



A Quarterly Publication of the Illinois Chapter NCRS

www.ILNCRS.org

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Thoughts from the Chairperson

Hi Everyone,

ILNCRS Elections were a success this year and may I say, you have chosen us again! We are glad to hear the members are supporting the board! A couple more spots will be open for elections in 2021, so keep an eye open for more elections to come. Please note, these elections are a requirement from National, so, we will continue to make this process as easy as possible. Next up for election in 2021 is Secretary & Tech. Let us know if you are interested?

In the meantime, I am sad to announce our ILNCRS 2020 Chapter Meet at the MCACN show in Rosemont, IL on November 19 thru 22, was cancelled by National due to a "conflict of interest". We were excited to be invited to share some space with MCACN but National was not thrilled with our co-existence at the show. Ultimately, due to COV19, MCACN had to cancel the event for 2020. If you did register, you should have received a refund from ILNCRS. If you have not received yet, please contact us and we can mail you your refund check.

The ILNCRS Board has also voted to cancel the Holiday Party 2020, due to COV19.

We are hoping 2021 will bring a fresh start. Your ILNCRS board is currently working on the Kickoff Party in February. You should hear about the details soon.

(March 7 Actually)

Our 2021 Chapter Event will take place once again at Chestnut Mountain, Galena IL on August 6, 7 & 8th 2021. Our venue is booked. Feel free to make your room reservations.

We will do our best to keep everyone informed on the upcoming events. The board is meeting monthly, via Webcam, to make necessary decisions for next year.

I hope everyone is healthy and safe!

Bill Braun – ILNCRS Chairperson

Chapter Officers & Contacts

Chairperson

Bill Braun
2510 Bennington Lane, McHenry, IL 60050
224-355-3755
billsz06@yahoo.com

Vice Chairperson & Secretary

Carol Lindee
18416 S. Buckberry Lane, Mokena, IL 60448
carollindee@yahoo.com

Treasurer

Bob Kleckauskas
36W 556 Michael Ct, St. Charles, IL 60175
847-595-9122 – fax

Membership Chairperson

Ed Wodniakowski
456 South Princeton, Itasca, IL 60143
edwilncrs@aol.com

Judging Chairperson

Jim Anderson
888 Richardson Rd, East Dundee, IL 60118
hdf196@aol.com

Technical Chairperson

Scott Lindee
18416 S. Buckberry Lane, Mokena, IL 60448
sal70lt1@yahoo.com

Technical Co-Chairperson

Jay Stahl
5229 High Street, Roscoe, IL 61073
815-623-7562

Historian

Randy Merzdorf
19W675 97th Street, Lemont, IL 60439
630-739-9612

Activities Chairperson

Sue Braun
2510 Bennington Lane, McHenry, IL 60050
815-344-8276

Newsletter Co-Editors

Ryan Garrett & Tina Reeland
1108 Gail Drive, Buffalo Grove, IL 60089
ryangarrett@hotmail.com

Website Coordinator

Fritz Goetz
908 Long Meadow Drive, Schaumburg, IL 60193
847-895-9331
fhgoetz@aol.com

Chapter Website – www.ILNCRS.org



2021 Calendar of Events

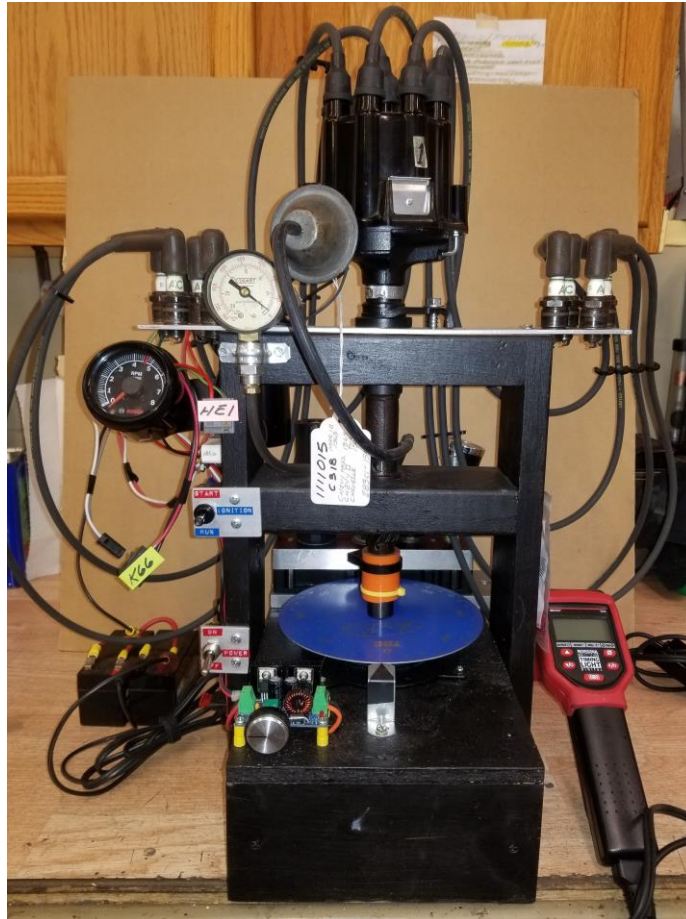
March 7	Kickoff Party Location TBD
May 16	Judging School Location TBD
August 6 & 7	Chapter Meet Chestnut Mountain Resort – Galena, IL
October 8 17	Fall Color Drive Location TBD
December 5	Holiday Party Location TBD



Technical Information Bulletin

I found the following article about distributor installation and how (and what) to set your timing to.

This interested me because my 1969 Convertible had a 1975 Chevy Silverado engine with a tag-less distributor. Wanting to know what it was and what the advance curve looked like, I decided to build a distributor machine. The Corvette Restorer had an article about how to build one: Spring 2019, by Joe Randolph.



When reading about the best advance curves for optimum performance, I wanted to do just that. Setting the distributor to give 34 to 36 degrees (including initial at idle) by 3000 RPM was my goal. I bought many springs and advance weights to achieve that goal. Very time consuming, but well worth it. Could be another article.

The following article is reprinted with the permission of the author Lars Grimsrud.

Scott Lindee



Technical Information Bulletin Rev. U 1-10-2020

How to Install your Chevy & Pontiac Distributor

by Lars Grimsrud

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(Point-Style Distributors. HEI systems can be installed using similar techniques, but photos in this article do not apply. For HEI instructions, request the “HEI Distributor Installation” article. **For Pontiac distributors**, see the Pontiac Supplement at the end of this paper)

A distributor can actually be dropped into a block in virtually any orientation and made to function by re-arranging the spark plug wires to match the installation. You will see this approach to distributor installation quite frequently, and it is a sure-fire tip-off that the engine builder/distributor installer didn’t have a clue about how to do the job right.

GM always installed the distributor in a specific orientation, and always used the same distributor cap “tower” for the #1 spark plug. By following this procedure, your distributor will be installed in the correct factory position for a professional appearance.

1. Bring the engine up to Top Dead Center on the Compression Stroke and align the timing mark on the harmonic balancer with the 12-degree mark on the timing chain cover (or wherever you want the engine to fire. 12 Degrees is a good starting point for an initial start-up, but you can set it anywhere from 8 to 18 degrees before top center).

To Find Top Dead Center on the Compression Stroke with the engine in the car:

- a. Remove the #1 spark plug
- b. Disconnect the coil wire from the distributor cap and ground it
- c. Have a helper plug the #1 spark plug hole with a finger.
- d. With the starter, slowly “bump” the engine over until the helper feels air being forced by his finger.

You are now coming up on the compression stroke. Align the timing marks as noted above.

To Find Top Dead Center on the Compression Stroke with the engine out of the car:

- a. Remove the valve cover on the driver's side of the engine to expose the valves for cylinder #1.
- b. Rotate the crankshaft until the timing mark approaches top dead center. Observe the exhaust valve.
- c. If the exhaust valve is moving as you are approaching top dead center, you are on the exhaust stroke.
You need to rotate the crankshaft one more time.
- d. If neither valve is moving as you approach top dead center, you are on the compression stroke.

Align the timing marks as noted above.

2. Install the rotor to the distributor. Verify that the distributor drive gear is correctly installed: The gear is not symmetrical and can be installed 180 degrees out. The factory gear has a "dimple" on the gear close to the roll pin hole on one side of the gear only. When the rotor is installed, this dimple must point in the same direction as the rotor firing tab. If the gear dimple is pointing 180 degrees away from the rotor tab, you need to remove the gear and rotate it 180. Failure to do so will result in the distributor housing being "misclocked" in the engine block when timing has been set. On some engines, this will cause the vacuum advance control unit to hit the rear runner on the intake manifold and prevent correct timing from being achieved.
3. Hold the distributor body in the orientation show in figure 1 relative to the engine/block and drop the distributor straight down into the block. Pay no attention to rotor orientation at this time. If the rotor is aligned with the oil pump driveshaft, the distributor will drop all the way down and seat. If the rotor does NOT line up, the distributor will not drop all the way down.
4. If the distributor does NOT drop all the way down (chances are best that it won't), pull the distributor up out of the block just enough to disengage the rotor from the camshaft gear, and turn the rotor a little bit. Drop it down again. Repeat this until the distributor drops all the way down and the rotor engages with the oil pump.
5. The distributor will now be all the way into the block, but the rotor will not be properly aligned. You can now pull the distributor up until the cam gear disengages, turn the rotor JUST A HAIR (half a cam tooth) clockwise (counter clockwise for Pontiac), and drop it straight back down again with a wiggling motion. The rotor will now move one tooth over, and the chamfer on the oil pump shaft will allow the oil pump to line back up. The distributor will drop all the way back in again, with the rotor moved over one tooth.

Repeat this operation (I call it “walking the distributor”) by lifting the distributor up, slightly moving the rotor, and dropping it back in until you’ve “walked” the rotor around to its correct position as shown in the figure below. Once you get the technique down, you can do this very quickly – much quicker than trying to align the oil pump driveshaft with a screwdriver while looking down the hole. The screwdriver technique also requires that you pull the distributor ALL THE WAY OUT to fiddle around with the screwdriver several times until you get it right. So, try my “walking” technique: it’s quick and accurate.

6. Once you have “walked” the rotor into position, you should be able to obtain the orientation of the distributor body and the rotor as shown in Figure 1. Install the distributor hold-down clamp and bolt. Snug it but leave it loose enough that you can rotate the distributor smoothly.
7. Attach an Ohm-Meter (continuity tester) between the distributor primary lead wire (the wire coming out of the bottom of the distributor body) and ground (any point on the engine), with the primary wire disconnected from the coil “-“ terminal. Rotate the distributor body SLIGHTLY clockwise (counterclockwise for Pontiac) from the orientation shown in Figure 1 until you read continuity (points are closed – giving continuity to ground). Now, SLOWLY rotate the distributor body counter-clockwise (clockwise for Pontiac) until the points JUST break open (loss of continuity on the ohm meter). The instant the points break open is the ignition firing point. Tighten your distributor hold-down bolt at this point. Your distributor body and rotor should now be aligned like Figure 1 (or VERY close).
8. Slip your distributor cap onto the distributor. Notice which “tower” is the #1 plug wire. With a felt marker, place a little mark on the distributor body at the #1 tower position. Pull the cap back off and verify that the rotor is pointing to this mark (or VERY close). If it’s not, you’re most likely off by a tooth. Repeat the installation steps.
9. If everything is aligned (and it will be if you followed these steps), install the cap and install the plug wires as shown in figure 2. Hook up the distributor primary lead wire to the “-“ side of the coil.
10. Start the engine. It will fire and run immediately if the above steps have been followed.
11. Set the dwell to 30 – 31 degrees. Always set dwell before setting timing. Changing the dwell changes the timing. (If I have rebuilt the distributor for you, the dwell has already been set and does not need adjustment).



Figure 1: Distributor & Rotor Correctly Installed at #1 Firing Position

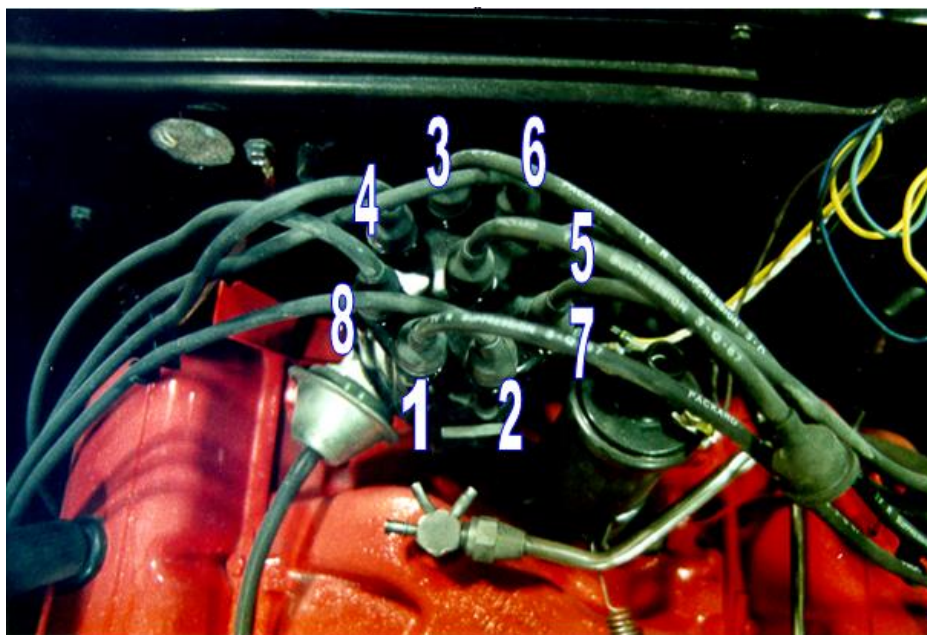


Figure 2: Correct Spark plug Wire Order and Placement

Alternate Corvette C3 Distributor Installation Orientation

Due to the relationship between the distributor tach drive cable and the firewall on the C3 Corvette (1968 – 1974), GM issued a Service Bulletin allowing an alternate distributor installed orientation in order to straighten out the tach drive cable and to promote longer cable life.

The distributor orientation shown in the above photos installs the distributor so that the vacuum advance control unit pokes out in front of the distributor shielding at about a 7:00 o'clock position as seen from the front of the engine. In order to straighten out the cable and still retain the shielding, GM allowed the distributor housing to be rotated clockwise 45 degrees. This rotation pokes the vacuum advance out from behind the shielding, pointing it towards the rear flange of the passenger-side valve cover at about the 9:00 o'clock position as seen from the front of the engine. This orientation straightens out the tach drive cable. When doing this, the spark plug wires were all shifted 1 tower counter-clockwise in the cap, so that the plug wires retained their same relative

positions to the engine/vehicle (#1 wire was placed in the previous #2 cap location, thus retaining the #1 wire as the forward, passenger-side plug wire). To do this, you do not need to pull the distributor: Simply shift the wires over 1 tower as shown, rotate the distributor 45 degrees, and re-check engine timing with a timing light.

It is recommended that C3 distributor installations be done according to the Service Bulletin Alternate Orientation in order to increase cable life and to simplify cable & distributor installation.

1968-1974 Small Block Distributor Alignment



1968 Corvette 327 Cu. In. Engine Distributor Alignment

The distributor on the 1968 Corvette 327 cu. in. engine has been rotated clockwise to gain needed clearance between the tachometer drive and fire-wall. The positioning of the distributor cap spark plug wire towers have been altered due to the repositioning of this distributor.

Figure 2 shows the new location of the spark plug wire towers. Although the firing order has not changed (1-8-4-3-6-5-7-2), each tower is indexed clockwise by one from the conventional arrangement.

This change affects the 1968 Corvette 327 cu. in. engine only. All other V-8 engines are wired in the conventional manner.

This alignment continued from 1968 to 1974. Reprinted from December 1967 Chevrolet Service News. ed.

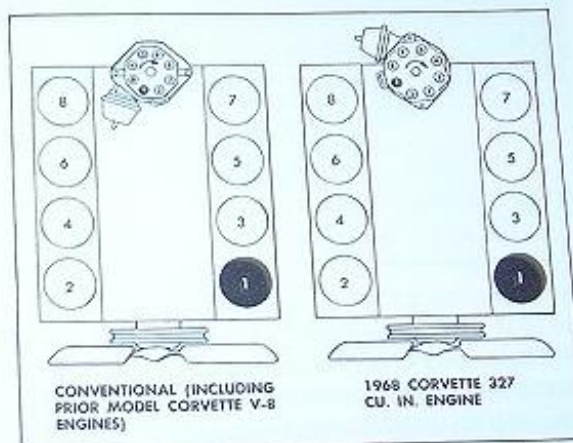


Fig. 2—Comparison of 1968 Corvette 327 Cu. In. Engine Distributor to Conventional V-8 Engine Distributor

(Courtesy "paul67" from CorvetteForum.com)

How to Set the Timing

When you think about it, setting the timing at idle speed makes no sense at all: You don't operate your car at idle, and timing changes as the rpm changes. Fact is, the timing spec at idle speed is provided as a simple way for most people to set the timing and is not a good procedure for optimum performance. (If I have rebuilt and curved your distributor for you, I will provide you with a correct idle speed timing spec on your invoice. You can use the provided idle timing spec in place of this process for any distributor I have rebuilt and provided you data on.)

Chevys (and most other performance V8 engines) perform best when the total timing (full centrifugal advance plus the initial timing setting with vacuum advance hose disconnected) is all in by 2,800 – 3,000 rpm and is set to about 36 degrees. If you have an adjustable timing light, this is very easy to check. If you don't, you need to scribe a 36-degree mark on your harmonic balancer. Here's how:

Measure the circumference of your harmonic balancer using a sewing tape measure (or other flexible tape measure). Get it as accurate as you can. Take this measurement and divide by 10. The number you get is the distance to 36 degrees. Measure this distance CLOCKWISE from your existing harmonic balancer timing mark as viewed from the front of the engine and place a clear mark on the balancer.

Remove your distributor cap and rotor. If you have a points-style distributor with the stock, factory, heavy springs in place, remove one of the springs. This will allow the full centrifugal timing to come in at a lower, safer rpm than when working with both of the factory springs installed. Disconnect the vacuum advance by simply pulling the hose off the vacuum advance control unit on the distributor – there is no need to plug the hose, as the vacuum leak will have no effect on timing. Install the rotor and cap. Loosen the distributor hold-down clamp bolt just enough so that the distributor can be turned yet leave it snug enough that the distributor will hold its position.

Start the engine. If you're using an adjustable timing light, set the light to 36 degrees advanced. Now rev the engine while observing the timing marks with the light. You will notice that the stock line on the balancer will move up towards the timing plate as rpm increases. Continue to increase rpm until the line does not move any further (centrifugal advance is "pegged out"). Once the timing is "pegged out," the line on the balancer should line up with the "0" mark on the timing tab. Rotate the distributor as needed to achieve this.

If you're using a non-adjustable light, perform the same process, but align your new 36-degree mark with "0" mark on the timing tab.

Shut it down.

Pop the cap and rotor and re-install the spring if you removed it. Snug down the distributor hold-down clamp. Put everything back together, but leave the vacuum disconnected. Start it up. For future reference, make a note of the timing setting at idle. This is your new curb idle timing spec. Now give the engine a few quick rev's past 3,000 rpm and verify that the full timing (36 degrees) is coming in. If it's not, you need to change to a softer set of springs until you get full 36-degree advance in the 2800 - 3200 rpm range. (**NOTE:** A stock set of springs will often not allow full centrifugal advance to come in before redline rpm. If you have heavy stock springs installed, don't rev the engine beyond its limits to try to force full advance in.) We suggest obtaining Mr. Gasket kit part number 928G and use the gold springs (do not use the weights in the kit – throw them away) – these springs will get your total timing all in by 2500-3000 rpm, providing very good throttle response and power. On MSD distributors you can use one of the black and one of the silver springs in the kit if you widen out the spring hook ends to get the curve to come in as the specified rpm range. You can “mix-n-match” springs to make the curve come full-in at the 2800-3000 rpm spec: You can use one of the MRG springs, and one of your stock springs to make this happen.

Now, hook up the vacuum hose. Re-set your idle speed and idle mixtures if necessary to lower the idle speed. Now do a road test.

The 36-degree 2800 rpm advance curve is optimum for performance but may require premium fuel for high compression engines. Lug the car around and punch the throttle at low rpm while listening for detonation (“engine knock”). If you're getting any audible knock, you **MUST** retard the timing. Retard the timing in 2-degree increments until engine knock stops. Engine knock will seriously damage engine components if not corrected. If you get no knock, you may see slightly improved performance at 38 degrees total timing, especially on larger bore engines. This is also particularly true if you're running at high altitude.

If you have no engine knock under acceleration, but the car “chugs” or “jerks” at cruising speed (light throttle application), you are getting too much vacuum advance on top of the mechanical advance. You may need to change out the vacuum advance diaphragm with a unit producing no more than 12 degrees of vacuum advance. See our paper on “Vacuum Advance Control Units Facts and Specs” for more info on this.

Your timing is now set for best performance. Make note of the new setting and use this for your future tune-up work.

Lars' Suggested Timing Specs for GM V8 Performance Applications:

- 36 degrees total timing (vacuum advance hose disconnected), all “in” by 2800-3000 rpm

- 14-18 degrees initial timing at idle (vacuum advance hose disconnected). Note that it may not be possible to achieve the 14 to 18-degree initial spec with the 36-degree total without modifying the distributor advance stop system. It is more important to achieve the 36 total than to hit an exact 14 to 18 initial. However, if your initial timing is very low (below 10 degrees) or very high (above 24 degrees) with the 36 total, it is important that you repair or modify your distributor in order to achieve correct engine performance.
- 10-14 degree vacuum advance control unit with a pull-in spec that allows the full range of vacuum advance to be pulled in slightly below the engine's idle manifold vacuum level – see the “2-inch rule” in the Vacuum Advance Tech Paper and the section in that paper on how to limit the advance to the noted 12-degree spec. Connect to manifold vacuum for most applications (this will allow the engine to idle with actual timing at idle of 34 degrees). The total maximum combined timing at light throttle cruise above 3000 rpm will be about 48 degrees.

Pontiac Distributor Installation Supplement

Pontiac distributors rotate in the opposite direction from a Chevy (Pontiac rotates counter-clockwise). When installing a Pontiac distributor, the instructions above can be followed, but substitute Figures 1 and 2 below for the previous Figure #1 and 2 shown for the Chevy:

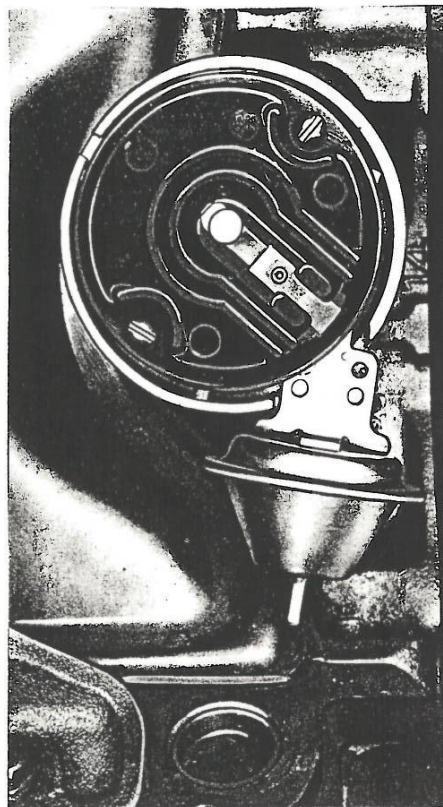


Figure 1

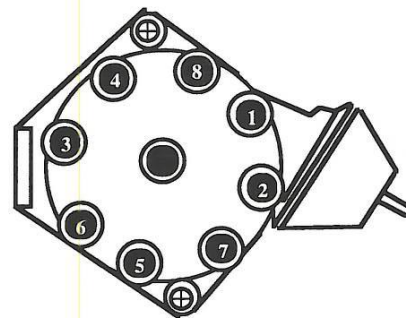


Figure 2

Other papers of interest: E-mail me for my “How to Set Timing” and “Vacuum Advance Control Units Facts and Specs for complete information on timing.

ILNCRS Member Honored at Carlisle Event

Linda Strohm-Dunlap's two Corvettes picked as Chip's Choice this year at Corvettes at Carlisle.



1971 LS6 Corvette Coupe 454/425 HP - Benchmark Award 2000 - NCRS Duntov Mark of Excellence - 5 Star Bow Tie - Bloomington Gold - Chip's Choice #396 2020



1966 L72 Corvette Convertible 427/425 HP – Benchmark Award 1991 – NCRS Duntov Mark of Excellence – 5 Star Bow Tie – Bloomington Gold – Chip's Choice #393 2020



ILNCRS

2020 Fall Color Drive and Charity Event

By Scott Lindee

Our annual Fall Color Drive and Charity Event was held Sunday October 11th. The weather was cool but beautiful, the fall colors were just beginning to turn.



As usual, we started our drive by meeting at a Starbucks. The author and organizer were actually waiting at the wrong Starbucks before realizing this mistake. I really should read the flyer that I wrote!

First stop was St. James Farm Forest Preserve. A great place to look around the grounds and regroup. The property was acquired by Marion McCormick in 1920, nephew of McCormick Place namesake Cyrus McCormick. It was the McCormick's 200 acre horse farm. Interestingly, another McCormick, Robert, owned nearby Cantigny Park.



We then drove through the Cantigny Golf Club, and then on to the DuPage County Blackwell Forest Preserve. In the interest of social distancing, the North Pavilion was rented for the day. Food and refreshments were a bring-your-own affair.



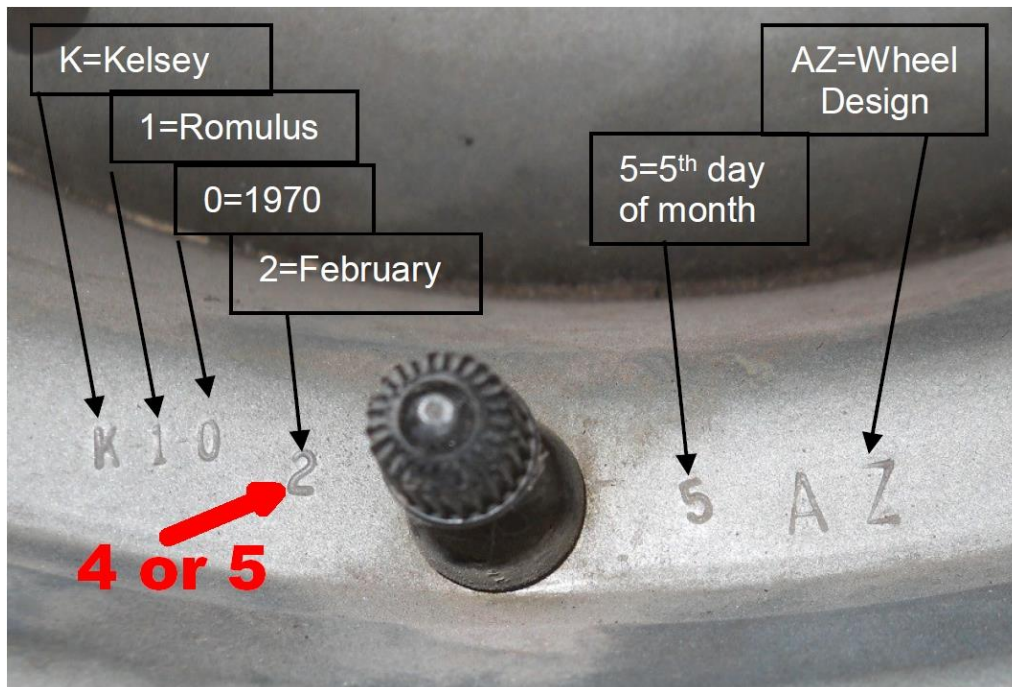
Fourteen Corvettes joined us on the color drive. Twenty-three happy campers enjoyed the pavilion and the scenery at the preserve.



The charity donation is going to the Shriners Hospitals for Children - Chicago. I want to thank everyone for attending our annual color drive and charity event!

For Sale / Wanted

Wanted: Dated 1970 Rally Wheel. 15 x 8 AZ Dated April (4) or May (5) 1970. Contact Scott Lindee at sal70lt1@yahoo.com



For Sale: 1968-1969 Rocker Panel set. Original, these are not reproductions. Good chrome and fiberglass.

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Contact Scott Lindee at sal70lt1@yahoo.com



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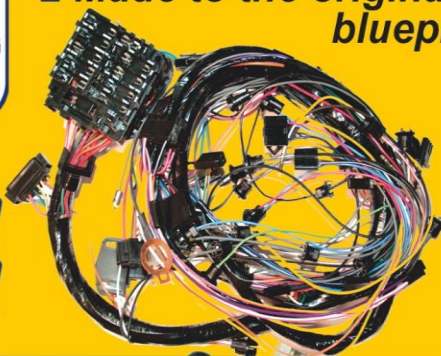
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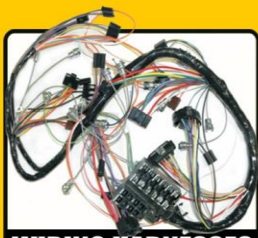
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