

Southwest Windpower Whisper 175

Hub height 70'-10" (21.6m)
Lower anem 39'-4" (12m)
Upper anem & vane 56'-9" (17.3m)



The Whisper 175, the only 2-bladed machine at the site, was installed during a Southwest Windpower installation workshop on October 18-21, 2004. Josh Levinson and Jay Yeager of Southwest Windpower traveled from Arizona to lead the 4-day, hands-on workshop.

The 70-foot tower and the 3kW, 48VDC battery-charging turbine were installed per the manufacturer's recommendations. The tower anchors were laid out and cast in concrete forms (Sonotube forms). The tower pipe and couplers were purchased, cut, welded and drilled locally.

Availability

From the 10/21/04 installation until the 6/16/05 decommissioning, the Whisper 175 has been available 82% of the time. Three periods of downtime were experienced, all due to wiring failures. Replacement parts were covered under warranty. All repairs were performed onsite by SWI personnel.

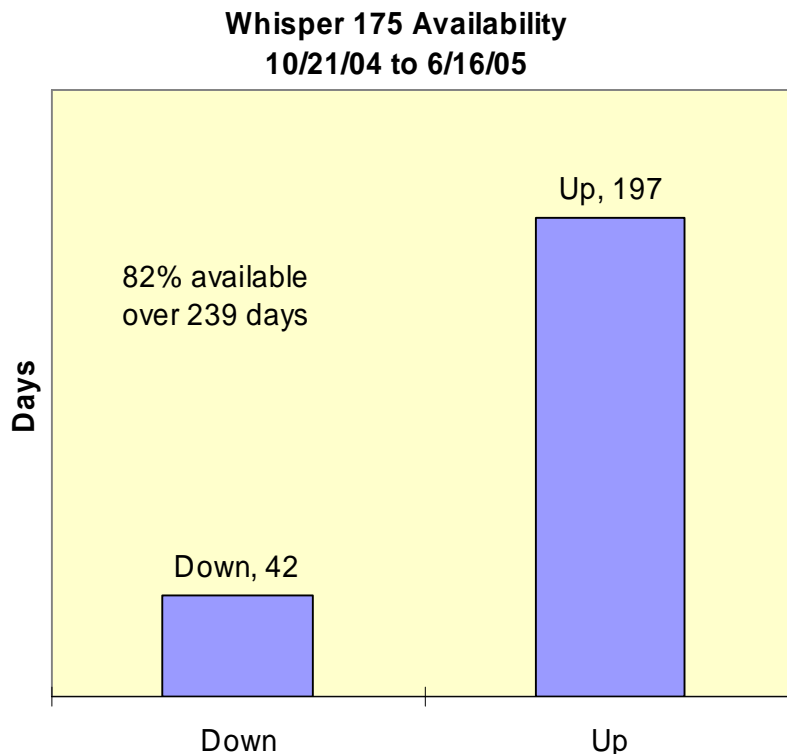


Table 1 Failures and repairs for the Whisper 175

Failure		Repair	
12/3/04	Short in tail light circuit	12/17/04	Removed light circuit, tightened J-box
3/17/05	Brush card short	4/8/05	Soldering attempt failed; new brush card assembly installed
6/12/05	Brush card short	6/16/05	Decommissioned; making room for new Whisper 500; repaired machine crated up

Activity Log

Browse the activity log for details and photos.



9/23/04 Prep work for tower installation



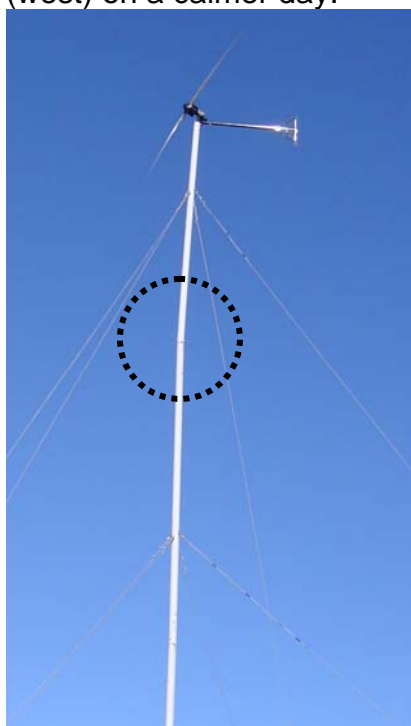
10/21/04 Installing the 48VDC battery bank



10/21/04 Installation workshop

11/5/04

Previously noted kink at 2nd union is more noticeable. Should try to tighten top guy (west) on a calmer day.



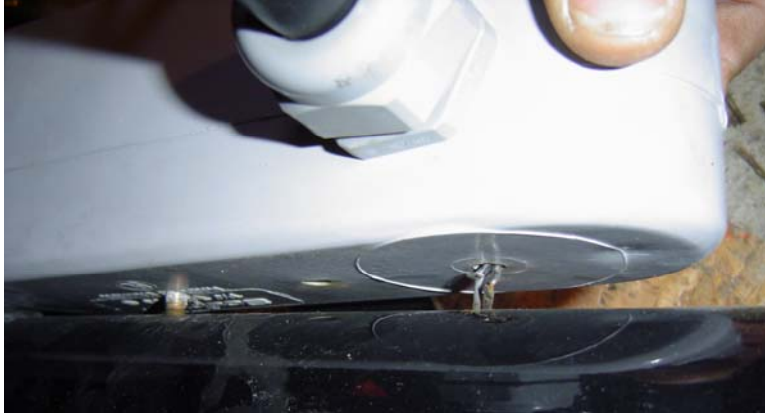
11/5/04 Tower kink developed at a coupler

12/3/04

Turning slowly but not starting. Batt volts @ 50.6. Troubleshot EZ Wire controller, no problem, may be a short in the turbine, need to lower and check. -BS

12/8/04

Took down the machine. Turbine removed from tower and inspected. Discovered that small wires from the LED running light were worn and shorting to the turbine chassis – MD



12/8/04 Shorted light wires

12/16/04

Repaired 175 (disconnected the light and re-assembled), erected with Adam & Ernie. Looks good. Adjusted guys some. Locked turnbuckles with wire. –BS

1/8/05

Corrected wiring on Outback. Started selling back. Reaction time is slow. The 175 starts up, raises voltage, outback doesn't sell for a while...

1/14/05

175 turning slowly. Ice on turbine. Batts at 51V

3/17/05

Took down and found broken wire where 3-phase goes thru chassis to yaw head. Green wire had shorted to the turbine & was disconnected from the brush card.

3/20/05

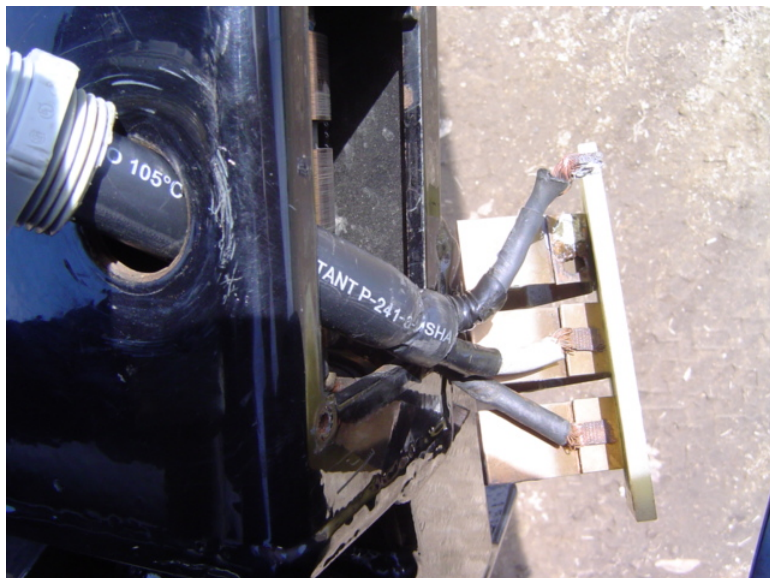
Turned on 175 in 15mph, still not starting. Short to ground is gone but when checking continuity between phases, reads beep-silent-beep...changing about every second. Emailed Jay Yeager. (Jay says that is normal, need resistance)

3/23/05

Phase to phase resistance @ 15-20 mph (slowly turning) is -600/1800 Ohms, difficult to measure.

4/6/05

Lowered. Green wire disconnected from brush again. Need a new brush card.



4/6/05 Green wire repaired but attachment to brush card did not hold

4/8/05

Installed new brush card assembly. Works.



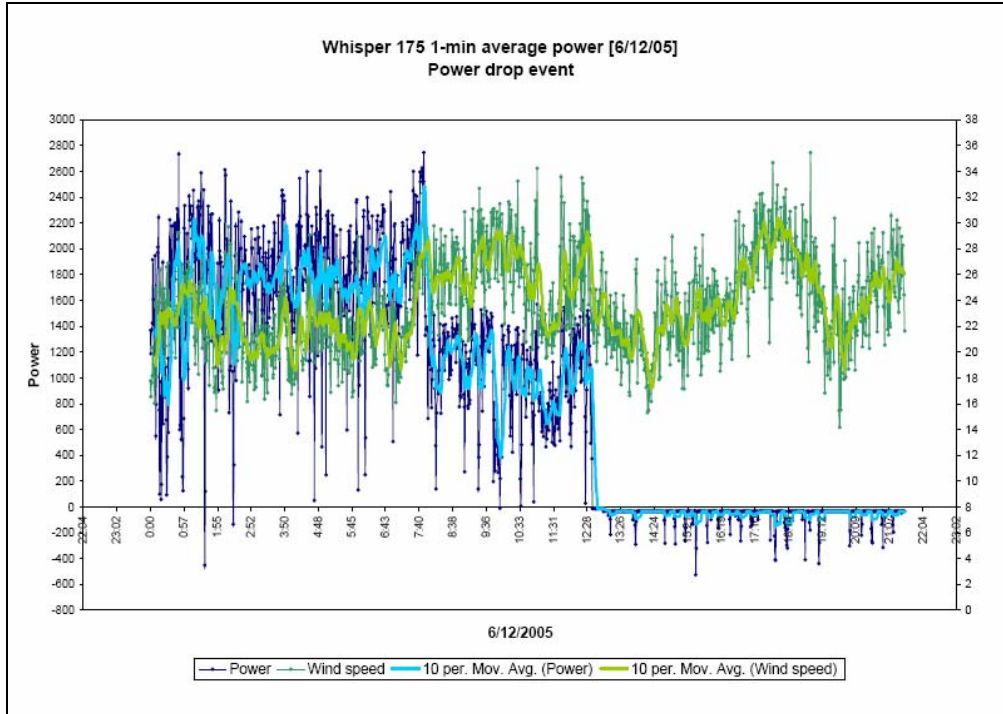
4/8/05 New brush card assembly

6/12/05

175 not running. Looks shorted.

6/16/05

Lowered 175 with Dr. Raichle's class. Found wires in the junction box had shorted out and gotten quite hot. Called Jay at SWWP. He will send new brush card assembly. He recommends soldering and shrink tubing the wire connections.



6/12/05 Power and windspeed data showing the failure



6/16/05 Short in junction box

6/16/05 Decommissioning

The latest short in the junction box resulted in a loss of wire identification from the alternator. The 12 field wires needed to be identified, grouped, and reconnected to the down-tower wires. It was necessary for this repair to be done at the SWWP factory. This was the end of the 175. It was repaired, sent back to us, and crated up. The replacement is a new product from SWWP, the Whisper 500 HV (high voltage) with a new Magnetek grid-tie system.