ANTENNA TESTING

Member Tom Brucehaver, added his thoughts on testing antennas to Greg Cross’s suggestions:

Tom: “Recently I was thinking about testing antennas and such.

I was playing with various meters that I have, and antennas and radios.

Remove the BNC cable from the radio. Take an ohm meter and check the resistance between the center pin and the outside. This resistance needs to be near infinity (several million ohms is close enough). If it is less than that, there is probably some bad cabling or antenna construction problems.

The quickest and easiest way to see quickly if you have trouble cabling after that is with the SWR meter. Put the meter between the signal source (transmitter) as close to the source as possible and the antenna (radio->SWRmeter->COMantenna). Make sure the transmitter is not on ATIS, or any of the nearest airport frequencies (121.5 is a bad choice). Key the mic and see what the SWR is. If the SWR is real high (> 2:1) let go quick. You shouldn't need more than a second or two transmitting to see what the SWR is.

If the SWR is reasonable, then there shouldn't be any cable issues.

If the SWR meter doesn't move, then the signal source isn't sending anything. Time to have someone look at the radio.

If the SWR is higher than 2:1 then there could be cable issues, or the antenna could be damaged. If there is a NAV antenna, try connecting that to the SWR meter (radio->SWRmeter->NAVantenna), and repeat the test. The SWR should be better, or maybe the SWR meter is connected wrong (the meter will be marked radio on one side, antenna on the other side make sure that is correct).

To track down the cable trouble in the COM antenna and the SWR was high, then go to the next place where the antenna can be broken, and put the SWR meter there (probably out at the wing joint). radio->cable->SWRmeter->COMantenna. If the meter reads similar here, then it is likely something in the antenna. If the meter reads less power, then there is probably a connector or cable issue.

To find out which antenna is being used, a field strength meter can be help find the antenna. If you have a radio with lower power that is better, but even with lots of power you probably can narrow down which wing the antenna is in. (If you don't have a field strength meter, this video shows how to build one for a couple bucks <https://www.youtube.com/watch?v=y-x2tVGPiE0>).

On Thursday, July 5, 2018 at 2:02:16 PM UTC-4, Gregory Cross wrote:

Hi David,

Attempting to answer your question about what cables go to what antennas, you need more than an SWR bridge.  You need a tunable signal source as well, for versatility as well as eliminating the risk of ruining your new transmitter by transmitting into no, or a wrong, antenna.  This can be resolved by an Antenna Analyzer such as the [MFJ-209C](https://www.mfjenterprises.com/Product.php?productid=MFJ-209C) , the [MFJ-249C](https://www.mfjenterprises.com/Product.php?productid=MFJ-249C) , or the [MFJ-259C](https://www.mfjenterprises.com/Product.php?productid=MFJ-259C) .  True, they're not exactly cheap, but no where near what a TDR (Time Delay Reflectometer) costs!  (A TDR will tell you where in the length of the coax a fault exists).  Many avid Ham Radio operators own one of these, so with a little searching, you may find one to borrow and a guy who knows how to use it to boot!

Happy hunting! Gregory Cross