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Subject: [GMCnet] GMC Parking Brake Improvements & Data
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G'Day All from the still partially " Great White North"

GMC MOTORHOME PARKBRAKE IMPROVEMENTS

The general trend when speaking with GMC'ers with regards to their GMC motorhome parkbrake (PB) and its performance or lack thereof seems to be similar to discussing tires or battery setups . There appears to be vastly different opinions and solutions depending with whom one is talking to.

When we started marketing our first stainless parkbrake kits in the fall of 2005 , we knew we had a good product but really didn't know how good, at least in a quantitative sense.
Compared to the 30 year old OEM setup it was excellent but still what does "excellent" mean quantitatively ?

I have continued to gather data, opinions,tech articles, etc. in the following 3.5 years and have found that the design premise of our kits is sound and the materials are such that a lifetime warranty would not be out of the question. Most of our attention after the first 2.5 years has been spent on improving manufacturing methods so the kits no longer had to be built for close to "minimum wage rates", also to try and hold the selling price close to what the original 2005 kits sold for , in spite of yearly cost increases for materials and some outside machining .

Getting back to the quantitative side of things, you may or may not know that there are approximately 15 GMC motorhomes in the UK spread between England , Scotland and Wales. They have in the UK a yearly Ministry of Transportation (MOT) inspection for motor vehicles. The vehicles have to pass the yearly inspection to prove their roadworthiness . Info on the various tests and their explanation can be found at www.ukmot.com/manual.asp , In a nut shell ; the GMC motorhome must have a functioning parkbrake on at least 2 of the 4 rear wheels , ie. On one of the 2 axles as they refer to it. In order to pass the test, the parkbrake (PB) must provide at least 16% of the service (hydraulic) braking capability of that axle.

The methodology of the PB test is such that the particular GMC axle is placed on a roller set similar to a dynamometer. The dymo rotates the GMC wheels for that axle and the second MOT operator or owner applies the service brake , when the dymo senses a 10 % slip (ie. Just before lockup) between the coach tires and the rollers a number is generated that represents 100 % effectiveness of the service brake for that axle as well as a left to right balance number. The second MOT man or coach operator now applies the PB via the hand lever at what would be equivalent to 20 MPH and the effectiveness of the PB is computed.

In the past many of the UK owners have told us they adjusted the PB to its maximum on the knob and used a length of pipe over the handle and even then sometimes did not pass the test. We presently have 5 separate units in the UK and the pass rate has been 100% . I have subsequently asked the owners to get me the effectiveness percentage numbers, ie. The percent effectiveness of the PB compared to the service brake. The numbers for PB efficiency compared to service brake (hydraulic) has ranged from 57% to 74% and in one case a GMC equipped with a power assist actuator and the PB handle adjusted too tight , locked up on the dymo. With a bit of adjustment and a small apology, the MOT operator assigned an 80 % efficiency to the PB. Of course we are talking drum brakes here and due to the wheels rotating there is a servo assist on the brakes due to the duo-servo design of the GMC OEM brakes.

Two of the 5 coaches had discs/calipers on the intermediate wheel set and 3 of them had the OEM - 4 drum configuration . The highest PB efficiencies were the coaches with the disc / drum combos. With upwards of 600 pounds pull on the intermediate cable being applied to a single set of drums a very effective parkbrake is achieved , providing all the drum components are in good shape and the shoes are properly adjusted.

Testing has shown that 300 pounds pull per drum is approaching the pull limit. Higher force pulls

will cause a torsional bend in the parkbrake actuator lever inside the drum causing it to eventually bend and bind or jam in the area of the spring at the shoe adjuster, also undue wear on the upper cross strut will become pronounced especially without never seize or some similar lubricant.

Often times one comes across posts on the GMC Net with regards to improving rear braking performance. Yes ; rear braking performance can be vastly improved with discs on the intermediate wheel set, but one must be cognizant of overall brake balance from front to rear of the coach. Frank Condos submitted an excellent article on brake balance in August 21, 2000 , Tech Centre #30. www.gmcws.org/techcenter/00-08tc30.html . In summary the OEM brake balance was very good but as Frank states, somewhat anemic, the balance was 48% front and 52% rear.

We are currently running 11 inch rotors and 80 mm calipers on the front and intermediate wheel sets with OEM rear most drums with SS cables configured for a 2:1 pull ratio and a power assist actuator on our 23 foot Birchaven. All works well and the OEM balance has been maintained along with the parkbrake feature. Our balance is 51% front and 49% rear with approx. 50 % greater braking force compared to OEM design. Even though it’s possible to increase rear braking forces to greater than 200 % OEM, One finds that brake balance is seriously compromised when doing this. Anyone who has locked up the rear wheel(s) of a large road bike or an empty semi-trailer will readily agree it’s not a pretty sight, BEEN THERE, DONE THAT !, GOT AWAY WITH IT, WON'T DO IT AGAIN ! ,

For more info on parkbrakes please visit our website: www.bdub.net/branscombe, our power point presentation is there and has a lot of data on rear brakes. Chuck Augur of Western States has done a great deal of research and development on our rear coach brakes over the last decade and a half. Keep a eye out at rallies and on the Net regarding the new reaction rod equalization system for the rear brakes. Thumbs up for all the folks who contribute to the innovations that keeps our classics on the road. Advanced apologies for our shameless self promotion and hope to see you all down the road. Thanks and regards.

Albert & Sheila Branscombe
Stainless Parkbrake Cables and
Power assist actuators