

On the Air

Newsletter of the Arkansas Corvair Club ■ CORSA Chapter 722

July 2012

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Automobile Engine Horsepower Ratings

by Bob Helt

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The engine horsepower rating of your car tells you a lot about its performance capability. The more horsepower you have, the faster your car will go and the quicker it will be in acceleration. It is the single most important factor in choosing a performance vehicle (although price, handling, fuel economy, and reliability are important too).

So it behooves the automobile manufacturers to boast of the highest horsepower they can reasonably obtain from their engines. And here is how they achieved that during the 1960s era.

It is well known that atmospheric factors affect the power output of internal combustion engines, especially the normally aspirated (N/A) engines (non-turbocharged). Air density is one of these factors. The greater the air pressure the greater the engine horsepower. Thus the higher the altitude the engine is operated at, the less the horsepower produced. Similarly, the lower the ambient temperature, the greater the amount of oxygen inhaled

and thus the greater the engine horsepower produced.

So it can be seen that the actual horsepower produced varies depending on the ambient temperature, actual elevation and relative humidity of the air.

The manufacturers ran a series of tests on their early production engines to determine and measure the horsepower produced (along with several other factors). But then the ability to control these atmospheric factors entered the picture. What if the engine dyno room was hot due to summer conditions? What if the dyno room was located in, say, Denver at 5000 feet elevation? Resulting horsepower measurements would be at the low end compared to tests run in the winter at sea level.

To be able to equalize engine test measurements so that comparisons can be made engine-to-engine and test-to-test, the Society of Automotive Engineers (SAE) set some standards to allow a correction factor to be ap-

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Sandy Tucker wins again at 2012 Lum & Abner Car Show in Mena

For those of you who have been following the successes of Sandy Tucker (from Stamps), as she makes the rounds of the summer car show circuit, with ACC member Gary Walker, you will be pleased to know that Sandy took home another award on Saturday, June 2. While showing her 1964 Corvair Monza Spyder convertible at the 2012 Lum & Abner Car Show, in Mena, Sandy received one of the coveted "Top 30 Awards," for her Spyder being among the 30 best of the 111 cars, trucks, and motorcycles on display. Sandy is the fiancée of club member Gary Walker, from Hot Springs. Our congratulations and thanks to Sandy and Gary for their superb efforts to earn local recognition for the Chevrolet Corvair. ■



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"Corvairs bring friends together."

Horsepower Ratings *continued*

plied to adjust all measurements to a set of standard conditions. Thus, the SAE released their industry specification J607 that allowed all test measurements to be corrected to the following standard conditions: 60 degrees F, atmospheric pressure of 29.92 in-hg (sea level), and a zero percent relative humidity.

This now allowed any engine horsepower measurements made on any N/A engine anywhere in the US to be corrected to these standard conditions and allow a direct comparison to be made to other engines and tests, with a high degree of confidence.

But it didn't end there. There were two types of engine tests defined. These were for Gross and Net horsepower. Gross hp indicated the maximum horsepower the engine was capable of and was used to set the then common "advertised horsepower." Net hp represented the actual flywheel horsepower the engine developed. Both of these horsepower ratings (Gross and Net) were corrected to the standard conditions, thus making them as large as allowed.

This is how Chevrolet was able to state that the advertised horsepower of the 1960-63 base engine was 80 hp, while the net hp was 65 horsepower. Both of these ratings were using the

J607 standard conditions. But to complicate the situation, Chevrolet realized that normal operating conditions were at temperatures far above the 60 degrees of the SAE spec. So, to get a more realistic operational rating for their own internal use, Chevrolet corrected their internal engine test Net measurements to 100 degrees F and called these "As-Installed Net horsepower."

Now the confusion by Chevrolet outsiders occurs. With an advertised 80 hp and a net hp of 65, the As-Installed Net is reported as 59.2 horsepower by a correction to 100 degrees F. Or, maybe more correctly stated, the measured As-Installed hp rating (59.2) is corrected to the SAE Net value (65).

So one must be careful as to which horsepower measurement technique or correction is being used to state a specific Corvair hp rating.

Because the SAE standard of 60 degrees tends to overstate the actual horsepower, and because the Gross hp does the same, in the early 1970s the SAE released a new specification (J1349) that calculates the Net hp at an ambient temp of 77 degrees F and a pressure of 29.234 in-hg (100 Kpa), as a correction factor for determining advertised horsepower. (Gross hp is no longer reported.)

This rating now replaces the previous advertised horsepower. ■



Newsletter Editor Needed

Here is a golden opportunity for someone to put your creative skills to work. The Arkansas Corvair Club is seeking an editor to compose and publish our monthly newsletter starting in October 2012. Call Bill Smith, 501 342-3189 for details.

Happy Birthday to our ACC associates born in August.

Mary Arnold
August 4

Mike Winn
August 5

Mary Swift
August 16

Ronnie MacLeod
August 19

Stuart Levy
August 21

Debbie Levy
August 30

Happy Anniversary to

Elvis & JB King
August 16 (43 years)

C.B. & Jean Lunsford
August 29

ACC Dues Alert

In an effort to keep everyone informed about the status of your ACC membership dues, we publish a membership *Dues Alert* in every issue of *On the Air*.

The *Dues Alert* lists names of members who are past due and those due for the current month.

Dues are **\$20.00** for regular membership and **\$15.00** for associate members. Please mail payments to: **Arkansas Corvair Club, P.O. Box 627, Little Rock, AR 72203.**

Here are the names that are **past due** and due in **July**.

Past Due.....Steve Simmons

Due Jul.....Rodney Arnold
John Coffey
Vicki Cook
Dale Dishmon
Keith LaCrosse

Please disregard if you've already paid.
Thank you for your generous support. ■

ACC June Meeting Minutes



JB King

The Arkansas Corvair Club met at Just Like Mom's restaurant, on Kiehl Avenue, in Sherwood, on Tuesday, June 19.

The meeting was called to order by president Keith LaCrosse. There were 36 people in attendance. This is the largest number of people ever to attend a monthly Corvair club meeting, and several of our regular attendees were unable to attend the June meeting.

The minutes from our May meeting were read and approved as published in the June newsletter.

Old Business

There was no old business discussed.

New Business

Members discussed the need to find a different location to hold our monthly club meetings. Our regular meeting attendance has outgrown the meeting space available at Just Like Mom's restaurant. Several members offered to investigate options for a new meeting place and to report findings at our next club meeting.

Bill Smith read e-mail messages from two members, Larry Levy and Stew MacLeod.

Larry wrote to thank Bill and the club for the article about Stuart Levy and the ASU Red Wolves baseball team that was published in the June newsletter. Stuart is playing summer baseball with a collegiate league team in Long Island, New York.

Stew MacLeod wrote to let us know that he and Ronnie would miss the June meeting because they will be in San Diego, California. Ryan MacLeod

recently returned from spending more than three weeks in Belize.

Also, Bill Smith announced, with regret, that he will be ending his service to the club as our newsletter editor at the end of September. In October, Bill will be relocating to eastern China for one year to perform work for his employer at their site in Nantong City. Bill stated that he will gladly coordinate and assist any member who volunteers to assume duties as ACC newsletter editor.

Lastly members discussed whether the club will hold a regular meeting in July, before members depart for the CORSA International Convention. Everyone agreed to meet on July 17th.

There being no further business, the meeting was adjourned.

Respectfully submitted,

JB King

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On the Air

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*"Promoting the maintenance,
enjoyment, and preservation of
the Chevrolet Corvair."*

Arkansas Corvair Club Information

Meetings

The Arkansas Corvair Club (ACC) meets on the **3rd Tuesday** of each month at **Just Like Mom's** Home Cooking restaurant, 3140 E. Kiehl Ave., in Sherwood.

July Meeting

The ACC will meet Tuesday, **July 17**, at 7:00 p.m., at Just Like Mom's, on Kiehl Ave., in Sherwood.

Join us at 6:00 p.m. for food and fellowship prior to the meeting. The club offers an array of merchandise for sale—oil filters, gas filters, hats, decals, patches, T-shirts and more.

Officers

President: Keith LaCrosse, 26 Woodlawn Drive, Beebe, AR 72012, 501 882-9389.

Vice-President: Clyde Jones, 6789 Saddlebrook Loop, Everton, AR 72633, 870 429-6789.

Treasurer: Elvis King, 21305 N. Mill Rd., Little Rock, AR 72206, 501 888-1224.

Secretary: JB King, 21305 N. Mill Rd., Little Rock AR, 72206, 501 888-1224.

Elected Board: Allan Embrey, 501 834-5373; Joe Espejo, 501 834-0806; Clyde Jones, 870 429-6789; Aaron Swift, 501 490-2448.

Committee Chairs

Membership: Elvis King

Publicity: Bill Smith

Newsletter Editor: Bill Smith, 3034 Donnell Ridge Rd, Apt 328, Conway, AR 72034, 501 499-6676.

Newsletter Advertising:

Non-members and businesses:
\$150/year full page; \$100-½ page;
\$50-¼ page.

ACC Mission: The mission of the Arkansas Corvair Club (ACC) is to promote the maintenance, enjoyment, and preservation of all types of Corvairs and related vehicles, and to advance and improve driving skills, automobile safety, and the Corvair's image.