PLEASE READ THIS BEFORE INSTALLATION

INSTALLATION INSTRUCTIONS ADDENDUM

Before you start the installation on your PK-232MBX upgrade, please inspect the daughter-board. There are 2 28-pin double headers that plug the daughter-board into the PK-232 main circuit board. Take a minute and inspect this header and make sure the pins are not bent or badly aligned.

When you reach the point in the installation instructions asking you to "place the Pakmail daughter-board over the standoffs" make very certain that the pins of both headers align exactly over the main board sockets of U-2 and U-4.

After installing the Pakmail-board double check the alignment. Make certain the first row of the header pins is in the first row of IC socket holes, not one row behind.

Replacement headers are $6.00 each, plus shipping and handling.

73

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INSTALLATION INSTRUCTIONS
PK-232 PAKMAIL BOARD

With LITHIUM BATTERY

Thank you for purchasing the PakMail Upgrade for your PK-232/HK-232. The following instructions
are to assist you with the installation on the PakMail daughter-board and the lithium battery. Please read
these instructions completely before beginning this project.

PARTS LIST AND TOOLS

Your upgrade kit should contain, the following parts:

QTY	PART DESCRIPTION
1	PakMail daughter-board
1	Lithium Battery
1	PK-232MBX Manual
2	Stand-offs, male by female threads, 6-32 x ½
1	Warranty Card

You will need the following tools to perform this installation:

#2 Phillips screwdriver
Small flat-blade screwdriver
Pencil type soldering iron
Portable desoldering tool (solder remover)
1/4'inch nut driver - OR – 1/4 inch wrench
Small wire cutters
Small needle-nose pliers

PAKMAIL DAUGHTER-BOARD

Prepare a clean work area that is as static-free as possible.

-NOTICE-
Be sure to discharge any static build-up you may have incurred by touching a grounded appli-
ance before proceeding.

Remove the PK-232 top cover by removing the six screws. Remove any AA batteries that may be
installed in the top cover battery holder. Remove the three-cell battery holder by grasping firmly and
twisting the battery holder off (if the battery holder is held by adhesive, some early PK-232's had battery
holders screwed to the top cover). Cut the battery leads about six inches above the printed circuit board.
Grasp each wire with the needle nose pliers and heat the solder connections on the board. When the
solder has been heated, pull the wires out.

Using the soldering pencil and the desoldering tool, remove the old solder from the points where the battery wires were attached to the printed circuit board.

CAUTION: DO NOT TRY TO PRY THE SOCKET OFF THE BOARD. Be sure that you are working with the EPROM itself.

Using the small flat blade screwdriver, remove the following, socketed IC's from the PK-232 and set aside. Keep these parts in a safe place.

EPROM U-2   At this time, make a mental note as to the
EPROM U-3*   location of the now empty sockets U-2 and U-4.
RAM U-4*
RAM U-5
Note: To install in older PK-232 and Heathkit HK-232 units, move jumper JP7 to JP8.
* These Parts may NOT be in your PK-232.

With the front panel of the PK-232 facing you, remove the two screws that hold the PK-232 printed circuit board to the bottom chassis that are located in the left rear and left front part of the board. Screw the male threads of each of the stand-offs in place of the two screws just removed. Now place the PakMail daughter-board along the left side of the PK-232, with the notch on the daughter-board towards the front.

Locate resistor R-186 on the PK-232 mother board Fig. 1. Solder the wire from the PakMail daughter-board to the LEFT side of resistor R-186 on the PK-232 mother-board. See Fig. 1.

Make sure that sockets U2, U3, U4 and U5 on the PK-232 motherboard are <u>empty</u>. Now place the PakMail daughter-board over the stand-offs. The two 28-pin plugs on the bottom of the PakMail board will be inserted into the now empty sockets U-2 and U-4. Line up all of the pins before pressing the daughter-board into place.

Attach the PakMail daughter-board to the stand-offs with the two screws you removed from the PK-232 motherboard earlier. This completes the installation of the PakMail daughter-board.

LITHIUM BATTERY

NOTE:
Some PK-232's may already have a lithium battery installed. If yours is one of these, disregard these instructions.

Locate the lithium battery. Observe that one side of this battery is labeled as the POSITIVE side.

- WARNING -
  Do NOT short the leads of a lithium battery.
  Do NOT dispose of in a fire.
  Do NOT reverse polarity when installing a lithium battery.

Applying heat directly to the lithium battery or installing the battery backwards can cause damage to you and the PK-232. Use extreme caution. Timewave Technology Inc. will not be liable for any damage caused by improper installation.

Overheating the battery or reversing the polarity may cause damage to you or your PK-232. Please use care when installing the battery. Make sure that the battery has been installed properly. Be sure to use a pencil type soldering iron when installing the lithium battery. Please use extreme caution.

Cut the lead length of the lithium battery to 1/4 inch. Failure to trim the battery lead length may result in a short between the two battery terminals against the PK-232 bottom panel. See warning above.

Install the lithium battery in the two holes where the battery wires were. Of the two holes on the printed circuit board, the hole closest to jumper JP-l is the positive battery terminal. This battery may be soldered in from the component side of the board. Jumper JP-1 is used to isolate the battery from the circuit. If the jumper is covering both pins, then the battery IS in the circuit, and hence the PK-232MBX parameters will be stored in the PK-232 when power is removed. To take the battery out of the circuit, remove the jumper and replace on only one of the two pins.

Should jumper JP-1 be left on or off?

If you are going to be using the program PC-PakRatt for Windows or PK-Term'99, it is best to leave the battery out of circuit (Jumper JP-1 off). For all other applications, (COM-PakRatt, MacRatt or dumb terminal) leave the battery in circuit (Jumper JP-1 on).

This completes the installation of the lithium battery.

### RE-ASSEMBLY

Replace the PK-232 top cover with the six screws.

Daughter Board

DO NOT REMOVE U5
(RAM CHIP)

PK-232MBX (HIGH)
Ver. X.X

PK-232MBX (LOW)
Ver. X.X

U5

U3

U1

U6
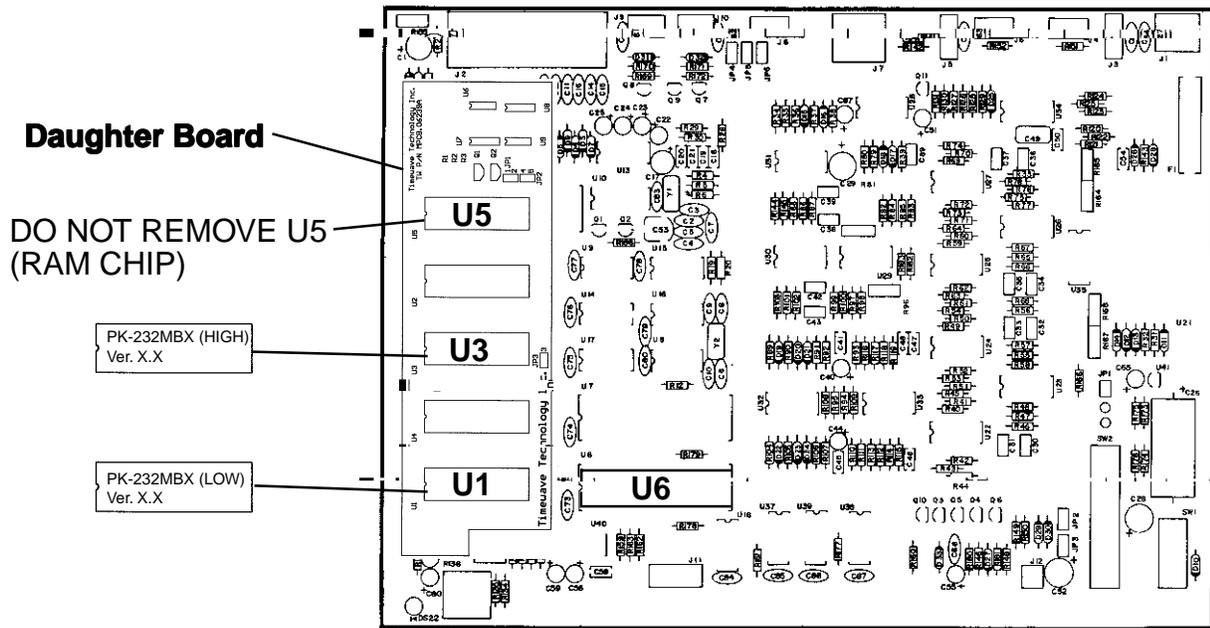
Figure A - PK-232 Main board with MBX daughter board installed

PK-232MBX (LOW)
Ver. X.X

PK-232MBX (HIGH)
Ver. X.X

U2

U3

U6
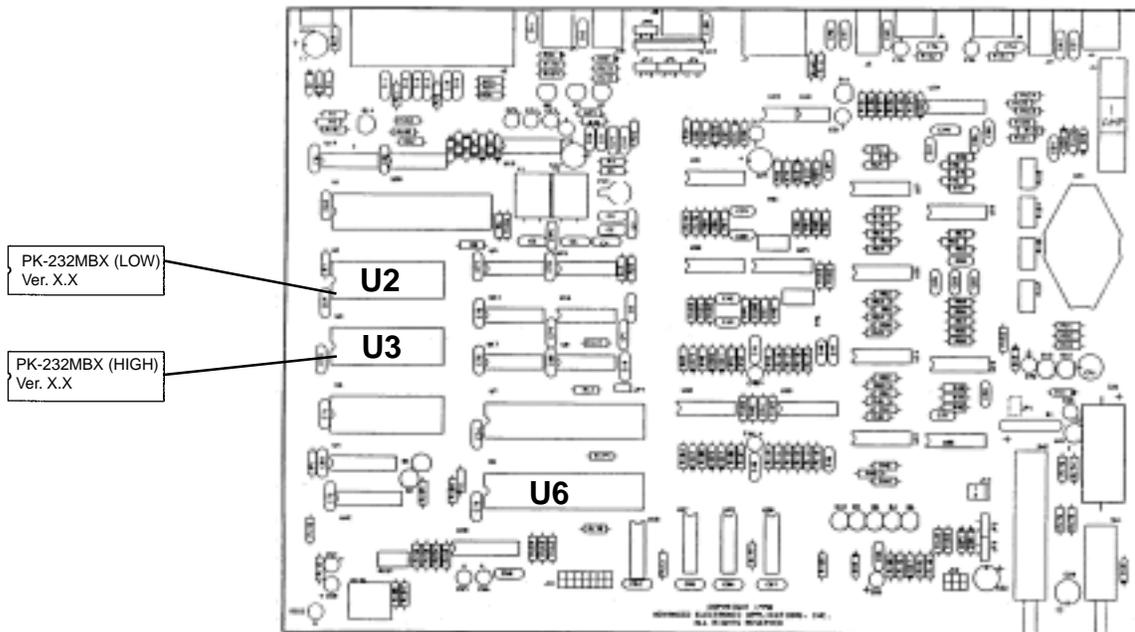
Figure B - PK-232MBX Main Board (No MBX daughter board necessary)

A.06232
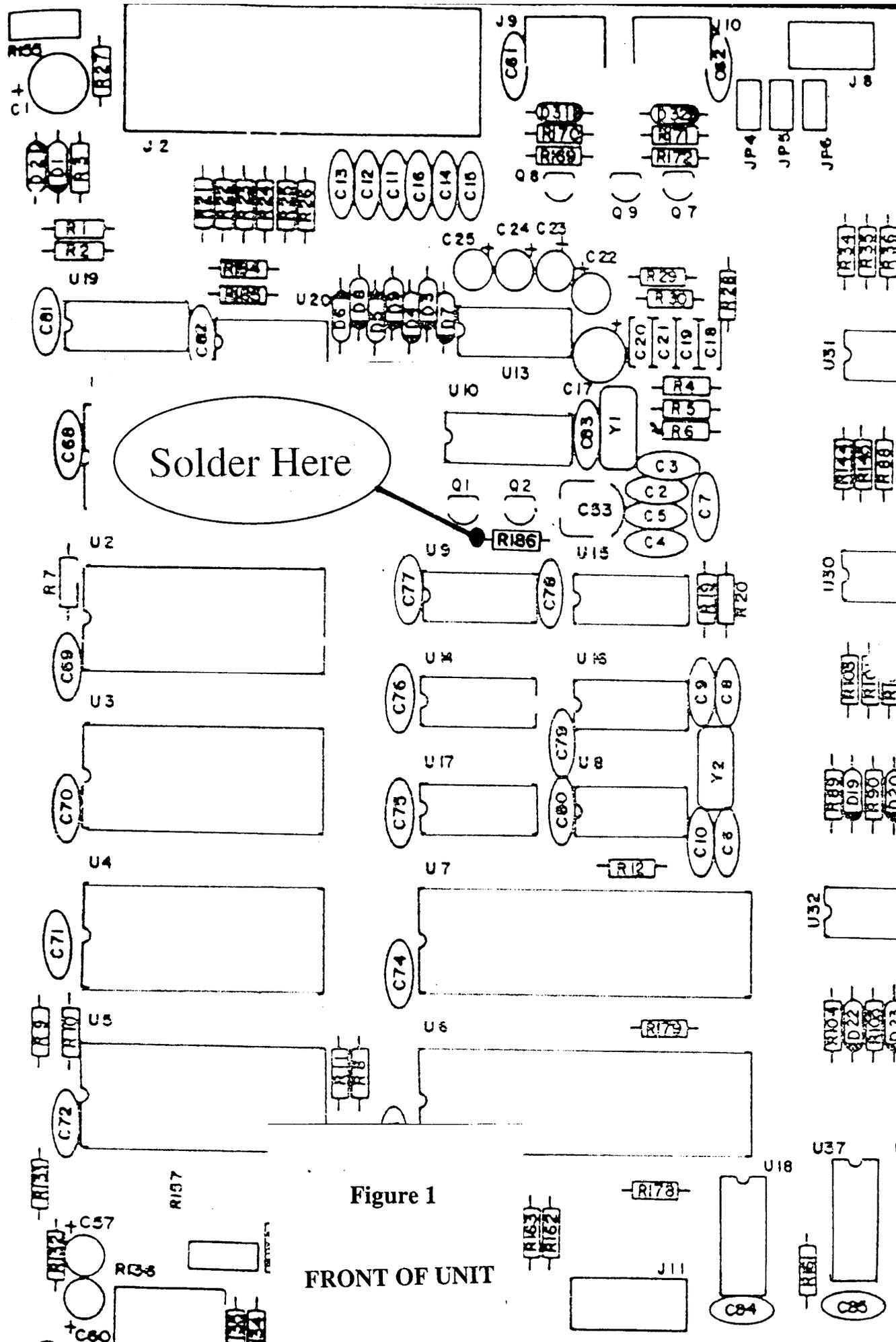
Solder Here

Figure 1

FRONT OF UNIT