From: gmclist-bounces@temp.gmcnet.org on behalf of Gary Casey
To: gmclist@temp.gmcnet.org
Subject: Re: [GMCnet] JUST WONDERING
Date: Wednesday, October 07, 2009 5:09:57 AM

I should have said what Dave said - he has it right. As the brakes are applied the ride height stays the same, but the load on the leading wheels increases and on the trailing wheels it decreases. In terms of braking and ride quality, using two trailing arms would probably be the best solution. Only problem then is that occasionally during heavy braking wheel hop could be induced (like on the rear wheel of a motorcycle). The rear would then squat under braking, not a bad thing to do as it tends to balance out the dive of the front, keeping the coach more nearly level. And I think the ride harshness would be significantly improved. Big project, though.
Gary

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

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