

V. CONSOLE TYPEWRITER

GENERAL DESCRIPTION

The console electric typewriter (Figure V-1) is an output device located on the operator's control console desk. Its principal purpose is to permit the computer to communicate with the operator by printing messages under program control. However, it is possible for the typewriter to be used by the program-

mer for more extensive informational output. This would usually happen only in situations when a high speed printer is not available. The typewriter receives output from the N register which is loaded, one character at a time, from the A register. The typewriter is capable of printing all of the following in upper case style at the rate of ten characters per second under program control:

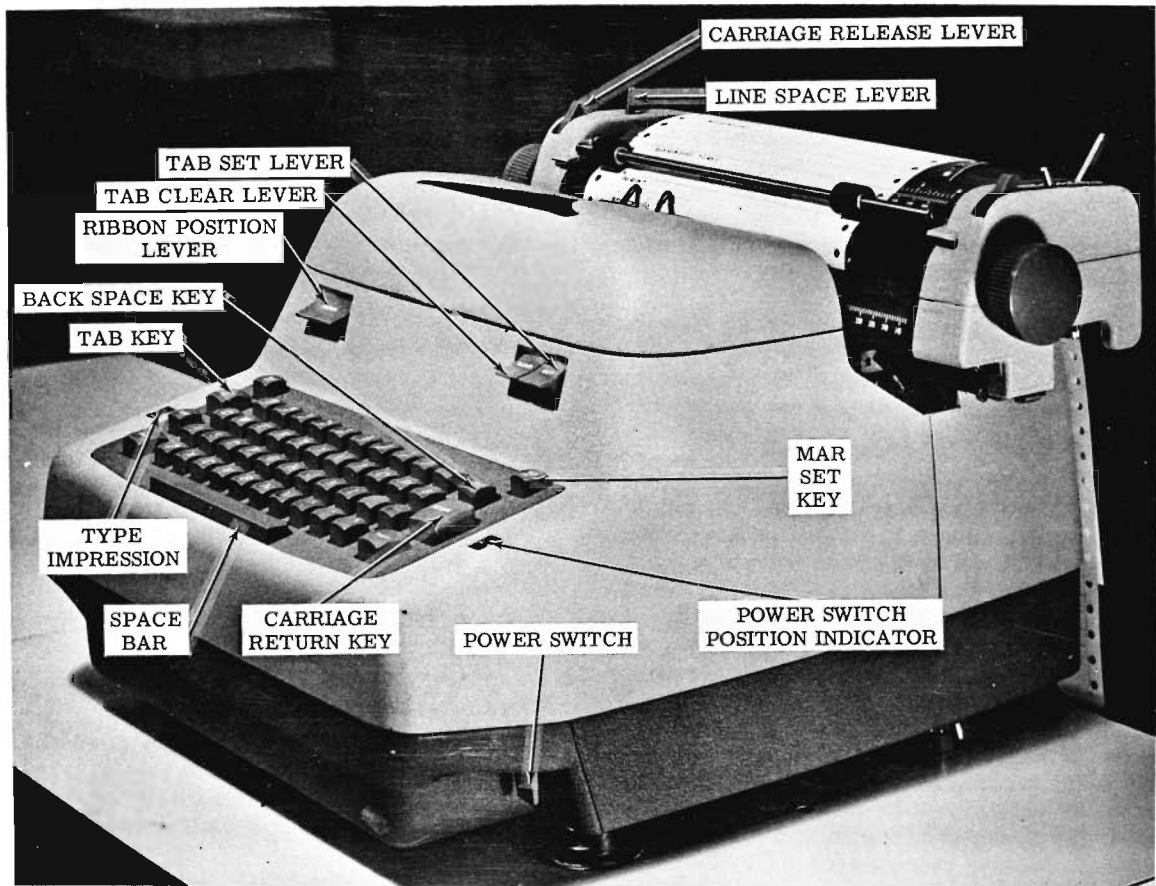


Figure V-1. Console Typewriter

GE-225

Red printout
 Black printout
 Print characters 0-9, A-Z, minus, period,
 slash, dollar, and comma
 Carriage return
 Space (by operation of the blank key)
 Tabulation

Messages are typed out automatically, requiring no assistance from the operator. However, a typeout should be immediately observed since the message may contain instructions requiring a decision and action on the operator's part. All error messages are printed in red. Program-controlled typeouts change the ribbon color automatically.

All messages logged on the console typewriter serve as a log of the performance of each program. If the program has been prepared with this in mind, it will cause the console typewriter to log the identification of the programs, a listing of tape labels, and instructions to the operator. If, however, the program is not complete to that extent, the operator may manually inject his own comments into the log. This can be done by operating the console typewriter keyboard in the same manner as any standard typewriter while the computer is temporarily halted. The typewriter can be used when the control console is set for either AUTO or MANUAL operation.

Since typewriter controls and keys are of such general familiarity, and most electric typewriter manuals describe the same parts as those on the console typewriter, no parts description will be included here. All parts mentioned in this writeup are called out on Figure V-1.

A lever under the left end of the keyboard controls the pressure, and the indicator above it shows the range from 0 to 10. The higher the number, the greater the impression. It is recommended that the type impression control be adjusted as low as is consistent with good copy.

The carriage return must always be specified by the program. If a programmer forgets the carriage return, the typewriter will type to the right margin and continue typing characters on top of each other at the end of the line (unless the operator notices it in time to manually move the carriage back). In the rather rare case when the program uses the typewriter for extensive output, the program may specify tabulation. All the program can do is specify 'activate the tab key,' so the setting of the tab stops must be done by the operator prior to the running of the program. When tabulation is used, the location of the tabulator stops will be specified to the operator at the same time and in the same manner as are other operating instructions.

The typewriter ribbon seldom causes the operator any concern, for a ribbon lasts a number of months and is replaced when necessary by the service engineer.

SETUP PROCEDURE

Only two steps in the setup procedure need to be done regularly at the beginning of each shift. They are:

1. Turn typewriter power on by moving the power toggle switch to the rear position. The viewing window above the switch shows white to indicate that power is on.
2. Load paper in the typewriter in the same way as in any standard business typewriter. The paper is continuous strip, so the operator must make a mental note of whether the supply installed is sufficient to last throughout the shift.

The following steps are used less frequently, possibly only at time of initial setup. Spacing of margins, tabs, and lines depends somewhat upon policy at the individual computer site. This spacing may change, however, with a change in program printout format. In setting margins and tabs, typewriter power must be on.

1. Set the line space lever for one, two, or three spaces between lines. One or two spaces are most frequently used.
2. Set the margins. It is customary but not at all mandatory that the left margin be set ten spaces in from the left edge of the paper and the right margin be set as far right as is possible without going beyond the right edge of the paper.
 - a. Set the left margin:
 - (1) Touch the carriage RETURN key to place the carriage at the left margin.
 - (2) While holding down the MAR SET key, move the carriage to the desired location to the right by spacing with the space bar or to the left by spacing with the BACK SPACE key.
 - b. Set the right margin:
 - (1) Move the carriage to the right margin by tabulating with the TAB KEY.
 - (2) While holding down the MAR SET key, move the carriage to the desired location to the right by spacing with the space bar or to the left by spacing with the BACK SPACE key.
3. Set the tab stops. GE-225 Programming Conventions specifies that the first two tab-

ulator settings will be at 10 and 20 spaces from the left margin. Messages of a general nature will originate at the left margin. Messages pertaining to input will be indented to the first tab setting and messages pertaining to output will be indented to the second tab setting.

The steps in setting tab stops are: (Only two settings are described, but the same procedure applies to any number of settings.)

- a. Move the carriage to the right end of the writing line by tabulating with the TAB KEY.
- b. While holding down the tab CLEAR lever, touch the carriage RETURN key to clear all tab stops previously set and move the carriage to the left margin (already set to the proper location).
- c. Move the carriage the desired number of spaces to the right with the space bar (normally 10 spaces). Depress the tab SET lever to establish the first tab setting.
- d. Move the carriage the desired number of spaces to the right again with the space bar (normally 10 spaces). Depress the tab SET lever to establish the second tab setting.

SPECIAL PROCEDURES

At the end of the running of a program, the typed log may be removed from the typewriter and returned to

the programmer along with any appropriate operator comments pertaining to it. An alternate procedure is that it may be retained at the site for record purposes and removed only at the end of a shift.

ERRORS AND OPERATOR CORRECTIVE ACTION

Operator Errors

If the operator neglects to do any of the following, the typewriter will fail to operate properly:

1. Turn the typewriter on.
2. Set the margins and tabs correctly.
3. Set line space lever for correct spacing.

Program Errors

Three of the five possible types of program errors cause the typewriter to be 'hung up.' The term 'hung up' means that the program stops at the time of a TYP command, the typewriter is inoperative, and the required typeout does not occur. Table III describes five types of program errors, their meaning, and the recommended operator action. It will be seen from the table that the error indication is the same for three different types of program errors. It will also be seen that hitting the space bar will correct three of the five types of errors. In all cases, notify the programmer of the errors in his program.

ulator settings will be at 10 and 20 spaces from the left margin. Messages of a general nature will originate at the left margin. Messages pertaining to input will be indented to the first tab setting and messages pertaining to output will be indented to the second tab setting.

The steps in setting tab stops are: (Only two settings are described, but the same procedure applies to any number of settings.)

- a. Move the carriage to the right end of the writing line by tabulating with the TAB KEY.
- b. While holding down the tab CLEAR lever, touch the carriage RETURN key to clear all tab stops previously set and move the carriage to the left margin (already set to the proper location).
- c. Move the carriage the desired number of spaces to the right with the space bar (normally 10 spaces). Depress the tab SET lever to establish the first tab setting.
- d. Move the carriage the desired number of spaces to the right again with the space bar (normally 10 spaces). Depress the tab SET lever to establish the second tab setting.

SPECIAL PROCEDURES

At the end of the running of a program, the typed log may be removed from the typewriter and returned to

the programmer along with any appropriate operator comments pertaining to it. An alternate procedure is that it may be retained at the site for record purposes and removed only at the end of a shift.

ERRORS AND OPERATOR CORRECTIVE ACTION

Operator Errors

If the operator neglects to do any of the following, the typewriter will fail to operate properly:

1. Turn the typewriter on.
2. Set the margins and tabs correctly.
3. Set line space lever for correct spacing.

Program Errors

Three of the five possible types of program errors cause the typewriter to be 'hung up.' The term 'hung up' means that the program stops at the time of a TYP command, the typewriter is inoperative, and the required typeout does not occur. Table III describes five types of program errors, their meaning, and the recommended operator action. It will be seen from the table that the error indication is the same for three different types of program errors. It will also be seen that hitting the space bar will correct three of the five types of errors. In all cases, notify the programmer of the errors in his program.

TABLE III
TYPEWRITER ERROR CONDITIONS

Error Condition	Possible Cause	Corrective Action
<p>Keyboard is locked.</p> <p>The typewriter is hung up and the N register ready light on the console is out.</p>	<p>Typewriter was not manually turned on.</p> <p>The necessary 200 ms delay was not programmed between the TON and the TYP commands.</p> <p>The program transferred an illegal character into the N register before issuing the TYP command.</p> <p>A TON command was not programmed before the TYP command.</p>	<p>Turn typewriter on, depress CLEAR N button on the console maintenance panel, and restart the program.</p> <p>Depress the space bar. If the register ready light comes on, continue with the program.</p> <p>Depress the space bar. If the N register ready light comes on, continue with the program. (The illegal character can be read from the N register lights on the maintenance panel inside the door above the operator's console).</p> <ol style="list-style-type: none"> 1. Depress the space bar. If the N register light does not come on: 2. Manually enter a TON command into the A register by setting console switches to (2500007)₈ Save A. 3. Return to nearest restart point. 4. Make a note to tell the programmer that a TON command was missing.
<p>The typewriter produces only garbled information.</p>	<p>The necessary 100 ms delay was not programmed after the TYP command.</p>	<ol style="list-style-type: none"> 1. In most cases, stop the program and return it to the programmer. 2. In those cases where the operator is so familiar with the program that he doesn't need to read the typeouts, he can continue.
<p>The typewriter types to the end of a line and continues to type without returning to the left margin.</p>	<p>The necessary carriage return was not programmed.</p>	<ol style="list-style-type: none"> 1. If possible, touch RETURN to move the carriage in time to prevent loss of data. 2. If data is lost, either rerun the program and manually return the carriage, or return the program to the programmer.