

# HOGTUNES

*Audio Solutions For The Great American Cruiser*

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## More Info on Hogtunes 7.0" Woofer

### Is it a Woofer or Sub Woofer?

No doubt, people will look at purchasing our 7" woofer kit for fairing lowers, and think they are getting "sub" woofers. Subwoofers are designed to reproduce only the extreme low frequencies, and are capable of operating at frequencies actually below our hearing limits. The result is bass you feel, instead of hear. The lowest frequency humans can hear is 20Hz (Hertz, or cycles per second). For a speaker to play this frequency, it "revs" or "cycles" a very slow 20 times per second, and the distance the cone moves back and forth drastically increases as the frequency goes lower. This creates a slow, long stroke cone motion. What we regard as bass in most popular music is well above the frequencies that a "sub" woofer operates at. This is why we have woofers as well. They don't play quite as low as a sub, but play up to the point where the tweeter (hi frequency speaker) needs to take over for a balanced sound. As an analogy to a motorcycle, the difference between a sub woofer, and a woofer is a lot like the difference between an American V-Twin engine, and a typical Metric engine. The American V-Twin motor has a long stroke and makes its most usable power in the lower rpm range - say around 3000-4000rpm. In a typical Metric motor, the stroke is a lot shorter, so the motor revs a lot higher to make its most usable power - say 6000-10000rpm. If you look at the earlier analogy, like a V-Twin motor, a subwoofer has a big stroke and moves slow. With the sound created by your motor running, plus the wind noise at 60 mph, its pretty easy to figure out there is NO WAY a true subwoofer could ever move enough air to be heard on a motorcycle at speed. So in reality, the Hogtunes 7" woofer is a big mid-range speaker that plays fairly low, but typically acts a lot like the short stroked, hi revving metric engine. Since it's not designed to play "super low", we can focus the woofer to play louder in areas of sound you can actually hear on a bike at speed.

### Why isn't there a tweeter?

Right from the beginning, Hogtunes has always focused on enhancing the mid range of sound. This is the area of sound most sensitive to human hearing, and what we (humans) are able to properly "decipher" on a bike at speed. In most co-axially designed speakers, the tweeter, (aka high frequency speaker) will "cut in" at 3500hz (3.5k) and play on up past 20khz, which is a high a humans can hear. Our 7" speaker will play up to 7000hz (7k). When Hogtunes introduced the Gen II Hybrid speakers, on top of a very cool magnet technology, a new tweeter was used to further enhance the higher frequencies on a bike at speed. On an Ultra, these new tweeters are on the front and rear speakers, and with a massive popularity of the HF-1 tweeter pod, many guys have a 3<sup>rd</sup> set on their bike. Tweeters in lower speakers should never be thought of as redundant, but in the case of the Hogtunes 7" that plays as high as it does, tweeters were not really needed, and frankly, not having them kept the cost down!

### Why a larger speaker in the lowers, but not in the fairing?

When speakers larger than the fairing opening where the sound passes through are used, there is a "tunnel effect" which actually reduces the volume of the speaker to the rider. We have proven this in our labs, and have another techzone article called "why Hogtunes does not offer larger fairing speakers" on our site which explains this in detail. In the case of the fairing lower, there is nothing between the rider or passengers ears, so a larger speaker will be a benefit!

### How Does It Mount?

Like our 5.25" fairing lower kits, Hogtunes FL-7W kit bolts into "VENTED" fairing lower glove boxes from the front. Any competitors we have seen require the replacement of the stock glove box opening, which in most cases means removing the lower completely from the motorcycle. Our kit will install in less than half the time without the possibility of damaging your painted finish!