

car audio

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SIMPLY SOUND

OUTLANDISH AESTHETICS TAKE
BACK SEAT TO AUDIO DESIGN.

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NOT ALL HIGH-END AUDIO SHOW CARS ARE BUILT WITH AN IN-YOUR-FACE EXTREME MENTALITY. As a matter of fact, some of the most of impressive cars maintain a very low-key image; that is until you hear them. The JBL 2006 BMW 325i is one of those vehicles. Built by one Gary Biggs, considered by many to be the single best fabricator and audio system designer in the world, this car is flat-out flawless. The best thing about the 325i is its simplicity, utilizing JBL audio gear and processing to create an amazing audio system.





Top and below
JBL chose to build the BMW due to the vehicle's inherent difficulty to install after-market audio gear. This would yield an excellent example of how the new JBL MS-8 processor interfaces with virtually any vehicle. To that end, Biggs left the stock source unit, the BMW iDrive, intact.

The stock BMW speakers, a single 4" mid-driver in each door, along with a tweeter in the front doors and a pair of tweeters on the rear deck, were also left intact. Biggs also added a stock BMW tweeter to each rear door.

Top and right
The stock center channel was upgraded with an additional stock BMW tweeter using a piece of 1/8" aluminum, cut to shape and mounted using one of the original midrange mounting screws. The center channel grille was modified to fit and to allow for the LCD display for the MS-8 to be seen.

The LCD display housing was created by gluing 1/8" strips of wafer board to the original grille, then wrapping it with grille cloth and coating it with resin. The pod was then reinforced with Duraglas, sanded and painted with SEM Landau Black paint. The new grille pod was opened for the sound to pass through with a 4" hole saw, covered with perforated aluminum grille material and covered with black grille cloth. The result is a perfect stock-looking grille that is anything but. The rest of the factory grilles in the car were covered in the same cloth so everything matches.

In the left side of the trunk, the factory amplifier was mounted. Biggs and Andy Wehmeyer of JBL used a volt meter to track and label the power, ground and audio input and audio output wires. Using the "Smart Live" software, they determined which output was which and whether it was highpass or lowpass. The MS-8 unit requires a full-range signal to operate correctly, so Biggs and Wehmeyer decided to use the front doors as well as the left and right factory sub outputs for the input signal.





Lots of ported boxes are on the market. Many look great, but they don't always sound good. The engineers at Harman/Kardon came up with a solution, the SlipStream port, which eliminates port noise (that annoying "whooshing" sound that comes from most ported enclosures). Ports make noise when they can't pass enough air or when the air in the port is moving so fast that the air outside of the box can't keep up. When ports can't pass enough air, the enclosure and the woofer operate almost like a sealed box. The result is increased speaker excursion, less bass output and a better chance of damaging the speaker.

The SlipStream port works so well due to the

flares, which are calculated to reduce turbulence inside the port as well as the ends. Too much or too little flare doesn't work. The air inside the port should move back and forth just like a speaker's cone, causing the air outside of the box to transfer the sound. To do this effectively, the air at the end of the port needs to stay "connected" to the air outside of the port. If the port is too small and if the air moves back and forth too quickly, discontinuities occur, and we hear that as port noise.

When looking at a standard straight-sided port, the airflow through the port is not uniform. There are areas of high turbulence. When those areas occur at the end of the port, they are forced into the listening

space, causing that "whooshing" sound we call port noise.

In the SlipStream port, the areas with the highest turbulence are contained within the port and never make it to the outside. The air inside the port acts like a piston and transfers the energy to the air outside of the box uniformly. Therefore, there is no port noise!

The area of the SlipStream port is calculated differently than a conventional straight-sided port. This means a SlipStream port can easily tune an enclosure to lower frequencies than a straight-sided port with the same cross section. This means much better woofer reliability and more low bass.

SLIPSTREAM



The sub-woofer enclosure is a simple 3/4"-MDF vented enclosure painted to match the vehicle. The port is where things get interesting. Invented by JBL engineers, the patent-pending SlipStream Port was engineered to eliminate 99 percent of port noise associated with all other port designs. See above for details. It was molded through the rear deck using more mold fabric and resin. The rear fill speakers were also molded in and the entire piece was covered with black vinyl to match the interior.

AN INTERVIEW WITH GARY BIGGS

HOW DID YOU GET STARTED IN THE CAR AUDIO INDUSTRY?

I graduated high school in 1987. My first car was a 1979 Ford Mustang; it was a retired Texas Highway Patrol car. A friend of mine, Pat Cunningham, got me started into car audio. He competed in local TOW contests, and so I started hanging out at a local stereo shop "The HiFi Shop" in Lawton, OK. My first system was made up of used gear that I bought. Soon I entered my first contest and won my class. The local shop offered me a sales job. I have worked for four retailers and two manufacturers in the past 20 years.

WHERE DO YOU GET YOUR IDEAS FOR SETTING UP ACOUSTIC ENVIRONMENTS?

I have learned the most from our research and test labs that Harman has in Northridge, CA. Observing and visiting with the engineers in the recording and sound rooms has taught me a lot.

WHERE DID YOU LEARN TO INSTALL? A SCHOOL OR WERE YOU A DIYER?

One-hundred-percent DIYer! My first upgrade to the Mustang was the addition of a Clarion EQ underdash booster. I spent about four hours hooking up those 12 wires, but it worked the first time I turned it on!

WHAT GOT YOU INTO COMPETITIONS AND WHAT DO YOU THINK OF SOUND-OFFS TODAY? AND WHAT ABOUT ITS FUTURE?

What excited me about competitions was the friends from all over the U.S. Some of my best friends are guys that I met competing. The sound-off circuit today is a lot different than it was 10 years ago. Sound-offs used to be a great way to spend your weekend and play. Now it is much more serious and only the serious play. The future of car audio competitions is yet to be seen. *Car Audio and Electronics'* Triecta has created a lot of enthusiasm. IASCA and USACi, and MECA all have great formats. They are not competing with each other any more. But, also other car show organizations such as NOPI. Young and old alike have so many more options, it's really all about who can create the most excitement and make it the cool fun place to be.

ARE THERE ANY TRICKS LEFT FOR IMPROVING SOUND QUALITY IN A CAR OR ARE WE AT A LIMIT IN TERMS, NOT OF PRODUCTS, BUT IN TERMS OF INSTALLATION?

There are a lot of techniques out there that guys are just now bringing to the mainstream in car audio. [It] used to be only the most radical builder and vehicle had custom dashes and rebuilt interiors to help the soundstage of a car appear to be real. Now even the most average guy is making these changes to his vehicle in search for that magical soundstage. But the biggest improvement will be in electronics that are just now becoming available. We are about to see products that will make every car audio system sound great almost regardless of where the speakers are mounted or located.

WHAT PROJECTS DO YOU HAVE ON THE HORIZON? ANY NEW IDEAS OR TECHNIQUES YOU COULD HINT AT?

I am currently touring our new

BMW 325i demo car. It has our new MS-8 signal processor in it. It is unbelievable how easy it makes setting up your vehicle. It is great for the guy that just wants great sound or the competitor that strives for superior sound. I also have a Toyota Solara that we have started to construct. It will act as a test bed for a lot of our new and innovative products that are coming down the pipe. I hope to share the build of the project with everyone soon. The installation will incorporate a lot of the current techniques with a few new twists. I am excited to be building a new car; the Regal has been around for a long time.

HOW MUCH OF THE DESIGN ON THE REGAL WAS DONE THROUGH TRIAL AND ERROR OR DO YOU WORK EVERYTHING OUT ON PAPER FIRST?

The Regal was kind of my test bed. As a professional installer, I always felt that I needed to have the best car that I could. It was my business card. And I always was working on it to improve any and everything that I possibly could. My customers are really the ones that got to benefit as well. Everything I learned through a lot of trial and error I would also lend to the customers' vehicles that I was working on. Sometimes I would learn something in a customer's car and I would then apply it to my car.

YOU WON YOUR CLASS AT SPRING BREAK NATIONALS. HOW MUCH OF THE TUNING FOR THE BMW WAS DONE THROUGH THE MS-8, AS OPPOSED TO MANUAL TUNING?

We went into SBN 2007 not really knowing what to expect. Andy [Wehmeyer] and I thought the car sounded really great. But until the judges get in and scrutinize every inch of it, you just don't know. We won MECA Best of Show SQ and we won IASCA ISCQ by over 25 points. What's amazing is that the MS-8 did about 80 percent of the tuning of the car on its own. Andy and I made a few small adjustments and only changed a few small things. Everyone that listened to the car was simply amazed. We are using the stock head unit in the BMW!

WHAT IS YOUR REFERENCE FOR SOUND QUALITY? WHAT DO YOU LISTEN TO AT HOME — WHAT TYPE OF MUSIC AND THROUGH WHAT PRODUCTS?

My system at home is all Harman Products — all Harman processing and playback and all JBL SYNTHESIS amplifiers and JBL speakers. It doubles as a theatre and a high-end listening room. It's awesome!

AFTER WATCHING THE EPISODE OF YOU, STEVE BROWN AND DAVE "FISHMAN" RIVERA ON UNIQUE WHIPS, WE HAVE TO ASK: SO WHAT DO YOU REALLY THINK OF FISHMAN?

That was one of the most amazing shows ever put together. To bring all three of us together along with the crew from Unique was pretty amazing. I'm not going to lie and say it was all peaches and cream! There were plenty of great moments and plenty of not so great moments. We created one heck of a car in one week. Some guys pulled their weight and some didn't. I am one of Dave's biggest fans. He is one of the most creative guys in the industry. He has forgotten more techniques than most installers will ever even know. It was a long week; it felt like a month. We all got a little bit heated at each other at times. But hey, you only get upset with people you respect and care about. "Mooooooo-Cow Tipper"

