terak
CORPORATION

MODEL 8510
DATA PROCESSOR
OPERATOR INSTRUCTIONS

The TERAK Model 8510 Data Processor is a self-contained, disk based minicomputer system. Specific design features include compactness, ease of operation and low operating/maintenance costs. The following information is intended as a general guide to the characteristics, operation and maintenance. For detailed specifications refer to software and hardware technical manuals and user applications/operator instruction manuals.

GENERAL: The 8510 operates on standard line voltages (105-120V/60Hz) and comes equipped with a 7' line cord with molded plugs at both ends. The line cord must always be plugged into a grounded A.C. receptacle. Although it is recommended that the power on/off switch located on the front panel be in the "off" position whenever the line cord is being connected/disconnected, the 8510 is designed such that it will not be damaged nor will data be destroyed on a disk should the unit be connected or disconnected with the power switch in the "on" position. (NOTE: If data is being written onto the disk when power is removed from the system, the data on that sector of the disk can be lost. The formatting data on the disk will not, however, be destroyed.) Any power interruption will cause an orderly shut-down of the system electronics and the system will automatically restart upon restoration of power.

The 8510 does not require any special operating environment and is designed for operation in most environments where people are comfortable. Excessive temperature, humidity and dust laden air can be harmful. Specific ranges of environmental operating limits are covered under the technical specifications.

The 8510 is designed using low-power components to reduce the operating cost and keep component temperatures to a minimum, assuring their stability and longevity of service. The entire unit consumes less than 100 watts of power during operation. Even so, to minimize component damaging heat build-up, the entire inner chassis and front panel are constructed to provide flow-through ventilation around and over all components from the quiet, efficient ventilating fan mounted at the rear of the chassis. This fan completely replaces the air inside the unit more than 35 times each minute. To prohibit the introduction of foriegn material, and as an added safety factor, the fan mounting supports a "fine particle" filter. The filter is externally removable permitting cleaning and replacement without internal access to the unit. The filter should be removed periodically and gently washed in warm water. Make certain that the filter is completely dry before replacing. Conditions will vary depending upon location of the unit and the environment, but filter cleaning is recommended once every three months.

The 8510, though small and portable, is a delicate piece of electronic equipment and should be treated accrodingly. Do not expose to extremes of heat or cold and protect it against moisture and dust. Do not subject it to excessive shock. A damp rag should be used lightly on

outside paint surfaces if cleaning is necessary.

TERMINAL CONNECTIONS: The Model 8510 Serial Interface Connector Panel provides for interface through EIA Standard RS-232-C or 20ma current loop. Both female and male RS-232-C connectors are provided to enable the machine to operate as data communications equipment or data terminal equipment as defined in the Electronic Industries Association (EIA) RS-232-C Standards. The panel also contains two sets of eight miniature switches to select baud rates, parity and other features. Fourteen rates are selectable from 50 to 19,200 baud. (See Figures 3.1 and 3.2 for complete specifications)

ADDITIONAL DISK DRIVES: The Model 8510 is provided with a disk drive expansion connector panel as standard equipment. This connector panel allows addition of a Model 8512 Flexible Disk Subsystem without any internal modifications to the 8510. Up to three 8512's can be added to the system merely by plugging in an interconnect cable from the 8510 to an 8512 and then from 8512 to 8512. All power on/off and control signals for the 8512's are controlled from the 8510. (See Model 8512 Specification sheet for additional detail)

OPERATING INSTRUCTIONS: The Model 8510 Data Processor has been designed for ease of operation even by persons with no prior computer training. The keyboard/display terminal connection is straight-forward and the operator need only turn the power switch on to begin operation.

NOTE: Prior to beinning operation, the operator should read the section of this manual dealing with DISKETTE HANDLING to insure familiarity with proper loading and unloading procedures. READ INSTRUCTIONS DESCRIBING THE DISK DRIVE DOOR INTERLOCK.

1. Connect the keyboard/display terminal to the Serial Interface Connector Panel. Select baud rate, parity and other features to insure compatability with the terminal. See figures 3.1 and 3.2 for specifications.

2. Connect the A.C. power cable to the receptacle at the rear of the chassis and to a grounded 110 volt A.C. outlet.

3. Press the top of the power on/off switch (Fig. 4) to the "on" position.

4. Open the disk drive door and insert the Diskette with label side up, index hole closest to the operator (Fig. 2). Holding the Diskette in position by gently pressing toward the rear of the machine, lower the disk drive door. (DO NOT PRESS HARD ENOUGH TO BUCKLE OR WRINKLE THE DISKETTE.)

5. Immediately upon closing the disk drive door the system will bootstrap into the program selected by the system programmer.

   NOTE: Should the system fail to bootstrap or should you wish to re-bootstrap the system, momentarily press the top of the power on/off switch. The system is reset when the switch is pressed and re-bootstrapped when the switch is released. This can be accomplished in a quick press/release motion.
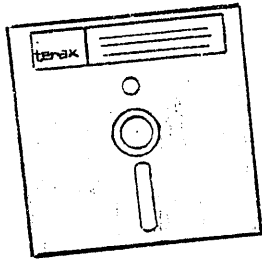
DISKETTE HANDLING

The Diskette consists of the flexible disk encased in a plastic jacket. When not in use the Diskette is always stored in a protective envelope. The storage envelope provides protection from dust and contaminants which can cause damage to the Diskette surface and loss or distortion of data.

To protect the Diskette, these precautionary procecures should be followed:

1. Return the Diskette to its storage envelope whenever it is removed from the disk drive.

2. Store Diskettes vertically.

3. Keep Diskettes away from magnetic fields and from ferromagnetic materials which might become magnetized. Strong magnetic fields can distort recorded data on the Diskette.

4. Replace storage envelopes when they become worn, cracked or distorted. Envelopes are designed to protect the Diskettes.

5. Do not write on the Diskette with a lead pencil or ball-point pen. Use a felt tip pen.

6. Do not smoke while handling the Diskette. Heat and contamination from a carelessly dropped ash can damage the Diskette.

7. Do not expose Diskettes to heat or sunlight. The read/write head cannot properly track a warped disk.

8. Do not touch or attempt to clean the disk surface. Abrasions may cause loss of stored data.

DISKETTE LOADING AND UNLOADING

CAUTION: THE DISK DRIVE DOORS ON THE TERAK 8510 and 8512 ARE SPRING LOADED TO FACILITATE OPENING AND CLOSING. AS SUCH, THE DOOR WILL SPRING OPEN QUICKLY WHEN LIFTED SLIGHTLY MORE THAN HALF WAY. TO AVOID POSSIBLE DAMAGE TO EQUIPMENT, ALWAYS HOLD THE "LIP" AT THE EDGE OF THE DOOR FIRMLY WHEN OPENING AND CLOSING THE DOOR.

THE DRIVE DOORS ARE ALSO EQUIPPED WITH A UNIQUE OPERATOR INTERLOCK TO PREVENT DAMAGING A DISKETTE DURING THE LOADING OPERATION. THE DOOR WILL NOT CLOSE IF A DISKETTE IS NOT LOADED UNLESS THE LATCHING MECHANISM IS MANUALLY RELEASED.

TO CLOSE THE DOOR WITHOUT A DISKETTE IN THE DRIVE, PRESS
THE DOOR LATCH RELEASE TOWARD THE REAR OF THE UNIT WHILE
LOWERING THE DOOR. (See Figure 1 for location of door
latch release)

These procedures should be followed when loading and unloading a
Diskette:

TO LOAD

1. Always insure that unit is turned on before inserting a
    Diskette.

2. Open the drive door by lifting up using the "lip" on the door.

3. Carefully remove the Diskette from its storage envelope.

4. Insert the Diskette with the label facing up and the index
    hole closest to the operator. (See Figure 2)

5. Insert a Diskette into the open mouth of the drive. While
    maintaining a slight pressure on the Diskette to hold it in
    position against the rear of the drive, close the door with
    the forefinger. Once door closure has begun, there is no
    further necessity to hold the Diskette in position. The door
    will not close if the Diskette has not been fully inserted.

6. Close the drive door gently.

TO UNLOAD

1. Open the disk drive door.

2. Remove the Diskette.

3. Return the Diskette to its protective storage envelope.

4. Press the door latch release toward the rear of the unit and
    gently close the door (unless other Diskettes are to be loaded.)

	System Options								Terminal Options							
Function	(LEFT)															(RIGHT)
Select	[S1]	[S2]	[S3]	[S4]	[S5]	[S6]	[S7]	[S8]	[S9]	[S10]	[S11]	[S12]	[S13]	[S14]	[S15]	[S16]
Unit 0	off	off	on	on	(A177560V60)											
Unit 1	on	off	on	off	(A177520V120)											
Unit 2	on	off	off	off	(A177530V130)											
Unit 3	off	off	off	off	(A177570V150)											
Unit 4	on	on	on	off	(A176520V320)											
Unit 5	on	on	off	off	(A176530V330)											
Unit 6	off	on	on	off	(A176560V340)											
Unit 7	off	on	off	off	(A176570V350)											

CHARACTERISTICS INPUT   on   on   on   on   (zero's returned to processor)
   (Undefined)

NUMBER OF BITS (DATA)_____ on | (7 bits)
                                             off | (8 bits)

PARITY (ON/OFF)_____ on   (parity is active)
                                             off (no parity)

TTY FILTER (ON/OFF)_____ on   (filter connected)
                                             off (no filter)

PARITY (ODD/EVEN)_____ on   (odd parity send & rec.)
                                            off   (even parity send & rec.)

BAUD RATE CONTROL	S13	S14	S15	S16
50	on	on	on	off
75	on	on	off	off
110	off	off	off	off
134	off	on	on	on
150	off	off	on	off
200	off	on	off	on
300	off	off	off	on
600	off	on	on	off
1200	on	off	off	off
1800	on	off	on	off
2400	off	on	off	off
2400	off	off	on	on
4800	on	off	off	on
9600	on	off	on	on
19200	on	on	on	on
19200	on	on	off	on

SINGLE TERMINAL SERIAL INTERFACE OPTION SELECT SWITCHES
FIG. 3.2

(handwritten annotations, right side:)
θ = 1 = ON = push in!

1 2 3 4 5 6 7 8 | 9 10 11 12 13 14 15 16

Standard
1 0 1 0 1 1 1 1 0 0 0 1 0 1 0 0

Modem
1 0 1 0 1 1 1 1 1 1 0 0 0 0 0 1

Tiger

7 Parity even

Same   1 0 0 0