

RSL MusicPower Plug-In
Installation Manual
For Naim NAC 72 Preamp

(Updated to reflect the adjustable gain output boards Z200V)

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RSL MusicPower Plug-In Installation Manual for Naim NAC 72

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1. Congratulations!

You have just received a special “MusicPower” transformation kit for your Naim NAC 72 preamp. The changes you are about to make will provide a dramatic improvement in the sound quality of your unit – so dramatic we are calling it a transformation. In essence, you will have entirely new preamp circuitry to enjoy when you’re finished. Your new “plug-in” printed circuit boards have been assembled by hand with care and tested before sending them to you. Installing them is easy, quick, and fun with a big reward at the end!

2. Warning

After making this upgrade, you will likely spend a lot more time listening to your hi-fi and less time doing other things like washing the car, mowing the lawn, or bidding on ebay. Anyway, there are no lethal voltages inside the preamp itself (24 volts dc max), so don’t be afraid to dig right in. However, it is strongly suggested that you turn off both your preamp and power amps before making changes to avoid pops and clicks that could damage things.

In addition to this manual, [we also provide an on-line installation video](#) for those who prefer watching to reading. If these still aren’t enough, send an email to jryan@ryansoundlab.com and we’ll try our best to help you.

Finally, even though this kit has been engineered to be as foolproof as possible, we suggest you read all the way through these instructions before proceeding with installation.

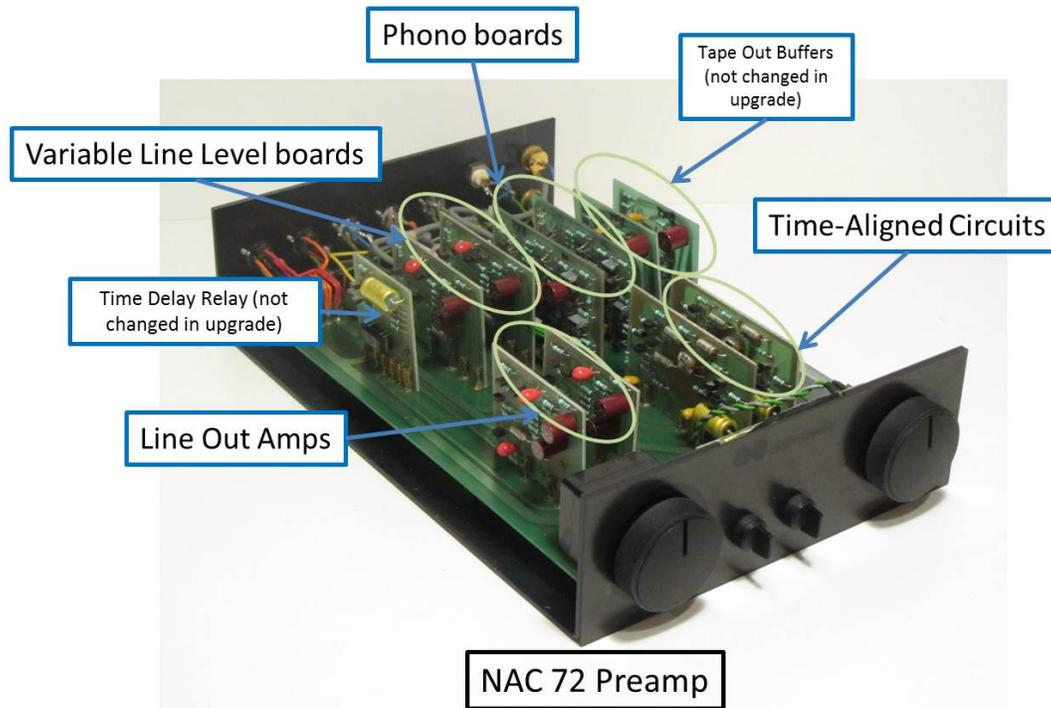
3. Transformation Process Preparation

The following pages will lead you through the transformation process in an orderly manner. You can, of course, install the plug-ins in any sequence or grouping if you are doing comparative testing but we suggest you first install the entire set of plug-ins to get the full effect, then do the comparisons if you can stand going back to the original Naim boards.

Before starting, we suggest listening to your system one last time in its original configuration. After this installation, you may never want to hear it that way again!

To get to the inside of your preamp, first, turn off its power supply (e.g. HiCap). No need to disconnect the wiring from the preamp if there's enough slack to be able to get to the bottom of the unit to take off the feet. Unscrew the four rubber feet from the bottom of the unit – should come off with just your hand – use a #2 Phillips screwdriver if needed. Now the aluminum case can slide off the front. Put it aside for a while – you won't need to replace it until you're all done. You have just exposed the guts of your unit. Some people might even think it's beautiful – Naim certainly did. Plus they deserve a lot of credit for having the foresight to design a completely modular preamp like the NAC 72 so we could improve it later.

The photo below shows a typical NAC 72 inside as it might be set up by the dealer. The preamp consists of a main motherboard onto which are plugged-in pairs of smaller boards for the unit's different functions. The plug-ins slip onto posts in the motherboard and can be easily unplugged, as you will soon discover. The picture shows a unit with every slot filled. Yours might not be configured exactly this way but key positions will be the same.



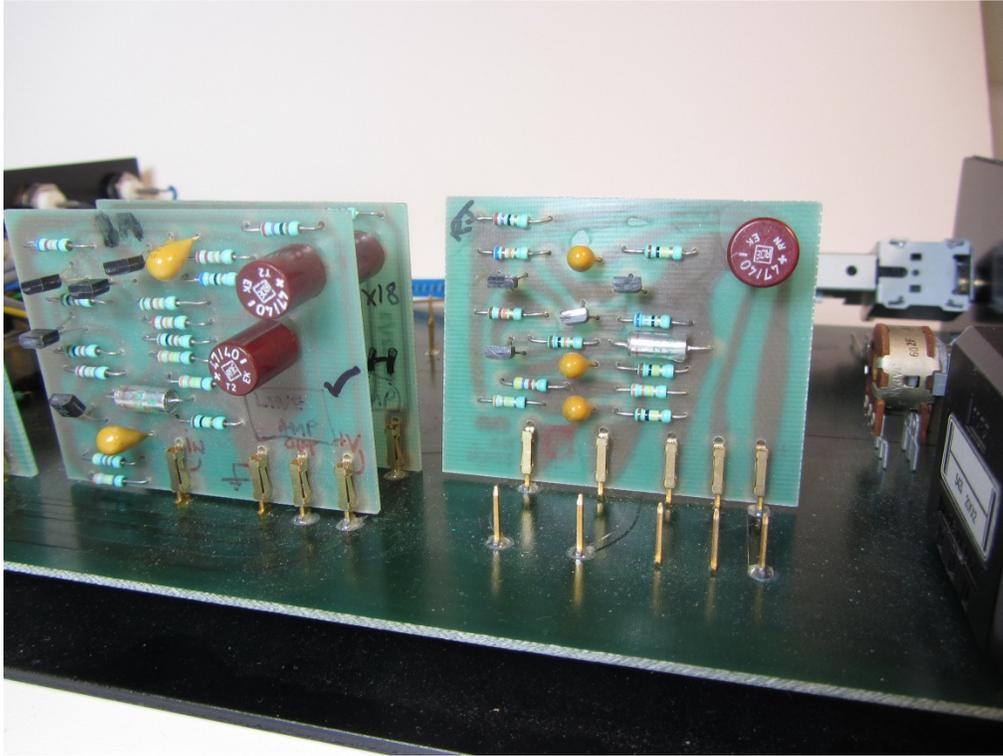
Typical Naim 72 Original Configuration

Note that there are two pair of replaceable input plug-ins – here shown as phono inputs and variable CD line level inputs. You may have none, one, or two phono plug-in pairs (Naim number NA323 or NA322) and/or variable line level board pairs (Naim number NA328). You may possibly instead have a fixed line input board pair (Naim number NA326). The connector arrangements are the same for all these types of input plug-ins.

Also, there are two sets of buffers. One set goes to the tape outputs, often not installed – if you don't record on tape (or now computer) then these plug-ins are not needed. We will not be changing these plug-ins with this upgrade. The other set of buffers, the Time-Aligned Circuits, drives the potentiometer (volume control) on the preamp.

The line out amps come after the volume control and drive the final output to the power amps via the relay board, which is not modified with this upgrade. Our transformation package replaces the CD line level plug-ins, the time-aligned buffers, and the line out amps. If you have purchased the phono option, those plug-ins will also be replaced. If you have special configurations or needs, please contact us and we'll do our best to support you.

The plug-ins use gold-plated sockets to connect with the vertical posts on the motherboard. We use the identical sockets for complete compatibility and long, trouble free operation. Below is a close-up of those special connectors that Naim uses in this preamp.



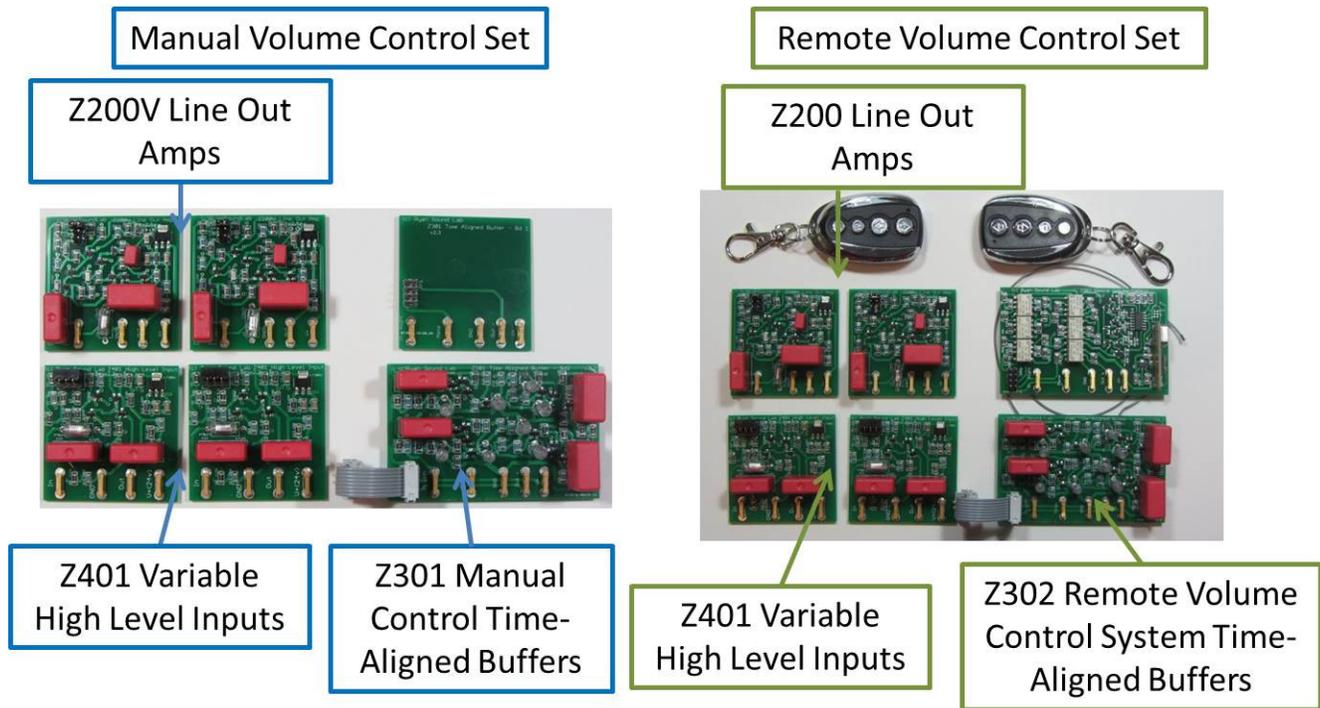
Close up of Plug-In Mounting Pins

To change the plug-ins, just pull the old ones straight up – they come right off the pins. Then carefully line up all the connectors before pushing the new plug-ins fully down. Naim’s design helps a lot by smartly designing each plug-in type so that it’s impossible to install them incorrectly! When you install the boards, the connectors will face to the left as seen from the front of the preamp, exactly the same way as the Naim original boards are currently installed. Having good lighting is very helpful when lining the connectors up. A flashlight is particularly useful and recommended.

One last suggestion, with all the handling you will be doing to the preamp, please be sure that the rear connectors are firmly seated in their sockets when powering back up. In fact, for good connector maintenance, it is helpful to remove and re-insert them occasionally. This would be a good time to do just that.

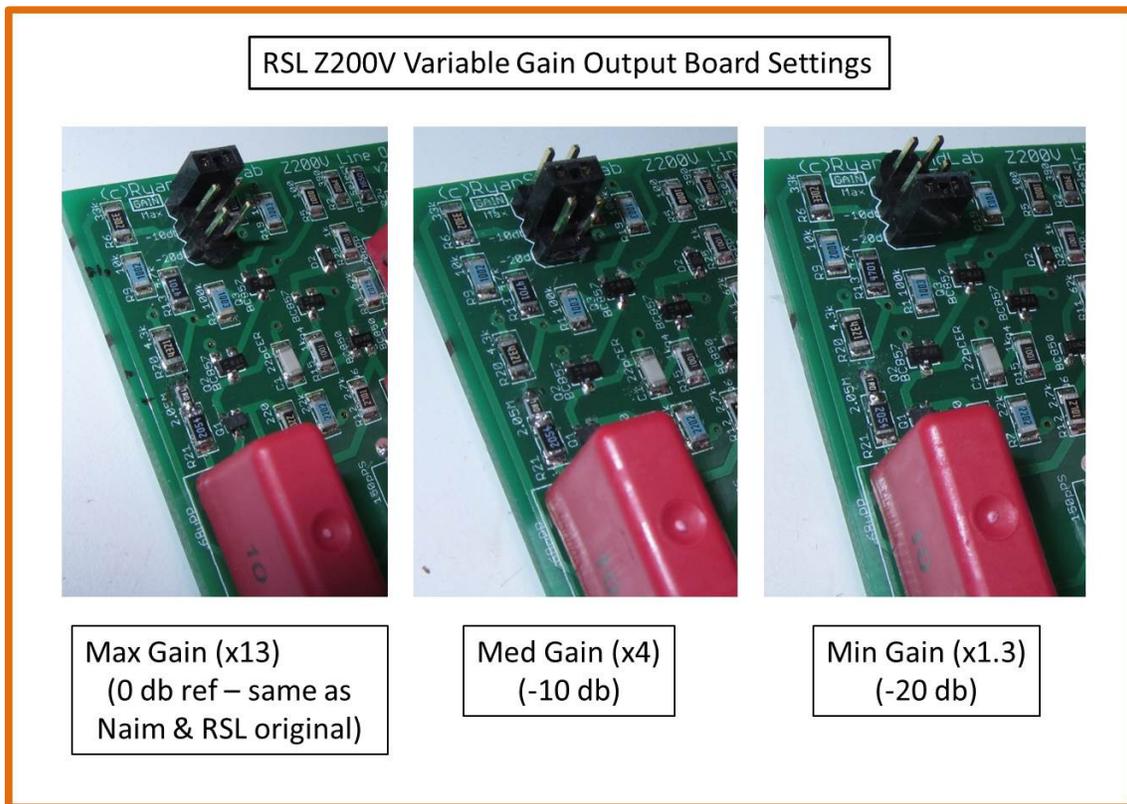
4. Installing the MusicPower Plug-in Set

Inside the shipping boxes for the transformation sets are 6 boards comprising either the manual or the remote volume control sets, as shown below. The boards are numbered to help identify them and match them to the photo.



4.1 Installing the Z200V Line Out Amps

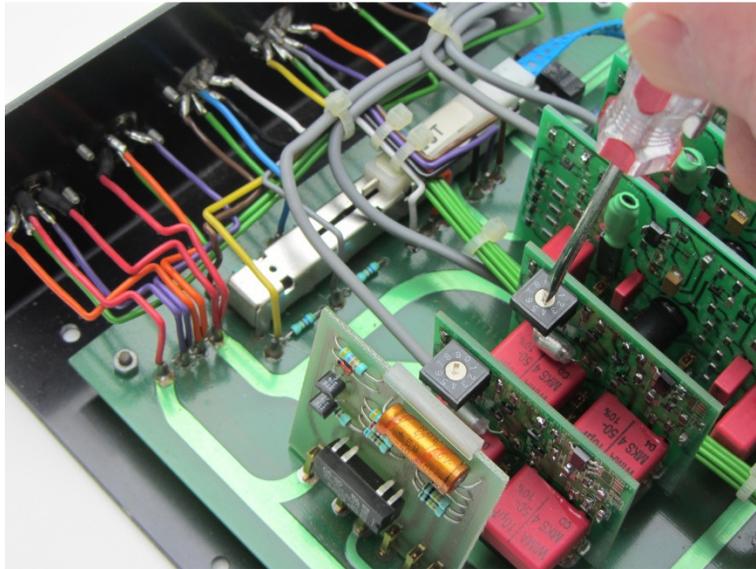
Referring back to the photo on page 4 for location information, remove the existing Line Out Amp plug-ins by pulling them straight up off their pins. Locate the two MusicPower Z200V Adjustable Line Out Amp plug-ins and decide on what gain setting to choose. They come with the jumpers in the Max gain position (see photo below for the 3 settings). If you wish to have less gain because your system is very efficient and volume resolution is difficult, move the jumpers to -10db, which will cause the volume control to be turned about ¼ higher than at the Max setting. The -20db position will raise the volume control position by about ½ turn. Change both boards to the same setting, then align the connectors and push them down to seat fully against the mother board. That's all there is to it!



4.2 Installing the Z401 Variable CD Input Plug-Ins

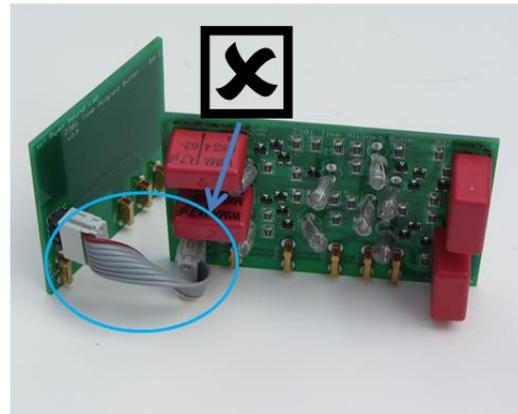
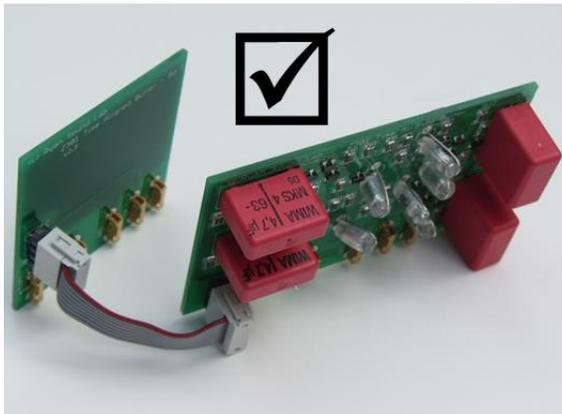
Similar to above, refer to the photo on page 4 and remove the existing Variable Line Level inputs. Locate the two MusicPower Z401 Variable CD Input Plug-Ins, align the connectors and seat them on the mother board. These plug-ins have an attenuator that you can adjust as desired to better match the CD inputs, which tend to be rather loud, to the phono inputs.

Now adjust the attenuator to your liking. Take a very small regular screwdriver (supplied with the plug-ins) and set both switches to the same setting. Each step in the control reduces the sound level by about 1 db, starting with a minimum -1db reduction on Step 0. See the photo below. You may want to make the final attenuator setting prior to putting the preamp cover back on, but of course it will need to be powered up at that time.

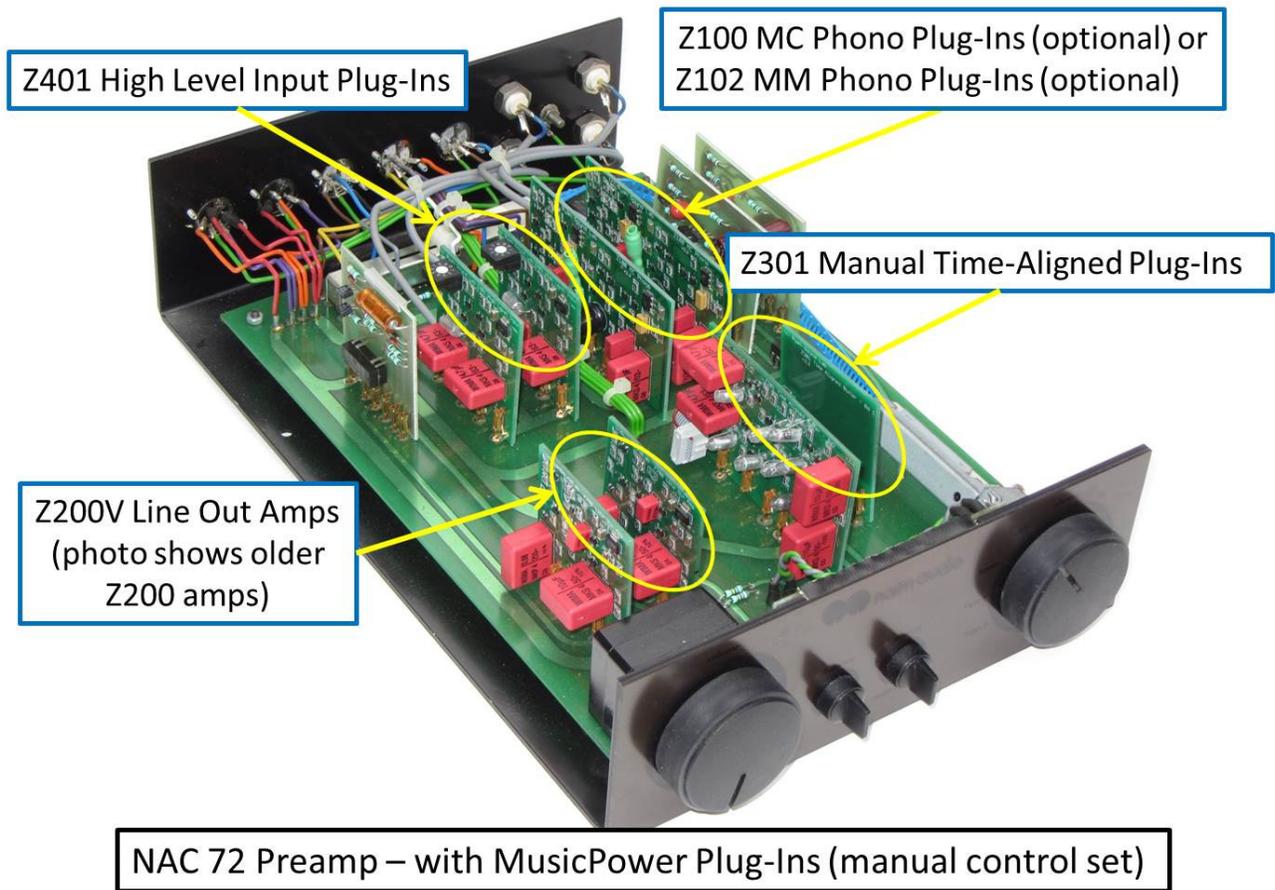


4.3 Installing the Z301 Time-Aligned Plug-Ins (Manual Control set)

Remove the MusicPower Z301 Time-Aligned Plug-Ins from their packaging and make sure the ribbon cable connecting the two boards is in place as shown below. The cable is set up so that it is reversible (either end can plug into either board). It's correctly set up as long as you haven't twisted the ribbon cable.

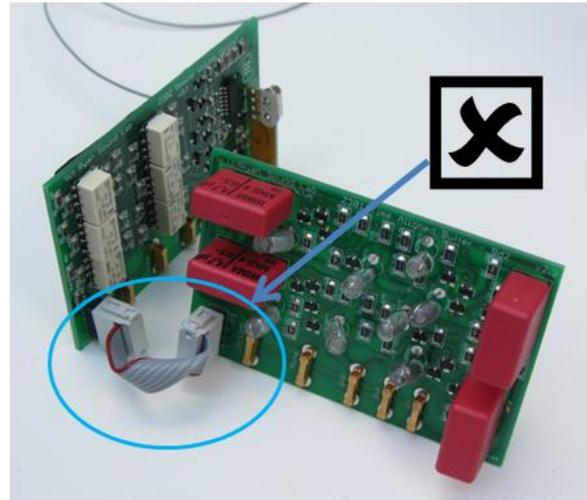
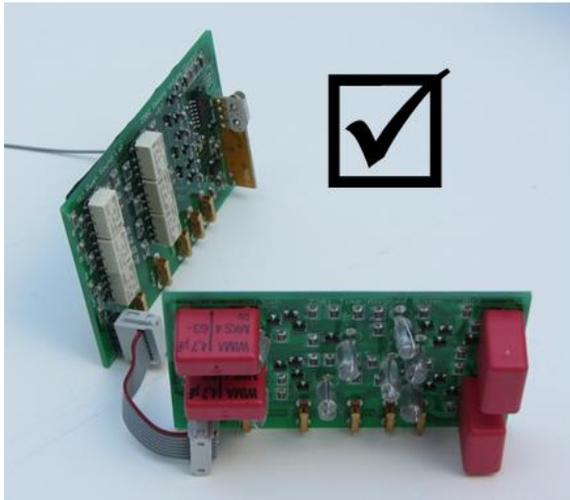


Refer to the photo on page 4 for location information, remove the existing time-aligned plug-ins and replace them with the MusicPower Plug-Ins. You may have to push the ribbon cable away from other boards to fit it in neatly. Make sure you push both plug-ins all the way down on the motherboard pins. See the photo below showing the finished positions for all the plug-ins.

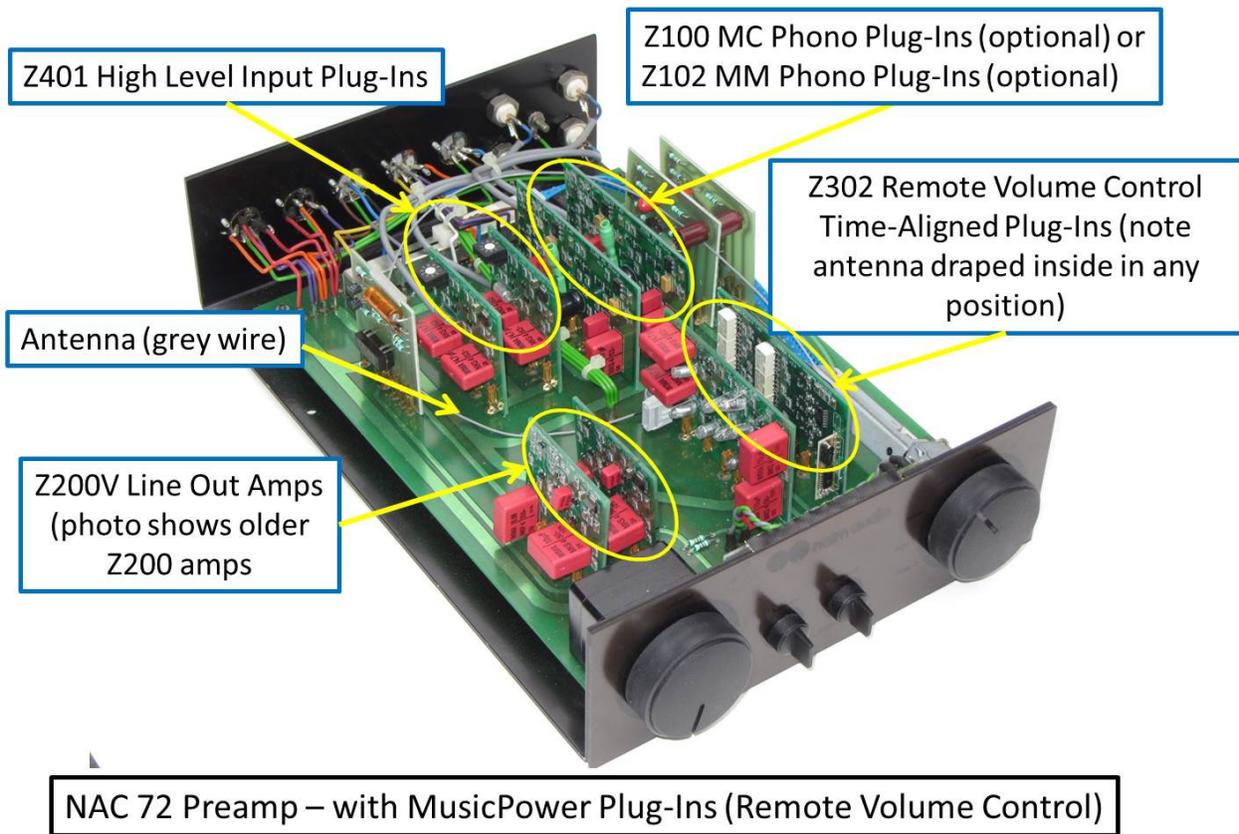


4.4 Installing the Z302 Time-Aligned Plug-Ins (Remote Volume Control set)

Remove the MusicPower Z302 Time-Aligned Plug-Ins from their packaging and make sure the ribbon cable connecting the two boards is in place as shown below. The cable is set up so that it is reversible (either end can plug into either board). It's correctly set up as long as you haven't twisted the ribbon cable.



Refer to the photo on page 4 for location information, remove the existing time-aligned plug-ins and replace them with the MusicPower Plug-Ins. You may have to push the ribbon cable away from other boards to fit it in neatly. Make sure you push both plug-ins all the way down on the motherboard pins. See the photo below showing the finished positions for all the plug-ins.

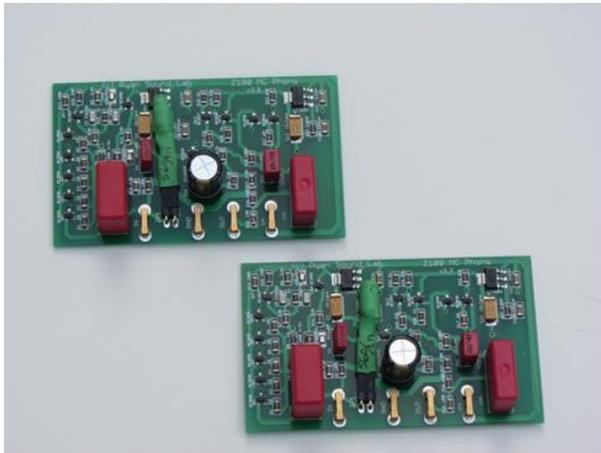


If you did not order an optional phono plug-in, you can now reinstall the cover and feet on the preamp. Remember, the cover just clears the top of the boards so be sure they are pushed fully down on their pins while sliding the cover on.

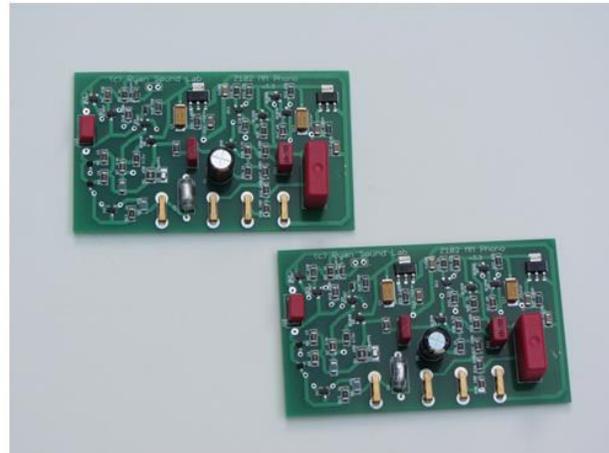
5. Installing Music-Power Phono Plug-Ins (Optional)

Both moving coil (MC) and moving magnet (MM) type MusicPower Phono Plug-Ins are available as an option. They contain individual power regulators for each gain stage on each Plug-In (4 total per pair of Plug-Ins). The photo below shows them both for reference. Please follow the guidance in the corresponding section below for installation.

Z100 MC Phono boards (optional)



Z102 MM Phono boards (optional)

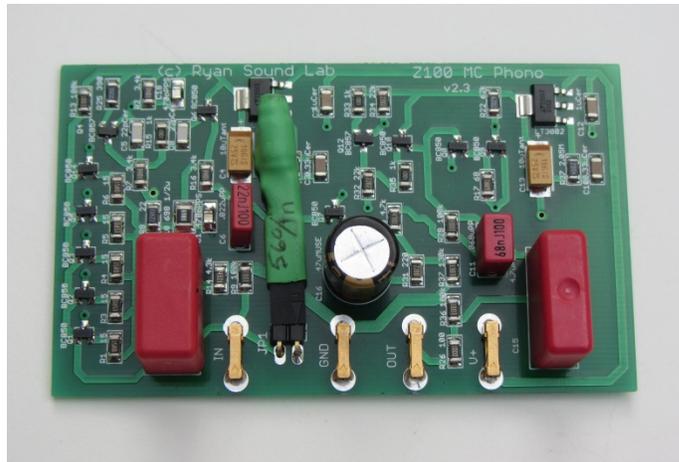


5.1 Installing the Z100 Moving Coil (MC) Phono Plug-Ins

The optional MusicPower Z100 Moving Coil (MC) Phono Plug-Ins cartridges are a direct upgrade for the original Naim plug-ins but with an added flexibility feature: ours have a unique removable compensation module which allows you to get exactly the right settings for your particular MC cartridge (see green module in left photo above). Naim's original "K" boards used 560 ohms+1000pf (1nf), the old "S" boards used 470 ohms+6800pf compensation. Newer cartridges recommend lower values for resistance, say 50-100 ohms, with about 1000pf capacitance. We normally stock resistors from 50 ohms to 681 ohms, and capacitors from 470pf to 6800pf but please contact us if you have special needs. Without specific guidance, we supply "K" equivalents (560 ohms+1000pf (1 nf)) as standard.

Follow the steps above to prepare your preamp to accept these boards (turn off unit, disconnect power, remove cover). If you are adding these plug-ins at a later time than the set above, we suggest you re-read Section 3 above which describes the general process of removing and installing plug-ins.

Be sure the compensation modules are fully seated into the Z100 MC Phono Plug-Ins before inserting them into the motherboard, as shown in the photo below.



Refer to the photo on page 4 for location information, remove the existing phono plug-ins and replace them with the MusicPower Plug-Ins. You may have to reposition the coax cables slightly to allow room for the large film capacitors on the new Plug-Ins. Make sure you push both plug-ins all the way down on the motherboard pins. See the photos on pages 8 and 9 showing the finished positions for all the plug-ins.

5.2 Installing the Z102 Moving Magnet (MM) Phono Plug-Ins

The optional MusicPower Z102 MM Plug-Ins come with industry standard 47k+150pf cartridge loading built-in, so no extra components or adjustment is needed. The original Naim MM plug-ins have no power supply regulation at all on them so these new plug-ins, with two excellent regulators on each plug-in, FET (field effect transistor) inputs, and a film capacitor output is a major improvement.

Follow the steps above to prepare your preamp to accept these boards (turn off unit, disconnect power, remove cover). If you are adding these plug-ins at a later time than the set above, we suggest you re-read Section 3 above which describes the general process of removing and installing plug-ins.

Refer to the photo on page 4 for location information, remove the existing phono plug-ins and replace them with the MusicPower Plug-Ins. You may have to reposition the coax cables slightly to allow room for the large film capacitors on the new Plug-Ins. Make sure you push both plug-ins all the way down on the motherboard pins. See the photos on pages 8 and 9 showing the finished positions for all the plug-ins.

6. Enjoy

Feel free to do comparative changes back and forth with any of the original and MusicPower Plug-Ins. The connectors are good for thousands of inserts so you'll be long gone before you wear them out. Just remember to turn off the power supplies first. When you've had enough A-B testing, don't forget to put the cover and feet back on. The cover just fits over the top of the plug-ins intentionally to keep them in place.

After this transformation, we found ourselves so immersed in the music that we forgot about tinkering with the hifi system and just sat back and listened! Hope you enjoy them as much as we do!