

Fender Amplifier Deconstructed

For consideration of the Texas Instruments Vex IQ Challenge

Rising Phoenix

Team #11108B

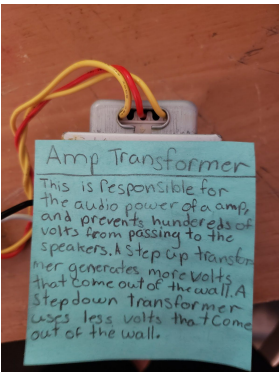
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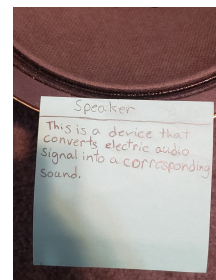


For years, I felt the vibration of the guitar amp while listening to my uncles play the guitar and bass while my cousin and I played together. So Music has been my life for a long time. I chose a Fender guitar's amplifier. I chose this because it is related to something close to my heart. I play music and it sounds great. It will pump you up or calm you down. You can also make lots of friends who like the music you like.

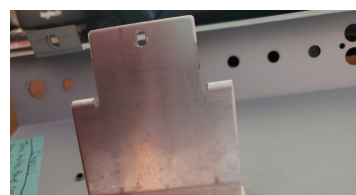
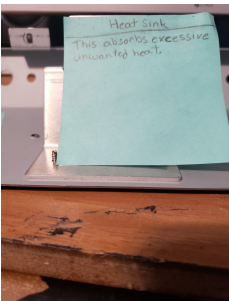
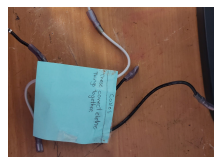
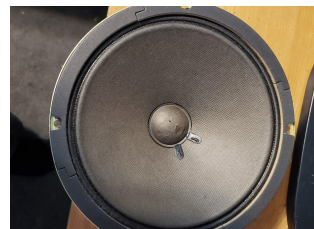
When I was rummaging through the garage looking for something to dismantle for my challenge, I found this amplifier. After I found it and dismantled it, I found seven components. The components found are the amp transformer, cables, heat sink, ground cable, chassis, speaker, and circuit board. There were no Texas Instruments components found.



After I did some research on the items, I learned how they work together and by themselves. The amp transformer is responsible for the audio power of the amp and prevents hundreds of volts from passing to the speakers. The most common amount of volts that come out of a wall are 110 volts, but sometimes you may hear it referred to as 120 volts. A step-up transformer generates more volts that come out of the wall. A step-down transformer uses fewer volts that come out of the wall. If the device gets more volts than it is made for it is most likely to blow up some components. The amperage is derived from how much current is actually drawn and based on the device's resistance, so having "too many volts" is not a problem and will do no harm. A speaker is a device that converts the electrical audio signals into a corresponding sound. The heat sink



absorbs excessive unwanted heat. If the amp gets too hot it will shut off. Cables carry an audio or video signal from one device to another. A ground cable is attached to a piece of metal (ground or earth is the



reference point in an electrical circuit from which voltages are measured) to prevent you from getting shocked if there is a short. The chassis holds the circuit board, amp transformer, wires and is a source of ground. A circuit board is a thin rigid board containing an electric circuit. A printed circuit board is used to mechanically support and electronically connect electronic components using conductive pathways, tracks, or signal traces etched from copper sheets laminated onto a non-conductive substrate. When I was exploring the pieces of the circuit board, I found a microphone Jack, external input, pads, status LEDs, diodes, integrated circuits, relay, capacitor, fuse, and resistors.

This project has taught me various lessons. When researching the various functions and components I learned how an amplifier works. You can always ask for help because you might come across a problem that you can't solve and someone you know might know what the answer is to the problem, why you would not get shocked if there's a shortage. It is always good to know what you're working on because if you don't you might be putting yourself and others in danger. You should always wear safety gear so you don't get hurt or cut. If you get hurt, be responsible, and get medical help. If it is just a cut, flush it out with water and some peroxide. Finally, you should know what is safe and what is not safe because if it is not safe like I said earlier you can be putting yourself and others in danger.

