Zach Gunyan

From: Steve Rizzi <ke7uuj@hotmail.com>
Sent: Saturday, August 30, 2025 9:28 PM
To: zach gunyan
Subject: 61 repeater down

Dear Zach,
I just thought I would let you know as club president that the 61 repeater is down until further notice. I unplugged the repeater until it can be repaired to prevent frying the power amplifier on the repeater, which is no longer supported/available from Motorola. The original cost of the power amplifier on the repeater when it was available was around $1,800. If the power amplifier dies, the repeater is a total loss. The modern equivalent replacement for that repeater is the SLR 8000 which costs around $10,000.

The repeater has been going into Low power for the past couple of months due to a high SWR. (That is what the double beep sound on transmit is. That is a minor system failure alarm)

I went up there today and did some diagnostic work and checked everything out.

I believe the antenna is damaged/broken and needs replaced. The SWR on the antenna system was 4:1. The repeater should not be operated unless the SWR is less than 1.5:1 SWR. Also the return loss on the antenna system was about -4 db. If operating correctly, the antenna system should have a return loss of -14 or less.

I climbed up the tower and inspected the feed line and it looks like the feed line is probably OK. I will not know for sure though until I climb up it again and put a dummy load on the top end of the feed line and sweep the feed line with the dummy load to ensure it is good. If the dummy load test is unsuccessful, the half inch heliax will need replaced also. (About 130 feet or so)

The best options for replacements are as follows:

I have priced out 2 new antennas for the 61 repeater. The Telewave ANT140F2 antenna with 2.5 dbi gain was $1,689.22. It is 66 inches tall and weighs about 17 lbs.

The Telewave ANT150F6-X has 8.1 dbi gain and is about 256 inches tall and weighs about 65 lbs. and costs about $3,037.58

I'm sure there are other options for antennas but I think those two would be the only ones that could stand up to the extreme environment and weather conditions on top of the 120 foot tower with our lovely 90 mph Wyoming wind.

I guess the next step now is figuring out what we have to do to get it fixed. I doubt that emergency management will want to foot the bill for this but I'm sure with some fundraising by our club members and supporters we can easily take care of this ourselves.

Please let me know your thoughts.

-Steve
KE7UUJ