From: gmclist-bounces@temp.gmcnet.org on behalf of Dave Mumert
To: gmclist@temp.gmcnet.org
Subject: Re: [GMCnet] JUST WONDERING
Date: Tuesday, October 06, 2009 10:13:36 PM

Hi Ken

The rear wheels are pulling back and down on the bogie mount, the center wheels are pushing back and up. Consider the passenger side if you prefer look at brake torque. The brakes want to rotate both bogie arms clockwise. That clockwise force will be trying to push the bogie mount up with the center wheel and down with the rear wheel.

If the reaction arms are used only on the center wheels the push up will be eliminated but the rear wheels are still pulling down. That would be OK except the downward force has to be compensated by an equal and opposite force which will be pulling up on the wheel. On a car without tandem wheels the forces just cancel out and the actual weight on the wheel does not change, the suspension lowers with the added force but the weight on the wheel stays the same. With our tandem wheels the downward force is placed on the bogie mount then transferred equally to both wheels, so half the downward force goes back to the rear wheel and half to the center wheel. This will reduce the downward force on the rear wheel while increasing it on the center wheel. Optimizing the brakes while this weight transfer is happening is very difficult, perhaps impossible, without using ABS.

I can only see two ways to solve the problem. First, and probably the simplest, is Chuck's system. Second would be to lose the leading/trailing arm suspension and go with dual trailing arms.

I hope this helps, although I doubt that is will.

Dave Mumert

-----Original Message-----
On Behalf Of Ken Henderson
Sent: Tuesday, October 06, 2009 8:20 PM
To: gmclist@temp.gmcnet.org
Subject: Re: [GMCnet] JUST WONDERING

Huh?

The problem with the OEM system is the pole-vaulting about the center wheels under braking moments. Without that problem, the rear wheels would have no adverse reaction to braking. Braking would, in fact, counteract the moment generated by the CG.

With the reaction arms on the center wheels, pole-vaulting is eliminated. The rear wheels still generate no adverse moment and reaction arms might even be detrimental since they would eliminate the beneficial moment they contribute.

I doubt that any of us will ever agree except those few who draw and understand free body vector diagrams. Empirical data is the only way to satisfy skeptics.