NASA
National Aeronautics and Space Administration
Center for AeroSpace Information (CASI)

WORK FLOW ANALYSIS

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Prepared by

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WORK FLOW ANALYSIS
NASA CENTER FOR AEROSPACE INFORMATION

Preface

The NASA Scientific and Technical Information (STI) Program (Code JTT) has the responsibility for:

1) providing access to NASA scientific and technical information to the NASA user community: NASA program offices; NASA or NASA-contractor managers, scientists and engineers; other government agencies and their contractors; the scientific and technical community involved with NASA in other than a contractual effort; and the libraries that act as intermediaries for the end users,

2) publishing and disseminating the results of NASA R&D activities,

3) documenting NASA research and development results, and

4) developing and/or implementing information processing techniques and technologies to efficiently update, maintain, and provide access to the scientific and technical information cited in the NASA STI database for the user community.

To achieve its mission, the NASA STI Program relies on two major components: the NASA Center for AeroSpace Information (CASI)[1], located at 800 Elkridge Landing Road, Linthicum, Maryland 21090, and the American Institute of Aeronautics and Astronautics, Technical Information Service (AIAA/TIS), in New York City.

The NASA CASI is the primary conduit for STI flowing directly to and from NASA and other government R&D activities, while the AIAA/TIS serves primarily as an interface with the published STI literature.

In November 1991, an analysis of the work flow, processes, policies, and products of the Center for AeroSpace Information (CASI) was begun with the goal of improving the present system and developing functional requirements for a redesigned system. The

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[1] CASI also houses the NASA Technology Utilization Office (TUO) which supports Code CU's TU Program to promote the transfer and secondary use of NASA-developed technology by the public and private sectors.

analysis begins with the Input Processing System (IPS) and the Customer Support and Document Services systems. The title and the format of the report has been designed to incorporate additional areas of activity if warranted in the future.

Section A of this paper details the activities of the CASI Input Processing System (recently renamed as the Database Creation Section) of the STI Products Division. Section B details the activities of the User Services Section of the STI Services Division (See the organizational charts at the end of this Preface).

A. APPROACH

To review CASI processes and create the report, the analysts have

1. Interviewed CASI personnel to find out how the processes and systems work at the present time.
2. Consulted supporting manuals, directives, policies, and contract requirements and the monthly Report on Center Operations to complete an understanding of the processes and systems.
3. Monitored current NASA Headquarters and CASI activities that affect these processes.
4. Consulted outside sources for models of similar activities, policies, and standards. These will include other STI activities of government agencies, NASA Centers and their STI activities, and the appropriate standards activities of NISO and ISO.
5. Prepared written descriptions of each process and gave them to appropriate CASI and JTT staff for review and editing. Following review, the descriptions were revised.
6. Prepared a draft copy for management review.
7. Revised the draft for the final report.
8. Received comments on the final report (April 1992) and discussed recommendations with CASI and Code JTT management.
9. Revised the final report and included the recommendations as Section D.

All additions to the Report of April 1992 are highlighted in this manner.

B. FINAL REPORT FORMAT

The Final Report will include the following components:

- Highlighted aspects
  Staffing; summary description of the unit of work.

- Description
  A narrative description of the process, including inputs and outputs, staffing, responsibilities, and work load. The level of detail will be sufficient to understand the process but not as detailed as an actual manual would be.

- Work Flow Diagrams (WFD)
  A work flow diagram or diagrams to track the flow of materials and records (data) through each process.

- Contractual requirements
  The language of the contract that directs the activity will be identified.

- Indices of performance
  The current quantity and quality measurements and reporting will be reviewed for value and clarity, including comparison to contractual requirements when appropriate.

- Standards and policies
  National and international standards that apply to the process will be identified, if possible, with comments on CASI's degree of compliance with them. Relevant NASA and CASI policies will be compared to current practice. Processes needing new or updated policies and/or standards will be identified.

- Functional requirements
  Requirements for software support will be defined in as much detail as possible but the results will not be a complete functional requirements document.

- Bibliography of supporting documentation.

Recommendations based on the work flow analysis are being presented as Section D of this report. Section C, the Appendices that contains supplementary material, is included in the looseleaf copies of the report only.

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Section A: Input Processing System

1. OVERVIEW

The NASA/CASI Input Processing System (IPS) was designed as a queuing network model, based on work stations designated to perform subsets of the file building along the way. At each station, the input screens prompt for only the information that is expected at that point. The entire record can be viewed at any point along the way through a separate read-only option from the menu. Default values have been built-in when one option is usually right for that data element. Entries for data elements are controlled to accept only certain values, based on authority tables or concurrence with the values in other fields in the record.

The entire IPS process covers acquiring and receiving of documents, selection, evaluation, duplicate checking, descriptive cataloging, abstracting, indexing, quality control, and backfile maintenance. The input into IPS consists of hardcopy documents, microfiched documents, Report Documentation Pages, Document Availability Authorization (DAA) forms, 901 forms from foreign contributors, indexing & abstracting journals, and machine-readable tapes of bibliographic information from other organizations. It includes the active acquisition of these materials as well as the automatic receipt of them through agreements and NASA procedures. The output of IPS includes machine-readable records for processing into STIMS/RECON records and for publication of the STAR indexing/abstracting bulletin and other publications. At the end of the IPS process, the documents themselves, or the original microfiche, are ready for the subsequent processes of making master and copy microfiche and long-term document storage to fulfill request for copies of the documents.

The IPS computer system begins with the EVALUATION station. Acquisitions and Accessioning are not supported; they make use of the system only as a search and display tool.

The organization of this report roughly follows the path that documents take through the system. Accessioning is presented first because a majority of the documents start through IPS at that point. Acquisitions follows, although it is logically and procedurally before Accessioning for the relatively few documents that enter IPS through direct acquisition.

The general stream of processing is shown in Figure 1.

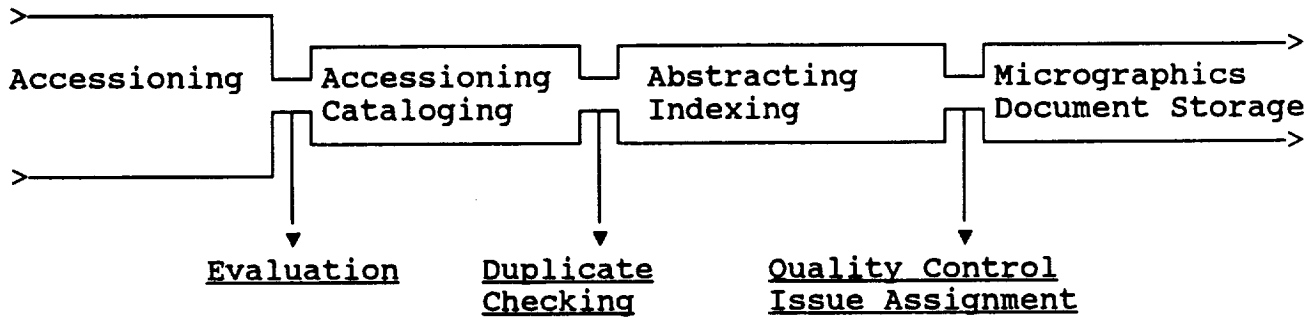


Figure 1. General Stream of IPS Processing

Acquisitions is not shown in this graphic (Figure 1). As discussed above, Acquisitions feeds into Accessioning, but provides a very small portion of the documents processed.

The three control points along the way - Evaluation, Duplicate Checking, and Quality Control - are all one- or two- person operations. With few exceptions, all documents and all RECON entries pass through these control points. The staffing (excluding administration/supervisory personnel) of the IPS stages (that is, up to but not including Micrographics & Document Storage) is as follows:

Group/Activity	Staffing
Acquisitions	1
Accessioning	3
Evaluation	1
Cataloging	4
Duplicate Checking	1
Abstracting/Indexing	5
Quality Control/Issue Assignment	2

Figure 2. IPS Staffing

In response to TD 91-063, Input Processing System Analysis, IPS was extensively modified to (1) accelerate the time from document selection to online access, and (2) make microfiche available on the date when records are loaded to the STI Database. This resulted in a system that passes completed records daily from IPS to the filming process and subsequent weekly loads into STIMS of all types

of records. These changes were being made during the time that this work flow analysis was being done. Footnotes have been added to update the procedures where complete rewrites would have been too extensive.

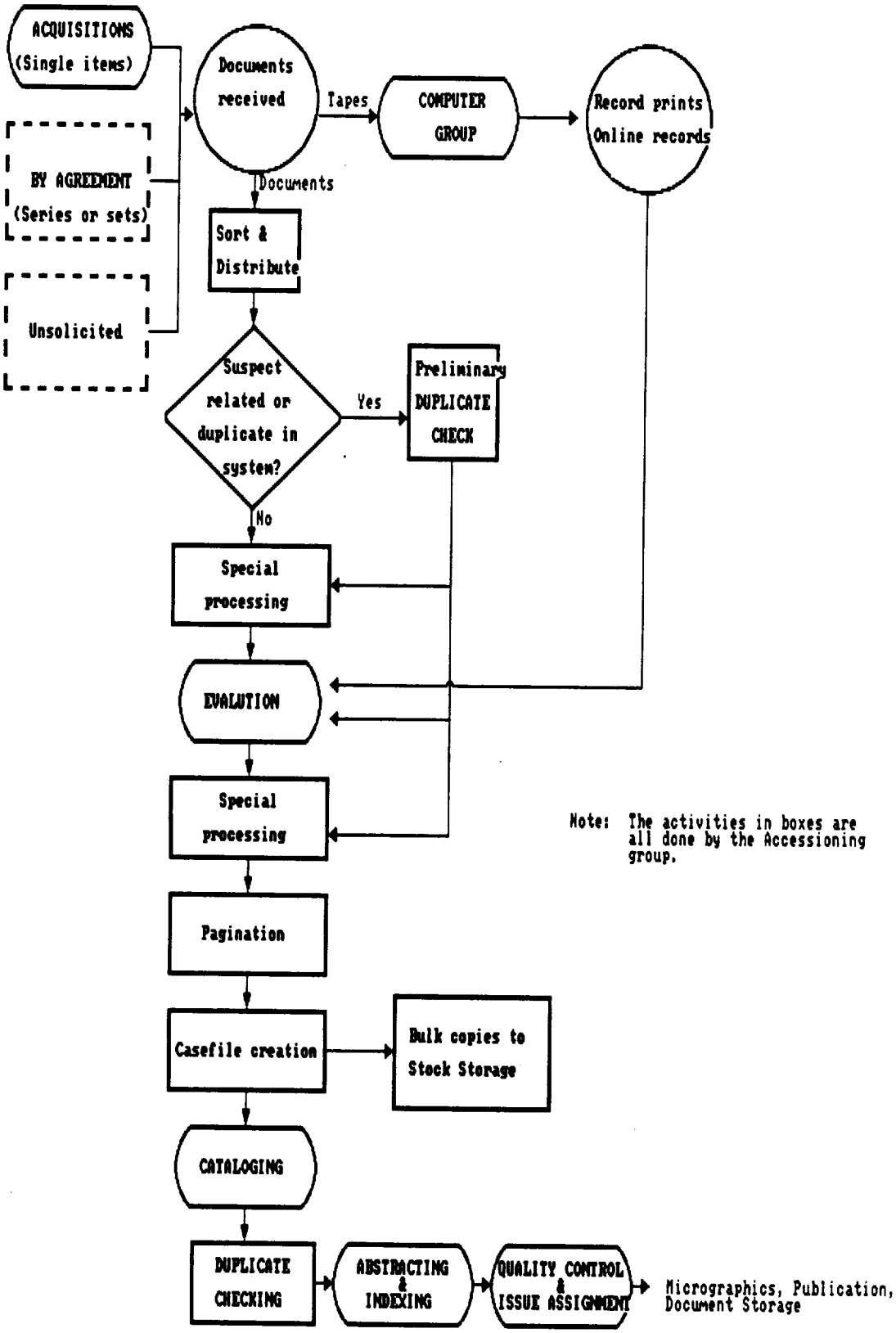
Work Flow Diagram (WFD) IPS Overview gives a more detailed overview of the IPS process.

This Work Flow Analysis does not attempt to include all of the details that can be found in the Facilities Operating Manual, 1990, which should be consulted for definitions and further details of the processes.

The following indices of performance can be extracted (with some difficulty) from the monthly Report on Center Operations. In each case the contractual requirement is compared to the data in the monthly Report on Center Operations with reference to the particular tables from which the data has been extracted. **A negative number in the row "Compared to Contract Requirement" indicates that production for the year was below the contractual requirement.**

IPS OVERVIEW

WFD 1.1



Note: The activities in boxes are all done by the Accessioning group.

Input - Types of Documents Collected by CASI

The requirement figures for Acquisitions (**input**) in the Contract (SOW 1) have been interpreted in many, but not all, cases to mean a count of the number of items "coming in the door" of CASI. In some cases, the number of copies have been counted instead of the number of titles. In any case, the data for input used in the tables below are the most appropriate to compare to the Contract requirements. The output data is included also, however, to indicate how many individual items (individual documents) in the various categories actually made it through the system and into the database.

The **output** requirements of the Contract are discussed separately immediately following this consideration of the input requirements.

1.01 NASA Generated/Sponsored Report Literature **Input Requirement = 13,000 documents**

	Table 2 Input Activities	Table 5 Accession Series by Source
Annual total	12,563	11,596
Compared to Contract Requirement	-437	-1,404

Notes:

1. Table 2 data is collected from daily reports of the Evaluator and represents items (including analytics) **selected** (not the total number of records reviewed) for processing. Figures are for the contract year March 1991-February 1992. Includes the 9N/9X documents (progress reports).

2. Table 5 is calendar year data rather than contract year. The data is generated by the computer and is based on the Source of Financial Support (#074) field of the IPS record.

3. Activity in this category is just slightly below the contractual requirement in terms of the number of items selected. If production is considered (Table 5 data), however, there is a 10.8% shortfall. Table 2 data includes the interim contract/grant reports that are currently backlogged and are not being completed processed through the system.

1.02 Non-NASA Report Literature from Domestic Sources Input Requirement = 52,000 documents

	Acquisition Highlights: Total **Received** from Major US non-NASA Domestic Sources	Acquisition Highlights: **Selections** from Major US non-NASA Domestic Sources	Table 2 Input Activities	Table 5 Accession Series by Source
Annual total	55,340	14,014	48,058	14,368
Compared to Contract Requirements	3,340	-37,986	-3,942	-37,632

Notes:

1. Acquisition Highlights: Number of items received from Major US Domestic Sources (DOE & DTIC tapes, NTIS bulletin, and Dissertation Abstracts bulletin) is in line with the contractual requirement. Selections, however, were only 27% of the contractual level. Selection counts are for parent documents only, not analytic parts. Data is for the contract year March 1991-February 1992.

2. Table 2 data is collected from daily reports of the Evaluator and represents items (including analytics) selected for processing. Figures are for the contract year. Compared to the number of parent or single items selected (14,014) from other US sources, it appears that there is an average of 3.4 records created for each parent or single record selected.

3. Table 5 is calendar year data rather than contract year. The data is generated by the computer and is based on the Source of Financial Support (#074) field of the IPS record. Table 5 includes input from government agencies, private industry, and research/academic organizations.

4. Production in this category appears to be below contractual requirement - by 7.6% according to Table 2 data.

1.03 Foreign Originated Report Literature from Foreign Sources Input Requirement = 4,800 documents

	DCAF codes assigned (Recpts)	Selections from ESA tapes	Table 1 Acquisition Activities (foreign receipts)	Table 2 Input Activities	Table 5 Accn Series by Source	Table 6 Accn Series Input by Receipt Type
Annual total	11,971	4,212	1,892	5,523	5,490	3,920
Compared to Contract Requirements	7,171	-588	-2,908	723	690	-880

Notes:

1. The first column represents the number of copies of documents received from foreign sources by Accessioning. Some of these are sent on to AIAA.

2. The second column represents selections from the ESA tapes. Since all ESA records are to be accepted, this number is essentially all of the records received from ESA.

3. Tables 1 and 2 are supposed to be counts of incoming foreign documents. However, one is 3 times the other. Table 2 seems to be more reliable, given the output data.

4. Tables 5 and 6 are supposed to be counts of new STIMS records created for foreign documents. However, one is 40% larger than the other. Tables 5 and 6 are for the calendar year; the other columns are for the contract year.

5. Some of these data indicate that the contractual requirements are being met in this category. However, the discrepancies in the data need to be resolved.

1.04 Published Literature **Input Requirement = 8,000 documents**

	02 - General Status, Pub. Lit. to AIAA	Table 1 - Acquisitions Activities	Table 2 - Input Activities
Annual total	2,283	6,244	18
Compared to Contract Requirement	-5,717	-1,756	

Notes:

1. The General Status section of the 02 section of the monthly Report reports on NASA preprints, new releases, and reprints and DTIC reprints sent to AIAA. The data is supplied by the Evaluator. CASI stopped sending DTIC reprints to AIAA in the summer of 1991 - June is the last month that this activity is reported. This is contract year data.

2. Table 1 Acquisitions Activities reports on published literature received automatically from foreign suppliers and on the total number of published items received. This data probably includes a count of duplicate copies. Data is for the contract year.

3. Table 2 Input Activities data is labelled "Foreign [Published Literature] Forwarded to AIAA." It is included here because it is included in the monthly Report; however, it does not agree with the other figures for foreign published literature received and it does not represent the total amount of published literature received by CASI.

4. CASI forwards published literature received on to the AIAA for their consideration. The contract evidently calls for 8,000 such transfers. CASI production appears to be 22% below the requirement.

1.05 R&D Contracts, Grants Input Requirement = 7,500 documents

	01 - General Status, New Contracts/Grants Rec 'd	01 - General Status, New & Modified Contracts/Grants Rec 'd	Table 10 - K Series Additions
Annual total	1,926	7,679	1,933
Compared to Contract Requirement	-5,574	179	-5,567

Notes:

1. The General Status section of the 01 section of the monthly Report presents data on the number of contract and grant materials reviewed, broken down by those that were new, modifications, duplicates, or rejections because they were not R&D contracts. The modification notices result in Backfile Maintenance to existing K file records.

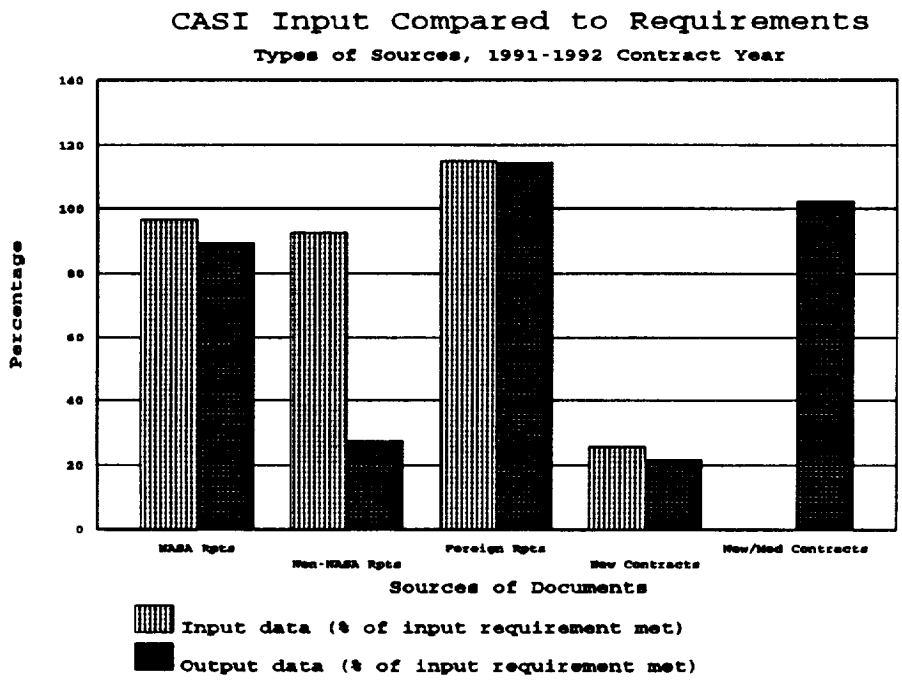
   If the contract requirement of 7,500 is meant to include the modifications received, then CASI is meeting the requirement in terms of acquisition of R&D contract documents; otherwise, acquisition does not meet the requirement.

2. Table 10 reports the total number of records in each series. The additions are computed from these monthly totals.

Summary Input Statistics for CASI IPS[2]
1991-1992 Contract Year

Source	Requirement	Input	Output	Percentage of Input Requirement Met
NASA Generated Reports	13,000			
Input (Table 2)		12,563		96.64
Output (Table 5)			11,596	89.2
Non-NASA Domestic Reports	52,000			
Input (Table 2)		48,058		92.42
Output (Table 5)			14,368	27.63
Foreign Originated Reports	4,800			
Input (Table 2)		5,523		115.06
Output (Table 5)			5,490	114.38
Published Literature	8,000			
Input (02-General Status)		2,283		28.54
Input (Table 1)		6,244		78.05
R&D Contracts & Grants (New only)	7,500			
Input (01 - General Status)		1,926		25.68
Output (Table 10)			1,933	21.77
R&D Contracts & Grants (with modifications) - Input		7,679		102.39

2 Output data and comparison of output data to input requirements is included here for additional information. The input requirements of the Contract are properly related to the input statistics only.

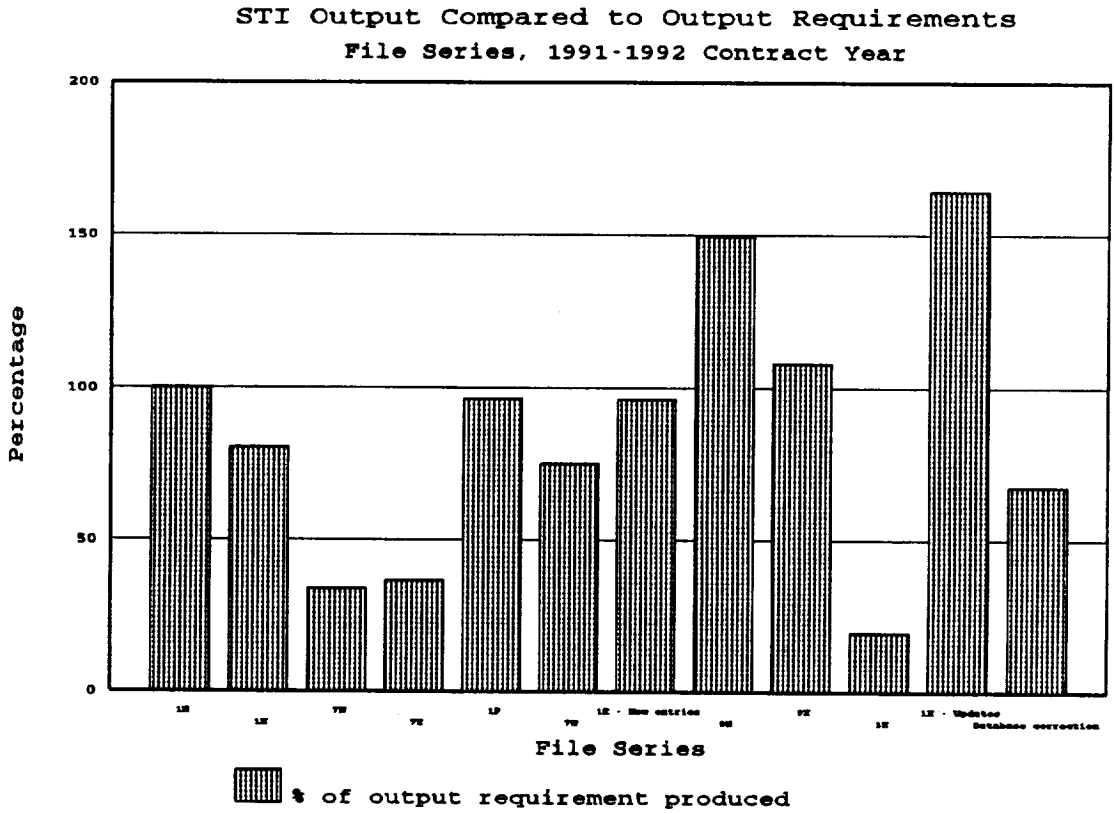


The y-axis is measured in the percentage of the Contract requirement met. Input data from the previous chart comes closest to the processing goals and that is to be expected since the requirements were established to relate to the work load of processing documents arriving at CASI. Output data is included to indicate the corresponding number of items that are selected and become new STIMS records.

Output from CASI IPS
1991-1992 Contract Year

Series	Requirement	Output	Percentage of Output Requirement Met
STAR (1N)	24,000	24,050	100.21
Limited/Classified NASA docs (1X)	1,000	805*	80.50
Docs of Limited Significance (7N)	5,000	1,702	34.04
Docs of Ltd Signif and Limited distribution (7X)	7,500	2,749	36.65
NASA News Releases & Speeches (1P)	200	193*	96.50
NASA RTOP docs (7W)	1,000	751*	75.10
Research & Development Contracts - New entries (1K)	2,000	1,926	96.30
Interim Contract Reports (9N)	1,500	2,246	149.73
Interim Contract Reports with Financial Info. (9X)	1,500	1,621	108.07
Preview File (3X)	1,000		
Total	44,700	36,043	80.63
Updates:			
Research & Development Contracts - Modifications (1K)	3,500	5,753	164.37
Database Changes & Corrections	3,500	2,371	67.74

Note: The figures marked with * reflect the processing of all of the documents available in these categories.



Additional Contract statements that set goals for the whole process are:

> To assist the contractor in better understanding the scope of the contract, the following NASA STI Program strategies should be considered: To construct a NASA STI database from the available **worldwide relevant information acquired no later than 2 months after publication.** [Contract, 1.0]
>
> **All items will be processed through data entry for computerized retrieval within 15 days after processing.** The contractor shall utilize document input transmitted electronically. [Contract, 2.2.8]

There are no statistics to show performance along these lines. The wording of these goals needs to be refined and reworded and correlated with measurable activities.

References Cited

RMS Associates. (1990). NASA Center for AeroSpace Information. Facilities Operating Manual.

RMS Associates. (10/21/91). Input Processing System Analysis (TD 91-063).

References Generally Useful to this Study

RMS Associates. (1986). Input processing system : Detailed requirements and design specifications : Appendixes (Draft). (TA 85-031).

NASA STI Program. (December 1991). The aerospace database data element dictionary with issues and recommendations. [Plus other documentation from the discussions).

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2. ACCESSIONING

2.1 Highlights

Staffing: 4 people (+ 3 people in Duplicate Checking & Quality Control and Backfile Maintenance which will be described separately)

Current staff: Thelma Mosley, Supervisor
Beverly Brown, Senior Duplicate Checker
Martha Martin, Receiving Clerk
Juanita Bryant, Duplicate Checker
Angelina Bush, Accessioning Clerk

Function: Receive all documents and prepare them for processing.

2.2 Description

The ACCESSIONING stage of IPS receives all documents entering the system, primarily from Shipping & Receiving. The ACCESSIONING staff performs preliminary checking and processing of these materials and sends them on to other groups for further processing. The major accessioning activities of this group are:

a. Sorting documents received
b. Duplicate checking
c. Special processing for particular document types:
   - c1. Patent applications and Patents
   - c2. Foreign documents
   - c3. Loaned documents from the NASA Centers
   - c4. Documents with specified limited distribution
   - c5. Classified documents
   - c6. DAAs received prior to receipt of the NASA document
   - c7. NASA documents received without required DAA
   - c8. Magnetic tapes of bibliographic records from other organizations, with or without accompanying fiche and/or hardcopy documents.
   - c9. Dissertation Abstracts
   - c10. NTIS fiche and abstract journal
   - c11. NASA contract and grant announcements
   - c12. NASA news releases and speeches
d. Pagination.
e. Creation of the casefiles, including special labeling to direct the piece through IPS.
f. Handling of bulk copies of documents.

In addition, the same staff group has responsibility for backfile maintenance and proofing of RECON records after entry by CATALOGING and ABSTRACTING and INDEXING. This involves the following activities:

g. Removing the limited distribution status on documents and their RECON records.
h. Identifying patent application records for new patents that have been received or that need to be withdrawn.
i. Proofing RECON records before release into the STAR production queue or other loading operations.
j. Monitoring the availability of enough records for an issue of STAR and releasing records for other RECON files.
k. Backfile maintenance.

The DUPLICATE CHECKING, QUALITY CONTROL, AND BACKFILE MAINTENANCE responsibilities of this group will be discussed in Sections 7, 9, and 10.

Documents received are initially sorted and distributed to the appropriate staff person. Primary sorts are based on whether the material is a

- Classified hardcopy document (go straight to the vault when received)
- NASA formal document
- NASA informal document
- NASA patent application or patent or patent correspondence
- NASA contract or grant announcement
- Material on loan from NASA Centers
- An announcement of a forthcoming NASA report (DAA received prior to its document)
- Document Availability Authorization (DAA) without its document
- Abstract journal issue from NTIS or UMI
- Magnetic tape from DTIC, DOE, or ESA and national level exchange partners (NATLEVs)
- Microfiche from the same agencies
- Foreign-exchange document
  - with a DCAF number already assigned
  - without a DCAF number
- NASA news release or speech

Other materials received may include translations and hardcopy documents from other government agencies.

Accessioning does some processing on the documents before they are sent to EVALUATION and more processing on them after they are returned from EVALUATION. The duplicate checking that is done is described in Section 7 : DUPLICATE CHECKING. The following part of this Section describes the Special Processing of specific sets of documents.

Special Processing - Patent Applications and Patents

Patent documents are sent to CASI from the Intellectual Property Offices of the NASA Centers and from NASA Headquarters. There are three types of patent documents: (1) patent applications, (2) issued patents[3], & (3) notices of abandonment of patent applications.

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[3] There are approximately 100-120 NASA patents issued per year (R. Daniels, CASI).

1. Patent applications

These are usually in the form of a loose set of papers, sometimes legal-size. These pages are sorted into a specific order and packaged for processing. A checklist is used to make sure that all the pieces are present. If anything is missing, a contact at the Center is called - a list of contacts is maintained by ACCESSIONING.

The claims information is put into a brown envelope and the number of pages of claims is written on the outside of the envelope, along with the application number and the NASA case number. This is to make it clear that the claims information is not to be included on the fiche.

After the patent application is returned from EVALUATION, two copies are made of the primary drawing (the only drawing that will appear in the patent when/if issued). This drawing will be used to create NASA's semiannual Continuing Bibliography entitled Patent Abstracts (SP 3405-63).

2. Patents

All patents are checked on RECON when received to see if previous patent applications for them were received, using the patent application number and the NASA case number. When a previous patent application is found, its accession number is noted. Lists of these accession numbers are sent to the Computer Group requesting printouts of the records and that copies of the records be "pulled back" to IPS for modification. The casefiles are also retrieved from Document Supply. The printout of the application record is attached to the casefile for the patent. The application casefile, the printout of the application record, and the new patent go to EVALUATION for processing. On return, two copies are made of the first page of the patent (again for the NASA Patent Abstracts) and pagination is done. The patent application number is written on the cover of the casefile in red to ensure that this information is added to the record for the patent. The patent casefile and the copy of the application STIMS record goes to CATALOGING.

The casefile for the application is held until the patent record is loaded onto RECON. A note to kill the application record is written on the application casefile. When the patent is on RECON (and this is determined by checking for it after the RECON loads), the application casefile starts through the BACKFILE MAINTENANCE process.

The patent application casefile is returned to Document

Supply, where it is reshelved.

3. Notice of abandonment of patent application

When these are received, the patent application casefile is retrieved and it goes through the BACKFILE MAINTENANCE process to kill the record. The casefile is returned to the shelves and the notice is added to the file.

Special Processing - Foreign Documents

Foreign documents are defined as those which are received from non-US sources. Most of these arrive as a result of exchange agreements. A code, known as the DCAF code (Distribution Control and Analysis File), is assigned to each of these documents. This coding is used to track the number of items received from exchange partners and it also becomes part of the RECON record. The code is assigned according to the organization that sends the document; it is not based on the corporate source of the publication nor the publisher. If the sender cannot be determined, a code is given based on the country from which the document is received.

The DCAF codes are assigned by the Registration Process. They carry no information but are only random registration numbers. The ACCESSIONING staff keeps several binders with sheets for each organization, listing the series received from these organizations and their handling (AIAA or NASA). The overall organization of these sheets is by country. The country codes themselves are based on a simple cataloging scheme for country identification.

Documents received from ESA and Canada and Israel (and possibly other sources) come to NASA with the DCAF codes already assigned and written or stamped on the documents. These documents go directly to EVALUATION, after being counted.

Each foreign document is stamped on the front with a special stamp:

```
        RECEIVED BY
     NASA STI FACILITY
DATE:
DCAF NO. __ __ __ __ __ __

        PROCESSED BY
__ NASA STI FACILITY
__ ESA   __ SDS   __ AIAA
```

Figure 3. Stamp for Foreign Documents
(SDS is no longer used)

The appropriate DCAF code is filled in on the stamp. Staff (Beverly Brown) records the number of items received from the agencies as she processes them (each copy received is counted). She also counts documents that are rejected as being out-of-scope by EVALUATION. These notes are used to prepare the monthly statistics and to verify that foreign exchange partners meet the submission levels of the agreements.

When a DCAF code is entered into the online record, a letter is added to the front of the code to indicate where the document was processed: F = CASI (Facility); E = ESA; A = AIAA.

If the series is handled by AIAA, the material is sent on to them.

A card file is maintained of journal titles received through the Foreign Exchange program. The volumes and issues received are recorded on these cards.

If a new journal title comes in, it is sent to AIAA for its decision, using a multi-part form. One copy of the form is returned to CASI with AIAA's decision. A title card is made if AIAA accepts the new title. Recently, AIAA has accepted all new foreign series sent to them.

New report series are given to EVALUATION for a decision. Although series can be rejected as being inappropriate for RECON, the practice is currently to continue forwarding all individual reports to EVALUATION for review.

Any materials rejected by CASI or AIAA from foreign exchange agreements are forwarded to NASA JTT.

Both ESA and the British Defense Research Information Center send multiple copies to CASI for redistribution to NASA Centers. If enough copies are received for distribution to the Centers, they are redistributed immediately without waiting for the RECON accession number. Labels for this distribution are obtained from RPCS. The documents and the labels are delivered to the Mail Room. At least one copy (and all copies in excess of what is needed for distribution to the Centers) of each title is retained by CASI for processing and/or document storage. Since ESA processes their own documents (and this includes the British documents), the hardcopies retained by CASI are held until the ESA records are received and are on RECON. At that point, the hardcopies are sent to Document Supply for storage by the accession number.

Special Processing - Loans

Loans of the library's only copy of a document are frequently (306 loaned documents were received in the 1991-92 contract year) sent to CASI from the Centers for entry into RECON. Most of these are older titles that never were entered into RECON. If the Center sends two copies, one is returned with the RECON accession number written on it and with a copy of the RECON record; the other copy is kept by CASI as the file copy. When only one copy is received, a photocopy is made for CASI processing only if the document is not assigned to either the 1N or the 1X files (72% of the loaned copies were copies in 1991-92). When it is assigned to 1N or 1X, only the fiche copy is kept as the file copy. Most of the loaned materials are assigned to 1N or 1X.

The RECON records for the loaned items are double checked before sending to the Center to catch any entry errors.

Loans seem to come in batches, not one at a time.

The loaned copy is kept in ACCESSIONING until the RECON record is loaded (in the case where it is photocopied or there are two copies) or it travels through the process and is retrieved after fiche are made. The loan form from the Center is filed in ACCESSIONING and this file is checked against RECON periodically to discover which ones have completed processing.

Sometimes the original loaned copy has to be taken apart for filming. In this case, the piece is put back together as well as possible but it is not rebound.

Special Processing - Documents with specified limited distribution

There are various classes of limitation for document distribution, each with its own set of rules and processes:

FEDD	For Early Domestic Distribution only
ITAR	International Traffic in Arms Regulation
EAR	Export Administration Regulation
LD	Limited Distribution

Detailed instructions for processing, filming, and distribution of these documents in included in the Facilities Operating Manual in Section 02.23 "NASA-Sensitive Documents" and subsequent sections.

These limitations are marked on the document and on the casefile. In addition, a file is kept in ACCESSIONING of copies of the fiche for these documents after processing is completed. For those which are automatically released to the public after a set period of time, the ACCESSIONING staff periodically pulls the fiche for documents now available to the public and initiates additional processing (below). Other documents are individually released to the public by specific notification.

When a document's distribution status changes from limited to unlimited, the casefile must be retrieved, all limited distribution markings must be removed, a note is affixed giving the date of public release, the accession number for the record must be "killed", and the document reassigned and reprocessed.

Special Processing - Classified documents

The processing of classified documents is done in a secure room by staff that have been cleared to handle the documents.

Special Processing - DAAs received prior to receipt of its NASA document

Sometimes, but not often, a DAA is received by itself, without its document. When this happens, the hold shelf is checked to see if the document is there. If not, RECON and IPS are checked for the record. If not found, the original DAA is filed in the advanced DAA file. If an RDP page for a formal NASA document is also received, but still without the full document, copies of the pages are sent for processing. Records for these items are kept in the Preview File[4]. Recent changes in the way in which the document release

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[4] The Preview File is known as the X36X, X-36,000, or File #143 also. Records are loaded onto RECON in the D and N collections, but the IPS records are kept. When the full documents are received, the IPS records are modified to

process is handled have greatly reduced the number of records in the Preview file (only 39 as of the November 1991 Report). Upon receipt of the document, the casefile and the original DAA are pulled, the document is processed as usual, and the Preview record is "killed".

Special Processing - NASA documents received without required DAA

A document that is received without specific distribution permission will be examined to see if it can be processed anyway using other information (see EVALUATION). If it is determined that a DAA is needed before processing can continue, ACCESSIONING contacts the appropriate Center to get the required release. A new CASI process has been developed for these documents: a temporary report number is created for them consisting of DAAP-[Center Code]-Temporary accession number. DAAP stands for "Document Access Availability Pending". These entries are added to the 7X file[5]. A listing of these records is sent to the Centers periodically asking them to obtain the missing DAAs. ACCESSIONING handles this process and monitors the receipt of the DAAs. When they are received, the casefile and copy of the record must be retrieved. The document is then reprocessed completely or, if only minor changes need to be made, data changes are made to the record in 7X.

Special Processing - Magnetic tapes of bibliographic records from other organizations

Tapes are sent to the Computer Group where a process is run that results in a printout of each record on the tape and an online record of basic information. Accompanying fiche and hardcopies are held by ACCESSIONING until the EVALUATOR has selected the documents for further processing. The selected fiche and hardcopies are then pulled and prepared for IPS processing; fiche and hardcopies for non-selected documents are discarded.

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represent the document. When this full record is loaded onto STIMS/RECON, the Preview File version is removed through backfile maintenance.

5 IPS staff is requesting 3X treatment for these documents instead.

Special Processing - Dissertation Abstracts [6]

Selections are made from the printed abstract journal by the EVALUATOR. ACCESSIONING then cuts the selected entries from the journal and affixes them on pieces of paper for processing. During the 1991-92 contract year, 1085 dissertations were selected for processing; an average of 90 per month.

Special Processing - NTIS documents [7]

Selections are made from the eye-readable titles on the fiche and checked by looking at the full surrogate entry in Government Reports Announcements by the EVALUATOR. ACCESSIONING cuts the selected entries and affixes them on pieces of paper for processing, as above.

NASA contract and grant announcements

These announcements are sent to the Administrative Assistant (Terri Marshall) who checks for duplicates and passes them on to CATALOGING for entry of the bibliographic information into the K file. To locate additional contracts and grants for which announcements have not been received, the Administrative Assistant reviews listings from the Small Business Innovation Research program and the listings of New Basic R&D Contractors (see Section 6). These listings are also used by the Registration staff to identify potential new CASI registrants.

NASA news releases and speeches

These documents are sent to the Administrative Assistant who enters the cataloging information for them into the P file. The P file is not on RECON. It is used to collect the information for the annual Index to NASA News Releases and Speeches.

After preliminary processing, all documents are given to EVALUATION for selection and assignment. After this process and any remaining special processing that needs to be done, the pagination is done.

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6 Staff are currently developing methods for obtaining electronic records from the Dialog file and converting them into IPS for processing.

7 Methods of getting these records electronically are being pursued.

Pagination

The number of pages in hardcopy documents is determined at the ACCESSIONING stage and written on the front (or first page) of the piece. First, the document is fanned to get an overall feel for its organization. Consecutively numbered pages are noted - additional un-numbered pages and the cover are counted. These counts are added for the total number of pages.

This number becomes part of the record at the CATALOGING stage and is used (presumably) by end users/librarians to judge the extent of the piece and to anticipate reproduction charges (if any). NTIS prices, now being used by CASI, are based on the number of pages; e.g., 1-5 pages is one price, 6-10 pages is another price, and so forth. It is also used by CASI's microfiche production operation.

Casefile Creation

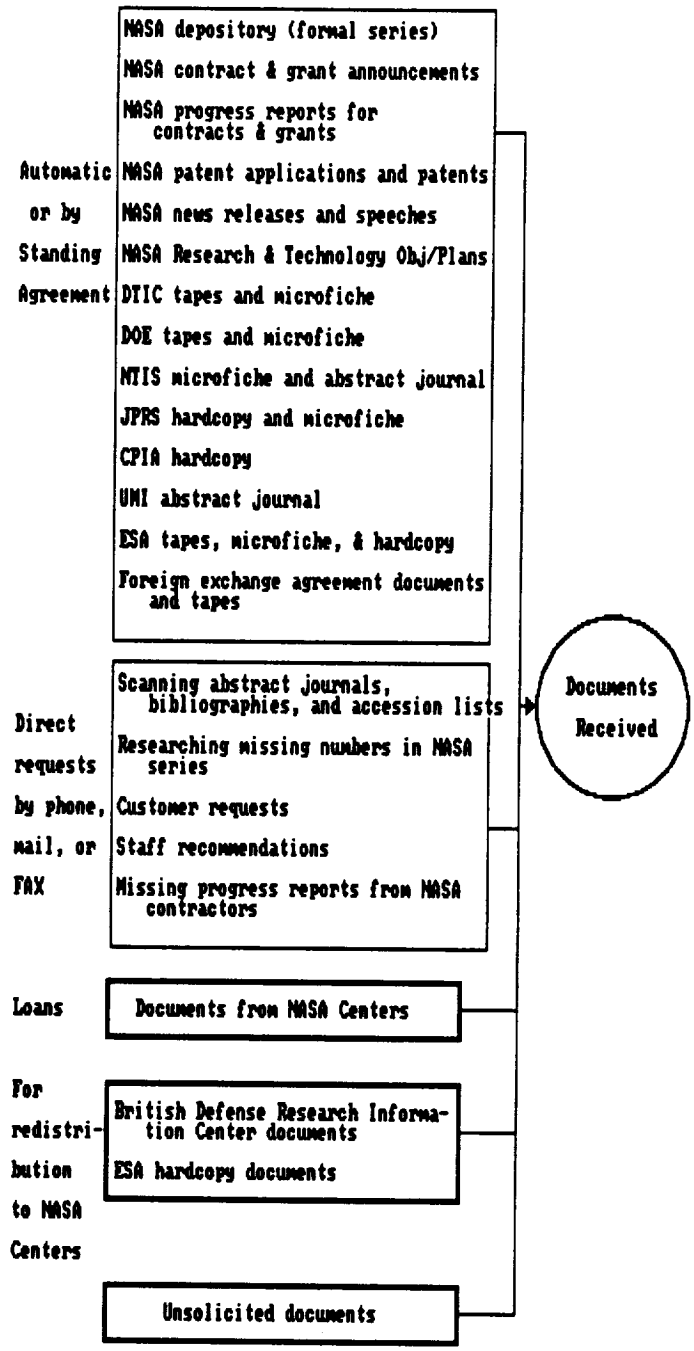
This process involves putting each unit (each document to be entered into the STIMS/RECON system) in a pocket folder, stamping the folder with its processing series and any limitations or other notes that are required, and inserting any flags necessary to indicate special or expedited handling. These casefiles are then delivered to CATALOGING.

Bulk Copies

CASI often receives more than one copy of documents. In two cases, CASI acts as the distribution point for foreign documents (British Defense Research Information Center documents and some ESA documents). In all other cases, the duplicate copies are sent to CASI Stock Storage to be used to fill document requests. They are held in ACCESSIONING until the final accession number is assigned (after loading onto RECON), except when the quantity is large (i.e., a box full). These are sent to the Stock area with a bin card number. One copy is kept in ACCESSIONING with the same bin card number. When the final accession number is known (by checking RECON), this copy is sent to Stock with the number by which the copies are to be filed, i.e., the accession number.

2.3 Work Flow Diagrams

Accessioning



Accessioning

Sort

- Patents & Patent Applications (1)
- Documents from foreign sources (1)
- Loans from NASA Centers (1)
- Documents with limited distribution (1)
- Dissertation Abstracts (2)
- NTIS microfiche and abstract journal (2)
- Tapes of bibliographic records (3)
- Direct acquisitions (4)
- Classified documents (5)
- Microfiche or hardcopy that come with the tapes (6)
- DAA without its document (6)
- NASA informal documents (6)
- NASA formal documents (6)
- NASA contract/grant announcements (7)
- SBIR list & New Basic R&D Contractors (7)
- NASA Research and Technology Obj/Plans (7)
- NASA News releases and speeches (7)

All other documents are given to the Evaluator (2)

Distribution:

(1) Senior Duplicate Checker (Beverly Brown)

(2) Evaluator (Phil French)

(3) Computer Group

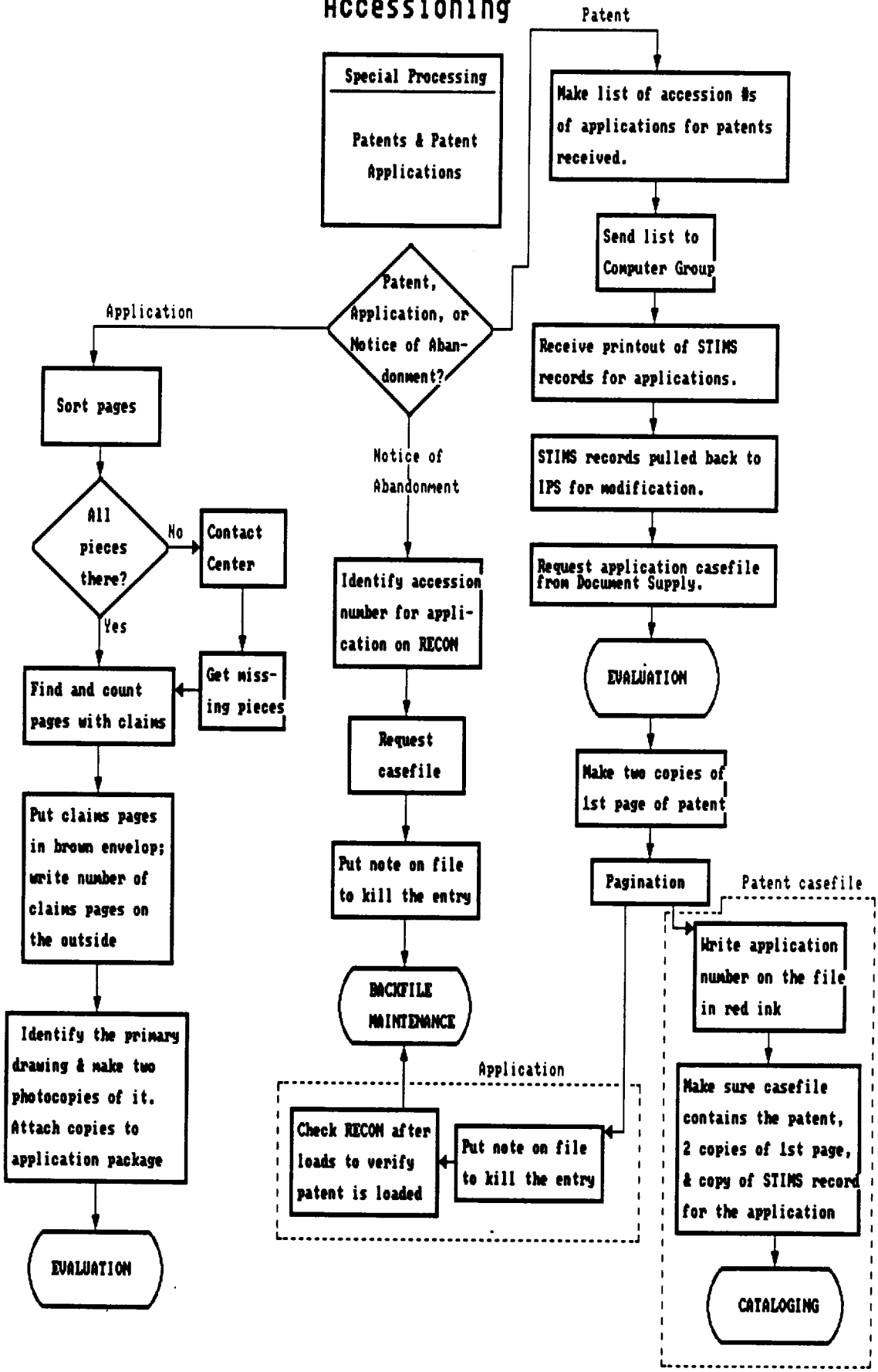
(4) Acquisitions (Cynthia Barnes)

(5) Classified, protected area (Odenia Merritt)

(6) Receiving Clerk (Martha Martin)

(7) Administrative Assistant (Terri Marshall)

Accessioning

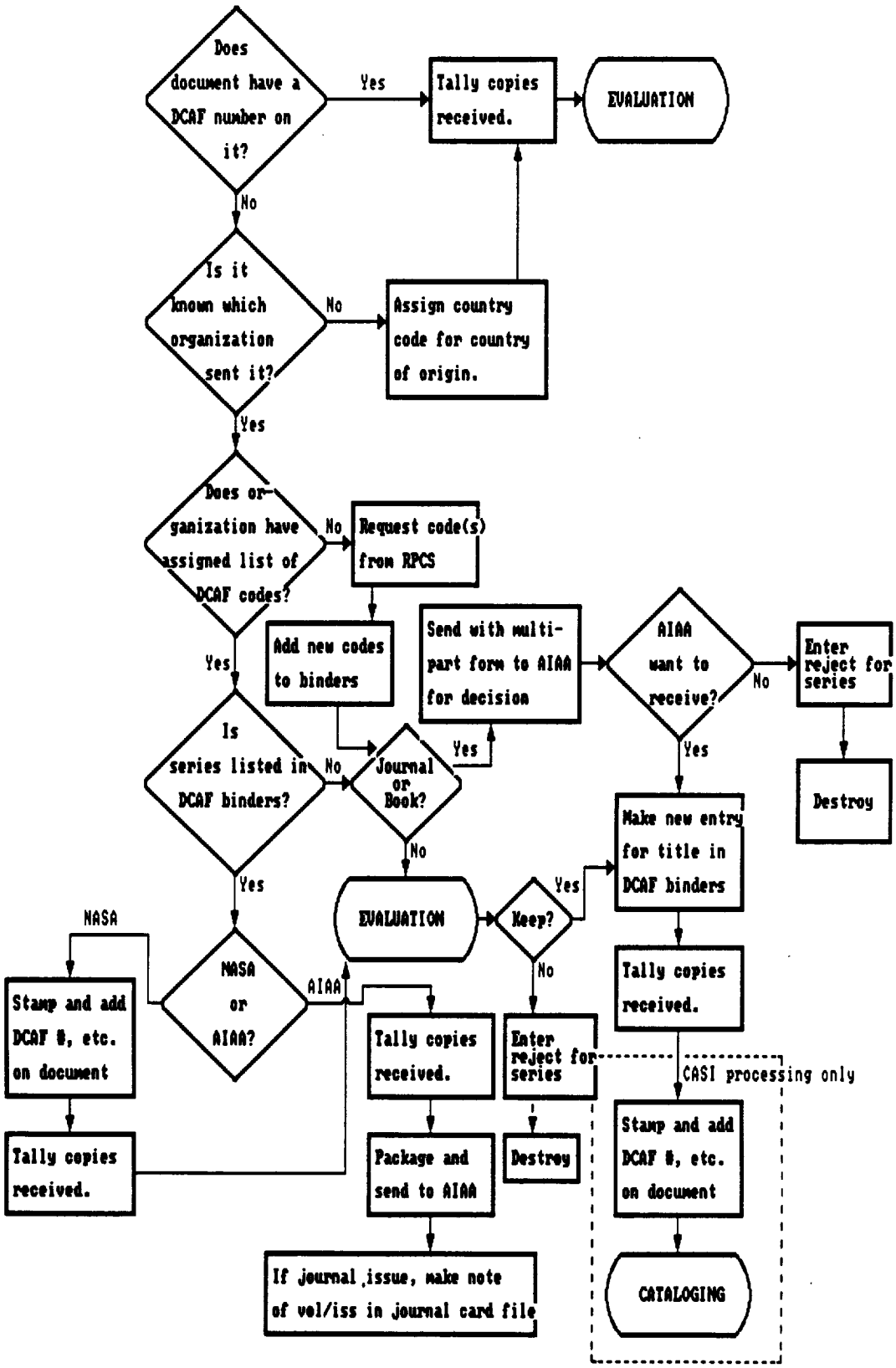


Accessioning

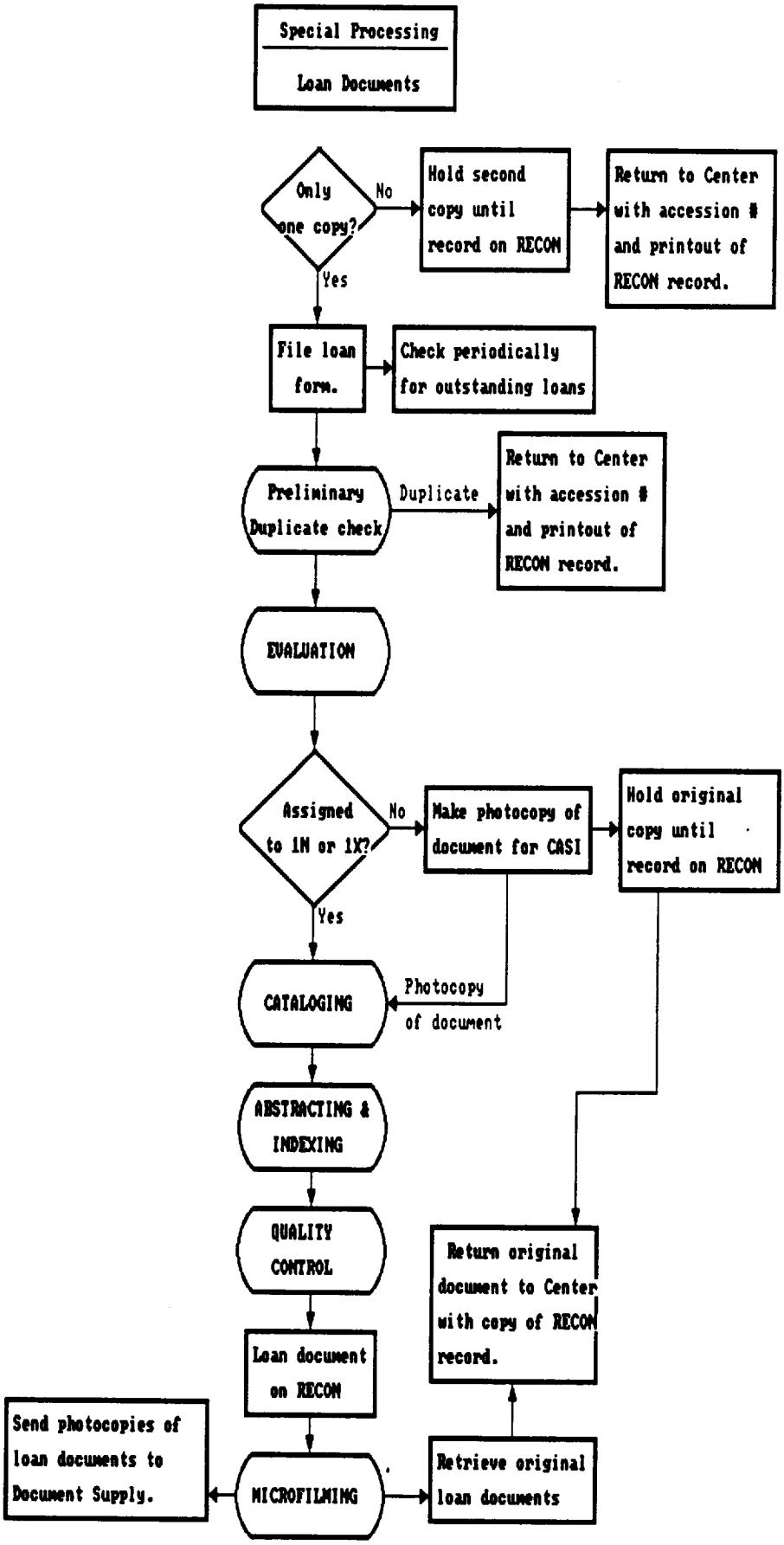
Special Processing

Foreign Documents

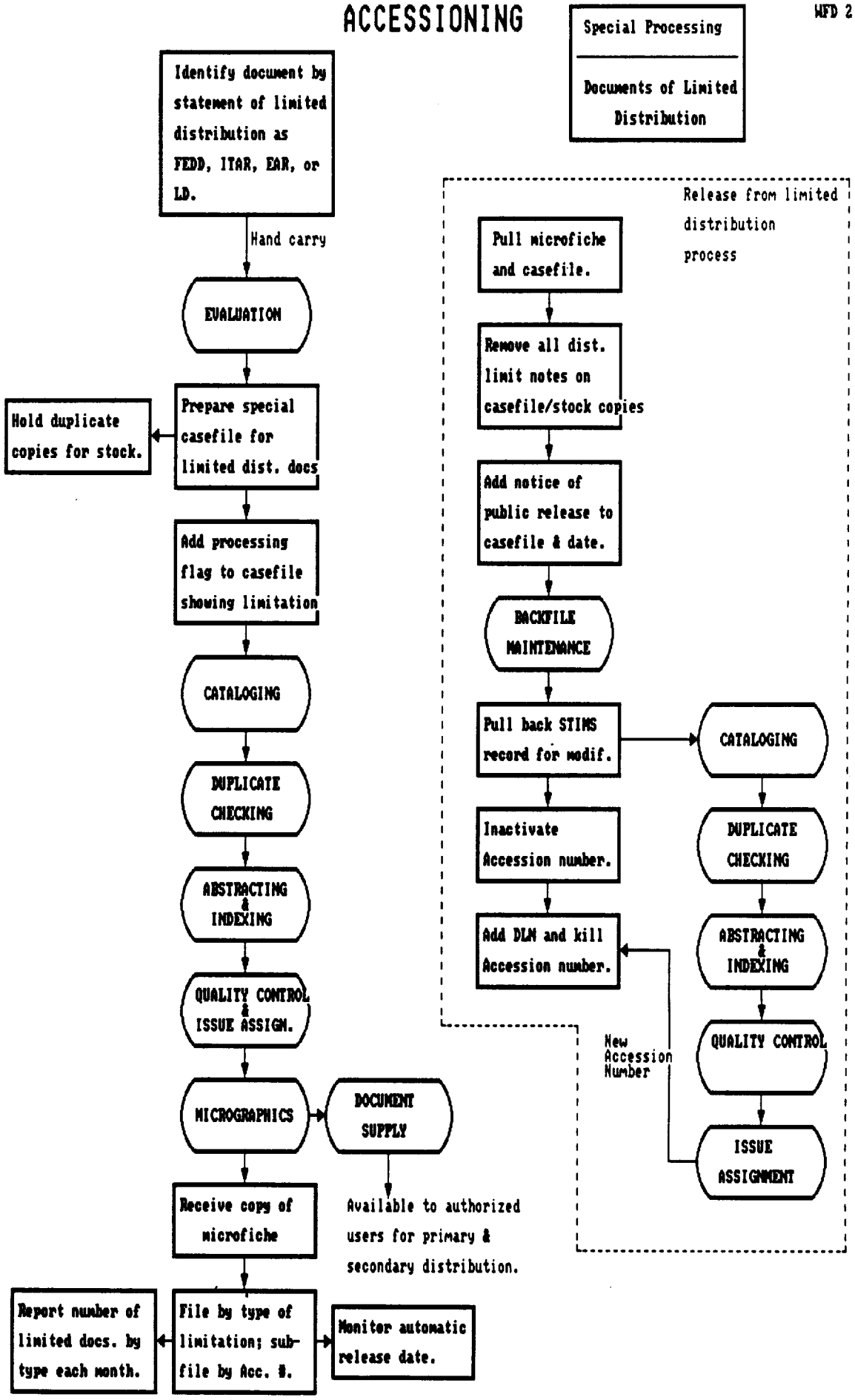
Note: All copies received are counted in two places: on binder pages and on daily calendar.



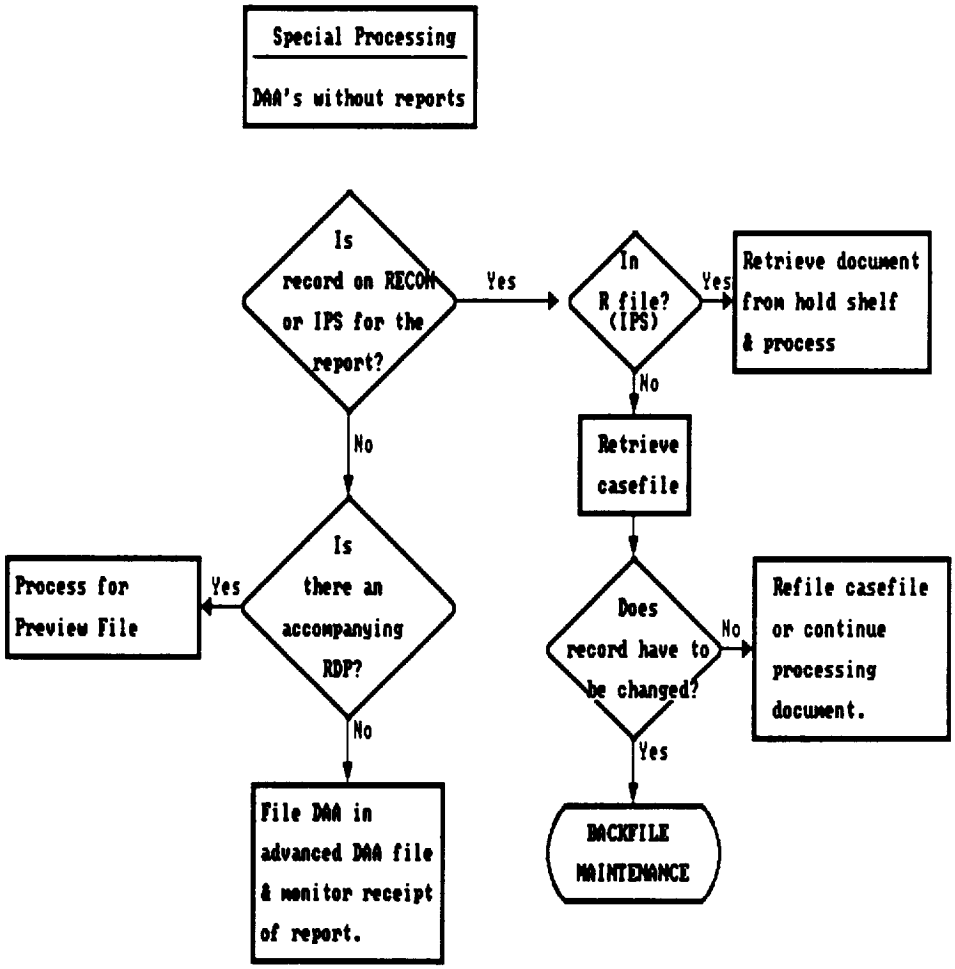
Accessioning



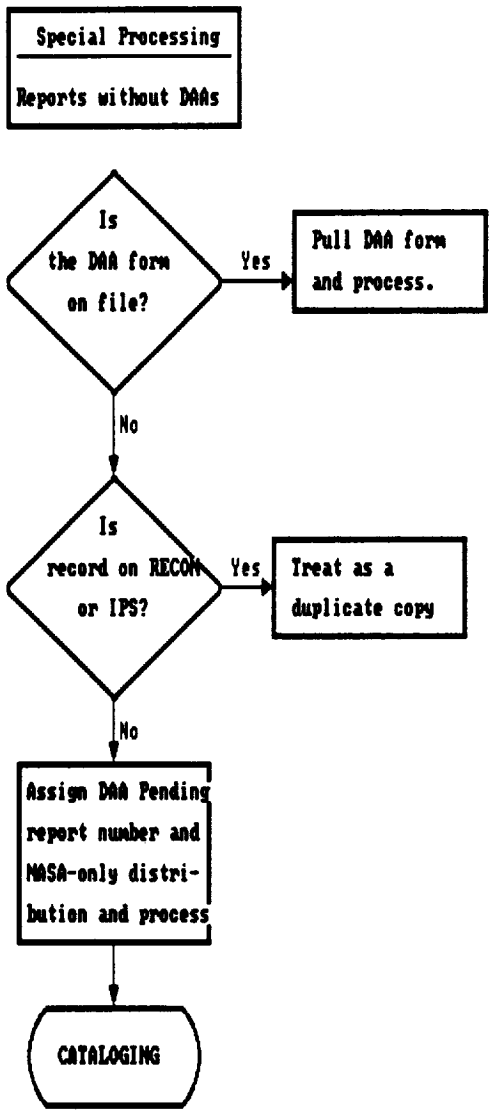
ACCESSIONING



Accessioning



Accessioning



2.4 Contractual requirements

The contractor shall **process classified reports** received from various sources in accordance with the Department of Defense (DOD) Industrial Security Manual and with guidelines approved by the NASA COTR. [Contract, 1.1]

The contractor shall **maintain surveillance of foreign documents received** directly from foreign national addresses on the registration and product control (RPC/STI) file, from foreign organizations, ESA, or AIAA/TIS. The contractor shall identify the sender of the material and shall record the number and types of foreign materials received so as to facilitate NASA reviews of the exchange arrangements NASA has with foreign organizations. The contractor shall provide reports on foreign documentation as requested by NASA. [Contract, 1.2.4]

Requests to appropriate NASA offices and/or installations for the completion of Document Availability Authorization (DAA) Forms shall be dispatched by the contractor after identification of the items for such action as described in the "NASA STI Handbook," NHB 2200.2. [Contract, 1.2.5]

Items which must be withheld from accession processing for indefinite periods due to NASA procedural requirements shall be transferred by the contractor to hold status within 24 hours of receipt. Listings of documents in the "indefinite hold status" will be provided to the NASA COTR every six months. [Contract, 1.2.6]

This literature [foreign originated report literature from foreign sources] includes those items pre-processed by ESA and the National Level Foreign Exchange Organizations for the NASA information systems (both fully pre-processed, and partially pre-processed, i.e., cataloged only). **The contractor shall record the literature sources and maintain the records by Distribution and Control Analysis File (DCAF) numbers.** [Contract, 1.3.3]

This material [published literature], primarily from foreign sources, also includes article reprints from domestic periodicals and NASA-authored, published literature items. This material is forwarded to AIAA/TIS for possible announcement in IAA. **The contractor shall maintain records on receipts by Distribution and Control Analysis File (DCAF) numbers.** [Contract, 1.3.4]

All items, including new items that ESA and National Level Foreign Exchange Organizations pre-process and returned IAA rejects shall be **mail-logged or recorded** as required. [Contract, 2.1.1]

The Contractor shall **maintain records on receipts by (DCAF) numbers [of published literature sent to AIAA].** [CASI Facility Operating Manual, 1990, Task 01.1:4]

All documents (exclusive of those rejected or determined to be duplicates) entering the NASA Facility undergo accession processing which includes: **(1) duplicate checking; (2) assignment of a temporary accession number (which is later replaced automatically by a permanent number); (3) assigning DCAF code to documents as directed by NASA; and (4) assignment to a specific production issue. Other accessions processing functions include: (1) determination of whether hard copy documents are reproducible; (2) preparation and transmittal of DAA requests and follow-ups; (3) matching of microfiche or hard copy documents with existing abstracts and the matching of input processing forms for ESA and other National Level Foreign Exchange Organization input; (4) case file preparation; (5) handling of loan documents; and (6) preparation of data change notices.** [Contract, 2.2.2]

... those [acquired documents] rejected as being out of scope **shall be disposed of** in accordance with guidelines furnished by NASA. [Contract, 1.2.1]

2.5 Indices of performance

The following statistics are reported on a monthly basis. Examples of each are given.

NASA Progress Reports entered into the processing cycle

Recent figures:

Sept	Oct	Nov
208	537	149

NASA & non-NASA documents loaned to CASI for processing

Number of documents received, rejected, "xeroxed", held for DTIC or ESA processing or translation, held by the Evaluator, in process, and processed and returned to lender. Figures are given for the current month only.

Recent figures:

	Sept	Oct	Nov
Titles received	5	0	0
Processed & returned	17	0	3
In process	0	3	0
Held for processing	3	3	0

[All other categories showed no activity in these months]

DCAF codes assigned or recorded

The total is itemized by Foreign Exchange Program, "standard documents" from ESA, CISTI, & ISA. Recent figures:

	Sept	Oct	Nov
For. Exchange Prog.	149	42	161
ESA	0	973	417
CISTI	93	84	0
ISA	0	0	0

British and ESA documents distributed

Distribution of multiple copies. Recent figures:

	Sept	Oct	Nov
British copies	40	38	-
ESA copies	30	36	-

Special documents processed

Recent figures:

	Sept	Oct	Nov
Patents	0	30	44
Pat. Appls	0	32	29
ITAR	7	5	4
FEDD	0	1	1
LD	0	0	2
EAR	-	1	0
DeLDed	0	0	0
DeFEDDed	6	6	0
Stock copies DeFEDDed or DeLDed	30	0	0

Active NASA sensitive documents

Reported by number of documents accessioned and in process.

Recent figures:

	Sept	Oct	Nov
Accessioned			
EAR	2	2	3
LD	180	182	182
FEDD	174	174	175
ITAR	1046	1046	1051
In process			
EAR	2	2	1
LD	0	0	0
FEDD	0	1	1
ITAR	3	7	7

2.6 Bibliography of supporting documents

Interviews with Thelma Mosley and Beverly Brown.

NASA. (March 1, 1991). NASW-4584 Award/Contract.

RMS Associates. (1990). NASA Center for AeroSpace Information. Facilities Operating Manual.

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3. ACQUISITIONS

3.1 Highlights

Staffing: 1 person

Current staff: Cynthia Barnes

Function: Obtain individual items directly from the source to meet user requests or fill in the collection.

3.2 Description

ACQUISITIONS responsibility is to actively seek out materials that should be in RECON but that haven't come in on their own through deposit and exchange agreements. Cynthia Barnes presently holds the position. Her efforts have greatly decreased the number of acquisitions that were instigated by user requests for items not held by CASI (known as RQTs); presumably this is a direct result of her efforts to get materials in before the requests are made.

Everything is gotten free-of-charge, except for fiche and hardcopy that must be ordered from NTIS and DTIC - fiche that didn't come in through the original distribution or needs to be replaced.

Acquisition activities are generated from five main sources: requests from customers that CASI can't supply (RQT); selections from bibliographies and references and recommendations from CASI/STI personnel (SQT); requests for missing casefile documents or missing pages; monitoring of NASA series on RECON and discovery of missing report numbers; and monitoring of contract and grant reports and attempts to obtain copies of missing reports.

Newsletters from NASA and other sources (e.g., Space Watch Newsletter) are scanned for appropriate items to request. Other materials scanned on a regular basis include the GPO Monthly Catalog, AGARD materials, and bibliographies of appropriate publications.

Following up on NASA grants and contracts is the most frustrating, time-consuming, and ineffective activity ACQUISITIONS handles. Although progress reports, including the final report, of each NASA grant and contract are supposed to be deposited with CASI, many projects fail to send any reports. A recent informal count showed that almost 1500 grant and contract projects that ended during a two-year period (1989-90) failed to deposit reports. Universities with research grants are the worst offenders and they seem to be able to renew their grants or get new grants despite the fact that they haven't complied with the report requirement before.

A process was recently developed to get a notification listing of grant and contract projects from the K file (R&DCS file) for which reports have not been entered into RECON. This computer process retrieves the set of contract/grant numbers from the K file representing contracts/grants that have ended within a two-year window (e.g., in 1989-1990). The program then searches the 1N, 1X, 7N and 7X files for occurrences of these contract/grant numbers. Listings are produced, including a list of all contract/grant numbers with only one posting. These are the items in the K file without corresponding reports in the 1 and 7 series files. A second listing includes contract/grant numbers with more than one posting.

This list is used to update the corresponding K file records to say "Reports received" through an automated process. These lists are produced on request and at the current time are produced semiannually. This process does not include progress reports from contracts and grants. Progress reports are entered into the 9N and 9X files. It also does not provide a count of the number of reports received for a particular contract/grant - it only identifies those for which at least one entry has been made in the 1 and 7 series RECON files. These could be entries from the AIAA and not actual NASA reports.

ACQUISITIONS uses these listings to identify reports that need to be obtained and then selects one Center per month from which to request missing reports. No more than 20 reports are requested at any one time to minimize the burden on the Centers. Contracts and grants are selected from the listing and rechecked on RECON to make sure that reports have not been received since the listing was produced. The request is sent to the Center library staff and sometimes they are able and willing to help track down the reports. But, often ACQUISITIONS has to track down the person responsible for the research project and then often finds that the Tech Monitor is no longer at that location and no one knows how to find out about the reports.

The grant & contract listing comes from CASI's R&DCS file (K file). Input to this file is by CASI/IPS personnel from announcements or from listings of new NASA contracts and grants. If the entry comes from a listing, the Tech Monitor for the project is not known. Efforts are currently being made to obtain contract/grant information directly from the Procurement Office in electronic form.

There is not a good way to catch grant & contract reports that are published in the journal and conference literature, which AIAA covers. AIAA sends CASI the first page of conference proceedings for them to check to see if any of the papers are duplicated by NASA reports. But the fact that research was funded by NASA is often not printed at all or printed as a footnote or endnote to the paper and is thus often not caught. Sometimes CASI guesses that the published paper is related to the NASA grant/contract based on the author and the title, but, without direct proof, they cannot make such a notation on the record.

ACQUISITIONS has been sending an annual "Deficiencies Report" for contract and grant reports to NASA STIP, but this has not been an effective reporting method. Plans are now underway to change the nature of this report to provide monthly tracking of reports not received.

There is an National Science Foundation (NSF) agreement, also a Government Accounting Office (GAO) agreement, by which NASA is supposed to receive reports automatically. However, reports have not been coming in. ACQUISITIONS has recently arranged for the NSF reports to be received automatically again.

ACQUISITIONS has started a review of the high-numbered TMs, looking for missing numbers in RECON. High-numbered TM numbers are assigned in blocks to the NASA Centers to use as they need them. These numbers are assigned to reports for which there will be limited distribution; that is, a limited number of copies will be printed. When a missing number is discovered in a series, the Center to which it was assigned is contacted. Some reports have been canceled after the number was assigned; some were changed to another series (e.g., the CR series); some numbers were evidently skipped and never used; and some were printed but not deposited with CASI. At the present time, there is no way to record on RECON or on internal online files at CASI the fact that a series number was canceled and will never be used. Efforts are made to obtain copies of those that were printed but not sent to CASI.

The contract used to call for 6,000 extra documents to be acquired from NASA Centers by the acquisitions effort. The way it was worded, formal NASA documents and non-NASA documents acquired were not counted toward this total. This was unfortunate because some of the contacts that have been made with related research entities (e.g., one that is housed in a NASA Center) that have resulted in useful documents into the system cannot be counted toward the goal. The contract has now eliminated the 6000 document requirement and replaced it with the requirement for 1000 direct requests for NASA documents yearly. The contract still does not acknowledge the effort to get non-NASA documents into RECON (e.g., NSF documents).

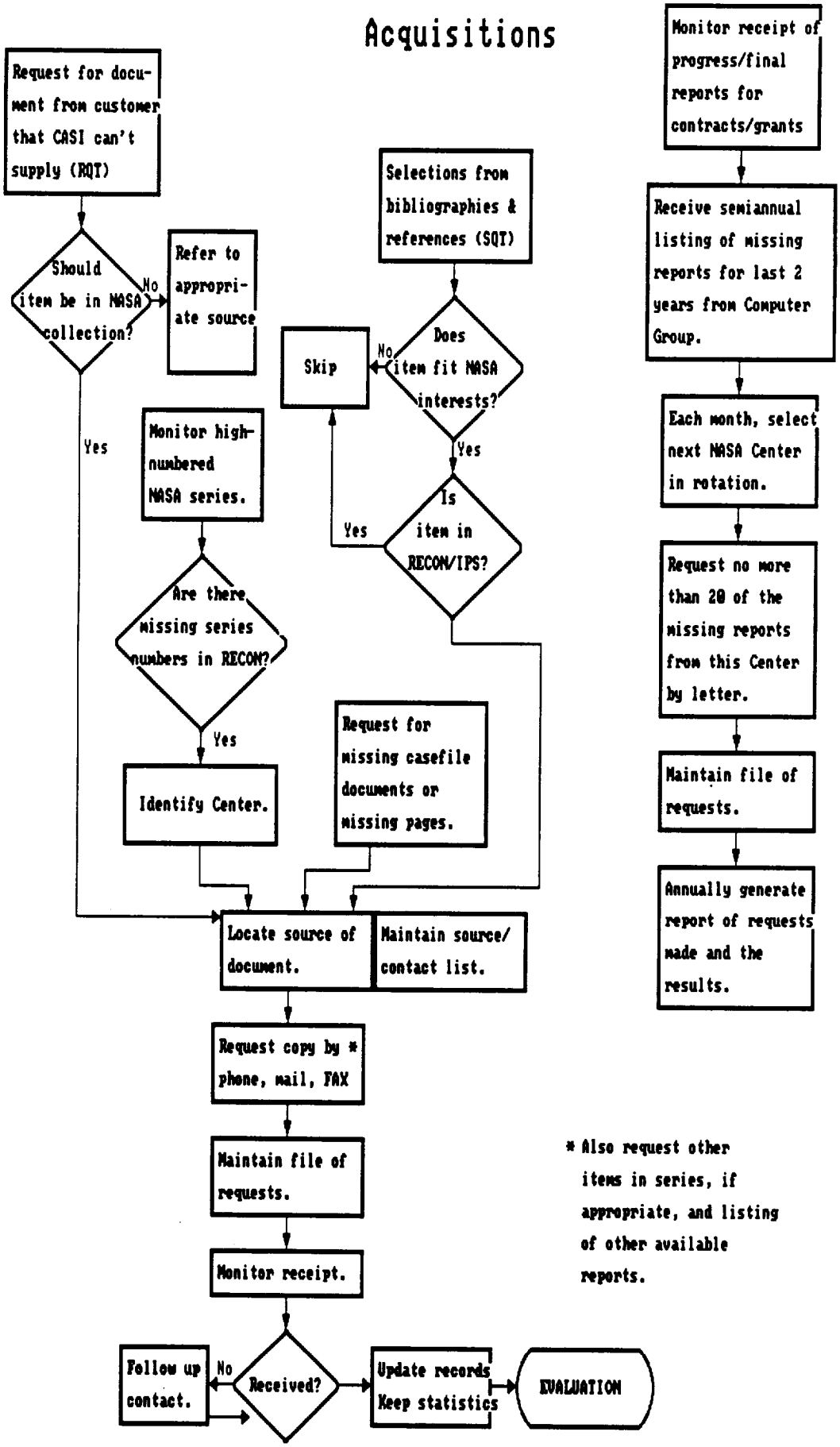
ACQUISITIONS activities are all done manually, except for a word processing version of the directory of contacts. A log of all contacts made to request materials is kept that notes the method of contact, the date, what was requested and the person contacted. Any replies are noted and the number of items received and the date received. Supporting files for each request are also kept.
There are no online acquisition records; all tracking of requests and receipts is done by manual records and files; there is no access to what is currently on order except through these files. RECON is searched for various purposes: to see if some item is already held, for example, or to discover missing items in numbered series. The manual system is able to handle both requests for individual titles and for groups of documents - this will have to be taken into account in the design of an online acquisitions system.

Documents received as a result of ordering are received by ACQUISITIONS (approximately 5% go the ACCESSIONING instead) and then sent to ACCESSIONING for their preliminary processing and then to the EVALUATION step.

A new staff member has been recently added to handle foreign acquisitions. The entire effort to enlarge the acquisitions of foreign documents is still in development. At the moment, there is no clear set of process or procedures for this activity.

3.3 Work Flow Diagrams

Acquisitions



* Also request other items in series, if appropriate, and listing of other available reports.

3.4 Contractual requirements

Worldwide scientific and technical aerospace and other literature of interest to NASA including reports, theses, government agency patents, translations, conference proceedings, etc., shall be acquired by the contractor for the NASA information collection through automatic distribution agreements and foreign exchange arrangements made by NASA and through an acquisitions program conducted by the contractor. **A constant search of various reference sources shall be made for potential additions to the collection, and selected items shall be solicited for possible accessioning. The contractor shall acquire selected documents to fill requests from qualified users of the information system.** [Contract, 1.1]

The contractor shall acquire aerospace related literature on a worldwide basis with emphasis on report literature. In close coordination with the European Space Agency (ESA) and National Level Foreign Exchange Organizations, **the contractor shall ensure a continuous supply of pertinent documents for the NASA information system through written requests and purchase order issuance for documents, both domestic and foreign, which are available through exchange, purchase or a gratis arrangement.** [Contract, 1.2.1]

The contractor shall maintain a follow-up system (see WBS 02.10 and 02.11) to assure acquisition of all NASA-generated/ sponsored technical documents (including reports, reprints of journal articles, books, or conference papers.) The contractor shall provide NASA with an annual listing of all deficiencies noted to permit a NASA follow-up for obtaining the delinquent or missing documents. [Contract, 1.2.3]

The contractor shall develop an extensive acquisitions program for NASA-sponsored publications including the miscellaneous publications for inclusion in the STI database. The contractor shall prepare and follow through on requests for publications from identified sources. It is estimated that this task will require 2000 staff hours annually. [Contract, 1.3.6]

In an effort to expand coverage of the STI Database, NASA Headquarters has directed the Facility **to actively acquisition NASA generated/sponsored miscellaneous publications....** These documents can be found at various levels within the NASA Centers and Headquarters. Program offices, Project Offices, and Technical Libraries are good sources of these type of documents. The basic categories being sought are: Program-Related Documents, Project Descriptions, Design Studies, and System Requirements. Contacts are to be established at each NASA

Center via telephone or written memorandum. The monitoring and tracking of all activities related to this project are the responsibility of the Acquisitioner. The goal that has been set is 6,000 documents. Volumes are to be reported in each monthly Operations Report. [Fac. Oper. Man., 01.1-6]

The Acquisitioner is responsible for the selection of documents relevant to NASA interests, referred to as **Systems Request (SQT) and Reference Requests (RQT)**. The Acquisitioner scans both domestic and foreign Abstract Journals, Bibliographies, Accession Lists and other related documents to select potential SQT items to be added to the NASA STI system, as well as, handling relevant items from form 492 requests, RQT's received from one User Services Department. In addition, the Acquisitioner maintains a follow-up system to assure acquisition of all NASA generated-technical documents and provides NASA with an annual listing of the deficiencies. Additional responsibilities involve **determining the most suitable sources for document procurement; duplicate searching to determine if reports may already be in the system**; overseeing preparation and work assignments involving typing of systems requests (SQT's) and reference requests (RQT's); exploring various publications and leads in search of new sources of document input; initiating letters of request to those sources not covered by NASA, DOD or DOE; ordering microfiche and or documents from GPO, DTIC and NTIS and monitoring records of these accounts; establishing and maintaining address files; closing out all records on incoming responses to facility request; maintaining liaison with NASA Center Libraries and other government and industry acquisition sources; and responding to telephone requests pertaining to acquisitions; securing missing casefile documents, and pages missing from already accessioned reports. [Fac. Oper. Man., 01.1.1]

Abstract Journals, Accession Lists, and Bibliographies are regularly scanned by Acquisition personnel to locate references to documents of possible interest, which are then ordered for evaluation and bibliographic processing. Routine distribution of numerous universities, research institutes, and industrial firms also leads to the input of acceptable documents .... [Fac. Oper. Man, 01.1.1]

Approximately 450[8] requests are received each year by the NASA

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[8] Although this is the number quoted in the Facilities Operating Manual, staff estimates that only 40-50 requests are received from users per year for material not held by CASI. The actual statistics for 1991-92 were 37 requests initiated and 28 of them completed.

STI Facility for documents that are not in the information system. These documents are acquired both to fill the request and to be evaluated for entry into the information system. [Fac. Oper. Man, 01.1.1]

Systems Requests (SQT's) is the activity which makes a constant search of various sources for potential additions to the collection, and selected items are solicited for possible system accessioning. This procedure is the Facility's major effort to procure non-NASA documents for the system. Additionally, a search of organizations working in subject areas involved in aerospace activities or parallel efforts is initiated to obtain company-funded in-house reports or other reports of interest to NASA and qualified users. The procurement of NASA and NASA-supported documents is initialed by scanning, searching, and duplicate checking of NASA Contracts and Grants on RECON.

Reference Requests (RQT's) is the activity which tries to acquire specific documents not in the collection which have been requested by authorized NASA users. The requests (normally received on CF492) are initially processed in the User Services Section. All Reference Requests (FF492) for documents not in the system are forwarded to acquisitions for further processing. Reference acquisitioning encompasses three basic routines: (1) requisitioning old NASA/NACA documents from Washington National Records Center (WNRC); (2) requisitioning British government documents from the British Embassy; (3) all other types of documents requested are routinely processed by requests forms (FF590) to the issuing source. [Fac. Oper. Man, 01.1.2]

An annual **listing of deficiencies** in NASA-sponsored or NASA-generated document acquisitions for each Fiscal Year and an annual listing of all expired NASA contracts for which no final reports have been received shall be compiled for each NASA Center, to be submitted to NASA Headquarters no later than January 1 of the following year. [Fac. Oper. Man, 01.1.3

3.5 Indices of performance

Contract Requirement:
1.06 NASA-Generated and NASA-Sponsored Miscellaneous Publications Requirement = 1000 letters

	01 General Status - Requests for NASA documents only	01 General Status - Requests for Publications	01 General Status - Requested publications received
Annual total	716	1895	1550
Compared to Contract Requirement	-284	895	550

Notes:

1. The Contract requirement is restricted to requests for NASA documents only. On that basis, CASI met only 72% of the requirement. However, if requests for all types of documents are considered, CASI almost doubled the required activity. Sixty-four percent of the requests were for non-NASA documents.

2. The Contract makes no mention of the success expected as a result of the requests. Data shows a 82% success rate, with 1550 documents received through this process.

3. A significant portion of this activity was a request for and the receipt of a large number of documents from DTIC in September: requested = 591; received = 602. This represents 31% of the requests and 39% of the total received. The fiche for a complete DTIC tape had to be requested; the request took the form of a range of AD numbers. Therefore, this block is really different from the rest of the activity. If the figures are adjusted to remove the DTIC request, the resulting totals are:

Request & receipt of a block of DTIC fiche **REMOVED**	01 General Status - Requests for NASA documents only	01 General Status - Requests for Publications	01 General Status - Requested publications received
Annual total	716	1304	948
Compared to Contract Requirement	-284	304	-52

4. The Facility Operating Manual still calls for 6,000 NASA documents to be obtained through direct acquisition. This figure was changed to 1,000 request letters as above in the present contract.

Other reporting:

A. The Contract does not give requirements for "Systems Requests" and "Reference Requests," even though the two types of requests are discussed and it is estimated that 450 Reference Requests are received each year. The monthly Report, however, does break down the Acquisition activities by these categories:

SQT (System Reqts)		RQT (Reference Reqts)		Total	
Initiated	Completed	Initiated	Completed	Initiated	Completed
1867	1517	37	28	1904	1545

Notes:
1. There is an error in the data in the monthly Report for September: the number 616 was recorded as RQTs Initiated instead of as SQTs received. The correction was made to obtain the totals above. With that change, these figure correspond closely (but not exactly) with the data given in the 01 General Status section.

B. Acquisition requests are reported according to the means that were used: phone, memo or fax. An example of this type of reporting follows:

	NASA:			Non-NASA:		
	Phone	Memo	FAX	Phone	Memo	FAX
Sep '91	11	20	30	603	7	16
Oct '91	16	197	4	63	1	11
Nov '91	10	0	0	14	73	0

This information is accumulated for the contract year with a running total throughout the year.

C. Requests and receipts are presented by the organization that was contacted. A sample of recent figures follows:

Organization	Requested	Received	Negative Response
ARC	0	0	0
GSFC	1	1	0
...			
DTIC	0	4	0
General Acctg Office	11	11	0

D. A count of the document series researched on RECON to discover missing numbers is given each month. Recent figures:

RECON Research:	Researched	Found
Monthly Catalog	154	153
AGARD-CP-494	165	164
NASA-CP-3115	15	15
NASA-TM-100001-103000	3000	2812
NASA-TM-4000-4300	300	291

E. A separate count of contract reports requested from the Centers is given each month. The figures duplicate the counts presented elsewhere in the General Status section of the 01 section. Example:

Contract reports requested:

From	Sept	Oct	Nov
JSC	24		
MSFC		14	
			no requests listed

3.6 Bibliography of supporting documents

Interview with Cynthia Barnes.

NASA. (March 1, 1991). NASW-4584 Award/Contract.

RMS Associates. (1990). NASA Center for AeroSpace Information. Facilities Operating Manual.

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4. EVALUATION

4.1 Highlights

Staffing: 1 person

Current staff: Phil French

Function: Selection, subject category assignment, file assignment, analytic treatment, distribution limitations, entry of some data elements for bibliographic record.

4.2 Description

Organizationally, the EVALUATION function is part of ACQUISITIONS. All documents received by CASI go through this station, which is the first stage of the IPS process. Most of these are received from ACCESSIONING, a few series come directly to this station from Shipping & Receiving.

Selection is made based on NASA's Scope & Coverage document. Selected documents go through the following process. Rejected documents are returned to ACCESSIONING for disposal.

A minimal record is created for each selected document, with a temporary ID#. The elements of the record include

1	Temporary ID#	System assigned
2	NASA Subject category (116)	Entered. Often already printed in NASA formal documents as part of the RDP (Report Documentation Page)
3	Copyright status (088)	Y/N
4	Reproduction permission	Y/N
5	Originating agency for the record	NASA, DOE, DOD, or ESA (according to tape input or direct input at CASI)
6	File#	Entered (e.g. 1N, 7N, 1X). Defaults to 1N
7	COSATI subject code (200)	Entered for NASA documents in 1N
8	Access level (106)	Entered from information in the doc (e.g. no restriction, USGA, FEDD, ITAR & EAR)
9	Document Availability Authorization (DAA)	Y/N
10	Acquisition (Receipt) Type (130)	Defaults to regular and is currently never changed
11	Analytic parent?	Y/N
12	Number of analytic subsidiaries (024)	Entered.
13	Analytic sequence (023)	A derived value added as subsidiaries are entered.
14	Hardcopy availability (076)	If unavailable, a code is entered to indicate the reason (e.g., print quality, size/shape)
15	Microfiche availability (077)	Same input as Hardcopy availability.
16	NASA funding?	Y/N
17	Date of creation	Automatically generated at the time of direct or computer generation of the temporary accession number.

Explanation of data elements:

1. System assigned sequential number. A set of labels with the same sequence of numbers that were created earlier by the computer group are attached to the documents. The labels are provided in batches.

2. Subject category numbers are pre-assigned to NASA formal documents and are transcribed without change except in rare cases where the Center is contacted by phone to negotiate a change. This process is fairly fast based on the current

Evaluator's intimate knowledge of the subject category system. The Evaluator assigns Subject Codes to other documents. These codes determine placement in STAR for 1N documents and are used for distribution of microfiche by interest area. They are not currently searchable on RECON.

3. Copyrighted materials are seen as a problem and consideration is given to whether or not the copyright can be ignored because of NASA funding or evidence of public distribution (e.g., by GPO). If a document is copyrighted and the copyright cannot be overridden, CASI does not make a fiche copy and it does not provide copies. Requests for copies are referred to the issuing agency. The copyright status is evaluated and indicated by the Evaluator.

4. Reproduction permission - the default is Yes. ESA is the most frequent source of materials for which reproduction permission is denied.

5. Designation of whether or not this is a NASA-originated record. When machine-readable records are received from other agencies, their acronyms are entered here automatically. If the record, has not been tape loaded, NASA is entered automatically.

6. The file# is a judgement call guided by rules pertaining to the match with NASA scope and coverage, the length of time since publication, perceived value of the content, and whether the document is restricted in distribution.

7. COSATI codes are presently being entered for NASA documents in file 1N and for NTIS documents. However, there is a major question about whether this information is being used by anyone and if it is necessary. The codes being entered are the <u>old</u> COSATI numbers - not the current ones.[9]

8. Restrictions to distribution are noted, taken from the documents themselves or the accompanying Document Availability Authorization (DAA) sheet.

9. Simple indication of whether or not the DAA is present with the document.

10. The Acquisition (Receipt) type was designed to track the source of the document, with categories such as Foreign Exchange, Loan, and Regular - the latter meant to indicate that the item was individually acquired. However, it is not

---

[9] The decision has been made to stop adding the COSATI codes.

being used. All items are given the default value of Regular.

11. This field indicates whether or not the item is going to be treated analytically.

12. The total number of daughters selected from a volume that will be treated analytically.

13. Each analytic is given a sequence number automatically within its set.

14. The evaluator enters the type of hardcopy reproduction problems that exist with the document, e.g., color illustrations, print quality, size/shape.

15. The same process as above but for microfiche reproduction instead.

16. This flag for NASA funding affects the entry of financial source information in the Cataloging process.

17. The date of creation of the IPS record in Evaluation is the first time in the IPS processing that a receipt/processing date is attached to the document.

There is currently another question (data element) at the Evaluation station. It asks whether or not an abstract will be provided with the record. It was intended to be used in connection with the 7N and 7X series. But, it is not being used since the decision was made to include abstracts with all 7N and 7X records.[10]

After this processing, the record goes into the queue for CATALOGING and the physical document, each with a label, goes back to ACCESSIONING.

Work load: 800 items processed through per week to cover STAR and non-announcement series.

Documents received include:

1. Hardcopy distribution of NASA document series.
2. Hardcopies of NASA contractor reports
3. Distribution from other government agencies and University Microfilms (UMI):

---

[10] This whole question is still unresolved at this time.

DTIC	sends magnetic tape & fiche format of announced documents (no fiche provided for the AD-C documents) (semimonthly)
DOE	sends magnetic tape & fiche format of documents meeting NASA profile (weekly)
NTIS	sends fiche formats & announcement journal. Selection made by title from the fiche which covers PB documents only. The abstract for these documents are then taken from the abstract journal. A profile to control distribution is being developed. (semimonthly)
JPRS	sends hardcopy & fiche
AGARD	sends hardcopy & fiche
UMI	sends announcement journal. Selections are made, cut out of journal & processed as single abstracts. An arrangement to get their listings in machine-readable form (e.g., floppy) is being worked on.
ESA	sends magnetic tape, fiche, hardcopy, & precataloging data on form 901. (Contributions are also received from other foreign contributors on tape and other formats.)
FAA	sends about 500 documents/yr
CPIA	sends hardcopy directly to CASI, including proceeding volumes from JANNAF (Joint Army-Navy-NASA-Air Force)-sponsored meetings.

For documents received on magnetic tape, a printout of each record is made by the Computer Group - 1 record per sheet (multiple sheets per record, if necessary). The Evaluator scans these printouts and selects the records appropriate for NASA - less than 30% of the records were selected in the 1991-92 contract year. The computer processing loads records for each item on the tapes; they are put in the queue for the Evaluator, who reviews and modifies (if necessary) the records for items he selects. He deletes records for the rejects - one at a time - and crosses off the matching labels. The fiche for the rejected records are also discarded.

For documents that contain a set of individually-authored papers (e.g., conference proceedings), the Evaluator decides whether or not to treat them analytically. If each paper is to be entered individually (an analytic), then special processing is done. Temporary numbers are assigned to the piece as a whole and to each individual paper. An analytic number is created with part numbers for each paper followed by the subject classification for the paper (e.g., S1-12 (Subsidiary 1 Category 12), S2-33 (Subsidiary 2, Category 33),...) and a record is made for each paper. The label for the piece as a whole - not each analytic - is date stamped.

For hardcopy documents that are received directly from DoD agencies (e.g., the CPIA documents), it must be determined whether or not the items have already been received on tape (by searching RECON) or whether or not DoD has already processed them (by searching DROLS). Items not found in either place are put on the shelf and

held for a period of time to see if they show up on the DTIC tapes. If they do not show up, the hardcopy documents are sent to DTIC for them to enter. The documents were being held for as long as two years to accommodate the delay that is sometimes seen in DTIC processing. Recent discussions have led to the reports being sent immediately to DTIC when it is determined that they have not indexed them.

Selection of items for inclusion in the NASA files is guided by the Scope and Coverage document of 1988. The Evaluator makes annotations in his copy for new topics that arise and indicates the category or categories that are appropriate for it. These annotations, presumably, will be incorporated in the next edition of the Scope and Coverage document. In the meantime, no other announcement is made. Creating a new category requires NASA approval. According to Phil French, the last category created took 10 years to get all the requisite approvals!

Other selection criteria include the rejection of standards and specifications, general keynote addresses at conferences, procurement regulations, & proposals to NASA that have not been accepted. Conference papers that consist solely of the overheads used in the presentation are not selected unless they are from NASA authors. Also, some information packages simply don't come to CASI at all, in particular maps, remote sensing photos, data sets, and descriptions of software.

Policy dictates that all documents are accepted that are sent to CASI by ESA, the FAA, and by the NASA Centers. This sometimes violates the coverage guidelines used to select other materials.

Reprints and preprints received are passed on to AIAA.

A change was made in January 1992 in the processing of documents that arrive without either a RDP or DAA and for which authorization cannot be immediately obtained. They were put on a hold shelf and a record for them was put in the R file (the Authorization File). Now, they are processed as 7X documents and assigned a DAAP report number. This stands for DAA Pending. The documents are therefore accessible in RECON while attempts are made to get the requisite distribution authorization.

Guidelines for treating selected documents according to their age at the time of acquisition (that is, length of time since the publication date) are as follows: NASA-funded reports or translations that are less than 2 years old can be assigned to 1N and thus will appear in STAR. Non-NASA domestic reports can be assigned to 1N if they are less than 15 months old. All other reports use the 2 year age limit. However, exceptions are made to

these rules on an individual basis and for groups of documents. For example, the 2-year age rule does not apply to documents from ESA.

Each document that is selected exits the EVALUATION stage with a brief online record, identified by a temporary accession number, and a label. The labels are preprinted, corresponding to the current range of available temporary accession numbers. The following is an example of a preprint label:

```
TEMP ACC #:  42695          FILE ID:1N
DATE RECV:            RECPT TYPE:REG
DOC SEC:NC   TITLE SEC:NC   LIM CAT:NONE
ACC RES:UNRES  NASA FUND:Y   AVAIL:NTIS
```

Other default values are printed on the label. If the value for a particular document is different, the Evaluator changes it by writing over it. He will also note if he has determined that a copyright exists and if it can be overridden. Some elements on the label are never changed because the data elements are not being used (e.g., RECPT TYPE).

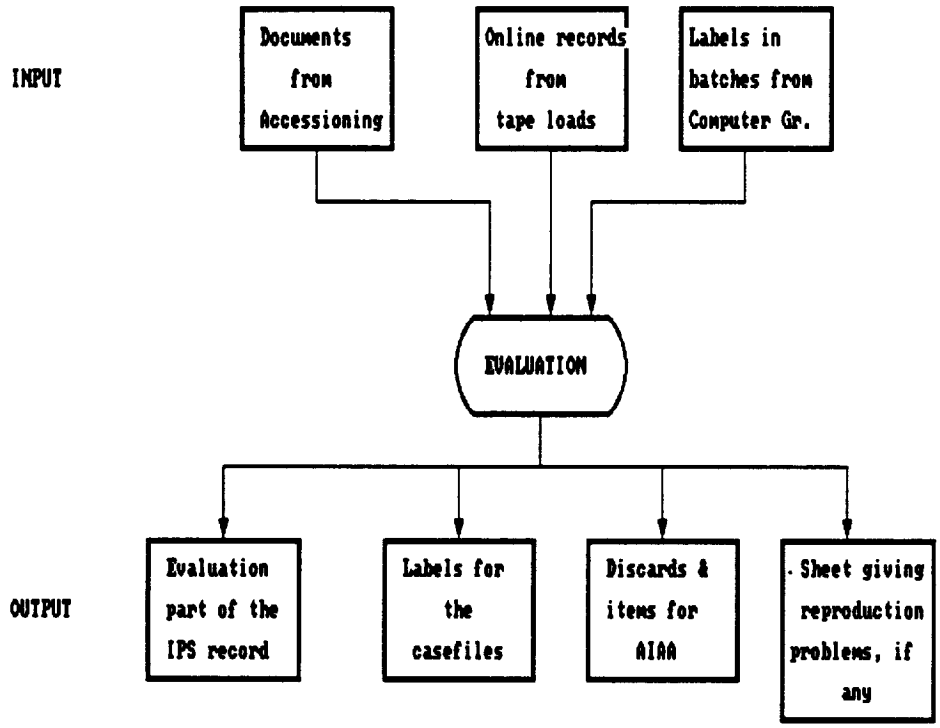
Procedures for this set of operations are recorded in Technical Directives, an Evaluator's Guide, Scope and Coverage, and the Facility Operator's Manual. These binders are kept up-to-date with notes and inserted sheets.

Modifications to the Evaluator's online entry screen require the assistance of the computer staff. A case in point, is the current move to establish a new restricted distribution class for "NASA and DoD Only". Such a change must go through a formal request and assignment procedure and thus cannot be acted on immediately.

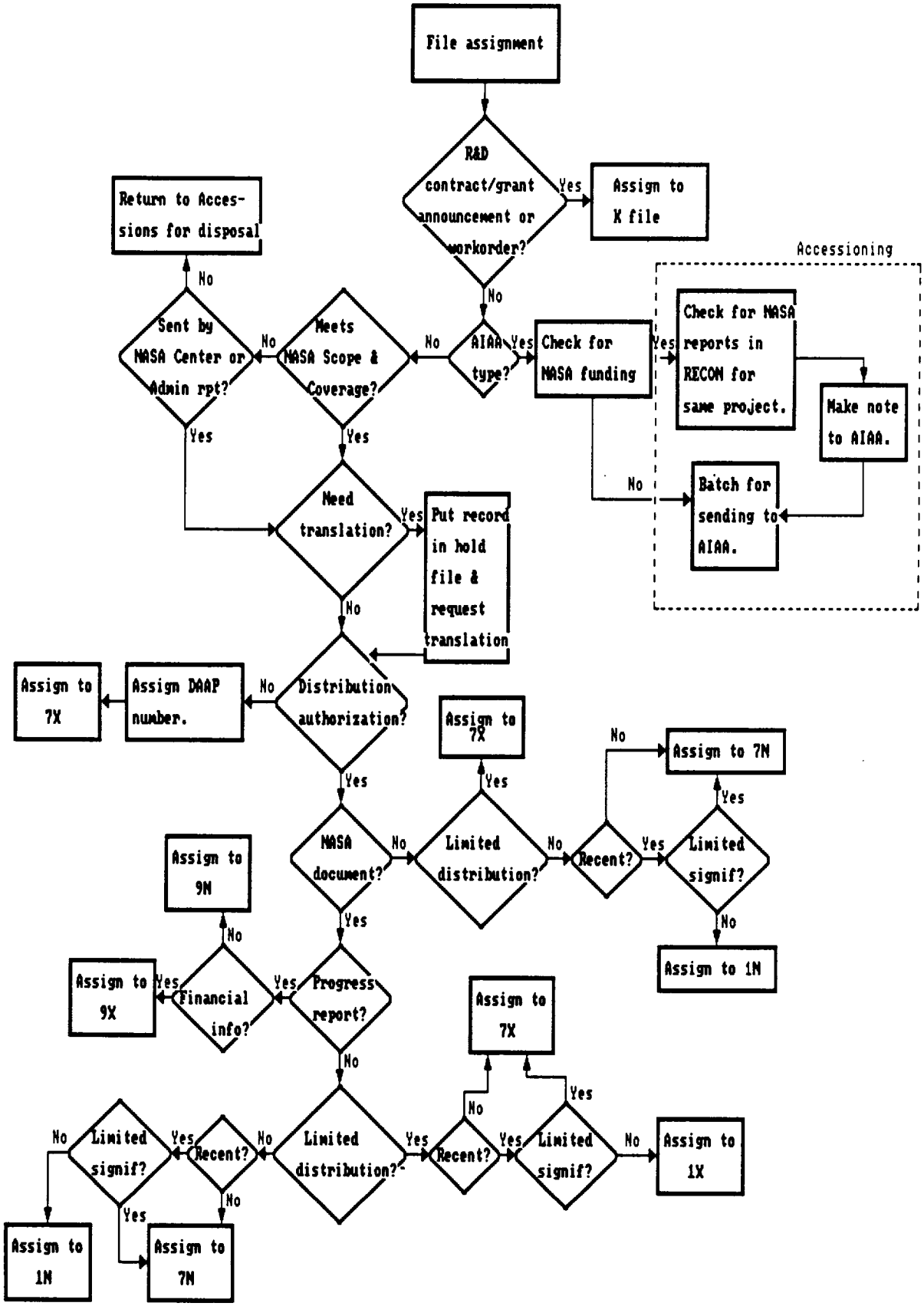
4.3 Work Flow Diagrams

EVALUATION

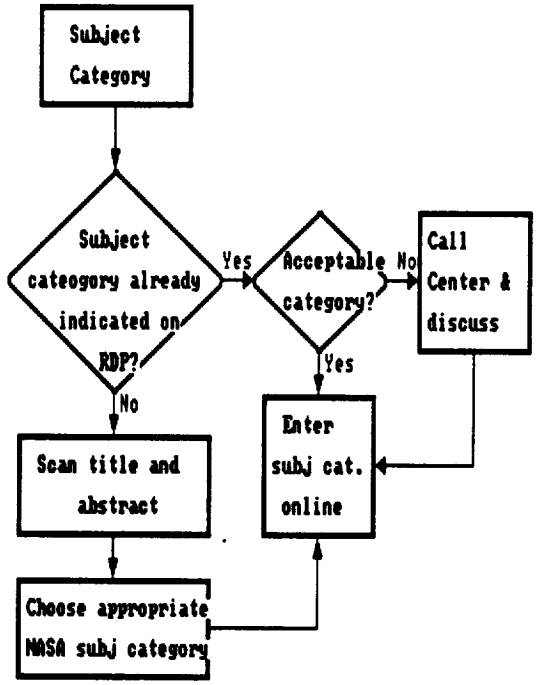
Overview of Evaluation process



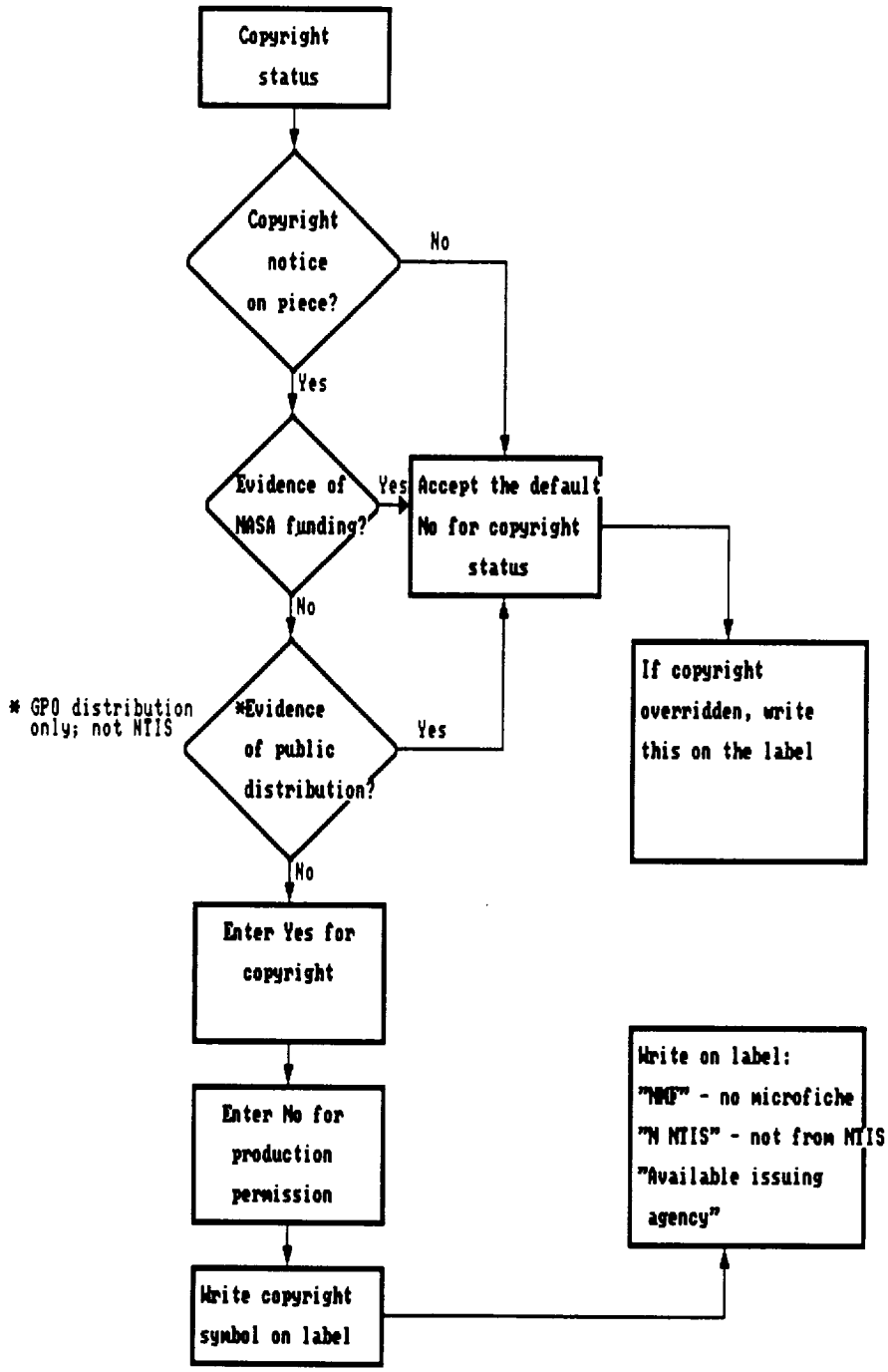
EVALUATION


File assignment
R&D contract/grant announcement or workorder?
Yes
Assign to X file
No
AIAA type?
Yes
Check for NASA funding
Yes
Check for NASA reports in RECON for same project.
Make note to AIAA.
No
Batch for sending to AIAA.
Accessioning
No
Meets NASA Scope & Coverage?
No
Sent by NASA Center or Admin rpt?
No
Return to Accessions for disposal
Yes
Yes
Need translation?
Yes
Put record in hold file & request translation
No
Distribution authorization?
No
Assign DAAP number.
Assign to 7X
Yes
NASA document?
No
Limited distribution?
No
Recent?
Yes
Limited signif?
Yes
Assign to 7N
No
Assign to 1N
Yes
Assign to 7X
Yes
Progress report?
Yes
Financial info?
Yes
Assign to 9X
No
Assign to 9N
No
Limited distribution?
Yes
Recent?
No
Yes
Limited signif?
No
Assign to 1X
Yes
Assign to 7X
No
Recent?
Yes
Limited signif?
No
Assign to 1N
Yes
Assign to 7N
No

EVALUATION


Subject Category
Subject cateogory already indicated on RDP?
Yes
No
Acceptable category?
No
Yes
Call Center & discuss
Enter subj cat. online
Scan title and abstract
Choose appropriate NASA subj category

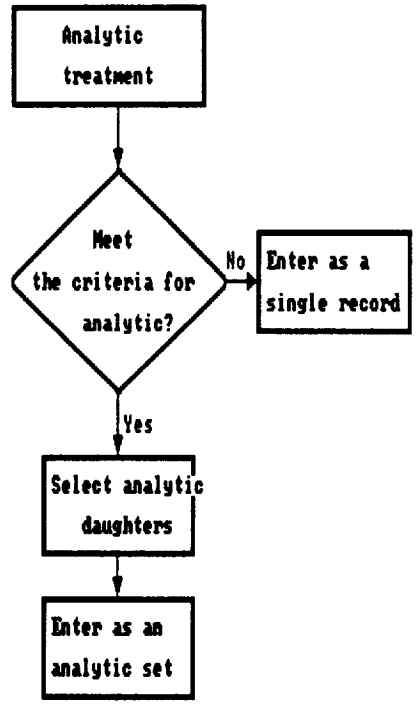
EVALUATION


Copyright status
Copyright notice on piece?
No
Yes
Evidence of NASA funding?
Yes
Accept the default No for copyright status
No
* GPO distribution only; not NTIS
*Evidence of public distribution?
Yes
No
If copyright overridden, write this on the label
Enter Yes for copyright
Enter No for production permission
Write copyright symbol on label
Write on label:
"NMF" - no microfiche
"N NTIS" - not from NTIS
"Available issuing agency"

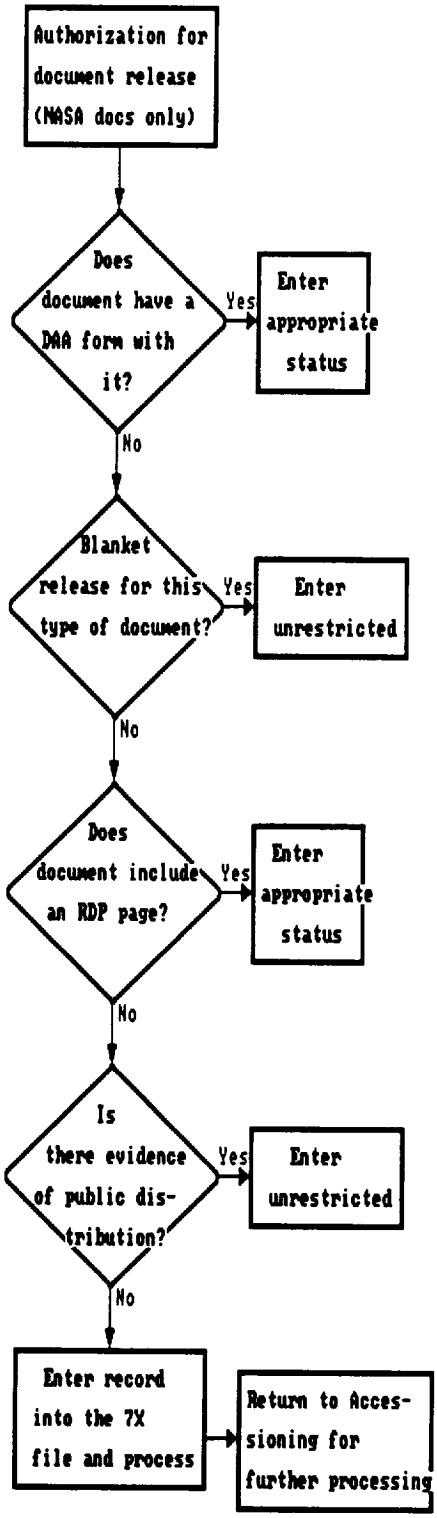
EVALUATION

Criteria for Analytic

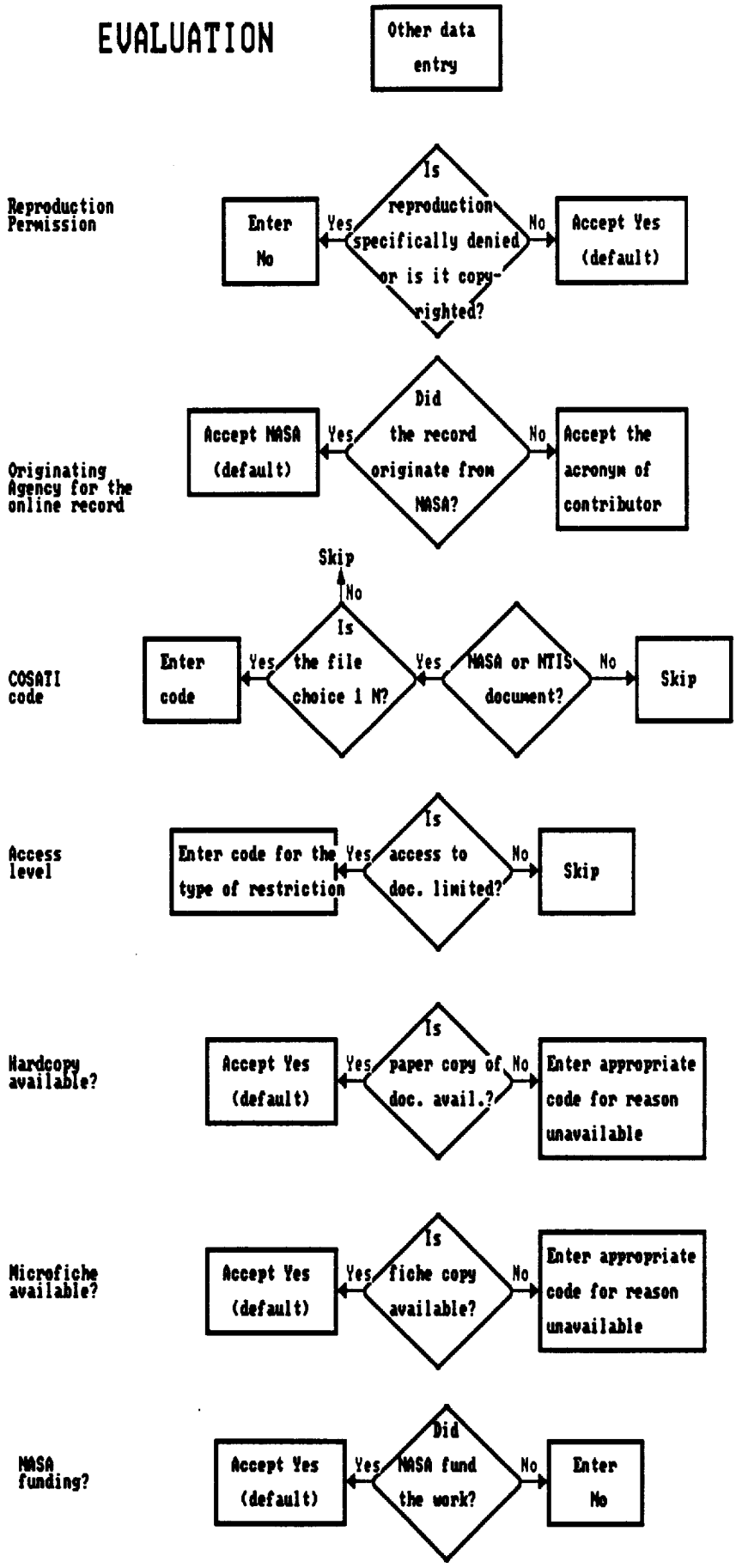
Piece composed of independent papers which have individual authors and present sufficient results to warrant separate citations.



EVALUATION


Authorization for document release (NASA docs only)
Does document have a DAA form with it?
Yes
Enter appropriate status
No
Blanket release for this type of document?
Yes
Enter unrestricted
No
Does document include an RDP page?
Yes
Enter appropriate status
No
Is there evidence of public dis-tribution?
Yes
Enter unrestricted
No
Enter record into the 7X file and process
Return to Acces-sioning for further processing

EVALUATION


Other data entry
Reproduction Permission
Is reproduction specifically denied or is it copyrighted?
Yes
Enter No
No
Accept Yes (default)
Originating Agency for the online record
Did the record originate from NASA?
Yes
Accept NASA (default)
No
Accept the acronym of contributor
COSATI code
Is the file choice 1 N?
Yes
Enter code
No
Skip
NASA or NTIS document?
Yes
No
Skip
Access level
Is access to doc. limited?
Yes
Enter code for the type of restriction
No
Skip
Hardcopy available?
Is paper copy of doc. avail.?
Yes
Accept Yes (default)
No
Enter appropriate code for reason unavailable
Microfiche available?
Is fiche copy available?
Yes
Accept Yes (default)
No
Enter appropriate code for reason unavailable
NASA funding?
Did NASA fund the work?
Yes
Accept Yes (default)
No
Enter No

4.4 Contractual requirements

Documents acquired from all sources shall be screened and evaluated by the contractor in accordance with the NASA approved Technical Evaluation Guide (see Paragraph 1.2.2) for entry into the NASA Scientific and Technical Information System and shall undergo appropriate input processing in accordance with guidelines furnished by the government. [Contract, 1.1]

Upon receipt and appropriate posting, **the acquired documents shall be screened and evaluated.** Those selected shall be routed for further processing .... [Contract, 1.2.1]

Acquired published literature such as foreign theses, periodicals pre-designated for use by AIAA/TIS, books and monographs, conference proceedings and meeting papers, and journal reprints **shall be forwarded to AIAA/TIS** for possible accessioning in International Aerospace Abstracts (IAA) - A10,000 series, or disposed of in accordance with guidelines furnished by NASA. [Contract, 1.2.1]

The contractor **shall evaluate all documents received**, including those written in foreign languages, as to scientific and technical level, subject, relevance to interests of NASA and the aerospace community, age, progress status of research and development reported, and other suitability criteria (all criteria to be provided by NASA). [Contract, 1.2.2]

The contractor **shall select those documents (or bibliographic data for certain publications not received as documents) that meet these criteria and assign each to an appropriate accession series** for further processing, which shall include the determination of reproduction either as microfiche to meet initial and secondary distribution in accordance with NASA guidelines, or by photocopying where permissible. [Contract, 1.2.2]

The contractor shall further **maintain the Technical Evaluation Guide and the Guidelines on Process Handling of Foreign Reports and Published Literature, both of which shall be periodically updated** in accordance with NASA instructions. These guidelines will be used to evaluate documents for input into the NASA System. [Contract, 1.2.2]

In order to perform the evaluation function properly, the contractor shall **maintain staff with sufficient scientific and technical competence and experience to permit appropriate document selection** in all areas of NASA interests, research and development programs, and their related scientific and technical fields of knowledge. [Contract, 1.2.2]

The contractor shall process all document accessions as specified by NASA for appropriate entry into announcement journals and/or the computerized database. **The material to be processed will include reports, reprints (more than one year old or rejected by AIAA/TIS), domestic theses, foreign theses rejected by AIAA/TIS, conference proceedings, information on current research and development projects, information on industrial applications of NASA-generated technology, and similar documents.** [Contract, 2.1.1]

NASA documents shall be evaluated and input into the system **within 24 hours of receipt** by the contractor and non-NASA documents **within 48 hours of receipt.** [Contract, 2.1.1]

Those selected for the published series processing shall be **assigned NASA subject categories and, where appropriate, Field Group numbers and/or COSATI (Committee on Scientific and Technical Information) subject categories** ... Those selected for the non-published series processing shall be categorized (excluding the "Record" N90,000 and X90,000 series)... [Contract, 2.1.1]

Technical document evaluation functions include: (1) **determination of scope** (whether or not pertinent to NASA programs); (2) **establishment of the degree of availability for distribution**; (3) **assignment to an accession series**; (4) **assignment of NASA Subject Categories** for all reports to be announced in the abstract journal STAR; (5) **assignment of COSATI subject categories** to NASA reports; and (6) assignment of NASA Subject Categories to all items processed into the Documents of Limited Significance and Documents of Limited Significance - Limited Distribution (N70,000 and X70,000) series; (7) assignment of NASA Subject Categories to all items processed into any special files requiring them; and (8) **determination and assignment of document limitations.** [Contract, 2.2.1]

The NASA Subject Category Guide (as incorporated in the NASA STI System...Its Scope and Coverage, NASA SP-7065) shall be maintained and updated in accordance with NASA-provided guidelines. [Contract, 2.2.6]

This [published] material is primarily from foreign sources, such as Advisory Group for Aerospace Research and Development (AGARD) also includes article reprints from domestic periodicals and NASA-authored, published literature items. This material is **transmitted to AIAA** for possible announcement in International Aerospace Abstracts (IAA). [Fac. Oper. Man., 01.4]

4.5 Indices of performance

The following statistics are reported on a monthly basis. Examples of each are given.

Number of items accepted for the database:

Recent figures:	Sept	Oct	Nov
	2,511	3,519	2,268

Tapes received: DOE, DTIC, & ESA; NTIS microfiche received; Selections from Dissertation Abstracts

Tape/issue numbers received; total number of records; number selected for 1N, 7N, and 7X; number rejected

Recent figures:

	Sept	Oct	Nov
DOE			
Total # records	1463	1218	822
1N selections	345	366	296
7N selections	7	18	6
Rejects	1111	834	250
DTIC			
Total # records	2781	1020	2125
1N selections	483	118	279
7N selections	59	4	2
7X selections	269	51	120
Rejects	1970	847	1724
NTIS			
Total # fiche	1494	1173	282
1N selections	98	62	98
7N selections	4	0	6
Rejects	1392	1111	178
Dissertation Abstracts			
1N selections	82	90	155
	(2 issues)		
ESA[11]			
Total # records	122	1077	417
1N selections	122	1077	417
Rejects	0	0	0

[11] Only ESA contribution have been reported in the monthly Report. Contributions from other foreign contributors have not been report but will be in the future.

Documents and microfiche assigned, by RECON file:

The total items accepted are listed by RECON file assignment and by NASA/non-NASA as the source. Recent figures (November):

Series	NASA	Non-NASA	Total
1N	631	1147	1778
1X	96	0	96
7N	9	22	31
7X	0	214	214
9N	125	0	125
9X	24	0	24
Total	855	1383	2268

Items forwarded to AIAA:

Recent figures:

	Sept	Oct	Nov
RDPs for NASA preprints	17	31	13
NASA news releases	22	18	14
NASA reprints	55	101	112
AD-A reprints	0	0	0

Technical reports through-put (Exhibit II.A):

Thirteen months of data are included. Repeat of the data reported above. Recent figures:

	Sept	Oct	Nov
EVALUATION	2,511	3,511	2,268

Total for the Contract year = 34824

Technical reports in process (Exhibit II.B):

Thirteen months of data area included. The Evaluation data is all zeros.

4.6 Bibliography of supporting documents

Interview with Phil French.

NASA. (March 1, 1991). NASW-4584 Award/Contract.

NASA. (December, 1988). NASA STI System ... Its Scope and Coverage. (NASA SP-7065).

RMS Associates. (1990). NASA Center for AeroSpace Information. Facilities Operating Manual.

RMS Associates. (?). Technical Evaluation Guide.

5. CATALOGING

5.1 Highlights

Staffing: 4 persons

Current staff: Karen Allis, Bertha Borek, Michelle Kadziel-Uber (Lead Cataloger/CSAL Editor), & Jean Stack

Function: Create a bibliographic description for each document by direct entry or review of contributed cataloging data.

5.2 Description

Casefiles are delivered to CATALOGING by cart from ACCESSIONING and placed on a shelf for selection by CATALOGING staff. The cataloger's responsibility is to enter the description of each item completely and accurately or to review the cataloging data sent by a cooperating organization (e.g., ESA) or other government agency (e.g., DoD). This step in the process is known as descriptive cataloging. The process is a standard one of identifying the authors and their affiliations, the title information, report numbers, originating agencies, funding agencies, language, etc., with the exception that photocomposition codes must also be entered for CASI printing requirements. For example, codes are entered to force lower case letters in titles, to code contract and grant numbers, and to separate subfields in various fields (e.g., in the Special Publication Note and SAP fields). Also, some data entry conventions are driven by the requirements of STAR and other publications and the microfiche production routines. For example, data is entered especially for the production of mastheads for the microfiche and because there is a limit on the number of report numbers that can be included in a STAR entry, catalogers have to know the hierarchy for report numbers so that the primary ones will appear in both in STAR and on the microfiche mastheads. Some data is also entered for statistical purposes (e.g., Center information in the Source of Funding field) that does not actually become part of the RECON record.

There are presently three catalogers plus a lead cataloger who also edits the Corporate Source Authority List. These are non-exempt positions, with a required education level of an associate degree. Present staff have been employed for as long as 18 years. Newest staff have been at CASI three years.

Shelves in the CATALOGING area for items ready for cataloging are designated for each current series for which CASI IPS supplies entries: 1N, 1X, 7N, 7X, 1K, 9N, & 9X. The catalogers select items from these shelves to process. The Supervisor of Cataloging and Indexing, Barbara Henry, has designed a daily report that keeps the group informed about the number of items in the various series that need to be completed for the current cycle (see explanation of processing cycle later on in this section), the cumulative number that have already been completed, and the number that still need to be done. Using this report as a guide, the catalogers select an appropriate number of items from each series to meet the goals. Each cataloger uses her own method of selection. She may, for example, try to gather a set together that has the same corporate source for efficiency of entry. Basically, anything on the shelf can be selected, but documents with priority tags (yellow tags) are processed first.

Analytics do not go directly to the cataloging shelf. The record for the parent document is first created by the Lead Cataloger and then it is put on the shelf for selection by the catalogers. One cataloger will do all of the entries for the daughter records. If any one of the daughters needs a new Corporate Source Code or other special processing (e.g., a new corporate code or translation of a title), the whole analytic set is delayed until the new code(s) are received or the special processing is completed. An analytic set does not go forward in any part of the IPS process until all of its parts are completed. The original IPS design included a separate processing track for analytics but this was never implemented. Recently (February 1992), a new process was implemented that is similar to the original design for keeping analytic sets together.

Usually there are no large backlogs at this stage. In fact, the number of items on the shelf waiting for cataloging is monitored to keep enough there to keep the catalogers busy. Production cycles for IPS are driven primarily by the twenty-four issues of STAR per year. The goal for each issue is 1000 items for a total of 24,000 items announced in STAR per year. Deadlines for non-STAR entries are translated into rough monthly, bimonthly, and quarterly goals, but because there is no printing requirement, the goal dates and quantities are less rigid. The production cycles are presently changing to weekly deliverables and to co-processing of all types of materials. That is, to moving STAR (1N) and non-STAR items through the system on a continuous basis.

In CATALOGING, deadlines have recently been moved back in the cycle in an attempt to give more of a buffer for production deadlines and to avoid the crisis management pressures that have been frequent up to now. The new weekly processing cycle will bring more changes and will probably translate into a STAR goal of 500 each week and ongoing monitoring of the other series to track progress toward production goals.

CATALOGING does not have access (through the Cataloging queue) to the information input at the EVALUATION station. They have only the information transmitted on the casefile label and any other information that is written on the folder. If a cataloger questions any of this information upon examination of the document, she carries the material back to the EVALUATOR. He can review the online EVALUATION information from his terminal and make changes if they are warranted. One piece of information entered by EVALUATION that catalogers often need to see is the NASA funding Y/N entry. This entry controls the type of information that can be added to the Funding Source field; i.e., if the entry is "N", meaning that the research was supported by non-NASA funds, the IPS system will not accept a NASA entry in the funding source field. If the catalogers try to enter a NASA entity in this case, the entry will

be erased during the verification process. (The December 1991 Report, p.3, reports that a change has been made to display this information at the cataloging station). Another example is the copyright information on the casefile label. The cataloger may question whether or not this information is correct, given what she sees on the document. Only by going back to the EVALUATOR can this be resolved.

The CATALOGING station in the IPS system is the most complex, requiring many extension screens to hold all of the data and variations of data types and the number of occurrences of a particular data; for example, more than four authors or more than two contracts.

The data elements entered by CATALOGING are:

Authors (personal)	Corporate sources: primary code, subdivision (text), additional codes for joint sponsors	Titles (main title, subtitle, supplied title); foreign language title); title supplement
Personal author type	Source of financial support	Publisher (distinct from corporate source)
Personal author affiliations	DCAF code	Place of publication
Incomplete list of author flag (generates "et al."	Special publication notes	Date of publication
Presentation note (conference information)	Language Code and Language Note if more than one language present	Country of origin (supplied from primary corporate source, but can be overridden)
Reference note to related publications	Analytic primary note for daughter records	Reprint/Imprint note
Report numbers (includes creation of GPO numbers)	Miscellaneous notes, e.g. illustrations	Translation note
Page count	Sales agency and pricing	Contract numbers
Description note for non-print accompanying text	Document class	Form of input (HC, MF, Both)
Microfiche prefix	Microfiche suffix	Supporting Research & Technology code (RTOP#)

An analysis of each of these fields, the default values and the derived values is ongoing as part of the Database Cleanup Project.

Maximum field length sometimes causes problems for entry of these data elements. The maximum space on the screen for the fields is also a limit because of the large number of data elements that must be entered at the CATALOGING station. For example, the Presentation Note field is sometimes not long enough to hold a long conference title (includes place, dates and sponsors). When this occurs, the catalogers have been entering as much as they can and then the entry is finished through BACKFILE MAINTENANCE corrections and cut-and-paste corrections for STAR. The revised Input Processing System currently being implemented will correct this problem.

The Corporate Source field is a coded field controlled by a Corporate Source Authority List (CSAL). When a new corporate source, either as a sponsor or an author affiliation, is encountered, a request for a new code must be made, using a form designed for this purpose. The CASL Editor is responsible for creating new corporate source codes. She will review the request and return the document to the cataloger with a new code or with the recommendation to use an existing code. The process of creating a new code must be done through STIMS file maintenance in batch mode on an overnight basis. The process is tedious (See TD 91-25 - a proposal to develop an interactive method of Corporate Source updating). It requires two overnight batch processes. Since the complete process is usually done only once a week, a document can be delayed several days waiting for a new corporate source code.

Announcements are sent weekly to those who need to use the corporate source codes, e.g. AIAA and ESA, to inform them of new codes created. The entire List is reissued quarterly and is currently (March, 1992) a 952 page document. Approximately 200 new corporate codes are created each month. There are presently a total of just under 33,000 corporate codes and textual data and approximately 5,000 cross references from one code to another.

The Corporate Code system assures that corporate names are always entered the same way - there are no typos or format differences. As long as the number itself is entered correctly, the name will be correct. To discover the correct code, the monthly printout of corporate codes and any lists of updated or new codes are consulted.

The Corporate Source code is a feature of many government STI bibliographic databases. Emphasis on corporate sources and the use of a numeric code stems from the COSATI standardization efforts. Because government funds for R&D were going to private industry and universities and other non-governmental units, there was a perceived need to control the official names of these units. Each government agency created its own coding system: numerical codes are not standard across agencies; the text of the company names is not necessarily the same; the specificity of the coding is not the

same level from agency to agency (NASA codes only the parent company while NTIS separately codes each subsidiary unit). NASA created a coding scheme that keeps the textual names in alphabetical order. The codes begin with a letter (e.g., M for McDonald Douglas). When a new code needs to be created, its alphabetical location in the list is first determined. The codes before and after it in the list are compared and the difference between them, numerically, is calculated. The mid-point between these codes is then computed for the new code. When an area of the alphabet becomes crowded, the codes must be adjusted to allow room for insertion of new codes. Such crowding is detected by computer and the CSAL Editor is notified. Codes in the area are reassigned and the updated table of corporate source codes dynamically changes the pointers for existing records from the old codes to the new codes and the link to the correct corporate name text is preserved.

Because the maintenance of a Corporate Source coding system is labor intensive, consideration is being given to a cooperative system among government agencies based on the NTIS system. One of the major problems with NASA's participation is the incompatibility of NASA's parent-level coding with NTIS's subsidiary-level coding.

For the Source of Financial Support field (#074, Financial Support Type), NASA funding entities are entered as specific Centers. This information is used for counting the number of items processed from each Center. When the record is loaded to STIMS, only the NASA designation is carried forward - not the Center name.

Author affiliations are expected for each author, to the extent that if the affiliation is not apparent from the document, the staff accesses RECON and other sources to find out what the affiliation should be. If the author's affiliation is the same as the primary corporate source, the affiliation is left blank.

Microfiche prefix codes are derived from other fields. When the cataloger finishes and enters a record these codes are displayed. At that point, they can be overridden. They can also be made to be incompatible with the values entered by EVALUATION, which is a problem. The current Facility Operating Manual lists 15 choices for the prefix and 9 choices for the suffix. The combination represents the broadest possible distribution of microfiche and dictates the amount of microfiche to be produced for distribution users.

Some problems currently exist with the scheme, specifically for foreign documents. All documents received from foreign sources, except for analytics, are coded G-6. This causes problems later on in the process when documents from a particular county (e.g., Canada) have to be identified because of agreements with that country to return microfiche copies of their documents to them. To

help in this process, CATALOGING creates a report for each run of STAR of all Canadian (CISTI) documents in that run and gives it to Micrographics. If other countries have the same agreement, other reports will have to be run. ESA receives copies of all G-6 documents. It seems that there is a need here to revise the coding and/or the process.

In the Sales Agency and Pricing field (#191), most of the information is generated by the computer based on the page count and NTIS pricing. Pricing of non-print items, however, is currently not worked out. This has to be coordinated with Customer Services. There are a few documents containing non-print pieces that are presently being held for a decision.

Since the system only permits the listing of up to 10 authors, procedures have had to be worked out for cases where there are more than 10 authors and NASA authors are involved. First of all, there is a separate field where more than 10 authors is noted so that "et al." can be generated (#089, Incomplete List of Authors). CASI enters the authors in the order that they appear on the document. If a NASA author has to be left out of the listed authors and that author's affiliation is not otherwise listed, the cataloger can change the primary corporate source to be that of the left-out author so that the document can be retrieved by that NASA Center at least - the listed authors have their own affiliations listed. AIAA has a different policy: they rotate the NASA authors to the top of the list of authors routinely to insure that they and their affiliations are listed.

For documents that are to be sent to GPO, the catalogers assign a GPO report number, using the <u>List of Classes of U.S. Government Publications Available for Selection by Depository Libraries</u> as their guide. This is a relatively straight forward task, with each series having a GPO number prefix augmented by the NASA report number. CASI has to make arrangements to receive the latest edition of this listing.

The Special Publication Notes field (#170) contains information pertinent to document publication. Included are notes about submission for publication, sponsoring agencies, preparation of the document, related documents in publisher's series, and translation agency.

References to related publications is done in the Other Announcements field (#162). This could indicate that the document has been previously announced in RECON (by AIAA, for example) or that the document is a supplement to or supersedes another document or, for a translation, it could refer to the entry for the original language document.

In the Document Class field (#084), codes are available to indicate whether the document is a Technical Report (true for the majority of CASI input) or a conference paper, thesis, book, etc. The code "Z" for other covers a wide variety of document types, including patents and bibliographies, presumably not considered important enough to get their own classes.

The description of non-print materials accompanying a text document is entered in the Supplement Note field (#173). There are currently no provisions for handling "documents", such as disk sets or CD-ROM, that have no accompanying text.

When records are received by CASI on magnetic tape, the cataloging information is displayed at the CATALOGING station. This information is reviewed by the CATALOGING staff, using the original document (hardcopy or fiche) to verify the correctness of the entries. Corrections are made as needed.

If the record is from a foreign contributor, the paper 901 form, which contains the cataloging information, is also checked. Each correction made to the online record is written on the 901 form in red ink and given to the lead cataloger for review. If warranted, notice of the types of errors being found are communicated back to the contributor. Errors can be categorized as one of three types: (1) formatting errors based on a misunderstanding of the cataloging rules for the field; (2) errors in recording made when filling out the 901 form; and (3) entry errors made when creating the online record. Some contributors are moving to direct online entry of records (i.e., skipping the stage of writing all the information down first). They are beginning to submit the 901 form as a printout from the online entry. The information is therefore the same on the printed form as was entered online and the form no longer serves as a check on the entry process.

CASI has prepared a detailed manual instructing foreign contributors on the requirements for records. It explains each field in the record and the formatting expected (Document Processing ..., April 1991).

Obtaining translations for titles and abstracts in foreign languages has been a problem for the IPS staff at CASI. However, since this issue is being resolved by working with CASI's translation staff, the current problems will not be discussed here. The plan is to send items needing translation to the translation staff and let them handle it.

Catalogers select analytic volumes to work on as they have time to do them, cognizant of the need to move them through the system while also contributing to the current output goals. As individual

analytic records are completed, they are moved to an analytic holding queue (CANL) until all items of that set have been cataloged. When the set is complete, it is advanced to the DUPLICATE CHECKING queue. (Note: This is an enhancement put in place in February 1992).

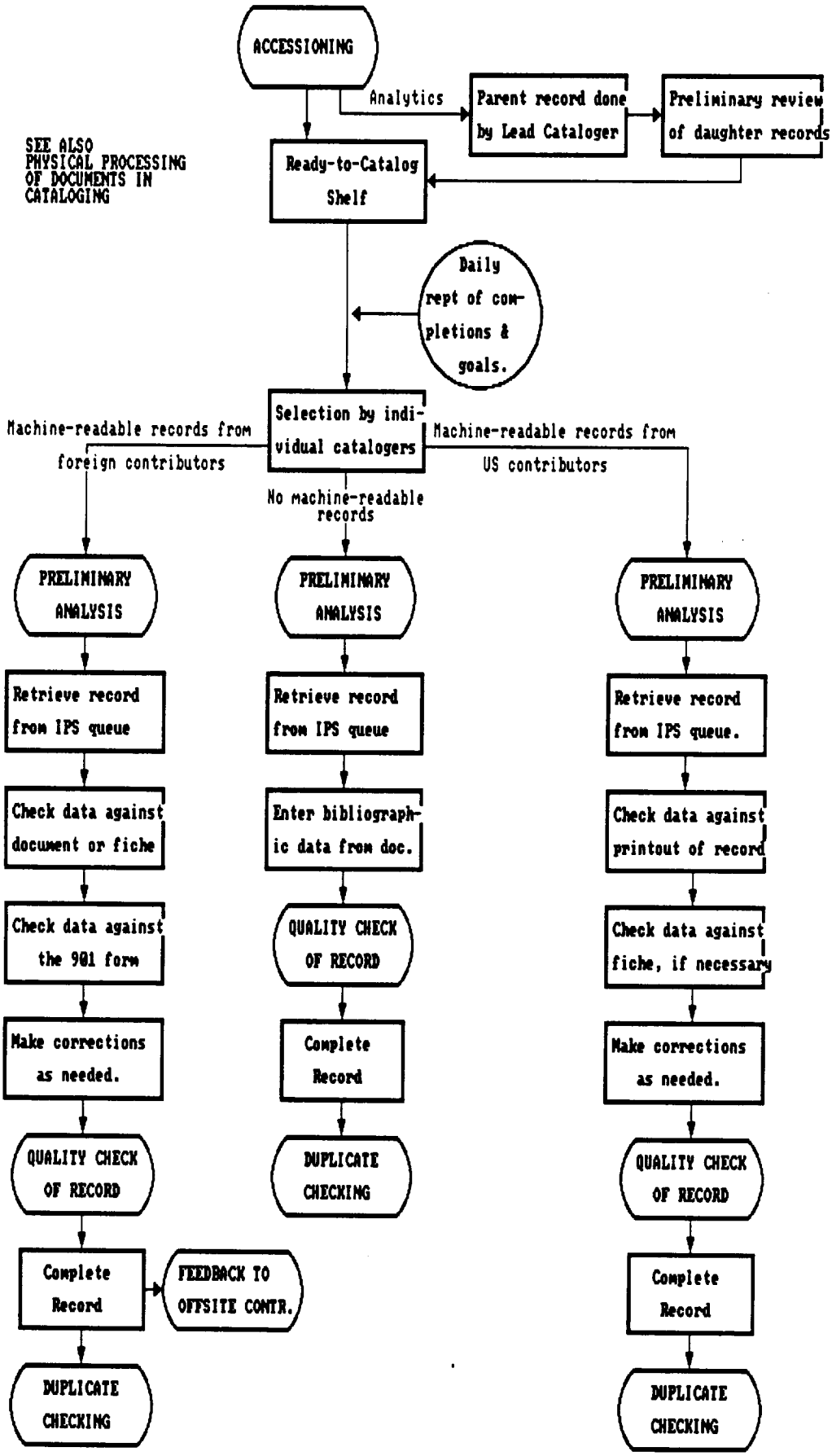
Each cataloger is responsible for her own work; there is no formal edit/review procedure within the cataloging process. The cataloger is accepted to seek advice and assistance and review when it is needed. The IPS system itself includes domain (field) checks on the data entered; certain data are expected or rejected depending on the contents of related fields. However, these computer-based checks cannot catch such errors as misspelled author's names or missed subtitles or transposed report numbers. Currently these errors (at least some of them) are caught at the QUALITY CONTROL stage and corrected.

When descriptive cataloging has been completed for a casefile, the record is released to the DUPLICATE CHECKING queue. The casefiles go to the finished cataloging shelf where they remain until the duplicate checking routine is run. This routine is presently run every evening on all finished cataloging for the day. A report of suspected duplicates is available the following morning. ACCESSIONING staff review the listing and pull those that need further checking. The rest of the casefiles are given to Barbara Henry for delivery to individual abstractors/indexers. She balances the work load between those with machine-readable records received on tape and those without and also between those with and without abstracts. The existence of a machine-readable abstract online makes a great difference in the effort and time it takes to process a casefile. If no abstract exists at all in the printed document, an abstract must be fashioned from existing text (e.g. the Conclusions) or created from scratch. Suspected duplicates that are approved for continued processing are passed on to the ABSTRACTING queue.

5.3 Work Flow Diagrams

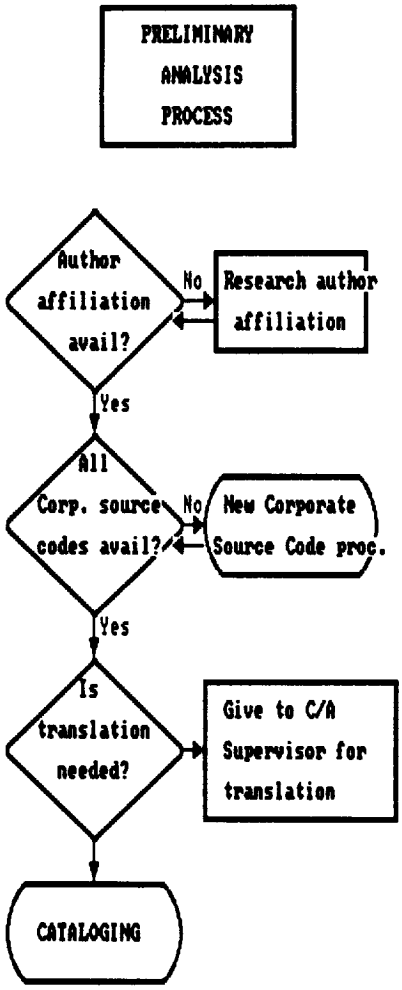
CATALOGING

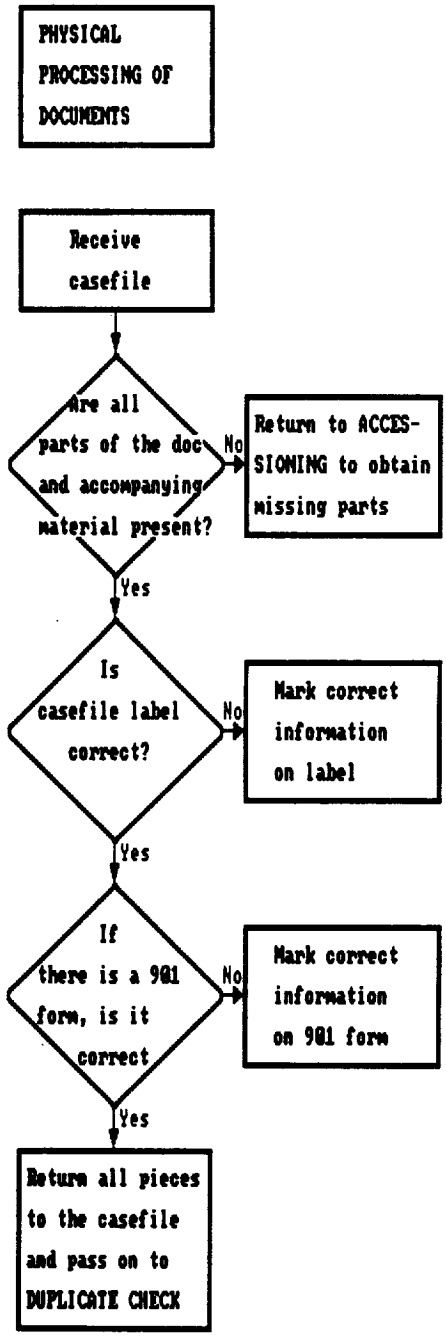
WFD 5.1
4/1/92



CATALOGING

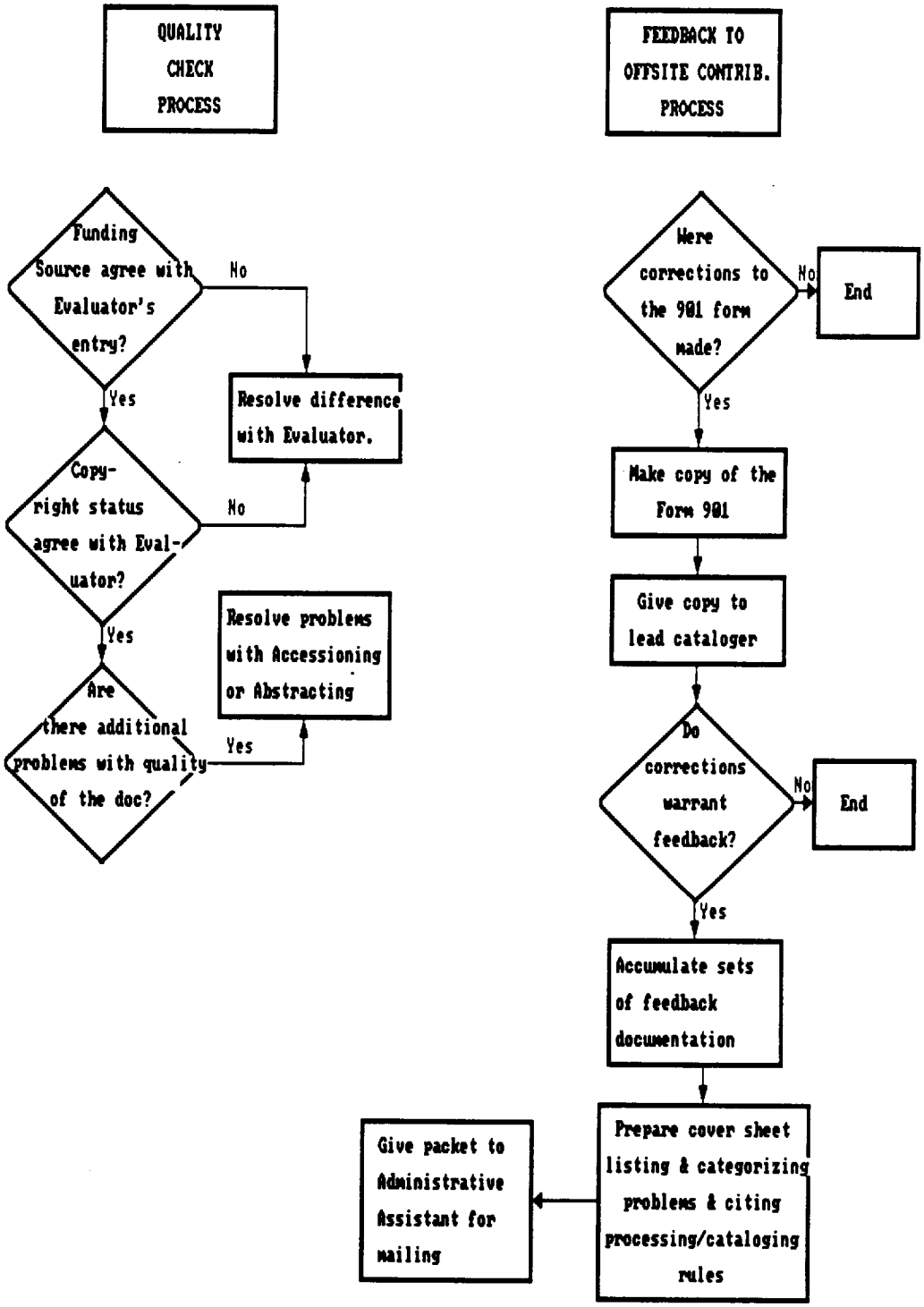
WFD 5.2
4/1/92



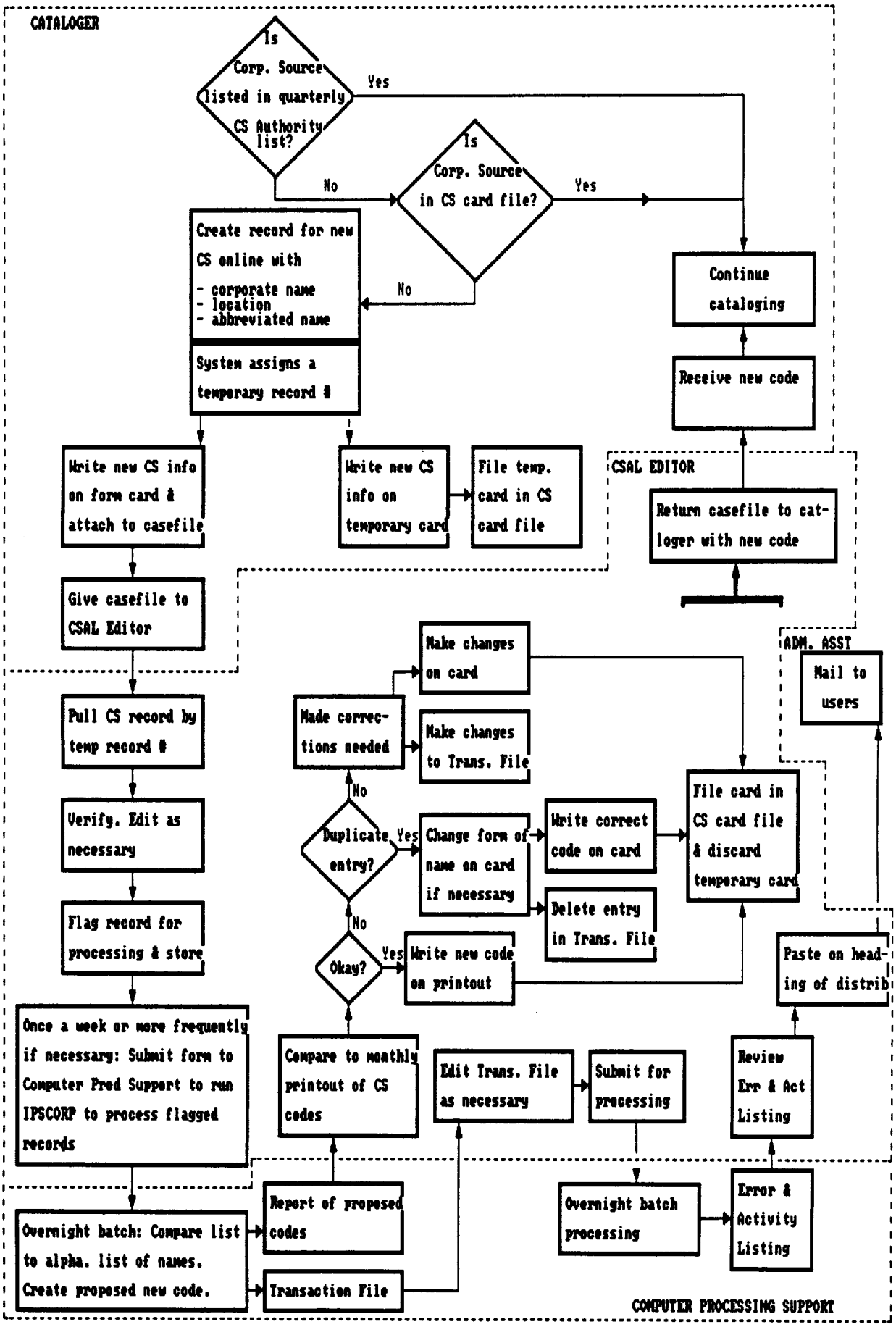


CATALOGING

WFD 5.3
4/1/92



CORPORATE SOURCE (CS) CODE PROCESS



ANALYTIC WORKFLOW

WFD 5.5
4/1/92

IPS Station	Process
EVALUATION	Analytics are identified and numbered. IPS records for parent and daughter records are started.
CATALOGING → CANL Holding queue	Parent records are cataloged by the Lead Cataloger, who also does a preliminary review of the daughter records looking for new corporate sources, etc. Analytics are kept together as a set.
DUPLICATE CHECKING → DANL Holding queue	Potential duplicate listings for analytics are held until set is completed by CATALOGING.
ABSTRACTING & INDEXING → AANL Holding queue	Supervisor assigns analytics to individuals according to work load and production requirements. Material can be divided and distributed to several staff members if necessary.
QUALITY CONTROL	Waits for the casefile of the complete document to appear on the Completed shelf before processing.

Note: As of May 1992, IPS records for analytics go to an interim holding queue on completion of each item. They are held there until the set is completed and then automatically advanced to the next station.

5.4 Contractual requirements

The following are brief summaries of work to be accomplished:
....

(2) **Catalog, abstract, and index acquired items, using conventional or computer techniques.** [Contract, 2.0]

... then cataloged, abstracted, indexed, assigned a microfiche code for initial distribution and keyed as computer entries **within 9 working days following evaluation.** Those selected for the non-published series processing shall be categorized (excluding the "Record" N90,000 and X90,000 series), indexed as appropriate, cataloged and keyed as computer entries **within 4 weeks following evaluation.** [Contract, 2.1.2]

Requirements include evaluation, accession processing, translating title and **cataloging information, descriptive cataloging**, subject indexing, data entry, subject categorizing, abstracting, and assigning a code designating initial microfiche distribution. [Contract, 2.2]

Descriptive cataloging functions include the determination and correct recording of bibliographic information such as title, corporate source, author, publication date, pricing, microfiche and/or hardcopy availability and source, and availability for announcement. [Contract, 2.2.3]

Title and other cataloging information contained in documents written in foreign languages will be translated into English. When the document is to appear in STAR an English abstract will either be prepared through translating a foreign language abstract or written from other information translated from the document. Index terms will be supplied from information translated from the document. **The contractor will prepare English cataloging and abstracts, in accordance with NASA guidelines, for approximately 1000 foreign language documents annually.** [Contract, 2.2.7]

The Corporate Source Authority contains the current approved Corporate Sources and their codes. **The contractor shall update and maintain the Corporate Source Authority for use in the NASA information system and in order to permit the publication of the NASA Corporate Source Authority Lists, as defined in NASA SPEC-28.** The contractor shall maintain a cross-reference listing for approved Corporate Sources. [Contract, 4.2.3]

6.0 INDEXES AND LISTINGS - Project 06

	Title	SPEC. No.	
6.3.5	**Corporate Source Authority** (Quarterly)	28	WBS 06.06

The Contractor shall perform the work in accordance with the STI Facility Innovation Plans identified below... [Contract, Innovation Plans]

Innovation No.	Title
3.1.8	**Interactive Corporate Source**

WORK BREAKDOWN STRUCTURE (WBS)
WITH ANNUAL VOLUMES

WBS NUMBER	TITLE	UNIT AMOUNT	
.03	**Corporate Source Authority**	Trans.	1,800
.06	**Corporate Source Authority** (Quarterly)	Issue	4

5.5 Indices of performance

Contract Requirement:
Corporate Source Transactions Requirement = 1,800

	Adds	Deletes	Mods	Total
Annual total	1,177	49	1,321	2,547
Compared to Contract Requirement				747

The following statistics are reported on a monthly basis. Examples of each are given.

Monthly:

Technical Reports Through-Put (Exhibit II.A)

Gives total STAR records completed by CATALOGING in the report month. The figures are derived from IPS accounting of records leaving the CATALOGING station. Recent figures:

	Sept	Oct	Nov
CATALOGING	2,626	2,759	2,825

Total for Contract year = 34,229

Technical Reports in Process (Exhibit II.B)

Gives total number of records of all types in the CATALOGING queue at the end of the report month. The figures are derived from IPS. Recent figures:

	Sept	Oct	Nov
CATALOGING	5,703	5,851	5,186

Average number in the queue for the Contract year = 5,679

5.6 Bibliography of supporting documents

Interview with Barbara Henry, Michelle Kadziel-Uber, and Karen Allis.

NASA. (March 1, 1991). NASW-4584 Award/Contract.

NASA. CASI. (July 31, 1991). Interactive Corporate Source Authority Implementation Plan : Implementation Plan. (TD 91-25).

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6. CONTRACTS/GRANTS & NEWS RELEASES/SPEECHES PROCESSING

6.1 Highlights

Staffing: 1 person (the Administrative Assistant)

Current staff: Terri Marshall

Function: Initial or full processing for RTOPs, the K file, and News Releases & Speeches.

6.2 Description

Three types of documents/information received by CASI are processed, at least partly, outside of the regular IPS process: Research and Technology Objectives and Plans (RTOPs), Contract & Grant entries for the R&DCS (K) file, and News Releases and Speeches from NASA Headquarters. The processing is done by the Administrative Assistant to the Head of IPS, a position currently held by Terri Marshall. She estimates that approximately half of her time is spent on these processing activities.

The IPS-Alt system is used for the processing instead of the regular IPS system. The IPS-Alt system provides access to the entire record - it is not divided into the different stations of the regular IPS system and it does not incorporate the same controls and checks on the entry of the data.

<u>RTOPs</u>

The Research and Technology Objectives and Plans for the NASA Centers are received from NASA Headquarters annually in the June-July time period, in batches. At this time, the records from the previous year are deleted from the file through BACKFILE MAINTENANCE and the hardcopies from the previous year are discarded. Initial processing consists of entering the bibliographic information, which includes the following:

CATALOGING: RTOP SCREEN

DOC NUMBER: __
NASA CENTER: _____
TITLE: _____
_____
_____
_____

RTOP NUMBER: _____ STATUS: ____ OBJECTIVE: __
DATE OF RESUME: _____ SUPER RTOP NUM: ___
R.I.: _____ PHONE: _____
RELATED RTOP: _____ _____
_____ _____
_____ _____

SCIENTIFIC CATEGORY: _____ _____
_____ _____
_____ _____

A NASA Subject Category code is <u>not</u> entered for these records. The Scientific Categories are taken from the RTOPs document.

After entry, the RTOP documents are put in batches in casefiles (20-25 per casefile) and taken to ABSTRACTING/INDEXING where indexing terms are added to the records.

When all entries are completed, a proof copy of the printed index to the RTOPs is produced and sent to Headquarters for their review. It is returned with corrections and sometimes with additional copies of RTOP reports. If there are additional copies, these have to be checked to make sure they are not already in the file before entering.

After the proofing process, the records are loaded into RECON and the annual <u>RTOP Summary</u> is printed and distributed. The RTOP casefiles are kept in the CATALOGING area - they are not sent to Document Storage. The original RTOP documents are filed by RTOP number; duplicate copies are kept in the same file and marked as duplicates.

<u>News Releases & Speeches from NASA Headquarters</u>

These documents are received on a continuous basis and brief records for them are entered into the P file which is never loaded into

RECON. The entry screen is as follows:

```
                    CATALOGING: NRS SCREEN

DOC NUMBER: __
STIMS ACC NUMBER: _______

TITLE: ______________________________
       ______________________________
       ______________________________

DATE: _______ PAGES: _____ CAT: _____ RELEASE NUM: ________
SPEAKER: ____________________________
PERSONS:
         ____________________________
         .... (Space to list all persons mentioned)
```

Two copies are made of the document. One copy is kept for processing for the P file; the other copy is sent to EVALUATION for selection, if appropriate, for one of the RECON files. If it is not selected for RECON, it is sent on to the AIAA for their consideration. The original copy is sent to REPROGRAPHY for filming.

The processing copy is put on a shelf and held for indexing which is done on all of them at once annually (in a 3-4 week period in February and March usually). This procedure insures that the indexing, which is more like back-of-the-book indexing than the indexing done for other materials, is consistent across the collection. After indexing, a proof copy of the publication, Index to NASA News Releases and Speeches, is produced. The index of Persons is proofed, as well as the subject index. Corrections are made to the index entries and new entries are made as necessary. The list of subject terms created is known as the NNRS Thesaurus and it is maintained from year to year.

Statistics are kept of the number of news releases and speeches received. These counts are not reported in the monthly Report, except for an annual count in Tables 4 and 10 of the number of accessions and total record count in File P.

R&DCS

Announcements of NASA contract, grant, and work order awards are received on a continuous basis and are entered into the K· file. The majority of these announcements are in the form of the hardcopy document describing the award. But, two listings are also scanned on

a regular basis to identify other awards for which the documents were never received: New Basic R&D Contracts and Small Business Innovative Research (SBIR) Grants.

Only R&D contracts/grants are accepted for processing. All others are rejected and discarded.

Duplicate checking is done against a printout of all of the contract/grant numbers in the K file. This printout is updated monthly. When a contract/grant announcement document is found to be a duplicate, it is discarded. If it is a modification of a contract/grant that is in the K file, the Accession number is written on the copy and given to BACKFILE MAINTENANCE for modification of the record. If a modification announcement is received for which there is no record in the K file, it is treated as a new contract/grant.

The entries in the two listings identified above are also checked against the printout of contract/grant numbers in the K file. Modification announcements are ignored, because there is not enough information included in the listing to do anything with it. Duplicates are also ignored. Entries for duplicates and modifications are marked out or torn out of the volume, leaving only the new listings.

Documents and listings that represent new contracts/grants are sent to CATALOGING for entry and then to INDEXING/ABSTRACTING for indexing. The cataloging information for them includes the identification of the NASA Center and contractor(s) involved; the title; the contract/grant/order number; the start date and the term of the contract/grant; the Technical Monitor(s) and their addresses; the Principal Investigator(s); the RTOP numbers of corresponding funding programs; and miscellaneous notes.

Several changes were made recently to the R&DCS process: (1) multiple copies of R&DCS reports were being kept and included in the monthly statistics; now they are being discarded and counted as duplicates; (2) an R&D contract or grant announcement (mostly modifications for which the original was never received) with insufficient information was being discarded, but now it is being held and checked against new acquisitions monthly to try to match them up with the full information. No direct action is being planned to actively seek the missing information. These changes will affect the monthly statistics. Changes to the way in which the monthly statistics are being reported have also been made: the new form will include separate counts for new, modified, duplicate, and rejected contracts/grants. The rejected documents will include those without contract numbers anywhere on them and those that are not R&D contract/grants.

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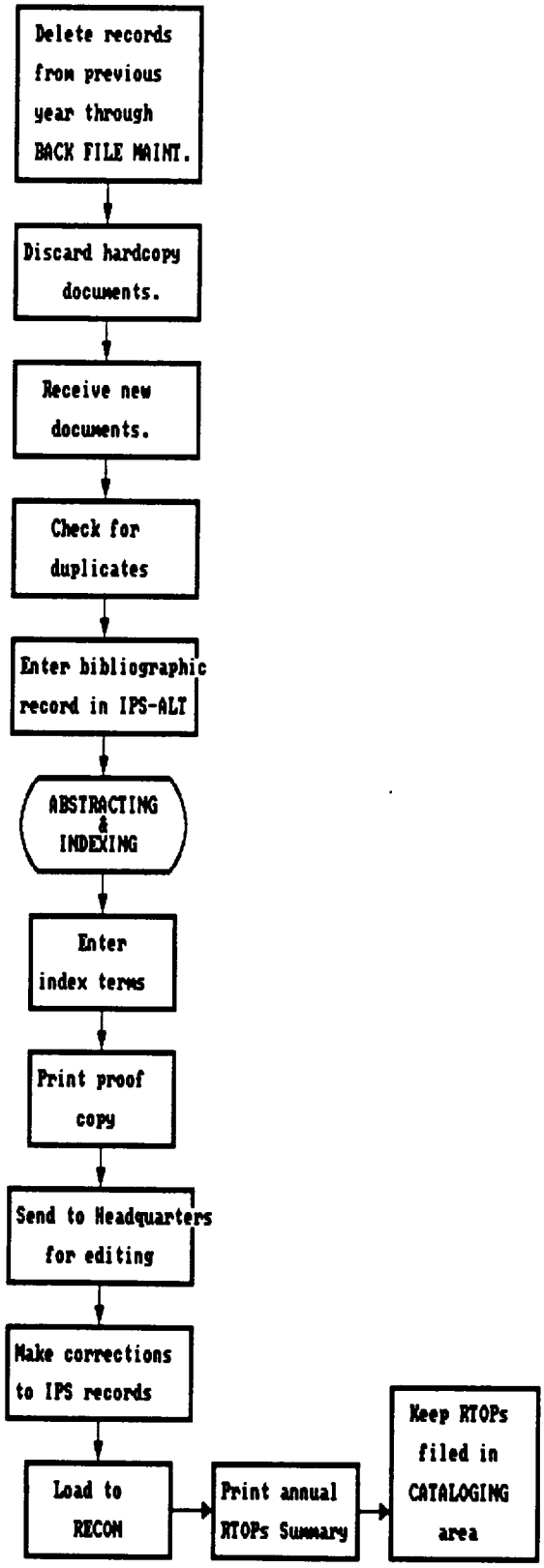
In addition to the processing of these types of documents, the Administrative Assistant also types abstracts to assist the INDEXING/ABSTRACTING staff. Currently, she types at least six abstracts each day for each staff member. When there is a crunch on to get documents through to meet a deadline, she will do extras.

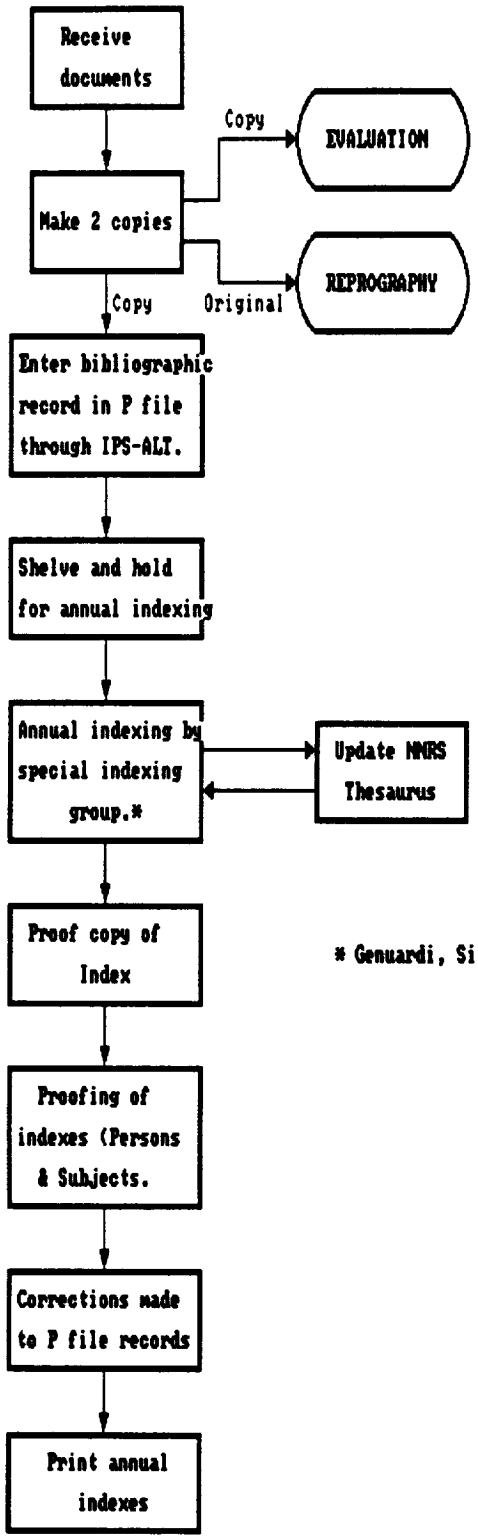
6.3 Work Flow Diagrams

RTOP PROCESSING

WFD 6.1



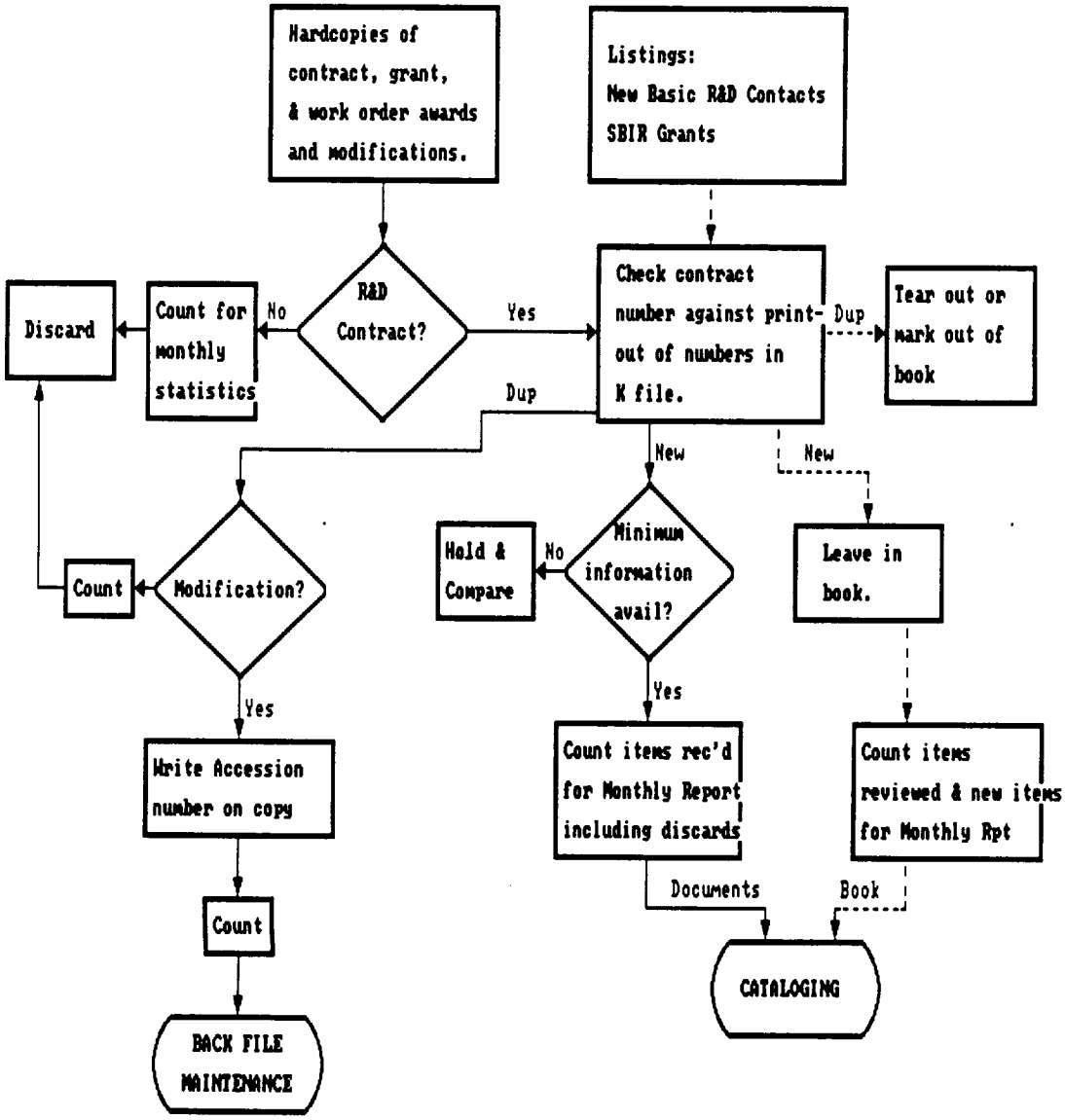
PROCESSING OF NEWS RELEASES & SPEECHES FROM NASA HEADQUARTERS



* Genuardi, Silvester, & French

R&DCS PROCESSING

WFD 6.3



6.4 Contractual requirements

The contractor shall obtain and process information on NASA contracts, grants, and University Programs projects as a base for assuring that NASA-generated and NASA-sponsored reports are received by the NASA scientific and technical information system (see WBS 02.10 and WBS 02.11). [Contract, 1.3.5]

The **Administrative Assistant is responsible for the processing of NASA Contracts, Grants, and Listings** received from NASA Headquarters to determine suitability for inclusion on the Research and Development Contract System (R&DCS) File and maintaining and reporting statistics of all activities on a monthly basis. [Fac. Oper. Man., 01.1.1]

Data changes shall be initiated to the Research & Development Contract Search (R&DCS) File, as a result of information received from the Centers, to provide information on Contracts/Grants that No Reports are Available or Final Report Received as applicable. [Fac. Oper. Man, 01.1.3]

Annual volumes, per Contract:

2.10	New entries to R&DCS File	2,000 titles
2.11	Updates to " "	3,500 titles

6.5 Indices of performance

The following statistics are reported on a monthly basis. Examples of each are given.

Review of contract/grant listings

Consists of looking for NASA contracts that have not been entered into the K file by reviewing Small Business Innovation Research (SBIR) listings and New Basic R&D Contractors listings. Recent figures:

September	Reviewed	New
SBIR, 8/31/89	573	0
SBIR, 8/31/90	636	1
New Basic, 9/30/90	340	73
October		
SBIR, 9/30/90	648	1
SBIR, 10/31/90	480	1
SBIR, 11/30/90	419	0
New Basic, 11/30/90	92	28
New Basic, 12/31/90	172	20
November		
SBIR, 12/31/90	400	0
SBIR, 1/31/91	584	93
SBIR, 2/28/91	602	26
New Basic, 2/28/91	121	22

R&DCS items processed

The total is itemized by contracts/grants, modifications, and rejects. Recent figures:

	Sept	Oct	Nov
Contracts/Grants	270	145	73
Modifications	584	378	270
Rejects	180	91	32

For totals, see the Overview section of this Report.

6.6 Bibliography of supporting documents

Interview with Terri Marshall.

NASA. (March 1, 1991). NASW-4584 Award/Contract.

RMS Associates. (1990). NASA Center for AeroSpace Information. Facilities Operating Manual.

7. DUPLICATE CHECKING

7.1 Highlights

Staffing: 1 person in the ACCESSIONING group handles the formal process. Both ACCESSIONING staff and EVALUATION perform duplicate checking for suspected duplicates when they are handling the documents.

Current staff: Beverly Brown (formal process)

Function: Review of Duplicate Suspects List generated after CATALOGING, identification of actual duplicates, and adding notes to IPS records for related records.

7.2 Description

Each new document selected for RECON is checked against the existing databases (RECON and IPS) to see if it has already been added in the same format, in a closely related format, or in another language. The purpose is to eliminate duplicate processing for the same information, to eliminate duplicate listings on RECON, and to discover relationships between closely related records and add notes from the new record to the previously entered record(s).

The methodologies employed for duplicate checking include

1. Card files of NASA formal series and AGARD reports by report number (2.5 drawers of IBM-type cards). Each new NASA report received with a series number is checked against these files for previous entry by ACCESSIONING.

2. Incoming tapes of electronic records from foreign contributors (not domestic tapes) are processed through the machine duplicate checking and suspected duplicates are noted. Printouts of the suspected duplicates are delivered to ACCESSIONING along with the printouts of the records and the tapes.

3. Online interactive searching of RECON and IPS, by ACCESSIONING and by EVALUATION.

4. Daily batch computer process comparing newly cataloged items to RECON and IPS records by report numbers, publication dates, corporate sources, authors, and titles. Results in a Duplicate Suspects List.

5. Staff review of the Duplicate Suspects List.

6. Deletion of duplicate records and combining the existing copies under one accession number.

7. Adding notes to new records pointing to closely related previously entered records.

In ACCESSIONING, documents are checked against the RECON file, the IPS file, and various manual files to make sure that they are not duplicates of materials already received. This preliminary duplicate checking used to be applied to all documents, but recently the policy has changed to selective checking of documents that are suspected duplicates. NASA series documents, however, are all checked against a card file so that new cards can be added as needed. In some cases, whole groups of documents, e.g. patents and Japanese materials (currently often being received from two sources), are checked routinely because of the number of duplicates received. They also

check documents that will probably be handled analytically before sending to EVALUATION to avoid the wasted effort of doing the analytics more than once. This preliminary duplicate checking occurs at various points in the ACCESSIONING process.

The preliminary duplicate checking is done primarily online, using multiple access points in the RECON and IPS files. The authors, contract numbers, and words in the title are often used. Duplicates discovered at the ACCESSIONING stage are not processed any further. The duplicate copy(ies) are marked with the accession # and sent to the stock area for storage, to fill document requests.

Manual files are also kept in ACCESSIONING and serve as a control over processing duplicate documents. A card file is maintained for NASA report series and AGARD reports by report number. New cards are made for the file after the reports have returned from EVALUATION. The temporary accession number is noted on the card (the permanent accession number is not added to the card).

This duplicate checking process is backed up by a computer process which checks all new records created by CATALOGING against the existing files (and tapes of records from foreign contributors when they are first processed). This is a new process. The automatic process, run each night, makes comparisons on the basis of author names, contract/report numbers, publication dates, corporate source codes, and words in the title. A match on any two elements indicates a potential duplicate. The newly entered record and its suspected duplicate(s) are listed together on the daily printout and given to the DUPLICATE CHECKING staff person. All of the casefiles for which cataloging was completed the preceding day are taken to the DUPLICATE CHECKING station (with the exception of analytic documents that do not leave CATALOGING until all the daughter records have been completed). With these casefiles at hand, the Suspected Duplicate List is reviewed and the documents and printouts of the previously entered records are compared to determine whether or not a duplication really exists.

If the review of the records shows that the documents are probably duplicates of one another, the previously received document(s) have to be retrieved also. If the records are from RECON, a request is made to Document Supply to retrieve the casefiles of the duplicate suspects or the microfiche copies. The request to Document Supply takes the form of a request card which is hand carried to the area. If the staff person there can get them right away, it is done immediately. Otherwise, the request is left there. Since the casefile is needed for the duplicate checking process and since the new entry is held up until the possible duplication is resolved, any delay in getting the casefile causes a delay in processing the new documents. It is necessary for the DUPLICATE CHECKING staff to keep checking

back to see when the casefiles will be available.

If the suspected duplicates are still in the IPS process, then the documents have to be found on individual desks - they could be anywhere in INDEXING or QUALITY CONTROL. This takes some time and is delayed if staff in these areas are not at their desks.

The Suspected Duplicate List entry includes the note field where close relationships between records is noted. Therefore, if a "duplication" has been discovered early in the ACCESSIONING stage, this note will show up and it will not have to be researched again.

Duplicates can be of one of the following types:

1. Documents previously entered by AIAA as a published article or paper. In this case, the NASA report (or other government report) is also entered with a note saying "Previously announced as _____".
2. English translation previously entered as a document in the original language. In this case, the new document is added with a note saying "Original language document was announced as _____".
3. The exact same document in the same format. In this case, the most complete record is chosen and the other record is deleted. The physical copies are combined under one accession number. A "kill" request is passed on to BACKFILE MAINTENANCE to take care of the delete. If an IPS record needs to be deleted, an authorized ACCESSIONING staff member does it.

The notes pointing to previously entered related documents are presently being entered by CATALOGING. But full implementation of the DUPLICATE CHECKING procedure will give the DUPLICATE CHECKING station the capability of adding the notes.

No attempt is made to point the previously entered record(s) to the newly entered record. The related note is made only from the new record(s) to the older record(s). Because of this, there is no way to know of later related records for records retrieved through a RECON search in an automatic fashion.

Documents can be closely related but <u>not</u> considered duplicates of one another. If an author (or set of authors) gives approximately the same paper at two or more conferences, the documents are not considered duplicates unless the title and abstract are exactly the same. Papers with similar titles and the same authors are not related to one another with notes. Progress reports for different time periods are not considered duplicates; they are not related to one another with notes. If there is any question whether two records are the same exactly, a cross reference is <u>not</u> made; both records will exist independently in RECON.

Analytics are now arriving at the DUPLICATE CHECKING station in sets since the recent change in the processing system. An analytic can be composed almost completely of duplicates if the AIAA has also selected the conference proceedings (conference proceedings are a gray area between the two groups). The two services, however, do not always chose the same set of papers from the proceedings, so each paper has to be checked.

The process used to load IPS records to RECON does not automatically delete the records from IPS. Instead, the records stay in IPS until they are specifically deleted as a safety feature in case something goes wrong with the loading or printing process. For the period of time that the records exist both in IPS and RECON, both copies of the record will be printed out as suspected duplicates if a new document comes in that is similar to one of the records.

There are more false suspected duplicates in the 9N and 9X series because of the limited amount of information in these entries. The deciding factor in these cases is often the Task Number, but the present duplicate checking routine does not look at this field.

The number of duplicates found is relatively small - reported data indicates that 6%-7% of the records that get through CATALOGING to DUPLICATE CHECKING are found to be duplicate (see Table 3 in the Report on Center Operations). This is approximately 2230 records for the year, an average of 186 per month. It is estimated that the formal DUPLICATE CHECKING process takes on average 3-4 hours per day, but it can be only 30 minutes.

At the end of the process, one member of a "real" duplicate pair has been deleted or flagged for deletion and new records that are related to previously entered records have notes explaining the relationship and pointing to the other record(s). If the documents are not duplicates of one another and are not closely related, the titles are crossed off on the printout and the new entry proceeds through the IPS process. The marked-up daily Suspected Duplicate Lists are kept for one week and then discarded.

Suspected duplicates may be delayed in processing for further investigation; other documents are delivered back to the Supervisor of Cataloging and Indexing for assignment to INDEXING.

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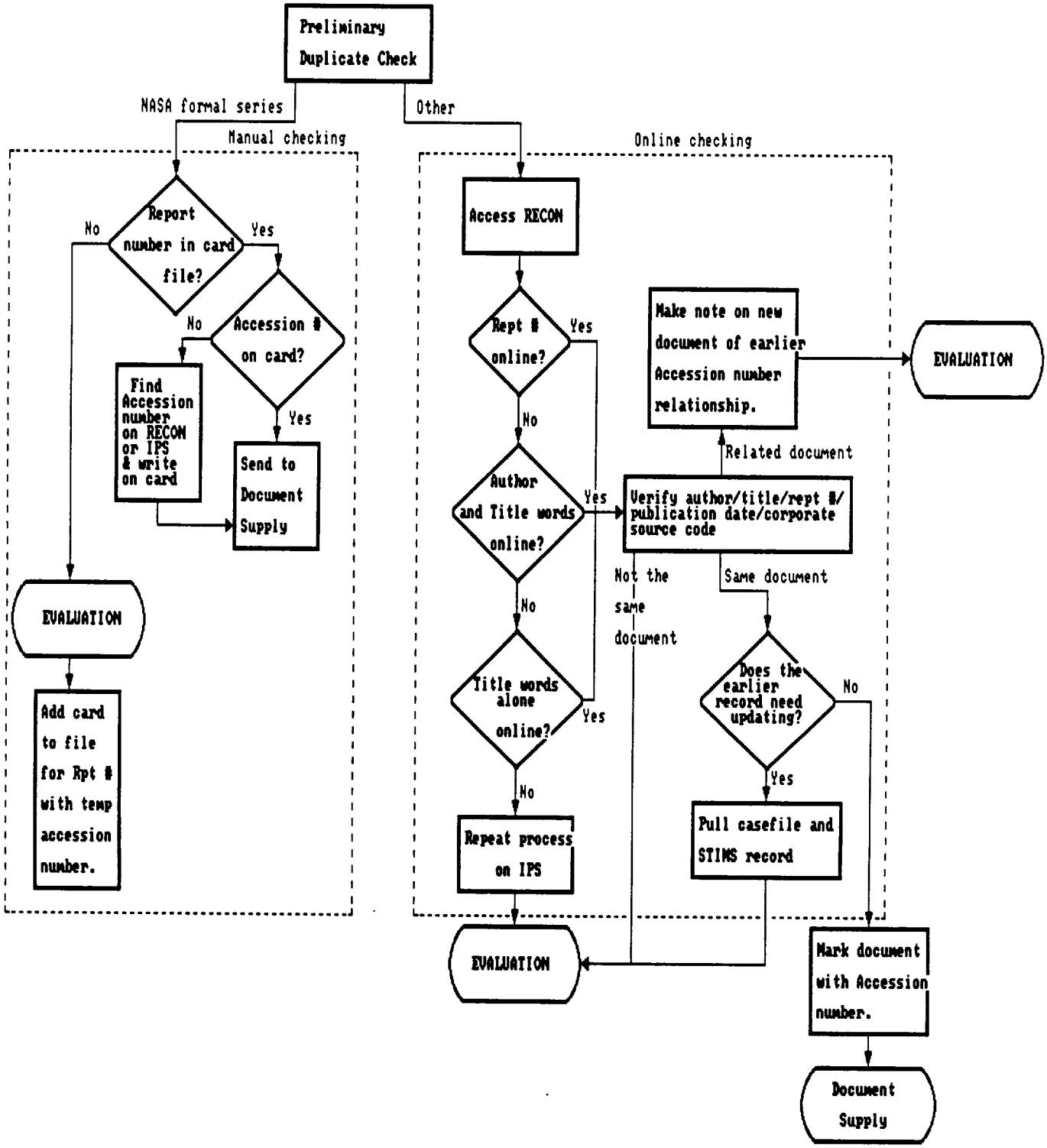
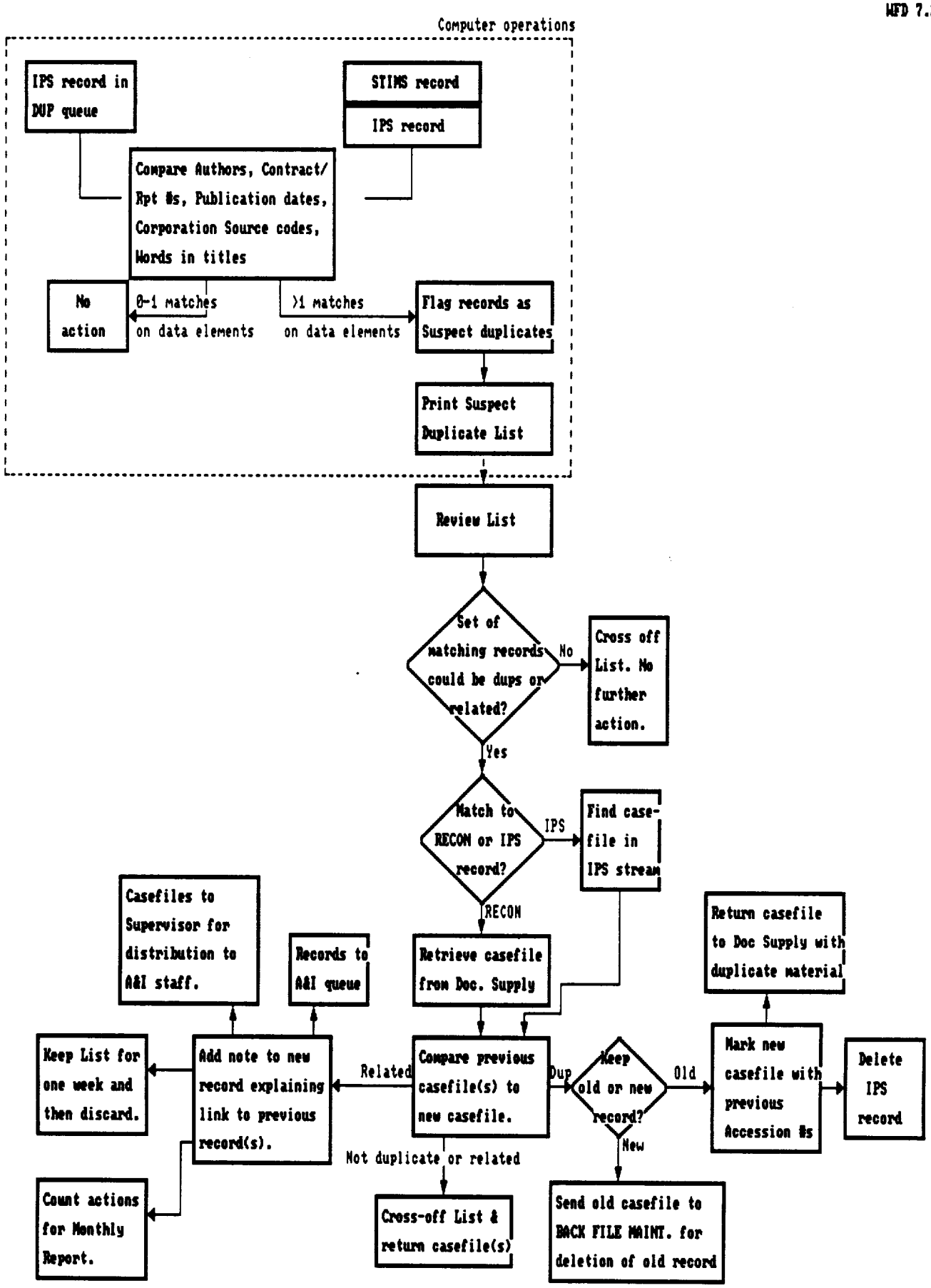
7.3 Work Flow Diagrams

DUPLICATE CHECKING



DUPLICATE CHECKING

WFD 7.2



7.4 Contractual requirements

All documents (**exclusive of those rejected or determined to be duplicates**) entering the NASA Facility undergo accession processing which includes: (1) **duplicate checking**; ... [Contract, 2.2.2]

The NASA Input Processing System is a combination of Natural and PL/1 programs, both online and batch, which provide for inputting data into STIMS, validating this data, **duplicate checking this data**, and subsequently generating files for online retrieval by RECON. [Contract, 15.2.10]

The Contractor shall perform the work in accordance with the STI Facility Innovation Plans identified below [STIF Innovation Plan(s)]

Innovation No.	Title
3.1.3	**Automated Duplicate Checking**

7.5 Indices of performance

Table 3 of the monthly Report on Center Operations reports on Duplicate Checking activities. It is not very clear what is being counted for the various columns, but the following chart summarizes the data for the contract year.

	Total Records Checked	# of Duplicates Found & Matches with Items on Hold	Percentage of Duplicates Found
After Cataloging	32,626	2,231	6.84
ESA tape records	4220	3	
Total duplicate checks	38,130	2,331	6.11

The following statistics are also reported on a monthly basis. Examples of each are given.

Technical Reports Through-Put (Exhibit II.A)

	Sept	Oct	Nov
DUPLICATE CHECKING	2,111	2,936	2,555

Total for the year = 32,626

Technical Reports In Process (Exhibit II.B)

	Sept	Oct	Nov
DUPLICATE CHECKING	943	1,068	1.599

Average per month = 3,348

Duplicate checking in Accessioning:
Recent figures:

	Sept	Oct	Nov
RECON check for documents from Lewis and NASA Hdq:			
Duplicates	55	23	26
New NASA documents	7	1	2
New non-NASA docs	3	1	1
Master copies/foreign text documents to Document Supply	28	27	0
RECON check for document copies from temporary storage; sent to Document Supply	246	227	179

Number of cross references found to previously entered records:
Recent figures:

	Sept	Oct	Nov
To original language documents	3	11	7
To documents previously entered by AIAA	11	99	26

Duplicates found:

	Sept	Oct	Nov
On RECON (backfile)	43	265	15
On IPS (partially proc)	31	23	187

7.6 Bibliography of supporting documents

Interview with Karen Zaiser.

NASA. (March 1, 1991). NASW-4584 Award/Contract.

NASA. CASI. (July 31, 1991). Interactive Corporate Source Authority Implementation Plan : Implementation Plan. (TD 91-25).

8. ABSTRACTING & INDEXING

8.1 Highlights

Staffing: 5 persons (1 current vacancy) + Analyst
Also, 2 lexicographers

Current staff: Hristo Atanasoff, Robert Ferris, Elmer Rountree, Keith Seabaugh, Douglas Dechow, Michael Genuardi (Analyst), Ron Buchan (lexicographer), and June Silvester (lexicographer)

Function: Provide abstracts to summarize the content of documents and indexing terms to represent the major and minor subject emphases of the documents. Title extensions are also written for brief titles.

8.2 Description

Casefiles are received from DUPLICATE CHECKING by the Supervisor of A&I and assigned to individual A&I staff members to balance the load among them. The online IPS records are automatically added to the A&I queue after the DUPLICATE CHECKING routine. The responsibility of the A&I staff is to write, edit, or otherwise provide an abstract for all records, except those in the 9N, 9X and 1K files, and to indicate the subject content of the documents, both the major and the minor topics, through the assignment of controlled vocabulary indexing terms (thesaurus terms). In addition, title extensions are created to add more subject content to titles that don't indicate clearly what the document is about.

The staff presently consists of five abstractor/indexers plus Michael Genuardi (Analyst) who also helps out in production when needed. The requirements for abstractor/indexers currently includes a preference for a B.A. or B.S. in a physical science and for indexing experience. Six months to a year on the job are required before a new abstractor/indexer is up-to-speed and able to work entirely on his/her own. During this training period, their work is checked. After they have mastered the system and shown that they are doing acceptable abstracting and indexing, the individual's work is no longer checked.

Input into the ABSTRACTING & INDEXING queue includes records with the following characteristics:

Abstracts:
- Machine-readable abstracts.
- Hardcopy abstracts in English.
- Hardcopy abstracts that must be translated.
- No abstract : abstract can be fashioned from the text.
- No abstract : original abstract must be written.
- No abstract : foreign language document for which an English-language abstract must be written by someone who understands the subject and the foreign language.

Indexing:
- Machine-readable index terms derived from subject switching from DOE and DTIC tapes.
- Machine-readable index terms derived from Machine-aided Indexing (MAI) process applied to abstracts and titles.
- Machine-readable index terms derived from titles only for the K file entries.
- Machine-readable index terms from foreign contributors who are following NASA/CASI guidelines and using NASA/CASI thesaurus terminology.
- No indexing.

The first step is the abstracting/indexing process is to analyze the subject content of the document so that an abstract and a set of indexing terms can be created for it. There is not time to actually read each document. Therefore, the process involves reading some parts carefully (e.g., title; abstract; introduction; methodology; summary and conclusions; captions of tables, figures, and illustrations) and scanning the rest.

Abstracting

The NASA/CASI abstracts are generally no longer than 250 words in length. They are informative for technical reports and indicative for other types of documents. That is, for technical reports they strive to include actual results and important data in the abstract itself rather than just describing the type of research that was performed.

Hardcopy abstracts must be keyed into the record[12]. This work is done by the A&I staff, although help can be obtained from other staff, such as Terri Marshall, when necessary because of production demands.

It is estimated that the distribution of machine-readable and hardcopy abstracts, and no abstracts is as follows (the percentages for calendar year 1991 derived from Table 7 of the monthly Report follows the estimate in parentheses):

Machine-readable abstracts . . .	50%	(55%)
Hardcopy abstracts	30%	(40%)
No abstracts	20%	(5%)

Original abstracts must be written for between 300 and 500 documents per month. Most of the time, the staff uses as much of the author's original language as possible in creating these abstracts. Text is typically taken from the introduction and the conclusion sections of the paper. The wide range of the estimate in the number of original abstracts written results from the lack of a clear definition of what creating an original abstract means. For example, does it cover selecting sentences from the body of the text to form an abstract.

Modifying extended abstracts, such as abstracts of dissertations (229 in 1991), is one of the most demanding tasks, because the content is already condensed. Also very difficult is editing English-language abstracts for papers in a foreign language. This text is often grammatically awkward and full of incorrect English usage. Editing of such abstracts is often equivalent to complete rewrites.

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[12] An analysis of scanning technology is in progress as well as efforts to obtain report text and/or the RDP text in electronic form.

Time estimates for abstract writing are:

Editing machine-readable abstracts	5-7 minutes
Keying in an abstract	10-12 minutes
Writing original abstracts or extensive revision	15-25 minutes
Editing an extended abstract	20-30 minutes
Writing an Eng. language abst. for foreign lang .	30-45 minutes

Analysis of the document to begin with is estimated to take approximately 10 minutes. However, this time overlaps with other activities, i.e. abstract writing and indexing, so it is not strictly additive to other estimated times.

The "Abstract Author" field of the IPS/STIMS record contains a notation indicating the source of the abstract. Current practice is to indicate one of the following: DOE, GRA (for NTIS and DTIC), Dissertation Abstracts, ESDU, ESA, CISTI, ISA, NASDA, or "Author" or the initials of the abstractor who created or translated the abstract. This data element could be used to determine the number of original abstracts written; however, the practice has been to enter "Author" even when an abstract has been fashioned from available text, so it would not be possible to determine how many total abstracts were created by the abstractors. (A recent decision was made to use abstractor's initials when abstracts are fashioned from text.) The use of "GRA" for both NTIS and DTIC is a curious holdover from the past - the authority file for this data element has never been updated to include "DTIC" and "GRA" continues to be used for NTIS (GRA stands for the NTIS publication Government Reports Announcements).

Another related data element is the "Abstract Qualification" field in the IPS record only - it does not carry over to STIMS. Here codes are entered to indicate that the abstract has been shortened (SH), changed grammatically or symbols written out (GR), rewritten (RW), taken as is with no changes (NC), or that the abstract was not reviewed (NR). The last value - NR - is the default value for DTIC and DOE records, but there are plans to change the default to NC. However, 70% of the DTIC and DOE abstracts are modified in some way.

All Greek letters, symbols, subscripts, superscripts, exponents, mathematical formulas, nuclear physics reactions, and chemical terminology must be "verbalized" in abstracts and titles because they cannot be entered by the present keyboard nor displayed online nor indexed as keywords nor retrieved by the searching system. CENDI guidelines are used for these translations, with some additions for NASA needs. This verbalization accounts for a large part of the modifications that are done on the abstracts.

The only review of the quality of the abstract is at the QUALITY CONTROL stage. At that point, if there is any question, it is first

reviewed by the Supervisor and then discussed with the Database Creation Analyst who returns the abstract to the Abstractor/Indexer and reviews the problem area(s).

Currently there is a backlog of JANNAF documents in the 7N-7X series that are waiting for the entry of abstracts. The direction to add abstracts for these series is a recent addition to the workload.

Title Extensions

It is the abstractor/indexer's responsibility to augment titles that are not descriptive of the subject content of the document. For CASI, this is a short text phrase; for IAA this is usually a format indicator such as "Conference". This title extension does not appear with the record in STAR; it does appear in the Subject Index to STAR and as an extension to the title in the RECON record. Words in the extension are searchable on RECON.

The statistics reported for title extensions are very low (see the statistics at the end of this section). Either the reporting of this activity is faulty or not much use of this capability is being made.

Indexing

IPS accepts up to 15 terms in the two index term fields: the Major Terms and the Minor Terms. The minimum required in each field is 2. The normal range is 4-8 terms in each field. The Major Terms are chosen to indicate the main topics of the document; Minor Terms indicate topics that are dealt with in the document but that are not the main focus. This difference in emphasis is used for information retrieval to limit the retrieval set to documents for which the topic of interest is a major focus.

NASA/CASI indexing policy is to index at the most specific level available in the thesaurus terminology. This is in accordance with accepted indexing standards and it provides the search user with access to narrow, specific concepts within the subject domain of the file. The level of specificity (depth) in the NASA Thesaurus varies according to the centrality of the concept to the subject domain, as in all other controlled vocabularies. That is, peripheral topics (e.g., social sciences) are dealt with at a more shallow level than core concepts (e.g., fluid dynamics). To provide access for searchers to concepts at a higher, broader level of terminology, RECON provides an online thesaurus which displays the hierarchy of terminology and permits the searcher to select a set of terms for searching. To take semiconductors as an example, indexers assign specific semiconductor terms such as p-type semiconductors or organic semiconductors. A searcher who is interested in a set of all documents that discuss semiconductors of all sorts would "expand" the term "semiconductor"

using the RECON's thesaurus display and select all of the more specific terms for types of semiconductors to use as search terms. This use of the thesaurus as a search tool is an effective aid and it eliminates the need for the complete hierarchy of terminology (i.e., all of the broad terms for an assigned narrow term) to be added to each record. This latter practice is called "up-posting" or "autoposting" and is used by many other bibliographic databases to accomplish the same end of providing access to the broader concepts represented in the document.

The NASA Thesaurus and the indexing is geared toward technical topics and technical users. Within technologies, the depth of indexing reflects the activities and interests of NASA's technical staff. For example, chemistry is dealt with more summarily than physics; in general, applied technologies are given more emphasis than pure sciences. As NASA interests shift, the terminology also must adjust. For example, more reports on the earth sciences will introduce a need for more specificity in the earth science vocabulary.

NASA/CASI abstractors/indexers review the title, the abstract, and the complete document in order to represent the subject content with thesaurus terminology. The material they are dealing with is primarily highly technical and often focused on one narrow topic. To properly understand the information in the document and translate the concepts into a controlled vocabulary, some familiarity with the topics is necessary. CASI has found that a degree and experience in the physical sciences is the best background for this work.

The indexers also have the assistance of two computer-based tools to guide them in the selection of indexing terms: the subject-switching system for DOE and DTIC tapes and the Machine-Aided Indexing system (MAI) which analyzes the natural language of the titles and abstracts. Both of these tools produce an online list of thesaurus terms for consideration by the indexer. In addition, they use the Frequency command on RECON; this is discussed later in this section.

The subject switching system is described in detail in An Operational System for Subject Switching Between Controlled Vocabularies: A Computational Linguistics Approach (NASA CR 3838, October 1984). The system is based on translation tables that map each DTIC or DOE thesaurus term to an equivalent NASA Thesaurus term as possible. The NASA term suggested as the equivalent of the external term is flagged to indicate the type of match it is as follows (when a direct translation to an appropriate NASA term is made, which is the majority of the cases, there is no flag):

Symbol	Meaning
no flag	The suggested NASA term.
@	Very general term. Use more specific (narrower) term, if possible.
+	This term has narrower terms under it in the hierarchy that the input hierarchy does not have. Choose one of them if appropriate.
>	NASA has only a broader term than the term from the DTIC or DOE record.
NIS	Not In Scope. A term identified as not being of interest to NASA.
?	Context dependent. Indexer choice.
00	If no translation is available or wanted, the system returns 00 instead of a term.

The building and maintenance of the subject switching vocabularies is very labor intensive - constant maintenance and enhancement is required to adjust to new terminology and to refine the relationships. The DTIC switching system is the more complete of the two systems; the DOE system was never fully completed. Three staff members are involved with this project to some degree. One staff member is primarily responsible (June Silvester) and others assist her by suggesting new entries and relationships.

There is currently a TD in process that requests a change from subject switching to MAI. It spells out the LOE requirement and

estimates a computer run time of 1.5 CPU hours per 1000 abstracts.

The MAI process is based on a separate knowledge base of natural language words and phrases and equivalent indexing terminology. The MAI process can be run in batch mode (four times a day) or interactively (with an average 6 second response time). The MAI process is described in some detail in Michael Genuardi's paper from the TKE '90 conference in October 1990, entitled "Knowledge-based Machine Indexing from Natural Language Text: Knowledge Base Design, Development and Maintenance." The terms are presented to the indexer on the screen in the order in which they were developed from the text. This allows the indexer to review the phrasing in context and decide if the term is appropriate. The first 15 terms suggested by MAI are displayed in the Major Term area of the screen; any additional terms are displayed in the Minor Term area and in the overflow area at the bottom of the screen. The indexer edits the list by deleting inappropriate terms, switching terms as needed to the Major or Minor Term field, and adding additional terms. Currently, approximately 60% of the terms suggested by the MAI system are acceptable. This success rate is comparable to other operating MAI systems. Of the final list of terms after indexer editing, 50% of the terms originated from the MAI program and 50% were directly entered by the indexer.

The editing interface is very efficient. Shifting terms from one area to the other is just two-keystrokes - picking up a term from one place and depositing it in another. Deletion takes one-key stroke. Any added terms are validated against the Thesaurus and flagged as invalid if they are not exactly correct. However, the Thesaurus cannot be viewed online during the indexing process. The indexers use both their hardcopy versions of the Thesaurus and RECON to identify the correct terminology. They are not able to simply select a term from a listing; they have to type it in after discovering it from one of these tools.

Access to RECON is provided to the indexers with a simple toggle key that maintains their place in the current indexing activity. This is a very effective set-up for them and is used in numerous ways. One is to access the online thesaurus, as discussed above. Another is to use the Frequency command to discover the terms that have been most frequently used for a topic area. This is done by creating a set of records that match a particular search statement and then displaying the indexing terms of this set by their frequency of occurrence within the set. This process takes time that is often not available in the press of getting the required indexing done, but it is an effective tool. Another use of RECON is to search for acronyms and discover how to spell them out. It is a requirement for acronyms to be spelled out, except for a basic set of acronyms familiar to the NASA community.

Part of the MAI process is a spelling checker. Terms that do not match the terms in the spelling list are flagged for review by the QUALITY CONTROL staff. The reference list is currently limited to only the technical language contained in the MAI Knowledge base. There is a plan to expand the spelling list by using the inverted index from RECON. It is thought that by sorting the inverted index by frequency that the highly posted terms can be accepted as correctly spelled. At some point in the frequency ranking, misspellings will begin to appear. The "legitimate" words can be cutoff at that point. This is in the planning stages. Moving the spell checker process outside of the MAI process is also being discussed so that it can be invoked independently. Spell checking is not being run against the DOE and DTIC tapes presently because they are processed against the subject switching process, not the MAI process.

Evaluation of the effectiveness (success) of the subject switching and MAI programs has not been done on a regular basis. Daily experience with the output is discussed and modifications made as warranted. It is possible to request printouts of the results of the MAI process when it is done in batch mode and this has been done in the past so that comparisons can be made to the final list of terms and percentages can be computed for the portion of MAI terms that are "successful" and the portion of the final list that were created by MAI (the figures quoted above). This process is not automated, however, and it is time-consuming and thus it is not done often.

Another process that has been used is to target a particular thesaurus term and identify the phrases found in the text of the records indexed with this term. This list of lead-in phrases, sorted by their frequency of occurrence, can be examined for possible new knowledge base entries. This is more of a maintenance function than an evaluation function, however.

Other quality control activities include:

1. Feedback from indexers to lexicographers.
2. The staff used to hold periodic meetings to review terminology in a particular domain. There has not been time for formal meetings lately, but staff discuss terminology among themselves.
3. Spell checking has been described above.
4. Review of the work of new abstractor/indexers, but no review for those who have passed through the initial period of training.

NASA Thesaurus

All of this indexing activity is based on the NASA Thesaurus. This set of controlled vocabulary is under constant revision to keep it

current with new developments and NASA interests. New terms (and revisions to structure) are suggested through review of the literature (literary warrant), frequency of occurrence data for various formats of the terminology, and through a formal textual analysis process of specific subject domains.

The abstractor/indexers are a prime source of new terminology from the literature because they are the only IPS staff who actually read the documents (to some degree, at least) and who recognize new terminology that is not reflected in the Thesaurus. They are expected to suggest new terms to Michael Genuardi who will in turn research the new term and suggest a format and structure to the thesaurus lexicographer, Ron Buchan, for implementation. The lexicographer will research the definition of the proposed new term and will search RECON for previously-entered records that should have the new term. The final decision of whether to enter the term and, if so, in what format and with what hierarchical structure, is a joint decision between Ron Buchan and Michael Genuardi.

The IPS indexing screen includes space for proposed terms so that the indexers can easily enter such suggestions during the indexing process. This capability, however, has not been added to IPS. Term suggestions are most often conveyed through the use of a paper form or verbally through discussions of possibilities.

Other sources of new terminology are the IAA, who send lists of suggested terms, and the NASA Center librarians and searchers. Feedback from searching is an excellent source of new terminology, referred to as "searcher warrant". Unfortunately, this is very hard to come by. Inhouse searching is the most reliable way to get such feedback. The amount of searching being done at CASI currently, however, is minimal and so the feedback for searching is also minimal.

The formal process of textual analysis of a particular subject domain is an interesting technique; unfortunately, it takes time to do it and time is often not available. The process consists of creating a set of records relevant to a particular subject area and then ranking phrases and words from the text of the title and abstract by frequency of occurrence. The MAI program contains algorithms for breaking the text into possible meaningful phrases. A review of such a listing, comparing the terminology against the Thesaurus, reveals current phraseology that should be incorporated into the controlled vocabulary either as reference terms pointing to the valid index term or as new index terms. There is also a computer procedure for creating mini-thesauri for particular subject domains that could aid in this process.

The RECON online thesaurus is updated with an overnight batch process; it can be expedited for loading during the day if necessary.

Weekly announcements of new terms and term changes are produced and distributed to subscribers to the NASA Thesaurus, to interested CASI staff, and to contributing partners who are using the Thesaurus to index records. These additions and changes must be written into the hardcopy thesaurus copies of the indexers since there is no online thesaurus directly available to them in the IPS indexing system. "Must" may be too strong a word, since they can access RECON and since the process of writing in additions and changes is time-consuming. Also, since the Thesaurus is only reissued every three years and since the terminology is constantly changing and there is not a lot of white space on the pages of the Thesaurus, the notation process becomes messy.

There is currently an active TO to develop or identify new software support for thesaurus maintenance. It includes a listing of "future capability requirements" that are beyond the scope of the present project. Included here is the desire to provide direct online access to the Thesaurus through IPS to facilitate the selection of indexing terms. In the meantime, there is some discussion of providing a static copy of the Thesaurus in the form of a VSAM file as an interim solution for the indexing process.

Retrospective Indexing

A related activity to thesaurus maintenance is retrospective indexing, whereby new indexing terminology is added to previously-entered RECON records. This capability has the theoretical advantage of eliminating the problem that occurs when terms are created at a certain point in time for an ongoing topic - the usual situation. Most indexing/thesaurus systems annotate each term with its creation date and advise searchers on what terms to use before that date to get the same or approximately the same topic. In practice, free text is usually used to retrieve the concept prior to the creation of the indexing term. CASI attempts to spread each term across the file so that the particular time that the term was created does not affect retrieval. They do not, in fact, annotate terms in the Thesaurus with their creation dates.

Retrospective indexing, however, is a process that must be done with great care to avoid mis-indexing records. The process involves creating sets of records that are potential candidates for the new term. The search strategy is complicated by the need to separate the candidate records into those where the new concept is a major emphasis and those where the new concept is a minor emphasis; into those where the use of the new term is questionable and the records must be reviewed; and into those that have existing terms that need to be deleted to make the indexing correct. This process involves high-level review that is, in some cases, the equivalent of the original concept analysis for indexing the record in the first place.

It is not surprising that currently there is a backlog of terms for which retrospective indexing needs to be done. A shortcut to the process is to apply the new terms only to those records where it is clear that the new term represents a major focus of the document and forget about the more difficult choices.

Additional information about the abstracting and indexing process

Overall estimates for the processing of machine-readable records are as follows:

ESA records . . . . . 10-15 minutes
Mostly index term correction and translation problems.
DTIC & DOE records . . 15 minutes
Mostly indexing.

Analytics cause the same types of problems for A&I as they do for the rest of the IPS process. Individual analytics have to stay in the queue until all of the set is completed. For this reason, the statistics that report on the number of items in each queue cannot be taken at face value as items ready to move on in the production line - there may be hundreds of analytic records that cannot move on until the others in the set are also ready. If analytic sets can be distributed among the abstractors/indexers, they are. This may involve actually tearing the volume apart and distributing the pages. Otherwise, an individual does a complete set of analytics. Because this affects the production flow, the analytic volumes are specifically assigned to individual indexers by the Supervisor of CATALOGING and A&I.

All types of materials move through A&I on a schedule to meet their particular semi-monthly or annual quotas. Annual requirements are subdivided into monthly goals. The STAR production requirements, however, take priority when a deadline is approaching to get enough records for an issue.

The responsibilities of the A&I staff include the following (the first 5 have been discussed above):

1. Abstracting and indexing and title extensions.
2. Maintenance and construction of the MAI knowledge base.
3. Maintenance of the subject switching vocabularies.
4. Maintenance of the NASA Thesaurus.
5. Retrospective indexing.
6. Preparation of NASA/CASI's Acronym Dictionary.
   The latest edition is 1990; another is proposed for 1992.
7. Congressional indexes - 1 or 2 annually
   This is a back-of-the-book type indexing project, using shallow indexing for subjects and persons. Each takes up to 16 hours. They are done on a tight turn-around

requirement - usually over one night. File cards are used to record index entries and page numbers; Terri Marshall keys in the resulting indexing to Congressional specifications.

8. Index to NASA Speeches and News Releases (Headquarters only)
   These items are cataloged as they are received by Terri Marshall using the IPS-Alt system, into the P file. The items are saved through the year and indexed all together for the annual index. A separate thesaurus is used for the terminology and it must be extensively revised each year to cover the current topics. Phil French and June Silvester are both recruited to help out with the effort.
9. Inhouse translations
   The A&I group have been primarily responsible for inhouse translations until recently. There are arrangements being made now to call upon the Translation Group for this assistance.

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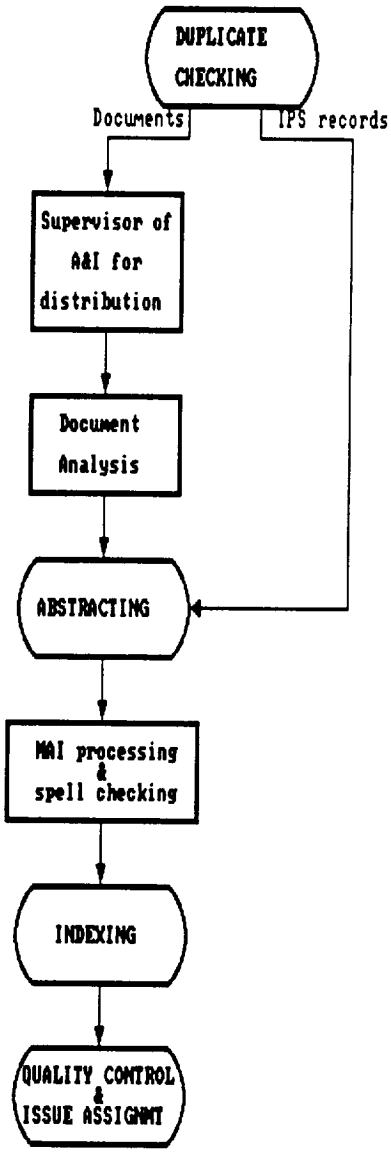
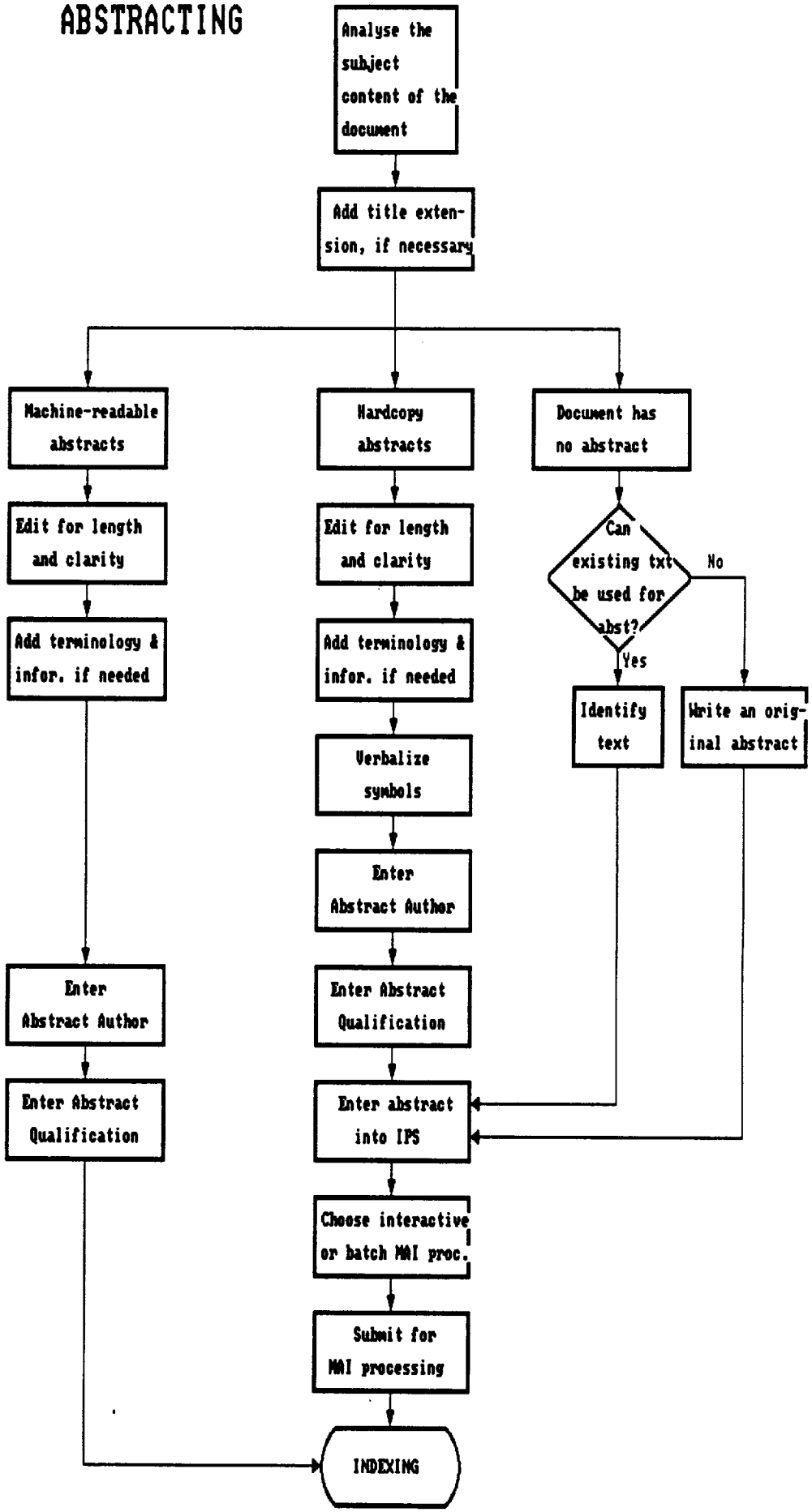
8.3 Work Flow Diagrams

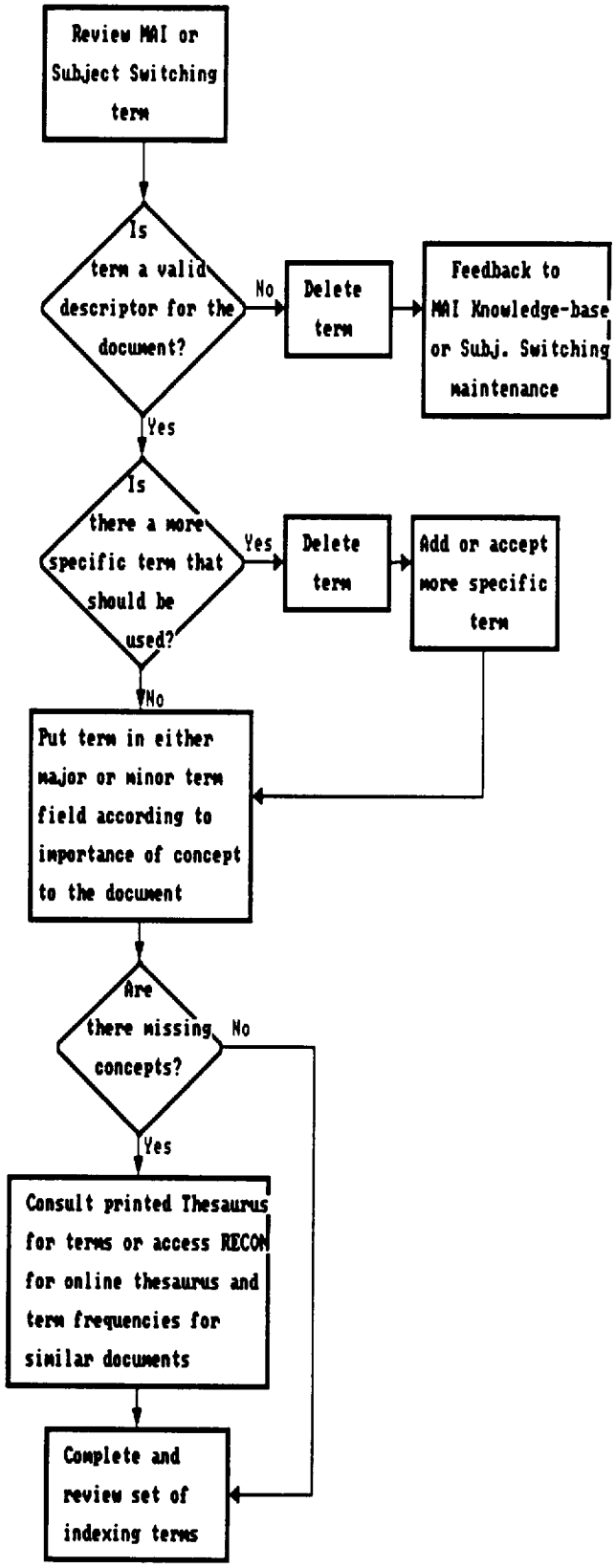
ABSTRACTING & INDEXING OVERVIEW



ABSTRACTING



INDEXING


Review MAI or Subject Switching term
Is term a valid descriptor for the document?
No
Delete term
Feedback to MAI Knowledge-base or Subj. Switching maintenance
Yes
Is there a more specific term that should be used?
Yes
Delete term
Add or accept more specific term
No
Put term in either major or minor term field according to importance of concept to the document
Are there missing concepts?
No
Yes
Consult printed Thesaurus for terms or access RECON for online thesaurus and term frequencies for similar documents
Complete and review set of indexing terms

8.4 Contractual requirements

Abstracting includes **preparation by the contractor of suitable abstracts for: (1) full size hardcopy documents that are not accompanied by abstracts; (2) documents for which abstracts require modification or amendment; and, (3) documents received as microfiche for which suitable abstracts are not received in machine-readable form.** [Contract, 2.2.4]

The abstracting function includes the **processing of usable incoming machine readable records** for selected abstracts to be processed. The contractor will **prepare original abstracts, in accordance with NASA guidelines, for approximately 1000 documents annually.** [Contract, 2.2.4]

Document indexing consists of the selection of appropriate subject terms from the NASA Thesaurus, to cover major and minor concepts within the document. Also included is the preparation of a **title extension**, as needed, to fully describe the document's contents. The contractor will prepare title extensions, in accordance with NASA guidelines, for **approximately 500 documents annually.** The contractor will utilize machine-aided indexing in accordance with NASA guidance in this area. [Contract, 2.2.5]

The NASA Thesaurus file contains the current approved subject terms and cross references, for indexing entries into the STI database. **The contractor shall update and maintain the NASA Thesaurus file for use in processing, search and retrieval, and required issuances.** [Contract, 4.2.2]

This task covers **the creation of lexical dictionaries for use in interagency subject switching and in automatic indexing.** A Lexical Dictionary is a computer resident file consisting of natural language words and phrases and non-NASA (DOE, DOD, and others) controlled vocabulary terms mapped onto the <u>NASA Thesaurus</u> controlled vocabulary. [Contract, 4.2.5]

Computer-aided indexing requires **the establishment of an additional computer resident file, the Recognition Dictionary. The contractor shall look for and apply ways to improve and modernize these computer-aided indexing techniques so as to become an integral part of input processing.** [Contract, 4.2.5]

This task covers **maintenance of the NASA Lexical Dictionary.** The maintenance task involves updating by addition or deletion of authorized terms. [Contract, 4.2.6]

The contractor shall prepare specified indexes, listings, and related products. Manual and/or automated techniques shall be used to

prepare these indexes and listings, as appropriate. The indexes shall be individually tailored to NASA requirements. Index copy may be manuscript, camera-ready copy, or some other form as specified. [Contract, 6.1]

	Title	NASA SPEC. No.	
6.3.1	Congressional Indexes - House Appropriations (On Demand)	15	WBS 06.01
6.3.3	Index to NASA News Releases and Speeches (Annual)	18	WBS 06.04
6.3.4	Special Indexes (On Demand)	**	WBS 06.05
6.3.6	NASA Thesaurus Hierarchical Update (Semi-Annual)	25	WBS 06.07
6.3.7	NASA Thesaurus Combined File Posting (Semi-Annual)	27	WBS 06.08
6.3.8	NASA Thesaurus Supplement (Semi-Annual)	56	WBS 06.09
6.3.18	NASA Thesaurus (Triennial)	24	WBS 06.21

WORK BREAKDOWN STRUCTURE (WBS)
WITH ANNUAL VOLUMES

WBS NUMBER	TITLE	UNIT	AMOUNT
.02	NASA Thesaurus Transactions	Trans.	6,000
.05	Lexical Dictionary Establishment	Dictionary	1
.06	Lexical Dictionary Maintenance	Trans.	40,000[13]
.07	NASA Thesaurus Hierarchical Update (Semi-Annual)	Issue	2
.08	NASA Thesaurus Combined File Posting (Semi-Annual)	Issue	2
.09	NASA Thesaurus Supplement (Semi-Annual)	Issue	2
.21	NASA Thesaurus (Triennial)	Issue	1

[13] According to CASI staff, this number is much higher than the actual transactions that have been needed, based on past history. A more reasonable requirement would be 2000 maintenance transactions and 4000 enhancement transactions.

8.5 Indices of performance

The following chart summarizes data that relates to Contract requirements for the vocabulary control activities.

	Contract Requirement	Total (Year)	Percentage of Requirement Met
Lexical Dictionary Transactions	40,000		
Subject Switching		175	
MAI Knowledge Base Actions, Total		2,796	7.43
New entries		2,597	
Changes		182	
Deletions		17	
Thesaurus Transactions, Total	6,000	1,359	22.65
Additions		1320	
Deletions		39	

It needs to be noted that the Contract requirements do not include activity levels for other activities of the lexicography group such as retrospective indexing.

As stated in the description of the A&I activity, the staff is aware of the fact that they have not had the resources to use on vocabulary control activities as they would like to be able to do.

The following statistics are reported on a monthly basis. Examples of each are given.

Technical Reports Through-Put (Exhibit II.A)

	Sept	Oct	Nov
ABSTRACTING/INDEXING	2,068	2,385	1,961

Total for the year = 30,064

Technical Reports In Process (Exhibit II.B)

	Sept	Oct	Nov
ABSTRACTING/INDEXING	943	1,068	1.599

Average per month = 878

Abstract Types (Quarterly) (Table 7)

This data is reported by RECON file. The examples here are totals for the quarter only.

	Sept
CASI originated	8258
Machine readable	
DTIC	1810
DOE	1332
ESA	123
ISA	0
NASDA	37
CISTI	0
None	2073
Author originated	2249
Dissertation	324
Contents note	67
CASI modified	3437
Shortened	427
Rewritten	2
Grammar Corrected	3008
Translations	499

Work Flow Analysis : Section A : Abstracting & Indexing

Abstract Input (Table 7 - Quarterly)							
	March	June	Sept	Dec	Total	Average	% of Total Abs
SOURCE OF ORIGINAL ABSTRACT							
CASI originated	372	266	243	196	1077	269	5%
Machine readable							
DTIC	1105	1185	1810	757	4857	1214	21%
DOE	1127	1099	1332	782	4340	1085	18%
ESA	873	1155	123	1382	3533	883	15%
ISA					0	ERR	0%
NASDA	62	53	37	2	154	39	1%
CISTI	37				37	37	0%
Total	3204	3492	3302	2923	12921		55%
Author originated	1749	2302	2249	1990	8290	2073	35%
Dissertation	271	184	324	137	916	229	4%
Contents notes	55	89	67	64	275	69	1%
Total abstracts	5651	6333	6185	5310	23479	5870	100%
ACTIONS TAKEN ON ORIGINAL ABSTRACTS							
CASI modified							
Shortened	239	291	427	339	1296	324	6%
Rewritten	4	3	2	5	14	4	0%
Grammar corrected	2874	2816	3008	2700	11398	2850	49%
Total	3117	3110	3437	3044	12708	3177	54%
% of total modified	55%	49%	56%	57%	54%		
Translations	453	223	499	160	1335	334	6%
% translated	8%	4%	8%	3%	6%		
Records with no abstracts (DLS,DLSLD,DRO,DROLD)							
Total	2489	2897	2073	472	7931	1983	
% of total w/o abstracts	31%	31%	25%	8%	25%		
Total with and w/o absts	8140	9230	8258	5782	31410	7853	

Retrospective Indexing Transactions

Total = 9,145 Average per month = 762

Documents with Extended Titles (Table 8, Quarterly)

March	June	Sept	Dec	Total
4	1	0	3	8

The data in this table do not sound reasonable. The process of collecting this data needs to be checked as well as the format of reporting it.

8.6 Bibliography of supporting documents

Interview with Michael Genuardi and Barbara Henry.

Buchan, Ronald L. (1991). Quality indexing with computer-aided lexicography. (Based on presentations at NGAIS and ASIS). (Submitted for publication).

Genuardi, Michael T. (1990). Knowledge-based machine indexing from natural language text: Knowledge base design, development and maintenance. In TKE '90: Terminology and Knowledge Engineering. Proceedings 2nd International Congress on Terminology and Knowledge Engineering, 2, 345-351.

NASA. (March 1, 1991). NASW-4584 Award/Contract.

NASA. CASI. TD 91-070

RMS Associates. (1990). NASA Center for AeroSpace Information. Facilities Operating Manual.

Silvester, June P., Newton, Roxanne, & Klingbiel, Paul H. (1984). An operational system for subject switching between controlled vocabularies: A computational linguistics approach.. (NASA CR 3838).

Silvester, June P., Klingbiel, Paul H. (1992). An operational system for subject switching between controlled vocabularies. (Submitted for publication to Information Processing & Management).

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9. QUALITY CONTROL & ISSUE ASSIGNMENT

9.1 Highlights

Staffing: 2 persons in the ACCESSIONING group

Current staff: Karen Zaiser & Carolyn Jilek

Function: Proof reading of the IPS record for final quality control. Releasing records for RECON load and STAR issues.

9.2 Description

The QUALITY CONTROL station in the IPS process is the final step before the records are released for loading into RECON. There are usually two people assigned to this work; for the last three months of 1991 there was only one person doing it: Karen Zaiser. A new person has been recently hired.

Casefiles are placed on the QUALITY CONTROL shelf when they are completed by ABSTRACTING/INDEXING; they are placed on the shelf by file, i.e. by 1N, 1X, etc. The accompanying records are moved to the QUALITY CONTROL queue. Each online record is called up on the monitor and the information is proofed, using the hardcopy or the printout of the online record as the reference. Occasionally, the microfiche copy of the document also has to be consulted to make sure that the author names or title or affiliations are correct.

The fixed field information is checked first. QUALITY CONTROL can change the entries for Subject Category and can add a COSATI code directly, but if any other changes have to be made, they have to be taken back to the appropriate station (CATALOGING or EVALUATION). If a COSATI code has to be deleted (rather than added), EVALUATION has to be asked to do it. Other fields that have to be corrected with some frequency are the page numbers and the language fields. Only CATALOGING can make these changes to these fixed fields.

Next, the bibliographic information is checked. If errors are found, they can be corrected directly. When the original document is in hardcopy, the data of the record can be compared to the original document directly. If the original document is on microfiche, the microfiche is consulted only if any of the data looks suspicious, on the printout of the bibliographic record as well as in the IPS record. If the microfiche shows additional authors that were not included in the bibliographic record, QUALITY CONTROL can add them.

Limitations in editing ability at this point also exist. If a title needs to be reduced to one line from two lines in the editing process, QUALITY CONTROL cannot delete the extra line. If a prefix for a contract/grant number needs to be changed (C = Contract & G = Grant), QUALITY CONTROL cannot do it - only CATALOGING.

Next, the abstract is checked. Words flagged by the spell checker as not being found in the dictionary are listed to the side of the abstract. Each of these is checked to see if there is a misspelling; all such errors are corrected. The abstract is read through and compared to the printed original abstract (if available). Corrections are made to make it read clearly, if necessary, and to correct omissions and other such errors.

After proofing the record, the record is released for loading into

STIMS. Under the present system[14] (which is being changed to nightly & weekly loads of all series), records are collected and released to meet the publication schedule for STAR and the processing goals for the other series: 1N, semimonthly; 1X, monthly; 7N & 7X, semimonthly; 9N and 9X, quarterly; 1K, monthly; and RTOPS/News Releases & Speeches, annually. Under this system, the 1N records are collected for loading until approximately 1000 records are available. The balancing of the content of the set is controlled by the Supervisor of CATALOGING & ABSTRACTING/INDEXING (Barbara Henry).

Currently (before implementation of the revised IPS), a request for an IPS issue (by series) is made via the "Accession Cut-off Report" form. The form contains the following information:

[14] The process of issue assignment and proofing has changed substantially with the implementation of the revised IPS system in February 1992. Now it is no long possible to review an entire issue for data consistency and errors. A new process has been developed which uses existing IPS records as the basis for checking the indexes for each issue.

ACCESSION CUT-OFF REPORT

ISSUE NUMBER _____ (Example: 1X01)
ACCESSION CUT-OFF DATE _____ (Example: 1-19-92)
ACCESSION RANGE _____ THRU _____ (Ex: X92-10001 THRU X92-10094)
TOTAL ACCESSIONS _____ (Example: 94)

LIST OF CASI PERSONNEL WHO WILL RECEIVE COPIES OF THE CUT-OFF REPORT: (Currently 11 copies distributed)

DISTRIBUTION:
D. Drumheller: (1N/1X Title Reports/Mastheads)
C. Lee: Cut-off Report, Temp. List, Accn. List, (1N/1X Labels and Casefiles)
T. Mosley: Cut-off Report, Temp. List, Accn. List, (All Series)
Document Supply: Cut-off Report, Temp. List, Accn. List, (7N, 7X, 9N, 9X Labels and Casefiles)
P. French: Cut-off Report, 1X, 7X, 9X (Including all STIMS Dumps)
Accessioning Department: Temp. List (All Series)

This request results in an overnight process of preparing the records for loading into STIMS. The next morning the following listings are distributed for proof reading: Error listing from automatic checks of the data; Author listing, Contract number listing; and Report number listing. The Report number listing is reviewed by the ACCESSIONING staff and the others are reviewed by QUALITY CONTROL. When the authors and contract numbers and report numbers are listed in sorted lists, it is possible to spot entry errors that are otherwise not evident. If an author appears on the same list with different forms of his/her name, the entries are standardized to the more fully spelled out form (after checking the actual documents to confirm that the authors are the same person). Report numbers and contract numbers are changed to the correct form as needed.

All changes are made to the records as needed in one day. The next morning, the second proof reports are ready and are checked. Final copy is available on the third day for review.

When this process is completed, the physical documents are delivered to micrographics. The 1N and 1X casefiles go to Clarence Lee; the 7 and 9 series go to Odenia Merritt.

After the change in the IPS process, records are released on a nightly basis.

The original proof reading, comparing the online record to the casefile, is done on a continuous basis. A comfortable rate is about 100 records per day, although as many as 200 per day per person has been reached to meet a crisis situation.

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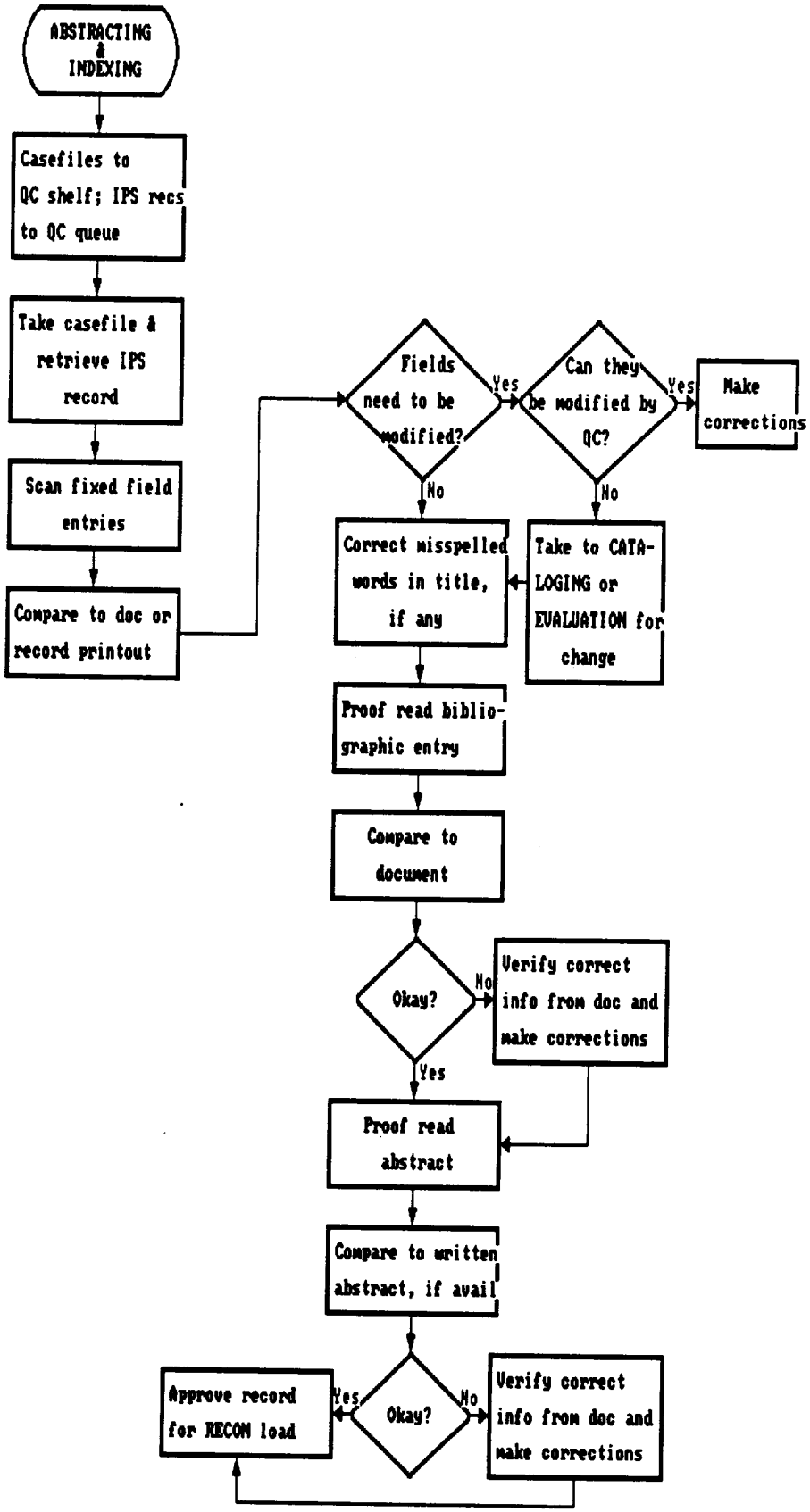
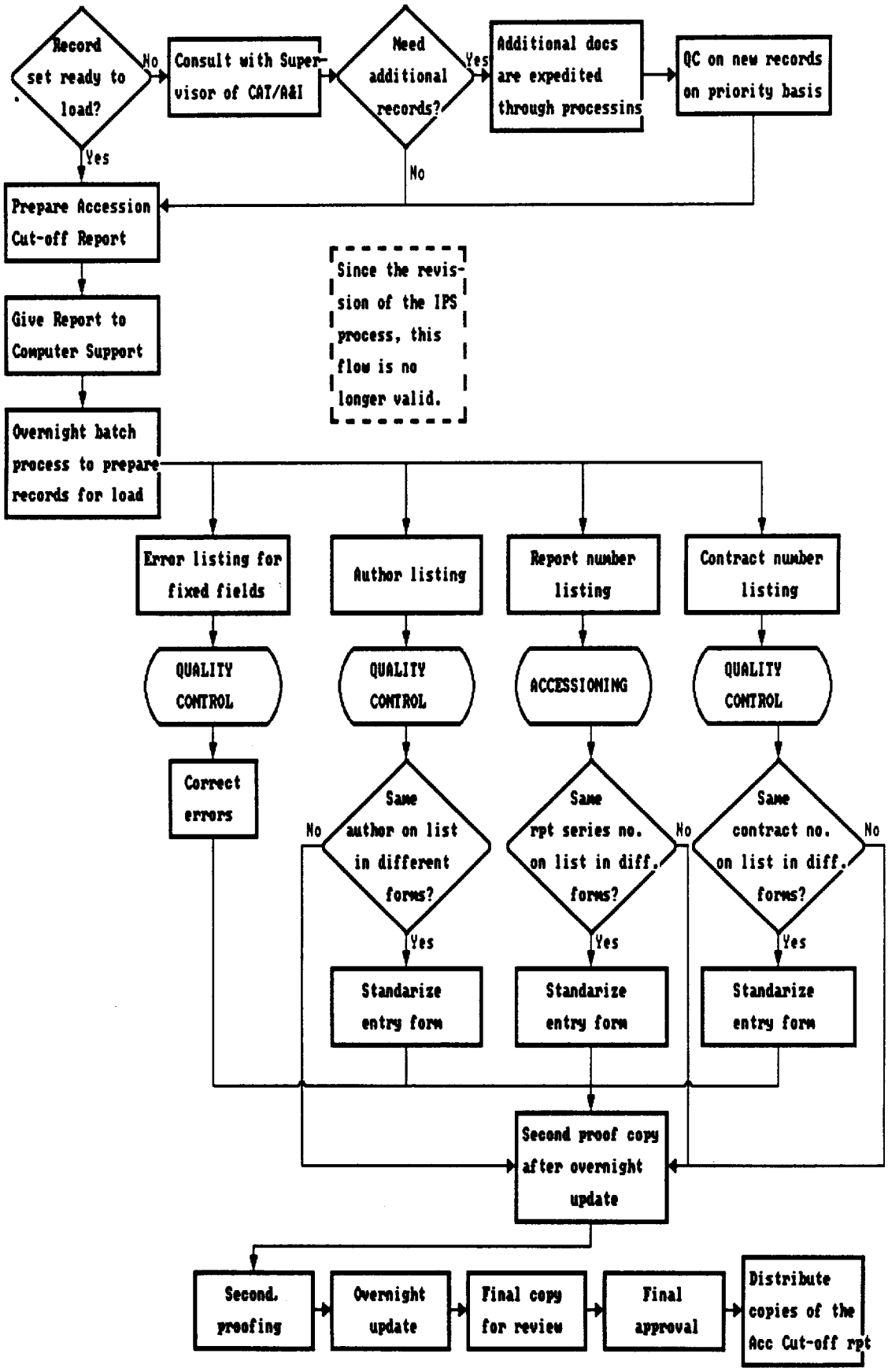
9.3 Work Flow Diagrams

QUALITY CONTROL



ISSUE ASSIGNMENT/RECON LOAD REQUEST



9.4 Contractual requirements

The contractor shall **assure the quality control of the products** specified herein in accordance with the specifications, standards, regulations, manuals and other documents specified in the applicable documents furnished by NASA. The contractor's quality control system shall be subject to NASA approval. [Contract, 4.0]

9.5 Indices of performance

Technical Reports Through-Put (Exhibit II.A)

	Sept	Oct	Nov
QUALITY ASSURANCE	2,147	2,162	2,580

Total for the year = 32,991

Technical Reports In Process (Exhibit II.B)

	Sept	Oct	Nov
QUALITY ASSURANCE	203	634	172

Average per month = 282

9.6 Bibliography of supporting documents

Interview with Karen Zaiser.

NASA. (March 1, 1991). NASW-4584 Award/Contract.

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10. BACKFILE MAINTENANCE

10.1 Highlights

Staffing: 1 designated staff person in the ACCESSIONING group, with backup by other ACCESSIONING staff.

Current staff: Carolyn Jilek

Function: To modify, delete, or reassign RECON records through TSO commands.

10.2 Description

The BACKFILE MAINTENANCE operation includes data changes and deletions (kills) to the STIMS database and deletions of blocks of records from IPS. The STIMS actions are done primarily by ACCESSIONING staff through TSO commands and thus require special training. The IPS deletes are done by the QUALITY CONTROL staff.

Requests for BACKFILE MAINTENANCE are received from external sources as well as from CASI staff. Several members of the ACCESSIONING staff have been performing BACKFILE MAINTENANCE. Recently, however, a new staff member was hired to fill the vacant position that primarily handles this responsibility. A form previously used for BACKFILE MAINTENANCE requests is no longer used because the communication of the request has become more direct with fewer separate IPS staff groups involved. ACCESSIONING staff retrieves the affected casefile and verifies the requests for data changes and kills before proceeding.

Some BACKFILE MAINTENANCE operations to STIMS are routine. They include

1. Adding AD numbers to existing records when they are discovered to be duplicates of records arriving on DTIC tapes. The duplication is discovered at the formal DUPLICATE CHECKING stage, after CATALOGING.
2. Patent application records are killed when the related patent or a Notice of Abandonment of an application is received.
3. FEDD and LD limitations on the distribution of records is removed either after two-years automatically or on request.
4. Modifications to R&DCS records when contract/grant extensions, etc. are received (done by the CATALOGING staff).

Some BACKFILE MAINTENANCE requests are on an individual basis. They include changes to or additions of report numbers, authors, corporate sources, etc. and the deletion of records that are duplicates or superseded or withdrawn or transferred from one accession series to another, etc.

Block deletions from the IPS file are routine and include

1. Removal of blocks of records by temporary accession number after they have been loaded into STIMS and all of the processes related to loading, printing, and micrographics have been verified.

2. Annual deletion of the RTOP records and records for Speeches and News Releases so that a new set can be entered. (The possibility of reusing the RTOP records is being discussed.)

In connection with the loading and printing of STAR records, the final proofing of the printed product sometimes uncovers errors that need to be corrected. The corrections are made to the printed copy, sometimes requiring a cut-and-paste operation, and are also submitted for subsequent correction to the STIMS record(s) through BACKFILE MAINTENANCE.

All BACKFILE MAINTENANCE to the STIMS database is done through TSO commands. Examples of the commands follow:

	Command	Meaning
1.	1N*8212345*1*I	Make accession number 82N12345 Inactive (I).
2.	7X*7473179*C*DSC *1*U	Create (C) the DSC field in record 74X73179 and enter "U" in the field for Unclassified.
3.	1N*8312345*R*SAP01*1*AA*Avail: Issuing Activity	Replace (R) everything (AA) in segment 01 of the SAP field with "Avail: Issuing Activity".
4.	7X*8376543*A*DLN01*1*Killed, duplicate of X83-71561	Add (A) a delete note (DLN), in segment 01, saying "Killed, ..." to record 83X76543.

When changes are made to a segmented field (for example, title and abstract) on STIMS - that is, one of the many fields that is stored in sequential segments - the TSO command must designate the specific segment where the change is to be made. If the change is to the beginning of the field, segment 01 can be assumed. Otherwise, a dump of the STIMS records must be requested using a TSO job called CAIDUMP. This job is accessed through a menu in CAI.LIB.DATA (CAI stands for Cataloging, Abstracting, Indexing). When the Dump program is selected from the menu, the program is listed on the screen. The staff member then enters the required string in the appropriate part of the program. The following is an example of such a string, with an explanation of its parts:

00119000018312345

_____ (5 digits)	_____ (5 digits)	_____ (7 digits)
File number	Number of	Beginning
00119 = STAR	records	Accession number
	requested	8312345 = 83N12345
	00001 = 1 record	

This results in a paper printout of the record(s) in segmented form which is then picked up from the printer in the computer area. All IPS staff are not comfortable with this process. Because the lead cataloger uses this same program for maintenance of the corporate source codes, she is often called upon to assist in getting record dumps.

Killing a record is a three-phase process:

Phase I:	Flagging the target record as Inactive. In this state, a record can be seen but not ordered.
Phase II:	A note is added to the record (must already be Inactive) such as "Killed, duplicate of [accession #]" or "Killed, superseded by [accession #]".
Phase III:	Data and index entries of the record are deleted, leaving only the note with the accession number.

Action on a Phase I request to make a record Inactive is an overnight process. A computer-generated report on the action is distributed the next day and is reviewed by the one initiating the action. At that point, the next two phases can be initiated.

Kill actions can be either a complete kill and removal of the record from STIMS, as in the case of a patent application for which the patent has been received or a request from DTIC to remove a record, or it can be only a masking of the data from view. In either case, the action can include a request to pull the record back to IPS for reprocessing. The reprocessed record is given a new temporary number and, eventually, a new accession number and the data is modified as necessary.

When a record is reprocessed, the old casefile is kept in ACCESSIONING (with a sheet of paper saying that this is a pull-back) and RECON is checked periodically (monthly, if possible) to find out if the new record is online. During this time, the old record is flagged as being Inactive. When the new record is found, the kill action is completed on the old record.

Casefiles for killed records are refiled in the same place in Document Storage with a notice that the record has been deleted from STIMS and a referral to the new Accession #, if there is one.

It is possible to transfer a block of records from one accession series to another through TSO commands, but this is done rarely. The process automatically takes care of deleting the accession number from one series and assigning a new one in the new series.

Records in 9N and 9X cannot be pulled back to IPS for modification.

All kills and some data changes to STAR records are announced to NTIS each month by letter. The data changes announced are those that affect searching; this does not include minor changes to abstracts, for example. The letter is prepared by the IPS Administrative Assistant from the printouts received from BACKFILE MAINTENANCE operations.

All BACKFILE MAINTENANCE operations are counted for the monthly statistical report, using the computer-generated reports of transactions.

All BACKFILE MAINTENANCE operations are checked on RECON to make sure that they were done correctly. If appropriate, the person requesting the change is notified that it was done.

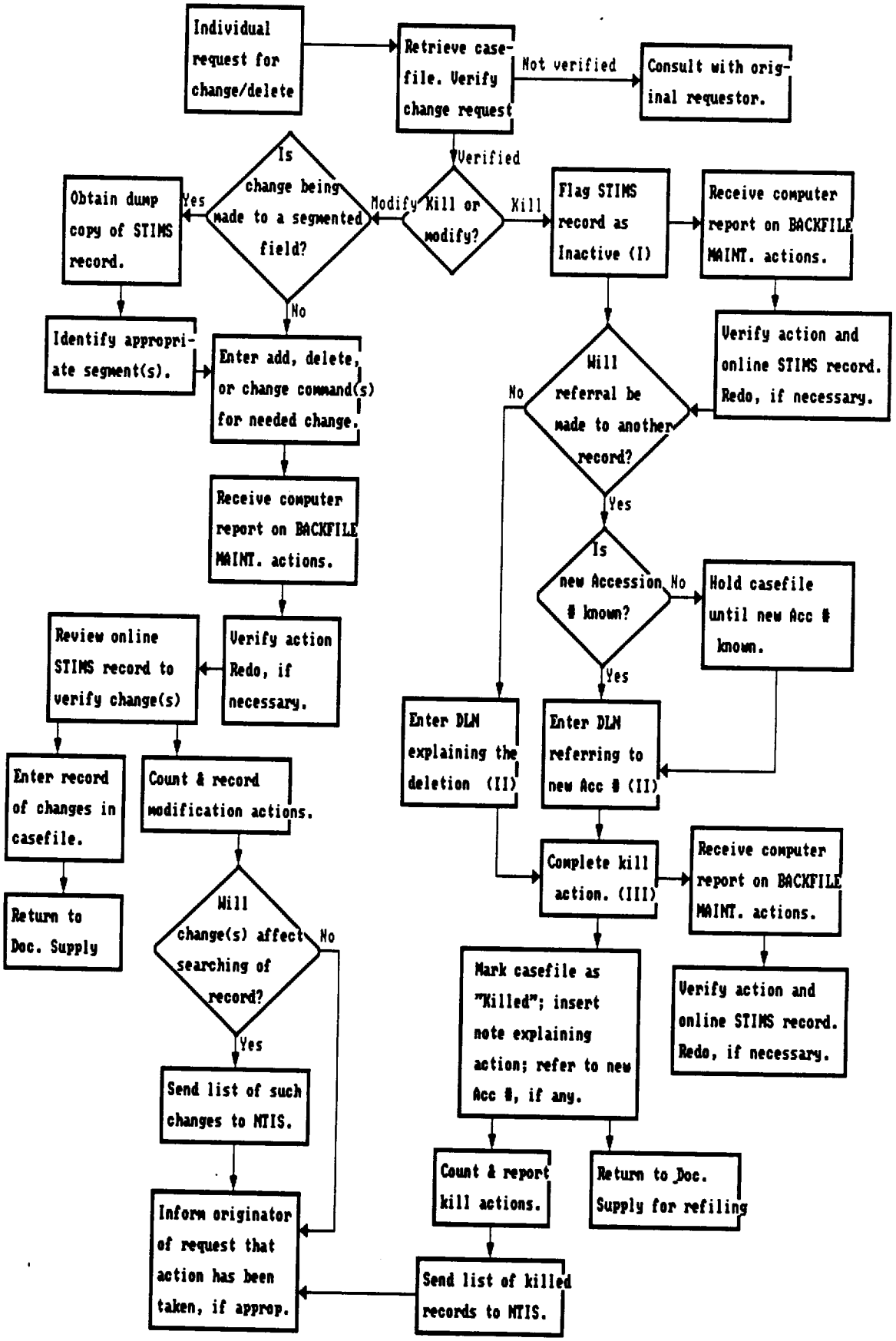
A similar operation on STIMS records is the retrospective indexing process whereby changes are made to the indexing terms of particular records. This operation is totally under the control of the Lexicographer and is supported by separate job submission routines. Accession numbers are identified for either add or delete actions on the index terms; the Major or Minor Index Term field is identified; and the new term or the term to be deleted is given. This process is discussed in more detail in the CATALOGING section.

A134

10.3 Work Flow Diagrams

BACKFILE MAINTENANCE

WFD 10.1



10.4 Contractual requirements

2.3.13 Database Changes and Corrections WBS 02.16

The contractor shall maintain the computer files to ensure a correct and complete database by changing data elements and correcting the STI Facility Scientific and Technical Information Modular System (STIMS) files in a timely fashion as needed. This task includes the identification, documentation, transaction coding and keying, update request and verification of all data elements to be changed, and reporting to NASA Headquarters on changes made to the N10,000 file and the reason for these changes.

WORK BREAKDOWN STRUCTURE (WBS) WITH ANNUAL VOLUMES

2.16	Database Changes and Corrections	Trans.	3,500

10.5 Indices of performance

The following data is from the monthly Report of Center Operations, Section 02 - General Status (March 1991-February 1992):

Kills processed	382	(= 1146 transactions)
Data Changes processed	1,225	
Data Transactions processed	2,371	

Each time a record is "killed," 3 transactions are required. The figure for "Data Transactions processed" is the total of the kill transactions (1146) and the Data Change transactions (1225).

10.6 Bibliography of supporting documents

Interview with Thelma Mosley.

NASA. CASI. TO 91-29. Upgraded STIMS Update Capability : Functional Requirements Document. October 22, 1991.

Section B: OVERVIEW - CUSTOMER REGISTRATION AND DOCUMENT SERVICES

CASI is responsible for acquiring, processing, disseminating, and preserving:

1. NASA Generated/Sponsored Report Literature-the result of NASA in-house work or work performed by NASA contractors or grantees.

2. Non-NASA Report Literature from Domestic sources exclusive of NASA sponsorship but including both domestic and foreign originated reports received from:

    a. other federal agencies and their information centers such as Department of Defense's DTIC and Department of Energy's OSTI, and

    b. other domestic non-federal government sources such as private industry, research institutions, academic institutions, and state and local governments.

3. Foreign Originated Report Literature from Foreign Sources including those items pre-processed by the European Space Agency (ESA) and the National Level Foreign Exchange Organizations for the NASA information systems (both fully pre-processed, and partially pre-processed, i.e., cataloged only). CASI records the literature sources and maintains the records by Distribution and Control Analysis File (DCAF) numbers.

4. Published Literature primarily from foreign sources, also includes article reprints from domestic periodicals and NASA-authored, published literature items. This material is forwarded to AIAA/TIS for possible announcement in IAA. CASI maintains records on foreign receipts by Distribution and Control Analysis File (DCAF) numbers.

5. R&D Contracts and University Programs' Grants and projects to assure that NASA-generated and NASA-sponsored reports are received by the NASA scientific and technical information system.

Section B of this report concentrates on the functions of the User Services Section and the Technology Utilization Office of the STI Services Division (see **Figure B1**), and the Media Conversion Section of the STI Products Division (see **Figure B2**).

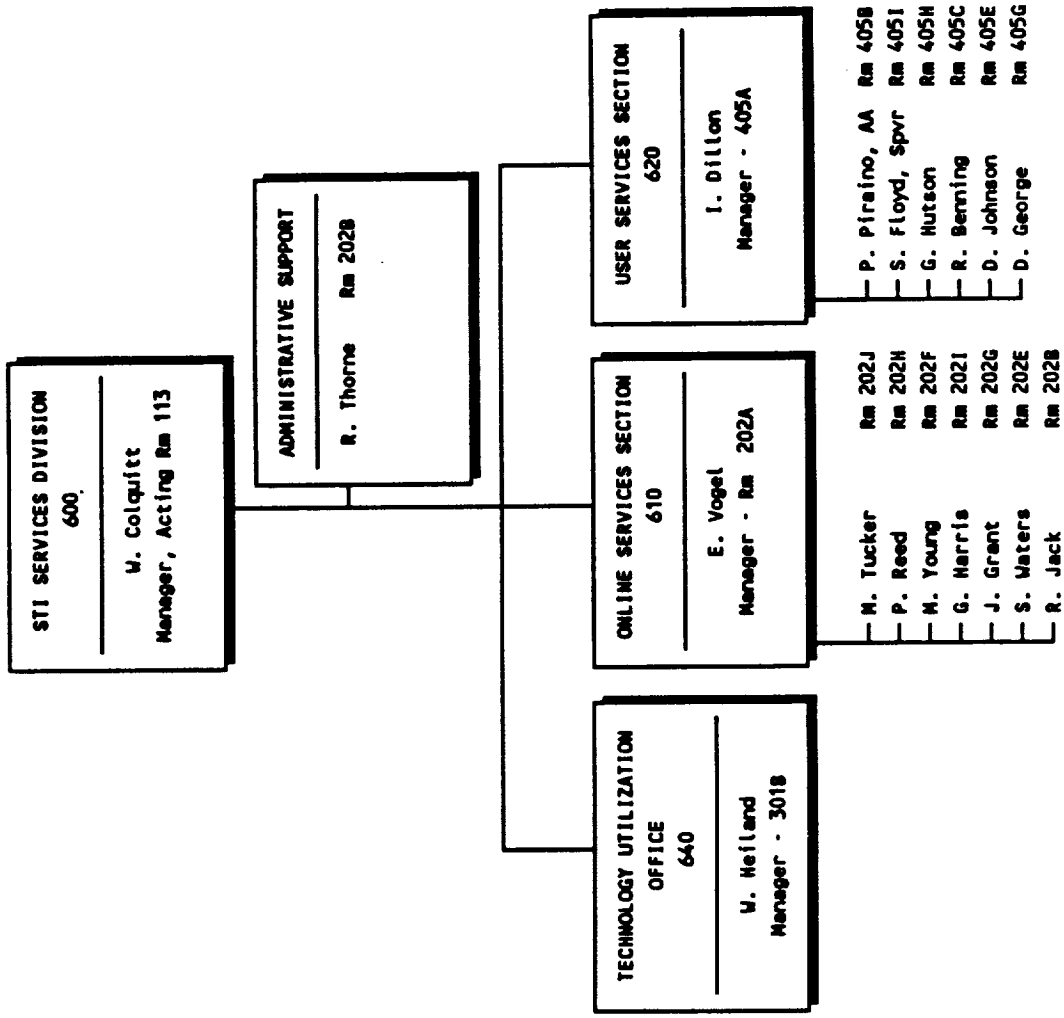

STI SERVICES DIVISION
600
W. Colquitt
Manager, Acting Rm 113
ADMINISTRATIVE SUPPORT
R. Thorne Rm 202B
USER SERVICES SECTION
620
I. Dillon
Manager - 405A
P. Piraino, AA Rm 405B
S. Floyd, Spvr Rm 405I
G. Hutson Rm 405H
R. Benning Rm 405C
D. Johnson Rm 405E
D. George Rm 405G
ONLINE SERVICES SECTION
610
E. Vogel
Manager - Rm 202A
M. Tucker Rm 202J
P. Reed Rm 202H
M. Young Rm 202F
G. Harris Rm 202I
J. Grant Rm 202G
S. Waters Rm 202E
R. Jack Rm 202B
TECHNOLOGY UTILIZATION
OFFICE
640
W. Heiland
Manager - 301B

Figure
B1

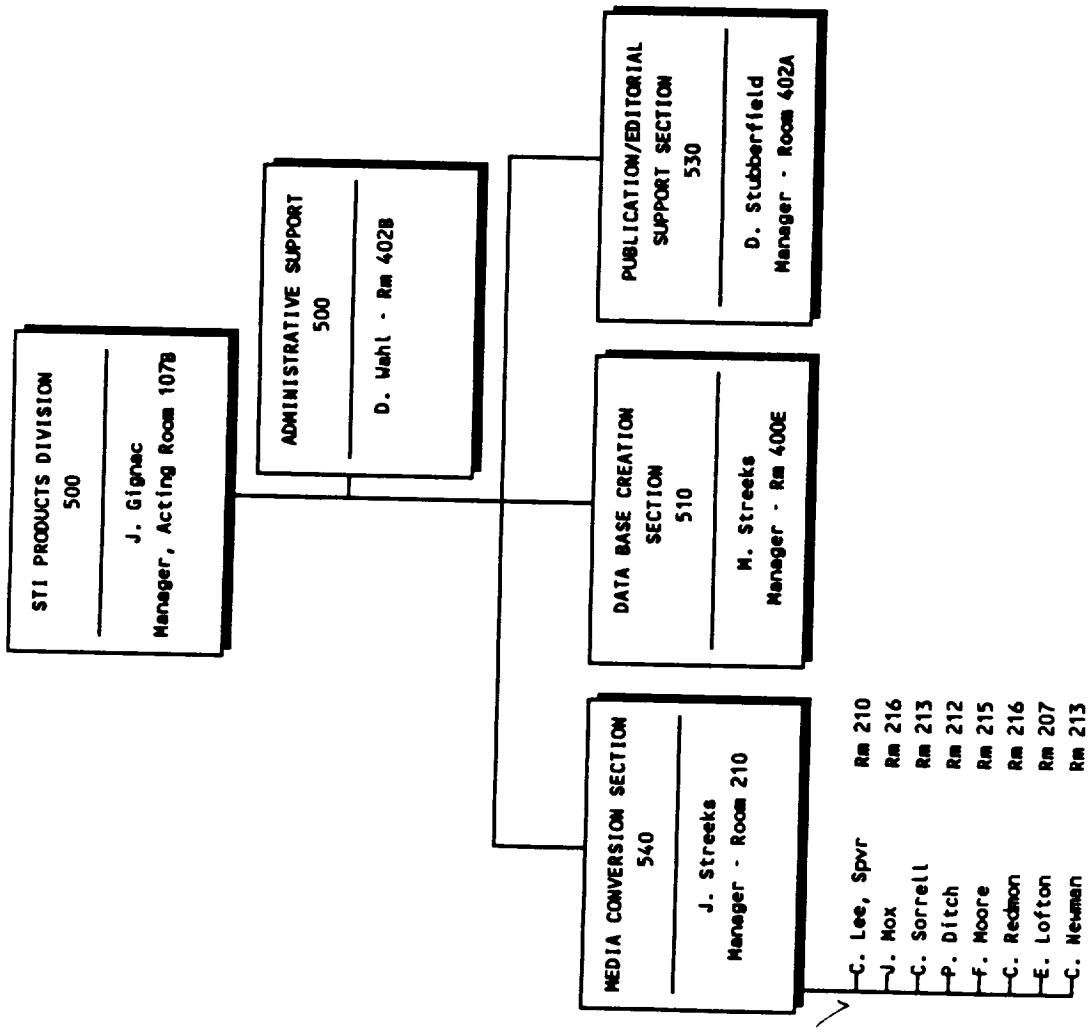
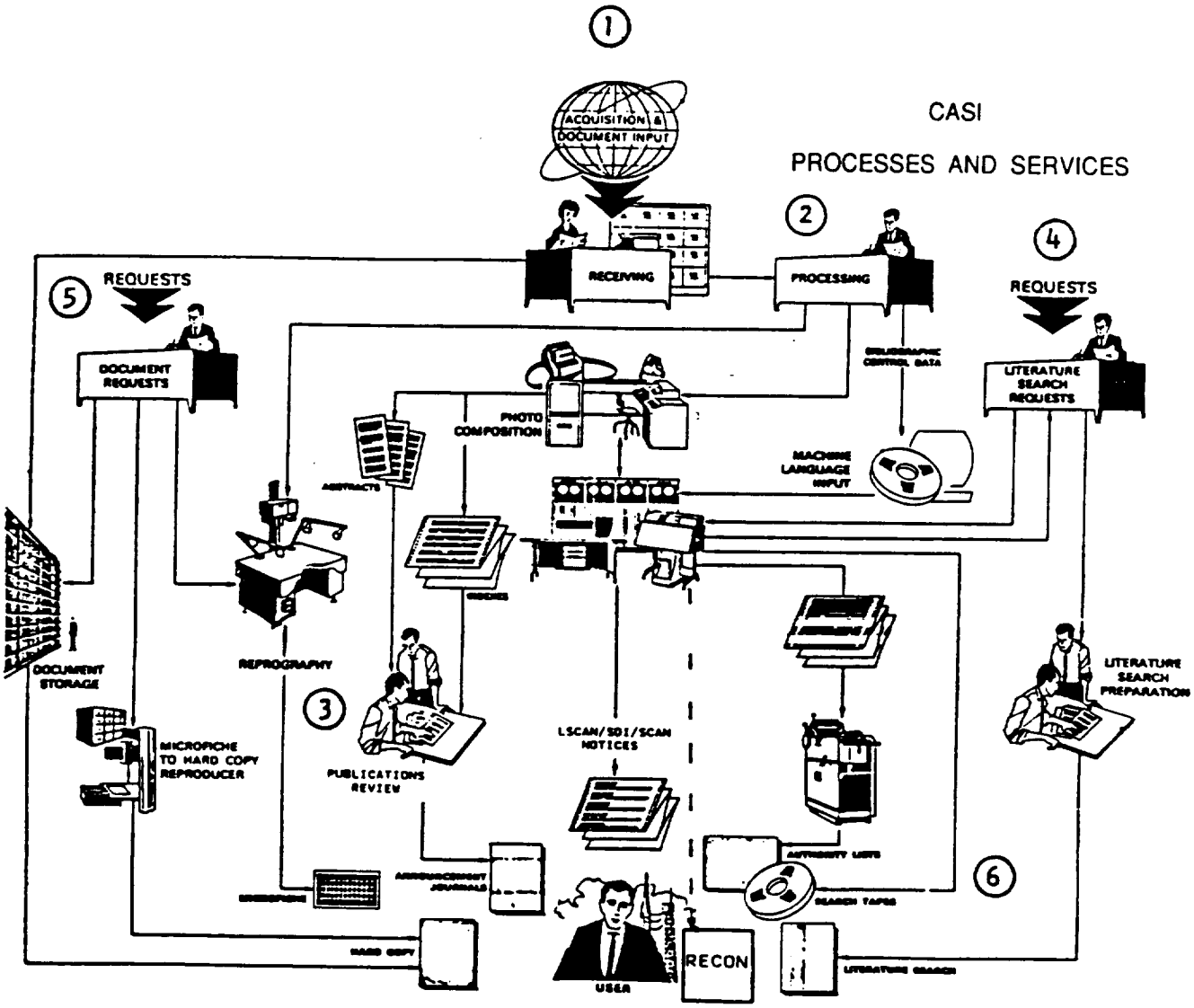

STI PRODUCTS DIVISION
500
J. Gignac
Manager, Acting Room 107B
ADMINISTRATIVE SUPPORT
500
D. Wahl - Rm 402B
PUBLICATION/EDITORIAL
SUPPORT SECTION
530
D. Stubberfield
Manager - Room 402A
DATA BASE CREATION
SECTION
510
M. Streeks
Manager - Rm 400E
MEDIA CONVERSION SECTION
540
J. Streeks
Manager - Room 210
C. Lee, Spvr Rm 210
J. Mox Rm 216
C. Sorrell Rm 213
P. Ditch Rm 212
F. Moore Rm 215
C. Redmon Rm 216
E. Lofton Rm 207
C. Newman Rm 213

Figure
B2

Figure B3 CASI Operations and **Figure B4, Registration and Product Control System (RPCS) Processing Flow** (diagram prepared by the CASI/RMS data processing staff as part of their RPCS requirements analysis), are included to aid reader visualization of the CASI Customer Support and Document Services activities described in detail in Section B.

Sections **B14 - Document Inventory Control System; B15 - Document Preservation, B16 - Reporting, and B18 - Automated Systems: USER SERVICES** present new initiatives or improvement ideas gathered in the process of reviewing the CASI User Services activities.



CASI OPERATIONS

Figure
B3

Registration and Product Control System (RPCS)

Processing Flow

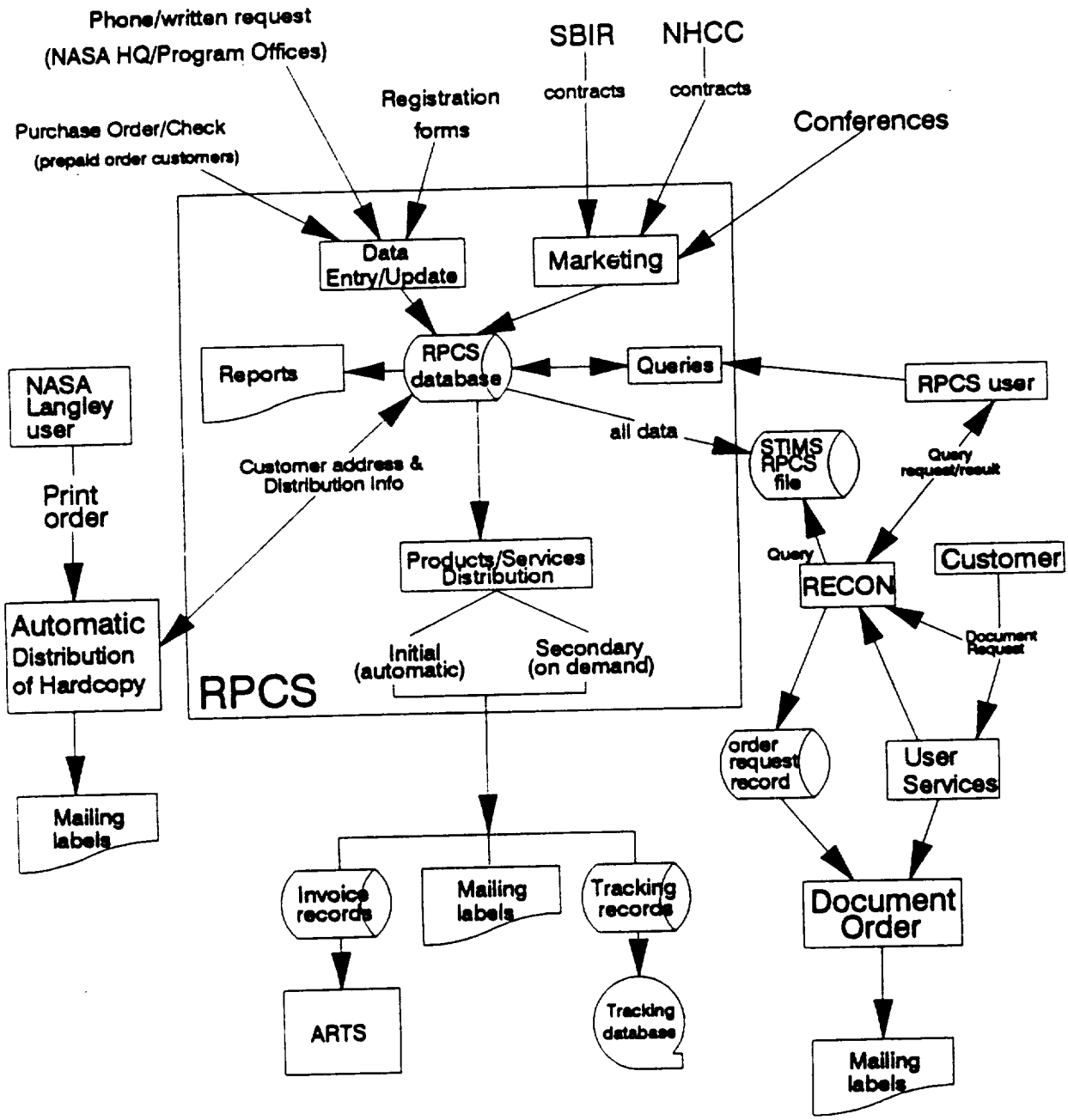


Figure
B4

11. REGISTRATION SERVICES

CASI registration activities are undertaken by the CASI User Services to provide access to NASA scientific and technical reports by the NASA user community. A related but separate subscription list is maintained by the Technology Utilization Office (TUO) that provides transfer to and use of NASA-developed technology in the public and private sectors of the U.S. economy.

See **Section 17** for a detailed discussion of the **TUO** program.

11.1. STI REGISTRATION FUNCTION - OVERVIEW

The CASI User Services Registration activity, the link between the NASA information system and its users, includes:

1. Registration of qualified users of the NASA Scientific and Technical Information System in accordance with established NASA distribution policies;
2. Direct communication with STI users requesting information on CASI products and services, specifically registration activities;
3. Maintenance of the computerized Registration and Products Control System (RPCS) file;
4. Generation of accurate mailing labels;
5. Preparation of correspondence to CASI users on all matters concerning initial and follow-up registration; and maintenance of background correspondence files on each active and inactive user of the NASA information system;
6. Preparation of reports and listings;
7. Revision and update of registration forms and letters and distribution of a highlighted copy to JTT for review.

See **Figure B11.1 Registration Overview.**

The CASI registration function establishes the:

1. Eligibility of the organizations and central service points within eligible organizations;
2. Types, quantities, subject divisions, and security

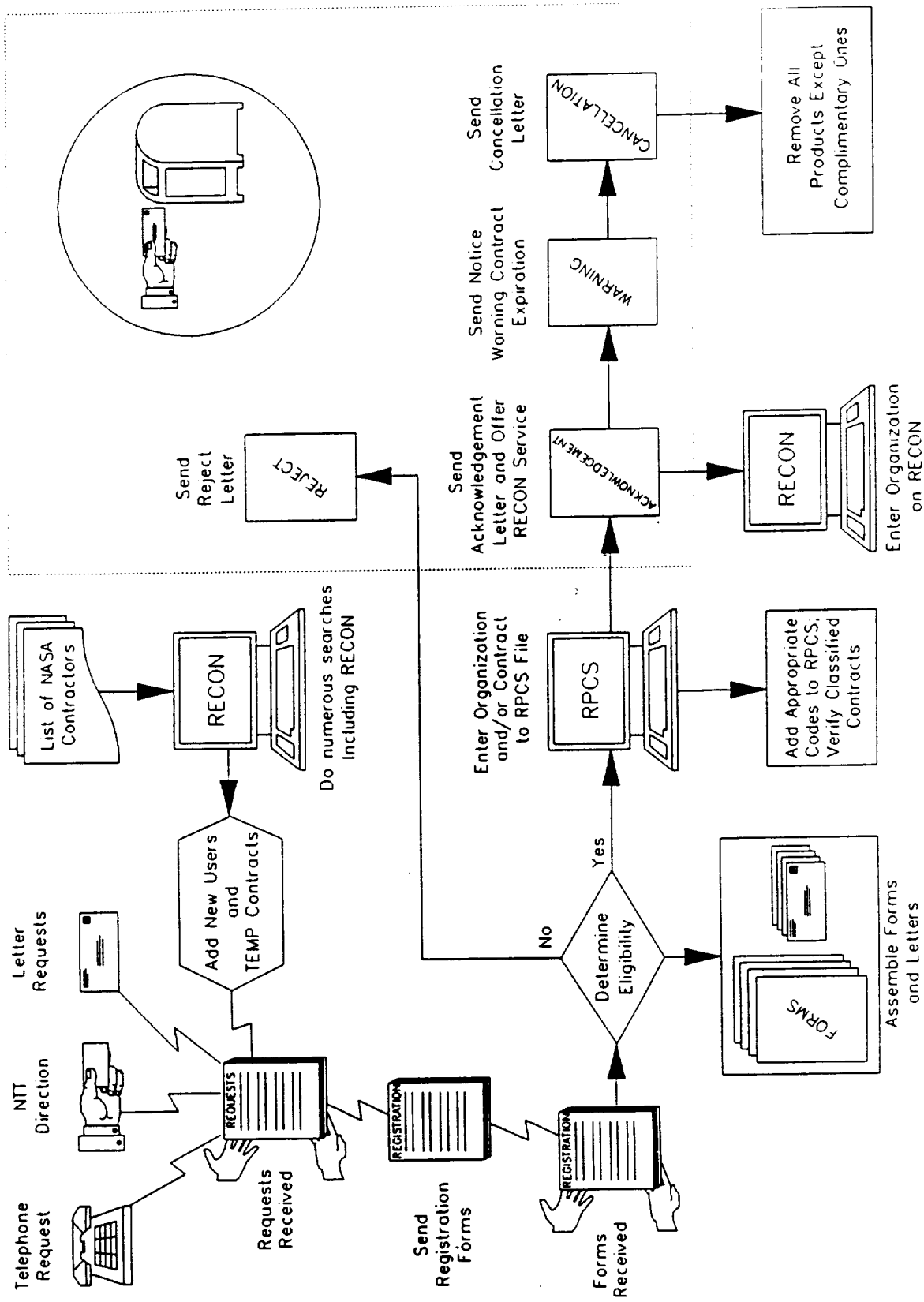

Telephone Request
NTT Direction
Letter Requests
Requests Received
REQUESTS
Add New Users and TEMP Contracts
List of NASA Contractors
RECON
Do numerous searches Including RECON
Send Registration Forms
REGISTRATION
Forms Received
REGISTRATION
Determine Eligibility
No
Yes
Send Reject Letter
REJECT
Enter Organization and/or Contract to RPCS File
RPCS
Assemble Forms and Letters
FORMS
Add Appropriate Codes to RPCS; Verify Classified Contracts
Send Acknowledgement Letter and Offer RECON Service
ACKNOWLEDGEMENT
RECON
Enter Organization on RECON
Send Notice Warning Contract Expiration
WARNING
Send Cancellation Letter
CANCELLATION
Remove All Products Except Complimentary Ones

Figure B11.1

levels of publications these central service points are authorized to receive;

3. Specific termination dates for a contractor's access to materials; and

4. Direct access authorization for secondary distribution.

Prior to receipt of NASA services, organizations and individuals who are not registered for CASI distribution services must submit a registration form, certified by the U.S. Government program/project manager of the cited contract in order to receive NASA documents in hard copy or microfiche, CASI supplied literature searches, continuing bibliographies, or access the NASA online databases:

- Research Connection Online (RECON)
- Aerospace Research Information Network (ARIN).

CASI User Services maintains a registration database of over 7,000 mailing addresses. There were 1,945 active CASI registered NASA users at the end of 1991.

Requesters for NASA STI services and products are registered in accordance with established NASA guidelines. CASI mails approximately 30 registration packets per month with a 25% response rate.

Registration request forms must identify a specific contract number, expiration date, and classification assignment.

TABLE OF REGISTRATION FORMS AND LETTERS

	FORM USE
CF 383	Deposit Account Registration for document, RECON, SCAN, literature searches, Standing Orders, and Translations services - MAY91.
CF 713A	New Registrant Registration for services (Green sheet REVJUL91).
CF 793	NASA Automatic Document Distribution Service (ADDS). Includes NASA Subject Categories for microfiche and paper copies - DEC91(REV).

FF 385	Registration for CASI services: names, addresses, approvals and signature, payment data - JUL85(REV).
FF 386	NASA/RECON User Agreement Terms and Conditions of Services (FF386P/APR90(REV)).
FF 711	NASA Centers Only NASA Onsite Registration Request Form for Access to ARIN and/or RECON - MAR91(REV).
FF 713B	Registration for Unclassified/Unlimited Initial Distribution Services. Includes NASA Subject Categories for paper copies only - JAN91(REV).
FF 713D	Registration for U. S. domestic contract or Government Agency - MAY91(REV). Separate form with same number labeled: "Continuation For..."
FF 713G	AGARD Registration Form - (Rev. Jan.'83). Companion piece to Distribution of unclassified AGARD Publications [back of each AGARD publication] no form number. Send to JTT for approval.
FF 7131	Registration instructions for NASA contractors and subcontractors, U.S. govt. agencies and contractors, university libraries, and domestic organizations - DEC86(REV).
FF 713S	Selected Current Aerospace Notices Request (SCAN) semimonthly current awareness publication - NOV 87(REV).
FF 717B	Standing Order Service for NASA Unclassified/Classified S&T Publications (S.O.). Includes NASA Subject Categories for microfiche and paper copies - JAN 91(REV); Previously used for same purpose as 793B dated NOV 88(REV)
FF 719	Express STI Registration for NASA R&D Contractors. Description of services with and without charges, descriptors of the requesting organizations, and a list of NASA subject divisions - yellow MAY91 (REV).
[RPT-1]	NASA Preliminary Registration For Services and Products; yellow card used at CASI Exhibits; no date, no form number.

Figure B11.2

CASI registration processes accommodate the need for access to **classified**, **limited**, and **unclassified/unlimited documents**. See detailed **Work Flow Diagrams 11.1 - 11.3** for the registration process for unclassified/unlimited documents.

Figure B11.3 Registration Monthly Statistics summarizes the registration statistics for calendar year 1991 plus the first three months of 1992 as provided in the monthly CASI Report on Center Operations.

11.1.1. REGISTRATION - CLASSIFIED DOCUMENTS

CASI processed 3 NASA and 462 Non-NASA classified documents in 1991. After processing, classified document records appear on the RECON system with a sanitized title and abstract.

For a description of CASI classified document processing, see **Section 13. WFD 13.3. Classified Documents Input Processing and WFD 13.4. Classified Documents Reclassification.**

To obtain CASI classified documents both the requester unit and the requesting individual must be registered with a Department of Defense Investigative Service Authorization (DIS) on file for a classified NASA contract. A certified registration form is checked to assure that all required data are included, and that the certification was made by the proper official (e.g., in the case of a NASA contract, the registration form must be certified by the cognizant official at the contracting NASA installation).

Uncertified, or improperly certified forms are returned to the requester or certifying official, as applicable, with an explanatory letter.

The registration form letter also includes all initial and/or secondary distribution(s) to which the recipient is entitled, to establish the requester's "need to know" for the requested document(s) based on a specific contract, the highest authorized security level, and expiration date of the security for the requesting individual. Need to know is determined by the contract monitor based on the contract and the DIS rules for classified documents.

Sixty days prior to expiration of a NASA or other Government contract, CASI's staff sends an expiration notification to the affected user.

REGISTRATION MONTHLY STATISTICS

TRANSACTION TYPE	TOTALS	AVERAGE	MAR '91	APR '91	MAY '91	JUN '91	JUL '91	AUG '91	SEPT '91	OCT '91	NOV '91	DEC '91	JAN '92	FEB '92	MAR '92
REGISTERING ORGANS.	202	16	25	9	21	15	15	18	17	20	7	27	1	17	10
TEMPORARY CONTRACTS	135	10	2	8	24	12	5	6	16	13	13	0	13	0	20
DELETED CONTRACTS	123	9	23	2	9	5	13	19	13	8	8	7	7	7	9
NEW ORGANS. NO SERVICE	48	4	30	8	3	0	0	0	0	0	0	0	6	0	2
NEW ORGANS. CASI SERVICE	210	16	13	8	10	12	8	28	27	17	17	0	22	32	18
TOTAL RPCS TRANSACTIONS	718	55	93	35	63	44	41	69	76	59	43	34	49	56	56
TOTAL RPCS MODIFICATIONS	30769	3846						4129	1781	3909	3563	2884	4128	5719	4652
RECON REGIS. PACKETS	1083	83	18	9	97	82	66	81	89	76	88	131	146	91	138
ROUTED INQUIRIES	372	29	23	18	29	38	32	25	35	28	26	30	28	28	33
NO. ORGANS. REVIEWED	8057	620	470	122	871	744	836	782	626	285	556	0	1412	713	597
RPCS USER-NOT NASA CNTRCT	135	10	2	8	24	12	5	6	19	13	13	0	13	0	20
R&DCs	1817	140	103	19	69	228	236	167	213	186	100	0	216	180	100
SBIR	5060	389	367	100	704	419	425	425	413	0	400	0	1092	365	350
NHCC	3270	98	0	93	98	97	175	190	0	99	99	0	104	168	147
TOTAL SBIR,NHCC	8362	643	470	422	871	744	1836	782	413	99	499	0	1196	533	497

MICROGRAPHICS MONTHLY STATISTICS

TRANSACTION TYPE	TOTALS	AVERAGE	MAR '91	APR '91	MAY '91	JUN '91	JUL '91	AUG '91	SEPT '91	OCT '91	NOV '91	DEC '91	JAN '92	FEB '92	MAR '92
SILVER MASTERS	8360	643	777	531	573	626	722	643	505	821	665	514	716	700	567
SILVER DUPLICATES	5284	407	478	260	313	431		405	351	719	505	370	824	528	420
DIAZO COPIES	1283370	98721	103699	78790	87517	107323	111587	99967	91518	90127	104531	72366	89920	115424	130554
LABELS GENERATED	165683	13807		17112	18142	9779	16591	13222	5339	31940	9401	12355	11548	10629	9625

Figure
B11.3

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11.1.2. REGISTRATION - LIMITED DISTRIBUTION (LD) DOCUMENT ACCESS

Because of its significant technological potential, some information developed under a U.S. Government program is given a limited distribution whereby advanced access is provided for use by domestic interests.

NASA contractors, subcontractors and grantees having a requirement for information pertaining to aeronautics and space research may receive both **limited** (LD) and **unlimited** NASA scientific and technical publications on either **initial distribution** or **secondary distribution.**

All other registered requesters (non-NASA), if not a government agency or contractor, are not eligible to receive limited documents from NASA CASI.

Procedures for receiving limited distribution or added access to RECON include:

1. Receipt of a properly executed form which includes monitor signoff, organization contract, security classification, and expiration date;
2. Entering of information on the RPCS record contract line; and
3. Defense Investigative Service (DIS) Authorization.

Security clearance and organizational affiliation dictate access to NASA/CASI documents. A registered contractor with a classified clearance is eligible for "added access" (meaning access to limited items according to affiliation).

Sixty days prior to expiration of a NASA or other Government contract, CASI's Registration staff sends an expiration notification along with re-registration forms (form letter: CF755, CF756 or CF701 describing the user's status) to the affected user.

See **Figure B11.10 for a complete listing of Registration Correspondence forms for limited distribution.**

If new registration forms are not received within two weeks prior to the expiration date, the action stated in the expiration notification is taken, removing all document distribution except the STI Bulletin. The user is notified of the action by form letter CF759.

11.1.3. REGISTRATION - UNCLASSIFIED/UNLIMITED DOCUMENTS

The CASI registration activity is mainly concerned with registering qualified users of the NASA Scientific and Technical Information System in accordance with established distribution policies and then entering and updating the CASI Registration and Product Control (RPCS) file.

Eighty percent of CASI's registrants request and receive NASA's **unclassified, unlimited** documents which is the subject of Section 12 of this report.

CASI document distribution processes and requirements not only depend on the **nature of the requested document and its limitations**, e.g., classified, limited, and unclassified/unlimited; but also depend on the **type of requester** and **distribution categories**; the **type of service desired**, the **type of distribution: initial/automatic** and **secondary (invoiced or prepaid)** distribution; and the **type of registration: express (proactive)**, and **normal**.

For descriptions of tasks performed by Registration staff see **Appendix B11C1-2, Registration Specialist and Appendix B11C3, Proactive Registration Activities.**

11.1.3.1. REQUESTER TYPES

CASI provides unclassified documents to registered NASA staff members; designated NASA contractors; U.S. government agencies and their contractors; universities, colleges, public and special libraries maintaining collections of NASA documents for public reference; foreign governmental and private organizations which agree to exchange scientific and technical publications of value to NASA; and other organizations whose scientific and engineering activities relate to aeronautics and space research.

All organizations except NASA Technical Libraries are charged a subscription rate for automatic distribution of NASA formal reports or microfiche announced in STAR. Reproduction of documents, principally by blowback from microfiche, is provided as a service to the NASA community including NASA Regional Technology Transfer Centers (RTTCs) billable at a set cost per page.

11.1.3.2. UNAUTHORIZED REQUESTERS

When a U.S. government agency or contractor, registered on the RPCS for NASA STI Products and Services, provides written justification allowing for access to a NASA document normally outside his/her authorization, CASI contacts the appropriate NASA technical monitor or project manager for a release of the requested document for that requester and also requests a general release of the document for public availability. This activity most often occurs when a contractor or university requests a NASA only document.

To distribute a document to an unauthorized requester, CASI:

- Prepares a Document Release Request to send to the Technical Monitor or Project Manager. This information is obtained by reviewing the document case file containing either the Document Release Authorization Form, or the Report Documentation Page. Requests from the Jet Propulsion Laboratory for NASA documents that are limited to U.S. Government Agencies or limited to NASA only are sent to JTT for action, with no contact from CASI to a technical monitor.
- Sends one copy of the Document Release Request to the requester to indicate that release action has been taken on the request.
- Holds one copy of the Document Release Request in suspense for 60 days and then mails a follow-up letter to the Technical Monitor or Project Manager.
- Locates "release officials" of older documents with the assistance of the Center Libraries.
- Distributes released documents to the requester or sends notification that the document is not released.
- Notifies (phone) JTT and the CASI accessioning department of the outcome of each document release request.

11.1.3.3. REGISTRATION SERVICES

Requesters are registered for one or more NASA document or information service(s):

1) **Initial** Document Distribution - **ADDS** (Automatic Document Distribution); **S.O.** (Standing Orders Document Distribution).

2) **Secondary** Document Distribution (On-demand) Document Ordering.

3) **SCAN** - Selected Current Aerospace Notices.

4) **RECON** - Registration for online access to the NASA Research Connection database.

5) **ARIN** - Registration for online access to the Aerospace Research Information Network catalog of NASA held books, journals, and documents. Access is for NASA personnel and on-site NASA contractors as directed by NASA.

6) **Literature Searches** - Registration distributes an information sheet on the CASI Literature Search Service as part of the Registration kit, although there is no longer a special registration activity since it is an entirely "for pay service".

NASA distributes the following documents on initial distribution:

DISTRIBUTED NASA DOCUMENTS

STAR	Scientific and Technical Aerospace Reports: semimonthly abstract/index journal that announces unlisted/unclassified reports, (approx. 40,000/year); available CASI, GPO. LSTAR = limited STAR.
SCAN	Selected Current Aerospace Notices; Semimonthly group SDI notices of new additions to STAR and IAA covering 186 subject areas.
RTOPS	Annual publication of Research and Technology Objectives and Plans:summaries of research in progress at each NASA center; replace previous year's records on IPS-Alt. Domestic only.

NASA STI Bulletin	Quarterly newsletter covering topics of interest to the STI community; current awareness document and service announcement tool issued irregularly (4-10 times/year) with a circulation of about 3000.
Continuing Bibliographies	Varying frequency of issue of key subject area bibliographies: Aerospace Engineering, Aerospace Medicine and Biology, Management, Patent Abstracts, Large Space Structures and Systems, etc.
Special indexes & bibliographies	NOVA - annual cumulative index, Index to NASA News Releases and Speeches, products from RECON on demand (e.g., Congressional Index for Legislative Affairs Office) AGARD Index, etc.
Reference Sources	NASA Thesaurus, Acronym Dictionary, Corporate Source Authority Lists.
Microfiche Products	NASA reports and TUO microfiche.
TU TECH BRIEFS	Monthly reports of new technological developments funded by Community Affairs Office/Technology Utilization Program (published and distributed by ABP Publishers, New York).

Figure B11.4

CASI distributes copies of the STI Bulletin, RTOPS, and some Special Publications series documents, e.g., 7063 - NASA Scientific & Technical Publications Catalog at no cost to requesters as part of the CASI outreach program.

See **Appendix B11B** for a complete list of NASA products and Services.

11.1.3.4. DISTRIBUTION CATEGORIES

NASA Products and Services are available to CASI registrants according to the following categories:

(1) DOMESTIC NASA STAFF/CONTRACTORS (or NASA subcontractors): o STAR o NASA Continuing Bibliographies o NASA printed reports o NASA limited-distribution reports o NASA microfiche o Selected Current Aerospace Notices (SCAN) o NASA literature searches o Access to NASA RECON
(2) U.S. GOVERNMENT AGENCIES, U.S. GOVERNMENT CONTRACTORS, UNIVERSITY LIBRARIES (Aerospace-oriented), and DOMESTIC ORGANIZATIONS (Qualified) o STAR (Nominal charge) o NASA Continuing Bibliographies o NASA printed reports o NASA limited-distribution reports charge) o NASA microfiche (Nominal charge) o Selected Current Aerospace Notices (SCAN) o NASA literature searches (Nominal charge) o Access to NASA/RECON (Nominal charge)
(3) NON DOMESTIC ORGANIZATIONS: (Service subject to formal agreements)

Figure B11.5

See **Form CF834/DEC91(REV), Appendix B112A37 and Appendix B11B for a complete list of CASI products and services.**

11.1.3.4.1. INITIAL DOCUMENT DISTRIBUTION

NASA initial distribution of documents includes:

1). Hardcopy documents distributed by the NASA Langley Information system (except for Special Series reports). NASA Centers are assigned blocks of report numbers by JTT for the high numbered series (limited distribution as determined by the originating Center) that the Centers print and distribute.

2). Documents generated as part of the Technology Utilization program distributed by the **TUO** unit within CASI. **See Section 17.**

3). Initial distribution of Special Series reports (low numbered SPs and Customized Distribution). Customized distribution for NASA Program Offices is handled by CASI Document Supply. **See Section 13.** [This program is in process of reduction and possibly complete dismantling].

4). Initial distribution of microfiche by the CASI Micrographics unit **(See Section 11.1.4.2.)**.

5). Secondary distribution of (non-TUO) documents by the CASI Documents Order unit **(See Section 11.1.5.)**.

6). CASI makes some initial distribution to GPO depository libraries although they receive free distribution of NASA reports directly from GPO as part of the GPO Depository Library program.

Registered organizations wishing to receive microfiche or printed copies of NASA Science & Technology (STI) reports on automatic distribution may subscribe to either the annual NASA **Automatic Document Distribution Service (ADDS)** or the monthly NASA **STANDING ORDER (S.O.)** service or both. Both services offer distribution by ten subject categories subdivided into seventy-five topics.

Several registrants to the ADDS initial distribution also are registered for the same documents through the Standing Order distribution service.

The registration records within the RPCS system indicate the ADDS and Standing Order subscriptions in the Descriptor field.

o **ADDS**

Subscription to the ADDS service allows requesters to select and receive initial distribution of all NASA reports (HC and MF) for the year (results in approximately a 15% discount in 1992) or to specify all reports within one to three subsets of the total number of reports:

1). Formal Reports by Subject Divisions (e.g., H Physics)
2). Formal Reports by Series (HC only)
3). Formal Reports by Subject Categories (e.g., 74 Optics)

Selection of the Reports by Series or Reports by Subject Categories results in greater savings than selection of reports in one or more individual Subject Divisions but less savings than the subscription to the entire ADDS service. The ADDS service payment is based on the previous year's distribution of documents within the several categories coupled with the current costs to provide the ADDS service.

Requesters pay for ADDS via an annual in advance payment or an invoice that CASI generates offline (manual processing).

The ADDS service is available to all registered users (NASA contractors, government agencies and contractors, universities, and private companies).

For 1991 there were 44 ADDS subscribers. By April 20, 1992 there were 41 registered ADDS subscribers.

See **CF793 in Appendix B11A: Registration Form for ADDS 1992 categories and prices.**

o **STANDING ORDERS**

Subscription to the CASI Standing Order (S.O.) service allows requesters to select and receive initial distribution of all NASA reports (HC and MF) or to specify all reports within one to three subsets of the total number of reports:

1). Formal Reports by Subject Divisions
2). Formal Reports by Series including Technical Translations (HC only)
3). Formal Reports by Subject Categories
4). NASA Continuing Bibliographies (HC only)

Organizations that wish to receive NASA STI documents on

automatic distribution but prefer to be invoiced on a monthly basis, subscribe to the NASA STANDING ORDER Service. Selection of the S.O. option results in a one-time sign-up (completion of an order form) and selection of the type of monthly distribution of documents with payment for what was received within that month (with a three month delay) as part of the regular CASI invoicing cycle.

Standing Order prices are at the rate of $16.25 per hardcopy title and $1.30 per microfiche title. [This compares to NTIS prices of $9.00 for a 5 page document but the average document contains 125 pages or would cost $26.00 at NTIS prices]. Standing Order payments are spread out across twelve months and reflect actual document receipts. Standing Orders do not receive a specific discount.

There were 26 subscribers to Standing Orders in 1991. By April 20, 1992 there were 26 S.O. subscribers. This service began with about 50 users, dropped rapidly to 30 when requesters began to be charged for documents, and has been at its current level for the last several years.

See **Appendix B11A STANDING ORDER SERVICE FF717B.**

11.1.3.4.2. SECONDARY DOCUMENT DISTRIBUTION/ON-DEMAND

When a request is received in CASI via the RECON order system or from mail, phone, or fax transmissions, the requester's registration status is checked prior to distribution of NASA documents. If there are any elements of the registration needing additional review or if there is new address information about the requester, the Document Request staff forward the request to Registration prior to filling the order.

- **INVOICED**

Most secondary orders are from registered requesters who wish to be invoiced for the provided document. Registration staff update the RPCS file to record the latest name and address information that will be used by accounting during the invoicing process.

- **PREPAID**

With increasing frequency, CASI Document Request staff receive document orders accompanied by a check. Most of these requests are from non-registered users. Document Request staff work closely with Registration staff to record information on these potential registrants.

11.1.3.4.3. EXPRESS REGISTRATION PROCESS

The **Express registration** is designed for quick user completion for NASA contractors. Regular or **Normal registration** follows prescribed procedures and contains a full set of information sheets and forms responding to any type of inquiry relevant to CASI products and services.

CASI provides a review and follow-up system for the identification of new prospective registrants and for upgrading the registration of currently registered users.

- **NEW REGISTRANTS IDENTIFICATION**

Each month, CASI Registration matches: 1) new Research and Development Series (R&DCS) records (Contract File K10,000 on RECON); 2) a contractor listing provided by the NASA Headquarters Computer Center (NHCC); 3) the Small Business Innovation Research Grants (SBIR) abstract report; and 4) any other reports and listings as required by NASA, against the RPCS (RPCS/STI) file to identify additional NASA contractors.

In the contract area notes field, CASI records either "NO SVC (NASA contract)" meaning "No service on contract" because of insufficient duration of contract, plus the actual contract expiration date or TEMP NASA Contract. The "No SVC" or "Temp" Contract Note is removed.

Identified prospective registrants are divided into three categories:

1) Short-term government contractors - less than six months;
2) Contractors six months or longer in duration.
3) Organizations without government contracts.

- **NEW REGISTRANTS INFORMATION COLLECTION**

When it is determined that the cited organization does not currently receive automatic distribution of NASA products, Registration adds the library name of that organization to the RPCS system indicating distribution of one copy each of:

STI Bulletin, and RTOP summaries (annual), domestic addresses only.

CASI updates the potential registered contractor record or adds a new registrant record to RPCS, and issues an invitation letter CF800E (organizations already registered with CASI but not registered as a contractor) or letter CF950 (unregistered organizations who may or may not be listed on RPCS) along with the express registration form (FF719) packet.

CASI REGISTRATION KITS

REQUESTED INFORMATION	FOR REQUESTER WHOSE ORGANIZATION IS NOT REGISTERED (DESCRIPTOR CF713)	FOR REQUESTER WHOSE ORGANIZATION IS REGISTERED (CF713 or FF719)
Announcement Services	Registration kit STAR flyer (FF-727F); continuing bibliographies	No registration kit STAR flyer (FF-727F); continuing bibliographies Referral to central point
NASA S & T Publications	Registration kit SP Catalog	No registration kit ADDS order form (CF-793) Referral to central point
Current Awareness	Registration kit SCAN booklet	No registration kit SCAN booklet Referral to central point
NASA/RECON Access	Registration kit RECON description pages	No registration kit RECON description pages Referral to central point
Literature Searches	Registration kit NASA literature search notice	No registration kit NASA literature search notice Referral to central point

Figure B11.6

If a potential or existing registrant indicates that s/he does not want NASA service, it is annotated in the contract area of its RPCS record, e.g., "REG DECLINED 830930",

meaning "Registration declined on 09/30/83".

Until such time (no time limit) as the contract data is confirmed by a properly executed registration form and received at the CASI, the registrant is referred to on the RPCS file as a temporary NASA Contractor, the contract as unclassified, and includes the actual contract expiration date that can be used to retrieve the record.

As an example: TEMP NAS8-12345 U 840301.

Once eligibility for distribution or service has been determined, CASI assigns an identification number to each new registrant. Assignment indicates if the registrant has document authorization for initial distribution only, secondary distribution only, or both initial and secondary distribution.

A handwritten record of the address is entered in the manual log next to the assigned number to prevent reassignment of that user identification number.

o **NEW REGISTRANTS FOLLOW-UP**

CASI mails a follow-up letter to potential registered contractors and new registrants that previously received CF776, CF950, or CF800 letters, if they haven't responded.

o **EXPIRATION OF CONTRACTS**

As described for limited registration earlier, CASI sends an expiration warning letter to organizations with the descriptor (TEMP-CR) 60 days before the contract expiration indicating that any gratis distribution will be discontinued at that time unless appropriate registration occurs immediately.

When an Express Registration form is returned to CASI, Registration updates the record (removing the Temporary designation) and sends an acknowledgement letter and any requested forms. The source of the FF719 received (facility or NASA Center) is entered on the contract line of the RPCS record.

Active contractors (with an unexpired contract date) are carried with a NASA contractor affiliation and descriptor until the contract expires. Domestic contractors, whether active or expired, receive one copy of the STI BULLETIN

indefinitely as part of CASI's promotional activities.

If the contract expires without proper NASA registration, related product distribution is discontinued except one copy of the STI Bulletin and RTOP to distribute research information and as part of CASI's promotional activities. The descriptor code NASA-CR is removed and the affiliation code appropriately changed.

o **NEW REGISTRANTS RECORDS MANAGEMENT**

CASI maintains detailed records on the original offer package, the results, and the follow-up actions. Copies of all pertinent registration forms are filed in the user's correspondence file. This user correspondence file serves as a paper backup to the STI/RPCS record. All historical data or documentation related to the registration and maintenance of the various users on RPCS/STI concerning each user is maintained in individual correspondence files.

The descriptor code of NOFF713 will indicate that no registration forms are on file.

See **WFD 11.1 PROACTIVE REGISTRATION ACTIVITY.**

11.1.3.4.4. **NORMAL REGISTRATION SOURCES AND PROCESSES / DOCUMENTS**

Registration forms and letters pertaining to registration and distribution are received daily through the mail and by messenger from NASA JTT. Any letter that involves any change in status or distribution requirements for a current registrant or any request for secondary distribution from someone who is registered but not a direct requester is reviewed, verified, and authenticated for eligibility. Questionable cases are referred to NASA JTT. Requests for initial distribution of microfiche from established registrants are received and reviewed before changing the RPCS record.

Upon receipt of registration inquiries received from likely candidates for NASA STI products and services, CASI takes the following actions:

1) Sends a letter and registration package to those inquirers whose organization is not registered (CF776);

2) Updates the RPCS record (STI/RPCS), See **Figure B11.7 sample Registration Screen;**

3) If an approved user, sends material as requested with a cover letter;

CONTRACT

---------- VALID KEYWORD PREFIXES ----------

1. ALSO-DOS	9. CUSTOM	17. NOTE
2. ALSO-USERID	10. DAL	18. NO-DAL
3. APPROVED	11. DCIRC	19. NO-SVC
4. ARTS	12. DUN	20. RECON
5. BILLING	13. FF713	21. RECON-KEY
6. CAGE	14. FF719	22. TEMP
7. CENTRAL-POINT	15. FORMER	23. TRIPART
8. CIC	16. INVOICE	24. UPDATE

ENTER THE NUMBER OF THE
DESIRED KEYWORD PREFIX:

ENTER CONTRACT/NOTES TEXT:

ENTER FUNDING SOURCE:

ENTER THE CLASSIFICATION CODE:

ENTER THE EXPDTE (YYMMDD):

ENTER THE DOCUMENT SECURITY
ACCESS LEVEL FLAG (Y=YES):

PF1=RETURN TO MAIN MENU; PF2=RETURN TO UPDATE MENU

Figure
B11.7

4) Completes follow-up procedures for those requesters sent a registration kit;

5) Updates statistics for the monthly Report on Center Operations.

Registration forms and letters without registration identification are checked against RPCS to locate the RPCS number.

CASI Registration locates relevant correspondence and previous registration data from the manual files, as applicable.

If an industrial organization or university already receives distribution from NASA, CASI refers the requesting individual to the central point for service.

See **WFD 11.2 CASI REGISTRATION.**

11.1.3.4.4.1. **RPCS MAINTENANCE** (Registration and Products Control File (STI/RPCS)

The STI Registration and Product Control System (RPCS), a Computer Based file with detailed information about all authorized recipients of NASA scientific and technical information products and services, is used to **track CASI registrations** and **generate mailing labels (includes NASA Center's direct office subscribers and their distribution of SCAN topics), periodic statistical reports, and on-demand listings of selected data fields.**

For 1990 and 1991, the CASI RPCS User Mailing List (domestic and foreign registrants) statistics were

	1990	1991
NASA Components	1,474	1,945
Government Agencies	484	532
Government Contractors	67	70
NASA Contractors	303	340
International Partners	224	222
Domestic Partners	25	26
Other Foreign	628	699
Other Domestic	2,945	3,173
TOTAL	6,650	7,007

Figure B11.8 USER MAILING LIST STATISTICS

See **Figure B11.9 sample Registration RPCS record.**

REGISTRATION RPCS RECORD


```
          DISPLAY 00S00256/2
      S  00S00256  GEO: D,C,H,35  PAY: Y
AFL:  E -- DOMESTIC U.S. GOVERNMENT CONTRACTOR, ,
ORG:  R, ,D  SERV: 5,L,
ACL:  SECRET RESTRICTED
MF:   G1 H1 G3    G1-SR    G3-SR      CHGD:
DELD: ENTD: 71/06/01
CORP: CALIFORNIA#UNIV OF#   LOS ALAMOS NATIONAL LAB   ATTN: REPORT LIBRARY/P
      P O BOX 1663   LOS ALAMOS NM                     87545
DESC: ADDS, CONTIG, DOM, FF713, GVCR, LDIST, LSCH-P, ORDRNTIS, ROP-SC, ROTX,
      UNIV
PROD: AERO-L-00001, AGBUL-00001, AGHBK-00001, AGINX-00001, AGTECH-00001,
      CCN-00001, CP-LOW-00001, LSTAR-00003, RECON-DU-00001, RECON-P-00001,
      RP-00001, SBIRAB-00001, SCITEC-L-00001, SOVIET-L-00001, SP-5021-00001,
      SP-6100-00001, SP-7037-00001, SP-7039-00001, SP-7039I-00001,
      SP-7041-00001, SP-7500-00001, SPGEN-00001, STAR-00001, STIBUL-00001,
      TB-00002, THESRS-00004
CLAS:  _ 1U, Y J _ 01.  _ 10C, Y C E 01, Y E E 01, Y G E 01, Y H E 01, Y J E 01
      Y K E 01. _Y 10EA.  _ 10FD, C _ 01, E _ 01, G _ 01, H _ 01, J _ 01, K _
      01.  Y 10IT.  _ 10LD, Y C _ 01, Y E _ 01, Y G _ 01, Y H _ 01, Y J _ 01,
      K _ 01.  _ 10S, Y C E 01, Y E E 01, Y G E 01, Y H E 01, Y J E 01, Y K E
      01.  Y 10UL.  Y 2C.  Y 2EA.  Y 2IT.  Y 2LD.  Y 2S.  Y 2UL.  _ 4A ALL _ 0
      _ 4B, FM _ 01, FD _ 01, SM _ 01, TI _ 01, EW _ 01.  _ 7U, Y C _ 01, Y D
ENTER:                                                                    MORE
          DISPLAY 00S00256/2
      01, Y G _ 01, Y H _ 01, Y J _ 01, Y K _ 01.
CNT#:  _ ARTS STAR PAY 1  00/00/00,  _ ARTS THESRS PAY 4  00/00/00,  _ NO-DAL
      90-1  00/00/00,  _ NOTE STARIPAY-NR 92  00/00/00,  _ NOTE 2ND RECON AT 9
      00/00/00,  _ NOTE 3RD RECON AT 95  00/00/00, _ RECON-KEY 92309 SR92/09/3
      W W-7405-ENG-36 SR92/09/30
ENTER:
```

Figure
B11.9

o **INPUT TO RPCS**

The registration data entered online into the RPCS system includes:

- o Security access level
- o Sponsor code (designating the NASA organization responsible for authorizing registration),
- o User identification number,
- o Address (up to a maximum of five lines plus two lines for Attention),
- o Entry date on the file (system generated),
- o Affiliation (NASA, NASA Contractor, other U.S. Government Agency, etc.); not corporate source controlled,
- o Foreign or domestic,
- o Geographical region code, and
- o Whether the organization is within the continental borders of the United States or not
- o Organization type

Additional codes are added to describe the organization or distribution information such as initial distribution of special products (such as STAR and STAR Index), classes of products (such as unclassified, unlimited NASA formal reports or microfiche), and specific secondary request privileges. In the response to TD 91-006 "Microfilming the RPCS files" CASI recommends reducing the information contained in the RPCS files and therefore the number of files.

o **DELETIONS FROM RPCS**

STI products or registration records are deleted: by request of a user; instructions from NASA (e.g., when there is no reply to a circularization; when information is received that a company no longer exists; when returned mail indicates that an addressee is not known or is deceased), and when there is non-payment for previous products or services.

Registration checks other sources of information such as NASA bulletins or newsletters, special announcements, new phone books, and word of mouth when it receives notification of internal staff reorganizations or transfers.

The deletion is processed by inputting a code for the reason for deletion and date of the update. Annotation and filing are the same as for a registration change.

If a registrant is later reinstated as a user for any service, the RPCS dormant record is activated via input of a current entry code. Reinstatement of a user whose record was not archived requires complete rekeying.

o **UPDATES TO RPCS**

CASI updates user records when requested by Code JTT, when properly executed registration forms are received for users who are currently limited to unclassified materials or whose classified authorization is expiring, and to correct identified omissions and errors in the RPCS file.

User requests include changes in address, "Attention of" or corporate name, distribution requirements, quantities, and subject categories, and those based on contract award or extension, namely: changes in type of user, duration of distribution authorization, and level of security classification.

o <u>NASA Central Point Changes</u>

The head person at the relevant Central Point library contacts CASI with any changes to the RPCS records of the main NASA Headquarters Library or NASA Center Library distribution points. CASI records the person's name and date on the background correspondence that is then filed for future reference.

o <u>Non-NASA Central Point Changes</u>

CASI similarly validates any changes to the RPCS records of the non-NASA main Central Point.

o **EXPIRATIONS AND RENEWALS**

The expiration dates must always be included on the RPCS user records to prevent unauthorized distribution of materials, especially for classified documents. If properly certified forms are received (designating a new classified contract or contract extension), CASI inputs the contract number, expiration date, and any other authorized changes into the RPCS only after receiving verification from DIS.

o RPCS SECURITY ACCESS

To support the Defense Investigative Service's verification of contract classification, CASI inputs the DIS assigned verification number (CAGE number - DOD assigned ID number, verified by DIS for access to classified documents) into the RPCS contract field and the CAGE expiration date.

o RPCS PRODUCTION ACTIVITIES / GENERATION OF MAILING LABELS

1) NOTICE - 1

Prior to publication of about 25 new (low numbered formal) NASA reports each year, JTT sends a notice with the distribution total per address indicated. Each addressee may request additional copies of the new publication over and above the standard distribution for that address, e.g., NTIS for its own distribution service. Registration uses the RPCS ADABAS/NATURAL program to produce the original and updated mailing labels for notices.

2) INITIAL DISTRIBUTION

The NASA Langley Research Center uses the RPCS to generate the labels for its initial distribution of NASA publications.

Registration also uses the RPCS to produce labels for CASI initial distribution of microfiche copies of NASA-accessioned documents, and the mailing of special publications, such as STAR and NOVA.

3) MAILING LISTS

CASI maintains address updates for AGARD mailings as directed by the AGARD Panel Members and/or AGARD National Delegates via JTT.

o RPCS PRODUCTION ACTIVITIES / GENERATION OF REPORTS

Registration produces reports from the RPCS for the Monthly Operations Report, including the label processing job's sheets. These reports give periodic statistics on the distribution of NASA STI products and service, including the Registration activity.

11.1.3.4.4.2. USER CORRESPONDENCE AND BACKGROUND FILES

Registration staff maintain the background correspondence files on each active and inactive user of the NASA STI system; send correspondence to users on all matters concerning initial and follow-on registration; and revise and update registration forms and letters as necessary, sending a highlighted copy to JTT for review.

Correspondence includes: (1) answering written, phone, or fax queries for registration information or requests for documents from unregistered requesters, (2) providing registration kits to potential or to established registrants who ask for them or have been identified from a variety of lists and reports, and (3) sending letters of notice to registered users regarding the status of their contract.

Incoming Requests Procedures

Letters (including any kind of written request; post card, note, purchase order, etc.) requesting status changes or distribution modifications, received daily through the mail and by messenger from JTT and the Goddard Space Flight Center, are checked against the RPCS to locate and record the RPCS number on the correspondence.

All requests for documents that do not include a NASA accession number or NACA/NASA report number are identified from a RECON search or other means.

To aid in prompt completion of correspondence requests, Registration maintains a series of registration correspondence form letters (**Figure B11.10**).

REGISTRATION CORRESPONDENCE FORM LETTERS

FORM NUMBER	FORM USE
CF 639	Acknowledgement letter in response to registration form FF713D or FF719. Domestic contractor or U.S. Government Agency - 6/91.
CF 701	Warns a NASA temporary registration contractor his/her service status will be affected within 60 days, if new registration forms are not received prior to that time.

CF 722 CF 722N	Products and Services Available from NASA STI for Distribution 01/91 - JAN91(REV); includes and excludes NOVA.
CF 755	Warns a NASA contractor his/her service status will be affected within 60 days, if new registration forms are not received prior to that time - 6/91.
CF 756	Warns a classified contractor or a contractor with more than one contract that his/her service status will be affected within 60 days, if new registration forms are not received prior that time - 7/91.
CF 757	Advises non-NASA contractor of receipt of registration forms and that he will receive classified NASA publications for the duration of the contract - 6/91.
CF 759U	Notifies contractor of expired contract and removal from classified distribution lists - 6/91.
CF 776	Reply to potential candidates not currently on NASA distribution lists requesting information or registration forms. A full registration kit accompanies the reply - 1/92.
CF 800	Invitation letter for NASA CASI registrants. Companion to CF719 Express Registration - 1/92.
CF 834	Full statement of NASA's distribution policies and procedures. Used as a cover sheet for the registration kit - DEC91(REV).
CF 950	Invitation letter to NASA contractors who may or may not be listed on the RPCS. Companion to Registration form FF719 Express Registration - 1/92.
FF 299	FACT SHEET Online Access and Use of NASA Scientific and Technical Information - SEP89.
FF 379	Informs a contractor that his registration forms must reach the CASI <u>through</u> the U.S. Government agency administering his contract and that he must submit a separate set of registration forms for each contract - 12/91.
FF 690	NASA Product Description Sheet: CLASS and Special Products - JAN91(REV).

FF 712	Informs a user of what is included in the eleven subject divisions used in distributing NASA formal reports and microfiche. This form is always used with CF 757; in process of review - NOV86 (REV).
FF 713RL	NASA/RECON Products and Prices. Connect Time and Administrative Charges. Request for NASA RECON literature search - MAR90. Companion Registration Form is FF711.
FF 713SC	Description of NASA Subject Divisions and Categories Fact Sheet - OCT 90(REV).
FF 717B	NASA S&T Reports by Subject Category (Paper Copy Only) [also verso of CF793B ADDS - DEC. '91(REV).
FF 720	NASA/RECON Online and Offline Domestic Document Request Authorizations. Restrictions guide for ordering documents. MAR89 (REV).
FF 727	STAR Description, frequency, and availability.
FF 794	Description of the ADDS Service labeled "Conditions of Sale" - OCT 88(REV); separate version is undated.
[RPT-2]	Distribution of Unclassified AGARD Publications. Companion to FF713G.

Figure B11.10

Manual Files Maintained

CASI maintains registration/distribution files which include copies of correspondence to the users:

a) Correspondence Follow-up File.

b) Organization Files: A numeric file of direct access numbers, an alphabetic file by corporate name for registered organizations not listed on RPCS; an alphabetic file by country and ID number for foreign organizations listed on RPCS.

See **Figure B11.11 Numbers Allocated for RPCS Files** for a description of the categories of assigned user identification numbers used in the RPCS system.

NUMBERS ALLOCATED FOR RPCS FILES APRIL 1991

The RPCS paper file numbers are grouped as DIRECT and INDIRECT. Specific blocks of numbers have been applied to particular categories. The DIRECT numbers are normally organizations or universities. INDIRECT numbers are usually individuals added to RPCS for a variety of reasons: RECON user, AGARD distribution, Special Products, Technical Directives, Etc.

Range:	Represents:	Utilization:
00001 through 9,999	Direct identification numbers	1 - 6800's utilized
10,000 - 99,999	Indirect identification numbers	TD-79-281/Tripartite 91206 - 91362 TD-79-387/Tripartite 91397 - 91513 TD-790650 2/26/80 (most are inactive records) 91565 - 91932 91938 - 91995 TD-82-074 93216 - 93427 TD-82-096 (SP7046) 93464 - 93509 93539 - 93658 94017 - 94024 (numbers not used)
20,000 - 40,000	Direct Office Subscription numbers for NASA Center SCAN Users	Each center has a unique set of numbers assigned to it within this group
50,000	not used	Open
60,000	not used	Open
70,000 - 79,999	DCAF codes for foreign and ESA	70,000 - 70,999 utilized by ESA 71,000 - 71,999 utilized by Israel 72,000 - 72,500 utilized by Canada
80,000 - 89,999	ARIN users w/wo RECON access	80,000 - 80,200

Figure
B11.11

ORIGINAL PAGE IS
OF POOR QUALITY

11.1.3.4.5. SCAN DISTRIBUTION ANNOUNCEMENT

Registration maintains the distribution list for The Selected Current Aerospace Notices that announce the unclassified and unlimited biweekly additions for the NASA Aerospace database (STAR and IAA) in 191 discrete subject topics.

11.1.3.4.6. RECON REGISTRATION

Registration initiates the process that can give NASA STI users access to RECON by approving registration requests, entering needed data into the RPCS record, and forwarding the approved registration to the STI RECON Support Unit for addition to the RECON system and assignment of passwords and distribution of the RECON support package.

Registered RECON users for 1990 and 1991 are as follows:

	HARDWIRED	DIAL-UP
Dec. 1990	217	684
Dec. 1991	233	746

Registration adds a cross reference in the contract field of the RECON key person to the central point (e. g., CENTRAL POINT 01585) and vice versa. The Central Point indicates who is paying for the service.

See **WFD 11.3 CASI RECON REGISTRATION.**

11.1.3.4.7. ARIN REGISTRATION

The Aerospace Research Information Network (ARIN) is NASA's implementation of a comprehensive library materials management system that includes locally developed batch programs and the off-the-shelf software package NOTIS (Northwestern Online Totally Integrated System) purchased from Northwestern University.

ARIN integrates the following functions: (1) Cataloging, (2) Circulation, (3) Online Search, (4) Acquisitions, (5) Management Information, and (6) Serials Management.

The current ARIN file contains (1) the library holdings of the 13 NASA libraries (books, journals, documents, audio-visuals, maps, archives/manuscripts, machine readable items, and sound recordings) and (2) a selected portion of the standard MARC tapes of Library of Congress monographs.

Like the RECON system, NASA Center employees or NASA onsite contractor employees are eligible to access the ARIN system by completing regular CASI registration and the specific RECON/ARIN registration via form FF 711/MAR91(REV).

See **WFD 11.4 CASI ARIN REGISTRATION.**

11.1.3.4.8. **LITERATURE SEARCHES**

Literature searches are provided on a $100.00 per search basis regardless of the number of citations that result from the search. Registered requesters may order a search by telephone and be invoiced on the normal monthly cycle. Unregistered requesters must prepay for CASI literature searches.

CASI receives about two to three literature search requests each month. See Table 18.2 and section 08-2. of the monthly Report on Center Operations.

11.1.3.4.9. **REGISTRATION REPORTS**

CASI Registration provides a variety of interim or on-demand reports generated via the RPCS system on request by JTT or CASI managers. These reports contain statistics on the number of: Registration kits distributed, labels generated, and processed registration forms. **Section 16 Reports** provides additional information on CASI registration reporting.

Weekly reports provide the number of:

1). Statistics on STI products: all the STI records that were added, changed and/or deleted during the specified week of activity.

2). All registration items sent out to requesters.

Monthly Reports provide the number of:

1). Registration kits distributed, labels generated, and processed registration forms for the monthly Management Report (533), and

Quarterly Reports provide the number of current registration records on the RPCS.

The Semiannual Report summarizes:

1). Registration modifications (RPCS),

2). Activities by organization, affiliation, service, and regional type, and

3). Sponsor descriptions.

11.1.4. INITIAL DISTRIBUTION SERVICES

The NASA Langley Research Center provides initial distribution of NASA hard copy documents (except for STAR and NOVA) while CASI provides distribution of the microfiche version of NASA documents.

11.1.4.1. INITIAL HARDCOPY DISTRIBUTION - NASA LANGLEY

The NASA Langley Research Center distributes the formally printed NASA low numbered reports (CRs, RPs, SPs, TMs, TPs, etc.), the continuing bibliographies, and AGARD documents in printed form to approved requesters on initial distribution. The NASA Centers produce and distribute the high numbered reports (Crs, RPs, TPs, and TMs). CASI distributes the NOVA and a subset of the high numbered reports per direction from JTT, and Headquarters distributes the abstract journal STAR. Initial distribution precedes STAR (produced the 8th and 23rd of each month) and SCAN by approximately 2-3 weeks.

To perform initial hard copy distribution, JTT receives a **print order request** see **Figure B11.12a**, the completed Report Document Page - **RDP (Figure B11.12b)**, and the completed FF427 NASA Scientific and Technical Document Availability Authorization - **DAA (Figure B11.12c)** from the NASA Centers. Sometimes JTT also receives an **attached title page (Figure B11.12d)**.

JTT completes a print order designating the criteria to be used for distribution, typically by class/category, product (including series), or both and sends a copy of the print order and a copy of the RDP plus any attached data to the Langley Research Center for processing.

Example: Class 1, Category 92, Division J, All.

See **Figure B11.12e**.

See **Form samples in Appendix B11D**.

B39

FEB 2 1 [illegible] **PRINT ORDER REQUEST**

DATE: 2/19/92

TO: NASA Headquarters
Attn: NTT-3

FROM: Langley Research Center

Classification: (U) C S
Subject Category: 63
Series of Report: ___TP X TM ___RP ___CP ___SP ___CR
Availability: X Publicly Avail. ___LD ___FEDD ___ITAR
___Other ___

TITLE: "Development of a Machine Vision System for Automated Structural Assembly"

Assigned Number:

Low-Number Contractor Report Only

Source:

Technical Monitor:

FILE NO./ CONTRACT NO.: L-16995

AUTHOR(S): P. Daniel Sydow and Eric G. Cooper

REMARKS:

NASA JTT is requested to issue a print order.

ENCLOSURE(S):

___Copy of Report
X Cover & title pages
___Preface or Foreword
X RDP
___Contents
___Other

SIGNATURE / TITLE OF APPROVING OFFICIAL

Andrew J. Hansbrough
Chief, Research Information and Applications Division

ASA Langley (December 1988)

RIAD N-1055

Figure
B11.12a

REPORT DOCUMENTATION PAGE

Form Approved
OMB No. 0704-0188

Public reporting burden for this collection of information is estimated to average 1 hour per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. Send comments regarding this burden estimate or any other aspect of this collection of information, including suggestions for reducing this burden, to Washington Headquarters Services, Directorate for Information Operations and Reports, 1215 Jefferson Davis Highway, Suite 1204, Arlington, VA 22202-4302, and to the Office of Management and Budget, Paperwork Reduction Project (0704-0188), Washington, DC 20503.

B

1. AGENCY USE ONLY *(Leave blank)*

2. REPORT DATE

3. REPORT TYPE AND DATES COVERED
Technical Memorandum

4. TITLE AND SUBTITLE
Machine Vision for Automated Structural Assembly

5. FUNDING NUMBERS
WU 506-43-41-02

6. AUTHOR(S)
P. Daniel Sydow and Eric G. Cooper

7. PERFORMING ORGANIZATION NAME(S) AND ADDRESS(ES)
NASA Langley Research Center
Hampton, VA 23665-5225

8. PERFORMING ORGANIZATION REPORT NUMBER
L-16995

9. SPONSORING/MONITORING AGENCY NAME(S) AND ADDRESS(ES)
National Aeronautics and Space Administration
Washington, DC 20546-0001

10. SPONSORING/MONITORING AGENCY REPORT NUMBER

11. SUPPLEMENTARY NOTES

12a. DISTRIBUTION/AVAILABILITY STATEMENT
Unclassified - Unlimited

Subject Category 63

12b. DISTRIBUTION CODE

13. ABSTRACT *(Maximum 200 words)*

Research is currently being conducted at the NASA Langley Research Center to develop an automated telerobotic assembly system designed to construct large space truss structures. This research program was initiated within the past several years and a ground-based test bed was developed to evaluate and expand the state of the art. Test-bed operations currently use "taught" points for truss structural assembly. Total dependence on the use of "taught" points for joint receptacle capture and strut installation is neither robust nor reliable enough for space operations. Therefore, a machine vision sensor guidance system is being developed to locate and guide the robot to a passive target mounted on the truss joint receptacle. The vision system hardware includes a miniature video camera, passive targets mounted on the joint receptacles, target illumination hardware, and an image processing system. Discrimination of the target from background clutter is accomplished through standard digital image processing techniques such as thresholding, feature centroiding (blobs), and model matching. Once the target is identified a pose estimation algorithm is invoked to determine the location, in three-dimensional space, of the target relative to the robots end effector. Preliminary test results of the vision system in the automated telerobotic assembly facility with a range of lighting and background conditions indicate that it is fully capable of successfully identifying joint receptacle targets throughout the required operational range of the system. Controlled optical bench test results indicate that the system is also capable of providing the pose estimation accuracy required to define the target position.

14. SUBJECT TERMS
Space Trusses; Machine Vision; Robotics; Automated Assembly; Space Structures

15. NUMBER OF PAGES
41

16. PRICE CODE

17. SECURITY CLASSIFICATION OF REPORT
Unclassified

18. SECURITY CLASSIFICATION OF THIS PAGE
Unclassified

19. SECURITY CLASSIFICATION OF ABSTRACT

20. LIMITATION OF ABSTRACT

Figure B11.12b

Standard Form 298 (Rev 2-89)

Y

NASA SCIENTIFIC AND TECHNICAL DOCUMENT AVAILABILITY AUTHORIZATION (DAA)

To be initiated by the responsible NASA Project Officer, Technical Monitor, or other appropriate NASA official for all presentations, reports, papers, and proceedings that contain scientific and technical information. Explanations are on the back of this form and are presented in greater detail in NHB 2200.2, "NASA Scientific and Technical Information Handbook."

☐ Original
☐ Modified

(Facility Use Only)
Control No. _____
Date _____

I. DOCUMENT/PROJECT IDENTIFICATION (Information contained on report documentation page should not be repeated except title, date and contract number)

Title: Issues in NASA Program and Project Management

Author(s): Francis T. Hoban, editor

Originating NASA Organization: NASA Office of Management

Performing Organization (if different) _____

Contract/Grant/Interagency/Project Number(s) _____

Document Number(s) NASA SP-6101(04) Document Date: 5/91

(For presentations or externally published documents, enter appropriate information on the intended publication such as name, place, and date of conference, periodical or journal title, or book title and publisher: _____

These documents must be routed to NASA Headquarters, International Affairs Division for approval. (See Section VII))

II. AVAILABILITY CATEGORY

Check the appropriate category(ies):

Security Classification: ☐ Secret ☐ Secret RD ☐ Confidential ☐ Confidential RD ☒ Unclassified

Export Controlled Document - Documents marked in this block must be routed to NASA Headquarters International Affairs Division for approval.

☐ ITAR ☐ EAR

NASA Restricted Distribution Document

☐ FEDD ☐ Limited Distribution ☐ Special Conditions-See Section III

Document disclosing an invention

☐ Documents marked in this block must be withheld from release until six months have elapsed after submission of this form, unless a different release date is established by the appropriate counsel. (See Section IX).

Publicly Available Document

☒ Publicly available documents must be unclassified and may not be export-controlled or restricted distribution documents.

☐ Copyrighted ☒ Not copyrighted

III. SPECIAL CONDITIONS

Check one or more of the applicable boxes in each of (a) and (b) as the basis for special restricted distribution if the "Special Conditions" box under NASA Restricted Distribution Document in Section II is checked. Guidelines are provided on reverse side of form.

a. This document contains:

☐ Foreign government information ☐ Commercial product test or evaluation results ☐ Preliminary information ☐ Information subject to special contract provision

☐ Other—Specify _____

b. Check one of the following limitations as appropriate:

☐ U.S. Government agencies and U.S. Government agency contractors only ☐ NASA contractors and U.S. Government agencies only ☐ U.S. Government agencies only

☐ NASA personnel and NASA contractors only ☐ NASA personnel only ☐ Available only with approval of issuing office: _____

IV. BLANKET RELEASE (OPTIONAL)

All documents issued under the following contract/grant/project number _____ may be processed as checked in Sections II and III.

The blanket release authorization granted _____ (Date) is:

☐ Rescinded - Future documents must have individual availability authorizations.

☐ Modified - Limitations for all documents processed in the STI system under the blanket release should be changed to conform to blocks as checked in Section II.

V. PROJECT OFFICER/TECHNICAL MONITOR

Typed Name of Project Officer/Technical Monitor	Office Code	Signature	Date

VI. PROGRAM OFFICE REVIEW ☒ Approved ☐ Not Approved

Typed Name of Program Office Representative	Program Office and Code	Signature	Date
Francis T. Hoban	NHD	[signature]	5/7/91

VII. INTERNATIONAL AFFAIRS DIVISION REVIEW

☐ Open, domestic conference presentation approved. ☐ Export controlled limitation is not applicable.

☐ Foreign publication/presentation approved. ☐ The following Export controlled limitation (ITAR/EAR) is assigned to this document: _____

☐ Export controlled limitation is approved.

International Affairs Div. Representative	Title	Date

VIII. EXPIRATION OF REVIEW TIME

The document is being released in accordance with the availability category and limitation checked in Section II since no objection was received from the Program Office within 20 days of submission, as specified by NHB 2200.2, and approval by the International Affairs Division is not required.

Name & Title _____ Office Code _____ Date _____

Note: This release procedure cannot be used with documents designated as Export Controlled Documents, conference presentations or foreign publications.

IX. DOCUMENTS DISCLOSING AN INVENTION

a. This document may be released on _____ (Date) Installation Patent or Intellectual Property Counsel _____ Date _____

b. The document was processed on _____ (Date) in accordance with Sections II and III as applicable. NASA STI Facility _____ Date _____

X. DISPOSITION

Completed forms should be forwarded to the **NASA Scientific and Technical Information Facility, P.O. Box 8757, B.W.I. Airport, Maryland 21240**, with either (check box):

☐ Printed or reproducible copy of document enclosed

☒ Abstract or Report Documentation Page enclosed. The issuing or sponsoring NASA installation should provide a copy of the document, when complete, to the NASA Scientific and Technical Information Facility at the above listed address.

Figure
B11.12
c

FF427 REV OCT86

Proposed

NASA Technical Memorandum

(Rough Draft)

B42

Development of a Machine Vision System for Automated Structural Assembly

P. Daniel Sydow and Eric G. Cooper

Langley Research Center
Hampton, Virginia

REVIEW COPY
This interim draft is for the official use of the initial recipient only.

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION

L-16

Figure
B11.12
d

Unclassified-Unlimited Technical Memorandums (low numbered)

1. Class 1, Category X, Division X, and All.

CODE NO. NASA TM-4332

TO: Langley/Publications Section FROM: NASA Headquarters	CLASSIFICATION CODE / TITLE / FOREIGN DIST. / GROUP NO. / ABSTRACT	DATE 11/20/91

DOCUMENT DATA

TITLE The Complete Hard X-Ray Burst Spectrometer Event List, 1980-1989

FILE NO / CONTRACT NO.	AUTHOR(S)	SOURCE
92B00009	B.R. Dennis, et. al.	NASA Goddard Space Flight Center
CC: Luann Giese/GSFC		SIGNATURE OF APPROVING OFFICIAL

INSTRUCTIONS TO LANGLEY

[X] PRINT AND DISTRIBUTE [ ] DISTRIBUTE ONLY	DISTRIBUTION LIST Class 1, Category 92, Division J, All

REMARKS AND/OR ADDITIONAL DISTRIBUTION

Supp. Dist.: 757 labels for 757 single copies
2 labels for 253 bulk copies

1010 total copies

TO BE COMPLETED BY LANGLEY

		RELEASE DATE	SIGNATURE OF APPROVING OFFICIAL
NO. COPIES MAILED			
NO. COPIES TO FACILITY			
TOTAL			

NASA FORM 857 MAR 89
PREVIOUS EDITIONS MAY BE USED.

National Aeronautics and Space Administration
Print Order for Technical Publications

Figure
B11.12
e

JTT Initial Distribution also provides the NASA Centers with ranges of document numbers for high numbered series printed by the Centers and forwarded directly to CASI.

NASA Langley's initial (automatic) distribution of hardcopy new NASA document releases is invoiced at a flat rate as identified in the ADDS or Standing Order pricing scheme, **see Appendix B11A CF793.**

o Preparation of Labels for Shipment

Langley has online access to the CASI application ADABAS/NATURAL (RPCSLANG) system to enter the user selection criteria and to generate labels and reports.

Langley submits a remote batch job to retrieve information from the RPCS file using the RPCSLANG applications to determine who should receive the documents (the customer identification number and address), and initial hard copy distribution information (the number of copies each receives). Langley prints the appropriate mailing labels via their own remote terminals, packages documents according to the selection criteria, and mails them directly to requesters, including the NASA Centers.

If Langley encounters hardware problems at their site, CASI can back-up Langley by submitting the label job, boxing the resulting labels and mailing to Langley. CASI label output includes: three sets of job sheets, label statistical summaries and the labels themselves, both on computer listings and gumbacked label materials. One set of job sheets is filed for reference, a second is printed at Langley, and the third set is forwarded to NASA Headquarters, Code JTT.

Mailing labels are produced in zip code order for domestic addresses, preceded by foreign addresses in alphabetical order by country, if present. Labels are printed twenty-four to the page or on gumbacked "peel-off" or pressure-sensitive types of labels materials.

See **WFD 11.5 INITIAL HARDCOPY DISTRIBUTION.**

11.1.4.1.1. AGARD AUTOMATIC DISTRIBUTION REGISTRATION

NASA is responsible for the automatic distribution within the U.S. of unclassified unlimited AGARD publications free to any U.S. organization eligible to receive NASA scientific and technical publications with the approval of JTT and within the number of copies received in the U.S. from AGARD (25 copies for Secondary Distribution).

CASI registers organizations for the automatic AGARD distribution.

Langley provides automatic distribution of AGARD publications through the STI/RPCS as follows:

AGARD Quarterly Listing (AGARD QT) - one copy to each domestic AGARD Panel member or National Delegate 103 Panel Members and 4 National Delegates).

AGARD Bulletin (AGD BULL) - limited document distribution to addresses designated by JTT or ID, "NATO Classified" available in the U.S. through the Defense Technical Information Center (DTIC), Cameron Station, Alexandria, VA.

AGARD Handbook (AGD HNBK) - One copy to any address receiving AGARD hard copy (Class 4B), including AGARD Panel Members and National Delegates, if on 4B.

AGARD Highlights (AGD HLTS) - One copy to addressees designated by JTT or XD. Generally confined to NASA central points.

AGARD Index (AGD INDX) - One copy to any address receiving AGARD hard copy (Class 4B), including AGARD Panel Members and National Delegates, if they receive 4B.

AGARD (Advisory Group for Aerospace Research and Development) of the NATO (North Atlantic Treaty Organization) unclassified hard copy publications (single copy only) include:

AGARD monographs, Advisory Reports, Conference Proceedings, Lecture Series, Reports and occasional miscellaneous items.

Panels include:
- Aerospace Medicine
- Avionics
- Electromagnetic-Wave Propagation
- Flight Mechanics
- Fluid Dynamics
- Guidance and Control
- Propulsion and Energetics
- Structure and Materials
- Technical Information

NOTE: No secondary distribution of the AGARD Handbook is authorized unless approved by JTT or Code ID.

11.1.4.1.2. SPACE STATION CONTINUING BIBLIOGRAPHY DISTRIBUTION

The recurring unclassified, unlimited publication; Large Space Station and Systems in the Space Station Era: A Continuing Bibliography with Indexes is usually issued twice a year (STI/RPCS Product "SP-7085") and distributed to those organizations registering a valid NASA contract. It is available to other non-NASA contractor/industrial organizations on a pay basis through the ADDS (NASA Automatic Document Distribution) or Standing Order Services. See TD 85-097.

11.1.4.2. CASI INITIAL MICROFICHE DISTRIBUTION

CASI prepares microfiche for initial distribution by microfilming full-size copies of NASA and NASA-supported reports and non-NASA reports selected by the CASI Technical Document Evaluator for announcement in STAR or LSTAR. NASA and NASA-supported documents assigned to non-announcement series are filmed while non-NASA reports assigned to non-announcement series are not filmed. In addition, CASI prepares microfiche masters and diazo copies of NASA Tech Briefs as directed by the Technology Utilization Division.

Micrographics receives STAR and X10K document casefiles and NASA News Releases from Database Creation. The accession number labels are produced and distributed as part of the daily processing of each issue of STAR and LSTAR from Computer Operations.

Micrographics places the accession number labels on the casefile jackets, documents, and/or microfiche envelopes; removes the binding/stitching from the hard copy documents; sorts the casefile folders and microfiche in accession number order in 'awaiting titles' storage bins. Processing data are added to the

Production Control Statistical System (PCSS) as part of the automated daily processing.

11.1.4.2.1. Masthead Production and Document Preparation

The daily processing of a STAR or LSTAR issue transmits the data which comprise the title information to the L300 from the IBM mainframe computer for typesetting. The output is in reverse video format, that is white type on a black background that can be filmed in a positive form onto the silver master halide microfiche.

The microfiche titles or mastheads consist of the document accession number, classification, and title; and the microfiche distribution codes and division (See **Figure B11.13. Microfiche Equivalent Codes**). If space permits, the author(s) name(s), corporate source, report date, and pagination are also included.

The GPO report number is always located on the fourth line, first position. The title information is limited to four lines (one-half inch), at the top of the microfiche. Primary information such as the identifying number is in 10 point type, whereas, other subordinate information is in 8 to 6 point type. However, for ease in recognition the complete title is eye readable without the aid of magnification.

Micrographics checks the masthead for completeness and accuracy; determines if trailer cards are necessary, i.e, the document has more than 98 pages and, therefore 2 or more microfiche cards are required; requests corrected masthead and trailer cards from the L300 operator; cuts the sheet of masthead information and trailer cards into individual strips (one per document); inserts them in the corresponding document casefile folder; and forwards the casefile folder from the 'awaiting titles' storage area to the 'documents to be filmed' storage area - in accession number order.

11.1.4.2.2. Document Filming and Processing

Microfiche filming is accomplished in accordance with the ANSI/AIIM standards for microfiche of .8 to 1.5. and NASA Spec-20. In general these criteria require 24X reduction utilizing 105mm X 180 feet of silver halide film. The overall card size, squareness, frame size, margins, tolerances, frame placement, optical density, resolution, and grid lines are done in accordance with standards.

DRAFT

MICROFICHE EQUIVALENT CODES

MICROFICHE CODE	TYPE OF DOCUMENT	DISTRIBUTION	RPCS CLASS	LABEL PROGRAM
	STAR NASA SPONSORED (MF1) CODE1			
G1	SP-5000 SERIES	UNLIMITED	7U	STARFINK1
G3	NASA HIGH NUMBERED REPORTS, NEWS RELEASES, PATENT APPS.	UNLIMITED	7U	STARFINK1
~~G3~~	~~EARTH RESOURCES DOCUMENTS~~	~~UNLIMITED~~	~~7U~~	~~MFE~~
H1	NASA LOW NUMBERED REPORTS, EXCEPT SP-5000	UNLIMITED	7U	STARFINK1
G5	TRANSLATIONS	NASA CTRS, NTIS	7U	MFG5
	STAR NON-NASA SPONSORED (MF3) CODE3			
H2	DOMESTIC	DOMESTIC	7U	MFG2
G2	DOE, U.S. SALES ONLY	DOMESTIC	7U	MFG2
G6	FOREIGN	DOMESTIC, FOREIGN	7U	MFG6
H5	TRANSLATIONS	NASA CTRS, NTIS	7U	MFHS
	LSTAR			
A	ALL ARE NASA SUPPORTED	A-NASA ONLY	refers to all LSTAR codes:	STARFINK2 (UNCLASS)
B	CODES CARRY A SUFFIX 1 IF LOW NUMBERED REPORT AND A SUFFIX 3 IF HIGH NUMBERED REPORT	B-U.S.GOVT. ONLY		
C		C-NASA & DOMESTIC NASA CONT.	10C 10UL 10S	STARFINK3 (CLASS)
E		E-U.S.GOVT & DOMESTIC CONT.		
I		I-NASA CONT.& U.S.GOVT.		
	DOMESTIC RESTRICTIVE			
* G4	FEDD	ALL CODES LTD.	10FD	STARFINK4
* J4	LIMITED DISTRIBUTION	NASA, NASA CONT.,	10LD	STARFINK4
K4	ITAR	IAC, U.S.GOVT. &	10IT	STARFINK4
L4	EAR	U.S.GOVT.CONT.	10EA	STARFINK4

NOTE: *ALSO AVAILABLE TO DOMESTIC CORPORATION, RESEARCH OR UNIV.LABS.

Figure B11.13

The filming is accomplished on a standard step-and-repeat planetary camera. The titles are filmed separately at 100% in positive form; the title information is filmed only on the first card of the silver microfiche masters. The document pages are filmed by a separate lens 24X in negative form, sequentially filmed left-to-right in seven consecutive rows (below the title area) to a maximum line length of 14 frames (pages). Blank pages and distribution listings are not filmed, and page disclaimers are utilized if the page is of poor reproducibility: Original Contains Color Photographs, Original Contains Black and White Photographs, Original of Poor Quality.

If more than 20% of the pages are of poor quality, then the reproduciblity is considered unacceptable or limited. For those documents which are affected by reproducibility limitations, the statement 'LIMITED REPRODUCIBILITY' appears on the masthead. Additional information is provided in the miscellaneous note on STAR and RECON citations. Additionally, a disclaimer page is filmed in the second frame of the microfiche.

Oversized pages (e.g. foldouts) are filmed with an appropriate overlap between sections with, each section equating to approximately a 8 X 10 1/2-inch page. Documents having text reading across the long dimension of the page are rotated for filming in order to provide right reading.

The last frame of each document consists of an "End Board" that states END and the date of filming. If the document contains more than ninety-eight (98) pages, an appropriate trailer masthead with the accession number and the card number is filmed. Then the camera is advanced to begin filming the next document.

When all filming is completed, the exposed film is removed from the camera, placed in a labeled film can, and delivered to the Photo Lab. The casefiles are sent to the temporary storage area.

11.1.4.2.3. <u>Microfilm Processing and Quality Inspection</u>

The silver master exposed roll film is processed on a semi-automatic Film Processor, which normally processes film at ten feet per minute. This processor incorporates in one machine the developer, minit fix, water bath and blower (dryer). The silver roll film is spliced onto a reusable film leader. The chemicals are changed as necessary, and the processing speed and heat adjustments are made as required. The process produces a roll of film that is ready for quality inspection and subsequent reproduction in film or paper form.

After developing the film, silver halide masters are cut, placed in folders, and inspected (100%) using a page-by-page reader to ensure that no pages are missing, the format is correct, and the legibility is of a high enough quality to sustain two more generations of copying.

Each microfiche card is inspected to ensure that it meets the ANSI/AIIM standards for resolution and optical density. (**See Figure B11.14 NASA Microfiche Inspection Form and Figure B11.15 Workmanship Defect Codes**). All discrepancies are marked with their needed corrective actions on the microfiche master file folders and returned to the receiving workstation for recycling through the production system.

The successfully completed microfiche Master File Folders are sent to the Microfiche Production Section for production of diazo copies.

11.1.4.2.4. Film Striping Operations

NASA Specifications require that the title information be readable through the coated area (high degree of opacity to visible light, substantially transparent to ultraviolet light, not in excess of 0.01mm in thickness, and 1/2 inch in width). The color stripe designates on all diazo production microfiche the security classification of the filmed document.

- o White - unclassified, unlimited documents
- o Blue - unclassified limited documents
- o Green - confidential documents
- o Red - secret documents

CASI uses a Film Stripper and flexographic inks designed for rapid drying on roll film to apply the stripe at a rate of 3000 feet per hour. Pre-striped film is used for the unclassified, unlimited documents (white stripe).

Batch Number _____

NASA MICROFICHE INSPECTION FORM

Date Received _____

Microfiche I.D. M: Master D: Duplicate	Sheet Sequence Number	Resolution Master: 6.3 Duplicate: 5.6	Background Density	Density Min. M: 0.10 max. D: 0.07 max.	Title Area		Workmanship of Images			Size: 148mm 105mm	Grid Align-ment	Date Filmed	Pass / Fail
					Legible	Format	Legible	Order	Defect Codes*				
M:	of												
D:	of												
M:	of												
D:	of												
M:	of												
D:	of												
M:	of												
D:	of												
M:	of												
D:	of												
M:	of												
D:	of												
M:	of												
D:	of												
M:	of												
D:	of												
M:	of												
D:	of												
M:	of												
D:	of												

* Defect Codes on Back Side of Form

Comments:

Inspector _____

Date Inspected _____ Page ____ of ____

Figure B11.14

Workmanship Defect Codes:

1. Scratches
2. Water Spots
3. Edge Fog
4. Fog
5. Folded Documents
6. Skew (10 Degrees or more)
7. Overdevelopment
8. Overexposure
9. Underdevelopment
10. Underexposure
11. Other (describe in Comments)

Figure
B11.15

11.1.4.2.5. Diazo Copies Production

After production of the original silver microfiche masters, the Microfiche Production unit makes black based, medium contrast diazo (polyester) distribution microfiche copies on high speed production machines. The silver master is fastened to the glass platen, inserted into the machine, and exposed to ultraviolet light. The diazo copies are developed by anhydrous ammonia while in a roll form at a rate of 800 per hour. The roll film is run through a cutter that slices the individual fiche and then drops them into a bin or an attached collator. One hundred and sixty diazo copies are made from the silver master and distributed according to the Code 1 distribution list.

See **WFD 11.6 INITIAL NASA MICROFICHE DISTRIBUTION**

11.1.4.2.6. Conversion of Other Agency Microfiche

CASI converts microfiche of non-NASA reports that are received from NTIS, DOE, ESA, CISTI, NASDA, and DTIC by applying a NASA Accession Number to the incoming microfiche, assigning distribution codes, and preparing a working master for microfiche production; and also produces fiche from hard copy Non-NASA documents. As with original fiche, only those microfiche reports selected by the Technical Document Evaluator as being in scope and physically reproducible (can be microfiched without unacceptable loss of quality as determined from the quality of a full-size Title Header on the microfiche and the Abstract) are accepted for fiche production.

Mastheads are not produced in-house for the other-agency microfiche. The title area and first frame of these microfiche are annotated with the accession/primary identification number, distribution code and distribution division in 12 point type in positive images. The data added to the other-agency distribution microfiche are generated during daily processing of each STAR and LSTAR issue and are reproduced onto self-adhering (sticky labels) material. This information is stripped into the title area and first frame of the microfiche by cutting out the accession and distribution numbers and applying them to the appropriate microfiche. Microfiche master file folders are prepared for each accession, and forwarded to Microfiche Production for duplication. Conversion fiche are reproduced in 25 copies to fulfill the Code 3 distribution.

Microfiche of non-NASA documents made from the filming of hard copy documents are processed as if NASA-generated as described in Section 11.1.4.2.1-3. Twenty five diazo copies are made from the

diazo master and distributed according to the Code 3 distribution list.

11.1.4.2.7. Quality Assurance Inspection

Ten percent of the diazo duplicated microfiche are inspected by microscope, densitometer and viewer to ensure:

- o Proper exposure and development.
- o Legibility of pages.
- o Conformance to NMA standards.
- o No mutilations in cutting.
- o No double images.
- o Accession number identification board and cover page images are the same as the masthead.
- o All sets of multi-card accessions are complete.

If something is found to be beyond specifications, inspections range to 50% of the production microfiche. Specifications require the same density range as silver masters (0.8-1.5) and a loss of no more than one target of resolution from the master which was specified as a 6.3 target.

When discrepancies are found, all copies of that particular accession number are discarded and replaced via reduplicating from the master.

Unclassified inspected diazo microfiche copies are forwarded for distribution and the Microfiche Master File Folders filed.

Classified inspected microfiche and the Microfiche Master File Folders are hand carried to Classified Supply for storage and distribution.

11.1.4.2.8. CASI Distribution of Microfiche To NTIS

CASI sends copies of all Code 1 (NASA) and G6 (foreign) microfiche to NTIS for its Selective Dissemination of Microfiche (SDM) program. Subscribers to these NASA-accessioned microfiche may obtain a complete file of NASA accessions by the NASA "N" Number. Non-NASA (Code 3) microfiche are not sent to NTIS as the originating agencies send them directly to NTIS.

11.1.4.2.9. CASI Distribution of ESA and NATLEVS Microfiche

Topic needs to be expanded after discussion by CASI and the JTT International program.

11.1.4.3. Packaging and Distribution Techniques

Three production runs are done each month in two Code 1 categories: "All" and "Select" (FINC processing). The "All" category refers to registered users who receive a copy of "All" accessions. The "Select" category refers to those registered users who are not entitled to, or have elected not to receive a copy of "All" microfiche produced.

Microfiche of the STAR abstract journal and the NASA News Releases are distributed according to specialized distribution lists.

Microfiche for the "All" distribution are collated into the appropriate number of sets on a Norfin microfiche collator.

The microfiche mailing labels, and computer-produced punch cards used for "Select" distribution, are generated from the established Registration and Products Control System (RPCS) on an issue by issue basis. The RPCS mailing labels are placed in the appropriate FINC collation bin and the Code 1 microfiche are slotted (sorted) into the wall mounted bins according to subject division and category. The FINC bins are electrically illuminated by electronic reading of the computer-produced punch cards required for each category being sorted. An operator matches the category division on the microfiche masthead with category division on the punched card, and inserts microfiche, in accession number order, into the 'lit' bins.

When the collation is completed, Reprographics packages, wraps with plastic strapping and labels the shipment. Ten percent of all microfiche shipments are given a 100% inspection to check for correct numerical sequence and to ensure that the recipient is receiving only those microfiche authorized or desired. Inspected completed packages are brought to the mailroom for weighing and delivery to the post office.

See **WFD.11.7 INITIAL MICROFICHE DISTRIBUTION REPROGRAPHICS.**

~~Microfiche for "Select" distribution are slotted (sorted) into wall mounted bins (FINC machine contains the RPCS mailing label in a collation bin that contains the collation Subject Division cards - 75 categories).~~

11.1.4.4. Production Control Statistical System (PCSS)

The PCSS is a data collection system that provides the accession number list and a series of reports: edit/error, STAR omissions,

and the monthly statistics (microfiche master summary).

The data are extracted from IPS during the daily processing of completed records. After all of the data for an issue has been entered into the system, the edit/error report and accession number list are produced. The edit/error report is the 80/80 listing of all records for a specified STAR issue in accession number order that is used to check the completeness of an issue of microfiche prior to distribution.

The accession number list provides both the list of accession numbers and the list of accession number and code/category divisions. The latter is reproduced onto adhesive drafting film and used in the conversion of other agency microfiche.

Before the non-NASA microfiche shipment is distributed, the STAR omissions report that identifies non-NASA accessions that were announced but not distributed, is produced and included with the microfiche package. Non-production of other agency microfiche can result because of marginal quality, special pricing, or a data input error (See **Figures B11.16 Replacement/Stragglers and B11.17 STAR Issue Announcement**).

11.1.4.5. Classified Documents Microfiche Production

CASI Micrographics receives hard copy documents for production of silver halide masters and diazo copies from Classified Supply accompanied by three copies of a covering Classified Document Batch Receipt form (FF 865). The receipt entries are verified against the material received, one copy of the FF 865 is signed and returned to Classified Supply.

The classified material is distributed to the appropriate work stations for processing and the CONFIDENTIAL Restricted Access Signs or SECRET Restricted Access Signs are visibly displayed in accordance with the highest category of classified material in process. In addition, the alarm system is activated in order to control traffic within the work area. Employees not having the required degree of clearance and the need to know are denied access. Employees having custody of classified material prevent visual or physical access of classified material to persons not having the proper degree of clearance or a valid need to know by never leaving classified material unattended and covering the material or turning it over when others are present.

Camera Operators place exposed film produced from classified documents in a can conspicuously marked "CLASSIFIED" and hand carry it to the Photographer.

Code 1 May 8, 1987

REPLACEMENT/STRAGGLERS B57

Enclosed herewith are microfiche for previously dispatched STAR issues, delayed by production difficulties but ready now for interfiling in proper sequence. Your NASA registration controls distribution of an accession number, so you may not receive all of the items listed below.

None

The following are corrections or improved copies of fiche previously issued and are enclosed for authorized recipients only.

None

Code 1 May 8, 1987

STAR STRAGGLERS

Fiche for the accession numbers listed below were unavoidably not completed in time for shipment with STAR No. 09. If you are authorized to receive the distribution divisions in which these accessions fall, you may expect to receive them in your next fiche shipment.

Accession Number	Distribution Divisions
None	

Fiche for the following previously reported stragglers are not yet available for distribution:

None

Figure
B11.16

STAR ISSUE 8 FOR 1992

MICHROFICHE FOR THE STAR ANNOUNCED ACCESSIONS LISTED BELOW HAVE NOT BEEN DISTRIBUTED IN THE STAR-ISSUE PACKAGE TO YOU. AN EXPLANATION FOR THE OMISSION FOLLOWS EACH LISTED ACCESSION NUMBER.

PLEASE REFER TO THE ACTUAL STAR CITATION FOR INFORMATION ON ORDERING COPY FROM OTHER SOURCES

H - 8 - DE
C - 1 - PB
E - 1 - ESA
N - 6 - AD
16/747

S = NONNASA H2-G2-G6 Filmed

O = All OTHERS

N92-17023	N	NM1 - NON-NASA, MARGINAL QUALITY
N92-17133	C	NM1 - NON-NASA, MARGINAL QUALITY
N92-17230	N	NM1 - NON-NASA, MARGINAL QUALITY
N92-17318	A	NM1 - NON-NASA, MARGINAL QUALITY
N92-17430	N	NM1 - NON-NASA, MARGINAL QUALITY
N92-17439	N	NM1 - NON-NASA, MARGINAL QUALITY
N92-17444	N	NM1 - NON-NASA, MARGINAL QUALITY
N92-17545	E	NM1 - NON-NASA, MARGINAL QUALITY
N92-17710	A	NM1 - NON-NASA, MARGINAL QUALITY
N92-17783	N	NM1 - NON-NASA, MARGINAL QUALITY
N92-17798	A	NM1 - NON-NASA, MARGINAL QUALITY
N92-17801	A	NM1 - NON-NASA, MARGINAL QUALITY
N92-17824	A	NM1 - NON-NASA, MARGINAL QUALITY
N92-17867	A	NM1 - NON-NASA, MARGINAL QUALITY
N92-17954	A	NM1 - NON-NASA, MARGINAL QUALITY
N92-17957	A	NM1 - NON-NASA, MARGINAL QUALITY

Figure
B11.17

The Photographer denies access by physically securing all doors to the photographic laboratory from the inside while classified material is being processed or inspected. Classified material is hand carried at all times between the photographic laboratory and applicable work stations.

In addition to the display of Restricted Access Signs, while classified microfiche masters are being duplicated on the card-to-card or other duplication machines, access to the production area is denied by closing the main door and the production room door.

The mastheads for classified microfiche are colored red for SECRET and green for CONFIDENTIAL. All microfiche bear the classification in a form readable without magnification in the masthead.

All microfiche master folders are stamped, front and back, with the highest classification of microfiche which they contain.

All hard copy documents for filming are handled in casefile folders bearing the marking of the highest classification which they contain and marked with a conspicuous red border for SECRET or a conspicuous green border for CONFIDENTIAL.

Classified and unclassified material are never handled at the same time at any work station.

At the end of each work shift classified waste is gathered from all work stations by the supervisor or a specially designated representative and delivered to CASI's Classified vault.

Upon the completion of the final inspection, all Classified microfiche masters (one silver halide and one diazo copy for CASI-produced masters or a converted diazo copy and a diazo production master for other-agency microfiche) and produced copies (including overruns) are delivered to the Classified vault for distribution to authorized recipients.

Upon completion of an issue of classified nature, all hard copy casefiles are hand carried to the Classified vault for storage. There is no retention of classified documents in the work areas.

11.1.5. **SECONDARY DISTRIBUTION**

CASI maintains stock of NASA initial distribution hard copy and microfiche for filling secondary requests and places all unclassified, unlimited microfiche (those announced in STAR) for sale at NTIS.

See Sections 12 Order/Request Processing and 13 Document Supply and Retention for greater detail on CASI Secondary Distribution.

11.2 **WORK FLOW DIAGRAMS**

See the attached Work Flow Diagrams:

WFD 11.1 - Proactive Registration Activity (New Organization **Express Registration**)

WFD 11.2 - CASI Registration

WFD 11.3 - CASI **RECON** Registration

WFD 11.4 - CASI **ARIN** Registration

WFD 11.5 - Initial NASA Hardcopy Distribution (**LANGLEY**)

WFD 11.6 - Initial NASA Microfiche Distribution (**CASI**)

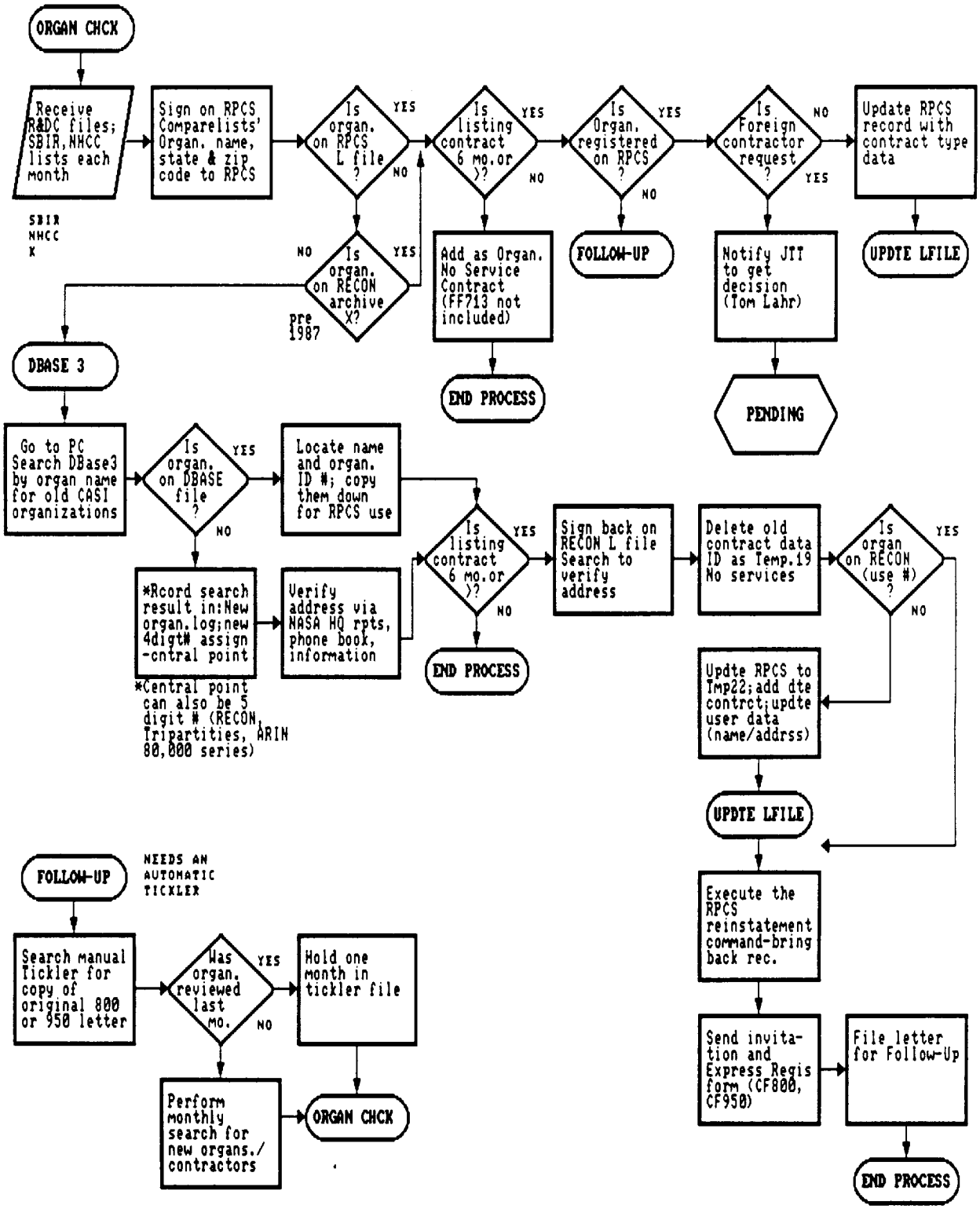
WFD 11.7 - Initial Microfiche Distribution - **REPROGRAPHICS**

PROACTIVE REGISTRATION ACTIVITY
(NEW ORGANIZATION EXPRESS REGISTRATION)

LOCATE COMPANIES WITH NASA CONTRACTS

WFD 11.1

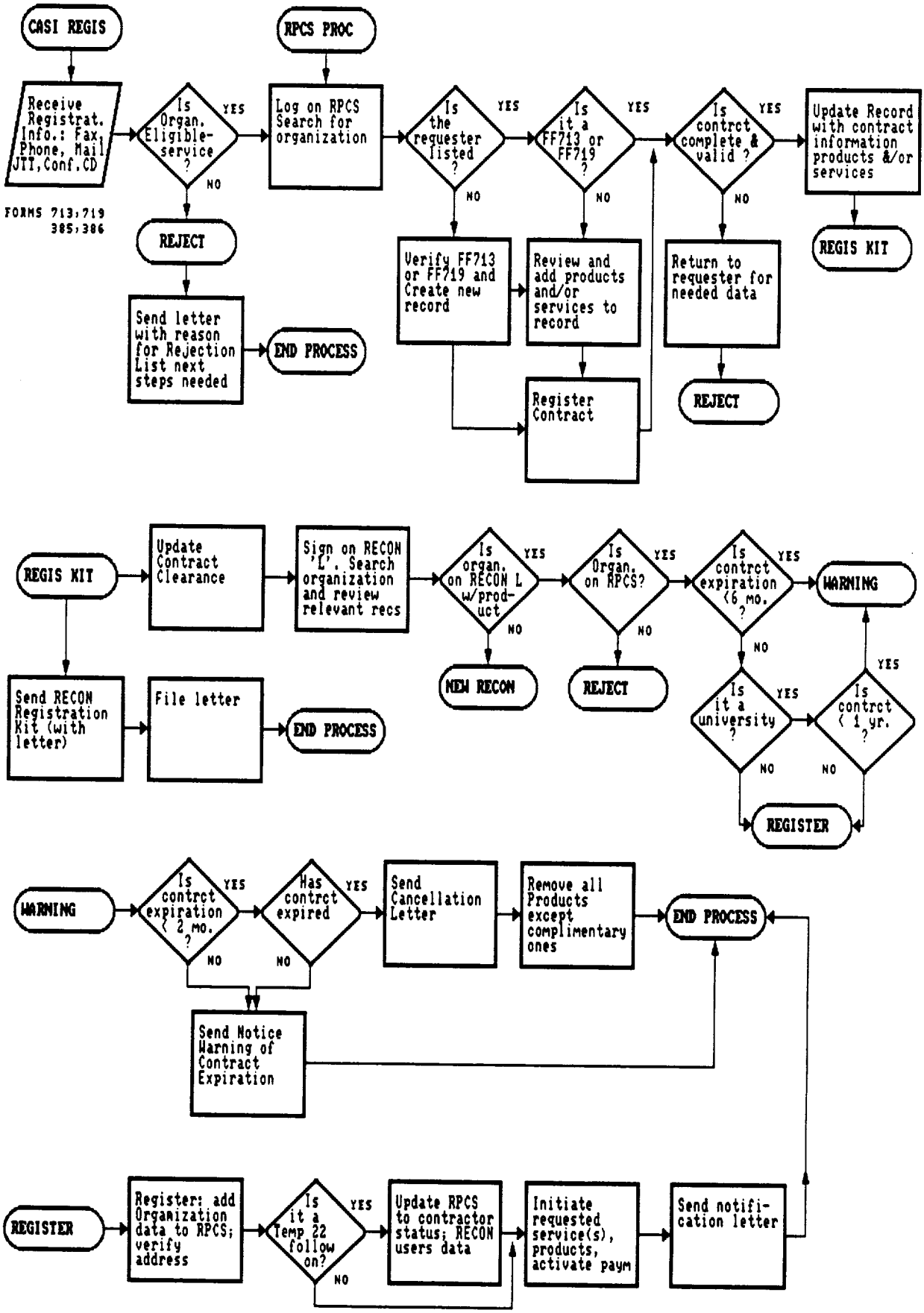
EXPRESS



CASI REGISTRATION

WFD 11.2

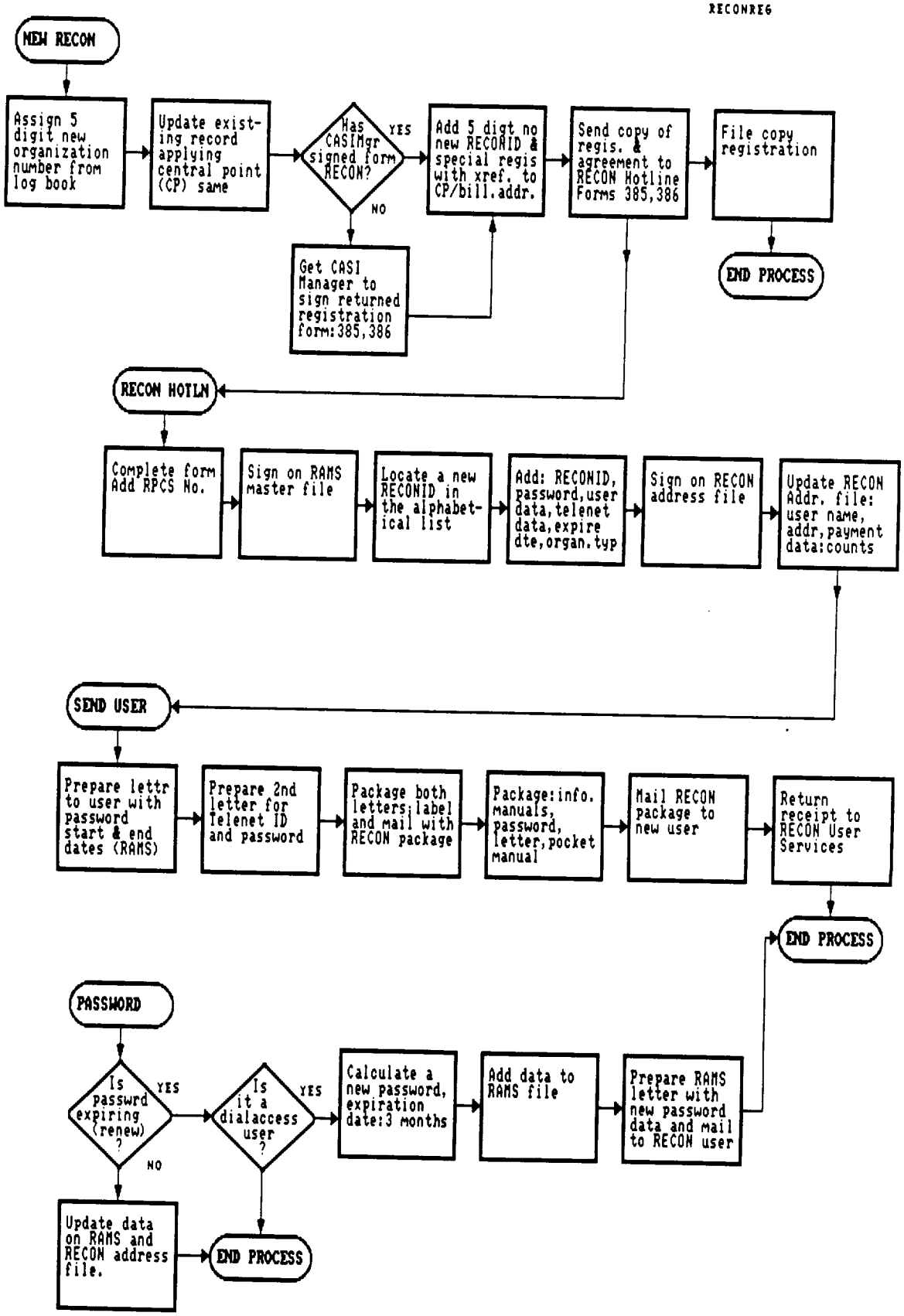
CASIREG



CASI RECON REGISTRATION

WFD 11.3

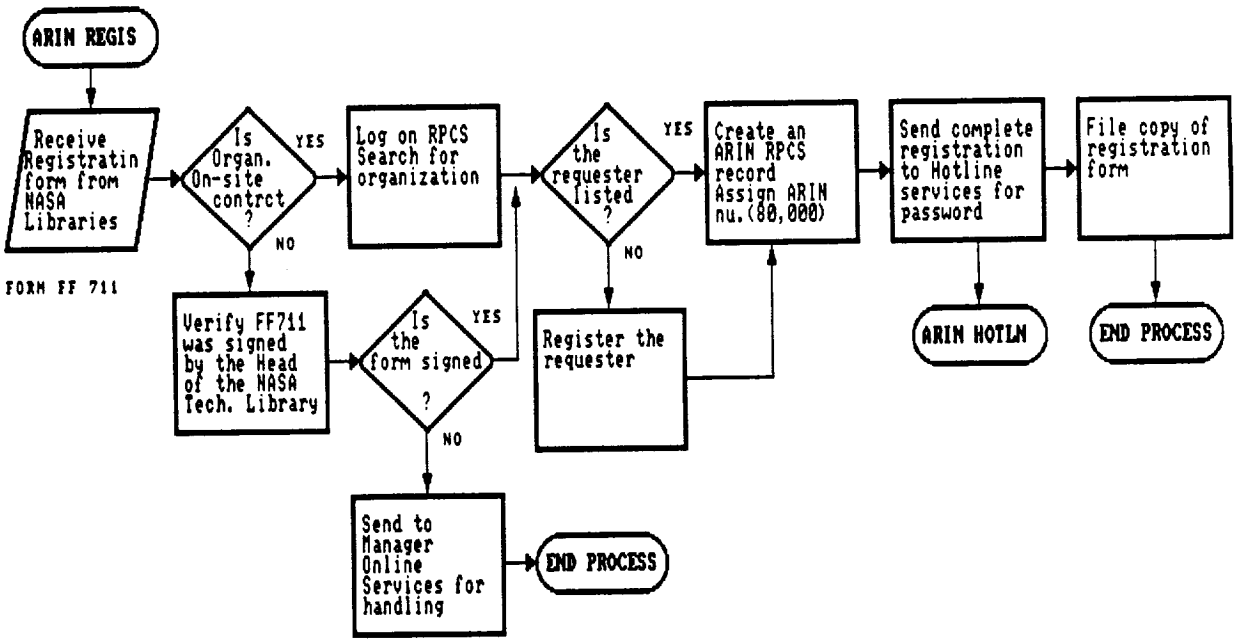
RECONREG

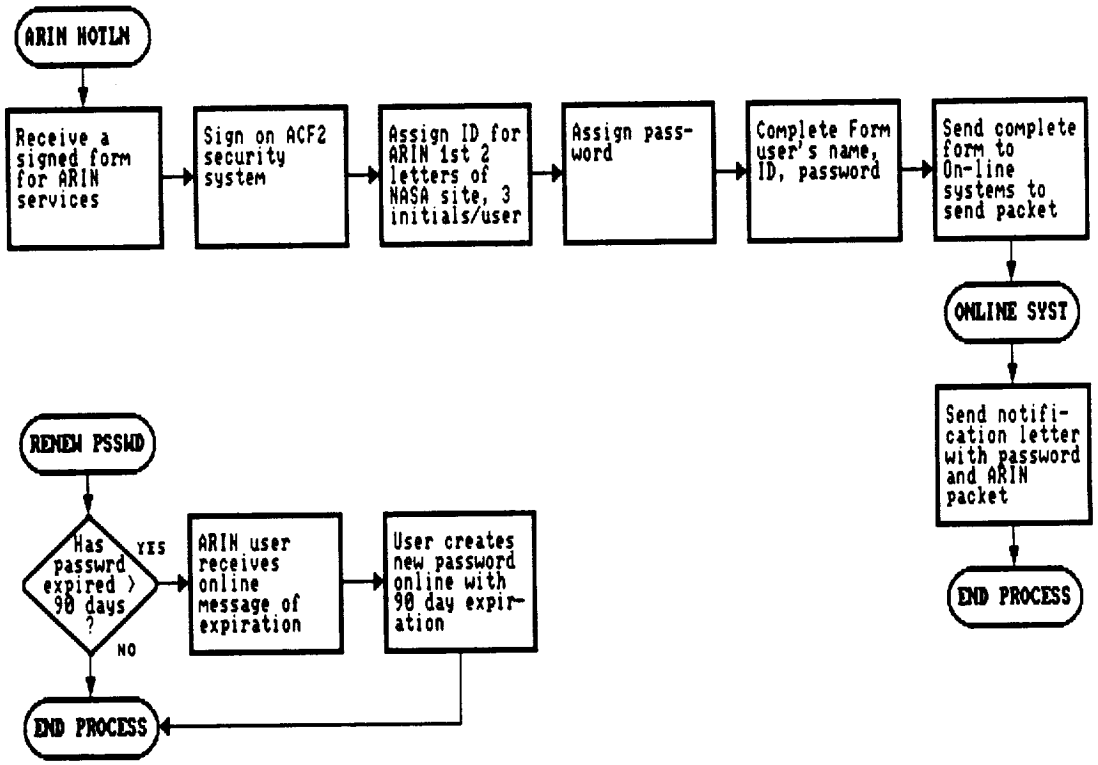


CASI ARIN REGISTRATION

WFD 11.4

ARINREG

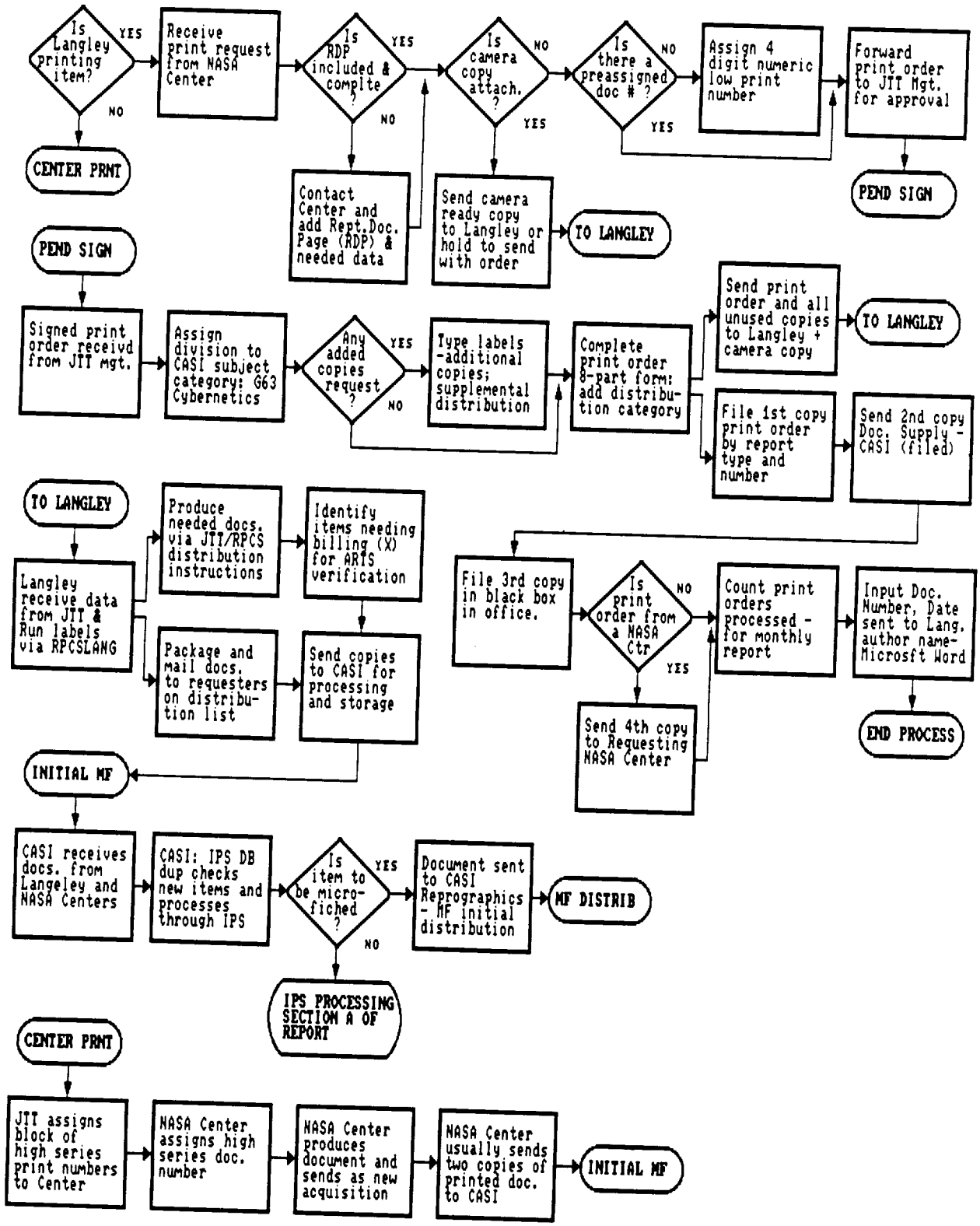




INITIAL NASA HARDCOPY DISTRIBUTION

WFD 11.5

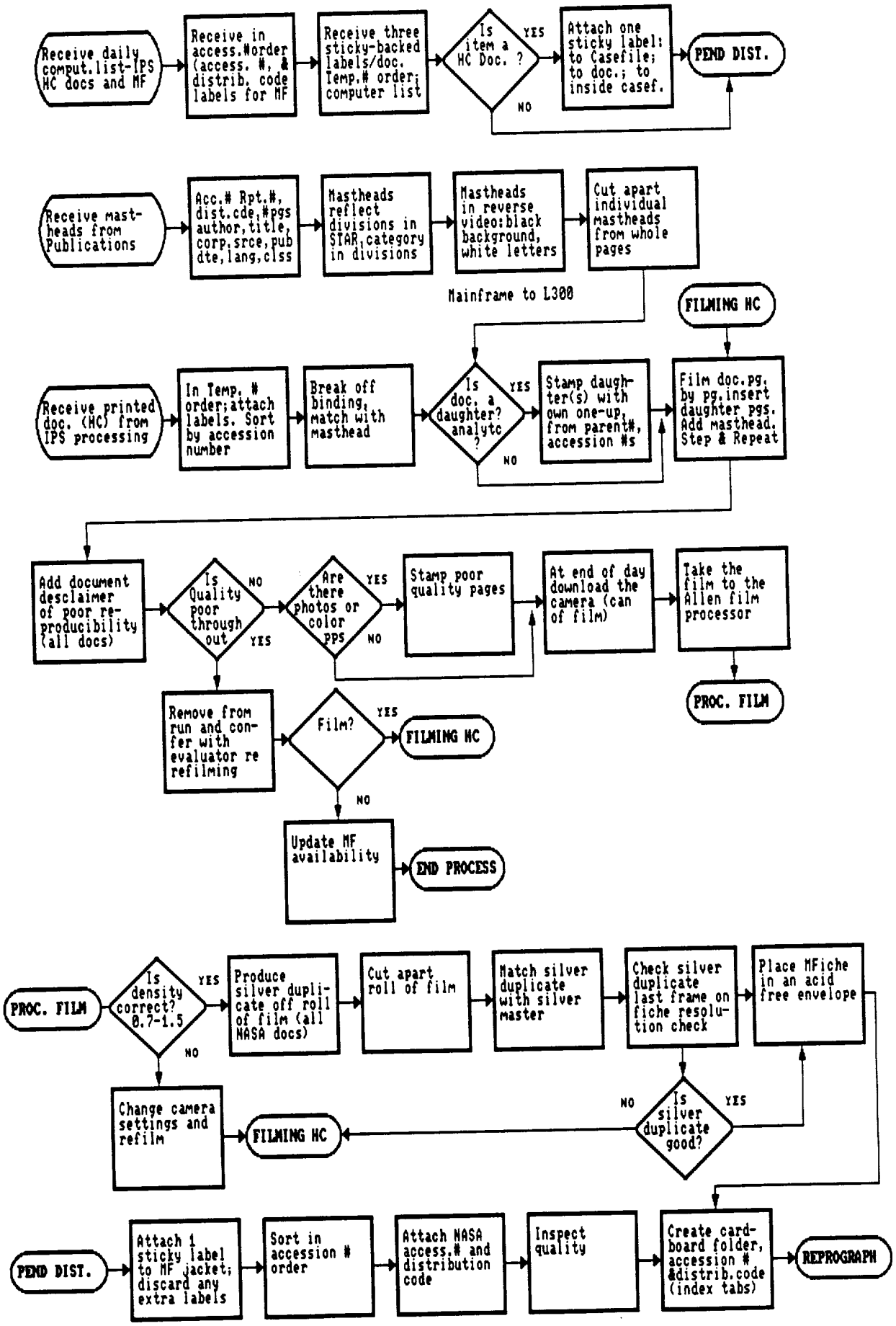
INITIALHC



INITIAL NASA MICROFICHE DISTRIBUTION

WFD 11.6

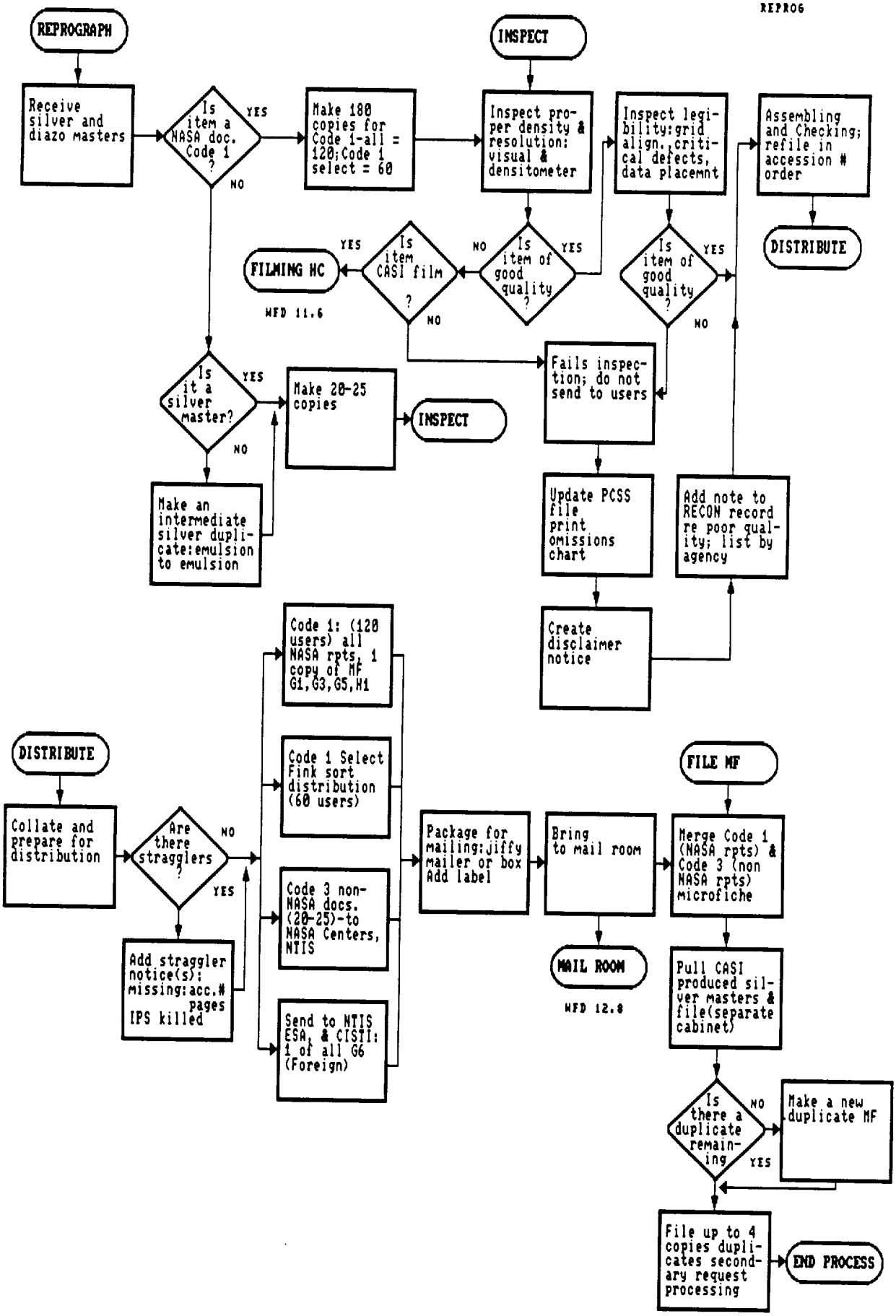
INITIALMF



INITIAL MICROFICHE DISTRIBUTION
REPROGRAPHICS

WFD 11.7

REPRO6



11.3 HIGHLIGHTED ASPECTS

1. Registration policies are in the process of change to reflect JTT's renewed emphasis on making documents available to a wider audience based on ability to pay rather than strictly on NASA approval levels. This shift in emphasis is likely to reduce the amount of time spent in registration verification activities and increase the number of registrations CASI must process.

2. Registration forms are in process of change because of the changes in policies indicated in 1. above, an increased emphasis on service to CASI users, and a developing systems approach to all CASI products and services in an attempt to reduce redundancy. A result of these changes could be a single centralized registration form with subdivisions for each of the several available services.

3. JTT/CASI are currently reviewing the RPCS system and its interconnections with the ARTS and RECON/ARIN systems and investigating adding a computer based front-end publishing capability which will probably lead to a complete change in Registration activities and forms processing.

4. Although RPCS is the CASI system for processing foreign registrants, there is little in the work flow analysis describing registration of international participants. Policies to manage the international program need to be developed and implemented.

11.4 CONTRACTUAL REQUIREMENTS

User Registration

CASI is to make up and provide registration kits to potential registrants or formerly registered users requiring re-registration to include an express registration form. CASI ensures completeness of information of the user's registration form on its receipt for online input in making additions, deletions, or record changes to RPCS/STI and is responsible for responding to inquiries related to the eligibility requirements for various NASA services and products. Different kits are sent to commercial contractors, and universities (about 30 sent a month).

CASI monitors all expiration dates contained in RPCS/STI so

as to provide sufficient time for users to re-register, or to advise NASA of suspense expiration on temporary foreign exchange arrangements.

CASI updates and maintains the background correspondence files on each active and inactive user of the system.

There are 1.5 FTEs assigned to perform this function.

An asterisk* in Figure B11.18 reflects inconsistencies between the monthly report totals and the annual cumulations in the monthly Report on Center Operations or projections for the year based on monthly averages.

The contract goals of RPCS/STI Recircularization are obsolete as this activity is no longer undertaken and replaced by ADDS and S.O. Subscription forms. **The last CASI recircularization is in process.

CONTRACT WORK LOADS AND CONTRACT YEAR ONE TALLIES*

TITLE	UNIT	ANN.AMOUNT	MAR.91-FEB.92 EST.
STI User Registration Kit - volumes management report to JTT	Kit	900	996
STI User Registration Review and Follow-up - volumes management report to JTT	Action	5,500	7,440
~~RPC/STI Recircularization~~ [ADDS/S.O. Subscription forms]	Mailings	~~2~~ 1	~~**discon-tinued 1992~~ 1
Research and Development Contract Search (r&dcs)File New Entries (CFSN) (K10,000 Series); K File	Title	2,000	1,704
Research and Development Contract -volumes management report to JTT; SBIR, NHCC	Title	3,500	5,544
RPCS File	Trans.	40,000	46,152*

STI Labels - Langley STI Labels - STI Facility	Labels Labels	300,000 10,000	160,872
Microfiche Masters	Card	7,500	7,692*
CASI Initial Distribution Microfiche, not silvers	Cards	1,300,000	1,133,083
Converted Microfiche	Cards	15,000	
Special Microfiche	Cards	10,000	9,227
Silver Duplicate Microfiche	Cards	12,000	5,844*
CASI Secondary Microfiche (Demand Requests)	Documents	1,300	1,844

Figure B11.18

The annual Registration and Distribution production is equal to or greater than most of the contract criteria with the exception of the number of labels produced and the initial distribution of diazo microfiche. Figures for converted microfiche were not readily apparent from the monthly Operations Report. Differences in the monthly and cumulative annual statistics make it difficult to determine production figures with certainty.

11.5. INDICES OF PERFORMANCE, QC, and REPORTING

Within the contract, User Services: User Registration and Micrographics are assigned a 10% area weight judged on the basis of the quality and accuracy of work output; timeliness; conformance with requirements and specifications; efficiency of operations; reliability of performance; and implementation of the CASI Innovation plan(s), as applicable.

11.6. STANDARDS AND POLICIES

CASI Registration follows the guidelines of the NASA STI Handbook, the CASI Operations Manual, regulations governing database access identified in **Figure B11.19a-b**, the NASA CASI/RMS contract Statement of Work (SOW) and Technical Directives (TD) from JTT, e.g., TD 91-059 on RPCS policies.

Department of Defense. Industrial Security Manual for Safeguarding Classified Information, DOD 5220.22-M.

National Aeronautics and Space Administration. NASA Security Procedures-User Guide.

Micrographics adheres to the ANSI/AIIM Standards for Microfiche production and the National Aeronautics and Space Administration. SPEC-20.

B72

FACT SHEET

ONLINE ACCESS AND USE OF NASA SCIENTIFIC AND TECHNICAL INFORMATION

BACKGROUND

The NASA STI Database is a comprehensive scientific, engineering, and technical information resource containing MORE THAN ~~nearly~~ 3,000,000 items, with bibliographic coverage of worldwide published and unpublished aerospace literature. It also contains descriptions of NASA research plans, contracts, and other activities. Exchange agreements with other countries ensure input in the STI Database of R&D results, thus making them available to U.S. researchers and engineers. The STI Database contains a relatively small amount of specifically export-controlled information. Online access to the complete database may be provided through the NASA ~~STI Facility~~ CASI via NASA/RECON. A portion of the STI Database known as the Aerospace Database (*STAR* and *IAA* files) is available on DIALOG.

GOVERNING ACTS, REGULATIONS, AND GUIDELINES

Access to the STI Database is governed by policy and guidelines set forth in NASA Management Instruction 2220.5, "NASA Scientific and Technical Information" and in NHB 2200.2, "NASA STI Handbook: Documentation, Approval, and Dissemination" (February 6, 1987). Applicable acts, policies, and regulations include:

The National Aeronautics and Space Act of 1958 as amended.

The Export Administration Act of 1979 as implemented by the Export Administration Regulations (EAR).

The Arms Export Control Act of 1976 as implemented by the International Traffic in Arms Regulations (ITAR).

Federal Acquisition Regulations.

Presidential Policy Paper of National Space Strategy.

Federal Technology Transfer Act of 1986.

ONLINE ACCESS

Access to, use of, or distribution of data contained in the NASA STI Database, as well as documents acquired through its use, are intended for use within the U.S. and for organizations or persons whose primary activities are within the U.S. or its territories. Access by any foreign government, foreign organization, or person acting on their behalf is not authorized without written approval from NASA.

Unlimited access to the NASA STI Database is provided to all NASA installations via the NASA/RECON online retrieval system. In addition, NASA contractors may receive RECON access to the STI Database so that scientists and engineers working in NASA programs may produce the highest quality research in the shortest possible time. To support other Federally funded programs, access to the STI Database is available to other Federal agencies and their contractors for an appropriate fee. Universities carrying on research or offering curricula related to aerospace disciplines may have access to RECON. Organizations may access those files and references within the STI Database appropriate to their registration status with the STI Facility. User charges are established under the guidelines of Circular A130 of the Office of Management and Budget.

Access to the Aerospace Database on DIALOG follows guidelines similar to those for NASA/RECON, as specified in the agreement with the vendor.

Technical libraries and other organizations that have authorized access to the STI Database may provide their user communities (i.e., students, post-doctoral researchers, faculty, and staff) with access to the Aerospace Database portion of the STI Database, regardless of citizenship, provided that data are to be used for university-related research or study only.

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EXPORT CONTROL

Permanent U.S. residents who are not U.S. citizens (Green Card holders) may, upon written request to the NASA STI Division, receive permission to have the same access as U.S. citizens. Temporary U.S. residents under a visa who are assigned to Federally funded R&D projects may receive, at the discretion and under the supervision of the U.S. Project Officer, export-controlled information necessary for their project work. Export of certain technical data from the U.S. requires a license from the Department of Commerce under EAR or from the State Department under ITAR.

Penalties for unlicensed export of export-controlled documents are stamped on the documents.

Access to Restricted Citations via NASA/RECON

The NASA STI Database contains references to unclassified, unlimited, classified and limited distribution documents. Display of those restricted citations via NASA/RECON is controlled by your registration status with the ~~STI Facility~~ CASI. Those collections that contain restricted citations will exhibit the following notice:

NOTICE

YOUR NASA/RECON REGISTRATION ENABLES YOU TO SEE UNLIMITED-DOCUMENT CITATIONS AND CERTAIN LIMITED-DOCUMENT CITATIONS. DEPENDING ON YOUR ORGANIZATION'S REGISTRATION, SOME CITATIONS MAY NOT BE DISPLAYED TO YOU OR BE ONLY PARTIALLY PRESENTED. EXPORT OR RELEASE TO FOREIGN NATIONALS OF RETRIEVED INFORMATION RELATING TO EXPORT CONTROLLED DOCUMENTS WITHOUT AN EXPORT LICENSE, MAY VIOLATE THE INTERNATIONAL TRAFFIC IN ARMS REGULATIONS OR THE EXPORT ADMINISTRATION REGULATIONS, PUNISHABLE BY IMPRISONMENT AND FINE. USE OF THESE CITATIONS AND/OR ABSTRACTS SHOULD BE MADE IN ACCORDANCE WITH ANY LIMITATIONS CONTAINED IN THE CITATION AND IN ACCORDANCE WITH YOUR ACCESS.

Access Outside the United States

Through an agreement between NASA and the European Space Agency (ESA), *STAR* and *IAA* files (Aerospace Database) are made available to contributing organizations within ESA-member states in exchange for their providing timely aerospace documents that would not otherwise be readily available to NASA. Similar exchanges are being implemented or negotiated with other countries.

Further information may be obtained from:

Scientific and Technical Information ~~Division~~ PROGRAM
National Aeronautics and Space Administration
Code NTT
Washington, DC 20546
Telephone: (202) 755-1089 NEW BUILDING TEL. #

Figure
B11.19
b

11.7. FUNCTIONAL REQUIREMENTS FOR COMPUTER SUPPORT

CASI registration activities could be improved by adding:

1. Automatic, on-demand generation of registration packets and contract expiration notification.

2. Electronic registration with ease in reactivating archived records.

3. NASA Center-wide database access for staff addresses and phone and mail numbers.

4. Inventory control and tracking for registrations and registrants.

5. An improved text searching capability for Registration activities.

11.8. BIBLIOGRAPHY OF SUPPORTING DOCUMENTS

Department of Defense. Industrial Security Manual for Safeguarding Classified Information, DOD 5220.22-M.

National Aeronautics and Space Administration. NASA Scientific and Technical Information Handbook: Documentation, Approval, and Dissemination. NHB 2200.2, February 6, 1987 Chapter 3: "NASA Scientific and Technical Report Series: Descriptions and Standards, pp. 3-1 - 3-11.

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NASA. STI Program. Scientific and Technical Information Facility [CASI]. "Production Control Statistical System Users Guide (TA 85-19), Version 1," created by RMS Associates, April 7, 1986, [42] pp.

NASA. STI Program. Scientific and Technical Information Facility [CASI]. "Production Specification and Standards for Microfiche Production, SPEC- 20," pp. 1-32, [33-Rev Jan92].

11.9. APPENDICES - See Section C

APPENDIX B11A: REGISTRATION SERVICES FORMS

APPENDIX B11B: NASA (CASI) PRODUCTS AND SERVICES

APPENDIX B11C: REGISTRATION SPECIALIST AND FUNCTIONS

APPENDIX B11D: INITIAL DISTRIBUTION FORMS

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12. ORDER / REQUEST PROCESSING - GENERAL REQUIREMENTS

NASA contractors, subcontractors, and grantees requiring information, specifically aeronautics, space research, earth sciences, computer science, and aerospace engineering information may request and receive both limited and unlimited NASA scientific and technical publications through CASI's distribution services.

CASI distributes documents to these organizations and individuals:

1). U.S. Government agencies and their contractors,
2). Universities and colleges,
3). Public and special libraries that maintain collections of NASA publications for public reference,
4). Foreign governments and private organizations whose scientific and technical publications are of value to NASA, and
5). Other organizations whose scientific and engineering activities relate to NASA research priorities.

12.1. DESCRIPTION OF NASA DISTRIBUTION SERVICES

CASI distributes a number of classified, limited, or unclassified/unlimited hardcopy and microfiche documents described in greater detail immediately following.

12.1.1. CLASSIFIED DOCUMENTS DISTRIBUTION

Classified documents are distributed only to authorized NASA requesters both through the initial and secondary distribution systems.

(See the Flow diagram **WFD 12.1 Classified Documents Secondary Requests**).

As in Registration activities, requests for classified documents are handled separately from all other orders and processed by a CASI staff member cleared up to the level of SECRET who is physically located in the Classified Document Master Control vault. Statistical reports and normal reporting are part of the Document Supply activities. Nothing is forwarded to the CASI Business Management Division. On the invoice, the document is marked by an 'X' only.

Reproduction of classified hardcopy is accomplished only in response to a specific Document Request (**CF492**); see **Figure B12.1.**

B78

FORM 492

COLOR HARDCOPY:

EXCEPTIONS: EXCEPTIONS
ORDER CONTROL NUMBER: 911113071702
DATE OF REQUEST: 11/13/91
USER ID: 92325
AFFILIATION TYPE: A SECURITY LEVEL: SR
NASA ACCESSION NUMBER: N72-73893 MOTHER ACCESSION NUMBER:
NACA/NASA REPORT NUMBER: NASA-CR-127391
NON-STANDARD REQUEST: N5 COPY TYPE REQUESTED: OR MULTIPLE REQUEST: 0001 UNITS
DOCUMENT TYPE: 0 DOC SEC LEV: U ACC SER: NA COPYRIGHT: PAGE CNT: 0009 NTIS CODE:
CASE FILE LOAN:____ RETURN DATE:_____
REPRODUCTION REQUEST:_____ REPRODUCTION METHOD:_____ MICROFICHE AVAILABLE: NO
COMMENTS:_____

DAY IN	ASSIGNMENT							DAY OUT
	IDENT.	ACQ.	STOCK	REPRO.	HOLD	REJECT	CAN.	

NASA CENTER FOR AEROSPACE INFORMATION

P.O. BOX 8757 BALTIMORE/WASHINGTON INTERNATIONAL AIRPORT, MD. 21240. (301) 859-5300

ATTN: WEDNESDAY, GOOD MORNNING,PHYLL
DATE OF REQUEST: 11/13/91
USER ID: 92325
ORDER CONTROL NUMBER: 911113071702
USER SECURITY LEVEL: SECRET RESTRICTED

ENCLOSED IS YOUR ORDER FOR 0001 HARDCOPY COPY OF NASA ACCESSION NUMBER N72-73893
TITLE: Solar array performance as a function of orbital parameters and spacecraft
REPORT NUMBER: NASA-CR-127391

DOCUMENT CLASSIFICATION: UNCLASSIFIED
DISTRIBUTION LIMITATION STATEMENT: UNLIMITED

QUESTIONS CONCERNING THIS ORDER SHOULD BE DIRECTED TO DOCUMENT REQUEST SERVICES, NASA CASI, (301) 621-0147.
PLEASE INCLUDE YOUR ORDER CONTROL NUMBER WITH YOUR INQUIRY.

92325-911113071702
NASA
CENTER FOR AEROSPACE INFORMATION
ONLINE SYSTEMS COORDIANTOR
ATTN: MR MIKE MORIARTY
P O BOX 8757 BWI ARPRT
BALTIMORE MD 21240

92325-911113071702
NASA
CENTER FOR AEROSPACE INFORMATION
ONLINE SYSTEMS COORDIANTOR
ATTN: MR MIKE MORIARTY
P O BOX 8757 BWI ARPRT
BALTIMORE MD 212

Figure
B12.1

This is accomplished as follows:

- o The document to be reproduced is received from Classified Supply Unit, in an appropriately marked casefile folder.
- o A document Reproduction Operator checks the documents received and signs appropriate receipts, retaining one copy for the files.
- o While the documents are being reproduced, restricted access signs are displayed and other safeguards are observed.
- o When reproduction is completed, the Document Reproduction Operator prepares an FF 402 transmitting the original document and the reproduced copy to Classified Document Supply Unit.
- o Reproduced documents, together with the original casefile, overrun sheets, the CF492, and the FF 402 are hand carried to Classified Document Supply Unit.

Classified hardcopy reproductions are made during the day shift only. If reproduction of documents is not complete at the end of the normal working day, the documents and all reproduced classified material are returned to the Classified Supply Unit for storage. The work is completed the next work day.

12.1.2. **LIMITED DOCUMENTS DISTRIBUTION**

Requests for limited-distribution NASA or non-NASA documents available to NASA or to U.S. Government agencies are sent to NASA Headquarters - JTT with the letter accompanying the request that justifies the need and listing pertinent information on who imposed the limitation such as the document release authorization form (only from the British Embassy, (STI/RPCS #1779) National Aerospace Laboratory (NLR) in the Netherlands (STI/RPCS #2935), Jet Propulsion Laboratory or other organizations). JTT reviews and authorizes or denies access to the document(s). Requests for NASA education publications (NASA Facts, NASA EP's) are forwarded to NASA Headquarters, Code XEP, for action, and those for NASA Handbooks (NASA NHB's) and other management issuances are passed to JTT for reply.

CASI receives Limited Distribution ~~program~~ documents for processing into the 1X, 7X, and 9X series. They are filmed on fiche for initial and secondary distribution to qualified users.

Limited documents are distributed only to authorized NASA requesters both through the initial and secondary distribution systems as matched against the RPCS system to determine their authorization. Limited document requests cannot be distributed via prepaid processing.

12.1.2.1. PROCESSING LIMITED DOCUMENTS

In cooperation with Document Requests, Document Supply provides limited documents to requesters according to the following guidelines:

- Service Report Requests

  Service Reports result from investigations conducted by NACA/NASA at the request of another Government agency. They are identified by an "S" prefix in the regular NACA/NASA report series (e.g., NCA RM SL 52k02, NASA TM SX-145 or NASA TM S-_____). Secondary distribution of Service Reports is authorized for NASA Centers only. NASA requests for Service Reports are stamped as follows: APPROVED FOR SERVICES REPORT. All other requests must have the written approval of the controlling agency. If a Service Report is security classified, the request must also carry the stamp OK TO SHIP.

- Requests for NASA For Early Domestic Distribution (FEDD), Export Administration Regulations (EAR), and International Traffic in Arms Regulations (ITAR) Reports

  Distribution of NASA For Early Domestic Distribution (FEDD) documents are made to:

  1) NASA organizations/individuals asking (or designated by JTT) to receive FEDD documents or NASA central points;

  2) Registered NASA domestic contractors;

  3) Registered U.S. Government agencies;

  4) Registered U.S. Government agency domestic and non-NASA contractors.

  NASA-generated documents carrying the International Traffic in Arms Regulations (ITAR) limitation statement

are made available to U.S. Government agencies and their domestic contractors, with no foreign distributions, and in accordance with existing guidelines for NASA documents.

There is no automatic distribution to university libraries that have no government contract or individuals, public libraries, non-contractor industrial organizations, publishers receiving review copies, or foreigners.

Secondary distribution, other than the above, is handled only by the Technology Transfer Centers and follows the same rules as the initial distribution. See TD 85-076R.

- Requests for RTOPs

  The annual publication NASA Research and Technology Objectives and Plans (RTOP) is distributed as a "U.S. ONLY" document. Availability is stated in the document as from CASI. Secondary requests for this document may be filled for bona fide U.S. commercial organizations, domestic universities, Technology Transfer Centers, and STACs.

12.1.2.2. TECHNICAL MONITOR SPECIAL RELEASE DOCUMENTS

Documents (either classified or unclassified) that contain sensitive information must be cleared by the company whose product is concerned or by the contract Technical Monitor before they are distributed. NASA Headquarters sends a copy of the report to the company whose product is involved with a request for their comments regarding a possible release of the report to those on the NASA distribution lists having a need-to-know. At the same time, copies are sent to the military services advising them of NASA's pending action. If there are no objections to the release of the report, the Special Release category is removed and it is sent to STI Office for printing or handling in the usual manner. Otherwise, Special Release reports receive no further distribution and availability is controlled by the cognizant Headquarters Program Office. Special Release Reports are not available for foreign distribution.

12.1.2.3. PATENT SECRECY ORDERS (Infrequent Occurrence)

A Patent Secrecy Order is issued by the U. S. Department of Commerce, Commissioner of Patents and Trademarks, to a patent

applicant when a patent application contains subject matter which might be detrimental to the national security in the event of unauthorized disclosure. A Secrecy Order may also relate to both unclassified, unlimited or security classified technical reports.

Under the Secrecy Order, the law specifies that the subject matter shall not be published or disclosed to any persons not aware of the intention prior to the order. The Secrecy Order further provides that if, prior to the issuance of the Secrecy Order, any significant part of the subject matter or material information relevant to the patent application has been revealed to any person, that the patent applicant must promptly inform such persons of the Secrecy Order and that the penalties for improper disclosure are, upon conviction, a fine of not more than $10,000 or imprisonment for not more that two years or both.

Patent Secrecy Orders received at CASI generally involve technical reports received from other government agencies or from NASA and its contractors. These reports may be in the form of hardcopy or microfiche, and after input processing, are entered onto the NASA STI Database and further distributed both foreign and domestic addressees according to the distribution information carried on the STI Registration and Products Control File.

Upon receipt of a Patent Secrecy Order, CASI IPS management staff coordinates and ensures completion of all action required to fully comply with the order as follows:

1. Prepare a STIMS transaction for deleting all references to the report from the NASA STI database.

2. Retrieve case file copy together with any stock from Document Supply area and hold in a temporary secure storage area for further disposition. If appropriate, take action to recall the case file and microfiche from NTIS.

3. Determine if the report was distributed in either hardcopy or microfiche.

4. Using the CASI/RPCS listing, identify both foreign and domestic recipients of the report. Generate lists for those foreign and domestic recipients who may have received the document in either hardcopy or microfiche form.

5. Notify those domestic document recipients by letter as soon as possible to inform them of proper handling procedures and protection of the report.

6. Notify the Patents and Trademark Office by letter identifying foreign distribution.

7. Supply a list of both foreign and domestic recipients of the record to the patent applicant along with a communication informing the applicant of the protective measures already implemented.

8. Notify the JTT when a Patent Secrecy Order is received (a rare occurrence)and when CASI has completed its actions .

12.1.3. **UNLIMITED/UNCLASSIFIED DOCUMENTS DISTRIBUTION**

NASA reports are distributed to registered requesters mainly in one of two formats: **Hard Copy (HC)** or **Microfiche (MF)** and through three separate units within CASI plus the Langley Research Center. Distribution is either **automatic** (Initial, Primary) based on predetermined criteria or **on-demand** (Secondary).

NASA distributes approximately 25,000 documents a year via initial distribution and completes approximately 20,000 document requests/orders a year via secondary distribution.

Initial Document Distribution to NASA Centers for 1990 and 1991 are presented in Figure B12.2 and for Non-NASA requesters in Figure B12.3.

NASA Center Technical Libraries receive initial distribution of all NASA documents at no cost (up to 10 free copies of STAR and 1 free copy of the NASA Thesaurus); additional copies are at $.05/page hard copy and $1.00/ microfiche. Non-NASA requesters receive initial distribution of NASA documents according to the ADDS or Standing Orders subscriptions prices. Secondary requests are at CASI's NTIS rates.

See **WFD 12.2 STANDING ORDERS SERVICE.**

Organizations with request privileges are charged an annual subscription rate for automatic distribution of NASA formal (ADDS) reports or microfiche announced in STAR.

3. DOCUMENT DISTRIBUTION

3.1. Primary (Automatic) Document Distribution to NASA Centers

1990

	Titles		Copies	
	PAPER	FICHE	PAPER	FICHE
Ames	468	2,996	3,853	6,316
Goddard	468	2,998	4,785	6,745
Headquarters	458	2,996	6,378	3,799
Jet. Prop. Lab.	465	2,996	2,672	3,158
Johnson	465	2,998	2,235	3,160
Kennedy	462	2,996	1,127	3,158
Langley	462	2,996	9,639	3,191
Lewis	466	2,998	4,052	3,160
Marshall	465	2,998	3,209	6,320
Stennis	74	2,996	326	3,158
TOTAL	N/A	N/A	38,330	42,165

1991

	Titles		Copies	
	PAPER	FICHE	PAPER	FICHE
Ames	484	3,277	4,811	7,026
Goddard	484	3,282	6,433	7,310
Headquarters	606	3,278	6,455	3,518
Jet Prop. Lab.	482	3,273	3,383	3,513
Johnson	482	3,277	2,524	3,517
Kennedy	450	3,273	1,133	3,513
Langley	482	2,910	10,203	3,100
Lewis	473	3,278	4,829	3,518
Marshall	483	3,282	3,638	7,036
Stennis	81	3,273	346	3,513
TOTAL	N/A	N/A	43,755	45,564

Figure
B12.2

3.2. Primary (Automatic) Document Distribution to non-NASA

1990

	Titles		Copies	
	PAPER	FICHE	PAPER	FICHE
Government agencies	20,002	2,776	36,520	84,603
Government contractors	271	3,011	2,167	10,132
NASA contractors	470	3,033	22,991	111,117
International partners	368	2,757	44,736	36,165
Domestic partners	419	0	8,146	0
Other foreign	362	2,443	7,555	2,846
Other domestic	466	2,855	62,559	119,603
TOTAL	N/A	N/A	184,674	444,466

1991

	Titles		Copies	
	PAPER	FICHE	PAPER	FICHE
Government agencies	20,655	3,167	38,612	83,805
Government contractors	289	3,314	3,582	11,019
NASA contractors	484	3,464	30,079	118,441
International partners	400	3,021	52,731	37,442
Domestic partners	455	0	8,907	0
Other foreign	401	2,589	11,847	2,942
Other domestic	483	3,217	72,813	196,289
TOTAL	N/A	N/A	218,571	449,938

Figure
B12.3

12.1.3.1. INITIAL MICROFICHE DISTRIBUTION - CASI / ADDS /S.O.

Almost all NASA reports (approximately 3,500 titles a year) are prepared on microfiche (approximately 6,000 fiche per year) which are distributed to NASA Centers and registered requesters via Initial distribution from CASI's Micrographics unit. Initial distribution of microfiche can be paid for via the ADDS (NASA Automatic Document Distribution Services) or the S.O. (Standing Orders) services. The CASI Micrographics unit microfilms the STAR issue weekly. Following microfilming, CASI runs the STARFINC program ~~that is~~ (connected to the RPCS) to light up the relevant FINC bins for microfiche sorting prior to packaging and mailing, using labels generated via the RPCS.

See **WFD 11.5. INITIAL DISTRIBUTION (LANGLEY).**

12.1.3.2. SECONDARY (ON DEMAND) ORDERS - CASI ORDER PROCESSING

After initial distribution of both hard copy and microfiche documents, NASA reports are distributed on demand as **Secondary** distributions through CASI and may be paid for through monthly invoicing or as prepaids (check included with the order).

Secondary distribution requests come into Document Request as needed by the customers.

In addition to NASA generated documents, CASI makes available documents from other sources through its secondary distribution service - from DTIC, DOE, and NTIS; non-NASA documents are generally only received in microfiche form. Hardcopy requests for these documents are filled via blowback reproduction (24:1 and 20:1), or less often by 1:1~~)~~.

CASI also refers requesters to other available sources of both NASA and non-NASA documents (NTIS, AIAA, GPO, or originating agency). Whenever CASI is unable to supply a document or locate a source, the requester is notified and the item is processed as a "reject".

CASI receives secondary (on-demand) NASA and non-NASA document requests via:

1) The online RECON document order system,
2) Offline requests submitted via telephone, fax, mail to the CASI Documents Order Request unit,
3) Prepaid (check attached) orders (only for unlimited, unclassified documents), and
4) NASA JTT personnel.

Orders specify the number of copies needed and the desired format(s), hard copy and/or microfiche.

See **Figure B12.4 Document Order Processing,** prepared by the CASI/RMS Data processing unit as part of the RPCS analysis review.

For both on-line and off-line requests the basic order processing steps include:

1). Request receipt
2). Requester verification for offline orders
3). Document identification, validation, and availability
4). Order filling and Quality Control
5). Order reject processing and Requester Communications
6). Order tracking, statistics, and reports generation
7). Order invoicing or payment
8). Order files maintenance
9). Order Services: HELP, RUSH, Acquisitions

See **Appendix B12B1-2 DOCUMENT REQUEST SPECIALIST CURRENT RESPONSIBILITIES** and **Appendix B12B3-4 DOCUMENT REQUEST CLERK CURRENT RESPONSIBILITIES.**

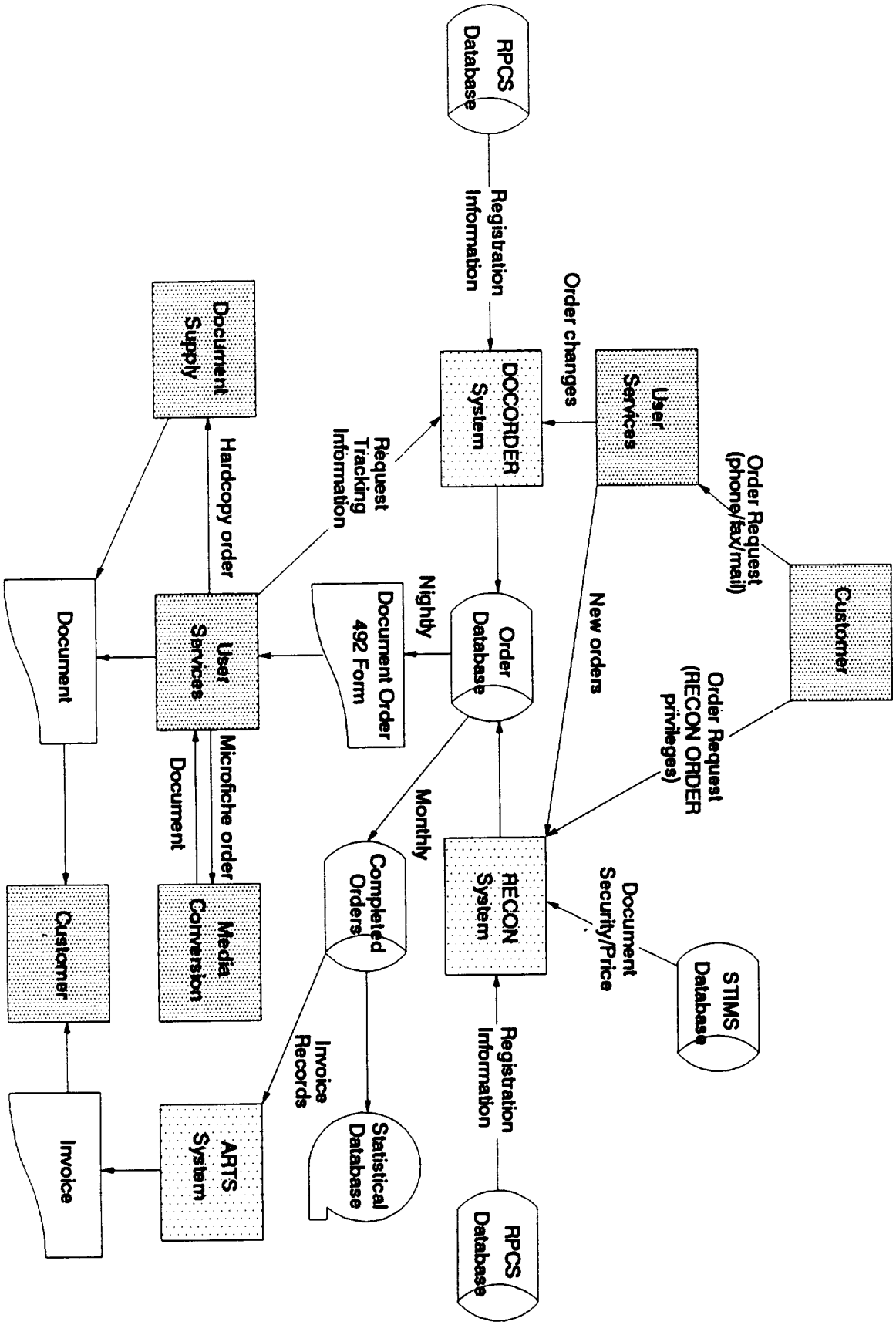

Document Order Processing
Customer
Order Request (phone/fax/mail)
Order Request (RECON ORDER privileges)
User Services
Order changes
New orders
RPCS Database
Registration Information
DOCORDER System
Request Tracking Information
Document Supply
Hardcopy order
Order Database
Nightly
Document Order 492 Form
User Services
Document
Microfiche order
Document
Media Conversion
Monthly
Completed Orders
RECON System
Document Security/Price
STIMS Database
Registration Information
RPCS Database
Invoice Records
Statistical Database
ARTS System
Invoice
Customer

Figure
B12.4

12.1.3.2.1. **DOCUMENT REQUESTS RECEIPT - CASI**

Approximately 80% of secondary document requests are received ~~daily~~ via the online RECON system, and the remaining 20% via phone, mail, NASA Headquarters messenger, or other sources (including facsimile) from NASA activities and non-NASA organizations (including NASA Regional Technology Transfer Centers - RTTCs).

After document order receipt, verification, and entry into either the online RECON or following the offline Doc Order process, a CF492 is generated overnight in a batch run.

RUSH orders are entered immediately into the batch processing system for a same day generation of the 492. The non-RECON requests are processed via the ADABAS/DOCORDER system. Once a document request is received, CASI currently makes every effort to fill the request in five (5) working days, or less, providing notification of delay to the requester as soon as the delay has been identified to allow his/her selection of other options for the subsequent filling of the request.

As this report is being written, CASI is preparing a response to TD 91-096 (latest version 2/28/92) that targets a document request turn around of three work days.

To reduce delays, CASI has produced standard document processing forms for rapid request processing, see **Figure B12.5 and Appendix B12A** for samples.

DOCUMENT CORRESPONDENCE FORMS

CF 492M	CASI Document Request Form for CASI requests - 3MAY90.
CF 492	CASI Document Request Form for requests from outside CASI - 5/90(REV).
FF 703	Advise booksellers that availability of NASA publications is in STAR, that STAR and its indexes may be purchased from GPO, and that abstracts of STAR from 1962 to the present may be purchased from NTIS - (90REV).
FF 727F	STAR (Scientific and Technical Aerospace Reports) - Provide requesters with a description of STAR and its contents and information on subscription rates for it from **GPO** - Feb89(REV).
FF 772	Reply to unqualified foreign requesters, to domestic individuals with no apparent affiliation, and to unregistered domestic organizations.
FF 773	Second page of FF 770, FF 771, and FF 772, giving details of availability for specific requested items.

Figure B12.5

CASI maintains complete documentation of all NTIS and Acquisition "delay" requests and records their processing in a separate log.

12.1.3.2.2. **REQUESTER VERIFICATION**

CASI begins the process of providing the requested publication or information on the document's availability by determining the requester eligibility ~~for each document~~ and ~~of~~ indicating the reason why a request is rejected (not immediately available within CASI).

CASI Document Requests divides orders into NASA activities and non-NASA activities for statistical purposes. These two groups are subdivided by type of requested document:

1) NASA and NACA formal reports, arranged in alphanumeric order by report series and number;

2) NASA Accession Numbers, arranged alpha numerically by accession series and number, and

3) All others.

Requesters may order NASA STI reports using the online RECON Order command or by contacting staff in the Document Order/Request unit.

o Online Document Ordering via NASA/RECON

All organizations having access to NASA/RECON and secondary request privileges are permitted to use the RECON ORDER command to order documents online at any time during the hours that RECON is in operation. RECON requesters may order paper copy or microfiche of "N" accessioned NASA documents available from NTIS or CASI, selected "A" accessions, and limited-distribution NASA "X" accession numbers for which they qualify.

See **WFD 12.3 SECONDARY DISTRIBUTION ORDERS REQUESTER ONLINE/CASI STAFF OFFLINE ORDERING VIA RECON.**

The NTIS pricing schedule is used for all requesters except NASA Center Technical Libraries and foreign organizations.

See **Figure B12.6 for the 1992 NTIS price schedules.**

o Offline Document Requests

CASI immediately checks RECON offline originated orders for eligibility of the requester and availability of the requested document with an immediate phone response (followed by a letter) to the requester if there are any problems in processing the request.

CASI checks each non-RECON offline request against the STI/RPCS to verify the requester's eligibility to receive the document, his/her address, and the CASI identification number.

See **WFD 12.4 SECONDARY DISTRIBUTION ORDERS CASI STAFF OFF-LINE ORDER NOT USING RECON COMMAND.**

"A" Code Price Schedule
Paper Copy & Microfiche*

Effective October 1, 1991

Price Code	Page Range	Domestic	Foreign
A01	1 - 5	$9.00	$18.00
A02	6 - 10	$12.50	$25.00
A03	11 - 50	$17.00	$34.00
A04	51 - 75	$19.00	$38.00
A05	76 - 100	$19.00	$38.00
A06	101 - 125	$26.00	$52.00
A07	126 - 150	$26.00	$52.00
A08	151 - 175	$26.00	$52.00
A09	176 - 200	$26.00	$52.00
A10	201 - 225	$35.00	$70.00
A11	226 - 250	$35.00	$70.00
A12	251 - 275	$35.00	$70.00
A13	276 - 300	$35.00	$70.00
A14	301 - 325	$43.00	$86.00
A15	326 - 350	$43.00	$86.00
A16	351 - 375	$43.00	$86.00
A17	376 - 400	$43.00	$86.00
A18	401 - 425	$50.00	$100.00
A19	426 - 450	$50.00	$100.00
A20	451 - 475	$50.00	$100.00
A21	476 - 500	$50.00	$100.00
A22	501 - 525	$59.00	$118.00
A23	526 - 550	$59.00	$118.00
A24	551 - 575	$59.00	$118.00
A25	576 - 600	$59.00	$118.00
A99	601 & Up		

Price codes with page count are for NTIS inhouse use only.

*Effective January 1, 1991, the microfiche copy of any new document entering the NTIS collection will be priced the same as the paper copy of the document in accordance with the document's page count and not the sheets of microfiche.

Figure
B12.6

12.1.3.2.3. DOCUMENT IDENTIFICATION, VALIDATION, AND AVAILABILITY

CASI checks each report or accession number via NASA/RECON to determine document distribution limitations and availability.

The document validation process identifies if the:

- o Accession number has been withdrawn (killed) or is valid,
- o Document has been superseded,
- o Requester profile matches the document code.
- o Document distribution limitations: NASA Centers can have any type of document except non-reproducible items. Foreign exchanges may have any unlimited NASA-supported item under 300 pages (hard copy).

12.1.3.2.3.1. IDENTIFICATION AND VALIDATION

CASI provides document identification assistance when the requester cannot provide an accurate or complete description of the desired document(s) or does not have access to the RECON search system. RECON Order requests validation occurs automatically with a rejection and rejection message displayed for documents ordered by unauthorized requesters or requests for documents that cannot be supplied due to lack of availability or reproduction limitations.

o <u>Online Request Assistance</u>

Online RECON orders are generated from a specific citations on the automated system. The extent of a selection and/or identification of technical information/documents from RECON depends on the nature of the inquiry and the type of requester.

(1) The most common identification occurs when a specific document is requested by title, number, or author.

(2) A more involved selection and/or identification from RECON is conducted by the Document Request staff under any of the following conditions: the requester has indicated an area of interest, the document specifically requested cannot be identified but material of a similar nature will be useful.

o Offline Requests and Assistance

CASI staff validate each Document Request by searching RECON for the most current limitation information assigned to the requested document; e.g., administrative and/or security classified limitations, copyright, and dissemination controlled by other than NASA. In addition, CASI follows-up to obtain document release for authorized users.

12.1.3.2.3.2. **DOCUMENT AVAILABILITY**

Requesters may order documents in specific formats, e.g., stock only or they may choose to accept any available format. The document requests are forwarded to Document Supply for filling from stock (or filled from microfiche is specifically requested) if the requester is registered and the document is less than five years old ~~or requests for NASA formals~~. If available, stock requests are normally completed the same day they are received. Details of this process are presented in Section 13 Document Supply of this report. If the document is older than five years, is a microfiche request, or if the hard copy is unavailable it is sent to Micrographics (now called Media Conversion).

When a request cannot be filled from stock nor supplied by Micrographics as a 24:1 or 20:1 blowback from CASI's microfiche diazo master or from a 1:1 reproduction of the Case File, CASI marks the document request form with the appropriate reject code and returns the request to the requester.

Examples of possible reject conditions include:

1). If the NASA/RECON citation indicates that a requested document is an analytic or subordinate to a primary document and is not available in stock as a separate entity, the accession primary number for the primary document is entered on the document request form and the request is assigned to be reproduced for the analytic only.

2). If the request is assigned to a HOLD status because the document is not currently available, e.g., a new accession is undergoing the microfiche cycle, reprinting of an out-of-stock item is in process, or NASA asked CASI to hold a request pending stock receipt. CASI assigns orders that cannot be immediately filled (reason for the delay) a Hold code. Some CASI reports refer to these in process situations as "rejects". See **Figure 12.7 Document Requests Hold Codes.**

DOCUMENT REQUESTS HOLD CODES

CODES	VALUES:
00	NO CHARGE: REPLACEMENT / MISSED COPY
01	NTIS RECALLS / ACQUISITIONS
02	492'S PROCESSING LATE DUE TO SYSTEM PROBLEMS
03	492'S PROCESSING LATE DUE TO BAD WEATHER
04	MANAGERIAL APPROVAL
05	REPRODUCTION EQUIPMENT PROBLEMS
06	USER CONTACT
07	SPECIAL REPROGRAPHICS HANDLING
13	MULTI REPRODUCTION ATTEMPTS FOR BETTER COPY
66	CASEFILE LOAN
	HOLD-REJECTS (Delays)
39	RECALLED FROM NTIS
40	ACQUISITIONS FROM SOURCE

Figure 12.7

3). The document is a Copyrighted document and may not be reproduced.

4). The document is a preprint of a journal article which is not furnished after existing stock is depleted, e.g., reprint of an analytic in stock - older documents prior to 1991 when AIAA discontinued distribution of microfiche to CASI.

5). The document is a purchase item which is not furnished after stock is depleted, e.g., Special Publications.

6). The document is not reproducible because of the poor quality of the Case File copy.

7). The document may be purchased from the National Technical Information Service (NTIS).

8). The document may be purchased from the Superintendent of Documents, Government Printing Office (GPO).

9). The document is not reproducible because its length makes the cost prohibitive as determined by the user. If microfiche is available, the request is filled by sending fiche. Otherwise, the request is rejected.

Document Requests processes all rejected orders as described in Section 12.1.3.2.5 and routes the requests to be filled to the appropriate reproduction units.

Registered users receive document order history reports on a monthly basis. See Figure B12.8. Document Orders Completed.

DURING THE MONTH OF MAY

ACC. NO.	REPT NO.	COPY TYPE	COPIES	RECEIVED AND COMPLETED DAY IN	DAY OUT	DOCUMENT FORMAT	PAGE COUNT	REASON FOR REJ./DELAY
N64-13361	ARC-R&M-3344	HC	0001	088	088			REJ: DESTROYED, UNAVAILBLE FROM NASA
N64-17160	NASA-TN-D-2221	HC	0001	088	092	1:1	158	
N65-23650	AGARDOGRAPH-97,	HC	0001	097	099	20:1	122	
N65-27467	RAE-AERO-2613	HC	0001	101	103	20:1	148	
N67-21419	ARC-R&M-3434	HC	0001	088	089	20:1	45	
N68-24208	TAE-78	HC	0001	097	099	20:1	42	
N69-31783	NASA-CR-96008	HC	0001	097	100			REJ: PROCESSING: CF COPY: NTIS RECALL
N73-26969	NASA-SP-7012	HC	0001	101	102	STOCK	23	
N74-15390	TNR-230-VOL-6	HC	0001	101	103	24:1	35	
N74-15393	TNR-230-VOL-5	HC	0001	101	103	24:1	178	
N74-71144	LA-4217	HC	0001	097	102	24:1	118	
N74-76332	NTO-R-141(VOL.3	HC	0001	097	102	24:1	69	
N75-15126	NASA-CR-141314	HC	0001	034	041			REJ: PROCESSING: CF COPY: NTIS RECALL
N75-74693	NTO-R-0133	HC	0001	097	102	24:1	57	
N75-74694	NTO-R-0132	HC	0001	097	102	24:1	71	
N75-74695	NTO-R-0130	HC	0001	097	102	24:1	71	
N75-74696	NTO-R-0129	HC	0001	097	102	24:1	57	
N75-74805	WANL-TME-1634-S	HC	0001	097	102	24:1	13	
N75-74886	RN-S-0462	HC	0001	097	099	24:1	45	
N75-75230	RN-S-0505	HC	0001	097	100	24:1	28	
N76-11380	AGARD-AG-212	HC	0001	088	089	STOCK	50	
N76-18258	NASA-CR-134816-	HC	0001	097	100			REJ: PROCESSING: CF COPY: NTIS RECALL
N76-71042	WANL-TNR-215	HC	0001	097	103			REJ: NOT SUITABLE FOR REPRODUCTION
N76-71248	NTO-M-17153	HC	0001	097	102	24:1	34	
N76-72945	NASA-CR-146841	HC	0001	097	100	24:1	66	
N76-74804	NASA-CR-147386	HC	0001	097	100	24:1	23	
N76-74806	NASA-CR-147365	HC	0001	097	100	24:1	190	
N76-76915	NASA-CR-148611	HC	0001	097	100	24:1	56	
N76-77376	NASA-CR-148643	HC	0001	097	102	24:1	138	
N77-33220	AGARD-AG-223	HC	0001	101	104			REJ: NOT SUITABLE FOR REPRODUCTION
N78-20077	NASA-CR-145323	HC	0001	088	089	24:1	204	
N78-26192	BMI-1982	HC	0001	097	099	24:1	47	
N79-13000	NASA-TM-X-72843	HC	0001	098	101			REJ: PROCESSING: CF COPY: NTIS RECALL
N80-24296	NASA-RP-1046	HC	0001	101	103	24:1	311	
N80-24296	NASA-RP-1046	HC	0001	101	103	24:1	311	
N80-24343	NASA-TM-81062	HC	0001	097	100			REJ: PROCESSING: CF COPY: NTIS RECALL
N81-10100	NASA-RP-1027-V0	HC	0001	101	102	STOCK	213	
N81-27865	NASA-RP-1077	HC	0001	088	089	STOCK	63	
N82-18191	ESA-TT-708	HC	0001	097	099	24:1	71	
N82-28317	NASA-TM-82473	HC	0001	097	099	1:1	418	
N84-29853	NASA-CR-3811	HC	0001	101	102	STOCK	60	
N84-74388	AD-A140666	HC	0001	097	100	24:1	184	
N85-17934	NASA-SP-4303	HC	0001	097	098	STOCK	394	
N85-19784	NASA-RP-1138	HC	0001	088	090	24:1	138	
N85-28912	NASA-SP-472	HC	0006	083	088	1:1	194	
N85-33539	NASA-TM-86386	HC	0001	097	100			REJ: PROCESSING: CF COPY: NTIS RECALL
N85-70366	NASA-CR-174147	HC	0001	097	099	1:1	217	
N86-24391	NASA-RP-1145	HC	0001	097	099	24:1	168	
N86-29157	JIAA-TR-73	HC	0001	088	090	24:1	40	
N87-24397	NASA-TM-86016	HC	0001	097	099	1:1	142	

Figure
B12.8

12.1.3.2.4. **DOCUMENT ORDER FILLING AND QUALITY CONTROL**

CASI staff provide documents (includes the analytics of the ~~total~~ document if supplied) to approved requesters from stock (paper copy), reproduced copy (hardcopy blow back from microfiche - 24:1), or a one-to-one copy from a Case File (when no stock exists), microfiche (a diazo reproduction microfiche from a silver or diazo master microfiche), or other formats (multimedia) to approved requesters.

The automated CF492 (order form) is generated as part of an overnight batch run using the Xerox 4090 Laser Printing System. The 492s are generated three times a day (8:00 a.m., 11:00 a.m., and 3:00 p.m.), sorted by the format of requested document (stock, microfiche) and forwarded to the relevant section. Since production of the 492 is an overnight batch system, order processing time is currently at least one day longer than the time elapsed since initial receipt of the order.

The peak times for receipt of document requests are between 8:00 a.m. and 11:00 a.m.; and between 1:00 p.m. and 4:00 p.m.

CASI fills more than 60% of document requests within six days and adds another 20% in the following five days. The fill rate of the remaining 20% of the orders varies with the specific situation.

After the processing detailed in flowcharts:

WFD 12.3 (ONLINE/OFFLINE ORDERING VISA RECON),

WFD 12.4 (OFFLINE ORDER NOT USING RECON COMMAND), and

WFD 12.5 (492 REQUESTS PROCESSING),

Document Requests sends the request to Document Supply to fill hard copy requests with available stock. If there is insufficient stock the order is partially filled, the requester is notified of the situation and if s/he desires, the CF492 is annotated with the additional number of needed copies and forwarded to Reprographics for filling.

12.1.3.2.4.1. **STOCK COPIES**

If the request is for stock copy only and there are insufficient copies to fill the request, the CF492 is annotated and returned to the Document Requests for user notification.

See **WFD 12.6 FILL SECONDARY ORDERS.**

See **Section 13 DOCUMENT SUPPLY** for greater detail.

12.1.3.2.4.1. **DOCUMENT REPRODUCTION**

Reproduction services include both 1:1 and blowback from microfiche to fill document requests, i.e., Document Orders from NASA field installations and other qualified registered users. Each reproduction request is accompanied by a Intra-Facility Work Order Request (FF707) or Document Request Form (CF492).

A Tameran 1970 ~~and Consolidated Micrographics MP 2000 film~~ 'blowback' machine is used to blowback microfiche. A Xerox 9900 device is used to reproduce hardcopy 1:1. A Konica 7 color copier is used to provide color copies. The Tameran 1970 ~~and the MP 2000 are both~~ is a variable format machine~~s~~ (20x, 24x). ~~Due to the volumes, the Tameran, which is the faster machine, is normally used for 24x microfiche and the MP 2000 is used for 20x microfiche.~~

Reproduction copies are bound by several different methods. Most often using the appropriate NASA document cover.
Document Orders from NASA field installations receive first priority. A 5-day turnaround requirement is placed on these document requests. Close coordination with Document Supply personnel is necessary to meet this requirement. In the event that a document reproduction requires Special Handling and the delay will exceed the five work day requirement (DAY IN/DAY OUT on the CF492), Document Requests is immediately notified so that the requester may be so notified.

Document reproduction requests are processed as follows:

Within Reprographics, work orders and document requests are date stamped and approved by the Supervisor and forwarded to the appropriate operator.

Requests for 1:1 reproduction from hardcopy are accompanied by the document casefile. The operator checks to insure that the Xerox 5090 has adequate paper and toner, and then fills the request.

If the document contains color pages and stock copies have been depleted, the casefile is provided by Document Supply. Those pages containing color will be reproduced on the Konica 7 color copier and inserted into the reproduced copy, if requested, before binding.

Requests for blowback from microfiche include the accession number of the document to be reproduced. The operator pulls the microfiche from the storage cabinets, checks the appropriate blowback machine for adequate paper and toner, and then fills the request.

12.1.3.2.4.2. **QUALITY CONTROL**

CASI Requests inspects all hardcopy and microfiche documents for reproducibility. As a general rule, if over 20% of the pages of a given document are unacceptable due to imperfect printing, the document is ruled unreproducible. Details on hardcopy review criteria are presented in the CASI Operations Manual.

See **WFD 12.7 DOCUMENT QUALITY CONTROL PRIOR TO DISTRIBUTION.**

Micrographics quality review is first performed by the CASI Evaluation unit which inspects source documents upon initial receipt for defective print quality, and oversize photographs, maps and charts which cannot be handled with present equipment.

Quality control checks are also made after reproduction by the micrographics and reprographics staff. To obtain the best possible copy, the CASI Micrographics unit performs a second reproduction, labeling poor quality pages with "Best Copy", before sending the document to Document Requests Quality Control process.

Guidelines for checking microfiche reproducibility are detailed in the Reprography Manual.

Document Requests inspects all documents processed by Micrographics for over-all readability. As a general rule, if over 20% of the pages of a given document are unacceptable due to imperfect printing, the document is ruled illegible or unreadable.

Documents that fail the readability test are returned to reprographics with the Case File original to produce the "Best Copy". If this redoing of the reproduction still produces a poor best copy, Document Requests notifies the requester by phone

~~informs the requester~~ of the quality of the reproduction and determines if the requester wishes to: 1)accept the reproduction as is, 2) cancel the request, or 3) attempt to locate a better original from the originating agency.

For acceptable documents, Document Requests enters the current work DAY IN and DAY OUT section of the Document Request Form, inserts the shipping copy of the 492 into the document and removes and holds the statistical copy. The document(s) is then sent to Document Supply for packaging, labeling, and shipping.

See **WFD 12.8 MAIL ROOM** (on same sheet as WFD 12.7 QC)

After mailing, Document Supply returns the document request forms for items that they supplied to Document Request for the monthly statistics processing.

See **WFD 12.9 DOCUMENT CLOSE OUT PROCESSES AND WFD 12.10 DOCUMENT ORDER REPORTING AND INVOICING.**

12.1.3.2.5. **ORDER REJECTS PROCESSING AND REQUEST COMMUNICATIONS**

CASI staff provide notification of order delay or rejection to the requester as soon as the delay is identified and indicate options for filling the request including referral to another available source whenever the:

(1) Requested document cannot be furnished within 5 workdays after receipt of the request;

(2) Purchase order has been submitted to the National Technical Information Service (NTIS), Department of Commerce on behalf of the requester;

(3) Requested document is not in the CASI system and is being acquisitioned by CASI; or

(4) Requested document cannot be furnished.

12.1.3.2.5.1. **DOCUMENT REQUESTS CORRESPONDENCE**

Document Requests maintains correspondence files related to document ordering. Activities resulting from correspondence may include:

(1) Online ordering for registered requesters who chose to write a letter to Document Requests citing documents they need rather than use the NASA/RECON online order

capability,

(2) A note to track prompt completion of telephone requests for information or documents regardless of whether or not the requester was registered.

In addition, phone notifications of document referrals or rejections are followed by a written notification. See **Figure B12.9 Client Contact Report** form and **Figure B12.10 DAILY 492 STATS**.

Replies Procedures

Responses to requests depend on the category of requester and the nature of the request. Requests from commercial organizations or individuals with no apparent aerospace affiliation or other required qualifications are answered with FF 772 which identifies where NASA publications may be purchased. Non-domestic unregistered or registered requesters who do not have direct access also receive FF 772.

Individuals in registered organizations who request primary or secondary distribution are generally referred to the central service point within their organization by form letter (FF 770). If, however, an additional address (direct requester) for an organization seems justified (e.g., widely-separate geographical locations), registration forms are sent with a covering form letter (FF 776).

When a registration kit is sent, the registration forms are usually marked "000," so that upon their return they may be readily identified as having been furnished by CASI in response to previous correspondence from an unregistered requester.

If the order is from a direct requester (not an intermediary such as the Center Library) (regardless of communications medium), the online document order(s) are placed and the direct requester receives one form letter for document requests and a separate form letter for registration forms. A standard client contact sheet is completed and an online order placed for two other conditions: a request is received from someone who is not a direct requester or someone on initial distribution who did not receive, or who received a damaged/imperfect copy of a document on that initial distribution. A requester can receive a replacement copy up to one year from the original issue date.

CLIENT CONTACT REPORT

This form must be completed for all contacts

☐ IN
☐ OUT

B103

TO

VIA

FROM: _____ DATE: _____

☐ Visit
☐ Telephone Call
☐ Other - Explain

☐ Action
☐ Information
☐ Follow-Up

USERID#: _____ AFL: _____ SECONDARY: _____

NAME: _____ TELEPHONE#: _____

ADDRESS: _____

DOCUMENT(S)/INFORMATION REQUESTED: _____

SPECIAL INSTRUCTIONS: _____

EF995 FEB 88

ORIGINAL PAGE IS OF POOR QUALITY

Figure
B12.9

DAILY 492 STATS

B104

WORKDAY: _____ DAY: _____ DATE: _____

MAIL-IN:	_____			X-MF:	_____
FAXES:	_____			N-MF:	_____
CALLS:	_____			X:	_____
LETTERS:	_____	TO IDENT:	_____	FORMAL:	_____
N5:	_____	IDENT:	_____	A:	_____
N6:	_____	REJECTED:	_____	N:	_____
REJECTS:	_____			A-REJ:	_____
				REJ:	_____
TOTAL:	_____			TOTAL:	_____

****

N5 (ON-LINE)

A N X

****

N6 (ON-LINE)

A N X

****

OTHERS (OFF-LINE)

NACA A N X MICS

****

N8 (OFF-LINE)

NACA A N X

****

TOTAL: _____

Figure
B12.10

CASI adds a code signifying the type of change on the file copy of the form, letter, or note (e.g., made because of a telephone request) which prompted the action.

12.1.3.2.5.2. **REQUEST REJECTION**

Whenever a request is denied or cannot be filled, the requester is notified of the reason. Whenever possible, document sources are given for denied requests.

During the processing cycle, the appropriate reject code is entered on the statistical copy of the document request form. The applicable reason, based on the reject code, is marked on a reject code sheet that defines the individual reject codes. The reply copies of the document request and its attached reject sheet are sorted by requester number and inserted into envelopes. The envelopes are forwarded to the mail room for dispatch.

12.1.3.2.6. **ORDER TRACKING, STATISTICS, AND REPORT GENERATION**

CASI maintains a reporting system to provide statistics for document requests by requester, accession number, subject category, and document format and maintains records on each purchase order it submits to NTIS via the CASI Acquisitions program. Internal reports do not provide a break-out of the CASI 'reject' category statistics. See also Section 16 **REPORTS.**

See Figure **B12.11 Document Order Monthly Statistics.**

12.1.3.2.7. **ON DEMAND - REGULAR INVOICING (SECONDARY)**

Most secondary orders result in a monthly invoice generated from the CASI ARTS system following coordination between the Document Requests unit and accounting in the Business Management Division.

These orders originate both from the RECON Order command and from orders submitted offline to Document Requests.

Automated invoices are produced by the ADABAS DocOrder/ARTS interface and list the accession numbers and report numbers of ordered items, the total number of documents shipped, and the total cost.

(See **WFD 12.10 DOCUMENT ORDER REPORTING AND INVOICING and**

WFD 12.11 DOCUMENT ORDER RECEIVABLES)

DOCUMENT ORDER MONTHLY STATISTICS - MARCH 1991-MARCH 1992

TRANSACTION TYPE	TOTALS	AVER.	MAR'91	APR'91	MAY'91	JUN'91	JUL'91	AUG'91	SEP'91	OCT'91	NOV'91	DEC'91	JAN'92	FEB'92	MAR'92
DOCUMENT REQUEST RECEIVED	17595	1353	1336	1504	1678	1391	1844	1617	1178	1464	1348	1036	1014	1091	1094
NASA	15315	1178	1271	1247	1379	1207	1767	1361	1025	1295	1147	915	914	894	893
RECON ONLINE ORDER	11943	918	1000	951	1048	920	1389	1094	813	969	933	644	715	768	699
OFFLINE ORDER	3372	259	271	296	331	287	378	267	212	326	214	271	199	126	194
NON-NASA	3520	271	278	356	299	287	291	321	219	278	241	167	153	306	324
RECON ONLINE ORDER	2345	180	213	257	216	184	77	256	153	169	201	121	100	197	201
OFFLINE ORDER	1175	90	65	99	83	103	214	65	66	109	40	46	53	109	123
COMPLETED REQUESTS(COPIES)	19737	1518	1800	1389	2010	1572	2163	1574	1862	1650	1368	1144	951	1105	1149
NASA ORDERS COMPLETED	11117	855	1579	1769	2680	2079	491	376	250	460	293	334	191	281	334
ONLINE ORDERS COMPLETE	6613	509	1276	1486	2181	1670									
OFFLINE ORDERS COMPLETE	4504	346	303	283	499	409	491	376	250	460	293	334	191	281	334
NON-NASA ORDERS SHIPPED	3290	253	221	222	323	227	289	317	202	260	212	191	189	286	309
TOTAL REFERRALS	1363	105	104	57	159	120	32	133	114	92	84	122	51	186	109
REFERRED AIAA REJECTS	753	58	19	128	13	0	17	0	8	51	94	63	113	175	72
TOTAL REJECTED	4374	336	286	210	246	424	352	432	289	326	304	392	358	503	252
NTIS RECALLS	152	12	2	0	0	0	29	15	16	18	29	10	12	13	8
ACQUISITIONS	36	3	4	0	3	2	3	4	1	6	0	1	3	5	1
SPECIAL PROCESSING	1401	108	97	173	255	65	204	99	34	83	44	43	229	27	48
BACK LOG - PREVIOUS MO.	3511	270	295	385	566	255	490	301	287	192	261	259	116	59	45
ON HAND AT END OF MONTH	3857	220		566	255	490	301	287	192	261	259	116	59	72	26
IN PROCESS AT END MO.	2846	219	333	520	255	473	270	267	174	239	227	0	42	33	16
ON HOLD - AWAIT. ACTION	337	26	52	46	29	17	31	20	18	22	32	28	17	30	10
USER IDENTIFIED	1293	99	78	57	133	91	78	114	129	103	72	159	84	15	92
DOCUMENTS IDENTIFIED	3791	292	254	307	375	262	303	341	232	295	245	236	205	103	340
CASI LITERATURE SEARCHES	35	3	10	6	0	1	0	0	5	3	4	4	1	0	1

Figure
B12.11

Publications that are distributed at no cost to authorized requesters receive no record in the automated accounting system.

Registered requesters are charged CASI/NTIS prices for reproduced copies of NASA and non-NASA documents. NASA Center Libraries are charged ($.05 per hardcopy page and $1.00 per diazo microfiche.

12.1.3.2.8. **PREPAIDS**

CASI instituted the prepaid service in 1990 to provide greater access to NASA documents to unregistered individuals. Unregistered users may request unlimited NASA documents by:

1). Calling Document Requests for the document's availability and a price quote and

2). Submitting a letter with an enclosed check.

Upon receipt of a prepaid, CASI logs in the check and maintains it in a secure area until the document request is processed.

Once the order is filled, Document Requests makes any adjustments to the order: money owed or repayment and creates an invoice via the WP5.1 Mail Merge software system. This invoice and the check are forwarded to CASI Accounting for processing.

Prepaids are not part of the automated CASI invoicing system.

There were 126 prepaid orders in 1991 and CASI is now receiving about 20 prepaids a month. It is not known how many of these are repeat customers.

(See **WFD 12.10 DOCUMENT ORDER REPORTING AND INVOICING and WFD 12.11 DOCUMENT ORDER RECEIVABLES**)

12.1.4. **CASI SPECIAL REQUESTS HANDLING**

Certain requests are considered special, either because of priority handling or because their treatment differs from the norm. This function describes the additional instructions concerning special handling of document requests which are generally received in the form of Technical Direction (TD) from JTT and thereafter become an integral part of the operating processes.

To support programs within NASA, CASI provides special document ordering processes and special handling of request including:

- Requests for Controlled-Distribution Documents

Controlled-distribution documents include all low-numbered NASA Special Publications (SP-1-1000) series, NASA CP and NASA RP series documents. NASA requests for single or multiple copies of low numbered NASA SP's are filled until stock totals fall below 11. Afterwards, CASI obtains approval from JTT.

- Order Help

The Document Request staff refer user questions for documents not easily identified to the RECON Online users support through which all user problems are reported, logged, tracked through resolution, and closed.

- Acquisitions

The Document Requests staff refer user requests for documents for which CASI cannot supply a quality copy to the Acquisitions unit to acquire a copy for CASI and for duplication to satisfy the users requests.

If the requests do not meet CASI's selection criteria, the appropriate reject code is marked on the document request form.

- RUSH Processing

Document requests by telephone are given priority handling only if requested and paid for. NASA Centers receive priority service. A document request form CF492M or form letter is generated immediately. If a document is to be supplied, it is obtained from stock, reproduced or ordered from NTIS as rapidly as possible. CASI prepares the document or the form letter for mailing and keeps the processing copy of the document request form for tracking and filing.

RUSH document requests require turnaround within 24 hours of receipt of the request, usually a telephone or FAX request. The RUSH requests are flagged so as to be readily recognized and, therefore, moved to the front of the queue in the reproduction process. The reproduced documents are placed

in a specially designated spot in the Document Request Processing area by 3:00 p.m. to ensure sufficient time to be prepared for mailing by 4:00 p.m.

Upon completion, Document Requests identifies the RUSH status and attaches it to the invoice records to alert CASI accounting to collect the special RUSH fee.

12.1.5. **ORDER FILES MAINTENANCE, REPORTS AND STATISTICS**

The Document Requests staff maintain the data (customer identification number, date, accession number, document code, and number of copies) in the ADABAS/TSO system which controls the statistics on the NASA distribution of information services and products. See also **Section 16. REPORTING.**

See **WFD 12.10 DOCUMENT ORDER REPORTING AND INVOICING.**

12.2 **WORK FLOW PROCESSES**

See the attached Work Flow Diagrams:

WFD 12.1 Classified Documents Secondary Requests Handling

WFD 12.2 - Standing Orders Service

WFD 12.3 - Secondary Distribution Orders Requester Online/CASI Staff Offline Ordering Via RECON

WFD 12.4 - Secondary Distribution Orders CASI Staff Offline Order Not Using RECON Command

WFD 12.5 - Secondary Distribution Orders 492 Requests Processing

WFD 12.6 - Fill Secondary Orders

WFD 12.7 - Document Quality Control Prior to Distribution

WFD 12.8 - Mail Room

WFD 12.9 - Document Order Close Out Processes

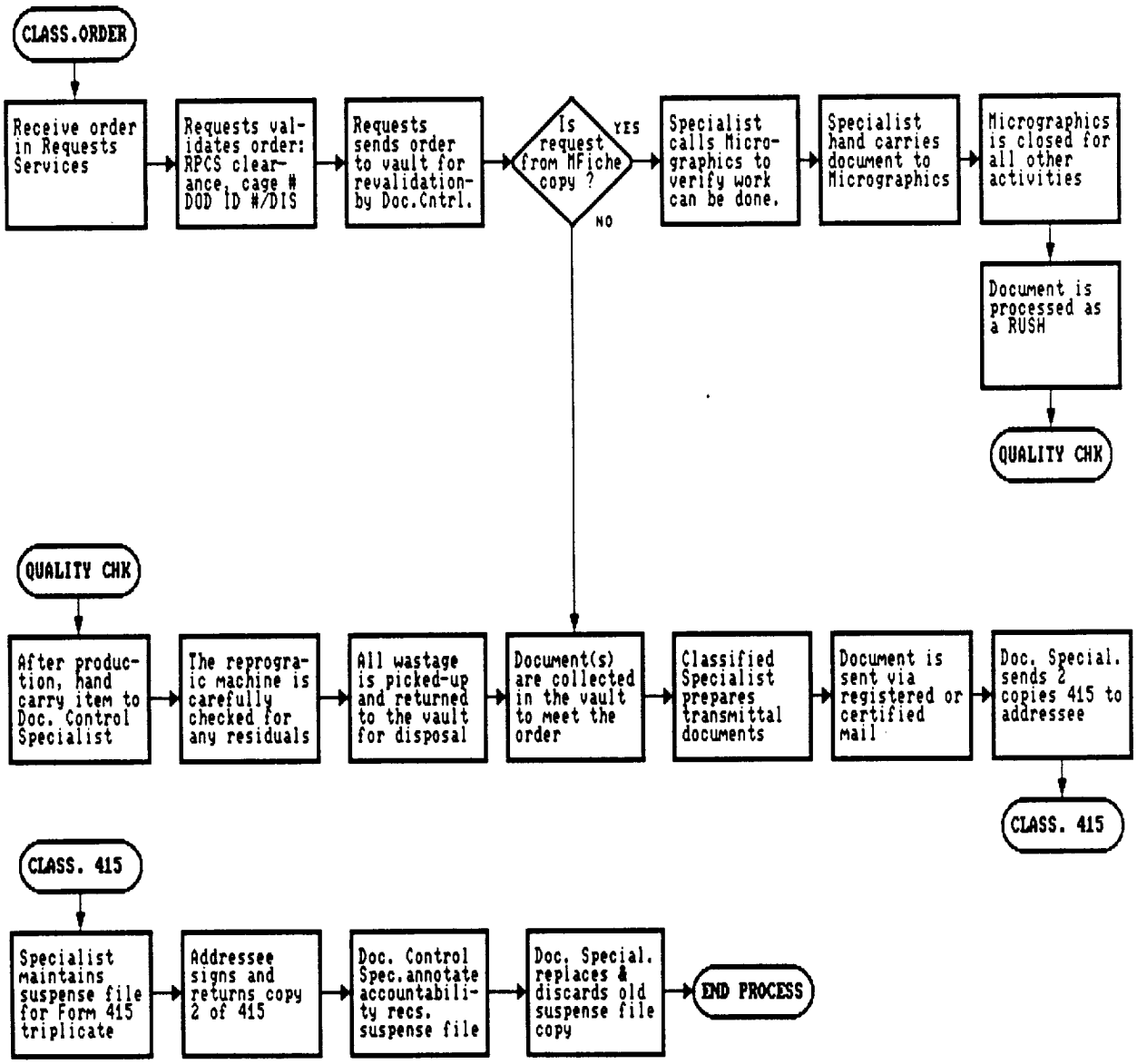
WFD 12.10 - Document Order Reporting and Invoicing

WFD 12.11 - Document Order Receivables

CLASSIFIED DOCUMENTS

SECONDARY REQUESTS

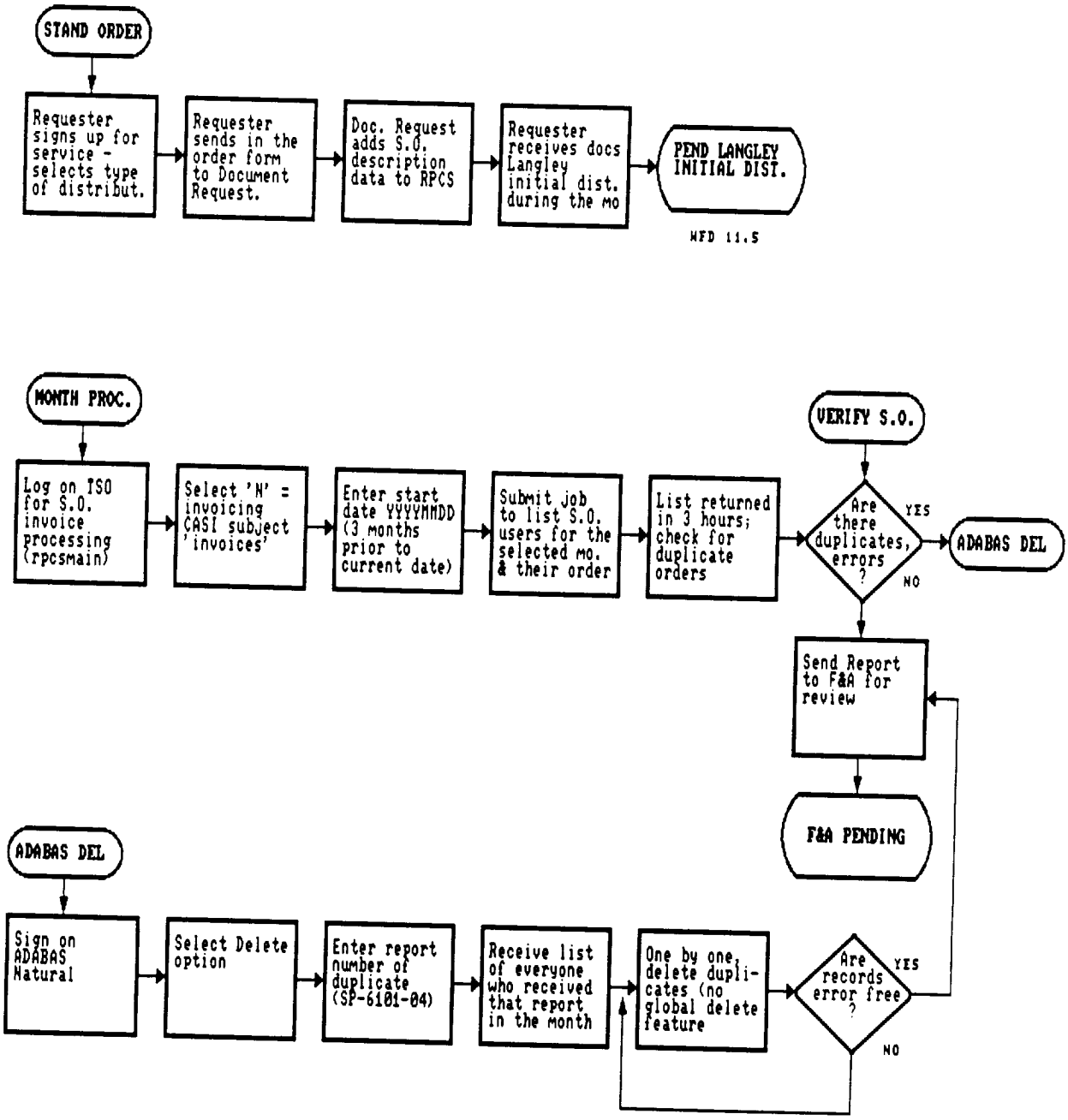
WFD 12.1
CLASSREQ



STANDING ORDERS SERVICE

WFD 12.2

STANDING

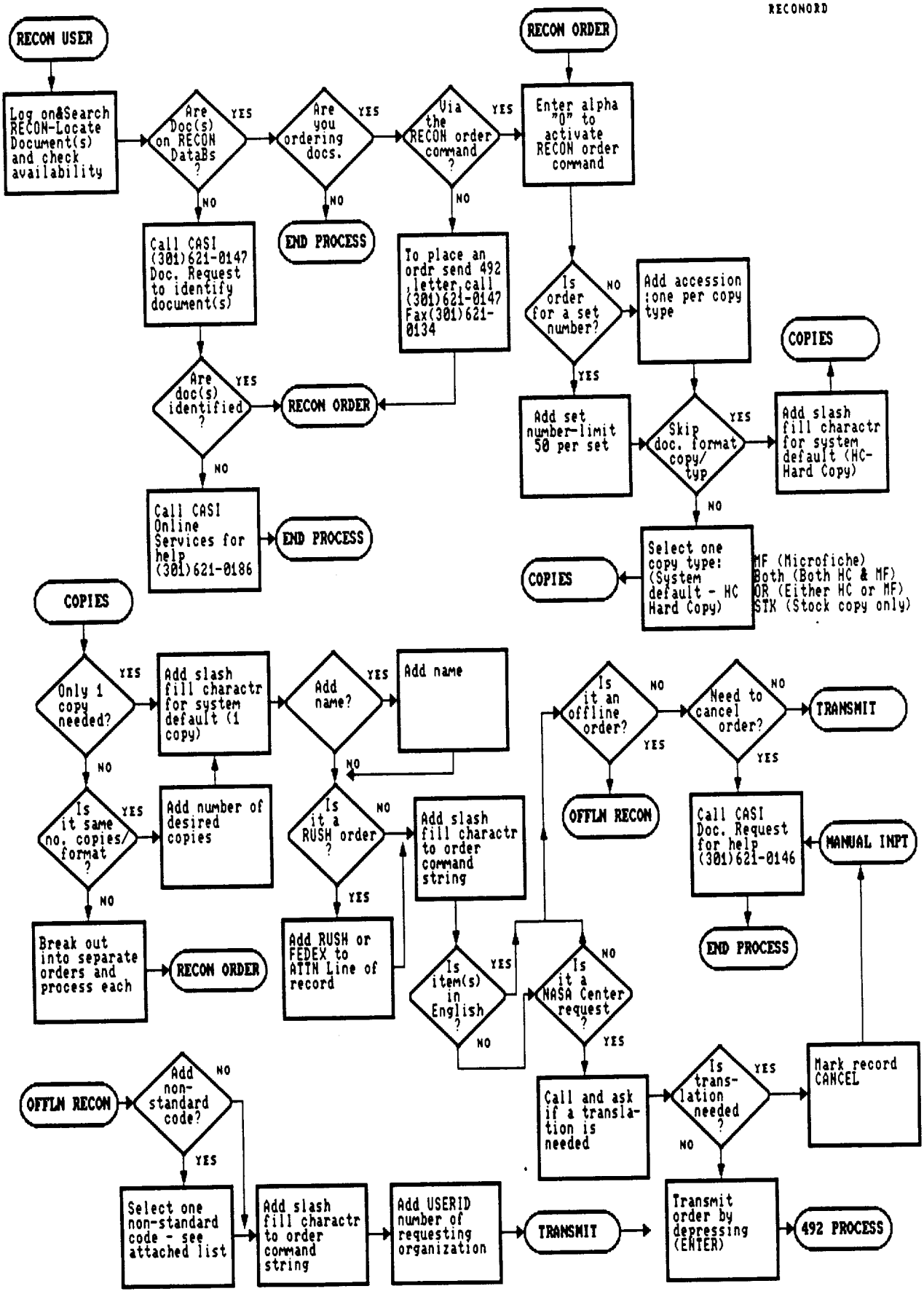


SECONDARY DISTRIBUTION ORDERS

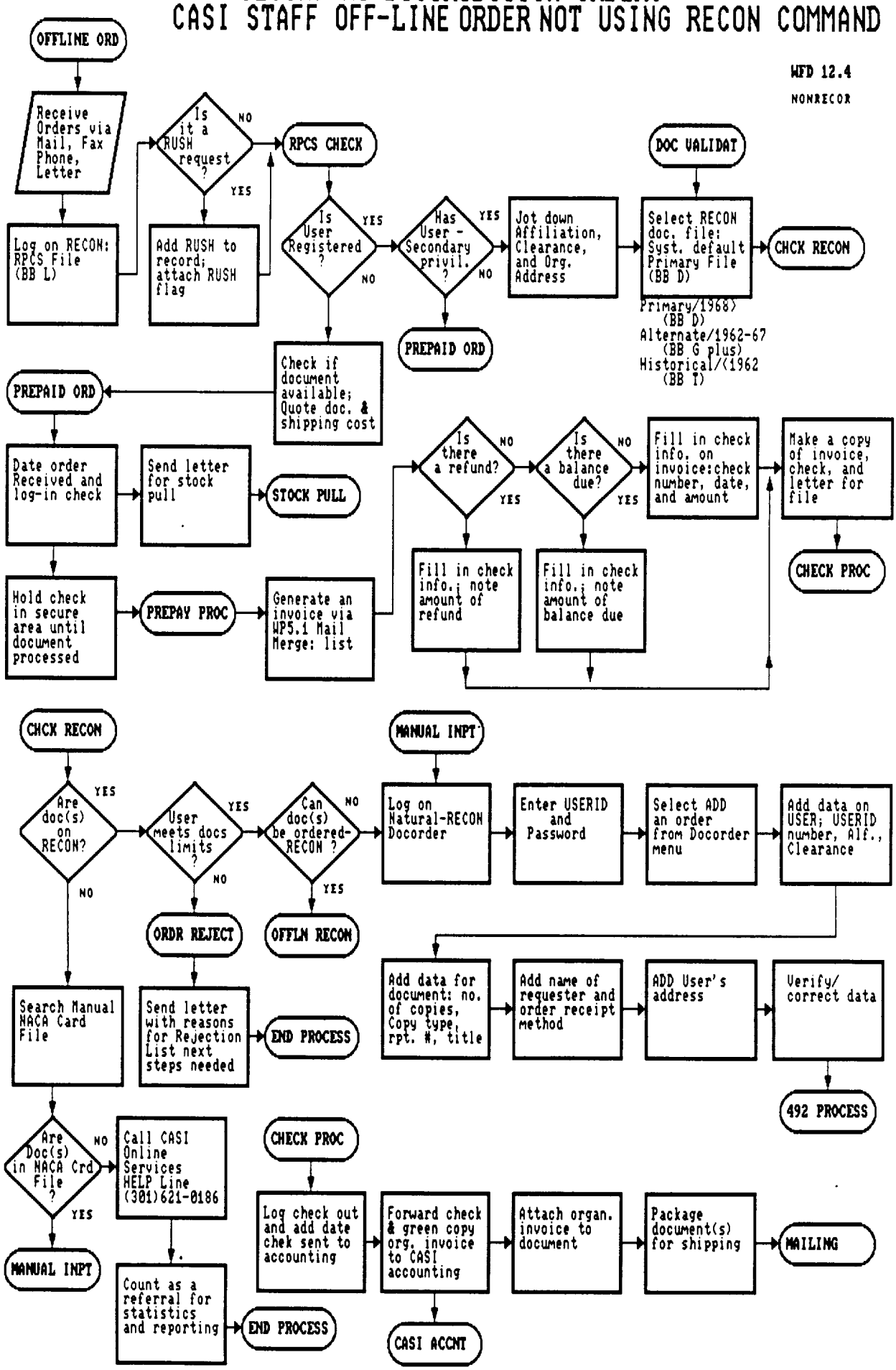
REQUESTER ONLINE / CASI STAFF OFFLINE ORDERING VIA RECON

WFD 12.3

RECONORD



SECONDARY DISTRIBUTION ORDERS
CASI STAFF OFF-LINE ORDER NOT USING RECON COMMAND

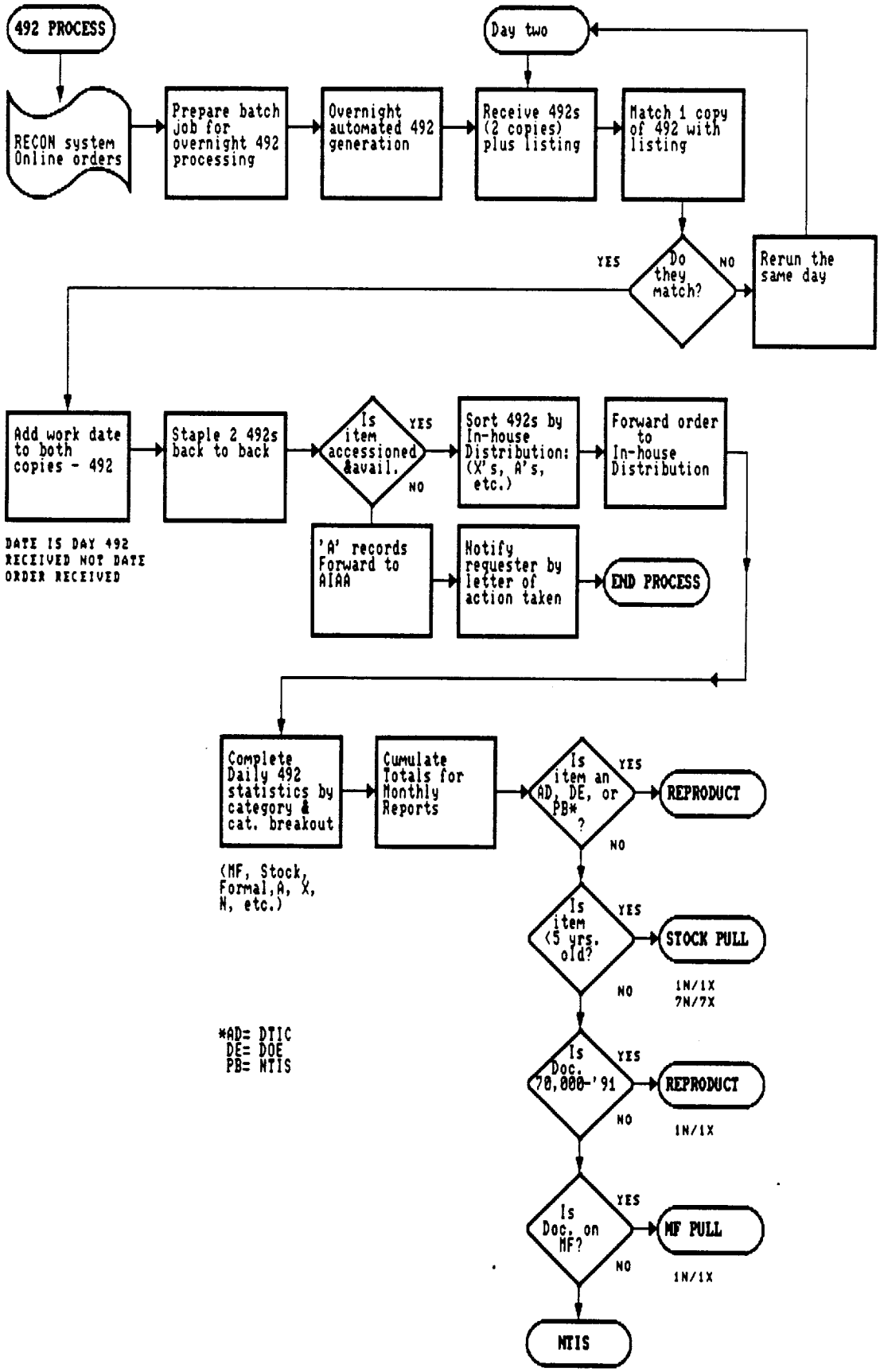


SECONDARY DISTRIBUTION ORDERS

492 REQUESTS PROCESSING

WFD 12.5

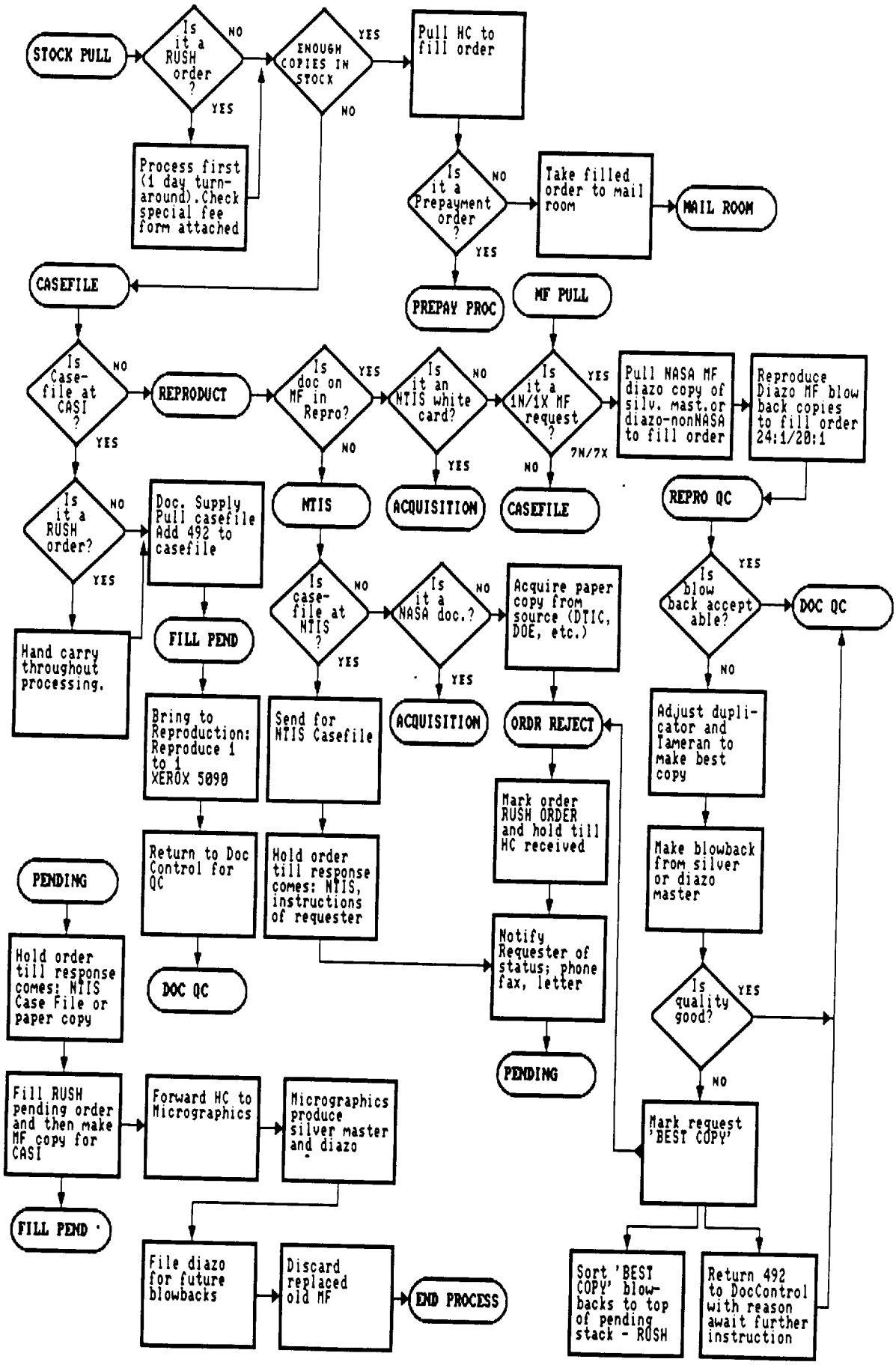
REQUESTS



FILL SECONDARY ORDERS

WFD 12.6

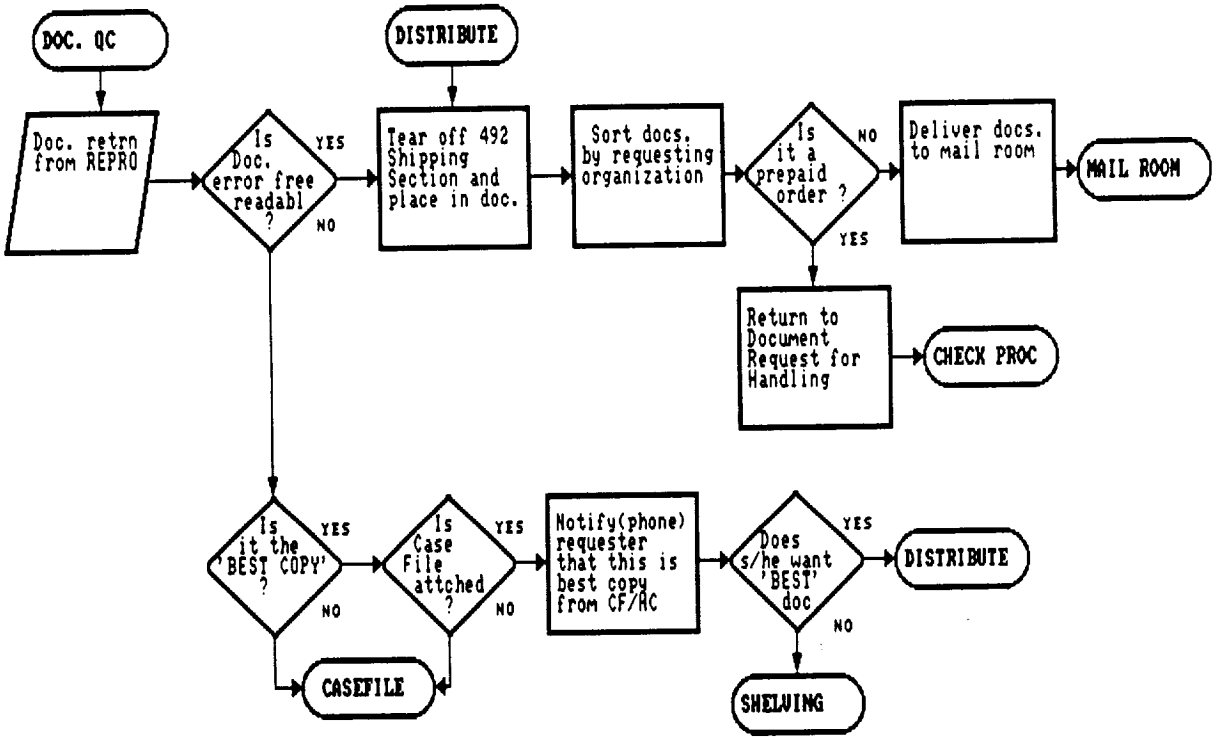
FILLORDR



DOCUMENT QUALITY CONTROL PRIOR TO DISTRIBUTION

WFD 12.7

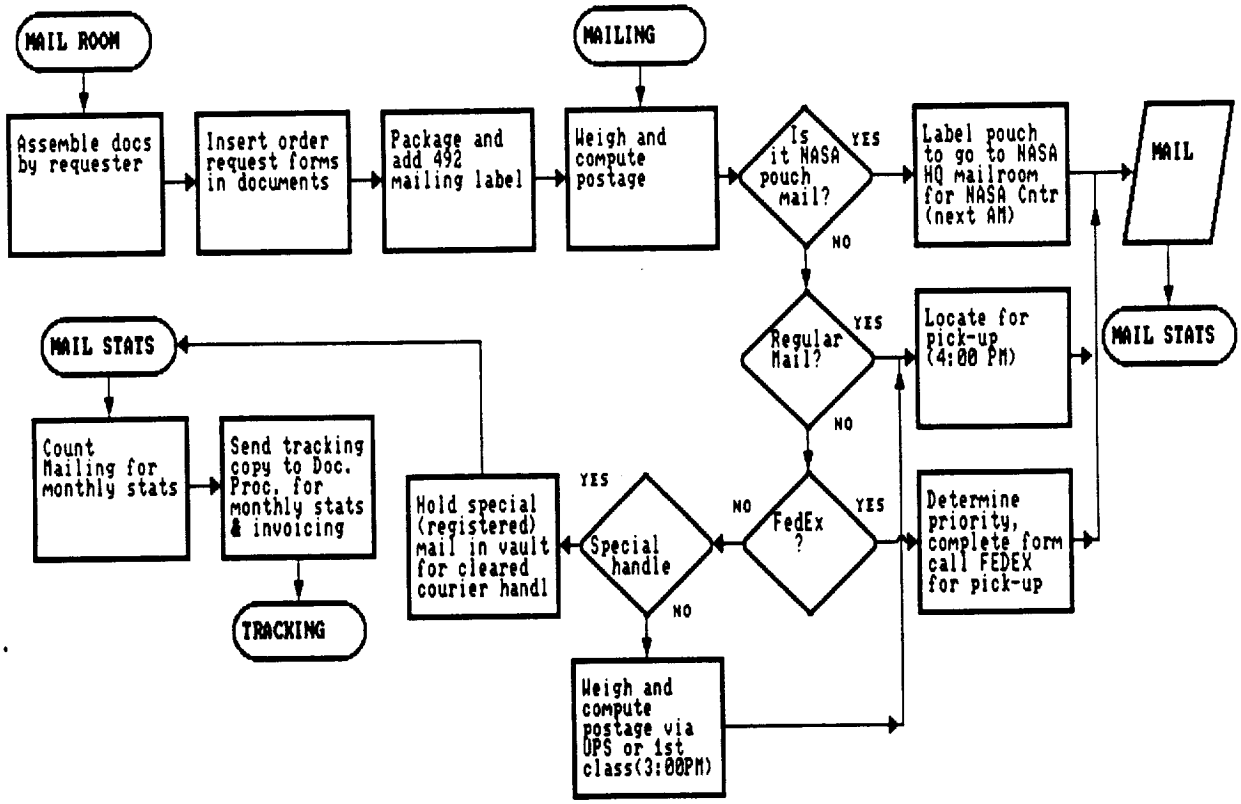
DOCQC



MAIL ROOM

WFD 12.8

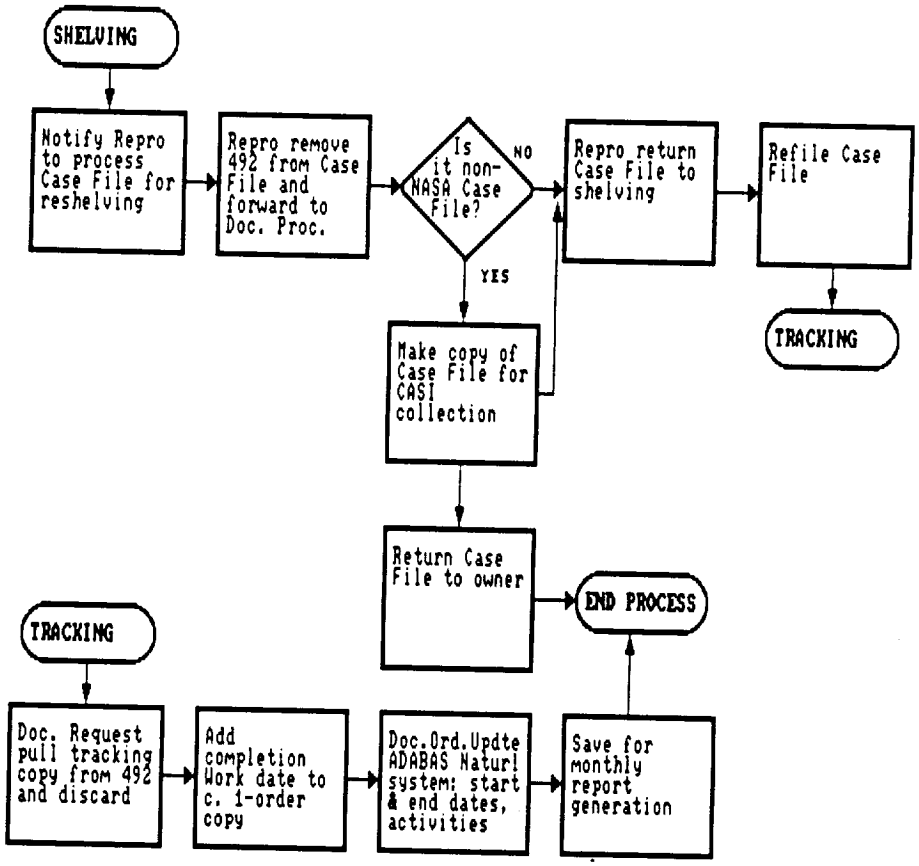
MAILROOM



DOCUMENT ORDER CLOSE OUT PROCESSES

WFD 12.9

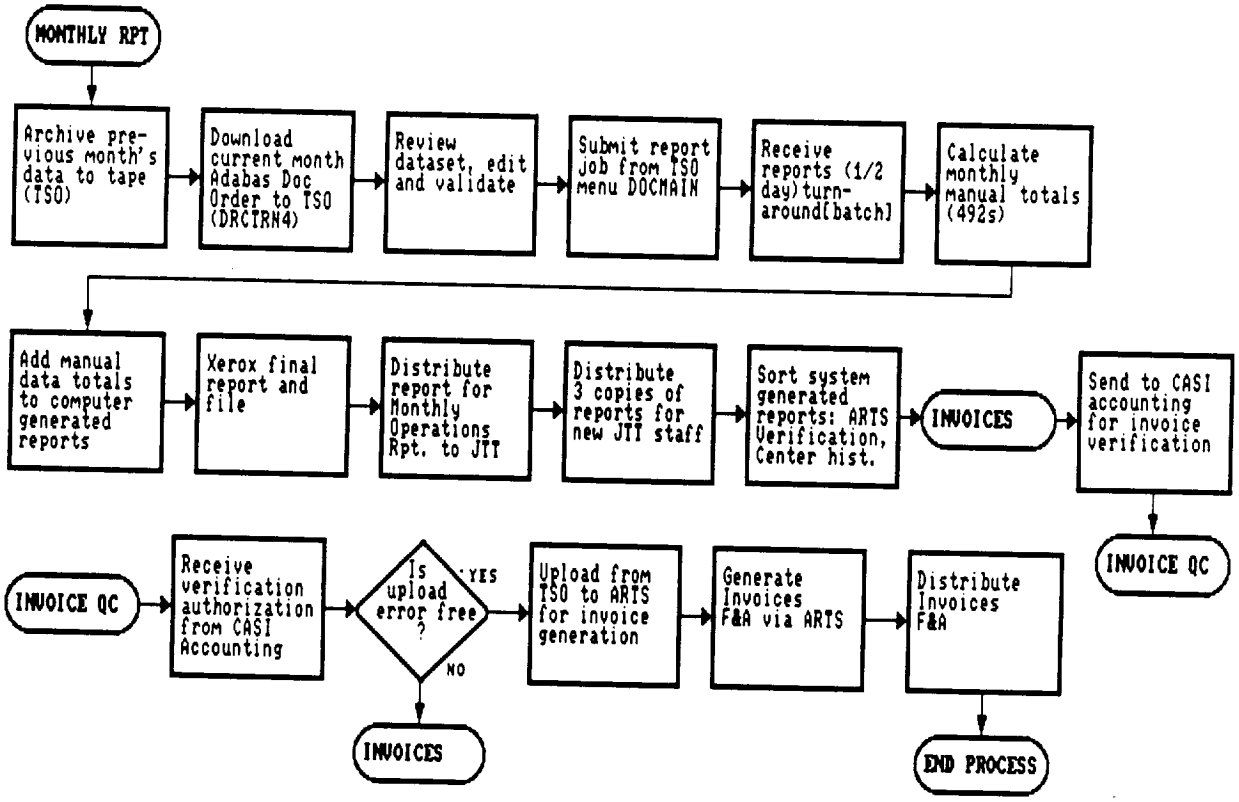
CLOSEOUT



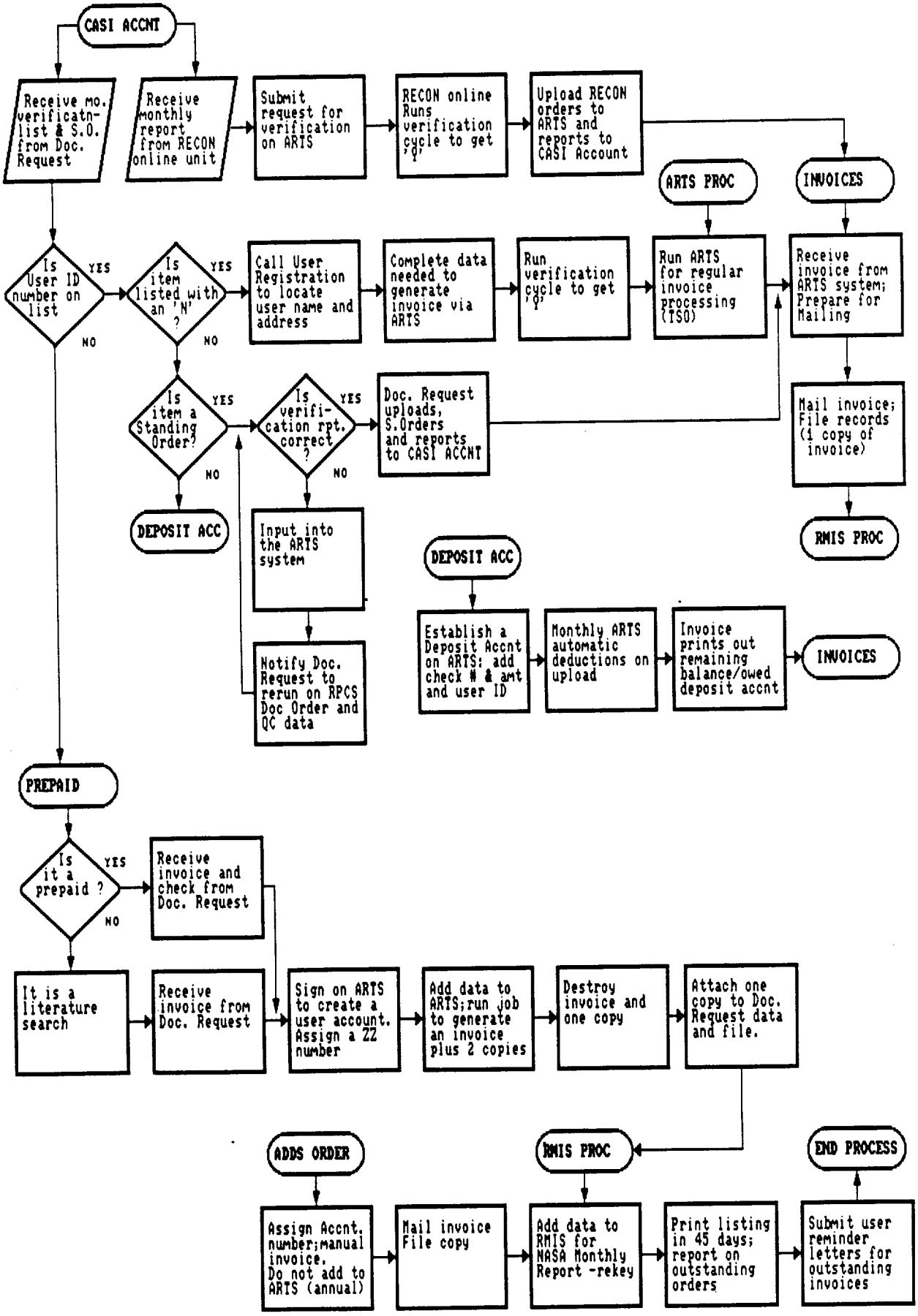
DOCUMENT ORDER REPORTING AND INVOICING

WFD 12.10

REPORTING



DOCUMENT ORDER RECEIVABLES



12.3 HIGHLIGHTED ASPECTS

1. The volume of documents requested is decreasing as fewer documents are being added into the CASI system (presumably) fewer are being published and fewer getting through CASI IPS processing).

2. Approximately 1500 Secondary orders are received each month (80% from NASA; 20% Non-NASA). Approximately 20% of the requests necessitate identification of the document and approximately 7% necessitate identification of the user by the Requests staff.

3. In the last contract year there were approximately 14,500 NASA requests (75% via RECON, 25% Offline) and 3,200 Non-NASA requests(65% via RECON and 35% Offline). Prepaids (special processing) total about 20 a month or around 1% of the requests. Approximately 20% of requests receive a "reject" status, approximately 7% are referred to NTIS, AIAA, or elsewhere, and approximately 20% carry over till the next month with 1% of the total requests on hold.

4. There is no verifiable system to produce valid and reliable statistics; in some cases, tallies are maintained manually then added to computer listing results.

5. The current system is unable to distinguish between legitimate duplications in document orders (the requester selects both the ADDS and S.O. subscriptions) and errors.

6. All transactions are not able to be processed through the RPCS/ARTS systems (e.g., prepaids and ADDS payment activities are provided manually.

7. The distribution codes on the RPCS that trigger which customers receive specific products are not always current (SBIRAB still pointing to over 2000 addresses and CASI has not distributed this product in several years) and sometimes the distribution codes are overridden by data in the RPCS note fields.

8. Lack of an automated inventory control system makes tracking requests through CASI difficult and often leads to wasted time and effort searching for the order as well as the document that fulfills that order.

12.4. CONTRACTUAL REQUIREMENTS

Although the NASA STI contract with RMS for CASI operations includes the production requirements in **Figure B12.9**, the document order and supply functions are driven by the requests from CASI registered users. The JTT emphasis on decreasing the turn-around time for document supply is targeted to increase orders and to prepare CASI for processing an added workload received from non-domestic sources. An asterisk = an estimate.

CASI DOCUMENT REQUESTS SOW WBS

TITLE	UNIT	ANN.AMOUNT	MAR.91-FEB.92*
STI Online Document Ordering - NASA	Document	13,000	11,244
STI Online Document Ordering - Non-NASA	Document	5,000	2,144
STI Offline Document Ordering - NASA	Document	500	3,178
STI Offline Document Ordering-Non-NASA	Document	2,000	1,052
STI Document Request Communications: referrals & rejects	Document	3,100	5,376
Document Identification - Online Services	Document	4,900	3,451
STI Hardcopy Documents - Repro	Document	8,000	9,572
STI Reproduced Documents - Repro	Page	1,200,000	1,411,044*
STI Secondary Microfiche - Repro	Document	1,300	1,844
STI Document Request Validation	Request	25,000	16,501
Document Storage (STI) - Supply	--	--	--
User Services - Online Services	Request	50	34
Non-Print Media	Misc.	100	

Figure B12.12

Comparing the SOW targets with the actual completed activities as represented in Figure B12.9, the Document Request and Supply statistics are close to those in the contract overall. The contract estimated greater request activity via RECON and fewer offline requests from NASA users. The number of stock copies distributed exceeds the contract estimates as does the quantity of reproduced pages.

See Figure B12.13 for statistics on secondary distribution to NASA Centers and non-NASA requesters for 1990 and 1991.

12.5 INDICES OF PERFORMANCE, QC, AND REPORTING

Within the contract, User Services: Document Distribution and Support functions are assigned a 10% area weight judged on the basis of the quality and accuracy of work output; timeliness; conformance with requirements and specifications; efficiency of operations; reliability of performance; and implementation of the CASI Innovation plan(s), as applicable.

12.6 STANDARDS AND POLICIES

CASI Document Requests follows the guidelines of the NASA STI Handbook, the CASI Operations Manual, NTIS MOU and Pricing Schedules, the NASA CASI/RMS contract Statement of Work (SOW) and Technical Directives (TD) from JTT, e.g., **TD 91-096 Requirements Analysis for 3-day Turnaround** and **TD 91-115 Document Ordering** (see **Appendix B12C**).

12.7. BIBLIOGRAPHY OF SUPPORTING DOCUMENTS

Landau, Herbert B. "Strategic Guidelines and Plan for Structuring of NASA's Scientific and Technical Information Marketing Program," Prepared for: NASA Scientific and Technical Information Program by Information International, December 1991. 96 pp.

National Aeronautics and Space Administration. NASA Scientific and Technical Information Handbook: Documentation, Approval, and Dissemination. NHB 2200.2, February 6, 1987 Chapter 3: "NASA Scientific and Technical Report Series: Descriptions and Standards, pp. 3-1 - 3-11.

National Aeronautics and Space Administration. "NASW-4584 Award/Contract," March 1, 1991. 138, [76] pp.

3.3 Secondary (On-Demand) Document Distribution to NASA Centers

B122

1990

	Titles PAPER	FICHE	Copies PAPER	FICHE
Ames	796	29	957	30
Goddard	907	1	1380	1
Headqtrs	1029	5	2433	5
JPL	127	59	154	63
Johnson	702	213	990	235
Kennedy	73	10	151	11
Langley	1563	3	2496	3
Lewis	2125	20	2740	38
Marshall	848	8	1048	9
Stennis	591	0	684	0
TOTAL	8761	348	13,033	395

1991

	Titles PAPER	FICHE	Copies PAPER	FICHE
Ames	634	78	728	80
Goddard	846	1	1401	1
Headqtrs	1005	6	1841	6
JPL	86	54	132	54
Johnson	350	169	407	169
Kennedy	13	0	14	0
Langley	1148	3	1629	3
Lewis	1831	13	2193	15
Marshall	523	603	1293	608
Stennis	510	0	575	0
TOTAL	6946	927	10,213	936

3.4 Secondary (On-Demand) Document Distribution to non-NASA

1990

	Titles PAPER	FICHE	Copies PAPER	FICHE
Govt Agencies	150	16	156	16
Govt Contractors	219	12	233	12
NASA Contractors	2552	162	2,913	172
Intl Partners	535	81	819	86
Domestic Partners	431	422	513	470
Other Foreign	128	17	157	18
Other Domestic	930	28	1,160	32
TOTAL	N/A	N/A	5,951	806

1991

	Titles PAPER	FICHE	Copies PAPER	FICHE
Govt Agencies	191	24	191	24
Govt Contractors	111	13	115	13
NASA Contractors	2272	233	2383	251
Intl Partners	621	86	640	91
Domestic Partners	469	516	606	565
Other Foreign	71	7	72	7
Other Domestic	581	21	614	21
TOTAL	N/A	N/A	4621	972

Figure B12.13

National Aeronautics and Space Administration. STI Council. "STI Council Products and Usage Evaluation, Discussion of Preliminary Findings and Questions," January 13, 1992. Draft prepared by MITRE, pp. 21.

NASA. STI Program. Code JTT. "Review of RPCS Functional Requirements Document," December 20, 1991. Prepared by L. Leonard of Information International, Inc., Oak Ridge, TN, pp[1-5].

NASA. STI Program. Code JTT. "Requirements Analysis for Three Day Turnaround Document Orders, **TD 91-096** ," Managers Meeting February 28, 1992. Prepared by L. Leonard of Information International, Inc., Oak Ridge, TN, pp [1-2].

NASA. STI Program. CASI. "Center for Aerospace Information Facility Operating Manual 1990." 407,[75] pp.

NASA. STI Program. CASI. "Credit/Charge Cards and Other Methods for Expeditious Payment for Rendered Services," September 6, 1991 and March 27, 1991. Project Control Number: **TD 91-001**. Functional Sponsors: Patt Sullivan, Dian Marincola. [7] pp.

NASA. STI Program. CASI. "DataBase Management System Evaluation," October 9, 1991. Project Control Number: **91-28**. Functional Sponsors: Jim Erwin, Judy Hunter, Roland Ridgeway, pp. 1-3, Appendix A1-[7], B1, C1, D1, E2-4.

NASA. STI Program. CASI. " Deposit Account Upgrade to ARTS Functional Requirements Document," November 25, 1991. Project Control Number: **91-27**. Functional Sponsors: Bobbi Everidge, Brenda Downing-Conner, Dian Marincola, pp. 1-29, Appendix A1-3, B1.

NASA. STI Program. CASI. "Document Inventory and Control System Implementation Plan," Version 2, September 4, 1991. Project Control Number: **TD 91-30**. Functional Sponsors:Wanda Colquitt, Roland Ridgeway, pp. 1-5; Appendices A1 - A[6], B-1, C-1.

NASA. STI Program. CASI. "Document Ordering," January 16, 1992 Response to December 26, 1991 **TD 91-115**. Project Control Number: 91-115. Functional Sponsors: Patt Sullivan, Wanda Colquitt, pp. 1-4.

NASA. STI Program. CASI. "Functional Requirements Document for the Deposit Account Upgrade to (TO 91-27) [ARTS]," December 19, 1991. Project Control Number: **TO 91-27**. Functional Sponsors: Bobbi Everidge, Brenda Downing-Conner, Dian

Marincola, pp. 1-17, Appendix A1.

NASA. STI Program. CASI. "Registration and Product Control System (RPCS) Functional Requirements Document (FRD)," November 25, 1991. Project Control Number: **91-26**. Functional Sponsors: Patt Sullivan, Dian Marincola, pp. 1-33, [34-49].

NASA. STI Program. CASI. Specifications and instructions as contained in RPCS Users Manual.

NASA. STI Program. CASI. "[Monthly] Report on Center Operations," Jan., 1991 - Mar. 1992.

NASA. STI Program. CASI. "Standardized Statistics File Task Order," December 2, 1991. Project Control Number: **TO 91-37**.

NASA. STI Program. Coordinating Council. "Who are Our Key Users," Sixth meeting, October 25, 1991, [103] various paging.

NASA. STI Program. Scientific and Technical Information Facility [CASI]. "Document Stock Inventory System Design and Requirements Specifications (**TA 86-025**), April 4, 1986. RMS Associates, [43] pp.

NASA. STI Program. Scientific and Technical Information Facility [CASI]. "Production Control Statistical System Users Guide (**TA 85-19**), Version 1," created by RMS Associates, April 7, 1986, [42] pp.

NASA. STI Program. Scientific and Technical Information Facility [CASI]. "Production Specification and Standards for Microfiche Production, **SPEC- 20**," pp. 1-32, [33-Rev Jan92].

12.8. APPENDIX B12A: DOCUMENT REQUESTS FORMS

APPENDIX B12B: DOCUMENT REQUESTS POSITION DESCRIPTIONS

APPENDIX B12C: RESPONSE TO TD 91-115 DOCUMENT ORDERING

13. DOCUMENT SUPPLY AND RETENTION

The CASI Document supply and retention activity is responsible for the receipt, storage, processing, and distribution of the NASA collection of unclassified, limited, or classified documents and their Case Files whether in hardcopy, reproduced copy or microfiche form, or other non-standard form.

13.1 DESCRIPTION

The NASA/RECON online bibliographic database allows registered users to request (order) full text paper copies or microfiche of over three million documents. To provide the hard copy request, CASI maintains a storage facility housing the NASA documents (1984 to the present) identified in the STAR (Scientific and Technical Aerospace Reports), OSTARE (Older Scientific and Technical Aerospace Reports Extended), and the CSTAR (Classified Scientific and Aerospace Reports). The classified documents are stored in a separate location from the unclassified documents and procedures are followed to adhere to all Federal security regulations and procedures.

13.1. UNCLASSIFIED DOCUMENT SUPPLY AND RETENTION

Document supply and retention includes:

1. Receipt and direct handling of all material;
2. Request Processing to fill orders received via form CF492 is completed within 3 days for 89% of the requests, the CF492 serves as the customer's receipt;
3. Distribution including wrapping, packaging and labeling of all items according to industry standards;
4. Storage and maintenance of documents in the document supply area, cafeteria, and phone room to meet requesters' demands and to store bulk quantities, controlling their location and replenishing shelf stock as needed; and
5. Removal, discard, and/or reclassification of documents according to NASA JTT Technical Direction; documents for removal and discard are in the holding area awaiting further instruction.

See **WFD B13.1. FILL SECONDARY ORDERS.**

See **WFD B13.2. DOCUMENT RECEIPT AND CONTROL.**

13.1.1. RECEIVING UNCLASSIFIED DOCUMENTS

CASI Document Supply receives 15 stock copies of all NASA documents printed/distributed by the NASA Langley Research Center and variable copies of high numbered report series from the NASA Centers and non-NASA originating sources via the U.S. Postal System and commercial carriers. These documents fall into three basic categories:

NASA Formal Series Publications - Contractor Reports (NASA CR), Technical Memorandums (NASA TM), Special Publications (NASA SP), Technical Papers (NASA TP), Reference Publications (NASA RP), and Conference Publications (NASA CP).

Abstract Journals - Scientific and Technical Aerospace Reports (STAR) and NASA Open Volumes on Aerospace (NOVA).

NASA and non-NASA Reports - NASA reports in the high CR, TMX, or TTF series and reports from non-NASA sources.

CASI also receives twenty-five stock copies of AGARD reports.

13.1.1.1. NASA FORMAL SERIES PUBLICATIONS

Upon receipt of bulk shipments of NASA formal reports, Document Supply:

- o Staples a bin card (number received from accessioning with the documents) showing the date of receipt to one copy of the document and holds awaiting accessioning. Once an accession number is assigned, files the bin card as a cross reference. See details in Section 13.1.1.5.
- o Prepares a Date-Ship-Inventory Card (FF No. 640) with the document number, date, title and NTIS or SOD price on the front and the date received, quantity, and inventory on the reverse side.
- o Prepares a second Date-Ship-Inventory Card for those publications indicated for TTD use only and files it with the appropriate set of inventory cards. See Section 13.1.1.4.
- o Stamps both the card (FF No. 640) and the document Case File copy.

NASA Centers receive their own copies of these documents on initial distribution, both hard copy and microfiche.

13.1.1.2. **RECEIVING ABSTRACT JOURNALS**

Upon receipt of bulk shipments of abstract journals, Document Supply:

- o Logs each document on a work sheet and records the quantity received.
- o Sets aside one copy of each journal (STAR and NOVA) which are delivered, with the work sheet to the Supervisor.
- o Ships fifty copies of STAR to the British Embassy.
- o Stores approximately twelve copies on the pulling shelves with a bin card denoting the document's series and number.
- o Prepares a Date-Ship-Inventory Card (FF640).

13.1.1.3. **SHELVING NASA AND NON-NASA REPORTS**

Document Supply receives and shelves various NASA and non-NASA documents including reports from: 1) DTIC, 2) European Space Agency (ESA), 3) British Defense Research Information Center (DRIC). The high numbered report series, the low numbered Tms, and the non-NASA reports are shelved as accessioned stock; and the low numbered NASA reports are shelved by series, separated from the accessioned stock.

13.1.1.4. **TECHNOLOGY TRANSFER REPORTS**

When stock arrives for NASA Technology Transfer type publications in the Special Publication 500 series, Document Supply sets up 400 copies for use in satisfying Technology Transfer needs, places a small number of copies on the pulling shelves, and stores the remaining stock copies in the TTD storage area.

13.1.1.5. **TEMPORARY HOLD DOCUMENTS**

Stock copies of documents awaiting accessioning, received from the Accessioning Activity with a Temporary Stock Form (FF830), are put in a designated area in document storage with a temporary number for easy retrieval. They are filed together with the single copy of NASA Formal documents with the bin card attached in temporary number sequence (1000 series) in the Temporary Hold area. Once these documents are assigned an accession number in IPS, the accession number is entered on the bin card and they are retrieved from temporary storage and moved to their permanent (accession number order) storage location. All subsequent copies

received are interfiled with the original stock copies for that number. For split shelving, CASI completes a **Stock Location/Inventory Card-FF636**, see **Figure B13.1.**

Whenever CASI receives an abundant amount of stock for one document (varies with the report origination, but usually greater than 15 copies), only a portion of the stock is permanently stored on the shelves and the remainder is boxed, labeled, and placed in auxiliary storage locations within the CASI facility to be retrieved as needed.

13.1.2. DOCUMENT REQUEST PROCESSING AND DISTRIBUTION

Requests for hardcopy unclassified documents from the stock area are generally received via a CF492 from Document Request. Document Supply:

- o Adds requested Special Publications (Sps) to the Special Publication inventory (Lotus 123 data base of "Critical Level Special Publications 10 and under"), by document number, for monthly inventory reporting. See Appendix B14A.
- o Pulls the requested document(s) and inserts the document request form into the document (in cases of multiple copy requests it is inserted into the bottom copy).
- o Sorts pulled items by addressee as indicated on the Document Request form, inserts the "Shipping" copy of the request form into the document for return to the requester, uses the "Label" portion for return mailing, and removes the "Statistical" copy from the request form to complete the "DAY OUT" section with the current "Work Day" number and return to Document Requests for reporting purposes. CASI assigns annual calendar work days in a one up count used for tracking purposes.
- o Delivers properly packaged materials to the Mail Room.

13.1.2.1. REPROGRAPHICS AND MICROGRAPHICS

As described under Initial Distribution in Section 11, CASI supplies the microfiche version of the STAR using Step and Repeat Cameras to film the document and produce diazo distribution microfiche. Micrographics collates the fiche, packages it for mailing by the mailing unit, and stores the microfiche in cabinets located in the Micrographics area.

DOCUMENT NUMBER	
Stock Location	

INVENTORY

FF No. 636 May 65

Figure
B13.1

Reprographics produces full size hard copy documents or blow back copies from the microfiche in response to requests received from the Requests unit that cannot be satisfied from stock

13.1.3. DOCUMENT REQUEST DISTRIBUTION

CASI approves most document requests for multiple copies of controlled NASA reports, which include low-numbered Special Publications, Reference Publications and Conference Publications.

Approval by JTT is necessary only when, in order to fill a request, stock of a NASA SP drops below 11 copies or the requester gives a special reason worthy of consideration for receiving the report.

The following CASI guidelines apply in most cases:

- NASA requesters of NASA SP's can receive up to one half the stock of a new document. They can receive more than that of older documents, but 10 copies must remain in stock. All stock of other reports may be supplied if there is microfiche for blowback.

- NTIS may have all stock copies of reports except low-numbered SP's (10 copies must remain in stock) if there is microfiche for blowback.

- Blowback copies are offered to requesters when stock copies cannot be provided.

13.1.3.1. STI/RPCS MAILING LABEL PRODUCTION

As described in Section 11, mailing labels are produced by Langley for initial distribution of hard copy documents approved for printing by the JTT. CASI produces the mailing labels for the distribution of microfiche.

13.1.3.2. MAILING AND DISPATCHING UNCLASSIFIED DOCUMENTS

Document Supply wraps, packages, and prepares completed document requests for mailing via: JTT courier service, NASA pouch mail to the Centers, regular and first class mail, Federal Express, UPS, and registered mail for special situations (classified documents).

After mailing preparation, Document Supply codes the statistical copy of the Document Request Form with available information and forwards it to Document Request for completion and processing. For publications under inventory or reporting control, the processing copy of the request form is pulled and filed.

CASI distributes documents via:

1. NASA pouch mail to NASA Headquarters for distribution to the Centers the following morning;

2. Federal Express (FEDEX) using FEDEX supplied labels. Costs have decreased from $11.00 to $3.75 for 8 ounces and $3.99 for 3 pounds. If volume increases, FEDEX will supply an automated system to track this activity;

3. UPS with an automatic daily print out of activity by user ID on number of packages processed (3:00 p.m. pick-up);

4. Regular and first class mail (4:00 p.m. mailing).

See **WFD 12.8. Mail Room.**

13.1.3.3. **DAILY COURIER SERVICE AND SPECIAL TRANSPORTATION**

Document Supply provides daily delivery of materials, via a messenger service between the CASI and JTT with an intermediate stop to pick-up and deliver to the Goddard Space Flight Center. In addition, Document Supply infrequently provides special transportation for official passengers to and from NASA conference locations and/or airports or other public transportation centers.

13.1.3.4. **SPECIAL SERIES DISTRIBUTION**

CASI distributes one copy of Special Series reports directly to the NASA Centers. Document Registration provides the labels, prepares the documents for mailing, and sends them to Document Supply for mailing.

CASI holdings include microfiche furnished by the American Institute of Aeronautics & Astronautics (AIAA) for those AIAA accessions that may be photocopied in microfiche format. Any AIAA accessions that are not available from CASI are forwarded to AIAA for handling.

13.1.3.5. CUSTOMIZED DISTRIBUTIONS

Although the Customized Distributions program is undergoing change and may be completely canceled, this section includes a description of how the system worked through the end of 1991.

NASA Program Officers have been eligible to store stock copies of documents at CASI for the sole use of the NASA originating program office or person and/or to specify their initial distribution which CASI then processed. These stock copies of NASA Special Publications were routinely received and stored separately at CASI for two years after which time notification was given to the Program Office that a new disposition was needed.

When CASI received stock of a customized distribution item, they sent a letter to the relevant Program Officer advising him/her of the two-year storage limitation and CASI instructions for accessing these items with a copy of this letter sent to CASI.

After the letter was sent out, CASI added the program office's address(s) to the RPCS with the product descriptor "CUSTDIST" to mean customized distribution and noted in the contract area of the record the expiration date (e.g., "CUSTOM SP-446 851125), reflecting a two-year time limit after initial receipt and storage. As needed, the program office or person concerned called CASI to recall multiple copies from storage.

Document Supply obtained a report of "CUSTDIST" expiration dates from the RPCS at the end of each month from which a letter was sent to the listed addressee, informing him/her that the two-year storage period had elapsed, indicating the number of copies on hand at CASI, and requesting disposition instructions be provided for the remaining copies. A copy of this letter was sent to JTT.

When instructions were received from the designated individual in response to the notification that the two-year storage period had elapsed, Document Supply took the following steps:

1. If the individual wished to extend the period of customized storage, JTT was notified for an authorization. If authorized CASI updated the RPCS record to reflect the extension.

2. If not authorized, stock records were adjusted to drop Customized Distribution, and remaining copies were added to CASI stock with a notification to JTT. The users were notified that the materials were no longer being held for them at CASI.

13.1.4. **STORAGE**

Accessioned documents stock is held on open shelves for five years, then purged either through the NASA Education program, the Library of Congress Exchange program or thrown out. Requests for documents older than five years are filled by microfiche blow backs located in Micrographics.

CASI accepts documents from the Centers when they are discarding them after a brief check to see what CASI has and needs. CASI needs guidelines on what procedures should be followed when discarding these items. This function is not tied to any inventory and control policy or processing.

Storage by accession number means that date of document production is an incidental factor in shelving if a document is held up in processing or is received in CASI years after original production.

> See **Figure B13.2 NEW SHELVING PROPOSAL** for the current stock space lay-out.

This diagram concentrates on the linear feet available to storage and does not present a schematic view of the arrangement of materials on the shelves.

13.1.5. **REMOVAL, DISCARD, AND/OR RECLASSIFICATION**

At the beginning of each new calendar year, CASI will screen all stock documents currently held and purge them as follows:

1. Reduce the NASA Formal Reports (CR, CP, RP, TM, TND, TM-X, TP, and excluding NASA Special Publications) with a cover date of 2 years or older to 10 copies.

2. Reduce the NASA Special Publications (SP-7000 Series - Continuing Bibliography Series) with a cover date of 1 year or older to 5 copies. Special cases -- NASA SP-7039 - retain at least 10 full sets (latest cumulative index issue and abstract sections Part I) and discard all copies of earlier index issues (Part II) upon receipt of latest issue.

3. Reduce STAR and STAR indexes with a cover date of current year and previous year to 20 copies and issues with a cover date of 2 years or more to 10 copies.

4. Reduce NASA Technical Translations to 5 copies.

NEW SHELVING PROPOSAL

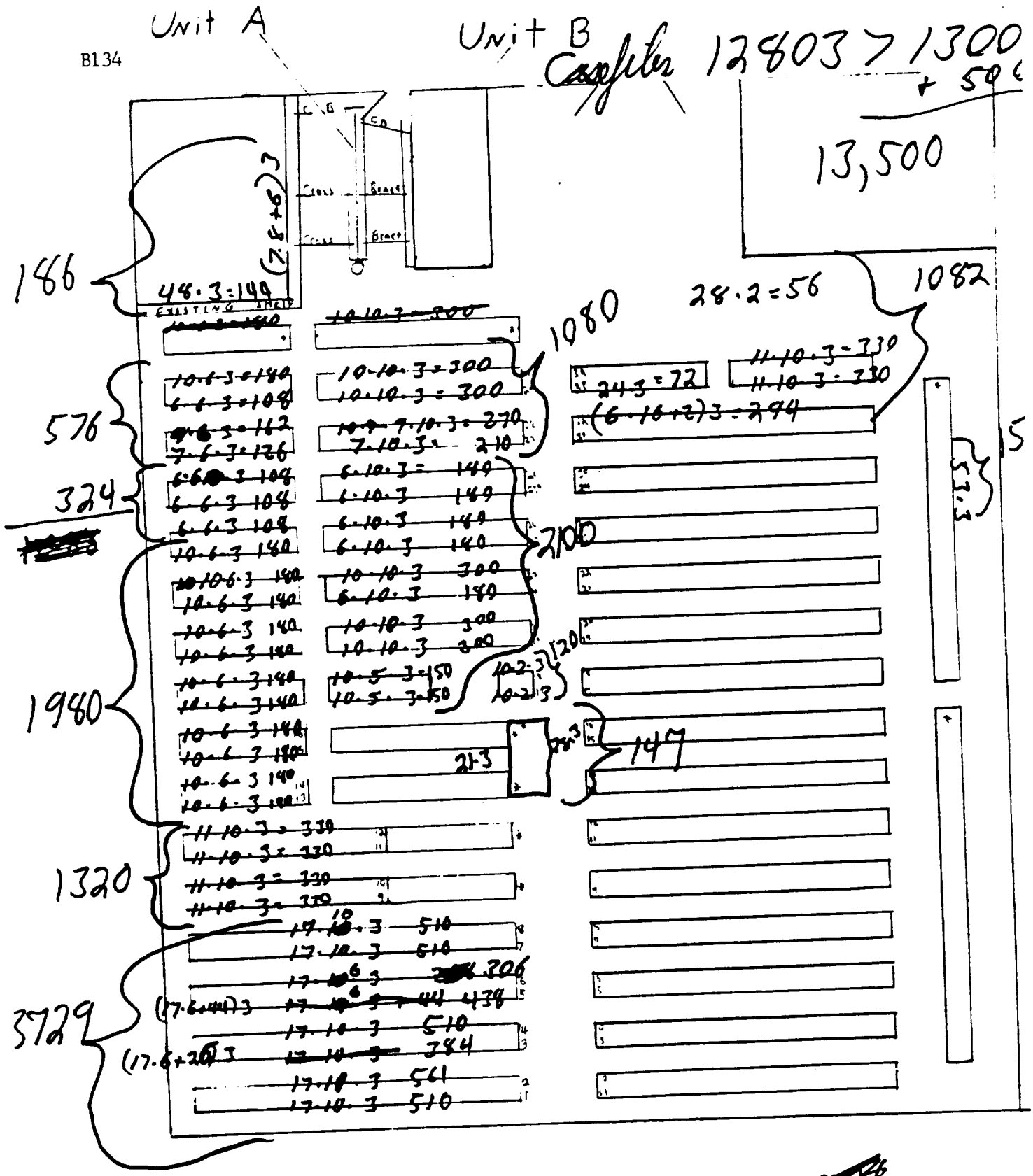


Figure B13.2

phone 1 skid NACA

3·3·7 = 63 Boxes
3·3·7 = 63 Boxes
3·3·4 = 36 Boxes
} 162·3 = 486 ft.

5. Leave AGARD Publications with a cover date of less than 2 years untouched and reduce those with a cover date of 2 years or more to 10 copies. Only one copy of IAA and IAA Indexes for the current two years should be stored at CASI.

Publications in the Customized Distribution inventory are not part of this yearly stock removal.

CASI has no automated tracking system to monitor addition and subtraction of accessioned documents and the related case file.

13.1.5.1. DELETED OR RECLASSIFIED DOCUMENTS

When documents are removed from the CASI collection or limitations are removed, CASI updates the NASA Information system based on receipt of the document case file and all stock copies from Document Supply. Once the case file is updated, it is returned to Supply for refiling.

13.1.6. CASE FILES

Document Supply receives, processes and stores the unclassified case files for all series of documents announced into the NASA system and checks out case files to Reprographics for 1:1 copying and affixes labels to the case file folders and enclosed document in the "N70-90K" and "X70-90K" series.

A xeroxed copy or microfiche of a requested document is sent to NTIS when there is no stock on hand.

13.1.6.1. CASE FILE RECEIPT, PROCESSING, AND STORAGE

Upon receipt of case files in Document Supply:

1. Checks the accession number on both the case file jacket and enclosed document for correctness;

2. Removes all materials not needed as a part of the case file;

3. Enters the accession number on all stock documents;

4. Interfiles accessioned documents are then filed in the storage area by series and in numerical order for secondary requests.

13.1.6.2. CASE FILE REQUESTS

Each individual requesting a case file completes a Case File Document Withdrawal Card (FF No. 441, see **Figure B13.3**) and presents it to the Document Supply to retrieve it from the shelf. If the request is for an IPS task, the case file is pulled immediately if possible. When the case file is returned Document Supply refiles it in its proper place and removes the Case File Document Withdrawal Card, lines out the last entry and places it in stock for subsequent use.

13.1.6.3. CASE FILES STORED OUTSIDE OF DOCUMENT SUPPLY

Case files for classified documents are stored in the CASI vault and for RTOPS are stored in the cataloging area.

13.1.7. PROCESSING CLASSIFIED/LIMITED DOCUMENTS

When classified materials are received, these materials are under classified accountability, have been date stamped, properly flagged, and assigned a classified temporary control number; stock copies have been forwarded to temporary classified storage and each item has been evaluated for entry into the CASI holdings.

This activity is under the direct control of CASI Security Officer. The messenger authorized to pick up mail must have a final-type SECRET clearance and must be registered in writing with the Post Office to include a picture and sample signature.

The Classified Document Control activity is responsible for: the receipt and storage of all classified documents up to and including SECRET: preparation of accountability records; controlling all classified holdings, documents, case files and microfiche; filling requests for classified documents and microfiche to eligible requesters; dispatching all classified material from CASI to authorized recipients in accordance with the requesters type security access level and the security classification of the document requested as contained in the Registration and Products Control File (STI/RPCS); dispatches all classified material from CASI, properly wrapped and under proper registry control; initiates downgrading, regrading and classification change actions as required; and controls the access of individuals in and out of the classified document storage vault.

B137

CASE FILE WITHDRAWAL

REQUESTER: Please fill out one form for each case file. **Write** the accession number **LARGE.**

FILE CLERKS:
- Place card in place of casefile
- Write location in upper left corner of casefile
- Log casefile out
- Stamp the date on front of casefile

DATE OUT	REQUESTED BY (NAME, EXT.)	ACCESSION NUMBER
JUL 25 1989	J.S.	N76-33835 (2)
~~MAY 13 1991~~		~~N86-30157~~
MAY 22 1991	ws	N90-18458
7/15/91	Repro	N68-81701
		~~-71350~~
JUL 19 1991	RB SB/B	N90-13370
9-5-91	Repro	X75-72514
9-12-91	Repro	N82-25112
SEP 23 1991	Repro	TM-423
OCT 10 1991	Repro	N91-24085
~~Oct 31 1991~~	~~Repro~~	~~N75-15151~~
1-29		X91-10607
		-
		-
		-
		-
		-
		-
		-
		-
		-

Figure B13.3

This activity is composed of eight (8) major functions based on the requirements of the Industrial Security Manual for Safeguarding Classified Information and related regulatory directives and consist of the following:

1. Receiving
2. Accountability
3. Case Files
4. Automatic Microfiche Distribution
5. Document Request Processing
6. Mailing Operations
7. Classification Changes and Marking
8. Stock Reduction and Destruction

See **WFD 13.3 for Classified Document Processing.**

For classified documents, changes in classification whether an upgrade from unclassified to classified or to a higher security classification, or declassification are made only when the properly executed approvals are on hand and are recorded on the Accountable Document Record form 401 maintained in the CASI vault.

See: **Figure B13.4. Accountable Document Record Form 401.**

WFD 13.4 Classified Documents Reclassification.

See the **Industrial Security Manual for Safeguarding Classified Information, DOD 5220.22-M NASA Security Procedures-User Guide** for details of this activity.

13.1.7.1. LIMITED DOCUMENTS

Document Supply receives stock copies of X-series documents from CASI Accessioning. This stock is boxed and stored until the first Thursday of each month at which time the CASI courier delivers these documents to the NASA mail room manager at 409 3rd Street, SW, Washington, D.C. The stock is then stored in a locked area until NASA Secure Destruction picks up the documents on the first Friday of each month and destroys this stock.

13.1.8. **REPORTS**

Document Supply maintains for the Monthly Report on Center Operations statistics on the number of reproduced and stock copies supplied to meet requests. See **Figure B13.5** for the figures from March 1991 through March 1992.

ACCOUNTABLE DOCUMENT RECORD

☐ CONFIDENTIAL ☐ SECRET

ADDITIONAL MARKING _____

CLASSIFICATION CHANGE From To

Group	CONTROL NUMBER	
	TEMPORARY	PERMANENT

AUTHORITY AND DATE

RECEIVED FROM	DATE RECEIVED	TITLE AND DESCRIPTION (UNCLASSIFIED)
	REGISTERED MAIL NUMBER	
ORIGIN	DATE OF DOCUMENT	
	TYPE OF DOCUMENT	REMARKS
	TOTAL NO. OF COPIES RECEIVED	
CONTROL STATION OPERATOR'S NAME (TYPE OR PRINT)	COPY NUMBERS	
CONTROL STATION OPERATOR'S SIGNATURE		REJECTED ☐ DISPOSITION / SIGNATURE

FACILITY FORM 401 REV. 4/72.

Transmission—*Outside of Facility*

DATE DISPATCHED	REGISTERED MAIL NUMBER	QTY	COPY NOS	TO	CONTROL STATION OPERATOR'S SIGNATURE

Destruction

DATE	QTY	COPY NOS	AUTHORITY	Destroyed By (SIGNATURE)	Witnessed By (SIGNATURE)

REPLACES FACILITY FORM 403 WHICH MAY BE USED

Figure
B13.4

DOCUMENT SUPPLY MONTHLY STATISTICS - MARCH 1991-MARCH 1992

TRANSACTION TYPE	TOTALS	AVER.	MAR'91	APR'91	MAY'91	JUN'91	JUL'91	AUG'91	SEP'91	OCT'91	NOV'91	DEC'91	JAN'92	FEB'92	MAR'92
DOCUMENTS SUPPLIED	19144	1473	1189	1392	2015	1574	2166	1578	1863	1650	1368	1144	951	1105	1149
HARD COPY STOCK	6799	523	464	604	649	718	759	506	863	721	271	353	284	364	243
MICROFICHE STOCK	6		1	0	0	0	3	0	0	0	0	0	0	1	1
1:1 HC REPRODUCTION	2495	192	139	229	224	177	271	289	143	160	192	132	159	119	261
24:1 HC REPRODUCTION	6732	518	394	433	741	491	607	569	478	541	673	464	415	476	433
20:1 HC REPRODUCTION	1120	86	65	59	135	92	119	123	85	52	93	103	42	91	61
MICROFICHE REPRODUCTION	1974	152	126	64	261	94	404	87	293	176	139	92	54	54	130
492 REPRODUCED PAGES	1555901	119685	104978	88155	134056	106726	142956	155921	104252	108381	151257	102375	99334	114919	142591
TU REPRODUCED PAGES	1954766	150367	111166	172374	88167	76855	202692	185875	109552	79696	141214	150230	184016	238293	214936
TOTAL REPRODUCED PGS	3510667	270051	216144	260529	222223	183581	345648	341796	213504	188077	292471	252605	283350	353212	357527

Figure
B13.5

In addition, Document Supply maintains a stock status report on controlled-distribution that have reached the critical stock state (ten copies or less) and customized distribution documents set aside for use by NASA program offices.

13.2. WORK FLOW DIAGRAMS

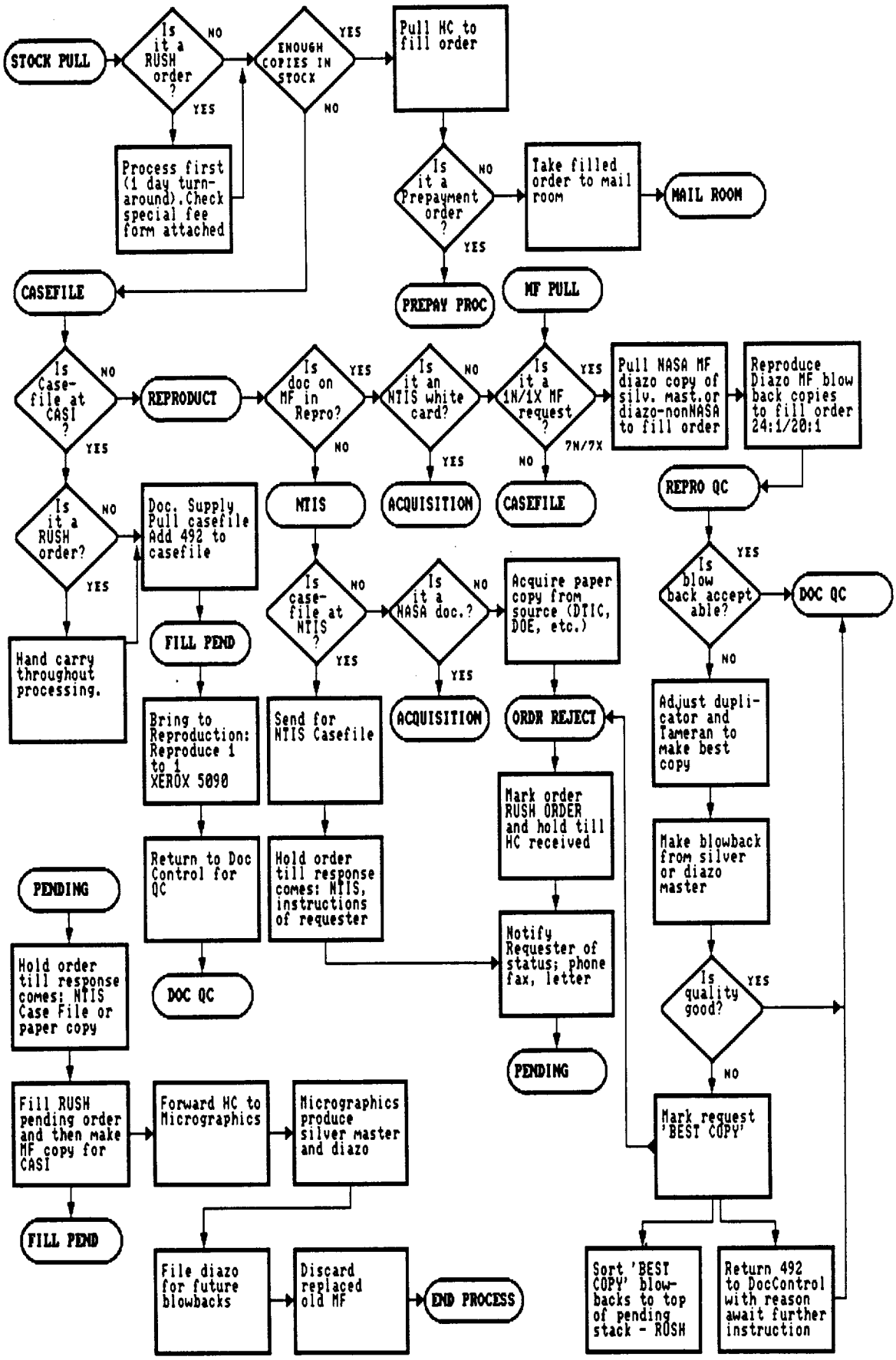
WFD 13.1 - Fill Secondary Orders

WFD 13.2 - Document Receipt and Control

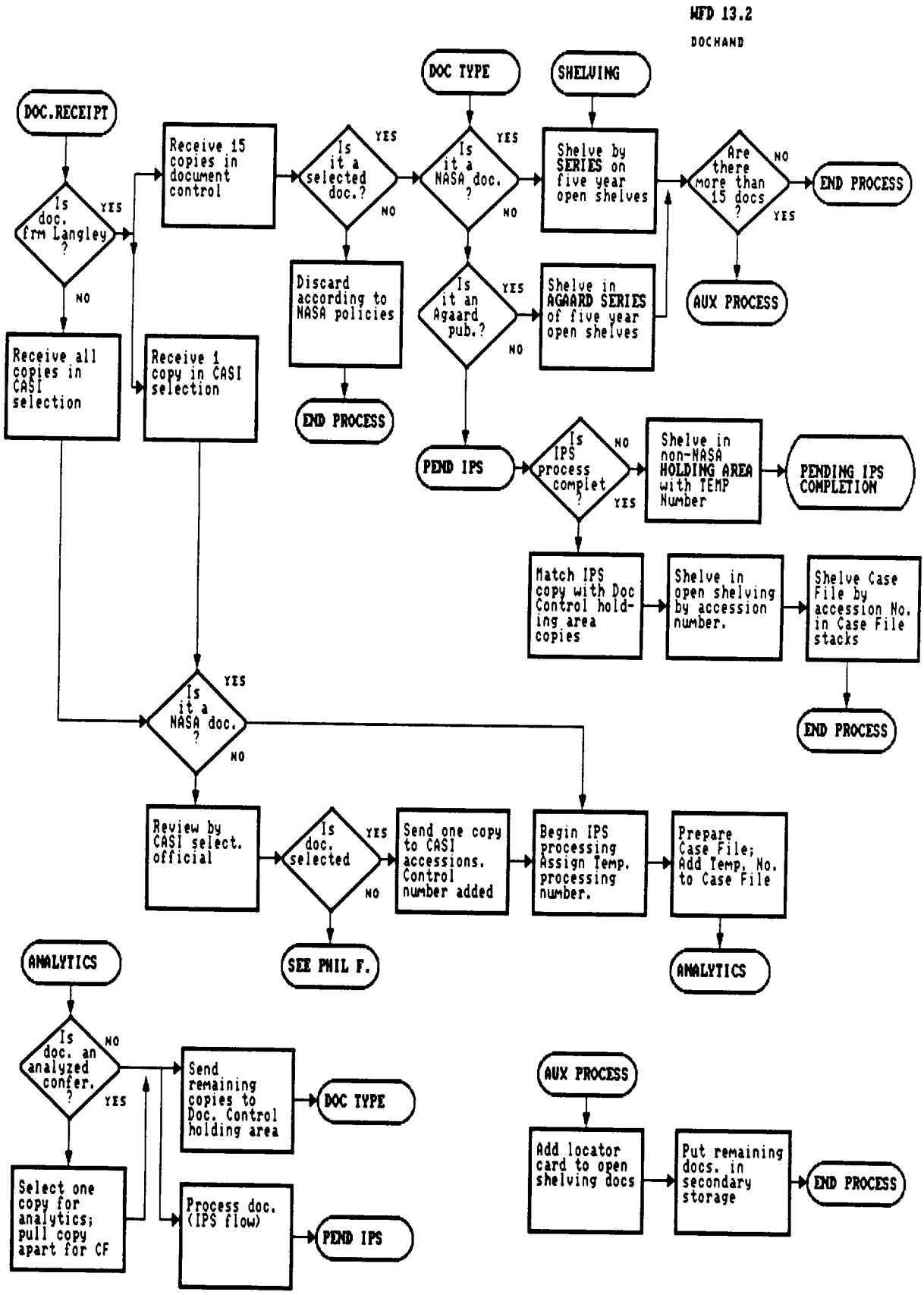
WFD 13.3 - Classified Document Input Processing.

WFD 13.4 - Classified Documents Reclassification

FILL SECONDARY ORDERS



DOCUMENT RECEIPT AND CONTROL

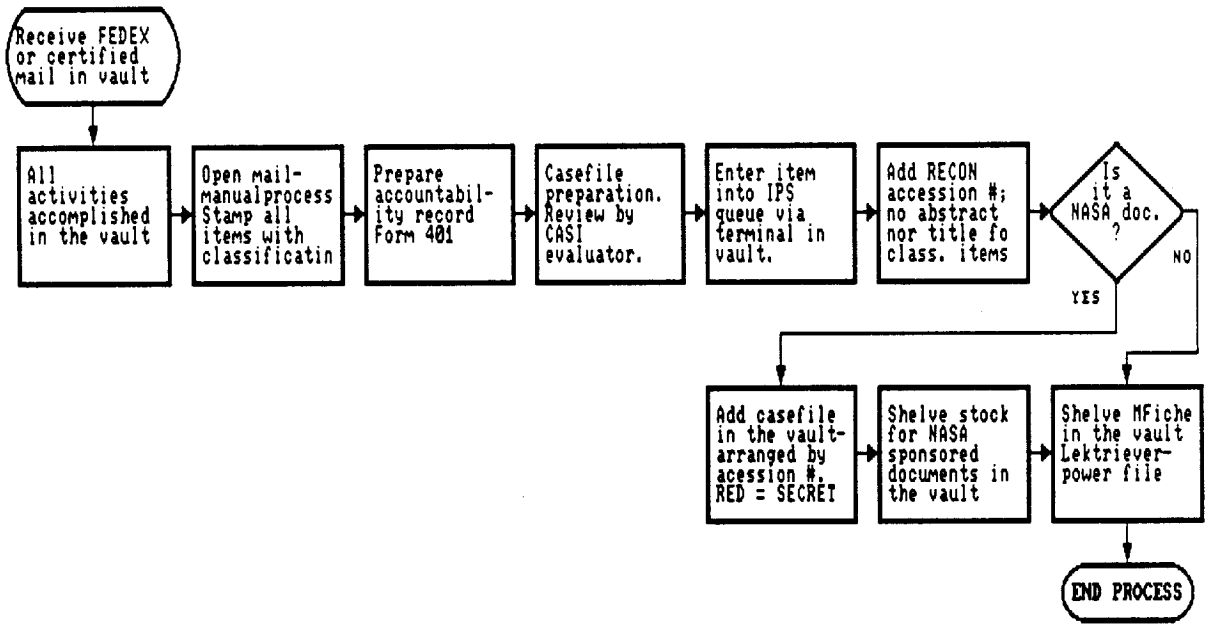


CLASSIFIED DOCUMENTS

INPUT PROCESSING

WFD 13.3

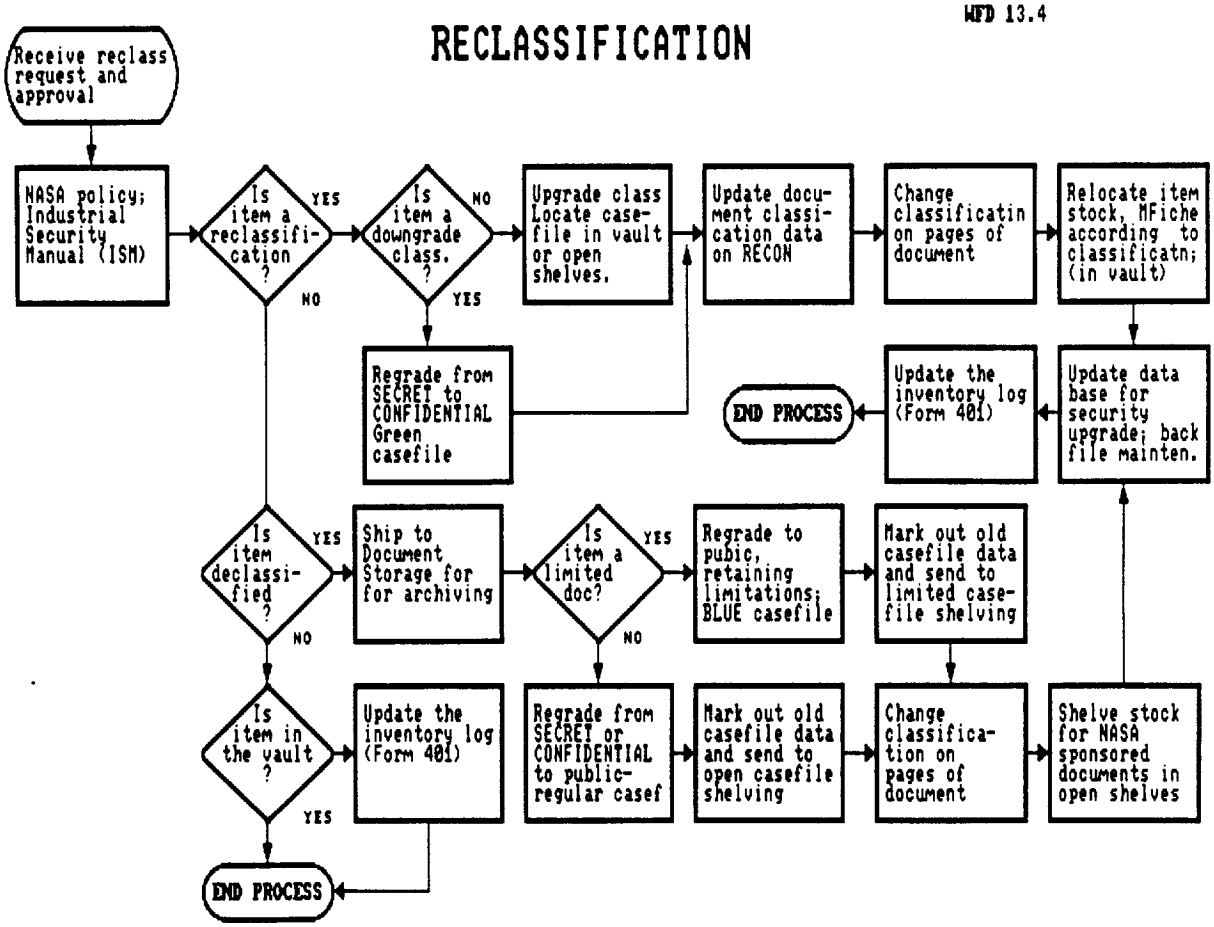
CLASSDOC



CLASSIFIED DOCUMENTS

RECLASSIFICATION

WFD 13.4



13.3 HIGHLIGHTED ASPECTS

1. CASI receives and stores too many copies of documents never requested by users. JTT needs to decide whether or not to maintain a hard copy collection or fill all requests via blowback. The demand for both stock copies and reproduced microfiche for the NASA community exceeded expectations in the first year of this contract.

2. Delays are caused by looping back and forth between Micrographics and Document Requests because microfiche copies are of poor quality and must be reproduced.

3. CASI needs to investigate the savings in supplying documents on-demand for both hardcopy and microfiche; microfiche must be of extremely high quality to support this.

4. CASI needs an automated document inventory and control system and a complete physical inventory to support its document supply operations.

5. Conflicting demands on staff and equipment for reproduction of STI and TUO documents needs to continuously monitored to determine the need for additional shifts and/or photocopy equipment.

6. Preparing an updated storage plan; documents have been stored in several areas within CASI based more on available space than on maximizing efficiency in retrieval. A new retrieval guide is also needed.

13.4 CONTRACTUAL REQUIREMENTS

Document Supply has no specific contractual requirements outside of filling the requests processed by Document Requests and TUO. The following chart, indicates the levels of effort provided in the contract to supply documents to requesters and the first year of the contract production levels. An asterisk = an estimate.

DOCUMENT REQUESTS

TITLE	UNIT	CONTRACT	MAR.91-FEB.92
STI Hardcopy Documents	Document	8,000	6,556
STI Reproduced Documents: STI TUO	Page	2,200,000	 1,411,044* 1,915,944*
TI Secondary Microfiche	Document	1,300	1,844
STI Document Request Validation	Request	25,000	17,995 Docs. supplied
Courier	Trips	300	
Document Storage (STI)	--	--	--

Figure B13.6

Comparison of these two sets of figures indicates that CASI is supplying higher numbers of microfiche documents, reproducing greater quantities of 1:1 blowbacks, and fewer stock copy documents than called for in the contract.

13.5 INDICES OF PERFORMANCE, QC, AND REPORTING

Within the contract, Document Distribution and Support functions are assigned a 10% area weight judged on the basis of the quality and accuracy of work output; timeliness; conformance with requirements and specifications; efficiency of operations; reliability of performance; and implementation of the CASI Innovation plan(s), as applicable.

13.6 STANDARDS AND POLICIES

CASI Document Supply follows the guidelines of the NASA STI

Handbook, the CASI Operations Manual, the NASA CASI/RMS contract Statement of Work (SOW) and Technical Directives (TD) from JTT, e.g., TD 91-090 Excess Documents at CASI.

13.7. FUNCTIONAL REQUIREMENTS FOR COMPUTER SUPPORT

Once JTT makes a decision on the provision of documents via retention of hard copy stock versus on-demand blowback from microfiche only, a weeding project should be undertaken following these guidelines. Additional system wide possibilities include:

13.7.1. Instituting a full online document inventory and control system.

13.7.2. Producing the 492 in Document Supply; use a tear sheet off a printer and put the mailing label on its verso. Eliminate paper passing through Document Requests - they will use the automated system. Document Supply will pull the item, put the stock card in the item, move the item to mailing which will use the label and update the record online (part of inventory control system.

13.7.3. Improving retrieval efficiency. As part of any new layout plan, consideration should be given to the ramifications of bar coding documents and using the temporary accession number as the document identification throughout processing, including Document Supply.

13.7.4. Adding digital technologies; institute a pilot imaging project using the NACA collection and then expand to the Case Files. The Pilot should limit the number of items and workstations involved, test full text searching, and identify document supply and retention savings/costs of digitizing.

13.8 BIBLIOGRAPHY OF SUPPORTING DOCUMENTS

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14. DOCUMENT INVENTORY AND CONTROL

CASI does not have a centralized automated Inventory and Control (I&C) system to track the receipt and distribution of document titles and copies, both hardcopy and microfiche nor to track requesters nor requests; however, statistics are maintained on the number of NASA funded documents acquired, received, processed, and distributed from both machine readable files on the RPCS system and through manual tallying. These statistics are combined and presented in a number of formats including the monthly Report on Center Operations.

14.1. INVENTORY AND CONTROL PROJECTS

CASI has several inventory tasks underway or planned related to special projects.

1. Publications Inventory completed as part of **Task Order 91-30**, 14.1.1. below,

2. Inventory of CASI's NACA collection, **TD 91-098**, 14.1.2. below,

3. Conversion for 5 x 8 microfiche, **TD 91-068**, 14.1.3. below,

4. Classified Documents Backfile Maintenance Synchronization Projects, 14.1.4 below.

5. Physical inventory of non-NASA stock. CASI is currently inventorying non-NASA stock to determine possible dispositions.

In addition, the Document Supply unit maintains an annual document weeding control mechanism described in **WFD 14.1 Inventory Control** and maintains on a PC with Lotus 123 software, a list of the Critical Stock Level (less than 10 remaining copies) of "general" series Special Publications (See **Appendix B14A CP, RP, SP, Inventory listing samples, as of 02/92**). Document Supply conducted an inventory in April-May, 1992 of the Special Publications.

Micrographics reviewed its microfiche collections as part of their support to the MSTC Microfiche Study.

14.1.1. DOCUMENT INVENTORY AND CONTROL:: T.O. 91-30

CASI has completed a full manual inventory of the low number series currently tracked on the PC in Document Supply. The major CASI document I&C initiative was undertaken as part of Task Order 91-30 to implement an Automated Document Inventory and Control System (ADICS). The draft plan (See **Document Inventory and Control System Implementation Plan, September 4, 1991**, described the current interactions of the RPCS, IPS, and RECON tracking systems and a project to identify the requirements and design for ADICS.

Until the development of ADICS, lack of an automated I&C system prevents requesters using the RECON ordering system from knowing if a stock copy exists for the desired document and makes it impossible to estimate the length of time needed to fill an order especially since lack of stock can add delays to the request filling process.

Lack of an automated I&C system also results in spending additional time locating the document in the storage area, checking for available stock supplies, tallying processed documents, and counting remaining copies.

The proposed ADICS will track incoming items, stock drawdown, and document requests and allow for application of bar-codes and changes in subscription types, pricing policies, and operating procedures to more timely and accurately track scientific and technical documents. These improvements should reduce the costs of processing documents within CASI and improve the quality of CASI service; and therefore, the satisfaction of its users.

The ADICS analysis was placed on hold until the CASI Local Area Network (LAN) was installed and tested and the analysis under the present effort has been completed.

Section 14.7 elaborates on the desired functions for an automated I&C system.

14.1.2. INVENTORY OF CASI'S NACA COLLECTION: TD 91-098

As part of the NACA documents database project, the CASI is to conduct an inventory of the NACA collection (See **Technical Directive 91-098 NACA CASI Documents Inventory**). Part of this inventory will be an analysis of the quality of the NACA documents for future scanning as part of a document imaging project. It is anticipated that after the criteria for the quality ratings is determined, the inventory of the aviation-related documents should take about three months.

Based on the citations in the RECON NACA file, CASI will generate a master list that contains the:

- o NACA report number,
- o Accession number (when available),
- o Shelflist number,
- o Title,

Using the master list, CASI will create a Dbase file to identify the:

- o Stock copy quantity,
- o Microfiche availability,
- o Casefile status,
- o Report location,
- o Report format, and
- o Document quality.

CASI will analyze storage space and conditions as part of the inventory project and will unpack and shelve the 300 boxes of early aviation (not formal reports) NACA materials received from the Lewis Research Center.

When the CASI master inventory list is updated, it will be distributed to the NASA Centers to use in their NACA collection inventories.

JTT must still determine policies for preservation, if any, and distribution of the NACA documents (i.e., send to the National Archives). It may be necessary to locate and maintain two copies of NACA documents: one for archival purposes whether at CASI or NARA and one for processing a CD/ROM image.

14.1.3. INVENTORY OF 5 X 8 MICROFICHE COLLECTION: TD 91-068

In preparation for GPO's conversion of CASI's 5 x 8 (oversized) microfiche to regular fiche, CASI completed an inventory of the NASA funded unclassified-unlimited reports accessioned in the 1962 through 1964 time period (accession range N62-10001 thru N64-19999) and forwarded a list to NTIS for recall of the identified missing documents. The project is in process.

14.1.4. PROPOSED CLASSIFIED DOCUMENTS BACKFILE MAINTENANCE SYNCHRONIZATION PROJECTS

CASI is proposing a separate project divided into two segments to update the RECON database for NASA and non-NASA documents that have had changes in classification. Over the years, as classification of NASA and non-NASA documents have changed, the

accountability records in the vault have been updated but the related RECON records have not always been updated.

The CASI Security Officer is recommending that all formerly classified NASA documents (changed/downgraded classifications) be located and matched not only against the accountability records in the classified vault but also against the bibliographic records on the RECON database and that the appropriate actions be taken. This would consist of about 1,000 documents).

See **WFD 14.2 NASA Classified Documents Backfile Proposed Maintenance Synchronization Project** for the proposed steps.

When this synchronization of the data base and the accountability records for reclassification of NASA classified documents has been completed, the CASI would be able to undertake a similar effort for the much larger collection of non-NASA classified documents (approximately 30,000 documents)

See **WFD 14.3 Non-NASA Classified Documents Proposed Backfile Maintenance Synchronization Project** for the proposed steps.

14.2. WORK FLOW DIAGRAMS

WFD 14.1 - WFD 14.1 Inventory Control

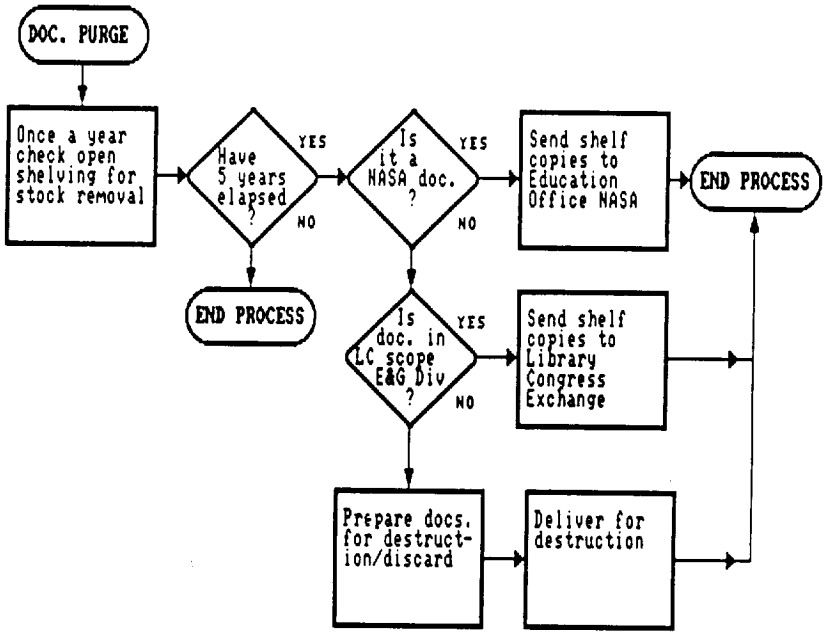
WFD 14.2 - NASA Classified Documents Proposed Backfile Maintenance Synchronization Project

WFD 14.3 - NON-NASA Classified Documents Proposed Backfile Maintenance Synchronization Project

INVENTORY CONTROL

WFD 14.1

INVENTORY

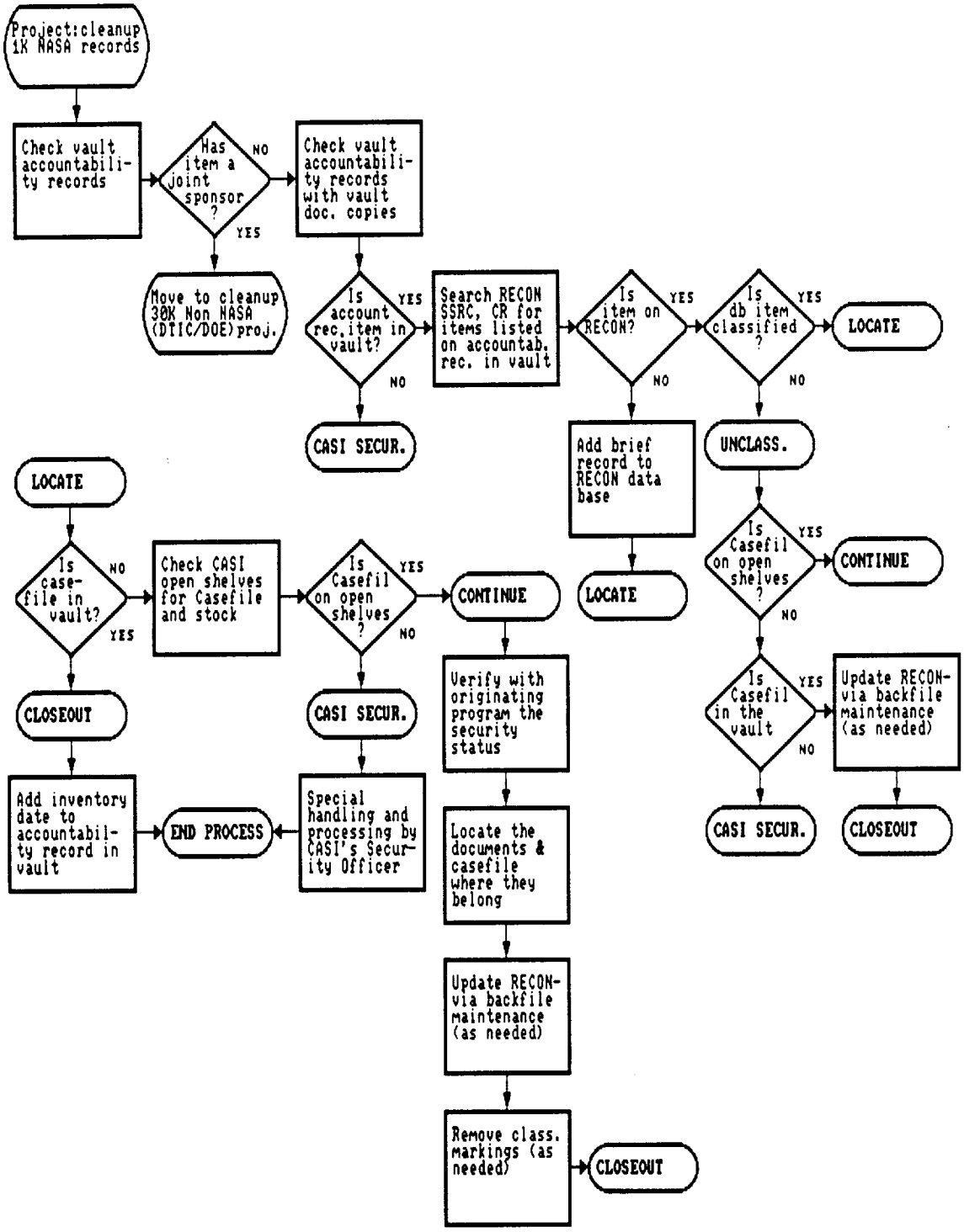


NASA CLASSIFIED DOCUMENTS

B156

BACKFILE MAINTENANCE SYNCHRONIZATION PROJECT

WFD 14.2
CLASSPRO

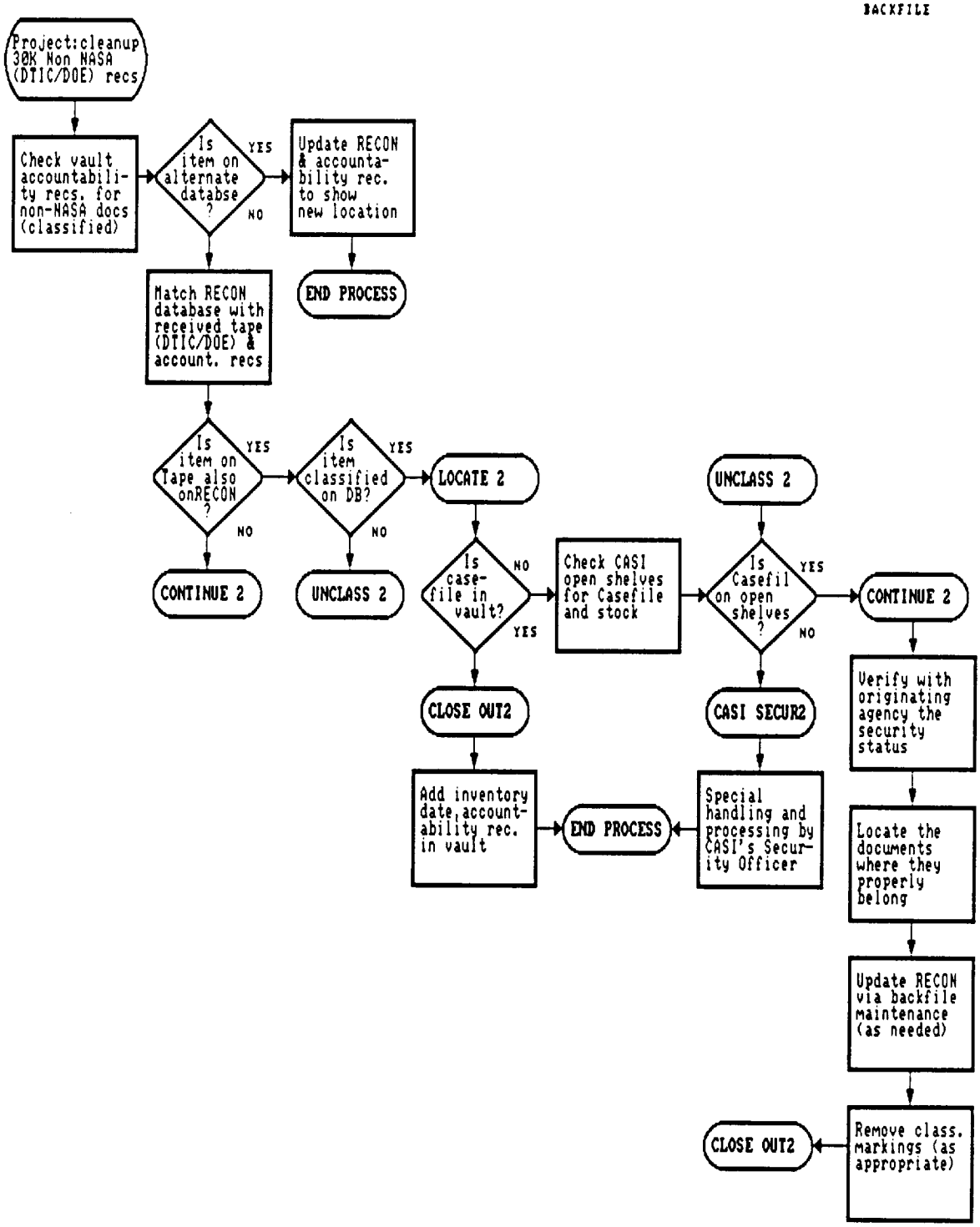


NON-NASA CLASSIFIED DOCUMENTS

BACKFILE MAINTENANCE SYNCHRONIZATION PROJECT 2

WFD 14.3

BACKFILE



14.3. HIGHLIGHTED ASPECTS

1. JTT must decide if it intends to maintain a hard copy of all NASA reports. If yes, a document I&C system deserves immediate attention and resources. If all NASA reports will be maintained only on microfiche for on-demand blowback processing, attention and resources should be placed on acquiring the hardware and staff to maintain this blowback production and to systematically remove the existing stock copies from CASI. In either case, JTT needs to reenforce document control policies at CASI.

2. CASI has no automated inventory system which reduces effectiveness in supplying documents to requesters and adds to the costs of tracking items in process or in distribution to customers. An automated inventory control system is needed to track items from their arrival in CASI to their storage, and to track both requests and requesters. Information collected in such a tracking system will enable better structuring of CASI's pricing policies.

3. A complete inventory of all CASI collections is needed to determine what items are in short supply, never have moved off the shelves, or are in a poor preservation condition. If the decision in item one is to discard stock copies, this weeding should be accomplished before conducting the complete inventory. The accurate inventory should be matched against the CASI requests for a period of time and also matched against JTT's acquisitions guidelines to determine the best possible document retention policies for CASI. The results of this analysis should be shared with the other Centers as a basis for developing NASA-wide collection and retention policies.

4. In the absence of a complete automated I&C system or in the interim until one is established, JTT/CASI should identify items that could be quickly implemented to improve the control of CASI documents and user requests, some possibilities are listed in 14.7. below.

5. Identifying NASA-wide uses of CASI surplus documents, e.g., a master schedule of NASA exhibits, could help reduce hardcopy documents while meeting information needs of conference attendees.

6. Efforts are underway to distribute excess documents to the NASA Education Directorate and to work with the Library of Congress Exchange and Gift Division to discard NASA documents where they can be of the greatest use to information seekers; however, the latter already has such a wealth of information to control that such cooperation may be very delayed.

14.4. CONTRACTUAL REQUIREMENTS

Section 10.2.13 of the Statement of Work indicates that the CASI shall maintain "(2) a document inventory control system, e.g., an adequate control on all documents loaned to NTIS or elsewhere." Under Section 16.2 of the Statement of Work, STIF Innovation Plan 3.1.10 is reserved for an Automated Document Inventory Control system.

14.5. INDICES OF PERFORMANCE, QC, and REPORTING

There is no clear indicator of success for this function in the Statement of Work.

14.6. STANDARDS and POLICIES

There is no clear statement of standards and policies to follow for an I&C system within the SOW.

14.7. FUNCTIONAL REQUIREMENTS FOR COMPUTER SUPPORT

The CASI automated I&C should contain:

1. Inventory tracking, ordering, and stock drawdown of documents in multiple media formats and from varying sources (NASA, non-NASA, AGARD, TU) that are located in both temporary and secondary storage. Automatic tracking should also apply to CASI services, i.e., literature searches. The automated system should be able to read (scan) and produce bar code labels for assigned accession/control numbers and be able to generate warning flags for resupply (audio and visual prompts).

2. Reporting features that allow automatic on-demand, online and offline reports:

   a. Warning of low inventory levels for all or specific categories of documents.
   b. Identification of documents falling behind in standard document supply turn-around times.
   c. Collection of unmet requests generated from the RECON, ARIN, RPCS systems.
   d. Ticklers (match against IPS) for items requested and not yet received in CASI; and status notifications to users (for both accessioned and non-accessioned items).
   e. Tallies by distribution type (initial, secondary), revenues generated (per copy and title totals), formats (HC, MF, CD/ROM) to determine what products and services have the greatest demand.

3. Assignment of priorities to requests with resulting RUSH alerting throughout the processes; and provision for human override of system set parameters and inventory levels to identify special situations (reserved customized distribution copies).

4. Incorporation of a user-friendly menu-driven system, PF keys, "Help" screens, system prompts, and appropriate error messages available to all PCs on the system. Provision of single keystroke functional capabilities, e.g.,

   1. Display and update of existing order(s) with access via: accession number, title, and series PF keys.

   2. Display and update of the number of copies in the inventory via wanding or keying.

5. Ability for RECON, ARIN, RPCS users to know the availability of all the formats of a document and to be able to order one or more copies across these formats with automatic affirmation of the order and accurate invoice (statement) generation.

6. STIMS (or replacement system) interface which provides automatic user and security information and profiling for automatic supply of repetitive requests even with special discount pricing.

7. Provision for parallel operation of the old and replacement systems for a phase-in period.

14.8. BIBLIOGRAPHY OF SUPPORTING DOCUMENTS

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15. CASI DOCUMENT PRESERVATION AND STORAGE

Since CASI is a document supplier rather than a library or document repository, less attention has been given over the years to the preservation of the documents housed at the CASI facility than to the efficient supply of information to requesters.

JTT preservation criteria are in process of update, including discussion concerning what in the CASI collection needs to be preserved: is it the initial hard copy documents; a more permanent version in microfilm/fiche; full text on CD/ROMs and optical disks; and/or the bibliographic data that gives access to these documents? Does CASI need to maintain the documents themselves or can CASI function as the clearinghouse to identify the location of the best versions of NASA materials housed within the Centers and/or NARA?

The interest of the National Archives and Records Administration (NARA) to acquire the CASI and Langley NACA documents for its own collection, has focused thinking about the preservation of the NACA collection and more generally to preservation and storage of all NASA produced documents. Discussions are underway with NARA to establish a schedule for transfer of CASI bibliographic records and documents to the National Archives.

These decisions are complicated by reduced funding at some Centers to maintain their ever-growing collections, which leads them to look to CASI to store and make accessible the documents they have weeded from their own shelves; and the difficulty and delays in retrieving documents from the NARA collections to meet NASA information requests.

15.1. NACA COLLECTION PRESERVATION

The major JTT/CASI effort in preservation has occurred as part of the study of the collections of the National Advisory Committee on Aeronautics (NACA) housed at CASI, NASA centers, and other centers and libraries. Details of this effort are presented in the "NACA Documents Database Project Final Report," by Ruth S. Smith, April 1991 prepared for JTT through RMS.

This study highlighted the rapid deterioration of some CASI NACA reports, those from the N64-18,500 to N73-28,900 series which might cause up to 50% of these documents to be unusable within 10 years, (see pages 43, 50, 81, 85, and 86 of the Final Report for greater detail). The NACA study identified NACA collections that have been converted to preservation formats: microfilm (75% of the Langley collection) or microfiche (California Institute of

Technology's NACA collection converted to silver halide microfiche by Updata).

The Final report recommends an inventory project to acquire and hold a complete set of NACA documents at CASI and to identify and obtain missing bibliographic records from the Centers to add to the CASI database. A project plan was developed to explore CD/ROM and optical disk technologies as ways to preserve the NACA collection and make it available (full text) for distribution.

The study also identified concerns that the CASI NACA collection is bug-infested and that many NACA reports need to be put on buffered or acid-free paper. The result of these concerns was an inspection of the CASI storage facility by Economy Pest Control, Inc. See **Figure B15.1 Proposal** for the results of their analysis. The CASI Document Storage area was fumigated in March 1992.

15.1.1. NACA COLLECTION STORAGE CONDITIONS

CASI maintains unpacked, unsorted documents including all NACA and early aviation type documents received from the Lewis Research Center plus other Centers' materials received over the years. These documents once located throughout the facility, including the old cafeteria area, were moved to the document storage shelving in 1992. The March 30, 1992 interim response to TD 91-098, stated that the NACA project plans to "retain the excess NACA reports on the shelves rather than expend the additional resources to box, label, and manifest the contents of each box for storage and later disposition."

When the General Dynamics library is closed soon, several hundred additional boxes of NACA documents will be sent to CASI adding to this workload and preservation problem.

15.1.2. CASEFILE PRESERVATION AND STORAGE

The closest that CASI comes to maintaining a preservation copy of its documents is the silver halide microfiche and the hardcopy casefiles in Document Supply. These casefiles have not been systematically inventoried recently and are shelved in areas in which there is no strict environmental control over the materials. Because of limited space, some casefiles and documents are packed tightly together, jeopardizing them when they are removed and reshelved.

Proposal

ECONOMY PEST CONTROL, INC.

Maryland Dept. of Agriculture Lic. #140
Maryland Home Improvement Lic. #HIC7888
721 Bestgate Road Annapolis, MD 21401
266-6611 841-6922 261-8388

B165

PROPOSAL SUBMITTED TO: Joe Gignac, NASA Center for Aerospace	PHONE: 621-0204	DATE: 1-9-92
STREET: 800 Elkridge Landing Road	JOB NAME: NASA Center for Aerospace	
CITY, STATE AND ZIP CODE: Linthicum, MD 21090	JOB LOCATION: Linthicum, MD 21090	
ARCHITECT:	DATE OF PLANS:	JOB PHONE:

We hereby submit specifications and estimates for:

PEST CONTROL

A) After investigating a complaint of bites on hands of people in the file storage room and finding no insects, I believe that static electricity in the room is the cause for the problem. I recommend that the humidity in the room be raised to reduce the static electricity.

B) Fumigation of office copy storage room for clover mites & book lice (the possibility of these insects being present are possible although no evidence was found).

1) Baseboard spray and crack & crevice treatment of area.

2) Total Release Precor & Foggers

a) vacate premises for 4 hours; air out for 1 hour

b) vacate all plants & pets (if any)

c) store all open food (if any)

d) wash all eating surfaces and utensi

NO GUARANTEE

Humidity

We Propose hereby to furnish material and labor — complete in accordance with above specifications, for the sum of:

Six Hundred Thirty Dollars dollars ($ 630.00).

Payment to be made as follows:

Payable within 30 days

All material is guaranteed to be as specified. All work to be completed in a workmanlike manner according to standard practices. Any alteration or deviation from above specifications involving extra costs will be executed only upon written orders, and will become an extra charge over and above the estimate. All agreements contingent upon strikes, accidents or delays beyond our control. Owner to carry fire, tornado and other necessary insurance. Our workers are fully covered by Workmen's Compensation Insurance.

Authorized Signature: Michael Barnes

Note: This proposal may be withdrawn by us if not accepted within 30 days.

Acceptance of Proposal — The above prices, specifications and conditions are satisfactory and are hereby accepted. You are authorized to do the work as specified. Payment will be made as outlined above.

Signature _____

Date of Acceptance: _____

Signature _____

PRODUCT 118-3 Figure B15.1

To Order PHONE TOLL FREE 1 + 800-225-6300

15.1.3. CASI GENERAL COLLECTIONS PRESERVATION AND STORAGE

The hardcopy documents are stored in Document supply and experience the same space constraints and environmental conditions as the casefile collection. Since much of the stock is deleted after five years, there is little problem with stock deterioration; however, shelf relocations to maximize space and efficiency in crowded conditions, can negatively impact the physical documents.

Additional study is needed to determine if on-demand hardcopy document delivery from the microfiche masters is a viable alternative to maintaining any stock copies at all.

Until CASI is able to provide an environmentally adequate location for all its microfiche documents, it might consider sending a silver halide copy of all its microfiche documents to NARA for preservation.

15.2. WORK FLOW DIAGRAM

There is no WFD for this section.

15.3. HIGHLIGHTED ASPECTS

1. The casefiles are retained forever and are therefore good candidates for imaging.

2. Preservation activities related to the NACA collection have resulted in refining JTT policies with NARA for both NASA documents and more specifically NACA documents. These efforts can be used as the basis of a formal CASI plan or set of policies. As part of this process, JTT needs to determine its position re optical media standards given NARA's rejection of optical media as an archival media and to participate in groups addressing CD-ROM and optical disk longevity and suitability for archival purposes.

3. Conditions for casefiles and stock copies are not adequate for document preservation. Microfiche documents also need to be placed in a temperature and humidity controlled environment. Recently CASI instituted a procedure of placing silver microfiche masters in separate locked cabinets with only key members of the CASI micrographics staff having access to them. Similar new policies on controlled access to

all CASI materials are needed. CASI's stock retention plan also needs stronger enforcement to avoid retaining everything CASI receives whether or not it falls within JTT's collection policies.

4. There is a need to follow-up with adding a preservation specialist to the JTT preservation group.

15.4. CONTRACTUAL REQUIREMENTS

The contract (Section 10.2.13-14; WBS 10.15-16) provides for storage of CASI documents in suitable areas for both hardcopy format and microfiche. Within the last few months, CASI has begun to store silver halide microfiche in separate cabinets from the diazo fiche. As indicated in previous sections, there still are fiche collections stored in the general Document Supply area that need to be either discarded or moved to the microfiche storage areas. All microfiche, but particularly those established as a means to preserve the information contained in deteriorating collections, e.g., NACA documents, need to be placed in climate controlled areas.

The contract also provides for a document inventory control system that ensures adequate control for all documents loaned to NTIS or elsewhere and for documents with security classifications to be stored and controlled in accordance with provisions set forth in the DOD Industrial Security Manual. Section 14 discussed the inventory control situation at CASI. Within CASI, classified documents are stored in the vault and controlled via the accountability records according to the Standard Practices and Procedures for Safeguarding Classified Information.

The contract also calls for all documents within CASI to be stored in an orderly fashion, arranged by appropriate retrieval alphanumeric identifiers and arranged in such a fashion that the more recent items are the more readily available. The arrangement of documents within CASI follows the collections established through processing. For example, there is a separate location for the current year's 1N, 7N, 9N, 1X, 7X, and 9X documents removed from previous years' documents. Anticipating the number of documents that will be produced for each of these collections through the year results in arbitrary placement of documents on the shelves. For instance, documents are placed at the top of a 12 shelf tier, somewhere in the middle for the beginning of a second collection, and near the bottom of the tier for a third collection. These spaces can result in documents tipping over and warping over the years. An analysis is needed to determine if these separate collection distinctions can be dropped and a more efficient shelving arrangement can be adopted,

one that would consider the preservation of the documents as well as the accession number sequencing.

The contract states that access to the collection storage area will be limited to employees assigned to that area, and documents with availability limitations will be released on demand only to qualified recipients within the restrictions established by NASA. Currently any person within the CASI facility can appear in the Document Supply area and wander around, possibly even remove sought for documents. This open system has several potential difficulties:

1. Maintaining the Document Requests statistics on document distribution if users do not complete request forms,

2. Maintaining the minimum document copy levels established by JTT policy,

3. Possible improper handling of neighboring documents when inexperienced shelvers go looking for documents, and

4. Removal of limited documents by unregistered recipients.

15.5. INDICES OF PERFORMANCE, QC, AND REPORTING

Other than special studies and activities such as the NACA project and the MSTC study of microfiche quality, there are no regular, contract directed indices of performance, preservation quality control, or reporting.

15.6. STANDARDS AND POLICIES

CASI maintains standards for microfiche production (see NASA-STIF SPEC-20) and is tracking NASA, national and international standards related to CD/ROM, non-standard media, and imaging production and use. There are no specific preservation standards and policies beyond those for microfiche production and as presented as part of the NACA preservation activities with NARA.

15.7. FUNCTIONAL REQUIREMENTS FOR COMPUTER SUPPORT

There are no functional requirements included for this section.

15.8. BIBLIOGRAPHY OF SUPPORTING DOCUMENTS

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NASA. STI Program. CASI. "Document Inventory and Control System Implementation Plan," Version 2, September 4, 1991. Project Control Number: **T.O. 91-30**. Functional Sponsors: Wanda Colquitt, Roland Ridgeway, pp. 1-5; Appendices A1-A[6], B-1, C-1.

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16. REPORTING - USER SERVICES

Based on the time and effort used to understand the CASI reporting system, this section attempts to highlight the major difficulties and offer some possible solutions. CASI reporting difficulties arise because:

1. CASI staff often do not receive the reports they need to monitor their functions. Reports are more a factor of historical precedent than based on current operational needs. In addition, reports that are in machine readable form can come from different systems which means they still have to be manually processed,

2. Data are not received in machine readable form which leads to rehandling and rekeying or equipment and software is not available to massage the data into graphical presentations,

3. Reports often do not tie current statistics to similar activities of prior periods; thus making it difficult to analyze trends.

16.1. REPORTS IN USER SERVICES

Until CASI has a system-wide tracking capability, Document Requests and Document Supply will be unable to know when a document arrives in CASI, when it will be available for secondary distribution, how many copies/formats are immediately available, specific situations that will change its normal processing flow or cycle, and what relevant statistics can be maintained. In addition, there is currently no way to know what work station has a request, what the status of processing is, nor if problems have been handled with proper notification made to requesters.

Specific recommendations to assist Registration, Document Requests, and Document Staff include:

1. Automation of the log-in books in Registration with automatic new registrant number assignment and duplicate name and organization checking features.

2. Automated on-line procedures manuals with good HELP and indexing features.

3. Up-to-date user manuals for all automated systems.

4. A single integrated system with one set of user commands and screens organized to save staff time and effort.

5. Simplified log-in and log-out procedures with easy access across production modules

6. Elimination of all reports JTT and CASI management are not really using and increased automatic generation of reporting items that appear every month to avoid a lot of rekeying.

7. Electronic transmission of CASI received orders to secondary suppliers such as AIAA and NTIS. This is related to the need to receive the NASA generated documents and their RDP pages in machine readable form to eliminate rekeying within CASI.

8. Automatic customization of Registration packets - use of electronic publishing capabilities, especially as JTT policies change on who can receive access to CASI documents which makes forms obsolete.

9. Provision of adequate equipment: additional Pcs to be able to handle financial spreadsheets related to prepaids; increased memory on current machines, a Fax to cut down traffic to the Hotline area, laser printer to assist in report writing. Addition of headphones to give greater freedom of movement to staff responding to user requests.

10. Automation of document ordering and supply; track: documents, requesters, and requests with a good front end to the requesters to automatically notify them of status changes.

11. Add information needed to track the international program documents, e.g., statistics on tape input from all foreign sources. Identify and supply additional hardcopy reports such as:
    - o Number of hardcopy reports received from foreign organizations - bilaterals, tripartites, and NATLEVS.
    - o Number of items accepted, rejected (and reason) or sent to AIAA.

16.2. AUTOMATED STATISTICAL SYSTEM

1. Provide on-line on-demand access to RPCS for up-to-date counts. Provide the software, hardware, and telecommunications to download statistical data to spreadsheets and Dbase applications.

2. Improve dependability of the DOCORDER/ADABAS system at end of month reporting time to avoid lost time and data as the system fails due to new system modifications made during the month.

3. Conduct an inventory of the use of current automated reports received in the operational areas; are staff receiving the right data and the right number of copies? Some multi page reports are shelved in the several units. Retaining one copy in DP might be sufficient and save a lot of computer printing time and paper.

4. Improve the interface to ARTS for the invoicing cycle, add improved editing and reporting capabilities, add prepaids.

5. Add an integrated statistical report generator to avoid the lost time and diminished accuracy that results when production statistics are manually recounted after the fact.

16.3. REPORT ON CENTER OPERATIONS

The major communications device to all staff participants in the CASI STI/TUO is the monthly Report on Center Operations, a tool with many inadequacies that results in a lot of wasted time and frustration when trying to locate specific data. A JTT monitor should not have to read the whole report to conclude that a statistic is missing. A better arrangement of data should aid everyone, the contractor and the contract monitors alike. CASI is reviewing this document and no doubt is implementing many new features. As CASI reviews the Operations Report, it would be an excellent opportunity to analyze collected data in terms of the JTT Total Quality Management effort and the addition of key success indicators for each CASI functional area.

Specific recommendations for improving the Report on Center Operations include:

1. Arrange the report by function not WBS and point to the relevant WBS(s).

2. Present data by contract year; if data is also needed by fiscal year, present it in a separate document. Contract monitors need to receive data that corresponds to the contract year.

3. Add more tables and remove statistical data from the

descriptive sections except for the highlights section; any statistics in highlights should also appear in the tables.

4. Remove the End User Incidents reports and give a brief summary of the major problems of the month; it would save 29 pages of the report and a lot of repetition.

5. Revamp Table 15 Document Copies requested and completed. If this report is maintained in User Requests, a summary should suffice in the report; it would save 4 pages.

6. For security, privacy reasons, delete listing Registered users granted RECON access during the month. Summarize the numbers in a chart comparing this data to the previous month and the same period in previous year.

7. Install an automated report generation system which precludes the current rekeying of statistical data for the monthly report; it should almost be a direct spinoff from the computer system with just the descriptive portions being input. Too much time and effort is spent on producing this report.

8. Strive for greater consistency in items reported, counts, and, presentation formats. Data in the monthly reports can vary from the three month and annual cumulations. This is certainly possible and must be allowed; however, the frequency of these differences creates doubt about the reporting/tracking of data.

16.2. WORK FLOW DIAGRAM

There is no WFD for this section.

16.3. CONTRACTUAL REQUIREMENTS

The Statement of Work identifies required reports, their production schedule, and the recipients.

16.4. STANDARDS AND POLICIES

The Statement of Work does not provide CASI specific guidelines for the content of reports produced under the contract.

17. CASI/TECHNOLOGY UTILIZATION PROGRAM (TU)

NASA's Technology Utilization (TU) program is the direct result of a 1958 Congressional mandate "to make the widest possible dissemination of the agency's R & D results." The Program does that through a nationwide system to facilitate the transfer of technology for secondary use by the public and private sectors.

The CASI TU Office (TUO) supports the NASA TU Division through a variety of administrative and logistical functions with the primary goal to aid in the technology transfer process. The activities include support to all organizations of the TU-family.

See **Figure B17.1 TU Services Section Organization.**

See **Figure B17.2 NASA Technology Utilization Program** (4 pages).

17.1. TECH BRIEFS INITIAL DISTRIBUTION

A major vehicle supporting technology transfer is the free NASA Tech Briefs, a monthly publication produced by the Associated Business Publications of New York City from NASA furnished written reports that is distributed to over 210,000 domestic engineers, scientists, and professionals in the private and public sectors. Tech Briefs is a technical publication containing current technical information about NASA developed inventions, improvements, and innovations that are available for transfer.

The TUO Office prepares a pithy abstract of each Tech Brief and keys the abstract into the UNOC field on RECON (see Figure B17.3). The current delay between the Tech Brief issue and the RECON data is about three to four weeks.

The CASI TU Office, funded by Code C, has responsibility for maintaining the Tech Briefs initial distribution mailing list on a separate version of the RPCS system. TUO supplies a monthly tape of user updates to the New York publisher for the initial distribution.

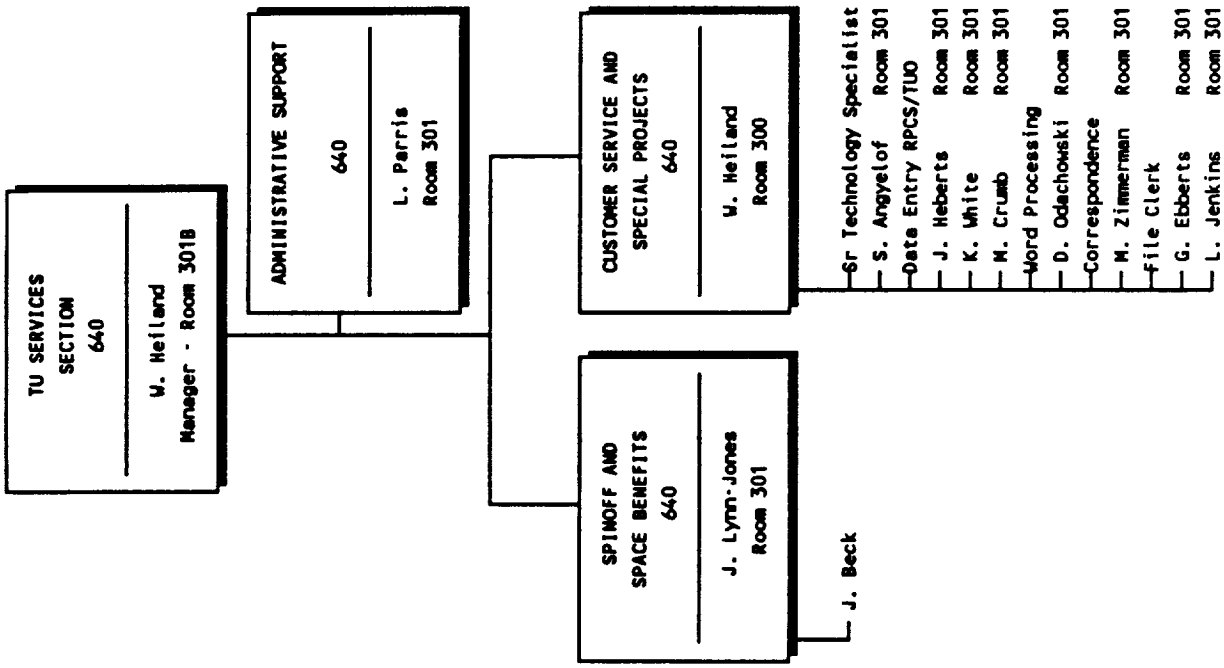
TU SERVICES
SECTION
640
W. Heiland
Manager - Room 301B
ADMINISTRATIVE SUPPORT
640
L. Parris
Room 301
SPINOFF AND
SPACE BENEFITS
640
J. Lynn-Jones
Room 301
J. Beck
CUSTOMER SERVICE AND
SPECIAL PROJECTS
640
W. Heiland
Room 300
Sr Technology Specialist
S. Angyelof Room 301
Data Entry RPCS/TUO
J. Heberts Room 301
K. White Room 301
M. Crumb Room 301
Word Processing
D. Odachowski Room 301
Correspondence
M. Zimmerman Room 301
File Clerk
G. Ebberts Room 301
L. Jenkins Room 301

Figure
B17.1

THE NASA TECHNOLOGY UTILIZATION PROGRAM

Access to new technology resulting from NASA's aerospace R&D programs is the cornerstone of NASA's initial technology transfer efforts. Dissemination by itself, however, does not guarantee the practical application of aerospace technology. B177

Active mechanisms exist that enable potential users to obtain technical information, and interface directly with creators of innovative aerospace technology. Technology transfer methods now even extend to cooperative R&D activities between NASA laboratories and private sector firms. The objectives of the program are designed to:

- Accelerate application and use of aeronautics and space technology by the U.S. private sector;
- Facilitate multiple secondary uses and application of NASA technology by the public and private sectors, and academia;
- Promote application of NASA's expertise and capabilities to non-aerospace needs of the Nation.

TU OFFICE

The Technology Utilization (TU) Office at each of the nine (9) NASA Field Centers is responsible for developing, implementing and administering technology transfer activities for its Center, consistent with overall program objectives. The TU Office maintains programs that facilitate the technology transfer process, and properly identify, document, report and evaluate new technology developed at the Center's laboratories.

As a liaison between the public and private sectors, the TU Office maintains continued awareness of Center R&D activities that have significant potential for generating transferrable technology.

COSMIC

COSMIC is the NASA Computer Software and Information Center, a central office established to distribute software developed with NASA funding. Since its inception in 1966, COSMIC has been operated by the University of Georgia.

COSMIC's role in the TU network is to ensure that industry, other government agencies, and academic institutions have access to advanced computer software technology produced under NASA R&D programs.

APPLICATIONS TEAM

Aerospace technology finds broad and significant applications in the public sector. Health and medicine, public safety, the environment, and transportation are among the many areas within which NASA developed technology has been effectively applied.

To identify these problem areas, NASA employs a contractor-operated applications team to interact with various Federal public sector agencies. Once such problems are identified, the applications team then coordinates joint project activities between NASA laboratories and mission agencies to apply existing aerospace technology to those identified problem areas.

TAC

Another important service to industry sponsored by NASA focuses on Remote Sensing and Geographic Information Systems (GIS) technology. The Technology Applications Center (TAC) at the University of New Mexico in Albuquerque retrieves, processes and analyzes satellite and aerial data for Earth resources and transfers results to the public and private sectors throughout the country. Its mission is to educate remote sensing and geographic information specialists and to expand user awareness of existing technologies. TAC also provides a broad base of Earth imagery for industrial analysis.

Figure
B17.2(1

NTTC

In April 1991, NASA began a five-year development program to establish a national resource for Federal technology transfer, known as the National Technology Transfer Center (NTTC). The NTTC's principal mission is to assist all Federal agencies in executing the Federal-wide technology transfer mandate as a means of enhancing U.S. competitiveness.

To this end, the NTTC serves as the national "hub" for the network, providing core capabilities and cross-cutting services that accelerate and expand the transfer of Federal technologies to the U.S. private sector. The NTTC will serve as a national clearinghouse for Federal technology transfer, and will provide training and educational services to members of government and industry. The NTTC also plans to conduct national outreach and promotional activities aimed at increasing awareness of the Federal technology transfer resources and opportunities.

RTTCs

The RTTCs provide technology transfer services to individual companies within their designated regions. Through the RTTCs, companies can access not only NASA technology, but that of other Federal, state and local agencies as well. The regional focus of RTTCs is further enhanced by linkages with individual state initiatives in business and technical assistance to industry.

RTTCs provide U.S. industry with comprehensive technology transfer services, which include:

- Information Services: computerized searches of Federal technology databases and other technology sources;
- Technical Services: assessment of technology requirements, analysis of technology applications, and engineering reports; and,
- Commercialization Services: technology brokering, business analyses, and venture capital sourcing.

NASA TECH BRIEFS

NASA Tech Briefs is a monthly publication about new product and process developments in basic and applied research; improvements in shop and laboratory techniques; new sources of technical data and computer programs; and other innovations originating at NASA field centers or at the facilities of NASA contractors. Tech Briefs are categorized in nine disciplines. Currently over 200,000 readers of Tech Briefs have found the publication very useful as an effective awareness medium and problem solving tool.

NASA Tech Briefs is available free of charge to scientists, engineers, business executives and others in U.S. industry who want to maintain an awareness of state-of-the-art technologies.

PATENTS

Several thousand inventions are available for licensing from NASA. These inventions cover all fields of technology and include many that have useful and valuable commercial applications. Licenses for commercial use are available on an exclusive, partially exclusive, or non-exclusive basis.

CRDAs

Cooperative Research and Development Agreements (CRDAs) enable NASA laboratories to enter into agreements with private industry, academia, and State and local governments. Under such agreements the laboratory provides personnel, services, facilities, equipment, and other resources (excluding funds) toward the conduct of specified R&D efforts with industry which are of mutual interest to NASA and the commercial interests of the company.

Figure
B17.2(2)

NASA FIELD CENTER TECHNOLOGY UTILIZATION (TU) OFFICES

AMES RESEARCH CENTER
Technology Utilization Office
Mail Code 223-3
Moffett Field, CA 94035
(415) 604-4044

GODDARD SPACE FLIGHT CENTER
Technology Utilization Office
Mail Code 702.1
Greenbelt, MD 20771
(301) 286-5810

JET PROPULSION LAB
Technology Utilization Manager
Mail Stop 156-211
4800 Oak Grove Drive
Pasadena, CA 91109
(818) 354-2240

NASA Pasadena Office
Technology Utilization Office
Mail Stop 180-801
(818) 354-4862

LYNDON B. JOHNSON SPACE CENTER
Technology Utilization Office
Mail Code IC-4
Houston, TX 77058
(713) 483-3809

JOHN F. KENNEDY SPACE CENTER
Technology Utilization Office
Mail Stop PT-PAT-A
Kennedy Space Center, FL 32899
(407) 867-3353

LANGLEY RESEARCH CENTER
Technology Utilization Office
Mail Stop 200
10 West Taylor Road
Hampton, VA 23665-5225
(804) 864-2484

LEWIS RESEARCH CENTER
Technology Utilization Office
Mail Stop 7-3
21000 Brookpark Road
Cleveland, OH 44135
(216) 433-5568

GEORGE C. MARSHALL SPACE SPACE FLIGHT CENTER
Technology Utilization Office
Code AT01
Marshall Space Flight
Center, AL 35812
(205) 544-2223

JOHN C. STENNIS SPACE CENTER
Technology Utilization Office
Code HA-30
Stennis Space Center, MS 39529
(601) 688-2042

COSMIC 382 East Broad Street Athens, GA 30602 (404) 542-3265	**TECHNOLOGY APPLICATIONS TEAM** Research Triangle Institute P.O. Box 12194 Research Triangle Park, NC 27709 (919) 541-6980	**TECHNOLOGY APPLICATIONS CENTER (TAC)** University of New Mexico 2808 Central, S.E. Albuquerque, NM 87131-6031 (505) 277-3622	**NATIONAL TECHNOLOGY TRANSFER CENTER (NTTC)** Wheeling Jesuit College 316 Washington Avenue Wheeling, WV 26003 (304) 243-2455

REGIONAL TECHNOLOGY TRANSFER CENTERS (RTTC)

NORTHEAST
Center for Technology
Commercialization, Inc.
Massachusetts Technology
Park
100 North Drive
Westborough, MA 01581
(508) 870-0042

MID-ATLANTIC
University of Pittsburgh
823 William Pitt Union
Pittsburgh, PA 15260
(412) 648-7000
(800) 257-2725
(toll-free US)

SOUTHEAST
Southern Technology
Application Center
University of Florida
College of Eng.
Box 24
One Progress Boulevard
Alachua, FL 32615
(904) 462-3913
(800) 354-4832 (FL only)
(800) 225-0308
(toll-free US)

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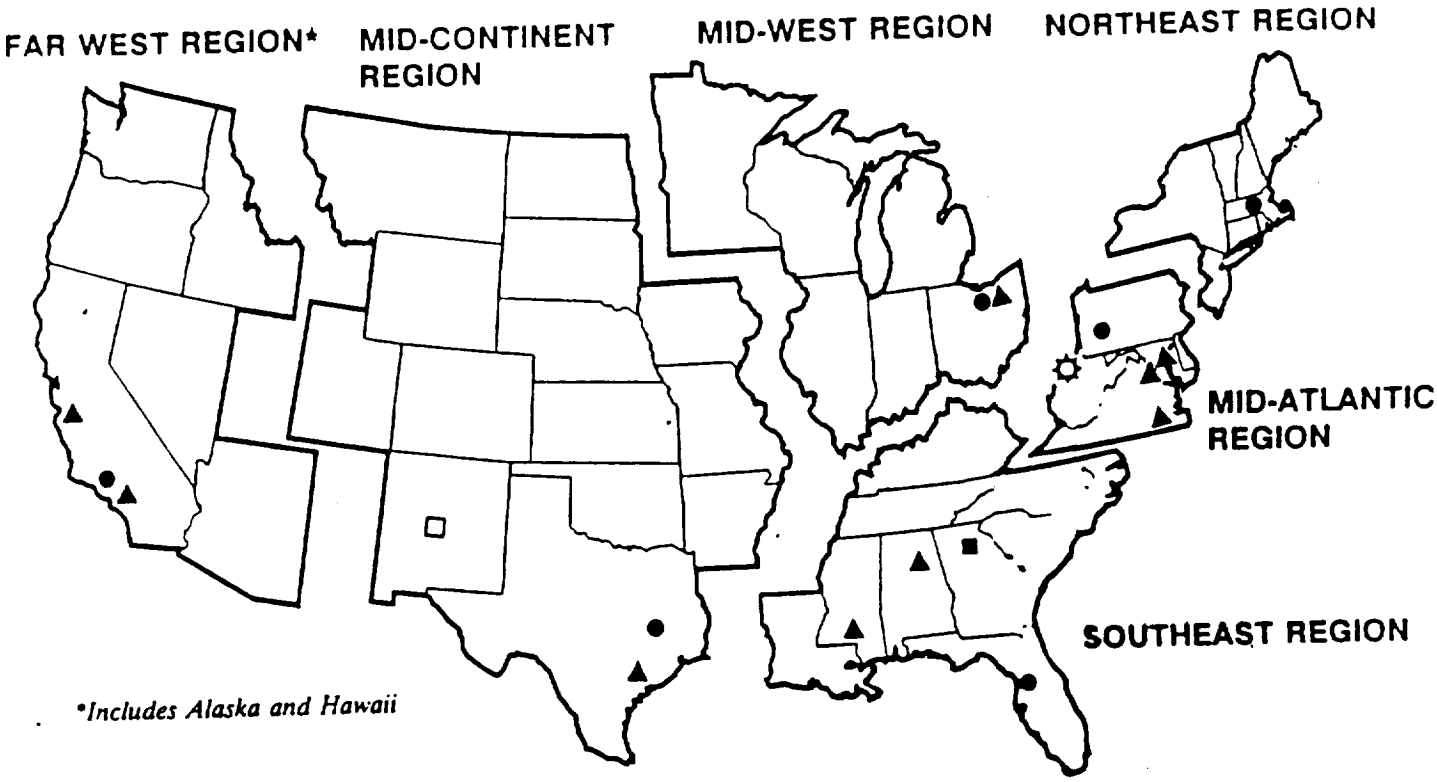
Texas Engineering Experiment
Station
Texas A&M University System
237 WERC
College Station, TX 77843-
3401
(409) 845-8762
(800) 548-1536
(toll-free US)

MID-WEST
Great Lakes Industrial
Technology Center
25000 Great Northern
Corp. Ctr., Suite 450
Cleveland, OH 44070-5310
(216) 734-0094

FAR-WEST
Technology Transfer Center
University of Southern
California
3716 South Hope Street,
Suite 200
Los Angeles, CA 90007-
4344
(213) 743-6132
(800) 642-2872 (CA only)
(800) 872-7477
(toll-free US)

Figure
B17.2(3)



▲ NASA Field Centers
☼ National Technology Transfer Center (NTTC)
● Regional Technology Transfer Centers (RTTCs)
◇ Technology Applications Team
□ Technology Applications Center (TAC)
■ Computer Software Management and Information Center (COSMIC)

Figure
B17.2(4)

equations. Purpose of study to extend capability of dual-potential meth
to computation of unsteady flows of viscous, compressible fluids.)
AUTH: A/GEGG, S. G.; B/PLETCHER, R. H.; C/STEGER, J. L. PAA: A/(Iowa State
Univ.); B/(Iowa State Univ.); C/(National Aeronautics and Space
Administration. Ames Research Center, Moffett Field, CA.)
MAJS: /*NAVIER-STOKES EQUATION/*UNSTEADY FLOW/*VISCOUS FLOW
ENTER:D 92B1Ø1Ø8

B181

DISPLAY 92B1Ø1Ø8/2
92B1Ø1Ø8* CATEGORY 6 ARC-121Ø8 92/Ø2/ØØ Vol. 16, No. 2, P. 84
UNCLASSIFIED DOCUMENT DOMESTIC
Additional information available through: AIAA Technical Information
Service Library, 555 West 57th Street, New York, NY 1ØØ19
(Tel:212-247-65ØØ) (A88-1Ø498)
UTTL: Flow Over A Simplified-Rocket-Shaped Body
UNOC: (Report describes observations of supersonic flow of air over cylindrica
body capped by hemisphere at its head and flared to cone at its tail
end. Study prompted by need for greater aircraft control at high angles
attack.)
AUTH: A/SCHIFF, LEWIS B.; B/MEADE, ANDREW J., JR. PAA: A/(National
Aeronautics and Space Administration. Ames Research Center, Moffett Fiel
CA.); B/(California Univ.)
MAJS: /*AERODYNAMICS/*SUPERSONIC FLOW/*VORTICES
ENTER:D 92B1Ø1Ø9

DISPLAY 92B1Ø1Ø9/2
92B1Ø1Ø9* CATEGORY 6 ARC-12113 92/Ø2/ØØ Vol. 16, No. 2, P. 84
UNCLASSIFIED DOCUMENT DOMESTIC
Additional information available through: AIAA Technical Information
Service Library, 555 West 57th Street, New York, NY 1ØØ19
(Tel:212-247-65ØØ) (A88-22ØØ6)
UTTL: Simulation Of Unsteady, Inviscid, Rotational, Transonic Flow
UNOC: (Report describes numerical simulation of two-dimensional, unsteady,
inviscid rotational, transonic flow about rigid airfoil in such motions
pitching or plunging oscillations. Study demonstrates potential utility
of computation in analyses of aeroelasticity of airfoils.)
AUTH: A/DAMODARAN, MURALI PAA: A/(National Aeronautics and Space
Administration. Ames Research Center, Moffett Field, CA.)
MAJS: /*AIRFOILS/*TRANSONIC FLOW/*TWO DIMENSIONAL FLOW
ENTER:D 92B1Ø11Ø

ORIGINAL PAGE IS OF POOR QUALITY

DISPLAY 92B1Ø11Ø/2
92B1Ø11Ø* CATEGORY 6 ARC-1211Ø 92/Ø2/ØØ Vol. 16, No. 2, P. 85
UNCLASSIFIED DOCUMENT DOMESTIC
Additional information available through: AIAA Technical Information
Service Library, 555 West 57th Street, New York, NY 1ØØ19
(Tel:212-247-65ØØ) (A87-44955)
TTL: Measurements Of Turbulent Flow About An Airfoil
NOC: (Wind-tunnel flow velocities measured by laser Doppler velocimeter (LDV)
closer to calculated velocities than those measured by hot-wire
anemometer, according to report.)
UTH: A/BODAPATI, S.; B/FOREMAN, M. J.; C/LEE, C. S. PAA: A/(US Naval
Postgraduate School); B/(US Naval Postgraduate School); C/(Stanford
Univ.)
AJS: /*AIRFOILS/*FLOW MEASUREMENT/*LASER DOPPLER VELOCIMETERS/*TURBULENT FLOW
TER:D 92B1Ø111

Figure
B17.3

DISPLAY 92B1Ø111/2
92B1Ø111* CATEGORY 6 ARC-12538 92/Ø2/ØØ Vol. 16, No. 2, P. 86
UNCLASSIFIED DOCUMENT DOMESTIC
Additional information available through: AIAA Technical Information
Service Library, 555 West 57th Street, New York, NY 1ØØ19
(Tel:212-247-65ØØ) (A88-24579)
TL: Computational Fluid Dynamics Now And In The Future
OC: (Technical memorandum reviews state of art of computational fluid dynamic

17.1.2. TUO SECONDARY DISTRIBUTION SERVICES

Although Associated Business provides the initial distribution of Tech Briefs, it does not provide its secondary distribution nor the related Technical Support Packages. The CASI TUO processes requests for secondary orders of NASA Tech Briefs, TSPs, and journal articles that originally appear in SPINOFF, an annual compilation of the most relevant examples of technology transfer from the NASA aerospace conceptions to applications on earth.

See **WFD 17.2 Technology Utilization Program Secondary Requests.**

17.1.2.1. NASA TECH BRIEFS

TUO receives a bulk shipment of the residual from the monthly publishing run of the NASA Tech Briefs which it stores and later distributes on-demand.

In addition, the TUO produces annual and five year cumulations of Tech Briefs.

17.1.2.2. NASA TECH SUPPORT PACKAGES (TSP)/ADVERTISER INFORMATION

Within each Tech Brief, a user can request via a special request form, a **Technical Support Package (TSP)** for briefs mentioned in the monthly issue, or special information from the advertisers (Reader Action). TSPs ranging from 3 to 500 pages provide the detailed information referenced in the related condensed Tech Brief.

TSPs are reproduced from a hard copy based on the receipt of the day's subscriptions. TUO processes between 100,000 and 150,000 TSPs each year in a 3-5 day turnaround schedule. Usually requesters ask for three items; however, TU will process the first 25 items checked off on the Tech Brief TSP request form.

See **Figure B17.4 for a sample TSP / Reader Action Request Form.**

ORIGINAL PAGE IS
OF POOR QUALITY

NASA Tech Briefs Subscription / Address Change / Technical Support Package / Reader Action Request Form

Vol. 16, No. 1 JANUARY 1992

☐ Please enter my subscription to NASA Tech Briefs (you MUST complete letters A-G and questions 1-8 below) ☐ Please change my delivery address as shown (Correct mailing label and place below or fill out completely, including T-number from top right of that label.) PLEASE PRINT T-number (if applicable) _____

A. _____

B. _____

C. Company _____

D. Division _____ Dept. _____

E. M/S Code _____ Phone _____

F. Street _____

G. City _____ State _____ Zip _____

☐ Home Delivery (possible only if all items above are completed.)

Street _____

City _____ State _____ Zip _____

TSP Requests Please circle only article numbers applicable to your own needs for which you would like Technical Support Packages.

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20
21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39
40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58
59 60 61 62 63 64 65 66 67 68 69 70 71 72 73 74 75 76 77
78 79 80 81 82 83 84 85 86 87 88 89 90 91 92 93 94 95 96
97 98 99 100 101 102 103 104 105 106 107 108 109 110 111 112 113
114 115 116 117 118 119 120 121 122 123 124 125 126 127 128 129
130 131 132 133 134 135 136 137 138 139 140 141 142 143 144 145
146 147 148 149 150 151 152 153 154 155 156 157 158 159 160 161
162 163 164 165

Reader Action Requests Please circle numbers of advertisers, products, and literature for which you would like more information.

300 301 302 303 304 305 306 307 308 309 310 311 312 313 314 315 316 317 318 319 320 321 322 323 324 325 326 327 328 329 330 331 332 333 334
335 336 337 338 339 340 341 342 343 344 345 346 347 348 349 350 351 352 353 354 355 356 357 358 359 360 361 362 363 364 365 366 367 368 369
370 371 372 373 374 375 376 377 378 379 380 381 382 383 384 385 386 387 388 389 390 391 392 393 394 395 396 397 398 399 400 401 402 403 404
405 406 407 408 409 410 411 412 413 414 415 416 417 418 419 420 421 422 423 424 425 426 427 428 429 430 431 432 433 434 435 436 437 438 439
440 441 442 443 444 445 446 447 448 449 450 451 452 453 454 455 456 457 458 459 460 461 462 463 464 465 466 467 468 469 470 471 472 473 474
475 476 477 478 479 480 481 482 483 484 485 486 487 488 489 490 491 492 493 494 495 496 497 498 499 500 501 502 503 504 505 506 507 508 509
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545 546 547 548 549 550 551 552 553 554 555 556 557 558 559 560 561 562 563 564 565 566 567 568 569 570 571 572 573 574 575 576 577 578 579
580 581 582 583 584 585 586 587 588 589 590 591 592 593 594 595 596 597 598 599 600 601 602 603 604 605 606 607 608 609 610 611 612 613 614
615 616 617 618 619 620 621 622 623 624 625 626 627 628 629 630 631 632 633 634 635 636 637 638 639 640 641 642 643 644 645 646 647 648 649
650 651 652 653 654 655 656 657 658 659 660 661 662 663 664 665 666 667 668 669 670 671 672 673 674 675 676 677 678 679 680 681 682 683 684
685 686 687 688 689 690 691 692 693 694 695 696 697 698 699 700 701 702 703 704 705 706 707 708 709 710 711 712 713 714 715 716 717 718 719
720 721 722 723 724 725 726 727 728 729 730 731 732 733 734 735 736 737 738 739 740 741 742 743 744 745 746 747 748 749 750 751 752 753 754
755 756 757 758 759 760 761 762 763 764 765 766 767 768 769 770 771 772 773 774 775 776 777 778 779 780 781 782 783 784 785 786 787 788 789
790 791 792 793 794 795 796 797 798 799 800

YOU MUST SIGN THIS FORM HERE

1. Do you wish to receive (continue to receive) *NASA Tech Briefs*, FREE, if qualified? ☐ Yes ☐ No

1A. Are you presently receiving *NASA Tech Briefs*? ☐ Yes ☐ No

Signature _____ Date _____ **1**

What is your title? (check one)

02 ☐ President
03 ☐ Owner/Entrepreneur
04 ☐ Partner
06 ☐ General Manager
07 ☐ Executive Vice President
08 ☐ Chairman of the Board
09 ☐ Chief Executive Officer
10 ☐ VP Engineering
11 ☐ VP Manufacturing
15 ☐ VP Other (specify below) _____
05 ☐ Treasurer or CFO
61 ☐ Manufacturing Dir/Manager
63 ☐ Engineering Dir/Manager
12 ☐ Technical Dir/Manager
62 ☐ Design Dir/Manager
64 ☐ Product Planning Dir/Manager

13 ☐ Research Dir/Manager
14 ☐ Section Head
16 ☐ Group Leader
85 ☐ Manager Information Systems
66 ☐ Branch Chief/Dir/Manager
67 ☐ Program Dir/Manager
68 ☐ Quality Assurance Dir/Manager
69 ☐ Project Leader
16 ☐ Project Engineer
17 ☐ Senior Engineer
18 ☐ Software Manager
20 ☐ Chief/Principal/Lead Engineer
21 ☐ Aerospace Engineer
22 ☐ Electrical Engineer
23 ☐ Mechanical Engineer
24 ☐ Chemical Engineer
25 ☐ Nuclear Engineer
26 ☐ Civil Engineer

27 ☐ Environmental Engineer
28 ☐ Ocean/Naval Engineer
29 ☐ Bio/Medical Engineer
30 ☐ Materials Engineer
31 ☐ Quality Control/Test Engineer
32 ☐ Software Engineer
33 ☐ Development Engineer
34 ☐ Telecommunications Engineer
35 ☐ Applications Engineer
36 ☐ Systems Engineer
39 ☐ Engineer - Other (specify) _____
41 ☐ Physicist
42 ☐ Chemist
43 ☐ Biologist
44 ☐ Mathematician
45 ☐ Geologist
46 ☐ Medical Doctor

47 ☐ Programmer
48 ☐ Systems Analyst
50 ☐ Government Official (specify) _____
51 ☐ Professor
52 ☐ Teacher/Instructor
70 ☐ Specialist (specify) _____
71 ☐ Technician (specify) _____
72 ☐ Analyst (specify) _____
83 ☐ Marketing Dir/Manager
84 ☐ Sales Dir/Manager
86 ☐ Purchasing Dir/Manager/Agent
77 ☐ Librarian
99 ☐ Other (specify) _____ **2**

Which of the following best describes your industry or service? (check one)

A ☐ Aerospace
E ☐ Electronics
S ☐ Computers
X ☐ Communications
C ☐ Chemicals
M ☐ Materials
P ☐ Power/Energy
B ☐ Bio/Medical
T ☐ Transportation
G ☐ Government
D ☐ Defense
Q ☐ Industrial Equipment
R ☐ Research Lab
Y ☐ Consumer Goods
U ☐ Education
K ☐ Consultant
L ☐ Library
Z ☐ Other (specify) _____ **3**

Your major responsibility is: (check one)

1 ☐ Management other than engineering
2 ☐ Engineering management
3 ☐ Engineering
4 ☐ Research
5 ☐ Other (specify) _____ **4**

Your principal job function is: (check one)

1 ☐ General & Corporate Management
2 ☐ Design & Development Engineering
3 ☐ Engineering Services-Tests/Quality
4 ☐ Basic Research
5 ☐ Manufacturing & Production
6 ☐ Purchasing & Procurement
8 ☐ Other (specify) _____ **5**

Your engineering responsibility is: (check one)

A ☐ Manage Engineering Dept.
B ☐ Manage a Project Team
C ☐ Manage a Project
D ☐ Member of Project Team
E ☐ Other (specify) _____ **6**

How many engineers and scientists work at this address? (check one)

A ☐ 1
B ☐ 2-5
C ☐ 6-19
D ☐ 20-49
E ☐ 50-99
F ☐ 100-249
G ☐ 250-499
H ☐ 500-99
J ☐ Over 1(

Products you recommend, specify, or authorize purchase of: (check all that apply)

E ☐ Electronic components/systems
W ☐ Software
H ☐ Mechanical components
Vacuum/cryogenics
Communications equip/fiberoptics
Industrial control/systems
K ☐ Data acquisition/recorders
D ☐ Computer/workstations/peripherals
I ☐ Test/measurement instruments
O ☐ Lasers/electro-optics
Z ☐ Engineering department equipment
H ☐ Materials
A ☐ CAD/CAE/CAM/CASE **8**

Figure B17.4

17.1.2.3. TECHNOLOGY UTILIZATION ANNUAL REPORT - SPINOFF

The TUO assists in the preparation of an annual report on the practical benefits of the space program, Spinoff, by receiving and screening information from TU-family members, a clipping service, feedback cards, and targeted TSP follow-up on claims that a commercial product was developed utilizing NASA generated technology.

TUO researches, verifies, and in most cases corresponds in writing in preparation for viable cases to be considered for publication in Spinoff. Written and telephonic contact is established with decision-making individuals in organizations and companies who claim to have developed and/or enhanced a product or process using NASA developed technology. An explanation of the purpose and criteria for writing their story in Spinoff usually opens the door to a lengthy dialogue resulting in submittal of product and/or process documentation, and photographs. The TUO team studies, discusses, and conducts appropriate follow-up to verify a direct tie-in to NASA technology.

The TUO procures the services of a professional writer, a photographer, and a graphics professional to develop the story using the documentation provided, conduct on-site photography, and prepare a conceptual design galley and other types of graphic services.

Once these resources are in place, the "Spinoff Team" under the management and administration of the TUO, monitors, coordinates, and works in close contact to prepare a camera-ready copy of Spinoff to be presented to NASA officials for approval. The Spinoff Team meets regularly to proof and approve galleys and final board art, to determine the front cover design and to coordinate and implement approved design concept and solve specification problems.

17.1.3. QUALITY RESPONSE FORM

The TUO includes a feedback sheet in each Tech Brief as a means to evaluate the Tech Brief and TSP program, to generate communication between the reader and NASA, and to identify additional subscribers for the products and services that the TU Program provides.

See **Figure B17.5 for a sample Feedback form.**

FEEDBACK – YOUR COMMENTS

Vol. 16, No. 1 JANUARY 1992

NEED YOUR HELP!

9. Our ultimate goal is to provide you with solutions to your day-to-day technical problems. Are we meeting that goal? Tell us how *Tech Briefs* has helped you, or how it can be made more useful. We are especially interested in brief descriptions of specific instances where *Tech Briefs* has either helped you solve a problem or been applied to your product line.

_____

_____

_____

_____

_____

_____

_____

(please fold here)

10. Please send NASA TECH BRIEFS free of charge to the following employees who have management, research, or design responsibilities.

1. Name _____ Title _____
   Address _____ City _____ State _____ Zip _____
2. Name _____ Title _____
   Address _____ City _____ State _____ Zip _____
3. Name _____ Title _____
   Address _____ City _____ State _____ Zip _____
4. Name _____ Title _____
   Address _____ City _____ State _____ Zip _____
5. Name _____ Title _____
   Address _____ City _____ State _____ Zip _____
6. Name _____ Title _____
   Address _____ City _____ State _____ Zip _____

(please fold here)

National Aeronautics and
Space Administration

Washington, D.C.
20546

Official Business
Penalty for Private Use $300

NO POSTAGE NECESSARY IF MAILED IN THE UNITED STATES

BUSINESS REPLY MAIL

FIRST CLASS MAIL PERMIT NO. 12028 WASHINGTON, D.C.

POSTAGE WILL BE PAID BY ADDRESSEE

NASA CASI
MANAGER TU DIVISION
PO BOX 8757
BALTIMORE MD 35

Figure
B17.5

17.1.4. TECHNOLOGY UTILIZATION CORRESPONDENCE SUPPORT SERVICES

Each year the TU Office receives approximately 380,00 pieces of mail that include 40,000 to 60,000 letters of inquiry. Correspondence consists of letters and telephone inquiries addressed to or received by NASA, Code CU, CASI, NASA TU Officers, and other TU organizations.

The TUO prepares letters in response to general, specific, and technical inquiries concerning the TU Program, its publications and technologies, other NASA publications and programs, and NASA technology. Where appropriate, reference brochures, publications, special reference packages, and other pertinent reference data are transmitted with the letter of response. Listings of special publications, technical support packages, and other enclosures are reproduced as required. Referrals to NASA Center TUOs, Patent Offices, and the Regional Technology Transfer Centers (RTTCs) are made where appropriate.

All inquiries receive a response from the TUO whether a form or on-demand letter. Responses are signed via a signature machine, date stamped, logged out, and mailed. The original inquiry and a copy of the response is filed by state and individual name for domestic correspondence and by country and individual name for foreign correspondence. Files are separated by written and telephone inquiries.

17.1.5. NEW TECHNOLOGY REPORTS

The TUO provides administrative support for the collection, review, and evaluation of New Technology Reports from NASA Headquarters research and development contractors and for the certification of contracts on which the new technology reporting requirement has been satisfied. New technology may be identified from monthly reports, quarterly reports, or the final report.

17.1.6. TECHNOLOGY UTILIZATION PRODUCTS REGISTRATION

Similar to the CASI Registration and Document Requests units, the CASI Technology Utilization Office (TUO) maintains the reader profile data and the complete addresses of organizations and individuals in the United States who are verified for eligibility, under the cognizant NASA Management Instruction and pertinent policies and guidelines, to receive the Technology Utilization Publication, NASA Tech Briefs, and/or Technical Support Packages (TSPs) for Tech Briefs from publications sponsored solely by NASA or jointly by NASA and other government agencies.

There are more than 200,000 Tech Brief subscribers and more than 60,000 TSP requester addresses in the Registration and Product Control System (RPCS/TU)file.

17.1.6.1. Eligibility Check

All requests for subscription to NASA Tech Briefs or TSPs are screened to insure that only U. S. engineers and other professionals in Technology Transfer are added to the RPCS/TU file.

17.1.6.2. Name Check

All names of requests for NASA Tech Briefs or TSPs are checked to avoid record duplication. An online capability enables the TUO to verify last name and first letter of first name against the master file holdings.

17.1.6.3. Processing of Subscriptions and TSP Requests

Data is entered thru an online update capability to the RPCS/TU file. Key data is entered for the address record and includes the following information: name of organization or individual, division, department, and/or mail stop/room/building, attention line, street, P. O. Box, city, state, ZIP code, and telephone number as well as reader profile information with a qualification date.

As a minimum, the address information must contain name of the organization or individual, street/P.O.Box, and city, state, and ZIP code.

Modifications to the file are made via an online TSO (time-sharing-option) terminal as: (1) requested by individual or corporate addresses; (2) directed by NASA; (3) a result of continuous renewal; and (4) a result of Tech Briefs or TSPs returned by the U.S. Postal Service as "Undeliverable."

Reader profile data for subscribers includes: Title, industry, major responsibility, principal job function, engineering responsibility, number of engineers and scientists at given location, and product purchase authority. TSP requester records include complete address information, the TSP number, and publication.

17.1.6.4. Labels, Reports, and Document Distribution

The TUO generates labels and reports for the distribution of TSPs and other mailings associated with the RPCS/TB file. For the NASA Tech Briefs a standard IBM tape is generated and forwarded to the commercial publisher every month.

Lists are generated to support requests for TSPs and they are distributed to the appropriate NASA Centers by request.

A supply of all NASA Tech Briefs and related TSPs are maintained for distribution to requesters, along with reports, brochures, leaflets, and booklets concerning the space and TU program.

17.1.7. **STORAGE OF TUO DOCUMENTS**

The shelf life of TU documents is unlimited as some that date back to the 1960's and 1970's are the most relevant to small business implementing technologies today. Since 1963 when NASA Tech Briefs were first published, 14,000-15,000 briefs have been produced with 60% of them also having a TSP (approximately 8,000). Because of continuous retention of briefs, the TUO faces storage problems every 4 to 5 years.

Since some documents are microfiched by CASI Micrographics or directly by the NASA Centers, requesters are able to obtain both Hard Copy and Microfiche formats for available TUO documents.

17.1.8. **TUO PUBLIC RELATIONS FUNCTION**

The TUO represents NASA's TU Program and increases the visibility of and support of the TU program via: a SPINOFF 20 foot by 30 foot exhibit at trade shows with distribution of TU documents, presentations and speeches to technical information audiences, news media interviews, and press releases or radio and TV interviews.

17.2. **WORK FLOW DIAGRAMS**

See the attached Work Flow Diagrams:

WFD 17.1 - Technology Utilization Program Major Functions

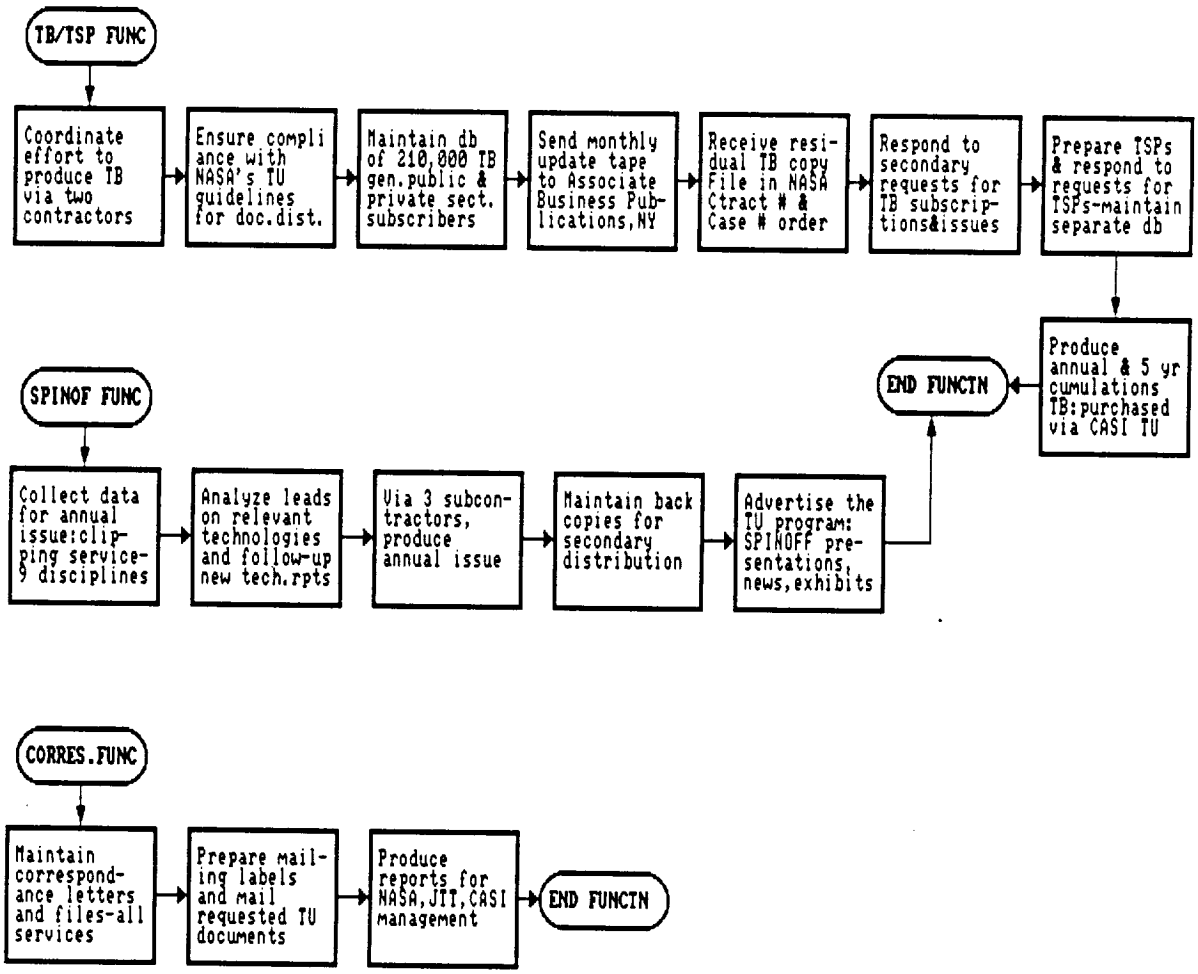
WFD 17.2 - Technology Utilization Program Secondary Requests

TECHNOLOGY UTILIZATION PROGRAM

MAJOR FUNCTIONS

WFD 17.1

TUFUNCT

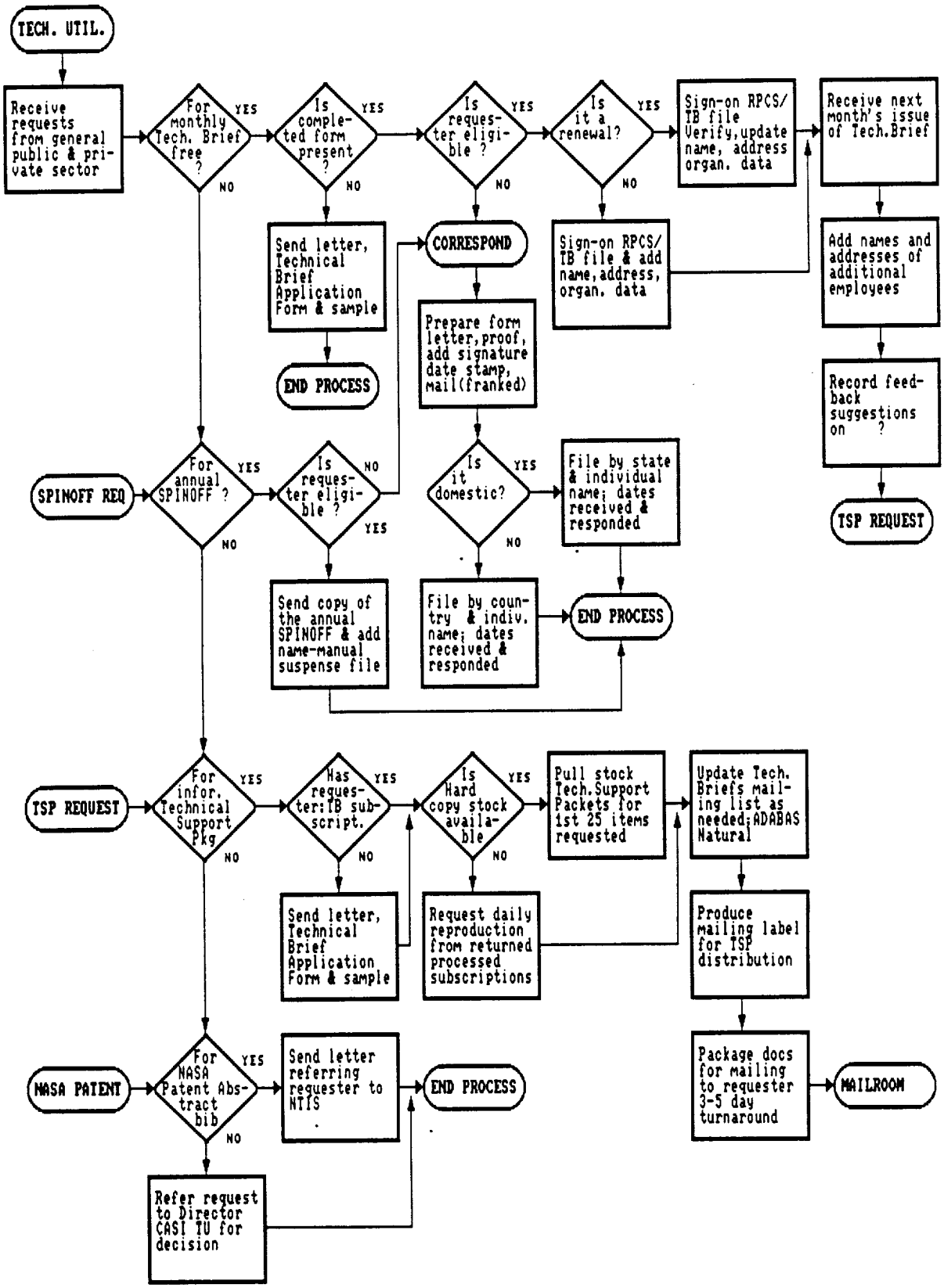


TECHNOLOGY UTILIZATION PROGRAM

SECONDARY REQUESTS

WFD 17.2
TUREQ

B190



17.3. HIGHLIGHTED ASPECTS

1. The TUO workload has increased such that the contract WBS work levels need to be updated prior to normal expiration of the contract.

2. Increasing requests for TSP materials have increased the reprographics work load and added pressure to meeting the TUO 3-5 day turn-around response times. In addition, if the TUO meets its requirements, the STI program can suffer in its response times due to the added TUO work load. Since the STI program is concentrating on increased revenue generation, it is necessary to provide the most rapid document request turn-around possible. One suggestion is to add a second shift once or twice a week during peak loads for CASI and/or the TUO.

17.4. CONTRACTUAL REQUIREMENTS

TECHNOLOGY UTILIZATION OFFICE PRODUCTION

TITLE	CONTRACT	FY 1991 *EST
Registration and Product Control File - TU (RPC/TU)	1,400,000	
Special (on-demand) Reports (RPC/TU)	100	
Index to NASA Tech Briefs	1	1
COSMIC Catalog	1	1
Distribution Microfiche	220	
Microfiche Masters	20	
Hardcopy Documents	180,000	240,000*
Reproduced Pages	1,500,000	2,000,000*
Stored Documents	--	
SPINOFF	1 report	1
Conferences & Meetings	6	
Correspondence/Letters	150,000	326,778
Technical Support Packages	25,000	128,126** (TUO = 35,000)
Special Studies and Reports	20	

**Includes 35,000 TUO and 93,126 that are handled by JPL and COSMIC sites.

Figure B17.6

The TUO maintains the mailing list for distribution of over 210,000 Tech Briefs, and annually prepares between 100,000 to 150,000 TSPs of from 3 to 500 pages each.

On page 21 of the March 1992 Report on Center Operations, the TUO reports that:

a. Reproduced pages are up to over 200,000 pages a month (contract value is 125,000/month - 69% over contract); over 150,000 of these pages were for TSP requests.

b. Hardcopy documents are up to over 20,000/month (contract value is 15,000/month - 35% over contract).

On page II-29 of the March 1992 Report on Center Operations, the TUO reports that:

a. Standard responses (conferences and letters) were sent to to 36,845 inquiries (contract value is 12,500/month - almost tripled).

b. Technical support packages contained 11,386 items. The contract requires distribution of over 2,000 TSPs each month.

There are 12 people on the CASI TU staff that are meeting and exceeding the terms of the contract.

17.5. INDICES OF PERFORMANCE, QC, AND REPORTING

Within the contract, the TUO function is assigned a 10% area weight judged on the basis of the quality and accuracy of work output; timeliness; conformance with requirements and specifications; efficiency of operations; reliability of performance; and implementation of the CASI Innovation plan(s), as applicable.

17.6. STANDARDS AND POLICIES - TUO Policies

Inquiries from professionals and employees in American industry are given the most complete response. Others who receive comprehensive responses are members of college and university faculty, medical professionals, government employees, and self-employed professionals. Letters from U.S. residents and residents of American territories and possessions including the U.S. Virgin Islands, Puerto Rico, the Panama Canal Zone, Guam, American Samoa, and APO/FPO Zip Code areas are treated as domestic inquiries. These requesters are offered complimentary distribution of NASA Tech Briefs, and a complete introduction to all services available under the TU Program.

Inquiries from individuals or organizations outside the United States or their in-country representatives receive responses in accordance with pertinent NASA policies and guidelines. Publicly available documents may be purchased by foreign requesters from NTIS or AIAA with the exception of countries specifically identified by NASA Headquarters.

Foreign requesters who are engaged in non-profit biomedical research are an exception to the general policy regarding foreigners and may (on a case by case basis) receive complimentary TU documents.

Free subscriptions to NASA Tech Briefs are valid for one year from the date entered on the completed subscription request form.

17.7. FUNCTIONAL REQUIREMENTS FOR COMPUTER SUPPORT

There are no functional requirements included for this section.

17.8. BIBLIOGRAPHY OF SUPPORTING DOCUMENTS

National Aeronautics and Space Administration. NASA Scientific and Technical Information Handbook: Documentation, Approval, and Dissemination. NHB 2200.2, February 6, 1987 Chapter 3: "NASA Scientific and Technical Report Series: Descriptions and Standards, pp. 3-1 - 3-11.

NASA. STI Program. CASI. "Center for Aerospace Information Facility Operating Manual 1990." 407,[75] pp.

18. CASI AUTOMATED SYSTEMS: USER SERVICES

The production processes of Registration, Document Requests, Document Supply (both stock and microfiche formats), Business Management (accounting), RECON users support, and ARIN users support units are all interrelated. They access joint systems, e.g., RECON, RPCS, and ARTS but also maintain their own databases, e.g., RAMS for RECON user password maintenance, Dbase and DOCORDER for Requests to generate billing data and track supplied requests, Symphony for Document Supply to monitor critical stock levels, Dbase for Registration to identify potential requesters, and RMIS for accounting to maintain monthly invoicing and manage the CASI contract. In addition the basic bibliographic data that results in the orders and CASI publications is located on the separate IPS system and the TUO maintains its own version of the RPCS database to track its customers.

18.1. CURRENT OPERATIONS

The Document Requests staff accesses RECON to identify the documents requesters seek and to verify orders prior to production of a completed 492 request form. They use the DOCORDER to track document orders and establish the data needed to produce correct financial records and invoices, specifically for the ARTS system to produce correct invoices after document order and supply. The current processes for handling duplicate order checking are cumbersome and labor intensive.

Submittal of computer runs and reports necessitates working at the Job Control Language level rather than working with menu pick screens and a mouse. Although these procedures are well established and known by the staff, they do not lead to speed and simplification in request processing and follow-up activities.

In addition the Requests, Registration, and Document Supply staff use stand alone software (Dbase, Word Perfect 5.1, and Lotus 123 or Symphony) to maintain reporting and tracking databases. While very helpful, these stand alone systems do not allow general use of the generated data.

The Business Management staff depend on the DOCORDER, RECON, RAMS, and RPCS systems to supply the data needed for ARTS to verify and track financial data relating to fulfilled requests. Unfortunately, the RPCS lack of an integrated structure prevents the FMO from independently completing their processing and leads to extra communications as Requests staff update the RPCS to

eliminate duplication in orders prior to invoice processing. Financial support systems were originally developed to support document invoice processing and need to be updated to allow for alternative payment options such as prepaids and credit card payments.

The Document Supply staff rely on their own internal PC system to track document critical stock levels. They have no system to help them track their inventory nor the requests that they are processing.

The User Services Registration staff depend on a functioning RPCS system to identify and validate requesters and their organizations. The Registration staff rely on the RECON 'L' file to locate organizations that may previously have been RECON or CASI document users or to differentiate a current requesting organization from all other similarly named organizations. Efficient access to archived database records is important to their activities.

In addition, the registration of a new RECON user necessitates coordination between User Services Registration and the RECON On-line Services unit who also create a machine readable record in the RAMS system for each established RECON user. These activities are currently separate from each other, have their own name and address data in machine readable form rekeyed directly from applications data.

The CASI Data Processing staff is attempting to add greater flexibility and integration to the several systems needed by the User Services staff and are in the process of finalizing requirements documents for the separate functions. Much of the description in Section 18 is a selective copying of information provided in these Requirements Documents. The CASI DP staff prepared **Figures B18.1 through B18.5** for these documents and they are presented here to aid the reader in rapidly understanding how the several systems interface.

18.2. CASI SYSTEM INTERNAL INTERFACE REQUIREMENTS

To improve the CASI functional processes, staff must have access to all CASI systems (as their security status allows). The emphasis should be on producing one front end system to produce a single look and feel for all CASI data access.

There should be an automatic notification to ARTS when an RPCS related product or service is canceled or reinstated and ARTS should have automatic approval prior to close-out of any RPCS activity to insure all accounts are paid up.

EXTERNAL/SYSTEMS INTERFACES TO ARTS

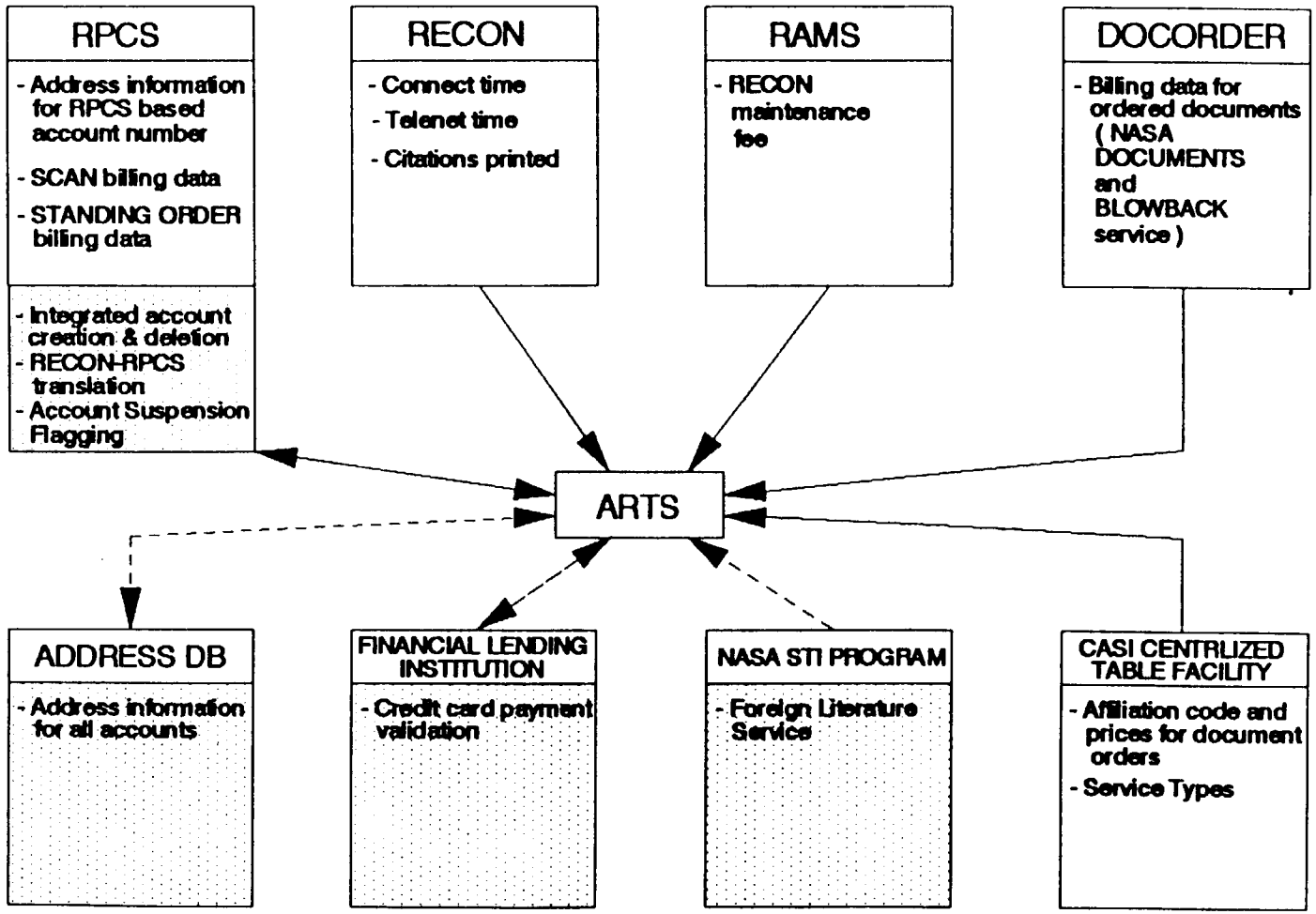


Figure
B18.1

ARTS CURRENT PROCESSING

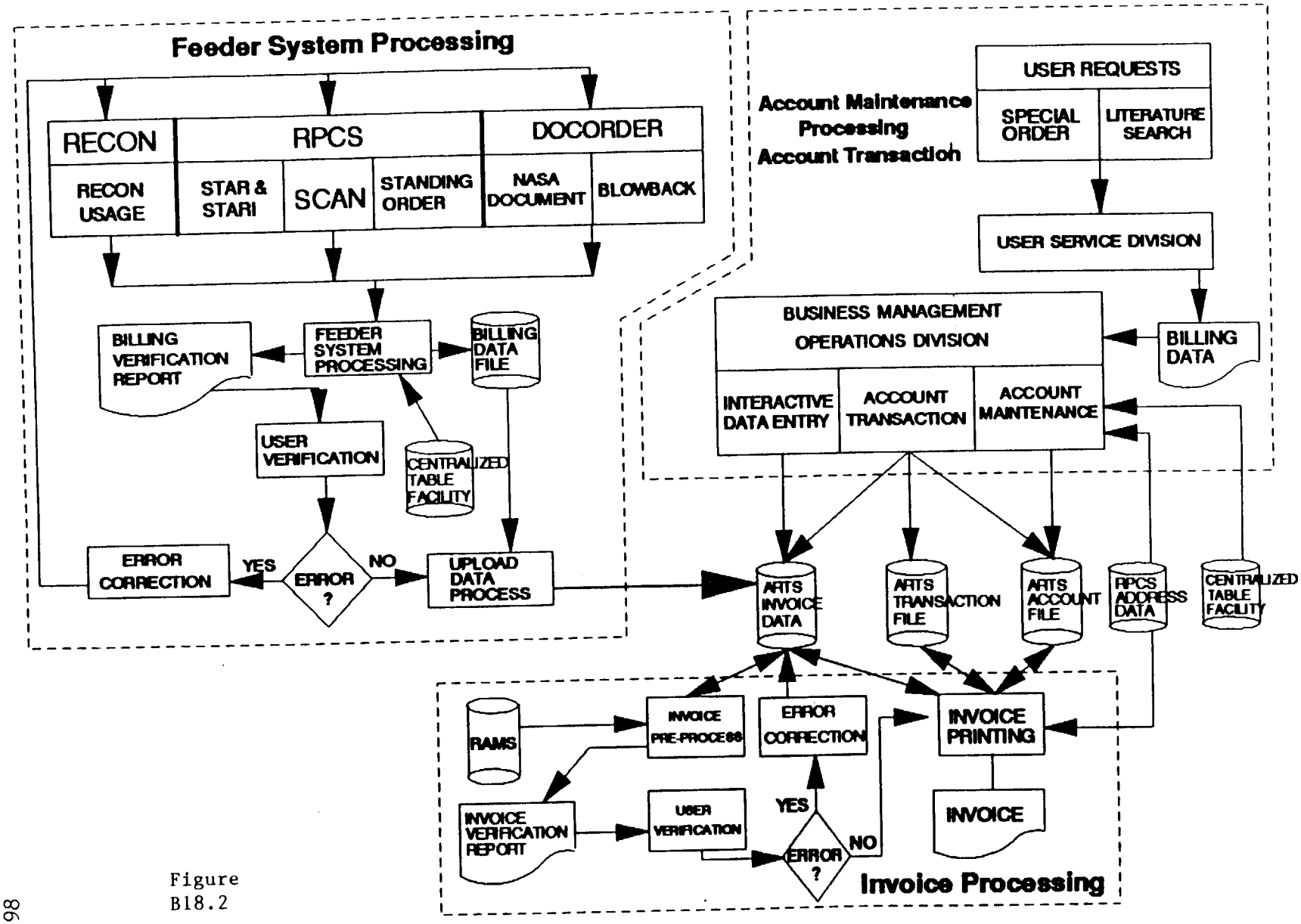


Figure
B18.2

FUNCTIONAL ORGANIZATION OF ARTS

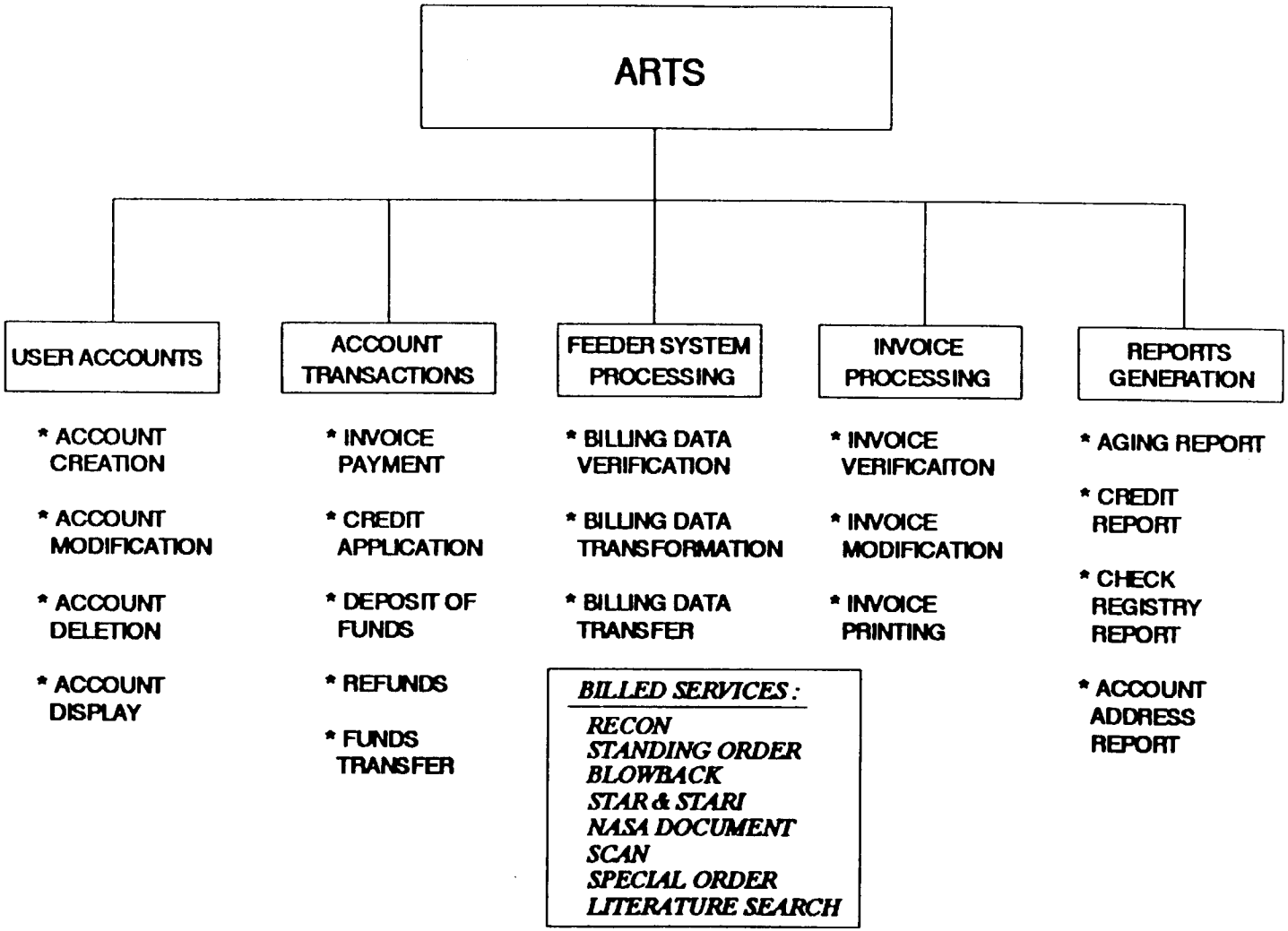


Figure
B18.3

Registration and Product Control System (RPCS)

Processes

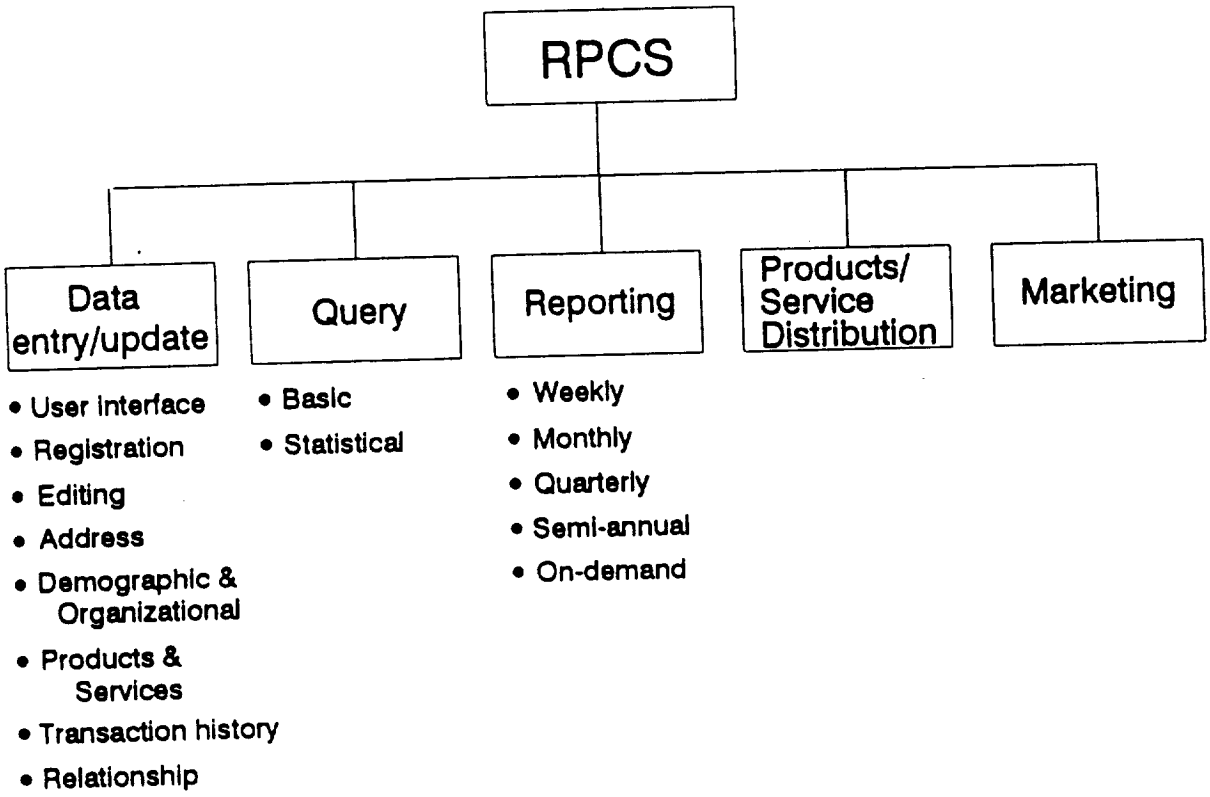


Figure
B18.4

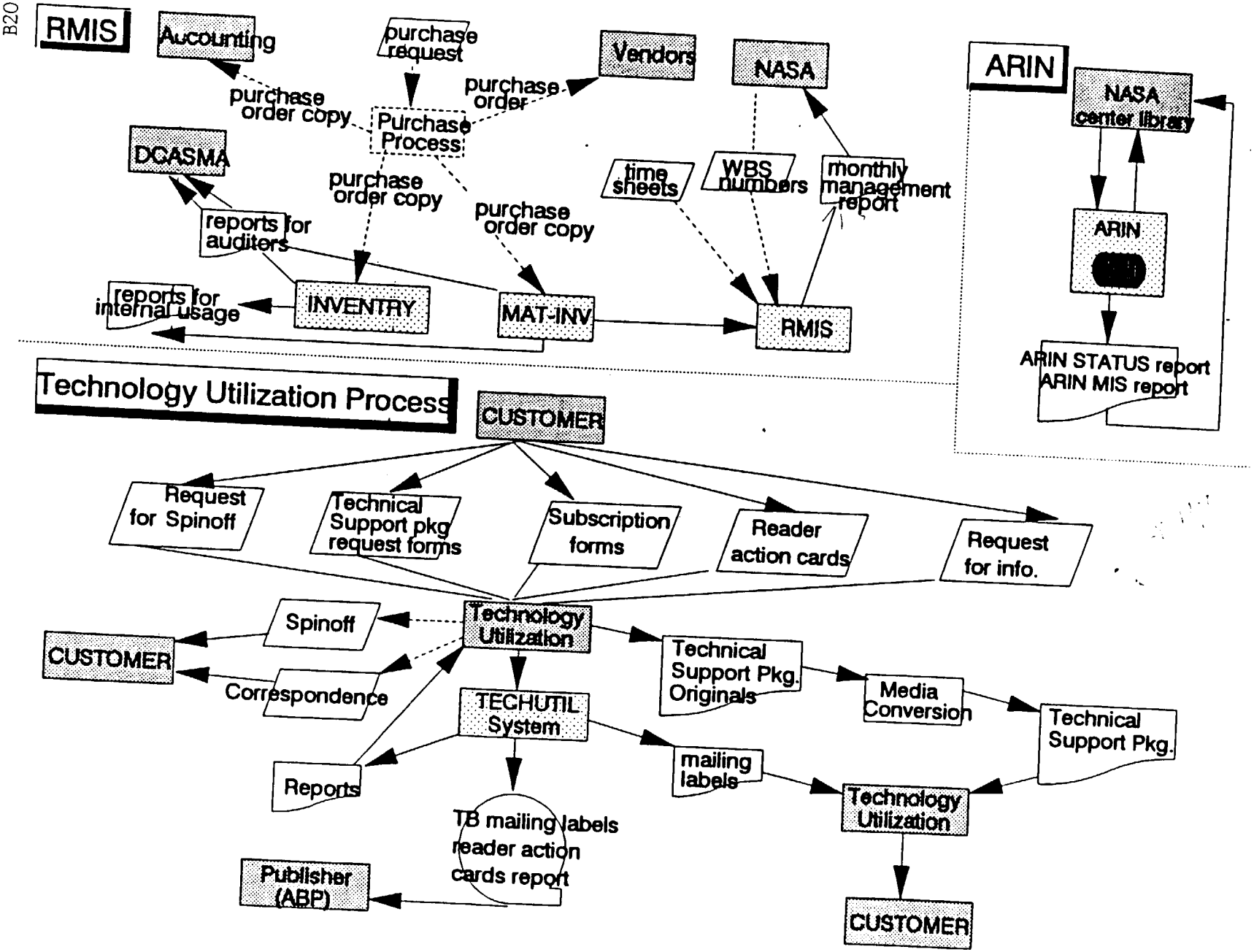

RMIS
Accounting
purchase request
Vendors
NASA
ARIN
NASA center library
purchase order copy
Purchase Process
purchase order
DCASMA
time sheets
WBS numbers
monthly management report
purchase order copy
purchase order copy
reports for auditors
ARIN
reports for internal usage
INVENTRY
MAT-INV
RMIS
ARIN STATUS report
ARIN MIS report
Technology Utilization Process
CUSTOMER
Request for Spinoff
Technical Support pkg request forms
Subscription forms
Reader action cards
Request for info.
Spinoff
Technology Utilization
CUSTOMER
Correspondence
Technical Support Pkg. Originals
Media Conversion
Technical Support Pkg.
TECHUTIL System
Reports
mailing labels
Technology Utilization
TB mailing labels reader action cards report
Publisher (ABP)
CUSTOMER

Figure
B18.5

18.3. CASI SYSTEM EXTERNAL INTERFACE REQUIREMENTS

To more effectively serve requesters, CASI systems must be able to connect to the NASA network and to the Internet/NREN. Ability to receive orders on-line from the end user, directly into the RECON system with automatic feedback on the availability of the requested item(s) would greatly enhance the efficiency of document supply. Use of an on-line registration system would eliminate most current rekeying operations and allow the capture of the name and address information once, at the source. This capability would also eliminate the many times that CASI asks requesters to resupply their personal information.

18.4. CASI AUTOMATED SYSTEMS - BRIEF DESCRIPTIONS

18.4.1. RECON

The RECON system provides online access to the NASA database and allows requesters to enter an order for documents that results in the batch generation of a Form 492 used to supply the document(s). The RECON system stores its requests in the DOCORDER ADABAS file.

18.4.2. RPCS SYSTEM (STI)

The Registration and Product Control System database contains the addresses of the recipients of NASA products and services:

1. STI addresses that are registered to receive NASA supported documents on automatic distribution or are part of the RECON community that allows them to order documents online. This component is referred to as the STI portion of RPCS.

2. TUO addresses that are subscribers of the NASA Tech Brief Journal and who request Technical Support Packages (TSP's) through a Reader Action service. This procedure is provided by the Technology Utilization Office.

The Registration and Product Control System (RPCS) consists of approximately two hundred ADABAS NATURAL (language) programs and several PL/1 and MARK IV programs. For the hard copy distribution, the RPCS is used to track all NASA funded documents.

Pertinent data to the database is updated interactively during normal business hours. Reports and/or mailing labels are generated daily, weekly, quarterly, semiannually, or as requested to allow the dissemination of the products and to provide the appropriate offices with statistical reports.

Modification to the RPCS will require a complete redesign of the current system, including the data structures and applications, a change to all documentation, and a retraining of the users.

For a detailed description of the RPCS system, see Functional Requirements Document for the Registration and Product Control System (RPCS) (TO 91-26) NASA. CASI. STI Technology Division, December 20, 1991.

18.4.2.1. **DOCORDER**

The DOCORDER subsystem of the RPCS is used to accomplish secondary distribution. DOCORDER allows for input and update of requests for documents and includes billing data used by the ARTS system.

18.4.2.2. **RAMS**

The RECON Address Management System (RAMS) is a subset of the RPCS system, an ADABAS/NATURAL application that contains the support information for the RECON system : user names, addresses, privileges, affiliation, and terminal types, RECON dial-up passwords, and RECON collection information.

18.4.2.3. **RPCS (TU)**

The Technology Utilization Office maintains a separate version of the RPCS to support the mailing list of the NASA Tech Brief journal and distribution of Technical Support Packages (TSPs).

18.4.2.3.1. **TBS**

The Technical Briefs System is a menu-driven RPCS application that supports the data-entry (cataloging, abstracting, and indexing information) of Tech Briefs articles and loads them into the Scientific and Technical Information Modular System (STIMS).

18.4.2.4. **PCSS**

The Production Control Statistical System (PCSS) is a subsystem of the ADABAS/NATURAL RPCS that contains statistical information related to the reproduction of documents (accession number, method of reproduction, number of documents, number of pages, and source of requests).

18.4.3. **RMIS System**

The Resources Management Information System (RMIS) is an ADABAS/NATURAL application that allows control and analysis of costs, budgets, schedules, inventories, and related sources of information. It processes labor, accounts payable, journal vouchers, and production statistics used to produce the NASA monthly management reports.

18.4.3.1. **ARTS System**

The Accounts Receivable Tracking System (ARTS) is a subsystem of RMIS that tracks CASI financial accounts and invoices and is used in production of financial reports, e.g., aging report.

18.4.4. **ARIN**

The Aerospace Research Information Network (ARIN) is an online integrated library support system based on the NOTIS (Northwestern Online Total Integrated System) that supplies NASA libraries with online cataloging, circulation, serials control, and management information services.

18.4.4.1. **IPS**

The Input Processing System (IPS) supports the input and update of the bibliographic record, abstract, and index terms used in the RECON database and to produce the STAR family of journals via the CASI STIMS files. The user interface is in ADABAS/NATURAL which allows for full screen input, interactive validation and correction, and duplicate checking of CASI bibliographic data. The IPS accesses the PL/1 Corporate Source and Subject Term Thesaurus programs.

18.5. CASI FUNCTIONAL REQUIREMENTS PHILOSOPHY

To meet the demands of the CASI operations, the future upgraded system should move towards:

- o Financial management and away from invoice processing,
- o Online on-demand applications and away from scheduled batch processing,
- o User self sufficiency (Windows applications-point and click, HELP features, screen design); and away from keying, JCL system oriented user interfaces, and assistance from DP,
- o An integrated system and away from separate systems for each function; towards capturing data only once at the source and away from duplication and rekeying,
  - Collected and integrated files and away from separate databases by application, e.g., a single name/address file; generate one data element dictionary for all CASI applications,
  - Transaction-based system and away from function-based subsystems
- o A universal account for each user and away from a separate account for each service they use,
- o A LAN-based system with connections to external LANS (EMAIL) and communications networks and away from a stand-alone main frame environment,
- o Standards-based system and away from exceptions-based processing,
- o An international database support system (all materials regardless of source) and away from a CASI printed products (NASA generated) support system,
- o Full text searching and information provision and away from bibliographic records generation,
- o Multimedia formats and away from providing only printed and microfiche copies,
- o Marketing and profiling customers and away from passive receipt of requests

18.5.1. USER REQUIREMENTS

1. On-demand generation and distribution of registration packets/forms/reports, document supply (Hard Copy (HC) and MicroFiche (MF)); advertising packets. Tie Desktop publishing capabilities to RPCS via Windows.
   For automatic registration renewals, keep data on dates: renewal packet sent, expiration date of subscription,response deadlines, date of renewal, etc.

2. Upgrade Hardware to improve ease of navigation; reduce eye strain; improve processing time; add features; and increase system flexibility via features, memory, and speed.

3. Add Windows application to registration and inventory. Provide "OCRable" forms for input scanning and be able to accept machine readable registrations and requests via internal Fax on a PC or on-line from the requester via the LANs.

4. Add a duplicating capability for fields and records in the registration process to allow for the repeat of names, addresses, and organizations data across records.

18.5.2. SYSTEM REQUIREMENTS

1. Back-up and recovery should protect all records up to the one being processed during the time of the system failure and if at all possible even this record should be backed up. Periodic back-ups should be made automatically by the system to minimize loss and rekeying of data.

2. Add the date of last transaction/update to all transactions and tie to the source of the update: person's initials.

3. The system must automatically check for overlaps in distributions (ADDS, Secondary requests, special orders) to locate duplicates in orders that now have to be caught and backed out by human intervention prior to product distribution and CASI invoicing. However, this capability must allow these duplications in service to exist.

4. Add an automated inventory control module system. See Section 14 for greater detail.

5. Provide for automatic update of related records when a database record is modified or deleted. Data must be output in format(s) that also allow automatic generation and distribution of invoices through ARTS. These procedures need a lock-out to prevent simultaneous update and to allow constant view-only access.

6. Allow for a one-up count ID number assignment and an up front bar coding of registration forms (prior to mailing to potential customers). This would aid in tracking and producing statistics on the numbers not returned, return delays, etc. Add a bar code label for 492s (requests), make them part of inventory control module processing.

RECOMMENDATIONS

Recommendations are presented for each of the specific areas of the Sections A and B.

Section A . . . . . D2 - D21
Proposed revision of IPS work flow (inserted)

Section B . . . . . D22 - D41
Overall recommendations . . . . .D22 - D25

Summary chart . . . . . D42 - D48

This chart categorizes the recommendations by their anticipated complexity:

- Relatively easy to accomplish
- Short term planning and implementation
- Long term planning and implementation

IPS OVERALL

1. **Improve presentation of statistics for the monthly Report on Center Operations.**

   The monthly Report on Center Operations now contains numerous statistics representing the activities of this group, but they are all in the Highlights section and they are not presented in tabular form with comparative figures from previous time periods. Also, it is not clear in all cases whether titles or copies are being counted. These statistics should be reviewed for their value and their presentation should be improved.

2. **Institute barcoded labels for the physical tracking of documents through the entire CASI process.**

   Barcoded label is used here in a generic sense. The actual type of numeric label does not matter; the process of labelling each physical item with a distinct identifying number that stays with it through out its life at CASI is the main point. This is related to the current temporary number. The differences are that (1) the number would be assigned at the time of receipt and (2) the number would permanently identify the piece rather than being discarded after entry into RECON. Such a labelling policy would permit the tracking of turn-around times from the point of receipt and a label that can be read in automatically can be used throughout processing and subsequent inventory and document delivery operations. In a RECON record, this number could be known as the stock number and be used in addition to the current file sequence number.

   Barcodes could be included in all CASI-produced printed products also to identify the publication and provide inventory and processing control.

3. **Simplify the RECON file arrangement. Establish record formats for different document types and fields for distribution status, etc.**

   The CASI/RECON file arrangement is too complicated; the naming of the files is based on an original file allocation decision that has no meaning for everyday identification and will be totally meaningless if the STIMS system is replaced.

The decision points, represented by the files, are the following:

a. Announced (STAR or IAA) or not announced
b. Publicly available or limited distribution

These flags can be adequately handled by data fields in the basic bibliographic record, without relegating each type of record to a special file. Changing the status of these elements now requires moving a record from one file to another; changing the status when these are data flags requires only changing a particular data element.

There is a logical inconsistency in the way that the present files are set up that should be resolved <u>if</u> the present file system is retained. NASA documents that can be freely distributed are assigned to 1N; if they are limited in distribution, NASA documents are assigned to 1X. Non-NASA documents that are freely distributed are also assigned to 1N; but if they have limited distribution, they are assigned to 7X. The 7 series are defined to be for documents of limited significance or documents that are "out-of-date," according to the 15-month and 2-year windows set by NASA/CASI. But, because the 1X series is limited to NASA documents only, the 7X file also contains non-NASA documents that do not fit the definition of the 7 series. To make the system consistent and logical, the 1X file should be opened to non-NASA documents, if the present scheme is retained.

However, it is recommended here that record formats for different document types be established with the appropriate fields for those documents and that a field be used to indicate whether or not the record will be announced in printed publications and another field to indicate the distribution class of the document. During search & retrieval operations, these fields can be used to control access to records and to limit retrieval to particular document types.

4. **Investigate use of MAI knowledge base to determine probable relevance to NASA of records on contributed tapes (this does not apply to tapes from exchange partners where all contributions are accepted). Sort incoming electronic records by this relevancy to support selection process.**

The MAI knowledge base contains a rich source of linguistic knowledge in the subject domain of the RECON files and applications other than indexing support should be considered. One application with promise is to apply the MAI

process to incoming tape collections of bibliographic records and then sort the records according to the number of, or the characteristics of, the index terms suggested for each record. This sorting should result in the records with the most relevance to NASA appearing at the beginning of the list and those with the least relevance falling at the end of the list. It would thus be an aid to the selection process.

ACCESSIONING

1. **Automate as many processes and statistics reporting as possible.**

   ACCESSIONING activities are not supported by computer processes, except for their use of RECON and IPS for duplicate searching. Computer support should be provided that is integrated with the IPS system and that supports entry of accession numbers when the material arrives, calculation of expected turn-around times, logging of activities for monthly reports, and printing of reports and forms.

2. **Start the tracking of processing time from the first handling of the document in ACCESSIONING.**

   There is no tracking of turn-around processing time from the time of arrival until the processing is complete. A system that calculates a projected publication or loading date from the date of arrival at CASI should be considered. This projected date should accompany the document through the system and should facilitate the processing of all types of material. The expected turn-around time can be set for types of material - faster processing for materials of high interest and slower processing for materials of low interest, for example. Analytics and materials in foreign languages should be given a longer turn-around time than a DTIC record.

   Such a system provides the basis for regular monitoring of performance. Materials that are not flowing quickly enough through the system can be identified and corrective steps taken.

3. **Minimize document handling by combining pagination with the check for reproducibility now being done by EVALUATION.**

   Pagination and the check for reproduction quality (print quality, colored illustrations, etc.) both require looking through the physical document and should logically be done

at the same time. They are being done separately and by different people at the present time. ACCESSIONING does the pagination; EVALUATION does the reproduction quality check.

4. **Eliminate card files used for NASA formal series.**

The card file for NASA formal documents and AGARD series documents that is kept by ACCESSIONING is maintained to provide a dependable way to determine whether or not a particular report has been received. It has been found very useful in the past. However, since reports can be located through IPS and/or RECON and since these systems are stable and dependable, the effort to maintain these files does not seem to be necessary.

5. **Simplify handling of DCAF documents and associated record keeping and files.**

Monitoring the number of items received from foreign exchange partners should be simplified and based on computer processes. Reports based on DCAF numbers could be automatically generated from review of records loaded into STIMS. A count of titles rejected or sent to AIAA may still have to be manual since these documents never get into STIMS. However, a PC-based process that results in a listing of rejected and forwarded titles might be useful as feedback to contributors and to track items sent to AIAA. The labor involved in making such a list could possibly be justified by the statistics and control it gives over this set of materials. (Note: TO 91-23 on Foreign Exchange Monitoring System addressed this issue but was canceled in July 1991.)

The entire procedure of assigning and tracking DCAF codes needs to be reviewed to make sure that the right information is being obtained in the most efficient manner. See TD 91-116.

6. **Determine maximum number of duplicate copies that will be accepted. Discard excess or work out low-cost (in terms of time and energy and actual cost) ways to contribute excess to those who want them and can make good use of them. Inform sender of the number of copies that are wanted.**

Currently, these is no established policy about the number of duplicate copies that will be accepted and stored. Such a policy needs to be made and implemented to eliminate unnecessary handling and storage. The policy should acknowledge the need for additional copies of special-interest, high-demand documents and specify how this will be

handled.

ACQUISITIONS

1. **Acquisitions functions should be automated and integrated into the IPS computer-based system.**

   Online records should be created at the time of request through IPS and flagged as acquisition records. Functions of the Acquisition's system should include the following:
   - Online contact/source address file
   - Brief bibliographic record created at the time of request
   - Tracking of receipts and open orders and correspondence
   - Link between address file and acquisition records
   - Report functions to create letters, labels, reports by date and source, etc.
   - Acquisition records should be modified for the permanent record when received.

2. **Improve computer support for the tracking of contract & grant reports.**

   Computer support for tracking the receipt or non-receipt of contract & grant reports needs to be improved. The current computer check for the existence of contract/grant reports does not look at the progress reports (9N and 9X), so the information is incomplete. The program should provide a count of reports by contract/grant number and the file they are in. If the K file record included information about the number of reports expected from the contractor, then the system could also report on the number of missing reports.

3. **Automate the process of discovering missing numbers in NASA formal series documents. Establish method of indicating when numbers have been permanently skipped and will never be used.**

   The process of discovering missing numbers in report series should be done on request by a computer program rather than by manual review. A method of indicating report numbers that were skipped and will never be used should be put in place to record this information so that the same numbers do not keep appearing as missing.

4. **Combine responsibility for tracking exchange agreements and depository arrangements with the acquisition of individual items so that an overall sense of acquisitions for the**

database(s) is held by the Acquisitions Group. Expand the number of staff in the Group to handle this increased responsibility.

As the ACQUISITIONS effort at CASI is now constituted it concerns only direct acquisitions. As such, it provides only part of the picture and only partial management of the total acquisition effort for the database. Consideration of an expanded ACQUISITIONS unit should be considered that would have responsibility for monitoring the ongoing depository and exchange agreements as well as the individual acquisitions. This combination would be better able to know the sources of materials and the contacts to help find missing materials; to know what should be expected to come in through an exchange agreement and what will have to be directly obtained. An expanded ACQUISITIONS staff would also provide backup for the activity that a one-person operation does not have.

5. **Aggressively pursue the acquisition of documents and document surrogates in machine-readable form, starting with the RDPs and moving toward the ability to receive, process, store, and deliver full-text documents.**

An aggressive effort to obtain and process NASA RDPs and full-text documents is overdue. The expanded ACQUISITIONS group could take responsibility for this effort.

6. **Aggressively pursue an expanded acquisitions program to insure the receipt and processing of all NASA STI documents, regardless of origin or format.**

Passive receipt followed by an individual effort to obtain the missing documents is not enough. An adequately staffed effort with customized computer support and appropriate direction from NASA STI could make a big improvement in the comprehensiveness of the collection and RECON. In addition, such an effort would uncover the "other" formats of STI information and facilitate getting them into the system.

7. **Develop and implement new procedure for deficiency reporting (non-receipt of NASA documents). [In progress]**

A new format has been designed and has been used for a special request. It should be further developed into a regular report, sent to the Centers and to Headquarters, to encourage more complete submission of reports.

EVALUATION

1. **The Scope & Coverage document should be updated more frequently, with announcements of additions and changes. A general review of this document would be a good way to clarify the purpose and scope of the RECON files and the CASI operation.**

   An effort similar to the Database Cleanup project could be started that would review the Scope & Coverage document. A committee representing the interests of the Centers as well as CASI, the AIAA, and STI Headquarters could be formed to prepare a new edition. Subsequently, regular announcements of changes to the new edition should be made in the appropriate manner. A schedule for new editions should be established, with an agency-wide review committee.

   This effort could provide the focus for a general discussion of the objectives of selection for the RECON database and provide a means by which to keep CASI selection policies attuned to the research and development interests of NASA.

   The resulting document could have a broader basis than the current Scope & Coverage document. It could also (and should also) include definitions and policies to guide all decision regarding data structures, format, acquisitions, evaluation, etc. For example, a definition of the STI database, its goal and objectives and intended audience. And it should be a flexible, living document that is modified as new situations are encountered and that is constantly referred to in the daily operations of CASI and in the decision-making and directions of the NASA Code JTT office.

2. **Integrate the responsibilities of the EVALUATION station to other staff groups, primarily to the ABSTRACTING & INDEXING staff. Reserve specific selection actions for those materials that cannot be accepted automatically.**

   The EVALUATION station in the IPS process is a long-standing feature of the NASA/CASI system. Up until 1975, the position was filled by NASA personnel only. This allowed NASA to retain control over the content of the database. When control was given to the contractor in 1975, there was great concern over the possibility of copyright violations for which NASA would take responsibility.

The EVALUATION station today functions as the one point of selection as well as the point at which copyright status is determined and various assignments are made (e.g. RECON file, subject category). It is a one-person operation and that one person must be well versed in the subject matter as well as the NASA selection policy and file system.

Having a position of such importance as a one-person operation is fundamentally unsound - it is too vulnerable to personal bias as well as having no backup potential to cover for sickness, vacations, etc.

As part of an overall evaluation of IPS, EVALUATION functions should be considered individually and distributed to other units. For example, assignment of Subject Category is now being done by the Evaluator. However, this assignment is closely related to the description of subject content done by the indexers and could be easily done by them instead.

3. **Change the printing of casefile labels from batch to individual labels with the correct information for each document.**

The labels for the casefiles should be created for each document rather than the current batch printing process. The current labels contain default data for each field which must often be marked out and changed by hand. This would require a printer at the appropriate stations and a program to format the label based on the information entered for each document.

4. **Begin using the Acquisition Type data element to track direct acquisitions and other sources.**

The Acquisition type data element is not being used currently. However, it could give information about direct acquisitions which is currently not known. It is recommended that the element be used to indicate the type of source from which the documents came: e.g., Direct Acquisition, Government exchange, Foreign exchange, Unsolicited, etc.

5. **Review current policies for handling materials that are also processed by DTIC.**

Two modifications have already been proposed and are under review: (1) treating JANNAF documents as NASA documents and processing them when the hardcopy is received rather than waiting for the DTIC record and (2) stopping the practice of

adding AD# retrospectively to records already on RECON when the information comes in from DTIC. If there are other arrangements that could be made to facilitate the processing of materials handled by both groups, they should be pursued.

CATALOGING

1. Investigate the value of the Corporate Source Code system and consider optional techniques for insuring consistency of the textual entry combined with the ability to retrieve documents based on individual words in the corporate source name.

An evaluation of the use of Corporate Source Codes should be done to support the continuation of the practice as it is now done or to support changes to the practice. Maintaining the list of codes is labor intensive; creating and distributing the list gets more expensive as time goes on; consulting the list is more time consuming as the number of entries grows. There is a move toward coordinating the building and use of such code lists through CENDI cooperation. However, before any such effort is undertaken, the advisability of such a system needs to be questioned.

We need to know if users depend on these codes and if so how they are used. If corporate source and affiliation fields were text searchable (i.e., by each individual word in the corporate names), would the codes be necessary?

From a cataloging point-of-view, corporate source codes lead to error-free entry of corporate names. It is easier and less error prone to enter a numeric code than to enter the text of the name. But, how many corporate sources are only used once or twice? As the system is presently structured, every corporate source has to have a code regardless of whether or not it is will be used frequently. A check of the RECON database for the frequency of use of each corporate source code would give us the data to evaluate this. The frequency should be based on both the corporate source fields and the affiliation fields, with an accounting of both types of uses. If it turns out that a large number of corporate sources are used only once or twice, then the value of creating codes for all of them must be questioned.

An alternative way of controlling the format of the corporate entry is to work from an authority file of corporate entries. With an appropriate system, the alphabetical file of corporate names can be called up at any time (assuming a window environment) and the correct name

can be selected for the current record. Authority to create new corporate names can be given to cataloging staff members as appropriate. Electronic copies of the authority file, or of only the updates, can be sent to other contributors; printed lists can be sent to those who can only operate in that mode.

This is definitively an consideration that needs to be discussed with the user community.

2. **Evaluate the nature and impact of errors discovered in contributed cataloging in order to reduce the need for manual editing of contributed cataloging.**

Errors corrected in cataloging submissions from other contributors should be categorized and evaluated to support or not support the continued review of cataloging copy from external sources. The errors should be weighted depending on the degree to which they corrupt retrieval from an online database, which is the ultimate reason for the entry of the data. If an error would result in the non-retrieval of the record, then the error is serious. Examples include misspelled authors' names; misspelled or missing topic words in the titles or abstracts; incorrect conference names or dates. Errors of another kind would include incorrect page counts (would be caught later in the NASA process but might result in BACKFILE MAINTENANCE at that point) and non-standard punctuation that would cause the photocomposition problems. Other errors might be simply cosmetic.

A study of these errors would provide the data needed to judge the degree of corruption that would occur in the database if cataloging review did not take place. It would also point out if additional automatic checks of the data could be developed to catch more of the errors. It would also provide good information as a feedback to NASA's offsite contributors.

3. **Add interactive duplicate checking to the cataloging process.**

Catalogers should be able to enter brief author and title information and then check interactively for duplicate or related entries in the database. More is said about this in the section on DUPLICATE CHECKING.

4. **Eliminate steps that go beyond entering the information present on the document itself; for example, researching author affiliations.**

Steps should be taken to eliminate any extra work that is going into the creation of the cataloging information other than correct entry of the information contained on the document itself. The future will bring a time when cataloging information comes into CASI in machine-readable form, coded with SGML or other standard coding scheme that identifies the elements of the bibliographic description. At that point, information will be taken as it appears on the document, with appropriate machine checks (e.g., spelling, authority files for author's names). Steps leading to that standard of entry can be taken now. A primary candidate for elimination is the researching of author affiliations. If they are not indicated on the document, then they should be left off of the record. The impact on retrieval of this policy will depend on the number of searches that depend on corporate affiliation or corporate source identification and the percentage of times that affiliations are not available.

Users must be consulted on the impact of changes to any of the value-adding procedures now in place in CATALOGING.

5. **Eliminate the problem of data incompatibility between EVALUATION input and CATALOGING input by entering all components of such data at the CATALOGING station.**

The current IPS architecture has data elements entered at the EVALUATION station that affect data entered at the CATALOGING station. The problems of incompatibility that this causes could be eliminated by letting CATALOGING enter all of this data. The current policy provides some quality control of the data - two people are contributing instead of just one - but CATALOGING should be able to enter correct information on their own. If this can't be counted on, then a review process within CATALOGING should be established to double-check on the accuracy of the entries.

6. **Continue examination of data elements presently underway with the Database Cleanup Project.**

The Database Cleanup Project has already identified data elements in the cataloging record that could be or should be changed - or rather, the rules for entering the data should be changed. This process needs to be continued. Only some of the possibilities presented were completely discussed. Other data elements need to be evaluated for their value to the database and to the end user.

Means need to be in place for ongoing discussion of the rules for data entry and for standardization of policies and procedures for all contributors, including AIAA, CASI, and

foreign contributors. For example, transliteration schemes for authors names need to be the same for all contributors (this won't solve all of the problems since names are taken directly from the source document where they are often already transliterated). And rules for the adoption of geographic names need to be standardized for all entries. These are just examples - there will be a continuous need to resolve such issues for the benefit of the user of the database and its products.

7. **Eliminate of the requirement for use of Form 901 by foreign contributors.**

Form 901 is currently a expected from foreign contributors. Since direct online entry of bibliographic records is becoming the norm, the paper copy (originally written out and handed to a data entry clerk) is no longer a necessary step. The machine-readable record alone should be enough. If paper copies are needed to facilitate processing, they can be created at CASI, as they are for records contributed by domestic sources.

CONTRACTS/GRANTS & NEWS RELEASE/SPEECHES PROCESSING

1. **Complete arrangements to get contract & grant information from the Procurement Office electronically and augment K file records with additional information available, in particular the number of reports expected and any limitations on the distribution of the reports. When this is in place, stop visual review of contract and grant listings.**

Current efforts are being made to obtain contract and grant information on tape from the Procurement Office and to obtain SBIR documents more consistently from the SBIR Office. If this can be arranged, the need to review the SBIR Listings and the New Basic R&D Contracts will be eliminated and the file will be more complete. As part of this change, additional data elements should be added to the K file records: in particular, distribution limitations for documents and the number of reports expected.

The original record for contracts and grants should contain the information required for distribution of resulting reports. The sensitivity of the research is probably determined at the point that the contract/grant is awarded - at least this is a reasonable assumption. With this determination at the beginning of the project, processing of

the documents would be greatly facilitated. Currently the concern over whether or not the documents should be limited in distribution takes too much time and effort. Alternatively, CASI could follow the DTIC policy of simply limiting distribution to NASA only when appropriate release information is not available.

If the number of reports expected can be extracted from the original contract/grant, then CASI's efforts to obtain reports will be based on more complete information.

2. **Retain RTOP records from year-to-year and modify them as necessary, rather than deleting them each year.**

RTOP records are currently deleted each year and new records are entered from scratch. Investigate whether the records can be modified from year-to-year rather than completely reentered. [In the process of review.]

3. **Establish a closer working relationship between the entry of K file records and the ACQUISITIONS effort to track down missing reports.**

The process of entering K file records is now completely separate from the process of using the K file records to track down reports by ACQUISITIONS. There needs to be a closer working relationship here so that there is a shared understanding of the information available and not available and a team approach to solving the multiple problems with this set of documents.

4. **Evaluate the purpose of the K file and its perceived usefulness in the user community.**

The assumption is that K file records are being used to identify NASA research by topic as well as by NASA Center, investigator, contractor, and other elements of the record. In fact, a monthly publication containing new entries to the K file is prepared monthly and sent to Principal Investigators and contract monitors. This is why the K file records are being indexed. This is a reasonable assumption, but there has been some question if this is true. To verify the usefulness and the uses of the K file, the user community should be poled to ascertain the value of the information, the quality of the records, the perceived completeness of the file, and whether or not current processing of the records is meeting their needs.

There have been several suggestions that abstracts should be added to the K file records (from Code S and for the SBIR

records). This possibility should also be investigated.

An additional use of the K file (and the RTOPs records) could be as a check against the Scope & Coverage statement to help validate the selection criteria for the STI database.

DUPLICATE CHECKING

1. **Machine-supported duplicate checking should take place earlier in the IPS process than is presently done.**

   The computer-based DUPLICATE CHECKING PROCESS should take place earlier in the IPS process. To accomplish this, major changes would have to take place in the order in which actions are taken. At the time of acceptance of material for processing, basic bibliographic information could be entered - or alternatively, a key based on author/title or just the title. Ideally, an interactive process would then display existing records that match the key for review and a decision could be made whether to accession the new document or not. As the present system is setup, the automatic duplicate processing takes place after the basic processing of ACCESSIONING and EVALUATION and CATALOGING. Because of this delay, the ACCESSIONING staff is doing considerable individual checking of documents that they suspect may be duplicates. To do this, they are entering bibliographic information as search statements. If this could be captured as input into the bibliographic record for the potential new entry, the process could be made more efficient.

2. **Machine-supported duplicate checking should be an interactive process.**

   As discussed above.

3. **Data tapes of records received from domestic contributors should be run through duplicate checking routines when they are received.**

   Currently, records received electronically from domestic contributors are not duplicate checked on arrival. However, such a check will catch some duplication and save on needless processing or at least alert the staff to the presence of related records. Therefore, duplicate checking should be applied to all incoming tapes.

4. **Reference notes to previously entered related records should be made less specific to avoid misrepresenting the relationship.**

The form of the cross reference notes should be reexamined with a view to making them less specific. The statement "Previously announced ..." may not be strictly true in some cases. The staff is guessing to some extent that the information is the same in two conference papers, for example. In fact, the illustrations may be different; the data may have been updated or edited; etc. An open ended note, such as "See Also ...." might possibly suffice.

5. **References linking related records to one another (e.g., a non-English document to its English translation) are potentially very useful to users retrieving records from the file. Plan for methods of automatically or easily providing searchers with lists of related records for their final sets.**

The bibliographic record should be redesigned to make the cross references accessible for future possible enhancements of the search software or accessible to commercial vendors for automatic linking of records to one another. The results of a search should retrieve all related entries if it retrieves one of them. If the indexing and cataloging of the records is identical, this will be automatic. But, if the records are contributed by NASA and by AIAA, the indexing and cataloging is liable not to be the same.

Also, if linking of related records could be accomplished, only one of the records would need to be completely indexed and abstracted. The following records could refer to the original record for indexing and the abstract. But this practice would lead to missing the later entries if the linking mechanism is not automatic and reliable. If the linking is based on the searcher knowing yet one more command to find related items, it would not be effective.

Another idea to consider is to have a system where record modification can be easily accomplished. Then, any related documents can be added as notes to the original records. For example, if the original entry is to the non-English version of the paper and then an English translation is obtained, a note can be added to the original entry saying "English translation available as [accession number]." If a reprinting of a document is acquired, a note can be added to the original record that says something like "Also published as ....; available as [accession number]." The accession numbers in these cases could be some modification of the

original accession number so the items shelve together. This has the advantage of not crowding the databases with duplicate entries for the same documents and of giving the end user a truer picture of how many different documents there are that meet the information query and the various formats available for each document. There are non-trivial problems to solve for this to work with a large bibliographic database, but it should be considered in any redesign efforts.

6. **Augment the duplicate checking algorithm to include additional data elements, e.g. the Task Number for 9N/9X records.**

ABSTRACTING & INDEXING

1. **Increase the percentage of abstracts available in electronic form through scanning or receipt of electronic text from the originator.**

   Actively pursue ways to increase the number of abstracts that are available in electronic form. Possibilities include scanning of hardcopy documents, obtaining the RDP pages for NASA documents in electronic form, obtaining full text for NASA documents in electronic form. Time savings per abstract in the editing/entry phase approach 50%, according to the time estimates quoted here.

2. **Develop automatic textual translations for symbols and move toward maintaining the symbols in printed products.**

   Develop automatic translations for symbols to the degree that can be supported by available computer technology. It should be possible with today's technologies to keep the symbols in the abstracts for printed products (e.g., STAR) and to translate them with a table lookup for retrieval purposes.

   The American Mathematical Society has established standard encoding for symbols. This effort should be considered for CASI application.

3. **Abandon the Subject Switching systems in favor of applying MAI to all incoming text and develop additional uses of the MAI knowledge base.**

   Maintenance of lexical dictionaries for subject switching is a labor intensive activity. For every distinct set of

controlled vocabulary, i.e. for each thesaurus system, a specific set of translations has to be created and maintained. The effort expended on one set of translations does not benefit the others. And, for each lexical dictionary, constant maintenance is required to adapt to changes made to the other thesaurus.

On the other hand, a knowledge base for Machine-Aided Indexing is built to feed off of the natural language of the text of the entry. Natural language is not system-dependent and the resulting knowledge base can be used to process records from any source. The effort expended in building and maintaining the knowledge base can be applied to all incoming electronic text for the primary purpose of suggesting appropriate index terms and for other purposes, such as sorting incoming records sets by their relevance to the NASA knowledge base.

Use of Subject Switching schemes inherently includes a dependence on the indexing quality of another source. If that source begins to put less effort into controlled vocabulary indexing, as seems to be the case with DTIC at the present time, the results of subject switching automatically decline in quality.

For these reasons, Subject Switching should be abandoned as a methodology at CASI. MAI should be used instead on records that are going to be integrated into the RECON files with NASA records. MAI processing should be applied to incoming bibliographic records in electronic form from all sources. If selection will be made from the records (rather than accepting them all without selection), then algorithms should be developed that sort the set according to the occurrence of NASA terms created by MAI. It may be possible to weight terms to indicate their importance to the document on the basis of placement in the record (e.g., title, term/keyword fields, first sentence of the abstract) to enhance the utility of the sorting.

4. **Give high priority to developing indexer support tools that allow the selection of terms directly from a thesaurus-like display in a windows environment.**

High priority should be given to development and implementation of indexer support tools that will permit the selection of terms from thesaurus displays in lieu of direct entry of the terms and the need to consult term lists outside of the IPS indexing system. These displays would be best done in a windows environment and the displays would be most useful if all of the information presently presented in

the printed thesaurus (e.g., terms in the hierarchy, related terms, term definitions) were presented to the indexer with each valid index term available for direct selection.

In this development, consideration should be given to any additional fields that would be useful to the indexing operation. For example, there may be a need for an Indexer Note field or an Historical Note field to record information to guide the use of terminology or to record actions such as retrospective indexing actions. Also, links to the MAI knowledge base should be considered, so that added entry points to the knowledge base could be easily converted into entry points in the Thesaurus itself, if appropriate.

5. **Improve the spell checking process, moving to an interactive word processing capability on PCs.**

Attention is being given to improving the effectiveness of the spell checking system. In particular, highly posted words in the inverted index from text fields are being considered as candidates to add to the list of correctly spelled words. This is a worthwhile project.

Correction of misspelled words is being left to the QUALITY CONTROL station at the present time. Since misspelled words affect the MAI process, these corrections should be done during the A&I process instead. Ideally, spell checking would be an interactive process (such as available in word processing packages), with direct substitution of the correct spelling. Perhaps in the proposed distributed computer environment at CASI, more sophisticated word processing tools can be made available for abstract creation and record review.

6. **Establish evaluation procedures for the MAI process and for the quality of retrieval attributable to indexing and the content of the abstracts.**

Evaluation procedures need to be established to monitor the quality of indexing, the quality of the output of MAI, and the quality of free text available for retrieval purposes. These procedures will take careful development and refinement through use.

MAI output should be measured and report on a regular basis, including average number of terms created per record (and subsets of records), percentage of terms accepted, percentage of terms rejected (noise terms), average number of additional terms input by indexers, and percentage of

final set of terms contributed by MAI.

Methods to monitor the quality of retrieval attributable to indexing and the content of abstracts should be developed. There are no standard measures of this type, although the concepts of precision and recall are the basis of most attempts to measure quality of retrieval. But, formal testing of retrieval would provide controlled examples of where the problems of retrieval are and would lead to adjustments in terminology and A&I practices when the fault can be attributable to these activities.

Feedback from retrieval activities is the weakest link in all large database efforts. Methods used to get such feedback include formal user groups composed of those who do indepth searching of the file and can give knowledgeable criticism and constructive suggestions (These are hard to establish and keep going, since everyone is so busy with their own problems) and active inhouse searching units which can give direct feedback to the indexing staff. Currently at CASI, there does not seem to be much feedback from inhouse searching of RECON.

All of these methods should be considered: formal testing procedures that could be applied by NASA/CASI; establishment of a RECON searchers user group; and an active, technically-qualified inhouse searching unit that is searching RECON on a regular basis.

7. **Purchase tools for back-of-the-book indexing to support the special indexing projects this group does for Congressional publications and consider offering back-of-the-book indexing as an additional service.**

Tools for back-of-the-book indexing should be purchased to facilitate the special projects that the A&I unit does, in particular the index to the Congressional publications. Back-of-the-book indexing may be a potential area of service expansion for CASI also, given the publishing efforts of the STI Program. There may be a need for STI to provide not only actual indexing assistance but also guidance and advice on how to build indexes and which software is the most serviceable.

8. **The current system does not include any quality control of the indexing term assignment, other than individual indexers checking their own work. To improve indexer consistency, all indexing should be reviewed by another A&I staff member.**

Quality control of record content is currently is in the

hands of (1) the individuals who create the records at the various stations who check their own work; (2) for a limited number of fields, staff review the work contributed by previous stations in the IPS process; (3) and by the QUALITY CONTROL station. What isn't taking place is review of work within each work group. That is, indexers are not reviewing one another's work; cataloger's aren't quality checking each other's work. In neither group is an editor reviewing the quality of the product. The final QUALITY CONTROL is designed as a proof reading activity only. With experience, the QUALITY CONTROL staff can begin to recognize problems beyond straight proofing but this ability depends on having someone in the position with the requisite experience.

This lack of internal quality review is most worrisome in indexing, where indexer consistency is a well-known problem. Lack of consistency has a definite effect on the predictability of retrieval and the confidence one can have in depending on the indexing terms to consistently identify concepts in a like manner across the entire database. When indexers review one another's indexing, it is more likely that rules of term assignment are shared and equally applied. When indexers do not see the work of others, they can be completely unaware of their own personal biases.

For these reasons, the recommendation is made that indexing be reviewed by one other A&I staff member in all cases. And that the group be sufficiently staffed to be able to do this.

QUALITY CONTROL & ISSUE ASSIGNMENT

1. **Provide more latitude for the QUALITY CONTROL staff to correct data elements if it is possible to do so without introducing too much chance for additional error.**

   The data elements that cannot be changed by QUALITY CONTROL need to be reviewed with an eye toward allowing some of these elements to be changed at this point. It is, of course, important that errors not be introduced at this point in the process. But, if some more latitude could be given to QUALITY CONTROL, the process could be made more efficient.

2. **Provide more sophisticated work processing capability, possibly PC-based on the new CASI LAN.**

   More sophisticated word processing tools would be very

helpful for QUALITY CONTROL. A PC-based word processing package might be the answer when the LAN is fully implemented.

3. **Distribute responsibility for the majority of the quality control to the processing sections (e.g., CATALOGING AND ABSTRACTING & INDEXING) with minimum editorial proofing at the end of the process.**

   This has been discussed in the other sections.

BACKFILE MAINTENANCE

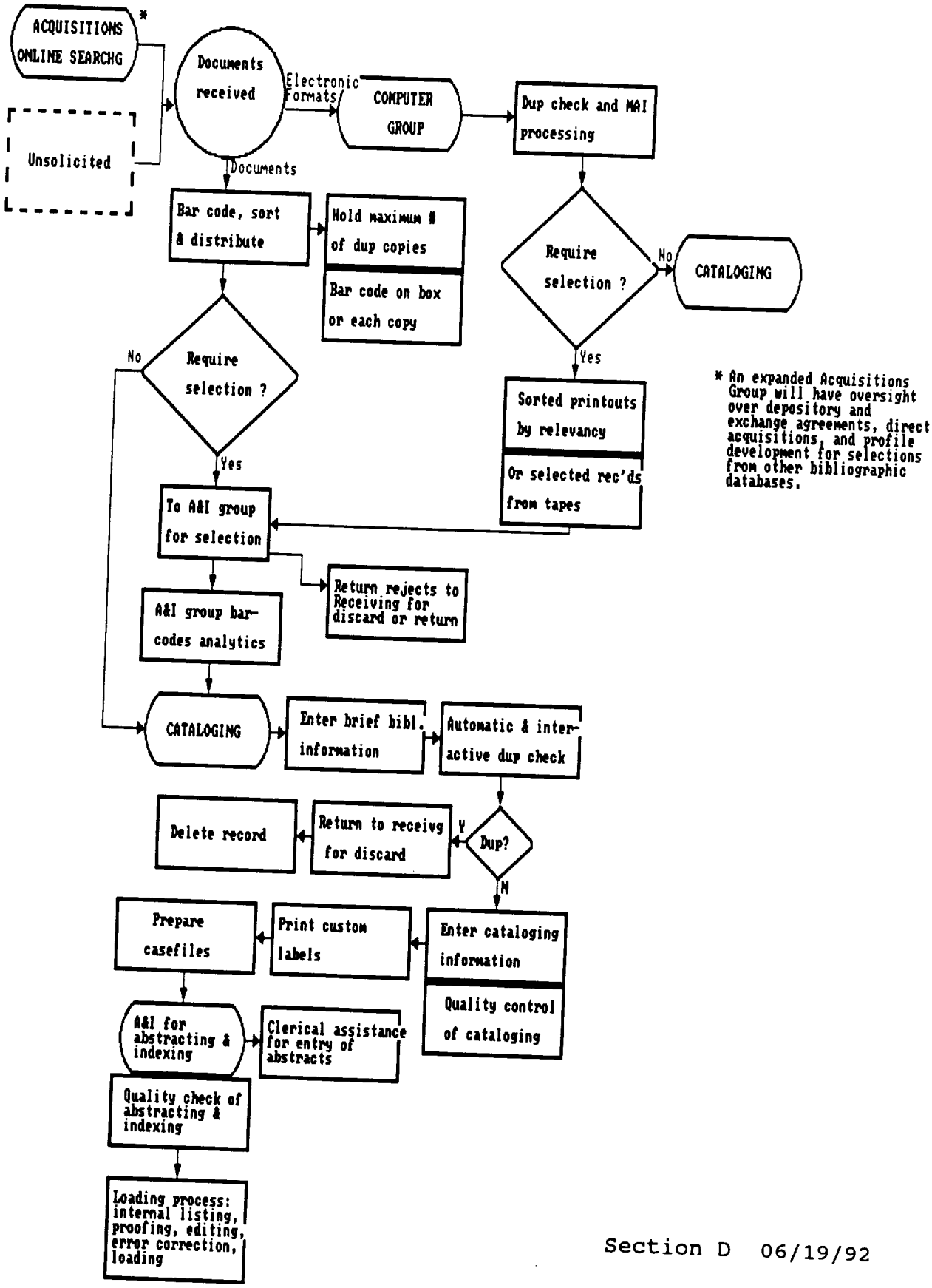
1. **A high priority needs to be put on the development of an IPS interface for BACKFILE MAINTENANCE.**

   Given the number of changes that are needed to existing RECON records on a continuous basis, a high priority needs to be put on efforts to provide a way to modify records through IPS. Until such a system can be developed, BACKFILE MAINTENANCE will continue to be awkward and inefficient and projects that should be done will not even be considered.

2. **The procedure for announcing data changes to RECON records needs to be changed to include notification to recipients of RECON data tapes.**

   Currently, data changes are being reported to NTIS only. However, there are other recipients of machine-readable RECON records and a procedure needs to be in place to routinely notify <u>all</u> interested parties.

IPS OVERVIEW - PROPOSED REVISION



Recommendations for Customer Registration and Document Services

Review of the CASI Document registration, document orders and supply activities resulted in identification of several overall recommendations.

Summary of recommendations:

1. **Simplify** forms, processes, procedures, and presentation of products. Make it easier for customers to understand the product line and to order materials in a one-stop shopping approach. Make it easier for staff to identify products, customers, and processing activities.

2. **Reorganize** CASI to function as one complete system rather than as separate functions; add greater span of control to managers (eliminate one manager supervising two or three people, bring it up to at least five); add additional workers to facilitate document handling through CASI document processing (add an internal courier); reorganize space to reduce distances between units and to place units in the order of the processes flow.

3. **Automate** to allow on-demand processing of:

   a. Customers' orders; replace stock with microfiche blowback and eventually imaging formats. Skip fiche and go directly to electronic imaging.

   b. Registration packets.

4. **Emphasize the rule** not the exceptions in registration and document processing:

   a. Reduce the number of collections (classifications) of documents available via RECON.
   b. Reduce the number of registration and information forms.
   c. Centralize RUSH and special handling activities in one person to remove these interruptions from the rest of the staff; this can be a rotating assignment.

5. **Add an automated Inventory and Control system** to track orders, requesters, and documents. See recommendations in Section 14.

6. **Add a Total Quality Management program at CASI** based on "doing it right the first time" and "the customer is king." Add significant success measurements based on end user requirements to each functional area and build these into the SOW and the CASI reporting systems similar to the turn around time project. Add specific performance indicators, e.g., ratio of registrants to revenues or costs of a service.

7. **Reenforce CASI document control policies and improve the environmental conditions** for the microfiche, NACA, and case file collections.

8. **Review and update the contract SOW** to reflect current operations, future program priorities, and minimum document processing load levels. Build rewards into the award fee structure for exceeding minimum levels and insist these extra award fees be shared with the CASI staff - encourage creativity and quality. Reduce the number of TDs by improving the SOW. Tie the monthly reports to the SOW production levels to make the review of the contractor easier and fairer.

9. **Revamp CASI Reports and the contract SOW** and coordinate the statistics in the contract WBS with the monthly Operations Report; match the SOW WBS to JTT's goals and update the production levels to reflect the current situation. When the WBS is updated, it can be resequenced to the order preferred for the monthly reporting. Report on the basis of contract year within the monthly Operational Report. Increase the use of graphical presentations of statistics. Make an automated report generator available to the CASI and JTT staffs.

10. **Institute payment for all services**; make a general rule that everyone that receives a CASI service or product pays something even if this is a token amount for the NASA Centers. Emphasize revenue generating activities and produce quality products and services to encourage users to call CASI first, especially the NASA Centers. Work with the

NASA Centers to understand their needs, supply these needs, and eliminate their establishing competitive products and services to CASI (build into the JTT/Centers Coordinator position); send a delegation from CASI to visit the Centers to improve relationships and learn of needs.

11. **Upgrade equipment in the operational areas** to maximize the efficiency of the staff and to minimize the amount of time spent walking to other areas to queue up for use of a xerox or fax machine. Lease equipment instead of purchase and upgrade at least every two years (it is often possible to obtain a copy machine with many additional features for a reduction of the lease expense over currently owned equipment).

12. **Institute a CASI staff-wide training program** to bring all members of the staff up-to-date in automated document processing capabilities and to increase the amount of cross training at CASI.

13. **Emphasize obtaining all inputs in machine readable format**; strengthen arrangements with NASA document producers to receive the documents and their RDP pages in machine readable formats; review NASA collection policies with document suppliers of hard copies to eliminate print overruns; and with microfiche suppliers to receive quality fiche that meets the accepted standards. Provide for customer submittal of registration and order data in machine readable form and/or increase use of scannable forms in registration, document identification, and billing activities.

14. **Foster Cooperative Activities**; develop a NASA-wide collection development program (document retention plan) and produce a written policy statement. Determine what types and age of materials they do not maintain in their libraries to determine the CASI's retention policies and schedule.

15. **Update existing Policy and Procedures manuals.** These are good candidates for hypertext applications. Add a quality review of manuals, instructions, procedures designed for foreign partners to ensure they adhere to accepted standards, procedures, and goals; and that they reflect well on NASA.

16. Determine the 'quid pro quo' of international exchange, i.e., what JTT/CASI gives versus what it gets. This means a link between the IPS and RPCS systems for data collection.

Recommendations for Customer Registration and Document Services

11. REGISTRATION SERVICES RECOMMENDATIONS

1. Simplify Registration Forms and Instructions

   a. Reduce the number of separate registration and information forms. Consider using the insurance industry model for printing customized policies as a platform for printing registration forms/packages; try to use the existing laser printer attached to the CASI mainframe. Add a package/finishing system to complete the job on the laser printer.

      1). Institute a form review to eliminate all that are not essential, remove duplication, make sure each form number has never been used for another purpose, expand the Registration kit to include information on all CASI services and products.

      2). Aim towards one CASI registration form with a tear out section for each service.

   b. All forms should say CASI not STIF or RMS.

   c. Color code forms (or tear outs) by service to make them stand out throughout CASI processing.

   d. Keep price sheets separate from registration forms as they vary more often.

   e. Enlist the aid of the electronic publishing staff to implement an on-demand correspondence system. Reduce the number of separate form letters and form letter stock.

   f. Reduce the delays in registration approvals. Eliminate the need to obtain a signature; allow approvals via phone, fax, mail.

2. Establish online registration via RECON with the user inputting the data for automatic download to Registration to reduce rekeying costs and time delays.

3. Identify additional products that could be distributed as samples with registration kits; sample bibliographies on hot topics (tuned to a new RECON profiling

system) - make this part of CASI's marketing effort.

4. Give Registration Needed Equipment to improve production efficiencies:

   a. Headphones for mobility - ability to walk around while answering a user's question(s)
   b. Full workstations (Pcs)
   c. Laser printers
   d. Fax machine
   e. Convert all customer correspondence files to raster images and provide electronic access to these images and other electronic customer information to all User Services staff.

5. Set-up a user profile system to process information returned with registration packets and orders to determine use of CASI products and services over time. Use this data in CASI's marketing efforts. Insert a customer evaluation form with orders and ask the customer to evaluate CASI's service and products. Feed this information back to marketing.

6. Encourage the purchase of multiple CASI services via special privileges, bonuses, premiums, and/or discounts. Track the results to determine which sales promotional techniques work the best.

7. Add indices of performance that relate the number of registrants in a service to the revenues generated in that service and/or the cost of providing that service: a ratio of new registrants in secondary distribution with increase in revenue from hard copy and microfiche distributions. Develop a pricing policy independent of procedures selected to implement it; there may need to be more than one pricing strategy given the diverse nature of STI products and services.

8. Increase the registration activities award percentage in the contract SOW WBS.

9. Reduce the time spent in Registration reviewing SBIR, NHCC, etc. forms; consolidate this activity throughout CASI so these listings are handled just once and all functions

performed at that time; increase automated support of this activity.

10. Consolidate name/address and mailing information into one file that includes all CASI customers with the products each receives. Update the mailing lists to identify and remove duplications and to eliminate the expense of mailing registration packets to people who have moved. Presently, when these are returned to CASI, the whole packet is thrown away. Pay attention to the special needs of foreign conventions and requirements for registration/mailing addresses, etc.

11. Notify, by postcard, address change requesters that their change information is in process if the change will take more than one week.

12. Develop a database of staff addresses, phone and mail numbers for NASA-wide access and tie to CASI Registration. Allow address changes to be made at JTT and forwarded electronically to CASI Registration.

13. Build an automated tickler system to follow-up on distributed registration kits and contract expiration notifications.

14. Increase the flexibility in receipt of registration data:
    a. Allow receipt of PC faxed registration forms to a PC in Registration.
    b. Make Registration forms OCRable to reduce keying on their return (use scanning).

15. Update a Registration Policies and Procedures Manual and keep it up to date as relevant Tds are received.

16. Automate Registration's logbooks and procedures manuals; add on-line HELP features.

17. Review all files and reports to eliminate those not needed or not needed in the number of copies presently received.

18. Add full text searching for Registration data and improve reactivation of archived records.

12. ORDER / REQUEST PROCESSING RECOMMENDATIONS

1. Encourage end user automatic document ordering (online via RECON and ARIN systems). Allow end user automated document ordering (via software or communications card on Pcs in the Request unit or via mailed diskettes to allow users to rapidly order and receive desired NASA documents. The diskette could include the user's encoded password and all relevant clearance and billing data. Reduce keying in the Document Request unit.

2. Add a bar code label to CF492s (orders) and provide on -demand CF492 continuous production. CF492 generation has been changed as part of Three-Day-Turnaround. Currently, automated distribution of 492s to sections occurs multiple times a day. In Phase III, 492s will be transferred electronically and the system will also generate a letter when there is a delay in filling the request.

3. Add an internal CASI mail service that makes its "rounds" every hour; there is too much time wasted in everyone running around hand carrying requests and documents especially for RUSH requests.

4. Identify one person in each section to handle RUSH and special situation requests. There is too much interruption to production with each person handling Rushes as they come up. Also work to reduce special handling situations.

5. Produce a single list of products and services, with current prices, and all means of payment.

6. Add Prepaid orders to the automated system and encourage their use by customers.

7. Add credit card payment and increase the use of deposit accounts (now about 20% of users).

8. Reorganize to locate all document request and supply functions under one leader; it must be a closely coordinated effort.

9. Increase the award fee allocated to document request fulfillment and give this function a higher priority than the TU program for demand on CASI equipment and staff.

10. Add needed equipment to Request processing:

    a. Headphones for mobility
    b. Full workstations (Pcs)
    c. Laser printers
    d. Fax machine

11. Rework the "rejects" categories to be less negative in tone and more proactive in supplying documents to users.

12. Provide a menu pick windowing system to automatically update document status and initiate a customer report (standardized letter).

13. Add a statistical package to order processing tasks, to automatically obtain tallies and eliminate all manual counting, add graphical representation of statistics, and standardize the statistics maintained from one month/year to the next.

14. Improve ease in obtaining needed monthly reports; add a good report generator with flexible report formats available to the Requests staff.

15. In the new RPCS, allow access by a temporary processing number, accession number, author, title, etc. for use by the Requests staff.

16. Improve the interface between Document Requests and Accounting. Reduce the back and forth processing between Document Requests and Accounting at monthly invoice time by producing a more user friendly integrated system that includes RPCS, RECON/ARIN, ARTS, and RMIS financial

management functions.

17. Allow global deletion in monthly Standing Orders processes and improve editing and reporting capabilities. Add the capability to collect all relevant users that need to be deleted, in a single duplicate order maintenance function to eliminate one by one deletes.

18. Add a daily electronic or fax newsletter of new docs added to RECON, received in CASI, or ordered by Acquisitions - part of marketing effort.

19. Use RECON statistics to feed into acquisitions (identify number of searches against specific subject areas to determine best marketing packages).

20. Automate the Document Requests rejects and the Acquisitions connection; a "reject" should become an automatic order in Acquisitions with no additional rekeying.

21. Add a preservation note field to the bibliographic record to indicate the condition of the physical document and identify if it is the "best" copy to reduce chasing around for "good copy".

22. Add success indicators that stress continuous improvement in turn around times, i.e., 90% of requests filled in 3 days; 95% in 5 days; 100% in 10 days.

23. Allow access to IPS from RECON to assist Document Requests staff to locate documents.

24. Update distribution codes on RPCS - some discontinued products have old name/addresses attached to them, e.g., SBIRAB.

25. Institute electronic transmission of CASI orders to secondary suppliers, e.g., AIAA and NTIS.

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26. Increase access points in the RPCS: affiliation name, date of entry, etc.

13. DOCUMENT STORAGE AND SUPPLY RECOMMENDATIONS

1. Produce the optimum layout of the Document Supply area for efficiency and preservation (improve environment); prepare an updated storage plan; and add new (compact) shelving with hanging folders.

2. Establish a Document Handling Policy Manual and add separate sections for classified, limited, and unlimited documents, and Case File receipt, storage, and retention. Also include all relevant Tds and other NASA directives. Add up-to-date agreements and JTT preservation goals.

3. Review NASA collection policies with document suppliers to eliminate print overruns.

4. Clear floor of extra copies:

   a) Identify additional NASA-wide uses of CASI surplus documents, e.g., develop a master schedule of exhibits that could benefit or new customer promotions;
   b) Distribute the mother copy for analytics requests at the analytics price plus the full document mailing costs;
   c) Continue distribution of extra copies of CASI documents to NASA's Educational Publications and Special Services Directorate, Code XEP; develop an exchange program with the Library of Congress.
   d) Shelve stock for only two years, not five years. For Customized Distribution reduce the retention to one year;
   e) Maintain a maximum of 2 copies of any document once microfiche quality control is improved.
   f) Stop shelving copies of non-NASA generated stock.
   g) Establish user profiles for automatic distribution of stock and/or microfiche copies; and customized literature searches.
   h) Review needs of TU program for back copies of Tech Briefs, etc. and delete all possible; separate TU stock from CASI stock area.
   i) Tie document stock retention to past document requests.

5. Inventory the collections beginning with NACA. Add a Microfiche master for every NACA title that is able to be filmed. Ensure that there is a Case File for every title including STAR and NOVA. and that each Case File has a document within it.

6. Delete duplicate microfiche in the Document Supply area and move the Diebold (early 1980's 7Ns and 7Xs) to Micrographics and make cross references to the relevant Case Files if not transferring the fiche back to the Case Files. Work towards an on-demand blow back system with no distribution copies of microfiche held in storage. Improve the storage environment for microfiche masters.

7. Add Bar Code labeling to all Case Files and documents (temporary accession number), and carry this number throughout processing, including microfiche. Begin the process with current acquisitions and on-demand retrospective collections requested documents.

8. Simplify Document Storage by instituting a new hardcopy shelving arrangement:
   1) Classified materials that remain in vault; and in Document Supply:
   2) Limited documents
   3) Unclassified/unlimited documents; and
   4) Case Files prepare for returned NASA Case Files from NTIS (needed prior to the turn of the century).

   Arrange each in the bar code number order and shelve on traditional order library tiers). Use automation to identify series and sets rather than by their physical arrangement on the shelves.

9. Add rolling step stools to assist staff; rearrange stock to put new materials (current 2 years) on low shelves to avoid access via step stools; put older documents on higher shelves.

10. Check on the Supply uses of the Initial order request received from JTT; if it is not used for tracking arrivals of new materials, discard.

11. Investigate contracting out the supply and handling of non-print media formats. CASI previously priced this and

looked at the break even point for cost effective purchase of equipment. The previous pricing should be updated and specific vendors or internal NASA sources identified. Additional information is needed to decide on pricing copies.

12. Use the Julian date for 492 tracking instead of the work days in the year system.

13. Match the document stock inventories against CASI requests and JTT's acquisitions guidelines to determine CASI's retention policy(s). Consider a predictive printing/storage requirements capability based upon orders received. Share the results with the Centers. For some titles, CASI Document Supply makes a stock location card, stores documents in Temporary storage, moves them later to shelf storage, they sit in storage for 5 years, and then they are thrown out.

14. Remove non-supply duties from Document Supply staff. Hire someone to maintain the building, handle security matters, and perform general maintenance activities.

15. Increase the number of times a day Supply sends requests to Micrographics; see Three day turn-around study, TD 91-096.

16. Investigate the savings in filling all requests with on-demand blow back from microfiche and eliminating all hard copy stock. Blow back of all documents a great idea. Currently, large texts are not filmed due to size, e.g., translations. Also quality control of fiche is critical as sometimes documents are reduced in size when filmed and end up unreadable.

17. Add a preservation note field to the bibliographic record to indicate the condition of the physical document and identify which is the "best" copy. Investigate restructuring the bibliographic record to create a master record on document content and separate linked auxiliary records that contain data on distribution/ ordering, etc. attributes.

14. DOCUMENT INVENTORY AND CONTROL RECOMMENDATIONS

1. Install an automated Inventory and control system to track documents (all formats), case files, requests (include literature searches), and requesters in all CASI subsystems; relate this data to CASI's marketing and pricing activities.

   a. Track orders and stock drawdown of multiple media documents received from varying sources and stored in varying locations.

   b. Allow on-the-fly production and scanning of bar code labels and human override of system set parameters.

   c. Include an integrated statistical software system to automatically count and download to/from LOTUS 1-2-3, Word Perfect 5.1, and Dbase software.

   d. Add an on-demand, online report generator.

   e. Produce the CF492 in Document Supply to eliminate paper passing through Document Requests.

   f. Consider "just-in-time printing" for efficient document storage and electronic imaging to replace physical document storage.

   g. Add a bar code label to registration forms and registrants for automatic tracking and statistics.

2. Inventory the Casefile collection.

3. Institute a backfile maintenance project to update RECON for classified materials.

15. DOCUMENT PRESERVATION AND STORAGE RECOMMENDATIONS

1. Create a written preservation plan and implement its provisions.

2. Continue cooperative activities with NARA, NTIS, and the JCP and develop an updated document retention and preservation plan.

3. Institute a pilot project to image the NACA collection and then expand to the Casefiles; send the originals to NARA.

4. Investigate alternative storage shelving and storage arrangements: compact shelves and hanging folders.

16. REPORTING - USER SERVICES RECOMMENDATIONS

1. Investigate the usefulness of all reports, ask JTT and CASI managers what they really use and want and discontinue everything else. Review all current reports in detail to eliminate all unnecessary ones, simplify reports, and add graphic presentation to the statistical portions. Reorganize reports to provide the most meaningful data (titles distributed may be as meaningful as number of copies). Presenting a column of zeros in a category is less effective than reporting the occasional time the value is not zero.

2. Revamp the monthly Report on Center Operations and add quality and success indicators (ratios) for each CASI functional area. The recent CASI report, "Percentage of Requests Filled by Turnaround Time" is the right idea. The monthly report is being revised; statistical data is being reviewed for relevancy and the possibility of graphical presentation.
   - o Separate the statistical from the narrative section, there are too many statistics buried in the text which makes it very time consuming to locate information.
   - o Insert the same data only once in the text.
   - o Report on the basis of contract rather than fiscal year. Need to evaluate as JTT reports to upper management by fiscal year.
   - o Add graphical representation of statistics.
   - o Standardize the statistics from one month/year to the next.
   - o Coordinate the statistics in the contract WBS with the monthly Operations Report (present the WBS goal and the monthly result, add percentages of completion.
   - o Arrange the report by function ~~not WBS~~; that is, include all information for a function together in one place, the narrative, followed by charts and graphs, followed by tables. Putting this data together will reduce duplication and inconsistencies in the same statistic and make it much easier for the reader to "learn all about it" in one place. Break out the Registration, Document Requests, and Document Supply functions.
   - o Replace the End User Incidents reports with a summary.
   - o Replace Table 15 Document Copies requested and completed with a summary.
   - o For privacy/security, delete listing by name the registered users on RECON.

3. Add an integrated statistical software system that allows download and upload from LOTUS 123, Word Perfect 5.1, and Dbase.

4. Add an integrated, user-friendly, on-demand report generator that allows both JTT and CASI managers report generation through their LANs and Internet and reduces their reliance on CASI DP for reports.

17. TECHNOLOGY UTILIZATION OFFICE RECOMMENDATIONS

1. Review the workloads of the TUO and update the contract statistics to reflect the current situation.

18. CASI AUTOMATED SYSTEMS: USER SERVICES RECOMMENDATIONS

1. Emphasize the operations rather than data processing when reviewing operations for future changes and additions. At CASI, DP sometimes seems to be the tail wagging the operational dog. Assign CASI's best DP resources to work with the CASI operational staff to identify automated tools that will immediately improve their production and work environment. This should have a higher priority than long term bold new DP initiatives. Seek assistance from the electronic publishing experts at CASI.

2. Produce up-to-date user manuals for all automated systems.

3. Improve the software modification testing procedures to eliminate production staff downtime due to bugs in software changes (especially ADABAS/DOCORDER).

4. Add hardware, software, and telecommunications to reduce the effort and duplication presently spent by operational personnel to produce needed reports.

5. Replace the RECON front end with a user friendly system that easily connects to the outside world as well as to the CASI and JTT staff. Provide availability of all document formats and automatic confirmation of orders. Reduce the number of collections (classifications) of documents available via RECON. Identify alternative products and services (CD/ROM) to the RECON system to improve the use of the NASA STI database.

6. Tie the RPCS, RECON, and DBASE3 into one Windows, menu driven front-end that allows data upload/download from Lotus 1-2-3 and WP 5.1; reduce backing out of one system and logging onto another just to complete functional processes.

7. Add Data Security to newly developed modules/systems:

   a. Back-up the system every 15 minutes; on any system failure, back-up immediately and save data input up to the failure (capture the record in process at the time of the failure).

   b. Add the date of last transaction and the initials of the updater to all transactions.

   c. Provide automatic duplicate checking in all document processing modules; allow for legitimate duplications, e.g., customers who receive both ADDS and Standing Orders distributions.

   d. Provide automatic update of related records when changes are made in document processing, e.g., ARTS and DOCORDER when RPCS is updated.

   e. Provide parallel operation of the current and replacement document control systems.

8. Use the results of this study plus the efforts of the CASI staff in the several Requirements Documents, and the input from the user Survey to rethink the entire CASI present and future functions and operations **before** implementing any one solution.

CLASSIFICATION OF RECOMMENDATIONS BY ANTICIPATED EASE OF IMPLEMENTATION

Note: In the Status column, N = New recommendation, I = In process, & D = under Discussion.

Relatively Easy to Accomplish

SHORT TITLE	STATUS	IMPACT
Minimize doc. handling in IPS	N	Reorganization of IPS
Eliminate card file for dup checking NASA docs	N	Some partial processing of dups possible
Improve computer support for contract/grant doc acquisition	N	Minor reprogramming. Decision on interim reports
Use Acquisition Data Type data element to track sources of docs	N	Minor structuring and coding
Eliminate research for author affiliations	N	Some affiliations missing/more time available to catalogers
Eliminate pre-announcement of initial distribution (Doc Supply)	N	Less work for Liz's replacement/less paperwork
Reuse RTOP records	I	Less keying in of data/should consider reuse of other data also
Run dup check on more incoming bibliographic tapes	N	Less wasted work. More computer processing. More information at selection time.
Less specific references to related records in RECON	N	Less work/More accurate information
Abandon Subject Switching	D	Less work/more staff time
Purchase back-of-the-book indexing software/develop expertise/offer service	N	Facilitate special indexing. Potential revenue generating service or welcome support for NASA publishing
Have indexers review/quality check the work of their group	N	Improved consistency/higher quality indexing.
Aggressive program for obtaining NASA STI documents (all formats)	D	More staff time
Improve deficiency reporting procedures	I	Better response
Review policies for handling docs also processed by DTIC	D	Faster processing
Eliminate need for 901 form	D	More efficient
Open more fields for modification by the Quality Control station	D	Minor improvement in efficiency/potential introduction of new errors
Simplify/improve registration forms	I	Decreased redundancy and confusion, reduce work for registrants and staff

Install windows environment to support multiprocesses	I	Improve efficiency by providing access to all files via one workstation
Headphones for staff that are finding information for customers on the phone	D	Better service/minor cost, reduce telephone call-backs
Policy & procedure manuals for: registration, document handling, and NASA-wide doc retention - automate	N	Improve understanding of CASI policies & practices and training of new staff
More frequent printing of 492 doc requests	I	Faster turn around time for doc requests
Assign rush requests to specific staff on rotation basis	N	Allow the rest of the staff to work on projects uninterrupted
Develop a single product and services list for CASI	I	Simplify to improve staff and customer understanding of available CASI products and services
Add ability to handle pre-pays to RPCS/ARTS	D	Fiscal control/more efficient customer service/save staff time
Enforce the policy of the maximum number of copies wanted at CASI: arrange with supplier, discard hardcopy and microfiche dups	D	Save costs of generating hard copies no one will ever want/need; save staff time handling unneeded docs; more efficient use of space
Rolling step stools for doc supply	D	More efficiency/better working environment
Use Julian date system for 492 processing rather than work days only	D	Greater understanding by staff and customers of time elapsed in doc delivery
More frequent deliveries between Doc Supply and Micrographics	D	Quicker processing
Delete duplicate microfiche in Doc. Supply	D	Reduce needed space
Update policy manuals for Doc. Services collection storage and distribution - automate	N	Improved document handling, retention, storage, and preservation
Automatic notification of unfilled doc requests to Acquisitions	N	More complete database, better customer service
Develop Doc Supply floor plan	D	More efficiency in space utilization

Short term planning/implementation required

SHORT TITLE	STATUS	IMPACT
Simplify handling of DCAF docs	N	Programming/structuring/ coordination with foreign program
Establish records for missing NASA series numbers	N	Programming. Related to improved computer support for locating contract/grant reports
Work group review of Scope & Coverage	N	NASA-wide planning & organization. Possibly a year-long process. New firmly-grounded selection policy.
Custom production of casefile labels/redesign elements on the labels	D	Programming. Better information for processing/doc supply. More printers. No date stamping.
Corporate Source Code system - can it be eliminated?	N	Impact on Center processing, offsite processing, retrieval. Programming needed to develop text-based authority file. Incorporate authority file into retrieval system.
Evaluation study: Nature of errors in contributed cataloging	N	Possible improvement in contributed data. Support decision about the degree of editing needed.
Evaluation study: Purpose and use of the K file and RTOP records	N	Support decisions about abstracts for K records and length of time that RTOP records should remain on the file.
Evaluation study: Quality of MAI processing	D	Support refinement of the system.
Evaluation study: Quality of indexing and abstracting (effect on retrieval)	N	Support refinement of indexing and abstracting operations
Evaluation study: Cost/benefit analysis of products and services	N	Support decisions on product and service development/cost reduction
Evaluation study: Evaluate SOW & award fee %s - especially for customer service	N	Support development of future contracts and amendments to the contract/tie award system to SOW
Evaluation study: Automated transmission of orders to AIAA and NTIS	D	Improve information delivery to the NASA community
Evaluation study: Automatic receipt of RDP pages	D	Improve internal efficiency and timeliness of CASI data
Evaluation study: Pricing of products and services	D	Support setting of prices/revenue enhancement
Interactive dup checking near beginning of the IPS process	D	More efficiency/more staff time
Continue with the implementation of recommendations of the Database Cleanup Committee	I	More efficiency and quality in database.
Obtain more electronic records for input: K-file; RDPs; electronic text for abstracts	D	More efficiency/more staff time/increase registrations
Ability to handle Greek symbols in titles and abstracts	D	Eliminate verbalization/more staff time. Programming

Interactive spell checking outside of MAI; increased word base; spelling checkers for other areas (customer services)	D	Improve quality/more efficient quality control/more staff time
Improve backfile maintenance capability	D	Improved efficiency/more staff time/higher quality records
Marketing: make use of user profiles; offer or send sample of targeted products/searches; encourage multi-service (subscriptions)	N	Programming; structuring; increase number of customers; increase interest in CASI P&S
Institute payment for all services; permit credit card payment	D	More efficient processing of requests; cost of processing credit cards
Increase use of deposit accounts to 20% of revenue	N	More efficient processing of requests.
Automatic dup check of RPCS entries and global deletion of flagged dups	N	More efficient maintenance of file/more staff time; programming
Institute a Classification document backfile maintenance project to update RECON	D	Complete the RECON database and update the classified documents record keeping
Add a Total Quality Management (TQM) program	D	Improve all operations and customer services
Stock shelving: low shelves for current docs (last 2 yrs); high shelving for older docs	N	More efficient doc supply.
Eliminate manual eligibility/security checks for doc ordering	N	Greater control and more efficiency.
Cross training of staff	I	More flexible work group; time needed for training.

Long term planning/implementation required

SHORT TITLE	STATUS	IMPACT
Bar coding: Temporary accession number becomes stock number	N	Major programming/new shelving arrangement/fiche headers,etc.
Bar coding: track turn around time for processing from time of arrival	N	Major programming/development of expected turn around times
Bar coding: inventory system for docs; initial complete inventory of Doc Supply; share results with NASA Libraries	N	Major programming/major inventorying effort
Bar coding: Order tracking and control	N	Major programming and structuring
Bar coding: Tracking of requests and requesters	N	Major programming and structuring
Reorganization and automation of IPS process: distribute the Evaluation function, expand the Acquisition Group, automate the Accessioning functions, internal quality control in sections	N	Major reorganization/major programming
Management reporting: identify management needs, redesign Monthly Report, evaluate internal record keeping, relabel & explain "reject" categories, automate statistics collection, develop success indicators; add on-demand report generator	N	Major analysis & development process/clearer reporting with more impact
Reorganization of management structure: minimum span of 5 subordinates; provide common management for Doc Supply, Micrographics, and Request Services	N	Major reorganization. Combined registration.
Add staff: internal courier & building manager	N	Significant new staff positions.
Equipment/software tools: upgrade and add photocopiers and Fax, efficient placement of equipment, upgrade workstations, upgrade indexer support tools	N	Equipment leasing and purchase/major programming
Rearrange work spaces to match work flow: Help desks (RECON/ARIN); Mail Room; IPS; Doc Req->Supply->Micrographics; TU space	N	Major planning and reorganization
Simplify the RECON file arrangement	D	Major programming and file structuring
Integrated multi-file system and access (related to use of Windows environment)	D	Major programming/software purchase
Order doc capability through RECON	D	Major programming
Give access to "in-process" records (IPS records) through RECON	N	Major programming
Searching enhancements: link related records	N	Major programming
Electronic user interaction for orders and queries	N	Major programming
Single automated accounting system	D	Major programming/software purchase

Improve system for new/potential user identification and solicitation.	N	Major programming
Universal, shared address file for multiple purposes	D	Major programming
Add an automated Inventory and Control system with built in ticklers to remind staff of needed actions: user interaction, automatic notification of doc order hangups, reprocessing limited docs, close of contract period, low stock, etc.	N	Major programming
Facilitate user registration: machine-readable data (direct entry online, scanned, ...), bar-coded forms, approval v.s. signature	N	Major programming
Frequency sort of search terminology used on RECON - monthly report of most frequently searched topics	N	Major programming. Privacy issues.
Eliminate stock copies by moving to on-demand copy production; tie to use statistics	N	Major restructuring. Saves storage and handling of doc supply.
Multimedia: ability to process, store, preserve, duplicate, and deliver	D	Major programming and structuring and equipment purchase
Internal note field for bibliographic records to indicate condition of doc copies, and other information for internal processing only	N	Major programming
Image the NACA and casefiles/send originals to NARA	D	Major equipment purchases
Develop MAI-based relevancy ranking of incoming electronic records	N	Development of ranking algorithms and testing of results
Preservation plan for CASI docs and fiche. Interim solutions: climate controlled area for stock and fiche; investigate hanging files for casefiles	D	Major structuring and approval process