Re: Mobile S−Rotor!

Source: http://sci.tech−archive.net/Archive/sci.energy/2005−12/msg00078.html

- *From*: "K. Jones" <shadetree1999@xxxxxxxxxxxxxxxxxxxx>
- *Date*: Wed, 7 Dec 2005 11:41:56 −0500

"TomGee" <lvlus@xxxxxxxxxxx> wrote in message
news:1133932955.164776.228590@xxxxxxxxxxxxxxxxxxxxxxxxxxxxxxx
>
> daestrom wrote:
> > "TomGee" <lvlus@xxxxxxxxxxx> wrote in message
> > news:1133876928.687033.286780@xxxxxxxxxxxxxxxxxxxxxxxxxxxxxx
> > > Why, Chris, in the old days, we used downshifting to slow down on
hills
> > > in order to save on using up the brakes. But your comment about being
> > > useful in crosswinds shows that you don't have a good picture of my
> > > device yet. It is totally enclosed except for the wind entrances and
> > > exits. A 4−foot long device will have 4 rotors each 6" in diameter.
> > > The front of the device is an open 8" that funnels the wind into a 3"
> > > opening at the rotor the length of the device, allowing it to exit at
> > > the rear 3" opening. Thus, the already extreme power of a 60 mph wind
> > > is compressed into an even more powerful packet to produce the torque
> > > to turn the load.
> > >
> >
> > If the intake is 8" diameter, at 88 fps flow, you have an air mass flow
rate
> > of about 2.27 lbm/s (x−section of 0.349 ft^2 * 88 fps 1lbm−air/13.5
ft^3).
> > If the air initially enters at 88 fps, each lbm of air has a kinetic
energy
> > of 1/2(88^2)/32.2 = 120 ft−lbf. So the rate of energy flowing into the
> > system is 2.27*120 = 274 ft−lbf/s = 0.5 hp.
> >
> > But not all of that energy is recoverable. The air must leave the tube
> > sooner or later, and when it does it will carry away some kinetic
energy.
> >
> >
> True, but most of the energy has already been used to push the blades,
> and that is being pushed out the back by the new fresh−energy wind
> coming in. Any energy left in the leaving wind is not needed anymore
> since it has already passed through the blades.
> >

> >
> >A
> > famous limit known as the 'Betz limit' says you can't extract more than
~59%
> > of the power from the 'wind', so that means that ideally you could
extract
> > 0.29 hp.
> >
> >
> That is true also but only wrt airfoiled blades and not wrt drag type
> rotors.
> >
> >
> > The outlet pressure of your tube device would be lower than the inlet
> > pressure, so it takes a certain force to push this tube through the air
at
> > 88 fps. If it takes more than 1.8 lbf to push it through the air (or it
> > adds more than 1.8 lbf drag to the car), then you have a net loss of
energy.
> > (.29hp = 162 ft−lbf/s; 162 ft−lbf / (88 ft/s) = ~1.8 lbf)
> >
> > Can you push an 8" wide funnel, with a 4−foot long tube through the air
at
> > 60 mph with less than 1.8 lbf?? Or have it add less than 1.8 lbf of
drag to
> > the vehicle??
> >
> >
> My 8" wide funnel does not go into a 4' long tube. Imagine a box of
> emergency lights atop an ambulance. The box is about 4' long
> perpendicular to the wind and about 8" high and 8" deep, which is about
> 2.7 sq.ft. presented to the wind. Calculate how much drag that adds to
> the vehicle and then how much hp is needed to push the box.
>
> There is of course a net loss of energy. Adding drag does that. The
> question is, how much energy is used by the engine to push the box
> through the air compared to how much energy the engine uses to turn its
> alternator. If my device uses 2 hp from the vehicle engine to power my
> rotor, but it uses 4 hp to power its alternator, that is 50% net
> savings in hp.

Couple of points.

1. Car alternators don't use nearly as much horsepower as you think, and the belt−pully power transmission is far more efficient than any wind turbine. Most cars have between a 35 amp to 65 amp alternator.....12 volts * 65 amps = 780 watts 1 HP = 746 watts. Even a heavy−duty 100amp alternator is less than 2HP, and that's at full draw. Vehicle alternators run at much less than max capacity most of the time. Even if it could work (it can't), who is going to put a light−bar sized box on the roof of thier car for about 1 HP difference? You'd never be able to tell the difference.

2. There is no "energy" from the wind flowing over the car, unless the car is not moving (parked). You have to imagine the car moving through essentially stationary air, like a boat travelling through stationary water. Energy has to be expended to push the vehicle through the air, to push the turbine through the air. As the turbine is less than 100% efficient, it will always take more HP to push the turbine through the air, than can be extracted from the turbine. It will be net consumer of energy. It's like dragging a turbine behind a boat to produce power. As the turbine is less than 100% efficient, the energy used to pull the turbine along will exceed the energy delivered. By at least 50%. If your wind turbine produced 5 HP, it would require at least 10HP more output from the engine.

Using your theory of operation, why not just put a big enough turbine on the car to provide *all* the energy required? Why stop at a couple of HP? You are trying to build a perpetual motion machine.

The only time this could actually produce any net energy, is when the car is parked (or perhaps, with a cross wind as Chis mentioned, but then you open an entirely new host of problems)

K. Jones

> So far, I have noted that the "common knowledge" about wind rotors is
> applied to the S−rotors also, but wrongly. First was applying the tsr
> of an airfoiled blade to an S−rotor, covered in my previous posts in
> this same thread. Now it is in applying the Betz limit to S−rotors,
> another common error. Breakthroughs in any endeavor usually occur from
> discovering chinks in the armor of "common knowledge", or, the defense
> of the status quo. Too often, though, the messenger is killed in the
> process.
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- ***Follow−Ups***:
  - ♦ ***Re: Mobile S−Rotor!***
    - ◊ *From:* TomGee

- ***References***:
  - ♦ ***Mobile S−Rotor!***
    - ◊ *From:* TomGee
  - ♦ ***Re: Mobile S−Rotor!***
    - ◊ *From:* liberti
  - ♦ ***Re: Mobile S−Rotor!***
    - ◊ *From:* TomGee
  - ♦ ***Re: Mobile S−Rotor!***