

BLUE CHIP

D12/10 Daisy Wheel Printer

User's Guide



Federal Communications Commission (FCC)
Radio Frequency Interference Statement

Warning: This equipment generates and uses radio frequency energy and if not installed and used properly, that is in strict accordance with the manufacturer's instructions, may cause interference to radio and television reception. It has been type tested and found to comply with the limits for a Class B computing device in accordance with the specifications in Subpart J of Part 15 of FCC Rules, which are designed to provide reasonable protection against such interference in a residential installation. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient the receiving antenna
- Relocate the computer with respect to the receiver
- Move the computer away from the receiver
- Plug the computer into a different outlet so that computer and receiver are on different branch circuits

If necessary, the user should consult the dealer or an experienced radio/television technician for additional suggestions. The user may find the following booklet prepared by the Federal Communications Commission helpful:

"How to Identify and Resolve Radio-TV Interference Problems". This booklet is available from the US Government Printing Office, Washington, D.C., 20402, Stock No. 004-000-00345-4.

Shield interface cable must be used according to FCC 15. 838D.
It is recommended that the cable length does not exceed 71 inches (1.8m).

TRADEMARK ACKNOWLEDGEMENT

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ABOUT THIS MANUAL

This manual was prepared to provide users at all levels of computing experience a thorough introduction to the basic operation and special features of this daisywheel printer. For novice users, explanations are supported by illustrations and summary tables. Advanced users will be able to make full use of the printer's many functions to control and format their special printing requirements.

This manual is divided into four parts. The first, Installation, is preceded by an introduction to basic concepts in printer operation and control to acquaint beginners with the fundamentals. Further sections in this part take the user from initial connections, settings and use of the control panel switches to installation of the daisywheel and ribbon cassette and paper loading.

Then, with the printer set up and ready to use, the second part describes operating procedures and use of various print functions. Here, sections deal with features such as the self-test print-out and selection and use of word processing and print format functions which are presented through the use of ESC code control sequences.

Part III is the reference appendix with sections on word processing programs, summaries of ESC sequences, troubleshooting and use of international character sets, and includes a glossary of printer-related terms.

Part IV describes how to install the Blue Chip Wordprocessor for the Commodore 64 and how to print out sample test to check your printer installation.

We recommend that you familiarize yourself with this user's guide by looking through the table of contents and index. Some sections may be skipped by users whose dealers provide such services as setup, cabling and connection, DIP switch setting and installation of the optional tractor feed. Likewise, advanced users can go directly to the sections they need.

Be sure to check the manuals that come with your computer and software for further information on printer installation and compatibility, ESC sequences, and BASIC programming. For detailed descriptions of technical areas that are necessarily out of the scope of this manual, check on specific references available through your dealer.

A PRIMER ON DAISYWHEEL PRINTERS

Despite rumors of a forthcoming 'paperless' society brought about by the innovations of electronics technology, computer users of today still derive much satisfaction and have great need for seeing the results of their efforts on a hard copy printout. This introductory section is provided to offer some general observations on what printers are and how they work. It is intended as an introduction for novice users and a base upon which they can expand their knowledge.

All printers are essentially output devices in the family of computer peripherals which receive electronic character codes and produce corresponding images of these codes on paper. Printers are generally classified by the type of printed image and the way in which the image is produced.

Fully formed characters, as good as or surpassing the quality of office typewriter output, are produced by daisywheel printers. This clear and rounded type has come to be called letter quality (LQ) printing as the printout is acceptable for use in correspondence.

The daisywheels in these printers are so named because the print element they use looks like a flattened flower, with individual characters and symbols arranged on spokes around a hub. When the code for a character is received by the printer, a motor turns the daisywheel and aligns the selected character under a print hammer which strikes the single spoke against a ribbon, leaving a printed form on the paper.

A printer receives character codes from the computer which are interpreted to form an image on paper. The industry standard for this data transmission is the American Standard Code for Information Interchange, known as the ASCII code. In addition to characters to be printed, other codes are used to control functions such as line spacing and form feed. Application programs, such as word processors, all make use of these control codes and incorporate them in the software's command system.

When basic print functions do not respond accurately to the commands, the user can usually make use of escape (ESC) sequences which are command code strings to invoke the function from the printer's own command mode. This involves programming, and for most microcomputer users, a knowledge of BASIC. These sequences can also be used for special features such as enhanced double-strike printing.

Chapter 1

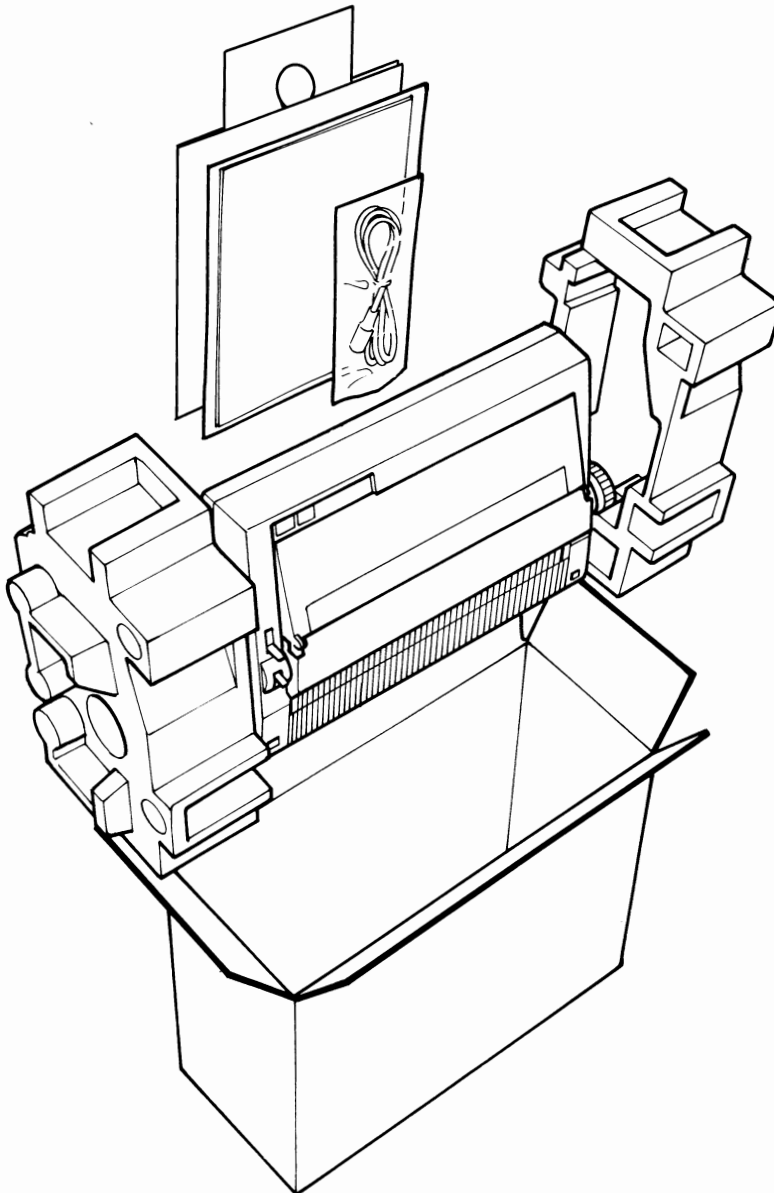
UNPACKING INSTRUCTIONS

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UNPACKING

Your daisywheel printer was carefully packaged with special shipping materials to prevent its damage during transport and storage. The illustration shows an exploded view of how the contents fit in the carton. Note that the daisywheel and ribbon cassette are already installed in the printer and there are carriage stoppers set inside the printer case that you will have to remove later. We recommend unpacking the carton near the place the printer will be set up and operated. Be sure to allow enough room to move about safely when making initial connections and settings.

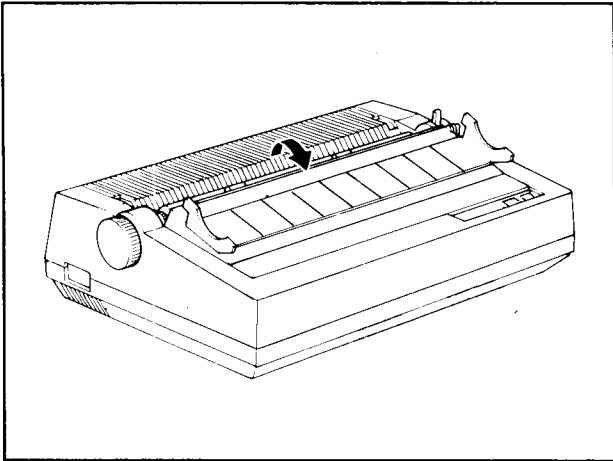


As you have already opened the carton and removed this manual, continue with the following steps to unpack the printer.

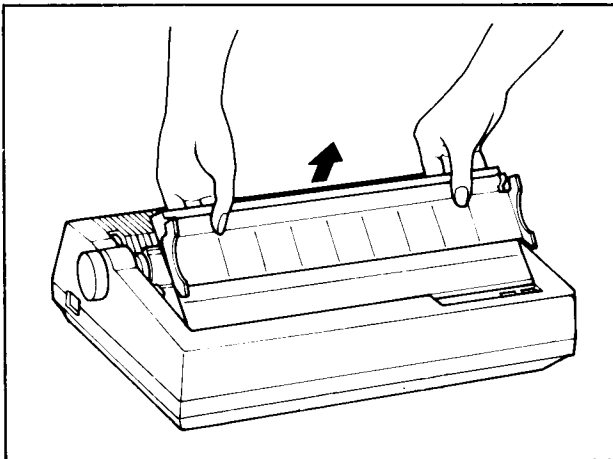
- 1 Although the printer is light-weight, the snug-fitting foam cushions may make it somewhat difficult to remove. If two persons work together, one can hold the carton down, while the other lifts the printer up and out.

- 2 Grasp the printer in the center and lift it up with the foam packing in place on the sides. Set the printer down rightside up onto a steady surface with the cushions attached.

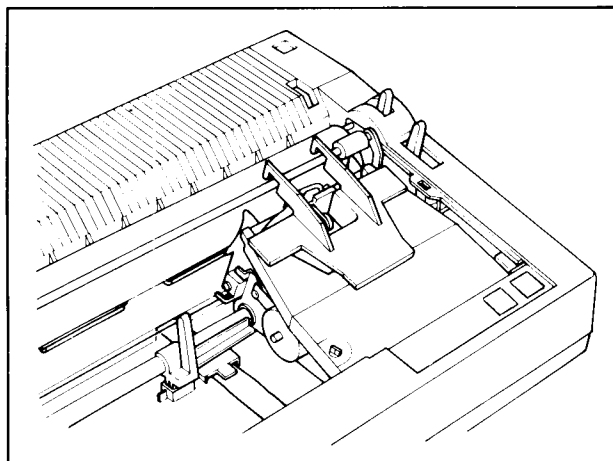
- 3 Then lift up one end of the printer at time to remove the foam cushions.



- 4 Fold open the acoustic cover towards the front of the printer.

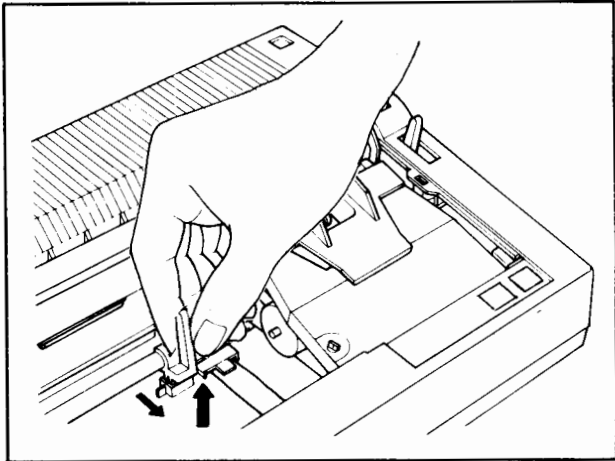


- 5 Grasp the top cover at the edge nearest the platen and lift it off.

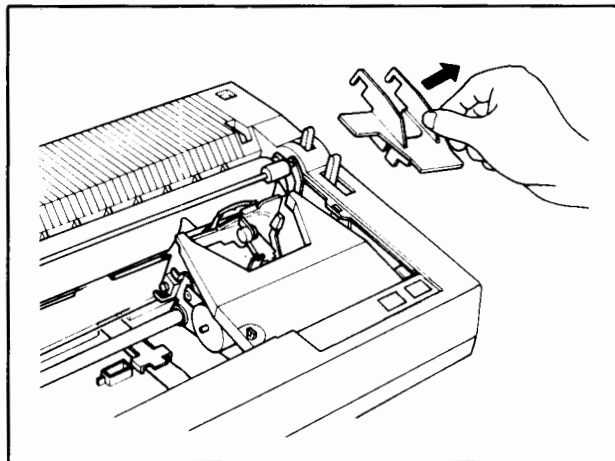


- 6 There are two plastic stoppers set inside the printer case: one at the bottom to keep the carriage from sliding, and another protecting the top of the ribbon cassette.

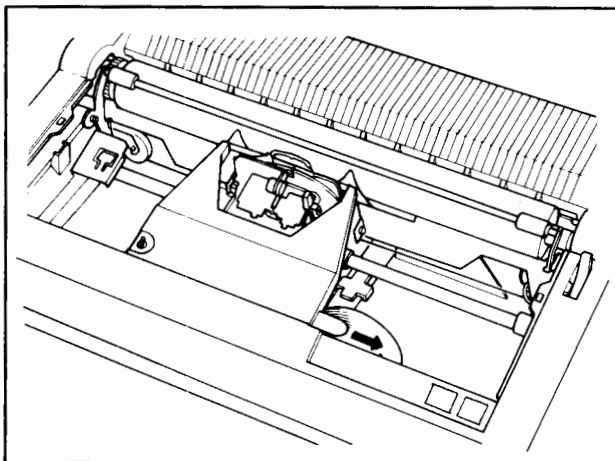
8 INSTALLATION



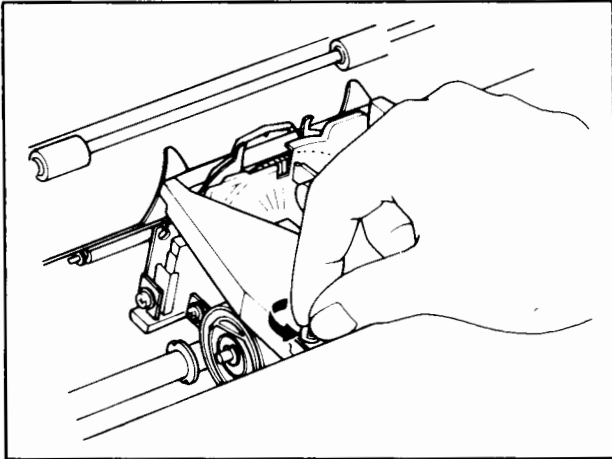
7 First remove the stopper from the carriage traveling rod. Grasp the upright tip and pull back to unclip it from the rod. Then lift up to free the peg at the stopper bottom from the square mold.



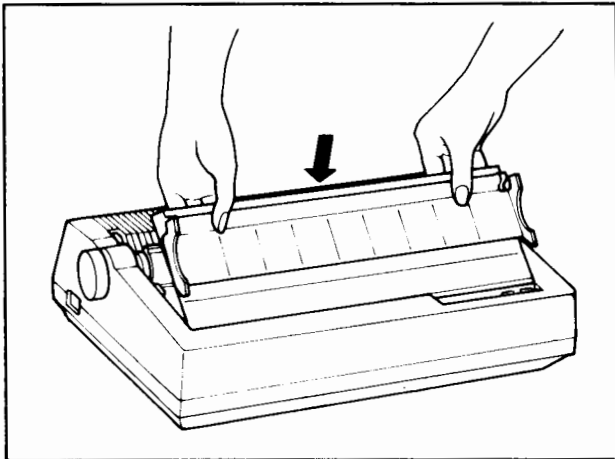
8 The stopper on the ribbon cassette that protects the daisywheel and motor lock lever lifts off easily.



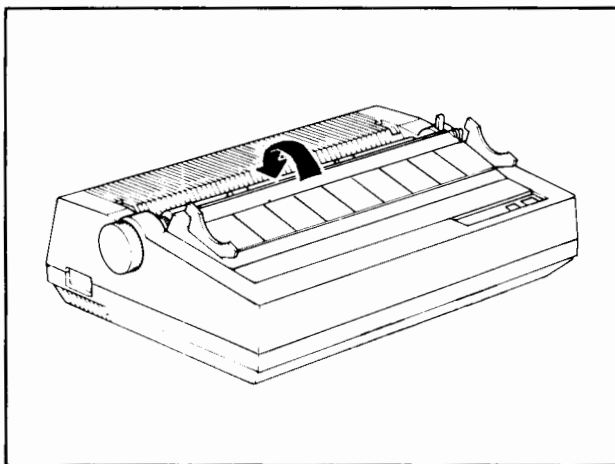
9 All new ribbon cassettes have a ribbon stopper tab set in the right side. Move the carriage by hand to about the center and pull out this tab.



10 Then turn the ribbon feed knob counter-clockwise until the leader is taken up and no slack remains.



11 Replace the top cover by locating the beveled edge near the front of the printer first, then lower the cover into place.



12 Fold back the acoustic cover toward the rear of the printer.

CHECKING THE CARTON CONTENTS

Now take a few minutes to check that you have everything in the following contents list.

- 1 Printer
- 2 User's Guide
- 3 Ribbon Cassette
- 4 Daisywheel
- 5 Interface Cable (Grounded shield cable)
- 6 Wordprocessing Diskette and Manual

If anything is missing or damaged, contact your dealer immediately.

REPACKING

Should it be necessary at this time or for any major moves in the future, follow these steps for repacking your printer:

- 1 If the printer was in use, first turn off the power and unplug the power cord from the outlet. Then disconnect the interface cable from the printer and computer. Coil the interface cable and put it inside the small plastic bag.
- 2 Fold open the acoustic cover to the front of the printer, then remove the top cover.
- 3 Move the carriage by hand to the far right side. Do not remove the daisywheel or ribbon cassette. Attach the carriage stopper by locating the bottom peg in the square mold. Then push the stopper to the rear to clip it onto the traveling bar of the carriage. Add the stopper that covers the ribbon cassette.
- 4 Replace the top cover and close the acoustic cover.
- 5 Put the printer into the plastic bag. Fit the two foam cushions on the ends of the printer.
- 6 Return the cushioned printer to the carton.
- 7 Finally, before closing the carton, put this manual in the other plastic bag and slip it and the interface cable into the space between the foam cushions.

WARNING:

Failure to comply with these repacking procedures can invalidate your warranty.

CHOOSING A LOCATION

The place where you use your daisywheel printer is perhaps already determined by the location of your computer. As cables and interfaces are discussed in the section, *Connecting to Your Computer*, on page 18, important factors are mentioned here.

1 Vibration

Carriage movement and the impact of the printhead during operation cause vibration in all daisywheel printers. Although this vibration has been minimized in the design of the printer, it is still a consideration. Make sure the printer will be on a level, sturdy surface. If you choose to use a special combination rack/stand for your computer setup which includes places for peripherals such as this printer, check it for strength and size so the printer will fit and be supported adequately.

2 Noise

All impact printers generate some degree of noise during operation. And, although its levels are relatively low, this printer is no exception. Most people become used to this sound in their computing environment. But, for those who are particularly sensitive, positioning the printer even a small distance away from the computer — and the person using it — can make a world of difference.

3 Paper Supply

If you intend to print on cut-sheet forms you will be manually loading the paper sheet by sheet. Having the printer near the computer at a convenient height would then be a placement consideration. On the other hand, use of the tractor feeder also involves allowing space for its installation and paper supply requirements.

4 Extremes

This printer is fully compatible with the operating environment common to computers and their related equipment. The printer specifications in Appendix G on page 133 indicate list specific ranges for temperature and humidity, but general guidelines are appropriate for the average user. Avoid extremes of temperature and humidity, as well as locations where changes in these conditions are frequent and abrupt. This means keeping the printer away from both heating and cooling sources. Placement in locations receiving prolonged direct sunlight should also be avoided. Remember, too, that the majority of minor problems affecting printer operation are related to paper, and the moisture it inevitably absorbs.

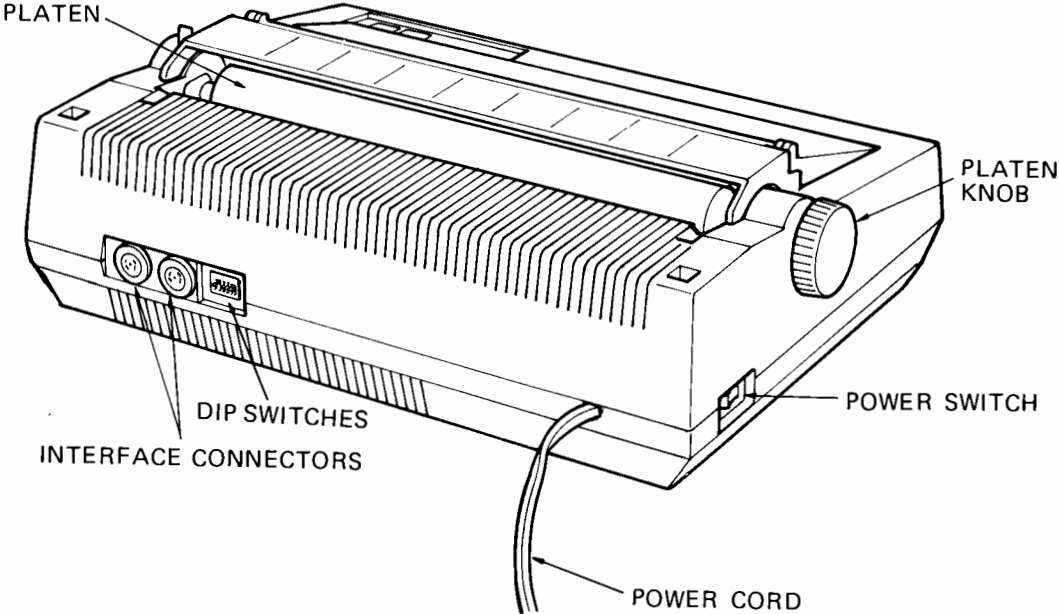
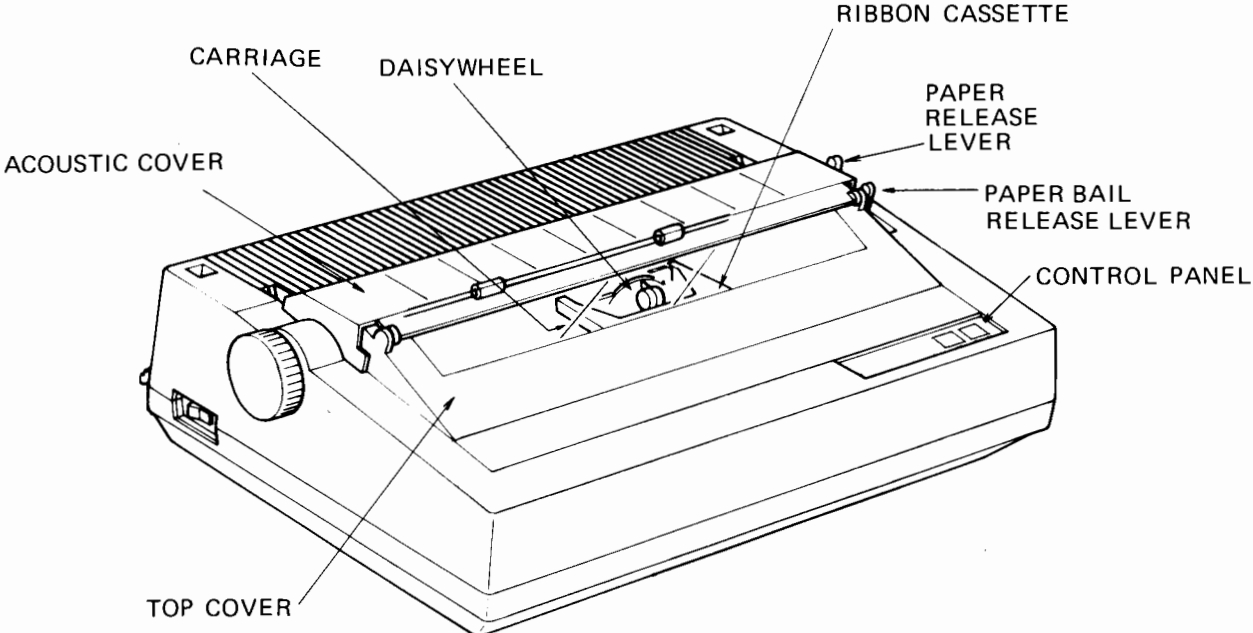
Chapter 2

SETUP PROCEDURES

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PART NAMES



CAPSULE GLOSSARY OF MAJOR PARTS

Paper Release Lever	As on a typewriter, this lever loosens the platen to release the paper for fine adjustments and when using the tractor feeder.
Paper Bail Release Lever	This lever is similar to the one used on a typewriter for holding the paper against the platen. When it is pushed or pulled the paper bail moves against and away from the platen.
Top Cover	This protects the moving parts of the printer from dust and small objects. There is a switch installed which detects when the cover is open and generates an alarm. The top cover also incorporates a folding acoustic cover which reduces printing noise.
Control Panel	The control panel is on the top of the printer case and contains control switches and an indicator lamp.
Platen	The platen is a rubber roller similar to the one used in a typewriter. It absorbs the impact of the daisy-wheel spokes against the paper and feeds the paper when the platen knob is turned by hand or when controlled from the switches or by software.
Ribbon Cassette	The ribbon cassette in this printer travels on the carriage with the daisywheel. Choose a Brother one-time film, multi-strike film, or nylon cassette ribbon. (See page 127)
Daisywheel	The daisywheel is enclosed in a clear plastic cassette to protect it and to keep your fingers clean when changing to a different font. A wide variety of type-faces are available and are easily interchangeable. Choose any Brother daisywheel cassette. (See pages 127 – 132)

Carriage	The carriage supports the daisywheel and ribbon cassette and carries them across the width of the platen.
Platen Knob	Turned by hand for manual paper feeding or fine adjustments when setting paper.
Power Switch	When this switch is ON, electricity is supplied to the printer. Also, turning ON this switch resets the printer to default values and reads in any changes in DIP switch settings.
Power Cord	This cord provides power from a standard electrical outlet and is hardwired at the printer side.
Interface Connector	This interface connector is used for connecting the printer to either the computer's, or floppy disk drive's serial port.
DIP Switches	These tiny switches at the lower rear of the printer are used for selecting and setting various functions.

CONNECTING TO YOUR COMPUTER

This printer is easily connected to any of the following Commodore computers:

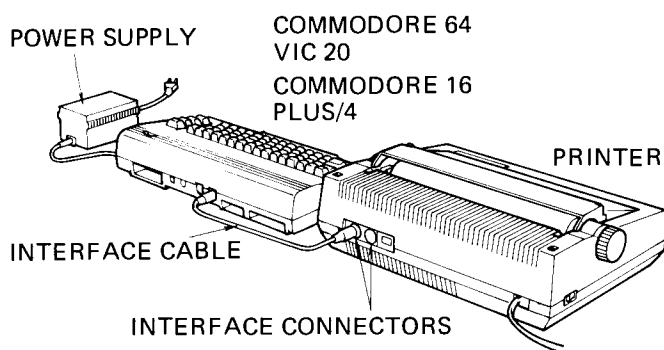
- COMMODORE 64
- COMMODORE 16
- COMMODORE PLUS/4
- COMMODORE VIC 20
- COMMODORE 128

The illustration below shows a typical connection at the rear of the COMMODORE 64 (or VIC 20, COMMODORE 16, PLUS/4 or COMMODORE 128) and this printer. With the power OFF, at both the computer and printer, follow these steps to connect the interface cable.

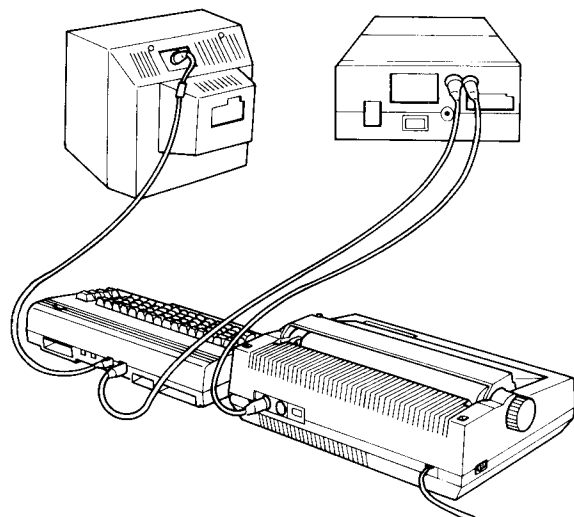
- 1 Double-check that the power to the computer and printer is OFF by unplugging both power cords.
- 2 The interface cable that comes with this printer has 6-pin DIN plugs at both ends. Connect the cable to the socket at the back of the printer first. Note that the plug has a "key" or slight projection on the rim which must fit in a matching groove in the socket. This ensures that the pins are properly aligned with the holes. Never try to force the connection.
- 3 Connect the other end of the cable to the serial port connector at the back of your computer or floppy disk drive.
- 4 Then plug in the power cords of the computer and printer.

NOTE: Either or the sockets on the back of the printer can be used. Also, when a disk drive is connected to the computer, the printer can be connected to the drive, rather than to the computer directly.

Printer to Computer Hookup



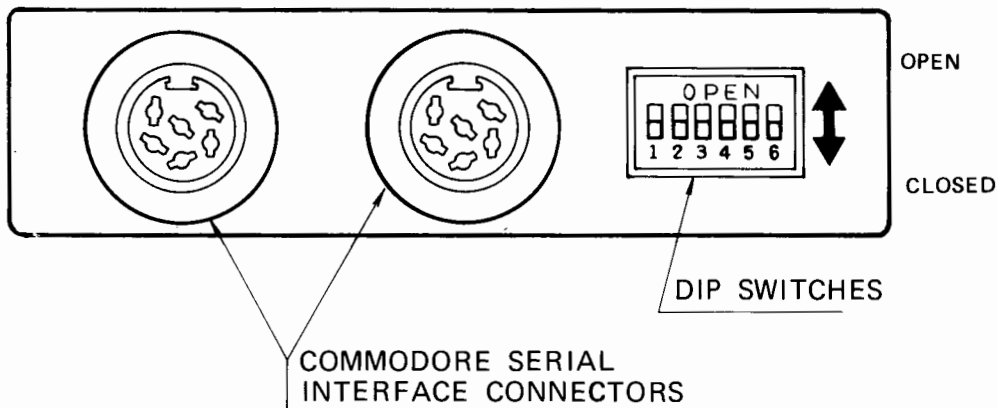
Multiple Hookup



IMPORTANT:

Users in the United States are required to use a properly grounded, shielded cable for the connection between this printer and a computer. Ask your dealer for further details.

SETTING THE DIP SWITCHES



DIP switches (from Dual Inline Package) are miniature switches used for selecting various printer functions and setting values. They are located at the rear of the printer in one array with six switch positions. When a switch is pushed up it is OPEN; pushed down, it is CLOSED. Combinations of these open and closed (OFF/ON) switches are used to set specific features. In the following pages, the functions and their required settings are given for each switch.

Remember these important points:

1. Although DIP switch settings can be changed while the power to the printer is ON, they will not be recognized by the printer until the power is turned OFF then back ON again. Thus, at power-ON, the DIP switches provide the default, or operational settings.
2. Some of the functions set by the DIP switches can be temporarily changed or overridden by software control (e.g., ESC sequences). However, as the DIP switches provide settings at the hardware level, resets or clearing of the software settings revert back to the initial DIP switch setting.
3. DIP switch settings also affect the use of the control switches. See the description of the LF switch on page 23.
4. DIP switch settings are preset before shipment. These shipped settings are marked with asterisks (*) at descriptions of individual functions in this section.

Switch No. 1: Selects Device Number (4 or 5)

Each of the peripheral devices in the Commodore system is assigned a device number to which it responds. For the printer, Commodore uses 4 or 5. You can select either of these numbers, but remember that you must use the same number you set by DIP switch in BASIC commands and statements. See pages 53 to 57 for the section on BASIC programming.

Device Number	Switch No. 1
5	Open
4	Closed

*

Switch No. 2: Selects Auto Line Feed

When Auto Line Feed is ON and the printer receives a CR code, it performs a Carriage Return followed by a Line Feed.

Auto Line Feed	Switch No. 2
ON	Open
OFF	Closed

*

Switch No. 3: Selects Character Code

Use this switch to select either the standard (STD) ASCII or Commodore (CBM) ASCII character codes. See the sections on BASIC programming, secondary address, and code tables in chapter 5.

Character Code	Switch No. 3
Standard (STD)	Open
Commodore (CBM)	Closed

*

Switches No. 4, 5, and 6: Set the printer for a daisywheel of a specific character set.

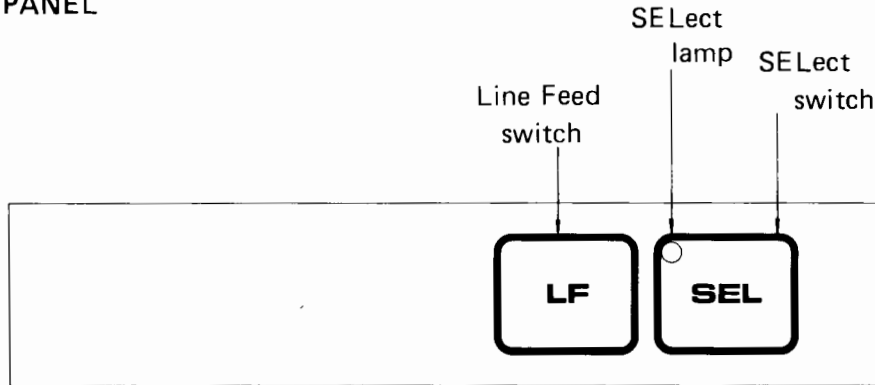
Set switches 4, 5 and 6 for the character set of the daisywheel you are using by following these steps:

- 1 This printer can use any of the eight daisywheels in the list below. Find your daisywheel in the list and set the dip switches as shown.
- 2 See the code tables on pages 120 and 121 to find out the character set of the daisywheel you are using. A variety of typefaces are available for each character set. See the daisywheel order number list on pages 128 and 129.

DAISYWHEEL CHARACTER SET	SWITCH		
	No. 4	No. 5	No. 6
US ASCII	Closed	Closed	Closed
FRENCH	Closed	Closed	Open
GERMAN	Closed	Open	Closed
CANADIAN	Closed	Open	Open
NORWEGIAN / DANISH	Open	Closed	Closed
FINNISH / SWEDISH	Open	Closed	Open
ITALIAN	Open	Open	Closed
SPANISH	Open	Open	Open

*

CONTROL PANEL



The control panel is located on the top of the printer case for easy access to two switches: line feed (LF) and select (SEL). The select switch also has an indicator lamp which is lit when the printer is selected. The switches and lamp are described in the following. Keep this important point in mind when using the control switches:

The select (SEL) switch controls the flow of data from the computer to the printer, just as the power switch controls the flow of electricity. When the power is OFF, nothing takes place. When the printer is deselected (offline), it cannot receive data. Note that only the SEL switch can be used while the printer is selected (online). Thus the sequence for using the control switches is to deselect the printer (with the SEL switch) then use the LF (Line Feed) switch, finally select the printer (again, the SEL switch) to allow it to receive and print data.

Control Switches

Select (SEL) Switch



- Sets the printer in a select (online) or deselect (offline) state. This is a "toggle switch" setting that alternates between these two states every time the switch is pressed.
- By pressing and holding the Select switch and turning ON the power switch, the printer performs a self-test printout of the characters and symbols of the daisywheel. (See page 49 on the Self-test Printout).

Line Feed (LF) Switch



- When this switch is pushed, the form is fed one line. Line pitch or spacing can be set by ESC sequence (see page 75). Single (1/6'') spacing is the default value.
- When this switch is pressed and held for more than 0.5 second, the form is fed continuously.
- This switch is effective only when the printer is deselected (offline).

Indicator Lamp

SELECT Lamp

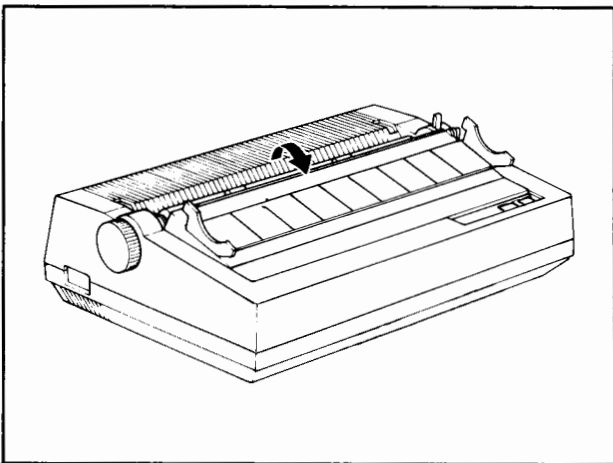
- This lamp lights when the printer is selected (on-line). The printer can only print data from the computer when it is on-line.
- While the printer is deselected the lamp blinks (2.5 times/sec).
- This lamp also blinks when a printer fault condition occurs, such as character, carriage or feed errors (10 times/sec).
- NOTE: When the power switch is turned ON, the lamp blinks until the printer is ready. This does not, however, indicate a fault condition.

REPLACING THE RIBBON CASSETTE

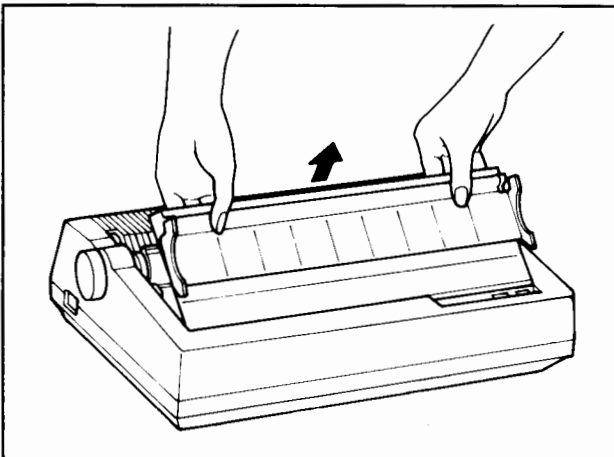
The ribbons used by this daisywheel printer are enclosed in compact cassettes that travel on the carriage with the daisywheel. Four types of ribbon are available from Blue Chip Electronics, or Brother International, Corp.

One-time Film Ribbon
Multi-strike Film Ribbon
Nylon Ribbon
Color Ribbon (Red, blue, green, brown)

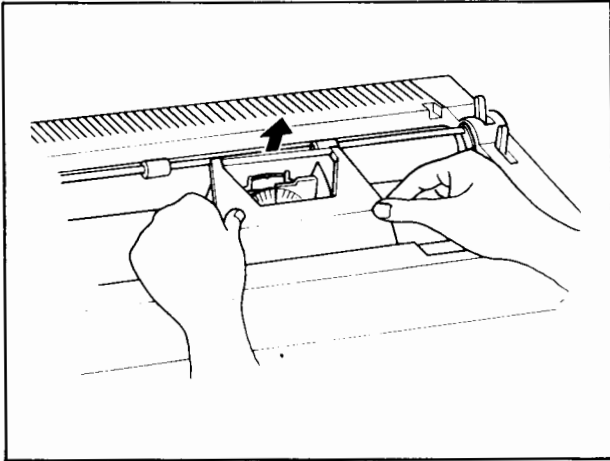
The following steps give instructions for replacing the ribbon cassette. If any problems occur with the ribbon at this time or during printing, see the troubleshooting section of Appendix E on page 123.



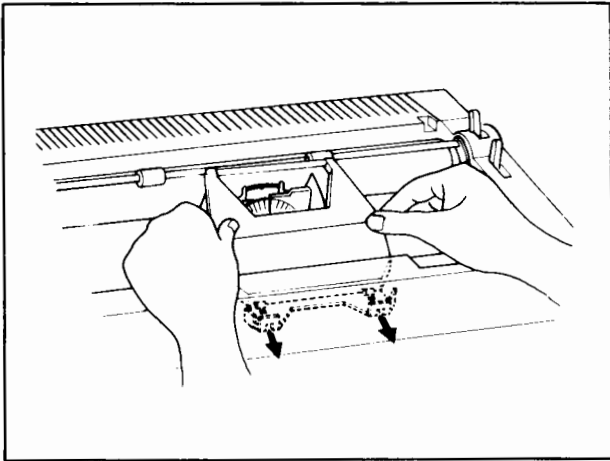
- 1 Fold open the acoustic cover towards the front of the printer.



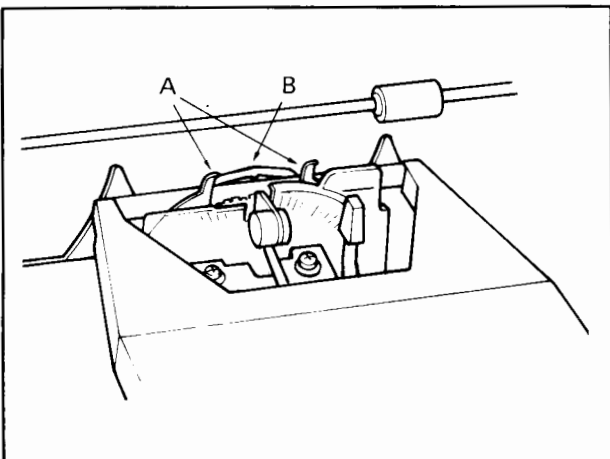
- 2 Grasp the top cover at the edge nearest the platen and lift it off.



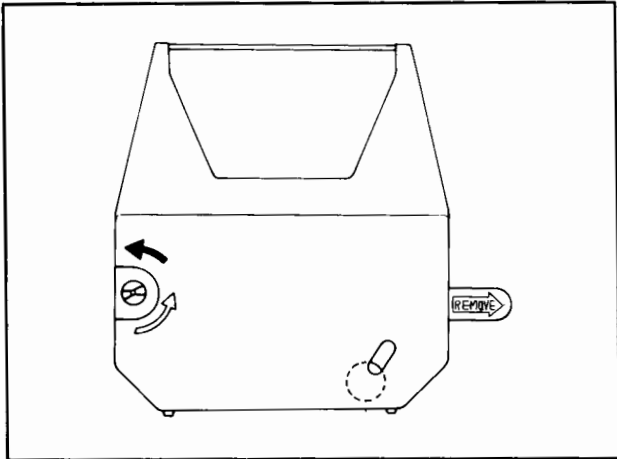
3 Hold the ribbon cassette with both hands and first lift up on the ribbon side to free the ribbon from the guides. Then remove the entire cassette by lifting it up and out.



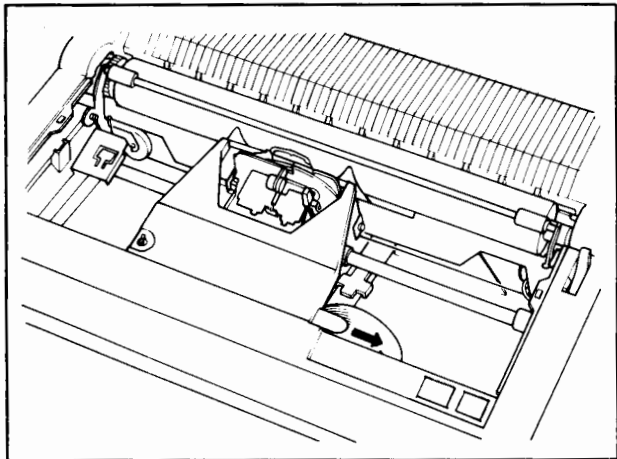
4 Replace the used ribbon cassette with a new one or a different ribbon type. First set the lower edge in the bracket at the front of the printer. Then locate the ribbon in the guides at the platen and push the entire cassette down until it clicks into place.



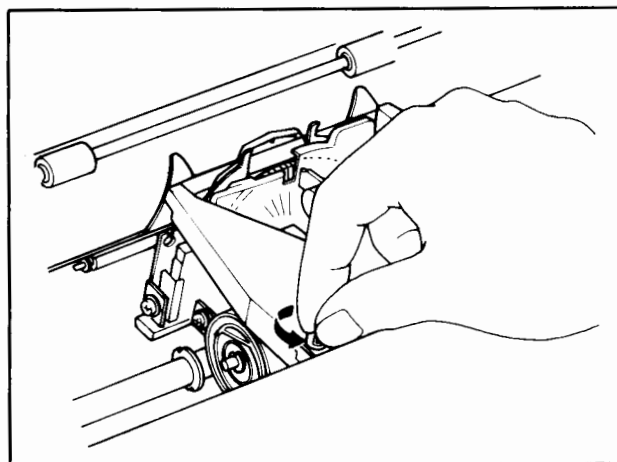
5 When properly set in the guide, the ribbon passes between two tabs A, and the larger mask B. Lift up the cassette if adjustment is necessary.



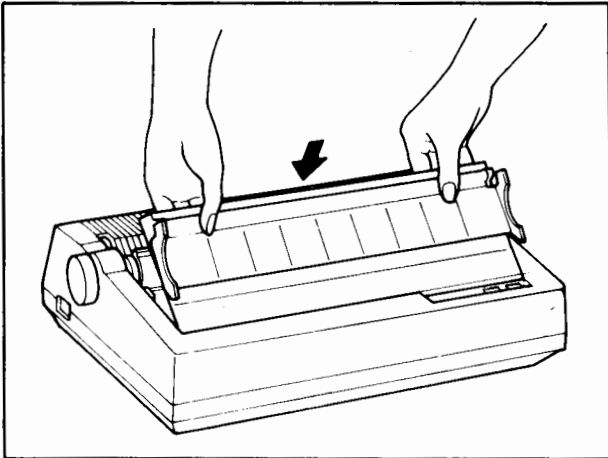
6 All ribbon cassettes have a ribbon feed knob and a ribbon stopper tab. With the exception of the nylon ribbon, cassettes have an oval window for checking the remaining ribbon supply.



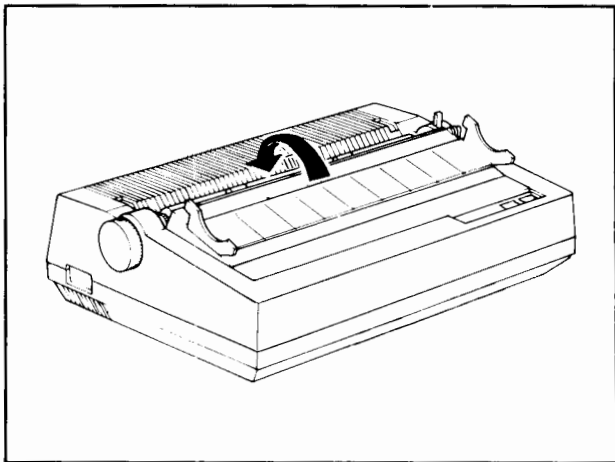
7 If you have replaced the used ribbon with a new one, pull out the ribbon stopper tab to free the ribbon.



8 Then turn the ribbon feed knob counter-clockwise until the leader is taken up and no slack remains.



9 Replace the top cover by locating the beveled edge near the front of the printer first, then lower the cover into place.



10 Fold back the acoustic cover to the rear of the printer.

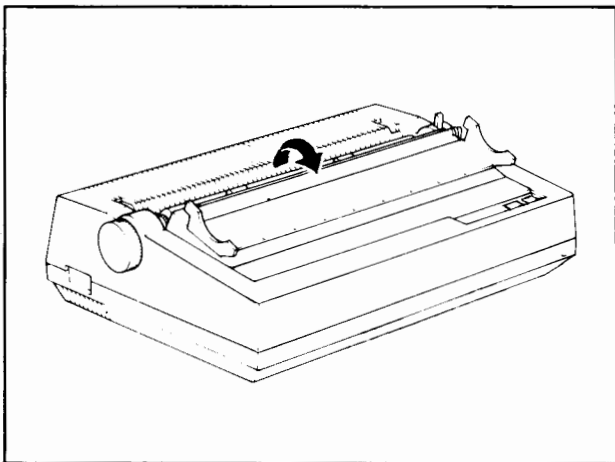
CHANGING THE DAISYWHEEL

Daisywheels used in this printer are enclosed in clear plastic cassettes to protect them and keep your hands clean. The cassette is designed with a tab that sticks up at the right corner. This makes the cassette easy to handle and helps to position the daisywheel properly. Always use this tab when handling daisywheel cassettes. Appendix F, Options and Accessories, on page 127 shows daisywheel typefaces and gives order numbers.

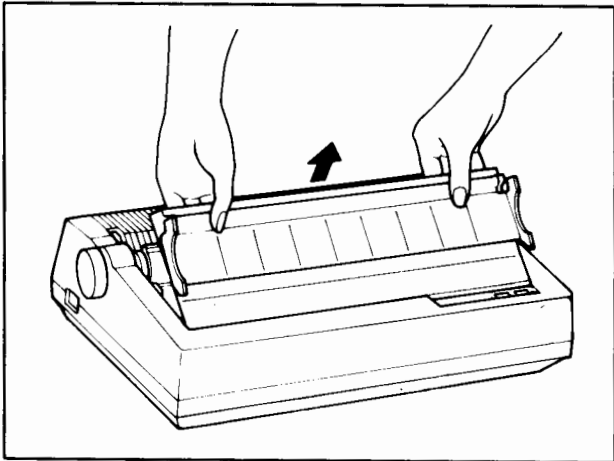
The following steps give instructions for replacing and installing daisywheels in your printer.

- It is not necessary to remove the ribbon before changing the daisywheel.
- Always loosen the motor lock lever before attempting to remove the daisywheel. Likewise, always lock the motor after changing daisywheels.

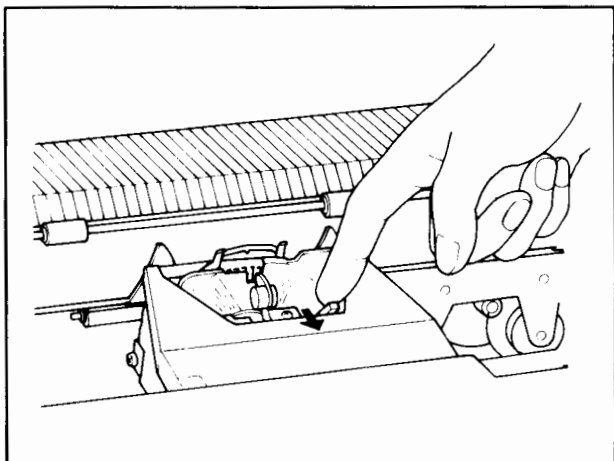
IMPORTANT: *Moving parts can cause injury.*



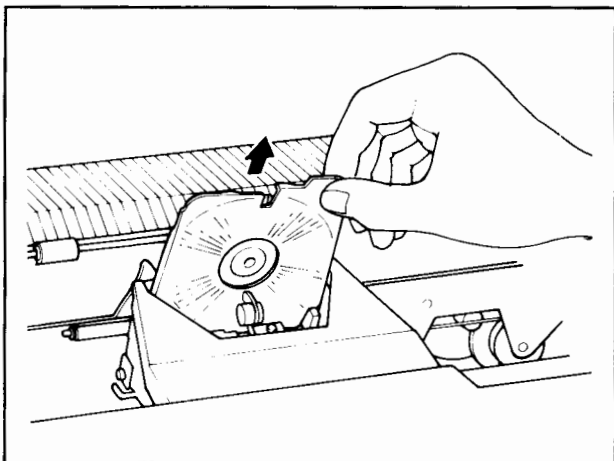
- 1 Fold open the acoustic cover towards the front of the printer.



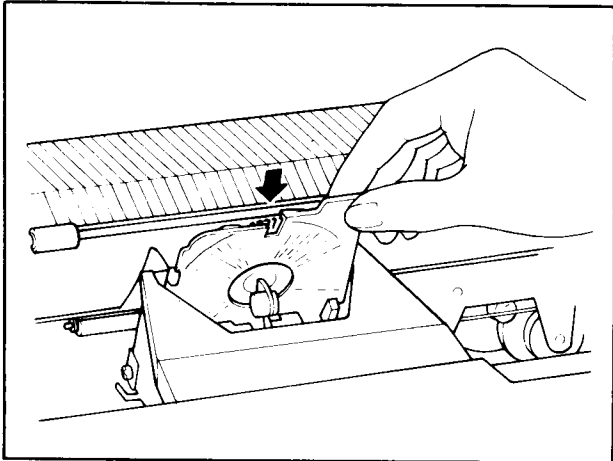
- 2 Grasp the top cover at the edge nearest the platen and lift it off.



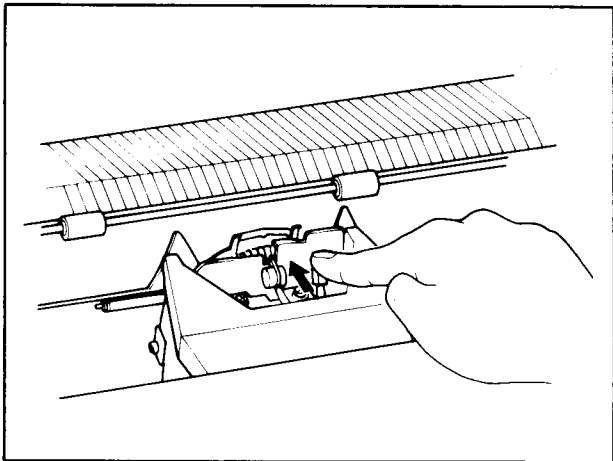
- 3 Pull the motor lock lever toward you.
The motor then tilts back allowing easy access to the daisywheel.



- 4 Lift the daisywheel up and out holding it by the tab on the right.

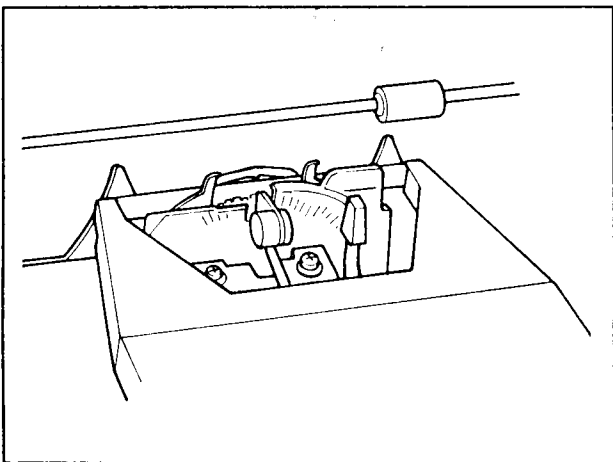


5 Drop a new daisywheel into the slot.
Let it slide in until it seats itself fully.
Note that the daisywheel cassette is loose
in the slot until the motor is locked to
fasten it.

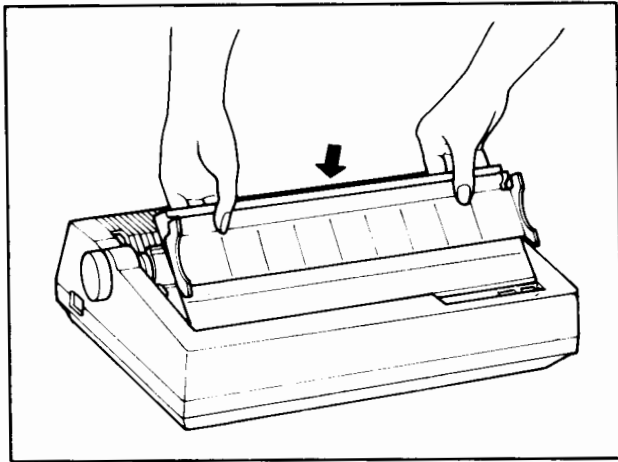


6 Then push the motor lock lever back to
the platen until it locks in place.

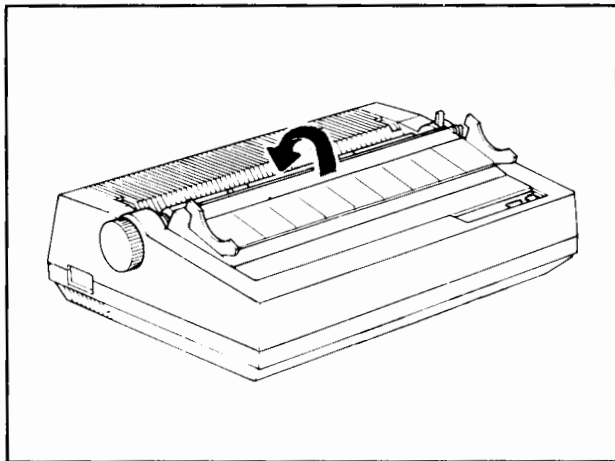
- The printer will not print properly if the
motor is not fully locked.
- Always install the daisywheel with the
tab at the right.



7 If any ribbon problems occur while
changing the daisywheel, see the previous
section on Ribbon Replacement on pages
24 to 27 .



- 8 Replace the top cover by locating the beveled edge near the front of the printer, then lower the cover into place.



- 9 Fold back the acoustic cover to the rear of the printer.

Chapter 3

PAPER LOADING PROCEDURES

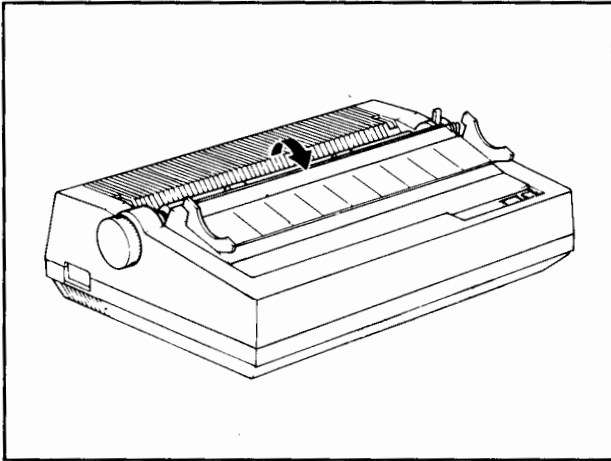
CONTENTS

Manual Paper Loading	35
Tractor Feed	38
Installation	39
Paper Loading	41

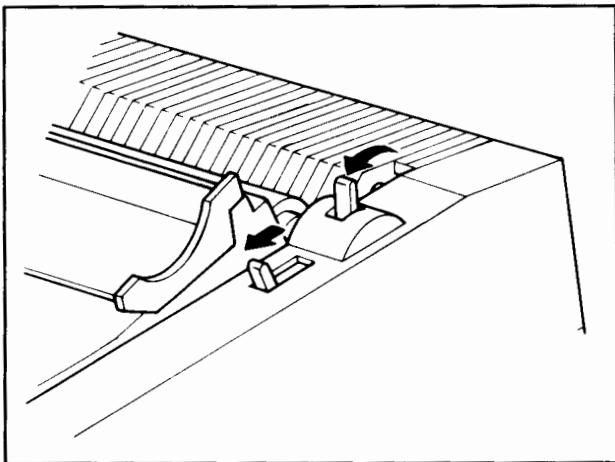
PAPER LOADING

This section describes the procedures for manually loading single-sheet forms. The following section presents the installation of the optional Tractor Feed and paper-loading procedures for continuous, fan-fold forms.

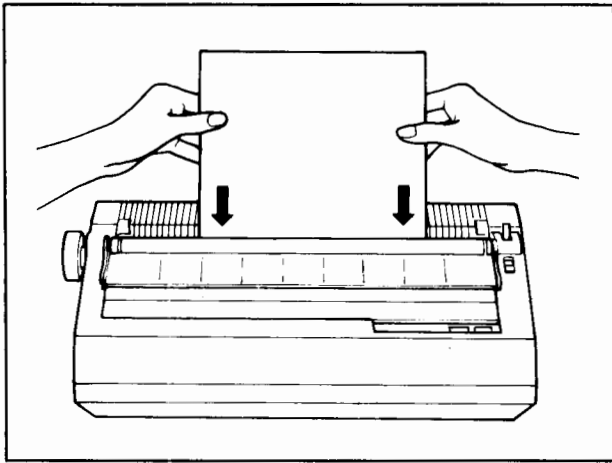
MANUAL PAPER LOADING



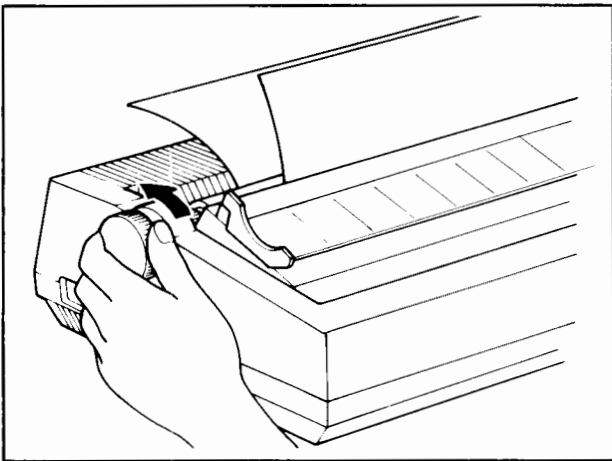
- 1 Fold open the acoustic cover towards the front of the printer.



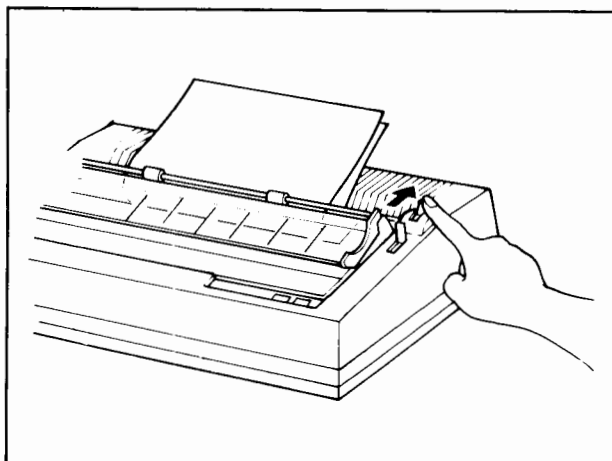
- 2 Pull the paper release lever and the paper bail release lever forward.



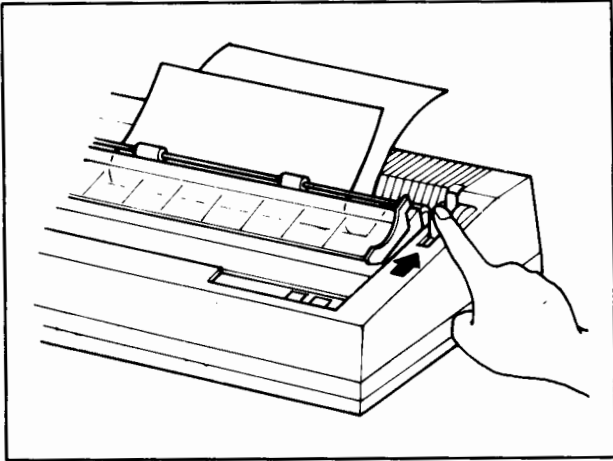
- 3 Insert a sheet of paper behind the platen until it is fully seated.



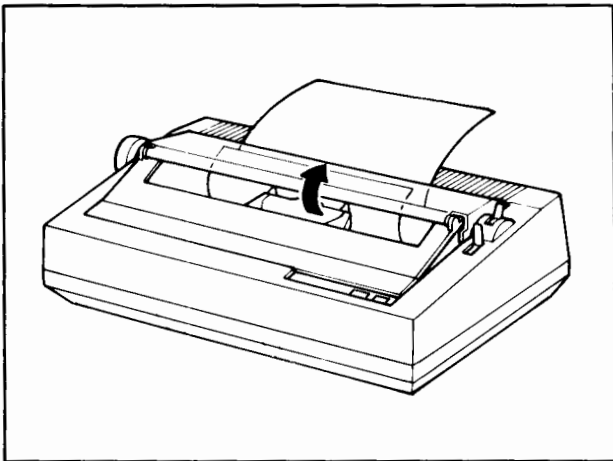
- 4 Turn the platen knob to feed the sheet under and in front of the platen. The emerging edge of the paper should be between the paper bail and the platen.



- 5 Push the paper release lever rearward to loosen the paper. Adjust the sides of the paper for straightness as you would using a typewriter. Then return the paper release lever to fasten it.

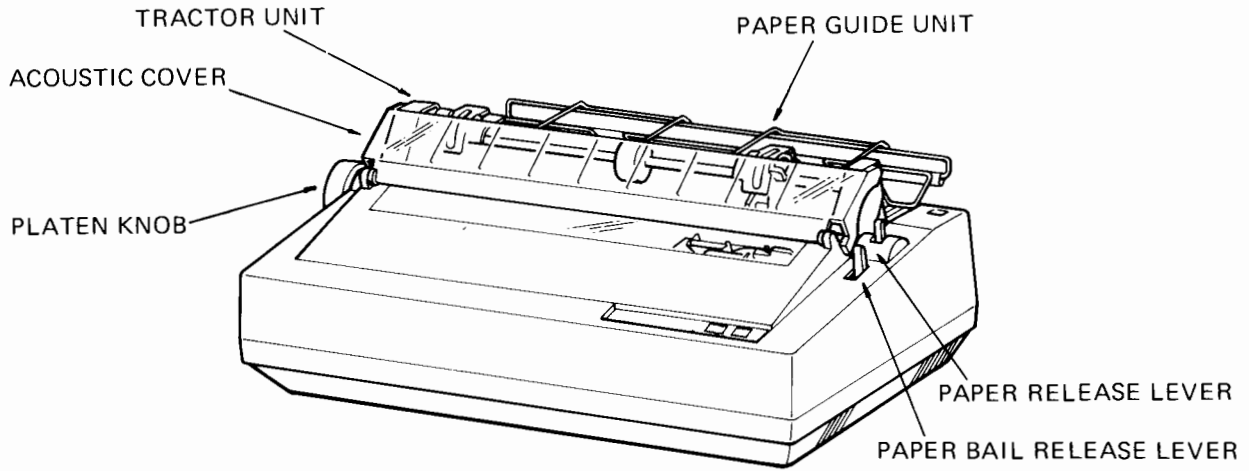


- 6 Push the paper bail release lever rearward to return the bail against the platen.



- 7 Fold back the acoustic cover to the rear of the printer to prepare for printing.

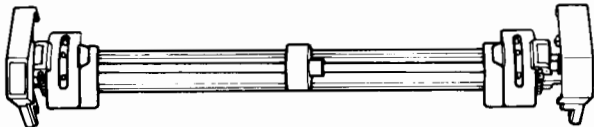
TRACTOR FEED



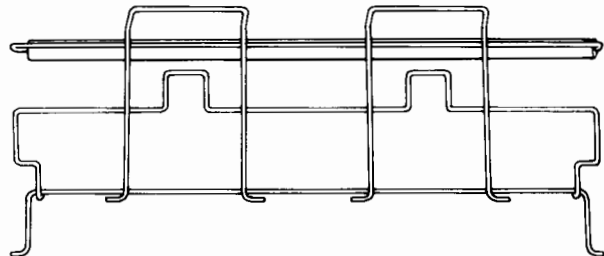
Specifications

Paper size	
Width	11 in. maximum
Thickness	0.2 mm maximum
Paper feed system	Pull-up, non-reversible

The optional Tractor Feed is a paper feed attachment for printing on continuous-form, fan-fold paper with this daisywheel printer. The tractor feed attachment consists of two parts illustrated below.



TRACTOR UNIT

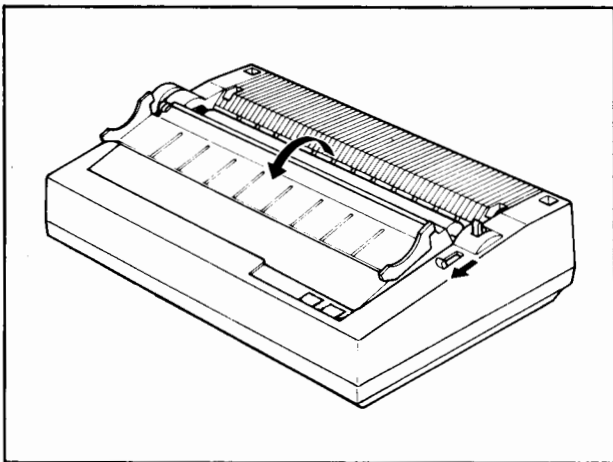


PAPER GUIDE UNIT

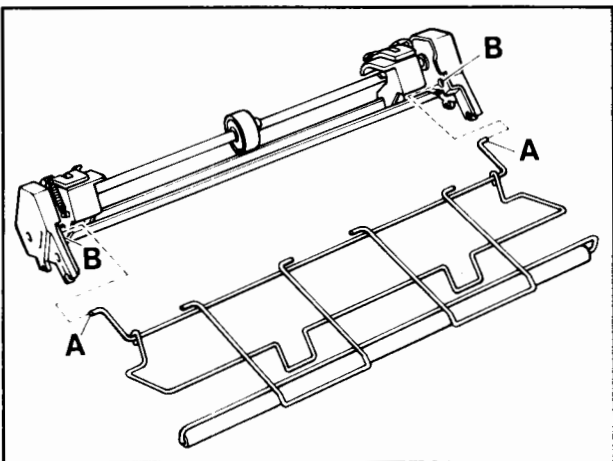
The pins in the tractor unit mesh with the holes on the edges of the paper to keep the form aligned as it is fed through the printer. The paper guide unit supports and guides the paper supply in and the printout from the printer.

Installation of the tractor feed and paper loading procedures are given in the following step-by-step illustrations.

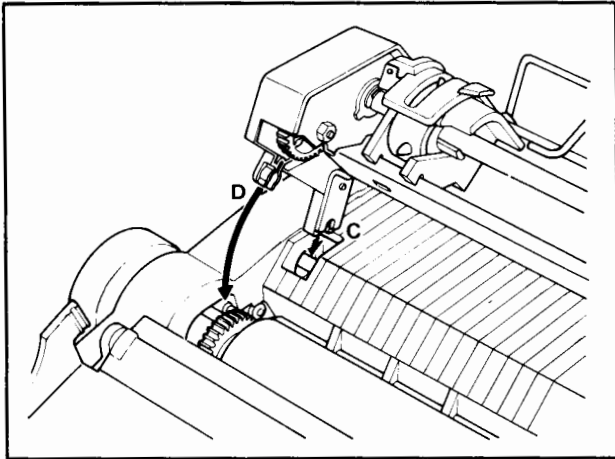
INSTALLATION



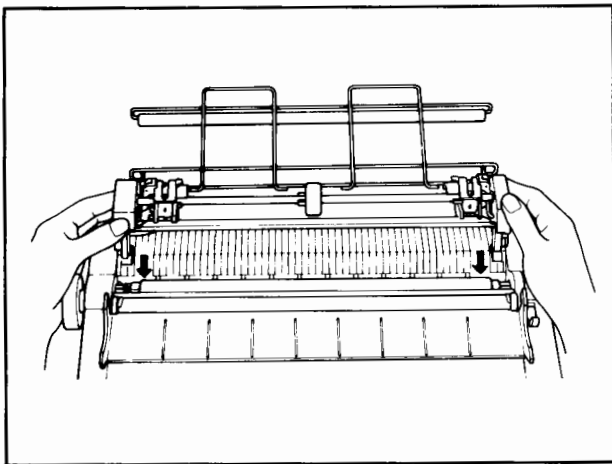
- 1 Fold open the clear plastic acoustic cover and open the paper bail by pulling the paper bail-release lever towards the front of the printer.



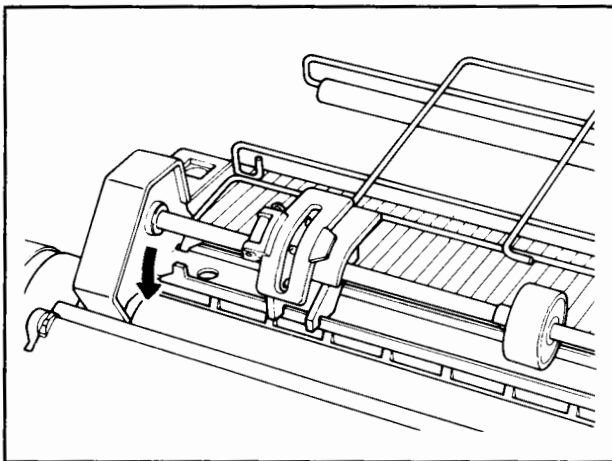
- 2 Insert the bent ends (A) of the paper guide unit into the holes (B) of the tractor unit on both sides.



3 There are two points of contact on both ends of the tractor mechanism that must be properly attached to rods in the printer body: slotted legs (C) which support the tractor at the rear and clips (D) at the front which fix the gears in the tractor unit to the gears at the platen.



4 Facing the front of the printer, hold the tractor unit in both hands with the paper guide unit to the rear. First insert the slotted legs into the openings at the rear of the platen until the rods recessed in the printer are fully seated in the slots.

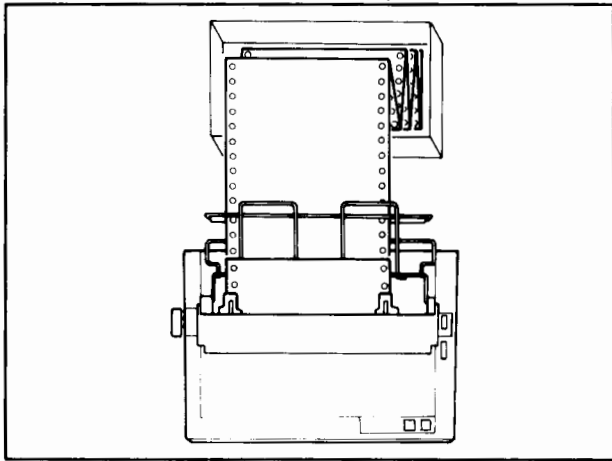


5 Then lower the front of the tractor unit and snap the clips into place on the rods at the platen, making sure that the teeth on the gears mesh properly. Double-check the connection left and right to make sure that the tractor feed is securely attached.

PAPER LOADING

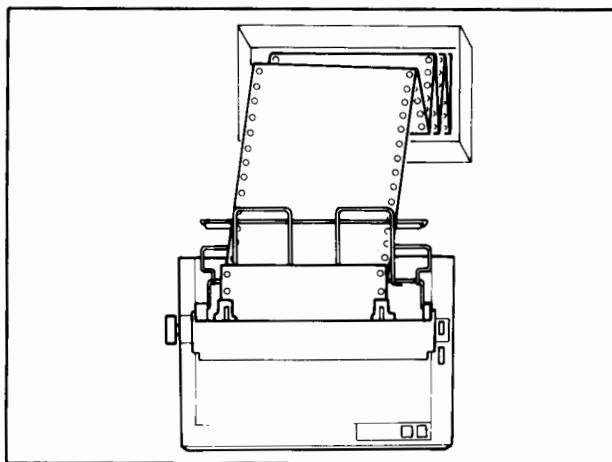
Before going on to the paper-setting steps, a few points on paper supply problems are in order.

To achieve a smooth flow of paper to and from the printer, ample space must be provided directly behind the printer to store the paper supply. Various furnishings are available for this purpose such as dedicated printer stands or all-in-one units now called "computer furniture" that accommodate the main computer unit, display, printer, separate drives, etc. in levels. If you are using one of these, the paper supply most likely has a place of its own. If your setup is a simpler variety, for instance making use of a table or desktop, keep in mind that both the paper supply and the resulting printout need to share space behind, and often below, the printer. For trouble-free printing, remember to:

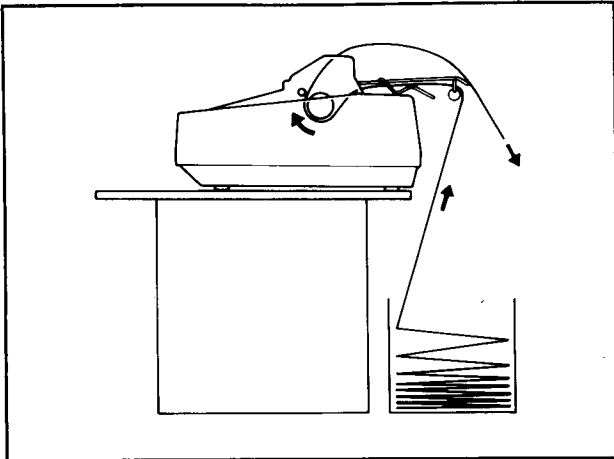


CORRECT

Position the paper supply on a straight line directly behind (or behind and below) the printer so that the paper feeds evenly with balanced tension left and right.

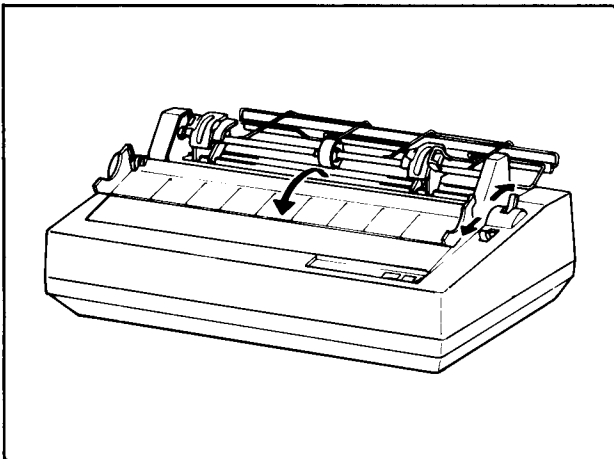


INCORRECT

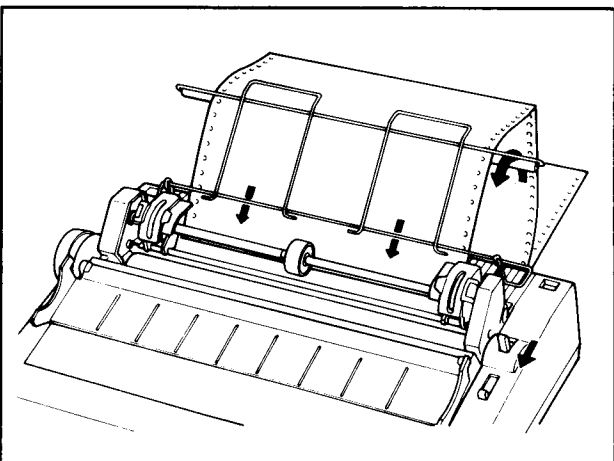


Keep the flow of the paper supply and the printout from getting tangled as best as you can. The paper guide unit does this by routing the paper supply over a roller and under the guide frame. The printout then moves over the top of the frame. Reposition the paper supply box and provide a container to catch the printout if you are printing a long document.

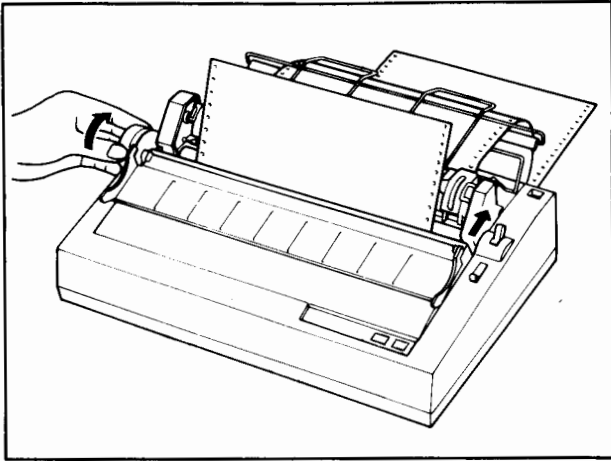
The next sequence of illustrations shows the paper-loading procedures.



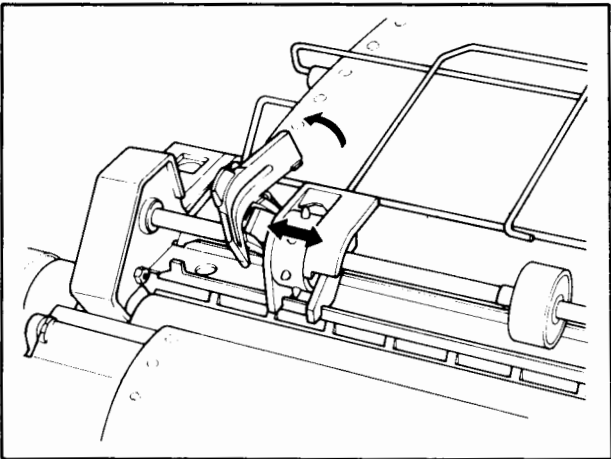
1 With the acoustic cover open and the paper bail lever pulled forward, push the paper release lever to the rear to free the platen.



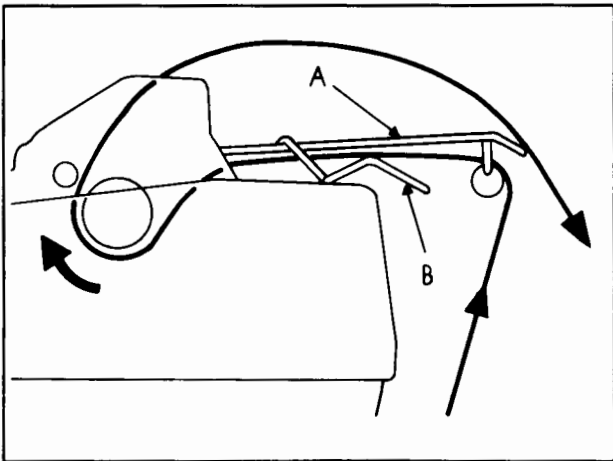
2 Lift the paper guide frame to about a 45° angle and pass the leading edge of the paper over the roller and pull it under the metal frame. Insert the paper behind the platen (as you would for single sheet manual feeding or when using an ordinary typewriter). Lower the paper guide and pull the paper release lever forward to fasten the paper.



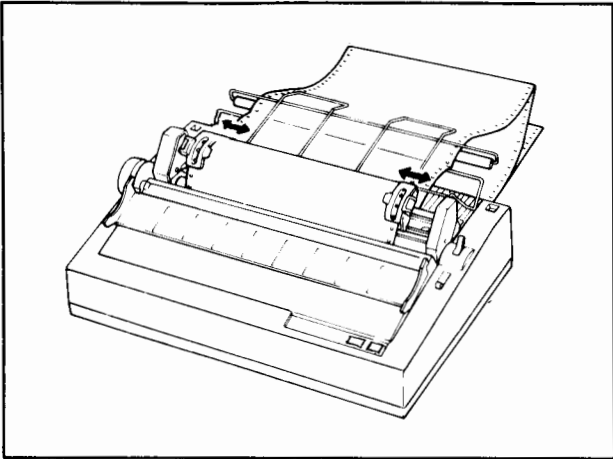
3 Turn the platen knob towards the rear of the printer and feed the paper until it projects about 4 inches (10 cm) and covers the rod of the tractor unit. Then push the paper release lever to the rear to free the paper.



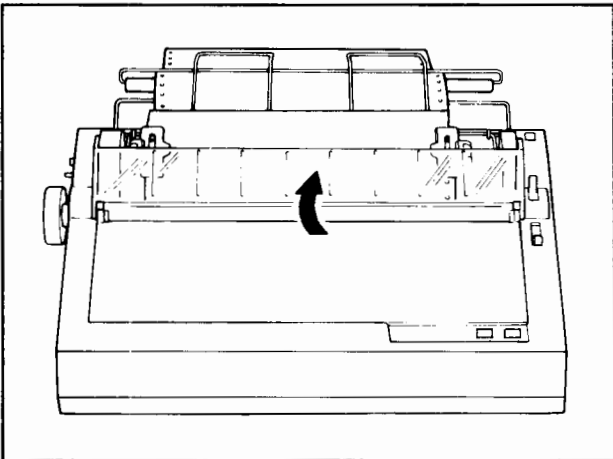
4 Open the hinged tractor covers over the pin feed wheels at left and right. Position the pins under the holes in the edges of the paper by sliding the pin wheels into place. Be sure to engage the same number of holes on right and left (don't skip any) so that the paper is pinned with its leading edge parallel to the platen. Then close the tractor covers to secure the paper on the pins.



5 Check that the paper is set between the upper part (A) and the lower part (B) of the paper guide.



6 With the paper pinned, pull the paper up and backward and adjust the tractor pin units at left and right to remove any slack from the paper (not too taut either) so that it lies flat in the tractor feeder.



7 Finally, close the acoustic cover and double-check the paper supply position to prepare for printing.

PART III

OPERATION

The key to printer operation is control, and the flexibility of this control is an important feature of this daisywheel printer. The chapters in this part begin with getting the printer up and running without data reception by self-testing its print functions.

From that point, user intervention to control various functions is presented through the use of ESC command sequences for specific word processing and print format functions.

The emphasis is on providing users at all levels of experience a means to attain the performance they require.

Chapter 4

USING THE DIAGNOSTIC FUNCTIONS

CONTENTS

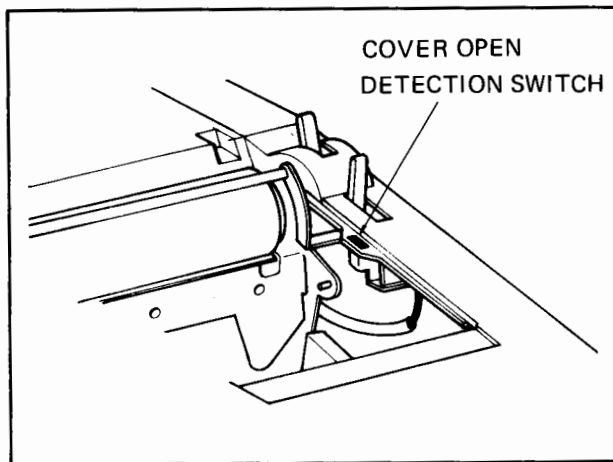
Self-Test Printout	49
Power-ON Default Settings	49
Detection Function	50

DETECTION FUNCTION

This function is provided to ensure proper operation of the printer by preventing continued operation when the following conditions occur. Do not open the cover while the printer is operating. Also, do not attempt to bypass the switch that detects this condition. This feature is included for your safety as well as the correct functioning of the printer itself.

Cover Open

This function prevents the printer from being operated when the top cover is open or not fully closed.



- 1 The printer stops operation and is de-selected if the top cover is opened when the power switch is ON.
- 2 When the top cover is closed, the carriage returns to its former position automatically.
- 3 When the select (SEL) switch is pushed the printer is selected and resumes printing.

Chapter 5

PRINTER CONTROL

CONTENTS

Basic Programming and This Printer	53
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BASIC PROGRAMMING AND THIS PRINTER

This section gives brief descriptions of BASIC programming commands and statements which relate to the use of this printer. For more information refer to your computer's owner manual and programming reference guide.

1. OPEN Statement

Format: OPEN < file-num >, < device > [, < address >]

The OPEN statement is used to open an input/output channel to a peripheral such as this printer. OPEN is followed by < file-num > which is the logical file number. You can use any number from 1 to 255 for the logical file number. Note that numbers above 127 will cause double-spaced printing. All other BASIC statements that follow will refer to the logical file number.

The next number after the logical file number is the device number, < device >. Each peripheral device in the system is assigned a number to which it responds. Commodore computers use the numbers 4 and 5 for the printer. Either of these numbers can be used with this printer, but remember to set DIP switch #1 to the number you select (see page 20).

After the device number, another number called the secondary address, < address >, is used for controlling special features of the device. The use of the secondary address with this printer is described on page 57.

2. PRINT# Statement

Format: PRINT# < file-num > [, < variable >]

The PRINT# statement is used to write data to the logical file that was previously opened. The number following PRINT# is the logical file number used in the OPEN statement. The < variable > data to be output can be of any type and the rules of punctuation are the same as that for the PRINT statement.

3. CLOSE Statement

Format: CLOSE < file-num >

The CLOSE statement is used to complete and close a file opened by an OPEN statement. The number following CLOSE must be the same logical file number used in the OPEN statement.

4. CMD Statement

Format: CMD < file-num > [, < variable >]

The CMD statement transfers the primary output from the TV screen (as normally sent by a PRINT statement) to the logical file number specified in the statement. When a character string is specified as the < variable > , it is sent to the file. This is useful for titling print-outs, etc.

To transfer the output back to the screen, use a PRINT# statement to send a blank line to the printer (logical file number in the CMD statement) before a CLOSE statement. This "unlistens" the printer so that it does not continue expecting data. System errors (such as ?SYNTAX ERROR) also cause output to return to the screen. However, this does not unlisten the printer, so be sure to send a blank line (PRINT# statement) after an error.

5. Programming Examples

(EX 1)

OPEN 1,4,7	Opens file #1, device #4, secondary address #7
OPEN 4,4	Opens file #4 (the default secondary address is 0 and does not need to be entered)
PRINT#1, "Printer"	Prints "Printer" in file #1
PRINT#4	Prints a blank line in file #4
CLOSE 1: CLOSE 4	Closes files #1 and 4

Remember that the CMD statement does not end the output to the printer. Always use a PRINT# statement to send a blank line before the CLOSE statement and properly close the file.

(EX 2)

OPEN 4,4,7	Opens file #4, device #4, secondary address #7
CMD 4, "Printer"	Changes the output device from the screen to the printer and prints "Printer". Then the "READY" on the screen is printed out.
PRINT#4	Returns the output to the screen
CLOSE 4	Closes file #4

6. LIST Command

Format: LIST [[< first-line >]–[< last-line >]]

The LIST command is used to look at lines of the BASIC program in the computer's memory. The LIST is normally output to the screen but a CMD statement can be used to transfer the output to the printer. Examples of using the LIST command are given for both operating modes of your Commodore computer: direct mode and program mode.

(EX 1)

LIST Command in Direct Mode

A) For Secondary Address 0

OPEN 4,4: CMD 4: LIST	Lists the current program in memory
OPEN 4,4: CMD 4: LIST 100-300	Lists lines 100 through and including 300
OPEN 4,4: CMD 4, "PROGRAM NAME": LIST	Prints out "PROGRAM NAME" and the list

After the printout, enter the following:

PRINT#4
CLOSE 4

or

PRINT#4, CHR\$(12)
CLOSE 4

This causes a form feed

B) For Secondary Address 7

OPEN 4,4,7: .CMD 4: LIST	Lists the current program in memory
OPEN 4,4,7: CMD 4: LIST 100-300	Lists lines 100 through and including 300
OPEN 4,4,7: CMD 4: "PROGRAM NAME": LIST	Prints out "PROGRAM NAME" and the list

After the printout, enter the following.

PRINT#4
CLOSE 4

or

```
PRINT#4, CHR$(12)
CLOSE 4
```

This causes a form feed

(EX 2)

LIST Command in Program Mode

These examples show how to use the LIST command within the program itself. First, enter the following short program.

```
10 OPEN 4,4
20 CMD 4
30 PRINT "PROGRAM LIST"
40 LIST
```

As you typed in this program it would be listed on your screen. Now, when you enter the RUN command, the following should be printed out on printer.

PROGRAM LIST

```
10 OPEN 4,4
20 CMD 4
30 PRINT "PROGRAM LIST"
40 LIST
```

READY.

Then, enter the following.

```
PRINT#4
CLOSE 4
```

Entering the RUN command instructed the computer to execute the program in memory. File #4 and device #4 were first opened. Then, the CMD statement sent all subsequent output to file #4. "PROGRAM LIST" was then printed in file #4. The LIST command lastly instructed the computer to print a listing of the program from memory to file #4.

When using the LIST command within a program, remember to enter a PRINT# statement to unlisten the printer. Always use the CLOSE statement thereafter to close the file. Although both commands can be entered into the program after you have run it, we suggest that they be used only in the direct mode.

7. Secondary Address

Conventional typewriters allow direct typing of lower case characters, and upper case characters when the shift key is used. Your Commodore computer has two complete character sets that can be entered from the keyboard as well as printed. In SET 1, the upper case characters can be entered without pressing the shift key. In SET 2, the character set is reversed and the lowercase characters are entered without using the shift key (just as on a conventional typewriter).

This printer also allows similar shifting of upper and lower case characters. The secondary address mentioned in the previous pages is used to control this special feature. In this printer, the two character sets of your computer can be chosen in two print modes: SL, for Shift Lower, and SU, or Shift Upper. As described above, these two print modes reverse the shifting of upper and lower case characters. There are two CBM ASCII code tables corresponding to these shifted print modes and they are shown in the next section on code tables.

The following shows the relationship between the secondary address numbers, the print mode, and the printout.

NOTE: You must set DIP switch #3 closed to select the CBM ASCII code.
The default value of the secondary address is 0.

Secondary Address	Print Mode	Printout
0	SL (Shift Lower)	Prints data received in the normal upper/shifted lower mode
7	SU (Shift Upper)	Prints data received in the normal lower/shifted upper mode

CODE TABLES

The following code tables represent the print and control characters used by your Commodore computer and this printer. In addition to the Standard (STD) ASCII code, there are two Commodore (CBM) ASCII character sets used. The two CBM character sets were mentioned in the previous section on Secondary Addresses and are represented here as Table 1 for the Shift Lower (SL) print mode and Table 2 for the Shift Upper (SU) mode. You are free to select either code table, but remember that DIP switch #3 must be closed for the printer to accept these codes.

CBM ASCII CODE TABLES

CBM ASCII TABLE 1

(Shift Lower (SL) Mode: Secondary Address = 0)

This table is selected when:

- At power-ON as the default setting
- When the secondary address is 0
- When the SL (Shift Lower) control code (91H) is received

					b7	0	0	0	0	0	0	0	0	1	1	1	1	1	1	1	1		
					b6	0	0	0	0	1	1	1	1	0	0	0	0	1	1	1	1		
					b5	0	0	1	1	0	0	1	1	0	0	1	1	0	0	1	1		
					b4	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1
b3	b2	b1	b0		0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F			
0	0	0	0	0	NUL		SP	0	@	P	SP	SP			SP	SP	`	p	SP	SP			
0	0	0	1	1		SU	!	!	A	Q	↑	↑		SL	↑	↑	a	q	↑	↑			
0	0	1	0	2			"	2	B	R							b	r					
0	0	1	1	3		DC3	#	3	C	S							c	s					
0	1	0	0	4			\$	4	D	T							d	t					
0	1	0	1	5			%	5	E	U							e	u					
0	1	1	0	6			&	6	F	V							f	v					
0	1	1	1	7			'	7	G	W							g	w					
1	0	0	0	8	BS	CAN	(	8	H	X							h	x				
1	0	0	1	9	HT		)	9	I	Y							i	y			
1	0	1	0	A	LF		*	:	J	Z							j	z					
1	0	1	1	B	VT	ESC	+	;	K	[							k	{		
1	1	0	0	C	FF		,	<	L	\							l	|					
1	1	0	1	D	CR		-	=	M	]			SR				m	}				
1	1	1	0	E		RS	.	>	N	^							n	~		SP			
1	1	1	1	F		US	/	?	O	_	SP	SP			SP	SP	o	SP	SP	SP			

ESC Y = Ø ESC Z = '

CBM ASCII TABLE 2

(Shift Upper (SU) Mode: Secondary Address = 7)

This table is selected:

- When the secondary address is 7
- When the SU (Shift Upper) control code (11H) is received

b3	b2	b1	b0		0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F	
0	0	0	0	0	NUL		SP	0	@	p	SP	SP			SP	SP	'	P	SP	SP	
0	0	0	1	1		SU	|	|	a	q	↑	↑		SL	↑	↑		A	Q	↑	↑
0	0	1	0	2			"	2	b	r	↑	↑						B	R		
0	0	1	1	3		DC3	#	3	c	s	↑	↑						C	S		
0	1	0	0	4			\$	4	d	t	↑	↑						D	T		
0	1	0	1	5			%	5	e	u	↑	↑						E	U		
0	1	1	0	6			&	6	f	v	↑	↑						F	V		
0	1	1	1	7			'	7	g	w	↑	↑						G	W		
1	0	0	0	8	BS	CAN	(	8	h	x	↑	↑						H	X		
1	0	0	1	9	HT		)	9	i	y	↑	↑						I	Y		
1	0	1	0	A	LF		*	:	j	z	↑	↑						J	Z		
1	0	1	1	B	VT	ESC	+	;	K	[	↑	↑						K	{		
1	1	0	0	C	FF		,	<	l	\	↑	↑						L	|		
1	1	0	1	D	CR		-	=	m	]	↑	↑	SR					M	}		
1	1	1	0	E		RS	.	>	n	^	↑	↑						N	~	↑	SP
1	1	1	1	F		US	/	?	o	_	↑	↑			SP	SP		O	SP	SP	SP

ESC Y = φ ESC Z = '

Printable Control Characters

A screen feature of your Commodore computer can be used for output to the printer as well. Entering the quotation mark (" , 22H) sets the "quote mode" where subsequently entered control characters appear on the screen in reverse, or light on dark, and screen colors can also be controlled. When any control characters from 00H to 1FH and 80H to 9FH are entered after the quotation mark, the underlined characters shown in the following tables are printed. Note that the CR (0DH), LF (0AH), and SR (8DH) codes are exceptions which are not printed but perform their functions of carriage return, line feed and shift return. Any of these three control codes, as well as entering the quotation mark again, clear this mode.

CBM ASCII TABLE 1

(Shift Lower (SL) Mode: Secondary Address = 0)

				b7	0	0	0	0	0	0	0	1	1	1	1	1	1	1	1	
				b6	0	0	0	0	1	1	1	1	0	0	0	0	1	1	1	1
				b5	0	0	1	1	0	0	1	1	0	0	1	1	0	0	1	1
				b4	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1
b3	b2	b1	b0		0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
0	0	0	0	0	@	P									p					
0	0	0	1	1	A	Q									a	q				
0	0	1	0	2	B	R									b	r				
0	0	1	1	3	C	S									c	s				
0	1	0	0	4	D	T									d	t				
0	1	0	1	5	E	U									e	u				
0	1	1	0	6	F	V									f	v				
0	1	1	1	7	G	W									g	w				
1	0	0	0	8	H	X									h	x				
1	0	0	1	9	I	Y									i	y				
1	0	1	0	A	LF	Z									j	z				
1	0	1	1	B	K	[									k	{				
1	1	0	0	C	L	\									l	|				
1	1	0	1	D	CR	]									SR	}				
1	1	1	0	E	N	^									n	~				
1	1	1	1	F	O	_									o	~				

CBM ASCII TABLE 2

(Shift Upper (SU) Mode: Secondary Address = 7)

				b7	0	0	0	0	0	0	0	0	0	1	1	1	1	1	1	1	1
				b6	0	0	0	0	1	1	1	1	0	0	0	0	1	1	1	1	1
				b5	0	0	1	1	0	0	1	1	0	0	1	1	0	0	1	1	1
				b4	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0
b3	b2	b1	b0		0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F	
0	0	0	0	0	@	p								·	P						
0	0	0	1	1	a	q								A	Q						
0	0	1	0	2	b	r								B	R						
0	0	1	1	3	c	s								C	S						
0	1	0	0	4	d	t								D	T						
0	1	0	1	5	e	u								E	U						
0	1	1	0	6	f	v								F	V						
0	1	1	1	7	g	w								G	W						
1	0	0	0	8	h	x								H	X						
1	0	0	1	9	i	y								I	Y						
1	0	1	0	A	LF	z								J	Z						
1	0	1	1	B	k	[								K	{						
1	1	0	0	C	l	\								L	|						
1	1	0	1	D	CR	]								SR	}						
1	1	1	0	E	n	^								N	~						
1	1	1	1	F	o	_								O	~						

STD ASCII Code Table

The following table represents the Standard (STD) ASCII character set which can be received by this printer. Remember that you must use DIP switch #3 (OPEN) to select the STD ASCII code. See appendix D for more information on the ASCII code and international character sets usable with this printer. The table following in this section summarizes these foreign language characters. These relate to the daisywheels you can use with this printer and the settings needed for DIP switches #4, 5, and 6.

				b7	0	0	0	0	0	0	0	0	0
				b6	0	0	0	0	1	1	1	1	
				b5	0	0	1	1	0	0	1	1	
				b4	0	1	0	1	0	1	0	1	
b3	b2	b1	b0		0	1	2	3	4	5	6	7	
0	0	0	0	0	NUL		SP	0	@	P	`	p	
0	0	0	1	1			!	1	A	Q	a	q	
0	0	1	0	2			"	2	B	R	b	r	
0	0	1	1	3		DC3	#	3	C	S	c	s	
0	1	0	0	4			\$	4	D	T	d	t	
0	1	0	1	5			%	5	E	U	e	u	
0	1	1	0	6			&	6	F	V	f	v	
0	1	1	1				'	7	G	W	g	w	
1	0	0	0	8	BS	CAN	(	8	H	X	h	x	
1	0	0	1	9	HT		)	9	I	Y	i	y	
1	0	1	0	A	LF		*	:	J	Z	j	z	
1	0	1	1	B	VT	ESC	+	;	K	[	k	{	
1	1	0	0	C	FF		,	<	L	\	l	|	
1	1	0	1	D	CR		-	=	M	]	m	}	
1	1	1	0	E		RS	.	>	N	^	n	~	ESC Y = ¢
1	1	1	1	F		US	/	?	O	_	o	SP	ESC Z = '

CBM	21H	23	3C	3E	40	5B	5C	5D	5E	CO	DB	DC	DD	DE	Symbol 1 ESC Y ESC y	Symbol 2 ESC Z ESC z
STD	21H	23	3C	3E	40	5B	5C	5D	5E	60	7B	7C	7D	7E		
US (ASCII)	!	#	<	>	@	[	\	\]	^	·	{	|	}	~	¢	'
FRENCH	!	Fr	²	³	à	°	ç	§	^	±	é	ù	è	¨	¼	¼
GERMAN	!	#	²	³	§	Ä	Ö	Ü	°	·	ä	ö	ü	β	μ	'
CANADIAN	é	#	<	>	§	[	±	]	·	·	¼	½	°	ç	³	²
NORWEGIAN DANISH	!	£	<	>	§	Æ	φ	Å	^	·	æ	φ	å	¨	½	'
FINNISH SWEDISH	!	#	<	>	§	Ä	Ö	Å	^	·	ä	ö	å	ü	½	'
ITALIAN	!	£	[	]	§	°	ç	é	^	ù	à	ò	è	ì	²	³
SPANISH	!	#	o	a	±	i	Ñ	¿	²	·	°	ñ	³	¨	[]

CONTROL CODES

Control codes are special ASCII characters that are not printed but are used for controlling the flow of data. The control codes have an effect on various printer functions: clearing some, setting others. They cause paper feeds, change print enhancements, move the carriage, and so forth. Some examples of these characters are CR (carriage return), BS (backspace), LF (line feed), and FF (form feed).

NOTE: Code for Commodore (CBM) and Standard (STD) ASCII is given in hexadecimal and decimal (in parentheses).

CONTROL CHARACTER	CBM CODE	STD CODE	FUNCTION
	DIP SW #3: Close	DIP SW #3: Open	
BS	08 (8)	08 (8)	Moves the carriage backward one character.
LF	0A (10)	0A (10)	Feeds the form one line after one line of data is printed from the buffer. The subsequent data is overprinted in the same position as the carriage does not return to the left margin.
FF	0C (12)	0C (12)	After one line of data is printed from the buffer, the form is fed the number of lines designated by an ESC sequence minus the number of lines already fed on that page. (If the top margin is set, the form will be fed to the top margin.) The carriage does not return to the left margin.
CR	0D (13)	0D (13)	<ol style="list-style-type: none"> 1. Prints one line of data from the buffer. 2. Then, feeds the form one line if so set by DIP switch or ESC ". (This is effective even when <u>CR alone</u> is entered because CR is always followed by LF.) 3. Carriage return is effective even if print data is not received before the CR code.

CONTROL CHARACTER	CBM CODE	STD CODE	Function
	DIP SW #3: Closed	DIP SW #3: Open	
SU	11 (17)	—	CBM: SU (Shift Upper) When this code is received, normal lower case and shifted upper case characters of CBM ASCII Table 2 are printed. After this code is received, this mode receives priority whether the secondary address is 0 or 7. This mode is reset by CR, LF, FF, SR, and SU codes or when the secondary address is changed. This code is ignored when STD ASCII is used.
† DC 3	13 (19)	13 (19)	Deselects the printer.
CAN	18 (24)	18 (24)	Clears the buffer of print data input up to the previous CR, LF, VT, or FF code.
SR	8D (141)	—	CBM: SR (Shift Return) After one line of data is printed from the buffer, the carriage is returned to the left margin of the same line without a form feed. The equivalent code when STD ASCII is used is CR (0DH).
SL	91 (145)	—	CBM: SL (Shift Lower) When this code is received, normal upper case and shifted lower case characters of CBM ASCII Table 1 are printed. After this code is received, this mode receives priority whether the secondary address is 0 or 7. This mode is reset by CR, LF, FF, SR, and SL codes or when the secondary address is changed. This code is ignored when STD ASCII is used.
ESC	1B (27)	1B (27)	Expansion code that generates a control code together with the immediately following code.

DIRECT PRINTING FUNCTION

The following BASIC program enables this printer to be used as a typewriter. When data is typed in at the computer keyboard, it is printed directly, including spaces, tabs and carriage returns, after first entering the buffer.

If the printer does not receive any data for about 0.1 second, it automatically prints out all data remaining in the buffer.

```
10 OPEN4, 4, 7
20 GET KY$: IF KY$="" THEN GOTO 20
30 PRINT#4, KY$;
40 GOTO 20
50 END
```

1 - 24
2 - 10
3 - 12
4 - 91
5 - 91
6 - 91
7 - 198
8 - 38
9 - 197

Chapter 6

USING ESCAPE(ESC) CONTROL SEQUENCES

CONTENTS

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ESCAPE CONTROL SEQUENCES

This section deals with the use of the command sequences which must be sent from a computer or other controlling device in order to set up the printer functions. The functions are sent to the printer in the form of a sequence of control characters in ASCII or compatible code. The sequence always starts with the ESCAPE character (ASCII code 27 dec or 1B hex) followed by one or more special characters which determine the command to be carried out.

In this section, the ESCAPE character is denoted by the letters "ESC". The majority of computer systems running W/P software can install the printer and the ESC sequences to control the printer are then generated by the software for the various command keys used. For those who want to write their own software, the ESC sequences can also be executed as part of a BASIC PRINT statement. In Appendix A, BASIC is used to give examples of software generation of the sequences using the CHR\$ function.

On the following pages, ESC sequence functions are summarized and in later sections the use of these sequences for word processing and print format functions is described.

ESC Sequence Function Summary

- NOTE: 1) While auto backward printing is set, inputting any of the ESC sequences marked with a dagger (†) at the left of the table causes a carriage return (CR) which moves the carriage to the left margin and resets forward printing.
- 2) Code for Commodore(CBM) and Standard (STD) ASCII is given in hexadecimal.

SEQUENCE	CBM CODE	STD CODE	FUNCTION
	DIP SW #3: Closed	DIP SW #3: Open	
ESC BS	1B, 08 <i>27, 8</i>	1B, 08	Backspace 1/120"
† ESC HT (n)	1B, 09 (n) <i>27, 9</i>	1B, 09 (n)	Absolute HT
† ESC LF	1B, 0A <i>27, 10</i>	1B, 0A	Reverse LF
† ESC VT (n)	1B, 0B (n) <i>27, 11</i>	1B, 0B (n)	Absolute VT
→ † ESC FF (n)	1B, 0C (n) <i>27, 12</i>	<i>27 12 66</i> 1B, 0C (n)	Set page length; ESC S resets to 11" default setting <i>form feed off VMI in 1/6"</i>
† ESC CR P	<i>27, 13, 13x10</i> 1B, 0D, DO <i>203</i>	<i>27 13 80</i> 1B, 0D, 50	Reset printer <i>initialization</i>
† ESC CR P	1B, 0D, 50 <i>27, 13, 5x16 20</i>	1B, 0D, 70	
→ † ESC RS (n)	1B, 1E, (n) <i>27 30 9</i>	1B, 1E, (n) <i>27-30-9</i>	Set VMI; ESC S resets to 1/6" default setting ←
† ESC US (n)	1B, 1F, (n)	1B, 1F, (n)	Set HMI; ESC S resets to 1/10" default setting
ESC "	1B, 22	1B, 22 <i>34</i>	Automatic LF ON
ESC #	1B, 23	1B, 23 <i>36</i>	Automatic LF OFF

SEQUENCE	CBM CODE	STD CODE	FUNCTION
	DIP SW #3: Closed	DIP SW #3: Open	
† ESC &	1B, 26 <i>38</i>	<i>27</i> 1B, 26 <i>38</i>	Clear bold, double-strike print modes <i>boldface off</i>
ESC /	1B, 2F	<i>27</i> 1B, 2F <i>47</i>	Auto backward print
ESC 0	1B, 30	1B, 30	Set right margin at current position
† ESC 5	1B, 35	1B, 35	Print forward (right)
ESC 6	1B, 36	1B, 36	Print backward (left)
ESC 9	1B, 39	1B, 39	Set left margin at current position
ESC C	1B, C3	1B, 43	Clear top/bottom margins
ESC c	1B, 43	1B, 63	
† ESC D	1B, C4	<i>27</i> 1B, 44 <i>68</i>	Feed form by reverse half-VMI <i>superscript on</i> <i>subscript off</i>
† ESC d	1B, 44	1B, 64 <i>100</i>	
† ESC E	1B, C5 <i>197</i>	1B, 45 <i>69</i>	Auto underline <i>underline on</i>
† ESC e	1B, 45 <i>67</i>	1B, 65 <i>101</i>	
† ESC F	1B, C6 <i>198</i>	1B, 46 <i>70</i>	Double-strike print mode
† ESC f	1B, 46 <i>70</i>	1B, 66 <i>102</i>	
† ESC H	1B, C8	1B, 48	Auto strike-out
† ESC h	1B, 48	1B, 68	
† ESC I	1B, C9	1B, 49	Reset auto strike-out
† ESC i	1B, 49	1B, 09	
ESC L	1B, CC	1B, 4C	Set bottom margin at current position
ESC l	1B, 4C	1B, 6C	
† ESC O	1B, CF <i>207</i>	1B, 4F	Double-strike print mode
† ESC o	1B, 4F	1B, 6F	
† ESC R	1B, D2 <i>210</i>	1B, 52	Reset auto underline
† ESC r	1B, 52	1B, 72	
† ESC S	1B, D3	1B, 53 <i>85</i>	Reset VMI to 1/6", HMI to 1/10", page length to 11" <i>115</i>
† ESC s	1B, 53	1B, 73	
ESC T	1B, D4	1B, 54	Set top margin at current position
ESC t	1B, 54	1B, 74	
† ESC U	1B, D5 <i>213</i>	<i>27</i> 1B, 55 <i>85</i>	Feed form half VMI <i>superscript off</i> <i>subscript on</i>
† ESC u	1B, 55 <i>85</i>	1B, 75 <i>117</i>	
† ESC W	1B, D7 <i>215</i>	<i>27</i> 1B, 57 <i>87</i>	Set bold print mode <i>boldface on</i>
† ESC w	1B, 57	1B, 77 <i>119</i>	

SEQUENCE	CBM CODE	STD CODE	FUNCTION
	DIP SW #3: Closed	DIP SW #3: Open	
† ESC X	1B, D8	27 1B, 58	Clear underline, auto strike-out strike-out, shadow, and <i>underline off</i> double-strike print
† ESC x	1B, 58	1B, 78	
ESC Y	1B, D9	1B, 59	Print Symbol 1
ESC y	1B, 59	1B, 79	
ESC Z	1B, DA	1B, 5A	Print Symbol 2
ESC z	1B, 5A	1B, 7A	
† ESC £	1B, 5C	1B, 5C	Reset auto backward print

WORD PROCESSING FUNCTIONS

This section describes word processing functions which can be used to supplement the functions supported by a word processing program. These functions provide such features as auto underline and strike out, print enhancements, and special character printing.

WORD PROCESSING FUNCTION SUMMARY

Function	ESC Sequence	
	Set	Clear
Auto Strike-out	ESC H, ESC h	ESC I, ESC X, ESC i, ESC x
Auto Underline	ESC E, ESC e	ESC R, ESC X, ESC r, ESC x
Double-strike Print Mode	ESC F, ESC O ESC f, ESC o	ESC &, ESC X, ESC x (or CR)
Print Symbol 1	ESC Y, ESC y	—
Print Symbol 2	ESC Z, ESC z	—
Boldface Print Mode	ESC W, ESC w	ESC &, ESC X, ESC x (or CR)

PRINT ENHANCEMENTS

In addition to its normal letter quality printing, this printer also supports double-strike and boldface print impressions. As the name implies, in double-strike printing each character is over-printed directly, without a carriage movement, giving a darker imprint. When using boldface printing, however, the carriage moves 1/120" before the second strike. The slight offset gives the "Bold" appearance. Samples of these print enhancements are shown below. Also, see page 49 for the self-test printout.

Two other print functions are auto underline and auto strike-out. The auto underline function adds an underline to all characters and symbols. Spaces are not underlined. The auto strike-out function is useful for marking portions of a document that will be later deleted during the final printout. All characters and symbols, excluding spaces, are overprinted with hyphens.

All of these print enhancements are described in the section on word processing functions on the next page.

NORMAL	ABCDEFGHIJKLMNOPQRSTUVWXYZ
DOUBLE	ABCDEFGHIJKLMNOPQRSTUVWXYZ
BOLD	ABCDEFGHIJKLMNOPQRSTUVWXYZ

Word Processing Functions

Auto Underline

Set ESC E or ESC e *1B C5 or 1B 45*
 Clear ESC R, ESC r, ESC X or ESC x *1B D2, 1B 52, 1B D8, or 1B, 58*
 When set, all characters and symbols are underlined.
 Spaces are not underlined.

Auto Strike-out

Set ESC H or ESC h *1B C8 200 1B 48 72*
 Clear ESC I, ESC i, ESC X or ESC x *1B C9 - 49 - D8 58*
 When set, all characters and symbols are overprinted with a hyphen. Spaces are excluded.

Bold Print Mode

Set ESC W or ESC w *D7 57*
 Clear CR, ESC &, ESC X or ESC x
 All characters and symbols are printed twice, offset with a 1/120" carriage movement between strokes. In the bold mode, printing is from left to right.

Double-Strike Print Mode

Set ESC F, ESC f, ESC O or ESC o *C6 46 CF 4F*
 Clear CR, ESC &, ESC X or ESC x *13 1B 26*
 All characters and symbols are printed twice, without an off-set carriage movement.
 In the double-strike mode, printing is from left to right.

Print Symbol 1

Set ESC Y or ESC y *D9 59*
 Symbol 1 will be printed.

Print Symbol 2

Set ESC Z or ESC z *DA 58*
 Symbol 2 will be printed.

PRINT FORMAT FUNCTIONS

This section describes print format functions which can be used to design the printed page and control carriage movements both vertically and horizontally. Most word processing programs provide these types of functions as a minimum level of user control. They are supported by this printer to enable you to customize page format to special requirements.

PRINT FORMAT FUNCTION SUMMARY

Function	ESC Sequence	
	Set	Clear
Absolute HT	ESC HT (n)	—
Absolute VT	ESC VT (n)	—
Auto Backward Print	ESC /	ESC £
Auto LF	ESC "	ESC #
Backward Print (left)	ESC 6	—
Bottom Margin	ESC L, ESC l	ESC C, ESC c
BS 1/120"	ESC BS	—
Character Pitch (HMI)	ESC US (n)	ESC S, ESC s
Forward Print (right)	ESC 5	—
Half-LF	ESC U, ESC u	—
Left Margin	ESC 9	—
Line Pitch (VMI)	ESC RS (n)	ESC S, ESC s
Page Length	ESC FF (n)	ESC S, ESC s
Reverse Half-LF	ESC D, ESC d	—
Reverse LF	ESC LF	—
Right Margin	ESC 0	—
Top Margin	ESC T, ESC t	ESC C, ESC c

Print Format Functions

*small 27 31 10
reg 27 31 12
large 27 31 27*

Character Pitch (HMI)

Set ESC US (n) *1B, 1E(n)*
 Reset ESC S, ESC s *1B, 03, 1B, 53*
 HMI = (n-1) x 1/120

(n) is any value from 1 to 126 except NUL and DEL. The character pitch can be set in 1/120" increments.

When set, the carriage moves one HMI each time a character or symbol is printed. ESC S or ESC s resets HMI to 1/10".

Line Pitch (VMI)

Set ESC RS (n) *1B, 1E(n)* *Small 27, 30, 17
normal 27 30 10*
 Reset ESC S, ESC s
 VMI = (n-1) x 1/48

(n) is any value from 1 to 126 except NUL and DEL. The line pitch can be set in 1/48" increments.

When set, the form is fed one VMI on LF and Reverse LF and by half-VMI for superscripts and subscripts.

ESC S or ESC s resets VMI to 1/6".

Page Length

Set ESC FF (n) *1B, 0C(n)*
 Reset ESC S, ESC s
 Page length = (n) x VMI

The (n) value is from 1 to 126 except NUL and DEL. The current VMI value is interpreted as one line.

The page length is stored in memory as the absolute position measured with reference to the top of the page. Therefore, if you change the VMI, the number of lines per page also changes.

ESC S or ESC s resets page length to 11".

Left Margin

Set ESC 9 *1B, 39*

This defines the current position as the left margin. It is possible to move the carriage outside the left margin by Absolute HT or BS (to reset the left margin). This code is ignored if the position is outside the right margin.

Right Margin

Set ESC 0 *1B,CF*

This defines the current position as the right margin. It is possible to move the carriage outside the right margin by Absolute HT (to reset the right margin). This code is ignored if the position is outside the left margin.

Top Margin

Set ESC T, ESC t *1B,D4 1B,54*Clear ESC C, ESC c *1B C3 1B 43*

. by setting page length

. by resetting printer

ESC T or ESC t defines the current vertical position as the top margin.

If the form has come to the bottom margin or the top of the page by LF, it will be fed further over the top margin automatically.

It is possible to feed the form outside the top margin by Backward LF or Absolute VT (to reset the top margin).

The top margin is cleared when you have changed the page length, reset the printer, or by ESC C or ESC c. But, except by ESC C or ESC c, it is reset to 1" if Skip Perforation is set.

It is ignored if the position is outside the bottom margin.

Bottom Margin

Set ESC L, ESC l *1B,CC, 1B 42*

Clear ESC C, ESC c

. by setting page length

. resetting printer

ESC L or ESC l defines the current vertical position as the bottom margin.

If the form has reached the bottom margin by LF, Auto LF, or Half-LF, it will be fed further past the bottom margin or to the Top of Form position on the next page automatically.

It is possible to feed the form outside the bottom margin by Absolute VT.

The bottom margin is cleared when you have changed the page length, reset the printer, or by ESC C or ESC c. But, except by ESC C or ESC c, it is reset to 1" if Skip Perforation is set.

It is ignored if the position is outside the top margin.

Absolute HT

Set ESC HT (n) *1B 09 (n)*
 Distance of move HMI x (n-1)

The (n) value is a number from 1 to 126 except NUL and DEL. The distance unit is the current HMI value x (n-1).

This moves the carriage directly to the set HT position from the left edge of the platen, but the located position is not stored in memory as an HT stop. (Margins are ignored.)

This code sequence is ignored if the position set will be outside the platen width.

Absolute VT

Set ESC VT (n) *1B 0B (n)*
 Distance of move VMI x (n-1)

The (n) value is a number from 1 to 126 except NUL and DEL. The distance unit is the current VMI value x (n-1).

This feeds the form directly to the set VT line from the top of the page, but the located position is not stored in memory as a VT stop.

This code sequence is ignored if the position set will be off the page.

It is possible to set positions outside the top and bottom margins. (Margins are ignored.)

Reverse LF

ESC LF *1B 0A*

This feeds the form in reverse at the current VMI value.

Half-LF

ESC U, ESC u *213 85 1B D5 1B 55*

This feeds the form at half the current VMI value. Any remainder is ignored.

Reverse Half-LF

ESC D, ESC d *1B C4 1B 44*

This feeds the form in reverse at half the current VMI value. Any remainder is ignored.

Auto Backward Print

Set ESC / 1B, 2F
 Clear ESC \ 1B,

This sets logic-seeking bidirectional printing.

Auto backward print is a default setting immediately after power-ON. While auto backward printing is set, inputting any of the ESC sequences marked with a dagger (†) at the left of the table on page 69, 70 and 71 causes a carriage return (CR) which moves the carriage to the left margin and resets forward printing.

Forward Print

ESC 5 1B, 35

This sets unidirectional printing from left to right (as in tabulation).

Backward Print

ESC 6 1B, 36

This sets unidirectional printing from right to left.

Auto LF

Set ESC " 1B, 22
 Clear ESC # 1B, 23

With auto LF ON, when the printer receives a CR code, it executes not only a CR but an LF automatically.

BS by 1/120"

ESC BS 1B, 08

This moves the carriage back 1/120".

ESC SEQUENCE SAMPLE PROGRAMS

Print Format Functions

1 Set HMI

```

10 rem *** hmi ***
20 open 4,4,7
30 print#4,"ABCDE"
40 print#4
50 for i=1 to 126 step 8
60 print#4,chr$(27);chr$(31);chr$(i);
70 print#4,"ABCDE"
80 next i
90 print#4,chr$(27);"s";
100 print#4:print#4,"ABCDE"
110 close4:end
    
```

- NOTES: Line 30 Print "ABCDE".
 50-80 Print "ABCDE" by varying the HMI in 8/120 inch
 increments from 0 to 1 inch.
 90 Restore the HMI to 1/10 inch with ESC S.

PRINTOUT:

ABCDE



```

ABCDE
A B C D E
A B C D E
A B C D E
A B C D E
A B C D E
A B C D E
A B C D E
A B C D E
A B C D E
A B C D E
A B C D E
A B C D E
A B C D E
A B C D E
A B C D E
A B C D E
A B C D E
A B C D E
A B C D E
    
```

ABCDE

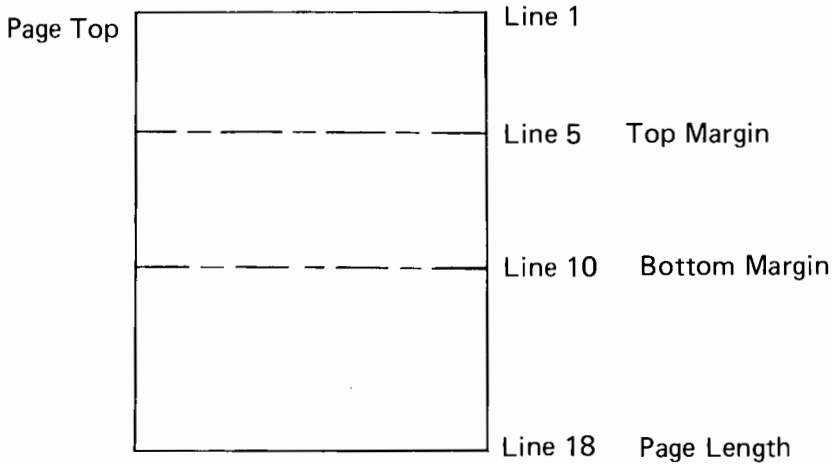
3 Set Page Length & Etc. (Top and Bottom Margins)

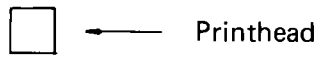
```

10 rem *** page length & etc ***
20 a$="Daisy Wheel Printer"
30 open 4,4,7
40 print#4,chr$(27);chr$(12);chr$(18);
50 print#4,chr$(27);chr$(11);chr$(5);
60 print#4,chr$(27);"T";
70 print#4,chr$(27);chr$(11);chr$(10);
80 print#4,chr$(27);"L"
90 for i=1 to 10
100 print#4,i;a$
110 next i
120 print#4,chr$(12);"Form Feed"
130 print#4,chr$(27);"C"
140 close4:end
    
```

- NOTES: Line
- 40 Set the page length to 18 lines.
 - 50, 60 Move the absolute VT from the page top to line 5 to set the top margin.
 - 70, 80 Move the absolute VT from the page top to line 10 to set the bottom margin.
 - 120 Feed the form up to the next top margin and print "Form Feed".
 - 130 Clear both top and bottom margins.

PRINTOUT:





----- Top Margin

----- Bottom Margin

----- Page End

- 1 Daisy Wheel Printer
- 2 Daisy Wheel Printer
- 3 Daisy Wheel Printer
- 4 Daisy Wheel Printer
- 5 Daisy Wheel Printer
- 6 Daisy Wheel Printer

----- Page End

- 7 Daisy Wheel Printer
- 8 Daisy Wheel Printer
- 9 Daisy Wheel Printer
- 10 Daisy Wheel Printer

----- Page End

Form Feed

4 Set Left Margin

```

10 rem *** left margin ***
20 open 4,4,7
30 print#4,chr$(27);chr$(13);"p";
40 for i=1 to 5
50 print#4,"1234567890";
60 next i
70 print#4
80 print#4,"      ";chr$(27);"9";"<Left Margin"
90 print#4
100 for i=1 to 5
110 print#4,"abcdefghijklmnopqrstuvwxy"
120 next i
130 close4:end

```

NOTES: line 30 Reset the printer to set the left margin at the home position of the carriage.

80 Print five spaces, set the left margin at the sixth column from the home position and print characters.

PRINTOUT:

```

12345678901234567890123456789012345678901234567890
  <Left Margin

  abcdefghijklmnopqrstuvwxyz
  abcdefghijklmnopqrstuvwxyz
  abcdefghijklmnopqrstuvwxyz
  abcdefghijklmnopqrstuvwxyz
  abcdefghijklmnopqrstuvwxyz

```

5 Set Right Margin

```

10 rem *** right margin ***
20 open 4,4,7
30 print#4,chr$(27);chr$(13);"p";
40 for i=1 to 5
50 print#4,"1234567890";
60 next i
70 print#4
80 print#4,"                                Right Margin>";chr$(27);"0"
90 print#4
100 for i=1 to 5
110 print#4,"abcdefghijklmnopqrstuvwxy";
120 next i
130 close4:end

```

NOTES: Line 30 Reset the printer to set the right end of the platen.
 80 Print 27 spaces and characters and set the right margin
 at the 41st column from the platen end.

PRINTOUT:

```
12345678901234567890123456789012345678901234567890
                    Right Margin>
```

```
abcdefghijklmnopqrstuvwxyzabcdefghijklmnopqrstu
opqrstuvwxyzabcdefghijklmnopqrstuvwxyzab
cdefghijklmnopqrstuvwxyzabcdefghijklmnop
qrstuvwxyz
```

6 Shift Absolute HT

```
10 rem *** absolute horizontal tab ***
20 open 4,4,7
30 for i=1 to 5
40 print#4,"1234567890";
50 next i
60 print#4:print#4
70 for j=1 to 10
80 print#4,chr$(27);chr$(9);chr$(j*5);"*";
90 next j
100 close4:end
```

NOTES: Line 80 By moving the absolute HT, move the carriage five
 columns at a time and print "*" at each stop from
 column 5 to 50.

PRINTOUT:

```
12345678901234567890123456789012345678901234567890
          *   *   *   *   *   *   *   *   *   *
          *   *   *   *   *   *   *   *   *   *
```

7 Shift Absolute VT

```
10 rem *** absolute vertical tab ***
20 open 4,4,7
30 for i=1 to 20
40 print#4,i
50 next i
60 print#4,"      ";
70 for j=1 to 4
80 print#4,chr$(27);chr$(11);chr$(j*5);"vertical";
90 next j
100 print#4:print#4
110 close4:end
```

NOTES: Line 30-50 Print numbers 1 to 20 sequentially on every line.
 70-90 By moving the absolute VT, feed the form 5 lines at a time and print "vertical" at every stop from line 5 through line 20.

PRINTOUT:

```

1
2
3
4
5 vertical
6
7
8
9
10 vertical
11
12
13
14
15 vertical
16
17
18
19
20 vertical
    
```

8 Set Reverse LF

```

10 rem *** lf,reverse lf ***
20 open 4,4,7
30 for i=1 to 3
40 print#4,"Line feed";chr$(10);
50 next i
60 for j=1 to 3
70 print#4,"Reverse LF";chr$(27);chr$(10);
80 next j
90 close4:end
    
```

NOTES: Line 30-50 Print "Line feed" followed by a line feed three times.
 60-70 Print "Reverse LF" followed by a reverse line feed three times.

PRINTOUT:

```

Line feed
      Line feed
            Line feed
                  Reverse LF
                        Reverse LF
                              Reverse LF
    
```

9 Set Half LF and Reverse Half LF

```

10 rem *** half lf,reverse half lf ***
20 open 4,4,7
30 for i=1 to 5
40 print#4,"ESC U";chr$(27);"U";
50 next i
60 for j=1 to 5
70 print#4,"ESC D";chr$(27);"D";
80 next j
90 print#4:print#4:print#4
100 for i=1 to 5
110 print#4,"ESC u";chr$(27);"u";
120 next i
130 for j=1 to 5
140 print#4,"ESC d";chr$(27);"d";
150 next j
160 close4:end

```

NOTES: Line 30–50 Print "ESC U" followed by a half LF five times.
 60–80 Print "ESC D" followed by a reverse half LF five times.
 100–120 Same as lines 30–50 except that the half LF control sequence is replaced with "ESC u".
 130–150 Same as lines 60–80 except that sequence "ESC D" is replaced with "ESC d".

PRINTOUT:

```

ESC U ESC U ESC U ESC U ESC U ESC U ESC D ESC D ESC D ESC D ESC D
ESC u ESC u ESC u ESC u ESC u ESC u ESC d ESC d ESC d ESC d ESC d

```

10 Set Auto Backward Print Mode

```

10 rem *** auto backward print mode on,off ***
20 a$="Auto Backward Print Mode ON"
30 b$="Auto Backward Print Mode OFF"
40 open 4,4,7
50 for i=1 to 3
60 print#4,chr$(27);chr$(92);
70 print#4,b$
80 next i
90 for j=1 to 3
100 print#4,chr$(27);"/";
110 print#4,a$
120 next j
130 close4:end

```

NOTES: Line 50–80 Clear auto backward print mode and print character string b\$.
 90–120 Set auto backward print mode and print character string a\$.

PRINTOUT:

```
Auto Backward Print Mode OFF →
Auto Backward Print Mode OFF →
Auto Backward Print Mode OFF →
Auto Backward Print Mode ON  →
Auto Backward Print Mode ON  ←
Auto Backward Print Mode ON  →
```

11 Set Forward and Backward Print Modes

```
10 rem *** backward print,forward print ***
20 a$="Forward Print Mode ON"
30 b$="Backward Print Mode ON"
40 sp$="          "
50 open 4,4,7
60 for i=1 to 3
70 print#4,chr$(27);chr$(9);chr$(45);
80 print#4,chr$(27);"6";b$;sp$;
90 print#4,chr$(27);"5";a$
100 next i
110 close4:end
```

NOTES: Line 60–100 By moving the absolute HT, move the carriage to column 45 from home position, set backward print mode, and print out character string b\$ and spaces. Then set forward print mode and print character string a\$. Repeat three times.

PRINTOUT:

```
Forward Print Mode ON  NO edoM tnirP drawkcaB
Forward Print Mode ON  NO edoM tnirP drawkcaB
Forward Print Mode ON  NO edoM tnirP drawkcaB
```

12 Set Auto LF

```

10 rem *** auto line feed ***
20 open 4,4,7
30 print#4,chr$(27);chr$(34);
40 for i=1 to 3
50 print#4,"Auto LF ON"
60 next i
70 for j=1 to 3
80 print#4,chr$(27);"#";
90 print#4,"Auto LF OFF"
100 next j
110 close4:end

```

NOTES: Line 30 Set auto LF.
 40-60 Print three lines of "Auto LF ON".
 70-100 Clear auto LF and print (overprint) "Auto LF OFF"
 three times.

PRINTOUT:

```

Auto LF ON
Auto LF ON
Auto LF ON
Auto LF OFF

```

13 Set 1/120 Inch Backspace

```

10 rem *** 1/120 inch backspace ***
20 open 4,4,7
30 print#4,"1/120 inch Back Space"
40 print#4
50 print#4,"Part I";
60 for i=1 to 8
70 print#4,chr$(27);chr$(8);
80 next i
90 print#4,"I"
100 close4:end

```

NOTES: Line 50 Print "Part I".
 60-90 Backspace 1/120 inch eight times (8/120 inch) and
 print "I".

PRINTOUT:

```

1/120 inch Back Space

Part II

```

Word Processing Functions

1 Set Auto Underline

```

10 rem *** underline ***
20 a$="ESC E :Auto Underline ON"
30 b$="ESC e :Auto Underline ON"
40 c$="ESC R :Auto Underline OFF"
50 d$="ESC r :Auto Underline OFF"
60 open 4,4,7
70 print#4,chr$(27);"E";a$;"          ";chr$(27);"R";c$
80 print#4,chr$(27);"e";b$;"          ";chr$(27);"r";d$
90 close4:end

```

- NOTES: Line 70 Set auto underline and print character string a\$. Then, print several spaces to clear auto underline and print character string c\$.
- 80 Same as line 70 except that ESC E (auto underline set) is replaced with ESC e, and ESC R (auto underline clear) with ESC r.

PRINTOUT:

```

ESC E :Auto Underline ON          ESC R :Auto Underline OFF
ESC e :Auto Underline ON          ESC r :Auto Underline OFF

```

2 Set Auto Strike-Out

```

10 rem *** auto strikeout ***
20 a$="ESC H :Auto Strikeout ON"
30 b$="ESC h :Auto Strikeout ON"
40 c$="ESC I :Auto Strikeout OFF"
50 d$="ESC i :Auto Strikeout OFF"
60 open 4,4,7
70 print#4,chr$(27);"H";a$;"          ";chr$(27);"I";c$
80 print#4,chr$(27);"h";b$;"          ";chr$(27);"i";d$
90 close4:end

```

- NOTES: Line 70 Set auto strike-out and print character string a\$. Then, print several spaces to clear auto strike-out and print character string c\$.
- 80 Same as line 70 except that ESC H (auto strike-out set) is replaced with ESC h, and ESC I (auto strike-out clear) with ESC i.

PRINTOUT:

```

ESC H :Auto Strikeout ON          ESC I :Auto Strikeout OFF
ESC h :Auto Strikeout ON          ESC i :Auto Strikeout OFF

```

3 Set Bold and Double-Strike Print Modes

```

10 rem *** double print,Bold Print***
20 a$="ESC O :Double Print"
30 b$="ESC o :Double Print"
40 c$="ESC F :Double Print"
50 d$="ESC f :Double Print"
60 e$="ESC W :Bold Print"
70 f$="ESC w :Bold Print"
80 g$="ESC & :Double/Bold Print Off"
90 open 4,4,7
100 print#4,chr$(27);"O";a$;"      ";chr$(27);"&";g$
110 print#4,chr$(27);"o";b$;"      ";chr$(27);"&";g$
120 print#4
130 print#4,chr$(27);"F";c$;"      ";chr$(27);"&";g$
140 print#4,chr$(27);"f";d$;"      ";chr$(27);"&";g$
150 print#4
160 print#4,chr$(27);"W";e$;"      ";chr$(27);"&";g$
170 print#4,chr$(27);"w";f$;"      ";chr$(27);"&";g$
180 close4:end

```

NOTES: Line 100 Set double-strike print mode and print character string a\$. Then print several spaces to clear the double-strike print mode and print character string g\$.

110 Same as line 100 except that ESC O (double-strike print mode set) is replaced with ESC o.

130 Same as line 100.

140 Same as line 130 except that ESC F (double-strike print mode clear) is replaced with ESC f.

160 Set bold print mode and print character string a\$. Then print several spaces to clear the bold print mode and print character string g\$.

170 Same as line 160 except that ESC W (bold print mode set) is replaced with ESC w.

PRINTOUT:

```

ESC O :Double Print      ESC & :Double/Bold Print Off
ESC o :Double Print      ESC & :Double/Bold Print Off

ESC F :Double Print      ESC & :Double/Bold Print Off
ESC f :Double Print      ESC & :Double/Bold Print Off

ESC W :Bold Print      ESC & :Double/Bold Print Off
ESC w :Bold Print      ESC & :Double/Bold Print Off

```


4 Print Symbol 1 and 2

```

10 rem *** symbol ***
20 open 4,4,7
30 print#4,"ESC Y : ";chr$(27);"Y";"      ";
40 print#4,"ESC Z : ";chr$(27);"Z"
50 print#4,"ESC y : ";chr$(27);"y";"      ";
60 print#4,"ESC z : ";chr$(27);"z"
70 close4:end

```

NOTES: Line 30 Print "ESC Y : ", then Symbol 1, then several spaces.
 Line 40 Print "ESC Z : ", then Symbol 2.
 Line 50 Same as line 30 except that ESC Y (print symbol 1) is replaced with ESC y, and ESC Z (print symbol 2) with ESC z.

PRINTOUT:

```

ESC Y : ¢          ESC Z : '
ESC y : ¢          ESC z : '

```


PART III

REFERENCE

This part offers a ready access to information that supplements the overall content of the user's guide.

A summary format is used throughout, with tables and lists in eight appendices providing descriptions of ESC sequence functions and programming examples, the ASCII code, troubleshooting, and printer and interface specifications. A glossary of printer-related terms is also included.

APPENDIX

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APPENDIX A

USING COMMODORE 64 WORD PROCESSORS

This appendix gives a brief introduction to using this printer with the following seven popular word processing programs for the Commodore 64 computer:

1	PaperClip	Batteries Included
2	Bank Street WRITER	Brøderbund Software, Inc.
3	HOMEWORD	Sierra On-Line, Inc.
4	MAGIC DESK I	Commodore Business Machines, Inc.
→5	Word Writer	Timeworks, Inc.
6	Cut & Paste	ELECTRONIC ARTS
7	EASY SCRIPT	Commodore Business Machines, Inc.

Check the manual of the program you are using for detailed information on printer setup and output. The instructions in this section are intended only as basic guidelines for

- Setting printer DIP switches
- Loading and starting the program
- Selecting from the printer menu
- Printing out a sample document

1 PaperClip (Version 64D)

- Setting the DIP switches

Switch #2 CLOSED Sets Auto LF OFF
 Switch #3 OPEN Selects Standard ASCII code

- Loading and starting the program

Type: LOAD "*", 8
 Press: **RETURN**
 Type: RUN
 Press: **RETURN**

- Selecting from the printer menu

Press: **CTRL**
 Press: **0** (the zero key)

A list of printer files is then displayed on the screen. Use the up/down cursor key **CRSR** to scroll the screen until you see **8300p-a-nlf** come into view.

Press: **CTRL** to restore the cursor mark to the screen.

Use **CRSR** again to position the cursor at the **8300p-a-nlf** printer file.

Press: **CTRL**
 Press: **W**

A message asking the question "File name?" then appears on the screen.

Press: **RUN/STOP**
 Press: **RETURN**

This selects the **8300p-a-nlf** printer file for this printer. To then go to the edit screen,

Press: **CLR/HOME** and again
CLR/HOME

- Printing a sample document

Press: **CTRL**
 Press: **L** (to load the file)
 Type: printer test (the file name)
 Press: **RETURN**
 Press: **CTRL**
 Press: **0** (to output to the printer)

The following five questions and default values then appear on the display. For each question, respond by pressing **RETURN** to accept the default value. Or type in a different value then press **RETURN**.

Continuous output?	N
Fill variable blocks?	N
Number of copies?	1
Starting page?	1
Global?	N

NOTE ON PRINTING: When printing a document with the left margin set, the printhead spaces horizontally from the home position of the carriage up to the left margin setting. This aligns the starting point of each subsequent printed line. If the character pitch is changed in the middle of the document, the different horizontal spacing unavoidably shifts the left margin.

2 Bank Street WRITER

- Setting the DIP switches

Switch #2	....	OPEN	....	Sets Auto LF ON
Switch #3	....	CLOSED	....	Selects CBM ASCII code

- Loading and starting the program

Type:	LOAD "BSW", 8
Press:	RETURN
Type:	RUN
Press:	RETURN

- Printing a document

As there is no sample document available for printing, first create and edit a document to print, or load an already saved document from the disk. Then enter the TRANSFER MENU and

Press:

Two print commands appear on the TRANSFER MENU: PRINT DRAFT and PRINT FINAL. Select PRINT FINAL and

Press:

The next screens ask a series of questions. For each question, respond by pressing to accept the default value. Or type in a different value then press . The after the final question starts the printer. See your software manual for detailed descriptions of these questions and values.

NOTE: this printer can print a maximum of 80 characters per line (the range of the software is 40 to 126 characters). Limit your response to this first question between 40 and 80 characters.

```

HOW MANY CHARACTERS PER LINE?      65
SPACING BETWEEN LINES (1-3)?      1
IS THIS A CONTINUATION
  OF THE PREVIOUS FILE (Y/N)?      N
PAGES TO BE NUMBERED (Y/N)?      Y
START AT PAGE #?                    1
NUMBERING AT TOP OR BOTTOM?        B
PAUSE BETWEEN PAGES (Y/N)?        N
EJECT LAST PAGE (Y/N)?            Y
TYPE IN PAGE HEADING, THEN RETURN
PRINT ENTIRE FILE (Y/N)?          Y
DO YOU WANT TO SEE WHERE
  EACH PAGE OF TEXT WILL END (Y/N)? N
WHEN PRINTER IS READY, PRESS RETURN

```


Do you want to use underline or boldface?		
Yes (HomeWord sends line feeds)		Yes
No (Interface sends line feeds)		
Are all characters printed correctly and lines single spaced?		
Yes	No	Yes

The final **RETURN** after the last question restores the "Customize" menu.

We suggest that you take the following steps to save the foregoing "Type of printer" settings on your HomeWord program disk so that this printer will be ready to use every time you load the program. Specific changes, however, can still be made later when necessary.

In the "Customize" menu, position the cursor to frame the "Save customize choices" icon and

Press: **RETURN**

Then the following messages appear on the screen.

Remove write protect tab
from HomeWord disk
and insert into drive 1
Press RETURN to save custom choices.
Press f1 to cancel.

Follow the instructions, then

Press: **RETURN**

Another message screen appears.

Replace write protect tab
on HomeWord disk
and insert into drive 1
Press RETURN to continue.

Follow the instructions, then

Press: **RETURN**

- Printing a sample document

Select the "File" icon in the menu area and

Press: **RETURN**

Position the icon cursor to frame the "Get document" icon, then

Press: **RETURN**

Use the up/down cursor key  to scroll through the file until you find "TEST PRINTER" and

Press: **RETURN**

Now, to move back to the main menu.

Press: **F 1**

Then use the icon cursor to frame the "Print" icon and

Press: **RETURN**

Move the cursor again to the "Print document" icon and

Press: **RETURN**

The following message screen then appears.

Press RETURN to print document.
Press SPACEBAR to pause, press any key
to start printing again.
Press f1 to cancel.

To start printing

Press: **RETURN**

4 MAGIC DESK I

- Setting the DIP switches

Switch #2	....	OPEN	....	Sets Auto LF ON
Switch #3	....	CLOSED	....	Selects CBM ASCII code

- Loading and starting the program

Insert your MAGIC DESK I cartridge in the computer's cartridge slot. When you turn on the computer, the MAGIC DESK I screen will appear.

- Printing a document

MAGIC DESK I prints documents from the TYPEWRITER. First, create and edit a document using the TYPEWRITER or transfer a saved document from the FILE CABINET to the TYPEWRITER for printing. Then, to exit the TYPEWRITER and output to the printer, use the JOYSTICK/CONTROLLER and

Press: **ACTION BUTTON**

To start printing, move the POINTING FINGER to the picture of the PRINTER and again

Press: **ACTION BUTTON**

5 Word Writer

- Setting the DIP switches

Switch #2 OPEN Auto LF ON
 Switch #3 CLOSED Selects CBM ASCII code

- Loading and starting the program

Type: LOAD "WORD WRITER", 8
 Press: **RETURN**
 Type: RUN
 Press: **RETURN**

- Printing a sample document

Press: **F6** (**SHFT** **F5**) (to load the file)

The following questions then appear on the display. Respond to each question as it appears.

SAVE, LOAD OR MERGE?(S/L/M)	L
MERGE OR LOAD?(M/L)	L (or M)
CASS OR DISK?(C/D)	D (or C)
LOAD FILE NAME?	SAMPLE

After responding to the last question,

Press: **RETURN**

Press: **↩** **P** (to set the secondary address)

Then the following question appears.

OPEN 4, 4, ?

Type: 7
 Press: **RETURN**
 Press: **CTRL** **9**

The screen changes and the next series of questions appears.
 Respond to each question as it appears.

CHAIN DOCUMENT?(Y/N)	N (or Y)
JUSTIFY TEXT?(Y/N)	Y (or N)
SHEET FEED?(Y/N)	N (or Y)
DOUBLE SPACE?(Y/N)	N (or Y)
MERGE NAMES?(Y/N)	N
NUMBER PAGES?(Y/N)	Y (or N)
START AT (1 – 250)	1

After responding to the last question.

Press: **RETURN**

6 Cut & Paste

- Setting the DIP switches

Switch #2	.... OPEN	.... Sets Auto LF ON
Switch #3	.... CLOSED	.... Selects CBM ASCII code

- Loading and starting the program

Insert the PROGRAM disk in the drive.

Type:	LOAD "EA", 8, 1
Press:	RETURN

A prompt then appears telling you to replace the PROGRAM disk with a DOCUMENT disk. Replace it, then

Press:	RETURN
--------	---------------

- Printing a sample document

Use the arrow keys to select "Letter Home" from the Catalog of Documents. Then, to turn on the command menu.

Press:	
--------	---

Then select the LOAD command from the menu, and

Press:	RETURN
--------	---------------

To return to the command menu, again

Press:	
--------	---

Select the PRINT command from the menu, then

Press:

The next screen then asks the following questions which allow you to set various print format options. You may accept the default values by pressing **RETURN** for each. Or change to different value followed by **RETURN**. Begin by typing the page heading as shown.

Page heading:

Double spaced lines? (y/n) : No
First page number : 1
Continuous paper (y/n): Yes
Number of copies : 1

Then to return to the command menu again.

Press:

Now, when you are asked to select Print-A, B or C depending on your paper size and margin settings, choose one that fits your format needs. Then,

Press:

to start the printer.

7 EASY SCRIPT

- Setting the DIP switches

Switch #2 OPEN Sets Auto LF ON
 Switch #3 OPEN Selects Standard ASCII code

- Loading and starting the program

Type: LOAD "0:*",8,1
 Press: RETURN

- Selecting from the printer menu

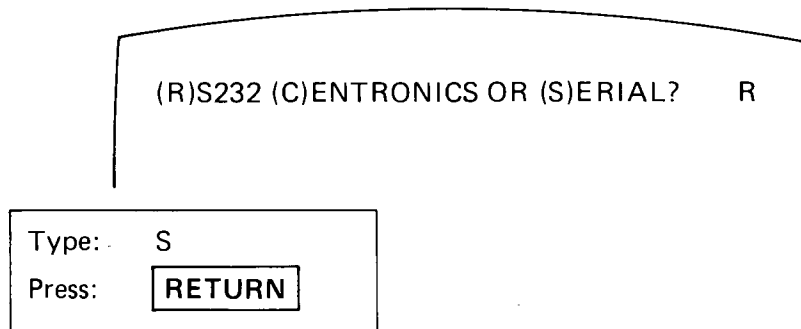
The EASY SCRIPT program gives the following screen prompts for matching with your printer.

```

    PRINTER TYPE (0 - 4)?  0
    0 = CBM
    1 = MX80
    2 = SPINWRITER
    3 = QUME/DIABLO/8300
    4 = OTHERS
    
```

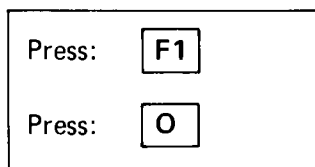
Type: 3
 Press: RETURN

Press: ←

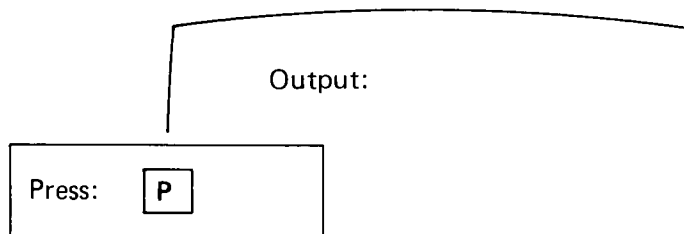


- Printing a sample document

As there is no sample document available for printing, first create and edit a document to print, or load an already saved document from the disk. Then,



After the following message appears,



NOTE ON PRINTING: When printing a document with the left margin set, the printhead spaces horizontally from the home position of the carriage up to the left margin setting. This aligns the starting point of each subsequent printed line. If the character pitch is changed in the middle of the document, the different horizontal spacing unavoidably shifts the left margin.

APPENDIX B

ESC SEQUENCE FUNCTION SUMMARY

1-126

Note: The value of (n) in hexadecimal code is from 01 to 7E.

Category	ESC Sequence		Function
	Set	Clear / Reset	
Horizontal movement index	ESC US (n)	ESC S, ESC s	Set HMI
	ESC BS	—	Backspace 1/120"
Vertical movement index	ESC RS (n)	ESC S, ESC s	Set VMI
	ESC U, ESC u	—	Feed form half of VMI
	ESC D, ESC d	—	Reverse feed form half of VMI
	ESC LF	—	Reverse feed form
Side margin	ESC 0	—	Set right margin
	ESC 9	—	Set left margin
Horizontal tab	ESC HT (n)	—	Absolute HT
Vertical tab	ESC VT (n)	—	Absolute VT
Page length	ESC FF (n)	ESC S, ESC s	Set page length
	ESC T, ESC t	ESC C, ESC c	Set top margin
	ESC L, ESC l	ESC C, ESC c	Set bottom margin
Forward/ backward print	ESC /	ESC \	Print auto backward
	ESC 5		Print forward
	ESC 6		Print backward
CR function	ESC "	ESC #	Auto LF ON / OFF (CR + LF)

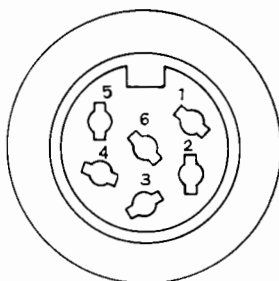
Category	ESC Sequence		Function
	Set	Clear / Reset	
Special character printing	ESC Y, ESC y	—	Print Symbol 1
	ESC Z, ESC z	—	Print Symbol 2
Print enhancement modes	ESC F, ESC f	ESC &; ESC X ESC x	Double-strike mode
	ESC O, ESC o	ESC &; ESC X ESC x	
	ESC W, ESC w	ESC &; ESC X ESC x	Bold mode
	ESC E, ESC e	ESC R; ESC X ESC r; ESC x	Auto underline
	ESC H, ESC h	ESC I, ESC i ESC X, ESC x	Auto Strike-out
Reset printer	ESC CR P ESC CR p		Reset printer

APPENDIX C

INTERFACE SPECIFICATIONS

COMMODORE SERIAL INTERFACE

Detailed specifications for the Commodore serial interface can be found in the owner manual and reference guides for your computer. Only the pin assignments for the cable connectors are given here in the following.



Connector Pin Assignment

Pin No.	Signal
1	SERIAL SRQ
2	GND
3	SERIAL ATN
4	SERIAL CLK
5	SERIAL DATA
6	RESET

APPENDIX D

ASCII CODE AND INTERNATIONAL CHARACTER SETS

This appendix presents the ASCII code tables and international character sets for various languages. A conversion table is also included for the ASCII characters in binary, hexadecimal, and decimal notation. Remember that you must set DIP switch #3 OPEN to allow this printer to receive the STD ASCII codes.

b ₈ - - -	0	0	0	0	0	0	0	0
b ₇ - - -	0	0	0	0	1	1	1	1
b ₆ - - -	0	0	1	1	0	0	1	1
b ₅ - - -	0	1	0	1	0	1	0	1
b ₄ b ₃ b ₂ b ₁	0	1	2	3	4	5	6	7
0 0 0 0	0	NUL	SP	0	@	P	`	p
0 0 0 1	1		!	1	A	Q	a	q
0 0 1 0	2		"	2	B	R	b	r
0 0 1 1	3	DC3	#	3	C	S	c	s
0 1 0 0	4		\$	4	D	T	d	t
0 1 0 1	5		%	5	E	U	e	u
0 1 1 0	6		&	6	F	V	f	v
0 1 1 1	7		'	7	G	W	g	w
1 0 0 0	8	BS CAN	(	8	H	X	h	x
1 0 0 1	9	H T	)	9	I	Y	i	y
1 0 1 0	A	L F	*	:	J	Z	j	z
1 0 1 1	B	V T ESC	+	;	K	[	k	{
1 1 0 0	C	F F	,	<	L	\	l	|
1 1 0 1	D	C R	-	=	M	]	m	}
1 1 1 0	E	RS	.	>	N	^	n	~
1 1 1 1	F	US	/	?	O	_	o	

ASCII 7-bit Code Table

NOTE: In the ASCII code conversion tables that follow, control characters with an asterisk (*) at the right are not applicable to this printer.

ASCII Conversion Table for Binary, Hexadecimal and Decimal Code

Binary	Hex	Dec	Character
0000000	00	0	NUL
0000001	01	1	SOH *
0000010	02	2	STX *
0000011	03	3	ETX *
0000100	04	4	EOT *
0000101	05	5	ENQ *
0000110	06	6	ACK *
0000111	07	7	BEL *
0001000	08	8	BS
0001001	09	9	HT
0001010	0A	10	LF
0001011	0B	11	VT
0001100	0C	12	FF
0001101	0D	13	CR
0001110	0E	14	SO *
0001111	0F	15	SI *
0010000	10	16	DLE *
0010001	11	17	DC1 *
0010010	12	18	DC2 *
0010011	13	19	DC3
0010100	14	20	DC4 *
0010101	15	21	NAK *
0010110	16	22	SYN *
0010111	17	23	ETB *
0011000	18	24	CAN
0011001	19	25	EM *
0011010	1A	26	SUB *
0011011	1B	27	ESC
0011100	1C	28	FS *
0011101	1D	29	GS *
0011110	1E	30	RS
0011111	1F	31	US
0100000	20	32	SP
0100001	21	33	!
0100010	22	34	"
0100011	23	35	#
0100100	24	36	\$

Binary	Hex	Dec	Character
0100101	25	37	%
0100110	26	38	&
0100111	27	39	'
0101000	28	40	(
0101001	29	41)
0101010	2A	42	*
0101011	2B	43	+
0101100	2C	44	,
0101101	2D	45	-
0101110	2E	46	.
0101111	2F	47	/
0110000	30	48	0
0110001	31	49	1
0110010	32	50	2
0110011	33	51	3
0110100	34	52	4
0110101	35	53	5
0110110	36	54	6
0110111	37	55	7
0111000	38	56	8
0111001	39	57	9
0111010	3A	58	:
0111011	3B	59	;
0111100	3C	60	<
0111101	3D	61	=
0111110	3E	62	>
0111111	3F	63	?
1000000	40	64	@
1000001	41	65	A
1000010	42	66	B
1000011	43	67	C
1000100	44	68	D
1000101	45	69	E
1000110	46	70	F
1000111	47	71	G
1001000	48	72	H
1001001	49	73	I
1001010	4A	74	J

Binary	Hex	Dec	Character
1001011	4B	75	K
1001100	4C	76	L
1001101	4D	77	M
1001110	4E	78	N
1001111	4F	79	O
1010000	50	80	P
1010001	51	81	Q
1010010	52	82	R
1010011	53	83	S
1010100	54	84	T
1010101	55	85	U
1010110	56	86	V
1010111	57	87	W
1011000	58	88	X
1011001	59	89	Y
1011010	5A	90	Z
1011011	5B	91	[
1011100	5C	92	\
1011101	5D	93]
1011110	5E	94	^
1011111	5F	95	_
1100000	60	96	`
1100001	61	97	a
1100010	62	98	b
1100011	63	99	c
1100100	64	100	d
1100101	65	101	e
1100110	66	102	f
1100111	67	103	g
1101000	68	104	h
1101001	69	105	i
1101010	6A	106	j
1101011	6B	107	k
1101100	6C	108	l
1101101	6D	109	m
1101110	6E	110	n
1101111	6F	111	o
1110000	70	112	p
1110001	71	113	q

Binary	Hex	Dec	Character
1110010	72	114	r
1110011	73	115	s
1110100	74	116	t
1110101	75	117	u
1110110	76	118	v
1110111	77	119	w
1111000	78	120	x
1111001	79	121	y
1111010	7A	122	z
1111011	7B	123	{
1111100	7C	124	|
1111101	7D	125	}
1111110	7E	126	~
1111111	7F	127	*

INTERNATIONAL CHARACTER SETS

b ₈ ---→	0 0	0 0 0 0 0 0
b ₇ ---→	0 0	0 0 1 1 1 1
b ₆ ---→	0 0	1 1 0 0 1 1
b ₅ ---→	0 1	0 1 0 1 0 1
b ₄ b ₃ b ₂ b ₁	0 1	2 3 4 5 6 7
0 0 0 0	0 NUL	€ 0 @ P p
0 0 0 1	1	! 1 A Q a q
0 0 1 0	2	" 2 B R b r
0 0 1 1	3 DC3	# 3 C S c s
0 1 0 0	4	\$ 4 D T d t
0 1 0 1	5	% 5 E U e u
0 1 1 0	6	& 6 F V f v
0 1 1 1	7	' 7 G W g w
1 0 0 0	8 BS CAN	(8 H X h x
1 0 0 1	9 HT	) 9 I Y i y
1 0 1 0	A LF	* : J Z j z
1 0 1 1	B VT ESC	+ ; K [k {
1 1 0 0	C FF	' < L \ l |
1 1 0 1	D CR	- = M] m }
1 1 1 0	E RS	. > N ^ n ~
1 1 1 1	F US	/ ? O _ o `

US (ASCII)

Symbol 1 (ESC Y)	¢
Symbol 2 (ESC Z)	'

b ₈ ---→	0 0	0 0 0 0 0 0
b ₇ ---→	0 0	0 0 1 1 1 1
b ₆ ---→	0 0	1 1 0 0 1 1
b ₅ ---→	0 1	0 1 0 1 0 1
b ₄ b ₃ b ₂ b ₁	0 1	2 3 4 5 6 7
0 0 0 0	0 NUL	0 à P ± p
0 0 0 1	1	! 1 A Q a q
0 0 1 0	2	" 2 B R b r
0 0 1 1	3 DC3	Fr 3 C S c s
0 1 0 0	4	\$ 4 D T d t
0 1 0 1	5	% 5 E U e u
0 1 1 0	6	& 6 F V f v
0 1 1 1	7	' 7 G W g w
1 0 0 0	8 BS CAN	(8 H X h x
1 0 0 1	9 HT	) 9 I Y i y
1 0 1 0	A LF	* : J Z j z
1 0 1 1	B VT ESC	+ ; K ° k è
1 1 0 0	C FF	' < L ç l ù
1 1 0 1	D CR	- = M § m è
1 1 1 0	E RS	. > N ^ n ~
1 1 1 1	F US	/ ? O _ o `

FRENCH

Symbol 1 (ESC Y)	¼
Symbol 2 (ESC Z)	½

b ₈ ---→	0 0	0 0 0 0 0 0
b ₇ ---→	0 0	0 0 1 1 1 1
b ₆ ---→	0 0	1 1 0 0 1 1
b ₅ ---→	0 1	0 1 0 1 0 1
b ₄ b ₃ b ₂ b ₁	0 1	2 3 4 5 6 7
0 0 0 0	0 NUL	0 § P p
0 0 0 1	1	! 1 A Q a q
0 0 1 0	2	" 2 B R b r
0 0 1 1	3 DC3	# 3 C S c s
0 1 0 0	4	\$ 4 D T d t
0 1 0 1	5	% 5 E U e u
0 1 1 0	6	& 6 F V f v
0 1 1 1	7	' 7 G W g w
1 0 0 0	8 BS CAN	(8 H X h x
1 0 0 1	9 HT	) 9 I Y i y
1 0 1 0	A LF	* : J Z j z
1 0 1 1	B VT ESC	+ ; K Ä k ä
1 1 0 0	C FF	' < L Ö l ö
1 1 0 1	D CR	- = M Ü m ü
1 1 1 0	E RS	. > N ° n ß
1 1 1 1	F US	/ ? O _ o `

GERMAN

Symbol 1 (ESC Y)	μ
Symbol 2 (ESC Z)	'

b ₈ ---→	0 0	0 0 0 0 0 0
b ₇ ---→	0 0	0 0 1 1 1 1
b ₆ ---→	0 0	1 1 0 0 1 1
b ₅ ---→	0 1	0 1 0 1 0 1
b ₄ b ₃ b ₂ b ₁	0 1	2 3 4 5 6 7
0 0 0 0	0 NUL	0 § P p
0 0 0 1	1	é 1 A Q a q
0 0 1 0	2	" 2 B R b r
0 0 1 1	3 DC3	# 3 C S c s
0 1 0 0	4	\$ 4 D T d t
0 1 0 1	5	% 5 E U e u
0 1 1 0	6	& 6 F V f v
0 1 1 1	7	' 7 G W g w
1 0 0 0	8 BS CAN	(8 H X h x
1 0 0 1	9 HT	) 9 I Y i y
1 0 1 0	A LF	* : J Z j z
1 0 1 1	B VT ESC	+ ; K [k ¼
1 1 0 0	C FF	' < L ± l ½
1 1 0 1	D CR	- = M] m °
1 1 1 0	E RS	. > N ^ n ç
1 1 1 1	F US	/ ? O _ o `

CANADIAN

Symbol 1 (ESC Y)	¾
Symbol 2 (ESC Z)	2

b ₈ -- --	0	0	0	0	0	0	0	0
b ₇ -- --	0	0	0	0	1	1	1	1
b ₆ -- --	0	0	1	1	0	0	1	1
b ₅ -- --	0	1	0	1	0	1	0	1
b ₄ b ₃ b ₂ b ₁	0	1	2	3	4	5	6	7
0 0 0 0	0	NUL		0	§	P	·	p
0 0 0 1	1		!	1	A	Q	a	q
0 0 1 0	2		"	2	B	R	b	r
0 0 1 1	3	DC3	£	3	C	S	c	s
0 1 0 0	4		\$	4	D	T	d	t
0 1 0 1	5		%	5	E	U	e	u
0 1 1 0	6		&	6	F	V	f	v
0 1 1 1	7		'	7	G	W	g	w
1 0 0 0	8	BS CAN	(	8	H	X	h	x
1 0 0 1	9	HT	)	9	I	Y	i	y
1 0 1 0	A	LF	*	:	J	Z	j	z
1 0 1 1	B	VT ESC	+	;	K	Æ	k	æ
1 1 0 0	C	FF	'	<	L	Ø	l	ø
1 1 0 1	D	CR	-	=	M	Å	m	å
1 1 1 0	E	RS	.	>	N	ˆ	n	ˆ
1 1 1 1	F	US	/	?	O	_	o	_

NORWEGIAN/DANISH

Symbol 1 (ESC Y)	½
Symbol 2 (ESC Z)	ˆ

b ₈ -- --	0	0	0	0	0	0	0	0
b ₇ -- --	0	0	0	0	1	1	1	1
b ₆ -- --	0	0	1	1	0	0	1	1
b ₅ -- --	0	1	0	1	0	1	0	1
b ₄ b ₃ b ₂ b ₁	0	1	2	3	4	5	6	7
0 0 0 0	0	NUL		0	§	P	·	p
0 0 0 1	1		!	1	A	Q	a	q
0 0 1 0	2		"	2	B	R	b	r
0 0 1 1	3	DC3	#	3	C	S	c	s
0 1 0 0	4		\$	4	D	T	d	t
0 1 0 1	5		%	5	E	U	e	u
0 1 1 0	6		&	6	F	V	f	v
0 1 1 1	7		'	7	G	W	g	w
1 0 0 0	8	BS CAN	(	8	H	X	h	x
1 0 0 1	9	HT	)	9	I	Y	i	y
1 0 1 0	A	LF	*	:	J	Z	j	z
1 0 1 1	B	VT ESC	+	;	K	Ä	k	ä
1 1 0 0	C	FF	'	<	L	Ö	l	ö
1 1 0 1	D	CR	-	=	M	Å	m	å
1 1 1 0	E	RS	.	>	N	ˆ	n	ˆ
1 1 1 1	F	US	/	?	O	_	o	_

FINNISH/SWEDISH

Symbol 1 (ESC Y)	½
Symbol 2 (ESC Z)	ˆ

b ₈ -- --	0	0	0	0	0	0	0	0
b ₇ -- --	0	0	0	0	1	1	1	1
b ₆ -- --	0	0	1	1	0	0	1	1
b ₅ -- --	0	1	0	1	0	1	0	1
b ₄ b ₃ b ₂ b ₁	0	1	2	3	4	5	6	7
0 0 0 0	0	NUL	²	0	§	P	ù	p
0 0 0 1	1		!	1	A	Q	a	q
0 0 1 0	2		"	2	B	R	b	r
0 0 1 1	3	DC3	£	3	C	S	c	s
0 1 0 0	4		\$	4	D	T	d	t
0 1 0 1	5		%	5	E	U	e	u
0 1 1 0	6		&	6	F	V	f	v
0 1 1 1	7		'	7	G	W	g	w
1 0 0 0	8	BS CAN	(	8	H	X	h	x
1 0 0 1	9	HT	)	9	I	Y	i	y
1 0 1 0	A	LF	*	:	J	Z	j	z
1 0 1 1	B	VT ESC	+	;	K	°	k	°
1 1 0 0	C	FF	'	[	L	ç	l	ç
1 1 0 1	D	CR	-	=	M	é	m	é
1 1 1 0	E	RS	.	]	N	ˆ	n	ˆ
1 1 1 1	F	US	/	?	O	_	o	_

ITALIAN

Symbol 1 (ESC Y)	²
Symbol 2 (ESC Z)	ç

b ₈ -- --	0	0	0	0	0	0	0	0
b ₇ -- --	0	0	0	0	1	1	1	1
b ₆ -- --	0	0	1	1	0	0	1	1
b ₅ -- --	0	1	0	1	0	1	0	1
b ₄ b ₃ b ₂ b ₁	0	1	2	3	4	5	6	7
0 0 0 0	0	NUL	[	0	±	P	·	p
0 0 0 1	1		!	1	A	Q	a	q
0 0 1 0	2		"	2	B	R	b	r
0 0 1 1	3	DC3	#	3	C	S	c	s
0 1 0 0	4		\$	4	D	T	d	t
0 1 0 1	5		%	5	E	U	e	u
0 1 1 0	6		&	6	F	V	f	v
0 1 1 1	7		'	7	G	W	g	w
1 0 0 0	8	BS CAN	(	8	H	X	h	x
1 0 0 1	9	HT	)	9	I	Y	i	y
1 0 1 0	A	LF	*	:	J	Z	j	z
1 0 1 1	B	VT ESC	+	;	K	ı	k	ı
1 1 0 0	C	FF	'	ç	L	Ñ	l	ñ
1 1 0 1	D	CR	-	=	M	ó	m	ó
1 1 1 0	E	RS	.	ˆ	N	ˆ	n	ˆ
1 1 1 1	F	US	/	?	O	-	o	-

SPANISH

Symbol 1 (ESC Y)	[
Symbol 2 (ESC Z)	ı

APPENDIX E

TROUBLESHOOTING AND MAINTENANCE

When any problems occur in printer functions or related mechanisms and parts, we suggest taking a few minutes to evaluate the situation on your own. With the help of the following tables when necessary, most minor problems can be rectified within minutes. You'll be learning more about the use of the printer, and will perhaps discover that if you inadvertently caused the trouble, you'll be less likely to repeat the same thing again. When all attempts fail, however, do not hesitate to contact your dealer.

BASIC ERRORS

Symptom	Possible Cause	Corrective Action
Printer does not operate at all	<ul style="list-style-type: none"> • Power cord not connected • Power switch OFF 	<ul style="list-style-type: none"> • Plug power cord into electrical outlet • Turn ON power switch
Power is ON and data is transmitted, but printer does not print	<ul style="list-style-type: none"> • Cable between computer and printer not connected • Printer in Deselect state 	<ul style="list-style-type: none"> • Check that connectors of the interface cable are properly connected at both computer and printer • Push SEL switch
Even with the top cover opened, the printer does not deselect (go off-line)	<ul style="list-style-type: none"> • Another peripheral is in operation (for example, when a disk is being formatted). • Another peripheral is deselected (for example, when another printer is deselected). 	<ul style="list-style-type: none"> • Wait until the operating peripheral is finished. • Select the deselected peripheral (off-line to on-line).

PRINT QUALITY ERRORS

Symptom	Possible Cause	Corrective Action
Prints incorrectly	<ul style="list-style-type: none"> • Daisywheel not position properly • DIP switch setting incorrect 	<ul style="list-style-type: none"> • Reinstall daisywheel • Correct DIP switch setting
Paper is smudged or soiled by the ribbon	<ul style="list-style-type: none"> • Ribbon twisted or incorrectly installed 	<ul style="list-style-type: none"> • Remove and reinstall ribbon cassette
Uneven lines in printout	<ul style="list-style-type: none"> • Paper release lever set to OPEN 	<ul style="list-style-type: none"> • Close the paper release lever
Printing is too light or has drop-outs	<ul style="list-style-type: none"> • Worn ribbon 	<ul style="list-style-type: none"> • Replace ribbon

RIBBON ERRORS

Symptom	Possible Cause	Corrective Action
Ribbon breaks	<ul style="list-style-type: none"> • Ribbon ink supply depleted. Replace when printout becomes light (fabric ribbon) 	<ul style="list-style-type: none"> • Remove worn ribbon. Install new ribbon cassette
Ribbon folds over	<ul style="list-style-type: none"> • Ribbon improperly installed 	<ul style="list-style-type: none"> • Reinstall ribbon cassette
Ribbon does not move smoothly	<ul style="list-style-type: none"> • Ribbon twisted or improperly installed 	<ul style="list-style-type: none"> • Reinstall ribbon

PAPER FEED ERRORS

Symptom	Possible Cause	Corrective Action
Paper does not feed properly	<ul style="list-style-type: none"> • Paper jammed, crumpled, twisted, etc. in paper path • Auto Line Feed DIP switch is OFF 	<ul style="list-style-type: none"> • Remove damaged paper from printer • Set Auto Line Feed DIP switch to ON
Paper buckles, twists, crumples, or jams	<ul style="list-style-type: none"> • Paper release lever OPEN 	<ul style="list-style-type: none"> • Close the paper release lever

MAINTENANCE

This daisywheel printer is virtually a maintenance-free device. It does, however, require the same general care given to your other computer equipment. Refrain from making any adjustments, changes to the mechanism, switch alterations, or repairs on your own. This is a precision device which requires authorized servicing of major repairs and replacements. Contact Blue Chip Electronics for further information. Follow these general guidelines for printer care:

- Carefully remove scraps and torn pieces after paper problems.
- Limit cleaning to visible, external areas. Don't probe deep into the printer case.
- Never place or store anything on the printer.
- Be careful of small objects, like paper clips and staples, that could fall into the printer.
- Daisywheels are encased in clear drop-in cassettes. Don't touch the exposed spokes.

APPENDIX F

OPTIONS AND ACCESSORIES

The following options and accessories for this printer are available through your dealer. Use Blue Chip Electronics or Brother replacement ribbons.

- 1. Ribbon Cassettes One-time Film Ribbon
Multi-strike Film Ribbon
Nylon Ribbon
Color Ribbon (Red, blue, green, brown)
- 2. Daisywheels A variety of fonts and sizes in interchangeable drop-in cassettes
- 3. Tractor Feed Paper feed attachment allowing the use of continuous fan-fold forms

Daisywheel font samples and order numbers are shown on the following pages.

All daisywheels are enclosed in clear plastic drop-in cassettes.

Note that changing the daisywheel from U.S. (ASCII) to another language requires resetting the DIP switches.

REPLACEMENT DAISYWHEELS

Use these order numbers for new and replacement daisywheels. Daisywheel order numbers refer to Blue Chip Electronics and Brother replacement daisywheel numbering system.

LANGUAGE \ TYPE	PICA 10	PRESTIGE 1012	ELETE 12	SCRIPT 1012	GRANDE 10	SUPER GRANDE 10	GUADRO 1012
US (ASCII)	401 - 97	402 - 97	403 - 97				
French	401 - 20	402 - 20	403 - 20	405 - 20	408 - 20	419 - 20	409 - 20
German	401 - 08	402 - 08	403 - 08	405 - 08	408 - 08	420 - 08	409 - 08
Canadian	401 - 16	402 - 16	403 - 16	405 - 16	408 - 16	419 - 16	409 - 16
Norwegian, Danish	401 - 70	402 - 70	403 - 70	405 - 70	408 - 70	419 - 70	409 - 70
Swedish, Finnish	401 - 60	402 - 60	403 - 60	405 - 60	408 - 60	419 - 60	409 - 60
Italian	401 - 52	402 - 52	403 - 52	405 - 52	408 - 52	419 - 52	409 - 52
Spanish	401 - 27	402 - 27	403 - 27	405 - 27	408 - 27	419 - 27	409 - 27

LANGUAGE \ TYPE	QUADRO 15	BROUGHAM 10	BROUGHAM 12	BROUGHAM 15	PRESTIGE ITALIC 1012	OCR-B 10	LETTER GOTHIC 12
US (ASCII)	410 - 97	411 - 97	412 - 97				
French	410 - 20	411 - 20	412 - 20	413 - 20	414 - 20	415 - 20	417 - 20
German	410 - 08	411 - 08	412 - 08	413 - 08	414 - 08	415 - 08	417 - 08
Canadian	410 - 16	411 - 16	412 - 16	413 - 16	414 - 16	415 - 16	417 - 16
Norwegian, Danish	410 - 70	411 - 70	412 - 70	413 - 70	414 - 70	415 - 70	417 - 70
Swedish, Finnish	410 - 60	411 - 60	412 - 60	413 - 60	414 - 60	415 - 60	417 - 60
Italian	410 - 52	411 - 52	412 - 52	413 - 52	414 - 52	415 - 52	417 - 52
Spanish	410 - 27	411 - 27	412 - 27	413 - 27	414 - 27	415 - 27	417 - 27

DAISYWHEEL TYPE STYLES

Pica Pitch 1/10"

Prestige 1012 (ASCII)	Make a good impression even better with our quick change daisywheels in a wide choice of typefaces. ¢!"#\$%&'()*+,-./0123456789:;<=>?@ABCDEFGHIJKLMNO PQRSTUVWXYZ[\]^_`abcdefghijklmnopqrstuvwxyz{|}~'
Prestige Italic 1012	<i>Make a good impression even better with our quick change daisywheels in a wide choice of typefaces.</i> ¢!@#\$\$%&'()*+,-./0123456789:;<=>?"ABCDEFGHIJKLMNO PQRSTUVWXYZ[±] ² °abcdefghijklmnopqrstuvwxyz¼½¶§ ³
Script 1012	<i>Make a good impression even better with our quick change daisywheels in a wide choice of typefaces.</i> ¢!@#\$\$%&'()*+,-./0123456789:;<=>?"ABCDEFGHIJKLMNO PQRSTUVWXYZ[±] ² °abcdefghijklmnopqrstuvwxyz¼½¶§ ³
Quadro 1012	Make a good impression even better with our quick change daisywheels in a wide choice of typefaces. ¢!@#\$\$%&'()*+,-./0123456789:;<=>?"ABCDEFGHIJKLMNO PQRSTUVWXYZ[±] ² °abcdefghijklmnopqrstuvwxyz¼½¶§ ³
Pica 10 (ASCII)	Make a good impression even better with our quick change daisywheels in a wide choice of typefaces. ¢!"#\$%&'()*+,-./0123456789:;<=>?@ABCDEFGHIJKLMNO PQRSTUVWXYZ[\]^_`abcdefghijklmnopqrstuvwxyz{|}~'
Grande 10	MAKE A GOOD IMPRESSION EVEN BETTER WITH OUR QUICK CHANGE DAISYWHEELS IN A WIDE CHOICE OF TYPEFACES. ¢!@#\$\$%&'()*+,-./0123456789:;<=>?"ABCDEFGHIJKLMNO PQRSTUVWXYZ[±] ² °ABCDEFGHIJKLMNQPQRSTUVWXYZ¼½¶§ ³
Super Grande 10	MAKE A GOOD IMPRESSION EVEN BETTER WITH OUR QUICK CHANGE DAISYWHEELS IN A WIDE CHOICE OF TYPEFACES. ¢!@#\$\$%&'()*+,-./0123456789:;<=>?"ABCDEFGHIJKLMNO PQRSTUVWXYZ[±] ² °ABCDEFGHIJKLMNQPQRSTUVWXYZ¼½¶§ ³

Brougham
10
(ASCII) Make a good impression even better with our quick change daisywheels in a wide choice of typefaces.

¢!"#\$%&'()*+,-./0123456789:;<=>?@ABCDEFGHIJKLMNO
PQRSTUVWXYZ[\]^_`abcdefghijklmnopqrstuvwxyz{|}~'

OCR-B
10 Make a good impression even better with our quick change daisywheels in a wide choice of typefaces.

¢!@#\$%&'()*+,-./0123456789:;<=>?"ABCDEFGHIJKLMNO
PQRSTUVWXYZ[±]²_°abcdefghijklmnopqrstuvwxyz¼½¾§³

Elite Pitch 1/12"

Prestige
1012
(ASCII) Make a good impression even better with our quick change daisywheels in a wide choice of typefaces.

¢!"#\$%&'()*+,-./0123456789:;<=>?@ABCDEFGHIJKLMNO
PQRSTUVWXYZ[\]^_`abcdefghijklmnopqrstuvwxyz{|}~'

Prestige
Italics
1012 *Make a good impression even better with our quick change daisywheels in a wide choice of typefaces.*

¢!@#\$%&'()*+,-./0123456789:;<=>?"ABCDEFGHIJKLMNO
PQRSTUVWXYZ[±]²_°abcdefghijklmnopqrstuvwxyz¼½¾§³

Script
1012 *Make a good impression even better with our quick change daisywheels in a wide choice of typefaces.*

¢!@#\$%&'()*+,-./0123456789:;<=>?"ABCDEFGHIJKLMNO
PQRSTUVWXYZ[±]²_°abcdefghijklmnopqrstuvwxyz¼½¾§³

Quadro
1012 Make a good impression even better with our quick change daisywheels in a wide choice of typefaces.

¢!@#\$%&'()*+,-./0123456789:;<=>?"ABCDEFGHIJKLMNO
PQRSTUVWXYZ[±]²_°abcdefghijklmnopqrstuvwxyz¼½¾§³

Elite
12
(ASCII) Make a good impression even better with our quick change daisywheels in a wide choice of typefaces.

¢!"#\$%&'()*+,-./0123456789:;<=>?@ABCDEFGHIJKLMNO
PQRSTUVWXYZ[\]^_`abcdefghijklmnopqrstuvwxyz{|}~'

Brougham
12
(ASCII)

Make a good impression even better with our quick
change daisywheels in a wide choice of typefaces.

ϕ! "#\$%&'()*+,-./0123456789:;<=>?@ABCDEFGHIJKLMNO
PQRSTUVWXYZ[\]^_`abcdefghijklmnopqrstuvwxy{|}~`

Letter Gothic
12

Make a good impression even better with our quick
change daisywheels in a wide choice of typefaces.

ϕ! "#\$%&'()*+,-./0123456789:;<=>?"ABCDEFGHIJKLMNO
PQRSTUVWXYZ[±]² °abcdefghijklmnopqrstuvwxy $\frac{1}{4}$ $\frac{1}{2}$ ¶\$³

Pitch 1/15"

Quadro
15
(ASCII)

Make a good impression even better with our quick
change daisywheels in a wide choice of typefaces.

ϕ! "#\$%&'()*+,-./0123456789:;<=>?@ABCDEFGHIJKLMNO
PQRSTUVWXYZ[\]^_`abcdefghijklmnopqrstuvwxy{|}~`

Brougham
15

Make a good impression even better with our quick
change daisywheels in a wide choice of typefaces.

ϕ! "#\$%&'()*+,-./0123456789:;<=>?"ABCDEFGHIJKLMNO
PQRSTUVWXYZ[±]² °abcdefghijklmnopqrstuvwxy $\frac{1}{4}$ $\frac{1}{2}$ ¶\$³

APPENDIX G

D12/10 SPECIFICATIONS

Daisywheel	96 characters & symbols, interchangeable cassette
Daisywheel life	10 million characters
Print speed	12 cps (3A Elite)
Columns/line	80 columns
Form width	292.1 mm (11.5") max.
Copy capability	Original (45 kg paper) + 3 copies (15 kg paper)
Carriage movement	Bidirectional, logic seeking
Carriage return speed	1200 msec max (to return 8")
Form feed speed	2.5 ips
Line spacing	6 lines/inch
Ribbon	Replaceable cassette
Interface	Commodore Serial
Buffer	100 byte
Control panel	Switches LF, SEL Lamp SEL
Noise	Under 60 dB (A-scale, 1 m)
Temperature range	10° to 40°C (50° to 104°F) operating
Humidity range	20 to 80% (operating, noncondensing)
Power requirement	115 VAC, 60 Hz
Power consumption	50 W
Dimensions	410 (W) x 288 (H) x 131 (D) mm (16.1" (W) x 11.3" (H) x 5.1" (D))
Weight	6.0 kg (13 lb. approx.)

APPENDIX H

GLOSSARY

ASCII	American Standard Code for Information Exchange. Forms the basis of the character set codes used for transmitting data to a printer. Other codes (e.g., CCITT) differ only on minor points.
BASIC	Beginners All-purpose Symbolic Instruction Code. A high-level computer programming language, originally designed for computer instruction, but now widely used in personal computers.
Bidirectional Printing	A feature in which a printer is able to print from left to right and then from right to left on what is normally the carriage return stroke. Speeds up the printing process.
Bit	The smallest unit of digital information, represented by one pulse as an electrical signal. Several bits grouped together form a 'word' of information, called a 'byte'.
Buffer	A small memory unit for temporary data storage. Incoming data can be accumulated in a buffer and output to the device in a single 'spurt'. This is useful where data is transmitted at low or varying speeds to a device which operates at higher speeds. A print buffer holds data which has been received by the printer before printing.
Byte	One 'word' of digital information is composed of several bits. The number of bits in one byte varies with the computer system, but typically is 8 or 16 bits in personal computers.
Character Set	All letters, numbers and symbols which can be recognized by a printer. Also all characters which are useable in a computer language.

Code	Information represented in binary bits (e.g., ASCII code). Computer program lines are also referred to as code.
Control Character	A character which is used at the head of a group of binary bits which tells a device how to control the information contained in the group. It is not printed out. Some control characters are sent on their own, with direct controlling functions over the device; e.g., CR, LF in a printer.
Control Key	A key on most microcomputer keyboards which, when held down, enables the normal typing keys to be used for control functions. It acts as a kind of 'second shift' key. For instance, in CP/M systems, holding the control key down and pressing the P key turns the printer on and off.
Daisywheel	A print element with radial spokes arranged around a hub like the petals of a flower. Each spoke has a single type character on the end. In use, the wheel rotates to bring the desired character under the print hammer, which strikes that spoke against the ribbon. Made of metal, or more recently, plastic. Usually interchangeable to allow the use of different type fonts.
Default	In the absence of any settings or commands to the contrary, many computer functions are set to a default value, which appears automatically when the power is first switched on. For example, the default value of a printer's line spacing may be 1, giving single spacing at power-ON.
Descender	The part of an alphabetic character which normally descends below the writing line, such as 'y' or 'j'.
Deselect	To switch a device 'offline'; that is, in a state where it is not ready to receive signals from the source device.
Diagnostic Check	A program which checks out the operation of a computer or its peripherals. In a printer, the self-test function is a type of diagnostic check built into the printer hardware.
DIP Switch	Derived from the acronym DIP which stands for 'Dual In-line Package', a miniature switch unit housed in a DIP (micro-processor and RAM devices are almost always in DIPs too) has come to mean any miniature type switch unit, regardless of the package type. Used for setting printer default values, transmission rates and other settings.

Escape Code	Named after the 'escape' key found on most microcomputer keyboards and used to escape from program execution loops, escape codes are used to set and reset parameters in a computer or peripheral. Printers, in particular, use escape codes sent from the computer for setting all the print format parameters like margins and line spacing. The code block itself is always prefixed by the escape character (ESC) in coded form. The ESC character tells the printer that the code following is not to be printed out, but used for format setting.
Form Feed	The action of feeding the paper through a printer from the bottom of one page or form to the top of the next. The control character which does this is called FF.
Hexadecimal	A number system based on groups of sixteen. Counting from 0 to 15 using unique number symbols requires use of the digits 0 to 9 plus the letters A to F (A represents 10; B, 11 and so on up to F, 15). Converting binary numbers which are in groups of 4 bits into hexadecimal is very easy and the resulting hex number has less digits. So hex notation is widely used as a binary shorthand in computer programming in assembly languages. A number written in hexadecimal is usually followed by H, e.g., 3FH is the hexadecimal number 3F which is 63 in decimal.
Impact Printer	A printer where the elements in the printhead actually strike the ribbon to transfer an image to the paper, as compared with a thermal printer where the ink is transferred by heat.
Letter Quality	Printing where the characters are clearly formed to the point where they are acceptable for printing correspondence. As opposed to draft quality, where the characters may be much less clearly formed. Daisywheel printers give fully-formed letter quality output, but dot-matrix printers can only approach this in what has come to be called near letter quality, or NLQ.

Line Feed	The action of feeding the paper vertically one line. The control character which does this is called LF.
Logic Seeking	A function which allows the printhead in a bidirectional printer to decide in which sequence lines, or parts of lines, should be printed, and whether to print on the first pass or on the return pass. The object is reduction of printing time.
Offline	The state where a device is not ready to receive signals from a source device. Called 'deselect' in printer terms.
Online	The state where a device is ready to receive or is receiving signals from a source device. Called 'select' in printer terms.
Tractor Feed	A device for feeding paper over the platen in a printer. The paper is a continuous form with sprocket holes punched down both edges. Small flexible 'tractor belts' on each side of the platen have sprockets which locate in the holes on the paper. When the belts are driven, the paper is fed continuously through the printer.

PART IV

QUICK INSTALLATION GUIDE FOR BLUE CHIP WORDPROCESSOR FOR THE COMMODORE 64

By following these few simple instructions you'll be able to see the Blue Chip Wordprocessor work before you finish reading your User's Guide for the Wordprocessing software.

Please carefully read your User's Guide for the Blue Chip Wordprocessor for the Commodore 64 for complete instructions.

First, make a copy of your Wordprocessor diskette on to a blank diskette. You should not work with a master diskette. Always use a copy. (Read your Commodore User's Guide for instructions on how to make a copy of a diskette.)

- Setting the DIP switches

Switch #2	OPEN	Sets Auto LF ON
Switch #3	OPEN	Selects Standard ASCII code

- Loading and Starting the program

Place the Blue Chip Wordprocessor diskette gently into the disk drive with the label up, and the notch to the left. Close the door gently.

When your Computer answers "READY",

Type: LOAD " * ", 8
Press: <input type="text" value="RETURN"/>

When the flashing cursor reappears.

Type: RUN
Press: <input type="text" value="RETURN"/>

When the Blue Chip Wordprocessor title screen appears, Press the letter A in order to select a 40 column display. At this point, the program is loaded and you are ready to start entering text.

- Printing Examples of Text.

Type: your name (on the first line of the screen)

Check that there is paper in your printer, and that the printer is connected, and the power is turned on.

Press: **F1** (right-hand side of the keyboard)

Press: **O** (the letter O)

Press: **P**

Your name will be printed on the paper!

Now turn to your Users's Guide for the Blue Chip Wordprocessor for the Commodore 64 for a more complete discussion of Wordprocessing with your Blue Chip D12/10 printer.

It's always a good idea to read the manual completely before proceeding.

Start at the beginning, but if your system is working OK now, you may want to skip ahead to Section 1, page 8.

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BLUE CHIP