



Gateway Gazette

Monthly Newsletter of the St. Louis Chapter
BUICK CLUB OF AMERICA

Volume XXIX, No.3 April 2010

Technical Articles: This month we are fortunate to have articles written by two of our club members with extensive auto-related engineering and practical experience.

ZDDP in Engine Oil by Ted Becker

I was interested in the discussion at the last club meeting about zinc additives for older engines. I have had a lot of professional work experience in this area and I'd like to give my take on it.

I am a Mechanical Engineering graduate from Rolla. It was called Missouri School of Mines and Metallurgy when I started, then it was changed to University of Missouri at Rolla in my sophomore year, now it is Missouri University of Science and Technology.

Upon graduation from Rolla, I took a job with Ford Motor Company in their engine division in Dearborn, Michigan. I spent 5 very good working years there but really disliked the Detroit area, so I moved to Peoria, Illinois to take a similar position with Caterpillar. I did that for the next 31 years, then retired in 2004.

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Buick 264/322 Engine Removal by Bill Bicknell

This article will cover the removal of 264/322 Buick V-8 engines with and without the transmission attached. It is not intended to cover basics for any car such as disconnection of battery, radiator, removal of fluids, etc. Rather, it is intended to cover those items unique to the Buick engine-transmission-rear axle. These procedures are basically the same for all Dynaflo transmissions from 1948 thru 1956. (This author is not familiar with 1957 and newer models.) After doing this many times both ways, I recommend separating the engine and transmission, but have covered both methods in this article.

PREPARATION:

First, jack up the car and remove the starter motor. The engine will come out with the starter in place, but it will hang up on the steering box. Also, besides removing the transmission mounting bolts, remove the two water hoses to the transmission cooler and drain the coolant as

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Upcoming Events

Regular Meeting April 1, Pujols 5, 7:30

Spring Oil Change and Lady's Luncheon, March 27

Horseless Carriage Club of Missouri Easter Show, Sunday, April 4

See Page 4 for Details

Director's Message

Hi Everyone:

First of all, I would like to thank Bob Brasses for serving as our Director. He did a fantastic job leading our Club and his future input will be greatly appreciated. We all owe him our gratitude.

I'm pleased to announce that both Mike Marx and Monica Ledwon were nominated and accepted the call to serve on our Board of Directors. They were voted into office unanimously at our March meeting replacing Steve Dodson and Jeff Watkins. Both Steve and Jeff are deserving of our thanks as well for their selfless service to our Club.

Our April 1 meeting at Pujols 5 Westport Grill will feature our own member, Ted Becker, giving a presentation on NASCAR, one of the fastest growing sports in the nation.

Twenty-one Buicks from our Club are registered for the 49th Annual "Concours d'Elegance" Automobile Show in Forest Park on the Munny upper parking lot Easter Sunday, April 4. If you've never joined us before, you'll have a great time looking at vintage cars and being together with Buick friends. This is a rain-or-shine event.

On April 25 we will display our cars on Missouri Botanical Garden's southeast parking lot. After having lunch there, we will take a tour of the gardens. With all the spring flowers in bloom, this event should be an enjoyable day.

Please remember this is YOUR Club. The more people and cars that attend our planned events, the more fun we all will have.

Thanks!
Herb Morris

Meeting Minutes, March 4, 2010

The March 2010 meeting was held on Thursday, March 4th at Pujols 5 in Westport Plaza. We had a good turnout with some old faces showing up.

The Club meeting was facilitated by Acting Director Herb Morris.

The minutes of the February 2010 meeting were approved as printed in the Gazette.

Pete was present to give the Treasurer's Report

March Birthdays

Mary Ann Meyer	Bill Landers
Helen Becker	Francis Palmeri
Avis Meyer	

Anniversaries

None

Upcoming Events

March

Mar. 27	Spring Oil Change at Paul Meyer's/ Ladies Luncheon at La Bonne Bouchee
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April

Apr. 01	Regular Monthly Meeting – Pujols 5, Guest Speaker Ted Becker on NASCAR
Apr. 02	Fenton Cruise – Life Christian Church
Apr. 04	HCCM Easter Show – Forest Park, meet at History Museum, 9 am
Apr. 25	Cruise to Shaw's Garden for Lunch, Bring your lawn chair and hang out & socialize afterwards

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April Birthdays

Delia Greer	Joe Horvath, Jr.
James Hudson	Bob Paster
Louise Smith	

April Anniversaries

Bill & Karen Nolte

Editor's Note: Please let know if your birthday or anniversary does not appear in this space.

Meeting Minutes, March 4, 2010 (Continued)

May

- May 01 Display at Sinclair Buick
May 07 Fenton Cruise – Life Christian Church
May 17 **** Regular Monthly Meeting(3rd Monday of the month) – Fuddruckers, Sunset Hills I-270 and I-44**
May 23 Picnic at Forest Park.?? Details in April

June

- Jun 19 Hazelwood Baptist **Free** Car Show. Free food, admission, & entertainment, 11a.m. – 5p.m.

New Business

The terms of (2) Board Members will expire in May 2010. Mike Marx and Monica Ledwon were nominated to replace them and both accepted their nominations. Ed Keil was also nominated to the Board to maintain the board at 9 members.

June 27th Museum of Transportation All-Buick show posted on Hemmings Cruise/Show site, BCA Bugle, BPE and Autotrader Classics site. Steve Dodson to contact Bruce Kunz about placing in STL Post.

The 50/50 drawing was won by John Lasinski.

Next Regular Meeting: Apr. 1 Pujols 5



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Steve Vander Pluym

Upcoming Events – Details and Directions

Spring Oil Change at Paul Meyer's garage at Spectra Painting, 13573 St. Charles Rock Road (1.3 miles west of I-270, on the right as you drive west), Saturday, March 27, 10:00 am to 2:00 pm. Brats, burgers and soda will be provided.

Lady's Luncheon will be at La Bonne Bouchee, 12344 Olive Street Road (0.7 miles west of I-270). The Restaurant is in the Westgate Center strip mall which will be on the left as you travel west on Olive. Contact Sharon Morris at 636-296-9147 or smorris@standingpr.com for additional information.

Upcoming Events – Details and Directions(Continued)

April Meeting at Pujols 5 in West Port Plaza. To get to West Port Plaza, take I-270 to East on Page Avenue. Take the first exit off Page, Concourse Drive, then take the first right onto Lackland Road. Follow Lackland to the second traffic light and take another right onto Westport Plaza Drive. This will take you back north across Page. A left at the second light will get you into the parking lot. Make a right at the stop sign and you can park and walk into the Plaza past St Louis Bread Co. and see Pulols 5 to the right. Or you can continue for a hundred yards and pull into “Garage A”, next to the Sheraton Hotel. The word “clock tower” will be above that entrance. Drive straight back about 350 feet and you will see an elevator directly in front of you. Park and take the elevator up one floor. Exit the elevator, turn left and you should see the Pujols sign. Plan to arrive between 6 and 6:30 pm so you can enjoy dinner prior to the meeting.

NASCAR Presentation by Ted Becker

Ted Becker will be giving his NASCAR presentation at our April 1 meeting. Ted spent 31 years in the engine design division of Caterpillar, and 5 years prior to that at Ford. When he retired in 2004, he was asked to take an assignment working with Bill Davis Racing in High Point, NC, who campaigned the #22 Dodge, sponsored by Caterpillar and driven by Scott Wimmer. The team, though once at the top of their game, had had considerable performance difficulties over the 2 previous years. His assignment was to assist the team in using various management and development technologies which had proved to be successful for Caterpillar. He was also asked to provide technical assistance to the team using proven Caterpillar technologies. Ted will be presenting an entertaining view of his 2 year assignment and a look into the inside of a NASCAR team with some of the technical challenges that they face.

FOR SALE/WANTED

‘90 Reatta Convertible Maui blue with white top, 73,xxx miles. Newer top, 16-way driver’s seat, CD player, 392 points at BCA National Meet. Herb Morris, (c) 314-221-8138, reatta90@sbcglobal.net.

Driver’s side window for 1965 Riviera with power windows. Vent window assembly with some damage included. Bill Landers, 314-921-5015, walanders@sbcglobal.net.

1939 Special 4 door The engine has been detailed, the valve seats hardened, the clutch rebuilt, carburetor rebuilt, mains replaced, oil pump rebuilt, rear end changed to 390, bumpers re-chromed, seat belts added, 6 volt electric fuel pump added for backup, and 6 volt push fan added for 90 degree weather. This dark green car is all original with no rust and is in very good condition inside and outside. Only \$11,000. Mike Driscoll, 314-846-2322.

Wanted Set of Buick rear rubber floor mats for 1970 Electra 225, dark brown. John Pegg, 314-739-1542.

Editor’s Note: My new address, as reflected on the last page, is 66 Summit Pointe Ct, St. Charles, MO 63301. My new phone number is 636-916-3310, and my e-mail address is unchanged (walanders@sbcglobal.net).

2010 CALENDAR

April

- 1 Regular Monthly Meeting - Pujols 5
- 2 Fenton Cruise - Life Christian Church
- 4 HCCM Easter Show - Forest Park
- 25 **Cruise to Shaw's Gardens for lunch

May

- 1 Sinclair Buick Show
- 7 Fenton Cruise - Life Christian Church
- 17 Regular Monthly Meeting - Fuddrucker's, Watson Road & S. Lindburgh
- 23 Picnic in Forest Park??

June

- 4 Fenton Cruise - Life Christian Church
- 5 Bobby's Custard Cruise
- 4-6 Oldsmobile Club TanTarA Show
- 19-20 **Overnight or daytrip to St. Genevieve - Visit Crown and Cave wineries
- 21 Regular Monthly Meeting - Fuddrucker's, Watson Road & S. Lindburgh
- 27 MOT All-Buick Show

July

- 2 Fenton Cruise - Life Christian Church
- 11 Lion's Club Car Show, St. Charles
- 16 MOT Cruise with Buick as featured Marque
- 19 Regular Monthly Meeting - Fuddrucker's, Watson Road & S. Lindburgh
- 24 Smithton Parade ??
- 27-31 BCA National Show - Ames, IA
- ??? Possible shows at Veterans Homes at Jefferson Barracks, North County

August

- 6 Fenton Cruise - Life Christian Church
- 7 **Lunch at Dreamland Palace, Schorr Lake winery
- 14 **BBQ at Schmiehausens
- 16 Regular Monthly Meeting - Fuddrucker's, Watson Road & S. Lindburgh
- ?? Skyview Drive-In Theater
- 26-28 Great Lakes Regional, Columbus, OH

September

- 3 Fenton Cruise - Life Christian Church
- 12 Wheels in Motion Show, West Port Plaza
- 19 **Lunch at Fast Eddie's, cruise to winery in Grafton
- 20 Regular Monthly Meeting - Fuddrucker's, Watson Road & S. Lindburgh
- 26 St Charles Octoberfest Show
- 24-26 **Route 66 Festival - Springfield, IL

October

- ?? **Chile, etc at the Kunz Plantation
- 8 Fenton Cruise - Life Christian Church
- 18 Regular Monthly Meeting - Fuddrucker's, Watson Road & S. Lindburgh
- 30 **Fall oil change / Ladies luncheon at Blue Owl

November

- 4 Regular Monthly Meeting - ??

December

- 4 **Lunch at Spaghetti Factory, Toys for Tots
- 11 **Cruise to Our Lady of the Snows for holiday party

** Need a headcount for these events

ZDDP in Engine Oil (Continued)

With both of my employers, I only worked on engines. Most of my time was doing Research and Development work. My job at Caterpillar was mostly working with the internal components of the engine. I worked on camshafts and valve train components for the longest time during my tenure at Caterpillar.

When I started at Caterpillar, the 3208 engine had just gone into production. This was a fairly small diesel engine that was developed under contract with Ford for use in their small line of trucks used for school buses, delivery trucks

and refuse haulers. At the time, it was a pretty high performance engine that had some aggressive camshaft lobes. Though flat follower lifters had been the staple for Caterpillar for quite some time, this engine posed a problem with the higher lifts and acceleration. Consequently, cam and lifter life was a real issue. This was a new phenomenon in the engine industry, especially the diesel engine industry.

Many attempts were made to resolve the problem. There were a myriad of metallurgical and heat treatment options attempted to get longer life out of the cam and lifter.

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ZDDP in Engine Oil (Continued)

Working with the fine folks at Sealed Power resulted in the development and use of a ZDDP based oil compound to be used for break-in. At long last, the problem was solved and never posed a problem from there on out.

Engine oils have long contained this zinc compound ZDDP (zinc-dialkyl-dithiophosphate) as a high pressure lubricant. The effect is similar to the amines used in gear oils which give it that pungent and obnoxious odor. The ZDDP adheres to the metal surface far better than the motor oil does and it has the ability to support an oil film and not break down due to the sliding forces and heat between the cam and lifter.

The very worst time in the life of a cam and lifter is during the break-in period. The surfaces, though precision machined, do not fit perfectly at the microscopic level and need to wear together. It is these tiny points of contact that cause the metals to actually fuse together if all is not right. Also, the physics of the camshaft rotation causes the loads on the cam nose to be at their highest during an engine idle condition. It is for that reason that initial lubrication is so very critical and the break-in of a new cam and lifter must be done at a speed higher than an idle condition.

The Caterpillar experience showed that merely having the ZDDP in suspension in the oil was not adequate to provide the break-in condition necessary. The ZDDP based compound was squirted on the cam lobe and the lifter face during engine assembly. It was true then and it is true now. Any time a new cam and lifter is installed it needs to have the ZDDP applied and the engine needs to run at 2500 RPM for a half hour or so to break it in. While I'm on the subject, it is important that new lifters should never be installed on a used cam and vice versa. New lifters have a slight crown on them and that needs to wear in with the new cam.

Now, jump forward to today. ZDDP was removed from most engine oils because the zinc tends to coat the catalytic converter surfaces rendering them ineffective. Further to

that, most new engine designs incorporate roller followers and do not need the high pressure lubricating qualities that are necessary with flat lifters. Rollers are used today for 2 primary reasons. The first is the higher lifts and more aggressive cam profiles used on today's engines to get the impressive horsepower rating numbers of these engines. The second is the longer cam and lifter life that is required to get upwards of 150,000 miles that today's engines can achieve.

So, what's a guy to do? Well, there are an awful lot of opinions and articles written on the subject. Here is my take on what to do. First, the new cam and lifter break-in is so very critical. It is absolutely critical to use a ZDDP compound on the cam and lifter when it is installed. All the cam manufacturers sell their own versions. GM still makes the EOS (Engine Oil Supplement) that can be bought under part number 88862586. It can be bought in quart bottles for anywhere between \$12 and \$20 depending upon where it is purchased. Caterpillar sells their Cam and Lifter Lube (not sure of the part number) which can be bought at Fabick Tractor in Fenton. I am partial to that product, but any others are similar and will work just fine. When I put an engine together, I use a pint of the stuff and put it on any sliding part in the engine (gears, sprockets, valve guides, bearings, etc). As warning, however, don't put it on the piston rings since it can cause the rings to stick. Just use engine oil on the rings and cylinder walls.

How about maintenance you ask. A ZDDP additive may not be necessary, but can do no harm. As was mentioned in the meeting, 20W-50 racing oils still have ZDDP in sufficient amounts. Also, diesel oil supposedly will do the job, though I have no personal experience here and hesitate to recommend going that route. In all probability, using a good grade of synthetic oil should be sufficient to give good life regardless of ZDDP concentration. If the car is going to get a lot of idle time, like driving in parades, then the ZDDP becomes a necessary thing. Otherwise, just use a quality oil like Pennzoil, Castrol, Valvoline, Havoline, etc and you should be good to go.

Buick 264/322 Engine Removal (Continued)

this is one of the low points of the system. (On 1956 cars the transmission oil is cooled by circulating the oil through steel tubes up to the radiator instead of water back to the transmission like the 1948 thru 1955 Dynaflo transmissions.) Remove the four bolts holding the torque tube to the rear of the transmission. The car can be rolled with these bolts removed.

Next remove the exhaust crossover pipe. If the bolts are too rusted and removal is difficult, the exhaust manifolds can be unbolted from the heads and the manifolds and crossover pipe can be left in the vehicle as an assembly.

Once the vehicle is back on the ground, remove the radiator and the radiator top support bar. The wires for the headlight and parking/turn signal light will have to be

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Buick 264/322 Engine Removal (Continued)

removed from the terminal strip on one side and fed back through the rubber grommets. (Do this up front, not after you have the engine hanging in the air over the wires.) Also, remove the hood latch assembly as this saves a few inches in the height the engine/ transmission assembly needs to be raised.

If the vehicle has power steering, the power steering pump can be removed from the engine and placed in the battery tray without disconnecting the power steering hydraulic lines. It sits nicely out of the way there.

REMOVAL WITH TRANSMISSION:

The engine and transmission can be removed as an assembly with the front clip in place, but this may not be the best procedure. The reason is that the heavy assembly, approximately 900 lbs, has to be tilted as it lifted and moved forward and there is no convenient "balance point" to lift from for this operation. Also, even when the transmission fluid is drained from the pan and converter, a generous amount will run out the back of the transmission when it is tilted. However, for this situation, the closest balance point is obtained by using a chain attached to the two rear intake manifold bolts. The 3/8-16 bolts should be replaced with longer bolts to make up for the thickness of the chain and still use all the threads in the cylinder heads. Lifting at this point will almost exactly balance the engine and transmission horizontally, but the front of the engine will have to be lifted such that the transmission stays down and does not scrape along the firewall tunnel.

Also, if the transmission is to be removed with the engine, provision must be made to hold the rear axle in place. The front-to-back position of the rear axle is determined by the torque tube bolted to the back of the transmission. The car will generally roll forward OK, but when it is pushed backwards, the rear tires usually move forward into the wheel wells and lock up. The way to prevent this is to put a chain around the rear axle and use a come-a-long hooked on the rear frame member or bumper bracket. If this is done with just slight tension before the rear axle is unbolted from the transmission, then the axle will stay far enough back to prevent the tires from locking up in the wheel wells.

REMOVAL OF ENGINE ONLY:

Most of the above preparation items apply here too. For removal of the engine only, the balance point is

obtained by attaching a chain to one rear intake manifold bolt and one diagonally opposite front intake manifold bolt. Again, use longer bolts to make up for the chain thickness.

Here, and even after removal of the engine with the transmission, the transmission must be separated from the engine. Remove the four bolts that hold the inspection plate to the bottom of the bell housing and also remove the flywheel cover. The converter has many bolts holding the front converter cover to the converter housing, and all but three of these bolts have a clearance hole in the flywheel for the nut. Three bolts are longer and piloted into a smaller hole in the flywheel. Look carefully for these three bolts located 120 degrees apart. Rotate the flywheel until each one of these is at the bottom and remove it through the inspection cover hole.

As you are rotating the flywheel for the above bolt removal, watch carefully for the converter drain plugs. There are two drain plugs 180 degrees apart. **THIS IS IMPORTANT AT TIME OF REASSEMBLY.** There is only ONE position when the flywheel and the drain plugs are correctly indexed with the three long bolts that go through the flywheel. (If you are going to be disassembling the transmission, mark the location of these three bolts as there is only ONE correct location for the three long bolts.)

When the engine is removed and the transmission is left in the car, the front of the transmission will hang down slightly, but the vehicle can be moved this way. When the engine is re-installed, the front of the transmission will naturally have to be jacked up for proper alignment.

When the transmission is removed is a good time to replace the torque tube seal located at the front of the torque tube. When this seal goes bad, automatic transmission fluid travels down the torque tube, overfills the differential and leaks out the axle seals on to the brakes and drums. The seal is easy to get to when the transmission is not in the car.

REASSEMBLY:

To get the flywheel and converter properly aligned, rotate the flywheel until the two converter drain plug holes are exactly vertical. Then rotate the converter the same way. Now check to see that the three converter-to-flywheel bolt holes line up. If they do, proceed. If not, rotate the converter 180 degrees, and then reassemble.

The *GATEWAY GAZETTE* is a monthly newsletter, free to paid members of the St. Louis Gateway Chapter of the Buick Club of America. Articles, technical information, For Sale and Want Ads, photos, restoration sagas and coming events are welcomed, but must be submitted by the next-to-last Thursday of the month to assure inclusion in the next issue.

Our membership year runs from May 1 to April 30. Membership is renewable on May 1. Members joining between January 1 and April 30 are paid up through the next April. Dues are \$15 per year for the local chapter. Contact Pete Nathan, Treasurer. See address below. Current dues for the national club are \$50 per year, payable to: Buick Club of America, P.O. Box 360775, Columbus, OH 43236-0775.

The Gateway Chapter meets monthly on the FIRST THURSDAY of the month. Meetings begin at 7:30 PM and guests are welcome to attend. We meet at various restaurants around St. Louis and most members and guests try to arrive by 6:30 or earlier to have dinner before the meeting.

For more information, our local mailing addresses are as follows:

Director (Acting):	Herb Morris (636) 296-9147	2005 Dohack Dr Arnold, MO 63010	reata90@sbcglobal.net
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