

DISC BRAKES

Date: Wed, 03 Dec 1997 11:39:00 -0500
From: Marcus McGee <crsalert#frontiernet.net>
Subject: GMC: Re: GMC Disc Brake Modification

Go to GMC Western States Home Page www.gmcws.org and look under tech info or vendor listing. They have a listing for disc brake conversion for #580 per axle. They use 11" discs and GM calipers. It is done by a firm with a good rep in the Hot Rod scene. Looks like a winner to me. I have done Leigh Harrison's conversion on my front and center axles, but for the two new transoms I will be doing the system from Colorado because of price and ease of install.

Date: Tue, 28 Apr 1998 17:33:45 -0500
From: "Russ Bethel" <rbethel#stic.net>
Subject: GMC: Rear disc brakes

I would like to know what vehicle(s) in the salvage yards would work as donors for a set of rear disc brakes for my 1976 Glenbrook. I think that El Dorado rear calipers and backing plates is what I need. I was out to one of the local salvage yards the other day and they seem to have several possible donors. I need to check out my rear brakes and thought I would start gathering up parts to convert to disc on all 6 wheels this winter.

Russ Bethel
San Antonio, Texas

Russ:

I do not think it is that simple. The mounting arrangement is quite different. Try looking at the Western States Web site. There is a company in Colorado that will do the discs and let you get the calipers etc. The disc set up was about \$400 or less with out the calipers.

Marcus

Date: Wed, 29 Apr 1998 13:44:02 -0400
From: "Bartz, Paul" <s9d3452#mail.drms.dla.mil>
Subject: RE: GMC: Rear disc brakes

Russ:

The parts you are looking for, backing plate primarily, comes from the 76-78 Cadillac El Dorado REAR AXLE ONLY. There is some machine work required to enlarge the center opening so that it will fit over the coach axle and butt up to the arm.

Bobby Moore from Louisville KY (502-964-6416) gave a seminar on use of the backing plates at the New Hampshire GMC MI Rally last September. His handout had all the information on what components to obtain and the required machining to have done. Using a rebuilt P-30

chassis master cylinder and 2-1/2" calipers, machining, etc., the system would cost approximately \$2100 to do the four rear wheels.

The El Dorado calipers have a lever arm to connect the emergency brake cable to. Bobby connected and tested his on one axle only and found that it wouldn't hold on a steep incline. An alternative is a hydraulic line lock installed in the brake line, activated electrically by a switch.

Paul Bartz

Date: Sun, 21 Jun 1998 19:29:35 -0700
From: "Heinz Wittenbecher" <heinz#bytedesigns.com>
Subject: How much real improvement with Disc Brakes on the rear?

I'm about to accelerate my brake project, i.e. change to Disc Brakes on the 4 rears as supplied by TSM of Colorado.

Just wondering how much improvement, i.e. how much improvement in decreased stopping distance can one expect with the switch from drum to disc?

TIA -- Heinz
www.bytedesigns.com/gmc

Date: Sun, 21 Jun 1998 22:51:03 -0400 (EDT)
From: "Thomas G. Warner" <warner#borg.com>
Subject: Re: GMC: How much real improvement with Disc Brakes on the rear?

AT our last GMC Heritage Cruiser rally in Kingston Canada, several of the members were suggesting a change to the carbon metallic disks in front, and a special asbestos lined brake for the rear, with the addition of the Powermaster brake unit to replace the original master cylinder and booster. They claim that this conversion really makes the coach stand on end! Maybe one of the members will read this, I know Al Hamilton does and can give the particulars...As usual my mind was on something else I was working on and I did not get all of the details, only enough to know who to ask when I start. I already have the powermaster unit, found in Auto parts yard for \$10.
Heinz,

I think the main benefit from the disk conversion is reduced brake fade. The open construction of disk brake assemblies lets them shed heat faster than drum brakes.

My \$.02,

Patrick

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Patrick Flowers
Mailto:patri63#ibm.net

The asbestos lined rear shoes are no longer available (in the US at least). IIRC, 9/30/97 was the last date that they could be sold. Don't know what the "hot tip" is now, except that you should be sure to get 2" wide shoes.

Patrick Flowers

Date: Mon, 22 Jun 1998 09:34:30 -0400 (EDT)
From: "Thomas G. Warner" <warner#borg.com>
Subject: Re: GMC: How much real improvement with Disc Brakes on the rear?

Patrick, not true that asbestos is no longer available in the US. It is not advertised and does not say asbestos is used on the shoe box, but I have personally checked and there is a thin veneer of asbestos between the new linings and the metal. I have some additional information that I found and will dig it up as to part numbers and where you get them. I looked at a pair at my local parts store after returning from the last rally.

I did the switch to Leigh's rear brakes and it was quite good. I estimate about a 20% better stopping distance and no fade after 10 hard panic stops from about 45 mph.

Let us know how you like the TSM setup, I may use them on my other coaches.

Marcus

Date: Mon, 22 Jun 1998 10:03:07 EDT
From: <Gcbr#aol.com>
Subject: Re: GMC: How much real improvement with Disc Brakes on the rear?

In a message dated 98-06-22 07:52:01 EDT, you write:
Patrick

Don't know if they still have the rear brakes with asbestos but Eaton Hitch still had them as of last Nov when I got mine.

Take Care
Arch

Date: Mon, 22 Jun 1998 11:43:47 -0400
From: Patrick Flowers <patri63#ibm.net>
Subject: Re: GMC: How much real improvement with Disc Brakes on the rear?

Thomas G. Warner wrote:

>

> Maybe but remember there is less actual pad contacting the disk than shoe to drum, look at the

difference in area between the two. It is the disk pad that causes the fade at first and not the rotor. maybe people are going to spend a lot of money with little if any gain in performance. If you can already lock up the tires what is the point?

Well, that is partly the point. Another big advantage to disks is that they are more resistant to locking than drums - which also make them poor parking brakes. Once the tires lose traction, you're along for the ride from that point on. Also, swept area is only part of the equation. The caliper cylinder is much larger diameter, generating more force per unit area. Fade does begin with the pad surface and the heat must be sloughed off in order for the brakes to become effective again. With drum brakes the heat must be passed through the drum. With discs, it's passed through the rotor and convectively by airflow around the caliper.

This issue was settled by the racing community years ago. We can debate it here all we want, but, with the exception of lockup (which is only desirable for parking) disc brakes just perform better.

Patrick

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Patrick Flowers

Mailto:patri63#ibm.net

Date: Mon, 22 Jun 1998 17:43:47 -0400

From: "The Hamiltons" <hamilton#king.igs.net>

Subject: Disc Brakes on the Rear

I cannot compare the system I have and six disc brakes. I've never driven a coach with all discs. What I can compare is the marginal original system and Powermaster, 80mm calipers with carbon metallic pads on front and larger cylinders on the intermediate wheels. Nothing else. I now have good brakes that work well. Some people have also put 2 1/2" shoes on the rear and that also works well. At the time I was redoing the rear wheels I couldn't find asbestos shoes. I might also add that at the same time I replaced the original rear brake springs, that still had paint on them and looked good, but what I got was easier adjustment of the rear brakes and my parking brake back that works! The springs had lost a lot of their tension over 19 years.

Al Hamilton
Kingston, Ont

Date: Tue, 23 Jun 1998 00:16:15 EDT

From: <RickStapls#aol.com>

Subject: Re: GMC: How much real improvement with Disc Brakes on the rear?

To all,

Sorry, but I've just gotta jump into this discussion with some brake system basics.

1. Disc brakes vs drum brakes: When drum brakes overheat, the drum tends to expand and "bell-mouth". (The open side of the drum expands more than the side with the mounting web.)

This causes the shoes to lose contact with that open side, reducing the shoe contact area, accelerating lining fade, etc. Things go downhill fast after that, and so do you. 8-0
By contrast, the disc brake disc (or "rotor" as the ever-pretentious American manufacturers like to call them) gets much hotter than a typical brake drum (Ever see pictures of a race car at night, its brake discs glowing cherry red?), but they don't distort in such a way to lose contact with the pads. Also, the disc brake pads operate at much higher pressure per square inch of lining. This makes them less susceptible to fade due to reduced coefficient of friction from heat. Further, they can cut through a film of water to stop better when wet, and their harder denser material doesn't absorb water as much as typical drum brake linings.

2 Disc brake disadvantages: Aside from higher initial cost, the main problem is the difficulty and expense of adding a parking brake to a disc brake caliper. Since the pads require very high pressure to apply them, you must contrive a very strong lever system with great mechanical advantage. (The service brakes just use a really big piston with large surface area.) This mechanism must somehow apply pressure more or less concentric with the hydraulic piston. Some cars (Subaru comes to mind) use a pushrod right into the cylinder, but this can cause leaks. I once owned a Citroen with a completely separate set of pads operated by the hand brake on the front discs. Some cars (Corvette, Porsche, et al) put a separate drum brake in the middle of the rear brake discs just to get a parking brake.

One other problem which has come to light recently is brake fluid boiling due to the higher temperatures involved. This of course causes total loss of braking, and excessive exercise of the driver's sphincter muscles! Metallic and semi-metallic brake pads, introduced to replace the now-banned asbestos friction material, do a fine job of providing friction at high temperatures, but they transmit much more of that heat to the caliper piston and the fluid. (Asbestos of course is a good insulator.) Numerous accidents have resulted from the EPA's drive to clean the air of the last particle of asbestos. This is why we all go to our friendly Ford dealer to buy their super high-boiling point brake fluid. (You do know this, don't you?)

3 Duo-servo plusses and minusses: The rear drum brakes on our GMCs (as on most American cars for the last 40 years) are Bendix duo-servo brakes. These brakes derive much of their application force from the forward rotation of the drum. The wheel cylinder (or E-brake lever) pushes the leading shoe out against the drum, whereupon it is dragged in the direction of rotation slightly. This motion is transmitted through the adjuster strut to the rear shoe, pressing it firmly against the drum. This allows a simpler hydraulic system with smaller wheel cylinders, and at least the possibility of stopping should the power booster fail. OTOH, when things start to fade, that fade is multiplied, just as the apply force was, so.....

Bottom line: If you drive in the mountains and/or with a heavy load or toad, the rear disc brakes may reduce your chance of brake fade. Otherwise, you shouldn't need them IF your stock system is in good condition, properly adjusted, etc. The GMC was noted for its great brakes when it was new, we just need to get it back to that condition, IMHO.

Returning the soapbox to the next speaker,
Rick Staples,
Burned-out certified Master Technician.

Date: Tue, 23 Jun 1998 09:31:58 -0400
From: Patrick Flowers <patri63#ibm.net>
Subject: Disk Brakes - One More Advantage

Taking one more whack at this dead horse, another advantage of disk brakes is less unsprung weight. About 13lbs less per wheel. This should translate into a more compliant suspension and less stress on suspension components.

Patrick Flowers

Date: Tue, 23 Jun 1998 13:36:04 EDT
From: davegreenberg1#juno.com (David L. Greenberg)
Subject: Re: GMC: How much real improvement with Disc Brakes on the rear?

This, I think, is a key question. It would be nice if some testing had been done using both systems, either a before and after or using similiarly configured coaches.

I had larger calipers added to the front and larger wheel cylinders all around and quite frankly never "noticed" any difference. The problem is with the noticed or perceived effect. Before I make that kind of investment there would have to be some controlled testing done.

As it is I have never had a problem stopping either of my GMCs.

Dave Greenberg
GMC Motorhome Registry
200 MacFarlane Dr
Delray Beach, FL 33483-6829
1977 Eleganza II

Date: 98-12-09 20:22:22 EST
From: warner@borg.com (Thomas G. Warner)

Manny how much for the disc conversion, is it 2 or 4 wheel and who is TSM?
Thanks

At 01:06 PM 12/9/98 EST, you wrote:

>Last Saturday I raised the motorhome and put it on stands. Removed all the wheels and stacked them in the shop.

>I will buy new tires before putting them back.

>I have the SS lines from Classic tube that I had ordered with a group of others in August. I also have a disc brake kit from TSM of Colorado, ordered back in September.

>This was/is supposed to be my winter project.

>On Monday I removed the drums and inner bearings. Also separated the drum from the hub to attach the new rotor to the hub.

>The bolts provided by TSM for securing the hub to the rotor were 1/2" x 13 x 2" but I was only getting about 5/8" of thread mating on the hub.

>The rotor is 3/8" thick, the ring spacer was also 3/8" thick, the hub has a shoulder
>about 5/8" deep before the threads. This meant that the bolt would go in 1
>3/8" before starting the thread. On the other end, there was another 3/8" of
>thread showing.

>Another words, I could use 2 3/8" long bolts but since there is no such thing,
>I opted for the 2 1/4" long grade 8 bolt. I gave this information back to TSM.
>Tuesday (yesterday) I packed the inner and outer bearings with synthetic grease.

>Waiting on inner seals now, ordered from Gateway.
>Removed the old backing plates and mounted the new backing plates, took time
>because I had to buy new bolts because I have accuride.

>I am taking pictures with my new Mavica. Don't know what to do with them yet.
>I will continue to post the work being done and give as much detail.
>Manny 73 Custom/ex-Glacier

Tom & Marg Warner
Vernon Center NY
1976 palmbeach

Date: Fri, 11 Dec 1998 00:00:06 EST
From: Adohen@aol.com
Subject: GMC: REAR BRAKE ROTORS

Could someone explain why only 11 inch rotors are used on the back wheels, when there are 13" available? It seems to me if you are going to install a new braking system on the rear wheels 13" rotors could have been used and 80 mm calipers. The larger the rotors and calipers the more surface areas and leverage.

I'd love to have discs on mine, even 11" ones, but I just wanted to throw out that question.

Scott Nehoda Adohen@aol.com

Scott,

That's what Leigh Harrison uses on his disk brake conversion - on the front bogie, which does the majority(some say all) of the rear braking. To accomplish this he makes a spacer to backspace the rotor away from the wheel. Otherwise the caliper doesn't fit inside the wheel. Check the pic's on my site from the Marion rally. I've got a couple shots of his setup there. The braking his setup provides is awesome and the quality is first rate, and it's priced to match - but then, you get what you pay for, eh?

Patrick Flowers

Date: Sat, 12 Dec 1998 11:50:09 -0500
From: Patrick Flowers <patri63@ibm.net>
Subject: GMC: Eldorado rear disc brakes?

I went out on a salvage yard "safari" yesterday. Picked up a good HEI distributor and an extra coil and cap. I was eluded by the main object of my search - 76 to 78 Eldorado rear disc brake hardware. The rotors and backing plates can be modified to fit the GMC. Found two first generation Eldos - both with complete drivetrains for anyone that wants to do a 500 Caddy conversion(not me!). One was a nearly complete convertible. Also found a bunch of third generation cars.

My question is - does anyone know if the backing plates and calipers were the same on the third gen Eldos? I know the rotors are thinner, but I'm thinking they may be the same diameter. Sure, I could just send TSM \$560 for their backing plates and rotors, but where would the challenge be in that!?

Patrick Flowers

Date: Mon, 14 Dec 1998 07:02:05 +0000
From: "Walter M. Drew" <wdrew@ni.net>
Subject: Re: GMC: Eldorado rear disc brakes?

Patrick,

The height sensor is pictured in figure 14 section 4B-10 Rear Suspension in Maintenance manual supplement x-7725. If you don't have that I can fax you a page or mail you one. I don't know the years of the Caddilac and Olds applications, but I will be willing to track them down unless someone else out there knows. Come on power of the net.

Walter
78 Royale

Date: Mon, 14 Dec 1998 06:24:11 PST
From: "Frank Folkmann" <fmfolkmann@hotmail.com>
Subject: Re: GMC: Eldorado rear disc brakes?

These sensors are also on Pontiac TRANSPORTS. I have a 1992 with air bags in rear. My model is a GT

Date: Mon, 14 Dec 1998 11:23:13 -0500
From: Patrick Flowers <patri63@ibm.net>
Subject: Re: GMC: Eldorado rear disc brakes?

Walter,

Fax me a copy. Since I have a 73, I have the X-7425 manual(why does that sound like a Walter Mitty line?<g>) which only covers the Power Level system. Fax no. is 404-818-1798 - be sure to use a cover sheet as this is my work fax number.

Thanks,
Patrick Flowers

Date: Fri, 8 Jan 1999 00:24:39, -0500
From: JDDP32B@prodigy.com (MR EUGENE R FISHER)
Subject: Re: GMC: Rear disc brake project

I like these. We always used them on our dump trucks in my dad's gravel pit. They were great and they were hand controlled. They are so easy to use, and it is really hard to forget the brakes are on.

I have heard complaints that if you leave the pressure on for a long time the break cylinders will leak past the cups, but looks like cheap insurance to me. Esp. since the emergency brake in the GMC is almost useless.

Is going up on my web page and is on my list to do. the part number is different 85bf6592y in my catalog
gene

Date: Thursday, 07-Jan-99 10:23 PM
From: Chill113 \ America On-Line: (chill113)
Subject: Re: GMC: Rear disc brake project

Yes I do have the part number. I guess the number would be the same in all of their catalogs, but I'm looking at Catalog No. 616-1J On page 183 it lists an In-line Hydraulic Brake Lock. part number 85KP6592Y for \$22.49. They list another that can be used with silicone brake fluid for \$24.99, part number 73KP4432T.

If you go this route, be sure to use metal lines. I used flexible rubber brake lines at first and found with that much distance, they had enough flex to affect my pedal. When I switched to metal lines, no more problem. I mounted mine just behind the base of the parking brake where it is convenient. Just put your brakes on and hold the brake pedal down and step on the Line Lock.

Your rear wheels are locked. When you are ready to unlock them, just hit your brake pedal.
Justin 77 PB

Date: Wed, 6 Jan 1999 19:05:19 EST
From: MTrovao@aol.com
Subject: GMC: Rear disc brake project

Finished with the disc brake conversion. Much bigger job than I anticipated. The rear ss lines from Classic Tube didn't follow the same path as the originals. Because of I couldn't figure out the new rout, I opted to make two new lines. One is 68.25" long to go across. The other, sorry but I bent it first before doing the flaring, so dont have an exact measurement. The calipers that I bought at the junk yard, couldn't use them. Because I have this acuride set-up, They would not fit. So had to use calipers without the parking brake. For now I don't have a working parking brake. Bleeding the lines was very easy but the calipers had to be off the rotor with the bleeder screw facing straight up. I took pictures and I set-up a web site if anyone is interested in looking at them.

It may take a while to come up though. //members.aol.com/mtrovao/page/index/htm

Manny 73 Custom/ex-Glacier

Date: Wed, 6 Jan 1999 19:56:09 EST
From: Jrwheeler7@aol.com
Subject: Re: GMC: Leigh Harrison Address

Fax number from some of his brochures is 703-490-0902; wouldn't be surprised if the area code has changed. His home number was 703-494-9914. Address is 1520 Woodside Drive, Woodbridge, VA 22191. I will be purchasing his braking system; don't want to go through all the hassle of getting junk yard parts, etc. While it may be expensive, it also works real well. Good luck, Frank. I don't have the time or patience to do it any other way.
JR 77 Transmode NC

Date: Wed, 20 Jan 1999 15:47:57 -0500
From: "Bartz, Paul" <s9d3452@mail.drms.dla.mil>
Subject: RE: GMC: Rear disc brake project

There is an alternative that will eliminate penetrating the floor pan to accommodate the brake line tubing. That is an electrically operated hydraulic brake line lock. But it is more money than the J.C. Whitney item. Leigh Harrison has them available and uses them in his six-wheel brake system.

Although you still plumb the valve into the brake line, that part is below the coach floor, in the original line. Only the valve wiring is routed into the interior of the coach.

To use, you step hard on the brake pedal and switch on the lock. Step on the pedal again and the brake releases.

Paul Bartz

Date: Wed, 20 Jan 1999 15:36:18 -0600
From: "Russ Bethel" <rbethel@stic.net>
Subject: Re: GMC: Rear disc brake project

I have an electric brake lock system in my tool box at work. It is made by United. It was bought at NAPA. The part number is 57504. I also have a manual system by the same mfg. NAPA part number is 57515. I have not installed either one on my GMC but we use them at the airport on belt loaders and bag tractors. They work well at the airport but I do not know if they would be effective for more than a few hours. If I were to put one on my GMC I would use a pair of wheel chocks if I was going to leave it parked for more than a day.

Russ Bethel
rbethel@stic.net

Date: Wed, 20 Jan 1999 17:09:52 -0500
From: "Bartz, Paul" <s9d3452@mail.drms.dla.mil>
Subject: RE: GMC: Rear disc brake project

Russ:
GMC'er Larry Fairbanks installed Leigh Harrison's six-wheel disk brake system in late 1994 or early 1995, including the electric brake lock (Mico, I believe). I visited Larry a couple years ago and he told me then that he has had the brake lock engaged in excess of 30 days with no problems.

Paul Bartz

Date: Wed, 20 Jan 1999 19:54:16 -0600
From: "Russ Bethel" <rbethel@stic.net>
Subject: Re: GMC: Rear disc brake project

OOPS!

I got my part numbers reversed. The electric lock NAPA part number is 57515 and the manual NAPA part number is 57504.

Russ Bethel
rbethel@stic.net

Date: Tue, 2 Feb 1999 16:57:02 -0500
From: "Bartz, Paul" <s9d3452@mail.drms.dla.mil>
Subject: RE: GMC: Rear disc brake project

Ted:

I talked both to Leigh Harrison and Larry Fairbanks about your question.

Leigh said he hasn't heard of any hose ballooning and Larry said he had no relaxing of the brakes over a 30 day period.

Paul Bartz

From: Ted Schurman [mailto:tedsch@erols.com]
Sent: Wednesday, January 20, 1999 9:53 PM
Subject: Re: GMC: Rear disc brake project

What is the effect of having the rear rubber hoses under pressure for an extended period ?

Russ Bethel wrote:

I have an electric brake lock system in my tool box at work. It is made by United. It was bought at NAPA. The part number is 57504. I also have a manual system by the same mfg. NAPA part number is 57515. I have not installed either one on my GMC but we use them at the airport on belt loaders and bag tractors. They work well at the airport but I do not know if they would be effective for more than a few hours. If I were to put one on my GMC I would use a pair of wheel chocks if I was going to leave it parked for more than a day.