TECH 15
USERS MANUAL

TECH 15

TECH 15

INTRODUCTION

OWNERS GUIDE

MAINTENANCE AND SERVICE + MAINTENANCE PARTS

TECH 15 Packing List
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BOX 1   1 x Printer Paper 500 Sheets
                  2 x Printer Ribbon Cartridge
                  1 x Set Epson Printer 3 Booklets
                  1 x TECH 15 Manual
                  1 x CD Cleaning Disk
                  1 x 3.5" Diskette Cleaner
                  1 x CD Playing Caddy
                  1 x Opel CD
                  1 x QCC

                  1 x Box MS DOS 4.01 Operating System

                  1 x Installation Kit

Box 2   1 x Monitor

Box 3   (Inside lower cabinet of TECH 15 unit)
                  1 x Key Board
                  1 x Key Board Mat
                  1 x Key Board Cover (already installed)

MAIN BOX Includes Boxes 1,2,3, TECH 15 Unit and Printer

TECH 15 Unpacking Procedure
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a. Cut the black straps.

b. Remove the top by cutting the tape around the upper section.

c. Unlock the 5 snap-locks on the side of the box (by a quarter turn to the left).

Warning:
On top of the unit are 2 boxes which can fall down. So unwrap the carton carefully!

d. Unwrap the carton.

e. Take all the boxes from the unit (the boxes are numbered 1 and 2).
   Box #3 you will find in the lower cabinet of the TECH 15 unit.

f. Now flip the four sides of the bottom covers down.

g. Check if the wheelbrakes are in the lock position (DOWN).

h. The foam where the TECH 15 unit is resting on is divided in 2 pieces.
   Now tilt the machine to the left so you can remove one half, and carefully tilt
   the machine to the right so you can remove the other half of the foam pallet.

i. Unlock the brakes of the TECH 15 unit and roll it down the ramp.

j. Now open box #1, where you will find the TECH 15 Manual with Assembly Instructions.

TECH 15 Assembly Instructions
=============================

TOOLS REQUIRED: 1. Knife (to cut tape of carton)
                          2. Small flat bladed screwdriver
                          3. No. 2 size Philips head screwdriver
                          4. Wire cutters
                          5. 7 mm end spanner

MATERIAL REQUIRED: 2 Ty-raps
                          1 P-clip

1. MONITOR INSTALLATION

a. Align slots located in bottom of Monitor with retaining clips located on Monitor Stand mounted on top of the TECH 15 unit.

b. Slide Monitor back until it is securely latched in position on the Stand.

c. Remove the 6 screws from the rear panel of the TECH 15 unit, retain screws, and pull out the hardware tray until the slides lock in position.

d. Connect cable from Monitor to VGA Board, located second from the far left in the hardware tray (viewed from the backside of the TECH 15 unit).
- Connection is to the top socket on the board.
- Attach connector with 2 screws to the board.
- Locate the cable grommet in the slot in the TECH 15 rear panel.
- Attach monitor cable to the rear panel underneath the cable entrance by using the P-clip.
- Securely Ty-rap cable inside hardware tray (to cable harness on bottom of tray)

e. Cut Ty-raps securing cables to TECH 15 rear panel and plug monitor power cable into Monitor

f. Depress catches on slides and **carefully** slide hardware tray back into unit, ensuring that no cables are trapped by the tray.

   Check that cables allow full movement of Monitor, replace 6 screws to fix rear panel to TECH 15 unit.

TECH 15 Assembly Instructions/cont.

2. DOCKING TOWER INSTALLATION (not applicable for Q40)

a. Attach Docking Tower to the top of the TECH 15 unit along side the Monitor, using the Velcro tape straps. Tower is located approximately 15mm from the right side of the TECH 15 unit and flush with the back. Check that the Tower **does not** restrict the movement of the Monitor.

b. Connect Docking Tower cables to the TECH 15 unit as per diagram 1 attached. Secure connectors with screws.

c. Attach wire protection assembly to the rear of the Docking Tower and the TECH 15 unit, using the screws supplied and the Velcro straps.

3. KEYBOARD INSTALLATION

a. Place keyboard mat.

b. Attach keyboard cable to the keyboard connector located at the Front Panel at the right side of the On/Off and reset switches.

c. The keyboard will rest on top of the TECH 15 unit (on top of keyboard mat)

4. PRINTER INSTALLATION
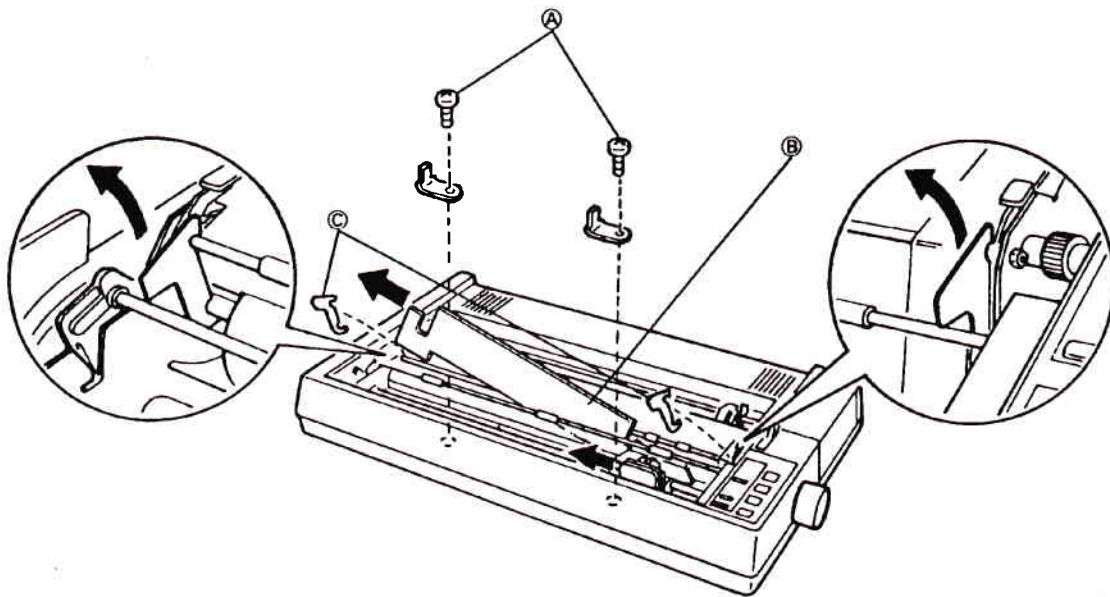
a. The TECH 15 is supplied with the Printer pre-installed, but before using the Printer the shipping packing must be removed see diagram and notes below:

NOTES:

1. Use the enclosed cross-head screwdriver to unscrew and remove the two transport locking brackets (A). The brackets and screws are painted **orange**.

2. Remove the print head protector (B).

3. Slide the print head to the middle of the printer. Then, remove the locking tabs (C). Retain all protective and packing materials for future transportation of your printer.

b. The print paper is located in a tray below the printer drawer, and is fed to the printer over the back of the printer drawer.

c. Locate printer head centrally on carriage, snap printer ribbon cartridge in position and **carefully** feed ribbon in front of head using the point of a pencil.(See Printer Service) **Careful because your hands will have ink on them.**
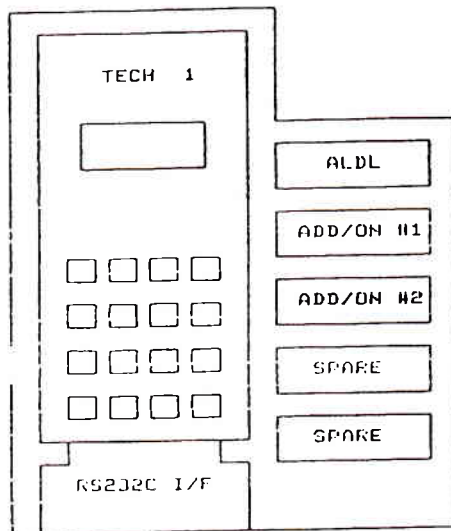
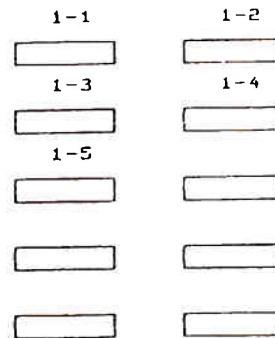## 5. DOCKING TOWER WIRING (not applicable for Q40)

ALDL connected to **1-5**

ADD/ON PORT #1 connected to **1-4**

ADD/ON PORT #2 connected to **1-3**

RS232C I/F CARTRIDGE connected to **1-2**

Docking Tower   Top L/H corner of TECH 15 rear.

TECH 15 Software Installation
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Power switch ON (check if monitor and printer power switch are in the ON position).

Check if fan is working.

Insert "Install" diskette in drive A.

> Press <RESET> and please wait untill next screen appears.

Welcome

Welcome to DOS 4.0 and the SELECT program. SELECT will install DOS 4.0 on your fixed disk or diskette. If you install DOS 4.0 on a diskette, the number of blank diskettes you need depends on the type and capacity of your diskette drive; in this case:

Drive Type (Capacity)   Number of Diskettes

3.5-Inch Drive (1.44MB)   three 3.5 (720KB)

If you install DOS 4.0 onto a fixed disk, you need one formatted blank diskette:

3.5-Inch Drive   one   3.5   (1 or 2MB)

> Press <ENTER>.

Introduction

As you view the SELECT displays, you will be asked to make a choice or type an entry. If you are uncertain about what to choose or type, you can accept the predefined choice or press the F1 help key for more information about an item.

You will be using these keys in the SELECT program:

Enter	To proceed to the next step.
Esc	To cancel the current display.
Tab	To move to the next entry field.
PgUp	To scroll information one page at a time.
Up/Down Arrow	To move the highlight bar to the next item.
F1	To view the help information.
F3	To exit SELECT.
F9	To scroll data fields horizontally to the left or right.

You can press Enter, Esc and F1 keys when they appear on the display.

> Press <ENTER>.

Choose an option: Select #2

       Press <ENTER>.

Choose an option: Select #1

       Press <ENTER>.

Choose the drive to install DOS on: Select #1 (C)

       Press <ENTER>.

To select option 1: press <ENTER>.

Number of Printers: Press <Key 1 > of Typewriter Area.

       Press <ENTER>.

Choose a printer: Select Other Parallel Printer (Use arrow keys)

       Press <ENTER>.

Choose a parallel printer port: Select #1. LPT1 - First port

       Press <ENTER>.

Choose an option: Select #1 (Use arrow keys)

       Press <ENTER>.

Choose an option: Select #1

       Press <ENTER>.

Continuing Installation

Before proceeding, SELECT needs to make a copy of the INSTALL diskette.
During installation to the fixed disk, SELECT records information to a diskette for later use in the installa-
tion process. Have your formatted blank diskette (Ask your local SUN dealer) ready for this purpose.
From now on this formatted blank diskette is called "SELECT COPY" DISKETTE.
For now, leave the "INSTALL" diskette in drive A.

       Press <ENTER>.

Diskette is being copied.

Now remove the "INSTALL" diskette from drive A.

Insert the "SELECT COPY" diskette in drive A.

       Press <ENTER>.

Diskette is being copied.

Remove the "SELECT COPY" diskette from drive A.
Insert the "INSTALL" diskette in drive A.

Press <ENTER>.

Diskette is being copied.

Remove the "INSTALL" diskette from drive A.

Insert the "SELECT COPY" diskette in drive A.

Press <ENTER>.

Choose an option: Select #2 (Use arrow keys)

Press <ENTER>.

Choose one of the following: Select #1

Press <ENTER>.

Choose one of the following: Select #1

Press <ENTER>.

Create Primary DOS Partition: Select [N]

Press <ENTER>.

Enter partition size: [16]

Press <ENTER>.

Press <ESC> .

Choose on of the following: Select #1

Press <ENTER>.

Choose one of the following: Select #2 (Use arrow keys)

Press <ENTER>.

Enter partition size: [25]

Press <ENTER>.

Press <ESC>.

Enter logical drive size: [16]

Press <ENTER>.

Enter logical drive size: [9]

Press <ENTER>.

Press <ESC>.

Choose one of the following: Select #2 (Use arrow keys)

        Press <ENTER>.

Enter the number of partition you want to make active: [1]

        Press <ENTER>.

        Press <ESC> .

        Press <ESC> .

You must restart the computer to continue.
Keep diskette in diskdrive!

        Press Ctrl+Alt+Del to continue with DOS installation and please wait.

Choose an option: Select #1 (This concerns **Logical Drive D**).

        Press <ENTER>.

Choose an option: Select #1 (This concerns **Logical Drive E**).

        Press <ENTER>.

Formatting disk 0 -100%, 3 times for drives C:,D:,E:

Diskette is being copied.

Continuing Installation: Insert "OPERATING" diskette in drive A.

        Press <ENTER>.

Diskette is being copied.

Insert "MS-DOS SHELL" diskette in drive A.

        Press <ENTER>.

Diskette is being copied.

Installation of MS-DOS 4.0 is complete.

REFER TO THE "MS-DOS 4.0 USERS GUIDE" BOOK FOR INFORMATION ON THE DOS SHELL.

Remove "MS-DOS SHELL" diskette from drive A.

Insert "T15E installation" diskette in drive A.

        Press <RESET>.

Installation successful. Please re-boot the machine.
On this diskette is a file called load.sw which details how to load the proper software.

Remove "T15E installation" diskette from drive A.

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Load CD.

       Press <RESET>.

Installing system. Please wait...

TECH 15 Logo appears on the screen.

       Press <ENTER>.

Type: 4

       Press <ENTER>.

Insert "Update" diskette in drive A.

Type: A:.

       Press <ENTER>.

Type: go.

       Press <ENTER>.

OWNERS GUIDE

1. General.

This guide provides TECH 15 users with a basic explanation of the system's function and operation. Components and controls of the system are illustrated and discussed and initial operating procedures (disk loading) and general operating basics are provided. Operation and service of the TECH 15's printer is also covered in detail. Additionally, basic troubleshooting and service and maintenance routines are described. NOTE: For specific command responses and screen displays during program operation, consult TECH 15 Operating Instructions.
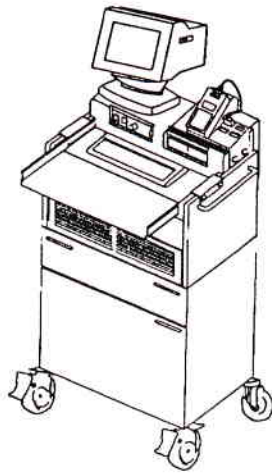
2. Background.

TECH 15 is an IBM[r] AT-compatible system which utilizes a board that provides up to 640 kilobytes (K) of RAM and features a 43 megabyte hard disk drive and a CD-ROM drive. Compact disks (CD) used in the CD-ROM drive feature a capacity of 550 megabytes. The TECH 15 is mounted on a sturdy, roll-around cabinet that provides storage space and enables operation virtually anywhere in the shop.

3. Components and Controls.
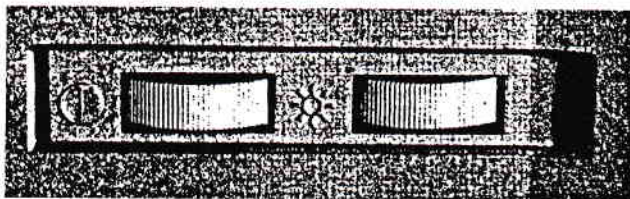
A. Monitor
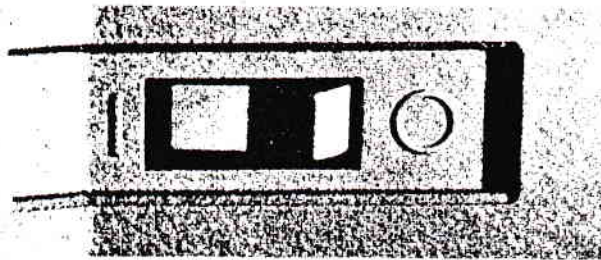
* ON/OFF
The monitor ON/OFF switch is located on the right side of the monitor. This switch controls the monitor (ON/OFF) only. This switch should always remain ON. All TECH 15 terminal components can be controlled by the main power switch on the operating console.
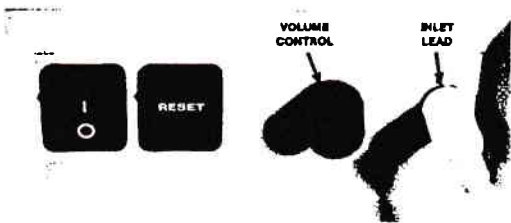
*Power Indicator
The power indicator is located at the front of the monitor. It indicates if the power switch is in the ON position.

* Brightness/Contrast
The brightness control is located on the left side of the monitor. This control adjusts the monitor screen to shop lighting conditions.

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VOLUME CONTROL   INLET LEAD

I O   RESET

B. Operating Console

* ON/OFF
The ON/OFF switch on the operating console serves as the master power switch which controls all functions of the TECH 15, including the printer.

* Reset
The reset switch "re-boots" or re-starts the applicable program.

* Volume
The volume control adjusts the volume of program audible tones.

* Inlet Lead
The inlet lead connects the keyboard to the console. Be sure this connection is secure during operation.
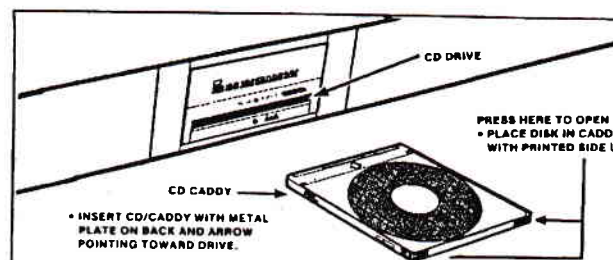
* Keyboard
The TECH 15 keyboard uses a 101 key IBM AT style layout with "F" keys located along the top. Also, the keyboard tray can be extended for additional work space. See also section: Using the Keyboard.
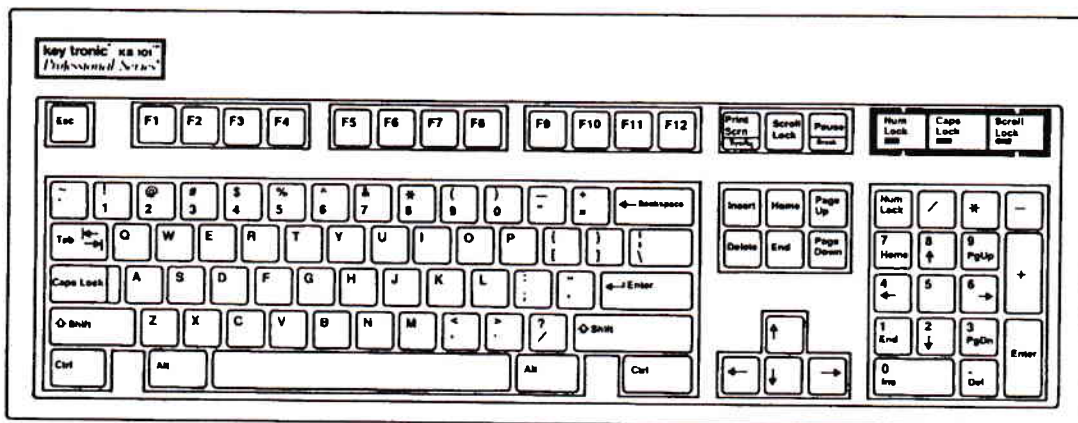
* CD Drive
The CD drive accommodates CD's. The headphone jack and volume control on the drive are not used at this time. See section: Operating Basics.

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C. Cabinet

* Filter Area
The TECH 15 air filter is located on the rear of the machine at the fan area . For filter service see section: Maintenance and Service.

* Printer
The TECH 15 dot matrix printer is housed in a drawer beneath the filter area. Printouts are fed out of the drawers front panel. See section: Printer Operation and Service.

* Lower Cabinet
The TECH 15 features a storage compartment (bottom panel) which also includes an area for CD and 3.5" disk filling. The compartment is handy for storing extra printer paper and other supplies.

Picture of Lower Cabinet

* Printer Paper Shelf
Within the storage area of the TECH 15 cabinet is a printer paper shelf. Printer paper is rear-fed into the printer located in the compartment above. See section: Paper Handling.

Picture of Printer Paper Shelf

* TECH-1 Power Supply
TECH-1 power is supplied via the TECH 15/TECH-1 docking unit. Refer to the following illustration.
 *The docking unit contains an integral TECH-1 RS-232 Cartridge, a 10 pin Packard Electric Opel under-hood ALDL connector and two DB-9 serial port connectors. DB-9 connectors are for future expansion.
 *To display "Snap Shot" data collected on the TECH-1, slide the TECH-1 down on the docking unit and snap it in place as shown on the docking unit and snap it in place as shown on the illustration. Connect ALDL connector to the docking unit.

Tech-1

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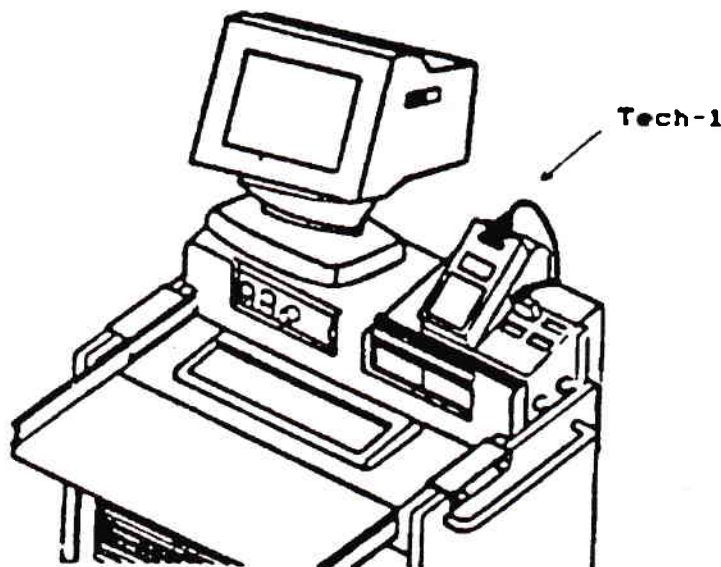
4. Using the Keyboard.

Introduction

* Compatibility
The KB 101 is plug-compatible with the IBM PC, XT and AT Personal Computers and most IBM compatibles. No software modifications or special interfaces are needed. With the addition of a PS/2 Cable Adapter Kit, you can use the KB 101 with PS/2 Models 25, 30, 50, 60 and 80. You can also use the KB 101 with the Amstrad PC 1512 and PC 1640 computers with an Amstrad Cable Adapter Kit.

* Separate Cursor and Numeric Keypads
An additional keypad located between the typewriter area and the numeric keypad contains cursor positioning keys, allowing you to move the cursor while the numeric keypad is in numbers mode. With separate cursor and numeric keypads, you can move around in your spreadsheet or other documents and enter numbers quickly and accurately.

* Standard 101 Key Layout
The KB 101 uses the industry-standard 101-key layout and accepts keyboard templates.

* Ergonomic Design
Designed for optimum operator comfort, with a low profile design, adjustable legs, and a positive tactile feedback, the KB 101 creates an environment allowing for fast data entry speed, a consistent feel, and low fatigue.

* Key Tronic Reliability
The KB 101 is designed for reliability and durability, using microprocessor electronics and solid-state capacitive switches rated at 100 million keystrokes each. The keyboard is FCC, UL and VDE certified.

* Keyboard Organization
The KB 101 keyboard is divided into five areas:
* Function Key Area
* LED Panel
* Numeric Keypad
* Cursor Control Keypad
* Typewriter Area
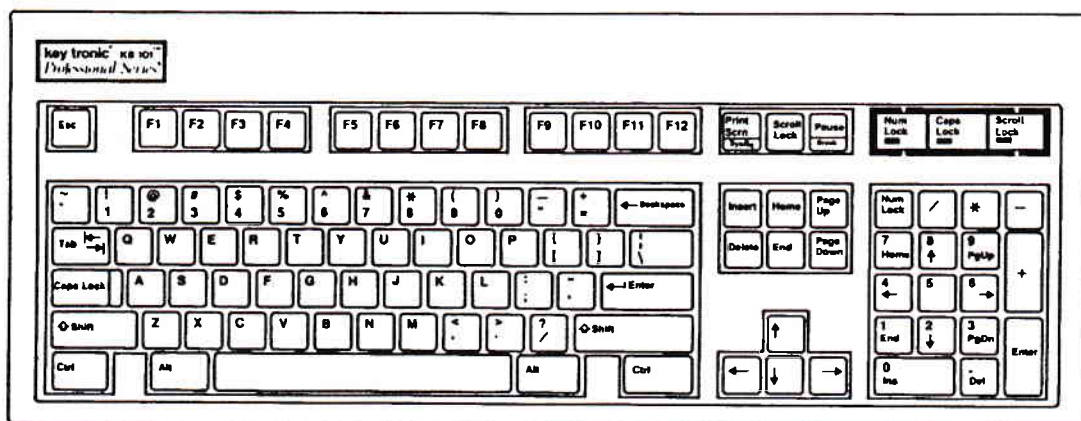
Each of these areas is described briefly on the following pages.

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Function Key Area

The KB 101 has twelve multi-purpose *function keys*, F1 through F12, located across the top of the keyboard for easy access. The function of each key is defined by the application program you are using.

In addition, the function key area also contains the Escape (Esc), Print Screen (Print Scrn), Scroll Lock and Pause keys. A brief explanation of each of these keys is given below.
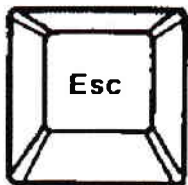
The function of the **Escape** (Esc) key varies among applications. It is often used to display menus, to exit a function, or to cancel a command.
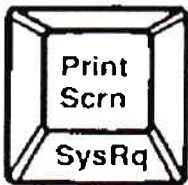
The **Print Screen** (Print Scrn) key is a dual-function key. When this key is pressed alone, the data displayed on your monitor is printed.

An Alt-Print Scrn combination performs the **System Request** (Sys Rq) function.
Note: The **System Request** function is performed only when the keyboard is configured in AT mode. The System Request function is defined in your operating system or application program manual.

The function of the **Scroll Lock** key varies among applications. Typically, when Scroll Lock is enabled, cursor key movement causes the text on the screen to move (scroll) behind the cursor while the cursor remains stationary. When Scroll Lock is disabled, the cursor moves over the text remains stationary.

When scroll lock is enabled, the Scroll Lock LED is ON. The Scroll Lock LED is described on the next page.
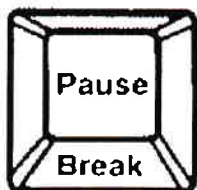
The **Pause** key is a dual-function key. Pressing the Pause key stops screen listings so that you can read the screen. Pressing any key will resume the listing.

A Ctrl-Pause combination performs the *Break function*. Break typically is used to cancel the current operation and terminate the program.

LED Panel

The *Num Lock, Caps Lock,* and *Scroll Lock LEDs* are grouped together, making it easy to see if a key function, Caps Lock for example, is active. The corresponding LED status indicator is activated when you press the Num Lock, Caps Lock or Scroll Lock key. When an LED is illuminated, the function is enabled.

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When the particular function is no longer desired, press the key. The function is disabled, and the LED is extinguished.

Note: The status of the Num Lock LED at power-up varies with the model of the **host computer**. The Caps Lock and Scroll Lock functions are disabled at power-up, and their LEDs are OFF.
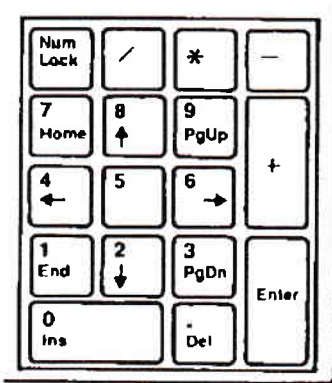
Numeric Keypad

The numeric keypad provides a quick, easy way to enter numeric values while still having a separate cursor control keypad for cursor positioning and edit functions. All four common math function signs: /, *, - and +, are on the numeric keypad.
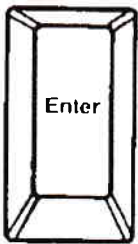
The **Enter** key performs the same function as the Enter key in the typewriter area. It ends a line of text and positions the cursor at the beginning of the following line. It also performs the "Enter" function, instructing the computer to perform a specific command or to start a job.

To switch the numeric keypad between numbers mode and cursor control mode, use the Num Lock key in the upper left-hand corner of the keypad. Depending on the model of the host computer, the numeric keypad may be placed in numbers mode on power-up or a system *reset*.

The Num Lock LED indicates whether the keypad is in numbers mode (LED is ON) or in cursor control mode (LED is OFF).

The grey keys: /, *, -, + and Enter, are active in numbers mode. In most programs, they remain active even when Num Lock is OFF (keypad in cursor control mode).

Note: When the Num Lock LED is OFF and the numeric keypad is in cursor control mode, numbers can still be entered by pressing the Shift key with the desired number.

Also, most programs allow you to use the cursor keys while the numeric keypad is in numbers mode, by pressing Shift with the desired key.

When the numeric keypad is in cursor control mode, it performs the cursor movement, document control, and editing functions marked on the keycaps.

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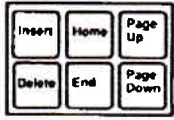
Cursor Control Keypad

The KB 101 keyboard features a separate cursor control keypad. This keypad is active during all modes of keyboard operation and is especially convenient when the numeric keypad is in numbers mode (Num Lock LED is ON).
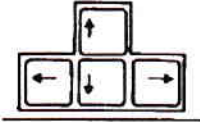
The cursor control keypad contains two groups of keys. The top group contains document control and editing keys: Home, End, Page Up, Page Down, Insert and Delete. The bottom group contains cursor movement keys (arrow keys) for positioning the cursor on your screen. If unsure of the functions of these keys, refer to the IBM Guide to Operations for your particular computer, or your application program manual.
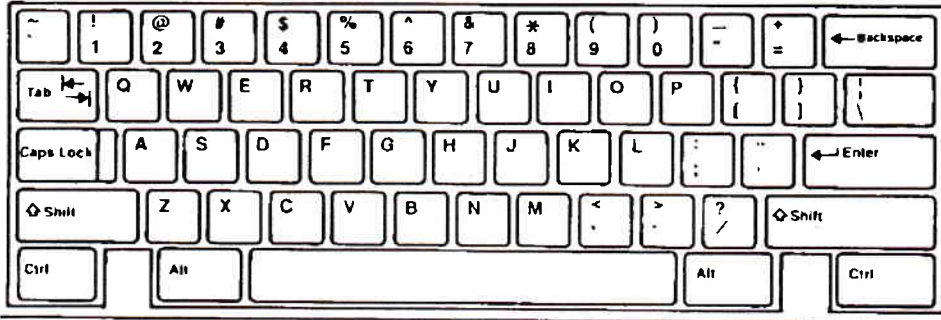

Typewriter Area

The typewriter area conforms to the industry standard 101 key layout and has an Alt key and Ctrl key on each side of the space bar.

All the white keys in the typewriter area are "typematic"; repeating as long as you hold them down.

Note: If you are used to typing on a typewriter, you may have used a lowercase letter "l" or uppercase letter "I" for the number one. Similarly, you may have used an uppercase letter "O" for the number zero. Because the keyboard sends unique scan codes for each key on the keyboard, the above substitutions can create unpredictable results. **Always use numeric keys for one and zero.**

The non-character keys located in the typewriter area are described below.
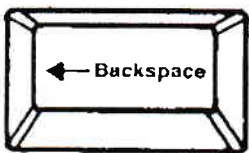
The **Backspace** key is used to delete characters. Pressing Backspace moves the cursor one position to the left, removing that character. The function of the Backspace key may vary slightly, depending on the software you are using.
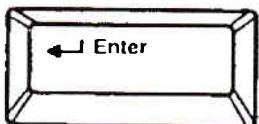
The **Enter** key normally works like a carriage return, moving the cursor to the start of a new line. The key also performs "Enter" functions, instructing the computer to perform a specific command or start a job.
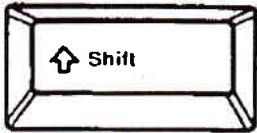
Use either of the two **Shift** keys to enter uppercase letters or to enter the symbol or character shown in the upper position on the keycap. In most application programs, a Shift key may be used together with the numeric keys to enter numbers when the numeric keypad is in cursor control mode.

The **Control** (Ctrl) key is used with another key or key combination to perform a command or function. Instructions may be passed to Wordstar[R] files, for example, through Ctrl-key combinations.

Note: To activate a Ctrl-key command, press and hold down the Ctrl key first and then press the second key.
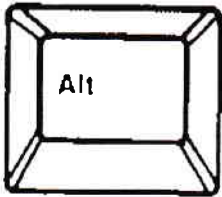
The **Alternate** (Alt) key can be used in combination with other keys to obtain different characters or key functions. For example, you can use Alt with certain letter keys to enter BASIC statement keywords quickly. Some application programs use Alt-key combinations. Lotus 1-2-3[R] uses the Alt key to trigger macro commands.

The **Caps Lock** key enables and disables the capital letters function. The Caps Lock LED in the LED control panel indicates whether the Caps Lock function is active or inactive.
The Caps Lock function only affects the letter keys. Use a Shift key to type a symbol shown on the upper portion of other keys.
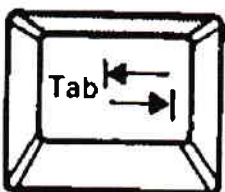
The **Tab** key moves the cursor to the right, to the next tab stop. In some applications, such as DOS, a Shift-Tab moves the cursor left, to the previous tab setting.
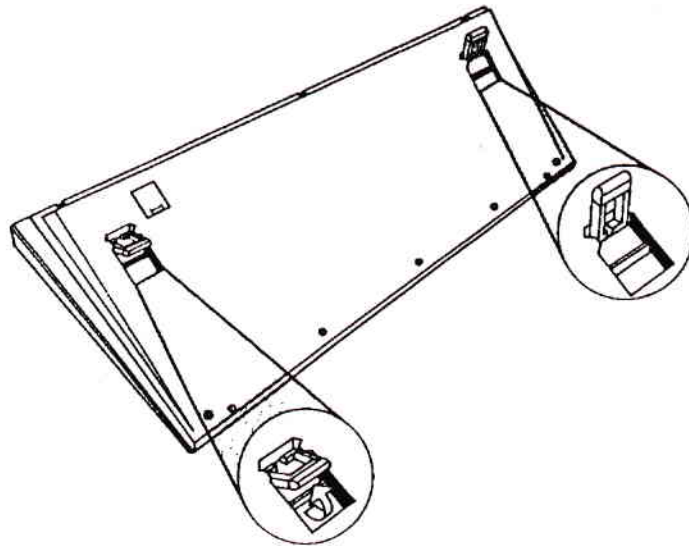
Keyboard Height Adjustment

The KB 101 keyboard can be adjusted to two different positions, level and tilted, by positioning the adjustable legs on the bottom of the keyboard. To tilt the keyboard, simply lift the keyboard legs up, snapping them into their self-locking position as illustrated below.

5. Operating Basics.

1. Plug TECH 15 into a properly-grounded receptacle. You may wish to use a surge protector for added circuit protection.

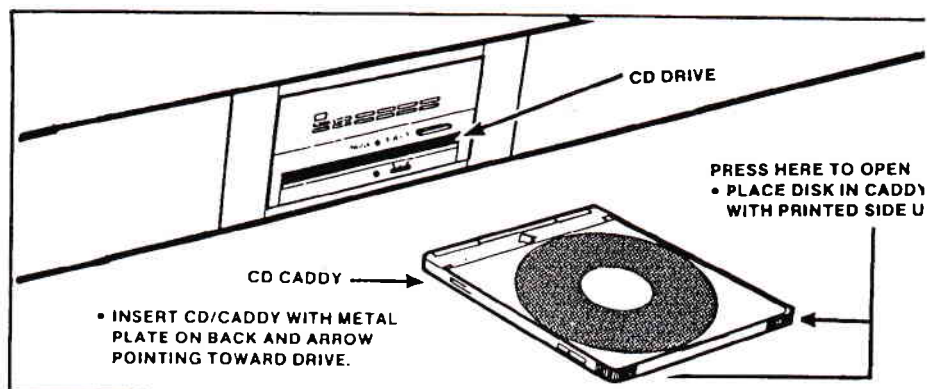2. Turn unit ON using the designated switch on the operating console. Monitor switch should also be ON and printer switch should always be in the ON position.

3. Remove CD from plastic case and place in disk caddy. To open caddy, press on front edges and pull up top panel (transparent cover side).

When setting disk into the caddy, be certain the printed side of the CD faces the transparent cover side of the caddy.

4. Load CD/caddy into CD drive. Be sure metal plate is on the bottom of the caddy and arrow is pointing toward the drive.

CD DRIVE

PRESS HERE TO OPEN
• PLACE DISK IN CADDY
  WITH PRINTED SIDE U

CD CADDY ⟶

• INSERT CD/CADDY WITH METAL
  PLATE ON BACK AND ARROW
  POINTING TOWARD DRIVE.

NOTE: Do not use a disk caddy that is damaged in any way. If the caddy is cracked or broken, its use could damage the CD drive. Keep the CD caddy in excellent condition.

Use care when loading and do not force the CD/caddy into the drive.
Gently place the CD/caddy into the drive applying only slight pressure until the drive retrieves the disk. Applying undue force could damage the drive.

5. Follow instructions and prompts as presented on the monitor screen. Consult TECH 15 Operating Instructions.

NOTE: Do not insert fingers or objects into exposed drive area while program is being run.

Final Procedures

*If the program run was the final program of the day, shut TECH 15 off using the master on/off switch on the operating console.

*If a new program (disk) is to be run, eject old disk. Press and hold drive EJECT button until the disk begins to eject from the drive. Remove disk and store. Gently insert the "new" disk into the appropriate drive (see preceding procedures) and begin program. Refer to TECH 15 Operating Instructions.

Store disks in appropriate storage areas in the TECH 15 cabinet. Remove ejected CD's from caddy and return to plastic case and store.

6. Printer Operation and Service.

A. General

The TECH 15 is equipped with an Epson LQ 850 printer for producing printed versions of any monitor screen data. The printer is located in a drawer situated beneath the filter area.
Standard micro-perf A4 or 8.5" x 11" computer paper is rear-fed into the printer from a paper storage shelf located in the TECH 15's bottom compartment.Loading can be done via the little door on the rear of the cabinet. The shelf can be removed so that a full box of computer paper can be placed in the compartment and fed into the printer.
Replacement ribbon cartridges install easily.

B. Printer Controls
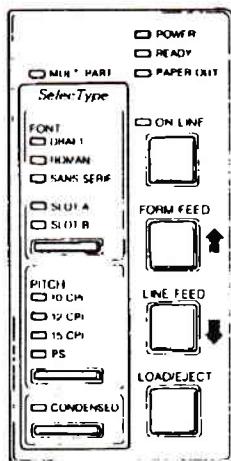
A look at the printer
Before you go any further, have a look at the control panel.
The lights on the control panel give you useful information on what the printer is doing and whether there is a fault. For example:
* **ON LINE** means the printer is in communication with your computer.
* **PAPER OUT** means you need to load some paper.

The control panel
The control panel on the LQ printer lets you control many of the printer's settings just by pressing a button. The control panel has seven buttons and fifteen lights.

The Printer Buttons

ON LINE This button switches the printer between one-line and off-line. When the printer is on-line, the green light above the button comes on and the printer is ready to accept data from the computer. When the printer is off-line, the light goes out and the printer can no longer accept data from the computer.

The printer has a buffer that stores data from the computer. If you stop the computer sending any more printing and then turn the printer back on-line, it prints what is in the buffer.

When you switch the printer on, it is automatically put on-line unless there is no paper in the machine (in which case, you cannot get the printer on-line until you insert some paper). If there is a fault in the printer, it goes of-line automatically, and can only come back on-line when the fault is put right.

FORM FEED Pressing this button when the printer is off-line moves the paper up to the next page. If you are using continuous paper, it moves to the next top-of-page position. This button is also used to control the micro-adjust feature which is described in the section on "Paper handling".

LINE FEED pressing this button when the printer is off-line moves the paper through the printer by one line. The Paper keeps moving until you release the switch. This button is also used to control the micro-adjust feature as described in the section on "Paper handling".

LOAD/EJECT Pressing this button loads paper if there is no paper in the printer (or ejects paper if there is). Its operation is described in more detail in the section on "Paper handling".

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The Lights
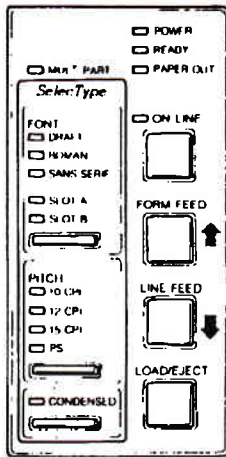
POWER This comes on to show that the printer is connected to the power and turned on.

READY This comes on when the printer is on-line and there is free space in the buffer (the area of memory that stores information as it arrives from the printer). It normally flickers during printing.

PAPER OUT This comes on when you switch on without any paper in the printer. It also lights when there are characters waiting to be printed and no paper in the printer (the printer also goes off-line and the beeper sounds).

ON LINE This comes on when the printer can receive data.

MULTI-PART This comes on when the paper thickness lever is set to position 4 or higher, or when the micro-adjust feature is active.

The Beeper

You most commonly hear the beeper when the paper has run out. When this happens, three beeps sound. The beeper also sounds if you:

* use the SelecType panel
* use the micro-adjust feature (see the "Paper handling" section)
* use the short tear-off feature.

If you hear the beeper at other times, there is probably a fault.

C. Paper Loading

Positioning your continuous paper supply
It is important to keep your paper supply aligned with the paper loaded in the printer so that the paper feeds smoothly. You should either:

* use a printer stand and stack the paper underneath
* use the paper stacked behind the printer, keeping the printer as far in front of the paper as you can
* use the desk as a stand with the paper on the floor.

In all cases make sure that the paper cannot become caught as it is fed into the printer. Make sure that the edges of the paper are always parallel to the direction of feeding.
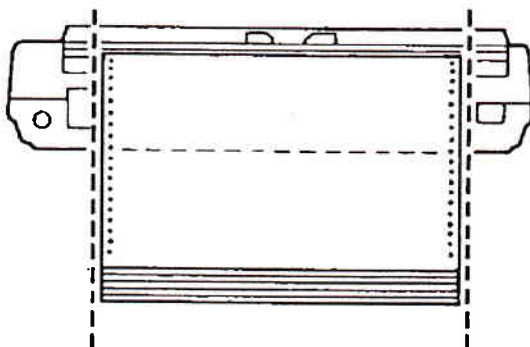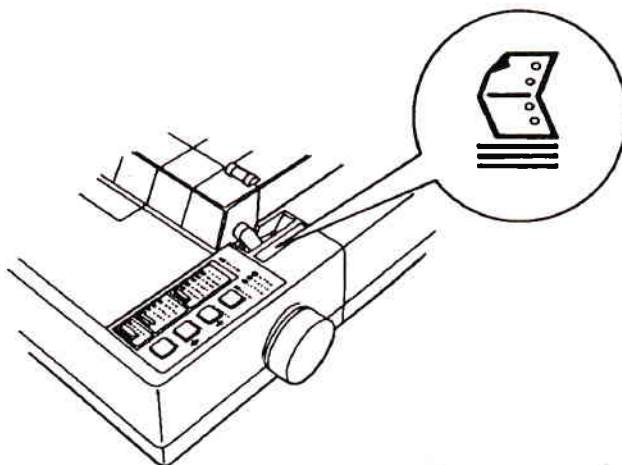

Loading continuous paper
1. Make sure that the printer is switched off. If you have just been printing, wait for a few minutes while the print head cools down.

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2. Position the paper as described.
3. If you are loading paper for the first time, you may like to remove the printer cover altogether to make it easier to see what you are doing. With the printer cover off, be careful to keep your fingers and objects such as ties away from the print mechanism to avoid damage.
4. Pull the paper setting lever towards you.

The symbol next to the paper setting lever reminds you that the lever MUST be towards you are using continuous paper.

5. Release the sprocket lock levers by pushing the lock levers forward. Slide the left sprocket unit all the way to the left and lock it in place by pushing the lock lever back.
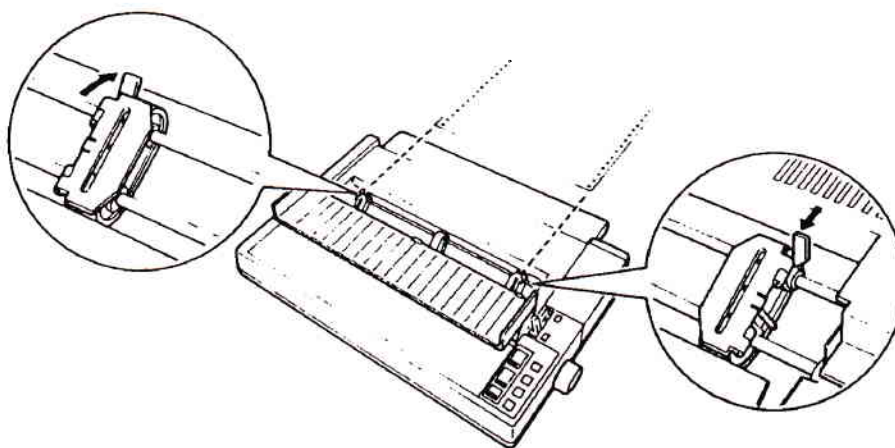
6. Slide the right sprocket unit roughly to match the width of the paper. Do not lock it yet.

7. Slide the paper support to a position midway between the two sprocket units.

8. Open the sprocket covers.

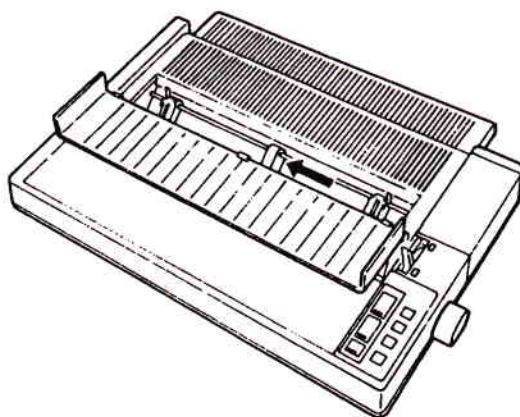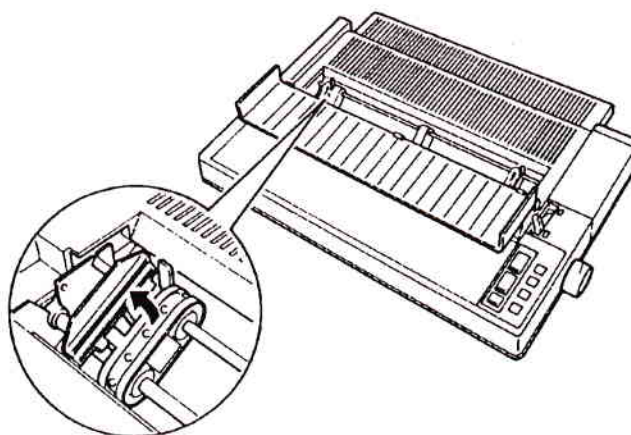9. Make sure that the first sheet of paper has a clean edge and that the perforated edges are still attached. Fit the first five holes over the pins of each sprocket unit, then close the covers. Make sure that the leading edge of the paper is placed JUST below the metal plate in front of the sprockets. Turn the platen knob slightly to make sure that this happens if necessary. this prevents the edge of the paper catching as it loads.
10. Position the right sprocket so that the paper is straight and has no wrinkles; then lock the right sprocket unit in place.
11. Turn on the printer. The **PAPER OUT** light will come on and the printer will beep.
12. Press the **LOAD/EJECT** button once to automatically feed the paper into the printer.

Warning:
If you have removed the printer cover you will see the paper bail opens and remains open after the paper feeds into the printer. DO NOT CLOSE THE PAPER BAIL MANUALLY. It will close automatically when the printer has printed a few lines.

13. Press the **ON LINE** button. At this stage the **ON LINE** lamp will light and the **MULTI-PART** lamp will flash. This indicates that you can if you need to use the micro-adjust feature to alter the top-of-page position. Read the next section on "Top-of-page position" for details on how to use this feature.

Warning:
Do not advance the paper using the platen knob while the printer is turned on. If you need to adjust the position of the paper, always use the micro-adjust feature.

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Top-of-page position

When paper is loaded into the printer it is important that printing begins at the correct position at the top of each new page and ends at the correct position at the bottom of each page. After you have loaded continuous paper you can adjust the position at which the printer begins printing. This is called "setting the top-of-page position". You adjust the top-of-page position with the micro-adjust feature.

Warning:
Never use the platen knob for paper feeding except in cases of paper feeding problems. ALWAYS use the micro-adjust feature to adjust the top-of-page position.

Micro adjustment

The micro-adjust feature moves the paper 1/180 inch at a time to make fine adjustments to the top-of-page position. Once you have used micro adjustment, the printer will always load paper to the same position set with this feature. The top-of-page position is remembered by the printer when you switch off.

Note:
You would normally set a standard top-of-page position. If you change this position for printing a special document, remember to reset it to your normal setting before you switch off. If you do not do this your standard documents will print in the wrong position because the current top-of-page position is always saved.

To use micro adjustment first load your paper and then press the **ON LINE** button to set the printer on-line. At this stage the **MULTI-PART** lamp will flash to indicate that the micro-adjust feature is active.

Now press the **FORM FEED** button to feed the paper forwards or the **LINE FEED** button to feed the paper backwards.
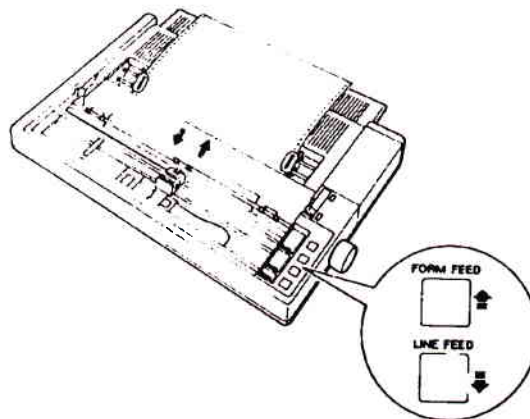
Each time that you press either button the paper moves 1/180 inch. If you hold either button down the paper moves continuously in 1/180 inch steps.

The printer has a built-in default position for the top-of-page setting. If you move the position of your paper past this setting when you are using micro adjustment, the printer will beep and pause momentarily. For most printing purposes you will find this default position satisfactory. If you move the top-of-page position too far backwards or forwards the printer will beep and the micro-adjust feature will not function.

When you have set the top-of-page position continue printing in the normal way. The printer will automatically load each new sheet of continuous paper to the new position you have set.

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D. Service

Basic Troubleshooting

How to solve problems
This section explains what you can do if you have problems with your printer. It may not give you the absolute answer, but should at least point you in the right direction.

If you have a problem, it may not be as disastrous as it first appears. Try to remember what you did. Work through the steps logically, re-reading the appropriate part of the guide or software manual if necessary. Write down what you did when you try the second time. Persist; you may have pressed the wrong key on the computer without realising it.

Although it might seem obvious, read the guides - not just this one, but the software ones as well.

Do not assume that because you have used an Epson dot matrix printer before that LQ printers work in EXACTLY the same way. They handle paper in a very sophisticated way and you will need to get used to this.

General Hints
If you are having difficulties, go through the steps below.

1. If you are trying to use SelecType, read the section starting on page ...
2. If the beeper is sounding, look at the section immediately after these general hints.
3. If there is no beeper sound, read the appropriate part of the guide. For example, if you are having difficulties loading paper, go back to the section on "Paper handling" in this guide. Make sure that you follow each step exactly.
4. If you have still not solved the problem, look down the subsequent headings. If you find a heading that matches your symptom, follow the instructions there. If the heading does not match your problem, look in other sections for similar problems.
5. Finally, if you are still having difficulties, contact your dealer.

SelecType problems
The use of SelecType makes control of printing easier.

SelecType settings do not work
If you print a document having made a number of settings with SelecType and they are ignored, it is probably because your software is sending commands to the printer. You can find out which codes it is sending to alter the printing by using the hex dump mode.

The program you are using may be sending an initialization sequence; this is a set of codes it sends before printing a document. You may be able to alter the sequence: look in the software manual in the section on installing the software (may be called Set-up, Install, Printer control, or Printer driver) to find out if there is such an initialization option which you can change to avoid the problem.

Beeper error warnings
The printer is fitted with a beeper that sounds when the printer knows it has found an error. This usually indicates that the printer is out of paper. The beeper can also be sounded by any program that sends ASII code **BEL**, and by certain error conditions in the printer itself.

Beeper sounds three times and printer stops
This is how the printer indicates that it has run out of paper.
If you have paper loaded, then the printer is telling you that its paper out sensor is not covered properly. Turn the printer off and reload the paper correctly. Turn the printer back on and try to print again. If the printer still gives three beeps and fails to print, consult your dealer.

Beeper sounds five times and printer stops

If the printer beeps five times, there is a problem with the print head and ribbon carriage. Turn the printer off. Check that the ribbon is correctly positioned and that there are no obstructions inside it, then turn the printer on again. If the printer does not come on normally, refer the problem to your dealer.

Beeper sounds when printer is turned on

If the printer beeps when the printer is turned on, switch the printer off, remove the interface cable and switch on again. If the problem occurs only when the interface cable is plugged in but not when it is removed, the cable may be incorrectly wired. Check the wiring, especially the ground connections. If the problem is still there when the cable has been removed, consult your dealer.

Ribbon

The ribbon may need to be replaced if you have been using it for a long time or for a large amount of printing. Check that the ribbon is seated correctly and that the pins at either side are properly located in the holes in the ribbon carriage.

If the printer has not been used for some months, the ink on the part of the ribbon exposed to the air may have dried out. The rest of the ribbon will probably be satisfactory, and the dry patch will be slightly re-inked once it has fed back into the cartridge. if the quality of the printout is unacceptable, you will need to replace the ribbon.

If you are using the optional film ribbon, the printing will suddenly become faint when the ribbon reaches the end of its life. The ribbon may also snap. To get the best out of a film ribbon never store it at higher temperature than normal.

Print head

It is possible for parts of the print head to wear out if the printer is used frequently and for long periods at a time. Some symptoms of one or more of the print-head pins failing to fire are:

* a white horizontal gap along each line of the printout
* letters such as g, p and y being printed without their descenders, or letters being printed without their ascenders (t, h and l, for example)
* some dots printed darker than others (one or more pins have started to stick).

Similar symptoms can appear on a printer that is used very infrequently. In this case, the problem is the pins sticking rather than being worn out. NEVER spray oil into the print head, as this can make the problem worse.

Contact your dealer who will be able to fit a replacement print head and check other parts of the printer at the same time.

Paper

If you are happy that the print head is working properly, then you should check the paper thickness lever. The position of the print head (which can be adjusted for paper thicknesses) may be wrong. You can also check that the surface of the paper you are using is clean and not waxy or greasy.

Read the section on "Paper handling" in this guide for information on the paper thickness lever and the best type of paper to use in your printer.

Ribbon Cartridge Replacement

Replacing the ribbon
When your printouts become too faint, you will need to fit a new ribbon cartridge.

Warning:
Always use replacement ribbons designed specifically for your Epson printer. Do not try to re-ink your ribbon: you may block up the print head and corrode its pins. Replacing the print head will cost you far more than buying a ribbon.

To replace the ribbon, grip the cartridge by the fin at the top. Lift the ribbon out. You can then install a new ribbon by following the steps described earlier.

Warning:
If you are using the optional film ribbon, the print quality will get faint abruptly and the ribbon may snap, if you use it beyond the normal life expectancy. Also, make sure that you store the film ribbon at normal temperature - too high a temperature will shorten the life expectancy.

Fitting the paper guide
The paper guide can be used in two positions: one for use with a single sheet of paper, the other for use with continuous paper. Once you have installed the paper guide, you simply raise or lower it for the type of paper you are using.

Putting in the ribbon

1. Check that the printer is not connected to the power supply.
2. Take off the printer cover.
3. Push the paper bail lever away from you.

Warning:
The power must be off when you move the print head, otherwise you can damage the printer mechanism. if the printer has been used just before changing the ribbon, allow the print head to cool before you remove the old ribbon.

4. Move the print head to the middle position on the paper bail.
5. Tighten up the ribbon by turning the feeding knob in the direction of the arrow marked on the cartridge - this will make it easier to insert it into the printer.
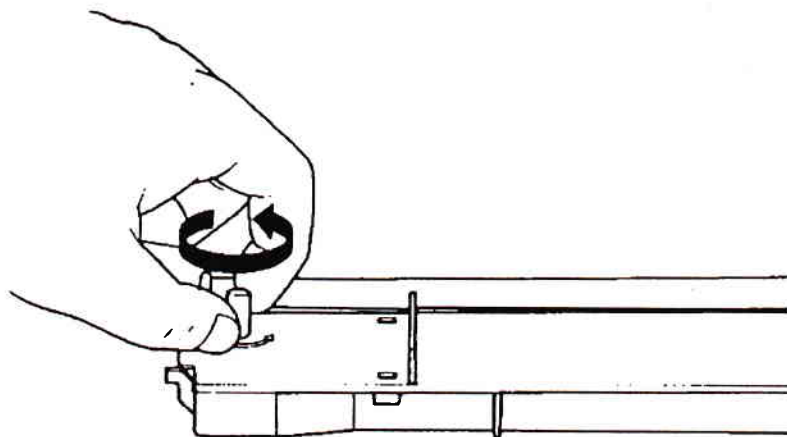
6. Hold the cartridge by its black, fin-like handless, with the ribbon away from you. (The LQ-850 ribbon cartridge has only one handle in the centre of the cartridge.)

7. Fix the cartridge in position by placing the socket on the underside of the cartridge over the locating pin on the left side of the printer. Push the cartridge down firmly until it clicks into position. Make sure that the black plastic hooks at each end of the cartridge fit into the slots inside the printer.
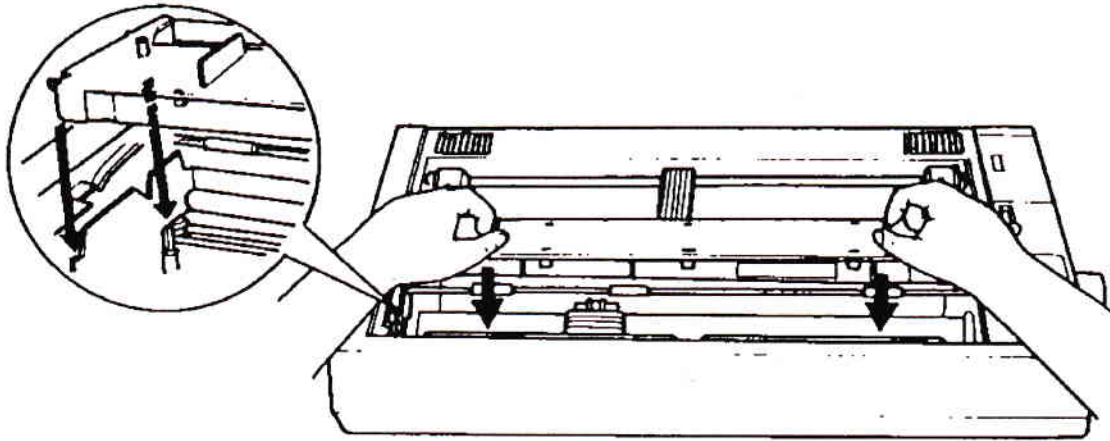
8. Use a pointed object (such as the tip of a pencil) to guide the ribbon between the print head and the ribbon guide. At the same time turn the ribbon-tightening knob in the direction of the arrow to help feed the ribbon in place.
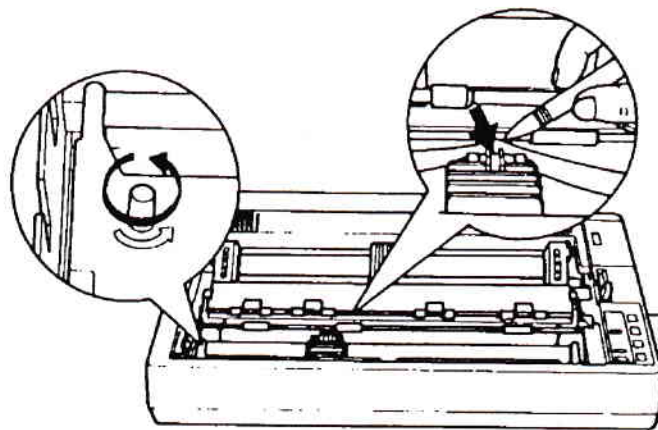
9. Check that the ribbon is tight by turning the feeding knob anti-clockwise.

7. Basic Troubleshooting and Service.

The maintenance and service procedures presented here can be performed by the operator.

If no power is present to a specific component of the TECH 15, check that connectors are tight.

Be sure to work in a well-ventilated area. TECH 15 components (drives, monitor, printer, etc.) operate best in surrounding temperatures between 10°C (50°F) and 40°C (104°). Allow sufficient warm-up time.

Basic Troubleshooting

* Monitor
If the screen is totally dark or not bright enough, adjust monitor controls accordingly.
* Keyboard
If keyboard responses are not recorded on the monitor screen, check and make sure the inlet connection on the operating console is connected and tight.
* Drive(s)
Be sure drives do not already contain disks before inserting a new disk. Do not jam or force disks into drives.

NOTE: Front cover panel for CD drive should remain closed when not in use to keep drive unit free of dirt and contamination.

* Printer
See maintenance and service

Precautions and Service

* Drives
Keep fingers and/or objects away from drive when in operation.

Do not use a disk caddy that is damaged. If the caddy is cracked or broken, its use could damage the CD drive. Keep the CD caddy in excellent condition.

Use care when loading and do not force the CD/caddy into the CD drive. Gently place the CD/caddy into the drive applying only slight pressure until the drive retrieves the disk. Applying undue force could damage the drive.

If CD/caddy does not eject from the CD drive, check the drive opening and make certain the caddy's plastic lid is closed on both sides. If lid is completely closed and caddy still will not eject, **do not** attempt to pry caddy out of the drive. Call for service.

If lid is not closed completely, use a small pocket-sized standard slot screwwdriver and carefully reach into the drive and close the caddy. Try again to eject the caddy. If caddy still will not eject, call for service.

* Disks
All disks should be kept clean and dry and should be stored in their respective disk storage areas in the TECH 15 cabinet.

CAUTION: Magnetic materials should be kept away from all disks to prevent possible damage.

MAINTENANCE AND SERVICE + MAINTENANCE PARTS

CD Drive Maintenance

To prevent CD drive errors that result from environmental conditions such as dust and smoke, we highly recommend use of the enclosed LLC-1 Laser Lens cleaning disc to clean the CD drive on a regular basis. Note directions on the back of LLC-1 disc holder.

3.5" Diskdrive Maintenance

To prevent 3.5" diskdrive errors, use the diskdrive cleaner according to the instructions included.

Filter Service

The filter to be concerned is located on the rear of the machine, at the fan area. It is removable and washable. Maintenance of this filter depends largely on shop conditions.
Start with a weekly cleaning and then adjust the cleaning schedule as required to maintain good air flow.

Cabinet Maintenance

Clean the painted and plated surfaces with mild soap and water solution, rinse, and wipe dry.
Lubricate the cabinet casters with a light viscosity machine oil. No other lubrication is required.

Printer Maintenance

For trouble free operation, the printer should be cleaned as follows at least once a month:

Note: Do not apply any lubricants to the printer.

       1. Turn off printer AC power. Remove paper from printer.

       2. Remove the printer access cover.

       3. Using a clean, soft, lint-free cloth, dust the area around the carriage shaft, platen, and paper sensor. Remove any loose paper particles or other debris.

Printer Maintenance Parts

       1. Ribbon cartridge: EPSON # 7753.
       2. Continuous paper: A4 or 8.5" x 11".