# HAPPY 1050 HARDWARE

# INSTALLATION INSTRUCTIONS

## MAXIMIZER AND ENHANCEMENT

HIGH QUALITY PRINTED CIRCUIT BOARD
NO PERMANENT MODIFICATIONS REQUIRED

FOR ATARI 1050 DISK DRIVES
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HAPPY COMPUTERS Inc.
P.O. Box 1268
Morgan Hill, CA 95037
(408) 779-3830

## WARNING

**This 1050 HARDWARE should only be installed by a person familiar in working with hand tools, integrated circuits, and electronic machine disassembly and assembly. Installation should not be attempted by a beginner. Please read the warranty and instructions before beginning.**

**Installation of this HARDWARE in your 1050 DISK DRIVE MAY VOID YOUR WARRANTY!**

**Read the instructions completely before performing the work. If you do not feel comfortable in doing the installation yourself, then have a competent electronic technician do it for you. Make sure the technician reads the instructions first! Please contact HAPPY COMPUTERS for installation questions or factory installation.**

# LIMITED WARRANTY
# HAPPY 1050 HARDWARE GUARANTEE

HAPPY COMPUTERS guarantees the HAPPY 1050 ENHANCEMENT or MAXIMIZER in following ways with the listed conditions and exclusions.

1) The performance of the disk drive with the HAPPY 1050 ENHANCEMENT or MAXIMIZER (HARDWARE) will change as per the information contained in HAPPY COMPUTERS' literature.

2) The HAPPY 1050 HARDWARE board assembly is guaranteed to be free from defects in materials and workmanship for a period of one year from the date of purchase. During this one year period HAPPY COMPUTERS will repair defects in materials and workmanship of the HAPPY 1050 HARDWARE board and provide standard carrier return shipment at no charge. HAPPY COMPUTERS will not reimburse you for the shipping charges needed to send the board to HAPPY COMPUTERS, nor will HAPPY COMPUTERS reimburse you for the labor required to remove or re-install the board into your disk drive. You must provide proof of purchase in order to receive warranty repair during the warranty period.

3) If you return a HAPPY 1050 HARDWARE board for warranty repair during the warranty period and this board does not have any defects in materials or workmanship you will be charged a minimum testing, service, and return postage fee of $25.00 for United States, and $35.00 for outside the United States. HAPPY COMPUTERS may demand payment of this fee prior to return of your board to you. We recommend that you contact our technical staff prior to returning a board for warranty repair.

# CONDITIONS AND EXCLUSIONS OF THIS ONE YEAR GUARANTEE

1) The initial one year warranty stated in item 2 above shall become null and void if any of the below stated conditions letters A thru D become or are true:

A) If the 1050 HARDWARE board is tampered with including but not limited to tampering with the 2 red warning seals, OR

B) If the disk drive is subject to abuse beyond normal wear, OR

C) If any circuit in the disk drive not on the HARDWARE board becomes defective and electrically or mechanically destroys the HARDWARE board, OR

D) If there has been obvious negligence during installation or removal of the HARDWARE board on the part of the person doing this work, with respect to the instructions provided.

## OTHER EXCLUSIONS

2) HAPPY COMPUTERS' warranty covers the HAPPY 1050 HARDWARE board only, damage to any other circuit or mechanism is not HAPPY COMPUTERS' responsibility.

3) HAPPY COMPUTERS will provide service only for the specific product(s) manufactured by HAPPY COMPUTERS.

4) HAPPY COMPUTERS assumes no liability for loss of business or income due to malfunction of the HAPPY 1050 HARDWARE, nor any other liability for consequential damages.

5) This entire guarantee is not transferable and applies only to the original purchaser.

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# DISK PREPARATION

Prepare at least 3 scratch disks so that you don't have to ruin any good disks during the try out phase. A disk drive malfunctioning due to installation problems can erase disks! Initialize the 3 disks with the DOS INITIALIZE command. Then write DOS files on each of these disks. Verify that each disk boots correctly, and place a write protect tab on each disk. Set these disks aside and prepare your work area and tools. This step also tests your disk drive to assure it is working properly prior to installation. Once the scratch disks are prepared, you may unplug all cables from the back of your 1050, and move it to your work area described below.

## WORK AREA, STATIC PRECAUTIONS, TOOLS

Your work area should have enough space to hold all parts and tools without cramping your style. There should be adequate lighting, a desk lamp is helpful, a small flashlight will aid in seeing into tight spaces. A large clean desk top is ideal. Place a protective cover over the work area so as not to scratch the surface during the job.

Wear clothes and shoes (or no shoes and no socks) such that NO static electricity is present in your work area. Cotton is good for this purpose. Preferably, the work area should be situated on a bare concrete floor rather than a carpet.

Static electricity can damage your disk drive and your HAPPY board's components. The amount of static electrcity needed to damage sensitive electronic components is much smaller than that which causes sparks to jump from your fingers on cool dry days. The static electricity which causes some synthetic clothes to cling together after being in a dryer is more than enough to damage integrated circuits.

If you are doing the installation on a cool dry day, when large amounts of static electricity are easily generated, following the EXTREME precautions listed here will ensure no damage to expensive components. These precautions are almost equivalent to using a certified static free work station with conductive surface and ground strap; use a certified static free work station and body ground strap if available. If this is not available then 1) cover your work area with a conductive sheet such as aluminum foil, the entire surface should be electrically connected to earth ground. A metal outside water pipe which goes underground can be used for earth ground, or ONLY if you are familiar with the electrical wiring standards in your area you may be able to determine how to obtain and verify earth ground from an electrical outlet or switch plate. DANGER, do not touch electrical wiring, outlets, or switches for this purpose unless you are qualified. 2) While you are working touch yourself and all tools to the grounded metal surface often. 3) The first time you open the disk drive touch the metal surface of the mechanism while at the same time you touch the grounded surface of the work area, before you do any internal disassembly. 4) Keep all pets, and other people away from your work area. 5) Try to do all of the installation at one sitting. Any time you or another person comes to the work area have them touch the grounded metal surface before touching any other items. 6) Run a humidifier or vaporizer somewhere in the room to increase the humidity in the work room's air, but not to the point where moisture condenses on the cool surfaces of components or tools in your work area.

## TOOLS NEEDED

1) Medium size phillips screwdriver with a sharp tip. 2) A precision phillips screwdriver such as in Radio Shack 64-1819 or similar, and a small pair of diagonal cutters may be required on some disk drives, especially those that have a serial number starting with 83. 3) A container to hold the screws and parts removed during disassembly. An aluminum pie pan is good for this (no pie of course). 4) A needle nose or duck bill pliers to straighten pins on the HAPPY board, to bend the metal tabs on the RF shield, and to assist in unplugging connectors without breaking off the wires. 5) A tool to lift integrated circuits out of their sockets without bending the pins too much, such as an IC removal tool for 24 and 28 pin IC devices, or a firm metal nail file, or a small screwdriver with a thin wide flat blade. 6) A water resistant fine tip (magic marker) marking pen to mark the connectors so you can put them back on in the correct location and direction.

## TOP COVER REMOVAL

The disk drive should be in your work area as described, with all external plug on cables removed. Turn the disk drive over so the bottom faces up. Use the phillips screwdriver to remove the six screws in the bottom of the case. Four of these screws are down in recessed holes. The two other screws are towards the front. DO NOT SEPARATE THE TOP AND BOTTOM COVER YET! Set the screws aside in your container.

While holding the top and bottom covers of the disk drive together turn the disk drive back over so it rests in its normal upright position. Lift up the top half of the cover at both sides toward the rear and push the top cover and black front face piece gently forward and lift the top cover and black front face piece off. Don't worry if the black front face piece comes loose. Place the top cover out of the way for now. Most of the insides of the 1050 disk drive have very little holding them in. DO NOT MOVE OR REMOVE ANY PARTS UNTIL TOLD TO. CAUTION, do not handle any part of the disk drive mechanism except the sides, do not touch the read/write head assembly.

## CONNECTOR IDENTIFICATION AND UNPLUGGING

There are three distinct locations of plug on connectors inside the 1050 disk drive. All of these connectors make a connection between the disk drive mechanism and the printed circuit board. CAUTION these connectors are fragile, the wires may fall off in any tension is applied to the wires. The wires should be handled as little as possible, apply force only to the terminal housing that the wires end at. It may help to use the needle nose or duck bill pliers to assist in grasping the connector and applying upward force to unplug it from the circuit board only when told to.

At the left rear of the disk drive behind the mechanism there are 5 or 6 connectors that are plugged in fitting flush against each other. Variations in manufacturing of 1050 disk drives by ATARI make it difficult for these instructions to document all possibilities for connector placement and wire color code. It is important that the installer write down information describing the placement and orientation of these connectors so they can be properly re-installed, placing a special unique mark on each connector may be necessary. Our information is that in most of the versions which have 5 connectors that 4 of these have all white wires and one has colored wires. In this case the the connectors will already be marked with a marking which matches the silk screen on the PC board. The order of connectors from rear to front is J14-3 pins, J10-4 pins, J1-4 pins which usually has colored wires with the red wire towards the rear and the connector appears to be plugged in backwards with respect to the others, then J12-2 pins, and finally J11-4 pins. Most of the versions that have 6 connectors will have a sequence of colored wires, the 6th connector comes from having J11 split into two each of 2 pin connectors. The colored wire sequence from rear to front for most versions with 6 connectors is: J14-3 black white purple, J10-4 orange white green white, J1-4 red blue grey yellow, J12-2 brown white, J11a-2 red white, J11b-2 white blue. Unplug these 5 or 6 connectors after you have properly identified them so they can be re-installed correclty. Start at the rear most connector and work towards the front.

Toward the right rear of the disk drive is J15 which has 6 pins and six colored wires. Note now whether the red wires are toward the front. If this is not the case note the color of the front most and rear most wires here for future reference. After you have identified the orientation, unplug J15.

On some drives there may be a single spade lug connector at the front right top corner of the disk drive mechanism. The wire for this connection must be unplugged at the mechanism. There may be several wire ties attaching this single wire which you will have to cut with a small pair of diagonal cutters. The last connector is located under the disk drive mechanism. The disk drive mechanism is not attached with any fasteners. Gently lift up the front of the mechanism with the left hand until there is enough room to see the black or grey cable which ends at a 5 pin terminal housing and plugs into the printed circuit board at the front right corner. You may hear some noise which sounds like parts falling out and dropping inside, don't be concerned with this at this point. The cable and terminal housing you have found is the read write head cable (very delicate). Note if the wire most toward the front is red, if it is not note the color here for future reference. Unplug this connector with your right hand's fingers; again, apply tension only to the terminal housing.

## DRIVE MECHANISM REMOVAL

The disk drive mechanism sub-assembly contains all the moving parts in your disk drive. The mechanism occupies the front top 2/3 of the disk drive insides. All cables should now be unplugged from the mechanism to the printed circuit board below. As you proceed below to remove the mechanism take care and note if any cables are still plugged in. Make sure all cables are properly identified and unplugged before removing the mechanism. Do not allow any connector terminal housing to get caught on something as this will put a strain on the wires.

The mechanism sits on standoffs above the circuit board. It rests on 4 soft black washers which have a hole where a metal pin goes through them. The pins and washers sit on top of 4 plastic standoffs which are a molded part of the bottom case. These metal pins align the disk drive mechanism in the case, and the washers provide level, shock free, soft support. Lift the mechanism up and out while making sure that none of the connectors are getting caught. Set the mechanism aside, but keep the mechanism over the table in your work area so that you don't lose some small parts (the pins and washers below) that may fall off.

The 4 metal pins which align the mechanism may be glued to the mechanism, glued into the plastic standoff, or just loosely placed in the holes by the factory. If the pins are not glued, remove them and place them in your container; also remove the black washers and put them in your container. Some of the pins and washers may have fallen off and be laying on the circuit board, they may have rolled under the circuit board, or they may have fallen on your table. Locate as many of these pins and washers as possible and put them in your container.

## PRINTED CIRCUIT BOARD REMOVAL

On some drives the printed circuit board is attached to the bottom cover with 3 or 4 small phillips screws near the corners. If these are present then remove them using your precision phillips screwdriver and place the screws and washers beneath them in your container. All printed circuit boards are fastened to the bottom cover with 2 or 4 white plastic hooks which are a molded part of the disk drive bottom cover. Two of these hooks are located on the front left and right side just behind the front standoffs which support the mechanism. The other two, if present, are located at the left and right rear of the board just in front of the standoffs that support the top cover. If your board had phillips screws holding it down you may need to use additional force to lift the board up in the steps below as the screws tend to expand the tip of the plastic standoff that goes through the board. DO NOT attempt to lift out the board until these screws are removed. With one hand apply force to the hook while the other hand lifts the circuit board up on the same side as the hook until the board is above the hook. Unhook both sides of the board. Move the board forward so the connectors at the rear don't hang on the bottom cover and lift the circuit board out.

At this point make sure you find all 4 metal pins (if they are not glued in) and all 4 washers, and make sure they are in your container. Set the disk drive bottom cover aside and have the printed circuit board in front of you.

## RF SHIELD REMOVAL

A rectangular metal box covers a portion of the printed circuit board. This box has a part on both the top and bottom of the board and is called the RF shield. Turn the printed circuit board over note that there may either be screws or metal twist tabs holding the box together. Either unscrew the screws or twist the metal tabs with your pliers to allow the top and bottom portion of the RF shield to be completely removed from the circuit board. Place the RF shield parts in your container.

# INTEGRATED CIRCUIT REMOVAL

IMPORTANT - NEVER MOVE ANY OF THE ADJUSTMENT SCREWS ON THE PRINTED CIRCUIT BOARD INSIDE YOU 1050 DISK DRIVE. MANY OF THESE ADJUSTMENTS REQUIRE SPECIAL INSTRUMENTS TO SET THEM, AND PROPER DRIVE OPERATION WILL BE LOST IF THEY ARE TAMPERED WITH. UNDER NORMAL CIRCUMSTANCES IT IS NEVER NECESSARY TO ADJUST THESE CONTROLS!

If the serial number of your HAPPY 1050 board is B10000 or larger you may ignore this paragraph. All HAPPY 1050 boards with serial number B9999 or lower only work in ATARI 1050 disk drives that have a WD2793 floppy disk controller IC. With the front of the disk drive facing you find the largest (40 pin) integrated circuit on the left side which is under the metal cover (RF shield) you just removed. This IC will either be marked WD2793, or WD2797. Ignore any other markings or letters. If you have a WD2797 do not install the HAPPY board with a serial number less than B10000, it will not work properly. If this is the case return it to the dealer you bought it from for exchange for a board with a serial higher than B9999. The boards with serial number B10000 or larger will work with either the WD2797 or the WD2793.

Two integrated circuits (IC) which are in sockets on the original printed circuit board from your Atari 1050 disk drive will be removed from the socket and will not be needed while the HAPPY board is plugged in your Atari 1050 disk drive. As you may have reason to later remove the HAPPY board it is suggested that you take care not to damage or lose these ICs, since they will be needed if you should decide to restore your drive to original condition. Remove only the integrated circuits specified for removal below, only when told to do so. Have the printed circuit board in front of you with the components facing up and the switch facing toward you.

There are 5 larger integrated circuits in sockets inside the RF shield covered area on the printed circuit board. Two of these have 40 pins, two have 24 pins, and one has 28 pins. Count the number of pins on one side and multiply by two to determine the number of pins. DO NOT REMOVE any ICs yet!

Integrated circuits are unplugged from sockets. The socket is soldered to the printed circuit board, and the IC is plugged into the socket. Most 1050 IC sockets which have never had the IC removed will require considerable force to unplug the IC as the IC fits tightly into the socket. When an IC is plugged and unplugged several times the socket gets looser. Make sure that you are not trying to pry the socket off the circuit board. ICs may easily be unplugged with an IC extraction tool, if you have one follow the instructions that came with the tool. If you are using a firm metal nail file or a thin wide flat blade screwdriver first insert this between the socket and the IC and pry slightly upward. If the length of your tool permits, pry upward slightly at each end of the IC until it is removed. A long tool may not allow enough room to pry up the IC from the rear since there are other tall components behind the ICs. In this case if you pry upward from the front, and while pushing your tool under the IC, push down on the front and or side of the IC which comes up first you will unplug the IC without bending the pins very much. If you pry up too far on one end you will bend the IC pins too much and weaken them.

## ONLY TWO ICs ARE UNPLUGGED

The first IC to remove is the only 28 pin IC (14 pins on each side), it is a 6507 IC and may be house marked CO10745. Don't worry about the marking, just unplug the only 28 pin IC thats there. The only other IC to unplug has 24 pins and is next to the 28 pin socket (where you just unplugged the 28 pin IC), just to the left of the 28 pin socket, this 24 pin IC is a ROM or EPROM and will usually have some kind of copyright label or marking on it. Do NOT unplug the 24 pin IC which is marked 6810 and is to the right of the 28 pin socket. The 28 pin socket has a silkscreen marking on the circuit board of U9. The 24 pin socket where the IC is unplugged has a silkscreen marking on the circuit board of U10. The 24 pin socket where the IC is NOT UNPLUGGED is marked U8. The ICs you have just removed are easily damaged by static electricity. Plug them into the conductive black foam that your HAPPY board comes plugged in for safe keeping. Leave the HAPPY board also plugged into the black foam on the other side.

## HAPPY BOARD PLUG IN

Remove the HAPPY board from the protective anti-static bag. You will notice a warrantee card. Please fill this out and mail as soon as possible. HAPPY COMPUTERS sends out announcements about updates and special offers and you cannot purchase these and receive this information if we do not receive your warranty card and register you in our computer.

You will notice a 5 pin right angle male connector on your HAPPY board. This connector is specifically for use in conjunction with the HAPPY 1050 CONTROLLER circuit board. Do not connect any other circuit to this connector on your HAPPY board, as there are no decoded signals. Be sure that none of the 5 pins on this right angle connector are touching each other. If you are installing the HAPPY 1050 CONTROLLER at the same time as your MAXIMIZER/ENHANCEMENT do not plug the CONTROLLER in yet!

Unplug your HAPPY board from the protective conductive black foam. There is a 28 pin plug on the bottom of the HAPPY board, which has gold plated pins for high reliability. Use your pliers and straighten any of the pins which may have been bent during shipment. The pins will not tolerate much bending without breaking off. Broken pins on this connector are not covered by warranty repair.

You will be plugging the HAPPY board 28 pin plug into the 28 pin socket (where you unplugged the 28 pin IC from). Just in front of the 28 pin socket on your original 1050 board there is an oval shaped metal component (a crystal) which stands up on the 1050 board. This component matches with and the top of it sticks up into an oval shaped slot in the HAPPY board.

Use the oval shaped component and matching hole in the HAPPY board to initially position the HAPPY board over the original 1050 board. Look in between the HAPPY board and the original board and match the plug pins on the bottom of the HAPPY board with the socket holes in the 28 pin socket of the original board. Make sure that each pin is going into a socket hole and that the board is not offset by one pin in either direction. Apply force to HAPPY board pushing down on the serial number label to firmly plug the HAPPY BOARD into the 28 pin socket...WHEW!

### TECHNICAL INFORMATION ON HAPPY HARDWARE

By removing the two ICs and plugging in the HAPPY board you have changed to a microprocessor which has 8 times the addressing capability, you have doubled the size of the firmware program which controls your 1050 disk drive, in the case of the MAXIMIZER you have 8 times the RAM memory, and in the case of the ENHANCEMENT you have 24 times the RAM memory. All this for just a small increase in power consumption.

## RF SHIELD INSTALLATION

If you are going to be installing the HAPPY 1050 CONTROLLER in the near future it is suggested that you do not yet install the RF shield, wait till you do the CONTROLLER installation..

If your RF shield is attached with twisted metal tabs (most 1050 drives) it is noted that the tabs will not take much bending without breaking, bend them as little as possible. The larger top portion of the metal box is not identical on the two short sides. One side has a notch in it. The side with the notch faces right (with the drive on/off switch facing you). Fasten the metal shield in reverse of the way it was removed. Be sure that no component is squashed down in between the top metal box and the circuit board.

## P.C. BOARD INSTALLATION

The printed circuit board is installed back into the bottom cover. Molded as part of the bottom cover are 3 small alignment standoffs which mate with three holes in the printed circuit board. Two of these standoffs are located at the left and right rear, one more is located at the left front. The holes in the circuit board match with the standoffs while you push the circuit board down below the two retaining hooks. Install the 3 or 4 screws that hold the PC board in if your drive had these.

## MECHANISM INSTALLATION

The 4 soft black washers are pressed onto the mechanism support standoffs. The flat side of the washers face up. If the metal pins are not glued to either that standoff or the mechanism then place them into their hole in each of the 4 standoffs.

Set the Mechanism on top of the standoffs BUT DO NOT YET PLACE THE PINS IN THE HOLES. At this point plug the read/write head cable securely back into its mating connector at the front right of the circuit board. Make sure all pins go into a connector, usually the red wire faces toward the front, unless you noted otherwise on page 4. If you place the mechanism into the pins before plugging in the read/write head cable then the metal pins may fall out when you lift up the mechanism to do this. Now align the holes in the mechanism with the 4 metal pins making sure the mechanism lies flat and is in alignment with the standoffs. Make sure the read/write head cable is not pinched between the mechanism and standoff.

## CONNECTOR PLUG IN

Plug back in all of the connectors from the mechanism to the circuit board. The read/write head cable should already be plugged in. Plug the connectors in in the reverse order, with the same direction they came off as indicated on page 4 of these instructions. First J15 with yellow facing towards the back (unless otherwise noted). Then J11, J12, J1, J10, and last J14 which is most toward the rear. Be sure all of the connectors are properly oriented and that all terminals are connected before applying power to the disk drive. Be sure to plug in the single spade lug connector if your drive has this. New wire ties for this wire (when present) are not provided. You may purchase these at RADIO SHACK. If you do not tie down this wire make sure it is routed so that it does not come into contact with any moving part of the mechanism.

## INITIAL TRY OUT

Bring the disk drive to your computer system and connect the power and I/O cable. Be sure that the drive number select switches are set as desired, drive 1 has both switches toward the right with the on/off switch facing you. Boot one of the scratch disks to verify proper disk drive operation. Format (initialize) a disk and verify both correct reading and writing. If you are installing a HAPPY 1050 ENHANCEMENT you should boot the WARP SPEED SOFTWARE disk provided and select the DIAGNOSTIC (menu option 2) and ENHANCEMENT diagnostic single test cycle. The MAXIMIZER cannot operate this diagnostic. Go to the trouble shooting section if you are unable to get the disk drive to work properly. If all goes well and you are now also installing the HAPPY 1050 CONTROLLER, proceed back to the proper section in the HAPPY 1050 CONTROLLER installation instructions.

## TOP COVER INSTALLATION

The black front piece on the top cover may have come loose, position the top cover in the normal top up position with the drive front end facing you and tilt bottom of the black front piece upward, align the front piece with the top cover and then tilt the bottom of the black front piece back down so it catches on the hooks to the top cover. Place the top cover over the disk drive and slide it back so the bottom of the front piece is in the correct position. Hold the top and bottom case sections together and turn the disk drive over, bottoms up. Install the 6 screws, do not over tighten!

## FINAL TRY OUT

Again verify proper disk drive reading, writing, and formating operation. For the ENHANCEMENT verify proper operation of the diagnostic. Boot your favorite double density DOS and verify disk drive formatting, reading, writing, and disk booting in true double density. CONGRATULATIONS, and thank you for reading the instructions..

## NOTES ON HAPPY BOARD REMOVAL

Should the need arise to remove the HAPPY board note the following items to reconfigure the disk drive to standard condition. It is obvious that the steps required to remove the HAPPY are about the same as installing it.

When unplugging the HAPPY board rock the board up and down on the left and right sides (with the on/off switch facing you), while applying upward tension on the board. Always plug the board immediately back into the protective black foam. It is very easy to break the pins on the back of the HAPPY board should you drop the board without the foam plugged on.

The two integrated circuits that were unplugged must be plugged back in. First straighten any pins that may be bent. Orientation for plugging in is very important. Look at the two shorter sides on the IC. You will notice that one of the shorter sides has a small round half circle dent in it. This side with the small half circle faces toward the front of the disk drive. Before re-assembling the drive be sure that all pins are correctly plugged into the sockets and that no pin as been bent under.

## TROUBLE SHOOTING

First of all do not expect the HAPPY board to make a defective disk drive work. The HAPPY board can only make a working disk drive work better.

If you should need to take your drive in for service ask the service personnel if they are willing to contact HAPPY COMPUTERS if they suspect something wrong with the HAPPY board. Many service technicians might be tempted to (unfairly) blame all of the disk drive problems on your HAPPY board. The disk drive is a complicated piece of equipment and has many failure modes. If the technician cannot work on the drive with the HAPPY installed take it out before bringing the drive in for repair. HAPPY COMPUTERS technical staff is always willing to help both technicians and individuals on matters of disk drive service and HAPPY board installation..

Most problems that arise at installation are due to improper installation. Did you remove both (2) of the correct ICs? Did you make sure the HAPPY board pins were plugged in correctly. Are the drive select switches in the correct position? Did you double check all plug in connectors for proper orientation. Are any wires which go to a connector broken? Are any of the pins on the bottom of the HAPPY board broken. Did you mistakenly unplug any ICs not specified and plugged them back in incorrectly?

Is the HAPPY board defective? All HAPPY boards undergo complete high reliability "IN SYSTEM TEST" prior to shipment but damage due to static electricity during handling and installation is possible. Re-verify proper disk drive operation without the HAPPY board and better yet verify that the HAPPY board does not work when properly installed in another disk drive by another person before blaming your HAPPY board in order to avoid needless service charges.

In any case don't panic. Approach the problem in a systematic manner to eliminate sources of human error. HAPPY COMPUTERS can provide installation service as well, however we cannot perform general disk drive repair for 1050 disk drives as spare parts plus installation usually exceeds the current market price for a new disk drive, especially if the mechanism is broken.