



BEEMING SMILES

Rainbow Profi Mids and Tweets in Focus!

Regular readers will know that we are not great fans of the mess car manufacturers make of in-car entertainment. This BMW 5-series has received aftermarket upgrades that address many of the key problems.

The purpose of this feature is to highlight the excellent performance of Rainbow Profi speakers. However, the standard speaker positions are so poor that quite a lot of effort has to go in to putting this right before we can start. In this car a 3-way speaker system is fitted as standard. This comprises a pair of tweeters that fire across the dashboard to ensure you don't have to hear the dreadful distortion that they reproduce, a pair of 4" mids that are so poorly and asymmetrically placed that there is virtually no stereo image and some under-seat woofers (these are not subwoofers folks!) that do their best to drag whatever soundstage that may exist down to your ankles.

This car has previously had its mobile-phone-grade speakers replaced by Rainbow Germanium mid-range and tweeters and the under-seat speakers made, I think by Kellogg's, replaced by the very excellent and perfectly made to measure, Rainbow BMW E&F Series Seat Woofers. The speakers are driven by; a Rainbow Germanium 4-channel amplifier (tweeters and mid-range) and a

Germanium 2-channel amplifier (woofers) so is running in what we in the trade call "fully active" mode. In order to add some level of control an Audison bit One signal processor is employed in an attempt to unscramble the bugger's muddle of poorly EQ'd and dynamically confused noise that emanates from the standard BMW head unit. There is a blog on the FOUR MASTERS website that talks about this in great detail which is worth a read (www.fourmasterscaraudio.co.uk).

The bit One is mounted on the sidewall of the luggage compartment behind a panel and so remains out of view. It is unlikely that it will ever need to be touched as all settings are made by computer or by the versatile installers friend, the Audison bit Tune either of which connects via a USB port.

The standard position for the passenger side mid-range speaker is obscured slightly on the left by the internal door handle. This is not ideal but can be compensated for by the bit One. The driver's side mid-range is a little more tricky as in order to accommodate the electric window switches and wing mirror adjustment controls, it is twisted to fire toward the front of the car although you would not know this by looking at the grille. Furthermore,

the speaker itself sits a fair way behind the grill, which seriously restricts the dispersion of the sound causing it to "beam" making it very directional though sadly, not in the direction of any of the occupant's ears. Custom-mounting rings were fabricated to fix both of these issues. The mid-range speakers are now angled slightly toward the front seats and have been moved forward so that they sit directly behind the grille. The fact that this is possible does make you think about how much thought if any, goes into the design of the audio system, which after all, is extremely important to establishing an entertainment system that actually does what it says in the brochure!

Moving on to the tweeters, as soon as these come out of the box, it is patently clear that these deserve a proper home! They are nothing short of stunning and feel solid and well engineered. The owner of the vehicle was keen to get the best out of these and so custom pods were designed and built and finished in such a way as to make them look like they were designed-in in the first place. I would think that the majority of people climbing into this car would struggle to recognise the work that has gone into this element of the installation. It is not mandatory to go to such efforts to fit these speakers as poor

positioning can be accommodated to an extent by using time alignment and other electronic tricks however, the better the positioning in the first place, the less electronic interventions are required.

The under seat woofers are a strange anomaly. Under seat subwoofers are a great thing. Sub bass is not directional and so it doesn't really matter where your subwoofers are situated, as they do not reproduce width or height information in your music. However, woofers reproduce mid-bass which is vital to the excitement and integrity of music reproduction, to pump such information into the driver and front-seated passengers posterior is plain daft and suggests that the designers own behinds are able to multi-task – not only do they use it for talking but for listening too? The best that can be done to compensate for such craziness is to upgrade the standard speakers with some that will offer the installer an opportunity to seamlessly blend bass, mid-bass and upper mid-frequencies to minimise any compromises to the sound stage.

Our ears become more directionally discerning at higher frequencies and so the work that went into the proper positioning of the tweeters and mid-range



"His drum kit plays wider than the street we were parked in!"



- One Day Like This**
Elbow
- Staple It Together**
Jack Johnson
- Trouble**
Ray LaMontagne
- Lullaby**
Starsailor
- Everything Must Change**
Oleta Adams



Photoshop applied to give a glimpse of what is behind the grille!

speakers was necessary in part to overcome the urge to look down when listening to the standard set up which has no positional accuracy anywhere!

The owner of this car is Brian Parton, founder of the UK distribution company for Rainbow, Hertz and Audison amongst many other fantastic car audio products. This car as with all others on his fleet are "daily drivers" but are also used to test and showcase his products. You can see this particular vehicle at the 2016 Goodwood Festival of Speed and other places he is allowing us to show it at. (check our website for details – www.drivingsounds.co.uk).

Brian excitedly called me. It was a "Stop Press" call announcing that I simply had to make space to review the Rainbow Profi mid-range and tweeters he had just had installed. I agreed to at least listen to them and he arrived at my home within the hour!

Elsewhere in this issue you will find a run down of the new Rainbow Profi line. Brian has had the PL-T28 tweeters installed in the aforementioned custom-built pods. These are a work of art and designed to deliver sound directly to the ears of the driver – radical! I have seen many examples of great fabrication during my many years in the industry. But these carry an A** rating for integrating seamlessly into the space behind the wing mirrors and for just looking beautiful! The PL-M3P mid-range speakers took an equal amount of work to fit. The original "squawkers" sit deep behind the factory grilles in order to attempt to stop the dreadful sound they make from coming out in the interior of the car and

are similarly asymmetrical but for no purpose other than to cram the far more important switches into the arm rest they are practically mounted behind as mentioned at the start of this piece. Still, enough BMW-bashing for now and on to the pleasant task of listening.

Knowing of the shortcomings of the head unit we decided to listen to tunes streamed via Apple Music from an iPhone 6 using a Bluetooth connection. These source files claim to be equivalent to lossless 16-bit WAV files and although not perfect, by streaming via Bluetooth we seem to bypass the mess BMW has made of the signal path within its head unit.

First up was "Army Dreamers" by the lovely Kate Bush. I have not heard this track in a long while other than on the radio. The sound of a bolt being slid back on a gun that is used as a percussive effect all through the tune was really prominent and gave a sinister and dark backdrop to what seems to be a jolly ditty! – I had previously thought it was a camera shutter, probably due to my memory of the video that accompanied the original release. In this Kate blinks every time the sound appears! The Sergeant Major bellowing instructions from 48 seconds in is crystal clear and instrument separation is exceptional considering the source. I was trying to focus on mid and top-range but couldn't help noticing the depth of the bass figure, something else I had not really appreciated until now! All of the elements within this recording required no effort to locate and identify – a stunning start!

Next up we went for "Morning Has Broken" performed by Cat Stevens – why? I hear you ask, solely for the magnificent piano playing of Rick Wakeman. Piano is a very exacting instrument to reproduce and puts huge demands on both dynamic response and linearity of frequency response on mid-range speakers and tweeters. There are two pieces of piano playing that can literally make me sob, one is David Bowie's "Life On Mars" and the other is this performance. Ironically, both are played by Mr. Wakeman – actually, there is a third but for very personal reasons I will not share right now. The piano sounded crisp and dynamic while the gently strummed guitar and deep, deep bass add contrasting textures that demonstrate the sheer depth of the soundstage and tonal accuracy of the Profi mid-range speakers and tweeters.

Right, it was time to give these babies some real work to do! We chose a Porcupine Tree song, "Blackest Eyes" from their 2002 album, "In Absentia". This begins with a quiet intro and soft crescendo from a keyboard before absolutely exploding into one of the heaviest of heavy metal riffs I have ever heard (apparently, the riff was given to Porcupine's Steve Wilson as a birthday present – not sure how that works). The track settles down again but the phenomenal snare and cymbal work of Gavin Harrison spits out of the mix and his drum kit plays wider than the street we were parked in! – this was a sonic experience beyond any other for me with both perfect separation and seamless blending of all instruments if that is not contradictory.

Finally, we went with another of Brian's choices, "Woman In Chains" by Tears For Fears. This features drumming by Phil Collins, fretless bass by the exemplary Pino Palladino and the guest female tonsils of Oleta Adams. The track opens with a bass line and reverb-heavy snare drum which are joined by an orchestra of guitars, keyboards and a triangle figure to equal that which appears on Peter Gabriel's Solsbury Hill (It may actually be the same one, who knows? Peter? Roland? Producer, Dave Bascombe?) Once again, the depth of the bass blends perfectly with the pinpoint accuracy of the mids and tweets; every element laid bare before you. The soundstage contains width and depth beyond the bounds of the car and at the end of the track, I looked across at a starry-eyed Brian and agreed to make space in this issue to let you all share in this experience.

Since my all too short audition further set up work has been carried out. Mainly to further optimise sound stage width and depth. Brian still calls me almost every day to update me and I can't wait to be reunited with the car at Goodwood Festival of Speed and share it with everyone attending. This is a very special installation which will be appreciated by everyone and I think that despite the considerable amount of labour that went into its creation, represents a very reasonable addition to a car of this value and implied quality, certainly to any owners who enjoy music.

If you can come along to hear this, your life will be changed forever, I promise you! ☐