

ESI

Turbo Option Kit

Installation Guide

E-MU
 **E-mu Systems, Inc.**

E-mu PN: FI577 Rev. A



ESI Turbo Option Kit

for the ESI Sampler - Model 6215

Installation Guide

This kit upgrades a standard ESI with the "Turbo" option. The Turbo option adds several new hardware features including:

- **Two stereo digital effect processors for reverb, delay and chorus effects.**
- **Six additional audio outputs.**
- **S/PDIF digital input and output to transfer audio entirely in the digital domain.**

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IMPORTANT SAFETY INSTRUCTIONS

Use in countries other than the U.S.A. may require the use of a different line cord or attachment plug, or both. To reduce the risk of fire or electric shock, refer servicing to qualified service personnel. To reduce risk of fire or electric shock do not expose this product to rain or moisture.

GROUNDING INSTRUCTIONS

This product must be grounded. If it should malfunction or break down, grounding provides a path of least resistance for electric current, reducing the risk of electric shock. This product is equipped with a cord having an equipment-grounding conductor and a grounding plug. The plug must be plugged into an appropriate outlet properly installed and grounded in accordance with all local codes and ordinances.

Improper connection of equipment grounding conductor can result in the risk of electric shock. Check with a qualified electrician or service personnel if you are in doubt as to whether the product is properly grounded. Do not modify the plug provided with this product. If it will not fit the outlet, have a proper outlet installed by a qualified technician.

WARNING: Because the interior of the ESI contains potentially lethal voltages, this modification should be performed by authorized service personnel ONLY!

These instructions are not provided as a guarantee against improper installation. When in doubt contact E-mu Customer Service at: (408) 438-1921.

Tools Needed:

Phillips head screwdriver #1

Kit 6215 Contents:

- (1) These installation instructions
- (1) Version 3.00 ESI ROM set
- (1) Budget surface-mount IC removal tool
- (1) Turbo option board
- (1) Ribbon cable assembly
- (1) Headphone jack cable assembly
- (1) Stereo Splitter cable
- (2) 3.5 inch Sound Floppy Disks
- (2) 4-40 x 1/4' screws

CAUTION

If the ESI Model 6215 is rack mounted, a standard 19 inch open frame rack must be used.

USER-MAINTENANCE INSTRUCTIONS

1. The ESI should be kept clean and dust free. Periodically wipe the unit with a clean, lint free cloth. Do not use solvents or cleaners.
2. There are no user lubrication or adjustment requirements.
3. Refer all other servicing to qualified service personnel.

INSTRUCTIONS PERTAINING TO A RISK OF FIRE, ELECTRIC SHOCK, OR INJURY TO PERSONS

WARNING; When using electric products, basic precautions should always be followed, including the following:

1. Read all instructions before using the ESI.
2. To reduce the risk of injury, close supervision is necessary when the ESI is used near children.
3. Do not use the ESI near water — for example near a bathtub, wash-bowl, kitchen sink, in a wet basement, on a wet bar, or near or in a swimming pool.
4. The ESI should be situated so that its location or position does not interfere with its proper ventilation.
5. The ESI should be located away from heat sources such as radiators, heat registers, fireplaces, stoves, or ovens.
6. The ESI should only be connected to a power supply of the type described in the operating instructions and as marked on the product.
7. Care should be taken so that objects do not fall and liquids are not spilled into the enclosure of the ESI through openings.
8. This ESI may be equipped with a polarized line plug (one blade wider than the other). This is a safety feature. If you are unable to insert this plug into the outlet, do not defeat the safety purpose of the plug. Contact an electrician to replace your obsolete outlet.
9. The power supply cord of the ESI should be unplugged from the outlet when left unused for a long period of time.
10. This product, in combination with an amplifier and headphones and speakers, may be capable of producing sound levels that could cause permanent hearing loss. Do not operate for a long period of time at a high volume level or at a level that is uncomfortable. If you experience any hearing loss or ringing in the ears, consult an audiologist.
11. The product should be serviced by qualified service personnel when:
 - A. The power supply cord has been damaged; or
 - B. Objects have fallen, or liquid has been spilled into the product; or
 - C. The product has been exposed to rain; or
 - D. The product has been dropped or the enclosure damaged; or
 - E. The ESI does not operate normally or exhibits a marked change in performance.
12. All servicing should be referred to qualified service personnel.

SAVE THESE INSTRUCTIONS

RADIO and TELEVISION INTERFERENCE

The equipment described in this manual generates and uses radio-frequency energy. If it is not installed and used properly — that is, in strict accordance with our instructions - it may cause interference with radio and television reception.

This equipment has been tested and complies with the limits for a Class A computing device in accordance with the specifications in Subpart J of Part 15 of the FCC rules. These rules are designed to provide reasonable protection against such interference in a residential installation. However, there is no guarantee that the interference will not occur in a particular installation, especially if a “rabbit ear” TV antenna is used.

If the ESI does cause interference to radio or television reception, you can try to correct the interference by using one or more of the following measures:

- Turn the television or radio antenna until the interference stops.
- Move the ESI to one side or the other of the television or radio.
- Move the ESI farther away from the television or radio.
- Plug the ESI into an outlet on a different circuit than the television or radio.
- Consider installing a rooftop antenna with a coaxial lead-in between the antenna and television set.

WARRANTY MAY BE VOIDED IF DAMAGE IS CAUSED BY IMPROPER INSTALLATION, IMPROPER OR INADEQUATE MAINTENANCE, ACCIDENT, ABUSE, MISUSE, ALTERATION, UNAUTHORIZED REPAIRS, TAMPERING, OR FAILURE TO FOLLOW PROCEDURES AS OUTLINED IN THIS INSTALLATION GUIDE.

GROUNDWORK

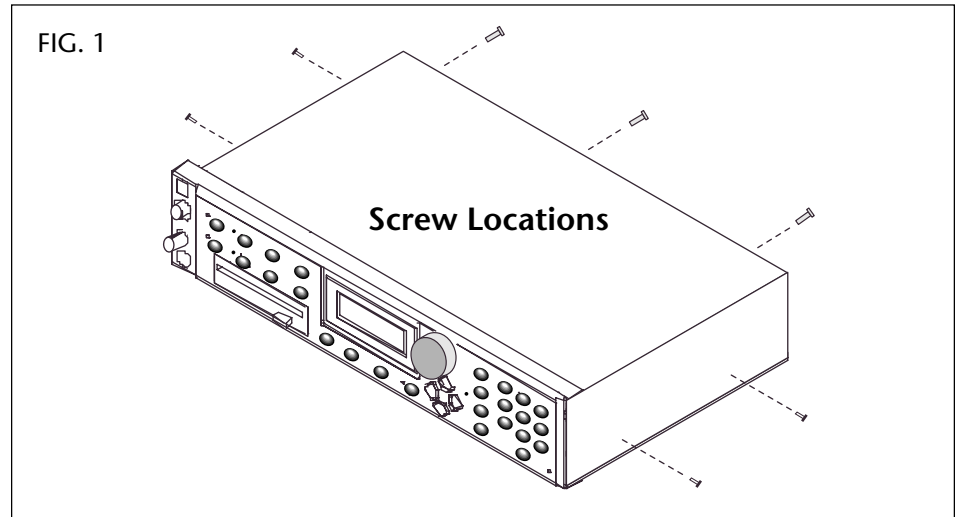
This procedure requires that you periodically “Ground” yourself by touching a grounded object, such as a water pipe or a grounded piece of equipment. Grounding yourself removes any static electricity stored in your body that can damage the sensitive memory chips. When you are asked to “Ground” yourself, simply reach over and touch the grounded metal. Do not walk across the room or a rug, as this will defeat the purpose of grounding.

Before you begin, find a clean, well lit place in which to work.

UNPLUG THE AC CORD BEFORE DOING ANY WORK!

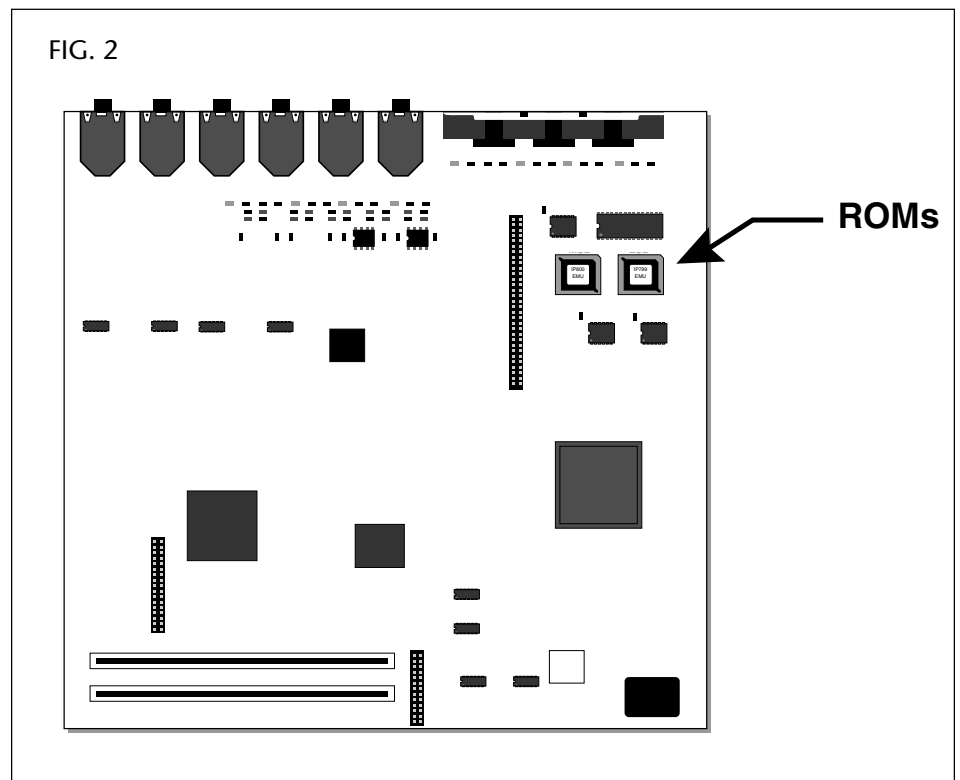
REMOVE THE TOP COVER

To gain access to the interior of the unit, the top panel must first be removed. The top panel is attached to the main chassis with seven (7) screws. There are three screws along the back of the unit and two on each side. When all the screws are removed, slide the metal top toward the back and lift up and off the unit exposing the main circuit board. Set the top cover aside in a safe place and put the screws into a cup so they will not get lost. The power supply may be covered by a metal box. Do not remove this metal cover!



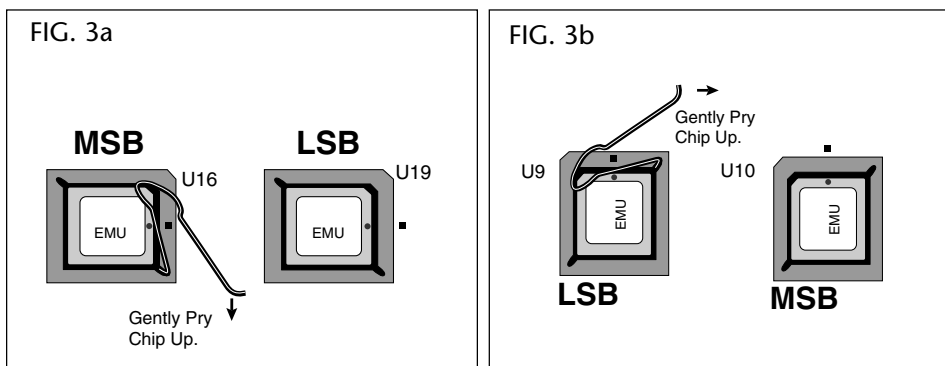
REMOVE THE OLD ROMS

The operating system ROMs are located on the right hand side, toward the rear, on the main board as shown in the following illustration (FIG. 2).



The exact ROM location on your board may be different depending on the unit you have. The ROMs are all in the same vicinity on the main board.

Removing the old ROMs is a little tricky because the IC sockets are fragile and can be damaged easily. Notice that there is a slot in each of the diagonal corners of the ROM sockets. These slots allow the removal tool to get underneath the ROM in order to pull it out.

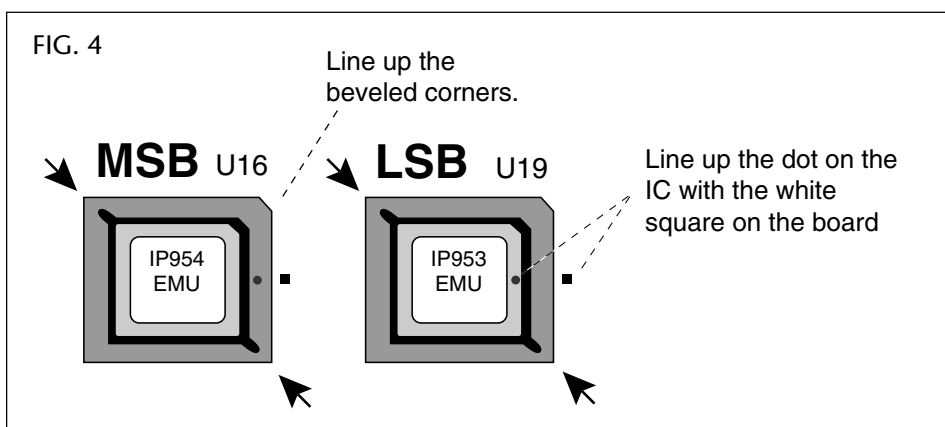


There are two versions of the ESI Main board. The illustrations above show the labeling and ROM orientation for both versions.

Remove a ROM by inserting the budget removal tool supplied with this kit into one of the corner slots and gently prying it up. **DON'T FORCE IT!** If it moves just a little, that's good. Move the hook to the other side and repeat the procedure. Go from corner to corner, until the ROM pops out. Remove both ROMs.

INSTALL THE NEW ROMS

Ground yourself by touching a grounded object, then remove the version 3.0 ROMs from their antistatic bag. Note that the ROMs are marked IP954 (M) and IP953 (L). IP954 is installed in location MSB (U16 as shown in FIG. 3a, U10 as shown in FIG. 3b) and IP953 is installed in location LSB (U19 as shown in FIG. 3a, U9 as shown in FIG. 3b). Refer to FIG. 4 below for proper orientation of the ROM in the IC socket. The corners of the ROMs are keyed with a small flat spot on one corner to show the correct orientation. Place the ROM over the proper socket in the proper orientation and simply press it straight down into the socket. Easy.



⚡ Caution: Make sure the unit is unplugged. If the power supply in this ESI is not encased in a power supply enclosure, be careful not to touch the power supply which can cause electric shock.

POWER-UP TEST

Test the ESI to make sure that the installation was successful. Replace the top cover (you don't have to replace the screws, just set it on the unit). Connect AC power and turn on the power switch. The unit should power up normally. Congratulations! If the unit doesn't power up normally, refer to the next section for some suggestions on what to do. If the unit does power up successfully, turn off and unplug the unit, remove the top cover again, then go on to the next step to "Replace the Headphone Cable."

UNIT DOESN'T BOOT?

- Verify that the ROMs are installed in their proper locations.
- Try removing the ROMs, then check all the pins for straightness. Reseat the ROMs in their proper locations.
- Try replacing the old ROMS.
- Still No Boot? Call E-mu Customer Service at (408) 438-1921 Telephone support hours are 8:00-5:00 PST, Monday through Friday. Or contact E-mu UK at +44 (0) 131-653-6556.

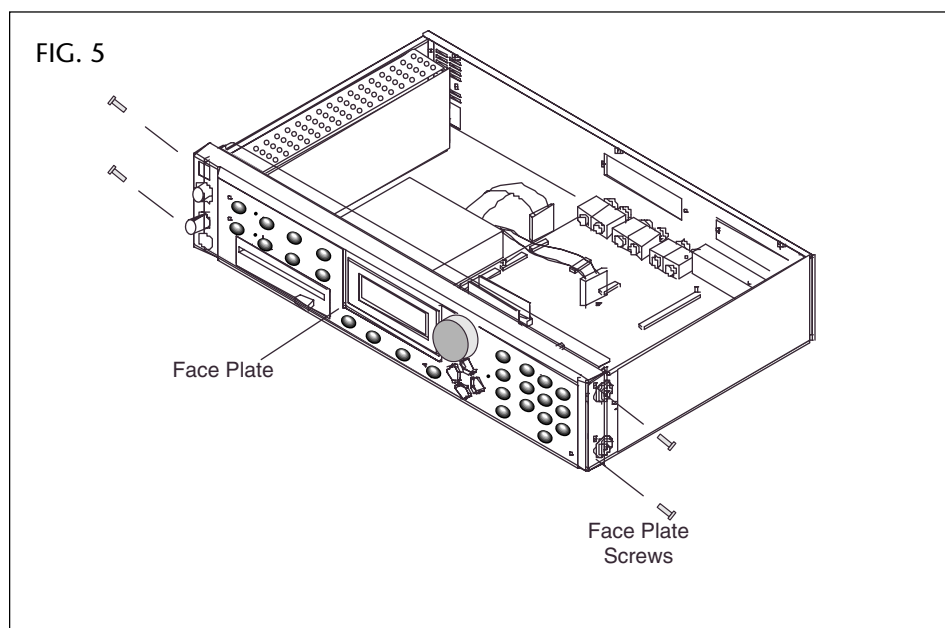
REPLACE THE HEADPHONE CABLE

You must replace the cable connected to the lower pins on the face plate of the unit with the new cable provided with your kit.

If your ESI unit has a metal box covering the power supply, you must remove the front panel of the unit to gain access to the headphone audio cable connector. Refer to FIG. 5 and the following instructions.

If your ESI has an exposed power supply you do not need to remove the front panel to replace the headphone audio cable. In this case, skip steps 1 through 3, and 7 through 9. **Do only Steps 4 through 6.**

■ **Note:** *If your ESI unit does not have a metal case enclosing the power supply, skip steps 1 through 3 and continue with step 4. You do not need to remove the front panel of the unit to replace the audio cable.*

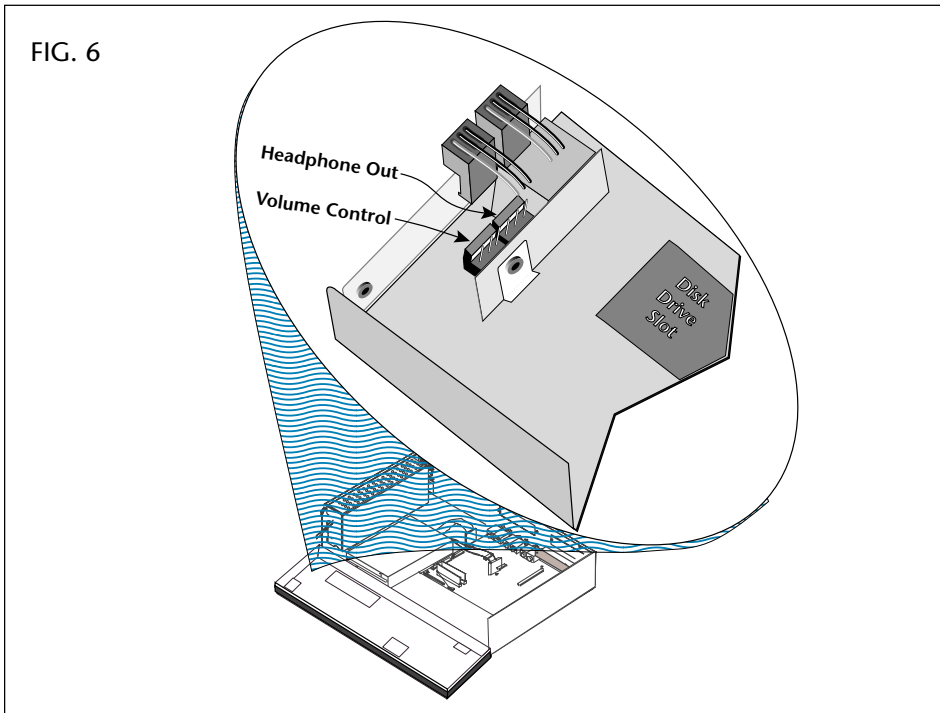


1. **Remove the screws** holding the front plate to the unit as shown in the following illustration.
2. **Remove the connector of the ribbon cable** located in the center of the front panel from the main board.
3. **Gently slide the front panel off the unit** and lay it down to expose the inside of the panel. The Power button may pop off the unit as you pull off the front panel. Set it aside in a safe place (maybe in the cup with the screws).
4. **Remove the headphone audio cable** from the connector on the front plate. The headphone audio cable is the lower one of the two cables connected on the lower left hand side of the face plate (see FIG. 6).
5. **Disconnect the other end of the existing headphone audio cable** from the connector on the main board and set aside.
6. **Locate the longer headphone audio cable** included with this Turbo Option kit.

■ **Note:** *The connector on the Headphone audio cable is keyed to attach in the correct orientation.*

7. **Connect one end of the cable into the headphone audio jack on the front panel.** (This is the same connector from which you removed the first cable.) Refer to FIG. 6.

You will attach the free end of the cable to the headphone connector on the Turbo Board once it is installed (instructions for installing the Turbo Board follow.)



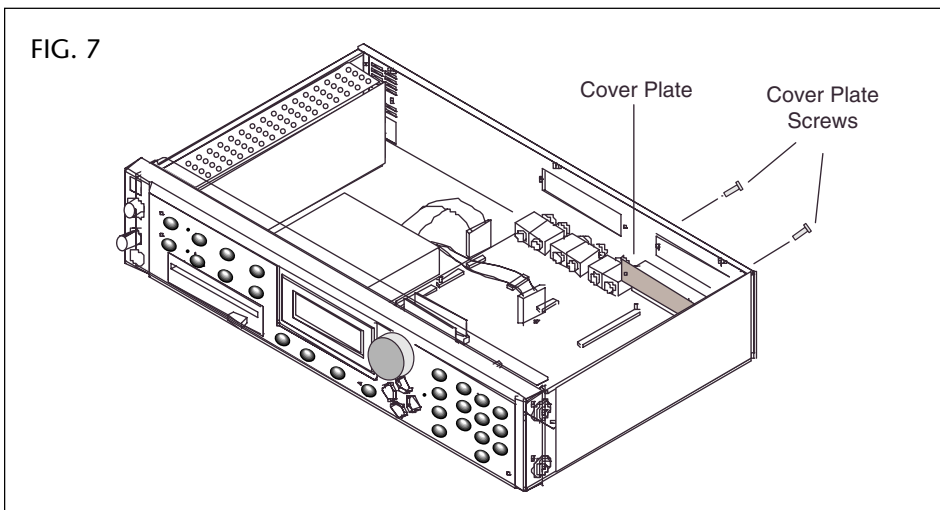
8. **Reattach the front panel to the unit** using the four screws you removed in Step 1. Make sure the front panel is seated correctly. Don't force it.

9. **Reconnect the ribbon cable** removed in Step 2 to the main board.

10. **Replace the Power button.**

INSTALL THE TURBO BOARD

If your ESI unit has the SCSI controller built-in the main board, refer to the instructions for installing the Turbo board in a SCSI unit. If, however, your unit has the SCSI Board Option Kit installed, refer to the instructions for installing with a SCSI board.

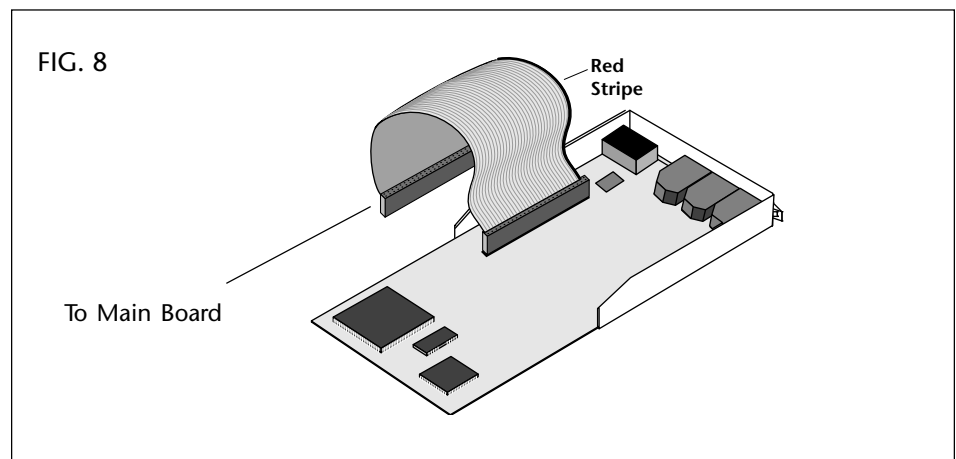


To Install the Turbo Board in a SCSI Unit

Before you install the Turbo board, you need to make place for it. On the back of ESI there are two metal cover plates. Remove two screws from the plate under the “Option” or “S/PDIF” label - see FIG. 7. Put the screws in the cup to save for later reassembly. Remove the cover plate and store it with other “useful” things which don’t seem to have any particular purpose at the moment.

1. **Remove any static electricity stored in your body** by touching a grounded object.
2. **Remove the metal cover plate from the back of the unit** as shown in FIG. 7 on the previous page.
3. Ground yourself again, by touching a grounded object, then **carefully remove the Turbo Board from its protective antistatic bag**.
4. **Connect the flat ribbon interface cable to the Turbo board** as shown in the following illustration. Make sure to match Pin-1 on the cable to Pin-1 on the connector. Pin-1 on the cable is identified by a red stripe. Pin-1 on the connector is labelled.

It may help if you first place the Turbo board on a firm, flat surface. The 50-Pin connector requires some insertion force, but it shouldn’t be excessive. Make sure that the connector goes on both rows of pins, not just one. **DO NOT BEND PINS OF ANY CONNECTOR!** Should you encounter a problem, disconnect the cable and start over.

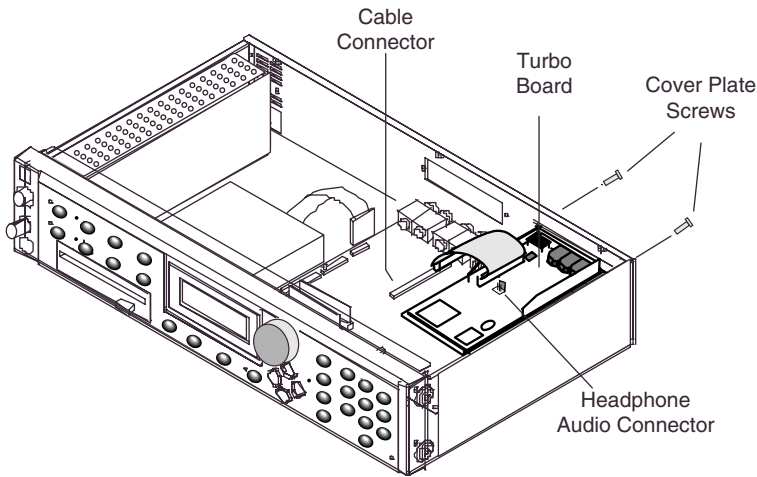


■ **Note:** *The connector on the Headphone audio cable is keyed to attach in the correct orientation.*

5. **Install the Turbo board** from the inside of the ESI (See FIG. 9). While holding the installed card with one hand, secure the Turbo card with one screw from the outside of the ESI. Use the same small screws that were holding the cover plate. Then install the second screw and tighten both screws.
6. Insert the free connector on the cable to the connector on the Main board labelled “Expansion.” Take special care not to disconnect other cables inside the unit.
7. Connect the free end of the Headphone audio cable installed earlier to the Headphone Audio Connector (labelled HDPH) on the Turbo board.

Go on to the next section, “Put it Back Together.”

FIG. 9



To Install the Turbo Board in a Unit with a SCSI Board

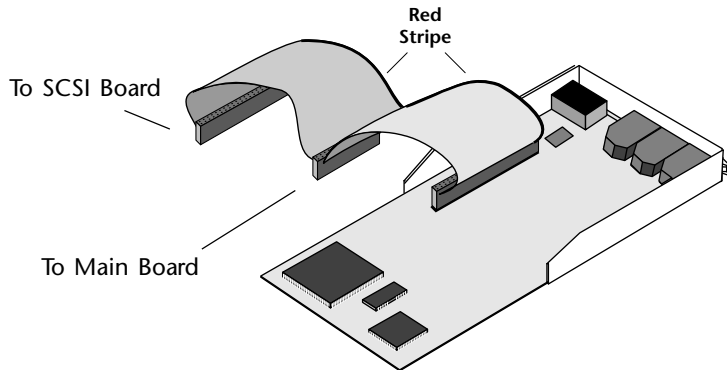
Before you install the Turbo board, you need to make place for it. On the back of ESI there are two metal cover plates.

1. Remove any static electricity stored in your body by touching a grounded object.
2. Remove the metal cover plate from the back of the unit under the "Option" or "S/PDIF" label as shown in FIG 7. Put the screws in the cup to save for later reassembly.
3. Ground yourself again, by touching a grounded object, then **carefully remove the Turbo Board from its protective antistatic bag.**
4. **Connect the free end of the flat ribbon cable connected to the SCSI board and the main board to the Turbo board** as shown in the following illustration. Make sure to match Pin-1 on the cable to Pin-1 on the connector. Pin-1 on the cable is identified by a red stripe. Pin-1 on the connector is labelled.

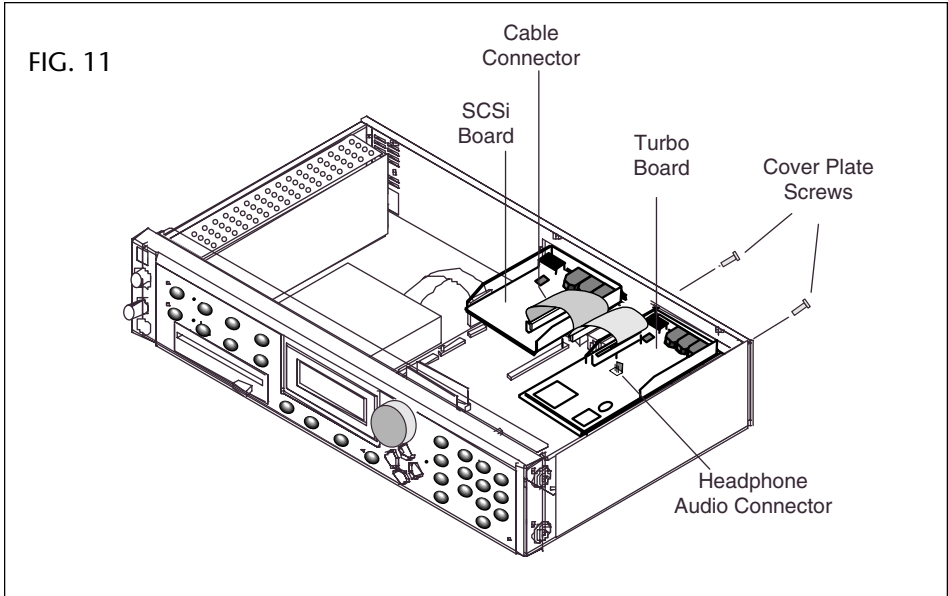
Make sure that the connector goes on both rows of pins, not just one. **DO NOT BEND PINS OF ANY CONNECTOR!** Should you encounter a problem, disconnect the cable and start over.

Note: If your system has a SCSI Board option installed, you will not need the cable provided with the Turbo Option Kit, but will use the existing cable connected to the SCSI board instead.

FIG. 10



5. **Install the Turbo board** from the inside of the ESI (See FIG. 11). While holding the installed card with one hand, secure the Turbo card with one screw from the outside of the ESI. Use the same small screws that were holding the cover plate. Then install the second screw and tighten both screws.

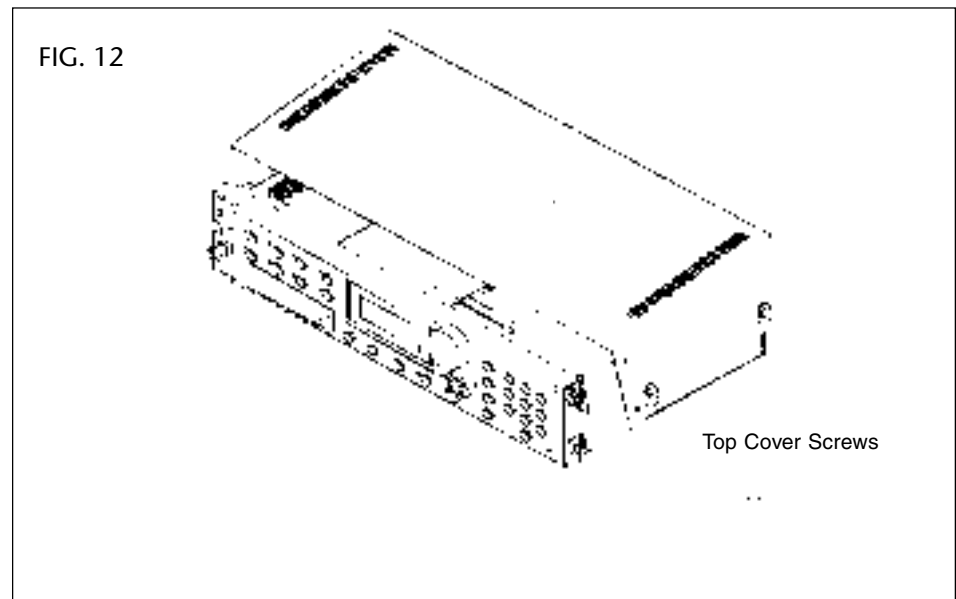


6. Connect the free end of the Headphone audio cable installed earlier to the Headphone Audio Connector (labelled HDPH) on the Turbo board.

PUT IT BACK TOGETHER

Be sure to check for any loose cables or screws inside before closing the unit.

1. Carefully insert the front edge of the top panel between the front panel and the top of the metal case.
2. Next, lay the top cover down flat on top of the case.
3. Make sure all the screw holes line up and reinstall the seven screws. The screws are all the same.



TEST IT

At this point, the installation is almost finished. All that is left is to test your installation. Perform the following steps to verify the installation.

1. **Attach the Y-cable** supplied with this kit into the output marked "FX."
2. **Connect your audio cables to the plugs of the Y-cable.** The red cable connects to the right audio channel, the black one to the left audio channel.
3. **Turn on the unit and load a preset.** For detailed instructions on how to select and load a preset, refer to the ESI Operation Manual.

ESi- 32
RAM: 8MB FLOPPY:
SCSI: XX S/PDIF: fx
Checking for floppy

4. **Listen to make sure you hear the preset effects.**
5. Refer to the ESI Turbo Option Kit Operation Manual for detailed instructions on how to use effects and the Turbo Board.

If you should run into difficulties, turn off the unit and check all cable connections. Make sure the ROMs are properly and securely seated in the IC socket. Make sure the unit is plugged into a grounded power outlet (with power). If all else fails, call E-mu Customer Service at (408) 438-1921. Telephone support hours are 8:00 - 5:00 PST, Monday through Friday.

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