Silverstone Isolation System Documentation

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***Per Shelf**

Warnings

Do not over torque bolts. Bolts only require modest torque.
It is possible to break a bolt if excessive torque is applied.

Follow bolt tightening procedures as detailed in this document.

Be careful don't force any thread or fit. If force is required something is wrong. If a bolt requires force you are probably damaging the thread, contact your dealer for assistance.

Be careful not to cross thread a bolt into a nut bar. Be sure when starting a bolt that it threads easily by hand. If not it may be cross threading, try again with different alignment. Or contact your dealer for assistance.

Failure to correctly level system will affect performance.

The chassis of the unit is extremely heavy. It will likely require two people for assembly of the chassis.

Please take care in moving crates and components they are **HEAVY**!

Unpacking

Before unpacking we suggest you chose and prepare your set up and final usage location.

Locate the largest crate containing the chassis support columns and remove crate lid.

Locate crate containing chassis cross member/damper structures and remove crate lid.

Remove one support column and place it upon the floor. Careful it's very HEAVY!
We suggest you not open the protective covers until needed during assembly.

Remove one chassis cross member structure.

Unpack the carton containing the Carbon/Kevlar structures and the white boxes containing tools and parts. You will need the bolts and ball diver hex key initially.

Open and inspect the shelf carton. You need not remove shelves until installation.

Check your contents against the included list on the "**Contents**" page and proceed to set up.

Assembly Instructions

Pre set up notes

During assembly care must be taken to ensure you do not damage the coating on the support columns.
During initial assembly you will require an area big enough to have the entire structure resting on its side on the floor with adequate room to work around it.

Chassis Structure Assembly

Notes:

- *Please review and carefully note all warnings on page 4.*
- *Please pay special attention to the bolt tightening procedures and warnings.*
- *The bottom of the column is the end with the internal thread and plastic plug installed.*
- *The large shelf version is isosceles and the long end of the cross member is the rear. The small shelf version is equilateral thus there is no specific rear, unless there is a marking for location then this goes to the rear.*
- *To determine the top side of the cross member view the bolt heads in the brackets, this is the upper side. If you are seeing threads turn the cross member over.*

Open each column and check to see if any are marked rear at the bottom of the slot.
Place the first support column upon the floor and open its wrapper to gain access to the slot in the column. This first column will be the rear.
During the following steps be careful not to chip or damage the coating on the column.
Locate a chassis cross member and begin assembly to column
Locate the rear corner bracket in the bottom of the slot in the leg. **See above notes.**
Carefully insert the cross member bracket into the slot and align it with the lowest nut bar. The bracket should be resting in the bottom of the slot.
Using the supplied ball driver install two bolts into the bracket and nut bar and gently snug. Do not tighten fully yet.
Using the supplied hex wrench remove the keeper bolt from the top slider bar in the slot repeat on each column. Set these 3) bolts aside they are shorter and only for shipping.
Do not use these 3) bolts during assembly.

Cross member placement

As stated the lowest cross member should be resting upon the bottom of the slot.
If your unit has 3 cross members the mid member should be located under the shelf which is closest to the middle of the column.
Failure to locate this cross member near the middle will compromise the structural integrity of the design.
The upper cross member should be located under the top shelf. Initial installation is about 7" down from the top of the slot.
The mid and upper members may require repositioning after all the shelves are installed.
The nut bars have been installed at the factory in the most likely correct order ultimately you decide the specific height locations.

NOTES REGARDS PLACEMENT.

- *Upon finished assembly the cross members are intended to be near the underside of the shelf above (1/4" - 1/2").*
- *It is assumed the bottom shelf will be placed on the bottom. If for some reason you want to raise this you can however it will leave usable shelf space wasted.*
- *The middle cross member should be located near where you want the shelf above it to be. Leave approximately 1" clearance to allow for the initial compression of the damper. Nominally this will provide you ½" space between the cross member and the bottom of the Carbon/Kevlar structure or damper after the component is installed.*

Repeat the earlier steps and install the middle and top cross members to the rear column following the guidelines above for placement.
Slide the nut bars up the slot as needed.
Next place another column on the floor near the cross member brackets. This step will probably require two people.
Lift the cross members (at least two at once) so as to rotate the column they are attached to and allow installation of the cross member corner brackets into this column.
Locate the bottom cross member bracket in the bottom of the slot, install two bolts and gently snug.
Align the middle cross member bracket nut bar as needed and install two bolts and gently snug.
Repeat for the top cross member.
Remove last column from the crate and open wrapper to access slot.
Repeat the earlier steps to attach final support column to cross members.

Chassis alignment and tightening

Now that we have an assembled chassis structure before we stand it up we need to align and tighten each cross member.
Start with the bottom cross member and using the supplied hex key tighten the two bolts on the 3) cross member brackets making sure the brackets are bottomed in the slots.
Now tighten 2) bolts on a single bracket of the middle cross member.
Before tightening the next two bolts we need to ensure the member is parallel to the bottom one.
Using a tape measure confirm the distance from the bottom cross member to the corner you just tightened. Note this dimension.
Go to the next corner and check dimension from the bottom member if it is not the same as the noted dimension you need to adjust this corner.
Slightly loosen the 2) corner bracket bolts and gently tap the member up or down as needed.
Retighten the bolts and repeat the process for the remaining corner.
Repeat process for the top cross member again ensuring each corner of the cross member is the same height from the bottom.

Install spikes or levelers

Your unit is equipped with either levelers (for the APEX) or spikes.
Thread in each spike or leveler fully until it bottoms in the thread.
The jam nut will be tightened upon final leveling.

Placement and Leveling of Chassis Structure

Placement

Two people must now stand the structure upright and move it to its final location.
This can be done by lifting the structure by its cross members.
Care must be taken to avoid bending the spikes or levelers when standing the unit upright.
Be sure to lift upon the chassis cross member as you stand the unit up to avoid excessively loading the spikes or levelers at an angle which could cause bending.
Locate the rear column where you want your final placement to be. Leave a couple inches from the wall to avoid having the APEX half on the carpet tack strip or other irregularity.
Position the front for parallel to the wall by measuring from each support column to the back wall. Move each until the measurements are the equal.

Install APEX

If your unit is supplied with APEX feet install them now.
Lift each support column individually tilting the unit and insert an APEX with ball under the leveler.

Leveling the chassis structure

Leveling of the chassis structure is critical.

Place a level across the front of the bottom cross member.
Note which side of the bubble is low and select the spike or leveler beneath this side.
Use the supplied 9/16" wrench or dowel pin to unscrew the adjuster on this foot until the bubble centers.
Try to extend threads a minimal amount.
Do not exceed 1/2" of exposed thread.
Repeat procedure for the front to rear plane on this cross member. If the rear is high you will need to raise the front both sides equally. Then recheck the front again.
Tighten the jam nuts using the supplied 9/16" wrench.
Recheck level to confirm it did not change during tightening of the jam nuts.
Now check level on the middle and top cross members.
If they are not level adjust with the following steps.
Loosen two bracket bolts on a single bracket (the low one) and tap this corner gently until it is at the correct height, retighten jam nuts.
Do this one corner at a time until the cross members are all parallel with each other.
Failure to ensure the cross member are all in the same level plane will compromise the structural integrity of the design.
The final step for the chassis assembly is a complete nut & bolt check.
Using the supplied hex key start at the bottom and check each and every bolt for tight. You need only gently turn the key.
If the key is flexing much you are applying excessive torque.

Note:

- *If the unit is on carpet the overall chassis level (spikes or levelers only) should be rechecked a couple times over the next week or two and adjusted as needed. The carpet and pad will compress and affect the level of the unit. It must be rechecked until stabilized.*
- *If a change was required you will have to recheck the shelves also.*

Installing the Carbon/Kevlar Structures

Attaching hanger brackets

Before we can install the shelf platforms we must first attach the hanger brackets and move them into approximate position.
Locate the hanger brackets and using the supplied ball driver start at the bottom and attach the rear bottom bracket to the bottom hanger bracket nut bar.
Next attach one of the front hanger brackets.
Adjust these two about 7" above the cross member.
Attach the remaining front hanger bracket but adjust this one all the way to the top of the available space pushing the other nut bars upward with it.
You need only gently snug the bolts with the ball driver for now.
Attach the hanger brackets for the next shelf up.
Adjust the two you can to what you believe your desired shelf height will be plus roughly 7".
One of them will be pinned in between the bottom hanger bracket and the above cross member due to moving the bottom hanger bracket to its highest point earlier.
Repeat for the remaining shelves.
NOTE:

- *One row of brackets will always need to be adjusted high to allow easy installation of the Carbon/Kevlar structures.*
- *A single top shelf hanger bracket should be left off until hanging of Carbon/Kevlar structure.*

Installing damper assemblies

Each Carbon/Kevlar shelf support is marked for position example #1 (top) - #4 (bottom).
Start with the bottom shelf and work upward.
Locate the correct rating damper assemblies for the first shelf.
The dampers are pre-installed on the hanger assemblies.
Slide each damper up slightly (1/4") on its sleeve before installing in the shelf platform.
Select a corner of the structure and grasping the damper, thread the hanger link and damper assembly up from below through the hole in the damper bucket.
When you have the flange of the damper inserted into the hole in the damper bucket push the hanger link sleeve back into its original position in the damper. This will help retain the damper during assembly.
Repeat this for each of the remaining corners on all the Carbon/Kevlar structures.

Hanging the Carbon/Kevlar structures

Gently insert the bottom structure into the chassis by raising (tilting) the corner which does not have the hanger bracket adjusted to this height.
Insert two hanger links into the two 7" adjusted hanger brackets.
Lower the remaining hanger bracket as needed snug bolts and insert final hanger link.
Now the assembly should be suspended from the hanger brackets.
Repeat this process for the remaining Carbon/Kevlar structures.

Adjusting Carbon/Kevlar structure placement/height

Before performing any leveling and adding gear we should be sure each individual shelf is in the right place.
To adjust overall shelf height loosen an individual hanger bracket and slide up or down as needed.
Repeat for the other two corners. Use a level on the Carbon/Kevlar structure to get it close. It does need to be perfect we will perform final leveling via the hanger links later.
For shelves above a cross member be sure to leave at least ¾" clearance for compression of the dampers.

Installing shelves

Installing shelf dampers

Locate the correct weight rating shelf dampers for each individual shelf and place one in each recess on the Carbon/Kevlar structure.
Repeat for each shelf.

Installing shelves

Gently place each shelf upon its dampers and Carbon/Kevlar structure.
With acrylic shelves align each front corner to match the radius on the Carbon/Kevlar part and damper bucket.
With Formula Shelves match the front edge of the shelf to the straight line created by the transition of the radius to the top flat area of the Carbon/Kevlar structure.

Installing components

Simply place each component on a shelf while avoiding sliding the component upon the shelf. Care should be taken to avoid movement upon the shelf which may cause the feet to scratch the shelf.
Position upon the shelf will affect damper compression. This will be covered in detail in the "Optimizing and Tuning Performance" section of the manual.
For now place each component upon the shelf as you would prefer for your use.
We recommend slightly back from the front of the shelf 1 or 2 inches.

Leveling the shelves

NOTES:

- *Hanger Links are pre assembled near fully tight. Initial adjustments will be unscrewing or lengthening the link.*
- *Each link can be unscrewed ¼".*
- ***Do not expose thread on the hanger link**. If you are seeing thread the link has been unscrewed too far. Retighten the link and lower the hanger bracket then restart leveling procedure.*

The shelves should each already be in its final height and spacing position from an earlier step. If not move them as needed now.
Place a level across the front of the shelf to be leveled.
Note which side of the bubble is high and select the link on this side for adjustment.
Lift slightly the Carbon/Kevlar structure from underneath the corner to unload the link a little bit.
While partially supporting the structure unscrew the link until the shelf is level.
Repeat for the front to rear plane.

Optimizing and tuning performance

Correctly setting up and optimizing of this sophisticated design will yield significant sonic benefits. Its benefit is formidable even when not correctly set up but we hope that every unit will be optimized so the owner can enjoy the full benefit we intended.
The following information will help you ensure a lifetime of benefit from your investment in the best isolation product available in the high performance audio world.

Effects of component placement

When you place your component upon a shelf the compression of each damper may not be equal. This occurs based upon the distribution of the weight upon the dampers. Unfortunately, most components have significant weight bias either side to side or front to rear. You can feel this when you lift them. Thus when you place the component to the front of the shelf it is virtually certain in many cases that an individual damper or two will be compressed more or less than another.
Unique to our designs each individual damper can be tuned for its individual loading. This eliminates the constraint of placing the component in the middle or offset one way or another due to its weight bias.
The ability to adjust the dampers individually is essential to optimal performance and a Grand Prix Audio exclusive design feature.

Measuring primary damper compression

Visco elastics operate optimally only within a certain compression range thus to ensure optimal performance we must ensure each damper is correct for its weight loading.
We do this by measuring the compression of the damper.
To determine if a damper is over or under compressed you will inspect the amount of damper sleeve which is exposed when the component is upon the shelf compressing the damper.
Take a measurement from the top of the damper flange to the top of the constant section diameter of the damper sleeve. Do not include the taper section at the top of the sleeve in the measurement.
The optimal measurement is .300 or approximately 3/8" +/- .1".

Selecting the correct damper

If your measurement is less than the optimal less +/- .1" you are using a too high rating damper. Replace this damper with the next lower rating number damper.
If your measurement is more than the optimal +/- .1" you are using a too low rating damper. Replace this damper with the next higher rating number damper.
Dampers are available in 6 ratings from #1) @ 1# – 10#, #2) @ 10# - 20#, #3) @ 20# - 40#, #4) @ 40 – 65#, #5) @ 65# - 100#, #6) @ 100 – 150#.
Higher rating dampers are available by custom order.

Changing or replacing a damper

First you will need to remove the damper hanger link assembly from the unit.
This will require removal of the component and shelf unless the shelf is above a cross member. If it is above a cross member you can insert a cloth or other material to protect the cross member and allow the shelf assembly to rest upon the cross member.
Or, if you have a helper to support the individual corner while you change the damper you may avoid any disassembly.
You have a few choices in degree of difficulty based upon your circumstance.
Refer to the section "Installing the Carbon/Kevlar structures" for detailed instruction of removal (reverse of installation).
Remove the damper and hanger link assembly.
Unscrew the hanger link and remove it from the assembly.
Slide the damper off the damper sleeve.
Slide the damper compression washer off the damper sleeve.
Slide the new size compression washer on. If you are replacing a damper with the same rate skip this step.
Slide the new damper on turning it a few revolutions as you slide it down to evenly distribute the lubricant. It is pre-lubricated and ready for installation.
Wipe any excess lubricant off the outside of the damper sleeve assembly.
Reassemble the hanger link in the sleeve fully threading it together and reinstall the assembly.

Damper life span

We recommend you replace your dampers every 18 months or less.
If you don't replace the dampers nothing will break but your system will not sound as good as the dampers age and harden and thus become less efficient.
If you want to ensure optimal performance occasional replacement of the dampers is a must. It is like replacing the shocks on your car.
All visco elastic materials have a finite lifespan. This lifespan is determined by many factors, such as compression, environment, and hardness.
Rubbers and less efficient materials have a much longer lifespan but also offer much less performance.
We engineer our visco elastic designs using Sorbothane materials of various durometer. We also engineer our product for optimal usage of this material which means a specific optimal percentage of compression. These engineering parameters and the material properties largely define the lifespan of the damper. Assuming the damper is not over compressed.
We can extend the lifespan of the dampers by lessening the compression. You will also give up considerable performance. To extend nearly double your damper lifespan simply use the next higher rating damper than optimally recommended.
We greatly discourage this dumbing down of the design but want to provide this information for your potential benefit nevertheless.

Reconfiguring the unit

Removal of nut bar access plug

To add or remove nut bars you must first remove the access plug on the top of the column.
To remove the access plug use the bent or short end of the supplied hex key, insert it into the slot under the column closure and plug. Push up gently and the plug will slide upward and out. Be careful not to push it out fully but instead only push it up enough to grasp it and remove it. This will help you avoid scratching the polished closure.

Adding or removing nut bars

Now that you have access to the nut bar slot simply slide in the new nut bar taking care not to scratch the closure.
If removal of a nut bar is required slide it upward using the hex key under it.
When it is half protruding from the top closure grasp it and remove it.

Adding shelves

To add a shelf you will need to first remove the nut bar access plug following instructions above.
Install the new required nut bars following instructions above.
Depending upon desired shelf placement you may have to remove existing nut bars to allow installation of the new one in the correct order.
To get a hanger bracket nut bar past a cross member simply remove the two bolts from a **single** cross member corner bracket one at a time and slide the nut bar out, add the new one and then replace the one you removed.
Repeat for the other two corners, one at a time.
Recheck cross member level in relation to the others see "**Chassis alignment and tightening**"
Assemble the Carbon/Kevlar structure and damper assemblies following procedures detailed under "**Installing damper assemblies".**
Install the Carbon/Kevlar structure following procedures detailed under "**Hanging the Carbon/Kevlar structures**"
Adjust and level the Carbon/Kevlar structure following instructions as detailed under "**Adjusting Carbon/Kevlar structure placement or height**" and "**Leveling of the shelves**"

Repositioning a chassis cross member

To move a chassis cross member up or down you will need to allow the outer chassis structure to open slightly dimensionally thus freeing the cross members from compression by the columns.
Loosen two corners only of the two cross member bracket bolts on all the cross members.
A second pair of hands is very helpful for this step.
While supporting the cross member you intend to move loosen the final two corner bracket bolts.
Gently raise or lower the cross member as needed. It may try and wedge itself so care is needed to move it while maintaining a level plane thus avoiding wedging it. It will need to be wiggled up or down.
When it is in the position you desire, tighten the two bolts on a single corner.
Follow the instructions detailed under "**Cross member placement**" to finalize and ensure parallel.

Repositioning a shelf

To move a shelf assembly up or down you have two choices.
You can remove the entire assembly by following the prior instructions in reverse.
Then reposition each hanger bracket and reinstall the shelf assembly.
OR The much easier way is to loosen the two hanger bracket bolts on an individual corner and slide the shelf assembly up or down as desired one corner at a time.
If the reposition is far enough you may have to do it incrementally, a few inches at a time each corner individually.

Cleaning and Maintenance

Cleaning the chassis structure

The black coated support columns can be cleaned with a damp cloth and if need be mild detergent.

The black coated chassis cross members can be cleaned with a damp cloth and if need be mild detergent.

The silver glossy coated support columns treat the same as paint on a fine automobile. Clean with mild detergent or just a soft damp cloth and wax with a fine automotive wax such as Meguiars.

The polished aluminum closures on the top and bottom of the columns should be cleaned carefully with a soft cloth to remove dust. They can be polished for removal of oxidation and small scratches with aluminum polish. We recommend and use at the factory Mothers, however Meguiars and others make good polish too. To maintain the unit in as delivered condition you will need to lightly polish these parts every few months or even monthly depending upon your climate to remove oxidation build up which will dull the reflectivity of the polished aluminum.

The hanger brackets, hanger links and hardware simply wipe with a soft cloth.

Cleaning the Carbon/Kevlar structures and Formula Shelves

The Carbon/Kevlar structures and Formula Shelves treat the same as paint on a fine automobile. Clean with mild detergent or just a soft damp cloth and wax with a fine automotive wax such as Meguiars. They can also be polished the same as car paint to remove small scratches etc.

Cleaning the acrylic shelves

Your unit came with a small bottle of shelf cleaner made specifically for acrylic. It is Brillianize brand product and can be purchased online or at your local plastics supplier. First wipe off any accumulated dust to avoid scratching. Then wipe with a damp cloth to remove the remainder of any dust. Lastly using a clean soft cloth spray a fine mist of Brillianize on the shelf and then wipe it off as you would any window cleaner. However, after that using a fresh dry spot of the cloth you can buff the shelf to a nice shine.

TROUBLESHOOTING

We welcome your feedback to build this portion of the manual.
At this time we have no troubleshooting notes.