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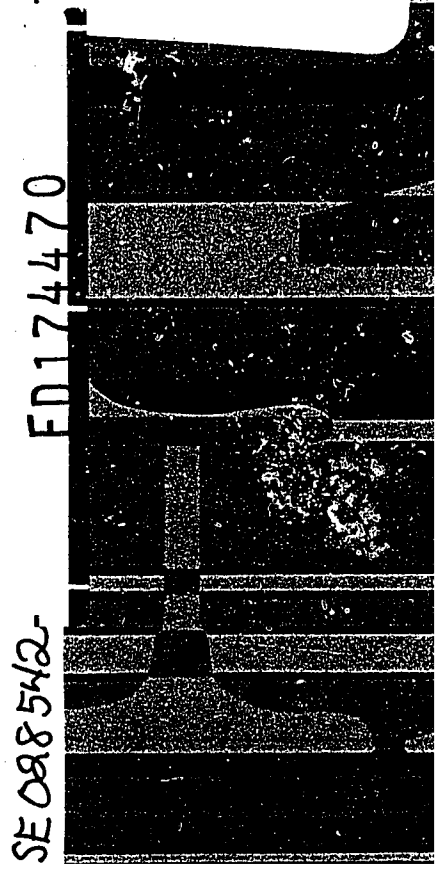
ABSTRACT

This handbook has been prepared for the proctor at a school using the Hewlett-Packard Mathematics Drill and Practice Program. Procedures are given for supervising students, maintaining the terminals, and supplying information to others concerned with the program. Contents include: (1) introduction; (2) starting the drill and practice program; (3) turning off the terminals; (4) student sign-in and sign-out; (5) getting reports; (6) helping students; (7) maintaining the terminals; (8) using the utility routines; and (9) appendices covering terminal connections and student records. (MP)



PROCTOR'S HANDBOOK

FOR

HP MATHEMATICS DRILL AND PRACTICE PROGRAM

HEWLETT PACKARD

11000 Wolfe Road

Cupertino, California 95014

August 1970

HP 5950-9292

A CAI Math Drill and Practice Program in Fundamentals of Arithmetic was developed under the direction of Dr. Patrick Suppes at Stanford University--Institute for Mathematical Studies in the Social Sciences, and was supported in part by the National Science Foundation, the U.S. Office of Education, and other agencies. The Hewlett-Packard instructional program is based upon this work. This reference does not constitute endorsement of the HP program by NSF, Stanford University, or other agencies.

HP acknowledges the editorial assistance of Robert M. Gordon, University of California Irvine, California.

PREFACE

This Handbook is one of a series of five books published to supply all appropriate information related to the HP MATHEMATICS DRILL AND PRACTICE PROGRAM. The other books in this series are:

INTRODUCTION TO THE HP MATHEMATICS DRILL AND PRACTICE PROGRAM
TEACHER'S HANDBOOK FOR THE HP MATHEMATICS DRILL AND PRACTICE PROGRAM
OPERATING PROCEDURES FOR THE HP MATHEMATICS DRILL AND PRACTICE PROGRAM
CURRICULUM GUIDE FOR THE HP MATHEMATICS DRILL AND PRACTICE PROGRAM

The *INTRODUCTION* is for general readership. Teachers will find the *TEACHER'S HANDBOOK* and the *CURRICULUM GUIDE* of interest. Proctors and the system operator will use the *PROCTOR'S HANDBOOK* and the *OPERATING PROCEDURES*, respectively.

Contact your local HP field representative to order additional copies of these books.

TEXT CONVENTIONS

EXAMPLES	EXPLANATION
READY 6 + 4 = __ SEPTEMBER 24, 1970	Typed by the D&P PROGRAM
HELLO-A001, GET-$START 1110JOHN	Typed by a student or a proctor.
return *break* *ctrl*	Function keys pressed by a student or a proctor.
Tear off the terminal paper.	Normal text.
The student begins his *drill and practice session.*	When a D&P PROGRAM term is first used in normal text, it is italicized. These terms are defined in the Glossary.
D&P PROGRAM	THE HP MATHEMATICS DRILL AND PRACTICE PROGRAM
DONE GET-$DAILY RUN **DAILY** **CODE?**CODE	Printout from a terminal.

PROCEDURE SYMBOLS

EXAMPLES	EXPLANATION
①	A step in a procedure. Each step is also shown on a procedure chart.
$DATE	The starting point for a procedure.
IS YOUR LAST NAME JONES?	Typed by the D&P PROGRAM.
PROGRAM TYPES OUT ALL DAILY REPORTS	A D&P PROGRAM operation.
TYPE YES	An operation by a student or a proctor.
→	The direction taken by a sequence of events.

HOW TO USE THE PROCTOR'S HANDBOOK

The best way to use this Handbook is to sit at a *terminal* connected to the time-sharing *system*. Use the Handbook as a reference while going through each procedure. Look at the procedure example, try the procedure and read the procedure notes. After a few practice sessions, the proctor probably could perform any procedure without using this Handbook.

After getting familiar with the procedures, read Section VII, "Helping the Students." Then *sign-in*, using the procedure in Appendix B. Try a few lessons from each curriculum year to see how a student uses the terminal and how the problems are presented to the student.

Refer to the Table of Contents to find the procedures and concepts described in this Handbook. The *Proctor's Handbook* does not have an index.

The first time each D&P PROGRAM term is used in the text of this Handbook, it is italicized. The Glossary at the back of the Handbook contains definitions of these italicized terms.

Read the two pages on "Text Conventions," and "Procedure Symbols." These pages outline how information is presented in the text, procedures, charts and examples.

CONTENTS

LIST OF ILLUSTRATIONS

SECTION I

INTRODUCTION

This Handbook has been prepared for the proctor at a *school* using the HP MATHEMATICS DRILL AND PRACTICE PROGRAM (D&P PROGRAM). In this Handbook are the procedures for supervising students, maintaining the terminals and supplying information to others concerned with the D&P PROGRAM.

Each section contains procedures for performing part of the proctor's job. The sections and their contents are:

SECTION I	Introduction What the proctor does and what the Handbook contains.
SECTION II	Starting the D&P PROGRAM How to link the terminals to the D&P PROGRAM each day.
SECTION III	Turning Off the Terminals How to turn off the terminals at the end of each day.
SECTION IV	Student Sign-In How the students start their *drill and practice sessions* each day.
SECTION V	Student Sign-Out How the students end their drill and practice sessions each day.
SECTION VI	Getting Reports How to get the D&P PROGRAM reports.
SECTION VII	Helping Students How to help students when they have questions.
SECTION VIII	Maintaining the Terminals How to keep the terminals supplied and running.
SECTION IX	Using the Utility Routines How to use the D&P PROGRAM utility *routines*.

This Handbook contains five appendices:

Appendix A, "Terminal Connections to the Computer," contains instructions for starting and stopping the D&P PROGRAM when the terminals are not connected directly to the *computer*.

Appendix B, "Demonstration Sign-In Procedures," describes how to run a sample lesson for demonstrations.

Appendix C, "Registering New Students," shows how to put new students into the D&P PROGRAM.

Appendix D, "Changing Student Records," shows how to change information in a student's record.

Appendix E, "Deleting Student Records," shows how to remove a student from the D&P PROGRAM.

A glossary of D&P PROGRAM terms follows the appendices.

SECTION II

STARTING THE D & P PROGRAM

This section explains how to link the student terminals to the computer and the D&P PROGRAM. The D&P PROGRAM is "stored" in the computer. To get the D&P PROGRAM for the students, *log-in* each terminal and start the D&P PROGRAM at each terminal. The D&P PROGRAM must be started each day before any student can begin his drill and practice session.

This section contains the following information:

Prepare to Start the D&P PROGRAM: operating tips for running the LOG-IN, DATE and START procedures.

Format of the Procedures: the procedures for LOG-IN, DATE and START contain the following information.

1. Examples: actual examples of printout for each procedure.
2. Procedure: how to do the procedure.
3. Chart: a chart of the operating sequence for the procedure.
4. Notes: operating tips for the procedure.

PREPARE TO START THE D & P PROGRAM

The D&P PROGRAM must be started by doing the following:

1. At one terminal, do LOG-IN and then DATE.
2. At each remaining terminal, do LOG-IN and then START.

These procedures pertain to terminals connected directly to the computer. If the terminals are not connected directly to the computer, See Appendix A before starting the D&P PROGRAM.

Remember to firmly press the *return* key after typing a line.

If an error message is typed, repeat the entry causing the error. If an error message is typed again and it is not understood, refer to the list of error messages in the *Operating Procedures* for an explanation.

If something goes wrong when the D&P PROGRAM is being started, correct it. If the malfunction cannot be corrected, do not let a student use the faulty terminal. Section VII contains terminal maintenance procedures.

If the line being typed contains a mistake, press the *esc* key, to erase the line (in the computer). The line can be retyped.

Tear off excess paper from the terminals.

LOG-IN

A terminal is logged-in to the computer by typing the HELLO- command, the *user ID code* and the *password*.

LOG-IN EXAMPLES

Password Prints Out:

```
HELLO-A001,CAI
READY
```

Password Does Not Print Out:

```
HELLO-A001,
READY
```

LOG-IN PROCEDURE

① At the right front of the terminal is the LINE/OFF/LOCAL knob. Turn this knob to LINE to turn on the terminal.

② If the terminal is connected directly to the computer, procede to ③. If not, see instructions in Appendix A before proceeding.

③ Type the HELLO- command, the user ID code, a comma, and the password. Then firmly press the *return* key. For example:

HELLO-A001,CAI*return*

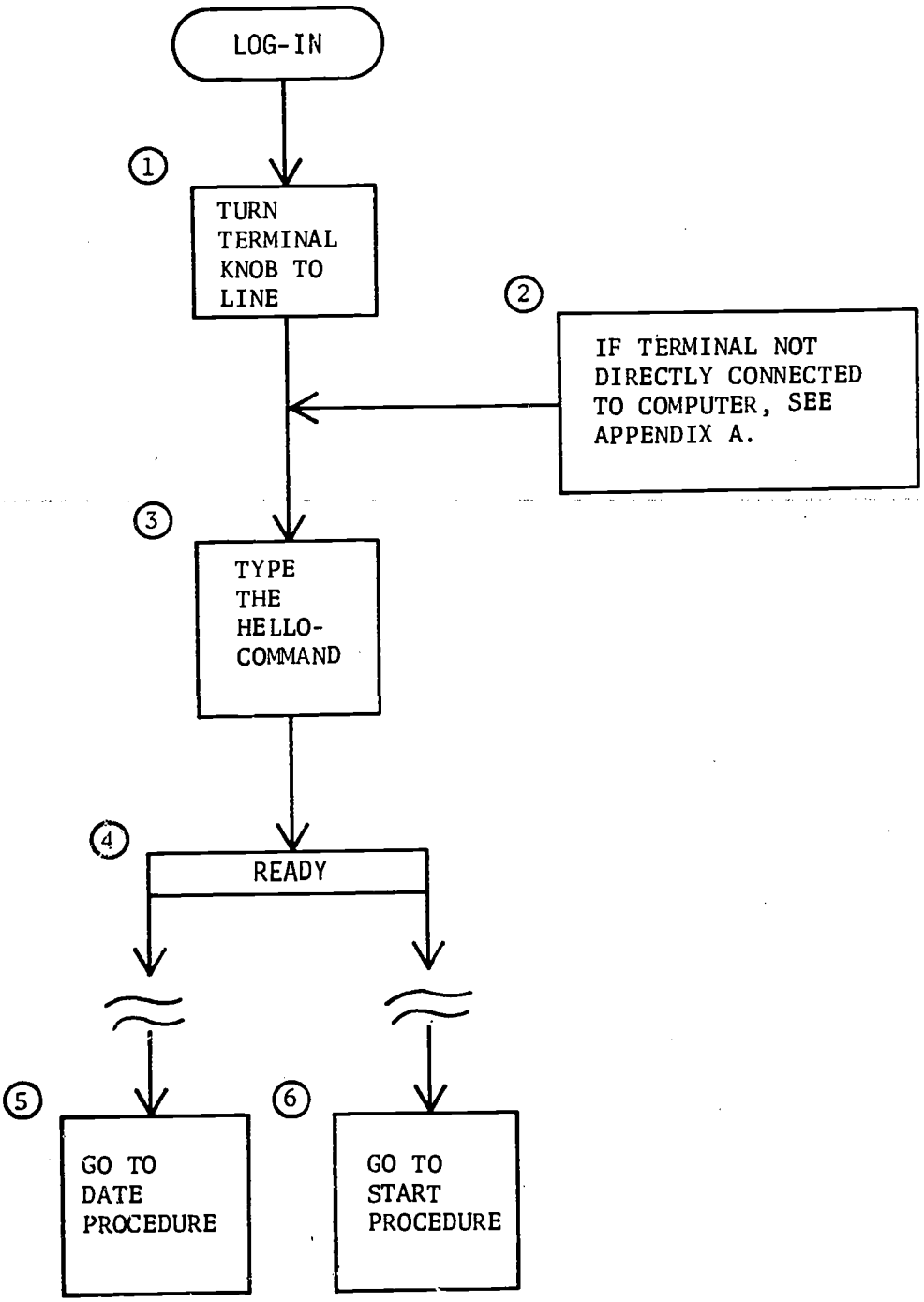
④ The system types:

READY

⑤ If this is the first terminal logged in, go to the DATE procedure.

⑥ If this is any other terminal, go to the START procedure.

LOG-IN CHART


LOG-IN
1
TURN TERMINAL KNOB TO LINE
2
IF TERMINAL NOT DIRECTLY CONNECTED TO COMPUTER, SEE APPENDIX A.
3
TYPE THE HELLO-COMMAND
4
READY
5
GO TO DATE PROCEDURE
6
GO TO START PROCEDURE

LOG-IN NOTES

a. A user ID code is a system code that allows a person to use the system. The system operator supplies the user ID code to the proctor.

b. A password is a system code that allows a person to gain access to the D&P PROGRAM. The system operator supplies the password to the proctor.

c. A password may require typing some, or all, of its *characters* while the *ctrl* key is held down. A character typed when the *ctrl* key is held down does not print out.

DATE

The DATE procedure is used to start the D&P PROGRAM at the first terminal logged-in.

DATE EXAMPLE

```
GET-$DATE
RUN
DATE
PLEASE TYPE THE MONTH, DAY AND YEAR (USE NUMBERS):   9,25,70
SEPTEMBER 25, 1970

WHAT IS YOUR ID NUMBER AND FIRST NAME?
```

DATE PROCEDURE

① Type the GET- command, the name of the routine ($DATE) and firmly press the *return* key. For example:

GET-$DATE*return*

② Type the RUN command and firmly press the *return* key. For example:

RUN*return*

③ The D&P PROGRAM types the name of the routine (DATE), and a request for a date entry. For example:

DATE
PLEASE TYPE THE MONTH, DAY, AND YEAR (USE NUMBERS):

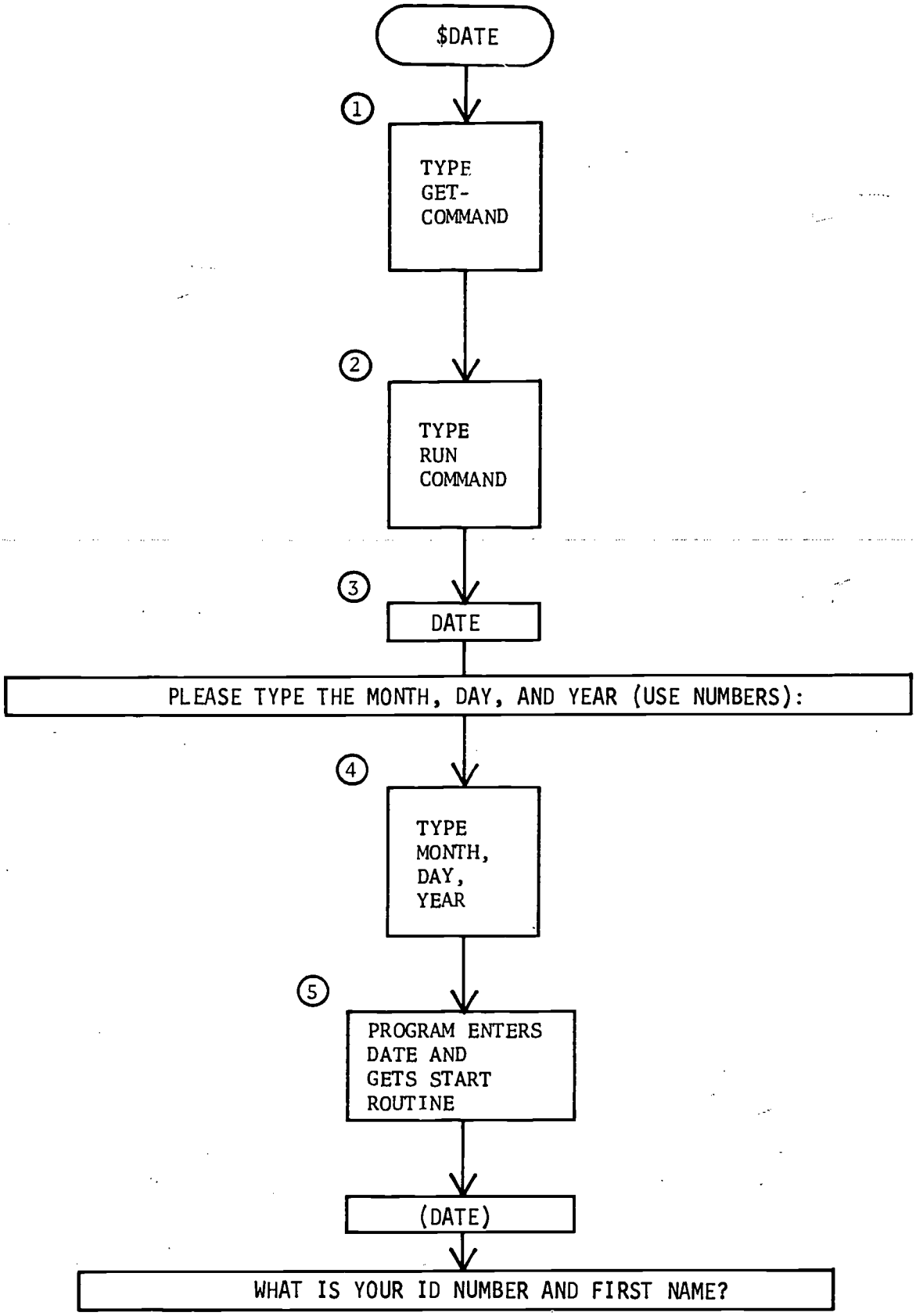
④ Type the month, day and year immediately after the : in ③ Then firmly press the *return* key. For example:

PLEASE TYPE THE MONTH, DAY, AND YEAR (USE NUMBERS):9,25,70 *return*

⑤ The D&P PROGRAM types the date just entered, and the *student sign-in* question. For example:

SEPTEMBER 25, 1970
WHAT IS YOUR ID NUMBER AND FIRST NAME?

DATE CHART


$DATE
1
TYPE GET-COMMAND
2
TYPE RUN COMMAND
3
DATE
PLEASE TYPE THE MONTH, DAY, AND YEAR (USE NUMBERS):
4
TYPE MONTH, DAY, YEAR
5
PROGRAM ENTERS DATE AND GETS START ROUTINE
(DATE)
WHAT IS YOUR ID NUMBER AND FIRST NAME?

DATE NOTES

a. The DATE procedure is done for the first terminal logged in. This gets the $DATE routine, which enters the date into the D&P PROGRAM. The D&P PROGRAM uses this date for all drill and practice sessions and reports until the $DATE routine is run again.

b. When typing the date, use numbers. Do not type a space between any number or comma.

c. The date must be within these limits:

Month: 1 to 12

Day: 1 to 31, except when month has fewer days.

Year: if a 2-digit number, greater than 69.
if a 4-digit number, greater than 1969.

START

The START procedure is used to start the D&P PROGRAM at remaining terminals after one terminal has been started by DATE.

START EXAMPLE

```
GET-$START
RUN
START

SEPTEMBER 24, 1970

WHAT IS YOUR ID NUMBER AND FIRST NAME?
```

START PROCEDURE 2

① Type the GET- command, the name of the routine ($START) and firmly press the *return* key. For example:

GET-$START*return*

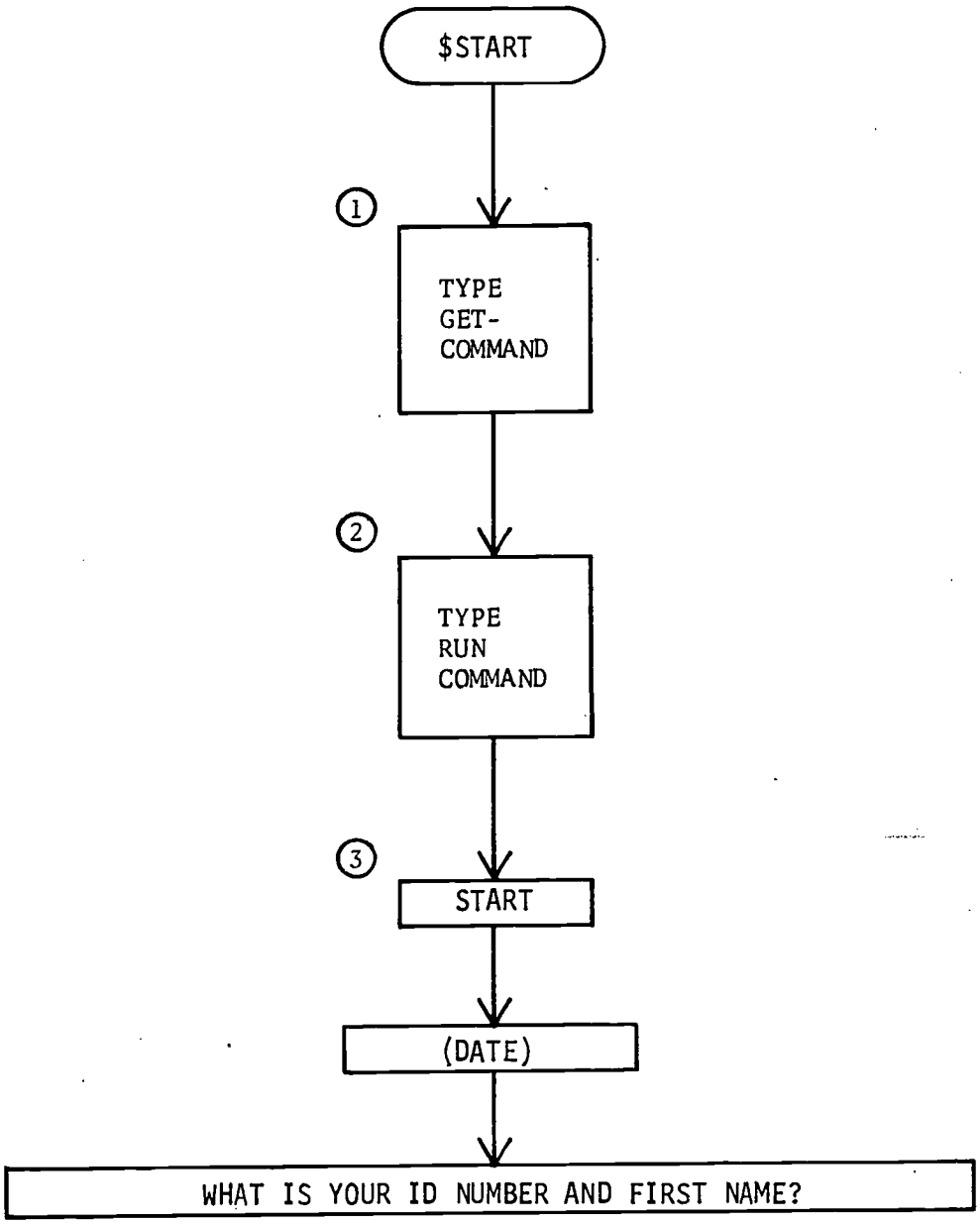
② Type the RUN command and firmly press the *return* key. For example:

RUN*return*

③ The D&P PROGRAM types the name of the procedure (START), the date, and the student sign-in question. For example:

START
SEPTEMBER 24, 1970
WHAT IS YOUR ID NUMBER AND FIRST NAME?

START CHART


$START
1
TYPE
GET-
COMMAND
2
TYPE
RUN
COMMAND
3
START
(DATE)
WHAT IS YOUR ID NUMBER AND FIRST NAME?

START NOTES

a. The START procedure must be done after the first terminal is logged in and started by the $DATE routine. The START procedure gets the $START routine.

b. If the D&P PROGRAM has to be restarted at a terminal during the day use the START procedure.

c. Do the START procedure to get the student sign-in question at a terminal that was being used for reports or utility routines. After a report is finished, the D&P PROGRAM types:

DONE

To get the student sign-in question, type:

GET-$START*return*
RUN*return*

SECTION III

TURNING OFF THE TERMINALS

The proctor turns off the terminals at the end of each day after all drill and practice sessions are completed and after all the reports required for that day have been run.

PREPARE TO TURN OFF THE TERMINALS

Terminals should be turned OFF at the end of a school day to prevent them from wearing out.

This procedure assumes that the terminals have a direct connection to the computer. If the terminals are not connected directly to the computer, see Appendix A before turning off the terminals.

HOW TO TURN OFF THE TERMINALS

1. At each terminal used, turn the LINE/OFF/LOCAL knob to OFF.

2. Remove all used paper from the terminals.

SECTION IV

STUDENT SIGN-IN

This section explains how a student starts his drill and practice session and how the proctor can help him during this process. To sign in, a student must identify himself to the D&P PROGRAM. When he has identified himself, the D&P PROGRAM types the first problem in his current lesson.

This section contains the following information.

Prepare for Sign-In: operating tips for the proctor.

Format of the Procedure: the student sign-in procedure contains the following information.

1. Sign-In Example: actual example of a student sign-in.

2. Sign-In Procedure: how the sign-in procedure is done.

3. Sign-In Chart: a chart of the operating sequence for the sign-in procedure.

4. Sign-In Notes: specific operating tips for the procedure.

PREPARE FOR SIGN-IN

The terminal is ready when it has been logged in and started (for the first drill and practice session of the day) or when a student has been signed out previously. In either case, the student coming in for his drill and practice session should see

WHAT IS YOUR ID NUMBER AND FIRST NAME?

on the terminal paper.

Keep a current short form ROSTER report, in case a student forgets his student number or has trouble typing his name. See Section VI for instructions on preparing this report.

Remind students that they must firmly press the *return* key after each line is typed.

When a student has signed in, the lesson identification is typed out as a part of the hello message to the student. For example:

```
HELLO JOHN.  WE HOPE YOU ENJOY TODAY'S PROBLEMS.
M 4025
********HERE WE GO!!!!!********
```

The lesson identification consists of a letter and a four-digit number. The letter M = a *main lesson*; the letter R = a review lesson. The first of the four digits refers to the lesson's curriculum year (1 through 6). The middle two digits refer to the number of the block in the curriculum year of the lesson (1 through 24). The last digit refers to the level of difficulty at which the lesson is given (1 through 5) or if the lesson is a pretest or post test (6).

SIGN-IN EXAMPLE

```
GET-$START
RUN
START


SEPTEMBER 24, 1970


WHAT IS YOUR ID NUMBER AND FIRST NAME?1000JOHN

IS YOUR LAST NAME ADAMS?YES

HELLO JOHN.  WE HOPE YOU ENJOY TODAY'S PROBLEMS.

M 4025

********* HERE WE GO !!!!! ************

  601
- 88
```

SIGN-IN PROCEDURE

(1) The D&P PROGRAM types:

WHAT IS YOUR ID NUMBER AND FIRST NAME?

(2) The student types his student ID number and first name immediately after the ? Then he firmly presses the *return* key. For example:

WHAT IS YOUR ID NUMBER AND FIRST NAME? 1110JOHN*return*

(3) The D&P PROGRAM checks for a student in its files with the entered student ID number and first name. It then asks the student his last name (for a further check) by typing:

IS YOUR LAST NAME (LAST NAME)?

(4) If the last name typed is the student's last name, he types a YES immediately after the ? Then the student firmly presses the *return* key. For example (if John's last name is Adams):

IS YOUR LAST NAME ADAMS? YES*return*

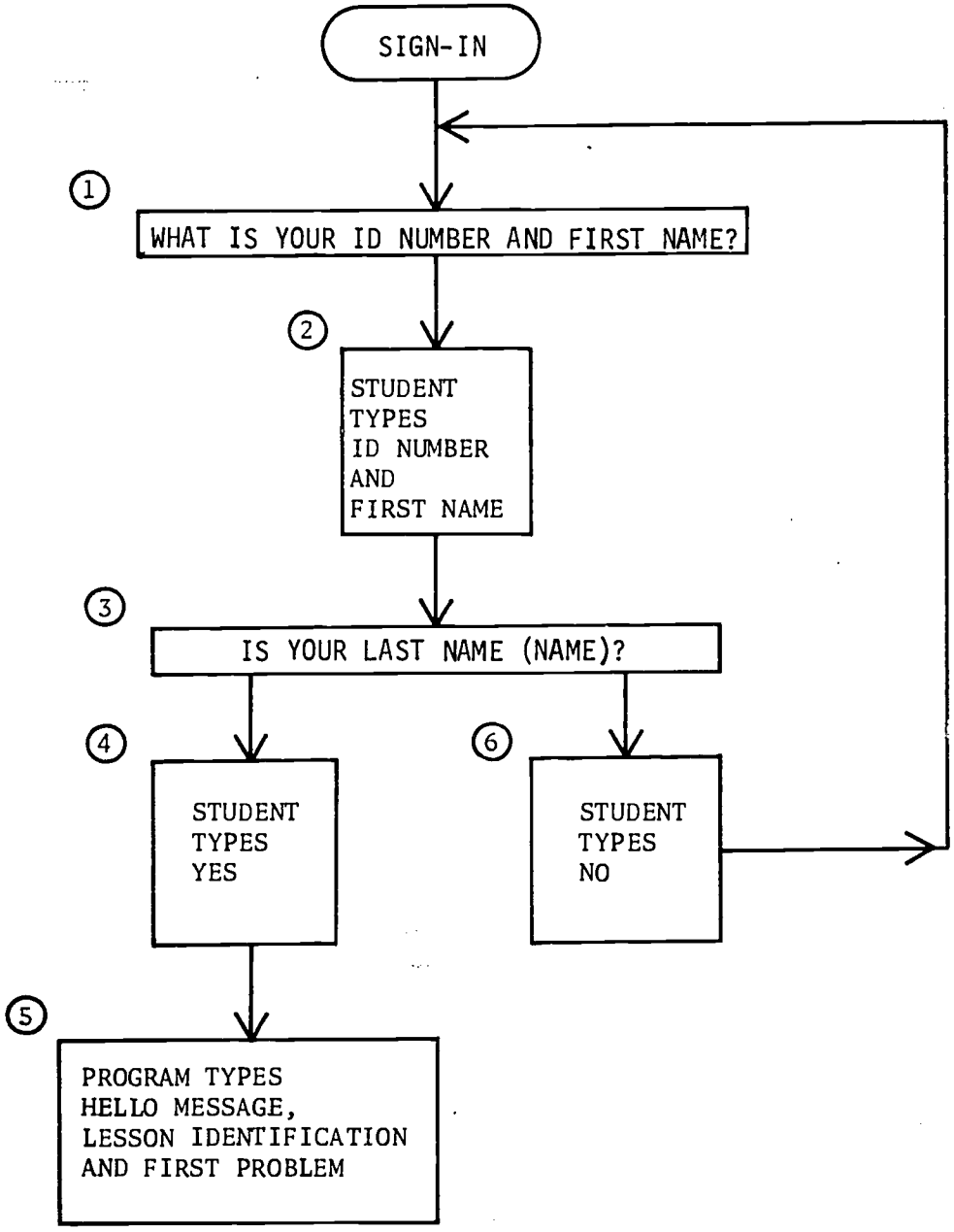
(5) The D&P PROGRAM types the hello message, the lesson identification and the first problem in the student's current lesson. For example:

HELLO JOHN. WE HOPE YOU ENJOY TODAY'S PROBLEMS.
M 1144.
**********HERE WE GO!!!!!!!!**********
6 + 4 = __

(6) If the last name typed in (3) is not the student's last name, he enters a NO immediately after the ? Then the student firmly presses the *return* key. The D&P PROGRAM then goes to (1) For example:

IS YOUR LAST NAME ADAMS? NO*return*
WHAT IS YOUR ID NUMBER AND FIRST NAME?

SIGN-IN CHART



SIGN-IN NOTES

a. A student types his name and ID number, or his ID number and name. He may type spaces between the two. For example, all of the following entries are valid:

WHAT IS YOUR ID NUMBER AND FIRST NAME?1110 JOHN *return*
WHAT IS YOUR ID NUMBER AND FIRST NAME? JOHN 1110*return*
WHAT IS YOUR ID NUMBER AND FIRST NAME?JOHN1110*return*

b. In (4) any entry that begins with a Y causes the D&P PROGRAM to go to (5).

c. In (6) any entry that does not begin with a Y causes the D&P PROGRAM to go to (1).

d. The student must press the *return* key after each line.

e. It does not make any difference which terminal the student uses, as long as that terminal is ready.

f. There are no time outs during the Sign-In procedure.

g. If a student makes an error in (2) the D&P PROGRAM types:

WRONG, TRY AGAIN ?

SECTION V

STUDENT SIGN-OUT

This section explains how a student ends his drill and practice session and how the proctor can help him during this process. A drill and practice session ends whenever a student signs out or is signed out by the D&P PROGRAM.

This section contains the following information.

Prepare for Sign-Out: operating tips for the proctor.

Format of the Sign-Out Procedure: The *sign-out* procedure contains the following information:

1. Sign-Out Examples: actual examples of student sign-outs.

2. Sign-Out Procedure: how the sign-out procedure works.

3. Sign-Out Chart: a chart of the operating sequence for the sign-out procedure.

4. Sign-Out Notes: specific operating tips for the procedure.

PREPARE FOR SIGN-OUT

If a student is not signed out properly, he loses the work done during his current drill and practice session. The next student to use the terminal will not have the sign-in message to start his session.

A student is signed out properly when any of the following events occur:

a. The student types STOP*return* instead of a problem answer.

b. A student is timed out ten consecutive times.

c. A student's *time interval* has been reached.

d. The student finishes the last lesson in block 24, year 6. The following message is typed:

YOU HAVE FINISHED ALL THE PROBLEMS

e. A *fixed-paced* student has finished one main lesson (and one review lesson, if it is scheduled).

SIGN-OUT EXAMPLES

Self-Paced Student; Fixed Time Interval:

GOODBYE JOHN. PLEASE TEAR OFF ON THE DOTTED LINE:

Self-Paced Student; Unlimited Time Interval:

```
  172
+ 308
    STOP
```

GOODBYE TRACY. PLEASE TEAR OFF ON THE DOTTED LINE:

Fixed-Paced Student:

LESSON OVER. YOU ANSWERED 23 OUT OF 27 QUESTIONS CORRECTLY.
GOODBYE, JOHN. PLEASE TEAR OFF ON THE DOTTED LINE:

SIGN-OUT PROCEDURE

(1) The D&P PROGRAM has determined that the student is self-paced.

(2) The D&P PROGRAM has determined that the student has unlimited time at the terminal.

(3) The student types: STOP*return* instead of the answer to a problem. For example:

6 + 4 = ____STOP*return*

(4) The D&P PROGRAM types a goodbye message. For example:

GOODBYE JOHN. PLEASE TEAR OFF ON THE DOTTED LINE:

The D&P PROGRAM then types the sign-in message for the next student.

(5) The D&P PROGRAM has determined that the student is self-paced, but has a fixed time interval at the computer. When the time interval is up, the D&P PROGRAM signs out the student. The D&P PROGRAM goes to (4).

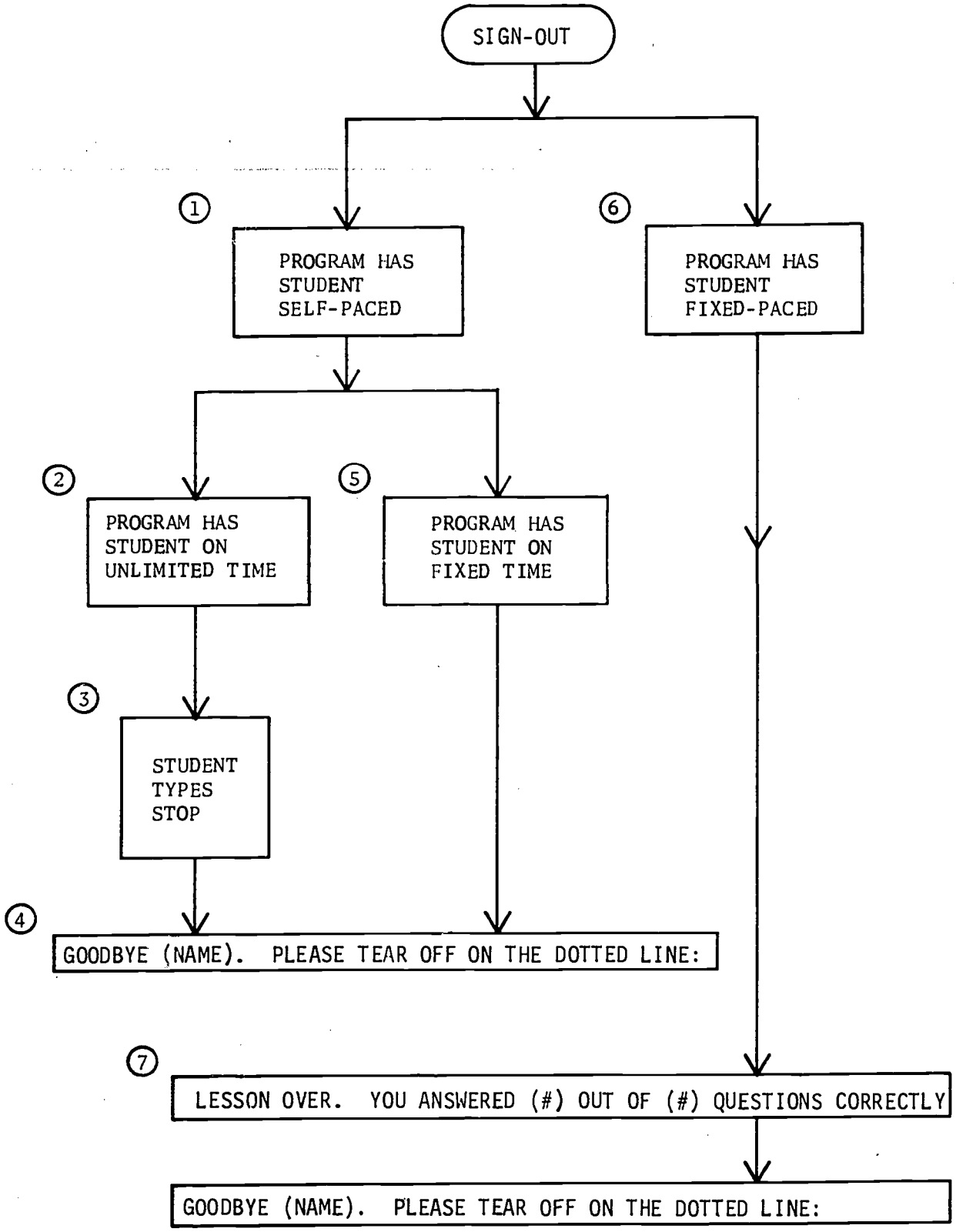
(6) The D&P PROGRAM has determined that the student is self-paced.

(7) When a fixed-paced student finishes a lesson, the D&P PROGRAM signs out the student. For example:

LESSON OVER. YOU ANSWERED 24 OUT OF 27 QUESTIONS CORRECTLY.
GOODBYE JOHN. PLEASE TEAR OFF ON THE DOTTED LINE:

The D&P PROGRAM then types the Sign-In message for the next student.

SIGN-OUT CHART



SIGN-OUT NOTES

a. The D&P PROGRAM has stored the information for ①, ②, ⑤, and ⑥ in the student's record. If necessary, keep a long-form ROSTER report for each student to check his method of pace or the length of his drill and practice session. See Section VI for instructions on the ROSTER report.

b. In ③, a student must type STOP*return* while the D&P PROGRAM is waiting for an answer. Whenever the D&P PROGRAM is typing a problem or calculating, the keyboard is inoperative.

c. A student should tear off his lesson after he is signed out.

d. Remind all students that they should never press the *break* key to stop a lesson (or for any other reason). If a student presses the *break* key, he loses the work he has done on his current lesson. He will have to start the drill and practice session over again, and the proctor will have to run the $START routine to get him restarted.

e. Some students may have difficulty typing STOP*return* before they are timed out (for not answering the problem in time). Students can type ST*return* instead of STOP*return* to stop a lesson.

SECTION VI

GETTING REPORTS

This section explains how to get these D&P PROGRAM reports: DAILY, CLASS, PUPIL, ROSTER, CURRICULUM, and TEST. The proctor obtains these reports by running the *$DAILY*, *$CLASS*, *$PUPIL*, *$ROSTER*, *$CURRIC* or *$TEST* report routines, respectively.

The proctor gets reports when some person in the school requests them or whenever the reports could be of use to the proctor. Reports are usually prepared at the end of a school day, after all the students have finished their drill and practice sessions.

This section contains the following information.

Prepare to Get Reports: instructions and operating tips for getting all the reports.

Report Initiation Procedure: an explanation of how to start each report.

Format of the Reports: each report (and the Report Initiation Procedure) contains the following information:

1. Report Examples: actual examples of print out for each report.
2. Report Procedures: how to get the report.
3. Report Chart: a chart of the operating sequences for the report.
4. Report Notes: specific operating tips for the named report.

PREPARE TO GET REPORTS

A *code word* is not a password. A code word is a D&P PROGRAM code which allows a person to get the reports and the utility routines. A password is a system code which allows a person to use the system (including the D&P PROGRAM). See the Glossary for definitions of these terms.

To stop any report before it is completely typed out:

a. Press the *break* key, if the report is typing or calculating.

   The D&P PROGRAM types: STOP

b. Press the *ctrl* key and the C key simultaneously, then firmly press the *return* key, if the report is waiting for an entry.

   The D&P PROGRAM types: DONE

To get different reports simultaneously, use a different terminal for each report.

If several copies of one report are required, use different terminals simultaneously to repeat the same report. Or, use multiple-part paper on one terminal.

The D&P PROGRAM might continue to type when the terminal paper roll is empty. To avoid losing time and damaging a terminal, be sure that there is enough paper on a terminal before running a report.

When a report routine has finished, tear off the paper and distribute the reports.

If an error message is typed, repeat the entry causing the error. If the error message is typed again and it is not understandable, refer to the list of error message in the *Operating Procedures* for an explanation.

Remember to firmly press the *return* key after typing a line.

REPORT INITIATION PROCEDURE

The Report Initiation Procedure is used to start each D&P PROGRAM report. When getting a report at a terminal, first do the Report Initiation Procedure, and then do the individual report procedure.

When the Initiation Procedure is completed, the D&P PROGRAM types the first question of the individual report. To see what this question is and how to answer it, go to the individual reports in this section.

REPORT INITIATION PROCEDURE EXAMPLES

```
GET-$ROSTER
RUN
ROSTER

CODE?CODE
DO YOU WANT ALL ROSTERS FOR HILLSDALE SCHOOL?
```

```
GET-$CURRIC
RUN
CURRIC

CODE?CODE

CURRICULUM REPORT FOR REGULAR STUDENTS?
```

REPORT INITIATION PROCEDURE

(1) Log-In the terminal if it is not ready. (See Section II.)

(2) Type the GET- command, the name of the program report (from the first step in each procedure) and firmly press the *return* key. For example:

GET-$DAILY*return*

(3) Type the RUN command and firmly press the *return* key:

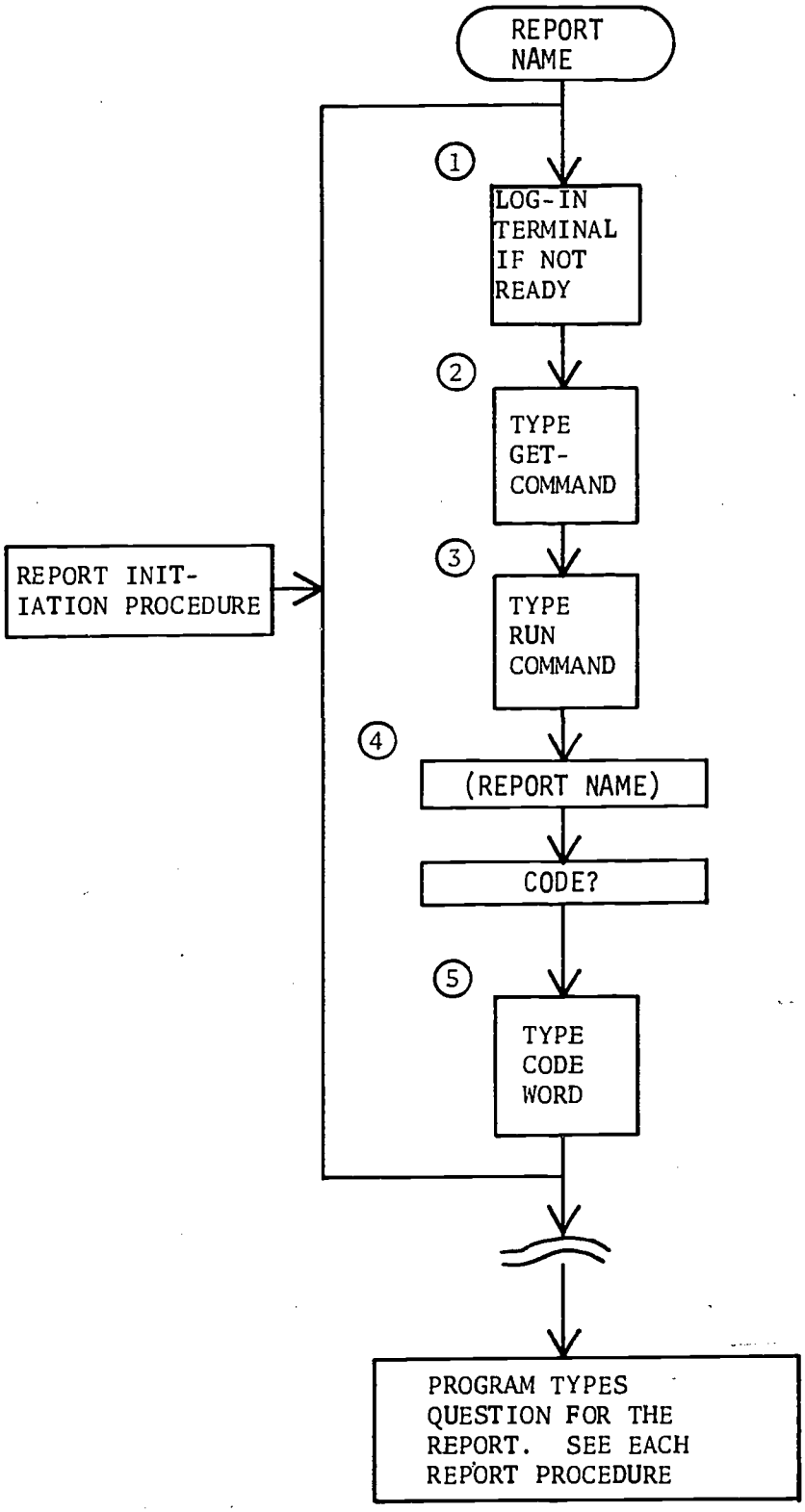
RUN*return*

(4) The D&P PROGRAM types the name of the report, and a request for the code word, as in the following example:

DAILY
CODE?

(5) Type the code word immediately after the ? then firmly press the *return* key.

REPORT INITIATION PROCEDURE CHART



REPORT INITIATION PROCEDURE NOTES

a. A code word may require typing some or all of its characters while holding down the *ctrl* key. When this is done, these characters do not print out.

b. Never put spaces between the GET- command and the name of the report. The D&P PROGRAM types an error message. For example:

GET- $DAILY*return*
NO SUCH PROGRAM

c. The report routine $TEST does not require a code word entry. Therefore, there is no CODE? question in the $TEST report routine.

d. To do the reports (or the utility routines) at a terminal that was being used for a drill and practice session, press the *ctrl* key and the C key simultaneously, then press *return*, when the student sign-in question appears. For example:

WHAT IS YOUR ID NUMBER AND FIRST NAME?*ctrl*C*return*

The D&P PROGRAM types:

DONE

The proctor then gets the report or utility routine.

THE DAILY REPORT

The DAILY report is prepared by running the $DAILY report routine.

DAILY EXAMPLE

```
GET-$DAILY
RUN
DAILY

CODE?CODE
DAILY REPORT.
DO YOU WANT ALL REPORTS FOR HILLSDALE SCHOOL?NO
DAILY REPORT FOR WHICH TEACHER NUMBER?1


-----

DAILY REPORT      HILLSDALE SCHOOL      SEPTEMBER 24, 1970

MISS BOTTOMLEY    FOURTH GRADE

JOHN ADAMS IS BELOW 60% AT LEVEL ONE IN BLOCK 3, YEAR 6.

TRACY GEM HAS SKIPPED 2 CONSECUTIVE BLOCKS
  TO BLOCK 16, YEAR 5.

GEORGE MORGAN WAS ABSENT TODAY.

SALLY O'TOOL SIGNED IN THREE TIMES TODAY.

MARY YANCY WILL MEET A NEW CONCEPT IN BLOCK 16, YEAR 3.


-----

DAILY REPORT FOR WHICH TEACHER NUMBER?0
DONE
```

DAILY PROCEDURE

(1) Do the Report Initiation Procedure. Use $DAILY for the name.

(2) The D&P PROGRAM types:

DO YOU WANT ALL DAILY REPORTS FOR (NAME) SCHOOL?

(3) To get all the DAILY reports for the entire school, type:

YES*return* immediately after the ?

(4) The D&P PROGRAM types all the DAILY reports. When it is finished, it types:

DONE

(5) To get the DAILY reports for certain teachers, type:

NO*return* immediately after the ? in (2)

(6) The D&P PROGRAM types:

DAILY REPORT FOR WHICH TEACHER NUMBER?

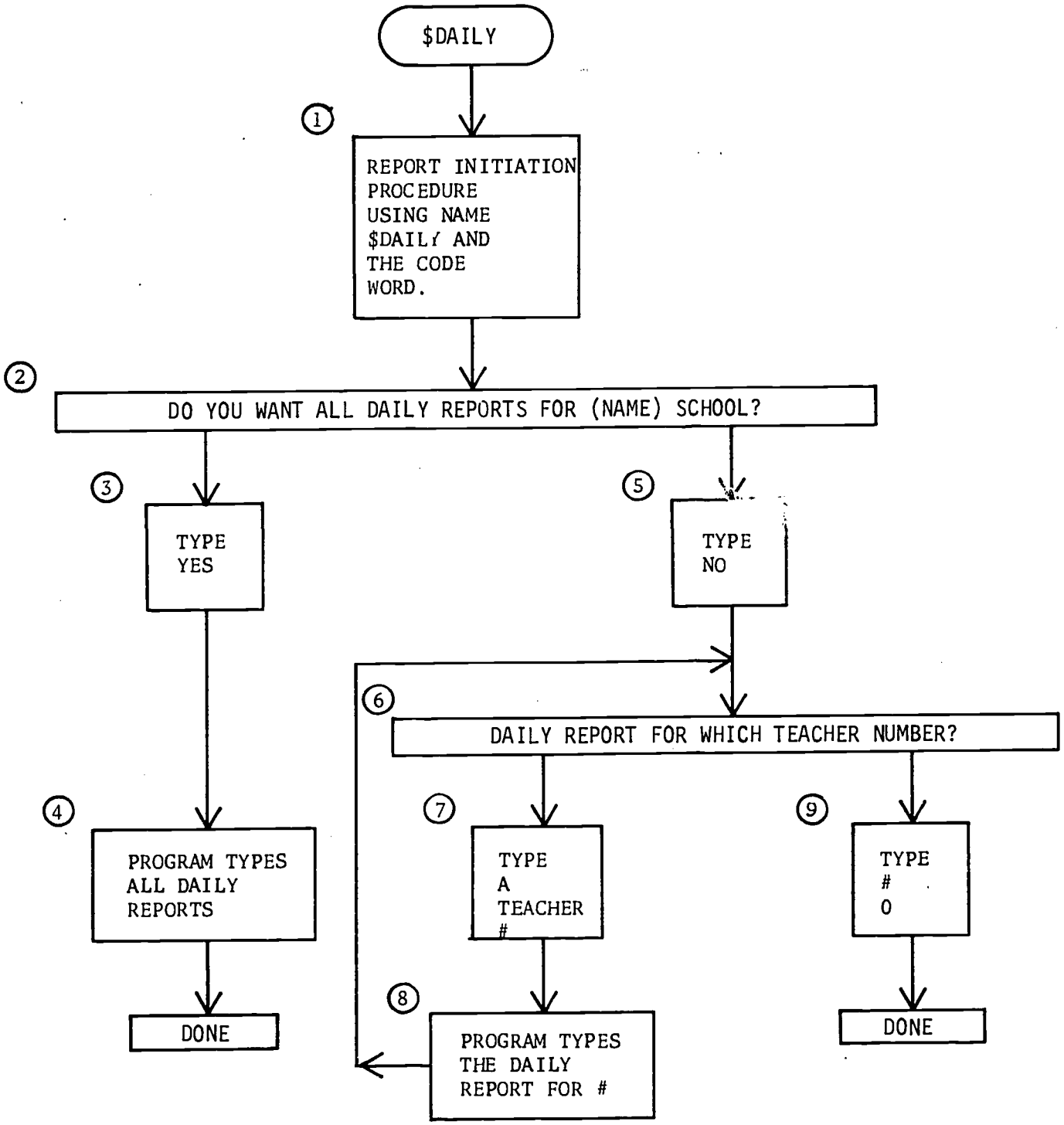
(7) Type the correct teacher number immediately after the ? and then firmly press the *return* key.

(8) The D&P PROGRAM types the daily report for the teacher, and returns to (6) To get a daily report for another teacher, type that teacher's number, then press *return*.

(9) To stop the routine, type the number zero and firmly press the *return* key immediately after the ? in (6) The D&P PROGRAM then types:

DONE.

DAILY CHART


$DAILY
1
REPORT INITIATION PROCEDURE USING NAME $DAILY AND THE CODE WORD.
2
DO YOU WANT ALL DAILY REPORTS FOR (NAME) SCHOOL?
3
TYPE YES
5
TYPE NO
6
DAILY REPORT FOR WHICH TEACHER NUMBER?
4
PROGRAM TYPES ALL DAILY REPORTS
DONE
7
TYPE A TEACHER #
8
PROGRAM TYPES THE DAILY REPORT FOR #
9
TYPE # 0
DONE

a. In (3) any entry beginning with a Y causes the D&P PROGRAM to go to (4)

b. In (5) any entry that does not begin with a Y causes the D&P PROGRAM to go to (6)

c. Run the *$TEACHR* utility routine when necessary to keep a current list of teachers and their assigned numbers. (See Section IX for instructions getting the $TEACHR routine.)

THE CLASS REPORT

The CLASS report is prepared by running the $CLASS report routine.

CLASS EXAMPLE

```
GET-$CLASS
RUN
CLASS

CODE?CODE
DO YOU WANT ALL CLASS REPORTS FOR HILLSDALE SCHOOL?NO
CLASS REPORT FOR WHICH TEACHER NUMBER?1

-----

CLASS REPORT      HILLSDALE SCHOOL      SEPTEMBER 16, 1970

MISS BOTTOMLEY     FOURTH GRADE
```

CURRENT MAIN LESSON				CURRENT REVIEW LESSON			NAME
YR	BL	LEVEL	BC	YR	BL	LEVEL	
3	2	TEST	3				ADAMS, JOHN
3	3	TEST	3	3	1	2	GEM, TRACY
3	7	TEST	6	3	1	3	MORGAN, GEORGE
3	14	5	17	3	11	2	O'TOOL, SALLY
3	1	TEST	0				YANCY, MARY

```
(YR=YEAR      BL=BLOCK      BC=NUMBER OF BLOCKS COMPLETED)

-----

CLASS REPORT FOR WHICH TEACHER NUMBER?0

DONE
```

CLASS PROCEDURE

(1) Do the Report Initiation Procedure. Use $CLASS for the name.

(2) The D&P PROGRAM types:

DO YOU WANT ALL CLASS REPORTS FOR (NAME) SCHOOL?

(3) To get the CLASS reports for all the teachers in the school, type:

YES*return* immediately after the ?

(4) The D&P PROGRAM types all the class reports. When it is finished, it types:

DONE

(5) To get CLASS reports for certain teachers, type:

NO*return* immediately after the ? in (2)

(6) The D&P PROGRAM types:

CLASS REPORT FOR WHICH TEACHER NUMBER?

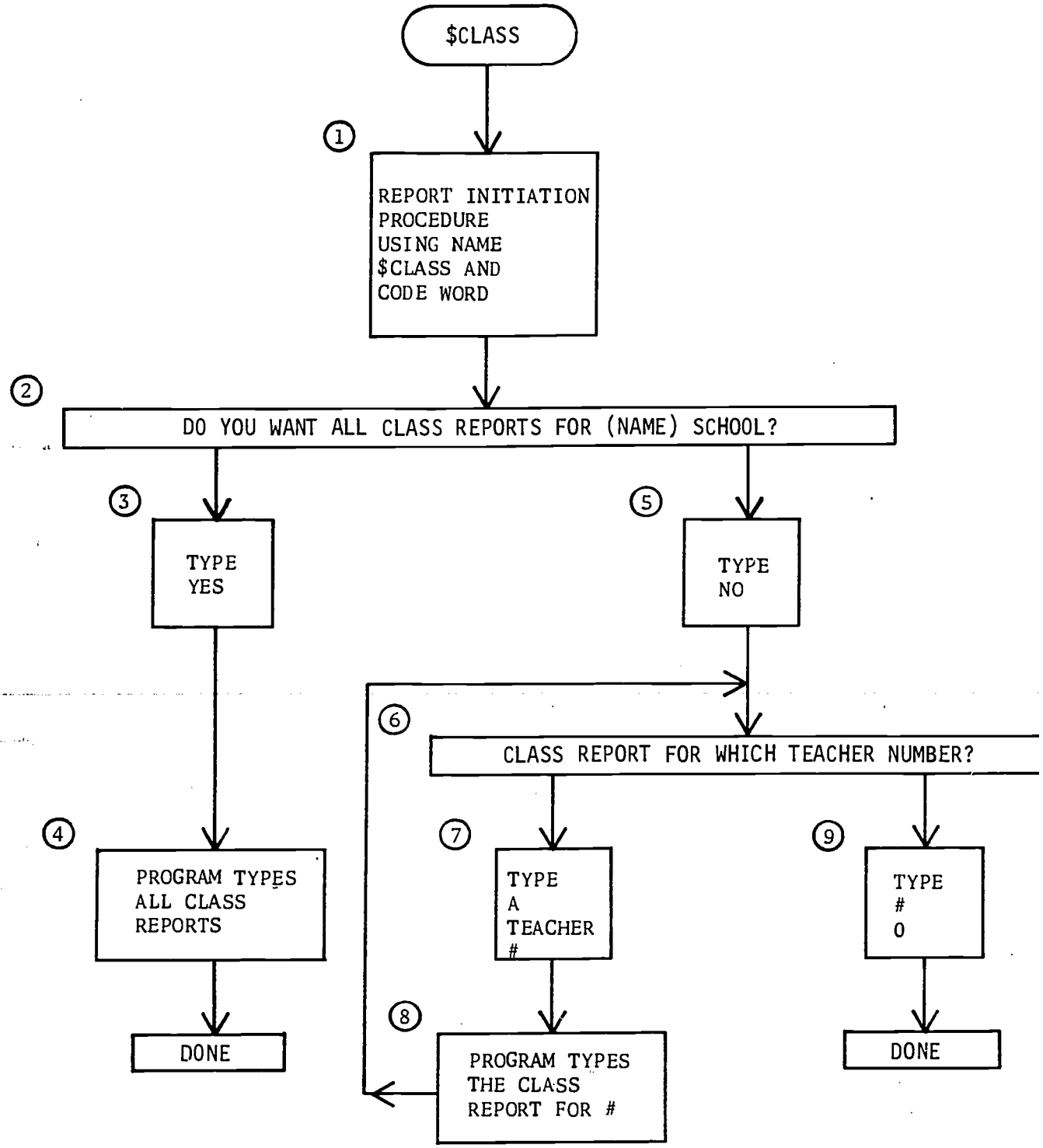
(7) Type a valid teacher number immediately after the ? then firmly press the *return* key.

(8) The D&P PROGRAM types the class report for the teacher, and returns to (6) To get a CLASS report for another teacher, type that teacher's number, then press *return*.

(9) To stop the routine, type the number zero and firmly press the *return* key immediately after the ? The D&P PROGRAM then types:

DONE

CLASS CHART


$CLASS
1
REPORT INITIATION PROCEDURE USING NAME $CLASS AND CODE WORD
2
DO YOU WANT ALL CLASS REPORTS FOR (NAME) SCHOOL?
3
TYPE YES
5
TYPE NO
4
PROGRAM TYPES ALL CLASS REPORTS
DONE
6
CLASS REPORT FOR WHICH TEACHER NUMBER?
7
TYPE A TEACHER #
9
TYPE # 0
8
PROGRAM TYPES THE CLASS REPORT FOR #
DONE

CLASS NOTES

a. In (3) any entry beginning with a Y causes the D&P PROGRAM to go to (4)

b. In (5) any entry that does not begin with a Y causes the D&P PROGRAM to go to (6)

c. Run the *$TEACHR* utility routine when necessary to keep a current list of teachers and their assigned numbers. (See Section IX for instructions on getting the $TEACHR routine.)

THE PUPIL REPORT

The PUPIL report is prepared by running the $PUPIL report routine.

PUPIL EXAMPLE

```
GET-$PUPIL
RUN
PUPIL

CODE?CODE
DO YOU WANT ALL PUPIL REPORTS FOR A CLASS?NO
ID #?1400

-----

PUPIL REPORT     HILLSDALE SCHOOL      SEPTEMBER 24, 1970

MISS BOTTOMLEY      FOURTH GRADE

STUDENT: MARY YANCY

LAST 7 BLOCKS

YEAR  BLOCK  SCORE     # REVIEWS
  3      7     100          0
  3      6      90          0
  3      5     100          0
  3      4    NOT TAKEN
  3      3    NOT TAKEN
  3      2    NOT TAKEN
  3      1    NOT TAKEN

-----
ID #?0
DONE
```

PUPIL PROCEDURE

(1) Do the Report Initiation Procedure. Use $PUPIL for the name.

(2) The D&P PROGRAM types:

DO YOU WANT ALL PUPIL REPORTS FOR A CLASS?

(3) To get all the PUPIL reports for one teacher's class, type:

YES*return* immediately after the ?

(4) The D&P PROGRAM types:

PUPIL REPORT FOR WHICH TEACHER NUMBER?

(5) Type a valid teacher number immediately after the ? and then firmly press the *return* key.

(6) The D&P PROGRAM types the PUPIL reports for the teacher's class, and returns to (4) To get all the PUPIL reports for another teacher, type that teacher's number and press *return*.

(7) To stop the routine, type the number zero and firmly press the *return* key immediately after the ? in (4) The D&P PROGRAM then types:

DONE

(8) To get the PUPIL report for certain students, type:

NO*return* immediately after the ? in (2)

(9) The D&P PROGRAM types:

ID #?

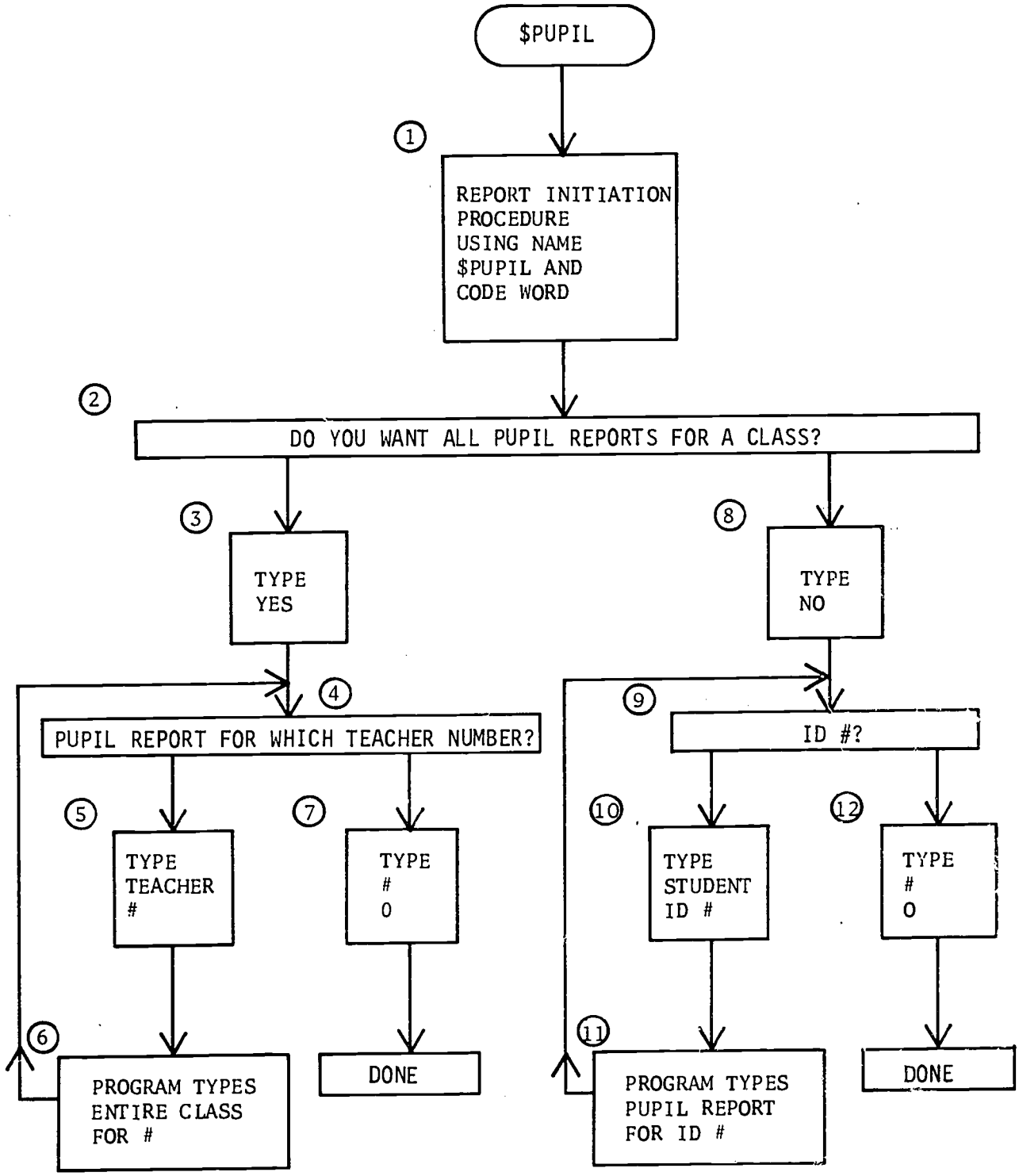
(10) Type a valid student ID number immediately after the ? and then firmly press the *return* key.

(11) The D&P PROGRAM types the PUPIL report for the student, and returns to (9) To get a PUPIL report for another student, type that student's ID number, and then press *return*.

(12) To stop the routine, type the number zero and firmly press the *return* key immediately after the ? in (9) The D&P PROGRAM then types:

DONE

PUPIL CHART


$PUPIL
1
REPORT INITIATION PROCEDURE USING NAME $PUPIL AND CODE WORD
2
DO YOU WANT ALL PUPIL REPORTS FOR A CLASS?
3
TYPE YES
8
TYPE NO
4
PUPIL REPORT FOR WHICH TEACHER NUMBER?
9
ID #?
5
TYPE TEACHER #
7
TYPE # 0
10
TYPE STUDENT ID #
12
TYPE # 0
6
PROGRAM TYPES ENTIRE CLASS FOR #
DONE
11
PROGRAM TYPES PUPIL REPORT FOR ID #
DONE

PUPIL NOTES

a. In (3) any entry beginning with a Y causes the D&P PROGRAM to go to (4)

b. Run the $TEACHR utility routine when necessary to keep a current list of teachers and their assigned numbers. (See Section IX for instructions.)

c. In (8) any entry that does not begin with a Y causes the D&P PROGRAM to go to (9)

d. In (10) be sure to type the correct student number. Run the $ROSTER report routine when necessary to keep a current list of students and their assigned student numbers.

THE ROSTER REPORT

The ROSTER report is prepared by running the $ROSTER report routine.

ROSTER EXAMPLES

Short-Form Roster

```
GET-$ROSTER
RUN
ROSTER

CODE?CODE
DO YOU WANT ALL ROSTERS FOR HILLSDALE SCHOOL?NO
ROSTER FOR WHICH TEACHER NUMBER?1
SHORT FORM?YES

-----


CLASS ROSTER      HILLSDALE SCHOOL      SEPTEMBER 24, 1970

MISS BOTTOMLEY      FOURTH GRADE


  ID          NAME


 1000      ADAMS, JOHN
 1100      GEM, TRACY
 1200      MORGAN, GEORGE
 1300      O'TOOL, SALLY
 1400      YANCY, MARY


-----

ROSTER FOR WHICH TEACHER NUMBER?0

DONE
```

Long-Form Roster

```
GET-$ROSTER
RUN
ROSTER

CODE?CODE
DO YOU WANT ALL ROSTERS FOR HILLSDALE SCHOOL?NO
ROSTER FOR WHICH TEACHER NUMBER?1
SHORT FORM?NO

-----

CLASS ROSTER      HILLSDALE SCHOOL      SEPTEMBER 24, 1970

MISS BOTTOMLEY      FOURTH GRADE
```

SEX	TIME OUT	SKIP	PACE	TIME INT.	TYPE	ID	NAME
M	31	N	S	U	R	1000	ADAMS, JOHN
F	31	Y	S	U	R	1100	GEM, TRACY
M	31	Y	S	U	R	1200	MORGAN, GEORGE
F	31	Y	S	U	R	1300	O'TOOL, SALLY
F	31	Y	S	U	R	1400	YANCY, MARY

```
-----

ROSTER FOR WHICH TEACHER NUMBER?0
DONE
```

ROSTER PROCEDURE

(1) Do the Report Initiation Procedure. Use $ROSTER for the name.

(2) The D&P PROGRAM types:

DO YOU WANT ALL ROSTERS FOR (NAME) SCHOOL?

(3) To get the rosters for all the classes in the school, type:

YES*return* immediately after the ?

(4) The D&P PROGRAM types:

SHORT FORM?

(5) To get a short-form roster for all the classes, type:

YES*return* immediately after the ?

(6) The D&P PROGRAM types the short-form roster for every class in the school. When it is finished, the D&P PROGRAM types:

DONE

(7) To get a long-form roster for all the classes, type:

NO*return* immediately after the ? in (4)

(8) The D&P PROGRAM types the long-form roster for every class in the school. When it is finished, the D&P PROGRAM types:

DONE

(continued on next page)

(9) To get the rosters for certain teachers, type:
NO*return* immediately after the ? in (2)

(10) The D&P PROGRAM types:
ROSTER FOR WHICH TEACHER NUMBER?

(11) Type a valid teacher number immediately after the ? then firmly press the *return* key.

(12) The D&P PROGRAM types:
SHORT FORM?

(13) To get a short-form roster for the teacher, type:
YES*return* immediately after the ?

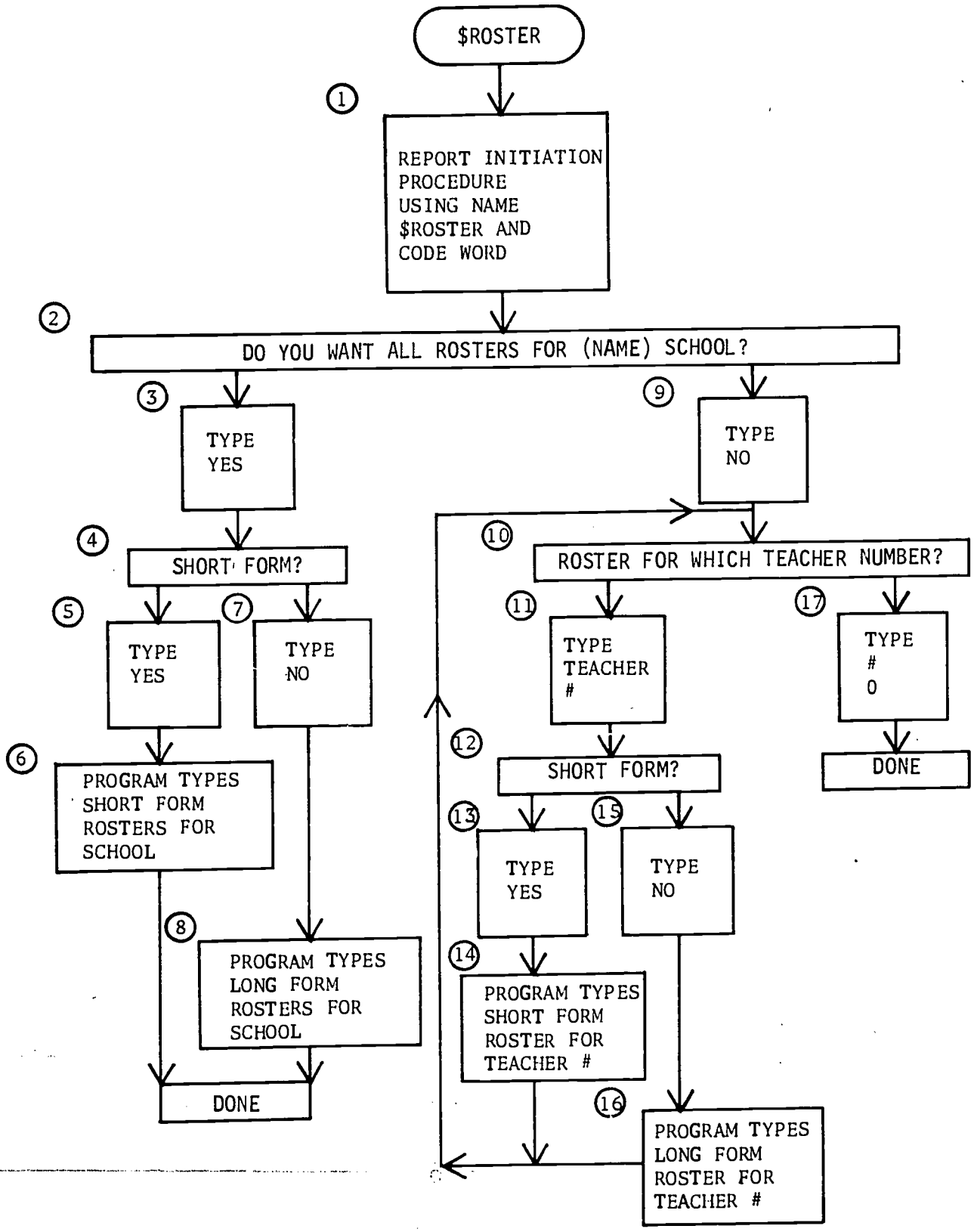
(14) The D&P PROGRAM types the short-form roster for the teacher and returns to (10) To get a short-form roster for another teacher, type that teacher's name, then press *return*.

(15) To get a long-form roster for the teacher, type:
NO*return* immediately after the ? in (12)

(16) The D&P PROGRAM types the long-form roster for the teacher, and returns to (10) To get a long-form roster for another teacher, type that teacher's number, then press *return*.

(17) To stop the routine, type the number zero and firmly press the *return* key immediately after the ? in (10) The D&P PROGRAM types:
DONE

ROSTER CHART



ROSTER NOTES

a. In ③ ⑤ and ⑬ any entry beginning with a Y causes the D&P PROGRAM to continue in sequence.

b. In ⑦ ⑨ and ⑮ any entry that does not begin with a Y causes the D&P PROGRAM to continue in sequence.

c. Keep a current copy of the TEACHER listing so the correct teacher number can be entered in ⑪

d. A short-form roster is used to check student ID numbers. The proctor should keep a current short-form roster to check attendance and insure that students are in the correct class.

THE CURRICULUM REPORT

The CURRICULUM report is prepared by running the $CURRIC report routine.

CURRICULUM EXAMPLE

```
GET-$CURRIC
RUN
CURRIC

CODE? CODE

CURRICULUM REPORT FOR REGULAR STUDENTS? YES

-----

CURRICULUM REPORT      HILLSDALE SCHOOL      SEPTEMBER 24, 1970

REGULAR STUDENTS

YEAR 1
```

BLOCK	# STU.	PRE-TEST AVG.	PRE-TEST S.D.	POST-TEST AVG.	POST-TEST S.D.	INCREASE AVG.	INCREASE S.D.
1	61	79	2.4	91	1.5	12	2.8
•							
•							
•							
24	80	77	1.8	92	0.9	15	1.8

```
(THE BLOCK SCORES FOR EACH CURRICULUM YEAR ARE PRINTED)
(EACH CURRICULUM YEAR HAS A SEPARATE HEADING)

-----

DONE
```

CURRICULUM PROCEDURE

(1) Do the Report Initiation Procedure. Use $CURRIC for the name.

(2) The D&P PROGRAM types:

CURRICULUM REPORT FOR REGULAR STUDENTS?

(3) To get a curriculum report for regular students, type:

YES*return* immediately after the ?

(4) The D&P PROGRAM types the curriculum report for regular students. When it is finished, the D&P PROGRAM types:

DONE

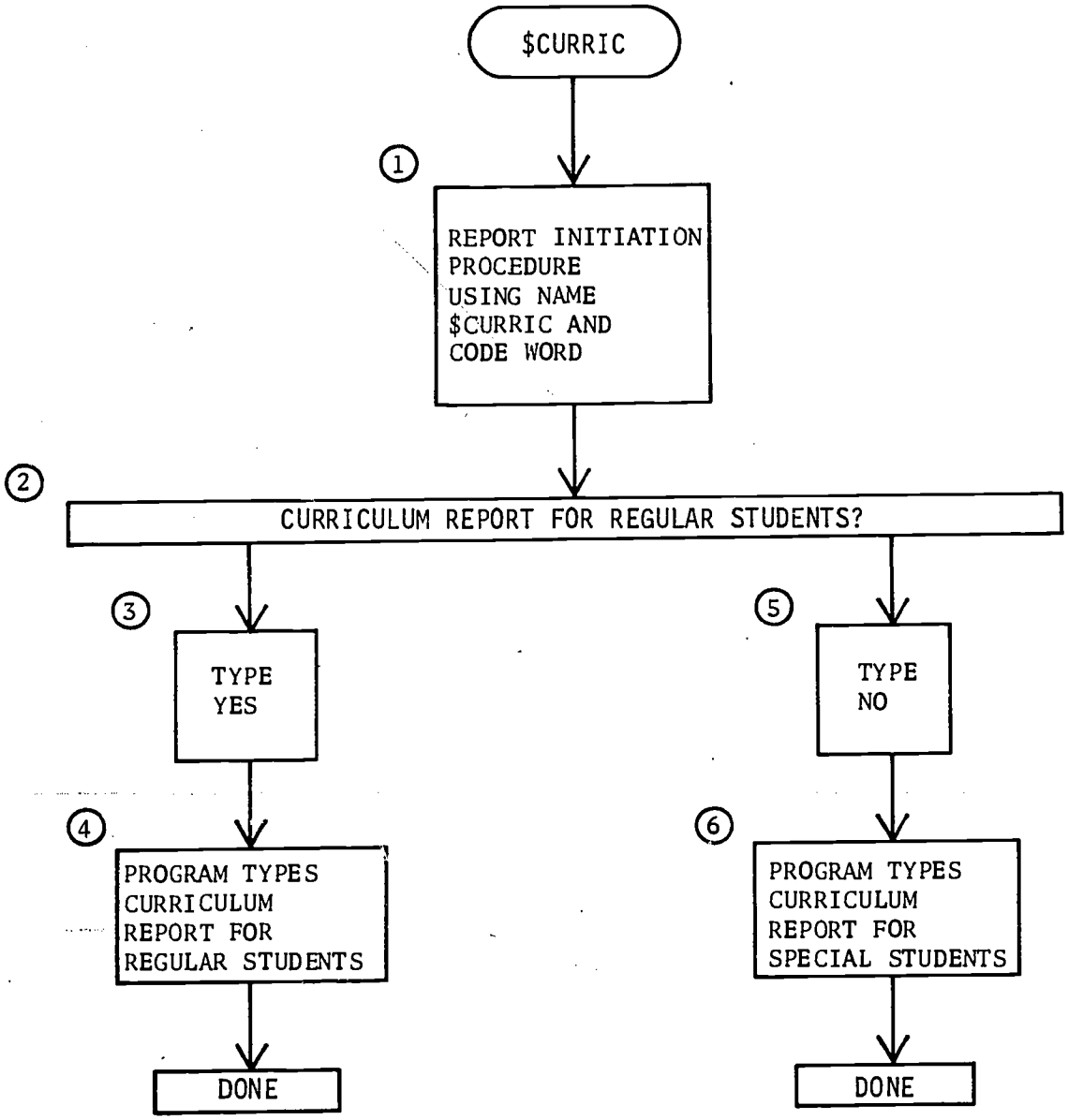
(5) To get a curriculum report for special students, type:

NO*return* immediately after the ? in (2)

(6) The D&P PROGRAM types the curriculum report for special students. When it is finished, the D&P PROGRAM types:

DONE

CURRICULUM CHART



CURRICULUM NOTES

a. In (3) any entry beginning with a Y causes the D&P PROGRAM to go to (4).

b. In (5) any entry that does not begin with a Y causes the D&P PROGRAM to go to (6)

c. All students are considered regular students unless a special student group is established by the school. Until there is a special group, (5) prints a report containing all zeros.

THE TEST REPORT

The TEST report is prepared by running the $TEST report routine.

TEST EXAMPLE

```
GET-$TEST
RUN
TEST


WHAT YEAR, BLOCK, AND LEVEL DO YOU WANT? 5,20,5


  8.547
+ 1.593

  93.04
- 48.77

 114
X 25


3 6 / 1 8 5 3      ___


1/8 + 2/16 = _/16 + 2/16
           = _/16

6/7 - 6/14 = __/14 - 6/14
           = _/14

----------

WHAT YEAR, BLOCK, AND LEVEL DO YOU WANT? 0
DONE
```

TEST PROCEDURE

(1) Do the Report Initiation Procedure. Use $TEST for the name.

(2) The D&P PROGRAM types:

WHAT YEAR, BLOCK, AND LEVEL DO YOU WANT?

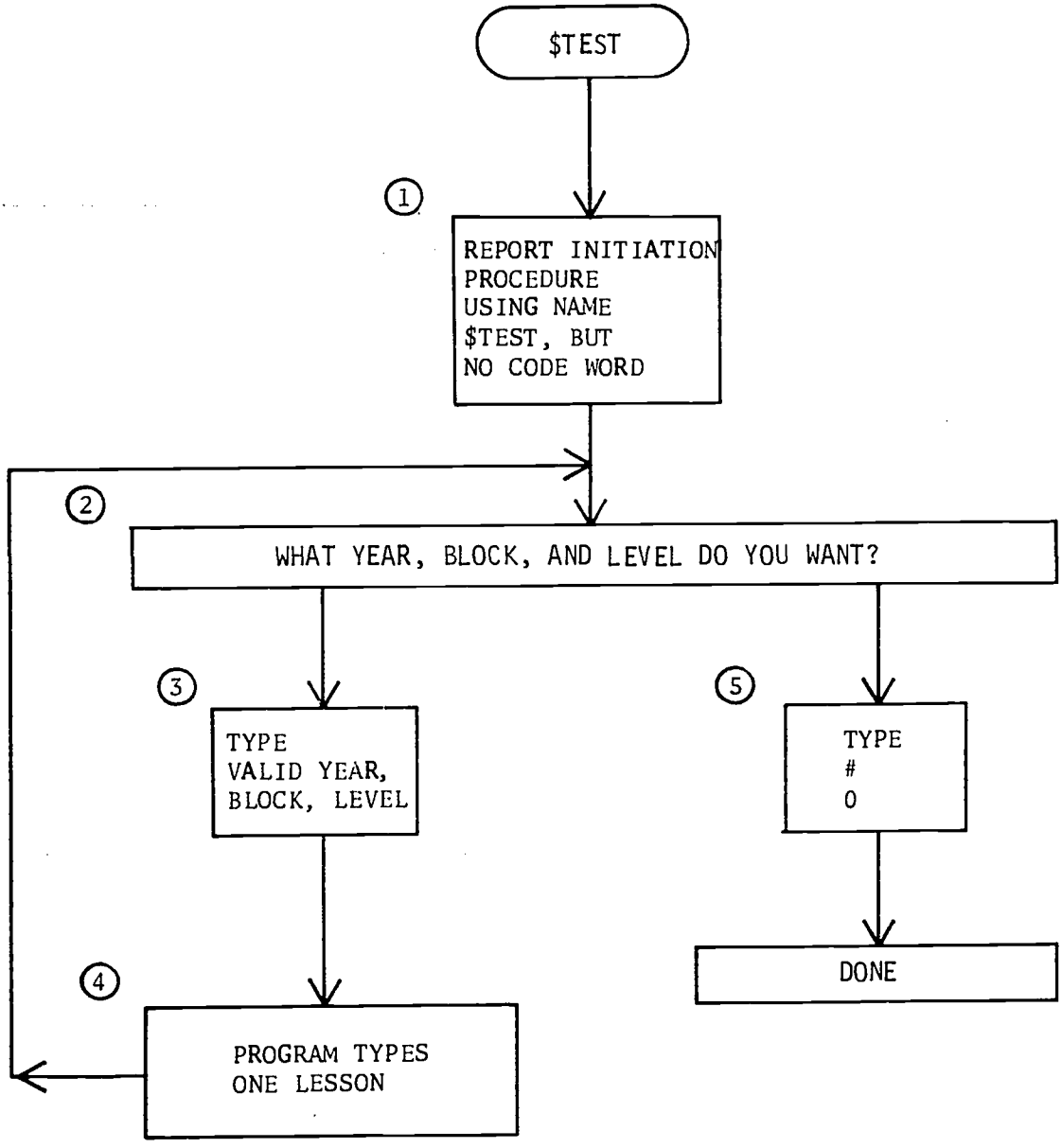
(3) Type valid year, block, and level numbers (separated by commas) immediately after the ? then firmly press the *return* key.

(4) The D&P PROGRAM types a sample of the year, block and level requested in (3) then returns to (2) To get another TEST report, type another year, block, and level, then press *return*.

(5) To stop the routine, type the number zero, and firmly press the *return* key immediately after the ? in (2) The D&P PROGRAM types:

DONE

TEST CHART


$TEST
1
REPORT INITIATION PROCEDURE USING NAME $TEST, BUT NO CODE WORD
2
WHAT YEAR, BLOCK, AND LEVEL DO YOU WANT?
3
TYPE VALID YEAR, BLOCK, LEVEL
5
TYPE # 0
4
PROGRAM TYPES ONE LESSON
DONE

TEST NOTES

a. The $TEST routine types the problems in a lesson that represents the year, block and level entered. It does not wait for any answers.

b. The year, block, and level numbers must fall within the following limits:

year: 1-6

block: 1-24

level: 1-6 (1-5= levels of difficulty; 6= pretest or post test)

c. The $TEST routine does not require a code word entry.

SECTION VII

HELPING THE STUDENTS

This section explains how to help a student when he has a question about the D&P PROGRAM or the terminal. The teacher trains the student in the fundamentals of D&P PROGRAM and terminal operation before drill and practice sessions begin. However, a student will have questions on the way the D&P PROGRAM presents the problems to him. Occasionally, he may have questions about the terminal. The proctor should be able to answer most of these questions.

PREPARATION FOR DRILL AND PRACTICE SESSIONS

Keep a current short-form ROSTER report for each class. The ROSTER report can be used as an attendance check and as a handy list of student names and ID numbers. (See Section VI for ROSTER report procedures.)

Be sure that the terminals are ready for student use. (See Section VIII for instructions on terminal maintenance.)

HOW TO ANSWER QUESTIONS

Determine the cause of the student's problem. If the student cannot interpret the mathematical problem he is working on, explain it to him. If he is having trouble using the terminal, show him how it works. If the terminal is not working properly, have him sign-in again at another terminal (if one is available).

NOTE: When explaining problems, do not give the answer to the student.

D&P PROGRAM OPERATION

The following are some common D&P PROGRAM operation problems and the solutions.

Error Messages

Error messages are self-explanatory. However, the proctor may have to help students who cannot read.

Symbols

Several problems use symbols. These symbols (↑, -, +, =, >, <) are easy to recognize and explain to the student. Be sure to show the student where to find the special symbols and how to use the *shift* key, if it is necessary. The *Curriculum Guide* contains a complete list of special symbols.

Problems with Words

Several problems contain words as well as numbers or symbols. If a student has difficulty reading the problem, show him how the problem format helps him to get the answer. For example, the following problems:

HOW MANY _K_'S?
K K K K __

THE LETTER E IS GIVEN 4 TIMES
E E E E
2/4 of 4 = __

Stopping a Lesson

The only way a student should stop a drill and practice session before his time interval has been reached, is to type: STOP*return* or ST*return*. If the *break* key is pressed, the lesson is lost, and the proctor will have to restart the D&P PROGRAM at that terminal.

Time Outs

If a student types a correct answer and then forgets to press the *return* key, he is timed out. Remind the student that the *return* key must be part of each answer.

Horizontal Format Problems

The student's response to horizontal format problems is illustrated in the following example. If, for example, the problem presented to the student is:

27 + 5 = __

and he types the correct answer followed by pressing the *return* key, his work sheet looks like this:

27 + 5 = __32

IN HORIZONTAL FORMAT PROBLEMS THE COMPLETE
ANSWER IS ENTERED IN A LEFT-TO-RIGHT SEQUENCE.
ONLY THE LAST DIGIT IS FOLLOWED BY *return*.

Vertical Format Problems

The student is required to respond to vertical format problems as shown in the following example. Suppose the problem presented to the student is:

27
+ 5

Addition is performed right-to-left. The D&P PROGRAM requires that the student's first response be the number that corresponds to the units position in the sum of 7 and 5. Next, the student must perform the addition in the tens position (including any carry).

When the terminal finishes typing this problem, the typing head is positioned so that the first number typed appears in the correct position (in the units column as shown below). After typing the number that belongs in the units position, the student presses the *return* key:

```
 27
+ 5
  2return
```

The D&P PROGRAM positions the typing head to the left of the 2, so the student can type the 3, the correct answer for the tens position. When the student types 3 followed by a *return*, his work sheet looks like this:

```
 27
+ 5
 32
```

> IN VERTICAL FORMAT PROBLEMS DIGITS OF THE ANSWER ARE ENTERED IN A RIGHT-TO-LEFT SEQUENCE. EACH DIGIT OF THE ANSWER MUST BE FOLLOWED BY *return*.

In the event the student either makes a mistake or times out, the D&P PROGRAM is able to repeat the problem for the student up to the mistake or time-out. Suppose, in the preceding example, the student had already typed the 2 in the units position and types a 2 in the tens column. The D&P PROGRAM then responds with:

```
WRONG.  TRY AGAIN.
 27
+ 5
  2
```

and positions the typing head properly at the tens position.

Ladder Format (Division) Problems

Division problems in the ladder format require the student to enter numbers as he does in both horizontal format and vertical format problems. Like the vertical format problems, his answer to ladder format problems is separated into hundreds, tens, then units, but the answering sequence is left-to-right.

Suppose the problem presented to the student is:

```
12/ 144
    ___
```

The D&P PROGRAM positions the typing head to the right of the problem so that the student can type 10*return*, the correct response to the first phase of this problem. The student's work sheet looks like this:

```
12/ 144
    ___  10
```

When the *return* key is pressed following the 10, the D&P PROGRAM positions the typing head directly under the 4 in the units position of 144.

The student's next response is to type 0*return* and 2*return* then 1*return* so that his work sheet looks like:

```
12/ 144
    120  10
```

The D&P PROGRAM then positions the typing head directly beneath the 0 in 120.

The student's next response is to do the subtraction and enter the answer by typing 4*return* then 2*return* so that his work sheet looks like this:

```
12/ 144
    120  10
     24
     __
```

Now the student types 2*return*, the correct response at this stage of the problem, and the student's work sheet looks like this:

```
12/ 144
    120   10
     24
     __    2
```

After the *return* key is pressed following the 2 entry, the D&P PROGRAM positions the typing head directly under the 4 in the units position of the 24 entered by the student.

The student performs the multiplication and enters the answer by typing 4*return* then 2*return*. His work sheet now looks like this:

```
12/ 144
    120   10
     24
     24    2
```

Next, the D&P PROGRAM positions the typing head under the 4 in the units position of the just entered 24 so that the student can perform the required subtraction.

When the student performs the required subtraction, he types 0*return* and his work sheet looks like this:

```
12/ 144
    120   10
     24
     24    2
      0
```

The D&P PROGRAM types the addition problem below the division problem and the work sheet looks like this:

```
12/ 144
   120   10
    24
    24    2
     0

 10
+ 2
```

The student must do the addition to get the final quotient or answer. When he types the correct answer (2*return* then 1*return*) his work sheet looks like this:

```
12/ 144
   120   10
    24
    24    2
     0

 10
+ 2
 12
```

At this point the problem is finished. Because the student was required to use the *return* key 10 times in this problem, this problem is considered to have 10 correct answers.

Had the student made a mistake or timed out on any phase of the problem, the D&P PROGRAM would have repeated the problem up to the mistake or time-out. For example, had the student gotten as far as the multiplication of 12 by 2 but typed 3*return* by mistake, the D&P PROGRAM would respond with:

```
WRONG. TRY AGAIN
12/ 144
   120   10
    24
     —    2
```

Every ladder format division problem is followed immediately by a horizontal format multiplication problem in which the divisor, dividend, and quotient are used. The multiplication problem for the preceding example is presented in one of the following three ways.

__ x 12 = 144
12 x __ = 144.
12 x 12 = ___

Decimal Problems

Problems involving decimals are the only problems which have more than one answer acceptable to the D&P PROGRAM. For example, the problem:

.5 + .5 = __

can be answered with as many leading or trailing zeroes as the student desires.

Thus, possible correct answers to this problem are:

.5 + .5 = __1
.5 + .5 = __01.
.5 + .5 = __1.0
.5 + .5 = __01.0
.5 + .5 = __00001
.5 + .5 = __00001.0000

In multiplication problems involving decimals, the D&P PROGRAM first shows the student what procedures to follow by typing:

FIRST MULTIPLY WITHOUT USING THE DECIMALS.
THEN WRITE THE PRODUCT PLACING THE DECIMAL
IN THE CORRECT PLACE.

For example, a decimal multiplication might be:

FIRST MULTIPLY WITHOUT USING THE DECIMALS.
THEN WRITE THE PRODUCT PLACING THE DECIMAL
IN THE CORRECT PLACE.

1.9 x 5:

```
 19
x 5
```

When the student responds with 5*return* then 9*return*, the work sheet looks like this:

FIRST MULTIPLY WITHOUT USING THE DECIMALS.
THEN WRITE THE PRODUCT PLACING THE DECIMAL
IN THE CORRECT PLACE.

1.9 x 5:

```
 19
x 5
 95
```

and the D&P PROGRAM continues with:

SO, 1.9 x 5 = __

At this point the student must type 9.5*return* to correctly complete the problem. The work sheet, when the problem is solved correctly, looks like this:

FIRST MULTIPLY WITHOUT USING THE DECIMALS
THEN WRITE THE PRODUCT PLACING THE DECIMAL
IN THE CORRECT PLACE.

1.9 x 5:

```
 19
x 5
 95
```

SO, 1.9 x 5 = __9.5

TERMINAL OPERATION

*return*Key

A stud t press the *return* key after he has typed his answer. If he doesn' s timed out. Remind the student to use the *return* key.

*break*Key

A student should not press the *break* key. If he does, he has to start his current drill and practice session over again. Tell the student that he loses his work if he presses the *break* key. The proctor must restart the D&P PROGRAM at the terminal (by using the START procedure).

*shift*Key

A student frequently uses the *shift* key. Be sure that he can recognize the characters he gets when he uses the *shift* key, and knows that they are different from those without the *shift* key.

*esc*Key

A student should not use the *esc* key. If he does, the line he last entered is erased. While the student could thereby erase wrong answers, the format of the problem is interrupted. When the *esc* key is pressed, a backslash is printed out (\).

*space*Key

A student gets a wrong answer if he presses the *space* key when entering an answer.

ctrl Key

Students should not use the *ctrl* key.

Zero and the Letter O

Zero and the letter O print out the same. Be sure that the student realizes zero is a number at the top of the keyboard, and the letter O is a letter, below the numbers row. The student must use the zero in his numeral answers, and the letter O in his name (if used there) during the Sign-In procedure.

Typing Errors

If a student makes a typing error, his answer is wrong.

SECTION VIII

MAINTAINING THE TERMINALS

This section explains how to supply the terminals and how to keep them ready for the students. Terminal maintenance consists of:

a. Keeping the terminals supplied with paper.

b. Keeping the terminals supplied with ribbons.

c. Performing minor maintenance chores.

d. Reporting any terminal malfunctions.

HOW TO CHANGE TERMINAL PAPER

Change the terminal paper when the colored edge of the paper appears on a student's work sheet. The colored edge signifies the paper roll is almost out of paper.

To change the paper, follow these instructions:

1. If the terminal is on, press the *return* key and turn the LINE/OFF/LOCAL knob to OFF.
2. If the terminal is off, start at step 3.
3. Raise the terminal cover by tilting it back on its hinges until it rests in an upright position, as shown in Figure 8-1. The cover is not locked and should lift freely.
4. Just to the right of the paper roll is the paper release lever. Move this lever toward the front of the terminal until it locks in place.

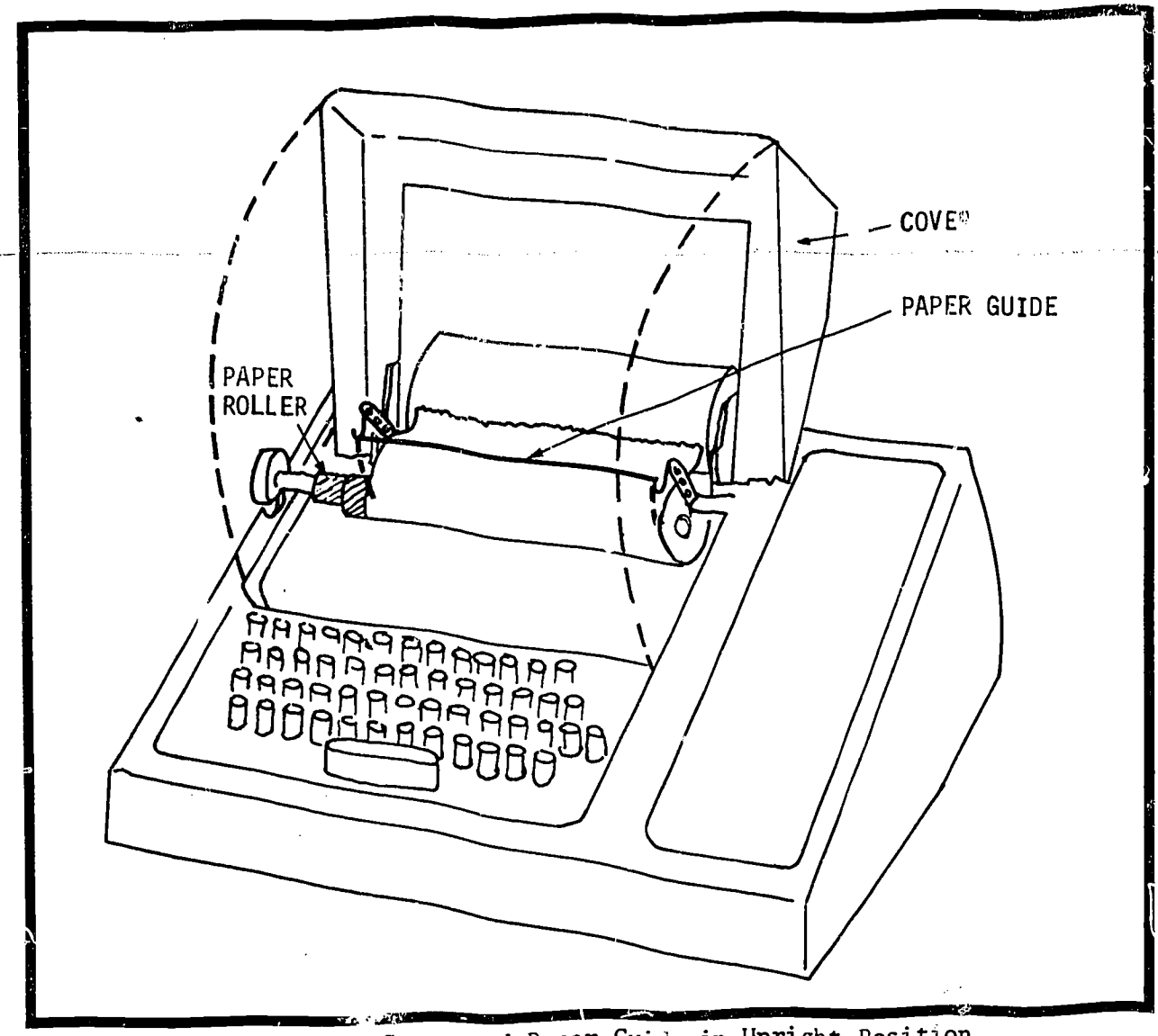


Figure 8-1. Cover and Paper Guide in Upright Position

5. Raise the paper guide away from the paper and paper roller until it rests in an upright position, as shown in Figure 8-1.

6. Pull the paper clear of the paper guide, paper roller and the straightener, as shown in Figure 8-2. Lower the paper guide.

7. Lower the cover. Lift the used roll of paper out of the terminal. The roll should lift easily. (See Figure 8-3.)

8. Remove the spindle from the core of the used roll and insert it into the new roll. Make sure the spindle sticks out equally on either side of the new roll.

9. Insert the new paper roll and spindle back into the terminal as shown in Figure 8-3. Raise the cover again.

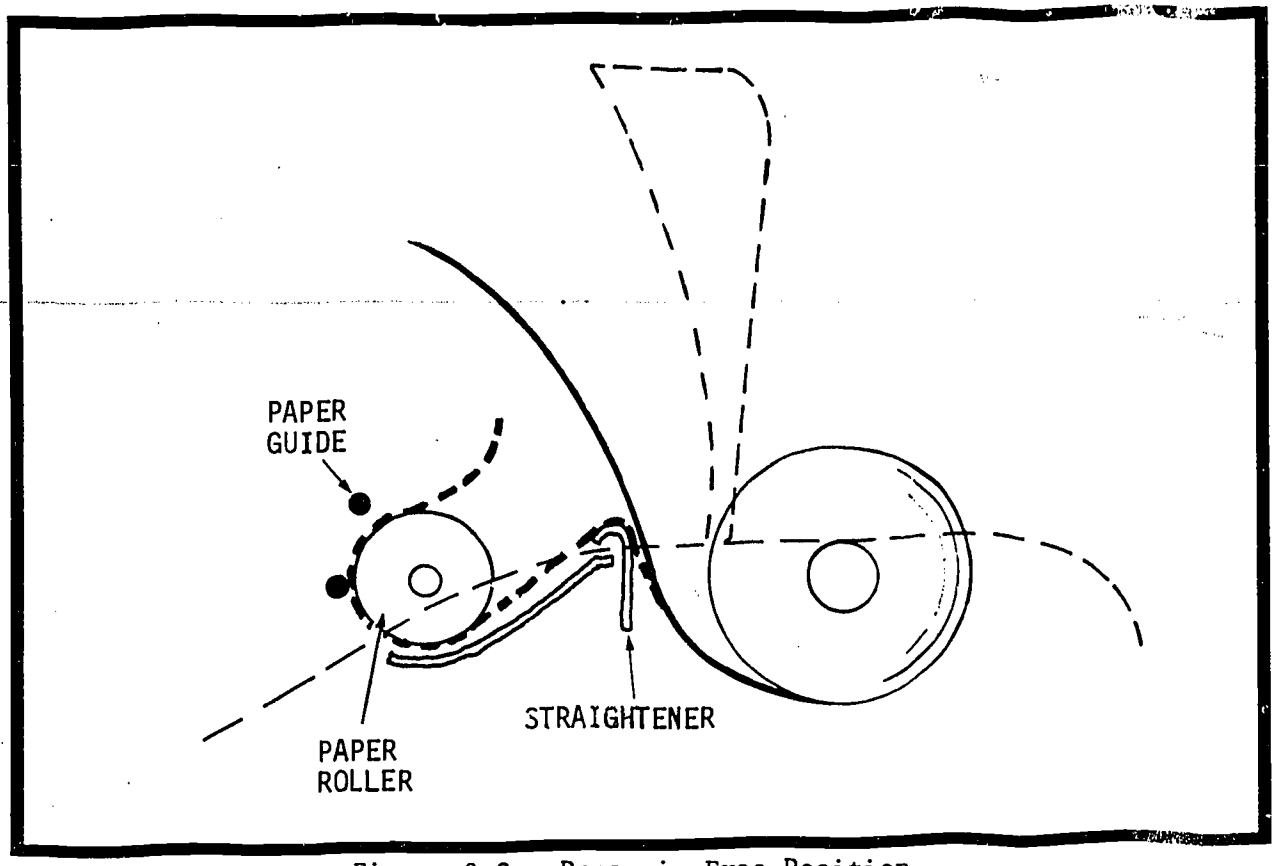


Figure 8-2. Paper in Free Position

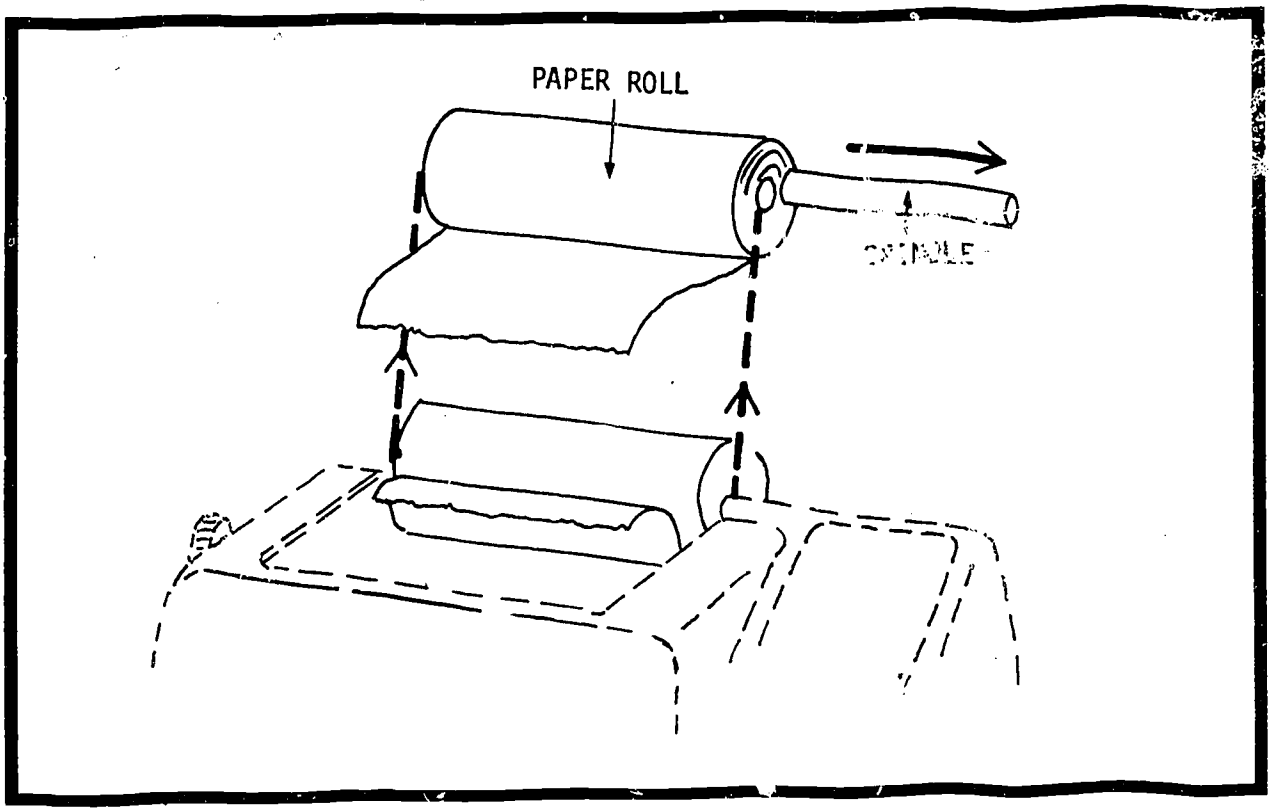


Figure 8-3. Removing (or Replacing) the Paper Roll

10. Feed the paper over the top of the paper straightener and under the paper roller, as shown in Figure 8-2. If the end of the paper is folded on a diagonal before it is fed under the paper roller, it feeds through easily.

11. Pull the top edge of the paper about ten inches above the paper roller and straighten the paper. Feed the paper under the paper guide.

12. Move the paper release lever back to hold the paper firmly in place.

13. Feed the paper through the opening in the cover and close the cover.

14. If the terminal is to be used soon, turn it to LINE.

PAPER FEED TROUBLES

If the paper feeds to one side, tears, or jams, look for the following signs of trouble.

a. Has the paper been inserted as shown?

b. Is the paper release lever in the correct position?

c. Is the terminal too close to the wall, so that the paper gets jammed?

d. Has too much paper accumulated behind the terminal so that it cannot feed properly?

e. Is the paper feeding out of the top after the cover is closed?

f. Has the paper been torn off evenly so that it feeds properly?

HOW TO CHANGE A TERMINAL RIBBON

The terminal ribbon should be checked frequently and replaced if it is worn, frayed, or if the terminal printout is too faint to read.

To change a terminal ribbon, follow these instructions:

1. Use a ribbon that is made for the terminal. Terminal ribbons are 1/2 inch wide, and have an eyelet at each end, one of which is shown in Figure 8-4.

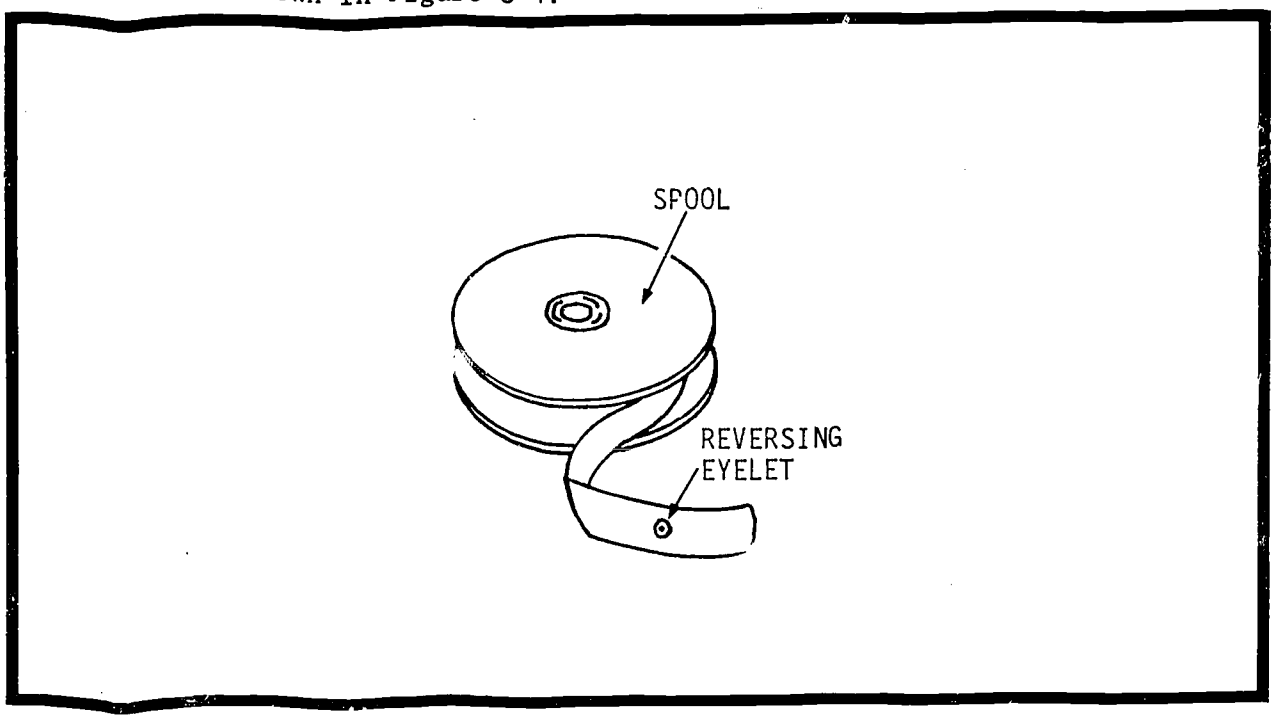


Figure 8-4. Sample Terminal Ribbon

2. If the terminal is on, press the *return* key and turn the LINE/OFF/LOCAL knob to OFF.
3. If the terminal is off, skip step 2.
4. Raise the terminal cover by tilting it back on its hinges until it rests in an upright position, as shown in Figure 8-1. The cover is not locked and should lift freely.

5. Lift both spools from the spool shafts by gently applying upward pressure until the spools unsnap from the shafts, as shown in Figure 8-5.

6. Release the ribbon from the reverse arms and the ribbon guides, as shown in Figure 8-5.

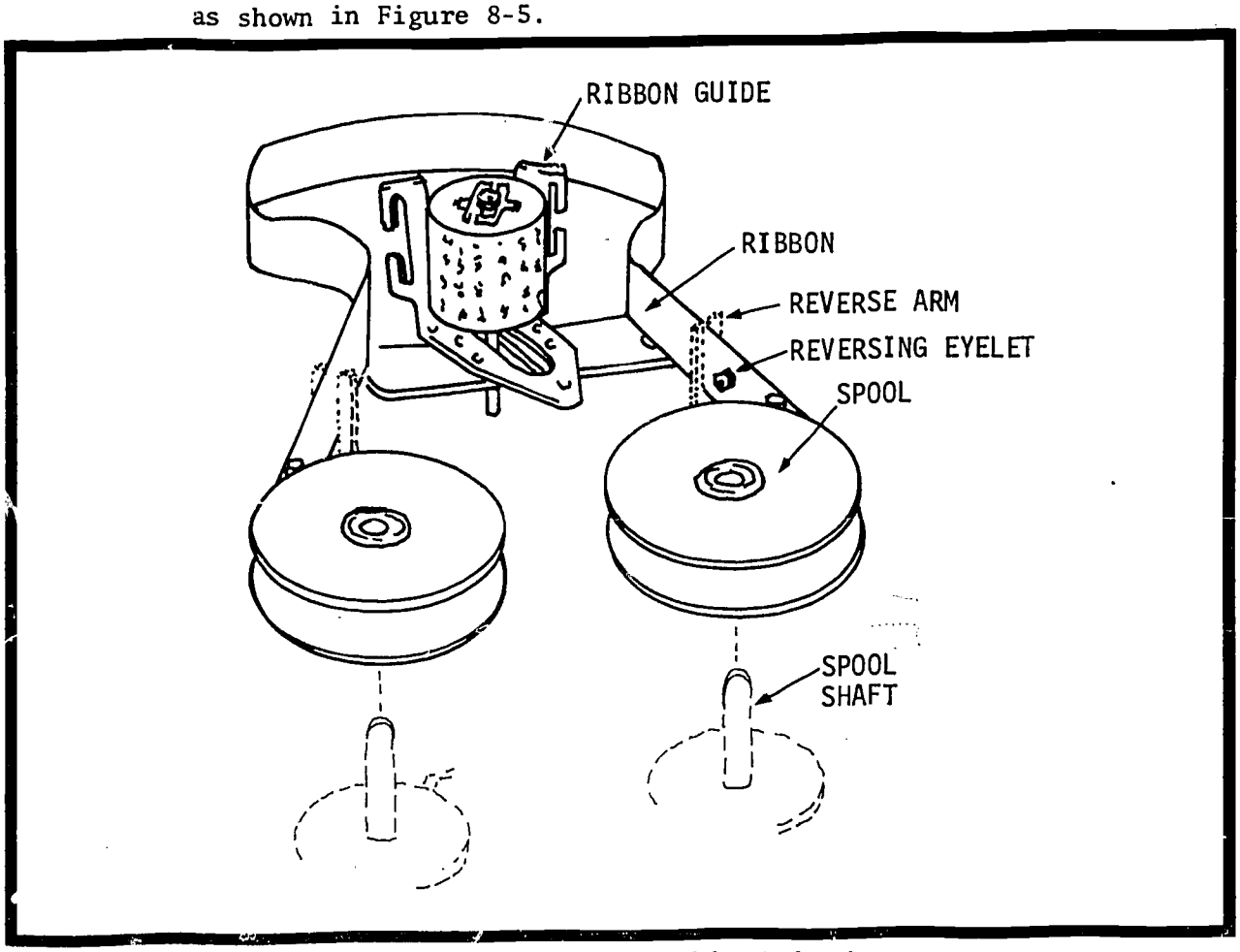


Figure 8-5. Ribbon Guide Mechanism

7. Wind all the old ribbon onto one of the spools and unhook the ribbon from the empty spool. Discard the full spool and the ribbon. Keep the empty spool.

8. Unwind several inches of the new ribbon from the new ribbon spool and hook the end of the new ribbon onto the hub of the empty spool. If the ribbon does not have a hook on the end, use the barb on the spool to pierce the ribbon near its end. Wind the ribbon onto the empty spool until the reversing eyelet winds onto the hub, as shown in Figure 8-6.

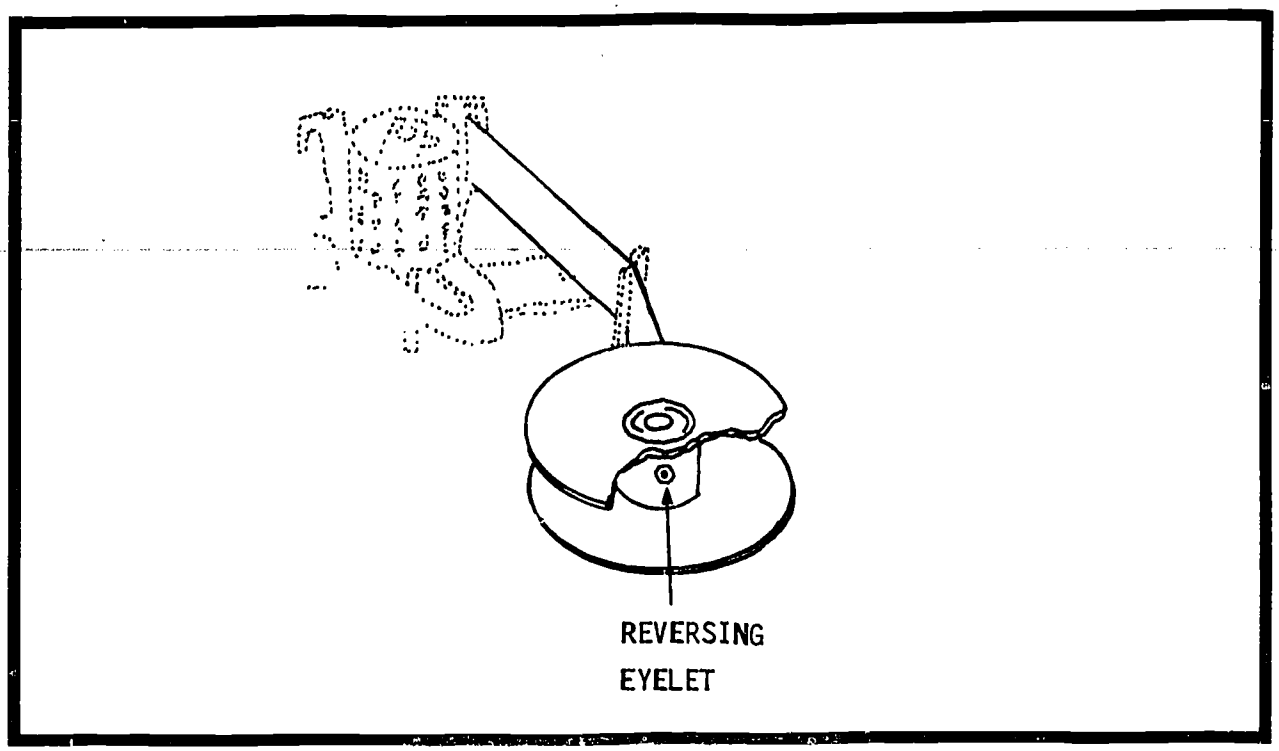


Figure 8-6. Ribbon Wound into Position.

9. Snap the spools back onto the ribbon spool shafts. Press down firmly and twist each spool slightly until it locks into place.

10. Thread the ribbon around the rollers, through the slots in the reverse levers and through the slots on both the right and left ribbon guides.

11. Take up the slack in the ribbon by turning either of the spools until the ribbon is stretched taut.

12. Check the position of the reversing eyelet on the nearly empty spool to insure that it is between the spool and the reversing lever, as shown in Figure 8-5.

13. Lower the cover and check that any paper in the terminal feeds properly out of the top.

14. If the terminal is to be used soon, turn it to LINE.

TERMINAL RIBBON TROUBLES

If the printout is faint, replace the ribbon with a new one.

If the ribbon does not feed properly or if it fails to reverse, check the following:

a. Is a standard terminal ribbon used?

b. Has the ribbon been installed properly?

c. Is the ribbon worn so badly that it is catching on some part of the terminal?

d. Is the reversing eyelet on each side correctly located between the spool and the reversing lever?

MINOR MAINTENANCE CHORES

Most terminal maintenance (except changing paper and ribbons) must be done by a skilled terminal repairman. However, there are some infrequent malfunctions that the proctor may be allowed to correct.

Unplugged Terminal

Each terminal has two plugs, one that connects the terminal to its power supply (wall plug) and one that connects the terminal to the computer (coupler. If either becomes unplugged, plug it in again.

Broken LINE/OFF/LOCAL Knob

If the LINE/OFF/LOCAL knob is broken or missing from the terminal, remove the knob from another terminal (by pulling it out) and use that knob to turn the terminal on or off.

REPORTING TERMINAL MALFUNCTIONS

When a terminal malfunction occurs, report it to the appropriate person.

SECTION IX

USING THE UTILITY ROUTINES

Instructions for running the D&P PROGRAM utility routines are found in the *Operating Procedures* manual. Instructions for running the $TEACHR routine are included in this Handbook, so the proctor can get a list of teacher names and numbers without referring to the *Operating Procedures* manual.

USING THE $TEACHR ROUTINE

How to get a list of teacher names and teacher numbers:

1. At any terminal that has been logged in, type:

   GET-$TEACHR*return*
   RUN*return*

2. The D&P PROGRAM types:

   TEACHR
   CODE?

3. Immediately after the ?, type the code word, followed by *return*.

4. The D&P PROGRAM types:

   DO YOU WANT TO ENTER, REMOVE, OR LIST TEACHER NAMES?

5. Immediately after the ?, type: LIST*return*. The $TEACHR routine lists the teacher names and teacher numbers. When it is finished, it types:

   DONE

TEACHER EXAMPLE

```
GET-$TEACHR
RUN
TEACHR

CODE? CODE
DO YOU WANT TO ENTER, REMOVE, OR LIST TEACHER NAMES? LIST
```

TEACHER LIST FOR HILLSDALE SCHOOL

NO.	NAME	GRADE
1	MISS BOTTOMLEY	4
5	MRS. SMITH	1
10	MR. JONES	2
15	MISS STANLEY	6
20	MRS. FRENCH	5
25	MISS GREENE	3

```
DONE
```

APPENDIX A

TERMINAL CONNECTIONS TO THE COMPUTER

A terminal that is connected directly to the computer has a wire that goes into a wall plug (for the terminal's power supply), and a wire that plugs directly into the computer (to transmit data to and from the computer). A direct connection to the computer is called a "hardwired" connection. The instructions in this Handbook assume that the terminals are "hardwired."

A terminal that is not connected directly to the computer has a wire that goes into a wall plug (for the terminal's power supply), and a device (called an acoustic coupler or a data set) that connects the terminal to a telephone line. The telephone line transmits data to and from the computer.

Acoustic couplers and data sets come in different forms. They may be an integral part of the terminal, or they may be contained in a separate box near the terminal. Companies that supply these devices usually supply instructions for their use. Check with the system operator for specific instructions.

APPENDIX B

DEMONSTRATION SIGN-IN PROCEDURES

If the proctor is asked to demonstrate a student lesson or if any non-student wants to take a sample lesson, always use the following variation of the Sign-In procedure.

1. Start the D&P PROGRAM, if it is not already running.
2. When the student identification appears, type a zero, any name (up to 20 characters) and press the *return* key. For example:

   WHAT IS YOUR ID NUMBER AND FIRST NAME? 0ALFRED*return*

3. The D&P PROGRAM types (for somebody named ALFRED):

   DO YOU WANT A DEMONSTRATION, ALFRED?

4. Type: YES*return* immediately after the ? for a demonstration, or type: NO*return* to stop the demonstration.
5. The D&P PROGRAM types:

   WHAT YEAR, BLOCK, AND LEVEL DO YOU WANT?

6. Immediately after the ?, type the year (1-6), comma, the block (1-24) comma, and the level (1-6, where 6 is a pre- or post-test). Press the *return* key, as in the following example:

   WHAT YEAR, BLOCK, AND LEVEL DO YOU WANT?2,14,5*return*

7. The D&P PROGRAM starts the lesson. The lesson proceeds as if a regular student were taking it, except that it goes to the student sign-in procedure when the lesson is over, instead of going to the next lesson.
8. To stop the lesson before it is over, type: STOP*return* instead of the answer to a problem.

DEMONSTRATION EXAMPLE

```
GET-$START
RUN
START


SEPTEMBER 24, 1970


WHAT IS YOUR ID NUMBER AND FIRST NAME?0ALFRED
DO YOU WANT A DEMONSTRATION, ALFRED?YES

WHAT YEAR, BLOCK, AND LEVEL DO YOU WANT?5,5,5

HELLO ALFRED.  WE HOPE YOU ENJOY TODAY'S PROBLEMS.

M 5055

********* HERE WE GO !!!!! ***********

 501
 X 2
1002


312
X 2
  STOP


GOODBYE ALFRED.  PLEASE TEAR OFF ON THE DOTTED LINE:

---------
```

APPENDIX C

REGISTERING NEW STUDENTS

Each student record contains this information:

ID number
First name
Last name
Sex
Type (regular or special)
Teacher number
Grade
Skip option
Pace (fixed or self)
Time out factor
Time interval

New student names are added to the D&P PROGRAM with the NEW routine. The examples on the next page show a variety of responses to questions asked by NEW.

Some information is automatically entered into a student's record by the NEW routine. Each student is automatically entered as a regular student, self-paced, unlimited time interval at the terminal, and with the skipping option set to "yes." Use the CHANGE routine to change any of the information which is entered automatically by NEW.

SAMPLES: REGISTERING NEW STUDENTS

```
HELLO-A500,CAI-5
READY
GET-$NEW
RUN
NEW

CODE?CODE

NEW ID?1001
FIRST NAME?FRED
LAST NAME?SMITH
MALE OR FEMALE?MALE
TEACHER #?3
GRADE?5
START MAIN LESSON:
YEAR?4
BLOCK?12
TIME-OUT FACTOR?24
FRED SMITH ENTERED.

NEW ID?1002
FIRST NAME?MARY
LAST NAME?JONES
MALE OR FEMALE?F
TEACHER #?6
GRADE?6
START MAIN LESSON:
YEAR?5
BLOCK?5
TIME-OUT FACTOR?20
MARY JONES ENTERED.

NEW ID?1003
FIRST NAME?BOBBY
LAST NAME?WHITE
MALE OR FEMALE?MALE
TEACHER #?28
GRADE?2
START MAIN LESSON:
YEAR?1
BLOCK?1
TIME-OUT FACTOR?31
BOBBY WHITE ENTERED.


NEW ID?0
DONE
```

APPENDIX D

CHANGING STUDENT RECORDS

The CHANGE routine is used to change information in student records.

The examples on the next page show possible responses to the question CHANGE? asked by the CHANGE routine. The general form for inserting changes is:

CHANGE? *keyword* new information *return*

IF YOU WANT TO CHANGE STUDENT'S:	THE *keyword* IS:	AND VALID new information IS:
ID number	ID-	Any ID number not yet assigned, and within the limits of the PROGRAM.
Name	NAME-	Last name, followed by a comma, then first name (20 characters maximum for each name).
Type (Regular or Special)	TYPE-	R or S (or type out REGULAR or SPECIAL).
Teacher	TEACHER-	1 to 64 (Teacher's number)
Grade	GRADE-	0 to 15
Sex	SEX-	M or F (or type out MALE or FEMALE).
Lesson	LESSON-	The year (1 to 6), followed by a comma, then the block (1 to 24).
Time-out factor	TIME-	0 to 31 (seconds)
Skip option	SKIP-	Y or N (or type out YES or NO). If Y, the student must be self-paced.
Pace	PACE-	F or S (or type out FIXED or SELF). If F, student must have unlimited time interval and no skipping.
Time interval	INTERVAL-	1 to 31 (minutes), or U (unlimited). Student must be self-paced if less than unlimited interval is specified.

SAMPLES: CHANGING STUDENT RECORDS

```
HELLO-A500,CAI-5
READY
GET-$CHANGE
RUN
CHANGE

CODE?CODE

THIS PROGRAM CHANGES STUDENT RECORDS.

ID #?1001
FRED SMITH
CHANGE?ID-1005
OLD ID: 1001
NEW ID: 1005

ID #?1005
FRED SMITH
CHANGE?NAME-SMITH,ALFRED
OLD NAME: SMITH, FRED
NEW NAME: SMITH, ALFRED

ID #?1005
ALFRED SMITH
CHANGE?TYPE-SPECIAL
OLD TYPE: REGULAR
NEW TYPE: SPECIAL

ID#?1005
ALFRED SMITH
CHANGE?TEACHER-23
OLD TEACHER:  MISS FRENCH
NEW TEACHER:  MR. ANDERS

ID#?1003
BOBBY WHITE
CHANGE?GRADE-3
OLD GRADE:  2
NEW GRADE:  3

ID #?1003
BOBBY WHITE
CHANGE?SEX-FEMALE
OLD SEX: MALE
NEW SEX: FEMALE

ID #?1003
BOBBY WHITE
CHANGE?LESSON-2,5
OLD YEAR, BLOCK: 1, 1
NEW YEAR, BLOCK: 2, 5

ID #?1003
BOBBY WHITE
CHANGE?TIME-24
OLD TIME-OUT FACTOR: 31 SECONDS
NEW TIME-OUT FACTOR: 24 SECONDS

ID #?1003
BOBBY  HITE
CHANGE?SKIP-NO
OLD SKIP OPTION: YES
NEW SKIP OPTION: NO

ID #?1003
BOBBY WHITE
CHANGE?PACE-FIXED
OLD PACE: SELF
NEW PACE: FIXED

ID#?1002
MARY JONES
CHANGE?INTERVAL-10
OLD INTERVAL:  UNLIMITED
NEW INTERVAL:  10 MINUTES

ID#?0
DONE
```

APPENDIX E

DELETING STUDENT RECORDS

The DELETE routine deletes a student's name and records from the D&P PROGRAM.

To delete a student's record:

1. Log in at any student terminal under the school IDcode:
   HELLO-*IDcode* , *password* *return*
   READY
2. GET-$DELETE *return*
3. RUN *return*
   DELETE
4. CODE? type in the codeword *return*

   THIS PROGRAM DELETES STUDENT RECORDS
5. ID #? type ID number of student to be deleted *return*
   computer types the student's name
6. VERIFY TO REMOVE, YES OR NO? type YES or NO *return*
   student name HAS BEEN REMOVED
7. ID #? 0 *return* (Typing an ID number of zero stops the routine.)

   DONE

SAMPLES: DELETING STUDENT RECORDS

```
HELLO-A500,CAI-5
READY
GET-$DELETE
RUN
DELETE

CODE?CODE

THIS PROGRAM DELETES STUDENT RECORDS.

ID #?1005
ALFRED SMITH
VERIFY TO REMOVE, YES OR NO?YES
ALFRED SMITH HAS BEEN REMOVED.

ID #?1003
BOBBY WHITE
VERIFY TO REMOVE, YES OR NO?YES
BOBBY WHITE HAS BEEN REMOVED.

ID #?1002
MARY JONES
VERIFY TO REMOVE, YES OR NO?YES
MARY JONES HAS BEEN REMOVED.

ID #?0

DONE
```

GLOSSARY OF TERMS

HP MATHEMATICS DRILL AND PRACTICE PROGRAM

Term	Meaning
Break Key	A function key that stops the drill and practice session or routine being performed. When the session or routine is restarted, it is restarted from its beginning. (Should not be used by students.)
Character	A letter, number or symbol on the Terminal Keyboard.
Code Word	A pre-arranged combination of letters and/or numbers that must be entered on the terminal before the D&P PROGRAM, files, or student records can be used.
Computer	An electronic device that accepts, processes, and returns information according to a program.
Drill and Practice Session	The time assigned each student for drill and practice starting at student sign-in each day.
Fixed Pace	The technique of limiting the number of lessons a student is given during a terminal session.
Function Key	All keys on the terminal keyboard used for special program functions.
Log-In	The procedures used to connect the terminals to the computer each day.
Log-Out	The procedures used to disconnect the terminals and computer each day.
Main Lesson	A set of problems that explores aspects of a mathematic concept and is grouped with four other related main lessons in a lesson block.
Non-printing Keys	All keys on the terminal keyboard that do not print a visible character on the terminal paper.

Term	Meaning
Password	A word typed after the User ID code necessary to log-in to the time-sharing system. The time-sharing system operator assigns and changes the password so the password is known only to the time-sharing system operator and the person assigned it.
Printing Keys	All keys on the terminal keyboard that print a character on the terminal paper.
Program	A sequence of instructions to a computer telling it how to perform a certain task.
Return Key	A function key that returns the terminal ribbon and type ball to the beginning of a line, signalling the D&P PROGRAM that the last response or entry is completed.
Routine	A particular set of computer instructions used to cause the performance of one of the D&P PROGRAM'S several functions. Routines are used to generate problems, update student records, form reports, and maintain files.
Routines (By name and Function)	$CLASS--A routine to obtain the Class Report. $CURRIC--A routine to obtain the Curriculum Report. $DAILY--A routine to obtain the Daily Report. $DATE--A routine to enter the date for the D&P PROGRAM at the beginning of each school day. $PUPIL--A routine to obtain a progress report for an individual student or for an entire class. $ROSTER--A routine to obtain a list of students using the D&P PROGRAM. $START--A routine to prepare the terminals for student sign-in.

stration purposes.

School	The name of the physical school or an administrative name for one group of students using the system (such as night school or summer school).
Self-Paced	There is no limit on the number of lessons a student may take during one drill and practice session. When a student is self-paced, he is limited only by the length of his drill and practice session.
Sign-In	The procedure the D&P PROGRAM uses to start a student's drill and practice session.
Sign-Out	The procedure the D&P PROGRAM uses to end a student's drill and practice session.
Student Identification	The information typed in by a student at a terminal at the start of a drill and practice session. Student identification consists of a student's unique ID number, his first name, and last name.
Student Sign-In	The procedure used by a student at the beginning of a drill and practice session that identifies him to the D&P PROGRAM.
System	A collection of electronic devices including the computer, discs, drums, terminals, and the programs which control these devices.
Teacher Identification	The surname and unique number that identifies each teacher whose students are using the D&P PROGRAM.

Term	Meaning
Terminal	A terminal is a typewriter-like device used by students to communicate with the program. The terminal prints information transmitted by the computer and allows the student to transmit (by typing) information to the computer. A terminal also is used to transmit operating instructions and commands to the computer.
Time Interval	The time, in minutes, allowed for one drill and practice session. When the time interval is reached, the D&P PROGRAM signs-out the student.
User ID Code	A unique identification number assigned by the time-sharing system operator necessary for log-in to the time-sharing system. A User ID code consists of a letter followed by a three digit number, such as A001. (See also Password.)