



November 2020

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GCC, P.O. Box 973
Villa Rica, GA 30180

President's Corner

Happy Holiday Season Cruisers,

Halloween will have passed by the time we get together. I trust you didn't consume more candy than you gave out. This is assuming there will be trick or treaters this year.

Thanksgiving is around the corner. We have a lot to be thankful for in this country, even in the age of Covid 19. I hope everyone is able have a normal Thanksgiving celebration.

Christmas will be here before we know it. I hope Santa brings all members another collector car for Christmas. The prerequisite of course involves some goodness earlier in the year.

Backing up a bit we wrapped up our 2020 Cruise-In season with our Super Cruise in October. We did not have as many cars as we hoped but we were fortunate to have a lot of cars we have not seen previously. Among them was a 1972 Diamond Reo Tractor resplendent in its bright orange paint and air horns blaring.

We had a good crew of worker bees as usual. V/P Bill had the trailer ready for battle as always. Danny D and Nick were playing the tunes and giving our Sponsors kudos. Raylene did her expert job handling the registration table. Don Edwards, Don Reed, Billy Glover and Bryant Deal handled the parking. Victor Carroll handled setting up the sound system. Michael Valentine was seen snapping away all evening. Cherrie Glover and Liz Horne

were successful selling the 50/50 tickets. Other members helping out were Gene Duke, Lynn Ware, Lela Roberts, Karen Edwards. Lee and Lee Culberson and Gary Mills brought their cars. Gary had Ray Baker as his navigator in his Mercury.

The \$250 cash prize was well received, especially by the winner. We might consider more cash prizes and/or more use of the money tree at future events. Our only trophy type award this year was a plaque we called the Paula J Burke award. Paula is the Ag Center Administrator and our host. She picked the winner for this award. She chose a blue 1967 Mustang Coupe that has been in the same family since new. We thank Paula for her assistance in allowing us the use of the Ag Center this year.

Speaking of the Ag Center, the Annual Four Club picnic will be held in the Ag Center on Nov 14th. Go to Perfect Potluck:

<https://www.perfectpotluck.com/meals.php?t=NWAR0811>

and sign up for what you would like to bring. We'll meet around 11AM and have lunch around noon. Tire kicking and the telling of lies can be experienced throughout the afternoon.

Be sure to attend the meeting at The Olive Tree, Nov 3rd. Dinner is at 6pm and the meeting begins at 7. We'll elect our officers for 2021. Also at the meeting we'll discuss the possibility of a Christmas Party. Print out an agenda so you can follow along.

In closing this will be my last President's message to you folks. It has been my honor to serve as President of the GCC. Thank you. I appreciate all the support over the last two years. I could not have done it without my fellow Board Members. They were always there to step up. I also want to thank those members who assisted with tasks when I needed help. Many served on various committees and did a fine job. Going forward we have a great slate of officers for 2021. Let's all help them as much as you've helped me. I am in hopes 2021 world events will be less trying than 2020.

Happy Motoring,

Rick Horne

Vice President's Voice

Hello All,

This year was a short season, but we made the best of the cruise-ins we had. I think being at the Ag Center was a great change for the club and our guests. It appeared that everyone had a good time at the October Super Cruise with the vehicles count being in the 60's.

I would like to thank all the club members for their help and support for the past two years. I know you will continue this support with the new Vice President.

Bill Roberts

A Minute with the Secretary

The minutes for October are attached to this newsletter. Please let me know if you have any questions.

Lynn Ware for Raylene Carroll

Treasurer's Testimony

The Treasurer's report for October is attached to this newsletter. Please let me know if you have any questions. Stay safe out there.

Don Reed

Sponsorship Snippets

Dear Cruisers,

Happy Thanksgiving!

I feel as if we are in the Tropics instead of Carrollton Georgia.

This report is give you an update on our very appreciated Sponsors. Nick Ware received a check from Streetside Classics and Don Edwards received one from Ivey Car Care. We have no one up for renewal in November.

Hoping to see you all November 3rd for our monthly meeting. Remember to vote also. Thank you All!

Cherrie Glover 🍷🍷

Birthdays & Anniversaries



Happy Birthday to:

Don Edwards	11/15
Karen Fichera	11/30
Penny Kusterer	11/10
Lynn Norris	11/8
Jeannette Ranero	11/26
Gloria Reed	11/23
Nick Ware	11/18

Happy Anniversary to:

None

Area Car Events:

(For further details on these shows and more, refer to "Ragtops and Runningboards", or refer to websites like <http://southeastwheelsevents.com/> or <http://www.carshowfinder.org/index.php>)

BE SURE to contact the Info number shown to confirm the event prior to attending. There may be "end of year" changes.

Car Events:

Nov.7, Cartersville - 3rd Annual Vintage Auto Show at Owen Funeral Home to benefit Bartow Christmas Coalition, 12 Collins Dr., 11-4 pm.
Info: 770-382-3030

November 11-14, Panama City Beach, FL - 16th

Annual Emerald Coast Cruizin at Aaron Bessant Park. Info: 662-587-9572

Nov. 20-22- Moultrie - 30th Annual Fall Automotive Swap Meet & Car Corral at Spence Field, 8-6pm. Info: 229-896-2150

Nov.26-29, Daytona Beach, FL - 47th Annual Turkey Run at Daytona International Speedway, 8-4 pm (2pmSunday). Info:386-255-7355

Nov.28, Powder Springs - Push Rods Car Club Toys for Tots Cruise In at Treasure Hunt Antique Mall, 3217 New Macland Rd, 4-8pm. Info: 770-324-3759

Cruise Ins:

1st Saturday, Marietta - Piedmont Church, 570 Piedmont Rd, 9am-2pm. Info: 404-202-0070

4th Friday, Cedartown – Downtown. Info: 770-546-8965

4th Saturday, Bowdon – Cruise-in at the Smokin' Pig, 409 W College St. Info: 404-747-1048

4th Saturday, Dallas – New Courthouse, 240 Constitution Blvd. Info: 404-401-5653

5th Saturday, Roopville – Parking Lot behind 20 West Dr., 4-8pm. Info: 678-372-0501

First Sunday, Dunwoody – “Caffeine and Octane” at Perimeter Mall, 7 – 11am. Info: 404-713-9225 or caffeineandoctane.com/

Last Saturday, Lithia Springs – “Classic Cars and Coffee”, Streetside Classics, 9-12 pm. Info: 678-279-1609.

Compiled by Yvonne Davis

(For further details on these shows and more, refer to “Ragtops and Runningboards”, or refer to websites like <http://southeastwheelsevents.com/> or <http://www.carshowfinder.org/index.php>)

Our Next Meeting

Our next meeting is November 3rd at the Olive Tree Restaurant in beautiful downtown Villa Rica.

Please make an effort to come out and vote for your new officers for the



2021 season, AFTER you vote for your favorite candidates to run our country.

Dinner is at 6pm, meeting is 7pm. See you there.

Don't Forget

November is dues renewal time! Please bring your dues with you to the meeting. Remember, you must be a member in good standing to vote in the election at the next meeting. If you can't attend the meeting, it is important that you mail in your \$36 dues to the PO Box as soon as possible. Thanks.

Humor for the Week

I know I shouldn't have done this, but I am 83 years old and I was in the McDonald's drive-through this morning and the young lady behind me leaned on her horn and started mouthing something because I was taking too long to place my order. So when I got to the first window, I paid for her order along with my own.

The cashier must have told her what I'd done, because as we moved up she leaned out her window and waved to me and mouthed "thank you", obviously embarrassed that I had repaid her

rudeness with kindness. When I got to the second window I showed them both receipts and took her food too. Now she has to go back to the end of the queue and start all over again,

Don't blow your horn at old people; they have been around a long time!



A farmer named Clyde had a tractor accident. In court, the trucking company's fancy hot shot lawyer, was questioning Clyde. "Didn't you say, at the scene of the accident, 'I'm fine,'?" asked the lawyer.

Clyde responded, "Well, I'll tell you what happened. I had just loaded my favorite cow, Bessie, into the..."

"I didn't ask for any details", the lawyer interrupted. "Just answer the question ...please. Did you, or did you not say, at the scene of the accident, 'I'm fine!'?"

Clyde said, "Well, I had just got Bessie into the trailer behind the tractor and I was driving down the road...."



The lawyer interrupted again and said, "Your Honor, I am trying to establish the fact that, at the scene of the accident, this man told the Highway Patrolman on the scene that he was just fine. Now several weeks after the accident he is trying to sue my client. I believe he is a fraud. Please tell him to simply answer the question."

By this time, the judge was fairly interested in Clyde's answer and said to the lawyer, "I'd like to hear what he has to say about his favorite cow, Bessie".

Clyde thanked the judge and proceeded. "Well, as I was saying, I had just loaded Bessie, my favorite cow, into the trailer and was driving her down the highway when this huge semi-truck and trailer ran the stop sign and smacked my John Deer Tractor right in the side. I was thrown into one ditch and Bessie was thrown into the other. I was hurting, real bad and didn't want to move. However, I could hear old Bessie moaning and groaning. I knew she was in terrible shape just by her groans.

Shortly after the accident a Highway Patrolman came on the scene. He could hear Bessie moaning and groaning, so he went over to her. After he looked at her, and saw her fatal condition, he took out his gun and shot her between the eyes. Then the Patrolman came across the road, gun still in hand, looked at me, and said, "How are you feeling?"

"Now tell me, what the heck would you say?"



"This should keep you going while I'm on vacation."



AGENDA – November 3, 2020

- I) Call to Order
- II) Pledge of Allegiance
- III) Minutes of Last Meeting
- IV) Treasurers Report
- V) V/P Report
- VI) Sponsorship Report
- VII) Ailing Members Report
- VIII) Unfinished Business
 - a) Review of October Super Cruise-In
 - b) Annual Four Club Picnic
 - c) Election of Officers for 2021
- IX) New Business
 - a) New Member Presentation
 - b) Discussion on Annual Christmas Party
 - c) Discussion of webmaster & web hosting changes
- X) Adjournment and Social Time

PLEASE PRINT A COPY AND BRING TO THE MEETING ON THE 3rd

GOLDEN CITY CRUISERS

MONTHLY FINANCIAL REPORT

OCT 2020

DATE	CHECK #	TRANSACTION DESCRIPTION	PAYMENT	DEPOSIT	BALANCE
		BALANCE			6976.86
10/9	DEPOSIT	SPONSORS & DUES		752.00	7728.86
10/9	3229	DON REED -PLAQUE	58.85		7670.01
10/17	3230	AG CENTER	400.00		7270.01
10/17	3231	DON REED FOR CRUISE-IN PRIZE	250.00		7020.01
10/17	DEPOSIT	DUES & CRUISE-IN		449.00	7469.01
		TOTAL CASH IN BANK			7469.01
DATE	TYPE	DESCRIPTION	CHARITY FUND	GENERAL FUND	DEBIT
10/9	DEPOSIT	SPONSOR IVEYS CAR CARE \$250.00		752.00	
		STREETSIDE CLASSICS \$250.00			
		DUES-BILLY GLOVER \$36.00			
		WILLIAM (DON) EDWARDS \$36.00			
		RAYMOND BAKER JR. \$36.00			
		DON REED \$36.00			
		JOHN (NICK) WARE \$36.00			
		GARY PITTS \$36.00			
		RICK HORNE \$36.00			
10/9	3229	DON REED PLAQUE FOR AG CENTER			58.85
10/17	3230	TO AG CENTER FOR USE OF GROUNDS			400.00
10/17	3231	DON REED FOR CRUISE-IN PRIZE			250.00
10/17	DEPOSIT	DUES- GENE DUKES \$36.00		449.00	
		VICTOR CARROLL \$36.00			
		CASH BOX CASH \$120.00.			
		DRINKS \$27.00	27.00		
		50/50 & DONATIONS \$230.00	230.00		
		TOTALS	257.00	1201.00	708.00
		TOTAL OPERATING FUND			7469.01
		LESS HARDSHIP FUND			1000.00
		TOTAL CASH ON HAND			6469.01

Golden City Cruisers
October 6, 2020
Olive Tree Restaurant, Villa Rica, GA

The meeting was called to order by President, Rick Horne at 7:08. The Pledge of Allegiance was led by Liz Horne.

Minutes from the September meeting were accepted and approved as written in the newsletter. The Treasurer's report was also accepted and approved as stated in the newsletter.

The Vice-President was absent and asked that you refer to his newsletter report. Cherrie Glover, Sponsorship chair, reported that Kell Radiator, The Trading Post Café and Sweet Taste of Summer are due for renewal this month. Details are in the newsletter.

Last month's cruise was an improvement over August as we had 82 cars and numerous spectators. It was suggested that we have a club member to direct our cars to the lower tier parking area and to help keep other cars out. The placement of our food vendors was also discussed. They are not as visible as we would like, but the access to electricity may be an issue. Several members will look into this before the October cruise.

Our annual car show has been cancelled but we will have a cruise in on the evening of October 17. It will be called a Super Cruise. To make it different we will have the Ag Center administrator give an award to her favorite car. We will also have drawings for \$250 and \$100. These will be drawn from the registered cars. Door prizes and 50/50 tickets will be the same as usual.

Our club will host the 4 Club Picnic at the Ag Center on November 14. We will provide and cook hamburgers and hot dogs. Each member is encouraged to look at the Perfect Pot Luck web site to sign up to bring a dish.

Billy Glover, Nick Ware and Victor Carroll comprised our nominating committee. On their behalf, Chairman Billy Glover announced the slate of officers for 2021.

President-Raylene Carroll
Vice-President-Darrell Smith
Treasurer-Don Reed
Secretary-Lynn Ware
Sponsorship- Don Edwards

Hearing no further nominations from the floor, a motion was made to close the nominations. This motion was approved. Voting will take place at the November meeting. All dues must be paid for members to be eligible to vote.

The Board presented a recommendation that we allocate \$250 to the Super Cruise for the money drawing. The other money will come from a donation. Motion was made to this effect and passed by the membership. Billy Glover moved we give \$400 to the Ag Center for the use of their facility for 3 cruise-ins and for the 4 Club picnic. Michael Valentine seconded and the motion was passed.

A new member application was received from Ray Baker. He introduced himself and the club approved his application.

In response to confusion from the public, the club was reminded that we will be back at the Villa Rica Mill for the beginning of the cruise-in season in March 2021. Our move to the Ag Center was temporary due to restrictions of the COVID-19 virus. Our relationship with the City of Villa Rica is important to us and to them.

Meeting was adjourned at 7:52.

Members in attendance:

Rick and Liz Horne, Billy and Cherrie Glover, Darrel and Karen Smith, Nick and Lynn Ware, Danny Davis, Michael Valentine, Gary Mills, Rob Kusterer, David Kopp and Don Edwards.

Respectfully submitted by Lynn Ware for Raylene Carroll

The Perfect Family Car, the Koenigsegg Gemera by Nick

I saw an article the other day about a new car, designed and developed amidst the current pandemic, which seemed to be the perfect family car. It is a four seater with the looks of a beautiful sports car. And, get this...all of the seats are identical, so the back seat can fit a 6 foot man just like the front. The name was a little weird, but that doesn't make



any difference since it is the company owner's family name, kind of like Chevrolet, Chrysler, or Ford.

The car has a two liter, three cylinder, TLG engine. TLG stands for Tiny Little Giant, which is indicative of its 600 horsepower twin turbo output! And since it is an eco-friendly hybrid, it hides several additional electric motors, increasing the total power to 1700 hp! Zero to 60 mph is an amazing 1.9 seconds, with a top speed of 250 mph, perfect for a quick trip to the store. The doors open vertically, which is ideal for fitting in those tight Walmart parking spaces, and also eases the chore of getting the groceries in the back seat. The price? Well if you have to ask, you probably can't afford it...but since you asked, the Gemera sticker is around \$2 million.



Having never heard of this company, I did a little reading and was totally fascinated with the man, his passion, his ability to overcome adversity, and the tenacity to accomplish his goal through sound engineering principles. The [history of Christopher von Koenigsegg](#), and his dream to develop the finest world class sports car, beginning at age 22, could be a book in itself. We also need to acknowledge [Jesko von Koenigsegg](#), Christopher's father, who also joined the business.

The [Koenigsegg Company](#) was formed in 1994, and by

1996 Koenigsegg had his first prototype, which was a fully functional sports car that is still running today. By 2002 the CC8S was in full production, and soon thereafter Guinness gave the CC8S the title – “The world's most powerful production car ever”, and Jeremy Clarkson – Mr. “Top Gear” – named the CC8S his favorite supercar in fierce competition. Not bad for a startup car company! Since that time there have been about [15 other cars in the company's lineup](#).

There isn't room in this newsletter to cover the history and all of Koenigsegg's accomplishments. Instead



we'll concentrate on the engineering features, many of them employed in the newest [4 seater Gemera](#) above.

Note: Throughout the article there are blue links for further reading. Since this is a European car, remember the following approximations:

km/hr x 0.6 = mph
speed

kg x 2.2 = lb
weight

Nm x .75 = lb-ft
torque

Carbonfibre chassis

At the core of every Koenigsegg car is its carbonfibre tub chassis.

The Koenigsegg chassis is a case of do-it-once-do-it-properly, with key elements of the chassis we use today still true to Christian von Koenigsegg's original design.

The Koenigsegg chassis is a pre-impregnated carbon-fiber construction with an aluminium honeycomb core structure (the same as used in Formula 1) for increased crash protection. The aluminium fuel tank is integrated into the tub chassis, inside the hollow box sections across the rear and along the right and left sills. This gives the fuel tank maximum protection and allows for the best possible weight distribution in combination with the most optimal packaging.



The Koenigsegg carbonfibre tub chassis has 65,000 Nm per degree of torsional rigidity, more than any other vehicle in the world, current or past, which is astonishing as the car also is a roadster, with a detachable and stowable roof panel. What does such a measurement mean in the real world?

In simple terms, it means that the car is very, very resistant to twisting or flexing when under pressure (e.g. at 2g's in a corner).

A stiff chassis allows for softer suspension and a more comfortable ride compared to a less stiff chassis. It gives you greater control because the suspension doesn't have to be tuned to compensate for chassis flex. With a stiffer chassis, our suspension engineers can focus more on vehicle dynamics, controlling the ride and response of the car, and less on compensating for relatively poor chassis resonance.

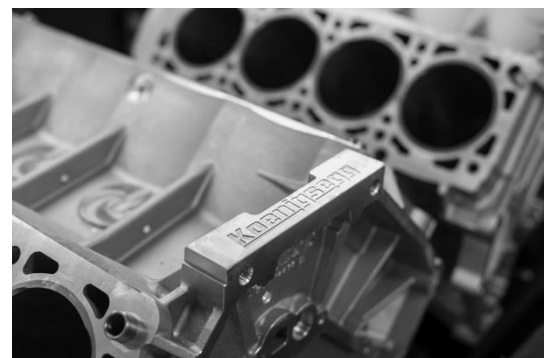
Koenigsegg Engines

Koenigsegg is unique amongst small-scale manufacturers in that the company develops and builds its own engines rather than sourcing them from another manufacturer.

Koenigsegg tested several engines during the earliest days of the company, including a flat-12 engine. The V8 engine architecture was chosen because its compact size means better packaging within the chassis envelope, as well as lower weight. It's proven to be the right decision.

Designing your own engine is expensive, but it means you have opportunities for development that are not restricted by another OEM. Koenigsegg has used this freedom to develop record-breaking engines, right from the earliest days of the company:

- The world's most powerful production engine (CC8S, 2002).
- The world's most powerful production engine (CCR, 2004).
- The fastest production car in the world (CCR, 2005).
- 0-300 km/h and back to 0 in 21.19 seconds (Agera R, 2011)
- 0-300 km/h and back to 0 in 17.95 seconds (One:1)



- The world's first production car with a 1:1 power-to-weight ratio (One:1, 2015).
- 0-400 km/h and back to 0 in under 37 seconds (Agera RS, 2017).
- The world's fastest production car reaching a top speed of 448 km/h (Agera RS, 2017)

People ask why Koenigsegg doesn't apply its engine know-how to a V10 or V12 engine architecture, to which the answer is quite simple – we don't need to. The Koenigsegg V8 is compact, lightweight and capable of reliably delivering over 1,300hp. A typical V10 or V12 engine would add a lot of weight without contributing any more useable power. If there comes a time where a V10 or V12 engine makes more sense, Koenigsegg will explore that option.

All Koenigsegg engines are homologated for the worldwide market, including California, with the strictest emission controls on the planet. To at the same time have the most down sized and most powerful engine – whilst complying with all important regulations – is no small feat.

'Rocket' catalytic converter

Problem: the need for a free-flowing exhaust while at the same time fitting power-restricting catalytic converters.

The solution was what you could call a classic Koenigsegg response, turning a problem into a performance advantage – the development and patent of the 'Rocket' catalytic converter.

The Rocket Cat works in such a way that when the pre-cat creates too much back pressure at high rpm, the overpressure is dynamically bypassed/overflowed directly to the main cat. This scenario works because the main cat is at full temperature and therefore operating efficiently whenever the Rocket Cat is required.

It is a simple, clever solution with no moving parts and most importantly, a solution that increased the output of the CCR for which it was developed by more than 100hp compared to existing solutions at the time.

The 'Rocket Cat' design for a catalytic converter was Koenigsegg Automotive AB's first patent.

Dihedral synchro-helix doors

Sports cars typically have large doors to help with ingress and egress. Large doors mean plenty of space is needed to open them without hitting another car.

Companies have tried different solutions over the years, with varying degrees of success. Scissor doors open high and can be difficult to reach when the occupant is seated. Likewise, gullwing doors that are hinged from the roof can open too high for many.

Koenigsegg's dihedral synchro-helix door mechanism was revolutionary when it was first conceived and remains unique in the automotive industry to this day. The door motion allowed by this hinge mechanism – sweeping outwards and upwards at the same time – is every bit as practical as it is beautiful.

The door opens high enough to avoid most curbs, but low enough to avoid garage ceilings. It also minimizes the space taken to side of the car, which makes opening a large, sports car door into the side of another parked car a thing of the past.

With the arrival of the new [Koenigsegg Regera](#), the mechanism has now been fully robotized. The door sweeps open automatically at the press of a button, bringing a heightened sense of elegance and theatre to the beginning of every new journey.



Removable, stowable roof system

Traditionally, owners of a supercar with a removable roof had to decide before they left home as to whether they'd drive 'top-down'. Their cars had no room to carry the roof on-board so it was a risky decision, especially when the forecast showed potential for rain.

One of the original, key design elements when Christian von Koenigsegg first sketched his idea for a super-sports car in 1994 was the idea of a removable, stowable roof. He wanted to give his customers both the security of a hardtop coupe AND the freedom of open-top driving. Every Koenigsegg road car ever made features this ingenious piece of design.



The roof is a one-piece unit made completely from carbonfibre and light enough to be removed by one person. While the design of the roof itself was not a challenge, designing a space for it to fit into the front of the car certainly was.

Clearing space for the roof under the front hood posed special challenges for the design of the front subframe, a structure that holds Koenigsegg's elongated wishbone suspension, the steering rack, front dampers, brake fluid reservoir, anti-roll bar, and more. The front subframe had to be designed to be as compact as possible so as to allow space for the one-piece roof.

It was a challenge worth tackling. Koenigsegg is still the only manufacturer in the world for which every car is both a hardtop coupe AND a roadster.

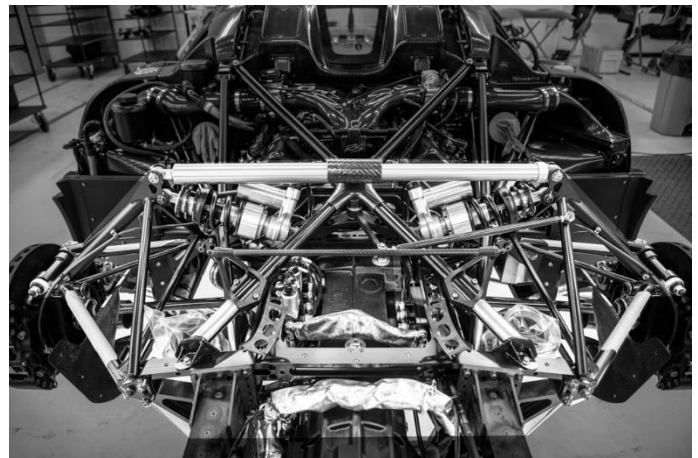
Triplex suspension system

When you open the rear hood of a Koenigsegg, you will notice a third damper, stretching from side to side across the top of the engine bay. The word written across its mid-section carbonfibre cover denotes its name – Triplex – and it's yet another Koenigsegg innovation.

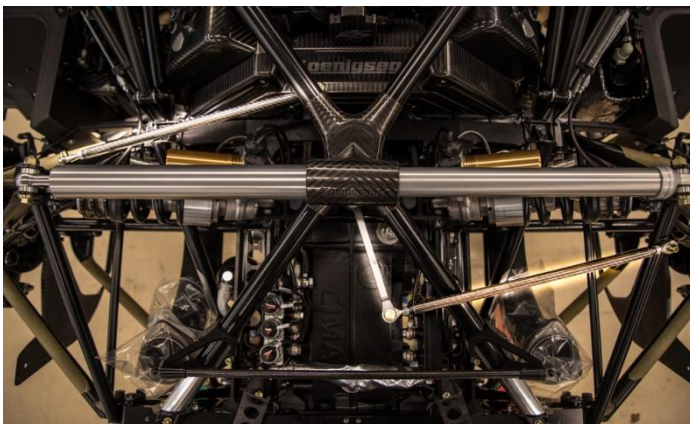
The primary reason for the 'Triplex' third damper is to provide an anti-squat element to the suspension setup. Squat is what happens when you take off under hard acceleration – the rear end of the car wants to dip down, or squat, because of the physical forces placed on it. Squat provides good rear-wheel grip on hard acceleration, but it can compromise handling at the front end of the car and therefore, it must be managed. This is the scenario under which Triplex was invented.

When you take off under full power, the rear end wants to squat down, which means the rear wheels want to 'rise', compared to their usual position in relation to the chassis of the car. This action compresses the rear dampers as the rear wishbones try to lift.

The Triplex rear damper acts against this tendency, providing resistance against 'squat' (both dampers compressing at take-off) but doing nothing during regular single-sided compression of the dampers (e.g. during cornering). The Triplex damper also counteracts the anti-roll bar when driving straight on an uneven road, but does not work against it while cornering. This actually increases comfort and grip.



Z-shape anti-roll



The Z-shaped anti-roll bar on the [Agera RS](#) only has one pivot point, instead of the two pivot points on a traditional anti-roll bar. That reduces friction and therefore increases accuracy and response.

We use it on both the front and rear of the Agera RS.

The central section of the anti-roll bar is steel. The two outer sections are carbon fibre rods. When the wheel wants to travel, the rod pushes against the central steel section, which gives a little bit of flex between the end and the pivot point but is countered both by the nature of the material and forces pushing from the other side. It's still a torsion-based system like a traditional U-shaped bar but the materials, the lack of drop-links and the angles used in the geometry of our anti-roll bar make it a much

more progressive system. Our anti-roll unit is super-light compared to a traditional bar. This means we get a more accurate, faster anti-roll bar at only around one-fifth of the weight of a traditional U-shaped bar.

'AIRCORE' hollow carbonfibre wheels

Koenigsegg quite literally reinvented the wheel in 2012 when it introduced the patented Aircore technology, used to craft a new one-piece, hollow-core carbonfibre wheel.

Koenigsegg's previous alloy wheels were already extremely light, yet the use of carbonfibre allowed for a 20kg saving in un-sprung mass with no compromise whatsoever to the structural rigidity of the wheel. Savings in un-sprung mass are desirable in a performance car because this is weight that can't be controlled by the suspension system.

Lighter wheels mean quicker acceleration as there is less weight to move from rest. They also mean less rotational mass, which results in more agile changes in direction (cornering) and more efficient braking.

Initially released as a five spoke wheel only, a new three-spoke carbonfibre wheel has been designed for use on the Koenigsegg Regera.

The wheels are made in-house at the Koenigsegg factory in Ångelholm. The five-spoke wheel used on the Agera RS uses 650 individual pieces of carbonfibre, laid up in such a way so as to be both as light and as strong as possible. The three-spoke wheel of the Regera uses 750 pieces.

Koenigsegg was the first OEM in the world to manufacture its own carbonfibre wheels in-house. While other companies now offer carbonfibre wheels as options on their cars, the production of those wheels is outsourced to suppliers and are heavier as they do not use the patented hollow spoke technology that Koenigsegg has.



Top-mounted active rear wing

The [Koenigsegg One:1](#) came equipped with the world's first top-mounted, active rear wing.

The key to providing downforce while maintaining speed is the minimization of drag. The ideal scenario is one where you direct air pressure where it is needed to keep the car on the road (downforce) without slowing the car down (drag). Wing mounting techniques have evolved to allow variation of the wing angle – what's known as an 'active' rear wing – to provide the appropriate amount of downforce or drag, depending on the situation. 'Top speed' mode provides the minimum amount of drag. 'Handling' mode applies more downforce. 'Brake' mode sets the wing at its highest angle and acts as an air brake. These settings are all automatic, depending on speed and throttle/brake use.

Traditional wings are attached via the underside of the wing and mounted on posts. Top-mounting is important because it's the underside of the wing that is most critical in creating downforce. Disturbances under the wing, such as mounting posts and hardware, create turbulence that compromise the wing's effectiveness.

The One:1 rear wing is mounted using two strakes that run down the back of the car. These strakes act as stabilizers at high speed. At the ends of the strakes, the mounting points for the wing reach up and over the front lip of the wing, ensuring no turbulence on the underside.

The result is a rear wing that provides up to 600kg of downforce when required but can also be set to maximum 'slipperiness' for top speed or maximum drag for braking.

What's more, the total weight of the top-mounted active rear wing is just 10 kilograms, around one-third of the weight of active wing systems used by competitors.



Top-mounted, retractive, active rear wing



The previous page detailed the benefits of an active rear wing: it provides variable amounts of downforce to optimize performance according to requirements at any given moment – top speed, handling or braking.

Top-mounting this rear wing means that the underside of the wing – the surface that provides the greatest aerodynamic effect – is not disturbed by the hardware that attaches the wing to the car.

The Regera has taken this idea one step further, with a wing design that integrates into the body of the car and rises when needed. It maintains the elegance of the car's original design while providing optimal aerodynamic assistance when needed.

The Regera's rear wing is a lesson in lightweight design. The entire mechanism weighs just 5kgs but provides 310 kgs of downforce.

HydraCoup

'HydraCoup' is a bespoke hydraulic coupling, developed in-house specifically for the Koenigsegg Regera.

The Regera features a unique driveline that eliminates the conventional transmission in favour of just a final drive unit. Essentially, the car is in 7th gear at all times. This works well at cruising speeds but anyone who has tried to take off from standstill in 7th gear will know the stress placed on the driveline.

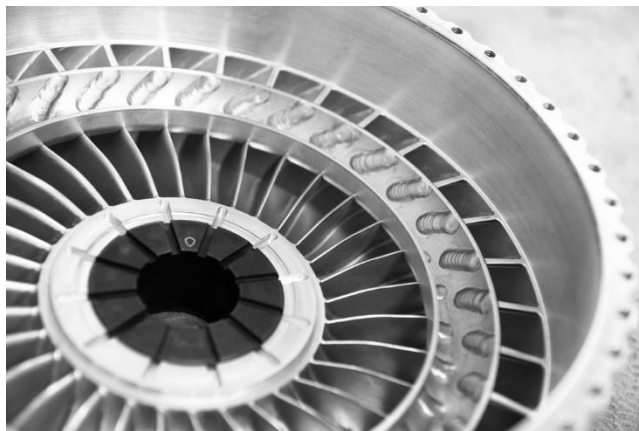
HydraCoup is basically a very advanced torque converter with lock-up functionality; the all-important linchpin that allows smooth and progressive power transfer from the combustion engine to the Regera's single-speed driveline. When the Regera takes off from standstill, the primary torque applied to the rear wheels comes from the electric motors.

The instant torque from the electric motors acts like the lower gears of a traditional transmission, getting the car away smoothly from standstill.

HydraCoup will then gradually feed power from the internal combustion engine into the drivetrain until the HydraCoup locks up and the full power and torque of the ICE are applied.

The decision to develop HydraCoup in-house was one of necessity: there was no other component in the world capable of doing so much, at such a compact size. As is often the case at Koenigsegg, when a part is not available to do the exact job we require, we design and build the part ourselves.

HydraCoup was conceived by Christian von Koenigsegg and developed by engineer Dag Bolenius. The part is made by local craftsmen, in Sweden, according to Koenigsegg's exact specifications.



Koenigsegg Direct Drive Transmission

The Koenigsegg Direct Drive Transmission (KDD) was invented by Christian von Koenigsegg and developed for the Regera by the Koenigsegg Advanced Engineering team.

The Koenigsegg Direct Drive Transmission removes the traditional gearbox from the car. As the gearbox is responsible for both added weight and efficiency losses, any chance to remove this double-negative is welcome.

The patent-pending KDD replaces the combustion engine's traditional transmission – the gearbox as you know it is removed from the car. In its place, the KDD provides direct drive to the rear axle from the combustion engine without the need for a multitude of gears or a variable transmission, all of which have inherently high energy losses.



The key components of the KDD system are:

- 3 electric motors
- HydraCoup – an advanced lock-up torque converter, designed and developed in-house at Koenigsegg specifically for the Regera
- Our Formula 1 grade, super-dense and super-compact battery pack.

Koenigsegg's three axial flux electric motors are optimized in-house and are extremely power dense, making them a key-ingredient for the KDD.

Aside from providing extreme responsiveness from zero rpm, these electric motors also allow for torque vectoring, regenerative braking and energy conversion.

'HydraCoup' is a bespoke hydraulic coupling that we have developed in-house, specifically for the Regera. HydraCoup is basically a very advanced torque converter with a lock-up functionality; the all-important linchpin that allows smooth and progressive power transfer from the combustion engine to the single-speed driveline.

The battery pack is key to the Regera's ability to deliver rapid acceleration. It is essentially Formula 1 grade technology. It weighs just 64 kg, which is incredibly light, given that it can discharge up to 500 kW of power.

How do these three elements work together to power Koenigsegg Direct Drive?

The Regera has a final drive ratio of 2.73:1, the equivalent to 7th gear in the Koenigsegg Agera. If you've ever tried to take off in 7th gear, you'll understand the challenge we faced when developing Koenigsegg Direct Drive. There is simply not enough torque available in a regular car to start in such a high gear.

The Regera has two types of propulsion working together to move the car: electric propulsion and the internal combustion engine (ICE). The Regera's ICE has 1,100hp and 1,250Nm of torque, but peak torque is not available at 0 rpm.

Starting from standstill is therefore compromised when using the ICE alone. This is where the Regera's electric drive comes in.

The Regera's electric drive system provides 670hp of drive. More importantly, however, it provides 3500 Nm of torque direct to the rear wheels (equivalent of 1000 nm on the crank), which is available from standstill up to 3500 crank rpm, where the electric torque starts to taper off, even though it will still assist all the way up to 8000 crank rpm.

It's this massive power and torque delivery in combination with the ICE that enables the Regera to minimise mechanical losses by removing the traditional transmission. The instant torque from the electric motors from 0 rpm and upwards acts like the lower gears of a traditional transmission, getting the car away smoothly from standstill.

The ICE is not the primary driving force for the wheels from standstill but the HydraCoup will gradually feed power from the ICE into the drivetrain until the HydraCoup locks up, which means the combustion engines is driving the wheels mechanically without a traditional transmission. This gives lowest possible losses of any transmission in this mode.

The Regera's motorsport-grade cell technology can discharge power approximately 10 times faster than a typical pure electric car, and can accept re-gen around 10 times faster, too. If you are cruising on ICE power alone at 150 km/h and floor the accelerator, the KDD system will engage electric drive to help push from 150 to 250 km/h in just 3.2 sec. As you coast back down to 150, the ICE system and recharge via de-acceleration begins to fill the battery so that you're ready to do it all again – and again, and again.

The KDD system allows the Regera to be super responsive and smooth at the same time. It will provide the fastest 0-400 km/h acceleration time in the world thanks to its unique power delivery, vastly reduced mechanical losses, and much lower component weight.

Autoskin

The Regera is the first car in the world that operates all body closures completely automatically, at the touch of a button. We call this system 'Autoskin'.

Koenigsegg has managed to robotize the entire Regera with almost no weight penalty, thanks to the latest advances in compact lightweight hydraulic technology.

The Regera features functions such as active front and rear wings, chassis control and lifting system as standard, so the hydraulic pumps and accumulators were already in place to implement automation of our doors and front/rear hoods. The Autoskin hydraulics replace gas struts of similar weight, resulting in minimal weight impact.

Autoskin features soft-closing mechanisms, giving the Regera a sophisticated feel. The fully robotized body system adds a mere 5 kg to the total weight of the car, making full robotization a very desirable option.

All openings and wing mirrors are fitted with proximity sensors to safeguard against the doors striking nearby objects (curb, low roof, etc) while opening or closing.



The world's smallest, most power-dense automotive battery system

At the heart of the Koenigsegg Regera's game-changing new Direct Drive system is a battery pack akin to Formula 1 grade electrification applied to a road car for the first time.

The Regera's battery pack has two parallel strings of 192 cells, for a total of 384 cells. The battery is a 4.5kWh unit running on 800volts (V), which makes the Regera the first 800V production car in the world. That massive 800V supply line lets us draw power from the battery at an alarming rate and importantly, we can draw that power for a relatively long period of time.



The Regera produces 670 electric hp, and all that from a battery pack that weighs just 66kg with cooling fluids.

The Regera can draw on its full 670 electric horsepower from very low speeds for a full 10 seconds, much longer than the draw capability of any competitor.

It's not just the battery's ability to draw immense power that is impressive, however. The battery can also accept a massive 200kW of recharge, if necessary, with the system constantly striving for a balance between power and efficiency.

The Regera battery pack's combination of extreme light weight, high output and high discharge/recharge set it apart from anything else in production today and will place the Regera at the pinnacle of the automotive landscape for years to come.

Now the great part of all of this technology is that you can order yours today at [MotorCars of Atlanta](#), just a short drive up the road! Be sure to take your wallet.

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