Subject: Re: push-pull - isobarik bass
Posted by Wayne Parham on Fri, 26 May 2006 16:23:30 GMT
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Push-pull and isobaric are fairly similar in physical construction but dissimilar in configuration.The isobaric arrangement has cones driven so that each moves together, forming an isobaric pressure zone between them. Basically, they cancel in this zone. The other side of the cones is exposed, and that's what generates useful output. The idea is to create a motor with twice the strength and twice the moving mass.The push-pull configuration has cones driven so each pressurizes the zone between them. One is driven so that it creates positive pressure from the front size of the cone and the other from the back. The idea is to reduce distortion by cancelling harmonics.The force that moves a loudspeaker cone is not perfectly linear, and its back and forth motion is not perfectly symmetrical. This is because the magnetic field generated by the voice coil deforms the magnetic field of the fixed magnet. This causes eddy currents in the magnetic circuit, literally modulating the flux. Further, the magnetic circuit is made of several parts, the center pole, top plate and back plate, in addition to the magnet itself. These may saturate at different levels, which will also cause force asymmetry. These are the primary causes of distortion in a loudspeaker.The push-pull configuration cancels any asymmetries by having two identical drive units running in opposite directions. Essentially you have a strong motor and a weak motor on each half cycle. On each contiguous half cycle, the strong one and the weak one flip.