



the fifth wheel

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Happy Holidays!



The Fifth Wheel is published monthly by the Lehigh Valley Corvair Club (LVCC), Inc. We accept articles of interest to Corvair owners for publication. Classified advertising of interest to Corvair owners is available free of charge to all persons. Commercial advertising is also available on a fee basis. Please contact our newsletter editor, Allan Lacki for details.

LVCC is one of the many regional chapters of the Corvair Society of America (CORSA), a non-profit organization that was incorporated to satisfy the common needs of individuals interested in the preservation, restoration, and operation of the Chevrolet Corvair. LVCC caters to Corvair people who live in and around the Lehigh Valley Region of eastern Pennsylvania. This is a very special car club! LVCC dues are \$10 a year for CORSA members or \$15 a year for non-CORSA members.

What's a Fifth Wheel...?

What do you think of when you hear the words, "fifth wheel"? For a long time, whenever I read the masthead of our newsletter, I wondered why the founding fathers of our club decided to name it after a trailer truck part! After all, in the trucking business, a "fifth wheel" is the coupler between a truck tractor and a trailer. I figured, hey, the Lehigh Valley Corvair club is based in Allentown where Mack trucks are built, so why not?

But there is another kind of fifth wheel; the kind that car test agencies used to use for measuring speed, acceleration and deceleration when doing performance tests on new cars. A fifth wheel test consists of driving the vehicle over a road course and determining the distance actually traveled through the use of a mechanism known as a "fifth wheel" that is attached to the vehicle. And that's the kind of device our newsletter is named after!

Why a Fifth Wheels?

Car speedometers use a sensor on the driveshaft to measure vehicle speed as a function of wheel revolution. Because the tires are made out of rubber, their diameter varies with speed, load, and temperature, even when inflated to their recommended pressure. You'll never get an accurate reading from a car speedometer.

Our Kind of Fifth Wheel!

Automotive fifth wheels have been used for decades in vehicle testing. The fifth wheel is attached to the rear bumper and is towed by the vehicle. The attachment allows relative rotation between the vehicle's and the wheel's axes. An optical encoder attached to the wheel's axis reads the angular velocity of the wheel. Knowing the diameter of the wheel, assuming no slip, the vehicle's speed can be determined. Usually the fifth wheel is being used to test the performance of the braking systems, to measure coefficient

of friction between the tires and road surface, vehicle's acceleration etc. Obviously, in these applications the vehicle has to travel along a straight line.

Over the years, vehicle testing agencies with big budgets have replaced their fifth wheels with more-sophisticated technology that can perform additional functions and do it with more accuracy. For example, Car & Driver magazine now uses a device named, the "VBOX". Like the fifth wheel, it can record speed, acceleration, and braking. But it also records lateral and longitudinal acceleration, position, distance and top speed.

The VBOX communicates with the US government's global positioning system, a constellation of 24 satellites that orbit the earth 10,600 miles overhead. At least four of the satellites are above the horizon at all times, and each sends a carrier signal that is picked up by the VBOX's antenna (a small magnetic unit that you affix to a test vehicle's roof). As a vehicle travels, it draws nearer to some satellites and farther from others. As this happens, the frequency of the carrier signal shifts minutely. The VBOX senses this frequency shift, which is also known as the Doppler effect, and calculates the velocity, acceleration, and distance traveled.

But back in the days when Corvairs were manufactured, devices such as the VBOX were the stuff of science fiction. The fifth wheel was the way to go!

What About Truck Fifth Wheels?

Fifth wheels are commonly installed on any kind of truck that tows a big trailer. This includes not only the big rigs you see on the highways, but also large pickup trucks that tow horse trailers and recreational vehicles. It's not uncommon to see Ford F250s, for example, with a fifth wheel installed in the pickup bed.

The fifth wheel coupler typically consists of a kingpin, a 2-or-3 1/2-inch diameter steel pin on the front of the



The Fifth Wheel. Installed on a '62 Spyder for Popular Science performance test!

semi-trailer, and a horseshoe-shaped coupling device called a fifth wheel on the rear of the towing vehicle. The surface of the semi-trailer (with the king-pin at the center) rotates against the surface of the fixed fifth wheel, which does not rotate. To reduce friction, grease is applied to the surface of the fifth wheel.

You may be wondering why the inventors of this device named it a "fifth wheel". After all, few truck tractors have only four tires. Most have six or eight! It would appear that "fifth wheel" is a misnomer.

But the term 'fifth wheel' comes from a similar device used in the 1800s to couple a large wooden wagons to four-wheel horse-drawn carriages and wagons, and hence the name "fifth wheel". Basically a wooden wheel was secured horizontally on the rear frame section of the carriage. The wheel had a hole in its axle center which accepted a coupling pin mounted on the nose of the wagon. The wheel and pin arrangement provided an axis which allowed the horse-drawn carriage to be pulled

around tight turns just like today's trailer trucks. But unlike today's trailer trucks, the nose of the wagon needed to be raised by hand so that the pin would be able to drop into the central hole of the fifth wheel.

Today's fifth wheels allow trailers to slide into the fifth wheel and lock into it. The engagement of the king pin into the fifth wheel locking mechanism is the only hard connection between tractor and trailer. However, the truck and tractor are also fastened together by safety chains which would prevent a runaway trailer in the unlikely event of failure on the part of the fifth wheel's locking mechanism.

Over the years, a number of patents have been awarded for fifth wheel design. Edward and Charles Everett of Quincy, Illinois patented a type of fifth wheel in 1850, followed by Gutches' metallic head block and fifth wheel in 1870 and the Wilcox fifth wheel in 1905.

The invention of the today's fifth wheel design is often credited to U.S. inventor

Charles H. Martin of the Martin Rocking Fifth Wheel Co. who introduced the device in 1911. However, the modern fifth wheel was not patented until 1936. It was issued to Charles E. Bradshaw of Wellville, VA. The patent entitled Charles Martin to share in one third of licensing proceeds.

Sources:

- "Fifth Wheel Modeling and Testing", by Masory, Malaptias and Wright, http://fcrar.ucf.edu/papers/fal_omlmww_fau.pdf
- "Fifth Wheel Coupling", http://en.wikipedia.org/wiki/Fifth_wheel_coupling
- "How Does CD Test Cars", <http://www.caranddriver.com/features/how-does-c-d-test-cars>.

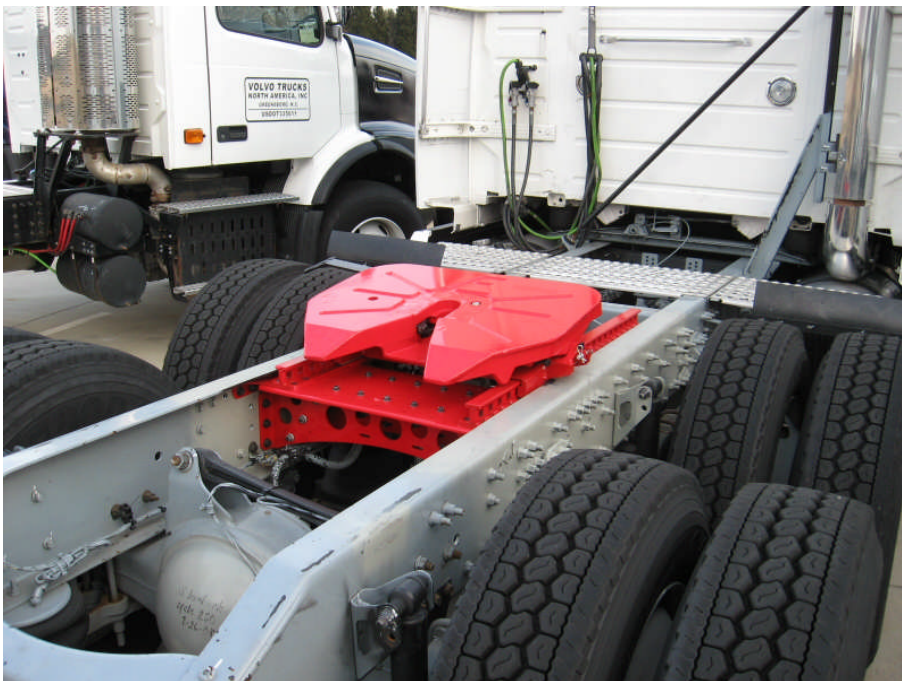
Jack Drop Speed.

Out in the real world, most mechanics use hydraulic floor jacks for just once purpose: to raise and lower vehicles onto jack stands. But in the Corvair hobby, we commonly use them for removing and replacing engines.

Often, in the process of jimmying a Corvair PowerPack into position, it is necessary to raise it and lower the jack a few times by just an inch or two to line up the engine and transmission mounts.

Raising the jack up, while it's supporting the PowerPack, is usually a maneuver that any good hydraulic floor jack can accomplish with smooth precision. But sometimes, it's necessary to drop the PowerPack down just a touch. And some hydraulic jacks drop too far too fast no matter how carefully the release valve is cracked open.

We learned this at a recent NJACE tech session while installing a rebuilt engine in a member's '65 Corvair Corsa with a Craftsman ATV jack. Two of the members were under the rear of Al Hoskin's Corvair when, in an attempt to lower the engine just a tick, the jack



Here's a photo of that other kind of fifth wheel! It's that red thing between the chassis rails of this big Class 8 truck tractor!

dropped much more than anticipated. Luckily, the sudden motion didn't cause the engine to rock off the jack. But it was a hair raising moment indeed.

When working with an unfamiliar jack, it's probably a good idea to raise it and lower it a few times under load, with the Corvair PowerPack, out in the open before rolling it under the car. In doing so, you'll gain an appreciation not only of how precisely the jack will lift things up, but more importantly, how imprecisely the jack will drop things down. Get to know the jack's drop-down speed.

The drop down speed is determined by design of the jack's release valve. Just about every hydraulic jack has a release valve that is supposed to allow the user to adjust the drop speed. But often, the control is too limited or too imprecise so that the jack drops like a rock as soon as the valve is cracked open just a smidge.

On some high-end jacks, such as the Danish AC Hydraulic DC series jacks, the sensitivity of the release valve is adjustable so that the drop speed will be smooth and slow even when the valve is opened all the way. The AC DK13HLQ model, by the way, offers a lifting height of 29 inches. And its low profile makes it perfect for lowered ve-



This AC Hydraulics jack, manufactured in Denmark and sold through Pelican Parts, offers an extraordinary 29 inch lift and a relief valve that can be adjusted to ensure a slow descent.

hicles, like your land speed record Corvair! Price? A mere \$549!

On cheaper jacks, the sensitivity of the release valve is not adjustable at all. And the sensitivity often varies from one unit to the next in the same model series, apparently due to poor quality control in the manufacturing process. Many ATV jacks have foot-operated release valves. Normally, you would expect a gentle push on the pedal to result in a gentle descent, but some models produce exactly the opposite result. They require the pedal to be pushed all the way down for a slow drop speed!

So, get to know your jack before using it to replace your Corvair PowerPack! And never crawl underneath any load - be it a car or an engine or your house, if it is supported solely with a jack! Invest in a set of high quality jack stands and use them!

Jason Hewitt's New Corvair!

We are happy to inform you that LVCC member Jason Hewitt has a new Corvair! He purchased his new baby, a 1965 Corvair Monza convertible, from Gary Trigiani of Easton, PA. The car was listed in our Classified Ads in November and appears to be a fine acquisition!



Corvair Luxura Gets Rave Reviews!

It's true! The new Corvair Luxura "task chair", now on sale at Staples office supply stores everywhere, is getting rave reviews. 4.5 stars out of five based on a survey of 161 happy owners!

We need to thank the nice folks at Staples for naming this quality product after our favorite cars and trucks!



Our Next LVCC Meeting!

Our next meeting will take place at the LANTA Community Center, (our usual place) on Wednesday, January 22, 2014 at 7:30 PM.

The November and December meetings were cancelled due to the closeness of the holidays. We tried to reschedule our meetings several years ago and found that we can only have the meeting room on the 4th Wednesday of the month. Rather than attempt to find an alternate meeting location for just two months, we simply suspend our meetings during the Holiday Season. 'See you in January!



NJACE TECH SESSION. Brian O'Neill is the president of the New Jersey Association of Corvair Enthusiasts (NJACE), Northeast Corvair Council (NECC), and the Performance Corvair Group (PCG). One of his hobbies is rebuilding Corvair engines. So, when another of the NJACE members bought this beautiful 1965 Corvair Corsa convertible, Brian rebuilt the engine for him. On December 7, Brian hosted a tech session in his garage to install it. Events like this are like an Amish barn-raising party.

LVCC Calendar of Events!



Friday through Sunday, January 17-19, 2014 :::: Auto Mania.

Location: Allentown Fairgrounds, 302 N 7th St, Allentown, PA 18104. Gate Times: Fri 12pm-9pm, Sat 9am-6pm, Sun 9am-3pm. Adult Admission: \$10 Daily. For more than two decades, Auto Mania has been Pennsylvania's biggest indoor heated swap meet. The 59,000 square foot Agricultural Hall at the Allentown PA Fairgrounds plays host to a wide array of vendors and attendees annually. This is the perfect setting to buy, sell and trade all things automotive. Auto Mania not only has a swap meet, there is a car corral too. There's a great array of parts, literature, services and more.- See more at: <http://www.carlisleevents.com/carlisle-events/automania/default.aspx#sthshash>. ElyzkDR2.dpuf

Wednesday, January 22, 2014 :::: LVCC Membership Meeting.

Regular LVCC Club Meeting. 7:30 PM at the Lehigh and Northampton Transportation Authority (LANTA) office building in Allentown, Pennsylvania. The LANTA building is located at 1060 Lehigh Street Allentown, Pa 18103. Directions: From I-78: Take Exit 57, Lehigh Street. At the end of the exit ramp, go east toward the City of Allentown. Follow Lehigh Street of approximately 2 miles - past the Parkway Shopping Center on the right and Faulkner Volkswagen on the left - until you reach the LANTA entrance on your left. It is at the intersection of Lehigh and South Howard Streets, right across from a Hess service station. Drive around to the auto parking lot and enter through the office entrance. Our meeting room is on the second floor.

FOR SALE: I have two items for sale. The first item is a secondary carb from a 65 Corsa 140. It's cleaned & a new kit installed. I would like \$50.00 for it. Also for sale: A pair of sheep skin seat covers I had on a 64 coupe some years ago. They fit the front bucket seats. I would like to have \$40.00 for them. Contact Carl Moore, Mohnton, PA. Email: moo568@dejazzd.com

LVCC Merchandise for Sale!



LVCC license plates and hat pins: \$3.00 each. LVCC T-Shirts: \$6.00 each.
Call or email LVCC Secretary/Treasurer Richard Weidner at (610) 502-1414 rcwvair@rcn.com

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Next LVCC Meeting: Wednesday, January 22, 2014