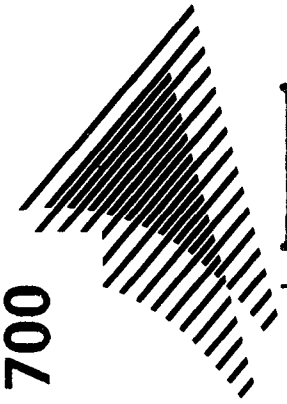

DAITC

Current Awareness Bibliography (CAB) on Diskette System Specification

DAITC/TR-88/008

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December 5, 1988

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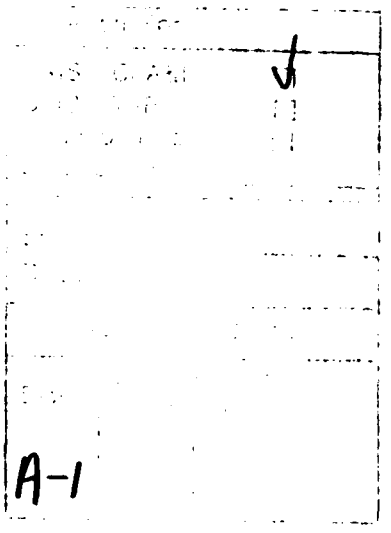

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A system specification for DTIC's Current Awareness Bibliography (CAB) on Diskette system is presented. The CAB on Diskette system design is linked to the functional requirements stated in the CAB on Diskette Functional Description (DTIC/TR-88/11) through this document. CAB on Diskette system definition, interfaces, and developmental tasks are provided in both narrative and graphic form in this report. The system specification is organized according to the DLA ADS Life Cycle Management Specifications in relating the details of the CAB on Diskette system. Keywords: Systems; Optical storage;

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SECTION 1 GENERAL

1.1 PURPOSE OF THE SYSTEM SPECIFICATION

This System Specification (SS) is a technical document prepared for systems personnel to provide a detailed definition of the Current Awareness Bibliography (CAB) on Diskette, DTIC Major Project 733 13 3200, system functions. The CAB on Diskette system is a subsystem of DTIC's Current Awareness Bibliography system. This specification is prepared in accordance with the DLA ADS Life Cycle Management (LCM) Specifications and is written to fulfill the following objectives:

a. To provide a detailed definition of the subsystem functions.

b. To communicate details of the on-going analysis between the DTIC operational personnel and the appropriate development personnel.

c. To define in detail the interfaces with other systems and subsystems and the facilities to be utilized for accomplishing the interfaces.

The user organization will consist of subscribers to the Current Awareness Bibliography (CAB) on Diskette service. The developer organization will be the Defense Technical Information Center (DTIC), who will expand the present CAB service to include CAB on Diskette. Developmental assistance in the microcomputer area will be provided by the Defense Applied Information Technology Center (DAITC).

The SS will serve as a guide for systems analysis, software selection, and programming tasks throughout the remaining development of the CAB on Diskette Subsystem. The inputs, outputs, structure charts, interfaces, and report formats contained in the SS will provide the necessary detailed understanding of the CAB on Diskette Subsystem operations.

This SS is the second major product of the LCM Definition/Design Phase. The previously-published CAB on Diskette Functional Description served as the basis for the functional requirements that are translated into specific input and output formats and processing steps in this document. The SS describes in detail how the system requirements, as stated in the CAB on Diskette Functional Description, will be met. The SS will serve as the primary means for reviewing the design of the system with the Defense Technical Information Center (DTIC) personnel and prototype participants. The SS is a live document and will be updated as necessary to reflect any changes to the CAB on Diskette Subsystem.

This SS is organized into four major sections. Section 1, General, provides basic information relating to the CAB on Diskette Subsystem Specification such as its purpose and use.

Section 2, Summary of Requirements, provides a compendium of the CAB on Diskette Subsystem requirements.

Section 3, Environment, includes a detailed discussion of the DTIC-CAB equipment and system support software relevant to the CAB on Diskette Subsystem. The microcomputer environments and supporting software and equipment are also discussed.

Section 4, Design Details, provides specifications of the CAB on Diskette Subsystem functional design, including suggested operating procedures, the system logical flow, and a description of system data (inputs and outputs).

1.2 PROJECT REFERENCES

Development of the proposed CAB on Diskette Subsystem will be a cooperative effort involving a number of DTIC offices and directorates. The purpose of this paragraph is to list the references applicable to the history and development of CAB on Diskette.

Project Title: Current Awareness Bibliography (CAB) on Diskette.

Project Sponsor: Defense Technical Information Center
Office of Information Systems and Technology
Carol Jacobson, Project Officer.

Project User: Defense Technical Information Center.

Operating Centers: CAB on Diskette user sites.

References:

a. Automated TAB Notices (ATN) Subsystem Analysis and Conversion Subsystem Specification, Advanced Technology, Undated.

b. Current Awareness Bibliography (sample), September, 1987.

c. Current Awareness Bibliography (CAB) Direct Input Procedures, DTIC, May 1983 (annotated 1986-87).

d. Current Awareness Bibliography (CAB) on Diskette Project Implementation Plan, DAITC, May, 1988.

e. Current Awareness Bibliography User Needs Assessment (survey document), DAITC, June, 1988.

f. Current Awareness Bibliography User Needs Assessment Summary, DAITC, August, 1988.

g. Current Document Handling Procedures at Defense Technical Information Center, DTIC, November, 1985.

h. Defense RDT&E Dedicated On-line System Terminal Operator's Manual (INPUT), DTIC, June, 1983.

i. Defense RDT&E Online System Dedicated Reference Guide for Input, DTIC, May, 1986.

j. Defense RDT&E Online System Dial-up Input Manual, DTIC, July, 1987.

k. Defense Technical Information Center Handbook for Users, DTIC, May, 1988.

l. Manual for the Shared Bibliographic Input Network (SBIN), DTIC, April, 1988.

m. Notices of Changes in Classification, Distribution, and Availability, DTIC, March, 1987.

n. Organization, Missions, and Functions, DTIC, August, 1987.

o. Technical Reports Awareness Circular (TRAC), DTIC, March, 1988.

1.3 TERMS AND ABBREVIATIONS

Term	Definition
Abend	Abnormal end.
Accession number	The AD number is composed of a transaction type prefix and a uniquely assigned serial number for ADP and document processing and control.
AD	Accession Document.
ADD	Automatic Document Distribution.
ADN	Accession Document Number.
ADP	Automated Data Processing.
AMTD	Automatic Magnetic Tape Distribution.
ASCII	American Standard Code for Information Interchange; a computer coding system used to represent the alphabetic, numerical, and punctuation characters.
ATN	Automated Technical Abstract Bulletin Notice.
ADD Program	Automatic Document Distribution Program. A customized service in which users establish a profile of their interests so as to receive, on a semimonthly basis, microfiche copies of newly accessioned documents matching those interests.

Bibliography	Collection of citations to reports, usually limited to one or more specific subject categories. Provides data on each report such as title, accession number, classification, author, date of report, abstract, and other items.
Bibs	Bibliography System.
CAB	Current Awareness Bibliography.
CAB Program	Current Awareness Bibliography Program. A customized, automated bibliography service based on the information needs of DTIC users.
CD-ROM	Compact Disk Read-Only Memory. An optical computer storage medium used to distribute stamped information.
CGA	Color Graphics Adapter.
CHI	UNISYS terminal emulation and file transfer software used with Zenith PCs.
Color Graphics Adapter	Hardware display add-on Adapter for IBM PCs that includes three color signals (red, green, and blue) and a resolution of 640 by 200 pixels.
DA	Distribution Availability.
DAITC	The Defense Applied Information Technology Center.
Data Stream	ASCII file of packed CAB data.
DBMS	Database Management System.
Delimiter	An indicator that marks the beginning or end of a unit of data.
Diskette	A 5 1/4" magnetic computer storage medium to be used with the CAB on Diskette system.
DoD	Department of Defense.
DROLS	Defense RDT&E (Research, Development, Test and Evaluation) Online System.
DTIC	The Defense Technical Information Center.
DTIC 2000	The planning document designed to take DTIC into the 21st century.
DTIC-B	DTIC's Office of User Services.

DTIC-EA	The Information Research and Technology Division of the Office of Information Systems and Technology.
DTIC-F	The Directorate of Document Services.
DTIC-HAR	The Retrieval Analysis Branch of the Analysis Division of the Directorate of Database Services.
DTIC-Z	The Directorate of Telecommunications and ADP Systems.
EGA	Extended Graphics Adapter.
Extended Graphics Adapter	Hardware display add on for IBM PCs that includes six color signals (two adapters each for red, green, and blue) and a resolution of 640 by 350 pixels.
Field	A specific part of a record that always holds the same type of information.
Indivdual Archival Data	Term used to refer to a CAB end user's PC database of accumulated citation data.
ISI	Information Storage, Inc. (WORM drive vendor).
ITAR	International Traffic in Arms Regulations.
LCM	Life Cycle Management.
LION	Library of Input/Output and Numerical conversion routines for the DTIC UNISYS 1100 series computers.
Magneto-optical	Short form for Thermomagneto-optical.
Mainframe	A classification of computers usually referring to a machine capable of supporting twenty or more simultaneous users, megabytes of memory, and a high-performance central processing unit (CPU).
Master File	Compilation of data constituting information of importance to DTIC. The CAB master file includes search control number line, search terms, title, requester's name, search control number, user code, and other optional data such as index request and AD number limitations.
MF	Mainframe.
Mouse	A graphical user interface input device made popular with the Apple Macintosh microcomputer; the point-and-shoot device.

MO	Magneto-optical.
New Master File	Updated, most current Master File.
PC	Personal Computer.
Profile	List of data under one CAB search control number. Includes ID line, search terms, title, requester's name, index request (search strategy), and AD number restrictions; defines one search.
Prototype	An implementation of an information system designed to prove feasibility; not intended to be the final, production system.
RAM	Random Access Memory used by the computer as primary, or scratch pad storage, as opposed to secondary, or permanent, storage.
RLT	Read Lion Tape.
Record	Collection of related fields.
RTIS	The Remote Terminal Input System.
SC	Security Classification.
Semimonthly	Twice a month.
Software Evaluation Matrix	Method of itemizing specific software package characteristics by vendor in order to evaluate packages on a comparative basis.
SS	System Specification.
STEP	Sperry Terminal Emulation Program.
STILAS	Scientific and Technical Library Automation System.
T&E	Test and Evaluation.
TAB	Technical Abstract Bulletin.
TBD	To be Determined.
Technical Report	A written report, usually a formal document, that is the permanent official record of a study or phase of a study in a particular area.
Technical Reports	Collection of bibliographic citations to documents that convey the progress or result of Defense-

Database	sponsored Research, Development, Test and Evaluation (RDT&E).
Technical Reports Awareness Circular	Monthly unclassified publication that announces citations to all the technical reports accessioned during the past month.
Thermomagneto-optical	Erasable optical disk technology first developed and currently leading the market.
TR Database	The Technical Reports Database.
TRAC	Technical Reports Awareness Circular.
Update	The process of maintaining accurate information on a file by changing, adding, or dropping the records of the file.
VGA	Video Graphics Array.
Video Graphics Array	Hardware display add-on for IBM PCs that supports 256 colors from a palette of 262,144 and a resolution of up to 640 x 480 pixels.
WLT	Write Lion Tape.
WORM	Write Once Read Mostly or Write Once Read Many optical disk drive.
WORMTOS	Write Once Read Mostly Transparent Optical Software.

SECTION 2 SUMMARY OF REQUIREMENTS

This section provides a summary of the CAB on Diskette Subsystem characteristics and requirements. This section links the functional requirements stated in the CAB on Diskette Functional Description to the system design presented in this document.

2.1 SUBSYSTEM DESCRIPTION

The Current Awareness Bibliography (CAB) service was developed by DTIC in recognition of the difficulty that researchers have in maintaining currency in the diverse, highly specialized research sponsored by the Department of Defense (DoD). Each potential CAB user works with a DTIC information specialist to establish a profile that DTIC's computer matches against the new technical reports that arrived at DTIC during the previous two-week period. The user is then automatically mailed a hard-copy bibliography with concise but complete information on the reports matching the profile. The CAB on Diskette project will expand the current CAB system to include distribution of Current Awareness Bibliographies on diskette.

The CAB on Diskette Subsystem will provide the following capabilities to subscribers:

a. CAB on Diskette subscribers will receive Current Awareness Bibliographies on diskette. The diskette distribution media will enable loading of CAB information onto user-site microcomputers.

b. The new CAB on Diskette product will include recommended information storage and retrieval software enabling users to accumulate CABs, further refine searches, create ad hoc reports and bibliographies, and track DoD-funded research in selected areas.

c. The CAB on Diskette product will include a module to unpack the CAB data to human-readable ASCII format giving end users the option of importing the data into software packages not directly supported by the CAB on Diskette product.

d. A user site's CAB on Diskette database will serve as a cumulative index to Automatic Document Distribution (ADD) microfiche reports received through participation in the ADD program with the same profile topic or topics as used with CAB. In some cases, the cumulative CAB index will include documents that a particular user site is not eligible to receive through ADD.

e. CAB users may receive the quarterly "Notice of Changes in Classification, Distribution and Availability" information on diskette. Software will be provided to these users to automatically update the citation data in their personal database with the change information.

2.1.1 CAB ON DISKETTE SUBSYSTEM DESIGN

A summary of the design and implementation necessary to provide the required capabilities is presented in this subsection. A more detailed description appears in Section 4.

DTIC will modify the software programs that produce the hard-copy CABs to output CAB information to diskette. Required changes are detailed in Appendix D, DTIC System Change Requests. The user profile header card images will be modified for users participating in CAB on Diskette to indicate that the CAB is to be written to diskette. Appendix E presents DTIC-EA's methodology for implementing the required profile header modifications. The CAB special programs will be modified to send output from flagged profiles to diskette rather than to the Xerox 9790 printer. DTIC will maintain normal CAB production operations with the addition of a separate run for CAB on Diskette. The CAB on Diskette data will be output to an unclassified tape from the UNISYS 1100/82. Cleared DTIC personnel will manually move the tape from the 1100/82 to the unclassified UNISYS 1100/61. Then UNISYS file transfer and terminal emulation software will be utilized to transfer the CAB on Diskette data to the hard disk of a microcomputer hard-wired to the UNISYS 1100/61. Once the CAB data is available on the microcomputer, individual CABs will be copied to diskette utilizing an autoloader. The autoloader procured for the project will include software to select master files stored on a PC hard disk for job streaming of the "copy to diskette" process. After the CAB diskettes are produced by DTIC-Z, they will be packaged and mailed to CAB on Diskette subscribers by DTIC-F.

CAB on Diskette subscribers will utilize their local IBM or compatible personal computers with the diskette data. The results obtained from the CAB User Needs Assessment (see CAB on Diskette Functional Description) indicate that most CAB users have personal computer systems configured with hard disks in the 10-20 megabyte size range. Since the largest CAB users receive semimonthly CABs in the size range of 2 megabytes or more, a Write Once Read Mostly (WORM) mass storage device will be tested during the CAB on Diskette prototyping as a potential solution to the storage needs of the largest CAB on Diskette users. The small ISI 525 WC WORM drive (5.25 inch) to be tested provides random access to 115 megabytes of storage per disk side in a removable cartridge format.

A 5.25 inch form factor magneto-optical disk drive will be tested during the prototype as an alternative to the WORM storage device. The 5.25 inch magneto-optical drive provides 600 megabytes of storage with unlimited erasability of recorded data in a removable cartridge format. The device to be tested is a beta test unit that will be made available to the project without charge.

2.1.2 NOTICES OF CHANGES ON DISKETTE

Any DTIC registered user requesting the service and most Technical Reports Awareness Circular (TRAC) sites currently receive Notices of Changes in Classification, Distribution, and Availability (ATNs) on a quarterly cycle.

These microfiche notices contain changes to the bibliographic data that may or may not apply to the specific citations accumulated by a particular CAB user. ATN changes include changes in distribution availability (DA) and security classification (SC).

To maintain currency with the information contained in the TR database, CAB on Diskette users may request the quarterly ATN change information on magnetic (diskette) media. To make this data available on diskette, DTIC must modify the programs that create the Notices of Changes in Classification, Distribution, and Availability to output the ASCII information that is currently sent to the Xerox printer to diskette. Required changes are detailed in Appendix D, DTIC System Change Requests. As with the CABs, DTIC will transfer this file from the UNISYS 1100/82 to the UNISYS 1100/61 then to a Zenith 248 microcomputer hard-wired to 1100/61. The DAITC will write MS-DOS compatible microcomputer software to be run on the DTIC Zenith 248 to remove extraneous whitespace and superfluous data from the ATN print file. Superfluous data will include all fields that do not correspond to fields present in the CAB citations. The data remaining in the file will be the CAB on Diskette ATN master file that will be used to update a participating CAB user's citation data with the ATN change information. The master file can readily be replicated at DTIC utilizing the autoloader procured for CAB on Diskette. DTIC may then mail the ATN update information to those CAB users requesting the additional service.

2.1.3 USER SITE SOFTWARE

The DAITC will design PC software to run at CAB user sites to match the ATN change information on Accession Document Number (ADN) to the bibliographic citations contained in CAB on Diskette user databases. This software will enable automatic update of a CAB on Diskette user's citation database through replacement of changed fields with new data. This type of update will require participating WORM users to rebuild the entire database on a quarterly basis as new ATNs are released. A menu item for the ATN update will be included in the CAB on Diskette front-end to allow participating end users to easily accomplish the needed changes.

Although the printed CAB has optional indices on the contract number, subject, corporate author, personal author, report number, and title, these indices are only available for the current CAB mailing and not on a cumulative basis. The CAB on Diskette System will offer the CAB user the ability to maintain a personal database of citations in his area of interest on IBM PC or compatible equipment. The feasibility of expanding the CAB on Diskette project to include other microcomputer equipment will be assessed during the prototype development phase of the CAB on Diskette project.

Information search and retrieval software will be selected by DTIC to allow CAB users easy access to their accumulated data. The chosen software will be available off-the-shelf to CAB users. Additionally, software will be designed at the DAITC to front-end the retrieval software giving non-technical users the ability to install the CAB on Diskette software, create the initial database, append semi-monthly CAB data, establish required connections,

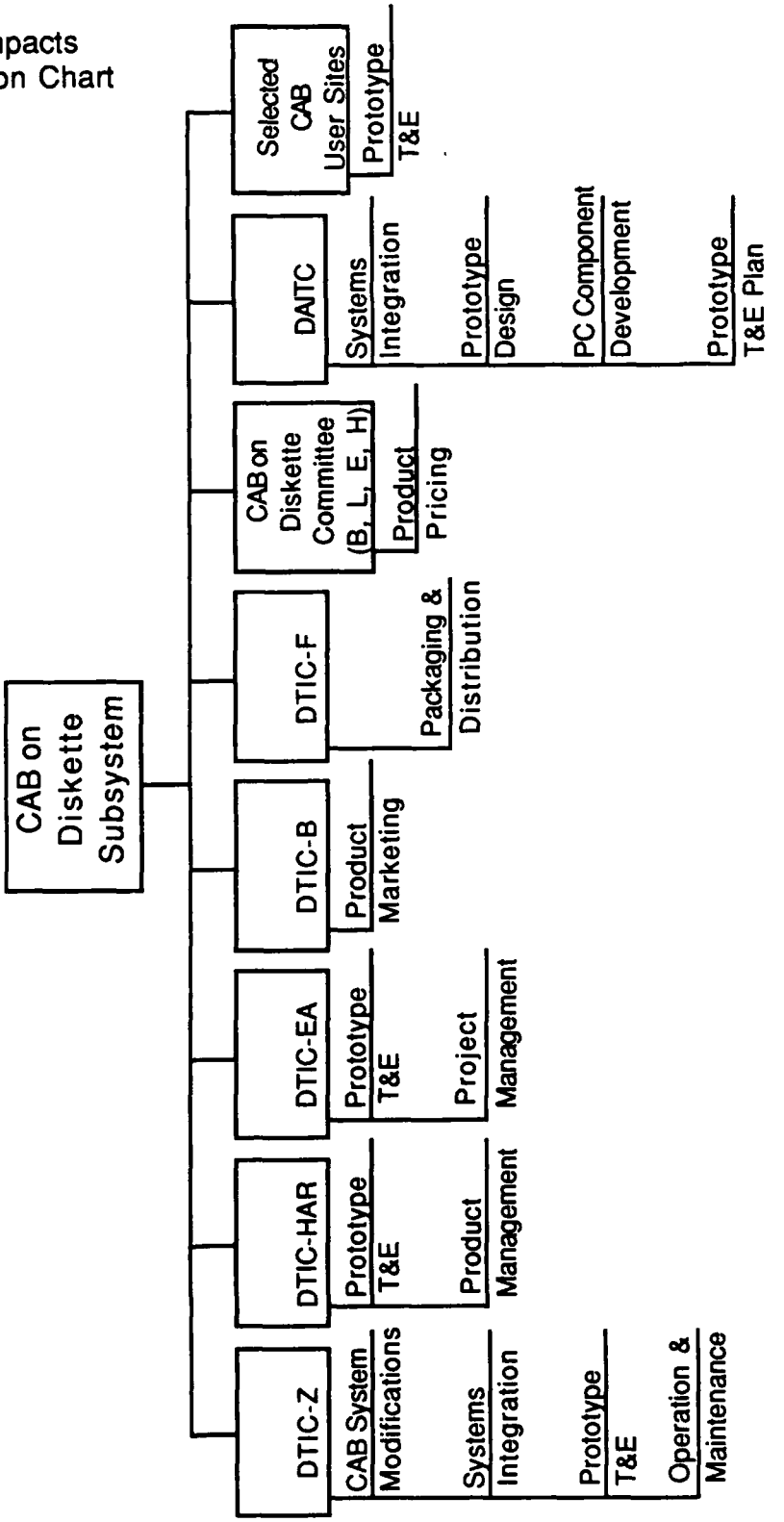
rebuild their personal database to include changes disseminated in the quarterly ATNs, and access CAB help. The retrieval engine itself will be selected so as to provide the capabilities identified in the CAB Functional Specification. See Section 4.4, Program Descriptions, for a discussion of retrieval software selection criteria.

Users will be able to accumulate CAB information, automatically adding the new citation data to a personal database as it is received on a semimonthly cycle. The design and performance aspects of the proposed CAB on Diskette System are to be tested through development of a prototype system. DTIC-Z and four hard-copy CAB users selected by DTIC-EA will participate in the test of the prototype. DTIC-EA will monitor the testing and use results obtained in directing follow-on development to make the product operational.

2.1.4 ORGANIZATIONAL IMPACTS

The chart on the following page lists the organizations participating in CAB on Diskette prototype development.

System Specification
05 Dec 88
CAB on Diskette
2.1.4 Organizational Impacts
Hierarchical Organization Chart



2.2 SUBSYSTEM FUNCTIONS

The following paragraphs describe the functional components of the CAB on Diskette Subsystem in detail. The proposed CAB on Diskette Subsystem has three major functional components:

1. Modification of the existing CAB System to output CAB information to diskette.

2. Modification of the existing ATN subsystem to output selected ATN information to diskette.

3. Selection of IBM PC compatible retrieval engine and design and development of CAB front-end software.

2.2.1 EXISTING CAB SYSTEM MODIFICATION

This is the first process in the CAB on Diskette System prototype development. Modifications to the existing CAB system will be made by DTIC. DTIC-EA will modify the profile header card image to indicate that the CAB for the profile is to be written to diskette. The modification will consist of adding a one-byte flag to the profile header card image. When the flag is set, CAB output will be written to diskette. A second flag will be added to the profile header card image to indicate that CAB output is to be printed. When both flags are set, CAB output will be routed to both hard copy and diskette. Appendix E, Marking CAB Profile Headers with Medium Indicators Using ED Macro HDP, presents a methodology for implementing the required profile header card image changes.

DTIC-Z will modify the existing CAB programs to read the profile header card image flags and alter the processing path according to flags set. General CAB operating procedures will be followed for CAB on Diskette participants with the exception that the CAB on Diskette participants (those profiles with the CAB on Diskette flag set) will be batched and processed against the TR data in a separate run with output going to diskette rather than to the Xerox 9790 printer.

The CAB on Diskette run will output an ASCII data stream of CAB information to a file on the UNISYS 1100/82. Individual CABs in the stream will be separated by Search Control Number. Individual citations will be delimited by Accession Document Number. Data fields within citations will be delimited by a unique character sequence to be specified by DTIC-Z. The field delimiter will include the field number. CAB on Diskette data specifications are presented in Appendix D, DTIC System Change Requests.

The ASCII file will be packed, output to tape, then manually transferred to the UNISYS 1100/61. The manual move is made to facilitate transfer of the data to a PC to which an autoloader can be attached. The PCs hard-wired to the 1100/82 are Tempest PCs that cannot be compromised through the addition of the required autoloader controller. PC CHI terminal emulation and file transfer software will be used to move the file from the 1100/61 via a 9600 baud hard-wired connection to a Zenith 248 microcomputer. The Zenith will be

located in DTIC's operations area and will have an autoloader attached as a peripheral device.

The file will be separated into individual CAB masters and output to diskette using an autoloader with associated software. A detailed description of a workable autoloader configuration for CAB on Diskette is presented in Section 3, Environment. After the CABs are output to diskette by DTIC-Z, they will be packaged and mailed by DTIC-F. A high-level system hierarchy chart representing the proposed CAB on Diskette System appears on page 26. Detailed system data flow charts are presented in Section 4.2, System Logical Flow.

2.2.2 ATN SUBSYSTEM MODIFICATION

The ATN Subsystem is an adjunct to the CAB on Diskette Subsystem. DTIC maintains the ATN Subsystem and uses it to produce the quarterly microfiche "Notices of Changes in Classification, Distribution, and Availability" reports. DTIC publishes the fourth quarter output as part of a yearly accumulation of ATN data, also called "Notices of Changes in Classification, Distribution, and Availability." Most TRAC sites currently receive the ATN reports, although they are available to all registered users upon request.

The ATN reports contain changes in distribution availability (DA) and security classification (SC) of accessioned technical reports. The ATN Subsystem is a separate system, however, and is not used to make changes to the TR database. Since the ATN printed report contains the change information and is readily available in ASCII format, it is recommended that the ATN print file be used to create a CAB on Diskette ATN master file that can be used to update the CAB on Diskette user's individual accumulated database with the relevant change information. Only CAB on Diskette users requesting the service would receive the ATN change information on diskette.

Current ATN Subsystem operations would require minimal alteration to output the ATN data to diskette. The only change required to the ATN Subsystem programs would be the processing of instructions on the UNISYS 1100/82 to send the quarterly ATN ASCII print file normally output to paper via the Xerox 9790 printer to a UNISYS file for eventual transfer via CHI programs (terminal emulation and file transfer software) to the Zenith 248 microcomputer. To limit number of diskettes needed, only the quarterly ATN information will be output to diskette--the yearly ATN accumulation data will not be transferred to the microcomputer and output to diskette in its entirety. Instead, only changes specific to the fourth quarter will be output to diskette. DTIC will continue normal ATN operations and will move the ATN ASCII file to the microcomputer for processing prior to output to diskette.

The DAITC will provide IBM PC compatible software to DTIC to remove fields from the ATN ASCII file that are not included in the CAB on Diskette citations. The remaining fields will be packed to save space and written to a file on the microcomputer to be known as the CAB on Diskette ATN master file. The software used to pack the data will be provided by the DAITC. DTIC will run the

software to create the CAB on Diskette ATN master file on a Zenith 248 hard-wired to the UNISYS 1100/61.

The CAB on Diskette ATN master file will then be output to diskette and replicated for all CAB on Diskette users requesting the ATN change information. The duplication software will be provided by the autoloader vendor. After the selected ATN information is output to diskette by DTIC-Z, it will be packaged and mailed to CAB users by DTIC-F.

A detailed flow chart of the ATN information component of the CAB on Diskette Subsystem is presented in Section 4.2, System Logical Flow.

2.2.3 IBM PC COMPATIBLE RETRIEVAL ENGINE AND FRONT-END

The third CAB on Diskette functional component, selection of an IBM-PC compatible retrieval engine and design and creation of CAB front-end software, encompasses the user-oriented CAB microcomputer developmental effort. DTIC will select the information search and retrieval software with consideration given to the retrieval engine test and evaluation results obtained at the DAITC. The DAITC will precede the test and evaluation effort with an abbreviated retrieval software market analysis. A list of retrieval engine selection criteria appears in Appendix B.

The DAITC will design and develop front-end software for the selected retrieval engine to perform the following functions:

1. Create initial CAB citation database.
2. Append new CAB citation data.
3. Install the retrieval software.
4. Search the database.
5. Establish required connections.
6. Access CAB-specific help.
7. Update CAB citations with ATN data.

All functions listed above will be accessible to the CAB on Diskette end user via a menu-driven interface.

The front-end software and the retrieval engine will run on MS-DOS compatible microcomputer systems located at CAB on Diskette user sites. The selected retrieval engine will include the capabilities identified through the Current Awareness Bibliography User Needs Assessment, the characteristics necessary to support the WORM storage medium, and the attributes common to all well-designed retrieval software. The retrieval software selection process will be presented in detail in Section 4.4, Program Descriptions. When

development of a prototype CAB on Diskette System is completed, test and evaluation of the prototype will begin. Evaluators will include DTIC-Z designated participants and selected CAB end users. Prototype development and testing will be managed by DTIC-EA.

2.2.4 ACCURACY AND VALIDITY

The accuracy and validity requirements utilized for the hard copy CAB System will be utilized for CAB on Diskette. There will be no entry of data associated exclusively with the CAB on Diskette Subsystem. Processing for the CAB on Diskette Subsystem involves capturing the data in usable format from already existing DTIC systems.

The accuracy of each duplicated diskette will be automatically tested through verification software provided with the autoloader.

2.2.5 TIMING

Timing requirements utilized for the hard copy CAB System will also be utilized for CAB on Diskette. The transfer of the CAB data to 5 1/4 inch MS-DOS diskettes will immediately follow DTIC-Z's completion of the CAB on Diskette run. A packed data file will then be transferred to the Zenith 248. An autoloader connected to the Zenith will be used to physically output the data to diskette. Speed of diskette production will depend upon the characteristics of the autoloader procured to support the CAB on Diskette project. The copies per hour range specified by vendors contacted for 5 1/4 inch MS-DOS 48 TPI double-sided diskettes is from 60 to 173 diskettes completed per hour. The 5 1/4 inch 48 TPI format will be used initially since it represents a standard in the IBM PC and compatible marketplace.

The transfer of the ATN data to diskette will immediately follow DTIC-Z's creation of the ATN print image file. The file will be moved to a Zenith 248 hard-wired to the UNISYS 1100/61. Software will be run on the Zenith 248 to prepare the ATN print data for output to diskette. The same autoloader used for general CAB on Diskette production will then be used to output the ATN data to diskette. Both the semimonthly CAB on Diskette issues and the quarterly ATN data will then be packaged and mailed by DTIC-F. The timing realized for production and mailing of the above data will be recorded during the prototype and evaluated and compared to the time required for hard copy CAB and Notices of Changes in Classification, Distribution, and Availability (ATN) production and mailing.

2.3 FLEXIBILITY

The CAB on Diskette Subsystem developmental approach is based on the methodologies of structured analysis and structured design. The proposed system is an adjunct to the existing CAB system. The microcomputer component of the system is loosely tied to the mainframe systems so as to enable changes to occur in the mainframe systems without requiring major

change within the microcomputer component. The software designed for the microcomputer component will be designed in a modular fashion to facilitate any required changes. The front-end software will be designed with minimal dependence upon the retrieval engine, with the intent that the retrieval engine may be changed at a future date without necessitating major changes in the front-end software. Version changes (updates) are anticipated in the retrieval engine and the front-end software will be planned to facilitate these changes.

The autoloader procured to support the CAB on Diskette Subsystem will be capable of outputting diskettes in varying sizes and densities in anticipation of future project requirements. The retrieval engine selection criteria list includes availability for the Macintosh as a desired characteristic. This criterion was included in anticipation of future project requirements.

In recognition of the advances in optical technology that are expected by the time the CAB on Diskette Subsystem becomes operational, a magneto-optical disk drive is being sought for inclusion in the prototype. Discussions to date with the vendor have indicated that a no-charge beta test unit will be made available to the project for evaluation at the beginning of second quarter 1989. The drive will be evaluated against the ISI WORM drives being used in the prototype.

CAB on Diskette front-end microcomputer software development will utilize the C language for the following reasons:

1. The great majority of MS-DOS compatible information search and retrieval software is currently written in C.

2. Most retrieval engine tool kits currently on the marketplace allow integration of user-developed software written in the C language.

3. C provides the portability of software necessary to fulfill the requirement of machine independence.

The above methodologies support the creation of a flexible, modular system.

SECTION 3 ENVIRONMENT

This section provides an expansion of the environment presented in the CAB on Diskette Functional Description to reflect additional analysis. It discusses both the equipment and software environment including interfaces, security concerns, and controls.

3.1 EQUIPMENT ENVIRONMENT

This subsection provides a description of the equipment required for the implementation of the CAB on Diskette Subsystem. Equipment needed for the development of the prototype is presented in two categories, DTIC CAB on Diskette production equipment, and CAB user site equipment.

3.1.1 DTIC CAB ON DISKETTE PRODUCTION EQUIPMENT

The available CAB hard copy production equipment will also be utilized for CAB on Diskette. The UNISYS 1100/82 is the classified system that is used to produce the Current Awareness Bibliographies. The 1100/82 also supports the Remote Terminal Input System (RTIS), that is a part of the Defense RDT&E Online System (DROLS), for online access to technical and management information. The TR database utilized in CAB production resides on the 1100/82. The UNISYS 1100/61 is the unclassified system that supports CAB profile maintenance and TR maintenance. The 1100/61 also supports off-line batch processing of unclassified data, provides time-sharing services for authorized users, and serves as a platform for in-house program development and testing.

Terminals and hard-wired microcomputers are located throughout the DTIC facility for entry of data and program source code. The microcomputers are equipped with UNISYS terminal emulation boards plus either STEP or CHI software to enable the microcomputers to appear as terminals to the UNISYS systems. STEP is the acronym for the Sperry Terminal Emulation Program that provides the emulation and file transfer capability for UNISYS PCs. CHI is the name of the terminal emulation and file transfer software used to connect Zenith PCs with the UNISYS mainframes.

A Xerox 9790 high speed laser printer is used to produce the hard copy CABs and Notices of Changes in Classification, Distribution, and Availability as well as program listings and other print jobs. Other peripherals are included with the UNISYS systems, but will not be presented here.

An autoloader must be procured to facilitate CAB on Diskette production. Autoloaders are hardware devices that can be purchased as stand-alone devices, peripherals, or as part of diskette duplication systems. Autoloaders and accompanying software were devised to meet the requirements of the microcomputer software industry in supplying the capability to bulk load diskettes for duplication purposes. Typically, blank diskettes are stored in a loading bin that automatically feeds the autoloader copy drive. The autoloader may be treated as a peripheral to the host microcomputer system enabling

software selection of multiple master files stored on the microcomputer hard disk for job streaming of the "copy to diskette" process. This autoloader configuration is the one that has potential applicability to the needs of the CAB on Diskette Subsystem. In this instance, the autoloader will be configured as a peripheral to a Zenith 248 microcomputer hard-wired to the UNISYS 1100/61. An illustration of the autoloader configuration planned for the CAB on Diskette prototype appears in Appendix C. Use of the autoloader will greatly reduce the amount of human intervention required to transfer the CAB and ATN information to diskette. Autoloader operational speed and size of the loading bin vary with model and vendor.

3.1.1.1 DTIC EQUIPMENT SUMMARY TABLE

	Equipment	Number	Additional Information
a.	UNISYS 1100/82	1	Classified System--holds the TR database
b.	UNISYS 1100/61	1	Unclassified--maintenance and development
c.	Autoloader with controller	1	To be procured
d.	Zenith 248 hard-wired to 1100/61	1	Equipped with terminal emulation board and CHI software
e.	Label printer	1	Must be available as PC peripheral or as part of an autoloader system.

3.1.2 CAB USER SITE EQUIPMENT

The microcomputer equipment to be procured for the development of the CAB on Diskette prototype was identified through the Current Awareness Bibliography User Needs Assessment. The equipment matches that available to many current CAB hard copy users with the addition of a mouse and an ISI 525 WC WORM drive. The WORM drive is included to support the storage requirements of recipients of large CABs. A magneto-optical drive will be evaluated as an alternative storage unit for large CAB users. The mouse will allow use of a windows interface.

3.1.2.1 CAB USER SITE EQUIPMENT SUMMARY TABLE

Equipment	Number	Additional Information
a. Microcomputer system:		
Advance Zenith 248 80287 math co-processor RGB color monitor Dot matrix printer (ALPS) Mouse	5	Three of these systems will be utilized in the field by prototype participants. One system will be utilized by DTIC-Z for file transfer and autoloader host. One system will be utilized by the contractor developing the prototype.
b. Storage Devices:		
ISI 525 WC WORM Drive	5	WORM drive utilization will provide storage for far greater amounts of accumulated CAB data.
Hard Disk Drive	5	
Floppy Disk Drive	5	Input CAB data.
Magneto-optical (MO) Drive	1	Discussions are underway to provide the CAB on Diskette prototype with a no-charge beta test unit.
c. Other Equipment:		
Surge Protector	5	Prevent electrical spike damage to equipment.
Internal 2400 Baud Modem	5	Communications (access to DROLS and DGIS).

3.2 SUPPORT SOFTWARE ENVIRONMENT

This section provides a description of the support software required for the operation of the CAB on Diskette Subsystem. Software needed for the development of the prototype is presented in two categories, DTIC CAB on Diskette Production Software and CAB User Site Microcomputer Software.

3.2.1 DTIC CAB ON DISKETTE PRODUCTION SOFTWARE

The software used in support of the CAB on Diskette Subsystem at DTIC will include the following:

TYPE	TITLE	LANGUAGE	MODIFICATION REQUIRED	ADDITIONAL INFORMATION
MF * Application	ATN Subsystem	COBOL	Yes	Modification needed to send ATN print image to file.
MF Application	CAB special programs	COBOL	Yes	Need modification to recognize CAB on Diskette flag and output flagged profiles to diskette as packed data stream.
MF Application	Profile programs	Ed Macros	Yes	2 Flags must be added to profile header card image to indicate whether the CAB goes to diskette or hard copy or both.
PC ** Application	ATN Preparation	C	New	Strips and packs ATN data.
MF Compiler	UNISYS COBOL	ASSEMBLY	-	Compiles COBOL.
MF DBMS	DMS 1100		-	DBMS used with TR data.
MF OS	EXEC	ASSEMBLY	-	UNISYS Operating System.
PC Utility	Autoloader automatic duplication software	TBD	-	Software provided with autoloader.
PC Utility	Autoloader custom label printing software	TBD	-	Software provided with autoloader.
PC Utility	CHI		-	UNISYS terminal emulation and file transfer software for Zenith PCs.
MF Utility	LION I/O Routines		-	Reading and writing UNISYS tape and disk files.
MF Utility	RLT, WLT	Fortran	-	Converts data to LION format for tape I/O.
PC Utility	STEP		-	UNISYS terminal emulation and file transfer software.

* MF indicates mainframe.
** PC indicates personal computer.

3.2.2 CAB USER SITE MICROCOMPUTER SOFTWARE

The software to be used in support of the CAB user site microcomputer functions includes the following:

TYPE	TITLE	LANGUAGE	MODIFICATION REQUIRED	ADDITIONAL INFORMATION
OS	MS-DOS	ASSEMBLY	-	IBM PC Compatible Operating System.
Compiler	C	C/Assembly	-	Compiles C code.
Application	CAB on Diskette Front-End	C	New	Provides specialized CAB on Diskette software front-ending the retrieval engine.
Application	MS Windows	C	-	Optional interface used with some retrieval engines.
Application	Retrieval Engine	C	TBD	Provides information search and retrieval capability.
Device Driver	WORMTOS		-	Driver for ISI WORM device.

3.3 INTERFACES

Internal interfaces for the CAB on Diskette Subsystem include interaction with the existing CAB System used to create the hard copy CABs and interaction with the existing ATN Subsystem used to output the Notices of Changes in Classification, Distribution, and Availability.

The equipment used for the interface will be a Zenith 248 microcomputer hard-wired to the UNISYS 1100/61. The data will be transferred from mainframe to microcomputer utilizing terminal emulation and file transfer programs. The format of the CAB data will be a packed data stream including all CAB fields. The format of the ATN data will be an image of the ATN print file including extraneous fields and whitespace that will be removed prior to output to diskette. The DAITC will provide the software to prepare the ATN data. DTIC-Z staff will modify the existing CAB and ATN programs to enable the planned interface, will supervise all data transfer, will execute the Zenith 248 programs to prepare the ATN data, and will control the output of the data to diskette utilizing an autoloader. DTIC-EA will manage the CAB on Diskette prototype development, test and evaluation.

External interfaces are presented in the following table:

Interfacing Element	Requirements	Method of Data Exchange
TR	TBD	Telecommunications
CD-ROM TR Database	Dependent upon availability of CD-ROM and indices used.	CD-ROM drive is assumed to be a CAB on Diskette user microcomputer peripheral (feasibility of providing software compatible with the CD-ROM database is to be assessed).

3.4 SECURITY AND PRIVACY

The CAB on Diskette Subsystem will be limited to profile-based unclassified data. The CAB special programs will be run against the TR data on the UNISYS 1100/82 to produce the CABs. The UNISYS 1100/82 is a classified system with access restricted to cleared personnel. The microcomputers hard-wired to the 1100/82 are Tempest units having the same restrictions as the 1100/82. An autoloader, as required for CAB on Diskette production, cannot be added to one of these Tempest PCs without violating security. Thus, to avoid the security problem, CAB on Diskette data tapes will be output from the 1100/82 and manually carried to the 1100/61. Terminal access to the 1100/61 (an unclassified system) is available to authorized users to whom DTIC has issued user IDs and passwords. A PC attached to the 1100/61 may serve as an autoloader host without problem.

3.5 CONTROLS

The controls utilized in production of the hard copy CABs will also be utilized by the CAB on Diskette Subsystem. The controls utilized in the ATN Subsystem will also be utilized for the "Notices of Changes in Classification, Distribution, and Availability" data that is output to diskette. Major functions and operational procedures of both systems will remain essentially the same with the exception that the data will be output to a new medium--5 1/4 inch diskette. The autoloader system will provide verification software to insure that the data is copied from the master file to the floppy diskette correctly.

SECTION 4 DESIGN DETAILS

4.1 GENERAL OPERATING PROCEDURES

This section provides a general description of the CAB on Diskette Subsystem operating procedures. Information in this subsection is presented according to three component areas:

1. Existing CAB system with output to diskette modifications.

2. Existing ATN subsystem with output to diskette modifications.

3. CAB user site retrieval engine and front-end software.

4.1.1 EXISTING CAB SYSTEM WITH OUTPUT TO DISKETTE MODIFICATIONS

CAB is a profile-based service that provides customized bibliographies based on the recurring needs of CAB subscribers. The potential CAB recipient works with a DTIC information retrieval specialist to establish a "profile" that describes the user's interests. The profile is most likely to be a "subject profile" relating to the subject of the reports. The profiles are input and maintained daily on DTIC's UNISYS 1100/61. Every two weeks a new master is created for the profiles, output to tape, and moved to the UNISYS 1100/82, a classified system. The profile new master is then run against the new technical reports that were added to the UNISYS 1100/82 for the current cycle to yield the Current Awareness Bibliographies that are mailed in hard copy form to CAB participants. The bibliographies, containing unclassified citations to technical reports matching the profile, are provided to CAB subscribers without charge. There are now two runs against the TR data, one for general CAB users and one for the large MIT/MITRE group of CAB users. A third run is anticipated for the CAB on Diskette users. The CAB on Diskette search results will be output to diskette using an autoloader after transfer from the 1100/82 to a Zenith 248 microcomputer.

The data sent to CAB users comes from the Technical Reports (TR) Database. The cyclical technical reports data is manually input from DD Forms 1473 to the UNISYS 1100/82 working file through RTIS on a daily basis. Every two weeks a TR new master is created and moved on tape to the UNISYS 1100/82. DTIC operations staff members perform regular backups of both systems.

Each bibliography contains citations referencing the technical reports matching a particular profile. The CAB user is encouraged to review his or her profile and modify it as needed to ensure that the CABs are as useful as possible. Once a year CAB users must return a form to DTIC indicating that they wish to continue the service. CAB on Diskette will follow the same procedure.

4.1.2 EXISTING ATN SUBSYSTEM WITH OUTPUT TO DISKETTE MODIFICATIONS

Changes to technical report security classification assignments and distribution limitation statements result from predetermined downgrading dates or events, errors in original classification, or requests issued by the authority for change (report contributor). Classification changes are entered by an operator into the cataloged files of the RTIS system at which time a bibliography request is made to the TR File yielding a printout of the current information for each Accession Document Number (ADN). This information is compared to the classification notice change and any errors or omissions are corrected. The changes affect only the ATN notices and the ATN master file. The TR database is revised through file maintenance transactions with another subsystem.

On a regular cycle, Automated TAB Notice information is extracted, formatted, written to tape, and printed as hard copy for verification. Parameters to the batch functions specify whether the run is to be processed as a regular cycle or as an end-of-year annual report. The "Create TAB Notices" program processes the requirements for the update/output ATN records function. Outputs from the function include the updated ATN Master, a hard copy review list of ATN records, a tape rough copy of Automated TAB Notices, and the Xerox "Notices of Changes in Classification, Distribution, and Availability" printout.

To make ATN information available on diskette, the ATN ASCII print image will be routed to a file on the UNISYS 1100/82 as well as to the Xerox 9790 printer. The ASCII print image file will then be moved on tape to the 1100/61. PC CHI terminal emulation and file transfer software will be utilized to automatically transfer the data file to a Zenith 248 microcomputer hard-wired to the 1100/61. Cleared members of DTIC's operations staff will execute the file transfer software. The DAITC will write software to run on the 248 to send selected records and fields to a "master CAB on Diskette ATN data file" for output to diskette. An autoloader will be utilized to minimize human intervention in the output to diskette process. DTIC-Z staff members will execute the PC software and control all operations specified above. DTIC-F will package and mail the diskettes.

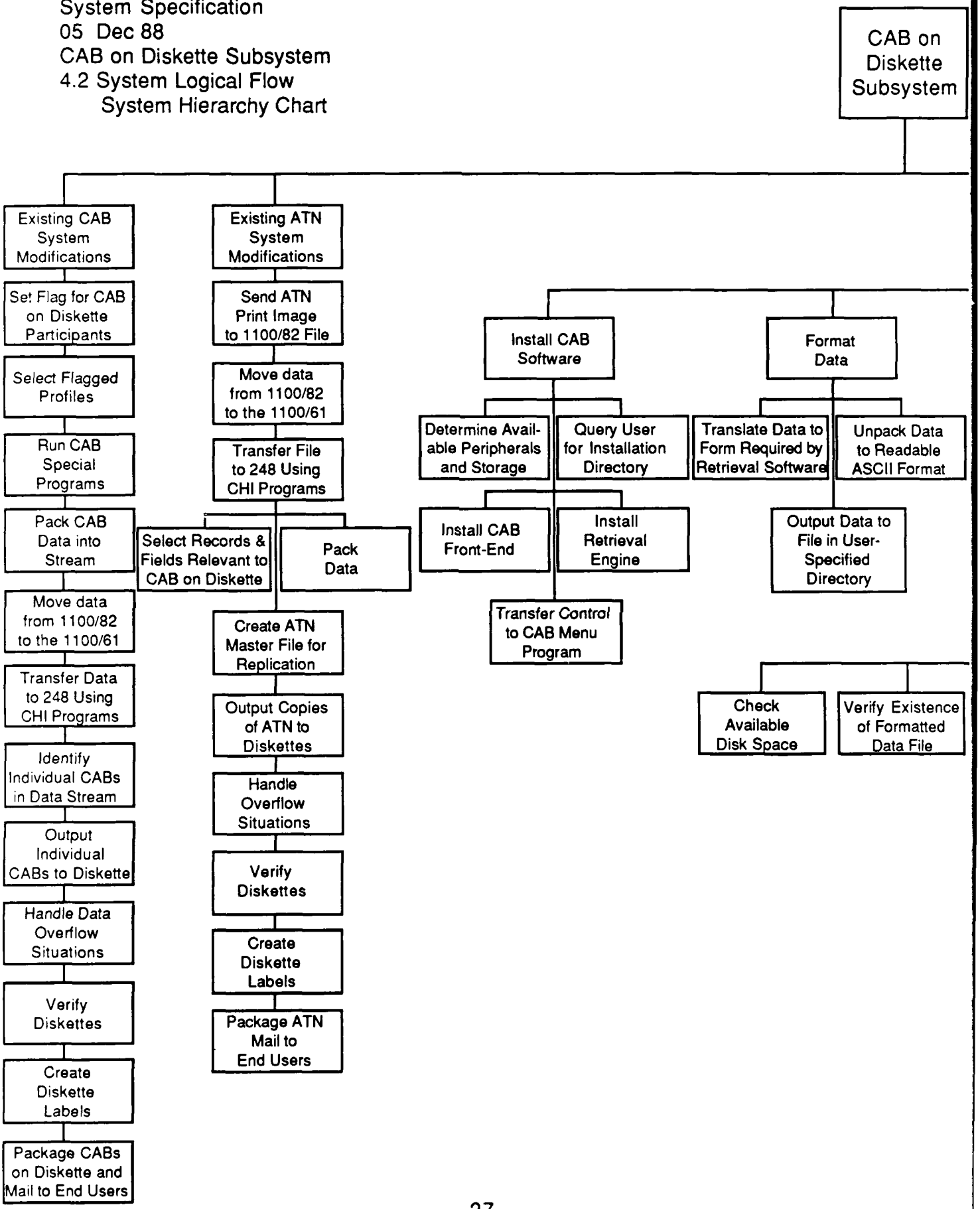
4.1.3 CAB USER SITE RETRIEVAL ENGINE AND FRONT-END SOFTWARE

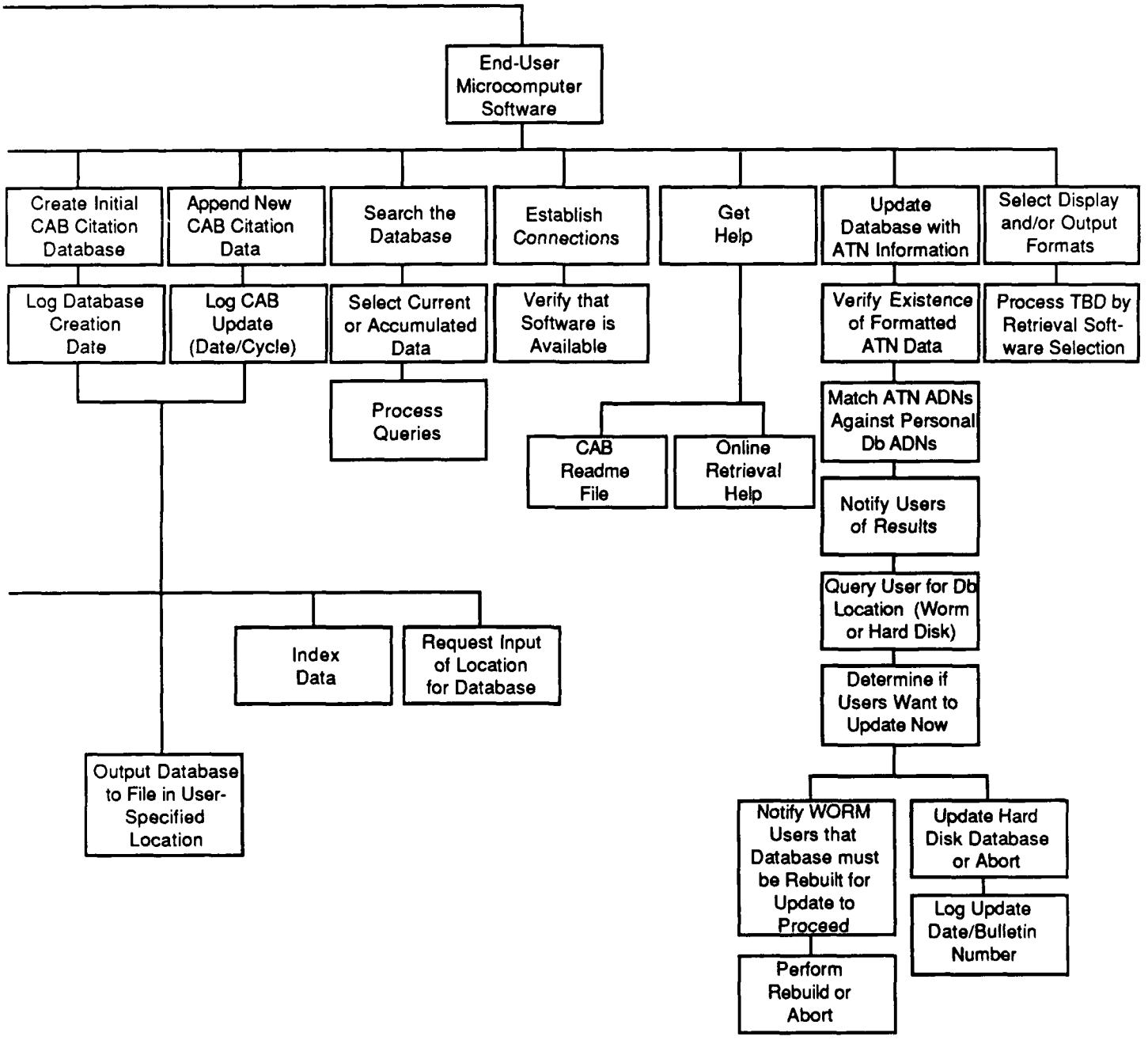
CAB on Diskette users will receive both CAB diskettes and Notices of Changes in Classification, Distribution, and Availability (ATN) update diskettes via the U.S. Postal Service. The end user will load the diskettes onto an IBM PC compatible microcomputer system as specified in accompanying hard-copy documentation. With the assistance of online help, end users will format the data, install retrieval software, create, and maintain a personal citation database utilizing a simple menu-based front-end. The front-end software will be designed to provide self-explanatory error messages for expected abends such as insufficient disk space. Backup of data stored on end user microcomputer systems will be the responsibility of the end users.

4.2 SYSTEM LOGICAL FLOW

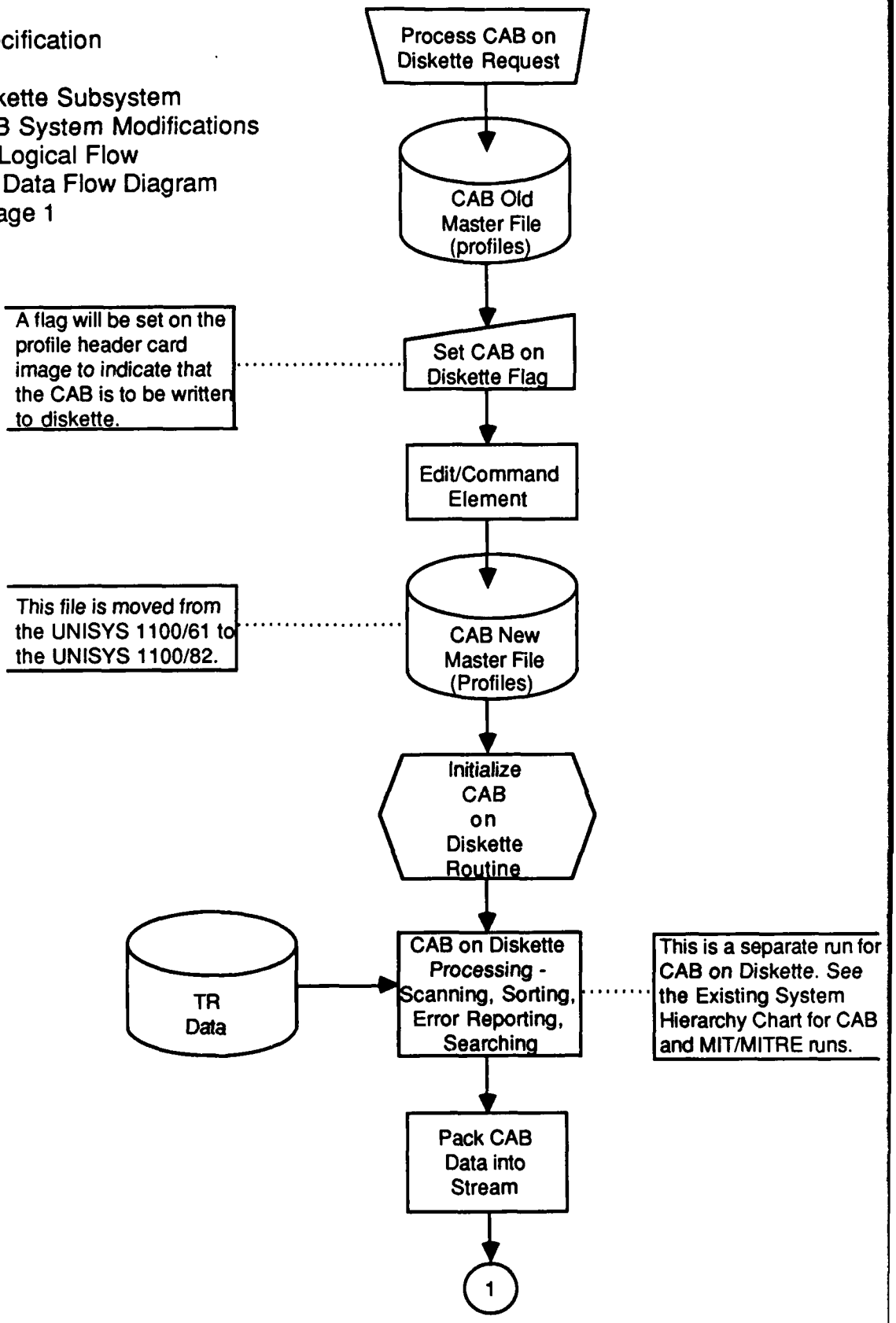
This section describes the logical flow of the CAB on Diskette Subsystem. Data flow diagrams are provided in this section to show the general flow of the data through the subsystem functions. The subsystem functions are first presented in hierarchy chart format on the following pages:

System Specification
05 Dec 88
CAB on Diskette Subsystem
4.2 System Logical Flow
System Hierarchy Chart

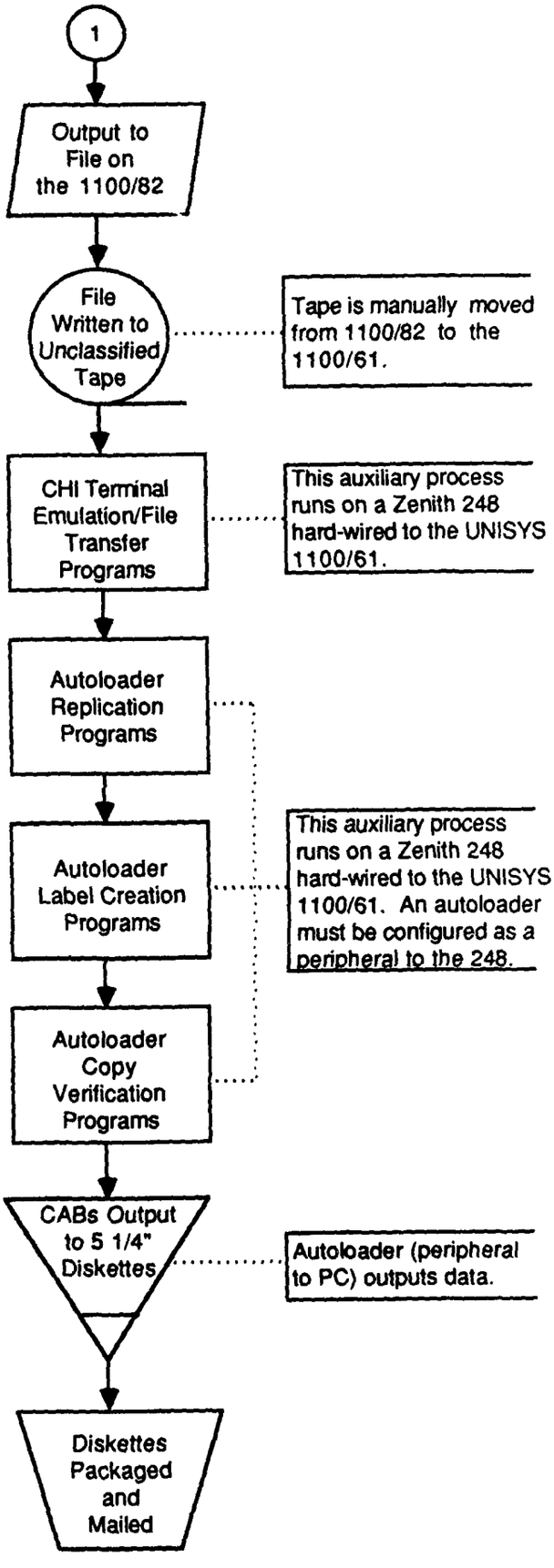



End-User Microcomputer Software
Create Initial CAB Citation Database
Append New CAB Citation Data
Search the Database
Establish Connections
Get Help
Update Database with ATN Information
Select Display and/or Output Formats
Log Database Creation Date
Log CAB Update (Date/Cycle)
Select Current or Accumulated Data
Verify that Software is Available
Verify Existence of Formatted ATN Data
Process TBD by Retrieval Software Selection
Process Queries
CAB Readme File
Online Retrieval Help
Match ATN ADNs Against Personal Db ADNs
Notify Users of Results
Query User for Db Location (Worm or Hard Disk)
Index Data
Request Input of Location for Database
Determine if Users Want to Update Now
Output Database to File in User-Specified Location
Notify WORM Users that Database must be Rebuilt for Update to Proceed
Update Hard Disk Database or Abort
Log Update Date/Bulletin Number
Perform Rebuild or Abort

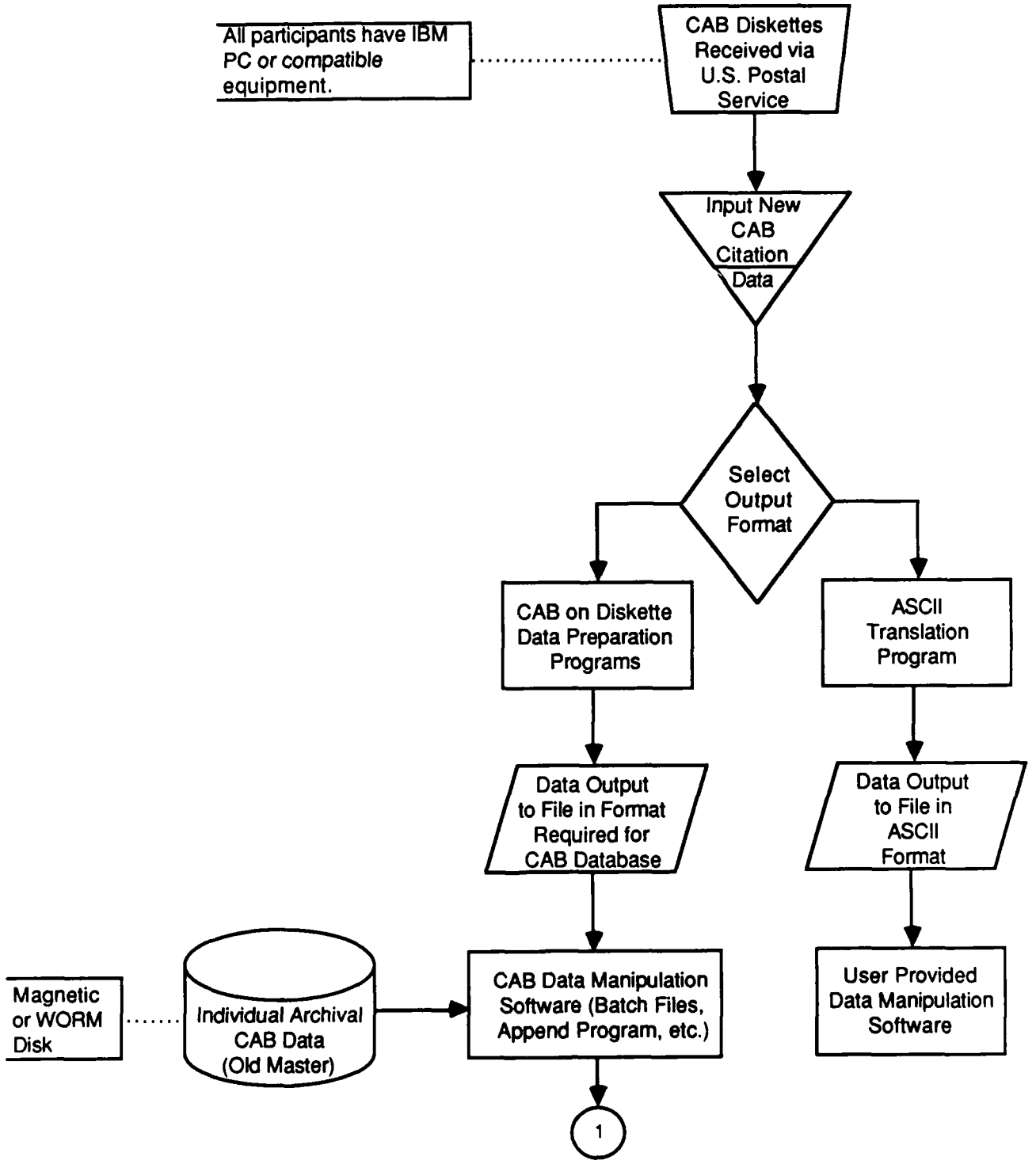
System Specification
05 Dec 88
CAB on Diskette Subsystem
Existing CAB System Modifications
4.2 System Logical Flow
System Data Flow Diagram
Chart Page 1



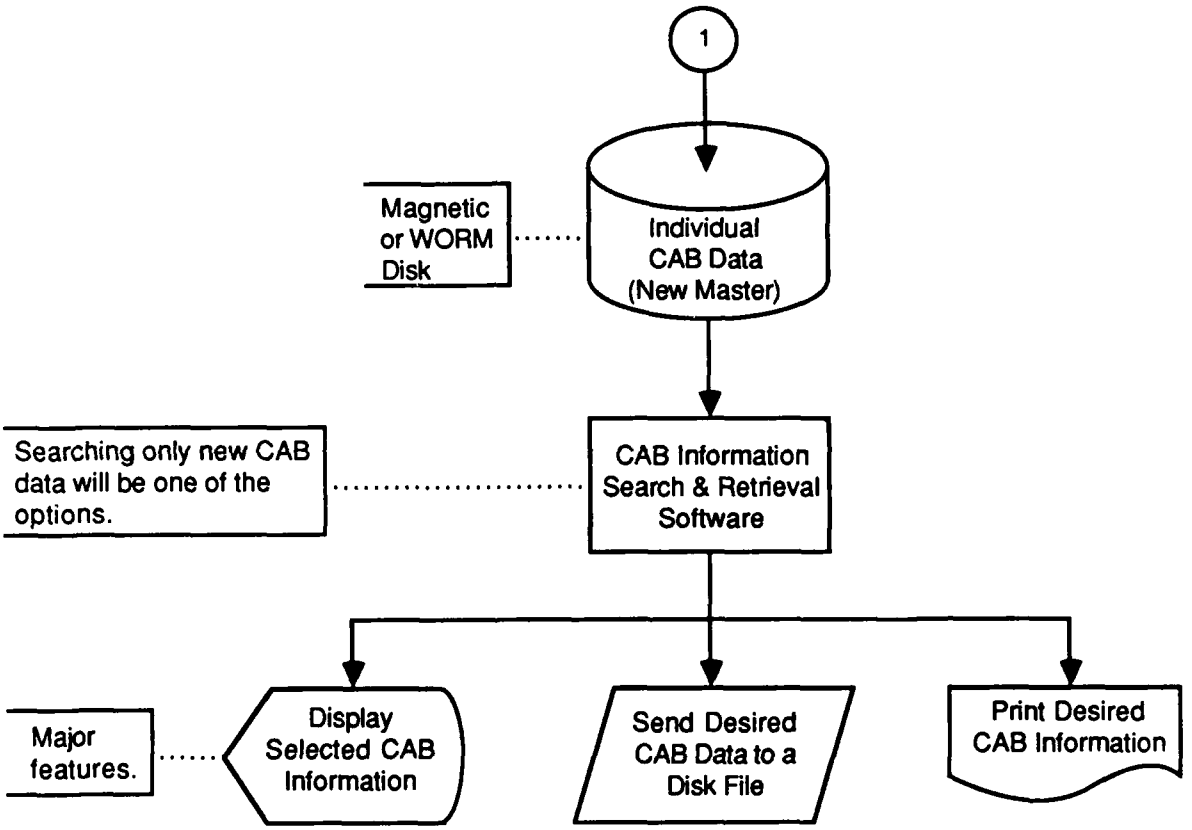
System Specification
05 Dec 88
CAB on Diskette Subsystem
Existing CAB System Modifications
4.2 System Logical Flow
System Data Flow Diagram
Chart Page 2



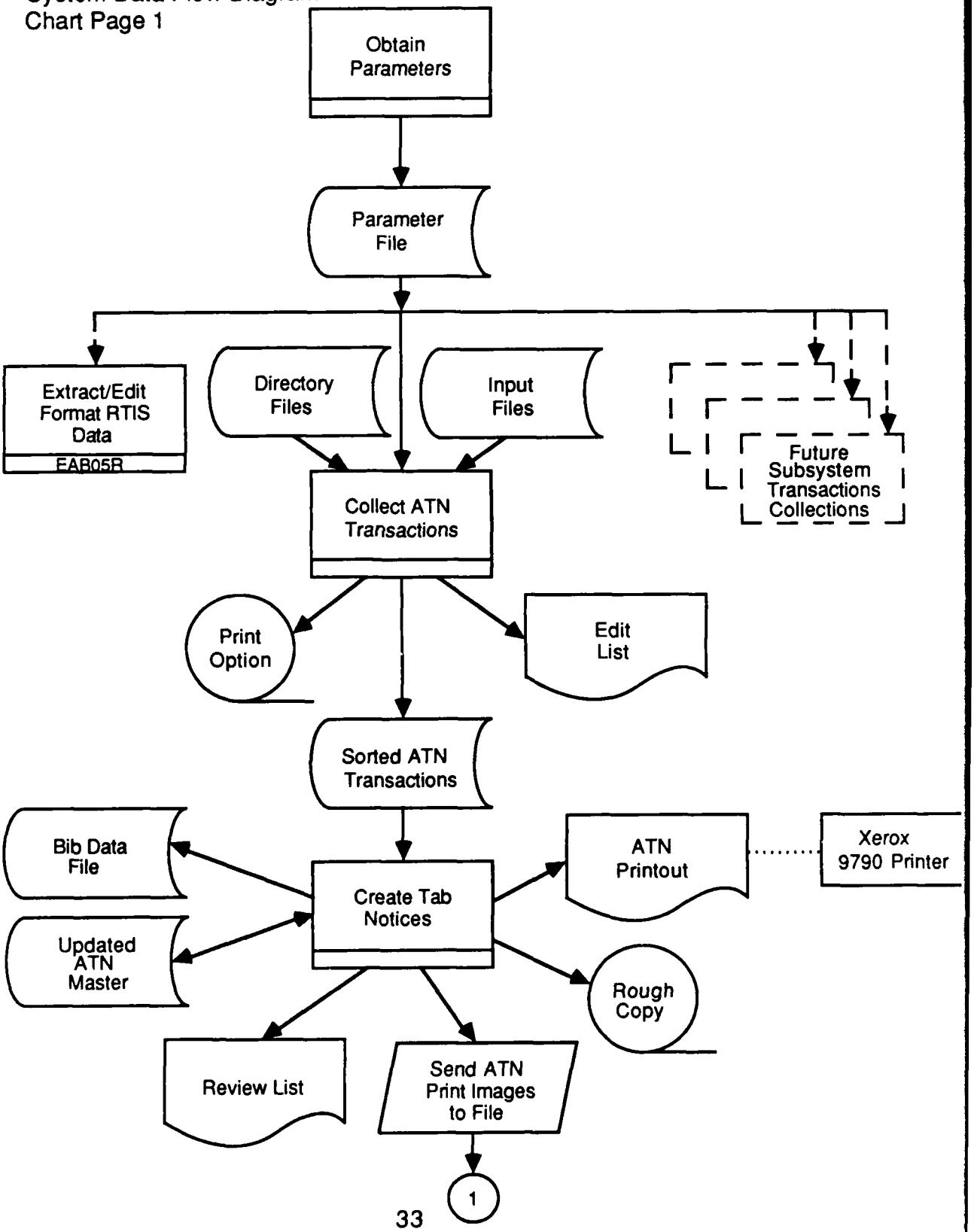
System Specification
05 Dec 88
CAB on Diskette Subsystem
User Site Microcomputer Component
4.2 System Logical Flow
System Data Flow Diagram
Chart Page 1



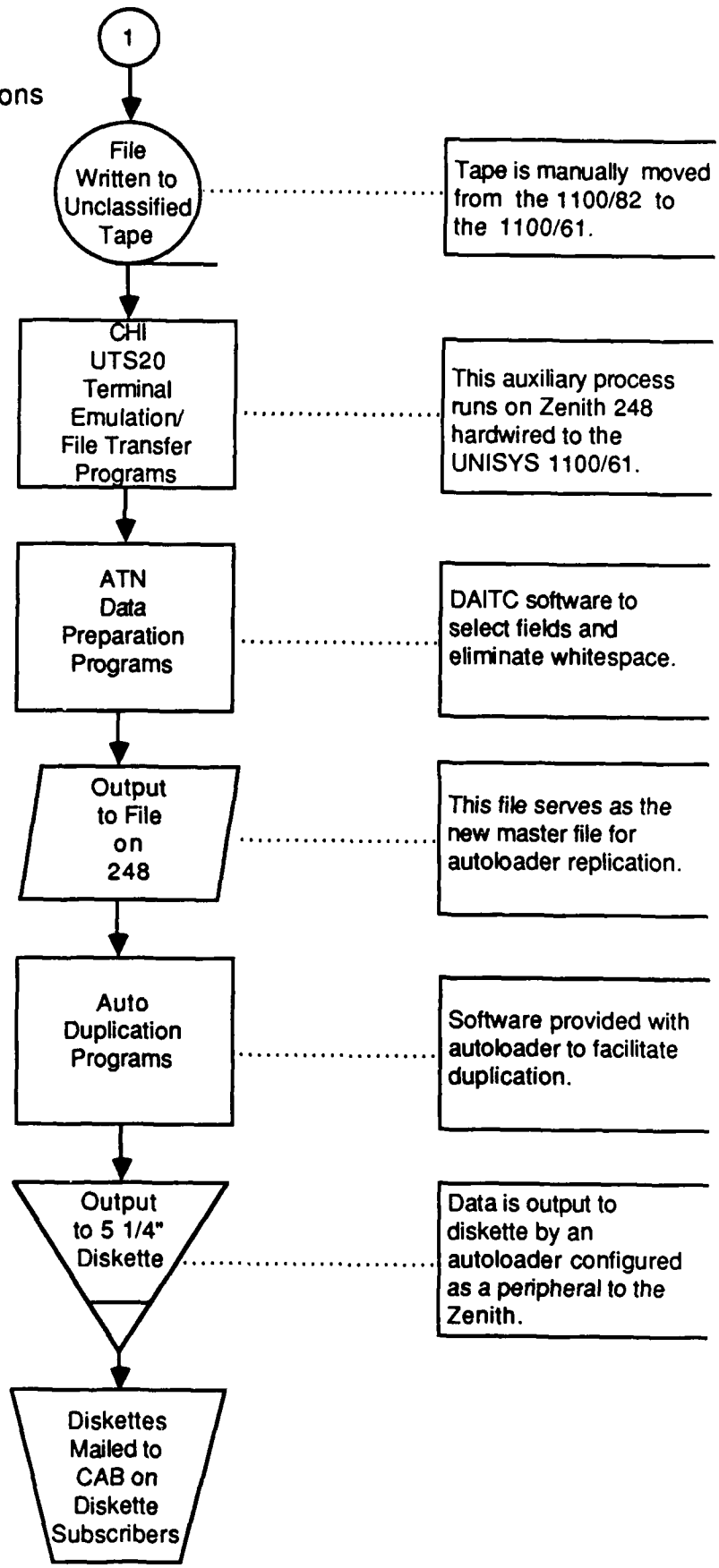
System Specification
05 Dec 88
CAB on Diskette Subsystem
User Site Microcomputer Component
4.2 System Logical Flow
System Data Flow Diagram
Chart Page 2



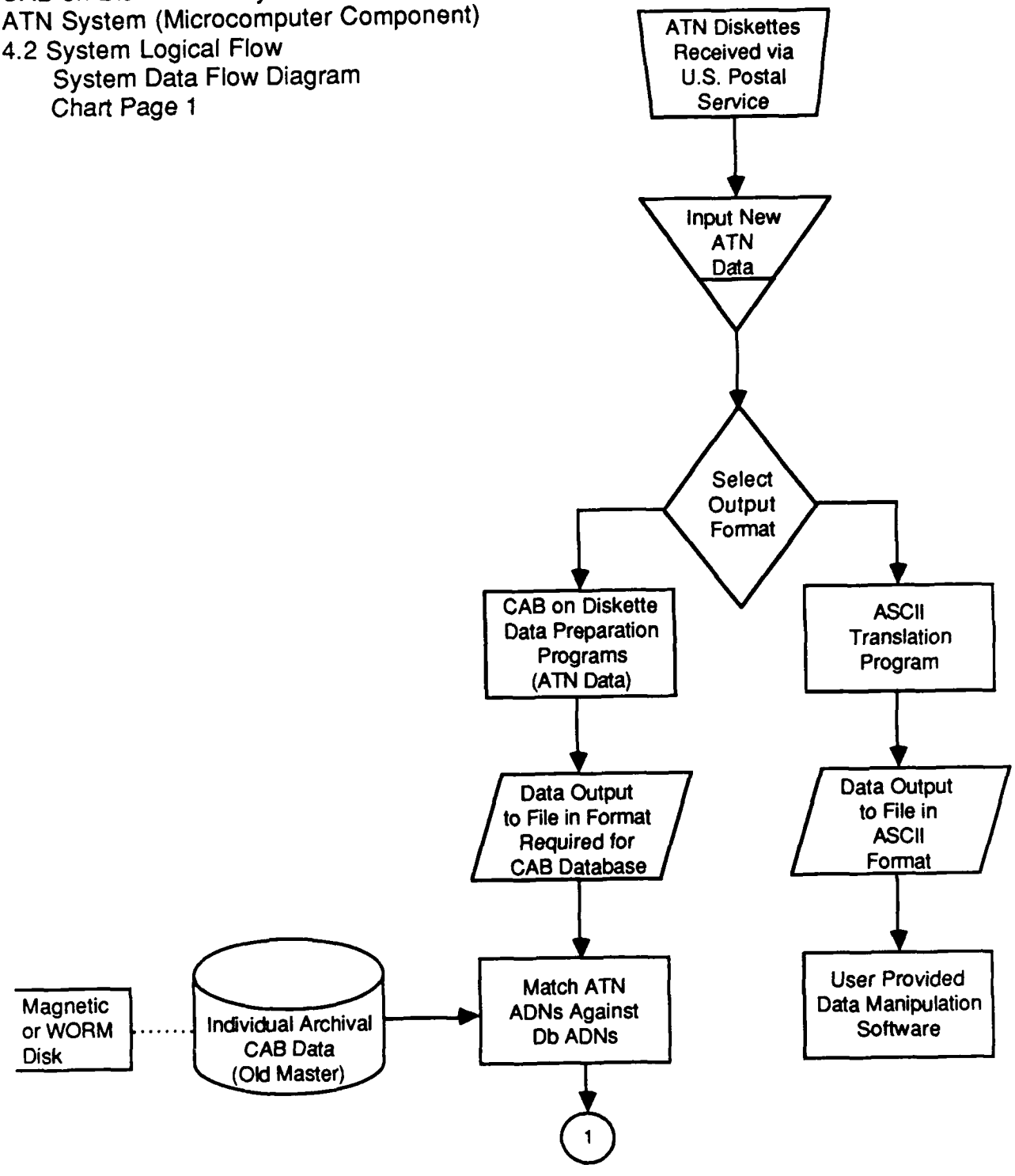
System Specification
05 Dec 88
CAB on Diskette Subsystem
Existing ATN System Modifications
4.2 System Logical Flow
System Data Flow Diagram
Chart Page 1



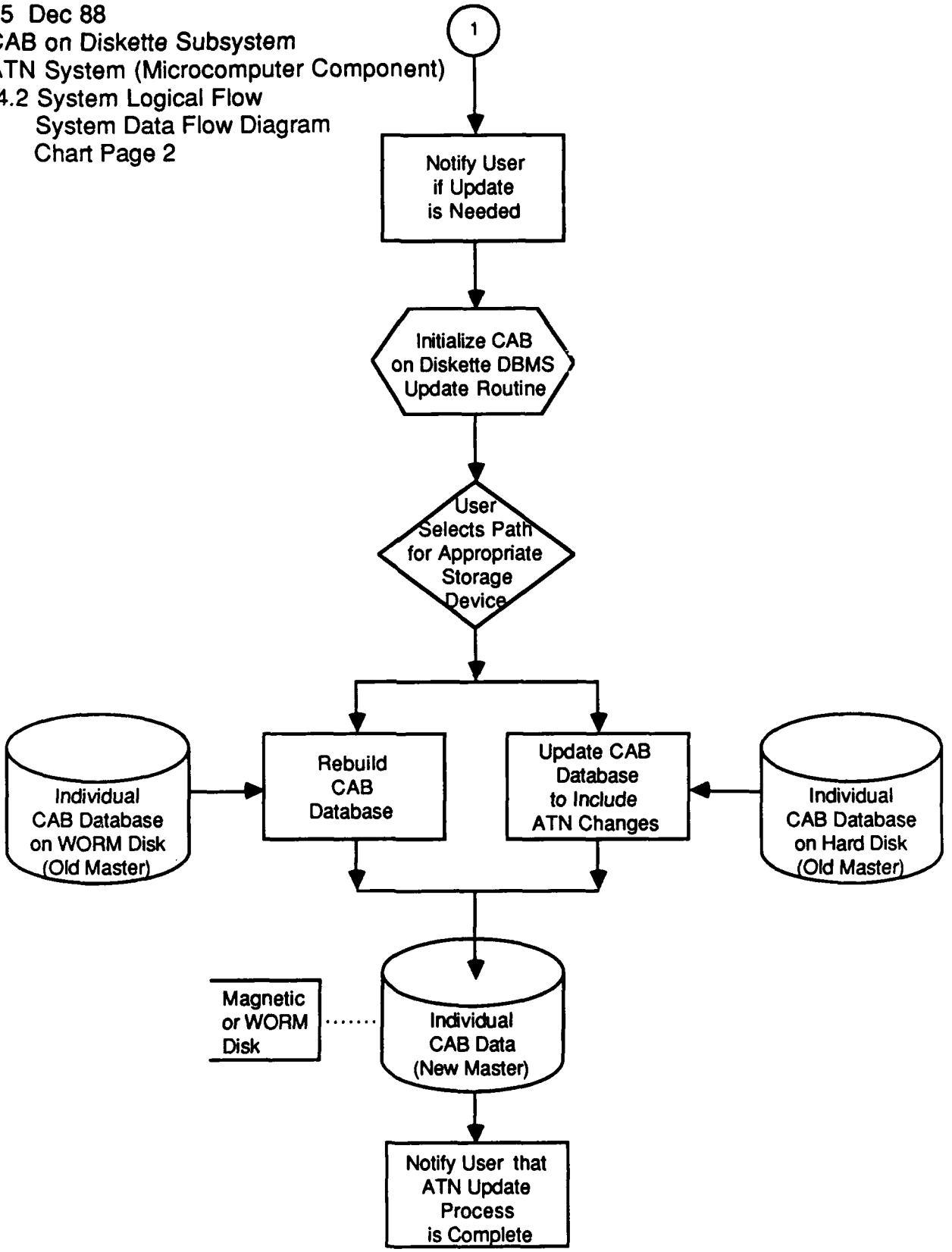
System Specification
05 Dec 88
CAB on Diskette Subsystem
Existing ATN System Modifications
4.2 System Logical Flow
System Data Flow Diagram
Chart Page 2



System Specification
05 Dec 88
CAB on Diskette Subsystem
ATN System (Microcomputer Component)
4.2 System Logical Flow
System Data Flow Diagram
Chart Page 1



System Specification
05 Dec 88
CAB on Diskette Subsystem
ATN System (Microcomputer Component)
4.2 System Logical Flow
System Data Flow Diagram
Chart Page 2



4.2.1 CAB ON DISKETTE PROTOTYPE TEST PLAN

Preliminary testing of the prototype system will occur prior to release of the system to prototype participants. The preliminary testing will be performed at the DAITC by staff that has not participated in CAB on Diskette Subsystem development. A brief description of the major points to be considered in the preliminary testing is presented in the following paragraphs. A detailed test plan will be developed at a later date and presented in a separate document.

1. Verification of conformity to specification.

2. Verification of conformity to documentation.

3. Identification and correction of software failures.

4. Correspondence to system constraints.

As part of the system constraint testing, the optimum number of searches to be included in each CAB on Diskette run will be determined with attention paid to the avoidance of PC hard-disk overflow conditions. DTIC-Z will provide the CAB data to be used in testing. The DAITC front-end software will be coded with conditional test statements included in each module to aid in tracing program flow. The following checks will be included in the preliminary tests:

1. Every module in the system must be invoked.

2. Every program statement including abends must be executed, although not necessarily with the full range of test data.

3. Every decision must be executed.

4. All available storage media must be tested with a range of test data.

5. Test data will range in size from that expected for small CAB data recipients to the largest recipients.

6. Insofar as possible, testing will mimic operational system usage conditions.

7. The verified CAB on Diskette Manuals must be reviewed and accepted by DTIC prior to prototype release.

Additional checks, to be identified during the programming stage of CAB on Diskette development, will be presented in the CAB on Diskette Test Plan that will guide both preliminary and prototype testing. Results of all testing will be described in the CAB on Diskette Test Analysis Report.

Prototype test participants will receive their usual Current Awareness Bibliographies on diskette. They will be asked to utilize the system as if it were operational. All prototype participants will also be asked to accept Notices of

Changes in Classification, Distribution, and Availability on diskette. The end user prototype test experience will be quantified through the use of a computer system user evaluation questionnaire. Questions specific to the integration of CAB on Diskette with other DTIC user services such as ADD and STILAS will be included. All components of the system will be assessed by the end user, including documentation, training, and available help. User interviews and informal suggestions for improvement to the system will also be used as input to the prototype assessment. The informal input will be used to determine whether the system does what the user reasonably expects it to do. The results of the prototype testing will be included in the CAB on Diskette Test Analysis Report which will present criticisms, deficiencies, strengths, needed changes, and suggested enhancements to the CAB on Diskette Subsystem.

4.3 SYSTEM DATA

This section discusses in tabular format the inputs, processes, and outputs used with the CAB on Diskette Subsystem. Descriptive information about the CAB on Diskette system data is included.

4.3.1 INPUTS

CAB on Diskette Subsystem Input Data	Number of Items	Format	Entry	Update Frequency
Profiles (working file)	Varies	Disk	Staff	Daily
CAB New Master (profiles)	Varies-High 3200	Tape		Two weeks
TR (citations)	1700K Records	DMS-1100		Two weeks
TR (Working file)	Varies	Disk	Staff	Daily
ATN (transactions)	Varies with decreasing trend	Paper	Staff	Quarterly
Automated TAB Notices	Varies	Disk	Staff	Quarterly
ATN New Master for CAB replication	Varies	Disk		Corresponds to Notices of Changes in Classification, Distribution, and Availability
CABs	Varies	Disk		Semimonthly

4.3.2 INPUT-PROCESS-OUTPUT TABLE

Input	Process	Output
CAB New Master (profiles)	Select flagged profiles	Extracted CAB on Diskette New Master Profiles
CAB New Master Profiles and TR Data	CAB Special Programs (search and format)	CABs for Diskette (1100/82 file)
CABs for Diskette (1100/82 file)	Pack Data Program	CABs for Diskette (1100/82 data stream format file)
1100/82 CAB on Diskette Data Stream	Transfer (on unclassified tape) to unclassified 1100/61 system	1100/61 CAB on Diskette Data Stream
CAB Data Stream (1100/61 file)	Terminal Emulation/File Transfer Programs	CAB Data Stream Transferred to PC
CAB Data Stream (PC file)	Autoloader Programs	Individual CABs on Diskette
CAB Diskettes	CAB Front-End and Retrieval Engine Software	Personal CAB Database
ATN Data (1100/82 file)	Transfer (on tape) to unclassified 1100/61 system	1100/61 ATN Data (print image)
ATN Data (1100/61 file)	Terminal Emulation/File Transfer Programs	ATN ASCII Data Transferred to PC
ATN ASCII Data (PC file)	Data Preparation Programs	ATN New Master for CAB Replication
ATN New Master for CAB Replication	Autoloader Programs	Changes in Distribution, Classification, and Availability on Diskette
Changes in Distribution, Classification, and Availability Diskettes	CAB Front-End and Retrieval Engine Software	Personal CAB Database Updated with Change Information

4.3.3 OUTPUTS

CAB on Diskette Subsystem Output Data	Number of items	Format	Users	Timing
Extracted CAB on Diskette New Master Profiles	TBD	Disk to Tape	Internal CAB Special Programs	Two weeks
CABs for CAB on Diskette Participants	Varies	Disk	Data Packing & File Transfer Programs	Two weeks
CAB Diskettes	Varies	Diskette	Subscribers to CAB on Diskette	Semimonthly
ATNs for CAB on Diskette Participants	Varies	Disk	File Transfer & Data Preparation Programs	Corresponds to Change Notices
ATN Diskettes	Varies	Diskette	Subscribers to CAB on Diskette	Corresponds to Change Notices

4.3.3.1 CAB ON DISKETTE DISPLAY FORMATS

The display capabilities available with the retrieval engine chosen for the CAB on Diskette Subsystem will determine the display formats available with the subsystem. At a minimum, the data available for display will include the following fields now available with the hard copy CAB.

TR Database Field Number	Name	Field Lengths (Characters) Min	Max	Data Types	Description/ Format
1	Accession Number	8	9	Alphanumeric	The AD number is composed of two portions: (1) a Transaction Type Prefix and (2) a uniquely assigned serial number for ADP and document processing and control.
2	Fields and Groups	2	450	Alphanumeric and/or allowable special characters	Fields and groups are assigned in order of importance. Example: 2/7, 17/1
5	Source Name				Automatically generates from entry in field 35.
6	Unclassified Title of Report	5	450	Alphanumeric and/or allowable special characters	Technical Report Title. Data such as subscripts, exponents, chemical and mathematical equations, formulas, Greek letters, etc. are verbalized.
8	Title Classification	1	1	Alphabetic	Must be u (Unclassified) for CAB.
9	Descriptive Note	10	120	Alphanumeric and/or allowable special characters	A descriptive phrase that denotes the type of report without repeating the title. Example: Final rept.
10	Personal Author Name(s)	3	620	Alphanumeric and/or allowable special characters	A maximum of 5 personal authors' names may be included. Example: Quincey Smith, Jr., ;W. Von Gergen
11	Date of Report	4	24	Alphanumeric and/or allowable special characters	The date the report was prepared or published. Example: 10 Jun 82
12	Pagination	1	4	Numeric	Up to 4 numeric digits indicating the number of pages in the report.

TR Database Field Number	Name	Field Lengths (Characters) Min	Max	Data Types	Description/ Format
14	Source Series Number(s)	1	70	Alphanumeric and/or allowable special characters	The series or report number (s) assigned by the originator as noted on the report. Example: GMC-TDR-60, GMS-TDR-61
15	Contract Number(s)	5	70 (35 ea.)	Alphanumeric and/or allowable special characters	The contract and/or grant number(s) used to describe the work under which the report was accomplished. Example: F33615-72-C-001
16	Project Number	2	70 (35 ea.)	Alphanumeric and/or allowable special characters	Contains up to two project number with a maximum of 35 characters each. Example: 3048, 06CL
17	Task Number	2	70 (35 ea.)	Alphanumeric and/or allowable special characters	Contains up to two task numbers with a maximum of 35 characters each. Example: WR0330201, T4112
18	Monitoring Agency Acronym(s)	2	24 (12 ea.)	Alphanumeric and/or allowable special characters	Fields 18 and 19 are used in conjunction to form the monitoring agency report numbers. No data is included for Field 18 or 19 if both are not present to provide a complete report number. Field 18 contains the monitoring agency's acronym, which is the prefix to the full report number. The authority for monitor acronym format is the Government Acronyms and Alphabetical Organizational Designations Used in DTIC. Example: AMMRC, ESD
19	Monitoring Agency Series Numbers	2	70 (35 ea.)	Alphanumeric and/or allowable special characters	This is the series number portion of the full monitoring agency's report number. Example: CTR-72-26, TR-74-192-Vol-3
20	Report Classification	1	1	Alphabetic	Indicates the security classification of the report. Examples: *u, c, r, or s*

TR Database Field Number	Name	Field Lengths (Characters) Min	Max	Data Types	Description/ Format
21	Supplementary Note	5	600	Alphanumeric and/or allowable special characters	This field contains descriptive information about the report, its origin, sponsorship, or availability not provided for in other fields. This may be conference or symposium references, translation notes, or thesis notes. Examples: See also AD-123 456 Preliminary report on ...
22	Distribution/ Availability Statement	5	400	Alphanumeric and/or allowable special characters	This field may contain up to three narrative statements describing report distribution limitations and/or report availability. The field complements the Distribution/Availability Code(s) entered in Field 33.
23	Posting Terms (descriptions)	3	1200	Alphanumeric and/or allowable special characters	Contains unclassified retrieval terms (pasting terms) useful bibliographies media. Examples: Semiconductor devices; TALUS, Atlantic Ocean
24	Description Classification	1	1	Alphabetic	Must be u (Unclassified) for CAB.
26	Identifier Classification	1	1	Alphanumeric	Must be u (Unclassified) for CAB.
27	Abstract	5	1760	Alphanumeric and/or allowable special characters	A brief factual summary of the most significant information about, or contained in, the report.
28	Abstract Classification	1	1	Alphabetic	Must be u (Unclassified) for CAB.
30	Annotation	5	450	Alphanumeric and/or allowable special characters	A concise statement of the content or subject of the report to supplement the report title.
33	Distribution/ Availability Codes	1	10	Alphanumeric and/or allowable special characters	This field contains up to three numeric codes signifying the Distribution Limitations/ Availability of the report. Entries are one- or two-digit numbers separated by a comma and a space. The narrative descriptions of these codes appear in Field 22.

TR Database Field Number	Name	Field Lengths (Characters) Min	Max	Data Types	Description/ Format
34	Serial Code	1	2	Alphanumeric	This is an abbreviated version of the data in Field 9, descriptive note. For final, summary or annual reports, the following abbreviations are used: Final - F Summary - S Annual - A For other serially numbered reports, only the number is included. Example: Only the 9 is included.
35	Corporate Author Code	6	6	Numeric	The 6-digit numeric code which corresponds to the organizational name and address of the corporate author of the report appears here. The authority for valid codes is the DTIC Source Header List.
36	Document Location				This field contains the location of the Technical Report. Generated by program from numeric code. Example: DTIC
48	SBI Holding Symbol	3	15	Alphanumeric and/or allowable special characters	First three characters are pre-assigned site acronyms.

4.3.3.2 CAB ON DISKETTE SUPPLEMENTARY INFORMATION

Identifying information will need to be supplied with each CAB on Diskette. Although optimal procedures are to be identified during the prototype phase of development, the following information is planned to be included on labels attached to the diskettes:

1. Publication Title (Current Awareness Bibliography on Diskette).
2. Publisher (DTIC).
3. Search Control Number.
4. CAB date and cycle.
5. Customer name (site) and address.
6. DTIC User code.
7. End user name.
8. Classification (UNCLASSIFIED).
9. DOS version; Packed ASCII data.

The International Traffic in Arms Regulations (ITAR) statement will be included with each diskette. This warning notice is necessary to remind users that the contents may be subject to export control.

A README file will be magnetically stored on diskette with the output for each search control number to make all notices now printed at the beginning of hard copy CABs available to CAB on Diskette users. The search strategy used to produce the bibliography will also be included in the README file.

4.3.3.3 ATN FIELDS

The following fields are used for the ATN Subsystem only:

TR Database Field Number	Name	Field Lengths (Characters) Min	Max	Data Types	Description/ Format
50	Authority for Change Source Name	1	600	Alphanumeric and/or allowable special characters	Originator of report.
51	Authority for Change Date	4	24	Alphanumeric and/or allowable special characters	Format= DD MMM YY or MMM YY or YYY
55	DA/SC Indicator	1		Numeric	1=DA (distribution) 2=SC (security) 3=both 4=special notes.
60	Former classification	1		Alphabetic	u, c, r, or s.
61	TAB (now TRAC) issue	5		Alphanumeric and/or allowable special characters	Format= YY NN (issue year and number)
63	Former Limitation Code	1	10	Alphanumeric and/or allowable special characters	This field contains up to three numeric codes signifying the Distribution Limitations/ Availability of the report. Entries are one- or two-digit numbers separated by a comma and a space. The narrative descriptions of these codes appear in Field 22 on page 43.

Although these fields are used by the ATN Subsystem in producing the Notices of Changes in Classification, Distribution, and Authority, they will not all be utilized in the CAB on Diskette change notice issues. Only the fields that correspond to fields present in the CAB citation data will be included. Other fields will be stripped from the records in preparation for output to diskette.

4.4 PROGRAM DESCRIPTIONS

This section describes the programs to be written for the CAB on Diskette Subsystem. Programs are presented in two separate charts according to component area. The first chart outlines the programs for the end user microcomputer component. Programs to be custom designed include those programs front-ending the retrieval engine. Front-end software design and coding will be performed by the DAITC. Tool kits and time-saving aids will be utilized whenever possible. The retrieval engine will be an off-the-shelf product.

4.4.1 CAB ON DISKETTE USER SITE MICROCOMPUTER COMPONENT

Program Name	Reference	Purpose/Function
Install	CABM01	Installs CAB Front-end and retrieval engine.
CAB-on-Diskette-Menu	CABM02	Presents alternative system actions for selection to CAB on Diskette user.
Status	CABM03	Determines system status items such as peripherals and available disk space.
Unpack-Data	CABM04	Unpacks Data to readable ASCII format.
Translate	CABM05	Formats data for CAB on Diskette database.
Create-Database	CABM06	Checks for formatted data and calls retrieval engine creation program; logs database creation date.
Append-New-Data	CABM07	Checks for formatted data and calls retrieval engine append program; logs update (date/cycle).
Locate	CABM08	Queries user for directory into which to load database.
Select-Universe	CABM09	Selects current or accumulated data.
Search	CABM10	Calls retrieval engine to process queries and perform search.
Connect	CABM11	Verifies communications ability; calls communications program.
Help	CABM12	Invokes help feature; displays README file.
Pre-ATN-Update	CABM13	Verifies existence of formatted data, queries user to affirm desire to update.
ATN-Update	CABM14	Matches ATN ADNs against user database; replaces changed data.

Program Name	Reference	Purpose/Function
Post-ATN	CABM15	Notifies user of update; logs ATN update (date/bulletin number).
Info	CABM16	Displays last CAB update (date/cycle); Displays last ATN update (date/bulletin number); Displays database creation date.
Display-Select	CABM17	Processes display formats--functionality TBD by retrieval engine.
Output-Select	CABM18	Processes output options--functionality TBD by retrieval engine.

4.4.1.1 RETRIEVAL ENGINE SELECTION

The selection process for the CAB on Diskette off-the-shelf information search and retrieval software includes the following procedures:

1. Market analysis update.
2. Preliminary test and evaluation.
3. Secondary test and evaluation.
4. Recommendation.
5. Software selection.

The first four procedures are to be performed by DAITC Textsearch Laboratory staff members. The software selection will be made by the DTIC-EA Project Officer.

The market analysis update brings the information search and retrieval software vendor file maintained at the DAITC since 1986 up-to-date. Additionally, software designed specifically for citation manipulation has been added to the file. The market analysis update requires completion of the following evaluation activities.

1. Review of vendor literature and documentation.
2. Product demonstrations.
3. Discussions with current users.

Software, identified through the market analysis update as likely to meet CAB on Diskette requirements, undergoes the preliminary test and evaluation process. The preliminary test and evaluation process includes testing the

software against the list of evaluation criteria presented in Appendix B. Test results are recorded in narrative form and in software evaluation matrix form. The software evaluation matrix provides a method of itemizing specific software characteristics by vendor in order to evaluate vendor packages on a comparative basis.

The preliminary test and evaluation encompasses testing with both magnetic and optical media. Test data includes two, five, and ten megabyte files of citations. IBM PCs and compatibles with 8088 and 80286 CPU's are available for testing. The slower CPU is being tested since many CAB survey respondents indicated that they use this type of equipment.

Only software packages proceeding to the secondary test and evaluation will be tested with data files larger than ten megabytes. The secondary test and evaluation emphasizes the rigorous testing of all packaged software capabilities including hooks available for front-end modules. Test results from this phase of testing will culminate in the software recommendation. The software recommendation will be presented as a deliverable in February, 1989. The DTIC-EA Project Officer will use the recommendation and supporting T&E documentation in selecting the CAB on Diskette information search and retrieval software.

4.4.2 DTIC CAB ON DISKETTE PROGRAMS

DTIC will modify the existing Current Awareness Bibliography programs to output CABs to diskette. DTIC will also modify the existing ATN Subsystem to output Notices of Changes in Classification, Distribution, and Availability to Diskette. New programs to be used at DTIC are listed in the following component chart:

4.4.2.1 DTIC MAINFRAME TO MICROCOMPUTER COMPONENT

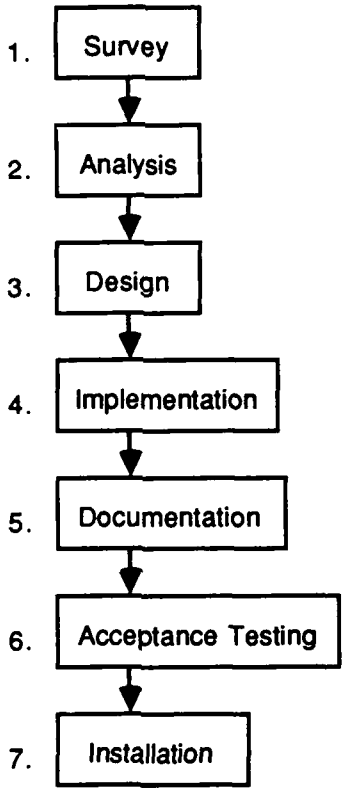
Program Name	Reference	Authoring Organization	Purpose/Function
Mark CAB profile headers with medium indicators	TBD by DTIC	DTIC-EA	DTIC will write code to mark the CAB profile header card images to indicate output medium (See Appendix E).
Pack CAB data	TBD by DTIC	DTIC-Z	DTIC will write code to pack the CABs into a data stream with specified delimiters (written for mainframe).
Route ATN ASCII print image to File on the 1100/82	TBD by DTIC	DTIC-Z	DTIC will write code to route the ATN ASCII print image to a file on the 1100/82 prior to output to unclassified tape.
Prepare ATN data	ATN-Prep	DAITC	The DAITC will write code to strip the ATN data of unwanted fields and pack the data into a stream (written for PC).
Automatic duplication/ labelling programs	TBD	Vendor	Some customization of autoloader software will be required to recognize search control number as individual CAB delimiter.

APPENDICES

Appendix A

CAB on Diskette System Design Procedures

This section provides a summary of the design procedures used in development of the CAB on Diskette Subsystem. Procedures are categorized as specfic to one of the seven major design activities illustrated below:



1. The CAB on Diskette survey activity included the identification of the need for a diskette CAB amongst registered DTIC users, and the completion of the feasibility study for the proposed service. These activities resulted in the DTIC CAB on Diskette Project Statement used to guide the development of the new product. The project statement listed the following four project phases as integral to product development: (1) Product Design and Development (2) Evaluation of Prototype (3) Marketing (4) Evaluation of the Operational Product.

2. The analysis activity for CAB on Diskette transformed the input from the CAB on Diskette User Needs Assessment, the CAB on Diskette Project Statement, the CAB on Diskette Project Implementation Plan, and the CAB on Diskette Functional Description into the structured system specification. Considerable user and developer input was also utilized in structured specification development.

3. The design phase began when the project was first considered, and is still ongoing. Details of the system design are presented in this document, and will be refined as CAB on Diskette Subsystem development proceeds. The design phase includes the development of a prototype system to test the paper design. A written prototype evaluation will be prepared for the CAB on Diskette Subsystem.

4. The implementation phase includes both coding and systems integration to integrate the CAB on Diskette Subsystem into existing DTIC systems. The onset of this activity presupposes prototype acceptance.

5. Complete documentation and training will be provided for the CAB on Diskette Subsystem.

6. Acceptance testing for the system will include tests and data used in prototype test and evaluation. Additional tests are planned.

7. The accepted system is installed during the installation phase. Enhancements and modifications to the system are expected to optimize performance and increase user satisfaction. A written evaluation of the operational product will be prepared after a 6-month monitoring period.

Appendix B

Assessment Criteria

The assessment criteria utilized for CAB on Diskette search and retrieval software include determining whether:

1. M The software product fulfills all vendor claims.

2. M The vendor is committed to continued support for the product and includes or plans revisions/enhancements to exploit future technological advances.

3. M Rapid response time is accomplished with the least amount of storage overhead.

4. M The surface design (visuals) and interface design (access tools) provide a convenient user-friendly environment (user interface) for non-technical users.

5. M High speed, interactive, searches are possible for non-technical users.

6. M The software has hooks to allow integration with other systems.

7. D The software is available for the MAC as well as the PC, or MAC availability is planned.

8. M Data may be appended to the database without rebuilding the entire database.

9. M Indexing speed (textual database build process) is adequate for large volumes of text.

10. M A full selection of software capabilities (as identified through the survey) is supported.

11. M Searching is possible across multiple disks including optical.

12. M Response time is acceptable with very large databases.

13. M Both fixed fields and full text are supported by the software.

14. D The vendor documentation is clear and concise.

15. D Vendor support is available for end users and developers.

16. M The software is available off-the-shelf at a reasonable price.

17. M The software requires a reasonable amount of available RAM.

18. M The software is usable with DOS versions 3.0 and above.

19. M The software supports a variety of printers.

20. M Commonly available graphics adapters are supported.

21. M Customization is either supported or provided as an option.

22. D A batch search capability is available in that stored profiles may be run against the cumulative database or the update data.

23. M These search and retrieval capabilities were required by the greatest number of survey respondents:

    Search properties:
    a. Boolean (165)
    b. Controlled vocabulary (keyword) (151)
    c. Any field (135)
    d. Wild card (123)
    e. Free-text (115)

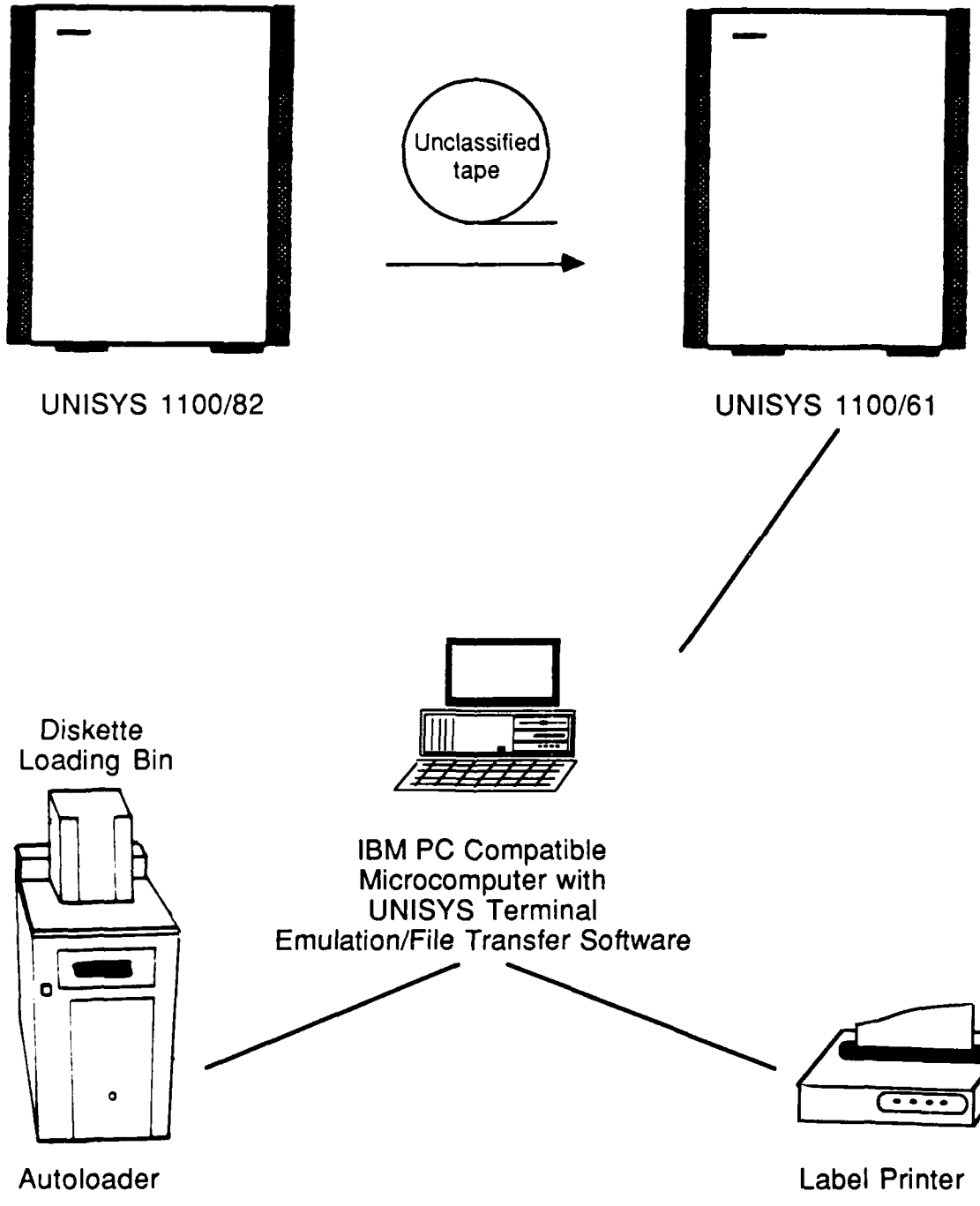
    Display formats:
    a. Display with abstracts (182)
    b. Page scroll (up and down) (165)
    c. Display any field (163)
    d. Number of documents per hit (140)
    e. Display without abstracts (127)

    Output capabilities:
    a. Transfer to printer (178)
    b. Transfer to disk (169)
    c. Combine results of multiple searches (142)
    d. Sorts (record, field, values in field) (141)
    e. Transfer to word processor (107)

* Criteria marked "M" are considered mandatory. Criteria marked "D" are desirable, but not necessary.

Appendix C

CAB on Diskette Prototype Autoloader Configuration



Appendix D

DTIC System Change Requests

REQUEST FOR DATA SYSTEMS SOFTWARE SUPPORT	DTIC-R CONTROL NO. A.	DTIC-Z TASK NO. B.

PART I - ORIGINATOR'S SUBMISSION

1. ORGINATOR'S NAME	2. OFFICE SYMBOL	3. PHONE	4. DATE OF REQUEST
Carol E. Jacobson	DTIC-EA	X 47661	

5. TITLE OF REQUEST

Current Awareness Bibliography (CAB) on Diskette

6. DESCRIPTION OF REQUEST (STATE TYPE OF PRODUCT OR SERVICE)

System Change Request (SCR):
Mark CAB profile headers with medium indicators. A methodology for accomplishing this change is presented in the DTIC-EA paper, Marking CAB Profile Headers with Medium Indicators Using ED Macro HDP. The purpose of this change is to include an output medium indicator in the CAB profiles in support of the CAB on Diskette prototyping.

7. PROJECT NUMBER (ATTACH COPY)	8. SCC CODE	9. DESIRED DELIVERY DATE
733 13 3200	733133200	

10. JUSTIFICATION (STATE THE CURRENT SITUATION AND THE ANTICIPATED SAVINGS/BENEFITS.)

There is currently no medium indicator in CAB profile headers since all CABs are output to hard copy. The CAB on Diskette prototype will offer CAB users a choice of output medium--hard copy and/or floppy diskette. An indicator must be added to the CAB profile headers to specify the user's output choice(s). The indicator will enable processing to be altered to facilitate the output of the CAB information to the selected medium(s) for each user. The benefits to be gained from the output of CAB information to diskette are presented in the Current Awareness Bibliography (CAB) on Diskette System Specification.

11. PSE SIGNATURE	12. DATE

PART II - DTIC-R REVIEW

1. RECOMMENDATION	2. REMARKS	3. DATE FORWARDED TO DTIC-Z
☐ ACCEPT ☐ REJECT ☐ DEFER UNTIL _____		4. ANALYST'S INITIALS

DTIC FORM MAR 88 372

REQUEST FOR DATA SYSTEMS SOFTWARE SUPPORT	DTIC-R CONTROL NO. A.	DTIC-Z TASK NO. B.

PART I - ORIGINATOR'S SUBMISSION

1. ORGINATOR'S NAME	2. OFFICE SYMBOL	3. PHONE	4. DATE OF REQUEST
Carol F. Jacobson	DTIC-EA	X47661	

5. TITLE OF REQUEST

Current Awareness Bibliography (CAB) on Diskette

6. DESCRIPTION OF REQUEST (STATE TYPE OF PRODUCT OR SERVICE)

System Change Request (SCR):

Modify the CAB Special Programs to read the medium indicators in the CAB profile headers. The purpose of this modification is to enable processing to be altered so as to output CABs for users on the requested medium(s).

7. PROJECT NUMBER (ATTACH COPY)	8. SCC CODE	9. DESIRED DELIVERY DATE
733 13 3200	733133200	

10. JUSTIFICATION (STATE THE CURRENT SITUATION AND THE ANTICIPATED SAVINGS/BENEFITS.)

Medium indicators will be added to the profile headers to indicate each user's choice in output medium(s). The CAB special programs must read these indicators and route particular CABs through the procedures necessary for output on the requested medium(s). The benefits to be gained from this change vary with the processing point at which the medium indicator is read. The medium indicators should be read with CAB processing split according to medium at the point least likely to cause redundancy.

11. PSE SIGNATURE	12. DATE

PART II - DTIC-R REVIEW

1. RECOMMENDATION	2. REMARKS	3. DATE FORWARDED TO DTIC-Z
☐ ACCEPT ☐ REJECT ☐ DEFER UNTIL _____		4. ANALYST'S INITIALS

DTIC FORM MAR 88 372

REQUEST FOR DATA SYSTEMS SOFTWARE SUPPORT	DTIC-R CONTROL NO. A.	DTIC-Z TASK NO. B.

PART I - ORIGINATOR'S SUBMISSION

1. ORGINATOR'S NAME	2. OFFICE SYMBOL	3. PHONE	4. DATE OF REQUEST
Carol F. Jacobson	DTIC-FA	X47661	

5. TITLE OF REQUEST

Current Awareness Bibliography (CAB) on Diskette

6. DESCRIPTION OF REQUEST (STATE TYPE OF PRODUCT OR SERVICE)

System Change Request (SCR):

Modify CAB production procedures to include those procedures necessary to output CABs on diskette. The following changes are anticipated:

(1) Output a packed ASCII data stream of CAB information to a file on the 1100 82 (See the 372--pack CAB data for more information).

(2) Transfer the packed CAB data file to the 1100/61 (following DTIC classified/unclassified tape procedures).

(3) Transfer the file to an IBM PC compatible microcomputer hard-wired to the 1100 61 using available UNISYS terminal emulation and file transfer software. This PC (with attached autoloader) will serve as the CAB on Diskette production host.

(4) Using PC software to be provided, separate the individual CABs in the file (now on PC hard disk) and copy each CAB to diskette using the autoloader.

(5) Create labels using PC software and affix to diskettes (autoloader attachment to affix labels may be provided).

7. PROJECT NUMBER (ATTACH COPY)	8. SCC CODE	9. DESIRED DELIVERY DATE
735 15 3200	735153200	

10. JUSTIFICATION (STATE THE CURRENT SITUATION AND THE ANTICIPATED SAVINGS/BENEFITS.)

The above procedural changes will be needed to produce the CAB diskettes for the prototype. The most cost-effective methodologies for production of this new product will be identified during prototyping.

11. PSE SIGNATURE	12. DATE

PART II - DTIC-R REVIEW

1. RECOMMENDATION	2. REMARKS	3. DATE FORWARDED TO DTIC-Z
☐ ACCEPT ☐ REJECT ☐ DEFER UNTIL _____		4. ANALYST'S INITIALS

DTIC FORM MAR 88 372

REQUEST FOR DATA SYSTEMS SOFTWARE SUPPORT	DTIC-R CONTROL NO. A.	DTIC-Z TASK NO. B.

PART I - ORIGINATOR'S SUBMISSION

1. ORGINATOR'S NAME	2. OFFICE SYMBOL	3. PHONE	4. DATE OF REQUEST
Carol E. Jacobson	DTIC-EA	X47661	

5. TITLE OF REQUEST

Current Awareness Bibliography (CAB) on Diskette

6. DESCRIPTION OF REQUEST (STATE TYPE OF PRODUCT OR SERVICE)

System Change Request (SCR):

Pack CAB data for output to diskette. The purpose of this change is to enable a greater quantity of CAB data to fit on each diskette. The advantage of packing is that the amount of data being handled is reduced without a reduction in information content.

7. PROJECT NUMBER (ATTACH COPY)	8. SCC CODE	9. DESIRED DELIVERY DATE
733 13 3200	733133200	

10. JUSTIFICATION (STATE THE CURRENT SITUATION AND THE ANTICIPATED SAVINGS/BENEFITS.)

Currently the CABs are printed on the Xerox 9790. Hard copy CAB production does not require packing of CAB data. The format suggested for the packed data appears on the attached page. Packing of CAB data to be output to diskette is one of the processing changes that will be implemented for CAB on Diskette after the CAB Special Programs read the medium indicator in the CAB profile header. The benefit of this change is a more cost effective use of equipment and human resources in producing the new diskette product.

11. PSE SIGNATURE	12. DATE

PART II - DTIC-R REVIEW

1. RECOMMENDATION	2. REMARKS	3. DATE FORWARDED TO DTIC-Z
☐ ACCEPT ☐ REJECT ☐ DEFER UNTIL _____		4. ANALYST'S INITIALS

DTIC FORM 372 MAR 86

Packed Data Format

Simple run-length coding is suggested for the packing of CAB on Diskette data. This scheme evaluates a character or data byte that is repeated more than twice (such as a space) and encodes it in a token that represents the number of repetitions and/or eliminates trailing spaces. Upon unpacking, the tokens are translated and eliminated trailing spaces are restored through padding.

The ASCII file of packed CAB data must contain the following information:

(1) Search Control Number (delimiter between CABs)
(2) Accession Document Number (delimiter between citations)
(3) CAB Field Delimiter (unique field separator to include field number-
Example:~1~)
(4) CAB Fields

Sample CAB data in proposed format follows:

CA200HAD-A183942~2~12/5 15/5~5~ASSOCIATION OF SCIENTISTS AND ENGINEERS OF THE NAVAL SEA SYSTEMS COMMAND WASHINGTON DC~8~U~6~Practical Applications of Artificial Intelligence~11~APR 87~12 ~35P~10~Hartman, Patrick J. ;Waters, Richard C. ;~20~U~21~Presented at the Annual Technical Symposium (24th),1987~28~U~27~This paper examines the historical oscillations of Artificial Intelligence. It shows how to select problems which be solved with the aid of Expert Systems; It also identifies etc.~24~U~23~*ARTIFICIAL INTELLIGENCE, *NAVAL ARCHITECTURE, SYN THESIS etc.AD-A183918~2~12/9~5~MASSACHUSETTS INST OF TECH CAMBRIDGE ARTIFICIAL INTELLIGENCE LAB etc.

This sample shows parts of two citations for Search Control Number CA200H. It eliminates redundant whitespace, but does not tokenize repeated characters. The unique identifier ~#~ was arbitrarily chosen, and is subject to replacement by DTIC-Z. The order of the fields in the example corresponds to the order in which the fields appear in the printed CAB. Additional fields not shown in the example may be present in some CABs. DTIC will choose to output the data for transfer via tape in the format compatible with the UNISYS Systems.

REQUEST FOR DATA SYSTEMS SOFTWARE SUPPORT	DTIC-R CONTROL NO. A.	DTIC-Z TASK NO. B.

PART I - ORIGINATOR'S SUBMISSION

1. ORGINATOR'S NAME	2. OFFICE SYMBOL	3. PHONE	4. DATE OF REQUEST
Carol E. Jacobson	DTIC-EA	X47661	

5. TITLE OF REQUEST

Current Awareness Bibliography (CAB) on Diskette

6. DESCRIPTION OF REQUEST (STATE TYPE OF PRODUCT OR SERVICE)

System Change Request (SCR):

Capture the ATN ASCII print images in a file on the 1100/82 using the same cycle used for output of the "Notices of Changes in Classification, Distribution, and Availability." For the end-of-year "Notices of Changes in Classification, Distribution, and Availability," output the fourth quarter or last yearly information before merging with the prior ATN information for the annual report. Transfer the ASCII print image data to a PC compatible microcomputer for further processing. The reason for this change is to make the ATN data available on floppy diskette for the purpose of updating the CAB on Diskette users' personal CAB databases.

7. PROJECT NUMBER (ATTACH COPY)	8. SCC CODE	9. DESIRED DELIVERY DATE
733 13 3200	733133200	

10. JUSTIFICATION (STATE THE CURRENT SITUATION AND THE ANTICIPATED SAVINGS/BENEFITS.)

On a regular cycle, ATN information is extracted, written to tape and printed on the Xerox 9790 prior to conversion to microfiche. Parameters in DTIC's batch functions (S20040) specify whether the ATN run is to be processed as a regular cycle or as an end-of-year annual report. The product resulting from this procedure is DTIC's "Notices of Changes in Classification, Distribution, and Availability." CAB on Diskette prototype participants will maintain a personal database of CAB information at their site. To keep the citations in this database current, the ATN change information must be processed against the data in each user's personal database. The benefit is a more current CAB on Diskette end user database.

11. PSE SIGNATURE	12. DATE

PART II - DTIC-R REVIEW

1. RECOMMENDATION	2. REMARKS	3. DATE FORWARDED TO DTIC-Z
☐ ACCEPT ☐ REJECT ☐ DEFER UNTIL _____		4. ANALYST'S INITIALS

DTIC FORM MAR 88 372

Appendix E

Marking CAB Profile Headers with Medium Indicators Using ED MACRO HDP

1. Introduction

The purpose of this paper is to tell how to use macro HDP to put medium indicators in header lines in DTIC's current awareness bibliography (CAB) profile files. Header line columns 35-36 were used in testing, but if these prove to be unsuitable, others will be used.

The paper is aimed at those who update the DTIC's CAB profile files. These files are in DTIC's Sperry Univac 1100/61 computer. The updaters use a Univac line editor named ED. This editor's command set may be augmented by custom made macro commands (macros). One way to specify such a macro is to put its source code in an element in file ED$PF. For example, the source code of macro HDP is element ED$PF.HDP-ED-MACRO.

2. Executing a sequence of HDP macro calls

One can execute a sequence of HDP macro calls by executing the commands in element HDPTEST in file RGT (RGT.HDPTEST). This assumes that the HDP macro calls are in profile ID order in file HDP-SPEC. Here profile ID includes part number (see section 5 below). The name of the CAB file which will receive the medium indicators is specified by a USE command. Following is an example of a command sequence which will apply HDP macro calls to file CABM90-01:

```
@USE CAB,CABM90-01
@ADD,L RGT.HDPTEST
```

3. Description of a Test Run

In a test run, file HDP-SPEC contained these five lines:

```
HDP 001A1 B
HDP 004A1 D
HDP 006A1 P
HDP 006B1 D
HDP 007H2 B
```

When the two-lined command sequence given above was entered, the following lines were output to the updater's terminal's screen:

```
@USE CAB,CABM90-01
I:002333 USE complete.
@ADD,L RGT.HDPTEST
```

```
@ED,I G
CASE UPPER ASSUMED
WARNING:  NEW ELEMENT WILL REPLACE EXISTING ELEMENT
ED 16R1D:*DTIC001 WED-01/18/89-17:15:07-(,0)
INPUT
EDIT
EOF FOUND

1:@ED,U CAB.
2:HDP 001A1 B
3:HDP 004A1 D
4:HDP 006A1 P
5:HDP 006B1 D
6:HDP 007H2 B
7:EXIT
8:@FREE CAB.
EOF:8
END ED. LINES:8 FIELDATA

@ED,U CAB.
CASE UPPER ASSUMED
ED 16R1D:*DTIC001 WED-01/18/89-17:15:10-(0,1)
EDIT
CA001A1111  025714                DP              11
CA004A1111  027264                  D             11
CA006A1111  028560                P               11
CA006B1111  028560                  D             11
CA007H2211  021457                DP              11
END ED. LINES:35152 FIELDATA

@FREE CAB.
I:002333 FREE complete.
```

This output shows that an edit command sequence, including the HDP calls, was generated in temporary element G, and then executed. Each updated header line is shown.

4. Element RGT.HDPTEST

Following is the content of element RGT.HDPTEST:

```
@ED,I G
@EDIT
I @ED,U CAB.
ADD HDP-SPEC.
I EXIT
I @FREE CAB.
LNP!
EXIT
@ADD,L G
```

5. Definition of Macro HDP

Finally, we show the content of element ED$PF.HDP-ED-MACRO:

```
rem  macro HDP - mark cab profile header with medium indicator(s) 890118
rem
rem  The medium indicators are D for disk in column 35, and P for paper
rem  in column 36.
rem
rem  The macro call line format is:
rem
rem              HDP DDDLP M
rem
rem  where DDDL is the profile identifier (ID), P is the part number, and M
rem  is a medium specifier.  DDD and P are digits.  L is a letter.  The part
rem  number is treated as part of the profile ID.  The medium specifier is D
rem  or P or B, meaning disk or paper or both.
rem
rem  The macro puts D is column 35 or P in column 36 or DP in columns 35-36,
rem  according to the value of M.  If M is not D or P or B, the macro call
rem  does not effect the profile file.
rem
on brief
tcchar %
lim c 35 36
lps ma,$,hdp,1,5
f CA $
lpt find
lpj end
lpt,3 ma,hdp,7,1 neq B
c /%%/DP/
p
lpj end
lpt,3 ma,hdp,7,1 neq D
c /%%/D  /
p
lpj end
lpt,3 ma,hdp,7,1 neq P
c /%%/  P/
p
:end
lim c
tcchar
off brief
```

In this macro, source file lines starting with "rem" are remarks (comments), and the other lines are operative.