Subject: Re: Scratchy Speaker
Posted by Wayne Parham on Wed, 19 Sep 2018 13:31:04 GMT
View Forum Message <> Reply to Message

That usually means the driver's voice coil has overheated and unwound, so it is rubbing. Most people just call that a "blown speaker" because it happens after it has overpowered for a while. You'll need to replace the driver.

As an aside, there are two common failure modes for a speaker driver: Thermal and Mechanical.

When a driver is overpowered with mostly medium and high frequency content, then the heat from the current through the voice coil causes the temperature of the motor core to rise above the limits of the adhesive that holds the coil on the former. Eventially, the glue melts and the coil unwinds. It then begins to buzz, and often stays this way until the speaker is repaired or replaced. Sometimes the loose winding catches on the center pole and tears or rubs through and create an open circuit, in which case the speaker won't make any sound any more.

When a driver is overpowered with mostly low frequency content, it may exceed its mechanical limits. The voice coil bobbin can strike the back plate or the suspension can tear. In either case, the speaker will "complain loudly" with impact sounds.

Less common failure modes are fusing, contact damage and environmental exposure. Fusing happens when a large high-current spike melts the voice coil. This is usually the result of an amplifier failure or misconnection. Contact damage happens when something strikes the diaphragm and dents or penetrates it. And exposure is when the diaphragm gets wet or has UV damage from the sun. I've seen cones so sunbaked that they fade to white and eventually become so dry and brittle they crack and nearly turn to dust when touched. Sometimes introducing a dry cone to a humid environment will help - That's something I've done to old tube radios to restore life to their speaker cones.