

HIFI UNIT SETUP MANUAL

Series Four Comparators

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CONTENTS

SETTING UP YOUR SERIES FOUR COMPARATOR

Series Four Units and Systems . . . . .	1
Getting Ready . . . . .	1
Step 1. Applying the Panel Inlays. . . . .	3
Step 2. Programming. . . . .	4
Step 3. Building the Stack . . . . .	4
Step 4. Removing the Flanges . . . . .	5
Step 5. Connecting the System Bus Cable. . . . .	5
Step 6. Level One Testing. . . . .	5
Step 7. Renumbering the Cabinets . . . . .	6
Step 8. Shelf-Mounting . . . . .	6
Step 9. Panel-Mounting . . . . .	6
Step 10. Planning the Hookup. . . . .	7
Step 11. Connecting a Basic System. . . . .	8
Step 12. Level Two Testing. . . . .	9
Step 13. Troubleshooting. . . . .	10
Step 14. Completing the Wiring. . . . .	10
Step 15. Final Checkout . . . . .	10

OPERATING YOUR SERIES FOUR COMPARATOR

Initial Setup . . . . .	12
Controls and Their Operation. . . . .	12
Speaker A/B With the 431/432. . . . .	12
Maintenance . . . . .	13
Limited Warranty. . . . .	13

## SETTING UP YOUR SERIES FOUR COMPARATOR

### SERIES FOUR UNITS AND SYSTEMS

Series Four Comparators represent an unusually versatile design in that they can be used individually or stacked in Systems of virtually any size. When using an individual unit as a "stand-alone" Comparator, you will use a Model 481 Unit Setup Kit, like the one accompanying this manual, to complete the installation. If you desire switching capacity greater than 16, the Model 581 Stacking Kit lets you put as many as three units of the same kind together. In this way, the units become a single Comparator of the required capacity. The factory can also furnish stacking kits for even larger capacities.

A Series Four System, on the other hand, blends Comparators of different kinds by using a Model 480 System Setup Kit. In Systems, you may combine any mix of up to 6 units with the standard 480 kit, and virtually any number with a kit made to your order by the factory.

### GETTING READY

Installing this product has been simplified so that no special tools or experience are necessary. We will guide you one step at a time, from the stack of cartons before you, to a finished Comparator that is a pleasure to use.

The following instructions are as concise and brief as we can make them. We have done this so you will not be tempted to tackle this project without reading these instructions. Remember, the Audio Authority Series Four is a new concept in demonstration equipment; it is quite unlike any other switching system. So please read these instructions up to "Operating Your Series Four Comparator" before you begin assembly. Doing so will familiarize you with this unique product and also alert you to tools and materials you may need to finish the installation.

Before beginning work, collect the following tools:

Scissors  
Pocket knife  
#2 phillips screwdriver  
Combination pliers  
Wire cutter/stripper  
Small straight-blade screwdriver

You will also need the following if you are mounting the System in a panel cutout:

Tape measure  
Straightedge  
Saber saw  
Electric drill and 7/64 inch (2.8mm) bit

Check the contents of the shipping container against the packing slip to be sure all the components are there. An installation requires at least a Model 481 Hifi Unit Setup Kit plus at least one of the following:

MODEL	DESCRIPTION
410	Amplifier Comparator
420	Turntable Comparator
421	Digital Disc Player Comparator
430	Speaker Comparator
431	Speaker A/B Comparator
450	Tape Deck Comparator

Your installation may also contain some of the following:

MODEL	DESCRIPTION	
581	Stacking Kit	
411	Amplifier Comparator Add-on	
432	431	Speaker A/B Comparator Add-on
470	Indicator Kit for 410, 411, 420, 421, 450	
471	Indicator Kit for 430, 431, 432	
474	Indicator Extension Cable	
476	Trim Panels--Single	
477	Trim Panels--Single for 410	
478	Trim Panels--Double	
479	Trim Panels--Triple	
483	Phone Jack Adapter	

The following items are also essential to your installation:

High quality, low-capacitance shielded cable.  
Metal-barrel phono (RCA) plugs and in-line jacks.  
Speaker wire of 16 to 12 gauge.

These additional items will make the job easier and neater:

- 4-6 inch (100-150mm) cable ties
- Numbered wire markers
- Cable clamps or staples

Before beginning work, record the serial numbers of your Comparators:

MODEL	SERIAL	DATE OF PURCHASE
410	4A	_____
411	4B	_____
411	4B	_____
420	4C	_____
420	4C	_____
421	4H	_____
421	4H	_____
430/431	4	_____
430/432	4	_____
430/432	4	_____
450	4G	_____
450	4G	_____
450	4G	_____

Creating this record will greatly simplify service arrangements, should service become necessary later on.

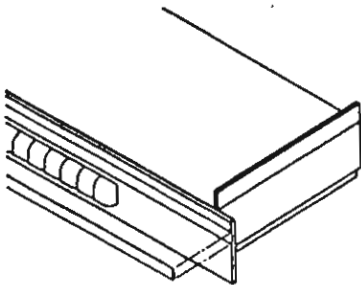
Don't forget to save this manual in a place where it will not be lost or forgotten.

In the following instructions, complete each step, then check it off and proceed to the next.

[ ] 1. APPLYING THE PANEL INLAYS

Skip this step if you are using a single 410 or 431.

If you are using a single unit other than the 410 or 431, find the card of inlay strips packed with the unit, peel the strip numbered "-1" from the carrier, and apply it to the groove in the front panel of the unit. Line up inlay window #1 with the LED above selector button #1. Trim off any excess with scissors.

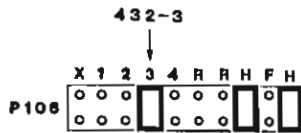


If you are combining two or more units with a Stacking Kit, sequentially number the units like these examples:

TAPE DECK	AMPLIFIER	SPEAKER	A/B SPEAKER
450-1	410-1	430-1	431-1
450-2	411-2	430-2	432-2
450-3	411-3	430-3	432-3

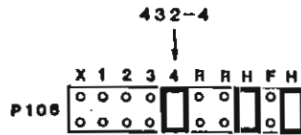
Find the correctly numbered inlay strip for each unit and apply as above.

[ ] 2. PROGRAMMING



You may need to change the programming in some of your A/B speaker units. If your system has either of the following designations, you must reprogram these units:

432-3    432-4



Use a small screwdriver to pry out the rectangular plastic cover on the System Bus end of these units. Move the small plastic jumpers as shown at the left and replace the covers.

[ ] 3. BUILDING THE STACK

If you are using a single unit, plug the power pack from the Setup Kit into the matching receptacle under one of the rectangular covers on top of the unit, then proceed to Step 4.

If you are combining units with a Stacking Kit, select the highest numbered unit.

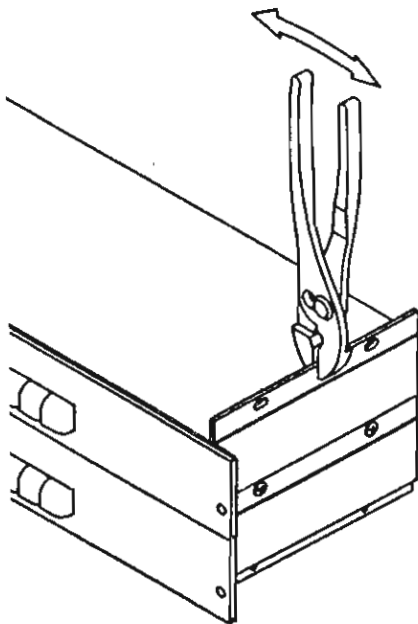
If you will be using remote indicator lights, pry out and discard the plastic cover from the end of this unit opposite the System Bus port and plug in the cable from the appropriate Indicator Kit. The "Model" list on Page 2 will help you identify the correct Indicator Kit for the various units. Keep the cable rolled up until later.

Select the next-higher-numbered unit and place it upon the bottom unit so that the front panels interlock. Secure the units with small screws from the hardware packets that come with the units.

Repeat the assembly process until all of your units have been incorporated into the stack. Plug the power pack from the Setup Kit into the matching receptacle found under one of the plastic covers on the top unit of the stack.

[ ] 4. REMOVING THE FLANGES

Check that the units are in ascending order from top to bottom and that the Power Pack and all the indicator cables have been connected.



Break off the two flanges from the top unit using a pair of combination pliers. Bend each flange a little bit each way and continue until it breaks clean. Don't overbend!

#### [ ] 5. CONNECTING THE BUS CABLE

Skip this step if you are using a single unit.

Find the Bus Cable in the Stacking Kit and plug one end of it into the System Bus port of the top unit in the stack. Thread the cable through the System Bus ports in the 410 and any 411s. Plug the free end of the cable into the bottom unit. Now plug the cable into any remaining units. Press any excess cable tightly against the back of the cabinets.

It doesn't matter which end of the Bus Cable is on top, but check to be sure that all the pins of each Bus plug go into the corresponding holes in the Bus Cable connector.

If your installation has 4 or more units, you should have received a special-order Bus Cable from the factory.

#### [ ] 6. LEVEL ONE TESTING

Plug the Power Pack into an unswitched (powered 24 hours a day) source of power suitable for the input rating printed on the Power Pack. The POWER indicator(s), if any, will come on.

Push each selector button in turn. The indicator above it should light and the SilenTouch\* light on the 410

\*SilenTouch is a Trademark of Audio Authority Corporation.

should flash. If your installation has more than one unit, each new selection should release the previous selection (except 431/432). If something seems amiss, check to be sure that the bus cable is plugged in correctly, then call the factory for assistance.

[ ] 7. RENUMBERING THE CABINETS

Skip this step if you are using a single unit.

In systems with "-2" units and higher: Use a fine-point indelible felt pen to renumber the cabinet markings as follows:

LEVEL	450 UNITS ONLY				OTHER UNITS
=====	=====				=====
-1 (no change)	16-13	12-9	8-5	4-1	16-1
-2	32-29	28-25	24-21	20-17	32-17
-3	48-43	44-41	40-37	36-33	48-33
-4	64-61	60-57	56-53	52-49	64-49

Write the new numbers in the white boxes or in the large arrows on the back of the units.

[ ] 8. SHELF-MOUNTING

If you are shelf-mounting your Comparator, position it on the display and skip down to "Break Time."

[ ] 9. PANEL-MOUNTING

Cut a rectangular opening in your panel exactly the size called for in the following chart:

UNITS	INCHES	MILLIMETERS
2	4 X 17	102 X 432
3	6 X 17	152 X 432
4	8 X 17	203 X 432

NOTE: Series Four is not an EIA-standard rack system. Consult the factory if you wish to mount your Series Four Comparator in a standard rack.

Protect the panel surface when sawing and take care to cut the opening just as straight and square as you can.

Fit the Comparator through the opening. Removing the rubber feet will help make this easier. Once you have the Comparator where you want it, mark the centers of the panel mounting holes and remove the Comparator from the panel. Drill a 7/64 inch (2.8mm) hole at each mark.



Mount the Comparator in the panel whenever it is most convenient, most likely after the wiring is complete. Secure it with the large plated screws, beginning with the bottom unit.

## BREAK TIME!

The wiring is what makes or breaks a comparison system, so the success of this project is in your hands right now. Please be sure you are using the best wire and cable you can get. The shielded cable must be a low-capacitance type; we recommend Audio Authority Lo-Cap cable, built to our specifications expressly for retailers and installers like yourself. The speaker wire should be 12 to 16 AWG (gauge). Using top-quality wire and cable guarantees the best possible sound in your demo room.

## [ ] 10. PLANNING THE HOOKUP

Take a few moments now to consider the comparison system you are about to create. In addition to the Comparator and the products to be compared, there must be a set of monitor electronics and/or speakers to enable demonstrations to take place.

The table on the next page shows possible systems and the cabling required to connect system components.

To use the table:

- 1) Scan the COMPARATOR MODEL column for the model number of the Comparator you are using.
- 2) To the left of the model number, find the cabling to and from the demo products.
- 3) To the right, find the cabling to and from the monitor equipment.
- 4) Mark the row of blocks pertaining to your model number with pen or highlighter for future reference.

If you are comparing turntables and wish to use the phono preamp in your monitor amplifier instead of the preamp in the 420, use the alternate hookup shown in parentheses in the table. Put the PHONO PREAMP button on the back of the 420 in the EXT (out) position.

When combining units with a Stacking Kit, connect only unit #1 to the monitor equipment as listed in the table. The Bus Cable electrically couples the individual comparators in a system.

PRODUCT TO DEMO	PRODUCT CABLING		COMPARATOR MODEL	MONITOR CABLING		MONITOR EQUIP
	PRODUCT END	COMP END		COMP END	EQUIP END	
Turntable	Output cord Ground wire	From Phono Ground	420	Preamp Out (Ext Pre In) (Ground)#	Aux Input (Phono) (Ground)#	Amp/rcvr
Disc	Line Output	From Output	421	Disc Output	Aux Input	Amp/rcvr
Tape Deck	Line Input Line Output	To Input From Output	450	Deck Input Deck Output	Tape Out Tape Mon	Amp/rcvr
Amplifier or Receiver	Tape Output Tape Mon Spkr Output	Frm Rec Out To Mon In Frm Amp Out	410 411	Tape Play In	Line Out	Source
				Tape Play In Tape Rec Out	Line Out Line In	Tape Deck
				Sel Amp Out*	(+) (-)	Speakers
Speakers	(+) (-)	To Speakers	430	Sel Speaker*	Spkr Out	Amp/rcvr
Speakers (A/B)	(+) (-)	To Speakers	431	Sel Speaker*	Spkr Out	Amp/rcvr
			432	From Rec Out To Mon In	Tape Out Tape Mon	

# ( ) Alternate connection to use phono preamp in amp/receiver.

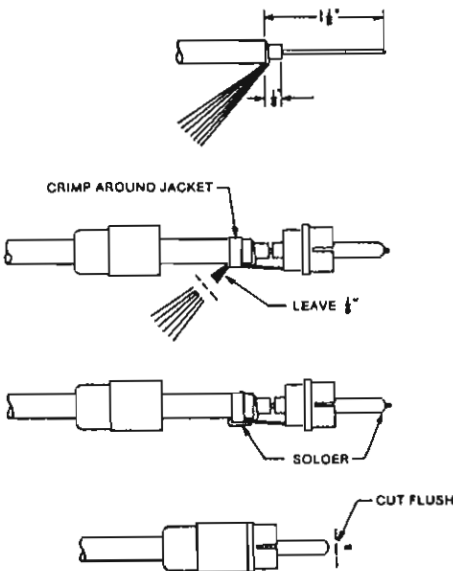
\* Use input/output harness found in Unit Setup Kit.

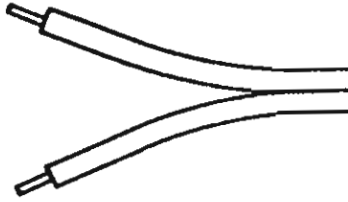
## [ ] 11. CONNECTING A BASIC SYSTEM

Connect one demo piece and enough monitor equipment to get a working system. What we're trying to do here is connect the simplest possible system for initial testing purposes.

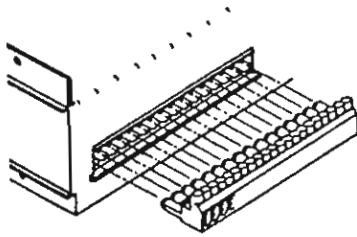
If you use premade lo-cap patch cords, put female-to-female adapters (barrels) inline with the turntables and between lengths of patch cord. You can also fabricate your own shielded low-capacitance cables to exact lengths and with male or female ends as needed. Either way, take care that all connections are as nearly perfect as you can make them. The drawings at the left show how to assemble phono plugs to shielded cable.

You may run individual ground wires to your turntables or run a 16 gauge or heavier wire from one of the 420's GROUND posts to all the turntables. Then you can arrange clips or terminals of some sort along this wire where you can conveniently connect the individual turntable grounds.





Use 16 to 12 gauge speaker wire. Connect it to the Comparator by stripping it exactly 3/16 inch (4mm) as shown at the left, putting the stripped end into the small hole in the terminal block, and securely tightening the setscrew. Be sure to cut off any stray strands of wire--they will certainly cause trouble later if you don't.



You can unplug the Comparator terminal blocks by pulling them straight out with both hands. Careful! The pins on the Comparator can be damaged if you don't pull the plugs straight out.

\* \* \* NOTICE \* \* \*

Some operational features of Series Four Comparators (most importantly, SilenTouch switching noise suppression) will not function if any signal cables are omitted from the installation. Please contact the factory if you intend to omit cables or to make other unspecified changes.

[ ] 12. LEVEL TWO TESTING

Turn on the demo piece and the monitor equipment. Push the Selector button on the Comparator corresponding to the demo piece and set all equipment controls to obtain normal operation. If you don't get music, go to Step 13; if you do, check all control functions and then go to Step 14. Use the table below to set the controls of the Comparator in your display, identified by the model numbers in parentheses.

Tape Mon	(410)	Depress to play tape deck
Mute	(410)	Depress for 20 dB volume reduction
Play Turntable	(420)	Keep pressed in
Subsonic Filter	(420)	Depress to turn on filter
Phono Preamp (420 rear)		Release for external preamp
Play Disc	(421)	Keep pressed in
Vol Match Button	(431)	Push to activate volume matching
Vol Match Pot	(431)	Adjust speaker volume when light is on
A/B Mute	(431)	Press momentarily for A/B change, hold in for volume mute
Selector 1-16	(ALL)	Push for desired product selections

### [ ] 13. TROUBLESHOOTING

If everything isn't working correctly at this time, it's probably something simple, so check the following:

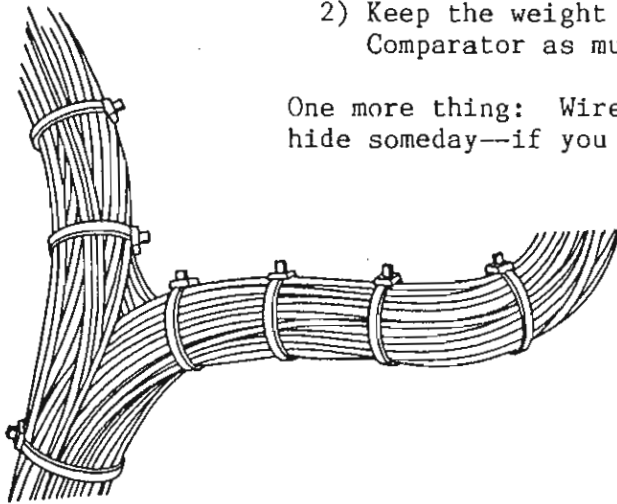
- 1) Make sure all power cords are plugged in.
- 2) Review the table in Step 10 to be sure no units are hooked up backwards.
- 3) Check that all controls are set correctly.
- 4) Don't rule out a defective amp or such.

If you still have a problem, drop back ten and punt: call the factory and we will try to help you out.

### [ ] 14. COMPLETING THE WIRING

You should be pretty much an expert at wiring by this time, so just keep going. Finish connecting the rest of your products in the same manner as before. Your wiring may become quite heavy and bulky, so observe these two important points:

- 1) Bundle your cables for neatness and reliability. Separate shielded cables from the rest.
- 2) Keep the weight of the cable bundles off the Comparator as much as possible.



One more thing: Wire markers could really save your hide someday—if you put them on right now.

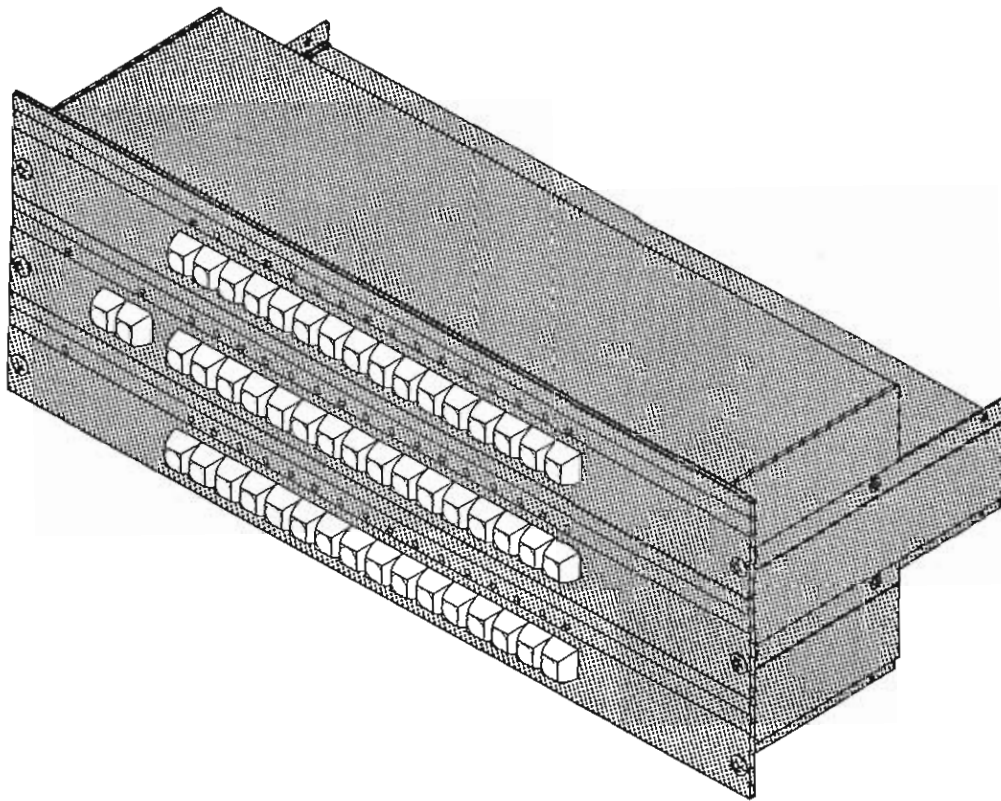
### [ ] 15. FINAL CHECKOUT

Go through and check everything, using the procedure of Step 12 if everything goes perfectly and the procedure of Step 13 if it doesn't.

After everything checks out: Unless you need to hook up remote indicators, mount the Comparator per the instructions of Step 8 or 9.

Series Four Indicator Kits provide one remote LED per electronic piece and two LEDs per pair of speakers. You will recall that we left the indicator cables rolled up behind the Comparator where they have probably been in your way ever since. Use the instructions furnished with the 470 Series Indicator Kits to connect indicators at this time. When you finish, you may mount the Comparator as instructed in Step 8 or 9.

Now you're ready to start selling!



## OPERATING YOUR SERIES FOUR COMPARATOR

### INITIAL SETUP

Preset the Comparator controls as follows:

Tape Mon	(410)	OUT
Mute	(410)	OUT
Play Turntable	(420)	IN (always)
Subsonic Filter	(420)	IN
Play Disc	(421)	IN (always)
Vol Match Button	(431)	OUT
Vol Match Pot	(431)	6 o'clock

Preset the monitor amplifier (if your system uses one) as follows:

Function	TUNER or PHONO
Tape Monitor	OFF
Volume	9 O'CLOCK
Speakers	ON or A (always)

Select a demo piece on the Comparator. The System should now play. If so, you're ready for business. If not, use Step 13 of the Setup Instructions to find the cause.

### CONTROLS AND THEIR OPERATION

You may select display pieces at will for demonstration or A/B comparison. This is made possible by our exclusive SilenTouch circuits which eliminate thumps and pops by muting the audio during the selection interval. Incomplete wiring may prevent full SilenTouch capability, however.

Refer to the instruction sheet that accompanied your Comparator for a description of its controls and indicators.

### SPEAKER A/B WITH THE 431/432

If your Comparator is a 431/432, select two pairs of demonstration speakers, then switch between them using the A/B button. Briefly pressing the button transfers A to B or B to A. If you press and hold the button,

the sound is muted by about 20 dB and no A/B transition takes place.

To match the volume on the demonstration speakers, push the A/B button so the louder of the two pairs is playing. Then use the VOLUME MATCH button to turn on the VOLUME MATCH indicator and adjust the pot for the desired volume match. Switch between A and B to check the match, then proceed with your demonstration. Turning the VOLUME MATCH pot fully counter-clockwise (6 o'clock) removes all volume matching.

After selecting speakers on the 431/432, press the A/B button once or twice to allow the system logic to set up the A/B relationship of the speaker pairs. Selecting more than 2 pairs of speakers at a time is not recommended.

## MAINTENANCE

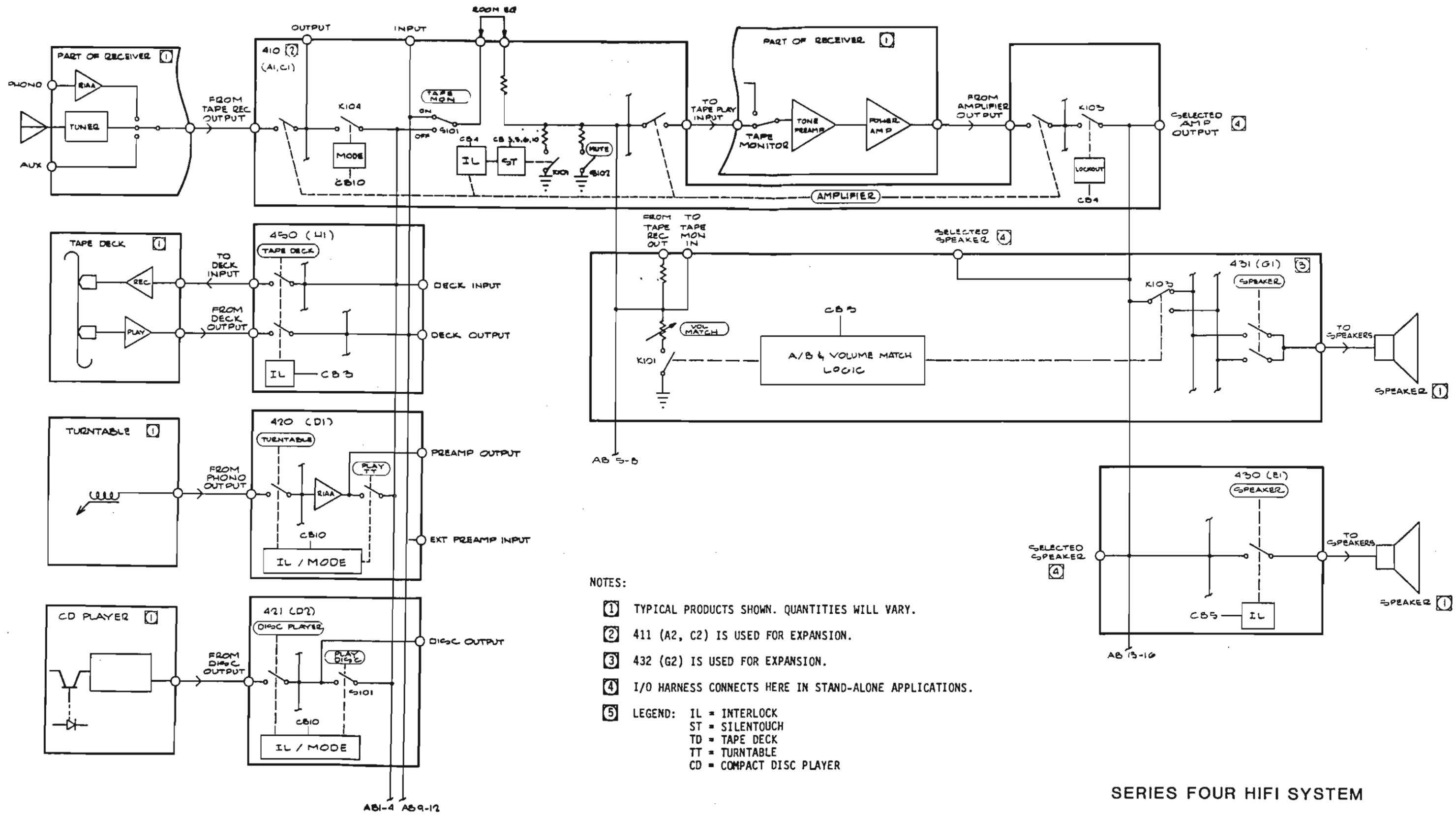
Use a mild window cleaner to remove fingerprints, etc. from The System's front panel. No other regular servicing is required.

Repairs are usually arranged by exchanging printed circuit assemblies with the factory. The exchange procedure is very simple, with printed instructions being furnished in addition to technical assistance by telephone.

If you wish to self-serve your Series Four Comparator, we offer a Field Service Kit consisting of a service manual, schematic diagrams and a special tester. Request information on the Field Service Kit from the factory.

## LIMITED WARRANTY

Audio Authority Corporation warrants these Series Four products to be free of defects in material and workmanship for a period of one year from date of purchase. Within the warranty period, Audio Authority will furnish replaceable circuit board assemblies or parts, or will repair at no charge units returned to the factory freight prepaid. This warranty is void for products which, in our opinion, have been subject to accident, misuse, abuse or improper installation. Audio Authority assumes no responsibility for consequential damages arising from the use or misuse of these products.



- NOTES:
- ① TYPICAL PRODUCTS SHOWN. QUANTITIES WILL VARY.
  - ② 411 (A2, C2) IS USED FOR EXPANSION.
  - ③ 432 (G2) IS USED FOR EXPANSION.
  - ④ I/O HARNESS CONNECTS HERE IN STAND-ALONE APPLICATIONS.
  - ⑤ LEGEND: IL = INTERLOCK  
ST = SILENTOUCH  
TD = TAPE DECK  
TT = TURNTABLE  
CD = COMPACT DISC PLAYER

SERIES FOUR HIFI SYSTEM