



# The Steering Wheel

## September 2024

Newsletter of the Midwest Antique Auto Club

Not affiliated with any national club.

An independent group of collectible vehicle enthusiasts.

Dedicated to the preservation of the antique/collectible automobile.

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Meetings are held on the third Sunday of each month. The Board meets at 1:30 p.m. and the general meeting begins at 2:00 p.m. during the months of November, January, February and March at the **NEW CASSEL RETIREMENT CENTER at 900 N. 90<sup>th</sup> St., Omaha, NE 68114.** During the summer months of April, May, June, July, August, September and October, there are no inside meetings. In these months we have “Official Car Tours” on the third Sunday of each month. Plus whatever extra tours may please us. There is no meeting in December, that meeting is replaced by our annual Christmas banquet. All vehicles are welcome, any year, make or model, but a drivable collectible/antique vehicle is not a requirement for membership. **The latest Steering Wheel can be found at <https://midwestantiqueautoclub.org>.**

The deadline for articles for the Steering Wheel is the last Saturday of the month.

### The President’s Message



Hello Everyone,

I hope you are enjoying the nice weather and going to a few car shows. There are still a number of car shows in September and October to go to. I encourage you to take advantage of the nice weather and drive your old car while the weather permits.

I want to thank everyone that attended the New Cassel Car Show at New Cassel Retirement Center in August. We had a nice group of members show up including the including a few 1920 and 1930 Model A and Ts. I have a few pictures to share of the event on the next page. Also, Ed Hedegaard enjoyed his 65<sup>th</sup> Birthday with a trip on the Missouri River on the Brownville River Cruise (a picture of Ed and Janet are on the next page).

Finally, Karen and I were able to enjoy the National Auto Museum (formerly Harrah’s car collection) in Reno, Nevada. I have included a few pictures from that venue. I hope to see you at our September tour.

John and Karen Thurber



## **CALENDAR OF EVENTS**

### **September Driving Tour – SUNDAY, September 15, 2024**

Lance & Aleta Sulentic will be hosting our tour in September. We will meet at the Pizza King at 1101 North Broadway in Council Bluffs at 1 p.m. and leave on the tour at 1:30. We will be going to the Lincoln Monument, Fairview Cemetery, the Kinsman War Memorial and Lewis and Clark Lookout Monument. Please bring a salad or dessert – we will be planning lunch at a park in Council Bluffs. Also, please bring lawn chairs.

**Show and Shine Car Show – September 8, 2024** - A friend of Jerry Vincentini (Jordan Wrieth) is holding the final Show and Shine Car Show of the year from 10 a.m. to 2 p.m. on Sunday, September 8th at the Methodist Health Headquarters at 825 S. 169<sup>th</sup> Street, Omaha. It looks like a fun, free event to attend.

**Cruise N for a Cause Car and Motorcycle Show – October 6, 2024** – The Sarpy County Sheriff's Office is sponsoring the 3rd Annual "Cruise N for a Cause" Car & Motorcycle Show on Oct. 6, 2024, at Werner Park (12356 Ballpark Way, Papillion Nebraska) from 11am - 2:30pm. Preregistration is \$20, registration the day of the event is \$25. Help us spread the word. Last Year they had about 275 entries. If you are interested contact [dfelici@sarpy.gov](mailto:dfelici@sarpy.gov).

**8<sup>th</sup> Annual Southwest Iowa Car Cruise – October 13, 2024** - Cruise will start at Atlantic, Iowa at 9 a.m. at the Walmart Parking Lot. Registration is \$25. The cruise will be approximately 200 miles and drive through 20 towns ending at Atlantic at 4:45 p.m. It is a great opportunity to enjoy the fall foliage. If you are interested, please contact [dgammell@netins.net](mailto:dgammell@netins.net).

**October Driving Tour – Sunday, October 20, 2024** - We will be visiting the Fontanelle Orchard in Fontanelle Nebraska (just north of Arlington, NE) just like last year. The club will be purchasing pie and ice cream for all the members that participate in our tour. More information on the time to meet in the October Steering Wheel. I hope to see you at our last driving tour of the year.

## **MEMBER NEWS**

**August Driving Tour** – We met at New Cassel Retirement Center at 900 N. 90th Street, Omaha, from 1:00 p.m. to 3 p.m. on Saturday, August 17th for a car show. The members that attended include the following: John and Karen Thurber – 47 Chevrolet, Robert Thurber - 47 Chevrolet, Mark Thurber -72 Cuda, Monte and Marj Frost, Barb Patterson, Ed and Janet Hedegaard – 59 Jaguar, Tom and Gloria Kannas - 41 Buick, Lance & Aleta Sulentic – 2005 Mustang, Jim and Cheryl Cushman - 39 Buick, and Ed Anderson – 99 Plymouth Prowler. I am sorry if I missed anyone else that attended.

**MAAC Items for Sale** – I ordered the pullover shirts, T-Shirts and mugs from Nate Bunch last month. I will let you know when we receive the items. Thanks Nate for making this happen.

## **The Basic Principles Of Automotive Gauge Function And How To Troubleshoot Them**

By Jim Smart September 1, 2024, Hemmings Classic Car

Automotive gauges are simple and have changed little in the last 100 years. Understanding how they function can make troubleshooting a snap. Some background on the basic principles of gauge operation: Variable resistance to the flow of electricity to a negative ground (body/chassis) affects where the gauge needle moves on the instrument face. Electrical flow can be controlled by switches, resistors, diodes, fuses, and circuit breakers. In the case of analog gauges, the sending unit or “sender” is a variable-resistor contact switch to ground. When resistance to ground is high, the instrument will read low. When resistance is low, the needle will read high. On/off warning lamps are switched by a simple on/off sender.

None of this would be possible were it not for a voltage regulator located on the back of most instrument panels. With the ignition of a nominally 12-volt vehicle on, roughly 12-14 volts of electricity flow to the instrument voltage regulator, which reduces that voltage to approximately 5 volts for the instruments. It’s then a matter of completing the electrical circuit from the gauge to ground. A faulty instrument voltage regulator will either stop current flow to the gauges, or the contact inside will stick, and all instruments (except an ammeter) will give a maximum reading.

### **Coolant Temperature Gauge and Sender**

The coolant temperature gauge operates based on the amount of current flowing to ground via the sender at the engine. Inside the sender is a thermal contactor, which expands or contracts with temperature change. With an increase in coolant temperature, the sender decreases resistance to ground, which increases current flow across the gauge, moving the needle higher. By contrast, cold coolant causes high resistance to ground in the sender, which moves the needle low.

On the reverse are needle-adjustment holes. The screwdriver points to the hole that controls where the needle rests with the ignition off, or zero feedback from the sender. The other adjusts maximum needle travel. There are two types of coolant temperature senders: A variable resistor type for gauges and a simple on/off type for warning lights. By testing a dry coolant temperature sender with a multimeter (ohmage setting), we get 277.5 ohms of resistance to ground, which would render the gauge at “C” or COLD.

Higher water temperatures have lower resistance. In 170-degree water, resistance to ground is low at 39.5 ohms and the needle would read mid-range (normal) on the gauge. Troubleshooting doesn’t usually require the removal of the sender. It can be bypassed by connecting the sender lead directly to ground (body/chassis) and watching the gauge. If the needle moves to hot, the sender is faulty and should be replaced. If the gauge does not respond, there is a disconnect in the wiring between the gauge and the sender.

### **Fuel Gauge and Sending Unit**

The fuel sending unit controls the flow of current to ground based on how full the tank is. A float rides on the fuel’s surface and acts on an arm connected to the variable resistor to ground. When the float is high, current flow to ground is low and the gauge reads full. When the tank is empty, there’s high resistance to current flow to ground and the gauge reads low.

Troubleshooting the fuel gauge and sending unit is similar to diagnosing the temperature gauge. Disconnect the fuel-sending unit and ground the plug. If the needle moves to full, the sending unit is faulty and should be replaced. If the gauge does not respond,

there is a disconnect in the wiring between the fuel gauge and the sending unit. Alternately, if the float takes on fuel, it will sink, causing an erroneous reading at the gauge, or a corroded or damaged resistor coil may provide a faulty reading.

### **Oil Pressure Gauge and Sender**

The oil pressure gauge works much like the fuel and coolant gauges. Inside the oil pressure sender is a spring-loaded piston that – when met with oil pressure – moves a contact back and forth across a variable resistor to ground. With higher oil pressure comes lower resistance and a higher reading, and vice versa for a lower gauge reading. Troubleshooting is identical to the temperature gauge.

This oil pressure sender, without air pressure applied, causes the meter to read “0.L,” meaning zero current flow across the sender to ground. That infinite resistance means the gauge will indicate no oil pressure. With air pressure, the meter should indicate about 33.1 ohms of resistance.

In contrast, the oil-pressure-lamp sender, without air pressure applied, causes the meter to read about 2.8 ohms of resistance. This would close the circuit and cause the warning lamp to illuminate. When pressurized, the sender causes the meter to read 0.L. The open circuit keeps the lamp dark.

### **Ammeter Versus Voltmeter**

An ammeter shows the rate of charge, while a voltmeter registers how much voltage is at the battery. An ammeter reads high when the alternator/generator is charging, and low when the battery is losing voltage due to a draw, such as using a turn signal. Ammeter needles will sometimes dance disconcertingly as a result. A potential problem with ammeters is they are live all the time and – in the case of some vehicles – are not circuit-protected, meaning they are vulnerable to overheating.

The ammeter, once common on Ford and Chrysler vehicles, shows the rate of charge or discharge depending upon which way the needle swings. Unfused ammeters can be a fire hazard because they are live whenever the battery is connected.

Direct-connection, shunt-style Ford ammeters can overheat and fail. This unit has a broken wire, yet current continued to flow through to the main wiring loom.

### **Mechanical Speedometers**

Vintage vehicle speedometers are mechanical and thus are not dependent on electricity. They work on the principle of magnetic field in which the faster a magnet spins inside a metal drum within the instrument, the higher the gauge reads. Making the magnet spin is a cable connection between the transmission output shaft, a drive gear and a driven gear, and the gauge.

Mechanical speedometers largely fail due to the absence of lubrication at the speedometer head, which you can fix yourself with a liquid graphite lubricant. The gauge also quits if the cable binds and breaks, but swapping the cable is another relatively easy task. If neither remedy resurrects the gauge, it is best to entrust it to a qualified repair shop, which can also calibrate it.

Speedometer accuracy relies on matching the rear-axle ratio to the drive and driven gears (number of teeth in each). Larger- or smaller-than-stock tire diameters will cause the speedometer to read too fast or slow, a problem that can sometimes be rectified with a new driven gear.

### **Electronic Tachometers**

Most factory tachometers, with few exceptions, are electrically driven by ignition pulses off the distributor or the negative side of the ignition coil. Mechanically driven tachometers work like the mechanical speedometers just mentioned but with the cable typically driven by the generator or crank snout. Electronic tachometers are not user-serviceable and will have to be sent to an instrument repair shop for restoration.

Electric-based tachometers operate on ignition pulses from the ignition system. The faster the pulses, the higher the tachometer will read. Tachometers should be serviced by a qualified instrument repair shop.

## **MIDWEST ANTIQUE AUTO CLUB**

**AN INDEPENDENT GROUP OF COLLECTIBLE VEHICLE ENTHUSIASTS**