

"Factory High Pass Crossover Bypass"

I just completed the "Amp Bypass Procedure" with much success. The original bypass was designed to only hook back up the 6 door speakers, and left the rear sub and D pillar tweeters unused. Although the front seat sound was great, rear passengers were missing quite a bit of sound. I decided to use the bypass and re-use the factory amp to power the subs and tweets in the back, in a procedure I will call "Factory High Pass Crossover Bypass". Below, you will find my comments and in an effort to keep all of the wiring information together, there are excerpts from previous discussions on this subject.

First off, there is the question of what is the factory Matsushita device. My best guess, using the wiring information below, is that the head unit produces 4 amplified channels designed to power the door speakers (for simplicity, forget the fact that each front door has two speakers in it. These function as one unit as far as we are concerned). As you can see from the factory wiring information listed below, there are 8 amplified audio inputs in the 24 pin C-2 connector, one + and one - for each of the doors. These amplified signals pass through the Matsushita, where a high pass crossover filters out the low frequencies. The filtered, amplified, signals are then wired to the respective speakers. They have received no additional amplification from the Matsushita, but have actually lost wattage due to the resistance found in all passive crossovers (which someone has previously correctly dubbed as a "deamplifier")

Alas, the Matsushita has another trick up its sleeve. As the amplified rear channels enter 'ol Mat, it pulls a "+" from the left and a "-" from the right, to produce a fifth, mono channel. The Matsushita then amplifies this mono channel and sends it to the subwoofer and tweets via 4 wires in the C-1 connector. As far as impedance goes, in order to get these 4 wires to the 6 speaker terminals (2 per speaker) GM must hook two 4-ohm tweeters in parallel, which creates a 2-ohm load. If they then hook this 2-ohm load in series with the 2-ohm subwoofer, they produce a 4-ohm load. Overly simplified, parallel wiring is + to + and - to -, and causes impedance to drop (two 4 ohm speakers cause the amp to see a 2 ohm load). Series wiring is + to -, and causes impedance to rise (two 4 ohm speakers cause the amp to see a 8 ohm load). Using this logic, there are 5-6 different wiring scenarios that would have added up to a proper impedance that the Matsushita could have handled. This logic also would hold true for adding an aftermarket amp, as no new sub would be necessary as long as the tweets were still wired and the mono channel saw a 4-ohm load (although not advisable, since the sub is a piece of junk.)

The factory amplifier has two connectors. C-1 is an 8-pin connector with pins labeled A - H. Pin connections are as follows:

A Lt Grn/Blk Subwoofer -

B Dk Blu/Wht Subwoofer +

C - D Not Used

E Orn Fused Battery Positive Voltage (not enough current for an aftermarket amplifier. Use a separate fused cable direct from the battery if you are installing an aftermarket amp)

F Blk Ground

G Dk Grn Right Rear D pillar speaker +

H Lt Blu/Blk Left Rear D Pillar speaker -

C-2 is a 24-pin connector with pins labeled A1 - A12 and B1 - B12

A1 Dk Grn RF Speaker -
A2 Lt Grn RF Speaker +
A3 Lt Blu RR Speaker -
A4 Dk Blu RR Speaker +
A5 Orn Amplifier feed (Pwr Ant signal. Use this wire to turn on your amp)
A6 Ppl Amplifier gain control (not used with aftermarket amp)
A7 - A8 Not used
A9 Lt Grn RF Audio -
A10 Lt Grn RF Audio +
A11 Blk RR Audio -
A12 Dk Blu RR Audio +

B1 Gry LF Speaker -
B2 Tan LF Speaker +
B3 Yel LR Speaker -
B4 Brn LR Speaker +
B5 - B8 Not Used
B9 Dk Grn LF Audio -
B10 Tan LF Audio +
B11 Brn LR Audio -
B12 Brn LR Audio +

Step 1 – the wiring harness/amp bypass

Open the glove box fully and depress the tab on the right side – the entire glove box will swing out of the way allowing you to see the factory amp. There is a small spring clip at the top of the amp. Pop it loose and the amp can be moved around a little, which will make it easier to remove 24 pin connector. It is not necessary to remove the 8-pin connector or remove the amp, as they are both difficult tasks.

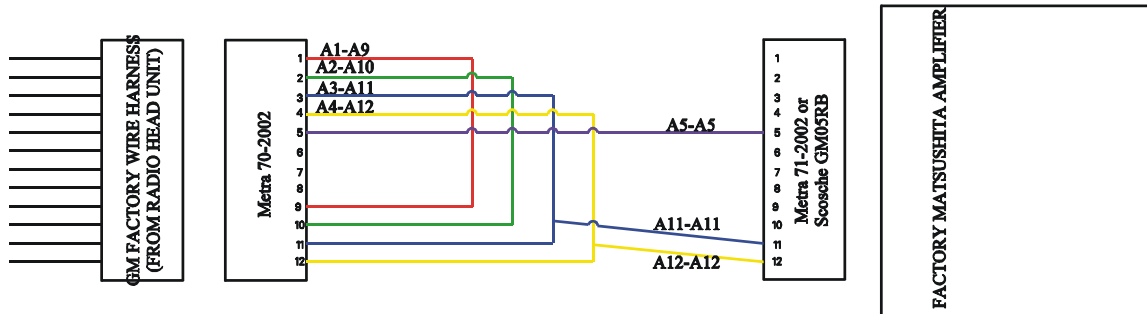
Buy a Metra 24 pin wiring harness from the installation department at Best Buy, Circuit City, Car Toys, or from an auto parts store like Autozone. The 70-2002 for a Saturn works nicely because it has all 17 wires necessary to complete the bypass (although the kid at Best Buy says that the new ones will only have 14 wires). If you can't find one with 17 wires, then buy any two GM 24 pin connectors, so long as you end up with a total of 17 wires. In order to re-use the sub and D pillar tweeters, you must also buy a mating Metra 71 series plug (such as 71-2002). Any 24 pin GM connector with at least 5 wires will work. Best Buy didn't have a Metra 71 series 24 pin, but did have a Scosche GM05RB.

Begin by completely pulling all the wires from both connector harnesses. The wires are easily extracted by removing the dark gray color clip on each side of the connector (you may also need to use a paper clip or jewelers screwdriver to “release” the wires from the harness, especially the 71 series). The reason that the wires need to be removed is that they are not in the proper pin locations to work with the Tahoe/Yukon system. You will notice that the connectors are labeled with the letters “A” and “B” and the numbers 1-12. Use the following chart to help you re-insert the wires into the wiring harness connector and properly connect them. I found it easier to solder and heat shrink the wires before reinserting them into the plug. Use the same color for mating wires, ie: two red wires soldered together become the bypass for A1-A9, two green for A2-A10, two black wires plus one black 71 series wire for the A3-A11-A11 connection etc...

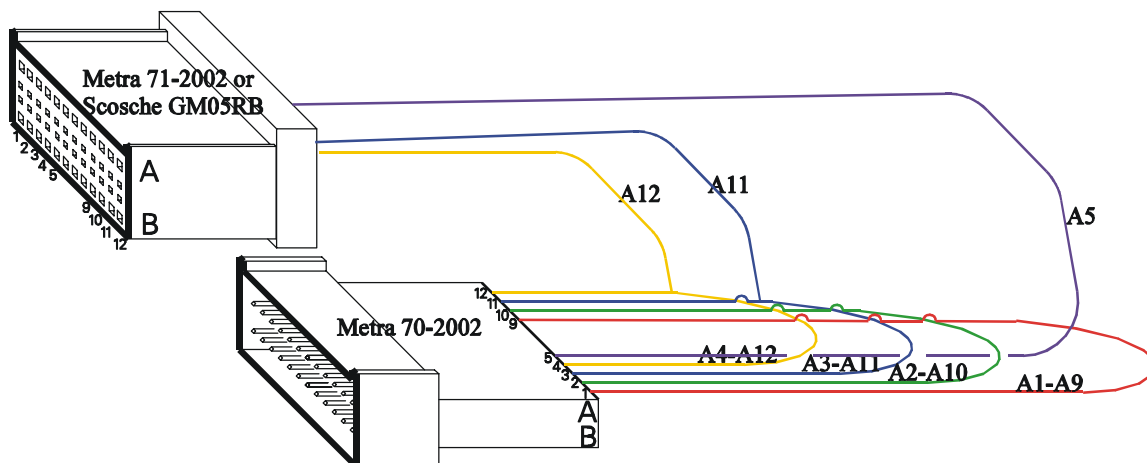
Connect: A-1 with A-9 (right front -)
Connect: A-2 with A-10 (right front +)
Connect: A-3 with A-11 (right rear -) and A-11 of the 71 series plug.
Connect: A-4 with A-12 (right rear +) and A-12 of the 71 series plug.

Connect A-5 with A-5 of the 71 Series plug.

Connect: B-1 with B-9 (left front -)
 Connect: B-2 with B-10 (left front +)
 Connect: B-3 with B-11 (left rear -) and B-11 of the 71 series plug.
 Connect: B-4 with B-12 (left rear +) and B-12 of the 71 series plug.

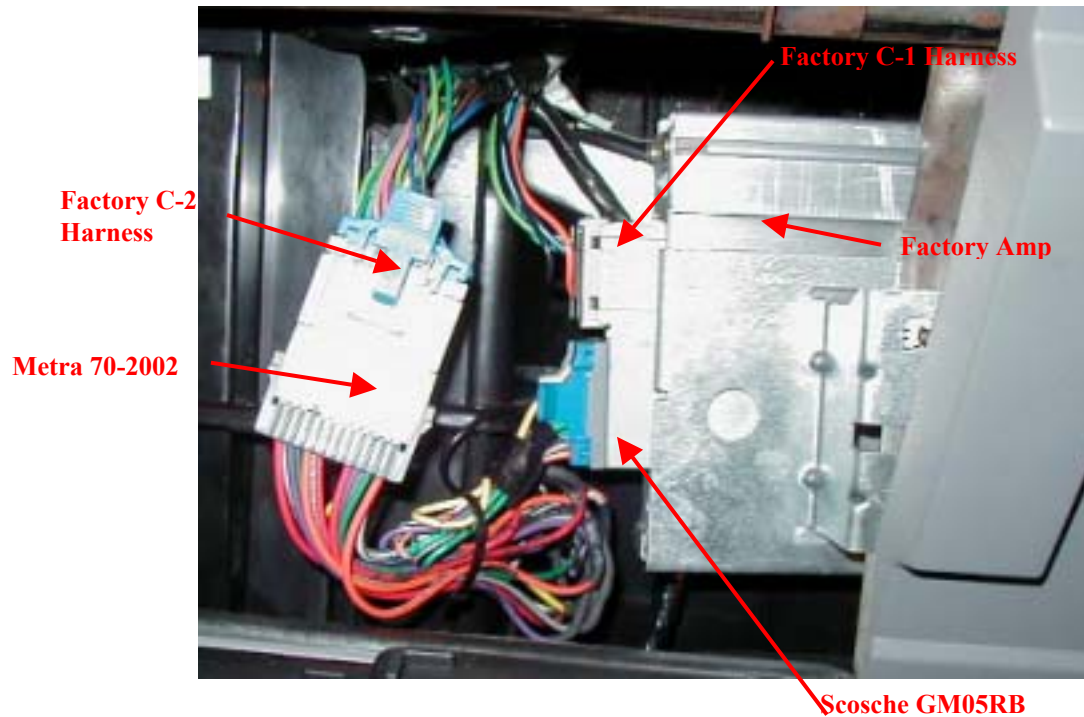


This is the schematic diagram for the “A” Side. Side “B” is identical, except that the B5 pin is not used.



Again, this is the schematic diagram for the “A” Side. Side “B” is identical, except that the B5 pin is not used.

Once you have all the wires inserted into the correct pin location, reattach the dark gray clip – this will help make sure that the wires don’t fall out of the harness. Snap the newly built wiring harness onto the matching 24-pin connector from the receiver, and to the amplifier, and the modified amp bypass is complete. The beauty of this bypass is that the door speakers receive an unfiltered signal (just like the Silverados, and Tahoes/Yukons without the "premium" sound) and the subwoofer and tweeters are still amplified, giving rear seat passengers (and tailgate parties) full range sound. If you want to restore it to factory sound, all you have to do is unplug the bypass harness.



That is all that is required to bypass the factory amp/filter. You will be amazed at how much better the system sounds, even when compared to the "Original Amp Bypass Procedure".

Costs:

Metra 70-2002 \$12.99 (from Best Buy installation dept)

Scosche GM05RB \$17.99 (from Best Buy installation dept)

Time:

About 2 hours from start to finish.

Below is additional information on speaker replacement. I only include this information in an effort to keep one comprehensive document relating to the upgrade of the Tahoe stereo. I have not replaced my speakers, as I feel that Factory High Pass Crossover Bypass produced an acceptable result. I also cannot attest to the accuracy of the information, but I would assume that it is correct. As a footnote, Metra also make speaker adapters that will plug into the factory speaker harness.

Excerpted from Darren (150.70)

Step 2 – the speaker replacement

Front doors: Remove the 7mm screw that is visible just under the door pull. Remove the "sail panel" that is at the top of the door panel at the front (working from the top first so as not to damage the clip on the bottom). Pry out the door lock button. Pry out the door handle trim (working from the bottom to the top). Remove the 7mm screw that is exposed once the door handle trim is removed. Pry out the power window control panel and disconnect all the wires that attach to it. Remove the 7mm screw that is exposed once the

power window control panel is removed. Unplug the wiring harness that goes to the power seat memory/heated seat control. Unplug the wiring harness that goes to the tweeter. Lift the door panel straight up. Remove the light bulb to the door courtesy light. The door panel should now be free from the vehicle. The woofer is removed by depressing the plastic clip on the top of the speaker. Pull the speaker out. For wiring a new speaker, simply insert 16 gauge speaker wire directly into the factory wiring (LEFT FRONT = tan is +, gray is -) (RIGHT FRONT = light green is +, dark green is -). Use quality electrical tape to keep moisture from this new connection. Connect your new speaker to this wiring, insert the new door speaker into the hole and reassemble the door panel in the same manner that it was removed. You may have to drill new mounting holes for the screws that will hold the new door speaker. Reconnecting the factory tweeter is optional – your new speakers may sound better without it being reconnected.

Rear doors: Remove the 9/32 screw that is visible just under the door pull and the 9/32 screw on the lower front portion of the door panel. Pry out the door lock button. Pry out the door handle trim (working from the bottom to the top). Pry out the door lock button. Lift the door panel straight up. Remove the light bulb to the door courtesy light. The door panel should now be free from the vehicle. The woofer is removed by removing the four Torx T-15 screws that hold it in place. Once the Torx T-15 screws are removed, carefully pry the speaker loose from the plastic housing. This will allow you to reattach your new speaker into the plastic housing rather than trying to drill new holes in the sheet metal. For wiring a new speaker, simply insert 16-gauge speaker wire directly into the factory wiring (LEFT REAR = brown is +, yellow is -) (RIGHT REAR = brown is +, yellow is -). Use quality electrical tape to keep moisture from this new connection. Connect your new speaker to this wiring, insert the new door speaker into the hole and reassemble the door panel in the same manner that it was removed.

Note: Infinity 652i speakers fit the rear door speaker openings perfectly – the screw holes even match up.

Subwoofer: Remove the two pieces of plastic trim that cover the rear hatch sill (the scuff plate) and also at the roof trim panel. Pry out the retaining clip that is located on the rear side panel near the bottom of the panel. Remove the cargo net holder by unscrewing it counterclockwise. Starting at the top edge, pry out the rear pillar trim panel. Disconnect the speaker wiring to the pillar mounted tweeters and remove the panel. Start at the rear and top edges of the side panel and pry the panel out enough to access the four Torx T-20 screws that secure the factory subwoofer in place. It is best not to fully remove the side panel trim as it makes re-assembly easier. Remove the factory speaker. Install the new subwoofer (light green is +, dark blue is -) and drill new holes for the mounting screws as needed. Reassemble the pieces in the reverse order of removal.

Kenwood makes an 8" sub that fits the factory enclosure very nicely – just drill 4 new holes into the existing enclosure and you're all set.

If you elect to install a new amplifier, find one small enough to fit under the front console extension.

