



The

Broadcasters' Desktop Resource

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... edited by Barry Mishkind – the Eclectic Engineer

The Maintenance Shift

Repairing FETs on an Elenos ETG 3500 FM



by Alan Alsobrook

[February 2021] Transmitter maintenance has changed in recent years as the transmitters themselves become more and more compact, including the use of FET power amplifiers.

Of course, when trouble happens, it may take a bit more work than replacing a tube!

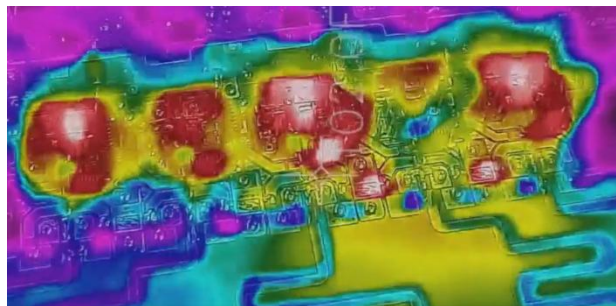
Not too long ago, I was caring for an ETG 3500, a 3.5 kW Elenos transmitter.

Unfortunately, it was five years old and out of warranty when two output FETs popped. So, I decided to take a shot at repairing it in the field. My experience may be of some help to you.

LOW POWER ALARM

Upon first look, the transmitter seemed to be operating on the air, but at low power – only 1/3 of normal.

It seemed like it was possible some arc-overs were the cause of the problem. After opening the chassis, and measuring the five output FETs with an IR camera, it appears that the number four FET was bad.



The IR photo shows the output FETs #4 is not putting out much power. #2 is also low.

Unfortunately, after the replacement and only about 18 hours of operation, the transmitter was calling for help again.

This time, I replaced the number two FET, and it all seemed to be working out. The transmitter parameters returned to normal, and it has now operated successfully for about two months.

SHOW AND TELL

As I did the repair, I turned on my camera and recorded the procedure. You might find it of some value.

There are a couple of things of which you might take note. First of all, the use of the video is a great aid in seeing and knowing exactly where

the parts came from, so they can be restored to the same place, in order. Also, I used a hot air gun to melt the solder more easily.

You will [find the video on YouTube](#).

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