



Telecom Australia, Research Laboratories
770 Blackburn Road, Clayton, Victoria, Australia, 3168.

Switching and Signalling Branch

Branch Paper 95

EVERYTHING YOU EVER WANTED TO KNOW ABOUT
DOCUMENTATION


(and should have asked)

By: C. Fidge & D. Heagerty

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Approved by


: Peter Gerrand
Assistant Director,
Switching and Signalling

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Summary

SWITCHING AND SIGNALLING BRANCH PAPER NO. 95

EVERYTHING YOU EVER WANTED TO KNOW ABOUT DOCUMENTATION

(AND SHOULD HAVE ASKED)

BY C. FIDGE AND D. HEAGERTY

Documentation is a vital but often overlooked part of any technical project. Even when a considerable amount of effort is put into producing and maintaining documentation it may still fail to be useful if the style and layout are inappropriate to the audience and intended purpose. This report, which is general enough for any documentation project, provides numerous suggestions for style and layout which may be more applicable to the particular problem in hand than traditional "essay-like" writing. However it does not aim to be a "standard" for documentation. The report also aids management and organisation of a project by proposing a seven-step documentation plan, covering the full documentation process from conception to finished product. The document "practices what it preaches" and is presented in a straightforward style designed to convey the maximum amount of information while placing the smallest possible burden on the reader.

This paper was originally published in February 1985 as Research Laboratories Report 7771 under the title "The Preparation of Documentation and Similar Software"

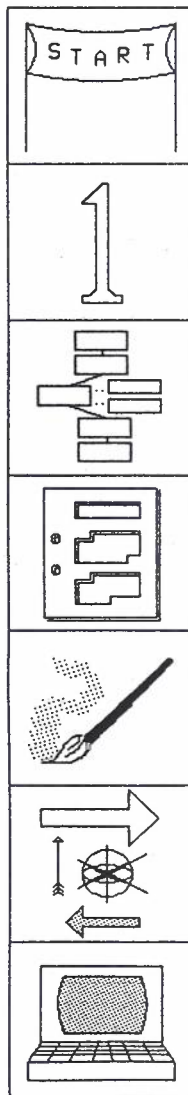
Overview

This report is broken up into a number of independent chapters. Within each chapter independent concepts are presented in a double page layout comprised of a page of text and a supporting diagram. To aid searching, each chapter has an associated symbol in the top right corner.

There are three levels of headings:

- o The chapter heading which appears at the bottom of every page.
- o The sub-heading which appears in the box at the top of each left hand page.
- o An optional topic heading which appears in small print below the sub-heading.

The individual chapters are:



PREFACE - describes the purpose of this report, its intended audience, and how you should use it.

INTRODUCTION - discusses the importance and advantages of good documentation, and suggests a few ideas to use in evaluating documentation.

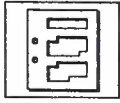
STANDARD DOCUMENTATION PROCESS - presents a seven step plan for producing documentation, with a detailed description of the steps involved.

DOCUMENT FORMATS - presents a number of different document formats that may be applicable to your particular application and suggests a number of general rules for layout.

GRAPHICS - describes the different ways of including pictorial material in your documentation.

REFERENCE AIDS - presents a number of different aids you can provide to help your readers find their way around your documentation.

ON-LINE DOCUMENTATION - of interest to anyone developing documentation to be directly available to users of a computer system, this includes a number of general rules to follow and describes some pitfalls to avoid.



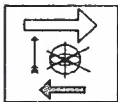
DOCUMENT FORMATS

Text flowchart	FMT-1
Matrix, table or tree diagram	FMT-3
Text picture	FMT-5
Playscript	FMT-7
Structured writing	FMT-9
STOP method	FMT-11
General rules	
Numbered lists	FMT-13
Bulleted lists	FMT-15
White space	FMT-17
Underlining	FMT-19
Justification	FMT-21
Section numbering	FMT-23
Modularisation	FMT-25
Commenting computer programs	FMT-27
Typefaces	FMT-29



GRAPHICS

Introduction	GPH-1
Principles	GPH-3
Line drawings	GPH-5
Computer outputs	GPH-7
Materials	
Clip art	GPH-9
Lettering and symbols	GPH-11
Photographs	GPH-13
Computer generated artwork	GPH-15
Spot art	GPH-17



REFERENCE AIDS

Introduction	REF-1
Contents page	REF-3
Glossaries	REF-5
Indexes	REF-7
Cross references	REF-9
Bleeding edges	REF-11
Headings	REF-13



ON-LINE DOCUMENTATION

Introduction	ONL-1
General considerations	ONL-3
Recommendations	ONL-5
System messages	ONL-7
Screen design	ONL-9

BIBLIOGRAPHY	BIB-1
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ACKNOWLEDGEMENTS	ACK-1
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START

PREFACE

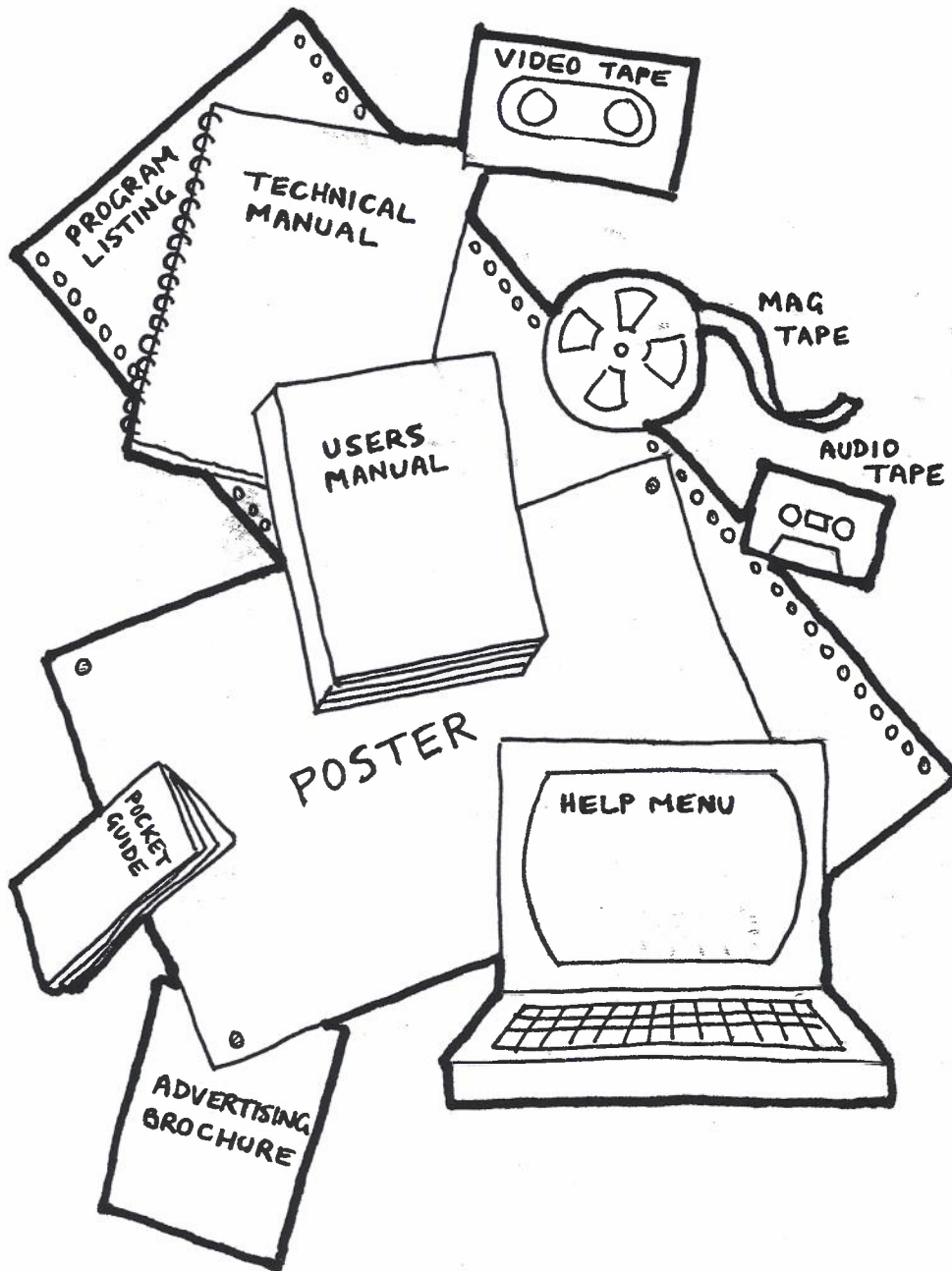
START



START



INTRODUCTION



1

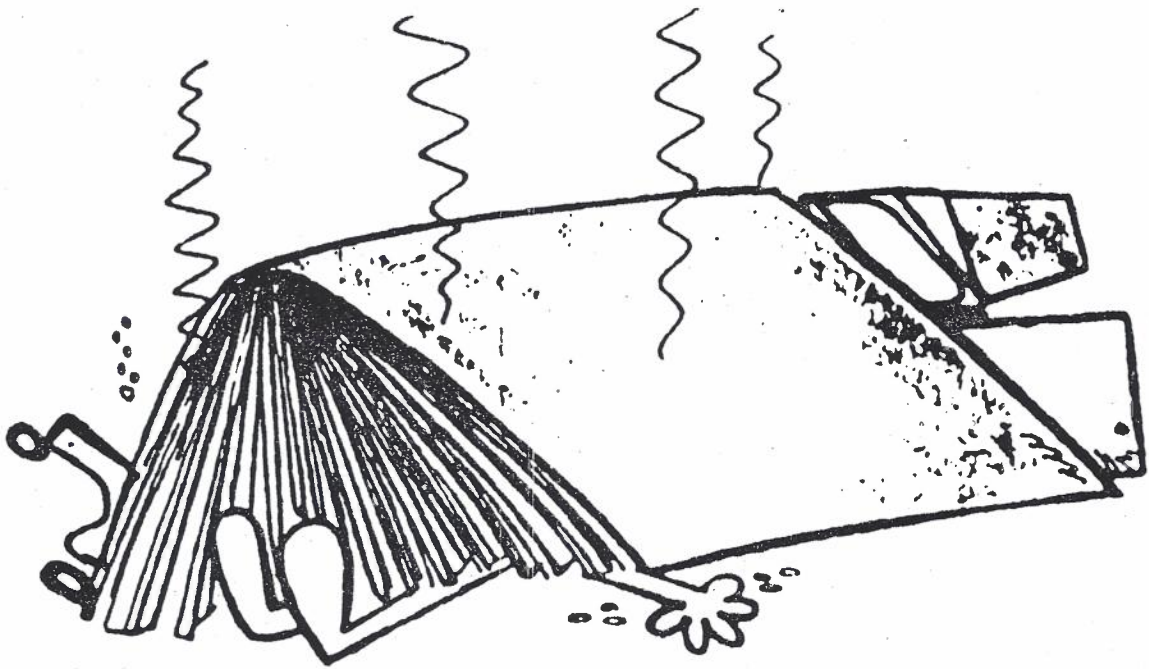


USER'S
VIEWPOINT

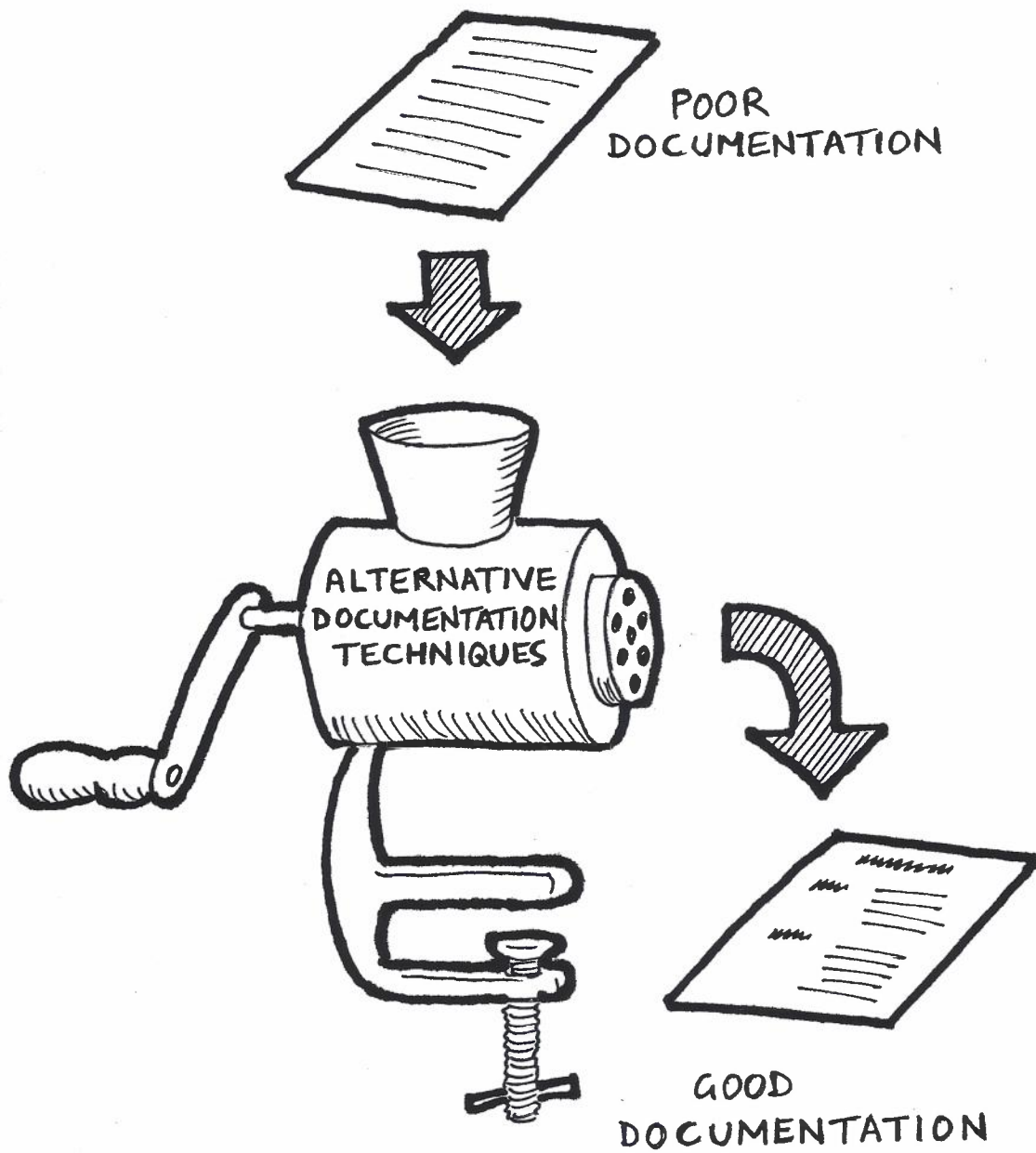


DESIGNER'S
VIEWPOINT
(PUZZLED BY POOR
USER RESPONSE)

1

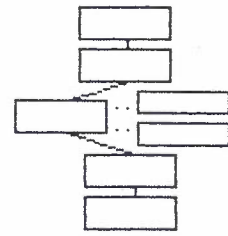


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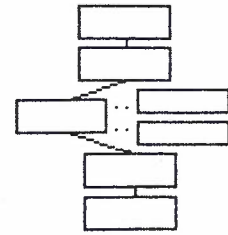


Rating Reference Aids

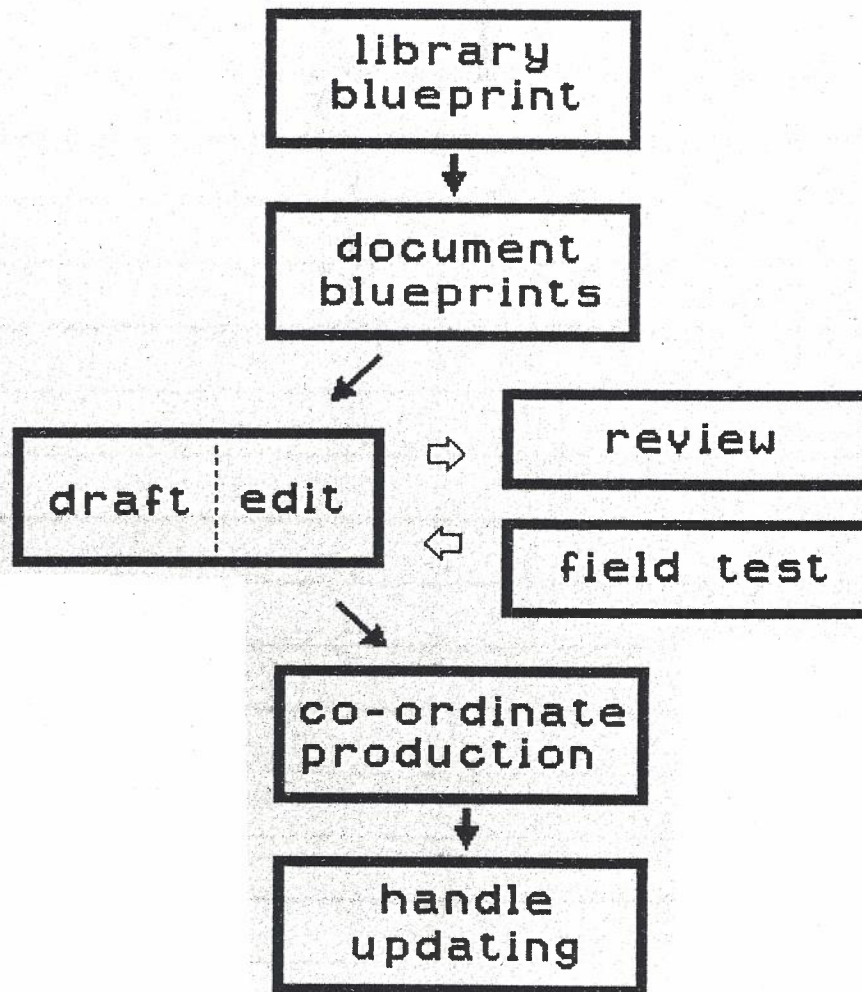
<u>Reference Aid</u>	<u>Desired Features</u>	<u>Present in Manual</u>
Table of Contents	Two or More Levels of detail	_____
List of Illustrations/ Figures or Tables	Present	_____
Chapter Tables of Contents	Two or More Levels of Detail	_____
Headings	Two or More Levels of Detail	_____
Spot Art		_____
Figure Captions	Number & Title	_____
Tabs	Titles not Numbers	_____
Error Message Appendix	Present	_____
Glossary	2% of the total # of pages	_____
Indexes (traditional or by topic or function)	4% of the total # of pages; analytical in style	_____
Reference Card	3 to 5 levels of detail	_____
10 - 11 Checks = An Excellent Manual 8 - 9 Checks = An Adequate, But Improveable Manual Less Than 8 Checks = An Inadequate Manual		

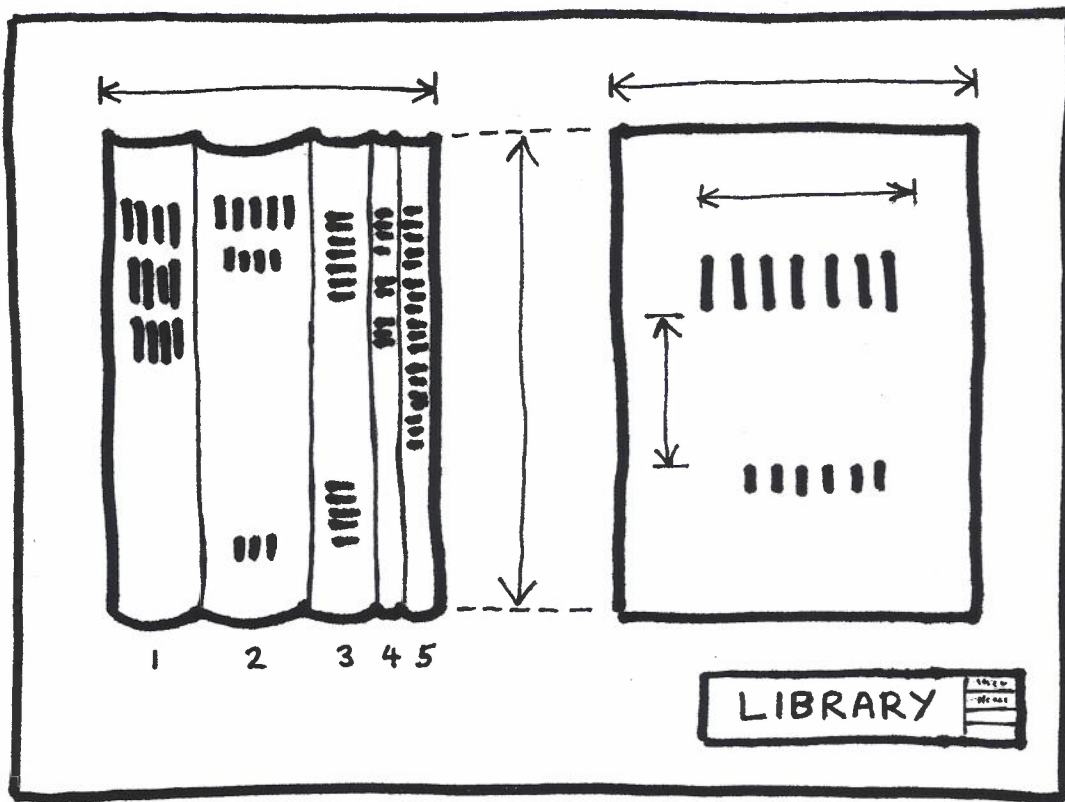
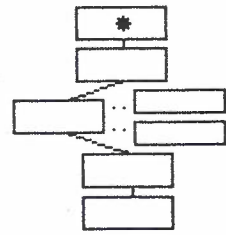


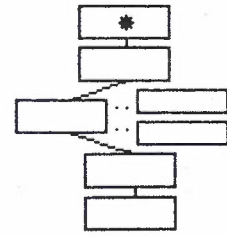
STANDARD DOCUMENTATION PROCESS



Standard Documentation Process





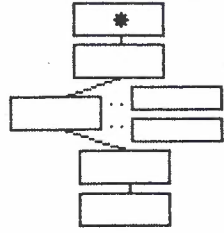


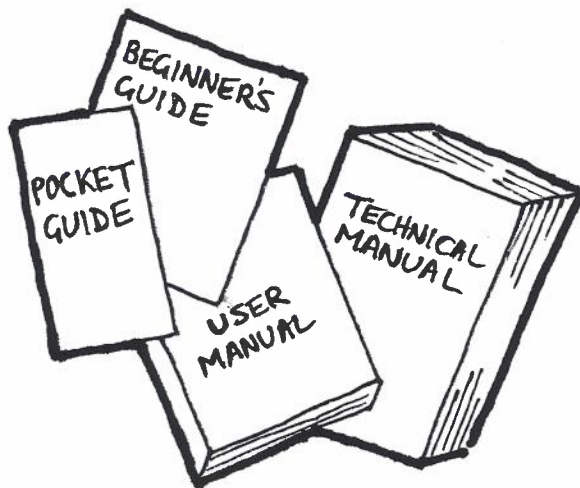
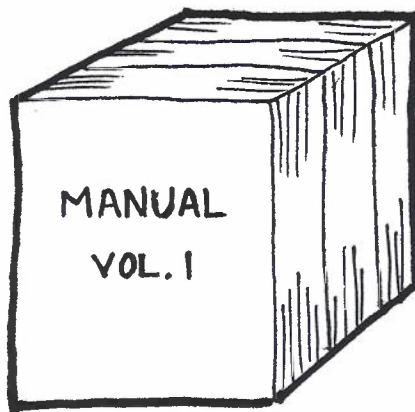
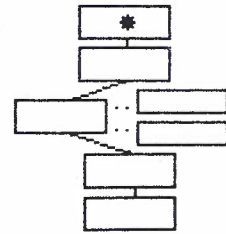
MANAGER

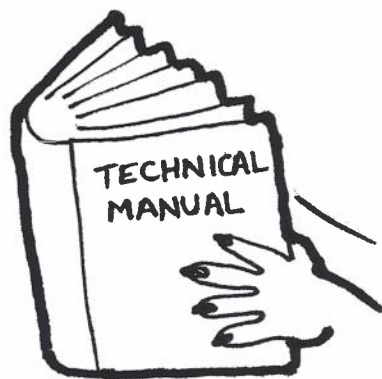
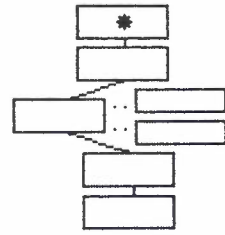
USER

MAINTENANCE



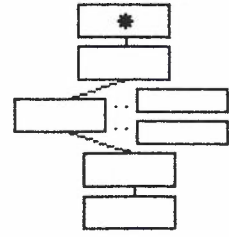




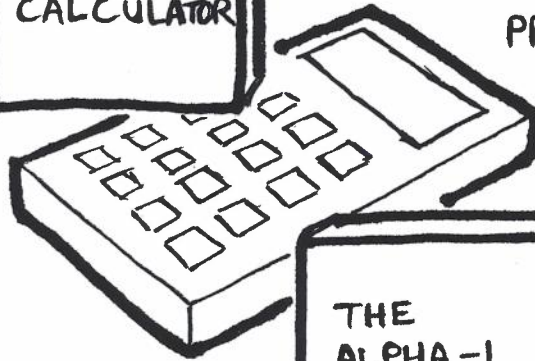
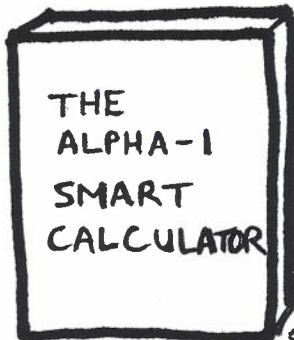


FIRST TIME
USER

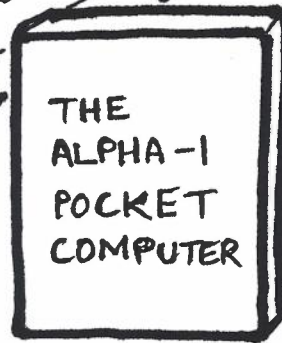




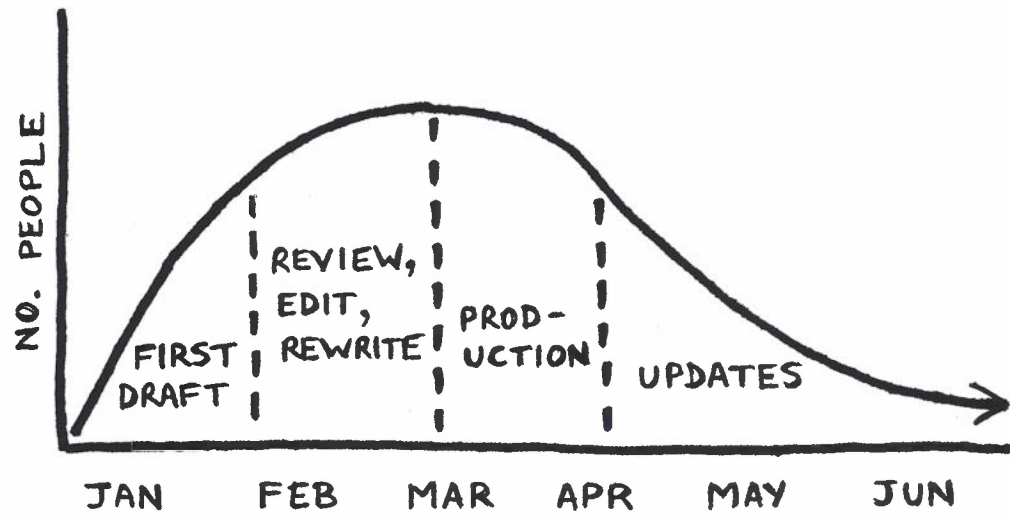
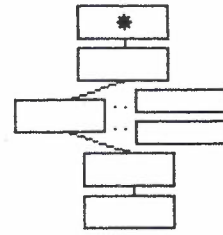
ACCOUNTANT

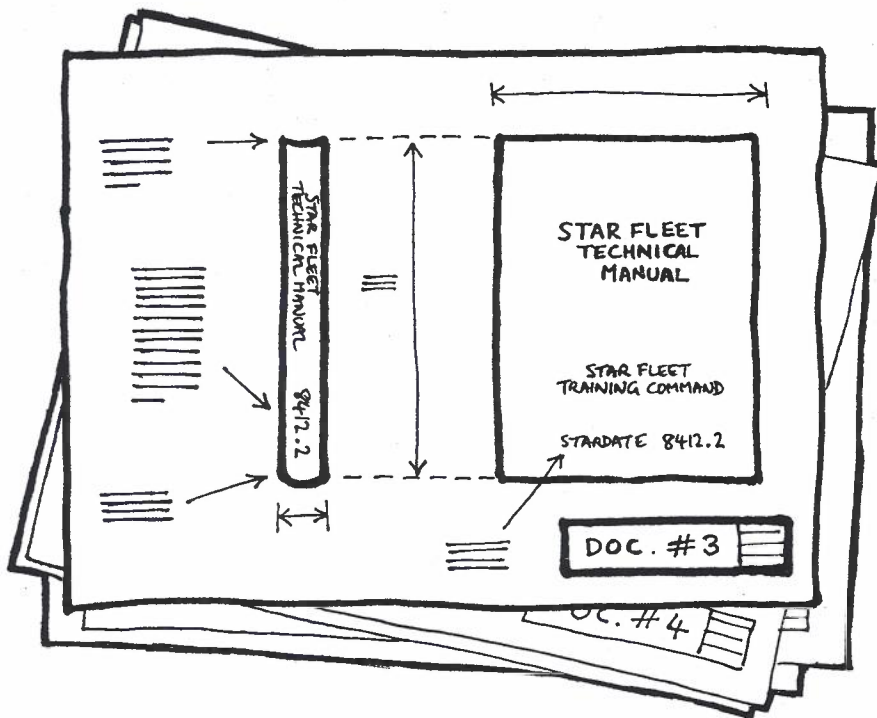
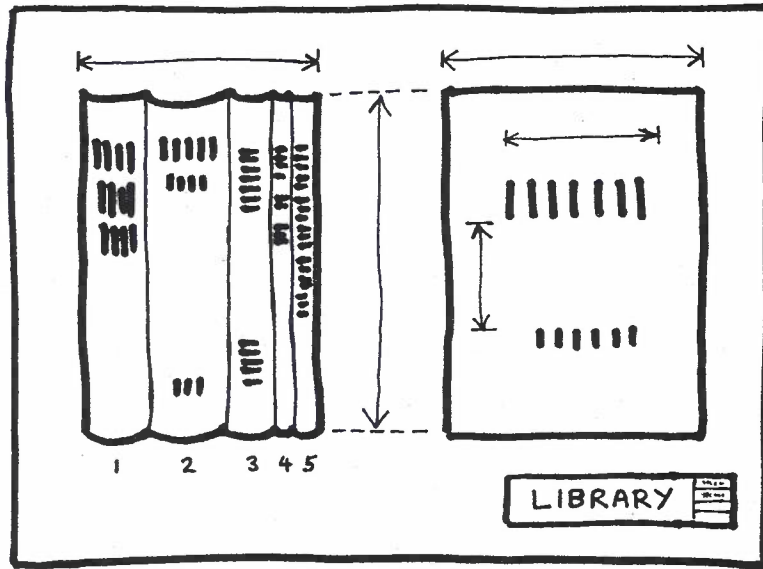
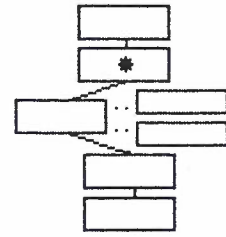


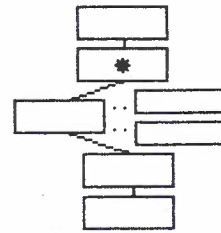
PROGRAMMABLE
CALCULATOR



COMPUTER
SCIENTIST







DOCUMENT BLUEPRINT

WORKING TITLE: "Documentation Techniques"

AUTHORS: D. Heagerty and C. Fidge

DATE: 6th September 1984

REQUIREMENTS

INTENDED PURPOSE:

The document is aimed at anyone within the branch (eg. CSO's, E's, TO's) who wants some advice on how to tackle a particular documentation problem. It is assumed that the reader knows what to write but not how to write it.

Therefore the document aims to present a documentation methodology to give the reader a guide as to how to best approach the documentation process as well as numerous suggestions for "alternative" document formats and simple, but effective, ways of preparing graphics, producing documents, handling updating and so on.

AUDIENCE:

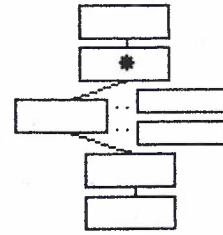
Technically oriented authors within the Switching and Signalling Branch. It will be assumed that the readers have written technical documentation previously and are reasonably literate. Emphasis will be on the proposed documentation methodology and proposed layouts.

It will also be assumed that the readers are intelligent enough to select those ideas relevant to their particular documentation problem and ignore others without too much guidance.

LAYOUT:

The document will be structured in a way that emphasises random access. Each section will be discrete and will be a stand-alone module, not requiring any knowledge of the rest of the document. However it will also be possible to read the document sequentially without too much incoherence.

Since we already have access to a good (but largely sequential) document on this information (Brockmann's notes) we do not want to duplicate this work. Instead our document will act more like a very large quick-reference guide. (Also see under "Organisation" below.)



Page 3

CONTENT

ORGANISATION:

The document will be organised using a combination of the STOP and Structured Writing techniques (see appendix). Each double page spread will contain a single concept. Two formats will be used. Wherever possible the left

additional bits and pieces from other sources. Overall the content will be a much more detailed version of the authors' seminar (with some additional material that was excluded for the sake of brevity). The core of the document will be a description of the Standard Documentation Process, of course.

However unlike Brockmann's work, this document will be generalised so that it is applicable to virtually all documentation problems encountered within the branch (ie. not just user documentation). No particular documentation domain will be alluded to.

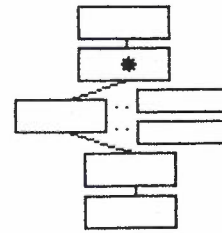
STYLE:

Style will be fairly straightforward, addressing the reader directly as if we are speaking to them, eg. "You should follow this approach", "Use this approach in case x" and so on.

Emphasis will be placed on explanation by example.

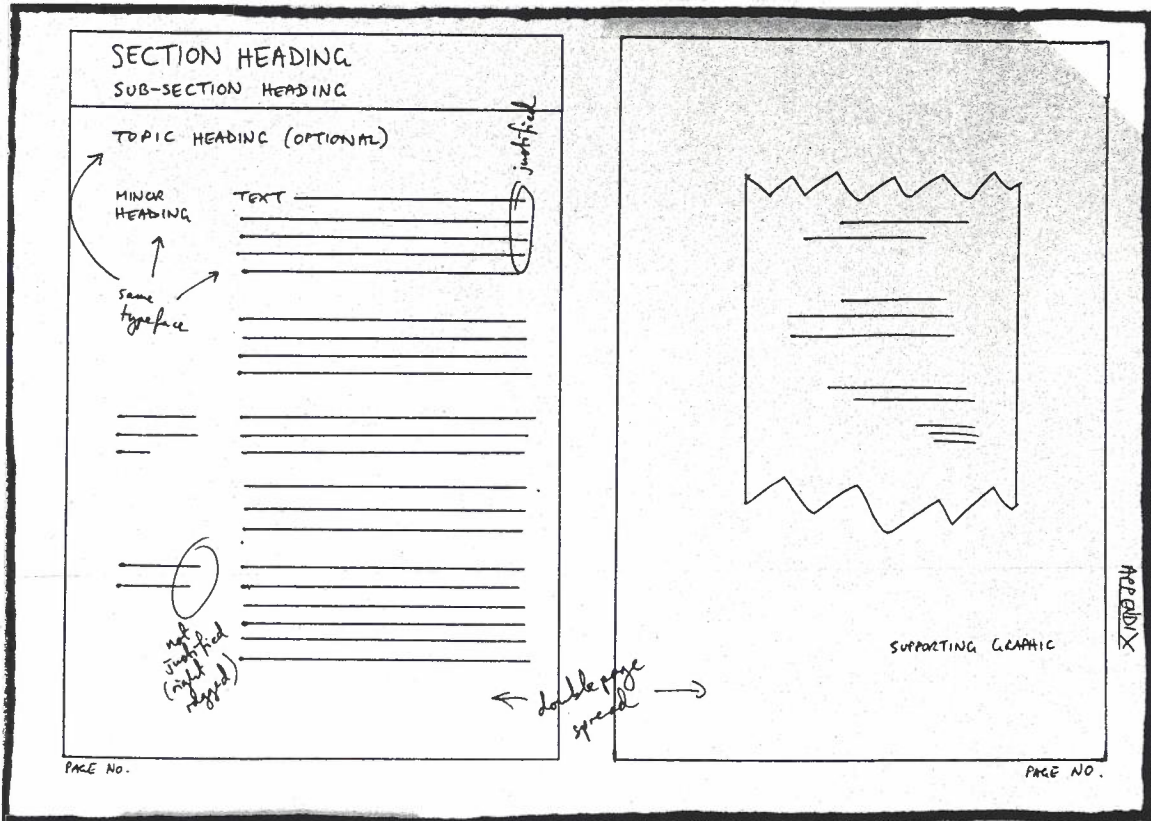
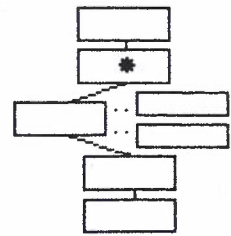
VOCABULARY:

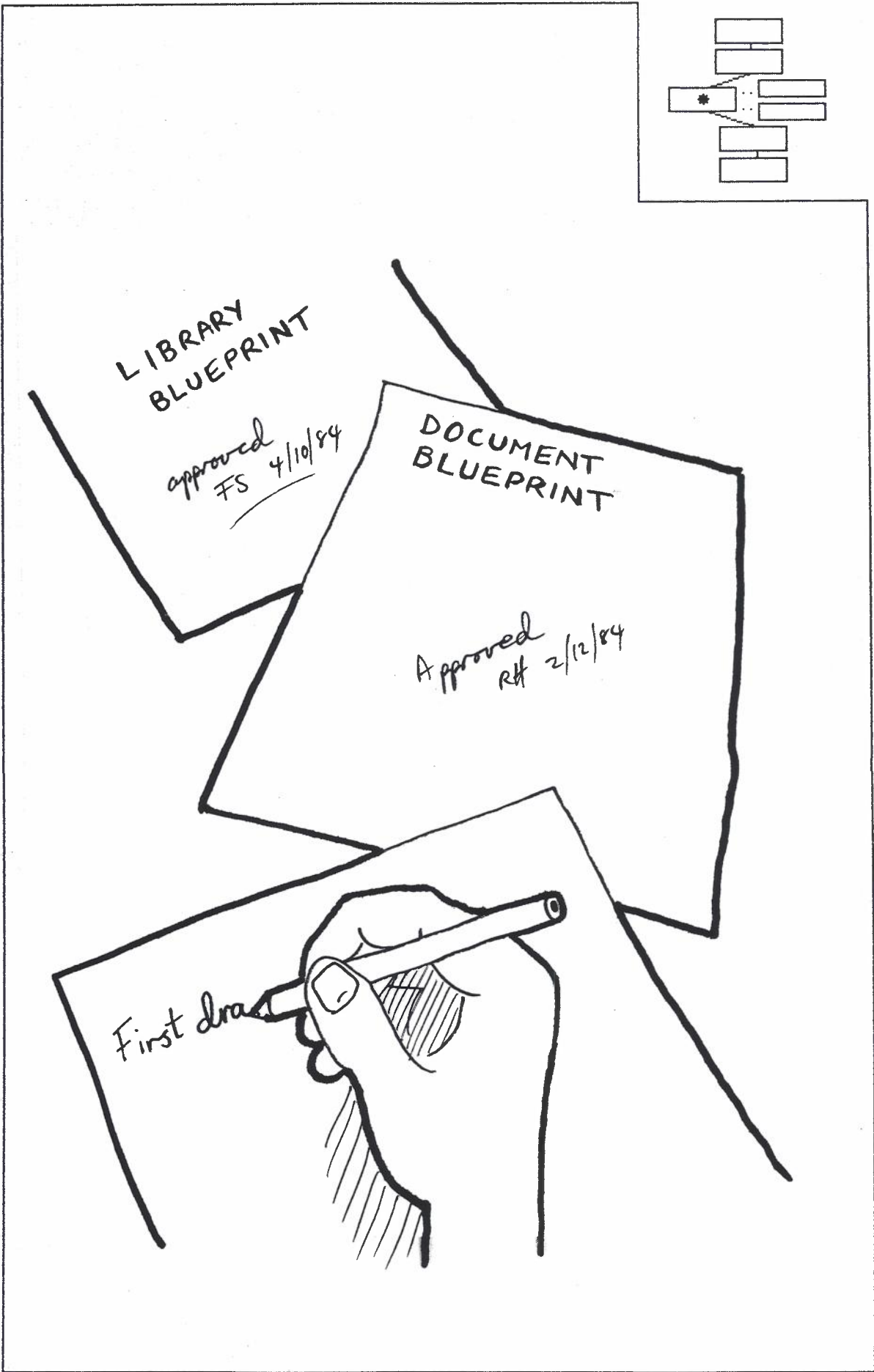
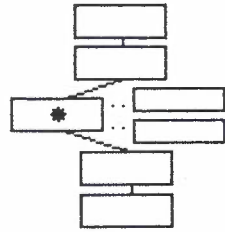
Jargon will be completely avoided. In fact it is expected that the proverbial "man in the street" could pick this document up and read it cover to cover with no difficulty. Since the audience covers a fairly wide spectrum we cannot afford to use specialised terminology.

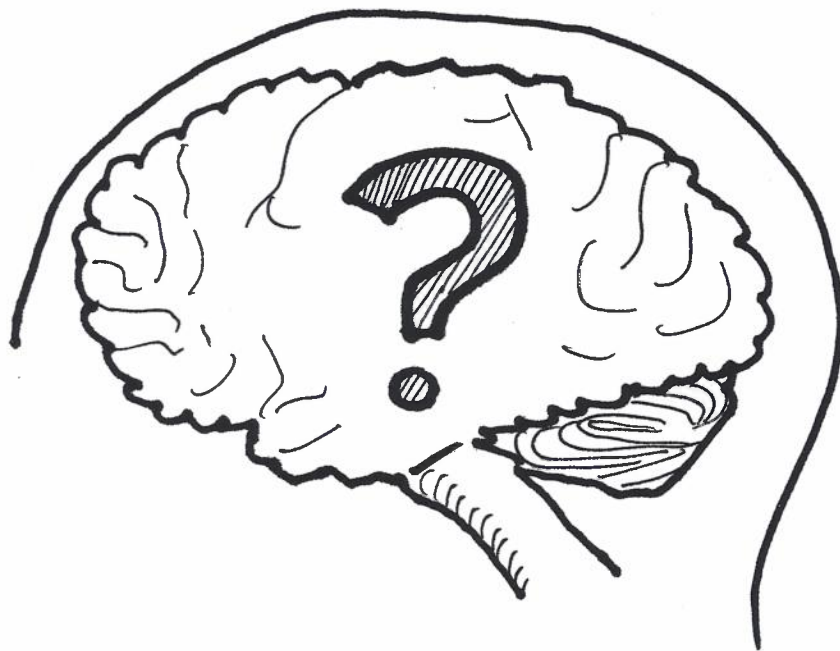
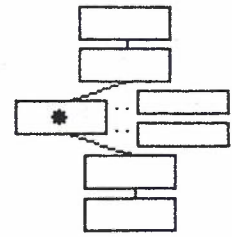


Audience characteristics

	Operational	Background training & education	Attitudes & feelings
Primary Marketing Project Directors & Associates	How to conduct a VDT interview session	Experience in marketing but none in d.p.	Professional but scared of computer
Secondary Vice President for d.p.	Integrate company activities	Much d.p. & System Experience	Wants organisation running smoothly after many mishaps







Following is a brief description of the LIBINFO screen display.

Library Description	The first line lists the specified or current library, identifying its environment and catalog. Also shown is the number of documents in the library.
Storage Units	Shows the total number of storage units (sectors). Allocated — the number of sectors occupied by all documents (either active, deleted, or previous versions) In Use — the number of sectors occupied by When Packed Up — the approximate library size one
Status	Each library maintains a user count. This count is the library (by the OPEN command) and decrease the library by the CLOSE or EXIT command or opening another IE also increased by a system failure. If the "Users" be necessary to unlock the library before execute UNLOCK command in the Utility menu in this
Attributes	The library type and version are displayed on SINGLE. you may wish to revise it use DEF MENU COMMANDS to improve editing re identifies the type of library format.
Auto Document	This line indicates whether automatic doc library. If so, the naming format is displ

BREAKING THE CIRCUIT.

With environment suit on and functional:
 IF red alert (emergency exit)
 detonate outer door release bolts

IF condition green (standard exit)
 1. close inner door
 2. depressurise door
 3. open outer door

SUBJECT: Daily Time Collecting

PROCEDURE

ACTORS

- Executive Secretary
- Department Clerk
- Employee (all)
- Department Clerk

ACTION

1. Upon receipt of time cards (daily from Accounting) sort by department, place in Form 683, TIME SUMMARY ENVELOPE, entering department designation.
2. Deliver to department clerks.
3. Distribute time-cards to all
4. Prepare time-cards to all No. 71, DAILY TIME SUMMARY
5. Sign time-cards

CONTROL OF FLOW OF ELECTRONS

OPERATION GO-GETEM

1-1 The District Office will collect required information from Sales Representatives and enter data into system via existing terminal. Data can be input from 7:00 a.m. until 5:00 p.m. Data not passing validity will be transmitted back to district for re-entering.

1-2 Valid data will be processed and update the S. S. History File on a daily basis. Weekly Average File will be updated on a weekly basis, depending on computer data. Data will be entered from History File. Daily Report will be produced and distributed as indicated.

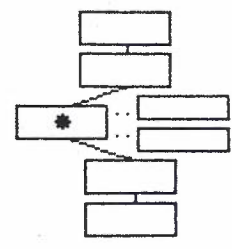
1-3

1-4

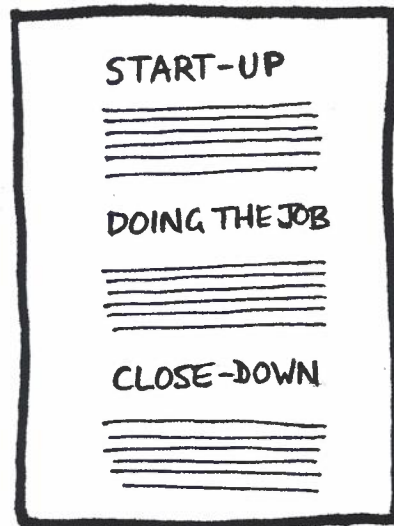
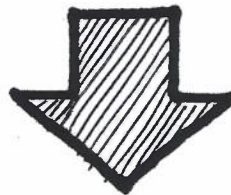
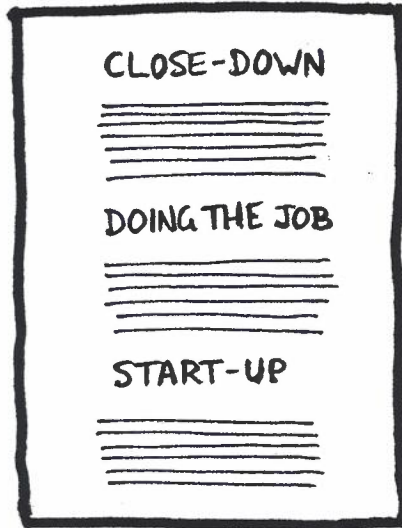
	inner door	
	closed	open
red alert	detonate outer door release bolts	detonate outer door release bolts
ship's status	1. depressurise door	close inner door

APPLICATION OF POWER WITHIN CIRCUIT

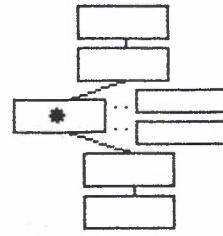
The first section presents an external view of the circuit. It shows the power source, the control system, and the load. The power source is a 110V AC supply. The control system consists of a switch and a relay. The load is a motor. The circuit is designed to provide a safe and reliable means of controlling the motor.



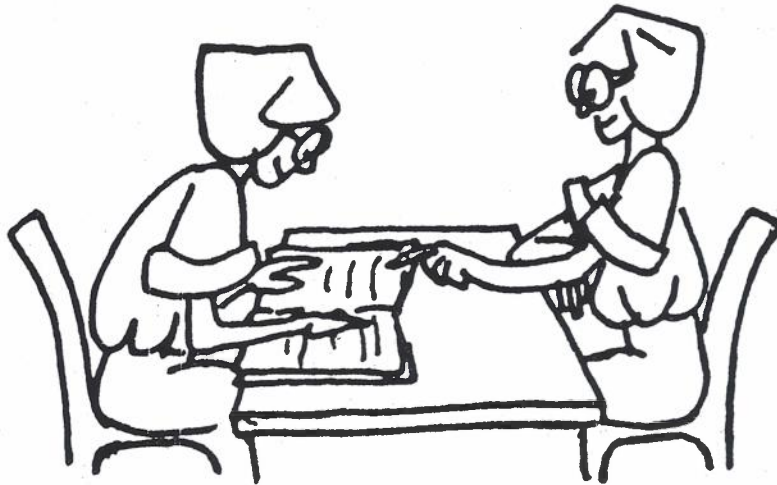
ALPHABETICAL



ORDER OF
IMPORTANCE

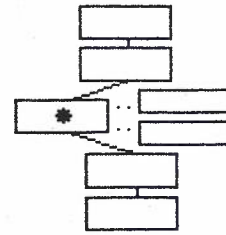


reader-centric document

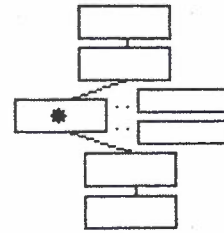


writer-centric document

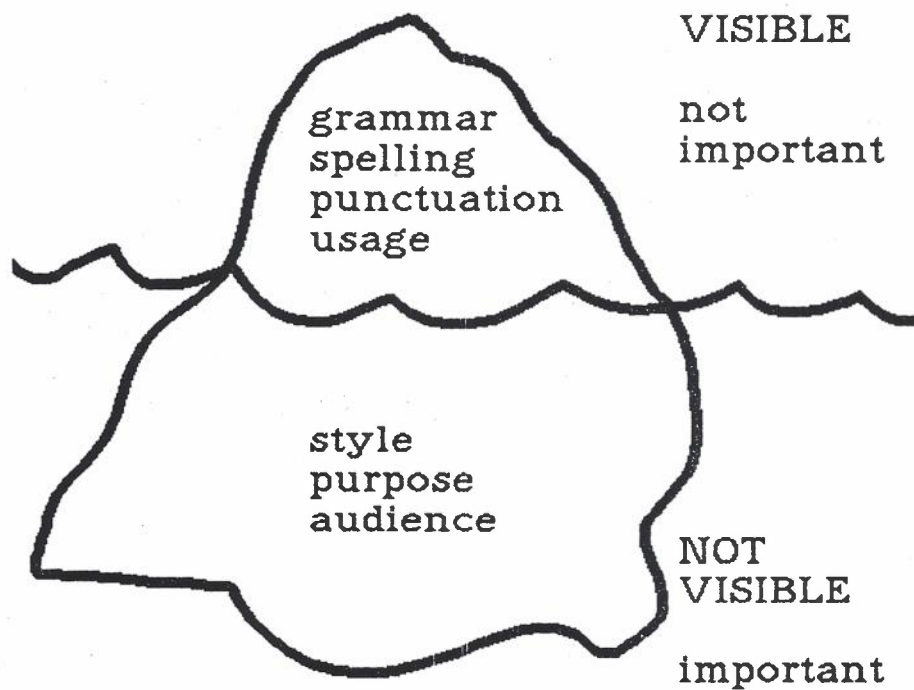


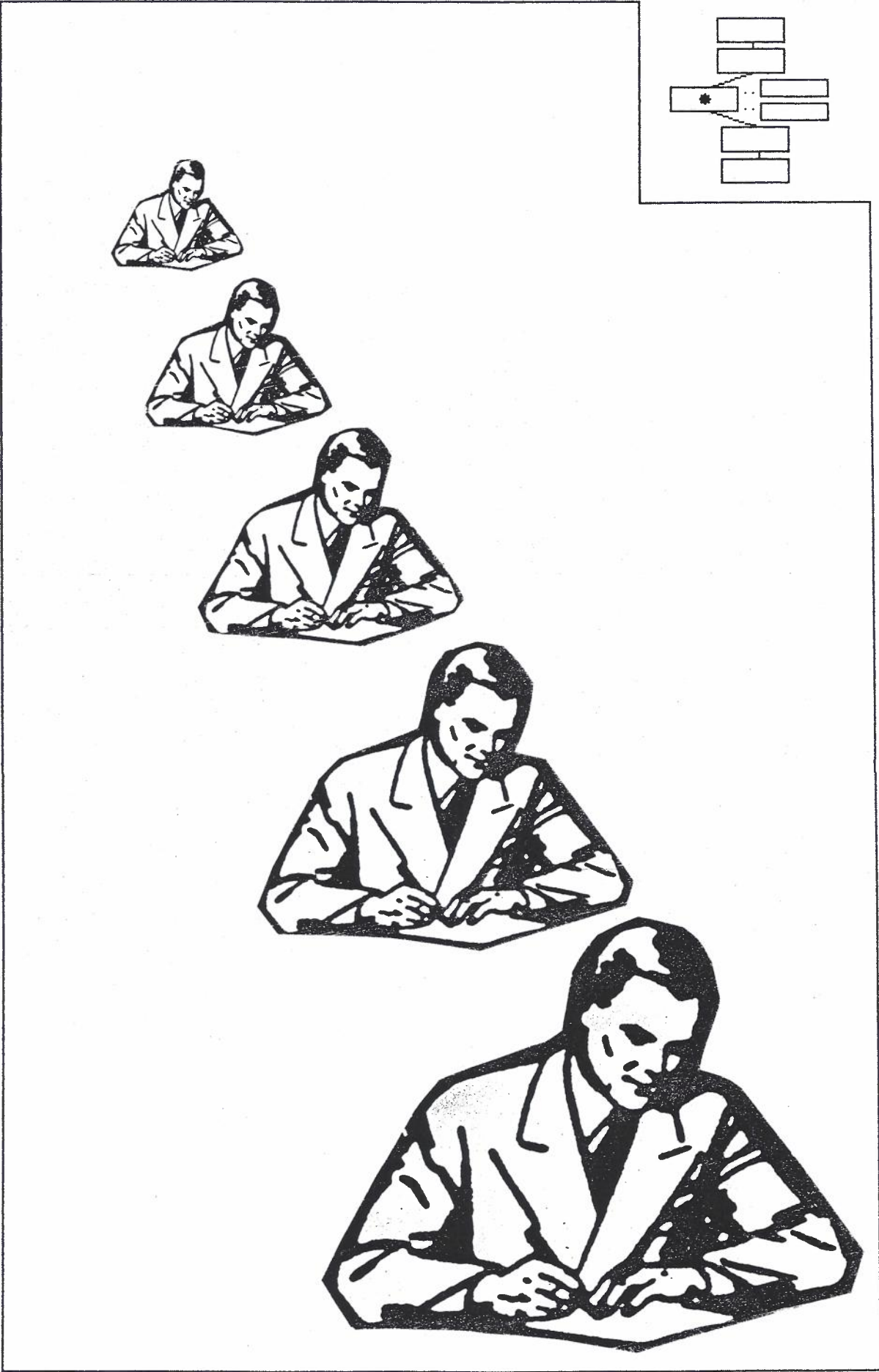


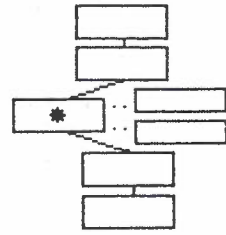
		CHAPTER MODIFIED						
		1	2	3	4	5	6	7
CHAPTERS AFFECTED	1							X
	2			X	X			
	3		X					
	4		X					
	5							
	6					X		
	7	X						

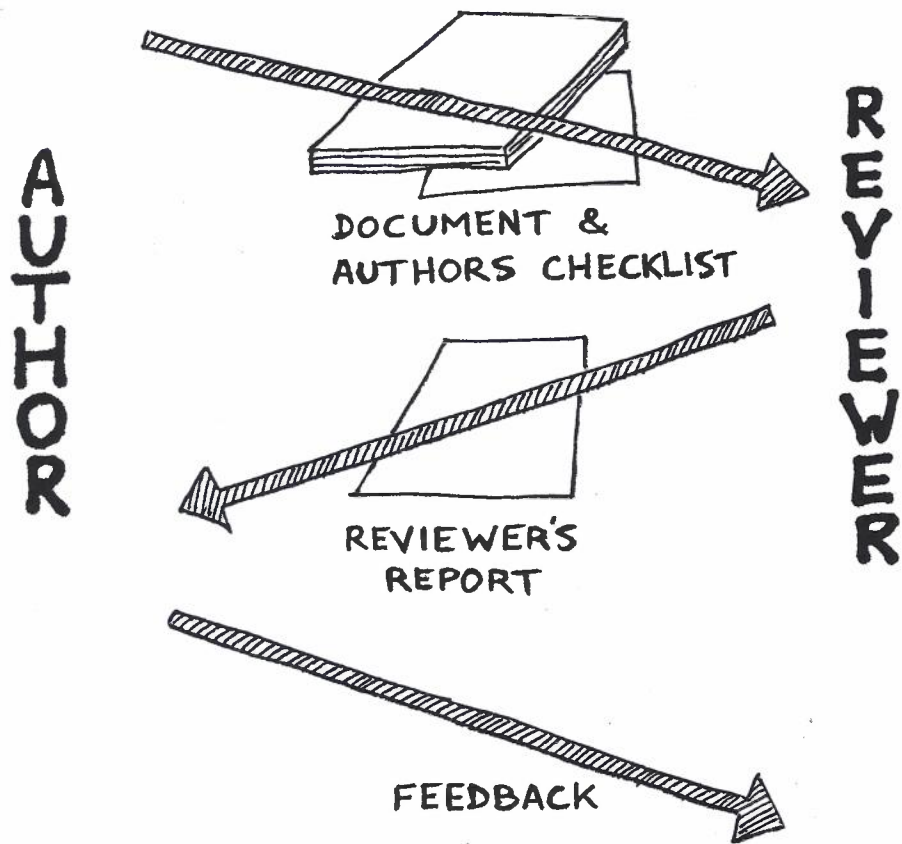
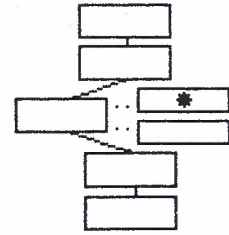


THE DOCUMENT ICEBERG

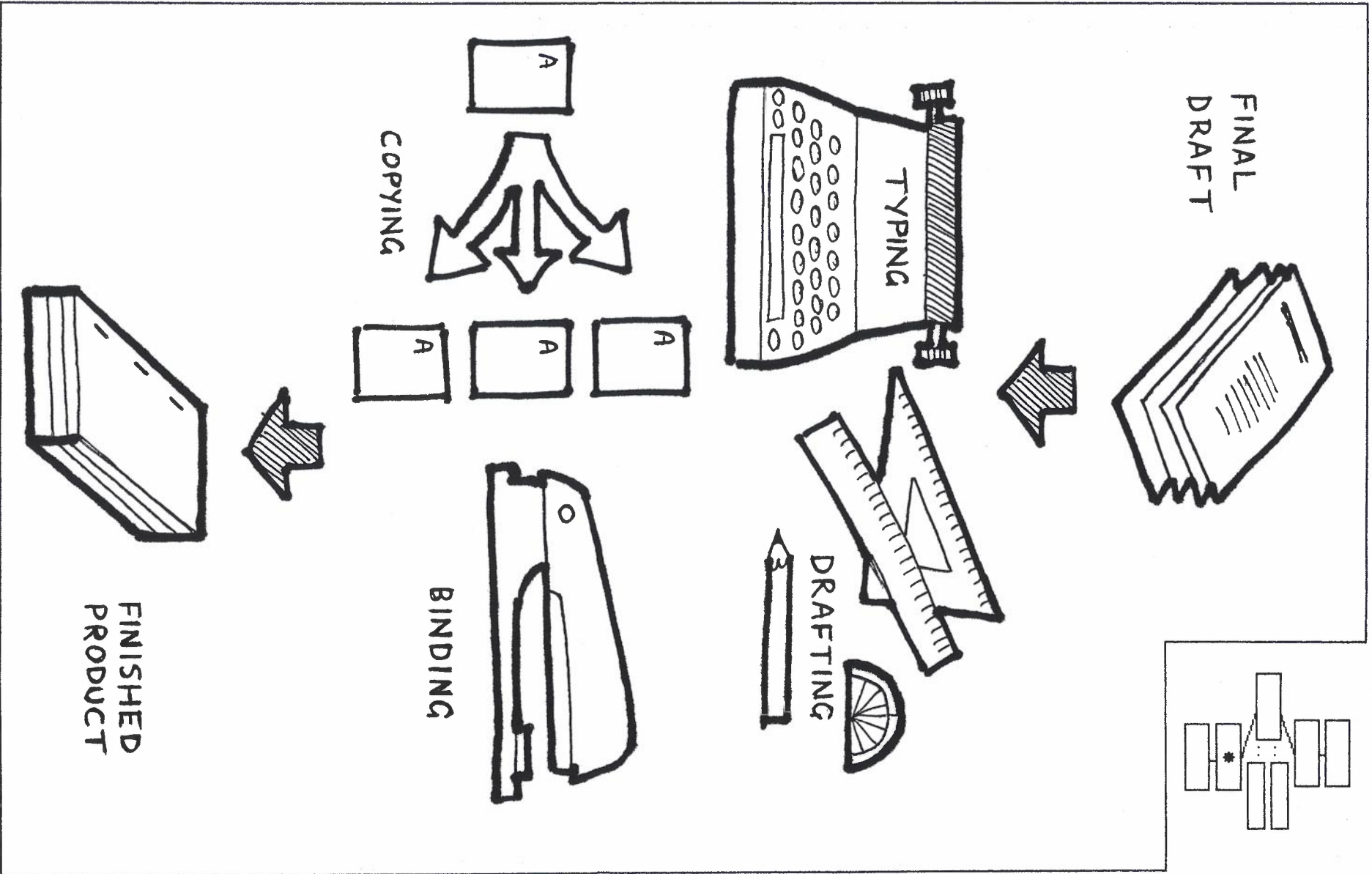


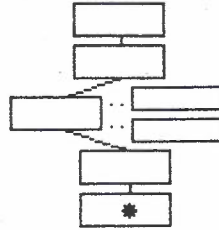












Any time this book is assigned to another employee, the Documentation Section should be notified of the change. Please fill in the card nearest the bottom of this page and return to the 3rd floor - Electric Tower Annex. Your cooperation will assure that each person assigned a book will receive the latest revisions.

WIP Procedure Manual _____ MANUAL NO. 62

I am currently the holder of the manual identified above. In the future, please send any revisions to my attention:

NAME: _____

DEPARTMENT: _____

LOCATION: _____

RETURN THIS CARD TO: COMPUTER SERVICES DEPT.
DOCUMENTATION SECTION
3rd FLOOR - ELECTRIC TOWER ANNEX

3

WIP Procedure Manual _____ MANUAL NO. 62

I am currently the holder of the manual identified above. In the future, please send any revisions to my attention:

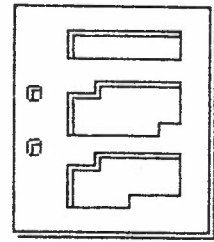
NAME: _____

DEPARTMENT: _____

LOCATION: _____

RETURN THIS CARD TO: COMPUTER SERVICES DEPT.
DOCUMENTATION SECTION
3rd FLOOR - ELECTRIC TOWER ANNEX

2



DOCUMENT FORMATS

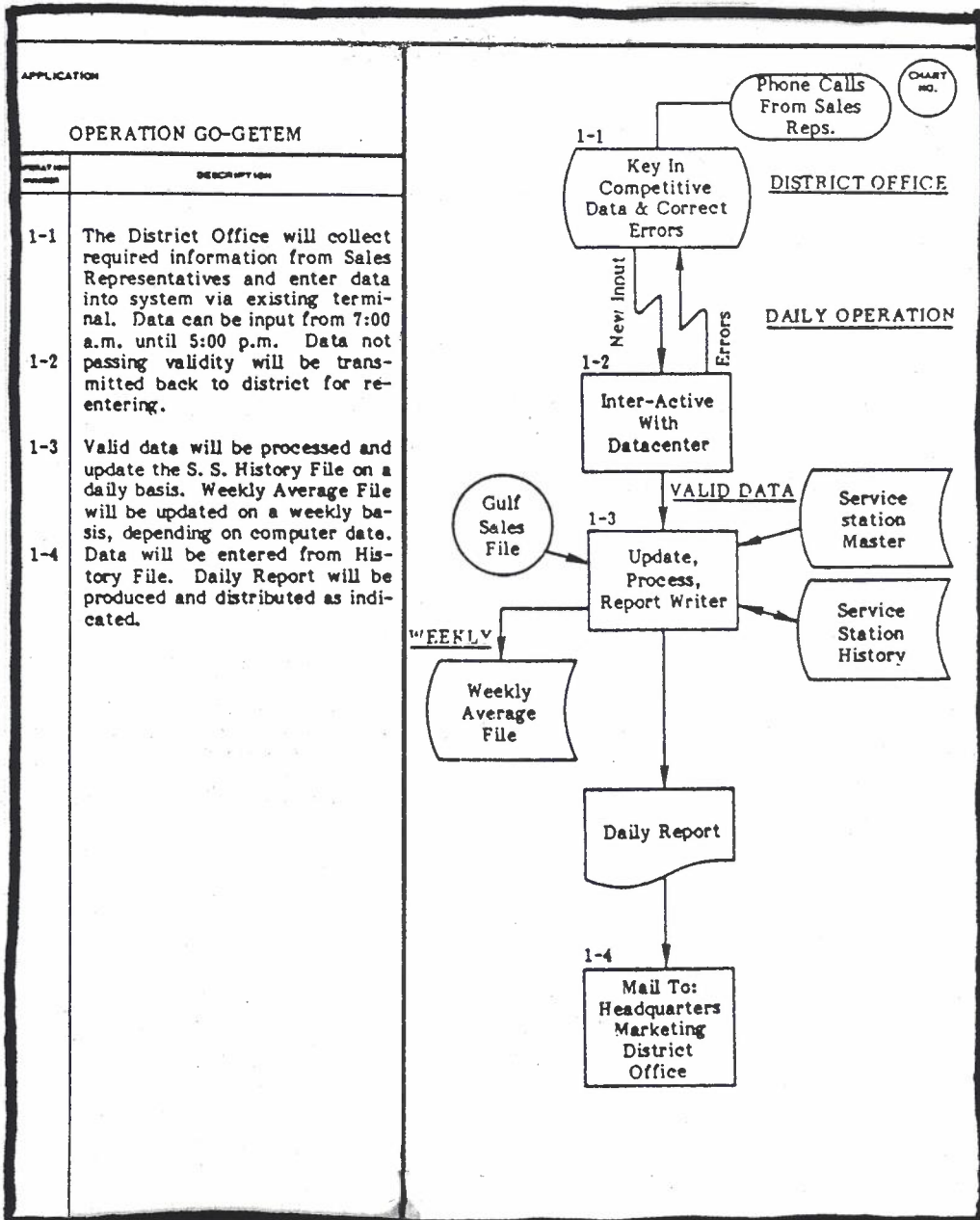
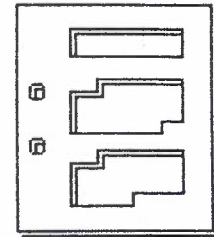


Table:

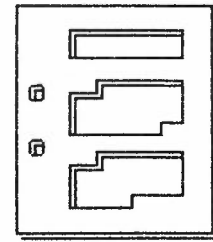
With environment suit on and functional:

If red alert (emergency exit)

detonate outer door release bolts

If condition green (standard exit)

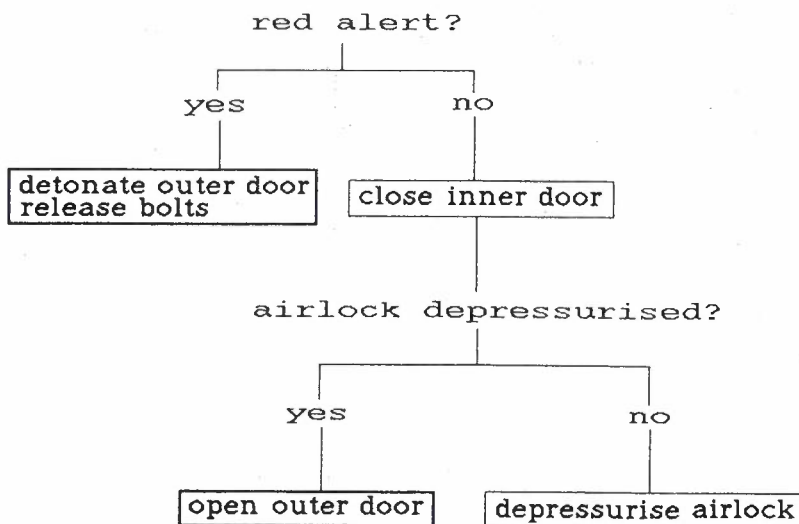
1. close inner door
2. depressurise airlock
3. open outer door

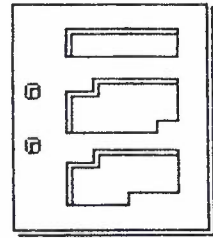


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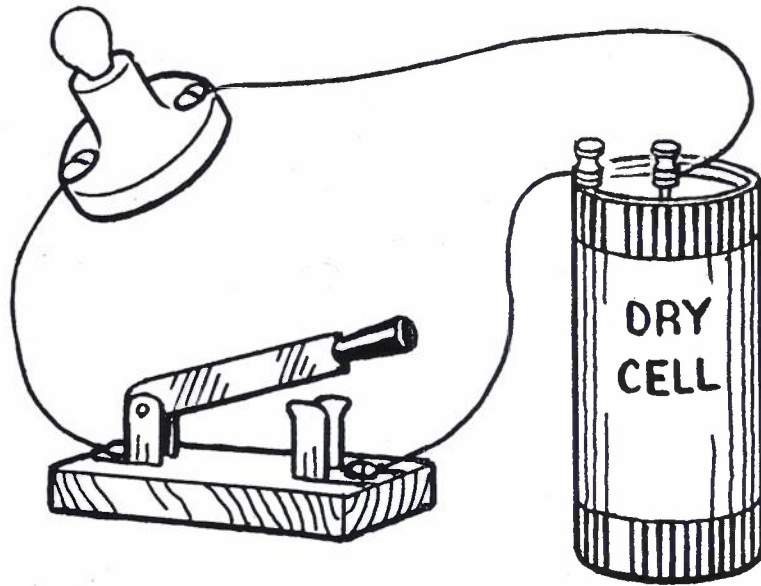
		inner door	
		closed	open
ship's status	red alert	detonate outer door release bolts	detonate outer door release bolts
	green	1. depressurise airlock 2. open outer door	close inner door

Tree diagram:

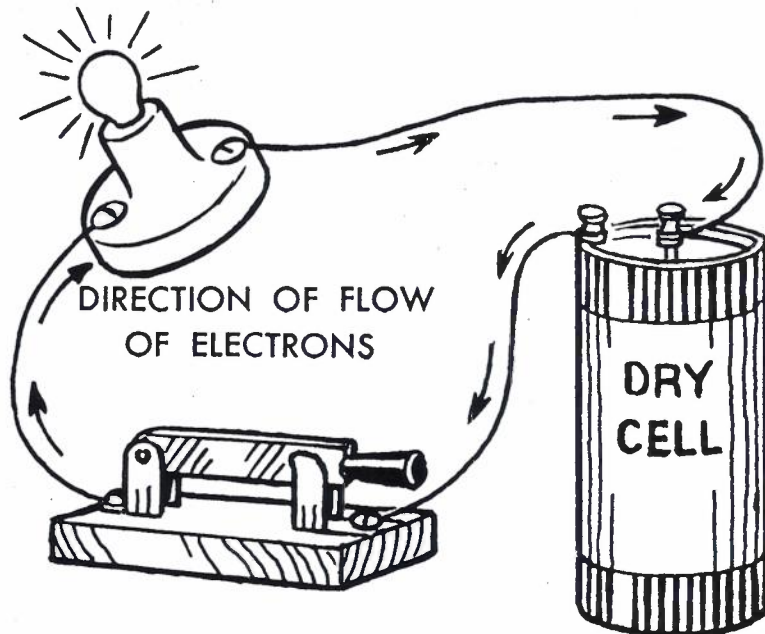


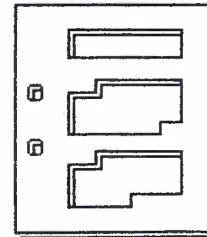


BREAKING THE CIRCUIT.



COMPLETING THE CIRCUIT.

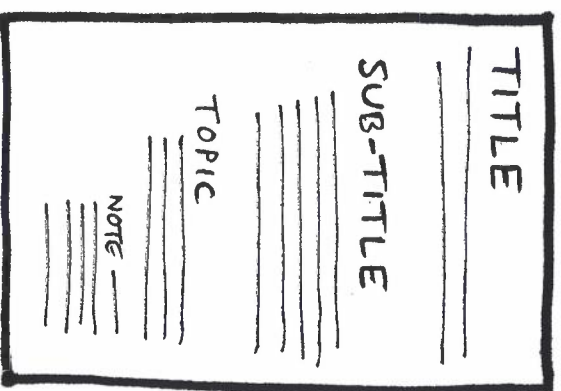
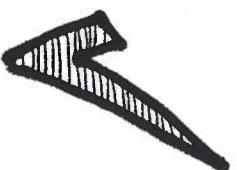
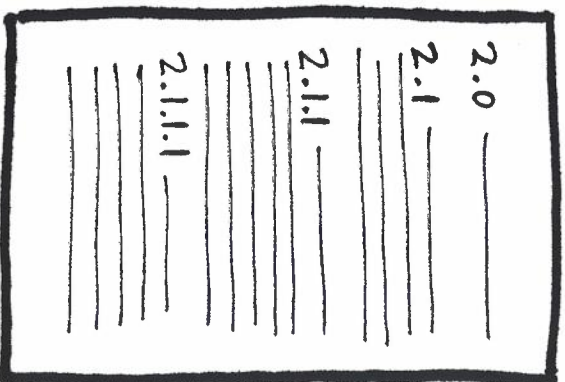
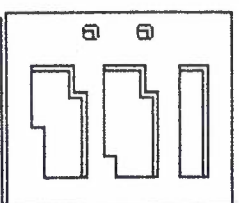


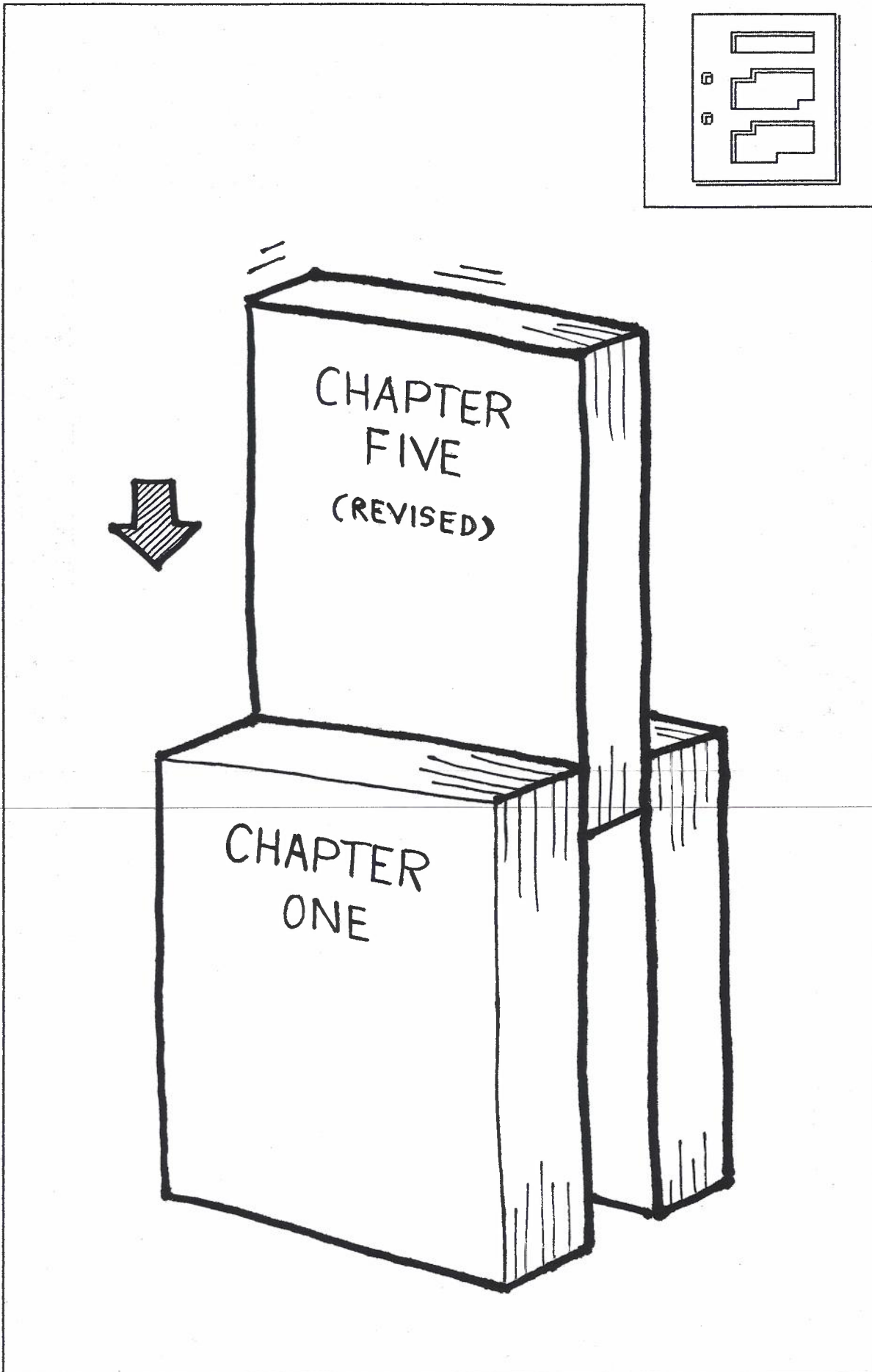


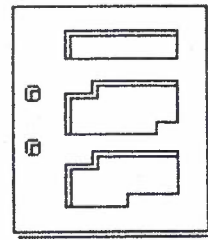
Among the more ambitious projects is the CCS CHILL environment under development by the GTE Laboratories, Massachusetts, USA, which includes an automatic documentation generator as one of its CHILL compiler tools (Rudmik and Moore, 1981). Program profiles, execution timings, variable aliases and other information can be automatically generated after compilation.

The Jade research project, under development at the University of Calgary, Canada, aims to build a complete environment to support the design, construction and testing of distributed computer systems. The proposed system will include implementation of algorithms from logical specifications and animated graphical display of programs for distributed systems involving concurrent, cooperating processes (Witten et al, 1983).

The SDL-based language SDL-T (also called LAN-S) is used as part of an automated switching software development aid (Kajiwara et al, 1982a; Kajiwara et al, 1982b). The system allows error detection before (manual) programming begins. System requirements and functional specifications are produced using SDL-T and are automatically processed to detect inconsistencies, deadlocks, redundancy and incompleteness.

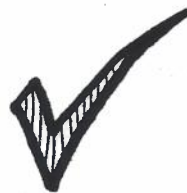


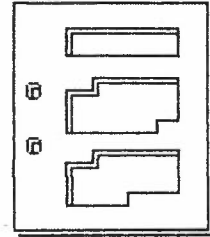




```
x := x + 1; (* increment x *)
```

```
line_counter := line_counter + 1;  
(* keep track of the number of  
lines in the input file *)
```





10 Point Video Gothic Bold

ABCDEFGHabcdefgh

10 Point Video Times Roman

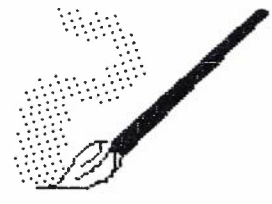
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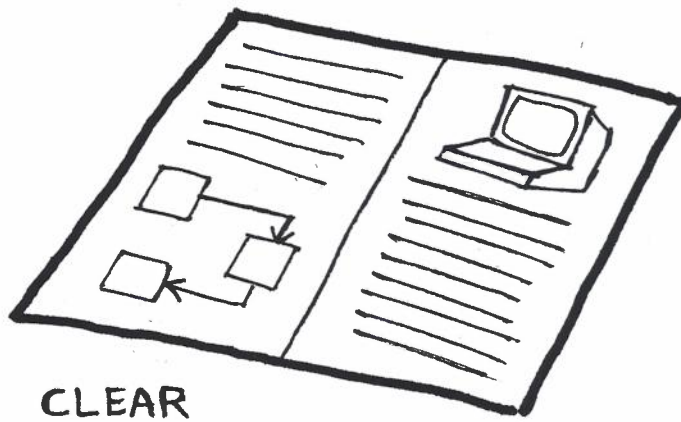
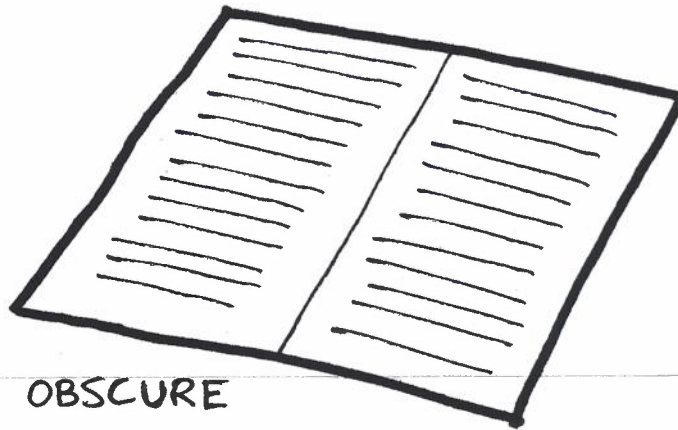
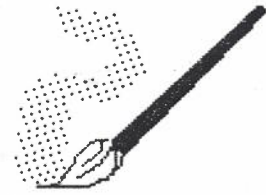
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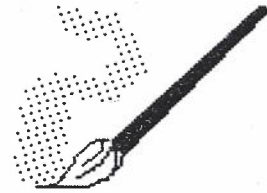
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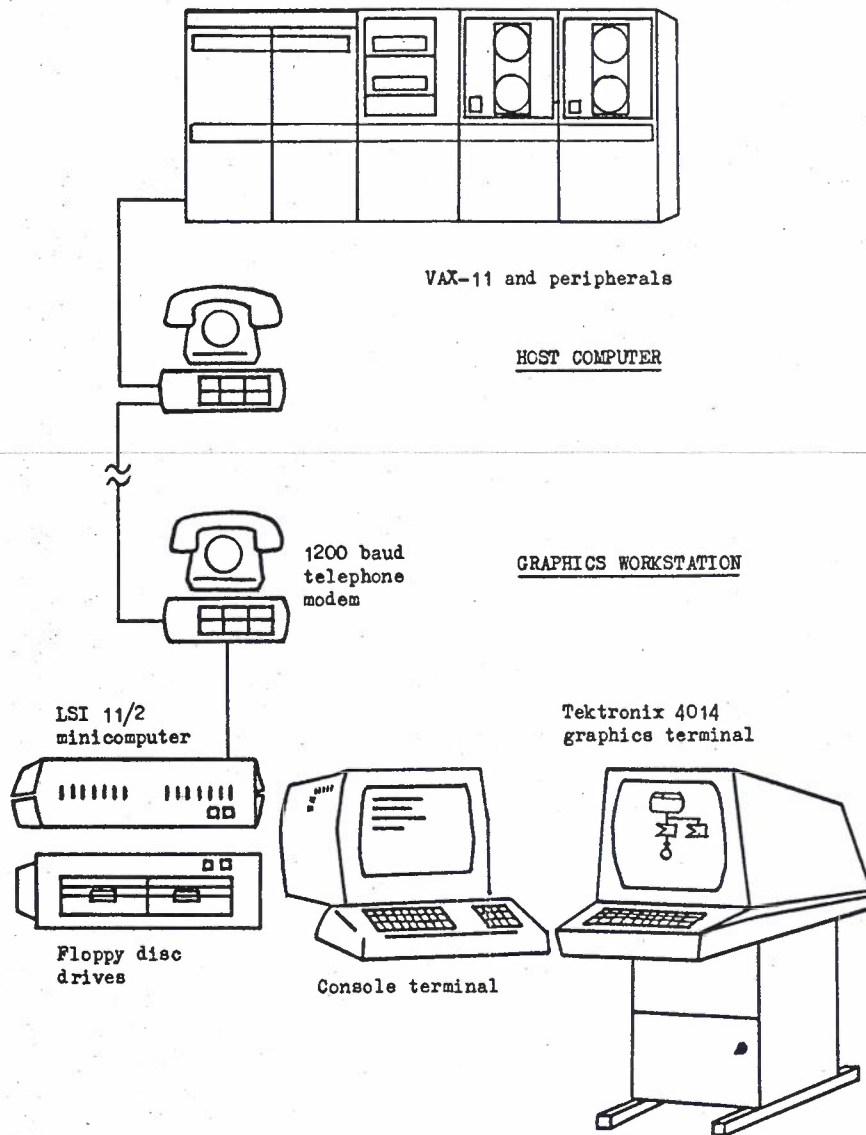
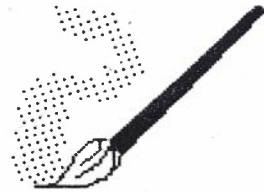
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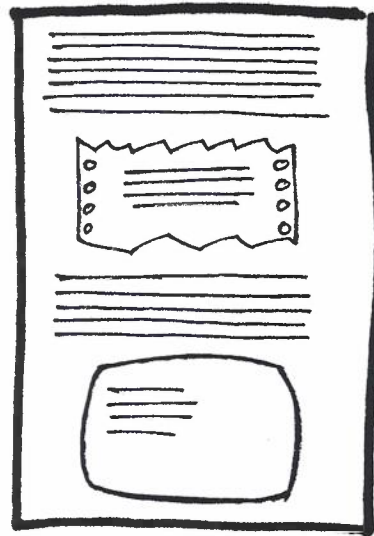
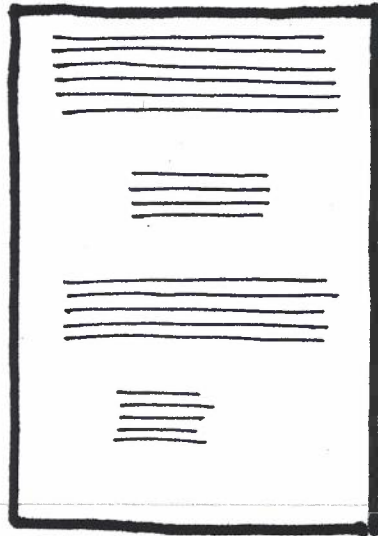
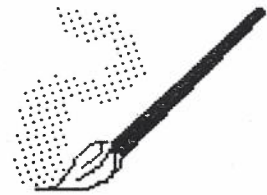


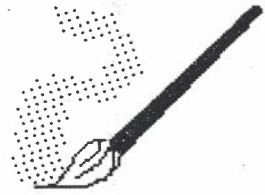
GRAPHICS

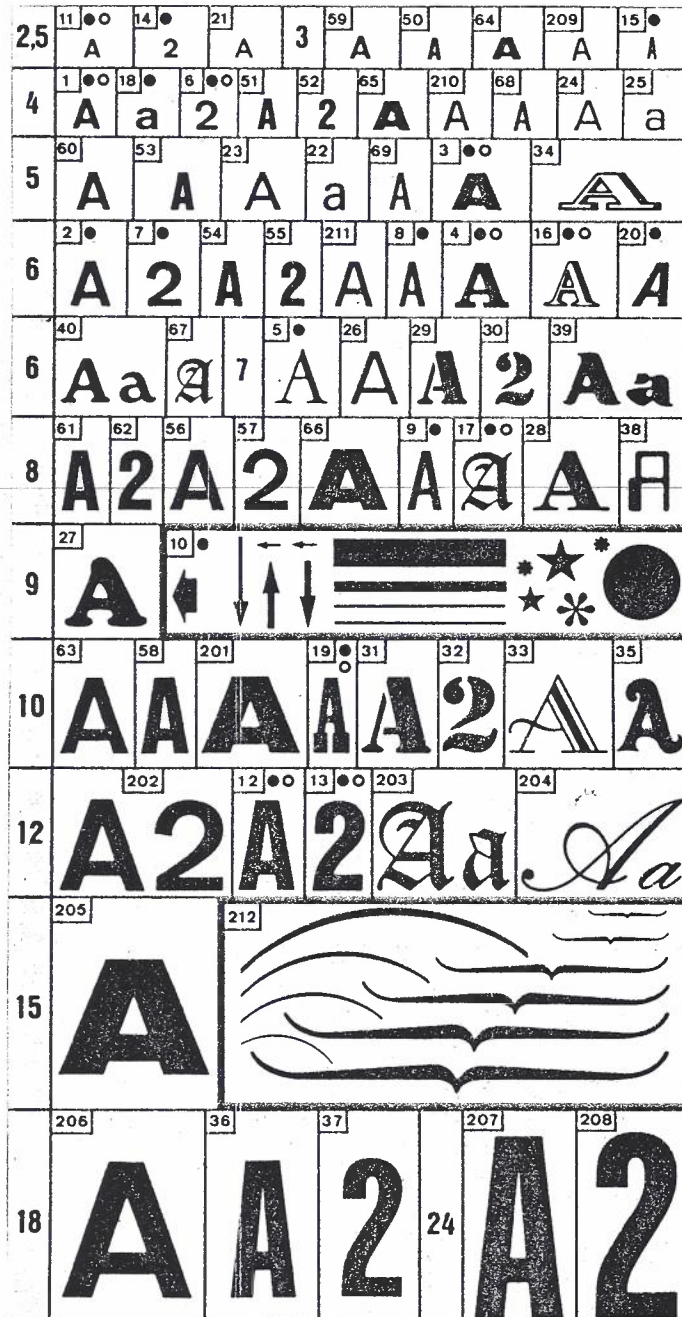
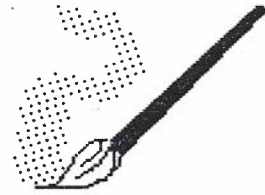




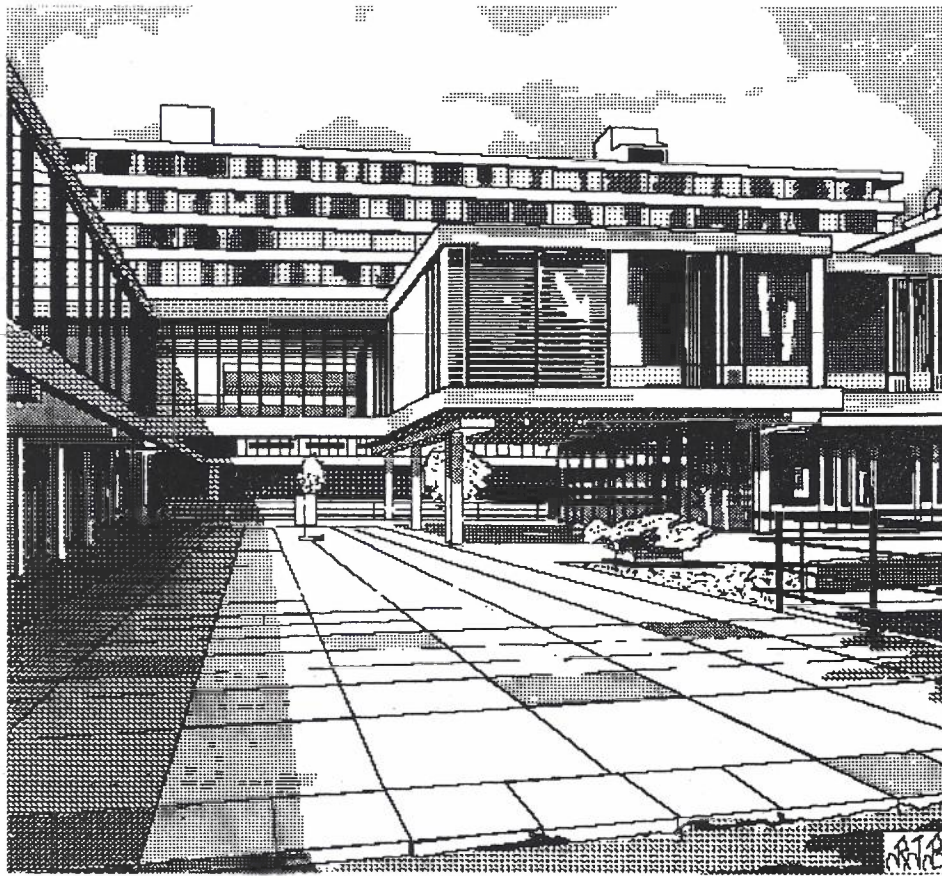
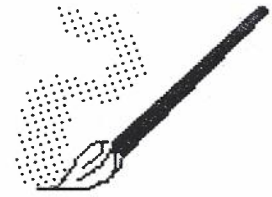


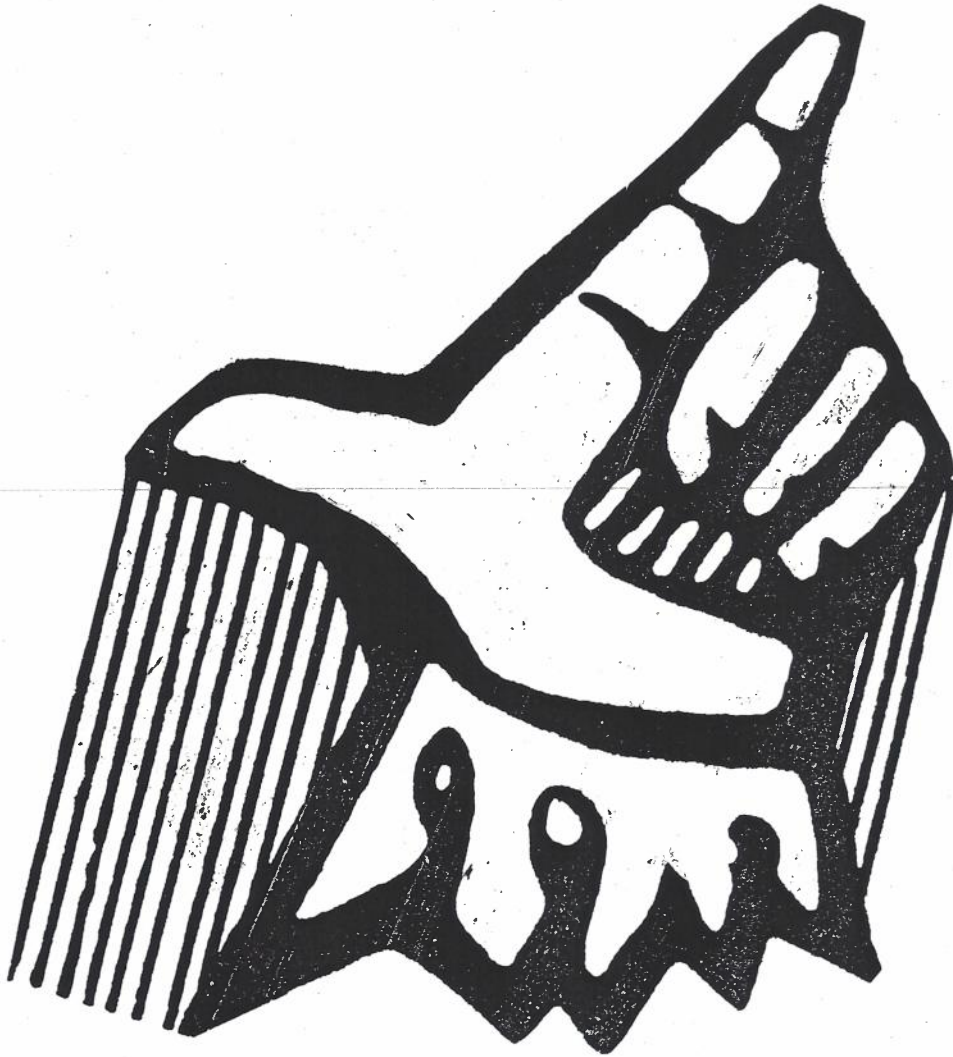
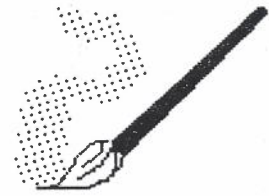


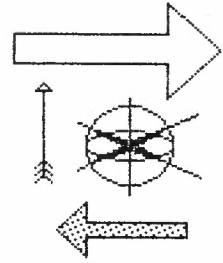




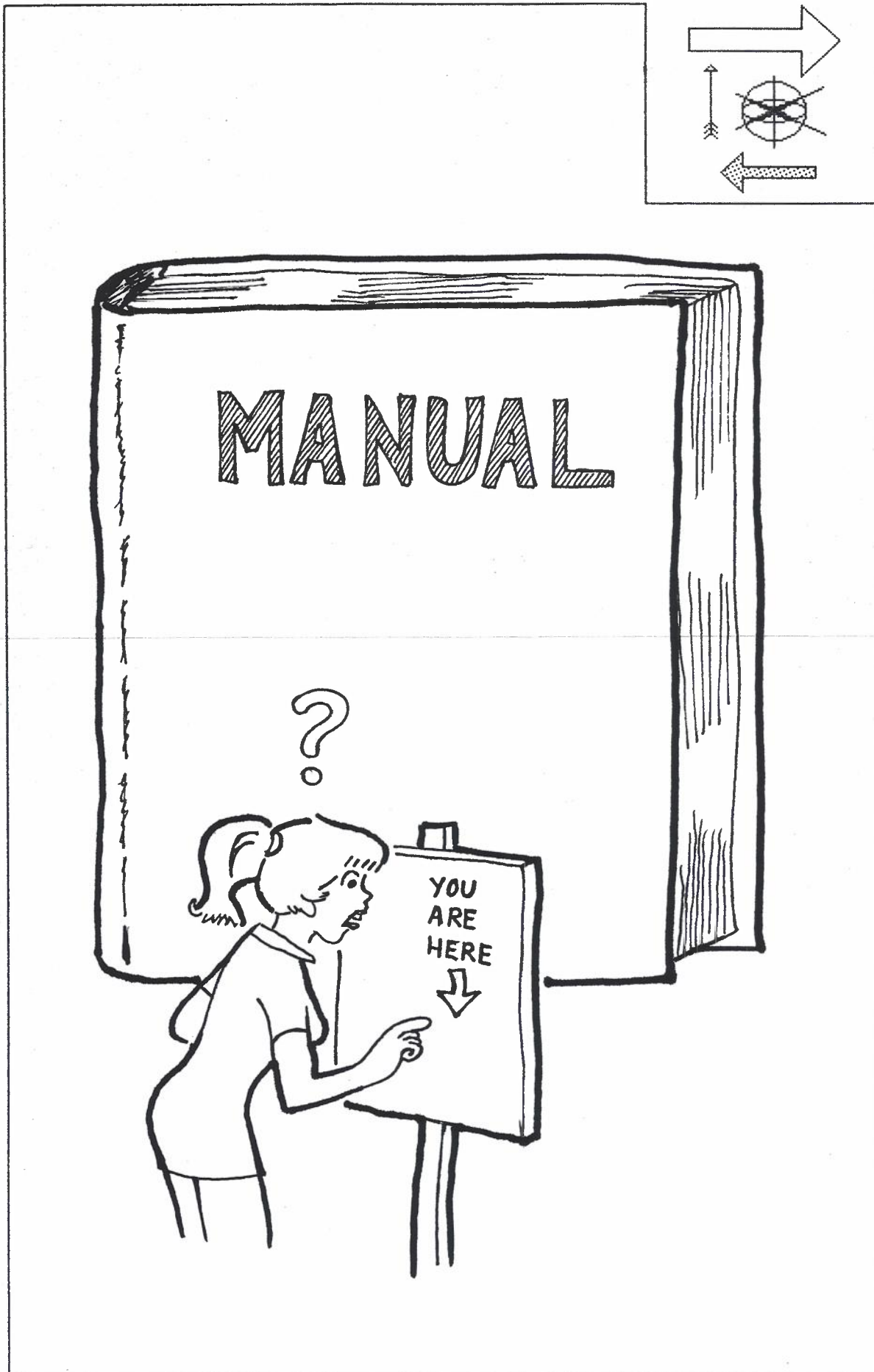


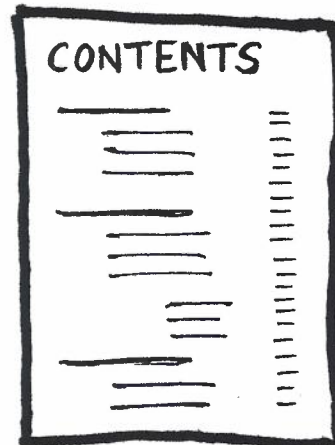
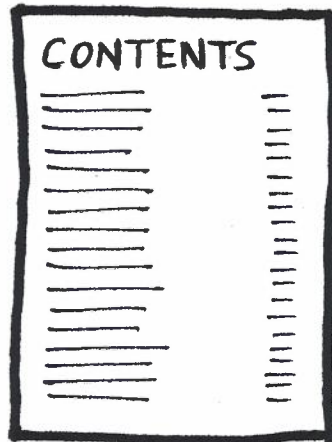
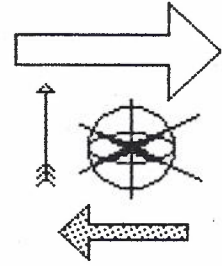


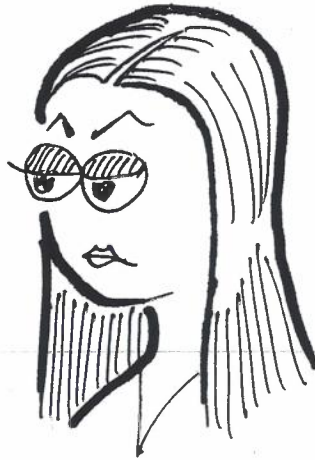
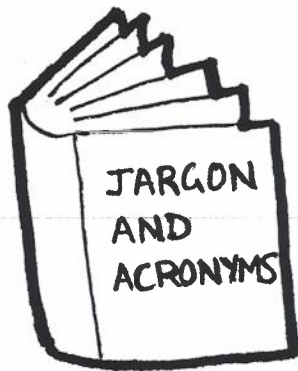
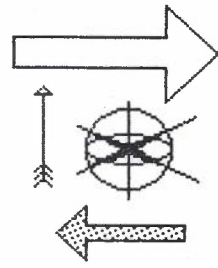


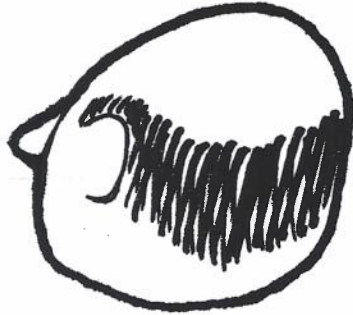
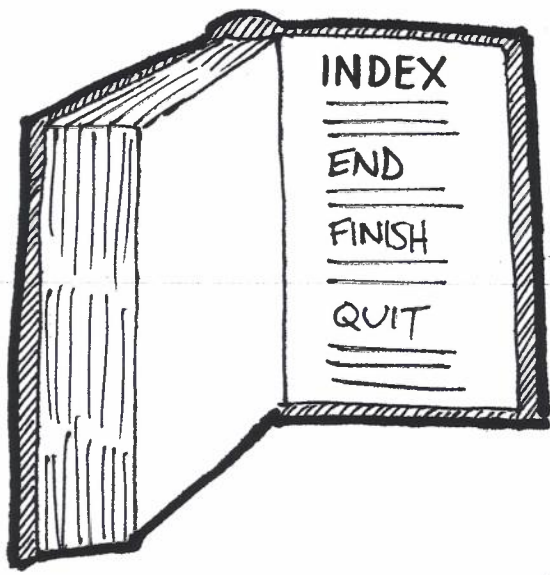
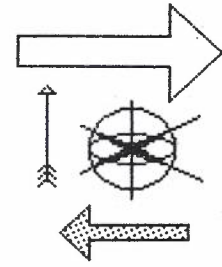


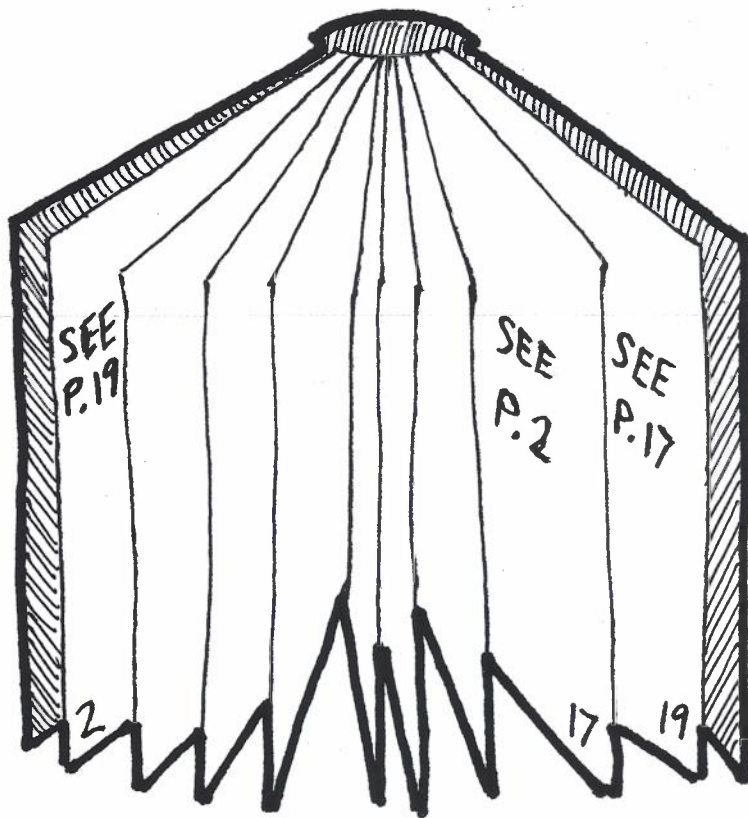
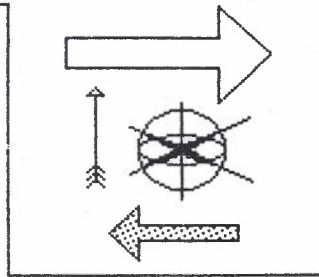
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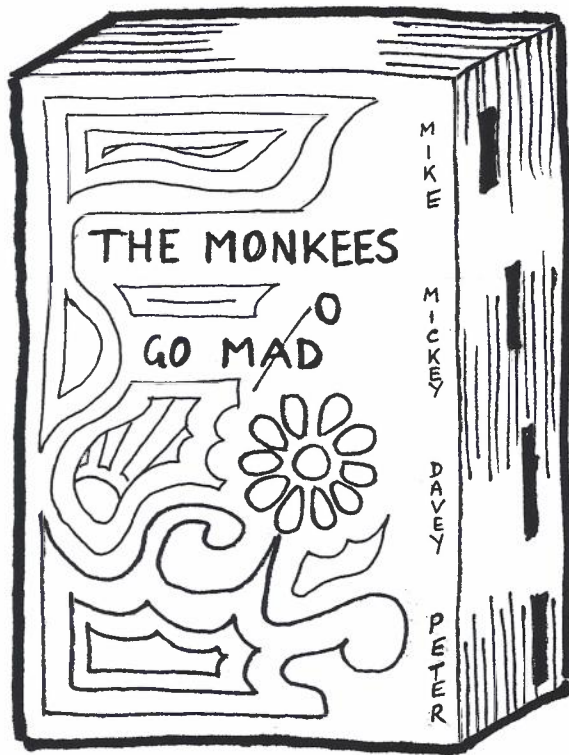
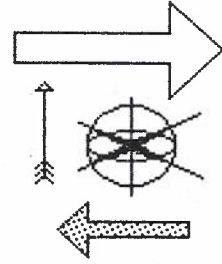


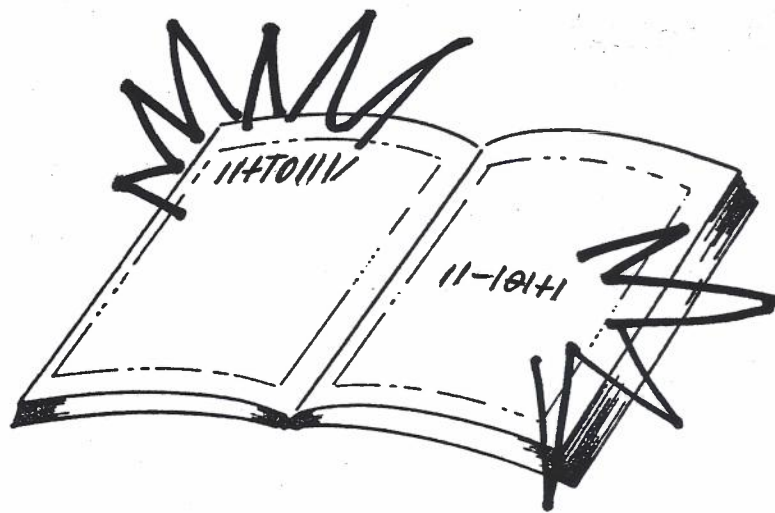
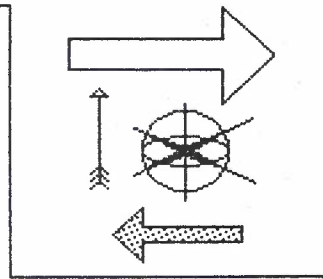


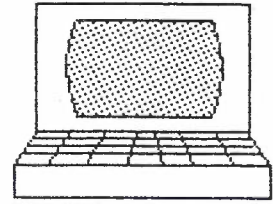




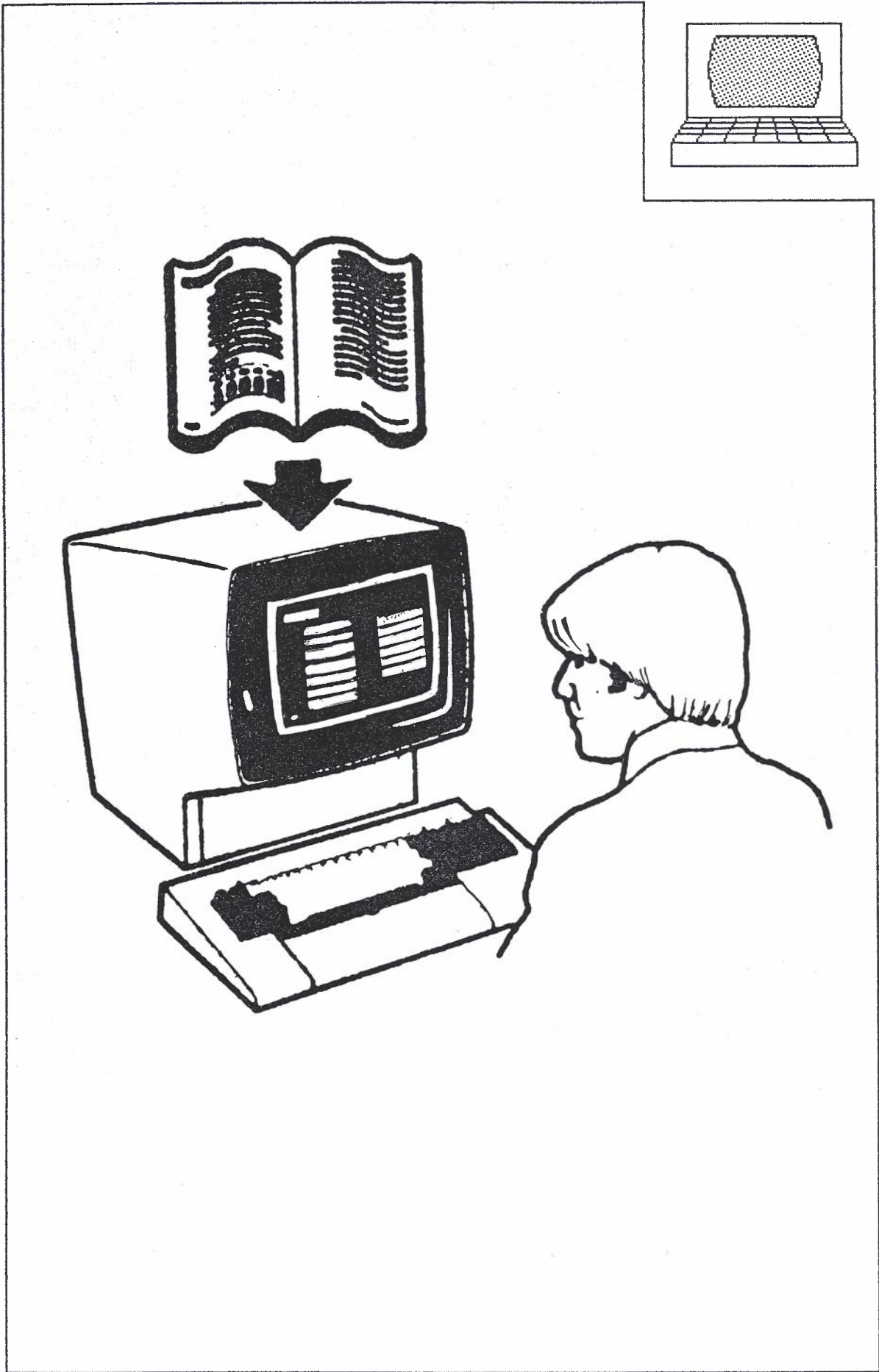


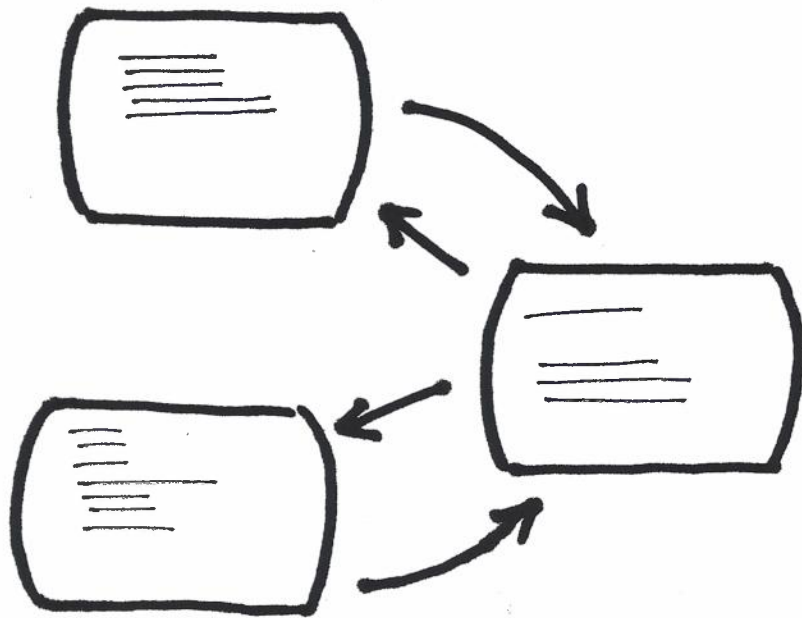
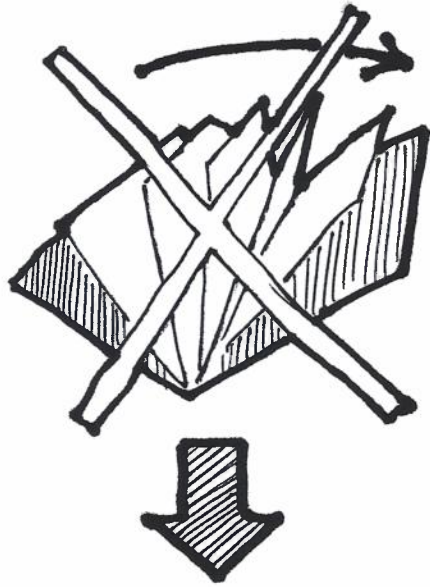
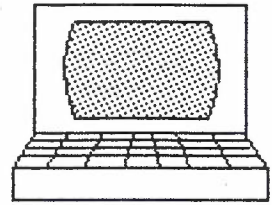


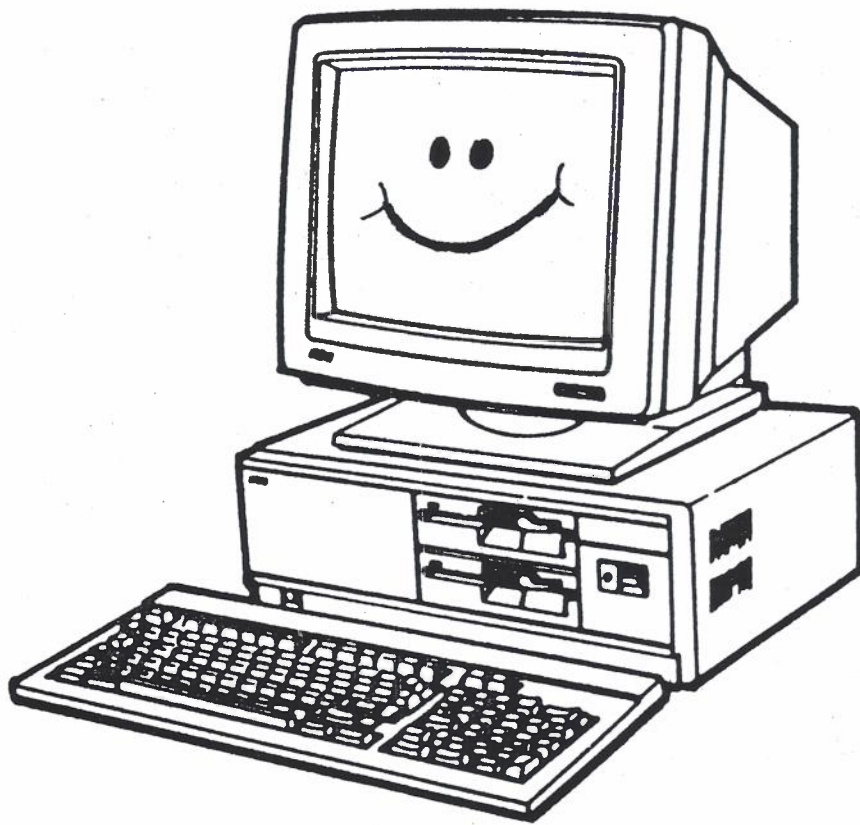
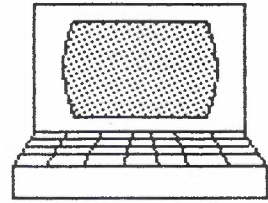


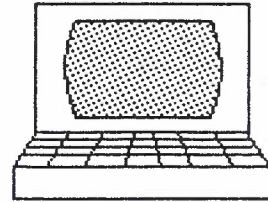


ON-LINE DOCUMENTATION



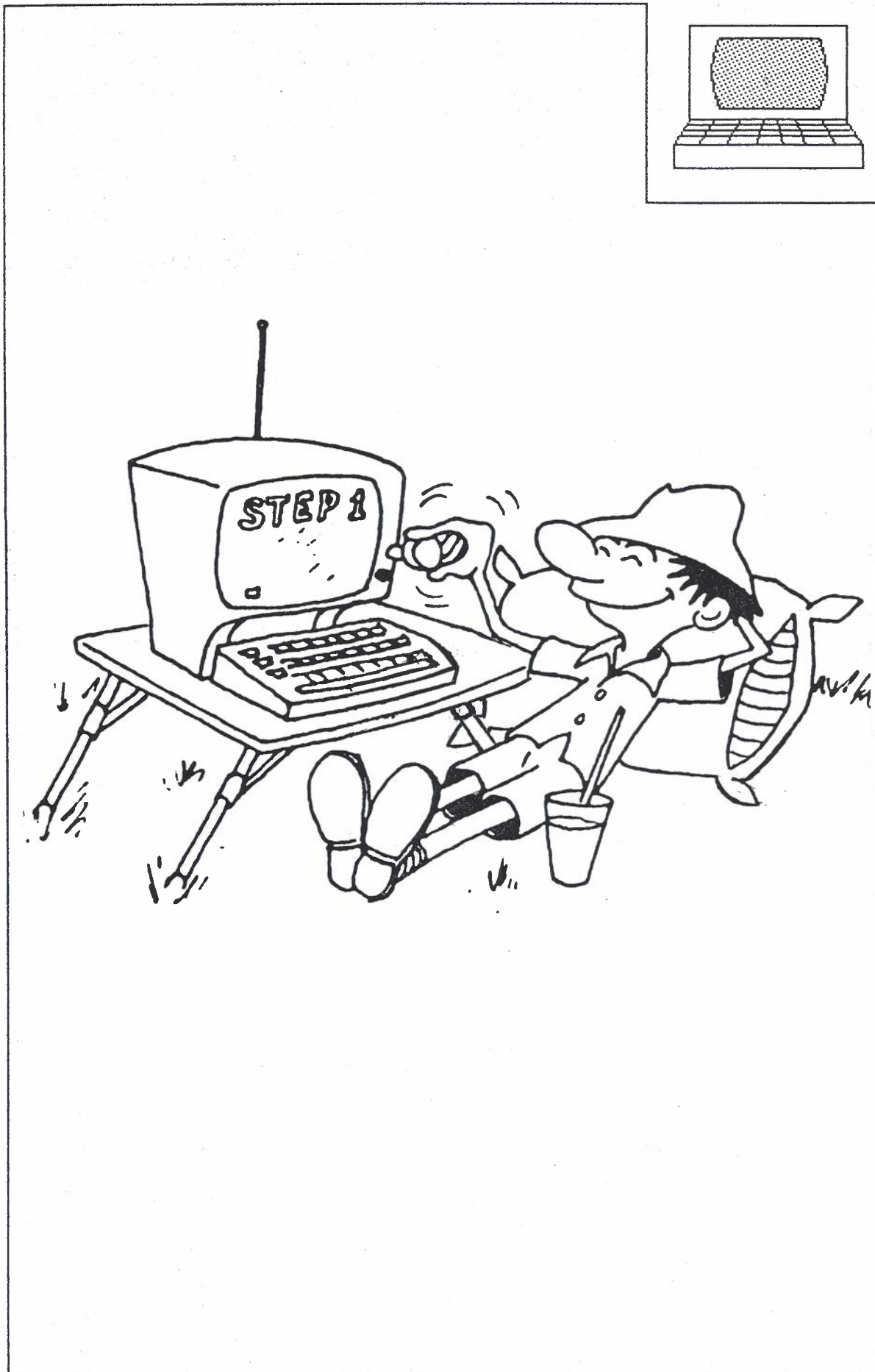






ERROR 2491
ILLEGAL SYNTAX





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- o Proofreading Manual and Reference Guide and Proofreading Workbook by Peggy Smith (\$38).
- o Simplified Proofreading (\$12.50).
- o Production Package (\$13) includes "How to keep costs in line, get the most from your printer, and production planning.
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Acknowledgements

This work was inspired by a three day seminar entitled "Writing Better Computer Software Documentation for Users" presented at RMIT by Dr. R. John Brockmann of the University of Delaware in July 1984. The bibliography is taken directly from the course notes accompanying this seminar.

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