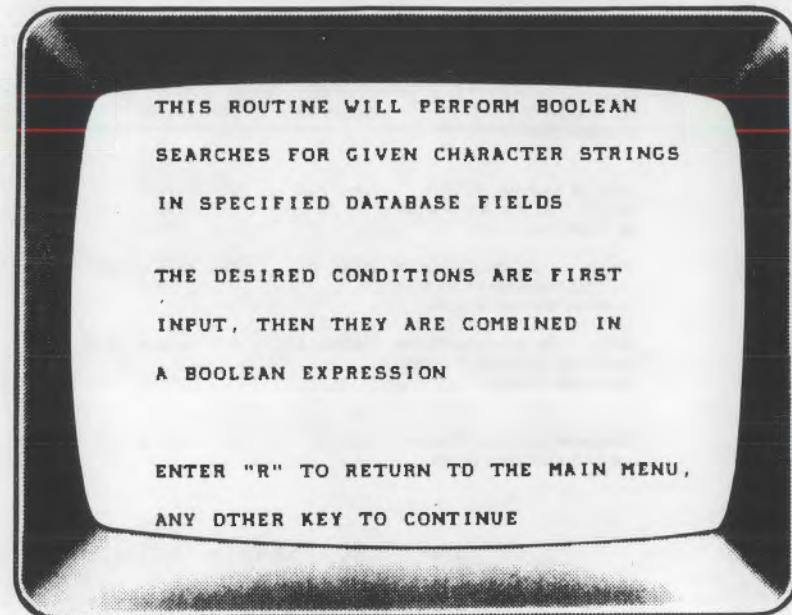
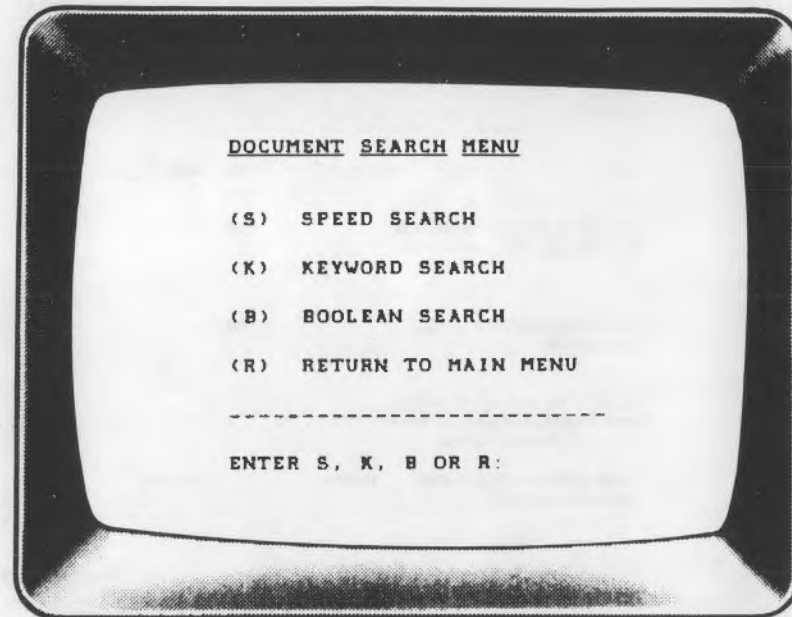
TITLE	AUTHOR	ORG	DATED	TO	ORG	SOURCE	ISS	DT FILE	DESCRIPTION
EXHIBITS FOR TESTIMONY OF BERLINGER, RUSH HENRIKSEN, LAITY AND SARSTEN		ASLU			PHL	ASLU	332	21 5321-29	"BASED ON THE SUBMITTED TEST DATA, AND ON SUBMITTED SERVICE EXPERIENCE WITH SIMILAR ENGINES HAVING SIMILAR TORSIONAL CRITICAL SPEED ARRANGEMENT, WE ADVISE THAT WE WOULD HAVE NO OBJECTION TO THE SUBMITTED TORSIONAL CRITICAL SPEED ARRANGEMENT...."
SHAFT HARMONIC ANALYSIS BY MODAL SUPERPOSITION		RBS			PHL	RBS	331	2 3102-28	CRANKSHAFT TORSIONAL VIBRATION ANALYSIS OF 12/12 INCH CRANKSHAFT INDICATOR DIAGRAM FROM LILCO (521) TEST AT 180% LOAD MEASURED IN CYLINDER FIRING CHARACTERISTICS
STIFFNESS AND INERTIAS FOR TORSIONAL DYNAMIC ANALYSIS OF DSR-48 13 INCH BY 12 INCH CRANKSHAFT AT RBS							331	2 3102-24	INCLUDES: INERTIA LOCATION, INERTIA, AND STIFFNESS
MOLIER METHOD FOR FORCED-DAMPED TORSIONAL VIBRATIONS	SPATIGEN, T. V.		03-01-50		ASME	PHL	000	6 0000-11	THE FORCED AND RESONANT-VIBRATION CHARACTERISTICS OF A TORSIONAL SYSTEM ARE EASILY ENOUGH DETERMINED BY THE WELL-KNOWN MOLIER METHODS, IN THE CASE WHERE THE ONLY MAJOR DAMPING INFLUENCES AVAILABLE IN THE SYSTEM ARE THOSE OF THE PRIME-MOVER ITSELF.
TORSIONAL AND LATERAL CRITICAL SPEED ANALYSIS		TDI	03-05-75	STONE AND WEBSTER	SAV	TDI	331	2 3102-23	COPY TAKEN FROM MICROFILM
TORSIOGRAPH OF CLEVELAND ELECTRIC ILLUMINATING COMPANY ENGINE NO. 75051 GEN SET DSRV-16-0, 9750 BHP	CHRISTIANSEN, ED		04-12-70	PERSINHO, D	MRC	MRC	350	4 5004-2	"PURPOSE - TO VERIFY CALCULATED FREQUENCY AND STRESS LEVEL OF THE TORSIONAL MASS ELASTIC SYSTEM* PERRY NUCLEAR POWER PLANT
PROPOSED TORSIONAL AND LATERAL CRITICAL SPEED ANALYSIS	YANG, ROLAND	TDI	06-22-83		SWEC	SWEC	331	2 3102-4	ANALYSIS OF ENGINE NUMBER 74018/13 DELAVAL-ENTERPRISE ENGINE MODEL DSR-48 5500 KW/4000 BHP AT 450 RPM FOR SWEC
LILCO DEFICIENCY REPORT 2199 REGARDING CRANKSHAFT EDC 103	HERLINT, H	LILCO	03-12-84		LILCO	LILCO	332	10 5210-14	DISPOSITION DETAILS: SURFACE STAINS HAVE BEEN PREVIOUSLY IDENTIFIED DURING RECOVERY FROM THE TORSIONAL TESTING PERFORMED ON EMC-103 AND ARE ACCEPTABLE ON ALL JOURNAL SURFACES."
REPORT ON CRANKSHAFT TORSIONAL STRESSES - TDI MODEL DSR-48 SERIAL NO. 74018/74012	YANG, ROLAND	TDI	04-04-84		ABS		331	2 3102-21	THIS REPORT CONSISTS OF FOUR SECTIONS AND CONTAINS CALCULATIONS, TEST DATA AND OPERATING EXPERIENCE, WHICH TDI CONSIDERS RELEVANT MATERIAL TO ESTABLISH THE ADEQUACY OF THESE DSR-48 ENGINE GENERATOR SETS.
TDI DSR-48 DIESEL ENGINE/GENERATOR FOR LILCO SHOREHAM PLANT REPORT ON CRANKSHAFT TORSIONAL STRESSES	HANMAN, WH	ABS	05-03-84	YANG, ETH	TDI	OG	331	3 3102-13	REVIEW OF AMERICAN BUREAU OF SHIPPING REPORT FOR OG.
LETTER TO BERLINGER ON REQUEST FOR APPROVAL OF INDEPENDANT TORSIONAL ANALYSIS OF CRANKSHAFT	DAHLGREN, S. D.	PHL	05-14-84	LAITY, W	PHL	PHL	331	14 3114-3	"IN LIGHT OF OUR CONCERN OVER THE POTENTIAL FOR UNACCEPTABLE TORSIONAL VIBRATIONS IN THE SHOREHAM DIESEL ENGINE CRANKSHAFTS, WE REQUEST YOUR APPROVAL TO OBTAIN AN INDEPENDENT TORSIONAL VIBRATION ANALYSIS FROM THE FIRM OF RICARDO IN ENGLAND."
INDEPENDENT ANALYSIS OF CRANKSHAFT FOR TDI DSR-48 DIESEL ENGINES	LAITY, W	PHL	05-22-84	BERLINGER, CARL	MRC	PHL	331	14 3114-1	"YOUR COMPLIANCE IS REQUESTED TO AUTHORIZE RICARDO CONSULTING ENGINEERS, (PTEY SUSSEX, ENGLAND, TO PERFORM AN INDEPENDENT TORSIONAL VIBRATION ANALYSIS OF THE CRANKSHAFT FOR THE TDI DSR-48 ENGINE."

FIGURE 4.2. Sample Output Produced by Keyword Search, Expanded Format Option

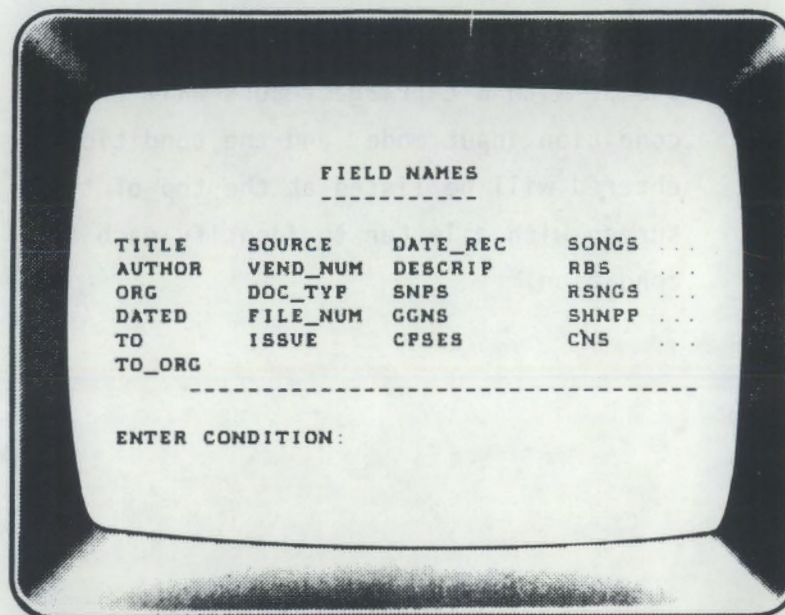
4.2.3 Boolean Search Mode

The Boolean Search mode is used when searches more complicated than those just described are required. The Boolean search mode will allow you to perform searches based on multiple conditions as described in the following paragraphs.

To enter the Boolean Search mode, enter the letter [B] from the Document Search Menu. The system will respond by briefly describing the Boolean Search mode and providing you with the option of continuing or returning to the Main Menu.



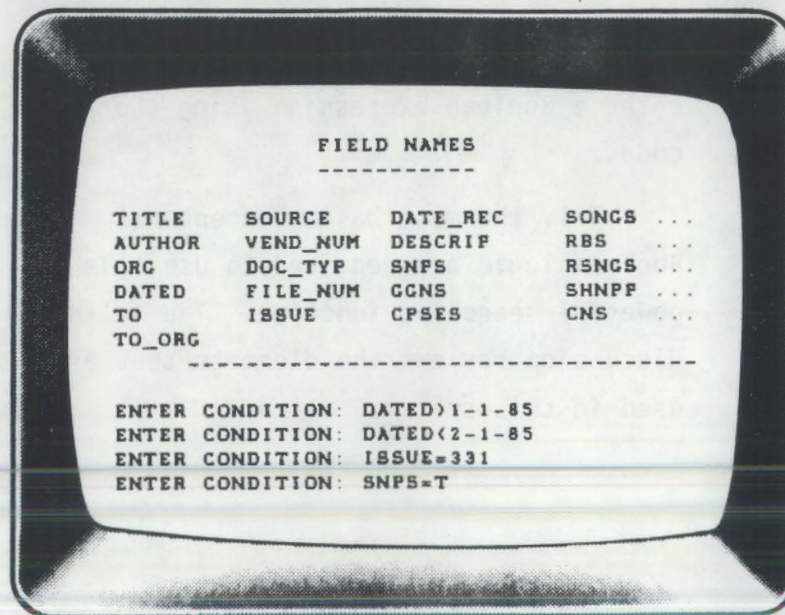
Depress any key to continue. The screen will now display the field names in the document database and prompt you to enter a search condition. In response to the prompt "ENTER CONDITION:", enter the desired test criterion. For example, enter [DATED>1-1-85]] to search for documents dated after January 1, 1985.



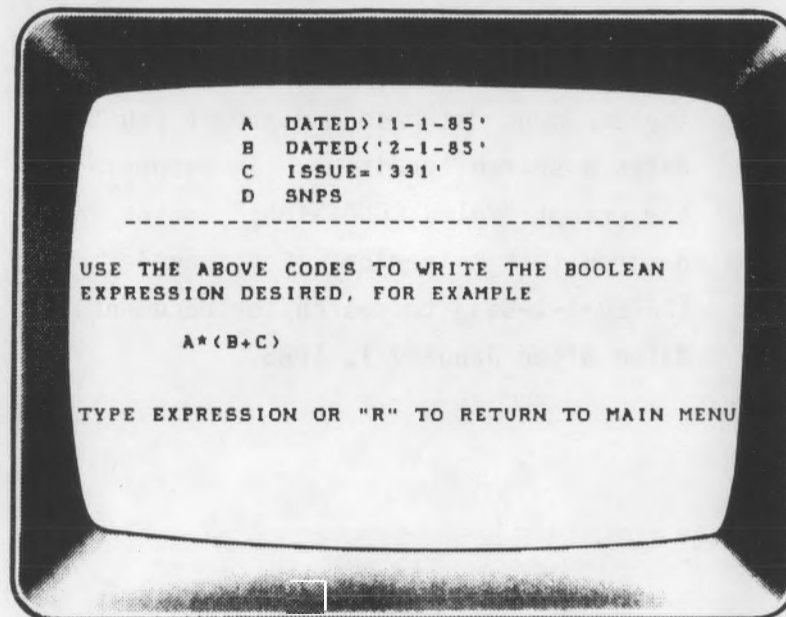
Following the carriage return, the system will prompt you for more input. As an example, enter [DATED<2-1-85]] to search for reports dated earlier than February 1, 1985.

As a third criterion, enter ISSUE=331 to specify crankshaft reports.

Finally, enter [SNPS=T]] to indicate that only documents pertaining to the Shoreham Nuclear Power Station are to be included.



Responding to the "ENTER CONDITION:" prompt with a carriage return will end the condition input mode, and the conditions entered will be listed at the top of the screen with a letter to identify each condition.



The system will then invite you to enter a Boolean expression using the above codes.

Only the most basic concepts of Boolean logic are required to use this powerful searching function. The following discussion reviews the elements that are used in this system.

The search conditions (currently displayed) may be combined with AND and OR statements to provide a very specific search. In the document database the symbol "*" is used to represent the AND function, while "+" is used to represent the OR function. This nomenclature is consistent with most texts on Boolean logic.

If you input the condition A+B (A or B), records satisfying either condition A or condition B (or both condition A and B) will be identified.

If you input the condition A*B (A and B), then only records simultaneously satisfying conditions A and B will be identified.

Parentheses may be used to group conditions. For example, A*(C+D) will identify records that satisfy condition A and either (or both) conditions C or D. In the example now on the screen, this would correspond to identifying all documents dated later than January 1, 1985, and either relevant to crankshafts or relevant to Shoreham, or relevant to both crankshafts and Shoreham.

Similarly, if you wanted all documents pertaining to crankshafts on the Shoreham engines that are dated later than January 1, 1985, then the appropriate Boolean expression would be A*C*D.

The types of conditions that may be input in response to the "ENTER CONDITION:" prompt are summarized in Table 4.2.

TABLE 4.2. Boolean Search Conditions

<u>Condition</u>	<u>Symbol</u>	<u>Example</u>	<u>Description</u>
EQUAL TO	=	AUTHOR=DODGE	Test that the document author is Dodge
		SNPS=T	Test that the document pertains to the Shoreham Nuclear Power Station
		TITLE=DESIGN RE	Test that the title begins with the character string DESIGN RE"
GREATER THAN	>	DATED>1-1-85	Test that the document is dated after January 1, 1985
		DOC_TYP>20	Test that the document type code is greater than 20 (i.e., 21 to 24)
		AUTHOR>SMITH	Test that the author's name would lexically follow SMITH
LESS THAN	<	DATED<1-1-85	Test that the document is dated before January 1, 1985
		DOC_TYP<20	Test that the document type code is less than 20
		AUTHOR<SMITH	Test that the author's name would lexically precede SMITH
NOT EQUAL TO	#	AUTHOR#DODGE	Test that the document author is not DODGE
		SNPS#F	Same as SNPS=T
		ISSUE#331	Test that the issue code is not 331 (crankshaft)

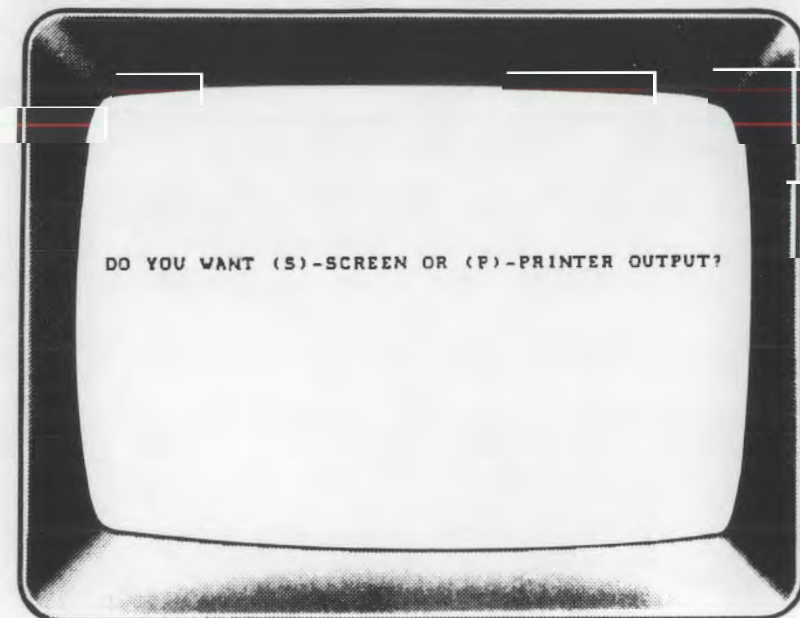
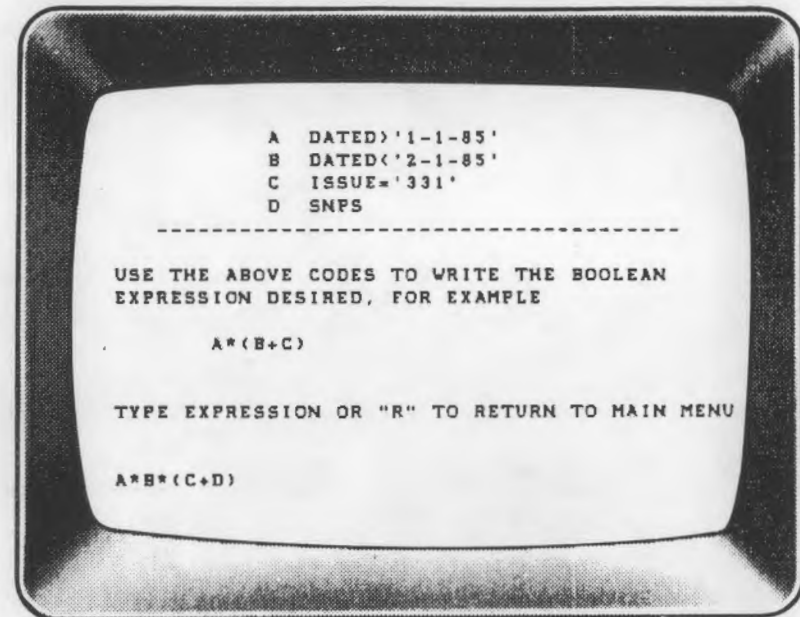
TABLE 4.2. (contd)

<u>Condition</u>	<u>Symbol</u>	<u>Example</u>	<u>Description</u>
SUBSTRING SEARCH	\$	DATED\$85	Test that the document is dated in 1985
		DESCRIP\$TORSIO	Test that the character string TORSIO is in the DESCRIP field (Note: This will identify words containing the substring, e.g., TORSIOGRAPH).
		TITLE\$DR/QR	Test that the character string DR/QR is in the title

To find all documents pertaining to Shoreham or crankshafts and dated between January 1 and February 1, 1985, for the current example, enter:

A*B*(C+D)

The system will then provide the choice of screen or printer output. The screen output, which is obtained by depressing [S], will display the TITLE, FILE_NUM, AUTHOR, and DATED fields of documents satisfying the input criteria. These references will be displayed six at a time on the screen to give you an opportunity to read them. To view subsequent references, simply depress any key, and the next six references will be displayed. After all applicable records have been displayed, you will be returned to the Main Menu. The screen output corresponding to the above example is reproduced in Figure 4.3.



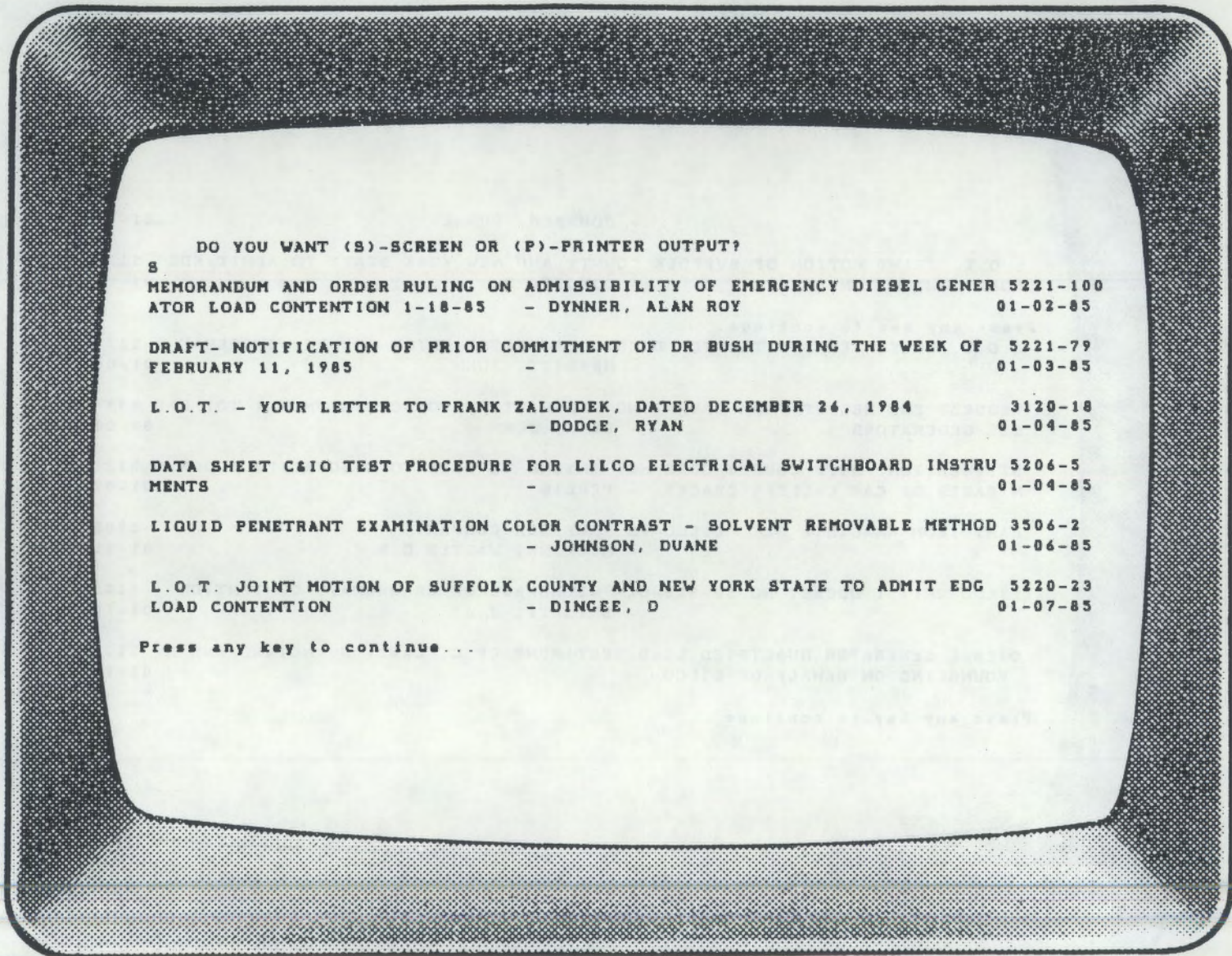
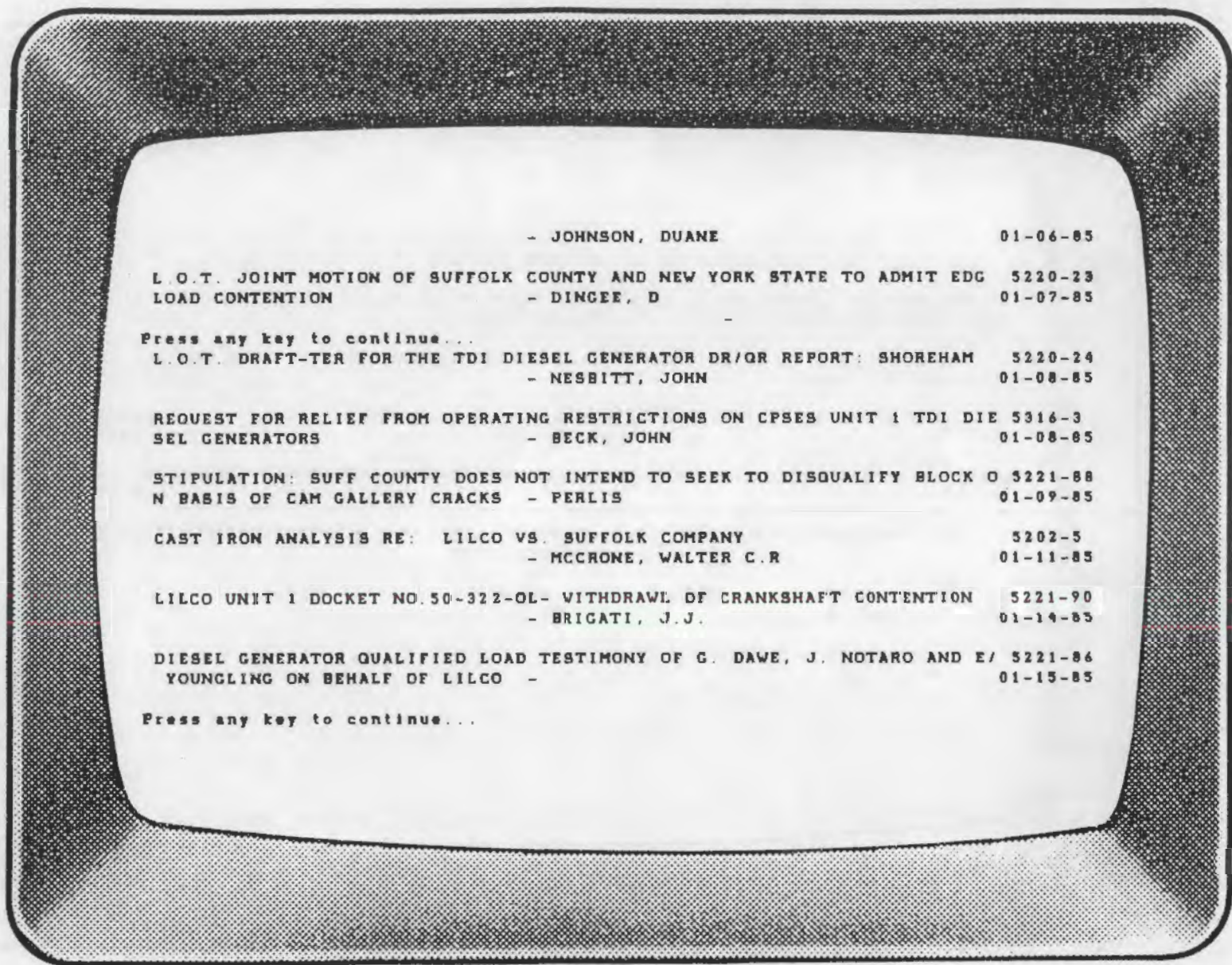


FIGURE 4.3. Sample Screen Output Produced by Boolean Search



- JOHNSON, DUANE 01-06-85

L.O.T. JOINT MOTION OF SUFFOLK COUNTY AND NEW YORK STATE TO ADMIT EDG 5220-23
LOAD CONTENTION - DINGEE, D 01-07-85

Press any key to continue...

L.O.T. DRAFT-TER FOR THE TDI DIESEL GENERATOR DR/QR REPORT: SHOREHAM 5220-24
- NESBITT, JOHN 01-08-85

REQUEST FOR RELIEF FROM OPERATING RESTRICTIONS ON CPSES UNIT 1 TDI DIE 5316-3
SEL GENERATORS - BECK, JOHN 01-08-85

STIPULATION: SUFF COUNTY DOES NOT INTEND TO SEEK TO DISQUALIFY BLOCK O 5221-88
N BASIS OF CAM GALLERY CRACKS - PERLIS 01-09-85

CAST IRON ANALYSIS RE: LILCO VS. SUFFOLK COMPANY 5202-5
- MCCRONE, WALTER C.R 01-11-85

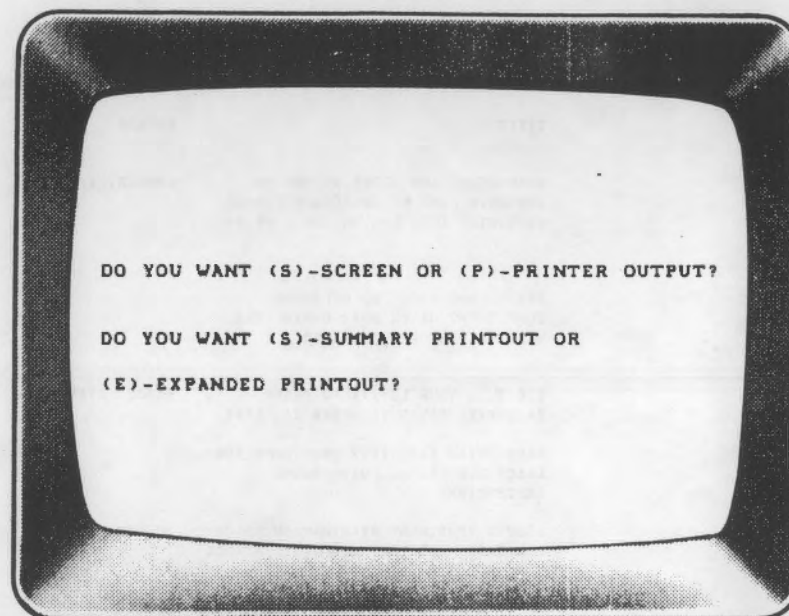
LILCO UNIT 1 DOCKET NO. 50-322-OL- WITHDRAWL OF CRANKSHAFT CONTENTION 5221-90
- BRIGATI, J.J. 01-14-85

DIESEL GENERATOR QUALIFIED LOAD TESTIMONY OF G. DAWE, J. NOTARO AND E/ 5221-86
YOUNGLING ON BEHALF OF LILCO - 01-15-85

Press any key to continue...

FIGURE 4.3. (contd)

If printer rather than screen output is selected (by depressing [P]), then you are given the choice of summary or expanded output.



A copy of the first page of the summary output from the above example is given in Figure 4.4; the corresponding expanded output is given in Figure 4.5.

--- SUMMARY OF REPORTS FROM THE ADERO DATABASE ---

TITLE	AUTHOR	DATE	DESCRIPTION	FILE
MEMORANDUM AND ORDER RULING ON ADMISSIBILITY OF EMERGENCY DIESEL GENERATOR LOAD CONTENTION 1-18-85	DYMMER, ALAN ROY	01-02-85	"IN RESPONSE TO OUR REQUEST FOR CERTAIN CLARIFICATIONS TO THE BOARD'S DECISION, JUDGE BRENNER SAID THAT WE SHOULD AWAIT RECEIPT OF THE BOARD'S WRITTEN ORDER, WHICH WILL EXPLAIN THE BASES FOR THE BOARD'S DECISION."	5221-180
DRAFT- NOTIFICATION OF PRIOR COMMITMENT OF DR BUSH DURING THE WEEK OF FEBRUARY 11, 1985		01-03-85	"THE LICENSING BOARD HAS ANNOUNCED ITS INTENTION TO RECONVENE THE HEARING ON FEBRUARY 12, 1985. CONCERNING EMERGENCY DIESEL GENERATORS MANUFACTURED BY TDI AND INSTALLED AT THE SNPS."	5221-79
L.O.T. - YOUR LETTER TO FRANK ZALOUDEK, DATED DECEMBER 26, 1984	DODGE, RYAN	01-04-85		3120-18
DATA SHEET C&IO TEST PROCEDURE FOR LILCO ELECTRICAL SWITCHBOARD INSTRUMENTS		01-04-85		5204-5
LIQUID PENETRANT EXAMINATION COLOR CONTRAST - SOLVENT REMOVABLE METHOD	JOHNSON, DVANE	01-04-85	PURPOSE : TO ESTABLISH THE REQUIREMENTS FOR THE LIQUID PENETRANT EXAMINATION OF NONPOROUS MATERIALS AND WELDS BY THE COLOR CONTRAST - SOLVENT REMOVABLE METHOD.	3504-2
L.O.T. JOINT MOTION OF SUFFOLK COUNTY AND NEW YORK STATE TO ADMIT EDG LOAD CONTENTION	DINGEE, D	01-07-85		5220-23
L.O.T. DRAFT-TER FOR THE TDI DIESEL GENERATOR DR/QR REPORT: SHOREHAM	NESSITT, JOHN	01-08-85		5220-24
REQUEST FOR RELIEF FROM OPERATING RESTRICTIONS ON CPSES UNIT 1 TDI DIESEL GENERATORS	BECK, JOHN	01-08-85	TEXAS UTILITIES SUBMITS THAT OPERATING DATA OBTAINED ON TESTS UTILIZES SUBMITS THAT OPERATING DATA OBTAINED ON TWO TDI DIESEL ENGINES AT DUKE POWER'S CATAWBA NUCLEAR STATION AND LILCO PROVIDE CONFIRMATION OF LONG TERM RELIABILITY OF THE TDI ENGINES AT THOSE SITES AS WELL AS THOSE AT CPSES	5314-3
STIPULATION: SUFF COUNTY DOES NOT INTEND TO SEEK TO DISQUALIFY BLOCK ON BASIS OF CAM GALLERY CRACKS	PERLIS	01-09-85	"THIS EVIDENCE SUPPORTS THE CONCLUSION THAT THE CAM GALLERY CRACKS IN THE ORIGINAL EDG 103 BLOCK DID NOT PROPAGATE DURING OR AS A RESULT OF OPERATION."	5221-88
CAST IRON ANALYSIS RE: LILCO VS. SUFFOLK COMPANY	MCCROME, WALTER C.R	01-11-85		5202-5
LILCO UNIT 1 DOCKET NO. 50-322-0L- WITHDRAWAL OF CRANKSHAFT CONTENTION	BRIGATI, J.J.	01-14-85	"WE ARE AUTHORIZED TO STATE THAT THE STATE OF NEW YORK HAS NO OBJECTION TO THE WITHDRAWAL OF THE CRANKSHAFT ISSUE TO THE LIMITED EXTENT DESCRIBED."	5221-90
DIESEL GENERATOR QUALIFIED LOAD TESTIMONY OF G. DAVE, J. NOTARO AND E/ YOUNGLING ON BEHALF OF LILCO		01-15-85		5221-84
LILCO BRIEF ON THE APPLICABILITY OF THE SINGLE FAILURE CRITERION TO THE EDG LOAD CONTENTION		01-15-85	"ON DECEMBER 28, 1984 J. BRENNER NOTIFIED LILCO AND SUFFOLK COUNTY OF THE BOARD'S DECISION CONCERNING THE ADMISSIBILITY OF THE JOINT SUFFOLK COUNTY AND NEW YORK STATE EDG LOAD CONTENTION."	5221-87

FIGURE 4.4. Sample Printer Output Produced by Boolean Search, Summary Format Option

EXTENDED PRINT-OUT OF THE TDI DATABASE

TITLE	AUTHOR	ORG	DATED	TO	ORG	SOURCE	ISM	BY FILE	DESCRIPTION
MEMORANDUM AND ORDER RULING ON ADMISSIBILITY OF EMERGENCY DIESEL GENERATOR LOAD CONTENTION 1-18-85	DYMKER, ALAN RAY	EGL	01-03-85	BRENNER, I	MRC	GODDARD	352	21 5221-100	"IN RESPONSE TO OUR REQUEST FOR CERTAIN CLARIFICATIONS TO THE BOARD'S DECISION, JUDGE BRENNER SAID THAT WE SHOULD AWAIT RECEIPT OF THE BOARD'S WRITTEN ORDER, WHICH WILL EXPLAIN THE BASIS FOR THE BOARD'S DECISION."
DRAFT- NOTIFICATION OF PRIOR COMMITMENT OF DE BUREAU DURING THE WEEK OF FEBRUARY 11, 1985		ASLB	01-08-85		PHL		352	21 5221-79	"THE LICENSING BOARD HAS ANNOUNCED ITS INTENTION TO RECONVENE THE HEARING ON FEBRUARY 15, 1985, CONCERNING EMERGENCY DIESEL GENERATORS MANUFACTURED BY TDI AND INSTALLED AT THE SMPs."
L. O. T. - YOUR LETTER TO FRANK ZALOWSKI, DATED DECEMBER 24, 1984	DOOGE, RYAN	PHL	01-04-85	LOVZUCKY, P. J.	PHL	PHL	331	20 5120-10	
DATA SHEET CALD TEST PROCEDURE FOR LILCO ELECTRICAL SWITCHBOARD INSTRUMENTS		SMPs	01-04-85		PHL	SMPs	352	6 5204-5	
LIQUID PENETRANT EXAMINATION COLOR CONTRAST - SOLVENT REMOVABLE METHOD	JOHNSON, DUANE	T&A	01-06-85		T&A		335	6 5204-2	PURPOSE : TO ESTABLISH THE REQUIREMENTS FOR THE LIQUID PENETRANT EXAMINATION OF NONPOROUS MATERIALS AND WELDS BY THE COLOR CONTRAST - SOLVENT REMOVABLE METHOD.
L. O. T. JOINT MOTION OF SUFFOLK COUNTY AND NEW YORK STATE TO ADMIT EDG LOAD CONTENTION	DINGEE, D	PHL	01-07-85	CONSULTANTS	PHL	PHL	352	20 5220-23	
L. O. T. DRAFT-TEX FOR THE TDI DIESEL GENERATOR RE/OR REPORT: SHOREHAM	HEBBITT, JOHN	PHL	01-08-85	CONSULTANTS	PHL	PHL	352	20 5220-24	
REQUEST FOR RELIEF FROM OPERATING RESTRICTIONS ON CPSES UNIT 1 TDI DIESEL GENERATORS	BECK, JOHN	TUGG	01-08-85	YOUNGBLOOD, D. J.	MRC	TUGGO	350	16 5314-3	TEXAS UTILITIES SUBMITS THAT OPERATING DATA OBTAINED ON TWO TDI DIESEL ENGINES AT DUKE POWER'S CATAWBA NUCLEAR STATION AND LILCO PROVIDE CONFIRMATION OF LONG TERM RELIABILITY OF THE TDI ENGINES AT THOSE SITES AS WELL AS THOSE AT CPSES
STIPULATION: SUFF COUNTY DOES NOT INTEND TO SEEK TO DISQUALIFY BLOCK ON BASIS OF CAR GALLERY CRACKS	PERLIS	MRC	01-09-85	DINGEE, DAVE	PHL	ASLB	352	21 5221-60	"THIS EVIDENCE SUPPORTS THE CONCLUSION THAT THE CAR GALLERY CRACKS IN THE ORIGINAL EDG 103 BLOCK DID NOT PROPAGATE DURING OR AS A RESULT OF OPERATION."
CAST IRON ANALYSIS RE: LILCO VS. SUFFOLK COMPANY	MCCORMIE, WALTER C. R.	WMA1	01-11-85		MRC		352	2 5203-5	
LILCO UNIT 1 DOCKET NO 58-323-01- WITHDRAWAL OF CRANKSHAFT CONTENTION	BRIGATI, J. J.	EGL	01-14-85	BRENNER, I. J.	ASLB	GODDARD, R	352	21 5221-70	"WE ARE AUTHORIZED TO STATE THAT THE STATE OF NEW YORK HAS NO OBJECTION TO THE WITHDRAWAL OF THE CRANKSHAFT ISSUE TO THE LIMITED EXTENT DESCRIBED."
DIESEL GENERATOR QUALIFIED LOAD TESTIMONY OF C. BANE, J. MOTANO AND E/ YOUNGLING ON BEHALF OF LILCO		ASLB	01-15-85		PHL	ASLB	352	21 5221-04	
LILCO BRIEF ON THE APPLICABILITY OF THE SINGLE FAILURE CRITERION TO THE EDG LOAD CONTENTION		ASLB	01-15-85		PHL	ASLB	352	21 5221-07	"ON DECEMBER 20, 1984 J. BRENNER NOTIFIED LILCO AND SUFFOLK COUNTY OF THE BOARD'S DECISION CONCERNING THE ADMISSIBILITY OF THE JOINT SUFFOLK COUNTY AND NEW YORK STATE EDG LOAD CONTENTION."
ADDITIONAL CYLINDER BLOCK TESTIMONY OF RANGE, J. J. JOHNSON, B&U, SCHUYSTER, WARD, AND YOUNGLING		NAV	01-15-85	BRENNER, HARRIS, AND FERGUSON	ASLB	MRC	352	21 0021-21	
L. O. T. - 1st DRAFT TEX ON SMPs RE/OR	JAFFRAY, N.	RCE	01-15-85	HEBBITT, JOHN	PHL	RCE	352	20 5220-27	

FIGURE 4.5. Sample Printer Output Produced by Boolean Search, Expanded Format Option

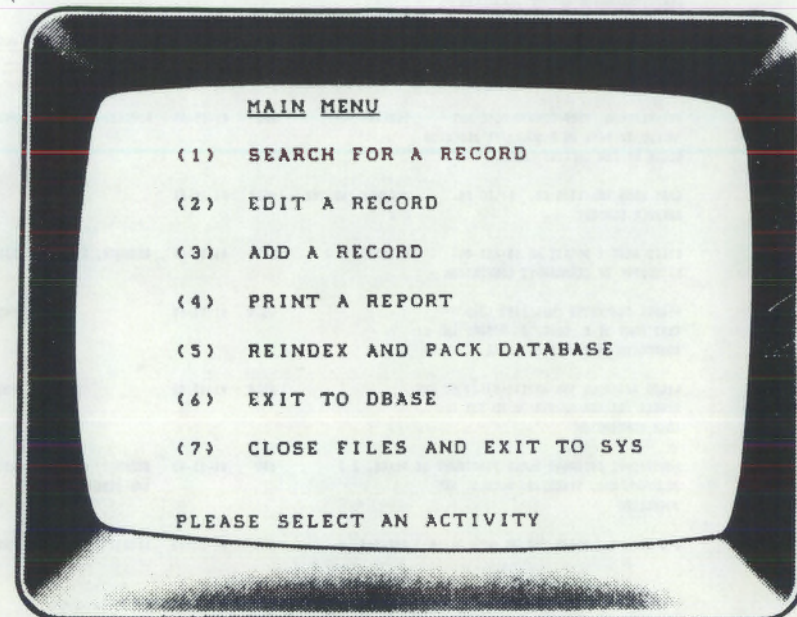
4.3 USING THE REPORTING FUNCTIONS

Several special report forms have been provided with the document database system. These report forms are designed to provide information on the entire database or on a subset of the database, as specified by the user.

In addition, it is possible to create custom report forms using the report-generating features built into dBase III. Section 4.3.1 will demonstrate the project-specific report forms that have been provided. Section 4.3.2 will briefly discuss the dBase III report-generating features.

4.3.1 ADERO Report Formats

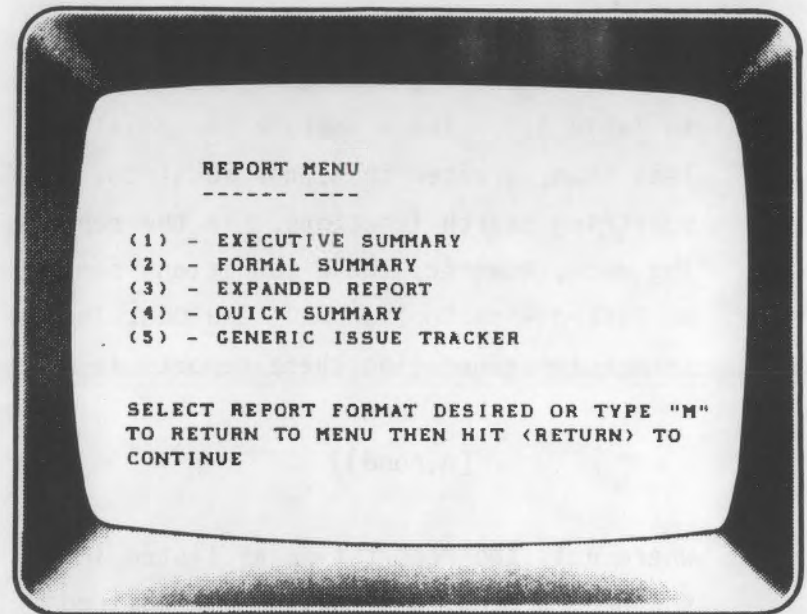
To generate a standard report from the document database, go to the Main Menu as described in the preceding section. From the Main Menu depress "4".



The system will respond with the Report Menu. This menu offers five different report formats:

EXECUTIVE SUMMARY
FORMAL SUMMARY
EXPANDED REPORT
QUICK SUMMARY
GENERIC ISSUE TRACKER

These formats provide a variety of information on the documents in the database. Select any of these formats by depressing the number to the left of the desired format followed by a carriage return. This will provide a printout of the entire database. It is also possible to specify simple conditionals. This will enable you to generate a report that includes only those references that satisfy the specified condition.



The conditions that can be applied to reports are the same as those summarized in Table 4.2. These include the equal to, less than, greater than, not equal to, and substring search functions. In the reporting mode, however, these conditions cannot be linked with Boolean ANDs and ORs. The format for generating these reports is

[n,cond]]

where n is the report type as listed in the Report Menu, and cond is the desired condition.

The following examples illustrate the various reporting formats and show how to include conditionals. For brevity, only the first page of each sample report will be included in the accompanying illustrations.

Before initiating any of these reports, make sure the printer is turned on.

Responding to the system prompt from the REPORT MENU with

[1,DATED>12-31-84]]

will provide an executive summary report listing documents dated later than 1984. The first page of this report is shown in Figure 4.6.

Similarly, responding with

[2,ISSUE=331]]

will generate a formal summary report listing documents pertaining to crankshafts. This report is illustrated in Figure 4.7.

Entering

[3,AUTHOR=LOUZECKY]]

will generate an expanded report listing documents in the database that were authored by Mr. Louzecky. The first page of the resulting report is shown in Figure 4.8.

 ** ASSESSMENT OF DIESEL ENGINE OPERABILITY/RELIABILITY **

DATE 05/11/85

EXECUTIVE SUMMARY REPORT

PAGE 1

FILE NO.	TITLE/SUBJECT	AUTHOR	ORG.	DOC. DATE	DATE RECEIVED
0000-11	HOLZER METHOD FOR FORCED-DAMPED TORSIONAL VIBRATIONS	SPAETGENS, T.W.		01-MAR-50	07-SEP-84E
0000-12	THE DEVELOPMENT OF A HIGHLY RATED MEDIUM SPEED DIESEL ENGINE OF 7,000-9,000 HORSEPOWER...	POPE, J. A.	IME	01-JAN-66	22-SEP-84E
3000-1	PISTON RING SCUFFING-A BROAD SURVEY OF PROBLEMS AND PRACTICE	NEALE, M.J.		01-FEB-71	07-SEP-84E
5005-2	TECHNICAL SPECIFICATION FOR STANDBY DIESEL GENERATORS FOR MP&L CO. GGNS 1 AND 2		BECH	01-OCT-73	05-MAR-84
5005-1	DESIGN SPECIFICATION FOR STANDBY DIESEL GENERATORS FOR MP&L, GGNS 1 AND 2		BECH	12-JUL-74	05-MAR-84
5105-2	DIESEL ELECTRIC GENERATING UNITS (CATAWBA MS 1 AND 2)		DUKE	03-OCT-74	12-APR-84
0000-8	TESTS OF RAYCHEM FLAMTROL INSULATED AND JACKETED ELECTRICAL CABLES UNDER SIMULTANEOUS EXPOSURE TO...		FIRL	01-JAN-75	04-SEP-84E
3102-32	TORSIONAL AND LATERAL CRITICAL SPEED ANALYSIS		TDI	05-MAR-75	23-FEB-85E
0005-3	IEEE STANDARD CRITERIA FOR DIESEL GENERATOR UNITS APPLIED AS STANDBY POWER SUPPLIES FOR NUC PWR GS		IEEE	09-SEP-76	
5206-6	CHECKOUT AND INITIAL OPERATIONS TEST PROCEDURE FOR CP WATTMETER -EDG 103 AT SHOREHAM			01-FEB-77	21-JAN-85
0010-8	PERIODIC TESTING OF DIESEL GENERATOR UNITS USED AS ON-SITE ELEC POWER SYSTEMS AT NUCLEAR POWER PLANTS		NRC	01-AUG-77	00-AUG-77S
5205-1	SECTIONS OF SHOREHAM FSAR RELATING TO STANDBY DIESEL GENERATORS		SNPS	01-AUG-77	
5006-4	QUALIFICATION TEST FOR DE LAVAL ENGINE GENERATOR SET GGNS 1&2	REID, DENNIS	TDI	30-NOV-77	05-MAR-84
3100-3	FATIGUE PROPERTIES OF FULL SCALE FORGED AND CAST STEEL CRANKSHAFTS	NISHIHARA, M.	KOBE	24-JAN-78	30-APR-85
0000-13	SULZER'S FOUR-STROKE HIGH-AND MEDIUM SPEED ENGINE RANGE	LUSTGARTEN, G.	SME	01-FEB-78	22-SEP-84E

FIGURE 4.6. First Page of Executive Summary Report for "DATED>12-31-84"

--- SUMMARY OF REPORTS FROM THE ADERO DATABASE ---

TITLE	AUTHOR	DATE	DESCRIPTION	FILE
CRANKSHAFT STRESS ANALYSIS PROGRAM	BESHOURI, GREG RESEARCH ENGINEER		WITH THE FAILURE OF THE CRANKSHAFT IN THE LILCO DSR-48 ENGINE TDI INITIATED A STRESS ANALYSIS PROGRAM WITH THE OBJECTIVE OF DETERMINING THE STRESSES AND THEIR SOURCES IN AN 8 THROW 11" X 13" CRANKSHAFT TO IDENTIFY THE ACTUAL CAUSES OF THE FAILURE.	3101-2
RESPONSES TO NRC QUESTIONS ON CRANKSHAFT REPORT				3102-10
EVALUATION OF TDI CRANKSHAFTS, NOTES ON SHOT PEENING	SARSTEN, A		"THE FILLETS OF 2 TDI CRANKSHAFTS WERE RE-PEENED BY METAL IMPROVEMENT COMPANY, INC. AFTER ORIGINAL SHOT PEENING BY TDI WAS FOUND UNSATISFACTORY IN COVERAGE AND INTENSITY"	3110-8
LOAD ENGINE HOURS FOR SHOREHAM			TELEEX TO GERMANO 11-05-84	3111-1
SHAFT HARMONIC ANALYSIS BY MODAL SUPERPOSITION			CRANKSHAFT TORSIONAL VIBRATION ANALYSIS OF 13/12 INCH CRANKSHAFT INDICATOR DIAGRAM FROM LILCO 13X12 TEST AT 100% LOAD MEASURED IN CYLINDER FIRING CHARACTERISTICS	3102-28
DETERMINATION OF SUITABILITY OF TDI DSR48 ENGINE CRANKSHAFT AT SHORHAM				3110-24
STIFFNESS AND INERTIAS FOR TORSIONAL DYNAMIC ANALYSIS OF DSR-48 13 INCH BY 12 INCH CRANKSHAFT AT RBS			INCLUDES INERTIA LOCATION, INERTIA, AND STIFFNESS	3102-34
KRUPP INSPECTION TEST CERTIFICATE FOR THE SHOREHAM CRANKSHAFT	KRUPP		WRITTEN IN A FOREIGN LANGUAGE HARD TO UNDERSTAND	3110-28
TDI MODEL DSR-48 RIVER BEND NUCLEAR POWER STATION MASS ELASTIC SYSTEM	LOUZECKY, PJ		ONE NODAL FREQUENCY - 2277.54 V./M. TWO-NODAL FREQUENCY 4420.71 V./M.	3110-29
EVALUATION OF TRANSIENT CONDITIONS ON EMERGENCY DIESEL GENERATOR CRANKSHAFTS AT SAN ONOFRE UNIT 1	BOSIE,	04-85	"THIS REPORT SUMMARIZES THE RESULTS OF INSPECTIONS, TESTING, AND ANALYSES PERFORMED ON THE EMERGENCY DIESEL GENERATOR CRANKSHAFTS AT SAN ONOFRE NUCLEAR GENERATING STATION UNIT 1"	3102-40
TORSIONAL AND LATERAL CRITICAL SPEED ANALYSIS		03-05-75	COPY TAKEN FROM MICROFILM	3102-32
FATIGUE PROPERTIES OF FULL SCALE FORGED AND CAST STEEL CRANKSHAFTS	NISHIHARA, M.	01-24-78	"THE RESULTS OF FATIGUE TESTS ON VARIOUS TYPES OF CRANKSHAFTS ARE DESCRIBED. THE TESTS WERE MADE OF..."	3108-3
EXPLANATORY NOTES ON RULES "CALCULATION OF CRANKSHAFTS FOR DIESEL ENGINES"		12-04-79	"THE MAKE-UP OF THIS PROPOSAL IS SUCH THAT IT CAN BE APPLIED TO VIRTUALLY ALL CRANKSHAFT CONFIGURATIONS POSSIBLE WITH MARINE ENGINES. THE FEW REMAINING CASES NOT COVERED BY THIS PROPOSAL MUST BE SOLVED BY MEANS OF SPECIAL APPROVAL."	3105-1
ANAMAX CRANKSHAFT FAILURE ANALYSIS	SCHILLING, MV	12-11-79	THIS REPORT DESCRIBES A FAILURE ANALYSIS PERFORMED IN 1979 ON A CRANKSHAFT THAT HAD 13,152 HOURS OF OPERATION. THE CRANKSHAFT OWNER WAS ANAMAX, THE ENGINE S/N WAS 73834 AND THE CRANKSHAFT MANUFACTURER WAS ELWOOD CITY FORGE COMPANY.	3102-34

FIGURE 4.7. First Page of Formal Summary Report for "ISSUE=331"

EXTENDED PRINT-OUT OF THE TDI DATABASE

TITLE	AUTHOR	ORG	DATED	TO	ORG	SOURCE	ISS	DT FILE	DESCRIPTION
TDI MODEL D88-48 RIVER BEND NUCLEAR POWER STATION MASS ELASTIC SYSTEM	LOUZECKY, PJ						331	10 3110-29	ONE MODED FREQUENCY - 1377.54 V./M. TWO-MODED FREQUENCY 4426.71 V./M.
NOTES ON THE TDI ENGINES, USED AS EMERGENCY DIESEL GENERATORS	LOUZECKY, PJ	EAC	03-13-84			LOUZECKY	000	9 0009-3	THESE NOTES AND DISCUSSION ARE BASED ON THE VARIOUS PROBLEMS REPORTED ON THE TDI ENGINES AT THE MEETING OF 2/18/84 BETWEEN THE OWNERS GROUP AND THE NRC IN BETHESDA, MD
STUDIES AND TESTS THAT SHOULD BE MADE IN ORDER TO IMPROVE THE RELIABILITY OF TDI ENGINE-GENERATORS	LOUZECKY, PJ	EAC	03-16-84		BNL	BNL	000	10 0010-25	IN THIS LETTER REPORT LOUZECKY LISTS FOURTEEN STUDIES THAT HE FEELS SHOULD BE PERFORMED TO RE-ESTABLISH TDI CREDIBILITY
INFORMATION NEEDED FOR THE TDI ENGINES IN ORDER TO HELP MAKE THE ENGINE RELIABILITY DECISIONS	LOUZECKY, PJ	EAC	03-16-84			LOUZECKY	000	12 0012-4	IN THIS REPORT, LOUZECKY LIST THE SPECIFIC INFORMATION HE FEELS IS REQUIRED TO EVALUATE THE TDI ENGINE RELIABILITY DATA. THIS INFORMATION LIST IS DIVIDED INTO 32 CATEGORIES
VISIT TO SMPs TO SEE THE MODEL R-48 TDI EMERG DIESEL ENGINE NO. 102	LOUZECKY, PJ	EAC	02-18-84			LOUZECKY	352	9 5209-4	THIS REPORT PRESENTS LOUZECKY'S OBSERVATIONS OF THE TDI ENGINE NO. 102 AT SHOREHAM ON HIS VISIT (WITH ADAM NEMRIKSEN) ON FEB 15, 1984
COMMENTS ON THREE FAILURE ANALYSIS ASSOCIATES REPORTS	LOUZECKY, PJ	EAC	03-18-84		BNL	LOUZECKY	331	4 3104-1	THIS REPORT PRESENTS LOUZECKY'S COMMENTS ON FAA REPORTS ON THE CRANKSHAFT FAILURE INVESTIGATION, ANALYSIS OF REPLACEMENT CRANKSHAFT AND CONNECTING ROD BEARING FAILURE INVESTIGATION.
COMMENTS ON THREE FAILURE ANALYSIS ASSOCIATES REPORTS	LOUZECKY, PJ	EAC	03-18-84			LOUZECKY	332	4 3104-2	THIS REPORT PRESENTS LOUZECKY'S COMMENTS ON FAA REPORTS ON THE CRANKSHAFT FAILURE INVESTIGATION, ANALYSIS OF REPLACEMENT CRANKSHAFT AND CONNECTING ROD BEARING FAILURE INVESTIGATION.
VISIT TO SHOREHAM NUCLEAR POWER STATION TO SEE THE MODEL R-48 TRANSAMERICA DIESEL INC. (0102)	LOUZECKY, PAUL	EAC	02-16-84	HESBITT, JOHN	PML	EAC	352	20 5220-7	"THIS ENGINE (D88-48, 6100) RECENTLY DEVELOPED A CRACK AT THE FRONT END OF ITS CYLINDER BLOCK AND CRACKS IN THE CAMSHAFT BEARING SADDLE BRACKETS, SO5 IT WAS DECIDED TO REPLACE THE BLOCK"
TRANSAMERICA DELAVAL ENGINE PROBLEMS	LOUZECKY, P	EAC	03-18-84	HOFFMAYER, CHARLES		EAC	331	10 3110-14	LOUZECKY MAKES REFERENCE TO ANOTHER POSSIBLE CONSULTANT, JAMES ASKEV
PROFESSIONAL RESUME - PAUL J. LOUZECKY	LOUZECKY, PAUL J	EAC	03-01-84			LOUZECKY	000	10 0010-2	RESUME OF PAUL J. LOUZECKY - (310) 446-4457
LETTER FROM LOUZECKY TO HOFFMAYER OF BNL CONCERNING POSSIBLE ENGINE BEARING	LOUZECKY, PJ	EAC	03-19-84	HOFFMAYER, C	BNL	EAC	000	4 0004-10	FIVE REFERENCE REPORTS ARE LISTED ON LETTER AND REFERED TO BRIEFLY IN SUBJECT LETTER.
LETTER REPORT ON TDI ENGINES IN THE SHOREHAM NUCLEAR POWER PLANT	LOUZECKY, PJ	EAC	03-23-84			LOUZECKY	352	9 5209-1	THIS LETTER DISCUSSES BRIEFLY THE CONDITION OF THE ENGINES AT THE SHOREHAM SITE AND SERVES AS A COVER LETTER TO MORE IN-DEPTH REPORTS. ALSO, ATTACHED IS A LETTER FROM LOUZECKY TO CHARLES HOFFMAYER (BROOKHAVEN) DATED MARCH 19, 1984
VISIT TO SMPs TO EXAMINE SOME ENGINE PARTS FROM TDI MODEL R-48 DIESEL ENGINE NO. 101	LOUZECKY, PJ	EAC	03-30-84			LOUZECKY	352	9 5209-2	THIS REPORT PRESENTS LOUZECKY'S OBSERVATIONS OF THE DISASSEMBLED TDI ENGINE AT SHOREHAM. THE ENGINE HAD RUN 300 HOURS. HE LISTS 10 PART GROUPS THAT WERE EXAMINED FROM CRANKPIN BEARINGS TO CRANKSHAFT
LETTER - TDI ENGINES IN THE SMPs PLANT INFORMATION AND DRAWINGS DESIRED	LOUZECKY, PJ	EAC	03-30-84			LOUZECKY	000	12 0012-3	THIS LETTER LISTS SOME 40 ITEMS OF INFORMATION (DRAWINGS AND MANUALS) REQUESTED BY LOUZECKY FROM RALPH CARUSO (NRC)
TRANSAMERICA DELAVAL INC. ENGINES IN THE SHOREHAM NUCLEAR POWER PLANT INFO AND DRAWINGS DESIRED	LOUZECKY, PJ	EAC	03-30-84	LAITY, WALTER W	PML	EAC	352	14 5214-5	ON 02-13-84, PAUL CALLED RALPH CARUSO OF NRC REQUESTING THE FOLLOWING INFORMATION AND DRAWINGS ON THE REFERENCE ENGINES. HE ALSO SAID THAT SIMILAR INFORMATION ON THE OTHER 8, 12, 14 AND 20 CYLINDER ENGINES WOULD BE DESIRABLE.
VISIT TO SHOREHAM NUCLEAR POWER STATION TO EXAMINE SOME ENGINE PARTS FROM TDI MODEL R-48 DIESEL 0101	LOUZECKY, PJ	EAC	03-30-84		PML	EAC	352	9 5209-0	A VISIT WAS MADE TO THE SHOREHAM NUCLEAR POWER STATION ON 03-21-84 TO EXAMINE THE ENGINE PARTS REMOVED FROM A TDI ENGINE # 101, MODEL R-48. THE ENGINE HAD RUN 300 HOURS, 200 HOURS AT ABOUT 3/4 LOAD, 100 HOURS AT FULL LOAD AND 2 HOURS AT 10% OVERLOAD.
LETTER FROM PAUL LOUZECKY TO WALT LAITY RE: MEETING WITH ALASKAN DELAVAL OWNERS AND OPERATORS	LOUZECKY, PJ	EAC	03-31-84	LAITY, W	PML	PML	000	14 0014-25	
TDI ENGINES AT SHOREHAM NUCLEAR POWER STATION	LOUZECKY, PJ	EAC	03-31-84			LOUZECKY	352	9 5209-3	IN THIS LETTER LOUZECKY DISCUSSES 9 ASPECTS OF THE SHOREHAM ENGINES' CONDITION AT HIS 3/31 INSPECTION INCL CYLINDER BLOCKS, GEAR TEETH, TURBOCHARGERS, CRANKPIN BEARINGS, CAMSHAFT, LUBRICATION, PISTON CROWN AND CYLINDER LINERS

FIGURE 4.8. First Page of Expanded Report for "AUTHOR=LOUZECKY"

The response

[4,SNPS=T]]

will provide a quick summary report listing all documents pertaining to the Shoreham Nuclear Power Station. The first page of this report is provided in Figure 4.9.

Finally, responding with

[5]]

will result in a report listing documents pertaining to the components identified in this project as having problems of potential generic applicability. The first page of the resultant report is provided in Figure 4.10.

PAGE:	1				
DATE	TITLE	AUTHOR	TO	FILE	
10-11-83	PARSONS' PEEBLES ROTON FAILURE ANALYSIS	SILVERBERG		0002-2	
12-31-84	TDI OG DR/OR REPORTS RE: TM COMMENTS ON SHOREHAM	WENDELL, A	NESBITT, J	0004-18	
04-25-85	REVIEWS OF DR/OR REPORTS FROM VARIOUS CONSULTANTS	DINCEE, D	MURPHY, E	0004-19	
04-17-85	PML REVIEW OF DR/OR REPORTS FOR TDI DIESEL GENERATORS IN NUCLEAR SERVICE, REF. 1	LOUZECKY, J	LAITY, W	0004-20	
04-24-85	PML REVIEW OF DR/OR REPORTS FOR TDI DIESEL GENERATORS IN NUCLEAR SERVICE	JAFFRAY, N	NESBITT, J	0004-21	
04-25-85	REVIEWS OF DR/OR REPORTS FOR TDI DG'S IN NUCLEAR SERVICE	WENDEL, A	DINCEE, D	0004-22	
10-01-83	FIELD TEST OF EMERGENCY DIESEL GENERATOR 101	BERCEL, E		0006-2	
04-10-84	SOME TECHNICAL PARAMETERS FOR TDI ENGINES	MUSELER, W	DENTON, HR	0010-10	
02-29-84	EMERGENCY DIESEL GENERATOR COMPONENT TRACKING SYSTEM - SHOREHAM NUCLEAR POWER ST			0010-13	
03-22-84	TEST RESULTS FOR THE FIRST ENGINE PRODUCED FOR MODELS R-8, RV-12, RV-14 AND RV-2	MATHEWS, C	BERLINGER, B	0010-19	
12-14-83	TDI RESPONSE TO NRC QUESTIONS CONCERNING TRANSAMERICA DELAVAL EMERGENCY DIESEL E	MATHEWS, C		0010-3	
09-13-84	TDI DIESEL GENERATOR OWNERS GROUP RESPONSE TO PML AND NRC QUESTIONS FILE: MTS-40	RAY, C. L.	BERLINGER, B	0010-50	
03-29-85	MINIMUM MAINTENANCE AND SURVEILLANCE FOR GENERIC COMPONENTS ON TDI DSR-8-4 IN-11	ZALOUDEK, J	MICHAELS, S	0010-60	
04-01-84	TRIP REPORT - EVALUATION OF DIESEL ENGINE BLOCK CASTING -SNFS	SCHUSTER, J		0011-10	
08-01-84	SURVEY OF START EXPERIENCES AND CAUSES OF UNSCHEDULED SHUTDOWNS OF TDI DE	GUILD, D.H.		0011-9	
03-30-84	LETTER - TDI ENGINES IN THE SNPS PLANT INFORMATION AND DRAWINGS DESIRED	LOUZECKY, J		0012-3	
02-27-84	REPORT OF FEBRUARY 14, 1984 MEETING BETWEEN THE NRC AND REPRESENTATIVES OF THE T	MILLER, ME		0013-15	
02-11-85	NUCLEAR REGULATORY COMMISSION STAFF MEETING WITH TDI OWNERS' GROUP			0013-16	
11-03-83	SUMMARY OF NOVEMBER 3, 1983, EMERGENCY DIESEL GENERATOR MEETING	CARUSO, R		0013-3	
09-21-83	LETTER-SUMMARY OF SEPTEMBER 2, 1983 EMERGENCY DG MEETING	CARUSO, RA		0013-4	
02-11-85	PROJECT MASTER FILE - "PRESENTATIONS"			0014-16	
04-10-85	PML REVIEWS OF DESIGN REVIEW/QUALITY REVALIDATION REPORTS FOR TDI DIESEL GEN'	LAITY, WW	MCCLELLAND, D	0016-101	
04-08-85	INFORMATION NEEDED FOR LETTER TO DR/OR CONSULTANTS	NESBITT, J	DINCEE, DA	0016-102	
04-17-85	DR/OR REVIEWS	WEBBER, JV	LAITY, W	0016-104	
04-17-85	SHOREHAM AND COMANCHE PEAK DR/OR REVIEWS	LAITY, W	WEBBER, J	0016-105	
04-30-84	TDI OWNERS' GROUP PHASE I STATUS SHOREHAM NUCLEAR POWER STATION-UNIT 1 W010-48923	MUSELER, W	BERLINGER, B	0016-17	
10-30-83	INFORMATION NOTICE NO. 83-58: TRANSAMERICA DELAVAL DIESEL GENERATOR CRANKSHAFT F	JORDAN, EL		0016-4	
09-07-84	ACCOMMODATIONS AND GENERAL INFORMATION FOR TRIP TO LONG ISLAND, NY	LAITY, W.	TOBIN, J.	0016-64	
10-15-84	ASSESSMENT OF DIESEL ENGINE RELIABILITY/OPERABILITY (FIN 82952) MONTHLY REPORT F	LAITY, W	EISENHUT, S	0017-28	
09-12-84	MILESTONE REPORTS	MICHAELS, S	DINCEE, DA	0017-29	
11-19-84	TDI DIESEL STATUS SUMMARY REPORT	BERLINGER, B	MIRAGLIA, A	0017-33	
08-04-84	REQUEST FOR CONSULTING SERVICES DURING AUGUST AND SEPTEMBER, 1984	LAITY, WW	SARSTEN, A	0019-59	
12-11-84	TDI STATUS SUMMARY REPORT FOR NOVEMBER	BERLINGER, B	MIRAGLIA, A	0019-87	
03-14-85	ASSESSMENT OF DIESEL ENGINE RELIABILITY/OPERABILITY - STATUS INFO	GINTNER, W	CARRINGTON, B	0019-98	
05-07-84	L.O.T. "EVALUATION OF DIESEL GENERATOR FAILURE AT SHOREHAM UNIT 1, FINAL REPORT,	DAHLGREN, S	DISTRIBUTI	0020-10	
04-05-84	L.O.T. TDI ENGINES AT SHOREHAM NUCLEAR POWER STATION	LOUZECKY, J	LAITY, WAL	0020-18	
08-29-84	LOT JOINT TESTIMONY RE TDI DIESEL GENERATORS AT SHOREHAM NUCLEAR POWER STATION:	LAITY, WW	GODDARD, R	0020-29	
05-15-84	DEPOSITION OF SIMON K. CHEN			0021-14	
08-14-84	EXHIBIT FOR THE HEARINGS IN THE MATTER OF LILCO, SNPS C17-C24			0021-18	
	FINDING OF FACT			0021-20	
01-15-85	ADDITIONAL CYLINDER BLOCK TESTIMONY OF JOHNSON, RAY, SCHUSTER, WACHOB, AND YOUNG	RANGE, J.J.	BRENNER, M	0021-21	
03-05-84	REPORT ON TRAVEL, 3/1/84 - 3/2/84 (TO BROOKHAVEN AND SHOREHAM)	DINCEE, DA	PROJECT TE	0022-4	
	APPROACH FOR REESTABLISHING THE OPERABILITY AND RELIABILITY OF TDI DIESEL GENERA	LAITY, W.		0026-4	
12-08-83	METALLURGICAL ANALYSIS OF CRACKED PISTON SKIRTS FROM EMERGENCY DIESEL GENERATORS			3002-1	
05-23-84	INVESTIGATION OF TYPES AF AND AE PISTON SKIRTS (REVISED)			3002-3	
04-19-84	TRANSAMERICA DELAVAL ENGINE PROBLEMS: FAA REPORT 84-2-14 ON AF AND AE PISTON PRO	LOUZECKY, J	LAITY, WW	3004-1	
04-04-84	TDI UNITS IN NUCLEAR SERVICE EVALUATION OF AF/AE PISTON SKIRTS, SERIES R ENGINES	KIRKWOOD, S	DAHLGREN, S	3004-13	
07-11-84	AE PISTONS	MATHEWS, C	BERLINGER, B	3005-1	
11-08-84	LIQUID PENETRANT EXAMINATION REPORT FOR SHOREHAM- PISTON SKIRT		CERMANO, B	3009-2	
05-02-84	PISTON AND CONNECTING ROD WEIGHT DATA FOR THE SHOREHAM ENGINE	RAY, CL	DENTON, HR	3010-2	
03-22-84	SUPPLEMENTAL INFORMATION ON THE AE PISTONS AT THE SHOREHAM NUCLEAR POWER STATION	MUSELER, W	BERLINGER, B	3016-1	
11-29-84	L.O.T. POST-TEST EXAMINATION OF THE TDI ED DG 103 PISTONS AND RELATED COMPONENTS	LAITY, W.W	HENRIKSEN, S	3020-4	
08-23-83	EDG 102 CRANKSHAFT FAILURE--MASTER PLAN, SHOREHAM UNIT 1, WORK ORDER NO. 44430/	JUDGE, WM		3101-1	
	CRANKSHAFT STRESS ANALYSIS PROGRAM	BESHOURI, A		3101-2	
10-31-83	EMERGENCY DIESEL GENERATOR CRANKSHAFT FAILURE INVESTIGATION - SHOREHAM NUCLEAR P			3102-1	

FIGURE 4.9. First Page of Quick Summary Report for "SNPS=T"

 * ADERO REPORTS FROM OWNERS GROUP AND PNL/CONSULTANT REVIEWS *

REVIEW AND PREP OF TER FOR EVAL OF OG PROGRAM PLAN - B42320

06/21/85
 PAGE 1

DOCUMENTS REC'D FOR REVIEW	DATE REC	PNL AND NRC REVIEWS	DATE	INDIV REVIEWS/TRIP REPORTS	DATE
TDI DIESEL GENERATORS OWNERS' GROUP PROGRAM PLAN 2001-1	03-05-84	OG			
TDI DIESEL GENERATORS OWNERS' GROUP PROGRAM PLAN APPENDICES 2001-2	03-05-84	OG			
		CONTENT OF OWNERS GROUP REPORTS ON GENERIC PROBLEMS-DIESEL ENGINE OPERABILITY/RELIABILITY 2003-4	04-18-84	LAITY, WW	
TDI OWNERS GROUP INSPECTION SCHEDULE 2009-1	05-01-84	RAY, CL			
		TDI DIESEL ENGINE PROJECT INITIAL REVIEW AND EVALUATION OF OG PLAN 2003-5	05-07-84	LAITY, WW	
		DRAFT-REVIEW AND EVALUATION OF TDI DIESEL GENERATOR OWNERS' GROUP PROGRAM PLAN 2003-1	05-11-84	LAITY, WW	
		COMMENTS OF C BERLINGER ON DRAFT OF REVIEW AND EVALUATION OF TDI DIESEL GEN OG PROGRAM PLAN 2004-3	06-01-84	BERLINGER	
		STAFF COMMENTS ON PNL'S REVIEW AND EVALUATION OF TDI OG OG PROGRAM PLAN 2010-1	06-15-84	BERLINGER	
		REVIEW AND EVALUATION OF TDI DIESEL GENERATOR OWNERS' GROUP PROGRAM PLAN 2003-2	07-00-84E	PNL	
		KIRKWOOD'S COMMENTS ON REVIEW AND EVAL OF TDI DIESEL GENERATOR OWNERS' GROUP PROGRAM PLAN (DRAFT) 2004-2	08-06-84	KIRKWOOD,	

FIGURE 4.10. First Page of Generic Issue Tracker Report

4.3.2 dBase III Reports

In addition to the project-specific reporting formats, dBase III includes an easy-to-use report-generating utility that allows the user to generate custom reports from any dBase III database. This report generator is entirely menu-driven and must be used outside the document database main program (DG.PRG).

To enter this report-generating utility, enter a [6] from the Main Menu. The system will respond with the dBase III standard dot (.) prompt. Enter [MODIFY REPORT *filename*]], where *filename* is a user-specified name for the report format to be generated. This name must be less than 8 characters in length. Follow the instructions in this utility to design a custom reporting format. When the desired reporting format is complete, depress "Ctrl" and "W" simultaneously. Enter [REPORT FORM *filename* TD PRINT]] to begin printing the entered report.

The specific features of this report generator and detailed instructions for its use are documented in the dBase III User's

Manual. However, the report formats provided in the document database system should provide sufficient flexibility for any projected reporting requirements.

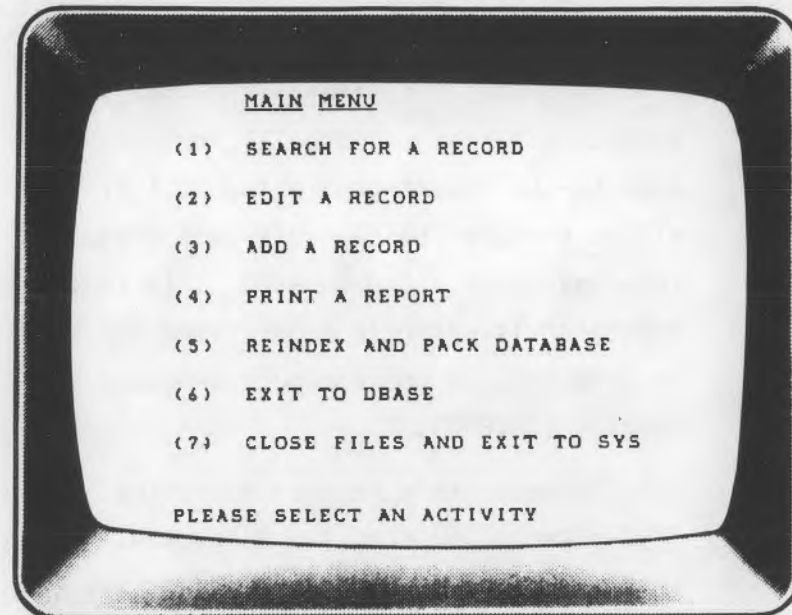
4.4 MAINTAINING THE DOCUMENT DATABASE

Although the document database is expected to remain relatively static, the utility programs that were used to facilitate entering and editing data are provided. These utilities and their use are described in the subsections that follow.

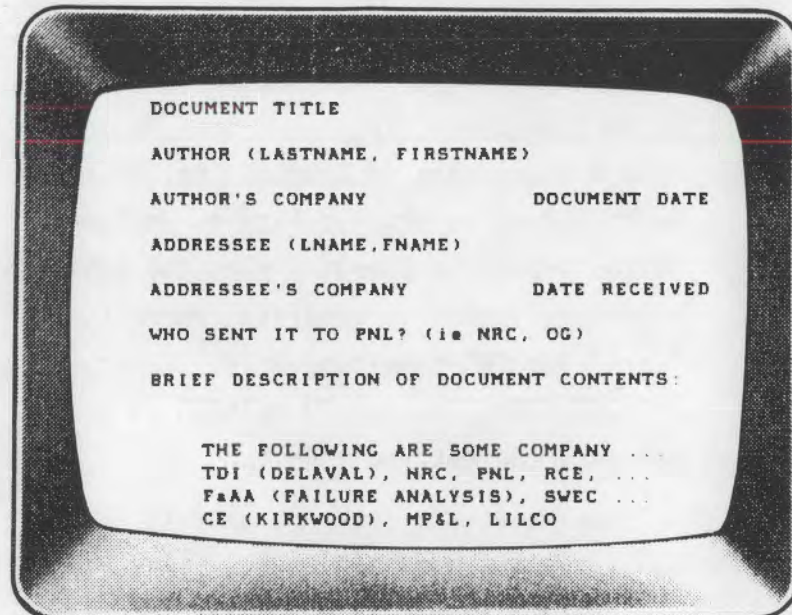
4.4.1 Adding Records

Entering data on documents to be added to the document database is accomplished using the ADDREC procedure. This utility will set up the screen to facilitate data input, list some of the most common abbreviations, and assign a file number to the document based on the ISSUE and DOC_TYP codes.

To add a record, enter a [3] from the Main Menu. (Note: If the system displays the dBase III standard dot (.) prompt, enter [DO DG]] to get back into the main program.)



The system will then set up the screen for inputting the requisite data. When entering data, special cursor control and inputting functions may be used as described in the following paragraphs.



Cursor control keys on the numeric keypad (up arrow, down arrow, left arrow, and right arrow) may be used.

The left arrow moves the cursor one space to the left; the right arrow moves the cursor one space to the right. The up arrow moves the cursor to the previous field, and the down arrow moves the cursor to the subsequent field. If depressing these keys causes numbers to be displayed on the screen, then depress the "Num Lock" key once.

Certain keys depressed while the "Ctrl" key is depressed also provide special functions to facilitate data entry. In the following discussion, a "^" preceding a letter is used to indicate that the specified key should be depressed while the "Ctrl" key is depressed (similar to the shift key).

Depressing ^S will function the same as the left arrow key. Similarly, ^D, ^E, and ^X will emulate the right arrow, up arrow, and down arrow, respectively.

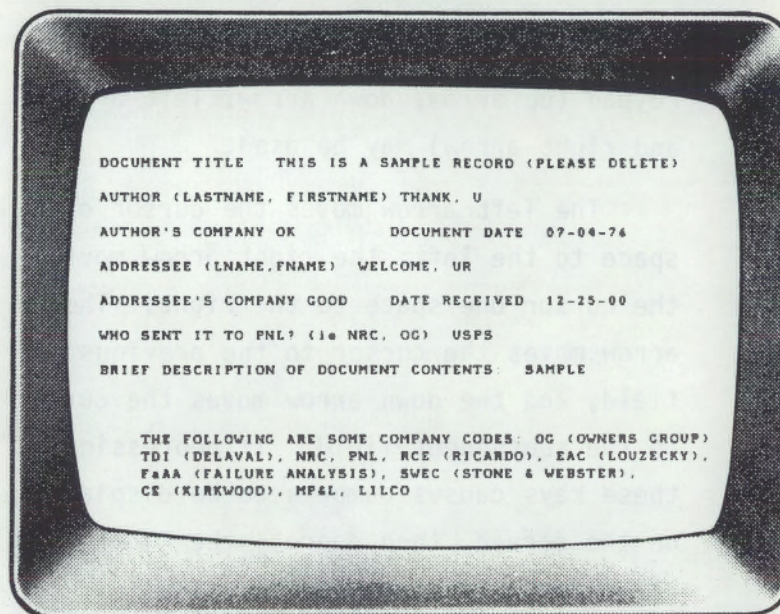
In addition, the ^A will move the cursor to the beginning of the previous word, and ^F will move the cursor to the beginning of the next word.

The ^G will delete the character under the cursor, the ^T will delete the character under the cursor and all subsequent characters in the same word, and the ^Y will delete the character under the cursor and all subsequent characters in the field.

The ^U will toggle a tag for deleting the entire record, although the record will not be purged from the database until a Pack of the database is performed. Packing the database will be discussed in Section 4.3.3.

The ^V will toggle input between overwriting and insertion modes. If the current input mode is toggled to insertion, then the words INSERT ON will be displayed at the top of the screen.

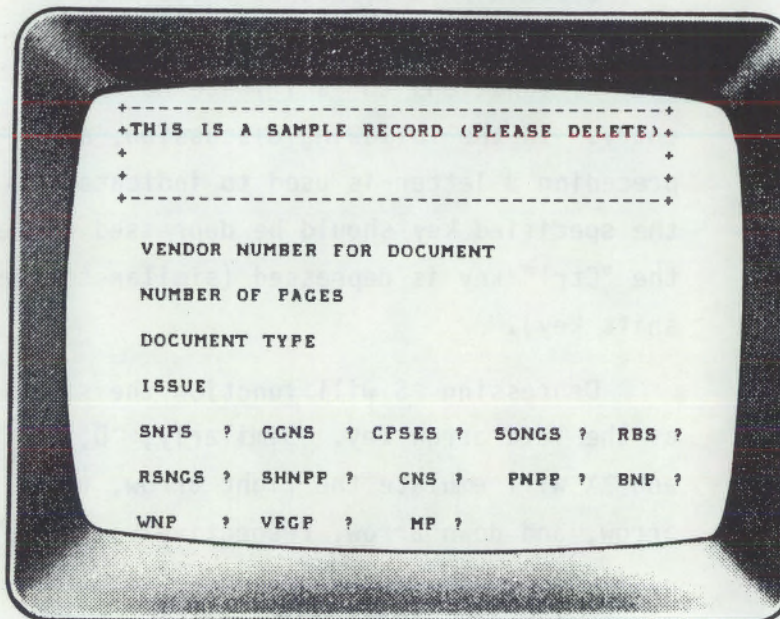
When the desired information is input on the current screen, enter a ^W. A sample entry is shown.



```
DOCUMENT TITLE  THIS IS A SAMPLE RECORD (PLEASE DELETE)
AUTHOR (LASTNAME, FIRSTNAME) THANK, U
AUTHOR'S COMPANY OK          DOCUMENT DATE  07-04-74
ADDRESSEE (LNAME, FNAME) WELCOME, UR
ADDRESSEE'S COMPANY GOOD    DATE RECEIVED  12-25-00
WHO SENT IT TO PNL? (ie NRC, OG)  USPS
BRIEF DESCRIPTION OF DOCUMENT CONTENTS:  SAMPLE

THE FOLLOWING ARE SOME COMPANY CODES:  OG (OWNERS GROUP)
TDI (DELAVAL), NRC, PNL, RCE (RICARDO), EAC (LOUZECKY),
FAAA (FAILURE ANALYSIS), SVEC (STONE & WEBSTER),
CE (KIRKWOOD), MP&L, LILCO
```

The remaining fields in the record will now be displayed for data entry, with the document title displayed at the top of the screen. As discussed earlier, all documents should include a non-zero DOC_TYP code. If the ISSUE code is left blank, it will default to zero.



```
+-----+
+THIS IS A SAMPLE RECORD (PLEASE DELETE)+
+
+
+-----+

VENDOR NUMBER FOR DOCUMENT

NUMBER OF PAGES

DOCUMENT TYPE

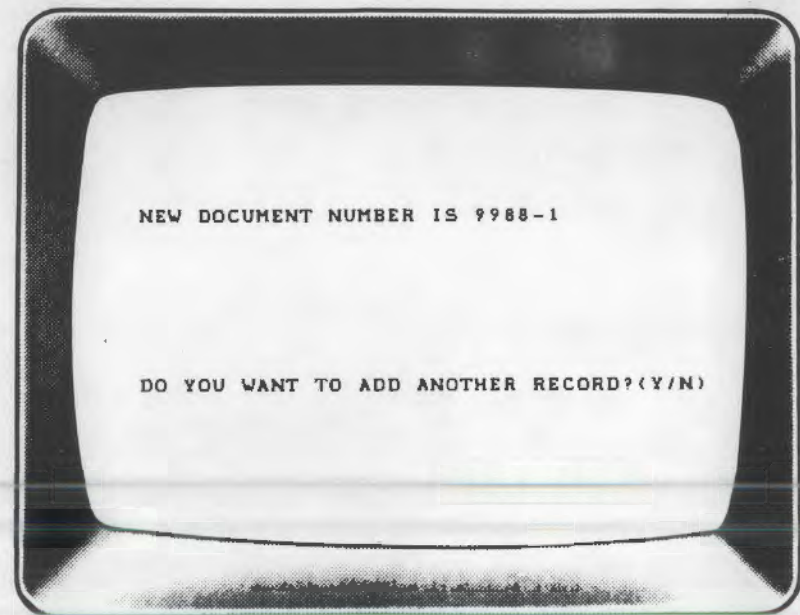
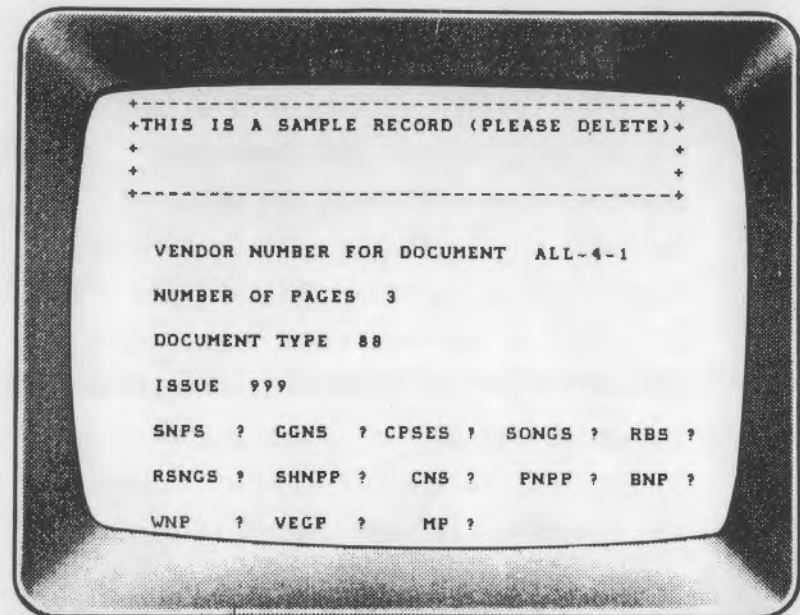
ISSUE

SNPS ?  GCNS ?  CPSES ?  SONGS ?  RBS ?
RSNGS ?  SHNPP ?  CNS ?  PNPP ?  BNP ?
WNP ?  VEGP ?  MP ?
```


If the document being added to the database pertains to specific reactor sites, then the appropriate site fields (e.g., SNPS, GGNS) should be set to true by entering a [T] in the appropriate field.

When the information has been entered, depress ^W. Sample data for the second half of the record are shown. Note the issue code and document type code. These codes will be used to generate the file number.

After a few seconds, the file number assigned by the system will be displayed on the screen. In our sample entry, a DOC_TYP code of 88 and ISSUE code of 999 were used. This results in a file number 9988-1. The file number assigned by the system should always be copied to the top right corner of the entered document (hard copy) to allow for correct filing. The system will also ask if you wish to add another document. A [Y] response will result in a new blank record appearing on the screen; an [N] response will return you to the Main Menu.

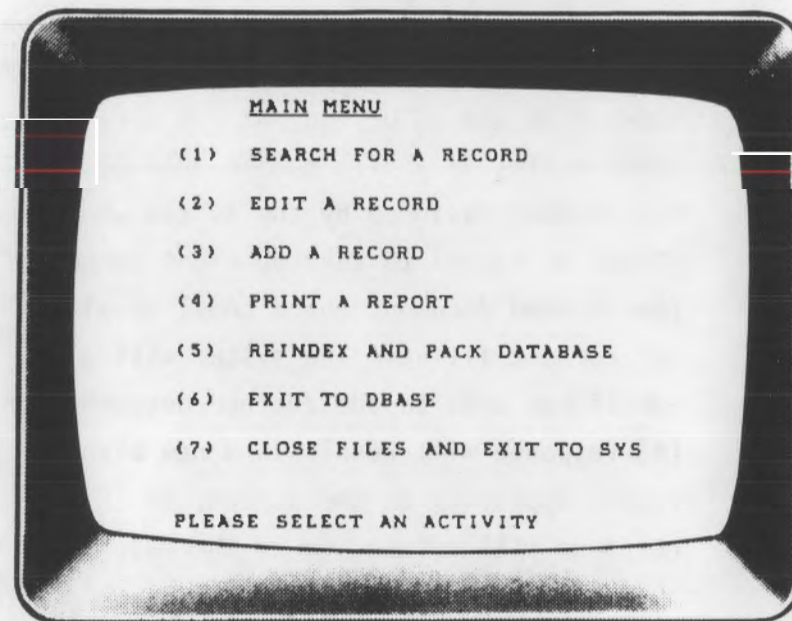


4.4.2 Editing Records

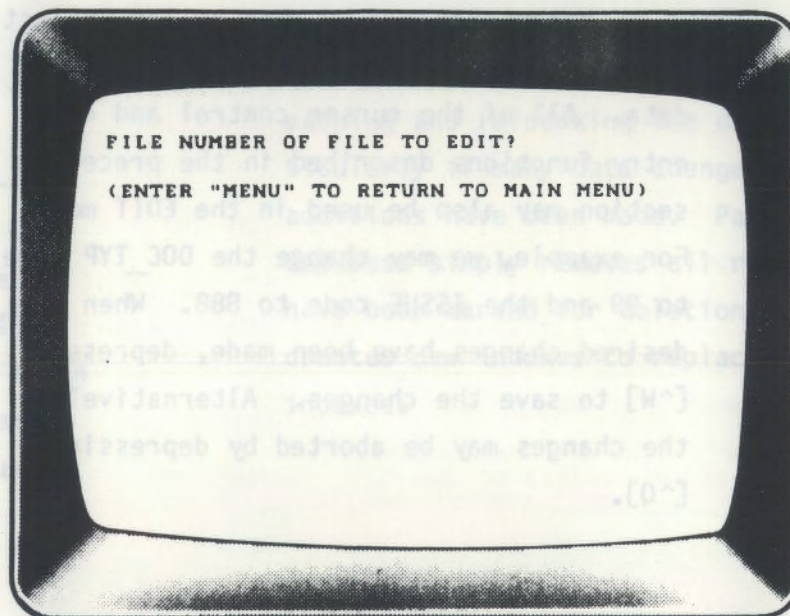
The EDITREC utility will allow you to edit records that have been previously entered into the document database. As with the edit feature in the Speed Search mode, this utility will allow you to correct minor errors such as misspellings. In addition, corrections to the ISSUE and DOC_TYP codes may be made. Corrections in these fields will change the document FILE_NUM. When file number changes are made, the new file number should be recorded IMMEDIATELY on the hard copy of the reference document.

To edit a record, enter a [2] from the Main Menu.

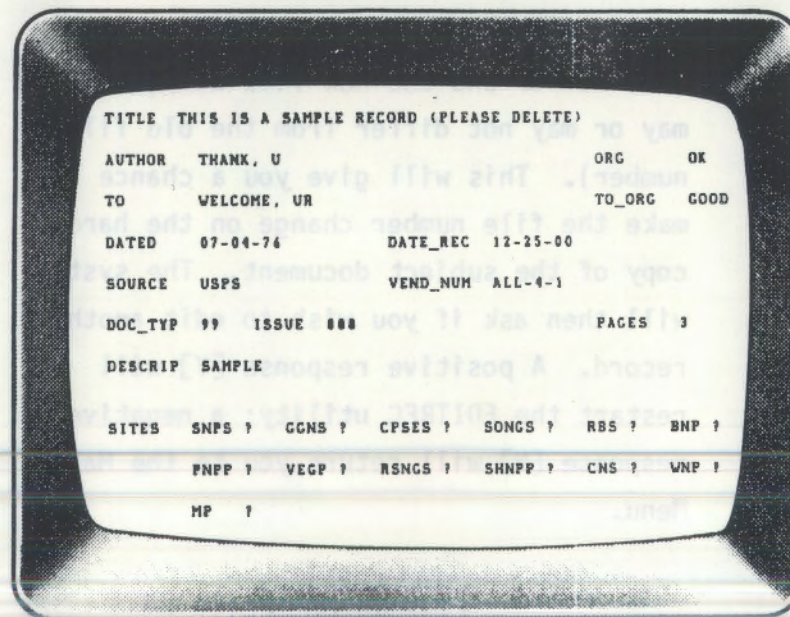
Warning: Changing the file number in the database without following up with a corresponding change on the document hard copy file number is tantamount to losing the document.



The system will request the file number of the document to be edited. The exact file number must be known. If the file number is not known, enter an [R]] to return to the Main Menu. Any of the search modes may be used to find the file number of the document to be edited.



To edit a record, enter its file number followed by a return. As an example, enter [9988-1]]. All information in the database regarding the requested document will be displayed on the screen, with the exception of the file number. Recall that the file number will be assigned by the system. If no changes are made to the DOC_TYP or ISSUE codes, then the FILE_NUM will remain unchanged.



To find out how many records are in the CHANGES database, enter [DISPLAY STRUCTURE]]. Displayed on the screen will be the name of the database (CHANGES.dbf), the number of records in the database (361), the date of the last update (06/20/85), and a list of the fields that make up the database.

```

CLOSE DATA
USE CHANGES
DISPLAY STRUCTURE
Structure for database : E:CHANGES.dbf
Number of data records : 361
Date of last update : 06/20/85
Field  Field name  Type      Width
  1  TEXT           Character  14
  2  OLDFILE        Character   8
  3  NEWFILE        Character   8
** Total **                31

```

If you want to list all of the records in CHANGES on the screen, enter [DISPLAY ALL]]. If you want only the most recent n records, first calculate the starting record number ($s = \text{number of records} - n + 1$), then enter [GOTO s]] and [DISPLAY NEXT n]]. For example, to display the last 10 records ($s = 361 - 10 + 1 = 352$), enter [GOTO 352]], [DISPLAY NEXT 10]].

```

GOTO 352
DISPLAY NEXT 10
Record#  TEXT           OLDFILE  NEWFILE
 352  DATE: 06/20/85
 353  NEW DOCUMENT
 354  RECORD EDITED  0000-1   5220-44
 355  NEW DOCUMENT
 356  NEW DOCUMENT
 357  NEW DOCUMENT
 358  NEW DOCUMENT
 359  NEW DOCUMENT
 360  NEW DOCUMENT
 361  RECORD EDITED  3102-88  3104-45

```

For printer output, the command format is very similar. Enter [LIST ALL TO PRINT]] to print all records. Enter [GOTO s]] and [LIST NEXT n]] to print the last n records.

To return to the document database main program, enter [DO DG]]. Alternatively, to exit from dBase III, enter [QUIT]].

[Faint, illegible text]

[Faint, illegible text]

[Faint, illegible text]

5.0 DRAWING DATABASE FEATURES AND USER'S INSTRUCTIONS

The structure and features of the drawing database are described in this section. The description is followed by explanatory notes and examples that show how to use the database to find component drawings.

It is important to note that the drawing database is completely separate from the document database. The instructions in Section 4.0 for searching, adding, editing, and reporting on documents will not function with the drawing database due to basic structural differences between the databases. An elaborate package for manipulating the drawing database was deemed inappropriate, based on the projected frequency of database use. The static nature of the database (no new drawings are expected to be added) also indicated little need for sophisticated data manipulation routines.

To use the drawing database, the files listed in Table 5.1 should reside on the currently logged disk drive.^(a)

TABLE 5.1. Computer Files Needed for the Drawing Database

<u>dBase III and System Files</u>	<u>Drawing Database Files</u>
DBASE.EXE	DGDRAW.DBF
DBASE.OVL	
CONFIG.SYS	
CONFIG.DB	

5.1 DRAWING DATABASE STRUCTURE

The drawing database structure includes only the drawing title, drawing number, and an assigned file number. These fields are described in Table 5.2.

(a) The drawing database is small enough to use from a floppy disk drive. Refer to the "SET DEFAULT TO" command in the dBase III User's Manual if you want to use the database from a floppy disk drive.

TABLE 5.2. Drawing Database Structure

<u>Field</u>	<u>Type</u>	<u>Length</u>
TITLE	Character	55
NUMBER	Character	20
FILE_NUM	Character	7

Experience has shown that the database in its current form can be used effectively for finding specific drawings with minimal manual search requirements.

5.2 SEARCHING THE DRAWING DATABASE

The simple structure of the drawing database makes searches of the database straightforward. The files listed in Table 5.1 should reside in the current directory of the hard disk drive. Enter the command [DBASE]], followed by [USE DGDRAW]]. You are now ready to search the DGDRAW database.

5.2.1 General Form of the Search Commands

To find specific drawings, you may search either the TITLE field or the NUMBER field for known data, and find the corresponding file number(s). The following

discussion describes two dBase III substring search commands as they may be applied to the drawing database. The first substring search command is used to direct information to the screen; the second search command is used to print out the desired information.

To display the file information on the screen, the command format is

```
DISPLAY OFF fields FOR 'string'$field
```

Here, *fields* may be any combination of the fields TITLE, NUMBER, and FILE_NUM, delimited with commas. If *fields* is not specified, then all three fields will be output. *string* is the information known about the desired drawing(s), usually the part number or some part of the drawing title. *field* is the one field that would contain the input *string*. A sample command would be

```
DISPLAY OFF TITLE,FILE_NUM  
FOR 'PISTON'$TITLE
```

Note that *string* should always be input in all capital letters.

If more records match the input search condition than would conveniently fit on the screen, then the output will pause when the screen is filled and display the message "Press any key to continue...". Depressing any key will cause subsequent records to be similarly displayed.

To list the requested information on the printer, the command format is

```
LIST OFF fields FOR  
'string'$field TO PRINT
```

The *fields*, *string*, and *field* parameters are the same as described above. An example of this command is

```
LIST OFF TITLE,NUMBER,FILE_NUM FOR  
'CAMSH'$TITLE TO PRINT
```

5.2.2 Examples of Drawing Database Searches

One caveat regarding these substring search commands is in order. When using these commands, be aware that the drawing titles may contain abbreviations, and that dBase III will look for the exact substring specified in *string*. You must be careful, therefore, not to overspecify *string* in the search commands.

For example, connecting rods are frequently referred to as conn rods. The command

```
DISPLAY OFF TITLE,FILE_NUM  
FOR 'CONNECTING'$TITLE
```

will not find drawings using an abbreviation for "connecting". An alternative command is


```
DISPLAY OFF TITLE,FILE_NUM  
FOR 'CONN'$TITLE
```

This command will find all drawings with 'CONN' in the title, even if 'CONN' is part of another word (i.e., CONNECTING).

Examples of these commands are listed in Table 5.3. Samples of the output corresponding to these commands are presented in Figures 5.1 through 5.4.

TABLE 5.3. Examples of Drawing Database Search Commands

<u>Command</u>	<u>Output</u>
DISPLAY OFF TITLE,FILE_NUM FOR 'FOUND'\$TITLE	See Figure 5.1
DISPLAY OFF TITLE,FILE_NUM FOR 'PIST'\$TITLE	See Figure 5.2
LIST OFF TITLE,FILE_NUM FOR 'CONN'\$TITLE TO PRINT	See Figure 5.3
LIST OFF FOR '345'\$NUMBER TO PRINT	See Figure 5.4

TITLE	FILE_NUM
SHIELD-BARRING BRACKET FOUNDATION BOLT	D-1165
DOWNSPOUT - FOUNDATION ,BOLT	D-1167
FOUNDATION BOLT	D-1168
BOLT, ENGINE FOUNDATION	D-1492
SHIELD-FOUNDATION BOLTS	D-1494
WASHER, FOUND BOLT	D-1497
BOLT, ENGINE FOUNDATION	D-1499
ANCHOR, FOUNDATION BOLT	D-1500
SHIELD, GENERATOR FOUNDATION BOLT	D-1624
FOUNDATION DRAWING - DSRV 16	D-1626
PARTS LIST-FOUNDATION BOLTS - MISC	D-1627
ANCHOR, FOUNDATION BOLT	D-1628
WASHER, FOUNDATION BOLT	D-1630
BOLT, ENGINE FOUNDATION	D-1631
ANCHOR, FOUNDATION BOLT	D-1632
SHIELD, FOUNDATION BOLT	D-1633
ANCHOR, ENGINE FOUNDATION BOLT	D-1634
ANCHOR, FOUNDATION BOLT - FRONT AND REAR	D-1635
PARTS LIST-ENGINE FOUNDATION BOLTS AND SOLE PLATE	D-1643

FIGURE 5.1. Sample Output Resulting From "DISPLAY OFF TITLE,FILE_NUM FOR 'FOUND'\$TITLE"

TITLE	NUMBER
PISTON, AIR STARTING VALVE	02-359-03-AH
SUPPORT, PISTON LUBRICATION HEADER	R-1605
HEADER, PISTON LUBRICATING	R-1829
CLAMP-PISTON LUBRICATING LINE	R-1659
PARTS LIST - LUBE OIL PIPING- RV 16 W/ PISTON OILING	02-307-04-01
PISTON RING - CONFORMABLE GROOVED OIL CUTTER	F-113-005
PISTON RING - TAPERED CHROME COMPRESSION	F-113-160
PISTON RING - CROWNED CHROME COMPRESSION	F-113-018
RING SET, PISTON - 17" DIAMETER	JC-013-000
PARTS LIST - PISTON-2 PIECE-DIESEL - 450 RPM ENG.	03-341-74010
PISTON ASSEMBLY -TWO PC. (R/RV-4 ENGINES)	C3-341-7319
PISTON PIN	R-3019
PLUG, PISTON PIN	R-3057
RING SET, PISTON - 17" DIAMETER (SPECIFICATION)	JC-013-000
CROWN - TWO PC. PISTON	03-340-04-AE
STUD - TWO PC. PISTON	03-341-04-AB
THRUST COLLAR - TWO PC. PISTON	03-341-04-AC
LOK-TAB TWO PC. PISTON	03-341-04-AD
SKIRT - TWO PC. PISTON	03-341-04-AE
SPRING GUIDE - TWO PC. PISTON	03-341-04-AF

Press any key to continue...

FIGURE 5.2. Sample Output Resulting from "DISPLAY OFF TITLE,FILE_NUM FOR 'PIST'\$TITLE"

TITLE	NUMBER
RING - PISTON, CONFORMABLE GROOVED OIL CUTTER	F-113-102
PISTON RING	F-113-017
RING SET, PISTON - 17" DIA. (SPECIFICATION)	JC-013-000
NUT, PISTON CROWN - SLOTTED-HEX	02-340-05-AH
SKIRT - TWO PIECE PISTON	03-360-04-AF
STUD - TWO PIECE PISTON	03-340-04-AG
PISTON ASSEMBLY	03-340-3615
PISTON & CONN. ROD ASSY. (13" DIA CRANKPINS)	02-340-05
PARTS LIST-PISTON & CONN. ROD-450 ENG. RPM-13" PINS	02-340-74033
PISTON, BARRING DEVICE	R-3621
EXTENSION, PISTON SHAFT, BARRING DEVICE	02-525-03-OA
SHAFT-PISTON, BARRING DEVICE	R-3120
PISTON RING, COMPRESSION 8 X 3/16	B-4781

FIGURE 5.2. (contd)

TITLE	FILE_NUM
GASKET-CONNECTOR, WATER MANIFOLD	D-0064
CONNECTOR, MALE 1/4P X 1/4T	D-0091
TUBE FITTINGS - MALE CONNECTOR	D-0176
TUBE FITTINGS, MALE CONNECTOR	D-0309
PIPE, CONNECTOR	D-0386
TUBE FITTINGS-MALE CONNECTOR	D-0401
TUBE FITTINGS-MALE CONNECTOR	D-0532
FLEXIBLE CONNECTOR - AIR INTAKE (SPECIFICATION)	D-0585
CONNECTOR - "R" & RV", EXHAUST ROCKER ARM	D-0634
CONNECTOR FRONT SUMP DRAIN	D-0849
TUBE FITTINGS - MALE CONNECTOR (SPECIFICATION)	D-0853
TUBE FITTINGS - MALE CONNECTOR SPECIFICATION)	D-0934
TUBE FITTINGS - MALE CONNECTOR	D-0973
PARTS LIST - CONNECTING ROD - 12" DIA. CRANK PINS	D-1048
CONNECTING ROD AND BUSHING ASSEMBLY	D-1049
CONNECTING ROD - FINAL MACHINING	D-1050
BUSHING - CONN. ROD	D-1051
BOLT - CONNECTING ROD	D-1052
WASHING, CONN. ROD BOLT	D-1054
SHELL - CONNECTING ROD BEARING - UPPER AND LOWER	D-1055
CONNECTING ROD, LINK	D-1227
LINK, CONN. ROD ASS'Y	D-1228
RING, RETAINER - CONNECTING ROD SHELL	O-1229
SHELL, CONN. ROD BEARING - UPPER AND LOWER	D-1230
BUSHING, CONNECTING ROD BOX	O-1233
BOLT, CONNECTING ROD	D-1234
BOLT, CONNECTING ROD	D-1237
DOVEL, MASTER ROD TO CONN. ROD BOX	O-1239
CONN. ROD MASTER	D-1241
MASTER ROD AND CONN. ROD BOX	D-1242
MASTER ROD & CONN. ROD BOX ASSEMBLY	D-1243
PISTON & CONN. ROD ASSY. (13" DIA CRANKPINS)	D-1244
PARTS LIST-PISTON & CONN. ROD-450 ENG. RPM-13" PINS	D-1245
E.M.T. COMPRESSION CONNECTORS (SPECIFICATION)	D-1318
CORD GRIP CONNECTORS (SPECIFICATION)	D-1319
OIL-TIGHT THREE WIRE CONNECTOR (SPECIFICATION)	D-1321
LIQUID-TIGHT CONDUIT CONNECTORS (SPECIFICATION)	D-1324
CORD GRIP CONNECTOR	D-1327
LIQUID-TIGHT CONDUIT CONNECTORS (SPECIFICATION)	D-1341
CONNECTOR - AUX F. OIL PIPE TD TUBING	D-1383
TUBE FITTINGS - MALE CONNECTOR (SPECIFICATION)	D-1396
TUBE FITTING - MALE CONNECTOR (SWAGELOK)	D-1581
CONNECTOR, HOSE FITTING	D-1658
FLEXIBLE CONNECTOR, AIR INTAKE (AIR MAZE)	D-1676
CONNECTOR LUBE DIL SUMP DRAIN	D-1681
TUBE FITTING BULKHEAD FEMALE CONNECTOR	D-1814
MOUNTING BLOCK 12 PORT CONNECTOR	D-1854
TUBE FITTINGS, MALE CONNECTOR	D-1865

FIGURE 5.3. Sample Output Resulting from "LIST OFF TITLE,FILE_NUM FOR 'CONN'\$TITLE TO PRINT"

TITLE	NUMBER	FILE_NUM
TAPPET-INTAKE AND EXHAUST	08-345-03-AJ	0-0020
BASE ASSEMBLY-FUEL PUMP	03-345-1821	D-0024
ROLLER, CAM	02-345-01-0B	D-0027
BUSHING, ROLLER	02-345-01-0F	D-0028
BUSHING PIN	02-345-01-0E	D-0029
PIN, ROLLER	02-345-03-AB	0-0030
TAPPET, FUEL	02-345-03-AE	D-0032
TAPPET ASSEMBLY FUEL	02-345-2463	D-0033
GUIDE-FUEL TAPPET	03-345-02-AA	D-0034
GUIDE ASSY.-FUEL TAPPET	02-345-2463	D-0035
ROLLER, CAM	08-345-03-AE	D-0036
BUSHING-ROLLER	08-345-03-AB	D-0037
BUSHING-PIN	08-345-03-AC	D-0038
PIN, ROLLER	08-345-03-AD	D-0039
TAPPET ASSEMBLY INLET AND EXHAUST	02-345-1809	D-0041
GUIDE-TAPPET CLUSTER	03-345-02-AC	D-0042
TAPPET AND GUIDE ASSEMBLY INTAKE AND EXHAUST	02-345-1798	D-0043
TAPPET AND GUIDE ASSEMBLY	03-345-02	D-0044
PARTS LIST-TAPPETS AND GUIDES-IN. EXH. AND FUEL	03-345-02-02	D-0045
STUD-FUEL PUMP BASE-RV	02-345-01-0	D-1411
VENT TUBING - FUEL PUMP BASE	02-345-03-AF	D-1412
BASE ASSEMBLY - FUEL PUMP	02-345-3443	D-1414
GUIDE, FUEL TAPPET	02-345-03-AD	D-1415
GUIDE ASSEMBLY - FUEL TAPPET	02-345-4227	D-1416
GUIDE-TAPPET CLUSTER, W/O AIR START	02-345-03-AC	D-1417
TAPPET AND GUIDE ASS'Y INTAKE-EXHAUST	02-345-4225	D-1418
TAPPET AND GUIDE ASSY., INTAKE, EXHAUST, AIR AND FUEL	02-345-03	D-1419
PARTS LIST-TAPPETS AND GUIDES-INLET-EXHAUST & FUEL	02-345-03-02	D-1420

FIGURE 5.4. Sample Output Resulting From "LIST OFF FOR '345'\$NUMBER TO PRINT"

TABLE 1.1. Summary of the 1980-1981 Survey of the Status of the Fishery Resources of the United States

Species	1980-1981	1982-1983
Atlantic Salmon	1,200,000	1,100,000
Atlantic Herring	1,500,000	1,400,000
Atlantic Mackerel	1,800,000	1,700,000
Atlantic Bluefish	2,000,000	1,900,000
Atlantic Striped Bass	2,200,000	2,100,000
Atlantic Rockfish	2,400,000	2,300,000
Atlantic Spiny Tail	2,600,000	2,500,000
Atlantic Winter Flounder	2,800,000	2,700,000
Atlantic Silverside	3,000,000	2,900,000
Atlantic Menhaden	3,200,000	3,100,000
Atlantic Croaker	3,400,000	3,300,000
Atlantic Gizzard Shad	3,600,000	3,500,000
Atlantic Weakfish	3,800,000	3,700,000
Atlantic Atlantic Croaker	4,000,000	3,900,000
Atlantic Atlantic Silverside	4,200,000	4,100,000
Atlantic Atlantic Menhaden	4,400,000	4,300,000
Atlantic Atlantic Croaker	4,600,000	4,500,000
Atlantic Atlantic Silverside	4,800,000	4,700,000
Atlantic Atlantic Menhaden	5,000,000	4,900,000
Atlantic Atlantic Croaker	5,200,000	5,100,000
Atlantic Atlantic Silverside	5,400,000	5,300,000
Atlantic Atlantic Menhaden	5,600,000	5,500,000
Atlantic Atlantic Croaker	5,800,000	5,700,000
Atlantic Atlantic Silverside	6,000,000	5,900,000
Atlantic Atlantic Menhaden	6,200,000	6,100,000
Atlantic Atlantic Croaker	6,400,000	6,300,000
Atlantic Atlantic Silverside	6,600,000	6,500,000
Atlantic Atlantic Menhaden	6,800,000	6,700,000
Atlantic Atlantic Croaker	7,000,000	6,900,000
Atlantic Atlantic Silverside	7,200,000	7,100,000
Atlantic Atlantic Menhaden	7,400,000	7,300,000
Atlantic Atlantic Croaker	7,600,000	7,500,000
Atlantic Atlantic Silverside	7,800,000	7,700,000
Atlantic Atlantic Menhaden	8,000,000	7,900,000
Atlantic Atlantic Croaker	8,200,000	8,100,000
Atlantic Atlantic Silverside	8,400,000	8,300,000
Atlantic Atlantic Menhaden	8,600,000	8,500,000
Atlantic Atlantic Croaker	8,800,000	8,700,000
Atlantic Atlantic Silverside	9,000,000	8,900,000
Atlantic Atlantic Menhaden	9,200,000	9,100,000
Atlantic Atlantic Croaker	9,400,000	9,300,000
Atlantic Atlantic Silverside	9,600,000	9,500,000
Atlantic Atlantic Menhaden	9,800,000	9,700,000
Atlantic Atlantic Croaker	10,000,000	9,900,000

APPENDIX A

DOCUMENT DATABASE MANIPULATION PROGRAMS LISTING

```

* PROGRAM LISTING FOR THE DOCUMENT DATABASE - DG.DBF
*
*   MAIN PROGRAM -- DG.PRG
*   PROCEDURES -- DGPROC.PRG
*   FORMAT FILES -- DGSTD.FMT, DGTHR.FMT, DGFOR.FMT
*
SET PROCEDURE TO DGPROC
*
* THE FOLLOWING STATEMENTS SET VARIOUS DBASE FEATURES
SET HEADING OFF
SET SAFETY OFF
SET DEVICE TO SCREEN
RELEASE ALL
SET TALK OFF
CLEAR
* THE DATABASE FILE NAME IS DG
* FOUR INDEXES ARE USED -- FILE, TITLE, DATE, AND AUTHOR
* THE FORMAT FILES SIMPLY ESTABLISH SCREEN FORMAT FOR RECORD DISPLAYS
USE DG
SET INDEX TO FILE,TITLE,DATE,AUTHOR
SET FORMAT TO DGSTD
*
SELECT B
* CHANGES IS A SUPPLEMENTAL DATABASE USED TO RECORD FILE NUMBER CHANGES
USE CHANGES
GOTO BOTT
STORE DTOC( DATE() ) TO DCHECK
IF SUBSTR( TEXT, 7, 8 ) ( ) DCHECK
  APPEND BLANK
  REPLACE TEXT WITH 'DATE: '+DTOC( DATE() )
ENDIF
SELECT A
DO WHILE .T.
SET COLOR TO GR+/B,W/R,G
* -- WRITE THE MAIN MENU TO SCREEN
CLEAR
@ 2,20 SAY 'MAIN MENU'
@ 3,20 SAY '-----'
@ 5,15 SAY '(1) SEARCH FOR A RECORD'

```



```

@ 7,15 SAY '(2) EDIT A RECORD'
@ 9,15 SAY '(3) ADD A NEW RECORD'
@ 11,15 SAY '(4) PRINT A REPORT'
@ 13,15 SAY '(5) REINDEX AND PACK DATABASE'
@ 15,15 SAY '(6) EXIT TO DBASE'
@ 17,15 SAY '(7) CLOSE FILES AND EXIT TO SYSTEM '
@ 20,15 SAY 'PLEASE SELECT AN ACTIVITY '
@ 23,1 SAY ' '
*
WAIT ' ' TO ACT
@ 22,0 SAY '
DO CASE
*
CASE ACT='1'
@ 5,9 SAY '----->'
@ 20,1 SAY ' '
STORE 1 TO CTR
DO WHILE CTR<15
STORE 1+CTR TO CTR
ENDDO
*
DO SEARCH
*
CASE ACT='2'
@ 7,9 SAY '----->'
@ 20,1 SAY ' '
STORE 1 TO CTR
DO WHILE CTR<15
STORE 1+CTR TO CTR
ENDDO
*
DO EDITREC
*
CASE ACT='3'
@ 9,9 SAY '----->'
@ 20,1 SAY ' '
STORE 1 TO CTR
DO WHILE CTR<15
STORE 1+CTR TO CTR
ENDDO

```

```

*
DO ADDRAC
CASE ACT='4'
@ 11,9 SAY '-----)'
@ 20,1 SAY ' '
STORE 1 TO CTR
DO WHILE CTR<15
STORE 1+CTR TO CTR
ENDDO
DO REPT
*
CASE ACT='5'
@ 13,9 SAY '-----)'
@ 20,1 SAY ' '
STORE 1 TO CTR
DO WHILE CTR<15
STORE 1+CTR TO CTR
ENDDO
CLEAR
@ 15,10 SAY 'ARE YOU SURE?(Y/N)'
WAIT ' ' TO SURE
IF UPPER(SURE)='T'.OR.UPPER(SURE)='Y'
DO INDEXER
ENDIF UPPER(SURE)
*
CASE ACT='6'
@ 15,9 SAY '-----)'
@ 20,1 SAY ' '
STORE 1 TO CTR
DO WHILE CTR<15
STORE 1+CTR TO CTR

```

```

        ENDDO
    CLEAR
    @ 10,8 SAY ' '
    ? 'FILE NUMBER CHANGES ARE RECORDED IN CHANGES.OBF'
    STORE 'R' TO PK
*
    RELEASE PAN,CTR,ACT,CHGFIL2,TEST,COUNT,MAIN,REINO,PK
    @ 16,4 SAY ' '
    SET ESCAPE ON
    SET PROCEDURE TO
    RETURN
*
CASE ACT='7'
    @ 17,9 SAY '----)'
    @ 20,1 SAY ' '
    STORE 1 TO CTR
    DO WHILE CTR<15
        STORE 1+CTR TO CTR
    ENDDO
    CLEAR
    @ 13,8 SAY ' '
    ? 'FILE NUMBER CHANGES ARE RECORDED IN FILE CHANGES.DBF'
    RELEASE PAN,CTR,ACT,MAIN,TEST,REIND,COUNT
    @ 20,1 SAY ' '
    USE
    SET ALTERNATE TO
    QUIT
*
OTHERWISE
    @ 22,1 SAY 'ILLEGAL ENTRY --- ENTER 1, 2, 3, 4, 5, 6, OR 7'
    STORE 1 TO PAN
    DO WHILE PAN < 30
        STORE PAN+1 TO PAN
    ENDDO

```



```

*
  ENDCASE
*
ENDDO
USE
USE DG INDEX FILE
SET ESCAPE ON
SET PROCEDURE TO
*
RETURN

* THE DGPROC.PRG FILE CONTAINS ALL THE PROCEDURES (SUBROUTINES)
* USED FOR THE ADERO DOCUMENT DATABASE
*
PROCEDURE SEARCH
*
* PROGRAM SEARCH.MEN
* THIS PROGRAM WILL DISPLAY A MENU
* OF SEARCH OPTIONS AND CALL UP THE
* APPROPRIATE SUBROUTINES.
*
CLEAR
SET COLOR TO 7/D
STORE '-----' TO LINE
R=3
C=28
N=2
* WRITE SEARCH MENU TO SCREEN
@ R,28 SAY 'DOCUMENT SEARCH MENU'
@ R+1,28 SAY line
R=R+N+2
@ R,C SAY '(S) SPEED SEARCH'
R=R+N
@ R,C SAY '(K) KEYWORD SEARCH'
R=R+N
@ R,C SAY '(B) BOOLEAN SEARCH'
R=R+N
@ R,C SAY '(R) RETURN TO MAIN MENU'
@ R+2,18 SAY LINE-LINE
SET COLOR TO 7/4

```

```

DO WHILE N=2
  @ R+5,30 SAY 'ENTER S, K, B, OR R:'
  WAIT ' ' TO SEL
  STORE UPPER(SEL) TO SEL
  SET COLOR TO 7/0
  N=1
  DO CASE
    CASE SEL='S'
      DO SPEED
    CASE SEL='K'
      DO KEYWD
    CASE SEL='B'
      DO BOOLEAN
    CASE SEL='R'
      RETURN
    OTHERWISE
      ? CHR (?)

      N=2
  ENDCASE SEL=S,K,F,R
ENDDO WHILE N=2
RETURN
*
PROCEDURE SPEED
*
* THIS PROCEDURE WILL PROVIDE RAPID RETRIEVAL
* OF INFORMATION GIVEN TITLE, AUTHOR, DATE,
* OR FILE-NUMBER
STORE .T. TO CON
DO WHILE CON
  CLEAR
  R=6
  C=12
  STORE .T. TO CON2
  @ R,C SAY '(T) TITLE'
  R=R+2
  @ R,C SAY '(A) AUTHOR'
  R=R+2
  @ R,C SAY '(D) DATE'
  R=R+2

```

```

@ R,C SAY '(F) FILE NUMBER'
R=R+2
@ R,C SAY '(R) RETURN TO MAIN MENU'
SET COLOR TO 7/4
STORE 'X' TO SEL
DO WHILE SEL # 'T'.AND. SEL # 'A'.AND. SEL # 'D'.AND. SEL # 'F'.AND. SEL # 'R'
  @ R+4,C SAY 'ENTER CHOICE OF FIELD FOR SEARCH'
  ?CHR(7)
  WAIT '' TO SEL
  STORE UPPER(SEL) TO SEL
ENDDO WHILE SEL #
IF UPPER(SEL)='R'
  SET COLOR TO GR+/B,W/R,G
  RETURN
ENDIF
@ R+4,C SAY 'ENTER CHARACTER STRING TO LOOK FOR'
? CHR (7)
ACCEPT 'STRING: ' TO STRNG
SET COLOR TO 7/0,7/1
DO CASE
CASE SEL='T'
  SET INDEX TO TITLE,AUTHOR,DATE,FILE
  FIND &STRNG
CASE SEL='A'
  SET INDEX TO AUTHOR,DATE,FILE,TITLE
  FIND &STRNG
CASE SEL='D'
  SET INDEX TO DATE,FILE,TITLE,AUTHOR
  IF AT('-',STRNG)=2.OR.AT('/',STRNG)=2
    STORE '0'+STRNG TO STRNG
  ENDIF AT
  IF SUBSTR(STRNG,3,1)='- '
    STORE SUBSTR(STRNG,1,2)+'/'+SUBSTR(STRNG,4,5) TO STRNG

```



```

ENDIF SUBSTR(STRNG,3,1)
IF SUBSTR(STRNG,5,1)='-'.OR.SUBSTR(STRNG,5,1)='/'
  STORE SUBSTR(STRNG,1,3)+'0'+SUBSTR(STRNG,4,4) TO STRNG
ENDIF SUBSTR
STORE SUBSTR(STRNG,7,2)+SUBSTR(STRNG,1,5) TO STRNG
FIND &STRNG
CASE SEL='F'
  SET INDEX TO FILE,TITLE,AUTHOR,DATE
  FIND &STRNG
ENDCASE
CLEAR
IF EOF()
  @ 10,1 SAY STRNG+' NOT FOUND'
ELSE
  DO WHILE CON2
    SET COLOR TO 7,1
    @ 1,31 SAY 'RECORD NUMBER: '+STR(RECNO(),5)
    SET COLOR TO 7,0
    @ 3,1 SAY 'TITLE: '+TITLE
    @ 5,1 SAY 'AUTHOR: '+AUTHOR+ORG
    @ 7,1 SAY 'TO: '+TO+TO_ORG
    @ 9,1 SAY 'DATE: '+DATED+' FILE: '+FILE_NUM
    @ 11,1 SAY 'DESCRIPTION: '+SUBSTR(DESCRIP,1,64)
    @ 12,14 SAY SUBSTR(DESCRIP,65,64)
    @ 13,14 SAY SUBSTR(DESCRIP,130,64)
    @ 14,14 SAY SUBSTR(DESCRIP,195,59)
    @ 20,5 SAY '(S)-SKIP (E)-EDIT (R)-RETURN (M)-MAIN MENU'
    SET COLOR TO 7/4
    @ 22,10 SAY 'ENTER SELECTION AND <RETURN>'
    @ 23,0 SAY ' '
    @ 22,0 SAY ''
    ACCEPT TO SEL
    STORE UPPER(SEL) TO SEL
    SET COLOR TO 7/0,7/1
  * NOTE: IF R,M OR E ARE NOT CHOSEN - ASSUME S
  IF SEL('<'R'.AND.SEL('<'M'.AND.SEL('<'E'
    IF ''=SUBSTR(SEL,2,1).OR.VAL(SUBSTR(SEL,2,5))=0
      SKIP

```

```

        IF EOF()
            GOTO BOTT
            ? CHR(7)
        ENDIF EOF()
        LOOP
    ELSE
        STORE VAL(SUBSTR(SEL,2,6)) TO NN
        SKIP NN
        IF EOF()
            GOTO BOTT
            ? CHR(7)
        ENDIF EOF()
        LOOP
    ENDIF '='=SUBSTR
ENDIF SEL='S'
IF SEL='E'
    SET FORMAT TO DGTHR
    IF '='=SUBSTR(SEL,2,1).OR.VAL(SUBSTR(SEL,2,1))=0
        EDIT
    ELSE
        STORE VAL(SUBSTR(SEL,2,5)) TO NN
        EDIT NN
    ENDIF SUBSTR(SEL,2,1)
    CLEAR
    LOOP
ENDIF SEL='E'
SET FORMAT TO DGSTD
STORE .F. TO CON2
IF SEL='R'
    STORE .T. TO CON
ELSE
    STORE .F. TO CON
ENDIF SEL='R'
IF SEL='M'
    EXIT
ENDIF SEL='M'
CLEAR
ENDDO WHILE .T.
ENDIF EOF()
ENDDO WHILE CON
RETURN

```

```

*
PROCEDURE KEYWD
*
*** KEYWD
*   THIS PROCEDURE SEARCHES THE ADERO DOCUMENT DATABASE TITLE AND
*   DESCIP FIELDS FOR A GIVEN KEYWORD
CLEAR
@ 2,3 SAY 'THIS ROUTINE WILL SEARCH <TITLE> AND <DESCIP>'
@ 4,3 SAY 'FOR A GIVEN CHARACTER STRING AND PRINT INFORMATION'
@ 6,3 SAY 'FROM THESE RECORDS.'
@ 10,3 SAY 'TURN THE PRINTER ON -- PRESS "R" TO RETURN TO THE '
@ 12,3 SAY 'MAIN MENU, PRESS ANY OTHER KEY TO CONTINUE.'
WAIT ' ' TO CONT
IF UPPER(CONT)='R' .OR. CONT=''
    RETURN
ENDIF UPPER(CONT)
CLEAR
@ 5,3 SAY ' '
ACCEPT 'ENTER KEYWORD: ' TO KEYWD
STORE UPPER(KEYWD) TO KEYWD
CLEAR
@ 2,15 SAY 'OUTPUT INDEXING'
@ 3,15 SAY ' _____'
@ 6,15 SAY '<T>-TITLE'
@ 8,15 SAY '<A>-AUTHOR'
@ 10,15 SAY '<D>-DATE'
@ 12,15 SAY '<F>-FILE NUMBER'
@ 16,7 SAY 'IN WHICH ORDER WOULD YOU LIKE THE RECORDS PRINTED?'
WAIT ' ' TO INDX
*
DO CASE

```



```

*
CASE UPPER(INDX)='T'
  SET INDEX TO TITLE
*
CASE UPPER(INDX)='A'
  SET INDEX TO AUTHOR
*
CASE UPPER(INDX)='F'
  SET INDEX TO FILE
*
OTHERWISE
  SET INDEX TO DATE
*
ENDCASE
CLEAR
@ 5,5 SAY 'DO YOU WANT A (S)-SUMMARY REPORT OR (E)-EXPANDED REPORT?'
WAIT ' ' TO PO
IF UPPER(PO)='E'
  SET FILTER TO KEYWD$TITLE .OR. KEYWD$DESCRIP
  STORE 'KEYWORD SEARCH ON: '+KEYWD TO HEAD1
  DO EXPRPT
  SET FILTER TO
ELSE
  SET PRINT ON
  ? CHR(30)
  ? CHR(27)+"B,8,@"
  REPORT FORM FORMSUM FOR KEYWD$TITLE .OR. KEYWD$DESCRIP HEADING;
  'KEYWORD SEARCH ON: '+KEYWD
  SET PRINT OFF
ENDIF PO=E
EJECT
RETURN
*
PROCEDURE BOOLEAN
*
*** BOOL2.SCH
* THIS PROGRAM WILL SEARCH SPECIFIED FIELD(S) FOR GIVEN
* CHARACTER STRING(S) AND ALLOW BOOLEAN SEARCHES
SET INDEX TO DATE
SET COLOR TO GR+/B,W/R,G
SET FORMAT TO
CLEAR

```

```

@ 3,5 SAY 'THIS ROUTINE WILL PERFORM BOOLEAN SEARCHES FOR GIVEN'
@ 5,5 SAY 'CHARACTER STRINGS IN SPECIFIED DATABASE FIELDS'
@ 9,5 SAY 'THE DESIRED CONDITIONS ARE FIRST INPUT, THEN'
@ 11,5 SAY 'THEY ARE COMBINED IN A HOOLEAN EXPRESSION'
@ 19,5 SAY 'ENTER "R" TO RETURN TO THE MAIN MENU, ANY OTHER KEY TO CONTINUE'
WAIT ' ' TO CONT
IF UPPER(CONT)='R'.OR.UPPER(CONT)='R''
    RETURN
ENDIF UPPER(CONT)
CLEAR
@ 2,33 SAY 'FIELD NAMES'
@ 3,33 SAY '-----'
@ 5,2 SAY 'TITLE'
@ 5,18 SAY 'SOURCE'
@ 5,34 SAY 'DATE_REC'
@ 5,50 SAY 'SONGS'
@ 5,66 SAY 'PNPP'
@ 6,2 SAY 'AUTHOR'
@ 6,18 SAY 'VEND_NUM'
@ 6,34 SAY 'DESCRIP'
@ 6,50 SAY 'RBS'
@ 6,66 SAY 'BNP'
@ 7,2 SAY 'ORG'
@ 7,18 SAY 'DOC_TYP'
@ 7,34 SAY 'SNPS'
@ 7,50 SAY 'RSNGS'
@ 7,66 SAY 'WNP'
@ 8,2 SAY 'DATED'
@ 8,18 SAY 'FILE_NUM'
@ 8,34 SAY 'CGNS'
@ 8,50 SAY 'SHNPP'
@ 8,66 SAY 'VEGP'
@ 9,2 SAY 'TO'
@ 9,18 SAY 'ISSUE'
@ 9,34 SAY 'CPSES'
@ 9,50 SAY 'CNS'
@ 9,66 SAY 'MP'
@ 10,2 SAY 'TO_ORG'
@ 12,10 SAY
'-----'

```

```

STORE 64 TO TN
DO WHILE .T.
  STORE TN+1 TO TN
  STORE CHR(TN) TO CD
  @ TN-49,0 SAY '
  @ TN-50,0 SAY '
  ACCEPT ' ENTER CONDITION: ' TO COND
  @ 24,10 SAY '
  IF ''=COND.OR.COND='
    EXIT
  ENDIF COND='
  STORE UPPER(COND)TO COND
  STORE AT('<=',COND)+AT('>=',COND)+AT('<> ',COND) TO CPOS
  IF CPOS=0
    STORE AT('<',COND)+AT('> ',COND)+AT('<=',COND)+AT('>=',COND) TO CPOS
  ENDIF CPOS=0
  IF (CPOS=0.OR.CPOS>9).AND.TYPE(COND)<>'L'
    SET COLOR TO R*/W
    @ 24,10 SAY 'IMPROPER CONDITION, PLEASE TRY AGAIN'
    SET COLOR TO GR+/B,W/R,G
    STORE TN-1 TO TN
    LOOP
  ENDIF (CPOS=0.OR....
  IF TYPE(COND)<>'L'
    IF TYPE(SUBSTR(COND,1,CPOS-1))='U'
      SET COLOR TO R*/W
      @ 24,10 SAY 'IMPROPER CONDITION, PLEASE TRY AGAIN'
      SET COLOR TO GR+/B,W/R,G
      STORE TN-1 TO TN
      LOOP
    ENDIF TYPE(SUBSTR(COND...
  ENDIF TYPE(COND)<>'L'
  IF TYPE(COND)='L'.AND. AT('<<',COND)+AT('>>',COND)=0
    STORE COND TO FLD
  ELSE
    STORE SUBSTR(COND,1,CPOS-1) TO FLD
  ENDIF

```



```

*
IF AT('<')',COND)<>0
  STORE SUBSTR(COND,1,AT('<')',COND)-1)-'#'-;
  SUBSTR(COND,AT('<')',COND)+1,LEN(COND)) TO COND
ENDIF AT('<')
DO CASE
  CASE TYPE(FLD)='L' .AND. SUBSTR(FLD,1,3)<>'DOC'
    IF AT('F',COND)<>0
      STORE '.NOT.'+FLD TO COND
    ELSE
      STORE FLD TO COND
    ENDIF AT('F')
  CASE TYPE (FLD)='C'
    STORE SUBSTR(COND,1,CPOS)-"'"-SUBSTR(COND,CPOS+1,LEN(COND)-CPOS+1);
    -"'" TO COND
  ENDCASE
  STORE CHR(TN) TO VAR
  STORE COND TO &VAR
  @ TN-48,20 SAY COND
ENDDO WHILE .T.

CLEAR
STORE TN-65 TO NUMCON
STORE 0 TO CTR
DO WHILE CTR<NUMCON
  STORE CTR+1 TO CTR
  STORE CHR(64+CTR) TO VAR
  @ CTR+1,15 SAY VAR+' ' +&VAR
  STORE AT('$',&VAR) TO POS
  IF POS<>0
    STORE SUBSTR(&VAR,POS+1,LEN(&VAR)-POS+1)-"$"-SUBSTR(&VAR,1,POS-1);
    TO &VAR
  ENDIF POS<>0
ENDDO
@ NUMCON+2,15 SAY '-----'
@ NUMCON+4,10 SAY 'USE THE ABOVE CODES TO WRITE THE BOOLEAN EXPRESSION'
@ NUMCON+6,10 SAY 'DESIRED, FOR EXAMPLE: '
@ NUMCON+8,20 SAY 'A*(B+C)'
SET COLOR TO
@ NUMCON+12,10 SAY 'TYPE EXPRESSION OR "R" TO RETURN TO THE MAIN MENU'

```

```

SET COLOR TO CR+/B,W/R/G
STORE ' ' TO BOOL
STORE .T. TO ERR
DO WHILE ERR
  STORE .F. TO ERR
  CLEAR GET
  @ NUMCON+15,10 GET BOOL
  READ
  IF UPPER(BOOL)='R' OR UPPER(BOOL)="R"
    RETURN
  ENDIF UPPER(BOOL)='R'
  STORE LEN(TRIM(BOOL)) TO BLEN
  DO WHILE BLEN>0
    IF ERR
      EXIT
    ENDIF ERR
    STORE SUBSTR(BOOL,BLEN,1) TO CHAR
    DO CASE
      CASE CHAR='(' OR CHAR=')'
        * DO NOTHING IF CHAR=( OR )
      CASE TYPE(CHAR)='C'
        STORE &CHAR TO CHAR
        SAVE TO TEMP
        IF CHAR='DATE'
          STORE AT('= ',CHAR)+AT('< ',CHAR)+AT('> ',CHAR)+AT('# ',CHAR) TO POS
          STORE 'CTOD('-SUBSTR(CHAR,1,POS-1)-')'-SUBSTR(CHAR,POS,1)-;
            'CTOD('-SUBSTR(CHAR,POS+1,LEN(CHAR))-')' TO CHAR
        ENDIF
      CASE CHAR='+'
        STORE ' .OR. ' TO CHAR
      CASE CHAR='*'
        STORE ' .AND. ' TO CHAR
      CASE CHAR='-'
        STORE ' .NOT. ' TO CHAR
      OTHERWISE
        STORE .T. TO ERR
        ? CHR(7)
        LOOP
    ENDCASE
  
```

```

        STORE SUBSTR(BOOL,1,BLEN-1)-CHAR-SUBSTR(BOOL,BLEN+1,LEN(BOOL)-BLEN+1);
        TO BOOL
        STORE BLEN-1 TO BLEN
    ENDDO WHILE BLEN>0
ENDDO WHILE ERR
SAVE TO TEMP
CLEAR
@ 3,5 SAY 'DO YOU WANT (S)-SCREEN OR (P)-PRINTER OUTPUT?'
WAIT ' ' TO OP
IF UPPER(OP)='P'
    @ 6,5 SAY 'DO YOU WANT (S)-SUMMARY PRINTOUT OR (E)-EXPANDED PRINTOUT?'
    WAIT ' ' TO PO
    IF UPPER(PO)='E'
        SET FILTER TO &BOOL
        DO EXPRPT
        SET FILTER TO
    ELSE
        REPORT FORM FORMSUM FOR &BOOL TO PRINT
    ENDIF UPPER(PO)
    EJECT
ELSE
    SET PRINT OFF
    DISP OFF SUBSTR(TITLE,1,70),FILE_NUM,SUBSTR(TITLE,71,30),;
        '- ',SUBSTR(AUTHOR,1,36),DATED,' ' FOR &BOOL
ENDIF
WAIT
SET FORMAT TO DGSTD
RETURN
*
PROCEDURE ADDREC
*
* THIS PROCEDURE IS USED TO ADD RECORDS TO THE DATABASE
*
SET HEADING OFF
SET ESCAPE OFF
CLEAR
STORE 'Y' TO cont
DO WHILE cont='Y'
    APPEND BLANK
    SET INDEX TO
    GOTO BOTTOM

```



```

STORE RECNO() TO rec
SET FORMAT TO tdione
SET INDEX TO FILE,AUTHOR,TITLE,DATE
GOTO REC
REPLACE FILE_NUM WITH 'ZZZZZ'
EDIT rec
SET FORMAT TO tditwo
EDIT rec
GOTO REC
IF SUBSTR(title,2,4)='    '
  REPLACE TITLE WITH 'ZZZZ BLANK RECORD'
  REPLACE FILE_NUM WITH 'NONE'
  REPLACE AUTHOR WITH 'ZZZZZ'
  REPLACE DATED WITH '00-00-00'
  DELETE RECORD REC
  SET ESCAPE ON
  CLOSE FORMAT
  RETURN
ENDIF SUBSTR(TITLE,2
  IF issue='    '
    REPLACE issue WITH '000'
  ENDIF
  IF doc_typ>9
    STORE SUBSTR(issue,2,2)+STR(doc_typ,2) TO base
  ELSE
    STORE SUBSTR(issue,2,2)+'0'+STR(doc_typ,1) TO base
  ENDIF
  STORE 0 TO seqtst
  SET TALK OFF
*
  FIND &base
*
  DO WHILE SUBSTR(file_num,1,4)=base
    STORE VAL(SUBSTR(file_num,6,3)) TO seq
    IF seq>seqtst
      STORE seq TO seqtst

```

```

SET ESCAPE ON
RELEASE COUN,SEQTST,BASE,REC,CONT
CLOSE FORMAT
RETURN
*
PROCEDURE EDITREC
*
* THIS PROCEDURE IS USED TO FACILITATE EDITING RECORDS ALREADY IN
* THE DATABASE AND ALLOWS CHANGES TO THE FILE NUMBER FIELDS
*
SET HEADING OFF
CLOSE FORMAT
STORE 'Y' TO coned
DO WHILE UPPER(coned)='Y'
  CLEAR
  ? ' '
  ? 'FILE NUMBER OF FILE TO EDIT? '
  ? ' '
  ? '(TYPE "MENU" TO RETURN TO MAIN MENU)'
  ACCEPT TO filnum
  IF filnum='MENU'.OR.filnum='MENU'
    RETURN
  ENDIF
  CLEAR
*
  FIND &filnum
  IF (EOF() .OR. BOF())
    ? 'FILE DOES NOT EXIST'
    LOOP
  ENDIF
  STORE STR(RECNO(),4) TO recnum
  STORE file_num TO t2
  STORE file_num TO nfile
  REPLACE file_num WITH 'ZZZZ'
*
  SET FORMAT TO DCFOR
  EDIT &recnum
  GO &recnum
  REPLACE file_num WITH t2
  IF issue=' '
    REPLACE issue WITH '000'
  ENDIF

```

```

*
IF doc_typ<10
  STORE SUBSTR(issue,2,2)+'0'+STR(doc_typ,1) TO base
ELSE
  STORE SUBSTR(issue,2,2)+STR(doc_typ,2) TO base
ENDIF
*
IF base<>SUBSTR(file_num,1,4)
  STORE 0 TO sequence
  FIND &base
  DO WHILE SUBSTR(file_num,1,4)=SUBSTR(base,1,4)
    STORE VAL(SUBSTR(file_num,6,3)) TO seq
    IF seq>sequence.AND.STR(RECNO(),4)<>recnum
      STORE seq TO sequence
    ENDIF
  SKIP
  ENDDO
*
GO &recnum
STORE sequence+1 TO seq
IF SEQ<10
  REPLACE FILE_NUM WITH BASE+"-"+STR(SEQ,1)
ENDIF
IF SEQ>9 .AND. SEQ<100
  REPLACE file_num WITH base-'-' +STR(seq,2)
ENDIF
IF SEQ>100
  REPLACE FILE_NUM WITH BASE+"-"+STR(seq,3)
ENDIF
STORE file_num TO nfile
ENDIF
CLEAR
SELECT B
APPEND BLANK
REPLACE text WITH 'RECORD EDITED'
REPLACE oldfile WITH t2
REPLACE newfile WITH nfile
SELECT A
CLEAR

```

```

*
@ 10,10 SAY 'OLO FILE NUMBER' GET t2
@ 12,10 SAY 'NEW FILE NUMBER' GET nfile
@ 20,10 SAY 'DO YOU WANT TO EDIT ANOTHER RECORD? (Y OR N)'
? ' '
? ' '
WAIT ' ' TO coned
IF UPPER(coned)#'Y'
    RETURN
ENDIF !(coned)#'Y'
*
ENDDO
SET FORMAT TO DGSTD
RETURN
*
PROCEDURE INDEXER
*
*INDEXING ROUTINE FOR DG
*
SET SAFETY OFF
USE DG
SET TALK ON
set index to date,file,author,title
pack
SET TALK OFF
RETURN
*
PROCEDURE REPT.MEN
*
* THIS PROCEDURE ALLOWS SELECTION OF ANY OF FIVE REPORTING ROUTINES
SET INDEX TO DATE
CLEAR
@ 4,30 SAY 'REPORT MENU'
@ 5,30 SAY '-----'
@ 8,25 SAY '(1) - EXECUTIVE SUMMARY'
@ 10,25 SAY '(2) - FORMAL SUMMARY'
@ 12,25 SAY '(3) - EXPANDED REPORT'
@ 14,25 SAY '(4) - QUICK SUMMARY'
@ 16,25 SAY '(5) - GENERIC ISSUE TRACKER'

```



```

@ 20,5 SAY 'SELECT REPORT FORMAT DESIRED OR TYPE "M" TO RETURN TO MENU'
@ 21,5 SAY 'THEN HIT <RETURN> TO CONTINUE'
SET FORMAT TO
STORE SPACE(25) TO RPT
CLEAR GET
@ 23,20 GET RPT
READ
IF UPPER(RPT)='M'
    RETURN
ENDIF RPT='M'
STORE RPT TO COND
IF LEN(TRIM(RPT))>1
    IF SUBSTR(COND,2,1)='#'*'
        STORE AT('= ',COND)+AT('<',COND)+AT('>',COND)+AT('$ ',COND)+AT('@ ',COND);
        TO POS
        IF POS=0 OR POS=11 OR TYPE(SUBSTR(COND,3,POS-3))='U'
            SET COLOR TO R*/W
            @ 23,10 SAY 'IMPROPER CONDITION'
            SET COLOR TO GR+/B,W/R,G
            WAIT
            RETURN
        ENDIF POS=0
        STORE SUBSTR(COND,3,LEN(COND)-2) TO CD
        STORE POS-2 TO POS
        STORE LEN(TRIM(CD))-1 TO LL
        DO CASE
            CASE AT('$ ',CD)@0
                STORE ""+SUBSTR(CD,POS+1,LL-POS+1)+"$" TO T1
                STORE T1+SUBSTR(CD,1,POS-1) TO CDT
                SET FILTER TO &CDT
            CASE SUBSTR(CD,1,4)='DATE'
                STORE 'CTOD(DATE'+SUBSTR(CD,5,1)+')'+SUBSTR(CD,6,1) TO T1
                STORE T1+"CTOD('"+SUBSTR(CD,7,LL-6)+"')'" TO CDT
                SET FILTER TO &CDT
            CASE TYPE(SUBSTR(CD,1,POS-1))='C'
                STORE SUBSTR(CD,1,POS)+" "+SUBSTR(CD,POS+1,LL-POS+1)+" " TO CDT
                SAVE TO TEMP
                SET FILTER TO &CDT
            CASE TYPE(SUBSTR(CD,1,POS-1))='L'

```

```

        IF AT("F",CD)=0
            STORE SUBSTR(CD,1,POS-1) TO CDT
            SET FILTER TO &CDT
        ELSE
            STORE SUBSTR(CD,1,POS)+' .F.' TO CDT
            SET FILTER TO &CDT
        ENDIF AT("F
    OTHERWISE
        SET FILTER TO &CD
    ENDCASE
ELSE
    STORE LEN(RPT) TO LENG
    STORE SUBSTR(RPT,3,LENG-2) TO COND
    SET FILTER TO &COND
    ENDIF SUBSTR(COND,2,1)@ '*'
ENDIF
SAVE TO TEMP
SET PRINT ON
SET FORMAT TO DGSTD
DO CASE
*
    CASE RPT='1'
        ? CHR(29)
        ? CHR(27)+"B,12,$"
        DO EXECSUM
*
    CASE RPT='2'
        ? CHR(30)
        ? CHR(27)+"B,8,$"
        REPORT FORM FORMSUM TO PRINT HEADING 'SEARCH CONDITION: '+CONO
*
    CASE RPT='3'
        ? CHR(30)
        ? CHR(27)+"B,6,$"
        STORE 'CONDITIONAL: '+RPT TO HEAD1
        DO EXPRPT
*
    CASE RPT='4'
        ? CHR(30)
        ? CHR(27)+"B,4,$"
        DO QUICKSUM
        ? CHR(27)+"B,4,$"

```

```

*
CASE RPT='5'
? CHR(29)
? CHR(27)+"B.8,$"
DO GENTRAK
*
OTHERWISE
? CHR(7)
RETURN
ENDCASE
SET FILTER TO
SET PRINT ON
? CHR(30)
? CHR(27)+"B.6,$"
SET PRINT OFF
RETURN
*
PROCEDURE EXPRPT
*
* PROCEDURE FOR AN EXPANDED PRINTOUT OF THE DATABASE
*
SET PRINT ON
? CHR(31)
CLEAR
REPORT FORM EXPRPT.FRM HEADING HEAD1
? CHR(29)
SET PRINT OFF
RETURN
*
PROCEDURE QUICKSUM
*
* QUICKSUM.PRG
* THIS ROUTINE PROVIDES A QUICK LIST OF DATABASE INFORMATION
*
STORE '-----' TO LINE
STORE ' '+LINE-LINE-LINE TO LINE
SET DEVICE TO PRINT
SET INDEX TO FILE
STORE 0 TO CTR
STORE 1 TO PG
GOTO TOP

```



```

STORE 7 TO L
@ L,6 SAY '&LINE'
@ L+1,8 SAY 'FILE      TITLE/SUBJECT
          'AUTHOR          ORG.  DOC.    DATE'
@ L+2,8 SAY 'NO.'
@ L+2,97 SAY 'DATE      RECEIVED'
@ L+3,6 SAY '&LINE'
@ L+4,1 SAY ' '
STORE L+3 TO L
DO WHILE L<39 .AND. .NOT. EOF()
  STORE L+2 TO L
  @ L,8 SAY SUBSTR(FILE_NUM,1,7)
  @ L,17 SAY SUBSTR(TITLE,1,50)
  @ L,69 SAY SUBSTR(AUTHOR,1,20)
  @ L,91 SAY ORG
  IF SUBSTR(DATED,3,1)='-'.AND.SUBSTR(DATED,6,1)='- '
    @ L,97 SAY SUBSTR(DATED,4,3)-SUBSTR(MON,(VAL(SUBSTR(DATED,1,2))-1);
      *3+1,3)-SUBSTR(DATED,6,3)
  ELSE
    @ L,97 SAY DATED
  ENDIF
  IF SUBSTR(DATE_REC,3,1)='-'.AND.SUBSTR(DATE_REC,6,1)='- '
    @ L,108 SAY SUBSTR(DATE_REC,4,3)-SUBSTR(MON,(VAL(SUBSTR(DATE_REC,1,2))-1)*3+1,3);
      -SUBSTR(DATE_REC,6,4)
  ELSE
    @ L,108 SAY DATE_REC
  ENDIF
  @ L+1,17 SAY SUBSTR(TITLE,51,100)
  SKIP
ENDDO
@ L+2,6 SAY '&LINE'
STORE PAGE+1 TO PAGE
EJECT
ENDDO
SET DEVICE TO SCREEN
RELE PAGE,L,LINE
RETURN
*
PROCEDURE GENTRAK

```

```

*
* THIS PROCEDURE IS DESIGNED TO PRODUCE A LISTING OF DOCUMENTS PERTAINING
* TO ISSUES IDENTIFIED AS HAVING POTENTIAL GENERIC APPLICABILITY
SET HEADING OFF
SET SAFETY OFF
SET DEVICE TO SCREEN
STORE '*****' TO STAR
STORE '-----';
'-----' TO LINE
STORE 'XXXXXXXXXXXXXXXXXXXXXXXXXXXX' TO X
STORE 1 TO PAGE
SELE B
USE ISSUE
CLEAR
* @ 5,5 SAY "DEBUG? (Y/N)"
* WAIT TO FLAG
* IF UPPER(FLAG)='Y'.OR.UPPER(FLAG)='T'
    STORE .T. TO FLAG
* ELSE
*   STORE .F. TO FLAG
* ENDIF UPPER(FLAG)
SET DEVICE TO PRINT

    CLEAR
    SET TALK OFF
    DO WHILE .NOT.EOF()
        SELE A
        USE DG
        COPY TO TEMP FOR ISSUE=B->CODE.AND.(DOC_TYP<7.OR.DOC_TYP=9.OR.DOC_TYP=10)
        USE TEMP
        INDEX TO DATER ON SUBSTR(DATE_REC,7,2)+SUBSTR(DATE_REC,1,5)
        STORE 63 TO L
        GO TOP
        DO WHILE .NOT. EOF()
            IF L>57
                @ L+1,4 SAY LINE
                @ 1,25 SAY STAR
                @ 2,25 SAY '* ADERO REPORTS FROM OWNERS GROUP AND'-;
                ' PNL/CONSULTANT REVIEWS *'
                @ 3,25 SAY STAR
                @ 6,4 SAY B->HEADING-' - B62'-B->CODE
                STORE LEN(TRIM(B->HEADING)-' - B62'-B->CODE) TO LENG
                @ L+1,LENG SAY B->HEADING-' - B62'-B->CODE
            ENDIF
            L=L+1
        ENDWHILE
    ENDWHILE

```

```

@ 7,4 SAY PFIELD
@ 7,100 SAY DTOC( DATE( ) )
@ 8,100 SAY 'PAGE '-STR(PAGE,3)
@ 9,4 SAY LINE
@ 10,4 SAY "DOCUMENTS REC'D FOR REVIEW      DATE REC"
@ 10,46 SAY 'PNL AND NRC REVIEWS          DATE'
@ 10,88 SAY 'INDIV REVIEWS/TRIP REPORTS    DATE'
@ 11,4 SAY LINE
STORE 12 TO L
STORE PAGE+1 TO PAGE
ELSE
DO CASE
CASE ORG='OG'.OR.ORG='FAAA'.OR.ORG='FaAA'.OR.ORG='SWEC'.OR.;
    ORG='LILC'.OR.;
    ORG='MP&L'.OR.ORG='GSU'
    STORE 0 TO SHIFT
CASE DOC_TYP=3.OR.ORG='NRC'
    STORE 1 TO SHIFT
CASE DOC_TYP=4.OR.ORG='CE'.OR.ORG='EAC'.OR.ORG='SES'.OR.;
    ORG='RCE'.OR.ORG='CONS'.OR.(ORG='PNL'.AND.DOC_TYP#3)
    STORE 2 TO SHIFT
OTHERWISE
    SKIP
    STORE 3 TO SHIFT
ENDCASE
IF SHIFT<3
    STORE 4+SHIFT*42 TO COL
    STORE 1 TO MARK1
    STORE AT(' ',TITLE) TO MARK2
    STORE MARK2 TO SUM
    STORE 1 TO CTR
    STORE 0 TO END
    DO WHILE CTR<5
        DO WHILE SUM<31 .AND. END#1
            STORE AT(' ',SUBSTR(TITLE,SUM+MARK1,100-MARK1-SUM)) TO MARK2
            STORE SUM+MARK2 TO SUM
            IF MARK2=0.OR.MARK1+SUM>99.OR.(SUBSTR(TITLE,SUM+MARK1,3)=' ' .AND.;
                SUM<31)
                STORE 1 TO END
                STORE 5 TO CTR
                STORE SUM+MARK2 TO SUM
            ENDIF MARK2=0

```

```

ENDDO WHILE SUM<31
STORE 0 TO END
STORE SUM-MARK2 TO SUM
STORE SUBSTR(TITLE,MARK1,SUM) TO PFIELD
@ L,COL SAY PFIELD
IF MARK1=1
  @ L,COL+32 SAY DATE_REC
ENDIF MARK1=1
IF FLAG .AND. CTR>3
  STORE SUBSTR(AUTHOR,1,9) TO PFIELD
  IF PFIELD=' '
    STORE ORG TO PFIELD
  ENDIF
  IF MARK1=1
    STORE L+1 TO L
  ENDIF MARK1=1
  @ L,COL+32 SAY PFIELD
ENDIF MARK1>61 .AND. FLAG
STORE L+1 TO L
STORE MARK1+SUM TO MARK1
STORE 1 TO SUM
STORE CTR+1 TO CTR
ENDDO CTR<5
STORE L+1 TO L
IF FLAG
  @ L-1,COL SAY FILE_NUM
  STORE L+1 TO L
ENDIF &FLAG
SKIP
IF EOF()
  @ L,4 SAY LINE
ENDIF EOF
ENDIF SHIFT<3
  ENDF L>57
ENDDO WHILE .NOT. EOF
SELECT B
SKIP
ENDDO WHILE .NOT. EOF
SELE B
USE CHANGES
RETURN

```



```

*   FORMAT FILE DGSTD
*
@ 1,0  Say 'TITLE   ' GET TITLE
@ 4,0  SAY 'AUTHOR  ' GET AUTHOR
@ 4,63 SAY 'ORG     ' GET ORG
@ 6,0  SAY 'TO      ' GET TO
@ 6,63 SAY 'TO_ORG  ' GET TO_ORG
@ 8,0  SAY 'DATED   ' GET DATED
@ 8,35 SAY 'DATE_REC' GET DATE_REC
@ 10,0  SAY 'SOURCE  ' GET SOURCE
@ 10,35 SAY 'VEND_NUM' GET VEND_NUM
@ 12,0  SAY 'DOC_TYP ' GET DOC_TYP
@ 12,13 SAY 'ISSUE'  GET ISSUE
@ 12,35 SAY 'FILE_NUM' GET FILE_NUM
@ 12,63 SAY 'PAGES  ' GET PAGES
@ 14,0  SAY 'DESCRIP ' GET DESCRIP
@ 19,0  SAY 'SITES  '
@ 19,10 SAY 'SNPS'  GET SNPS
@ 19,22 SAY 'GGNS'  GET GGNS
@ 19,34 SAY 'CPSES'  GET CPSES
@ 19,47 SAY 'SONGS'  GET SONGS
@ 19,60 SAY 'RBS'   GET RBS
@ 19,71 SAY 'BNP'   GET BNP
@ 21,10 SAY 'PNPP'  GET PNPP
@ 21,22 SAY 'VEGP'  GET VEGP
@ 21,34 SAY 'RSNGS'  GET RSNGS
@ 21,47 SAY 'SHNPP'  GET SHNPP
@ 21,60 SAY 'CNS'   GET CNS
@ 21,71 SAY 'WNP'   GET WNP
@ 23,10 SAY 'MP    ' GET MP

```

```

* FORMAT FILE DCTHR.FMT
*
@ 1,0 SAY 'TITLE   ' GET TITLE
@ 4,0 SAY 'AUTHOR  ' GET AUTHOR
@ 4,63 SAY 'ORG    ' GET ORG
@ 6,0 SAY 'TO      ' GET TO
@ 6,63 SAY 'TO_ORG ' GET TO_ORG
@ 8,0 SAY 'DATED   ' GET DATED
@ 8,35 SAY 'DATE_REC ' GET DATE_REC
@ 10,0 SAY 'SOURCE  ' GET SOURCE
@ 10,35 SAY 'VEND_NUM ' GET VEND_NUM
@ 12,63 SAY 'PAGES  ' GET PAGES
@ 14,0 SAY 'DESCRIP ' GET DESCRIP
@ 19,0 SAY 'SITES  '
@ 19,10 SAY 'SNPS' GET SNPS
@ 19,22 SAY 'GCNS' GET GCNS
@ 19,34 SAY 'CPSES' GET CPSES
@ 19,47 SAY 'SONGS' GET SONGS
@ 19,60 SAY 'RBS' GET RBS
@ 19,71 SAY 'BNP' GET BNP
@ 21,10 SAY 'PNPP' GET PNPP
@ 21,22 SAY 'VECP' GET VECF
@ 21,34 SAY 'RSNGS' GET RSNGS
@ 21,47 SAY 'SHNPP' GET SHNPP
@ 21,60 SAY 'CNS' GET CNS
@ 21,71 SAY 'WNP' GET WNP
@ 23,10 SAY 'MP   ' GET MP

```

```

*   FORMAT FILE DCFOR
*
@ 1,0  SAY 'TITLE  ' GET TITLE
@ 4,0  SAY 'AUTHOR ' GET AUTHOR
@ 4,63 SAY 'ORG    ' GET ORG
@ 6,0  SAY 'TO     ' GET TO
@ 6,63 SAY 'TO_ORG ' GET TO_ORG
@ 8,0  SAY 'DATED  ' GET DATED
@ 8,35 SAY 'DATE_REC ' GET DATE_REC
@ 10,0 SAY 'SOURCE  ' GET SOURCE
@ 10,35 SAY 'VEND_NUM ' GET VEND_NUM
@ 12,0 SAY 'DOC_TYP ' GET DOC_TYP
@ 12,13 SAY 'ISSUE' GET ISSUE
@ 12,63 SAY 'PAGES ' GET PAGES
@ 14,0 SAY 'DESCRIP ' GET DESCRIP
@ 19,0 SAY 'SITES  '
@ 19,10 SAY 'SNPS' GET SNPS
@ 19,22 SAY 'CGNS' GET CGNS
@ 19,34 SAY 'CPSES' GET CPSES
@ 19,47 SAY 'SONGS' GET SONGS
@ 19,60 SAY 'RBS' GET RBS
@ 19,71 SAY 'BNP' GET BNP
@ 21,10 SAY 'PNPP' GET PNPP
@ 21,22 SAY 'VEGP' GET VEGP
@ 21,34 SAY 'RSNGS' GET RSNGS
@ 21,47 SAY 'SHNPP' GET SHNPP
@ 21,60 SAY 'CNS' GET CNS
@ 21,71 SAY 'WNP' GET WNP
@ 23,10 SAY 'MP   ' GET MP

```

APPENDIX B

LIST OF DOCUMENTS IN THE DOCUMENT DATABASE

APPENDIX B

LIST OF DOCUMENTS IN THE DOCUMENT DATABASE

The documents filed in the document database as of September 30, 1985, are listed on microfiche inserted in the pocket below.

1

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APPENDIX C

LIST OF DRAWINGS IN THE DRAWING DATABASE

The drawings filed in the drawing database as of September 30, 1985, are listed on microfiche inserted in the pocket below.

APPENDIX C

LIST OF DRAWINGS IN THE DRAWING DATABASE

The drawings filed in the drawing database as of September 30, 1985, are listed on microfiche inserted in the pocket below.

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