

TIVO DVR UPGRADE INSTRUCTIONS (#79)

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Instructions for TwinBreeze® Gen2 / DIRECTV DVR, TCD24 and similar architectures
Instructions are available online (in COLOR) at <http://www.weaknees.com>

A FEW WORDS OF CAUTION:

Upgrading a TiVo DVR presents a few physical hazards. As with most consumer electronics devices, components in the TiVo may still carry a lethal charge, even after disconnecting from your power supply. Be aware of this while working inside your TiVo. Allow sufficient time for discharging of components and avoid contact as much as possible with potential hazards. While we have done everything we can to provide accurate, easy-to-follow instructions, we cannot be responsible for any damage done to your TiVo or to yourself as a result of your upgrade. By opening your TiVo, you agree that neither weaKnees nor any of its members or affiliates is responsible in any way for any harm done. Please be VERY careful when upgrading. NEVER open the TiVo while the unit is plugged in and NEVER operate the TiVo if the lid is not securely fastened. PLEASE NOTE: Opening the TiVo voids the warranty.

IF YOU NEED TECHNICAL SUPPORT:

If you have purchased an upgrade kit that included one or two pre-configured hard drives: We are more than happy to answer any questions that you might have regarding your installation. We answer email very frequently, and can often be reached that way at night or even on weekends. We encourage you to try email first, but you are also free to call us any time if you have questions about your installation or these instructions.

If you have purchased a TwinBreeze Bracket package (without a pre-configured drive): These kits are designed for people who already know how to prepare a drive (or drives) for use in a TiVo. We unfortunately do not have the resources to teach our bracket customers how to upgrade their TiVos.

Required Tool (not included): Phillips-head screwdriver.

Kit includes all items shown below.

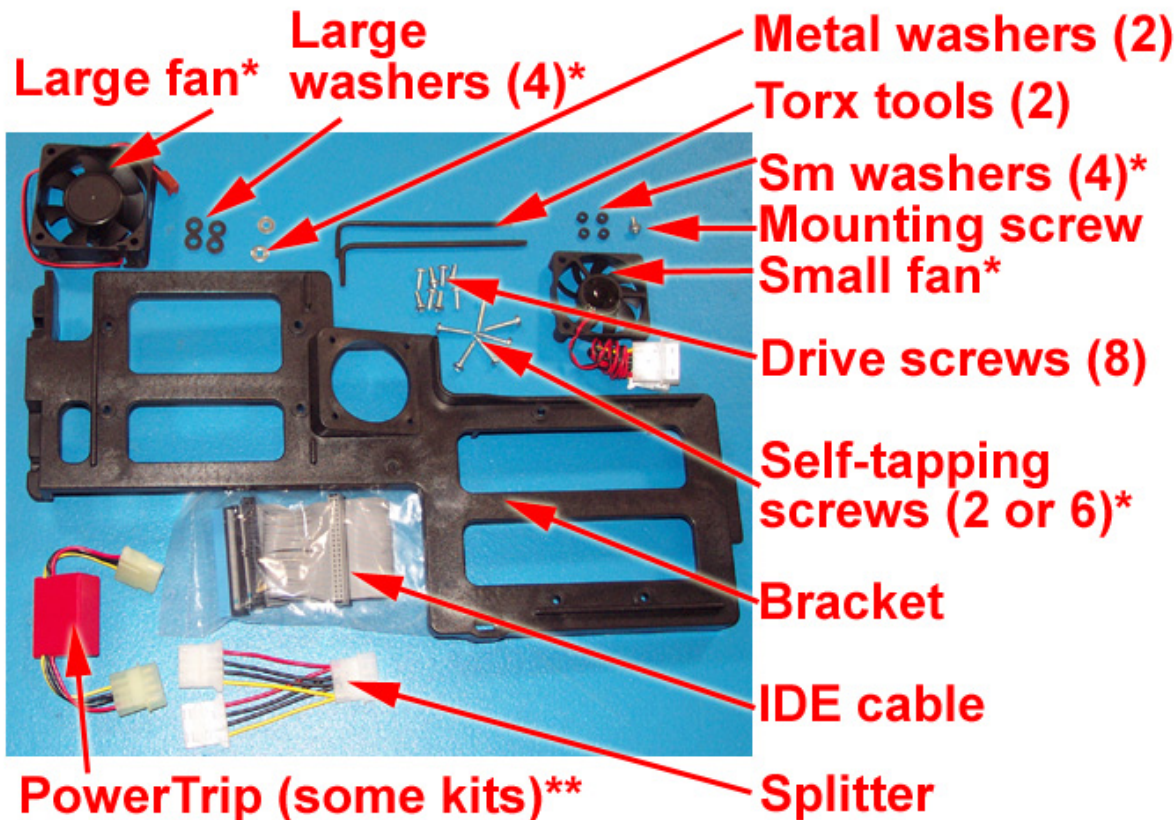


Figure 1

Not shown:

- (1) Set of printed instructions
- (1) or (2) Upgrade hard drive(s) (if applicable)

*Small fan, small washers & 4 self-tapping screws included in optional advanced cooling pak; large fan/large washers included in advanced cooling pak for some models.

**PowerTrip included in kits for standalone (non-DIRECTV) TiVo DVRs.

1. OVERVIEW

Upgrading your TiVo entails just five basic steps:

- (a) Open the TiVo (Section 2)
- (b) Remove the factory drive (Sections 3 through 5)
- (c) Install drives on the mounting bracket and assemble parts (Sections 6 through 9)
- (d) Install bracket and cables (Sections 10 through 13)
- (e) Close the TiVo (Section 14)

2. OPENING THE TIVO

Unplug the power cord from the back of your TiVo and wait five minutes for the TiVo to discharge. Do not plug the TiVo back in until you are completely finished. Be very careful of static electricity, which can destroy your TiVo's internal parts. You should not perform this upgrade on carpet. You may want to label the wires that you remove from the back of your TiVo so that you can easily locate where they belong.

Using the Torx T-10 (smaller of the two) L-key included with your kit, unscrew the four or five Torx screws on the back of your TiVo. The screws are surrounded by gray from the top of the TiVo's case. See Figure 2.

Set aside (to be used again): TiVo lid screws.

Once the screws are removed, remove the lid. Place your palms on the top side edges of the TiVo, toward the back and push toward the back of the TiVo (this occasionally requires a bit of patience). The cover should slide back and then up. Remove the cover from the TiVo. See Figure 3.

Set aside (to be used again): TiVo lid.



Figure 2 (above) Back view



Figure 3 (above) Top view

3. DISCONNECTING THE EXISTING DRIVE BAY

With the cover off and looking to the front-right of the TiVo, you will be able to see (1) one hard drive, (2) a gray IDE ribbon cable that runs from the greenish motherboard to the hard drive, (3) a multi-colored (red/black/yellow) power cable that runs from the power supply to the hard drive, and (4) two bracket screws that connect the hard drive and its bracket to the TiVo. See Figure 4.

Using your Torx screwdriver, unscrew and remove the two bracket screws that connect the hard drive bracket to the lower bracket (part of the bottom of the unit). These screws are located at the front-right of the TiVo. As you look down into the TiVo, you will see the two screw heads. See Figure 4.

Set aside (not reused): Two bracket screws.

NOTE: Be very careful not to dislodge (even slightly) the front panel ribbon cable. If you do, simply push it back in place. NEVER power on your TiVo with this cable even slightly dislodged. See Figure 4.

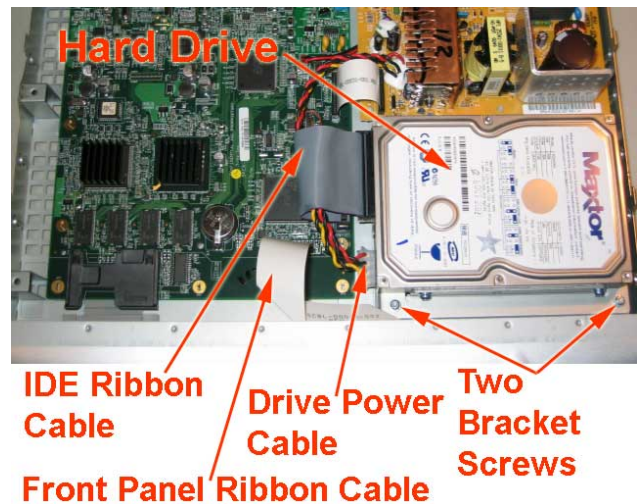


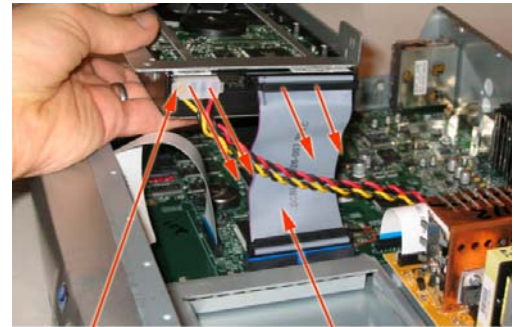
Figure 4. Front/top view

4. REMOVING THE POWER CABLE AND IDE RIBBON CABLE

Situate yourself in front of the TiVo. With your left hand, push the drive/bracket back slightly toward the power supply and then flip it over to the left (see Figure 5).

While holding the drive bracket in your left hand (being careful not to touch the components on the drive itself), use your right hand to remove the power cable and IDE cable from the hard drive. These can sometimes stick, so you might have to wiggle the power cable a bit. NOTE: If this method of removing the cables is difficult for you, you can instead remove the cables at the end of step 2. However, you MUST be VERY CAREFUL of the front panel ribbon cable. If this cable is dislodged even slightly and you power on your TiVo, you can cause permanent damage.

Set aside (not reused): One IDE cable.



Drive Power Cable IDE Ribbon Cable

Figure 5 Side view

5. REMOVING THE EXISTING DRIVE

Now, using the larger (T-15) Torx tool, unscrew the four Torx drive screws that connect the hard drive to the hard drive bracket. See Figure 6. You will not re-use these four screws or the metal drive bracket, but you should save the screws and bracket, together with the ribbon cable you removed.

Set aside (not reused): Four drive mounting screws; one IDE cable; one metal bracket

NOTE: Your factory drive might appear different than the one pictured in Figure 6.



Four Drive Screws

Figure 6

6. SETTING THE JUMPER (ONLY APPLIES TO “ADD” KITS – “REPLACE” KIT INSTALLERS CAN SKIP TO STEP 7)

Pick up the factory hard drive and look at the hard drive with the label facing up and the empty power/IDE cable connectors facing you. Your TiVo’s hard drive has one or two small white or black plastic “jumper(s)” that are located between the IDE cable and the power cable connectors. Follow the steps below (depending on your drive manufacturer) to confirm that your factory drive is set to Master. **DO NOT MAKE ANY JUMPER CHANGES TO ANY DRIVE(S) THAT YOU RECEIVED IN YOUR UPGRADE KIT.**

If your TiVo’s original drive is a Quantum or Maxtor hard drive: If your drive has one jumper, then you will see a total of four pairs of pins (and, therefore, 4 possible vertical places for the jumper). Ignore the single pin located closest to the IDE cable connector. If your drive has two jumpers, then your drive has a total of 5 sets of two pins. See Figs 7 and 8.

In a one-jumper Quantum or Maxtor hard drive, the jumper should be moved to the furthest left-hand position (again, ignoring the single pin). Gently remove the jumper with the end of a paper clip or your fingernail and move it to the proper position. NOTE: the jumper must be vertical and must be carefully inserted so that the jumper fits inside the left-hand most pins. See Figure 7. In a two-jumper Maxtor hard drive, the jumper should be set properly, and should be in the shape of an “L” turned 90° clockwise. See Figure 8.

If your TiVo’s original drive is a Western Digital hard drive:

You will notice a total of five pairs of pins (and, therefore, 5 possible vertical places for the jumper). In a Western Digital hard drive, the jumper should be moved to the center position. Gently remove the jumper with the end of a paper clip or your fingernail and move it to the proper position. NOTE: the jumper must be vertical and must be carefully inserted so that the jumper fits inside center pins vertically. See Figure 9.



Quantum/Maxtor Set as “Master”

Figure 7 (above)



Two-jumper Maxtor Set as “Master”

Figure 8 (above)



Western Digital Performer Set as “Master with Slave Present”

Figure 9 (above)

7. CONNECTING THE BRACKET FAN (IF INCLUDED IN YOUR KIT)

Your kit may include a small bracket fan. Look at the edges of the fan and locate the two airflow directional arrows printed in black on one side of the fan. Once you have located the arrows, insert a self-tapping screw into each fan hole, in the *opposite* direction of the airflow arrow. See Figure 10. (When installed on the bracket, the air flow should be moving from under the bracket up toward the lid of the TiVo.) Once you have the four screws through the fan holes, screw a small rubber washer onto the end of each screw. You need only turn each washer one or two turns. See Figure 10. Place the fan on the bracket as shown in Figure 11. Screw in the four fan screws (through the fan and into the bracket) until they are tight; **do not overtighten**.



Figure 10 (above)

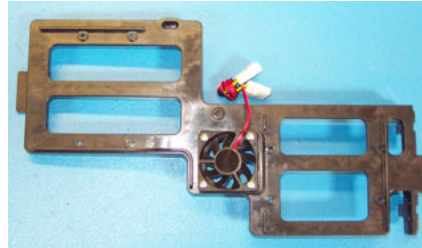


Figure 11(above)

8. CONNECTING THE HARD DRIVES TO THE DRIVE BRACKET

Using four of the hard drive screws included with your kit, screw your A/Master drive to the bracket (the screws connect to the drives from the underside of the bracket). In an "ADD" kit (in which you are retaining your factory drive), the A/Master drive will be the factory drive. When the A/Master drive is connected and screwed in properly, the back of the drive will hang off the end of the bracket. Be sure to orient the drive as shown in Figure 12. Do not overtighten the screws. Connect your new upgrade drive (or "B" drive) to the drive bracket using the remaining four hard drive screws. Be sure to orient the drive on the bracket as shown in Figure 12. The "B" drive should be connected near the bracket tab shown in Figure 12. The IDE and power ports should be facing the middle of the bracket. Do not overtighten the screws.

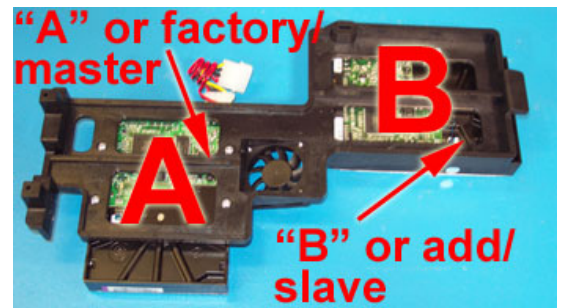


Figure 12

9. PREPARING THE CABLES

IF YOU ARE UPGRADING A DIRECTV DVR UNIT

(kits for these units do not ship with, or require, a PowerTrip™)

Once you have the drives and fan on the bracket, connect one end of the fan's power pass-through to the A/Master drive (only one end will fit). Attach the other end to the power splitter cable included with your kit. Attach the other end of the power splitter to the B/Slave drive. You should now have the fan cable and power cables running to each drive on the bracket. See Figure 13a. NOTE: If your kit did not include a fan, connect one end of the power splitter directly into each of the two hard drives.

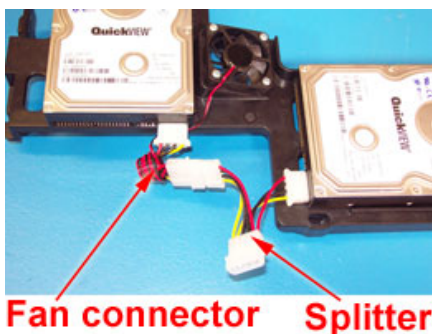


Figure 13a

IF YOU ARE UPGRADING A STANDALONE DVR UNIT

(kits for these units ship with a PowerTrip™)

Once you have the drives and fan on the bracket, connect one end of the fan's power pass-through to the A/Master drive (only one end will fit). Then, connect the PowerTrip (red box with drive power connectors on both sides) to the other connector of the fan's power pass-through. Finally, attach the power splitter so that one end goes into the PowerTrip, and the other end goes into the B/Slave drive. See Figure 13b. **DO NOT CONNECT THE POWERTRIP TO THE SLAVE DRIVE.** NOTE: If your kit did not include a fan, connect one end of the power splitter into the B/Slave drive, and the other end into the PowerTrip.

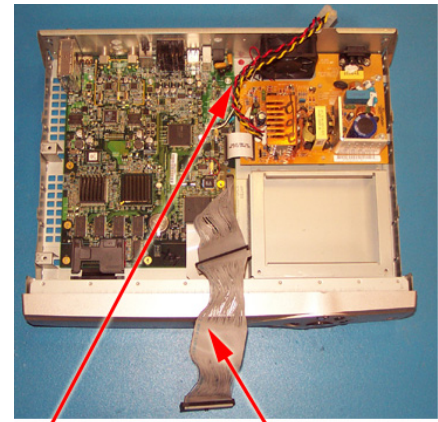


Figure 13b

ALL UNITS, CONTINUE WITH THESE INSTRUCTIONS:

Take the IDE cable included with your kit and attach the BLUE connector to the motherboard. NOTE: Be careful to insert the cable in the proper direction – each connector on the cable has a notch that aligns to ensure it is not installed upside-down. See Figure 14. Drape the remainder of the cable over the front of the unit.

Move the TiVo's internal red/yellow/black power connector over the back side of the TiVo, as shown in Figure 14. You might have to flex or bend the power cable a bit to get it to stay in place.



Power cable IDE cable
Figure 14

10. INSTALLING THE TWINBREEZE BRACKET INTO THE TIVO AND ATTACHING THE IDE CABLE

From the front of the unit, hold the bracket in your left hand near the A/Master drive (being careful not to touch the circuit board of the drive) and use your right hand to guide the bracket tab (located near the edge of the B drive) into the center of the metal bracket base where the old drive bracket had been mounted. Be sure that the bracket tab is centered under the metal bracket. You can gently move the white cable under the fan toward the power supply to keep it from obstructing airflow under the fan, but be careful not to dislodge it. See Figure 15.



Figure 15 (above) Right side view

As you slide the bracket tab under the metal bracket, align the anchor screw hole (located next to the power connector of the B/Slave drive) so that when you lower the TwinBreeze bracket down, the anchor screw hole is aligned with the screw hole in the metal bracket. See Figure 18.

As you lower the bracket down, thread the IDE cable between the power cable and the fan. Insert the gray IDE connector into the B/Slave drive. See Figure 17.

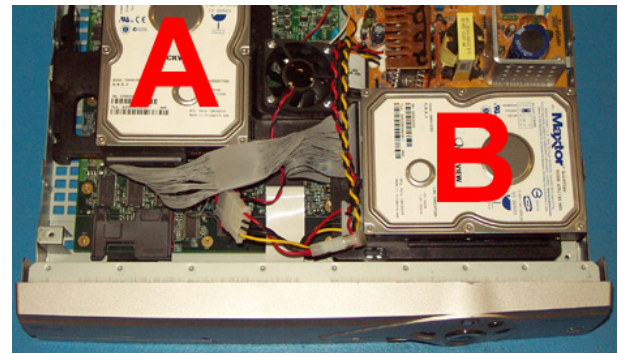
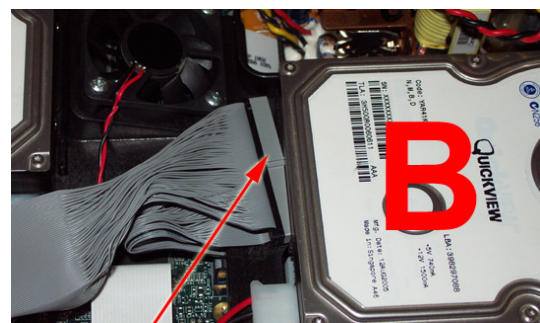


Figure 16 (above) Front/top view

Next, connect the black connector of the IDE cable into the A/Master drive. Again, be sure that the notch in the connector faces up. You can then tuck the cables under the front lip of the TiVo—but be careful not to dislodge the white panel ribbon cable. See Figure 16.

NOTE: BE CAREFUL NOT TO DISLUDGE THE FRONT PANEL RIBBON CABLE. (See Figure 5.)



IDE cable (gray connector)

Figure 17 (above) Front/top view

11. ANCHORING THE TWINBREEZE BRACKET

Once the bracket has been lowered, insert the bracket mounting screw into the bracket anchor screw hole, and use the T10 torx key to tighten the screw. Do not overtighten. See Figure 18



Anchor screw hole

Figure 18 (above) Front top view

12. SECURING THE TWINBREEZE BRACKET TO THE BASE OF THE TiVO

Insert a metal washer onto each of the two remaining self-tapping screws. Turn the TiVo so that you are facing the left side of the unit (the side further away from the power supply). Use one hand to push the bracket down. Using your other hand, lift the left edge of the TiVo. Using Figure 19 as a guide, locate the pre-drilled holes in the bracket feet, which should be visible through the grates.

Be sure that the bracket mounts are aligned properly – counting from the gap between the sets of holes, you should be screwing into the fourth hole towards the back, and the third hole towards the front.



Figure 19 (above) Bottom left side view

Once you have the bracket aligned, insert the self-tapping screws through correct hole in the bottom of the TiVo and into the pre-drilled holes in the bracket.

Gently tighten the screws in place. Do not overtighten.

Once you have secured the bracket using the two self-tapping screws, your TiVo should look like Figure 20.



Figure 20 (above)

13. CONNECTING OPTIONAL CASE FAN (INCLUDED IN SOME ADVANCED COOLING PAKS)

NOTE: If your kit included a new case fan (shown in Figure 21), it is not imperative that you install it. The replacement case fan is designed to reduce noise. The factory fan is a more powerful, noisier fan, so if you would like maximum cooling and do not mind the noise, you can certainly leave the factory fan installed. (If your unit has a raised fan grate in the rear, you will NOT replace your case fan.)

To replace the case fan: Locate and remove the factory fan cable from the TiVo's motherboard. Pull the fan power connector straight up and out. You can locate the connector by following the wire from the fan (which is mounted at the back of the TiVo) to the motherboard. See Figure 21.

Using the Torx T15 tool included with your kit, unscrew the four screws on the back of the TiVo that are holding the fan in place. Set aside (to be used again): Four fan screws.

Using the same screws that you removed from the factory fan, push each screw through the holes. Insert one of the large rubber washers on each fan screw (these fit tightly, so you will have to actually screw the washer onto the screw). Locate the air flow directional arrows on the new fan and place the new fan in the TiVo so that the screwholes are aligned and so that the air is flowing out of the TiVo. The screws you are using will be cutting threads in the new fan, so a bit of force may be necessary. DO NOT fully tighten any of the screws until you have partially screwed in all four screws. You may need to use one hand to hold the fan in place while you screw in the screws.

Attach the fan connector to the motherboard. If your replacement case fan has three wires—red, black, and white (or yellow), then the white (or yellow) wire will NOT be used, so you must connect the fan as shown in Figure 23. The two pins on the motherboard should be connected to the red and black fan wires. The white/yellow wire will hang over the connector. If you connect the fan incorrectly, it will not power up.

NOTE: If your kit included the small bracket fan but not the larger case fan, then you will not need to replace your case fan. Your TiVo already has a larger, quieter case fan from the factory.

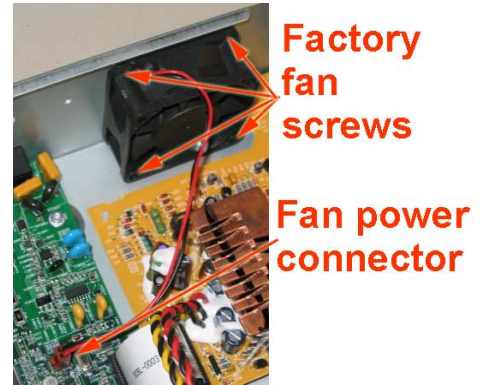


Figure 21 (above)



Figure 22 (above)

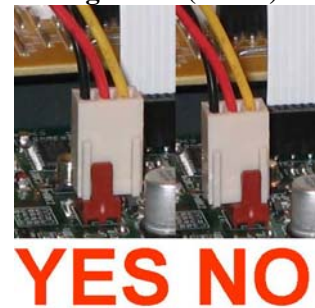


Figure 23 (above)

14. RE-ATTACHING THE TIVO LID

Place the TiVo lid back over the TiVo. Align the clips on each side of the lid so that they clip down on the sides of your TiVo. Slide the lid toward you while simultaneously pushing gently down on the top of the lid. See Figure 21. Once the lid is in place, reattach the Torx screws. Plug in your TiVo and enjoy!

You can verify your new capacity by looking in the System Information screen of your TiVo. The System Information screen is located in the "Messages and Setup" menu. Once in the System Information screen, you will see "Variable up to XXX hours" (you may have to scroll down the page using the "channel down" button). This message gives you the maximum capacity of your unit, after the upgrade. In rare cases, you may not see your local channels immediately after installation. If this occurs, simply wait a few hours for them to populate automatically.



Figure 24

We thank you very much for your purchase and hope that you enjoy your newly-enhanced TiVo. Please [email us](#) with any comments, suggestions or complaints. If you found the upgrade easy to install (or even if you found it more difficult than you expected), we'd love to know. If you found our service to be excellent (or awful), we want to know that too. We're always looking to improve our products and services...the more we hear from you, the better. Thanks very much!