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Help

izzo
Member

[DIY: Rear brakes \(rotors, bearings, pads\) on a B3 GLX + Brake bleeding](#)

3:04 AM
5-9-2005

[Reply](#)


Offline

Member Since
3-18-2004
5473 posts

W Va
94 B3 GLX, 97 GTI, 84
Rabbit GTI, 06 Citroen
C5 HDI, 00 Audi A4
1.8TQ, 93 Audi B3 TDI



That should also apply to B4s and other VR cars I believe.

Some time ago my rear driver's side caliper seized and ruined the pad and the rotor.

I decided to go ahead and replace pretty much everything on both sides, took some pics as well.

* **DISCLAIMER** *

This is just helping material, variations are possible and is in no way bearing responsibility for anything, you know the drill

* * * *

Time: not a time-consuming job, assuming you spent your time in reading on the Vortex before that.

Took me between two-three hours to complete everything.

Reading materials:

<http://forums.vwvortex.com/zerothread?id=1811830>

<http://forums.vwvortex.com/zerothread?id=921596>

If you need to do just pads, eliminate the rest, and vice versa.

Tools needed:

- a 1 7/16 socket for pressing the inner bearing races in the new rotors /yes, the same socket you use for the oil filter cap/
- a broken/spare screwdriver that you can cut to press the outer races
- a 5/16 allen key for removing the two bolts that hold the caliper carrier
- various pliers, wrenches, hammers

Particular parts that I got:

[Rear bearing KIT from AutoHausAZ: \\$19](#)

[Rear bearing KIT from ECS Tuning \\$20](#)

[Rear brake pad set, Mintex RedBox: \\$27](#)



Pad spreader tool, \$7

Rotors of your choice, cheapest are plain OEM for like \$30, I went with BREMBO slotted and drilled from ECS.



ABS Speed sensor rings, look like crowns, \$15 a piece from ECS also.
/You might be able to transfer the old ones from the old rotors, but at \$15 I'd rather get new ones,
and it's easy to damage the old rings when un-installing/

<http://www.ecstuning.com/stage...aking>

At \$1.50 a piece, it's a good idea to get new allen-key bolts for the carriers!

I needed a new caliper assembly for the left side; brand new one OEM is more than \$150,
and AutoHausAZ had rebuilt ones for \$70 after core /which was returned very fast!/
part # 535 615 423X-
it is a Girling caliper and I had my fears that it won't work, since the original was Lucas, but it was fine!

- - - - -

Start by jacking the car up and removing the tires. Jack it high to have more clearance for work.

Having a portable light is a good idea. Make sure jacks are ok, I personally hate to work on a car

that is not well secured, and I am always using jack stands along with the jacks.

When you expose the brakes after removing the wheel, have a look at the back of the caliper.

Two bolts are holding the caliper to the carrier - these carriers are floating, so you will need

one wrench to hold and another to unscrew the bolt. Be careful not to tear the two small

rubber grommets that cover the long bolts onto which the caliper moves. Then you should have something like this:



You can remove the old pads now. Here's how bad mine were:



I used a footlong bungee cord to hook the caliper to the spring above, and get it out of the way while working.

In order to remove the rotor, you need to take the carrier first. The two allen key bolts that hold it are **BEHIND** the spindle and facing the trunk; you might need an extension to reach one of them at least, since it is covered partially by the metal bracket that holds the parking brake line below. **USE WD-40!!!** You can easily screw the thread of the bolts and make your work a PITA.

Spray some WD-40 around and then use a long bar to attach to the ratchet - they will come out.

After that remove the carrier and set it aside.

To remove the rotor, first remove the dust cap. Use wide pliers or pry it out with a thin screwdriver.

Behind it will be full of old grease, wipe everything and you will see a cotter pin - straighten it up and pull; another cap; then there should be a nut on the axle - remove it, it should **NOT** be tightened, just hand-tight.

There is a washer and now you can wiggle the rotor out.

Clean everything from the old grease and you should be done with removing.

Now, some online sellers do provide rotors with pre-pressed bearing races /assuming you order both/ but in my case I had to do these myself.

Each bearing kit comes with:

new dust cap, another cap below the cotter pin, two bearings + two races, rear seal.

The REAR ABS speed sensor rings are sold separately and not widely available; if

you want to
save yourself the hassle of removing the old ones from the old rotors, buy them
new and just
press them onto the inside of the new rotors.
**Now is a good to take some time and clean the head of the ABS speed
sensor - it is magnetic
and collects a lot of dust and dirt; you can use a wire brush and clean it
well!**

First I pressed the inner bearing race on the inner side of the rotor. I put the rotor
on the ground,
on two 2x4s and stationed it well. Tip: a little grease on the walls where it is
supposed to slide might help!
Be careful not to install them on the wrong side. Have a look on the inside first,
before you start pressing.
Notice where the race is supposed to reach to, the bottom line. Then position it and
put something wide and
flat on top of it - I used a bigger hammer, and slammed on it. Hit with another
hammer with enough power,
but don't smash or blast to spoil the race. When it went deep enough I put the wide
hammer away and took the
big socket from the oil filter cap - the wider part of it fits perfectly for this job.
Again started hitting until the sound
of the hit went from thin to thicker - you will feel/hear it, meaning the race went
fully in it's bay.

Then flip the rotors and take the smaller, outer bearing race - again a little grease,
position it, and first use
the wide flat hammer and beat on it; then, because the socket is too big for this
side, I used an old screwdriver
that was broken in half and the body of it was broken flat, to drive the race further
in.
I was hitting on four places, divide the circle in 90 degree pieces and hit this way.
Again make sure
the race is laying down there in it's bed and is well seated.

This done, pack the inside of the rotor well with grease, I used high-temp red
grease for \$2,
and even put some on the axle - this way you will drive the rotor with the installed
bearings easier onto the axle.

ON THE BACK OF THE ROTOR, after the race is installed, will go the bigger bearing,
and the rubber seal
that has a spring inside it. on top of everything I installed the ABS speed sensor
rings.

Slide it onto the axle, and put the smaller bearing; then put the washer which has
like a pin to fit onto the axle,
probably to prevent it from rolling, then the nut - which IS HAND-TIGHTENED!!!
**Do not tight it with any tools, because the bearings expand with heat and
if the nut is tight they will have no
room to expand and will brake!**
Then put the toothed cap and the cotter pin, cover again everything with grease,
and install the dust cap.
I just used a rubber hammer to drive that one in place.

Roll the rotor a few times to ensure it is smooth - it may spin hard cause of the
fresh grease don't worry.

Then take your two allen-key bolts and the caliper carrier bracket and install it. I

did not have the exact torque specs for those, so I just made sure I tighten those good, I even used some Loc-tite on them.

Then I cleaned the calipers and greased the rubber grommets and the 'flying' bolts with grease.

Used the spreader tool to compress the caliper piston back in the housing /MAKE SURE THE CAP IS OFF THE BRAKE FLUID RESERVOIR!!!/ and installed the brake pads. Not much to explain here...

Fit the caliper onto the bracket and tighten the bolts that hold it, again using two wrenches.

This is a good time to pay attention to the e-brake cable ends - the parking brake often gets stuck during the winter cause the rubber boots on the end of the cable tear apart and let dirt and water get in there.

You should be looking at something like this now:




Again check everything, check bolts, make sure there are no left-over parts. Put the wheel on and lower the car, hopefully everything is OK!


- Immediately after I drove the car I noticed that the rotors heated up VERY VERY MUCH.

I was worried if I did something wrong, or if the MC is bad, or else. **KEEP IN MIND:** New pads need a few tens of miles to break-in and you may notice heated rotors, noise from the rear, not only when applying brakes, even smoke. Do not drive the car excessively!

After just two days my new pads seated well and stopped heating the rotors.

If however the problem persists, check e-brake cables, check if pads are installed

correctly,
check if the caliper is operating normally, call 1-800-BRAKES-WTF or post on the
Tex 

If everything is OK, re-check you tire lugs after 20-30 miles of driving. I always
re-tighten them after
removing a rim, just a precaution... Have a 

I want to say thank you especially to jpete for all the help, A2B4Guy for letting me
know
about the ABS rings and the bolts, MDVDuber and amper as well!

Modified by izzo at 12:12 AM 3-6-2006

[VWbay](#)

Es ist wirklich eine Liebe - hassen Sie Verhältnis!

izzo
Member



Offline

Member Since
3-18-2004
5473 posts

W Va
94 B3 GLX, 97 GTI, 84
Rabbit GTI, 06 Citroen
C5 HDI, 00 Audi A4
1.8TQ, 93 Audi B3 TDI



 PART TWO: BLEEDING THE BRAKES [»](#)

[«](#) [»](#) 3:06 AM 5-9-2005

[Reply](#)



Bleeding the brakes is necessary if you remove the calipers, as I had to do.
Power bleeding, or using a bench bleeding tool is recommended, however I did not
have
access to neither and did it the old way. First time - the brake pedal went mushy,
soft.
Second time I bled the brakes everything came to place, as they used to be before
the brake job.

* Make sure you NEVER press the brake pedal ALL THE WAY DOWN TO THE FLOOR.
You may blow a seal and/or damage the brake master cylinder, which is expensive.
For that purpose put a piece of wood below the pedal, in my case I used the head of
my rubber hammer.

* Start from the caliper that is FURTHEST from the brake fluid reservoir - in order
passenger rear, driver rear, passenger front and finally driver front.


* OPEN the cap of the brake fluid reservoir and fill it in with FRESH NEW brake fluid,
I used OEM PENTOSIN. Make sure when you pump the pedal that the reservoir does
not go
empty, and suck air into the system.

* It is debated whether you should leave the ignition ON or not, so first time I had
it ON
next time I had it OFF - I can't tell for sure which way it is supposed to be.

* ALSO IMPORTANT - when the wheels are removed to access the bleeder valve on
the caliper,
lay the car down to normal height on jack stands!

Well, I had my girlfriend pumping the pedal, while I attached a small hose to the
bleeder valves

to collect the excess brake fluid. I had her do this:

1. Pump, pump, pump, pump, pump AND hold;
2. Now I opened the bleeder valve for a few seconds to let brake fluid out;
3. Close the bleeder valve, continue pumping...
4. Repeat and repeat and repeat.... 

* Dip the end of the hose that is attached to the bleeder valve IN the container that you are collecting the brake fluid in and watch for and air bubbles that may show!

Make sure you tighten the valves good, but don't pursue them till you strip the thread. THAT is NASTY!

Fill up the reservoir with brake fluid and close the cap tight. Put your wheelies on and take the car for a spin.

See how your brakes are acting, top off the reservoir if needed....

Well, that's about it, whatever I am missed you should be able to figure out....

Good luck!

Modified by izzo at 9:09 PM 5-8-2005

[VWbay](#)

Es ist wirklich eine Liebe - hassen Sie Verhältnis! 

izzo
Member



Offline

Member Since
3-18-2004
5473 posts

W Va
94 B3 GLX, 97 GTI, 84
Rabbit GTI, 06 Citroen
C5 HDI, 00 Audi A4
1.8TQ, 93 Audi B3 TDI



 PART TWO: BLEEDING THE BRAKES [»](#)

[«](#) [»](#) 3:09 AM 5-9-2005

[Reply](#) 

// res //

Modified by izzo at 9:10 PM 5-8-2005

[VWbay](#)

Es ist wirklich eine Liebe - hassen Sie Verhältnis! 

jamesn67
Member

Offline

Member Since
11-15-2001
3512 posts

Beverly MA
1993 B3 VR6




 Re: PART TWO: BLEEDING THE BRAKES (izzo) [»](#)

[«](#) [»](#) 3:22 AM 5-9-2005

[Reply](#)

Nice write up...I just finished doing this to my VR today then came across your post. Funny.

I was able to get my bearing races pressed in by a shop near my house for free 

I also switched to the mkIV calipers as I like the alum. ones plus don't want to have to deal with the seized e-brake mechanism.

Def. get a pressure bleeder! Makes the job so much easier!!!

Enjoy the new brakes 

Slainte!!!

izzo
Member

 [»](#)

[«](#) [»](#) 9:41 PM 5-17-2005



Offline

Member Since
3-18-2004
5473 posts



W Va
94 B3 GLX, 97 GTI, 84
Rabbit GTI, 06 Citroen
C5 HDI, 00 Audi A4
1.8TQ, 93 Audi B3 TDI

[VWbay](#)

Es ist wirklich eine Liebe - hassen Sie Verhältnis!



SpaceHamster [»](#)

Member

[«](#) [»](#) 12:39 AM 5-18-2005

[Reply](#)



Haha i just redid my calipher 2 days ago and now i find the post, but it was easy work which i was suprised at.

Offline

Member Since
7-25-2004
929 posts

Quote, originally posted by Crubb3d Rymz »

have you ever thought of posting in the PASSAT forum?

GWL Ny
1996 Glx Vr6 Passat,
1995 Glx Vr6 Passat

Quote, originally posted by Boxy Squad »

OPPPS We have one of those. sorry



86_gti_8v

Member

Re: (SpaceHamster) [»](#)

[«](#) [»](#) 4:31 AM 5-18-2005

[Reply](#)



i have been unable to get the 2 allen bolts out of the carrier. tried WD-40, pb blast and still nothin

Offline

Member Since
4-16-2003
1570 posts

[michiganvw.org](#)

Fennville, MI Glendale
Heights, IL
86 GTI 16v, 93 passat
vr6, 92 passat gl, 74
super, 1974 beetle,75
beetle,69 beetle,68
baja,71 super

<http://theb3e.com>

<http://michiganvw.org>

<http://www.mobileoneinc.com> 1-847-724-7097



In Loving Memory of my sister Shonda Joy Martin 6/23/1977 - 9/12/2003

86_gti_8v

Member

Re: (86_gti_8v) [»](#)

[«](#) [»](#) 4:33 AM 5-18-2005

[Reply](#)



btw not blaming anyone just looking for more ideas

Offline

Member Since
4-16-2003
1570 posts

nice write up though

Fennville, MI Glendale
Heights, IL

[michiganvw.org](#)

86 GTI 16v, 93 passat
vr6, 92 passat gl, 74
super, 1974 beetle, 75
beetle, 69 beetle, 68
baja, 71 super

<http://theb3e.com>

<http://michiganvw.org>

<http://www.mobileoneinc.com> 1-847-724-7097



jamesn67
Member

Offline

Member Since
11-15-2001
3512 posts

Beverly MA
1993 B3 VR6



**Action
Jackson**
Member

Offline

Member Since
11-20-2001
4444 posts

Kitchener ON
B4 Sedan & MkIV
Golf-4dr turbo



vr6todd
Member

Offline

Member Since
11-2-2004
1902 posts

Lethbridge AB
'95 Passat GLS VR6,
'95 Passat GLX, '72
hightop bus, '78
Rabbit 8v, '77 Rabbit
soon to be TD



In Loving Memory of my sister Shonda Joy Martin 6/23/1977 - 9/12/2003

Re: (86_gti_8v)

12:16 PM 5-18-2005

Reply

Heat them up nice and hot with a small torch.
One of the best things I ever got. Use it all the
time on stubborn fasteners.

Slainte!!!

Re: PART TWO: BLEEDING THE BRAKES (izzo)

3:08 PM 5-18-2005

Reply

So you don't mention anything about bleeding the clutch. The hydraulic fluid for the clutch is shared between the clutch master cyl and the brake master, taken fluid from a common reservoir. Air can creep into the clutch lines from the brake lines and visa versa. So it is always a good idea to bleed the clutch after the brakes are done.

Volkswagen built my car
it's a love affair
mainly Volkswagen and my Passat

Sometimes posting wirelessly from my BlackBerry

Re: DIY: Rear brakes (rotors, bearings, pads) on a B3 GLX + Brake
bleeding (izzo)

6:44 AM
10-3-2005

Reply

Quote, originally posted by izzo »

Slide it onto the axle, and put the smaller bearing; then put the washer which has like a pin to fit onto the axle, probably to prevent it from rolling, then the nut - which IS HAND-TIGHTENED!!!
Do not tight it with any tools, because the bearings expand with heat and if the nut is tight they will have no room to expand and will brake!
Then put the toothed cap and the cotter pin, cover again everything with grease, and install the dust cap.
I just used a rubber hammer to drive that one in place.

I recomnd that you get an experienced mechanic to show you proper preload on the bearings, you should use a socket on a breaker bar to *slightly* overtighten and loosen repeatedly while you turn the rotor. This seats the bearings properly. I've done rear brake jobs on a few different cars, and I always use a tool to tighten the axle nut (on my Passat, a 24mm socket on a relatively short breaker bar. I just use the breaker bar for something to hold on to, I place my had directly over the socket when I use it (gives a better feel for tension so overtightening is less likely)). It

doesn't go very tight, but slightly tighter than hand tight is necessary. That's where I recommend somebody experienced show you proper bearing preload (if you've never done it before).

Modified by vr6todd at 10:45 PM 10-2-2005

Todd

western Canadian studets... need a [summer job?](#)

Quote, originally posted by VikingVR6GTI »

Besides, the way my car treats me, why should I show it any respect? I beat it like a rented mule because that's the way it treats me.

A2B4guy

Member



Offline

Member Since
12-18-2002
7481 posts

wasting away in
Gaston County, NC
95 Psot



Re: DIY: Rear brakes (vr6todd) [»](#)

[«](#) [»](#) 6:04 PM 10-3-2005

[Reply](#)

Quote, originally posted by vr6todd »

you should use a socket on a breaker bar to *slightly* overtighten and loosen repeatedly while you turn the rotor. This seats the bearings properly.

Good point, especially with new bearings. They must be packed full with grease. I turn the rotor with my left hand while I slowly tighten the nut with a crescent wrench. You can feel the rotor get harder to turn. When it reaches the point that it does not turn smoothly I back off a little and tighten/loosen while still turning the rotor to see if it will get tighter before reaching that point. The bearing must be rolling to seat properly. Then I back off until it's loose and choke up on the handle as Todd said in order to have better feel. You want to just remove all play but not add pressure.

One test I learned is to use a large flat blade screwdriver wedged between the edge of the washer and the hub. You should be able to twist the handle and scoot the washer back and forth under the nut, not loosely but with a moderate force the washer should slide a little. If it does not want to slide without significant force, the nut is too tight. I know it sounds far from exact, but there is a pretty narrow window where the washer is neither loose or tight. And yes it's OK for the washer and nut to be greasy.

When you think you've got it, mount the wheel temporarily and grab the tire at top and bottom and see if you can wobble it at all. There should be no wobble if you tightened the lugs a little.

I have an old Volvo 240 service manual that says to tighten the nut to like 150 lb/ft or some similar exact value and then loosen it exactly 1/4 turn (or whatever amount). I like my method of bearing seating better!

.: Jeff

New mk4 and mk5 stuff!

I build custom wiring harnesses for VW's, specializing in performance lighting eurowires dot net

tallicagolf
Member



Offline

Member Since
12-15-2002
2604 posts

Chicago/ Iowa city
97 passat glx



izzo
Member



Re: DIY: Rear brakes (A2B4guy) >>

<< >> 11:28 PM 10-3-2005

Reply

Good info im going to need a brake job soon, so i will be using this as refrence thanks 🙌

vr passat 📄

>>

<< >> 5:33 AM 10-5-2005

Reply



You guys should've popped a few months earlier 😊
But a few thousand miles later, I have no problems, knock on wood...

Offline

Member Since
3-18-2004
5473 posts

At least I got new bearings all around now, after haveing the fronts replaced like five times EACH side....

W Va
94 B3 GLX, 97 GTI, 84 Rabbit GTI, 06 Citroen C5 HDI, 00 Audi A4 1.8TQ, 93 Audi B3 TDI

[VWbay](#)

[Es ist wirklich eine Liebe - hassen Sie Verhältnis!](#) 



gsorg
Member

Re: (izzo) >>

<< >> 9:51 PM 10-11-2005

[Reply](#)

Offline

Member Since
8-12-2005
32 posts

Just curious...how did you get the old bearings out?

Muncie IN
1995 VW Passat GLX VR6

I am thinking it could be done with a long pin punch, tapping around the inside edge from the opposite site of the rotor.



awgix
Member

Re: DIY: Rear brakes (rotors, bearings, pads) on a B3 GLX + Brake bleeding (izzo) >>

<< >> 10:45 PM 10-11-2005

[Reply](#)

Offline

Member Since
1-23-2004
545 posts

NICE! I also did this a few k ago minus the Brembo rotors. I just did OEM. Good work and thank you for your time with the write-up. 😊👍

ct
1995 glx passat



izzo
Member

Re: (gsorg) >>

<< >> 2:16 AM 10-12-2005

[Reply](#)



The bearings just come out. Are you referring to the races? I didn't transfer the old races to the new rotors, I bought brand new bearing kits for each side- and better, those are just \$15-20 the kit and I decided to change them, instead of having to go through it later on...

Offline

Member Since
3-18-2004
5473 posts

W Va
94 B3 GLX, 97 GTI, 84 Rabbit GTI, 06 Citroen C5 HDI, 00 Audi A4 1.8TQ, 93 Audi B3 TDI

[VWbay](#)

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fspGTD
Member

Re: (izzo) >>

<< >> 10:50 PM 10-13-2005

[Reply](#)

Offline

Member Since

Nice write-up Izzo, but the link to the caliper spreader tool isn't working. It looks like B3 rear calipers are like newer VWs in that they need to be screwed in to

9-25-2002
472 posts

Seattle WA
1981 VW Rabbit Turbo
Diesel SCCA FSP
Autocrosser



compress. Next time I need to do brakes on one of these types of calipers, I'm buying this tool:
<http://www.harborfreight.com/c...40732>

Modified by fspGTD at 1:53 PM 10-13-2005

Jake Russell
1981 VW Rabbit "GTD" autocrosser - SCCA FSP class

Re: (86_gti_8v) >>

<< >> 3:02 AM 11-23-2005

[Reply](#)

dunno
Member

Offline

Member Since
2-22-2003
119 posts

CA
98 Jetta GLX



Quote, originally posted by 86_gti_8v »

i have been unable to get the 2 allen bolts out of the carrier. tried WD-40, pb blast and still nothin

What size are those allen bolts? I'm doing mine this weekend and want to make sure I have all the tools I'll need.

vr6todd
Member



Offline

Member Since
11-2-2004
1902 posts

Lethbridge AB
'95 Passat GLS VR6,
'95 Passat GLX, '72
hightop bus, '78
Rabbit 8v, '77 Rabbit
soon to be TD



Re: (dunno) >>

<< >> 8:01 AM 11-23-2005

[Reply](#)

Quote, originally posted by dunno »

What size are those allen bolts? I'm doing mine this weekend and want to make sure I have all the tools I'll need.

8mm

Todd

western Canadian studets... need a [summer job?](#)

Quote, originally posted by VikingVR6GTI »

Besides, the way my car treats me, why should I show it any respect? I beat it like a rented mule because that's the way it treats me.

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