INSTALLATION & MAINTENANCE

Your KENBAK-1 computer is a quality instrument which is
built with modern proven components. With reasonable care you
should expect months or years of operation without significant
failures.

WARRANTY

The KENBAK-1 computer is warranted to be free from defects
caused by materials, workmanship, and construction for a period
of one year from the date of shipment. The liability of Kenbak
Corporation under this warranty is limited to replacing or re-
pairing any computer returned by the buyer during such period,
provided:

1. Buyer promptly notifies Kenbak Corporation in writing request-
    ing authorization to return the computer as per our warranty
    policy. Letters should itemize complaints.

2. The defective computer is returned to Kenbak Corporation,
    transportation charges prepaid.

3. The examination by Kenbak Corporation shall disclose to its
    satisfaction that defects have not been caused by misuse,
    neglect, accident, or improper treatment.

Under no condition shall Kenbak Corporation be liable for collat-
eral or consequential damages. This warranty is in lieu of all
other warranties expressed or implied.

Please note that the warranty requires approval from the
factory to return the unit. This requirement is imposed because
most apparent failures are not failures of the equipment. In
90% or more of the cases where it is first thought the computer
is not working correctly, it will turn out that the user is in
error. The computer is a piece of sophisticated electronic equip-
ment, but it is usually more reliable than our understanding of it.

If you should have occasion to write about a failure, try to be very specific and to detail it exactly. Try to pinpoint the instruction or the feature that does not appear to be working correctly. Give the register and memory contents which are involved.

Write to: KENBAK CORPORATION
            P.O. Box 49324
            Los Angeles, California 90049

Should it ever be necessary to return the unit to the factory for repairs, the original shipping carton is the best way of protecting it during shipment. If possible, try to save the carton and the packing materials.

Keep a record of your serial number in a safe place. Should the unit be stolen, a record of the serial number can be valuable in proving ownership. In addition, the factory should be notified and they may be able to assist you. The serial number may be found on the name plate on the rear of the unit.

RECEIVING INSPECTION

When you receive your Kenbak-1 computer, inspect it for physical damage. Check the external surfaces for dents and unusual marks. Pay particular attention to those parts which protrude from the surfaces such as the switches and the fuse holder. Check for physical security of the external parts of the cabinet.

GROUNDING ADAPTOR

The Kenbak-1 computer is supplied with a 3 prong power connector. The purposes of the third prong, which provides a known ground path, are two-fold. The case is then grounded and the user is provided with an added measure of safety. Secondly, grounding of the case through this third wire gives a return path for static electricity discharges such as those which may be generated by the user walking across a carpet. This keeps the discharge from the circuits of the computer where it may cause a temporary malfunction.

IF YOUR ELECTRICAL SERVICE OUTLET IS NOT A THREE PRONG OUTLET, USE THE ADAPTOR WHICH IS SUPPLIED WITH THE COMPUTER.

To use the adaptor, the flexible wire with the hook on the end is to be connected to the screw which retains the cover plate on the electrical outlet. Using a screwdriver, back this screw out just enough to slip the hook under it. Tighten the screw. Plug the adaptor in the service outlet.

If you expect to use the computer in different locations, you will find it convenient to install an adaptor at each location which requires it.

The Kenbak-1 computer is designed for 60 cycle 115 volt circuits. This is the standard frequency and voltage almost everywhere in the U.S.A.

INITIAL CHECKOUT OF COMPUTER

The tests described in this section do not constitute a complete test of the computer. However, if these tests are concluded satisfactorily, there is a high probability that the computer is in a satisfactory condition.

First, turn the Power switch off. Connect the power cord to electrical service using the adaptor if necessary.

Turn power on. Probably some lights will come on but they may not. You should be able to hear the fan. If the fan is not running and no lights are on, the fuse has probably blown. Turn power off, disconnect the power cord, and examine the fuse (see the section on fuse replacement). If it is blown, then do not proceed any further. Contact the factory.

We now assume the fan is running with perhaps some lights on. Then make the following tests:

1. Push Start and hold it. The Run light should be on. If the Run light does not go out when Start is released, then push Stop.

2. Push the Address Display switch. The Address light should come on.

3. Push the Clear switch. The Input light should come on.

4. Push the Memory Read switch. The Memory light should come on.

5. Push the Clear switch again. Push the switch to the farthest left. The light above it should come on

and stay on. Push the switch adjacent to this. The
light above this switch should turn on and stay on.
Repeat this for all eight switches to the left of Clear.
All eight lights to the left of the Input light should
be on. Push Clear. All of the eight lights should go
out.

Additional tests can be performed by trying Exercises
1 and 2 in the Laboratory Exercises Manual. Also, on a
more advanced level, the section in the Programming
Reference Manual on Console operations can be used.

The tests may indicate that a lamp is burned out.
If so, see the later section on how to replace a lamp.

FUSE REPLACEMENT

Looking at the rear of the computer, the fuse
holder is just above the power cord. To examine or
replace a fuse, turn power off and disconnect the
power cord. Turning the cap of the fuse holder
counter-clockwise will release it. The fuse should
come out with the cap.

Not all fuses are the same. They have different
voltage and current ratings and they respond at
different rates to overload conditions. Use only the
same type of fuse as recommended. Fuses from the

following two manufacturers are recommended:

<div align="center">

Littlefuse 3AG 3/4 ampere

Bussman AGC 3/4 ampere

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Spare fuses have been included.

LAMP REPLACEMENT

Lamps may be replaced from the front panel. Long-nose
or needle-nose pliers may be required. To replace a lamp,
turn power off. Remove the lens by unscrewing it. If
you find it too small to grasp securely with your fingers,
use the pliers but use a very light touch so as not to
damage the lens.

After removing the lens, the lamp bulb may be seen.
It is removed by pulling it straight out. (It may be
necessary to make a hook in a small piece of wire to
pull the bulb out.) The new bulb is inserted by pushing
it in. Before inserting it, straighten the leads and
spread them to correspond to the fingers inside the holder.
(It may be necessary to cut off the excess lead length.)
Before inserting the bulb, rotate it so that the leads
are aligned with the fingers in the holder.

The recommended lampbulb is a Type 680 (T-1 Wire
Terminal) which is available directly from a number of
sources or from Kenbak. A few spare bulbs are included
with the computer. The type 680 bulb is rated at 100,000

hours life, but this rating is statistical and a few may fail early in their life.

FAN

A small fan draws air from outside the case through the perforations at the right of the rear panel. Inspect this region periodically and wipe it off if lint and dust are accumulating there. The air drawn into the cabinet is circulated through the cabinet and exits through the perforations at the center of the rear panel. In this general area, there should be some warming of the cabinet as the air comes in contact with the metal.

The fan motor is lubricated with a high-grade time-tested oil before leaving the factory. It should not require relubrication for the life of the computer. If it should be necessary to lubricate the motor, a premium grade of detergent or non-detergent SAE 20 or SAE 30 oil is satisfactory. Avoid over-lubrication; one or two drops will be enough.

There are two points to be lubricated. Looking from the fan toward the motor, there is a notch just left of the axis of the motor. Felt material, to hold the oil, may be observed through the notch. There is also a similar notch for the bearing at the opposite end of the motor.

OPENING THE CASE

To open the case proceed as follows:

1. Disconnect the power cord.

2. Loosen the three small screws in the bottom of
each of the aluminum trim pieces on the extreme sides of
the cabinet and remove the trim pieces.

3. Remove the three top screws which secure the
front panel to the case. Leave the bottom three screws.

4. Remove the three top screws which secure the
rear panel to the case. Leave the bottom three screws.

5. Lift the top half of the case up.

This is as far as disassembly would normally proceed
in the field. For assembly reverse these steps. Note
that the center screws in the aluminum trim pieces are
designed to go through holes in the bottom and top
cover pieces.