

▶ Factory-Look Audio Upgrades

Model & year: **92-95 3-Series, U.S.**

Expertise level: **Beginner > Intermediate > Advanced**

Date: **December 21, 2004** (updated 2011)

Estimated time to complete: **varies**

Tools Required (varies)

- Metric allen wrenches
- Tie wraps
- Bentley or Haynes service manual (optional)
- Heat-shrink tubing and misc. wiring accessories
- Other basic hand tools

Facilities Needed

- Work bench
- Level, dry surface

Parts Required (varies)

- BMW factory radio C33/C43/CD43, used \$150 - \$350
- I-bus data cable, p/n 65 12 8 369 830, \$38.00
- Factory replacement speakers/amp/subwoofer, price varies

Getting Started

This write-up is for those who wish to upgrade their stock audio system while retaining a tasteful factory appearance. Although written specifically for 3-series cars, it is generally applicable to all BMW's.

And there is good reason to upgrade. For starters, most pre-'96 radios are beginning to have display problems (dim display or burned pixels). And by swapping in better speakers or an amp, you can improve sound quality. But most interestingly, by upgrading to a '96-on radio you'll be able to use mp3 CD changers, iPod interfaces, and other devices thru auxilliary input adaptors.

I have organized this into four sections with corresponding levels of difficulty:

- [Radio](#)
- [Speakers](#)
- [Data Cable](#) (for use with CD/MP3 changer)
- [Amplifier](#) (and/or subwoofer)

All removal and replacement procedures are in the Bentley or Haynes service manual, therefore I will only add additional procedures as necessary. REMINDER: when working with factoty radios, be sure to have the BMW security code!

Procedure

Radio

If you're mostly happy with your factory system, replacing just the radio is an easy upgrade. A good source for used radios is [eBay](#).

'96-on, I-bus radios are direct plug-in replacements and bring new features such as speed-sensitive volume, three banks of six FM presets, and in-dash CD. There are three models of interest:



While none of these radios operate "old" pre-'96 CD changers, they can be made to operate newer changers by upgrading the data cable and power plug. See [Data Cable](#) below.

These radios will also accept an auxiliary input in place of the CD changer connection on the back of the unit. This is useful if you wish to use an iPod or other portable device. A popular iPod adaptor is sold by [Dice Electronics](#). Their *Silverline Duo* allows iPod control from your radio and even text display (only with C43 or CD43). Their *MediaBridge* offers bluetooth functionality as well. Other auxiliary input adaptors can be found at [BlitzSafe](#) or [AutoToys](#).

Speakers

Building on the previous step, swapping in better speakers is an easy, inexpensive upgrade. However, this will bring only slight improvements in your sound quality unless paired with a new amplifier.

The easiest pair to replace are the front kick-panel (5 1/4") and rear deck speakers (4"). You use the existing connectors, so no wiring is required. The in-door tweeters on the factory 10-speaker systems are reasonably good and aren't worth the trouble. The rear speakers don't age well, as is evidenced below by this comparison between old (left) and new (right):



Some have recommended cutting out the foam backing behind the front kick panel speakers to improve bass response. I have found this may also cause resonance and vibration to occur, so be advised.

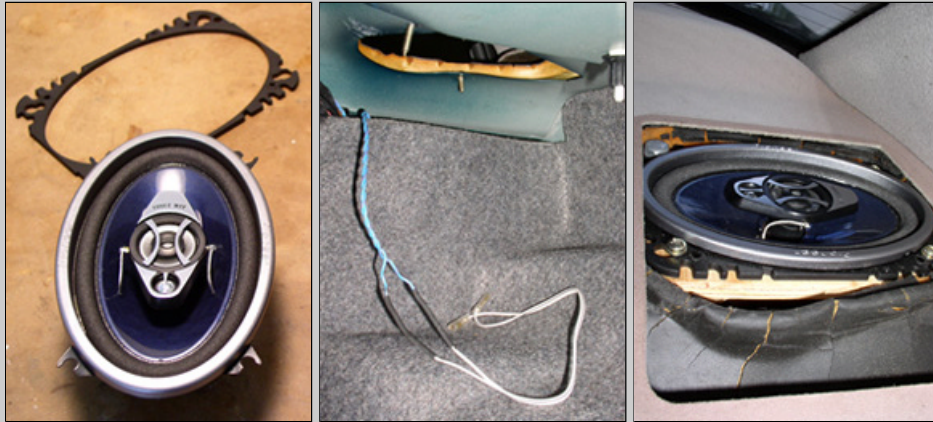
The rear speakers can be changed by just removing the grille covers, leaving the speaker enclosures in place to save time. I recommend [Crutchfield](#) for plug-in speaker upgrades.

Better Bass From Your Rear Speakers

Even at moderate volume levels, the rear speaker enclosures don't produce bass very well - even with new speakers. 4x6 speakers can be top mounted in place of

the enclosures, with a little extra work, for much better bass response and a noticeable sound improvement.

I used Pioneer TS-A4670R, 3-way speakers (image below left).



There is absolutely no room to work with metal cutting tools on the rear deck, so you'll have to use the existing speaker cut-out and screw holes.

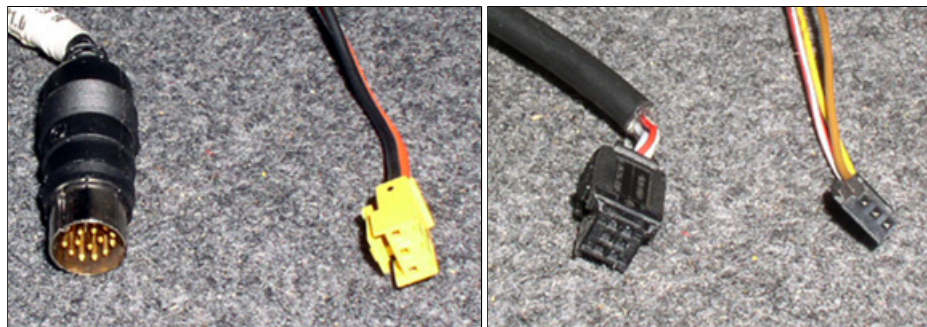
Cut-off the factory electrical connector and splice in the provided speaker wire connectors. Use heat-shrink tubing. See image above center.

Next, cut out a template from 1/4" plywood (which serves to elevate the speaker) and mount the provided factory speaker template with speaker to the plywood. Then secure the plywood using bolts or large screws thru the existing holes in the rear deck sheet metal. See image above right.

Data Cable

Replacing the old CD changer's M-bus data cable (which runs from radio to trunk) with the newer I-bus version (p/n 65 12 8 369 830) and matching power plug, will allow you to add a matching I-bus CD/MP3 changer and control it from the radio.

This change requires one of the three radios specified above. With new cable and power plug installed, I-bus factory changers ('96-on) will be plug-n-play, such as the current [factory MP3 changer](#) (as sold by *BimmerNav*). Some others require adaptors, such as the affordable [Alpine MP3 changer](#) (requires [Blitzsafe BMW/ALP DMX V.1](#) adaptor), which connect between the new wiring and the changer.

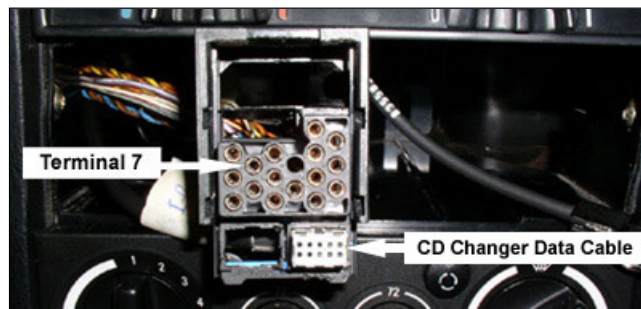


92-95 data cable (left) with power plug (right)

96-on data cable (left) with power plug (right)

The yellow power plug (shown above) will also need to be changed. The new plug (above, far right) may be purchased in pieces from a dealer or snipped complete from a salvage yard. The new plug has three wires: 1)

red - power, 2) brown - ground, 3) yellow - diagnostics. Splice: new red > old red, new brown > old black. Then, the yellow diagnostic wire must be routed to terminal 7 in the radio wiring connector:



To obtain the proper terminal for your connector, use p/n 61 13 1 376 206. After attaching the diagnostic wire from the trunk, push the terminal into your connector with a small screwdriver. These terminals have tiny one-way barbs and cannot be easily removed once pressed into position.

Data Cable Installation

1. Remove radio (5 minutes)
2. Release old data cable from radio wiring harness by removing blue retaining clip. See image right. Install new I-bus cable into harness (5 min).
3. Remove OBC and parcel shelf, then remove shift knob and shift cover (30 min).
4. Remove center ashtray/cup holder, then rear ashtray and surrounding trim (20 min).
5. Remove rear bench seat, left side bolster, and left rear speaker. See image right, below (30 min).
6. Gather new I-bus cable and diagnostics wire and check length (5 min).
7. Proceed to run both behind the OBC/parcel shelf, around the left side of the shifter, and underneath the center console/cup holder. Use tie wraps (15 min).
8. Push wires thru center of rear console/arm rest, then under carpet to left side passenger seat footwell (45 min).
9. Now route wiring in with existing trunk harness and thru rubber grommet to trunk (15 min). See image right.



Limitations: BMW radios and the mp3 changer

An affordable, compatible mp3 changer is the Alpine CHA-S634 (now discontinued) and it requires the Blitzsafe adaptor.

Since BMW head units do not display text or allow direct folder access, mp3 disc navigation will be a concern. Therefore, you may want to limit your mp3 discs to a "flat file" format of about 40-50 songs each, with

each disc representing a playlist or genre.
Use CD-RW.

I like to think of this installation as a regular CD changer with "bonus" capacity. For a tailor-made, large capacity mp3 solution consider the [Phatbox](#) (now discontinued) or an iPod interface.

Running the data cable down the left side and under the driver's side door sill is an option too, but I've found those plastic parts break easily, making it difficult to put back in place securely.

Amp/Subwoofer

Replacing the factory amplifier will require even more involved wiring. Doing so however will afford you the most flexibility in improving the sound quality. To achieve the best results you will need to tune your amp's crossover/gain settings to match your speakers.

Since there is no plug-n-play aftermarket amp, you will need to clip off the factory wiring harnesses (2) and use wiring diagrams to splice in. This will also allow a subwoofer to be installed and mounted in the trunk. Mounting these components will need some consideration too.

Be careful of engine noise creeping into your new amp installation and, if mounting a sub, test for undue resonance and vibration.

If you don't want to mess with wiring a new amp but would like to add a subwoofer, there is a plug-n-play subwoofer option available from [Bavarian Autosport](#)

Frankie
Austin, Texas, USA
www.frankies-bmw.com