

SUMMO

AXIOM



COMPACT DISC
TRANSPORT

SUMMO

FINAL TEST CERTIFICATION

MAX POWER	THD	VOLTAGE
<i>—</i>	<i>.005</i>	<i>120</i>
MODEL	SOUND TEST	
<i>Axiom</i>	<i>OK</i>	

SYSTEM SET-UP

FIRST CONSIDERATIONS

The Axiom is Sumo's first CD transport. With its sophisticated reclocked and discrete-buffered SPDIF digital output, it is the ideal choice for any demanding high-end system. The Axiom also features a separate master clock output that allows it to run in fully synchronous mode with the Sumo Theorem D/A converter. This exclusive Synchronous Digital Interface (SDI) technology completely eliminates jitter.

UNPACKING

After unpacking the Axiom, we recommend that you take a good look at it. Did any damage occur during shipping? Are there any cosmetic flaws? In the unlikely event that either of these conditions exist, you should contact your dealer immediately.

We recommend that you keep the original box and packing materials. If you ever have to ship the Axiom back in for an upgrade or service, the original packing is the best way to do it.

LOCATION

The Axiom should be placed on a shelf or in a rack, carefully away from a power amplifier or preamplifier. Many power amplifiers and preamplifiers have large stray magnetic fields that can induce hum in the Axiom. The Axiom should be kept at least a foot away from power amplifiers and a few inches away from a preamplifier. If the Axiom is to be mounted in a standard 19" wide steel rack, the chassis and the metalwork should be

electrically isolated from the rack. If they are not, a ground loop may cause hum in the system.

CONNECTIONS

To go through the connections necessary to set up your system, refer to Figure 1: Rear Panel View.

- 1. AC Cord:** This should be plugged into either a switched or unswitched AC outlet. AC line filters and/or surge suppressors are OK to use.
- 2. Digital output.** This should be connected to your D/A converter's RCA coaxial input with a high-quality, RCA-terminated digital cable. This ultra-high-quality digital output can be used with ANY D/A converter, including the Theorem.
- 3. AES/EBU output.** If your D/A converter offers an AES/EBU balanced input, you may connect this output to your converter with a high-quality, XLR-terminated digital cable.
- 4. Clock.** This is the 384X master clock output for use with the Theorem D/A converter. Connect this output to the Theorem's CLOCK input with a SHIELDED, RCA-terminated digital cable. DO NOT USE AN UNSHIELDED CABLE.

UPGRADING

The Axiom has been designed to be as modular as possible in order to take advantage of future changes in digital technology. Please contact Sumo at (818) 706-9974 for available Axiom upgrades.

GENERAL RECOMMENDATIONS

The Axiom, like most high-quality CD transports, sounds best after it has been broken in for some time. This may take as long as a week or two after the unit is first turned on.

The Axiom may be left on at all times if desired. This will in no way harm the transport or shorten its life.

Locked-clock mode. The Axiom is designed to be used in the locked-clock mode with the Sumo Theorem with a few simple changes. First, some care must be taken when selecting a cable for the Axiom's CLOCK output. The clock output transmits the master clock for the system at its FULL output level for the lowest possible induced jitter. This means that only a shielded cable should be used to connect the clock output to the D/A converter. DO NOT USE AN UNSHIELDED CABLE. If you are in doubt as to whether or not the cable you are using is shielded, ask your dealer or call the manufacturer. Second, be sure to connect BOTH the digital output AND clock output to the Theorem, and DO NOT DISCONNECT THE CLOCK INPUT WHEN THE THEOREM IS RUNNING AND YOUR SYSTEM IS ON. This can cause loud pops and noises through your speakers. If you need to disconnect the clock from the Theorem for any reason, turn down the volume on your preamplifier before doing so.

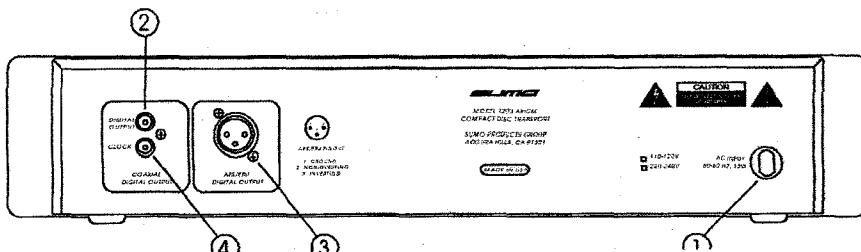
FEATURES AND OPERATION

To go through the Axiom's many standard features, refer to Figure 2: Front Panel View, as necessary.

- 1. Power.** Pressing in this switch turns on the Axiom's main power. Press again to turn it off.
- 2. Sensor.** This is the sensor for the remote control. Do not block this opening.
- 3. Open/Close.** Press once to open the disc drawer, press again to close it.
- 4. Skip Back.** Press once to return to the beginning of a track, or press more than once to skip back to the beginning of previous selections.

OPERATION

Figure 1: Axiom Rear Panel



5. Skip Forward. Press once to skip to the beginning of the next selection, press more than once to skip to the beginning of later selections.

5. Stop. Press to stop the disc.

7. Play. Press to begin playing the disc or to continue from a pause.

3. Pause. Press to pause the disc at any point. Press PLAY to cancel the pause. When paused, PAUSE will light up in the player's fluorescent display.

7. Search Back. Press and hold to rapidly scan back through the disc.

10. Search Forward. Press and hold to rapidly scan forward through the disc.

REMOTE FUNCTIONS

Additional functions can be accessed from the remote control. These functions are described below.

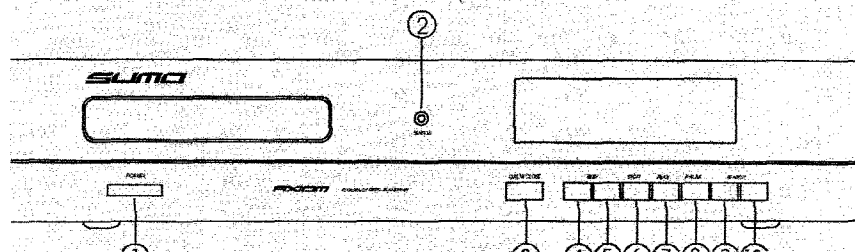
Numeric Keypad. Press 1-9 for direct access to the numbered track on the disc, or press 1 and then another number while the display is flashing to directly access tracks 10-19.

Scan. Pressing this button scans the first ten seconds of each selection on the disc, for a rapid overview of the program material.

Repeat. Press this button once to repeat the current selection, or press twice rapidly to repeat the entire disc. When repeating the current selection, REPEAT lights up in the fluorescent display; when repeating the entire disc, REPEAT lights up.

Shuffle. Press this button to cause random play of all tracks on the disc. SHUFFLE will light up in the fluorescent display when this function is activated.

Figure 2: Axiom Front Panel



The remote control uses AAA type batteries that should last about a year in normal use. Replace only with type AAA batteries when the remote ceases to function.

DISPLAY MESSAGES

There are a couple of messages that can appear on the fluorescent display. Here they are:

No disc. When the door to the player is closed and there is no disc in the player, the fluorescent display will read NO DISC.

Err. If an error is made when operating the player (buttons pressed in the wrong mode, buttons pressed too fast, etc.) the fluorescent display will read ERR. This is in no way harmful to the Axiom, and it will clear automatically.

CONVERTING YOUR THEOREM

If you want to run the Axiom with your Theorem in the locked-clock mode, you will have to move a jumper inside the Theorem. Unplug the Theorem, remove the top cover, and find the CLK/PLL jumper on the main board. This jumper is below a large, 28-pin IC near the center of the board. Move this jumper from the "PLL" position to the "CLK" position. Connect the Axiom's clock output to the Theorem's Clock input using a shielded digital cable.

CIRCUIT HIGHLIGHTS

The Sumo Axiom is, in many ways, a unique transport. Much of its uniqueness is in the way it handles the problem of transmission-induced jitter. The Axiom's proprietary Synchronous Digital Interface (SDI) dramatically reduces transmission-induced jitter with ALL D/A converters and completely eliminates it when used with the Sumo Theorem in fully synchronous mode.

Jitter is inherent in the standard digital audio data transmission format. In the digital audio signal, the master clock for the system is "buried" in the data. The D/A converter must recover the "buried" clock with a minimum of jitter. But if the "buried" clock itself is corrupted with jitter, or has slow rise times, or is the wrong level, recovery of a high-quality master clock can be impossible for even the best D/A converter.

This is the reason that a high-quality dedicated CD transport is necessary. Many CD players have digital outputs added as an afterthought; their digital output can be less than perfect.

Sumo's new Axiom CD transport uses our proprietary Synchronous Digital Interface to dramatically reduce jitter in the digital output. A crystal-controlled master clock is used to resynchronize the digital output with ultra-fast AC-series gates. To ensure the integrity of the digital audio signal, the Axiom also features an ultra-fast, fully-discrete Class-A output buffer with a true 75 ohm output impedance. Most CD players (and many transports) use a transformer that can degrade rise times.

For the ultimate in low-jitter performance, the Axiom also offers a separate, low-jitter, crystal-controlled master clock output that interfaces with our Theorem D/A converter for completely synchronous operation. This is the Synchronous Digital Interface (SDI) run in fully synchronous mode, which completely eliminates the problem of transmission-induced jitter.

The Axiom features extensive local regulation (8 power supplies), a

WARRANTY

heavy steel chassis with 1/4" thick grained aluminum front panel, magnetic clamping of the disc, a low-mass laser assembly, and remote control standard. And, like all Sumo products, the Axiom was designed and manufactured in the USA.

SPECIFICATIONS

Digital output: 1 RCA coaxial, SPDIF output format

Digital output impedance: 75 ohms

Digital output level: 1.0V P-P

AES/EBU output: on XLR jack, SPDIF output format and true balanced outputs

AES/EBU output impedance: 110 ohms

AES/EBU output level: 2V P-P

Clock output: 384X, crystal-controlled

Clock output level: 5V P-P

Output buffers: fully discrete, with reclocked output level-shifted before the buffer and no capacitors in the signal path

Reclocking: with crystal-controlled master clock and AC-logic gates with local regulation.

Regulated power supplies: 4 active, 4 passive, 8 total

Cabinet: 18 gauge steel with 1/4" thick aluminum front panel

Power consumption: 15 watts

Dimensions: 19" W x 12" D x 3.5" H

Weight: 16 lbs approx.

MAINTENANCE

This product is warranted under the following conditions:

1. The product is purchased from an authorized Sumo dealer.
2. The warranty covers normal operating conditions of home use.
3. Warranty period begins as of date of sale, provided that it is registered by the authorized Sumo dealer where the product was purchased. The registry period is 20 days.
4. Deliberate misuse, mishandling, failure to report receiving damaged merchandise, or unauthorized tampering with or modifying of this merchandise automatically voids all warranties.
5. The warranty period on all Sumo factory-wired products is three years. This covers both parts and labor, excluding fuses and transportation costs to the factory.
6. Warranty of all Sumo products used in any other fashion will reduce the warranty time period and other conditions to negotiations between Sumo and the prospective user.
7. This warranty shall extend to each successive owner, provided that Sumo is notified by registered mail within 20 days of resale by the initial or present owner. This notification shall consist of date of sale, as well as the name and address of the new owner.
8. Sumo guarantees that its products are free from defects in materials and workmanship for the required warranty period.
9. This warranty is not valid unless accompanied by a sales slip validation or properly stated copy of the invoice.
10. This warranty is valid only in the United States. Service in other countries will be provided by the exclusive Sumo representative or his agents. Because of varying governmental regulations, the service period may differ from country to country. The service agreement can be honored only in the country where the unit was purchased. The warranty is valid from the date of purchase for the required warranty period for purchases made by returning overseas US service personnel.

Except as specifically provided for in this limited warranty, there are no other warranties, express or implied at law or otherwise, including any implied warranty of merchantability or any implied warranty of fitness for a particular purpose.

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SERVICE, ETC.

The Axiom requires very little in the way of maintenance. If you need to clean it periodically, this is best done with a mild cleaning solution such as glass cleaner. A lye solution should never be used. A solvent-based solution may remove the silk-screened lettering. And, of course, abrasive cleaners are not recommended in any case.

TROUBLESHOOTING

System hums. If the Axiom is being used with a metal rack, make sure the chassis is isolated electrically from the rack. Check to see that all input and output connections are plugged in securely.

No power. Check that the Axiom is plugged into an unswitched AC outlet. A switched AC outlet may be turned off.

Intermittent operation. If the Axiom is subjected to a sudden change in temperature, condensation may form on the laser's lens assembly. This will cause skipping or non-operation. This situation will disappear automatically after some time has passed. DO NOT attempt to open the chassis and clean the lens.

Skipping. Check to see if the CD is badly scratched, warped, or dirty. The Axiom cannot track a badly damaged disc.

Won't recognize disc. Check to see that you inserted the disc label side up, and that the disc is properly centered in the drawer.

UPGRADES

ph 818-706 9974
Please call Sumo customer service at the number listed below to find out whether or not any upgrades are available for your unit. Do not ship the unit back without an RA number! It will not be accepted.

SERVICE

If your Theorem ever needs to be returned to Sumo for service, you should call the customer service number listed below and request a return authorization (RA) number. No unit will be accepted without an RA number.

When shipping the unit back to Sumo, be sure to pack it securely in its original box or in another suitable box. Sumo will not be responsible for damage due to improper packing.