



Paw Prints

VOLUME 4, ISSUE 10

SPECIAL POINTS OF INTEREST:

- Gen III LS Engine
- Genoa Church Show

INSIDE THIS ISSUE:

Letter from the Editor	1
A Look Inside the Gen III LS Engine	2
Genoa Church Car Show	5
Tiger Bytes/ New Members	7
For Sale	8
Meeting Minutes	9
Calendar of Events	10
Flyers	11
Sponsors	16

A Letter from the Editor

As the ghosts and ghouls make their way out into the world for All Hallows Eve (also known as Halloween), our GTOs head in for a long winter's nap. Earlier today, I put mine away for year after last week's last hurrah at Colo's Classic Car Show hosted by the Columbus Zoo.

I have a some pictures of the event, but not as many as I usually have because some how, I was appointed the man in charge of parking the cars. I will put them into a future edition of the Paw Prints.

I want to thank everyone who helped me out with that huge

task including Jeff Frazier, Brent Barham, Jim Lowery, Bill Sigg, Keith Stevens, Jim Evans and anyone else I missed (sorry, old memory :). It was a good show with a good turn out and the weather held out too.

Please take a look at the Tiger Bytes and Meeting Minutes where you will find the summaries of our discussions around out participation in the Arthritis Foundation Classic Car Show's GTO Featured Marque celebrating the 50th anniversary of our beloved GTOs. Also some new information about our own show where we will not only celebrate the that occasion but

also the 30th anniversary of our club! Please come to the November meeting where more decisions will be made on that event. Let's make it a GREAT ONE!

Also you'll find early information about our Club Holiday Party and our 2014 swap meet! And don't forget about the 4 page technical article on the Gen III LS Engine from Steve Schaeffer. There's a lot to enjoy in this edition!

I hope to see you soon at the November meeting! Happy Halloween, stay safe and have fun!



A Look Inside the Gen III LS Engine

By Steve Schaeffer, A.S.E., Member, GTO Assoc. of Central Ohio

The "Gen III" GM engine is the first of the LS series of engines. It was used in the '04 GTO as a 5.7, as well as in the Corvette, Firebird, Camaro, and full size trucks. It was offered in displacements of 4.8, 5.3, 5.7 LS1, and 6.0. This is a great engine for swaps into early iron. It features sequential port fuel injection, coil near plug ignition, computer control, engine block with 6 bolt main bearing caps, aluminum cylinder heads with roller rocker arms, and a roller camshaft. The crank trigger uses 24 teeth for the distributorless ignition.



Unlike some of the Gen IV engines it does not have displacement on demand or variable valve timing. The Gen IV engines use a 58 tooth crank trigger and require a different wiring harness and computer. The LS2 and the LS4 are Gen IV engines.



The Gen V engine is coming out in the 2014 Corvette, called the LT1, and in the 2014 Trucks, is really a brand new engine. It has displacement on demand, constant variable valve timing, and direct fuel injection. While it looks the same, almost nothing interchanges with the Gen III and Gen IV engines.

The engine in the pictures is a Gen III 5.3 truck engine. With the exception of the block, which is cast iron instead of aluminum, it is almost identical to the 5.7 engine used in the GTO, Firebird, Corvette etc. In fact the iron 5.3 engine block can be bored out to 3.893 to make it into a standard bore 5.7. The aluminum blocks use cast iron cylinder liners. The '97 and '98 LS1 blocks can only be honed 0.004. The '99 and later blocks can only be machined 0.010 inches. The 6.0 liter block has a bore of 4.00 inches and in the Gen III series is cast iron in the trucks. The GTO, Corvette, and Chevy SSR all came with the aluminum block. The C5R race block is aluminum and has a bore of 4.125 inches. The iron blocks are 65 pounds heavier than the aluminum blocks.



A look inside the Gen III engine block shows the 4 bolt main caps with cross bolts, 6 total, on all 5 main bearings. The block has a very deep skirt to secure the main bearing caps. The traditional Pontiac 4 bolt main blocks only used 4 bolt mains on the middle 3 main bearings.

The crankshaft is cast nodular iron, internally balanced. It has a two piece 24 tooth crankshaft position sensing ring installed near the rear of the crank.

The oil pump is a brand new design. It is a 60 pound gerotor-style pump driven off the front of the crank shaft. The same pump is used in all of the Gen III engines. The pickup tube, windage tray, oil pan, and dipstick differ per application.



A Look Inside the Gen III LS Engine

continued



The oil pan is cast aluminum and is a structural part of the engine. The oil filter mounts directly on the pan. It uses a baffle in the pan to keep the pickup tube submerged in oil even when the car is cornering hard. The GTO has the oil sump in the front of the engine. The Firebird, Corvette, truck, etc. have the sump in the rear like the traditional Pontiac. At least 6 different oil pans have been used in the Gen III engines. None of these oil pans will clear the front crossmember on the early A body chassis. You need to use an aftermarket pan when you do an engine swap.



The connecting rods are powder-metal, hot forged, made out of a steel alloy. They use a pressed in pin and with aftermarket bolts are safe for over 500 horsepower.



The pistons are cast aluminum and have metric ring grooves. Starting in 2003 all the Gen III pistons have a moly coating on the skirts. They too can handle 500 horsepower. For applications making more than that they need to be replaced with aftermarket forged pistons.

Cylinder heads are aluminum with large cathedral shaped intake ports and oval exhaust ports. The intake ports are approximately the same width as my Pontiac 6x heads. However the ports are almost 1.25 inches taller. The port volume is 200cc. The new Edelbrock "D" port aluminum Pontiac heads have a port volume of 195cc and flow 250 to 260 cfm. It looks like the stock Gen III heads flow 250 cfm or more. A good rule of thumb is to double the intake cfm and that is the horsepower potential without a blower or nitrous oxide. You can see why the Gen III engines make so much power. Note that the stock Pontiac 6x heads are said to flow 210cfm.



The LS1 heads have 2.00 inch intake valves and 1.55 inch exhaust valves. They use the new style "beehive" valve springs and roller rocker arms.

The cam is a steel billet hydraulic roller. It is gun-drilled to reduce weight. With the great cylinder heads this engine is blessed with, a performance camshaft like the factory LS6/405 horsepower cam, is a major improvement. Unlike the traditional engines we have worked on, the cam can be changed without having to pull the intake manifold, valley cover, etc.

A Look Inside the Gen III LS Engine

continued

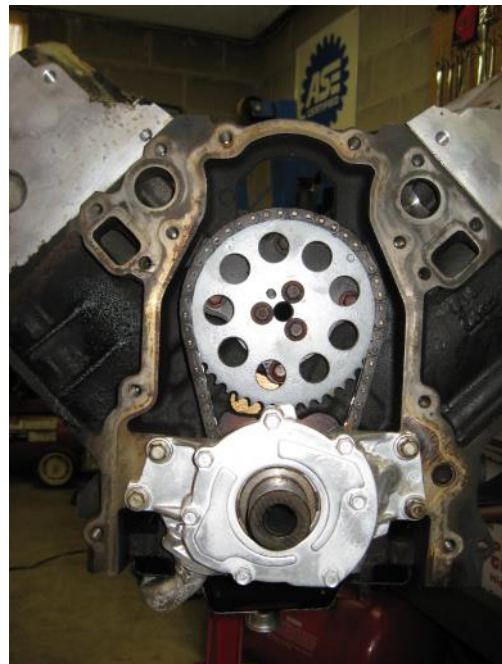
The magazines make the cam change look easy. Pull the valve covers, remove the rocker arms, pull out the push-rods, remove the water pump assembly, harmonic balancer, and the timing gear cover. Then just turn the crankshaft two revolutions. This pushes the roller lifters up into the lifter trays and you can pull the camshaft right out. "Lube up the new cam with engine oil, slide it in, and reassemble the engine." Look at the pictures it is not quite that easy. All of the magazine pictures that I have seen show the timing gear removed from the camshaft and the timing chain resting on the oil pump.



Now that these engines have some years and miles on them I want to replace the timing chain and gears when I swap the camshaft. A worn timing chain will retard the cam. The problem is you must remove the crankshaft mounted oil pump to remove the lower timing gear and chain. You cannot remove the oil pump pickup tube without dropping the oil pan first. Also be certain to replace the rubber "O" ring on the pickup tube when you reinstall it.



Also after you remove the cam retainer plate you will see the two lifter oil galleys located slightly above the cam tunnel on each side. If you insert a pair of 1/4 inch steel rods approx. 24 inches long in these oil galleys before you remove the cam, the lifters cannot fall back down after you remove the camshaft. This is a really good tip because you cannot replace the roller lifters on this engine without removing the cylinder heads first. There is no access to the lifters when you remove the valley cover like there is on



A Look Inside the Gen III LS Engine

continued

Now that these engines have some years and miles on them I want to replace the timing chain and gears when I swap the camshaft. A worn timing chain will retard the cam. The problem is you must remove the crankshaft mounted oil pump to remove the lower timing gear and chain. You cannot remove the oil pump pickup tube without dropping the oil pan first. Also be certain to replace the rubber "O" ring on the pickup tube when you reinstall it.

Also after you remove the cam retainer plate you will see the two lifter oil galleys located slightly above the cam tunnel on each side. If you insert a pair of ¼ inch steel rods approx. 24 inches long in these oil galleys before you remove the cam, the lifters cannot fall back down after you remove the camshaft. This is a really good tip because you cannot replace the roller lifters on this engine without removing the cylinder heads first. There is no access to the lifters when you remove the valley cover like there is on the traditional Pontiac engine. When you remove the valley cover you can only see a few lobes on the cam and the 2 knock sensors that are mounted in there. After you install your new cam remove the steel rods from the oil galleys and just push the lifters back into position with a pushrod.

The Gen III engine is smaller and lighter than the original small block. It makes more horsepower and torque per cubic inch than its predecessors. It also creates fewer emissions and gets better gas mileage. As a traditionalist I will always run the real Pontiac engine in my GTOs, but I can certainly see why all the magazines are raving about the LS series of engines.



GTOACO at the Genoa Church Family Festival Car Show

It was going to be a nice August day for a cruise-in. Several of us met at the Giant Eagle on Route 3 before heading north to the Galena Church Festival Car Show. With the 2013 Nationals and Norwalk in the books, Ron Cozzo and Jim Evans decided to drive their cars to the show. Our club had a great turn out as other members joined in later in the morning. We had a total of 9 members and their cars come out for this show including: Doug Boyle, Jeff Frazier, Ron Cozzo, Jim Evans, Brian D'Amico, Stan and Pam Farlow, Phil McCool, Dan Kirchner, and me (Kevin Russo). We also took home a few trophies as Ron Cozzo's beautiful '64 won Best of Show with Jim Evans and Kevin Russo taking home top 30 awards.



Tiger Bites! - Noteworthy News Bites

- ◆ **2014 Summer Show:** *All members are urged to come to the November meeting where many decisions need to be made regarding a show next year. There was some discussion in the September and October meetings but the topic is on the agenda for November. If you have ideas, please contact someone in the club or a club officer who will be attending the meeting with your ideas!*
- ◆ **2014 is the 50th Anniversary of the GTO!** The Nationals are in Pittsburgh and the Arthritis Foundation Car show (the weekend after the Nationals) is featuring the GTO for it's anniversary. Our club is planning to participate in that feature show within a show. Mark your calendars for it. July 11 & 12, 2014
- ◆ If you need to renew or are thinking of renewing your **GTOAA membership, please do so** to ensure our club remains a valid GTOAA chapter with all the benefits of that status. There is an application in your Paw Prints below and the GTOAA can now take membership applications on line.
- ◆ The 2014 Swap Meet Has been scheduled for March 23, 2014.
- ◆ The 2014 Holiday Party has been scheduled for February 22, 2014. Lonnie and Lynn McLaughlin have volunteered to host the party again this year! Thanks McLaughlins! Lynn offered to prepare the food. Please bring a dessert and please look in future Paw Prints and emails for further details!



Welcome New Members!

- ◆ *No new members this month*

For Sale

- ◆ For Sale! A TON of miscellaneous 1964–1969 GTO parts and some Pontiac Sales Literature for many years. See the club web site, in the Forum section in the For Sale Forum for the entire list and contact information (<http://www.gtoaco.com/forum/index.php>) CALL 440 254-4642 or email me (patandgreg2011@hotmail.com)
- ◆ DJ GTO Parts! Now your one stop shopping place for used and NEW GTO parts. If you know the part number, great, otherwise just let them know what it is you need! See Dan Gregory Jr. (or call 614-563-0877 or email info@djgtoparts.com) for more information and options for taking delivery of your parts or visit their website at <http://djgtoparts.com/>. GTOACO members receive a discount!



- ◆ For Sale. '66-'67 GTO "Desert Cooler" copper and brass 4 core radiator from Ames. 15.5 inch core, standard shift, perfect condition. \$399.00 new, \$200.00. Hoses are top left, bottom right. Will fit '64-'65 if you use a '66-'67 gooseneck. Steve Schaeffer. 740-654-8959



*Send in your items for sale to your Paw Prints Newsletter Editor (pictures welcome).
Remember, ads are FREE to GTOACO Members!*



Meeting Minutes October 9, 2013

President Jim Evans called the meeting to order. Those in attendance Kevin Russo, Ron Cozzo, Brent Barham, Jeff Frazier, Jim Lowry, Pam & Stan Farlow, Lonnie & Lynne McLaughlin, Bill Hartley, Joe Block, Max Trier, Jerry Brownfield, Shawn & Kim Rinehart, Mike Shockley, Bill & Karen Sigg, Brenda and Cody Ferguson, Ron & Donna Landis.

Treasurers Report: Mike Shockley gave the report

Saturday September 14th, 2013: Club Picnic. Beautiful day, great food and good conversation. Farlow's received \$131.00 in donations and said that was plenty for the food.

Club Cruise to Marietta Ohio September 28, 2013: Again had beautiful weather and no break downs. 21 people and 11 cars made the trip. The boat ride and dinner was great and some members enjoyed some karaoke in the bar (well, not really....)

Participation Award: The club received \$60.00 from the Gahanna Community Christian Church for a club participation award. Three club cars were there.

Columbus Zoo Show: The show was moved to October 20th due to the weather.

Holiday Party: February 22nd at Lonnie & Lynne McLaughlin. Lynne will be preparing the food. Members will need to bring a desert.

Swap Meet: March 23rd at Haydocy. Jim will talk with Chris. Vendor space \$15.00 and \$2.00 admission. Kevin Landis will check on a food vendor.

Auto Show March 13th-27th: 5 GTO's are needed. Set up on March 9th. We have 2 but need 3 more. If interested contact Jim Evans.

Arthritis Foundation Show 2014: It was voted that the club would participate in this show. KEMBA Financial Credit Union (Kevin Russo's employer) is sponsoring the trophies. We will have to decide if we will judge our class or ask another club to judge. Club voted for 7 classes with a 1st, 2nd and 3rd place trophy. They also need a '64 GTO for the flyer. Ron Cozzo, Kevin Landis and Steve Schaeffer offered their cars. It was decided that we would let the Arthritis Foundation decide which one they wanted. Pre-registration price for the show is \$20.00 for Friday, \$30.00 for Saturday and \$45.00 for both days.

GTOACO SHOW 2014: Ran out of time to discuss this but did come up with maybe the 2nd weekend in August right after Norwalk at SafeAuto in Easton. Saturday night for the cruise in and Sunday for the Pontiac show.

Nomination of 2014 officers: Jim Evans will not be seeking re-election as president. Nominations were opened and Ron Cozzo was nominated with no other nominations Ron Cozzo will be our new President for 2014. Kevin Landis will stay as Vice President along with Donna Landis staying as Secretary. Mike Shockley did not seek re-election and Stan Farlow was nominated and will be our new Treasurer. New boards members will be Kevin Russo, Jim Evans, Jeff Frazier and Brenda Ferguson.

Sympathy to Jim and Diane Evans on the passing of Jim's mother.

Meeting Adjourned: Ron Landis 2nd by Lonnie McLaughlin

Submitted by Donna Landis, Secretary

*Meetings held
the 2nd
Wednesday
each month at
Haydocy
Automotive on
W. Broad St.
Columbus, OH*



Calendar of Events

November 13, 2013

Regular Meeting 7pm @ Haydocy Automotive

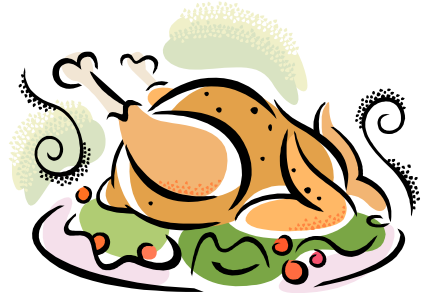
To eat before the meeting be at Rooster's on West Broad St. anytime after 5:00PM. Roosters is located in the parking lot in front of the strip mall across the street from Jeg's former Broad St location

November 28, 2013

Happy Thanksgiving!

November 29, 2013

Black Friday 2013



NOVEMBER 2013

Sun	Mon	Tue	Wed	Thu	Fri	Sat
					1	2
3	4	5	6	7	8	9
10	11	12	13 <i>Club Meeting 7pm@Haydocy</i>	14	15	16
17	18	19	20	21	22	23
24	25	26	27	28 	29 	30

GTOACO Club Officers

President

Jim Evans
13791 Cable Rd
Pataskala, OH 43062
740-927-5302
gtoaco71@columbus.rr.com

Vice President

Kevin Landis
4670 Big Plain-Circleville Rd.
London, OH 43140
740-361-1116
klandis@absolutecleaner.com

Treasurer

Mike Shockley
6812 Chateau Chase Dr.
Columbus, OH 43235
614-395-6411
schockleymike@att.net

Secretary

Donna Landis
58 Arlington Ave
London, OH 43140
740-506-5804
sharklandis@netscape.net

Board of Directors

Toni Boyle
6394 Medinah Ct
Westerville, OH 43082
614-899-7716

Ron Cozzo

1710 Buttermilk Hill Rd
Delaware, OH 43015
740-777-1135
rcozzo@earthlink.net

Brenda Ferguson

8819 Crestwater Dr
Galloway, OH 43119
614-878-1789

Newsletter Editor

Kevin A. Russo
3175 Arctic Ave.
Lewis Center, OH 43045
740-549-2279
kruaso_sp@hotmail.com

Newsletter Mailings

Bill Hartley
9810 Roller Rd
Byesville, OH 43723
740-685-6525
bhartley@hartleyco.com

Web Master

Paul Wilson
107 Leonard Ave
Newark, OH 43055
740-973-7807
webmaster@gtoaco.com





GTOAA Information

Your chapter is an affiliated chapter with the GTO Association of America. You can join the National GTO organization, the GTOAA & receive the Golden Quill Award Winning publication, *The Legend*.

To Join complete the form below and mail in, or join online at www.gtoaa.org



Membership Application

Date: _____

Mem #: _____

Name: _____

Phone: _____

Address: _____

Email: _____

GTO Ownership is not a requirement of membership to the GTOAA

GTO OWNERSHIP

Year _____ Body Style _____ Engine _____

Year _____ Body Style _____ Engine _____

Year _____ Body Style _____ Engine _____

I agree that, if elected to membership, I will conform to all rules of the Association and conduct myself in the manner that promotes the goals and purposes of the Organization.

Signed: _____ Date: _____

DUES:
\$35.00/year for members in the USA, \$40.00USD/year for Canadian members, and \$50.00USD/year for all other international members. \$5.00 for associate memberships in the same family name (includes membership card, decal, and membership listing). There is a \$2.00 bank processing fee for applications paid by credit card.

CHECK / MO # _____

Mastercard / Visa Card # _____ Exp # _____

Signed: _____ Date: _____

Make Check/Money order payable to GTOAA:

Mail signed Application to: GTOAA, PO BOX 455, Timnath, CO 80547

GTOACO Sponsors



Haydocy Automotive

3985 West Broad St
Columbus Oh 43228
(614) 279-8880

Absolute Cleaning Services

Cleaning Blinds, Fire Damage, Ceiling cleaning & service restoration

Kevin Landis, President

4670 Big Plain-Circleville Rd.

London Ohio 43140

740-361-1116

klandis@absolutecleaner.com

Inskeep Brothers, Inc.

Printers

Jeffrey K Inskeep

3152 E Dublin-Granville Rd

Columbus Ohio 43231

614-898-6620

DJ Auto Parts, Inc.

Dan Gregory, II

11283 Main St

Stoutsville Ohio 43154

740-474-4614

Fax 740-474-2314

Rust Free Parts & Cars Bought & Sold

Capital City Appliance Service

Jerry Brownfield

2830-D Fisher Rd

Columbus Ohio 43204

614-308-9028

Fax 614-308-9034

ccas2830@aol.com



2010-2013 GTOA Newsletter Certificate of Excellence Recipient

OCTOBER 2013

A Publication of the GTO Association of Central Ohio

740-927-5302

Pataskala, OH 43062

13791 Cable Rd.

Jim Evans



2010—2013 GTO Association of America Newsletter
Certificate of Excellence Award Recipient



**Paw
Prints**