



THE BRITISH DIAMOND

February 28th, 2023

PO Box 5317,
Wilmington, DE 19808

Officers

President:

Terry Young
terryyoung224@me.com

Secretary

Sharon Kalinowski
sdkal@verizon.net

Treasurer/Membership

Calvin Jackson
Calvin_jackson@hotmail.com

Southern Chapter

President

Bill Tattersall
billtattersall@gmail.com

Treasurer

Jerry Hirst
jerryhirst@comcast.net

Secretary / Publicity

Mike Tyler
AH3000TriCarb@comcast.net

Volunteers

Newsletter

Trevor Mees
TrevorMees@outlook.com

Historian

Martha Gimbel
dediva245@verizon.net

Lewes Car Show

Mike Tyler
AH3000TriCarb@comcast.net

Northern Chapter Car Show

Sharon Kalinowski
sdkal@verizon.net

Webmaster: TBD

Website: www.bccdelaaware.org



Cheers, Everyone!

We hope that everyone is ready for spring. We know we are! There's been a couple tempting "top down" days but didn't want to push it, yet...

The exciting part of these up-coming days we'll be getting our cars out of storage using the usual checklist. Remove the cover (any critters?), check the fuel and oil levels (any tell-tail puddles?), inspect the tires (flat?), check the battery (charger still connected?) and finally the smoke test, turn the key to see what happens. Of course, there are many other items on the checklist. Brake fluid and pads, clutch fluid, spare tire inflated, extra parts – fuses, bulbs, relays, springs, wire, connectors, oil, brake fluid, etc., and a tool kit in the boot (the car is British, after all). When we finally pull out of the garage listening for squeaks, rattles, and clanks - it will be exhilarating. The cool spring weather also brings on the first test of the heater with the anticipation of a baby's breath of warmth as the wind rushes by our head.

Despite a few shortcomings our British cars are meant for the open road, especially in Delaware. Most of the roads are straight-aways complemented with an occasional curve. When we drive a little north there are a few hills that challenge the engine and are attention getters when trying to stop.

February also marks our traditional breakfast meetings. The Northern Chapter met at Buckley's Tavern in Centreville and the Southern Chapter gathered at Honey's Farm Fresh Gourmet Kitchen in Ocean View. Both venues were well attended and from all accounts, no-one went home hungry. I personally look forward to these gatherings. It's another opportunity for informal conversation with club members.

One final word. As you read this note our club, in conjunction with the Lewes Chamber of Commerce, is preparing for the annual Lewes Motor Car Show held on May 6th at the Lewes Ferry Terminal grounds. We'll assume you have already registered your car. If not check your email, our British Car Club of Delaware website, Facebook page or Eventbrite for the notifications.

So, kick those tires and check the fluids – let's get going the roads await!

See you out there and please drive safely,

Terry & Georgia

Every care was taken to insure the accuracy of the contents of this newsletter. The editor(s) accept no responsibility for any effect caused by errors or omissions.



27th Annual

“British are Coming...Again” Car Show

THIS TIME, WE INVITED THEM!

One if by Land, Two if by Ferry, Three if by MG

Lewes Ferry Terminal

May 6, 2023 • 11AM – 3PM

No spectator entry after 2PM • \$5 at the Gate

CONCLUDING WITH THE WINNERS' CIRCLE PARADE
FROM THE TERMINAL TO DOWNTOWN LEWES

Join us before, after and during the car show!
Merchants' Spring Sidewalk Sales • May 5 - 7, 10AM – 5PM



Celebrating MG's
100 Anniversary



Scan for Tickets
and Registration

Sponsored by



LEWES

Chamber of Commerce
and Visitors Bureau, Inc.

LewesChamber.com • 302-645-8073

With support from

*Southern
Delaware*
TOURISM



Ladies Christmas Luncheon

Joy Read

Thought you would like the details of our Ladies Luncheon.

(Joy Read, Lee Salino, Fiona Hill, Carol Wall and Sharon Kalinowski)

Five Ladies met for lunch at the Blue Crab Grill in Suburban Plaza, Newark on Sunday, 18th December 2022.

Sharon had advised us that Band friends of hers would be playing "Beatles music".

The small restaurant was filled to capacity and we were entertained by "Steve Nardo's Magical Mystery" band. Everyone enjoyed themselves and the music was excellent. The food was good as well.



The UPS Store



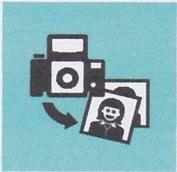
PRINTING SERVICES



MAILBOX SERVICES



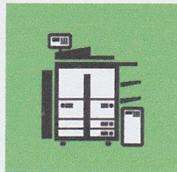
PACKING SERVICES



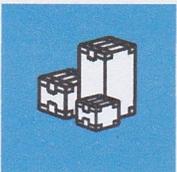
PASSPORT/ID PHOTOS



INTERNATIONAL SHIPPING



COPY SERVICES



MOVING SUPPLIES



NOTARY SERVICES



FAX SERVICES

4023 Kennett Pike
Wilmington, DE
(302) 429-9780

store1391@theupsstore.com
theupsstorelocal.com/1391

Copyright © 2017 The UPS Store, Inc. MS410_15880317

ALDERMAN AUTOMOTIVE MACHINE

Professional Automotive Machine Shop

BLOCK BLUEPRINTING AVAILABLE!

on our RMCV30 CNC Block Machining Center
BUILD YOUR ENGINE TO THE FACTORY BLUEPRINT!

Cylinder Blocks Honed on our NEW
Rottler HP7A Precision Cylinder Hone
Cylinder Head Rebuilding, Crankshaft Grinding,
Connecting Rods, Flywheels, Engine Balancing, Crack Checking



ALL ENGINE MACHINING DONE IN-HOUSE USING STATE OF THE ART EQUIPMENT

ALL ASPECTS OF ENGINE WORK - FROM FLYWHEELS TO REBUILDS!

**OVER 40 YEARS OF EXPERIENCE
BUILDING ENGINES**

2317 N DUPONT HWY • NEW CASTLE, DE
302.652.3733 • WWW.ALDERMANMACHINE.COM



June 10th 2023

8:00am Cars and Coffee
Motoring Tour Departs 9:30am
Waterfront Cocktail Reception 6:00-7:30pm

June 11th 2023

SHOW DAY 10:00 AM – 3:30 PM (Rain or Shine)

Hosted By: The Kent Island Yacht Club
located just over the Bay Bridge on Maryland's Eastern Shore
117 Yacht Club Dr, Chester, MD 21619

Presented By



BENTLEY



COVENTRY MOTOR WORKS

repair and restoration of fine British motor cars



410-253-8519

7837 Ocean Gateway, Easton, Maryland 21601

www.coventrymotorworks.com

Quality

Engine & Gearbox

Differential – Drivetrain

Integrity

Chassis – Frame Repair

Electrical & Hydraulics

Passion

Body & Coachwork

Upholstery – Convertible Tops

JAGUAR HEALEY BENTLEY TRIUMPH MORGAN MG ALVIS MORRIS

CAUTION:
BRITISH CARS NOT
COMPATIBLE WITH
MECHANICALLY
DYSFUNCTIONAL
PEOPLE

For Owners of Older LBCs

[British Tools & Fasteners \(britishfasteners.com\)](http://britishfasteners.com) have all manner of obscure British fastener sizes (including Whitworth) along with the spanners to undo them.

I thoroughly recommend browsing their website..



ST. MICHAELS

Concours d'Elegance
ON CHESAPEAKE BAY

SUNDAY, SEPTEMBER 24, 2023

Join us for the 16th annual
St. Michaels Concours d'Elegance on Chesapeake Bay
hosted by Kent Island Yacht Club.
Mark your calendar for a day of casual elegance,
senior award-winning automobiles, gourmet food,
refreshments and celebration on Maryland's Eastern Shore.

For information, application and ticket sales
visit SMCDE.org

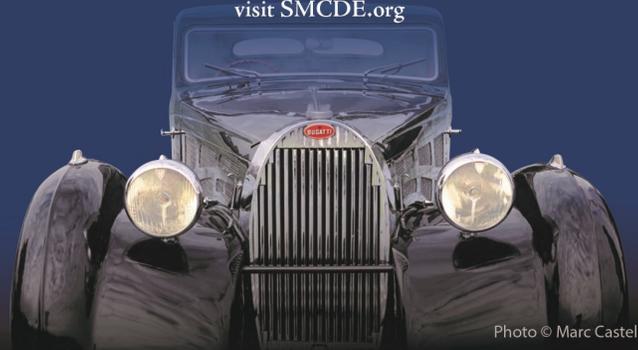


Photo © Marc Castelli

Visit to the Simeone Museum

Pictures by Jack Long, David Glick and Nancy Graham



Wendy

By Don McDonald

What a better way to start off the New Years day than to turn the battery switch on my 1962 Austin Healey MK3000 Mark 2 Tri Carb.

I wanted to see if the old girl wanted to welcome in 2023. I turned the key and the battery had juice. The electric fuel pump clicked for about 15 to 20 seconds and stopped. Good, we have fuel to all of the three carbs.

All Austin Healey owners know what is the next step. You turn the key off and remember to check the oil, brake fluid, coolant and transmission dip stick under the carpet in the cockpit.

We are getting close to turning the key and pushing the start button, We push the starter and she turns over to 25-30 lbs of oil pressure....we have oil in the cylinders. Time for the real test pulling the choke out all the way and saying "Come on baby, lets start".

After several tries she finally acts like she wants to come to life. I remembered for a gas or diesel engine you never grind the starter. You try and start the engine for 15 seconds or so and stop...you do not want to burn up the starter. After several tries the old girl comes to life on a 60 degree day. I let her warm up to 160 and move out of the garage into the driveway....brakes, clutch, lights working fine. I move her around in the Driveway and Valley Way where I live in Centerville, Delaware.



I can't go out on the main roads until we have had several rain storms to wash the salt and brine off of Route 52 (Kennett Pike). Such a nice day, the top off and tonneau cover on. A perfect day for a drive in a Austin Healey.

As I sit in the cockpit and ponder. No, it is not worth getting the salt dust and brine on the frame. I will have to wait to another day to take her out, wind through the gears and listen to the great roar of the Austin Healey exhaust.

I know, "Why are you putting me back in the garage after getting me all warmed up from my winter snooze?".

"We will go for it on another day, Wendy. Spring is on the way. We will go for a drive when the roads are clear and warm".

Wendy is the name for the car. A good friend named Wendy had a 1956 Austin Healey 100-6. She sold the car and tells me each time we talk how she has missed her 100-6.

Wendy still rides with me every time I shift the gears. I gave her a walnut gear shift knob with a custom sterling silver top with her Initials engraved where the Austin Healey Emblem was. She gave it back to me when she sold the Austin Healey as she wanted a good home for the knob. Wendy so loved her Austin Healey. Wendy is now a musician and has written a song about a girl and her Healey. The song is now at a recording studio in Nashville for a CD with other songs.



Again, thank you Donald Healey for creating such a fun car to drive and own.

DuPont Children's Hospital Toy Drive Scott Wallen

Over the holidays, I had the pleasure of participating in the 5th Annual AI Dupont Children's Hospital Toy Drive (see what they did there - a sort of rally with the terminus being a toy donation) with my Aston Martin!

Although my DB9 was easier one of the tamer cars in the lineup, it still commanded a great deal of respect and admiration from the drivers of the German and Italian cars flanking me.

Delaware State Police escorted us from the Christiana Mall to the hospital via I95 and 141 which were closed down just for us, enabling us to stretch our cars legs in a safe and police monitored environment. At the end of the day, it was an immeasurably wonderful experience to be able to drive the car so spiritedly and for the noblest of causes.

The Toy Drive was able to deliver a donation to the tune of \$40,000 (last estimate I saw- the final value is likely much higher) directly to the children in hospital. Truly a privilege, and a wonderfully humbling experience to have the opportunity to participate.



At go brit! you'll enjoy all the classic British favorites including beer-battered fish and chips, bangers and mash, shepherd's pie, mushy peas, sticky toffee pudding and more. Paired with a modern Euro-style setting, this British style restaurant will surely make you feel as though you've been transported right to the homeland! Savor our passion for everything British with every tasty bite! Open daily at 11:00, we'll be waiting for you with some chips and a pint . . . and a jolly good time!

**Fresh spuds.
Superior fish.
Beer batter.
It all adds up to bloody good fish and chips!**

Go Brit!
18388 Coastal Hwy,
Lewes, DE 19958
(302) 644-2250
<https://www.gobrit.com>



DELAWARE'S BELOVED FISH AND CHIP SHOP

Go Fish
24 Rehoboth Avenue
Rehoboth Beach, Delaware 19971
302-226-1044
<https://www.gofishrehoboth.com>

Mystery Car

Last edition's little beauty was a 1930's Riley Kestrel .

From the Riley Motor Club website:

9 HP, 12 HP fours and sixes, Big 4, V8-90 and 15/6.



This was the low built sporting saloon. Fast backed, it started as a 9 HP in 1933 as a four light saloon until 1936, with 12, 14/6 and 15/6 engines when it became a very streamlined 6 light saloon.



In 1934 a 12/6 was road tested at over 70 mph and in 1937 a 12/4 at over 80 mph. Soon after Nuffield took over, the car was resurrected as a 16 HP Big Four, from 1938 to 1940/41 with wire wheels and finally with disc wheels. Options were standard tune, Special with twin carburetors, or Sprite with different cams, magnetos etc.

Many were sold as Kestrel Sprites. Upgraded interiors for Kestrel Sprites included a rev counter.

Jack Long has provided this edition's mystery car. Here is his story:

Some years ago, Liz and I took our MGB GT to the annual NAMGBR convention in Dillard, Georgia. It was a great event in a beautiful area and we had a fun drive down from our home in Maryland, spending the night in Mount Airy NC, the home of Andy Griffith and inspiration for the town of Mayberry. The convention had a lot of fun events including a brisk drive through the countryside to a beautiful winery. They had us park the MGs in a field in front of the winery and of course I found the only rock in said field, crushing the center muffler and splitting the welded seam on it, and pulling the exhaust system apart. The ride back to the convention site became very hot and noisy as the muffler was busy shredding itself along the way.

By the time we got back it was late in the day so early the next morning a friend and I headed out to try and find a muffler shop. Alas, the Greater Dillard metropolitan area was real short on Midas franchises and we wound up at a NAPA in nearby Dalton, Georgia asking if they had any ideas. The only place they knew of that was open on a Saturday was a place that seemed to focus mostly on tractor trailer tire sales.

The nice guy at the counter said he had only one mechanic on duty who was fully booked. When I told him my sad story he said he had one lift open and we were welcome to use it to try to fix it ourselves. My GT barely fit on the wide lift ramps, with about half the tread on both sides hanging in thin air, but we got her up in the air. We were able to use a wood block to hammer the pipes back together and some muffler bandage to cover the split seam and were soon on our way. The shop owner was amused by my tiny car and refused any payment for the use of his shop. Southern hospitality at its finest!



As we backed out of the service bay, I noticed an odd car parked out back. And that is this month's mystery car. How it wound up behind a truck tire shop in Dalton, Georgia is anyone's guess but I'd bet that it's still there today. What is it?

Drop me an email to trevormees@outlook.com if you know what it is.

ALTERNATOR, VOLTAGE REGULATOR *and* BATTERY

Submitted by Don McDonald

The alternator will generate power to operate the electrical system plus keep the battery charged. The purpose of the voltage regulator is to *regulate* the amount of power output from the alternator. (Of course! What else do regulators do? Ha!)The voltage regulator will allow the alternator to make enough power to maintain proper voltage level, but not allow system voltage to rise to a harmful level.

With regulators for the alternator system, voltage limiting is the means of controlling output.(The older “generator” systems had a voltage limiter and also a current limiter, plus a “cut-out relay” that disconnected the system when the engine stopped.) If the alternator was allowed to constantly produce all the power it could, system voltage would rise to a damaging level, the battery would overcharge, components would be damaged, and the alternator would soon overheat and burn out.

With a 100amp alternator installed, we do not drive around with the alternator constantly producing 100amps.When driving a simple car, in example a '66 Chevelle, with no accessories switched on, stock ignition, and the battery topped off with a charge, the alternator produces only about 3amps to 5amps of current! (No matter how powerful the alternator, output is limited according to system demands.)

And, in case you are wondering, the amount of horsepower used to spin the alternator changes with output.When the alternators produce only a small amount of current, the horsepower drag is very small (less than 1/3 amp).Large amount of output causes more horsepower drag (about 3 or 4 horsepower to produce 120amps output).

REGULATOR ACTIONS

Popular textbooks tell us the ideal voltage regulator setting is 14.2 volts. A range of about 14.0 to 14.6 volts is generally acceptable, and various shop manuals will typically publish about that range.

When system voltage is below the setting of the voltage regulator, then the regulator causes the alternator to produce power until voltage reaches the maximum setting of the regulator. When we first crank up the engine, battery voltage will be at about 12.5 or 12.6 volts. The regulator recognizes low voltage, and causes the alternator to produce power. Also when driving, every time we switch an accessory ON, power is used from the system, voltage is lowered, and the regulator restores voltage by causing the alternator to make more power. This action automatically allows the alternator to provide power for the electrical system.

The system does not need as much power output from the alternator when accessories are not using power, and when the battery is fully charged. When voltage at the system rises to about 14.2 volts, the voltage regulator begins limiting alternator output.When we switch an accessory OFF, use of power from the system is less, voltage quickly rises, and then the regulator will cause the alternator to make less power.

Adjustment of alternator output, by the voltage regulator, happens so quickly that when using a meter to test the system, we see function as smooth and constant. Even the old points type mechanical regulators could open and close the points over 200 times per second! Electronic voltage regulators have replaced the old vibrating point type regulator, and electronic regulators react even faster.With a modern electronic voltage regulator, voltage at the system will be very consistent.

The battery serves as a big cushion in the system, which also smoothes out voltage level. The battery will provide momentary surges of power, which are needed when devices are switched ON. The battery also can absorb momentary excess of power in the system as devices are switched OFF. The battery prevents major and sudden voltage changes in the system.

THE METHOD USED TO ADJUST ALTERNATOR OUTPUT

The voltage regulator adjusts alternator output by controlling the amount of power it will send to the magnetic field winding in the alternator.(Alternators work through the use of magnets.) More power delivered to the magnetic field winding in the alternator will produce a stronger magnetic field, which causes the alternator to produce more power output. Alternator output is reduced when the voltage regulator delivers less power to the magnetic field winding in the alternator, as the strength of the magnetic field will be reduced.

WHY 14.2 VOLTS, BUT WE CALL IT A “12 VOLT SYSTEM”?

The 14.2volt level is said to be the ideal voltage level for the “12 volt automotive system” because that’s the amount required to fully charge a standard “twelve-volt” battery. By itself, without a battery charger, and without cables connected, a typical, fully charged “12volt” battery produces 12.6 volts. The on board charging system must exceed the 12.6 level for electrical current to flow through the battery during charging. Electrical current must flow through the battery during charging to cause chemical reaction between the liquid acid and the lead plates within the battery. The 14.2volt level causes about the correct amount of current flow through the battery to maintain a fully charged condition. Extended periods with higher than 14.2volt level will over-charge the battery (at most temperatures).

1964 E Type fhc Interior

Trevor Mees

It's time for me to bring you up to date on my progress with the interior of my E Type.

I had already lined the whole interior with Kilmat sound deadener. For the installation I used 3M 90 spray adhesive and DAP contact cement for brushwork.

The trim kit had been ordered from BAS Jaguar trim back in January 2022 and it had arrived in April. The seats and cantrails were already trimmed by them (at my request) and I set them aside for later. The rest of the kit comprised of vinyl, leather, carpet, underfelt and moquette, all the original materials and all cut to shape and size. The kit also contained completed panels for the doors and interior sides and various other partly completed pieces for me to finish as I fitted them, together with all the clips and screws I would need. A very comprehensive kit. The only thing missing was an instruction book to tell me where it all goes and how to fit it. In all honesty most of it was recognizable by the shapes and sizes but it would have been handy to know whether to put piece A in before or after piece B.



I began with the left side sill vinyl. The pieces (foam and vinyl) had been cut to shape by BAS and installing them was not too bad. A good place to get used to the way things would fit and stick down. Next came the Hardura side trim, which was pre-cut, bound and already had a hole in it for the bonnet latch handle. These two pieces gave me a bit of confidence that I would be able to handle the rest.



The other footwell sides had padding and carpet. Again, the pieces were already cut to shape and size. I glued the padding into place, then the carpet. It was interesting getting it to fit round the contours of the tunnel. This covered the bulkhead and gearbox tunnel on that side. After gluing the crossmember carpet in place the two floor mats just plopped into place.



The floor mat padding needed to be shaped to fit the lowered floor of the car. Early E Types had flat floors but tall Americans didn't have enough leg room (The development driver, Norman Dewis, was impressively short and didn't notice the lack of legroom). Jaguar lowered the floor by inserting a dish like insert into it. BAS supplied a shaped floor mat and a pad that needed gluing along two shaped cuts in it to fit snugly.

While repeating the process on the driver (right) side I used the lessons I had learned on the left to make it a slightly easier process. The stumbling block were the pedals and steering wheel which

just got in the way.

Finally, I glued the moquette across the rear bulkhead. That completed the seating area of the car. I still left the seats out because I still had to trim the storage box that runs across the car behind them. Before tackling it, however, I had to trim the rear wheel arches first.

The wheel arches are an area where I really could have done with some guidance but my regular oracle, the internet, provided no help. Nobody, it seems, has taken a video of themselves shaping the moquette over the arches. Ominous?

And that's is where I am today.



Paul Campanella's
PIKE CREEK AUTOMOTIVE
📍 2379 LIMESTONE RD
☎ (302) 304-3341

Paul Campanella's
AUTO & TIRE CENTER
📍 1015 WEST 28TH STREET
☎ (302) 268-9434

www.campanellas.com

CLASSIC, MEET CLASSIC.

THE Gold STANDARD SINCE 1947

"The Olde Original"

Grundy INSURANCE

Protect your classic with insurance created specifically for collector cars. Grundy combines the strongest insurance companies with our Agreed Value coverage which protects 100% of the value of your car. Plus, there is no deductible*, you get unlimited mileage, low costs, and much more. Call us at 888-647-8639 or visit us at www.grundy.com and see why Grundy Insurance is the classic choice to protect classic cars!

WWW.GRUNDY.COM
1-888-647-8639

*No deductible in most states. © 2017 The James A. Grundy Agency, Inc. All Rights Reserved.



Healey Enthusiasts!

Our 2023 Conclave in Crystal River, Florida, is just around the corner. Sponsored by the Tampa Bay Austin-Healey Club, and coming May 21 – 26 at the Plantation Resort, it promises to be a special spring event.

If you haven't registered yet, be sure to sign up at the link above. We're looking forward to welcoming you to sunny Florida and will offer some one-of-a-kind opportunities, including an opportunity to swim (legally) with the famous manatees, and create some "bling" at our Wine and Jewelry tech session. Everyone who participates will walk away with a newly crafted pair of earrings of their very own!

There will also be an opportunity to show off and compete with your very own Valve Cover race car. The track has all the bells and whistles that go with this popular event and will be held in a large room for maximum exposure to cheering fans!

Be sure to register today! And don't forget to order Conclave regalia via a separate payment on the ClubExpress registration form.

Www.conclave2023.com

Paul Cullen Wines



Paul's private label from Italy

Roero Arnie: Piemonte White

Barbera di Asti: Piemonte Red

Rockin' Rose: Nebbiolo, Barbera, Dolcetto

Rosso di Toscana Montalcino Sangiovese with a kiss of cabernet

Lambrusco di Emilia: Dry, Fizzy Red from Emilia Romagna

==Now Available in Delaware==

<https://www.paulcullen.rocks/home>

IRON HILL
BREWERY & RESTAURANT

19815 COASTAL HIGHWAY
REHOBOTH BEACH, DE 19971
PHONE: (302) 260-8000



VICTORIAS
Restaurant
Oceanfront, on the Boardwalk!
IN THE BOARDWALK PLAZA HOTEL
REHOBOTH BEACH, DE
VICTORIASRESTAURANT.COM
(800)33-BEACH



A LOCAL PURVEYOR OF FINELY CRAFTED MEAD,
FRUIT WINES AND CIDER.

OLD WORLD TRADITION WITH A MODERN
TWIST, MADE WITH PRIDE AND HONOR.

28615 LEWES GEORGETOWN HIGHWAY,
MILTON, DE 19968
(302) 664-1188

[HTTPS://BRIMMINGHORNMEADERY.COM](https://brimminghornmeadery.com)

Engine Coolant Basics

Source: Machinery Lubrication - Submitted by Don McDonald

[Paul Fritz](#), Chevron

Coolant (or antifreeze) protects your engine from freezing while defending components against corrosion. It plays a critical role in sustaining engine heat balance by removing heat. In a heavy-duty diesel engine, only one-third of the total energy produced works to propel the vehicle forward. An additional one-third is removed as heat energy by the exhaust system. The remaining one-third of heat energy produced is taken away by the engine coolant. This heat removed by the coolant provides a balance in the removal of engine heat that is critical in ensuring that the engine operates properly. Overheating could result in accelerated deterioration of the oil and the engine itself.

While water provides the best heat transfer, glycol is also used in engine coolants to provide freeze protection. The addition of glycol slightly reduces the heat transfer of the water, but in most climates and applications, freeze protection is critical. Nearly all engines use coolants with similar base fluids: a 50/50 mix of ethylene glycol and water. In some circumstances, industrial engines may use other base fluids, such as additized water or a mixture of propylene glycol and water. In addition to the base fluid, there are a small amount of other ingredients including corrosion inhibitors, antifoams, dyes and other additives. While these other ingredients make up only a small fraction of the coolant, they are what differentiate one coolant from another.

Historically in North America, conventional engine coolants have been green in color. Currently, these green coolants typically use a phosphate/ silicate mix as the main components in their inhibitor system. Conventional inhibitors like silicates and phosphates work by forming a protective blanket that actually insulates the metals from the coolant. These inhibitors can be characterized chemically as inorganic oxides (silicates, phosphates, borates, etc.). Because these inhibitor systems are depleted by forming a protective layer, conventional green coolants need to be changed at regular biennial intervals, typically every two years.

Diverse technologies have been developed to protect engines from corrosion. In Europe, problems with hard water minerals forced coolant technologies to be phosphate-free. Calcium and magnesium, minerals found in hard water, react with phosphate inhibitors to form calcium or magnesium phosphate, which typically leads to scale formation on hot engine surfaces. This could lead to loss of heat transfer or corrosion under the scale. To replace phosphates, conventional European coolants contain a mix of inorganic oxides like silicates and inhibitors called carboxylates. Carboxylates provide corrosion protection by chemically interacting at the metallic corrosion sites, rather than by forming a layer of inhibitors that cover the total surface.

The mix of carboxylates and silicates is also called a hybrid technology because it is a mix of conventional inorganic technology and fully carboxylate or organic technology. European engine coolants exist in various colors; typically, each manufacturer requires a different color.

In Asia, problems with water pump seals and poor heat transfer have led to the ban of coolants containing silicate. To provide protection, most coolants contain a mix of carboxylates and inorganic inhibitors like phosphates. These coolants are hybrids. They are distinct from the European hybrids due to the lack of silicates. Coolants from Asian OEMs can be a variety of colors including red, orange and green.

Extended-life carboxylate-based coolants were developed to be globally acceptable and provide superior performance over existing technologies. This technology is also known as organic additive technology (OATs). Because full carboxylate coolants have no silicates, they meet the stringent requirements of the Asian specifications. They also meet the European antifreeze requirements because they have no phosphates. These engine coolants have developed international popularity due to having an unsurpassed corrosion protection for extended time intervals.

It is worth noting that some people refer to these as "organic additive technology" (OAT) because the inhibitors which provide the corrosion protection are derived from carboxylic acids. In actuality, the protection is provided by neutralized carboxylic acids called carboxylates.

This distinction is important because all coolants operate in the neutral or basic pH range (pH equal to or greater than 7). In fact, most coolants are made beginning with an acidic precursor, for example, conventional coolants based on phosphate start their lives as phosphoric acid.

Carboxylate inhibitors provide corrosion protection by chemically interacting with the metal surfaces where needed, not by universally laying down layers, which is the case with conventional and hybrid coolants.

The implications of this functional difference are enormous: extended life cycles, unsurpassed high temperature aluminum protection, as well as heat transfer advantages on both hot engine surfaces and heat-rejecting radiator tubes where heat transfer is critical to optimal performance. High quality carboxylate-based coolants have demonstrated performance of more than 32,000 hours in stationary engine applications without being changed.

One measure of true extended life performance is that at the end of a fleet test, the used coolant can be removed from the engine and still successfully pass tests designed for fresh coolants!

Engine Coolant Maintenance

The aftermarket is filled with high and low-quality coolants of all colors; therefore, color is not a good indicator of the type of coolant. The best maintenance practice is to know the exact coolant required for and placed into an engine, and to control any fluid used to top-off the equipment.

Although many techniques are available, a refractometer should be used to measure the glycol water ratio because it offers the most reliable method to identify the precise glycol content of the coolant. This determines the level of freeze protection and ensures the proper concentrations of corrosion inhibitors.

Another preventive maintenance measure includes checking the cooling system itself to confirm that it is full and operating properly. Operating with low coolant can lead to many problems because a coolant cannot protect surfaces that it does not contact, and glycol water vapors can be corrosive. Just checking an overflow tank that is not part of the flow system can be misleading if the system is not working properly. Also, the radiator cap itself can be an integral part of the system if it is designed to hold a specific pressure. These caps may be tested to determine whether they are holding the proper pressure, which is key to the smooth operation of the system. If system pressure is operating lower than designed, the coolant will boil at a lower temperature. Rapid boiling (known as film boiling) can lead to severe corrosion due to hot spots and improper engine coolant contact.

Lots of misinformation about the compatibility of the different types of coolant technologies exists in literature and the marketplace. While it is not good maintenance practice to mix two different coolants, it will not result in compatibility issues as long as coolants from high-quality, reputable suppliers are used.

Coolants are generally considered to be compatible, however, mixing coolants of two different qualities results in a mixture of intermediate quality. While not a disaster, mixing a great coolant with a mediocre coolant will result in a coolant with something of less than great performance.

Overdilution with water would have a negative effect, because the corrosion inhibitors would be present in the engine at quantities lower than originally designed. Coolants work over a range of dilutions.

The optimum for most coolant systems is 50 percent coolant and 50 percent good-quality water, and in general coolants tolerate dilution down to about 40 percent concentrate and 60 percent water.

Generally, coolant degradation is accounted for in manufacturers' "recommended use" intervals. Conventional coolants containing silicates degrade primarily due to rapid inhibitor depletion. This is because silicates lay down protective layers over the system components as part of their protection mechanism.

Therefore, coolant inhibitors must be replenished or changed regularly to ensure the surfaces will remain protected if the silicate layer is disturbed.

In general, coolants degrade over time as the ethylene glycol breaks down into primarily glycolic and formic acids. Degradation occurs more quickly in engines operating at higher temperatures or those that allow more air into cooling systems. The coolant should be tested on an annual basis if it is intended to operate the system for several years between coolant changes, and particularly where the coolant is used in severe applications. One test ensures the pH is still above 7.0. Some coolant technologies can protect as low as pH 6.5, however, it is typically not good practice to allow a coolant to operate below a pH of 7.0.

Glycol breakdown products are acidic and contribute to a drop in pH. Once a coolant has degraded, due to [glycol](#) breakdown and pH drop, engine metals are at risk for corrosion. Coolant degradation can be slowed by using coolants with extended life inhibitors and by ensuring that the equipment is operating correctly and within designated design limits. Testing for corrosion inhibitors is another method of checking the coolant condition. While extended life inhibitors do not typically need to be tested as long as proper usage recommendations and correct fluids are used for top-off, conventional inhibitors deplete and need to be tested.

Other than tests for nitrite and molybdate, most conventional coolants need either continual supplemental coolant additions (SCAs) or lab analysis to ensure proper performance.

Various inhibitors, such as nitrites and molybdates, are easily monitored using test strips. Because nitrites deplete rapidly compared to other inhibitors, testing for nitrite allows one to learn the coolant's nitrite level, but nothing else. Some engines need inhibitors such as nitrites to be maintained at certain levels to offer protection against [cavitation corrosion](#), which can occur in engines with removable cylinder liners. Nitrites tend to deplete rapidly in conventional coolants and must be replenished at regular intervals.

Engine Coolant Maintenance (cont.)

Carboxylate-based ELC coolants typically have lower nitrite depletion levels because the carboxylates provide the required cavitation protection and therefore much longer preventive maintenance intervals.

Automotive original equipment manufacturers (OEMs) now recommend the use of either a hybrid coolant or a full carboxylate ELC. Conventional, standard green coolants are absent from this picture. Heavy-duty diesel OEM recommendations have a wide array of possibilities.

In the industrial sector, some OEMs require the use of silicated coolant, while others require silicate-free for heat transfer concerns. Similarly, some require phosphate-free to avoid hard water scale deposits. This scale tends to form deposits on the hottest part of the engine, which reduces heat transfer and can induce corrosion.

Finally, some OEMs require the use of nitrites to protect against cavitation, while others have no such requirement. Because the phenomenon of cylinder liner cavitation is design specific, all engines are not affected in the same way. It is important to understand the needs of specific equipment.

Coolants play a vital role in preserving the engine heat balance and protecting engine components against corrosion. An estimated 60 percent of engine downtime in the commercial trucking sector is coolant related.

Regardless of the market in which the coolant is used, it is safe to assume that coolant education relating to product chemistry, use and ongoing maintenance plays a vital role in creating a productive and profitable environment.

Using a high-quality engine coolant from a reputable supplier and following careful preventive maintenance practices will help ensure the proper protection of an engine.



Original Water Pump from Caterpillar Engine with More Than 750,000 Miles Using Extended-Life Coolant (ELC).



**PUZZLES**

<http://www.lewespuzzles.com> (302) 645-8013

EXERCISE YOUR MIND!



LEWES GOURMET

Find us on   

<http://www.lewesgourmet.com> (302) 645-1661

WORDS OF WISDOM "Don't complain about growing old - many, many people do not have that privilege." **EARL WARREN**

TOP NEWS- AS LONG AND YOU CAN GET IN YOUR FINE BRITISH MOTOR CAR YOU ARE DOING GREAT. THE OLDER YOU GET THE HARDER YOU WILL FIND IT IS TO EXIT THE DRIVERS SEAT!
 I HAVE OWNED MY 62 AUSTIN HEALEY MK 300 Mark 2 FOR 50 YEARS SO I CAN NOTICE THE DIFFERENCE. ONE THING FOR SURE, I WILL NEVER STOP THE ENJOYMENT OF LISTENING TO THE ROAR OF THE EXHAUST GOING THROUGH THE GEARS.

Sanford Car Show Cruise for a Cure Benefits Scleroderma Foundation The Red 1964 Austin Healey is owned by Jim Martin and the Old English White Austin Healey is my car. (BCCD Member)



RUDY'S
EUROPEAN MOTORCARS



Independent Diagnostic & Mechanical Service Specialist

17475 Nassau Commons Blvd.
 Lewes, DE 19958
 302-645-6410
<http://rudyseurocars.com/location.html>

We Repair All Make Cars

- Insurance Work
- Foreign & Domestic Car Work
- Corvette & Fiberglass
- Heavy Duty Truck Repair
- Towing Service

Phone: (302) 762-0100
 FAX: (302) 762-6312

2510 Northeast Blvd.
 Wilmington, DE 19802
WWW.NortheastBodyShop.Com

Northeast Body Shop



COMPLETE AUTO & TRUCK BODY REPAIR SINCE 1964



Chick-fil-A Elkton

1100 E Pulaski Hwy, Elkton, MD 21921
 410-392-9494

Hours: Mon - Sat 6:30 AM - 10 PM Closed on Sunday
 Harry Marcus-Owner/Operator

<https://www.cfrestaurant.com/elkton>

TSB
 Tri-State Battery

PROUDLY SERVING

- DELAWARE
- MARYLAND
- VIRGINIA
- NEW JERSEY
- NEW YORK
- PENNSYLVANIA

800.852.9700

BATTERIES • STARTERS • ALTERNATOR FOR EVERYTHING!

- Aerial
- Alarm
- Alkaline
- ATV
- Automotive
- Barcode Scanner
- Battery Packs
- Button Cell
- Camera & Camcorder
- Construction
- Cell Phone
- Coin Cell
- Cordless Phone
- Door Lock
- Emergency Light
- Farm Equipment
- Floor Sweeper/Scrubber
- Forklift
- Garden
- Golf Cart
- GPS
- Hearing Aid
- Industrial Equipment
- Jet Ski
- Laptop
- Lawn Mower
- Lithium Powersport
- Motor Scooter
- Motorcycle
- MP3
- Power Tools
- Power Wheels
- RV
- Security
- Sealed Lead Acid
- Snowmobile
- Two-Way Radio
- UPS
- Utility Vehicle
- Vape Mod
- Video Camera
- Watch
- Wheelchair

CUSTOM MADE WIRE & CABLE

WE KICK SOME AMPS! | WWW.TRISTATEBATTERY.COM

Advertising in The British Diamond and Sponsoring The British Car Club of Delaware

We are looking for more local businesses to advertise in the newsletter so if you know of one and can approach them please do so. You will see their ads throughout the newsletter. We are also looking for sponsors/donors to pledge fixed amounts to the club. Contact Terry (terryyoung224@me.com) for details on pricing etc.

Current Sponsors:

Paul & George Alderman
Alison Blyth
Anthony & Paul Campanella
Jim and Josh Grundy
E. Thomas (Thom) Harvey 111
Luke L. Phipps
Christopher Riofski
The Scala Family
Tim Southerst
Gary Sutch
Sandy Thompson
Jim Ursomarso
Jon Talkington
JR Walker
Ludie and Eben Warner
Peter Wolff
Jennifer Zerby

Brandywine Motor Sport Club
Chesapeake Bay Motoring Festival
Kent Island Yacht Club



UNION PARK JAGUAR
Proudly Supports
THE BRITISH CAR CLUB OF DELAWARE

ROB SHIPLEY
Jaguar Client Advisor | Jaguar Master Sales Consultant | Jaguar Guild Member
rshipley@unionpark.cmdlr.com | 302.573.5288

Union Park | 
 Driving Expectations.

Union Park Jaguar | 1900 Pennsylvania Avenue | Wilmington, DE 19806 | UnionParkJaguar.com

mcglynnspub.com

deerparktavern.com

cantwells-tavern.com

theroamingraven.com

<https://www.dbenational.org>