The Kisselgraph

☆ ☆ ☆ The official newsletter of the KisselKar Klub ☆ ☆ ☆

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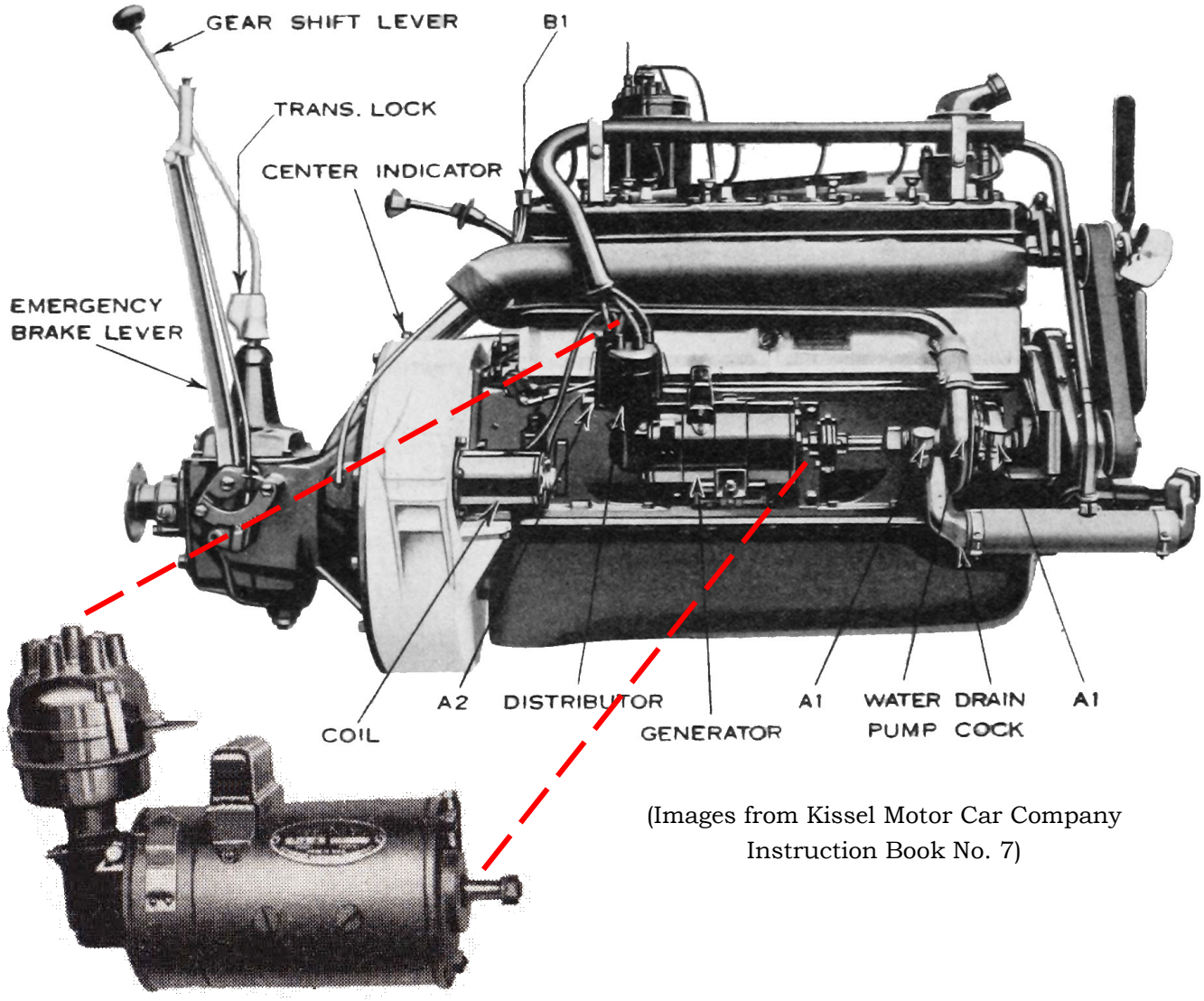
Replacing a Deteriorated Generator on a Model 6-55 Engine



(Images from Kissel Motor Car Company Instruction Book No. 7)

Inside this issue, Mark A Kissel tells us of his successful efforts to adapt a Remy 940F generator to work on his 1923 Kissel 6-55 Phaeton. (The results of this automotive transplant surgery can be seen in the photo on the back page of this issue.)

The Kisselgraph is published for the benefit of members of the KisselKar Klub through substantial support from the Wisconsin Automotive Museum.

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Our website is an on-line presence for the KisselKar Klub and features a gallery of member vehicles, back issues of *The Kisselgraph* and other information.

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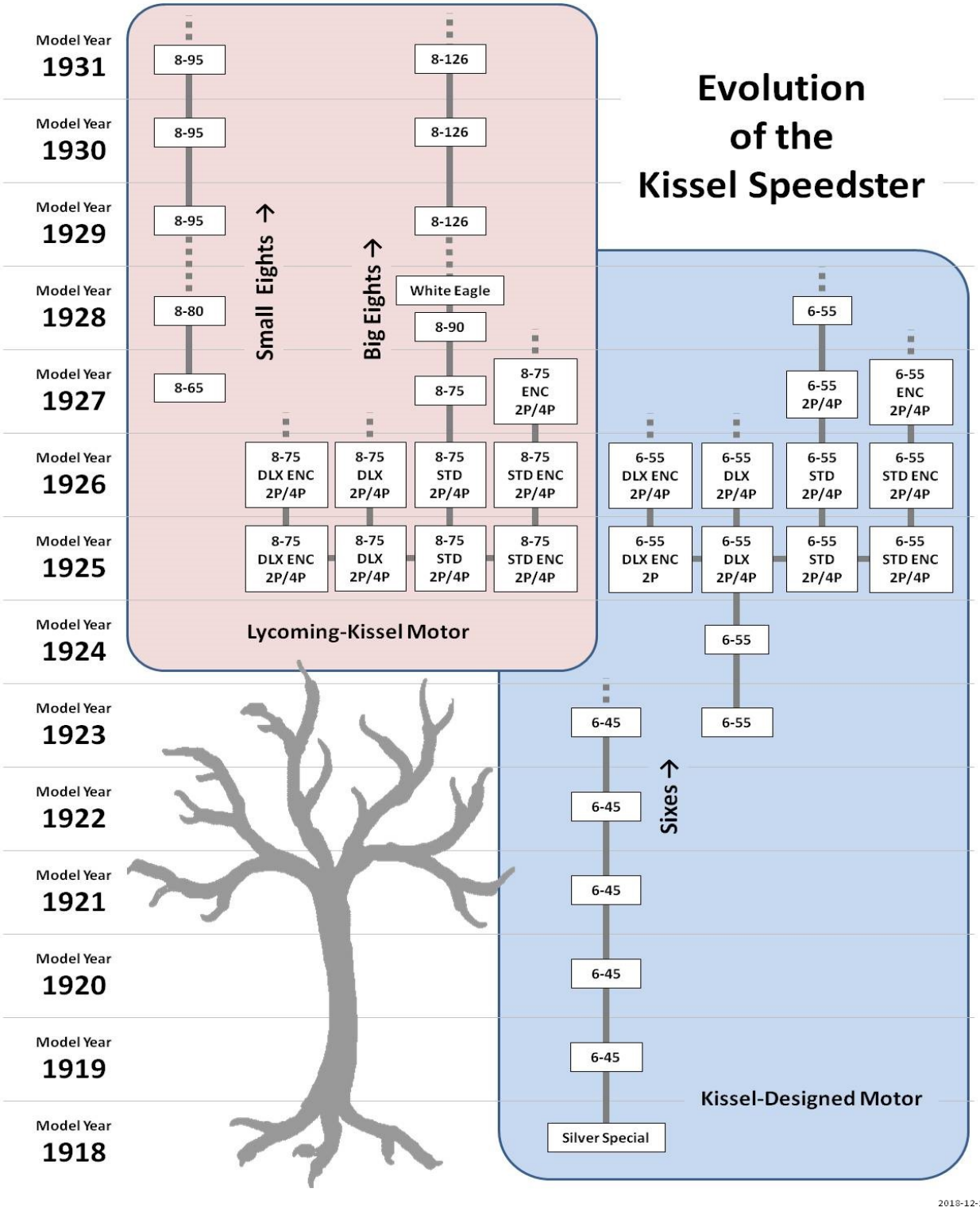


With the input from owners, especially John Lewis and Joe Leaf, editor Lynn Kissel created this graphic to visually summarize the evolution of the Speedster variations offered by Kissel from its introduction at the New York Auto Show in Jan.1918, through the end of Kissel production in model year 1931 (Sep. 1930). (The Kissel model year ran from July to June. For example, model year 1926 started July 1925 and ended June 1926.)

For 1926, Kissel advertised the Speedster in 6-55 and 8-75 models, in open and enclosed bodies, in two- and four-passenger configurations, in standard and deluxe trim lines. That's 16 variants on the theme.

Kissel coalesced their Speedster offerings by 1928 to three models — a large eight, a small eight and a six — apparently what they concluded to be the sweet spot in their market.

Converting Point Gap to Dwell Angle

By Doug Kissel

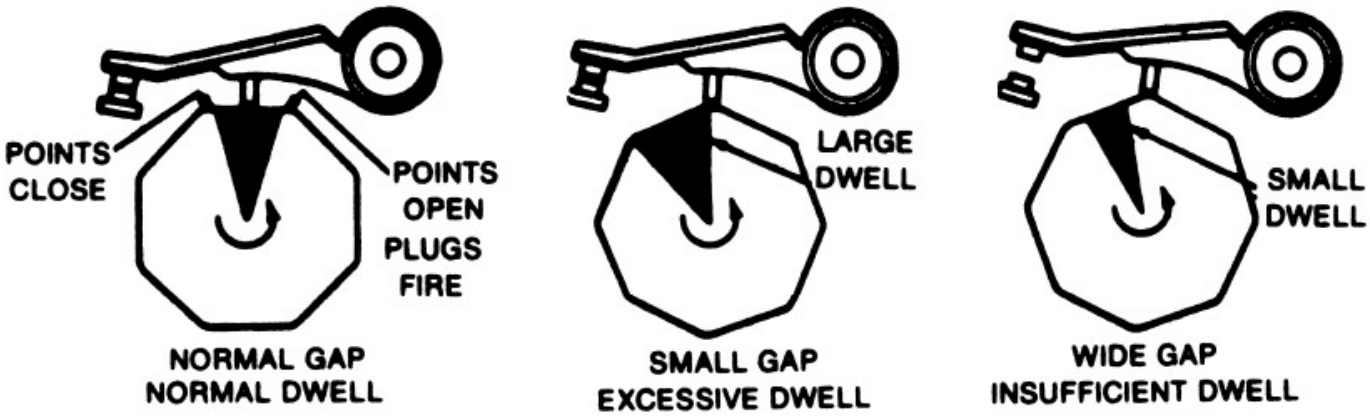
While working on the never ending brake job on my 1925 Speedster last year (car# 55-5003, *The Kisselgraph* Vol 43. No 2, Dec 2017), I decided to check for engine tune-up specs. Kissel *Instructions No. 7* (6-55) and *No. 8* (6-55 and 8-75) specify the distributor point gap for the Model 6-55 as 0.025".

From my days of tuning up cars as a kid, I learned the hard way that simply using a feeler gauge to set the point gap was not sufficient to get the optimum ignition adjustment. This is because the point-gap adjustment is really a surrogate for the underlying quantity of interest, that the points have been closed long enough to build a strong magnetic field in the coil. A *dwell meter* gives a more precise measurement of this important ignition adjustment. The adjustment is specified in terms of a *dwell angle*, the number of degrees of distributor cam rotation when the points are closed and current is flowing through the primary windings of the ignition coil. The ignition *fires* just as the points crack open at the end of the dwell period. The collapsing magnetic field from the interrupted current in the primary windings induces high voltage in the secondary windings causing a spark at the plugs.

The dwell angle is related to the point gap by the geometry of the distributor cam. If the distributor cam is worn as might be expected on a nearly 100-year-old car, correctly setting the point gap will not correctly set the dwell angle.

No specification is given in the Kissel owners manuals, so what is the right dwell angle for a Kissel 6-55? From what I read, published dwell angles are generally a bit more than 1/2 of the distributor cam angle for a single cylinder. For a 6-cylinder engine with 60°/cyl (360°/6 cyl), dwell angles of 30-35° are appropriate. I used 32.5° degrees for my Kissel 6-55 engine.

Doug Kissel lives in Hartford, WI, and is the grandson of William L Kissel, company founder. Doug is on the board of directors for the KisselKar Klub and the Wisconsin Automotive Museum. You can contact him via email to 'Doug.Kissel@kisselkar.net'.



These diagrams illustrate the relationship between point gap and dwell angle. Shown here for an 8-cylinder engine (the cam has eight lobes). If the point gap is too small, the dwell angle is too large (center image). If the point gap is too large, the dwell angle is too small (right image). If the cam lobes are worn, the factory point gap will not result in the optimal dwell angle.

Hand Control Levers for Model 8-75 and most Model 6-55 Kissels

From: **Ed Wros**, *edwardwros@gmail.com*

In the process of restoring my 1926 Kissel 8-75 Brougham (car# 75-3533) I have cast new hand control levers. These parts are listed in Kissel *Parts Book No. 63* and *No. 64* as

- Throttle Control Hand Lever, illustration Z417, part# C-10-HA
- Spark Control Hand Lever, illustration Z421, part# C-11-HO

If I read *Parts Book No. 64* correctly, these parts fit Model 6-55s starting with car# 55-5001 and all Model 8-75s.

Here's an image of the new levers installed in my car. I cast my parts in stainless steel, so they are considerably stronger than the original parts. I then polished then to the shine you can see in the photo.

If anyone in the Klub is in need of having these parts made they can contact me via email. I will then call the foundry for current prices to cast more parts.

Extracted from Wikipedia, the free encyclopedia

Pot metal *(or* ***monkey metal****) is an alloy of low-melting point metals that manufacturers use to make fast, inexpensive castings. The term "pot metal" came about due to the practice at automobile factories in the early 20th century of gathering up non-ferrous metal scraps from the manufacturing processes and melting them in one pot to form into cast products. A small amount of iron usually made it into the castings, but too much iron raised the melting point, so it was minimized.*

There is no metallurgical standard for pot metal. Common metals in pot metal include zinc, lead, copper, tin, magnesium, aluminum, iron, and cadmium.

—-

Zinc pest *(from German Zinkpest), also known as* ***zinc rot****, is a destructive, intercrystalline corrosion process of zinc alloys containing lead impurities. While impurities of the alloy are the primary cause of the problem, environmental conditions such as high humidity (greater than 65%) may accelerate the process.*

It was first discovered to be a problem in 1923, and primarily affects die-cast zinc articles that were manufactured during the 1930s, 1940s, and 1950s. The New Jersey Zinc Company developed zamak alloys in 1929 using 99.99% pure zinc metal to avoid the problem, and articles made after 1960 are usually considered free of the risk of zinc pest since the use of purer materials and more controlled manufacturing conditions make zinc pest degradation unlikely.

Creating a Replacement for the Deteriorated Generator on my 1923 Kissel 6-55 Phaeton

By Mark A Kissel

The generator on my 1923 Kissel Phaeton Model 6-55 (car #55-1799) was inoperable, preventing me from starting the engine. Kissel vehicles are much more exciting when the engine runs so I needed to do something about my inoperable generator.

Introduced in model year 1923, the Kissel Model 6-55 was an update to the Model 6-45 that debuted in 1918.

On these cars, the cam-shaft gear drives the water pump, which drives the generator, which drives the distributor on the right side of the motor. Without a mechanically serviceable generator, the distributor doesn't work and the engine doesn't run. (Please see the cover illustration)

The distributor drive at the back end of the generator was cast of pot metal and had badly deteriorated. The metal had swelled, warped and cracked beyond repair, making the generator, distributor and engine inoperable.

Parts Book No. 64 notes that the Kissel Motor Car Company used two generators on their Model 6-55s; Remy 912B was used through car #55-12000, and Remy 944B was used on car #55-12001 and up. I assume that the inoperable generator on my car was a Remy 912B as identification tag had been lost.

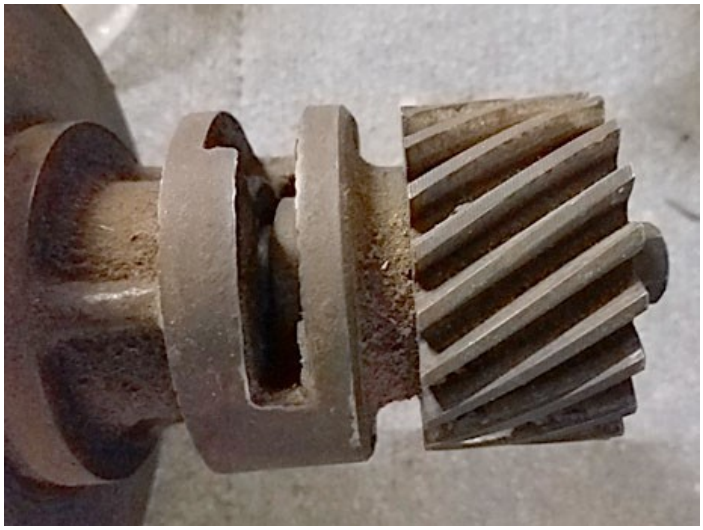
I had not found a way to fix the original generator, but I learned of similar problems facing two other Kissel owners, Joe Leaf and Bruce Yeaton. Although they've taken somewhat different paths, I followed their lead to select and modify another generator to make it work on my car.

The concept was to find and modify a late 1920s or early 1930s Buick 6 (or similar) generator and make it work on the Kissel 6 -55. I believe that either a Remy 940F or a 940M generator would work. I guess that there are other Remy 940 generators that may work as well. Although the tag was missing, I found what I believe is a Remy 940F generator, because it had what looked like the original Remy 640A distributor attached to it.

These Buick generators can work on Kissel 6-55s because they are for six cylinder engines and, importantly, the rotation ratio of generator to distributor is 3:1.

The deteriorated, original equipment Remy 912B

The replacement, Buick 6 Remy 940F



Detail of the old driven end of the Remy 940F

But there are big differences between the Remy 912B and Remy 940F generators. The Remy 912B (Kissel) is shorter, smaller in diameter, driven off the water pump and lubricated by spring-cap oilers. The Remy 940F (Buick) is longer, larger in diameter, driven off the cam gear, in turn drives a water pump and is lubricated by engine oil.

Before starting modifications to my Remy 940F, I had it tested and found that it needed to be rebuilt. I sent it to Classic Generator in Midlothian, Texas, and they rewound the armature, installed new brushes and field coils. They returned my rebuilt generator in approximately two weeks.

In summary, these are the major changes I needed to make to adapt the Remy 940F to work in my Kissel 6-55.

1. Create a new coupler to drive the generator from the Kissel water pump (see drawing)
2. Required removing the old drive gear, shortening the generator shaft, and shortening the shaft and extending a keyway on the Kissel water pump
3. Create a new cover with a spring-cap oiler for the generator oiling port
4. Modify the generator case to remove unneeded mounting lugs
5. Modify the Kissel mounting bracket to accept the larger diameter generator

Here are some more detailed comments about some of these steps.

1. Create a new coupler to drive the generator from the Kissel water pump

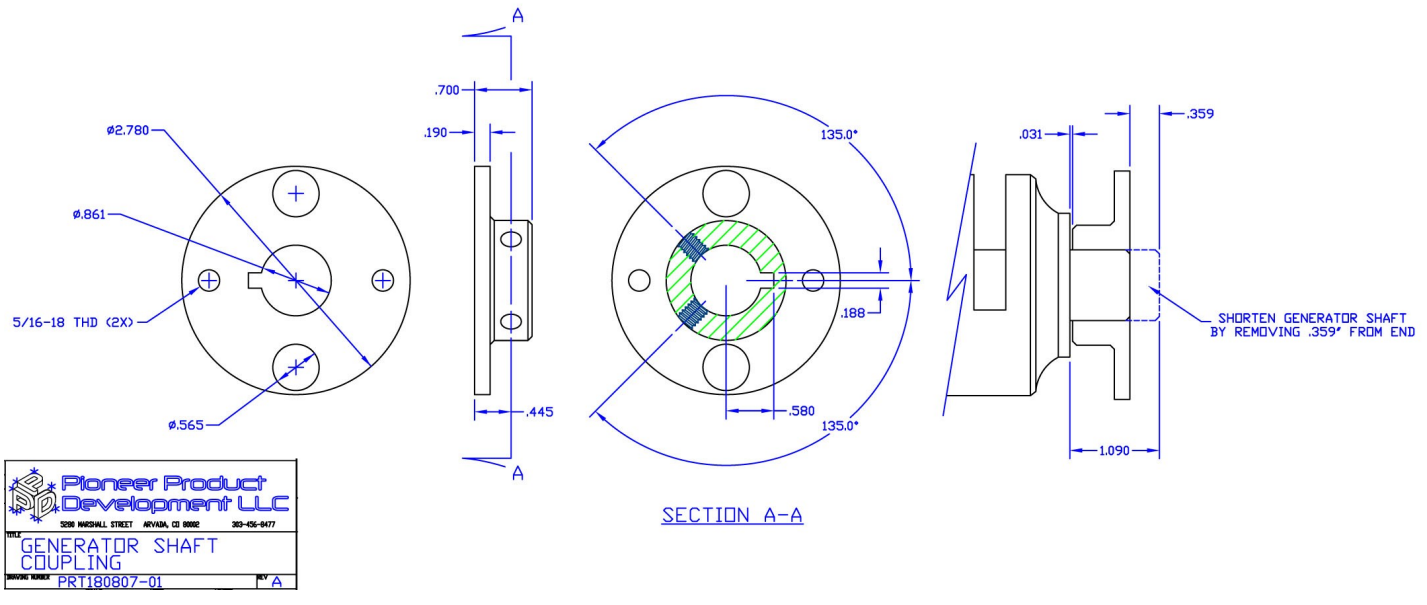
Because the Remy 940F is longer than the original equipment generator, to make things fit about 13/16” of shaft needed to be removed between the centers of the water pump and generator. Keeping the new drive hub as thin as possible, the generator shaft could be shortened a bit more than 5/16”. Using a cut-off wheel in a die grinder, the water pump shaft was shortened by about ½” to obtain the rest of the needed space.

The original coupler was designed such that the hub on the generator side of the coupler is firmly fixed to the shaft; it does not move fore/aft on the shaft. On the water pump side of the coupler, the hub is not fixed to accommodate some variation in the thickness of the coupler.

Cutting off the end of the water pump shaft made it necessary to recut the keyway for the Woodruff key (half-moon key) on which hub is pressed on. I strongly recommend the removal of the water pump and having a machine shop with a keyway cutter to cut a new keyway in the shaft. (In spite of this, I decided to VERY CAREFULLY cut my own keyway into the shaft by hand using a cut-off wheel of the correct diameter and a die grinder.)

2. Create a new cover with a spring-cap oiler for the generator oiling port

The Remy 940F front bearing was lubricated with engine oil through a wide port. I used a solid (non-perforated) hose clamp to seal the port (Mikalor 2 ¾” hose x 0.98” wide x 0.04’ thick T-Bolt Stainless Steel clamp). In the middle of the clamp, I installed a #10-32 threaded, hinge-spring



A mashup of details from drawings of the coupler

cap oiler, positioned to sit in the middle of the oil slot on the generator. With a bead of Permatex Ultra Black oil resistant gasket maker, I tightened the clamp with oiler on the generator housing.

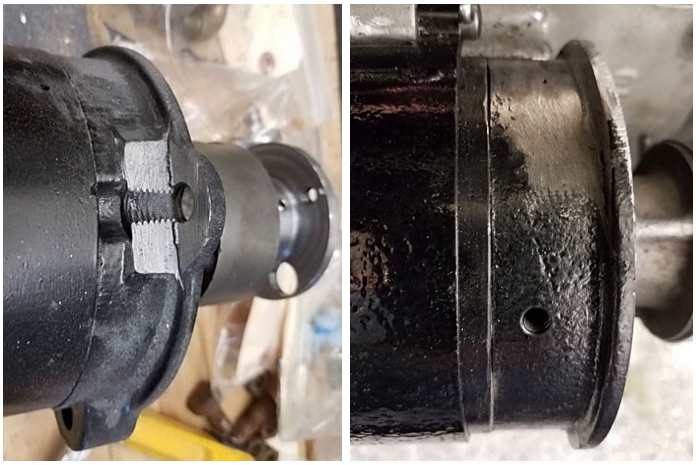
3. Modify the generator case to remove unneeded mounting lugs

The Remy 940F has mounting ears for bolting the generator onto the engine. These ears are not needed for this installation. Using a combination of a fine-toothed hacksaw and a rotary tool, I was able to remove the ears and smooth the case. I left the ring on the very end of the housing intact to provide for housing strength.

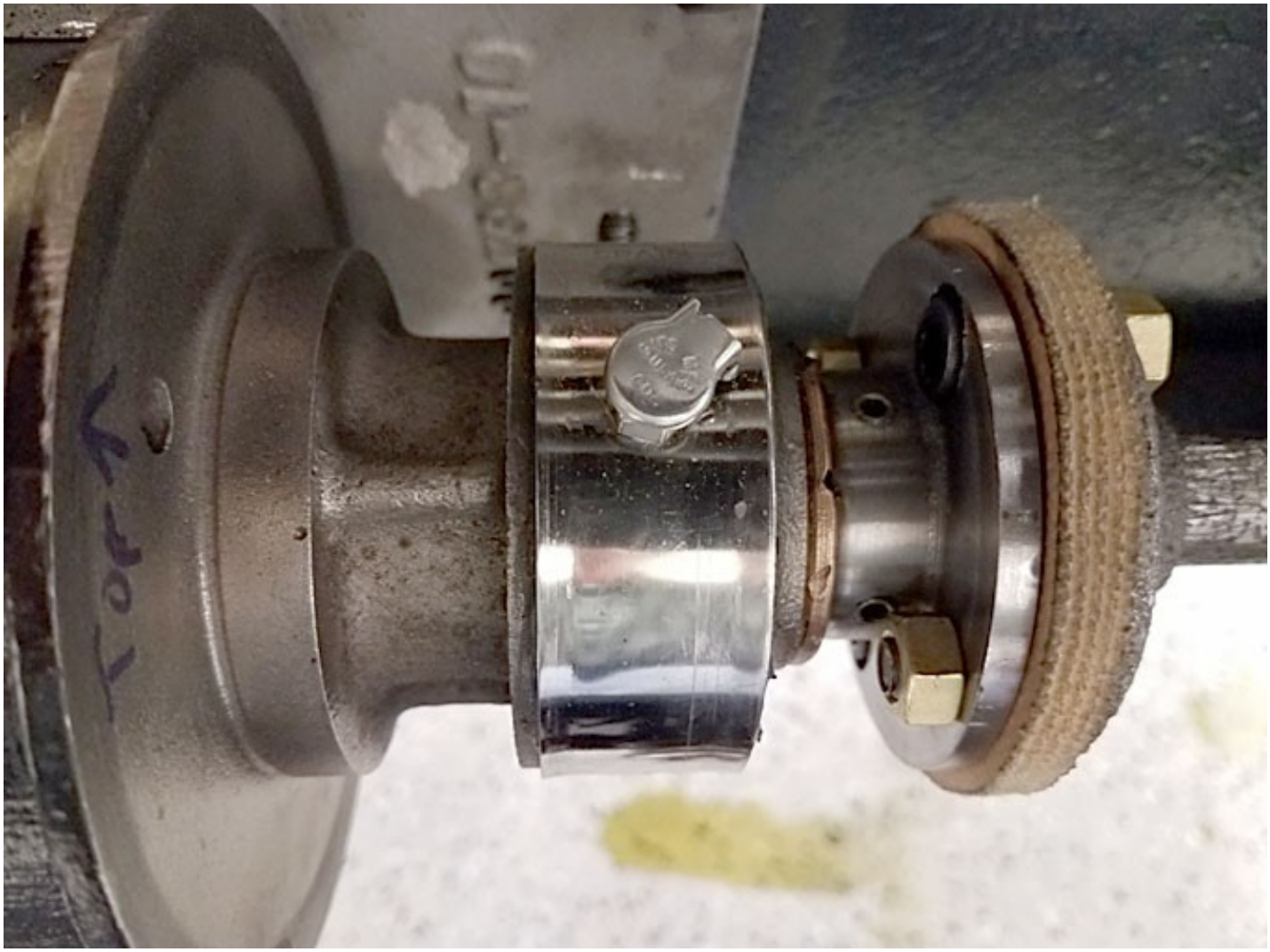
4. Modify the Kissel mounting bracket to accept the larger diameter generator

On the Kissel 6-55, the generator is held against a bracket with a wide strap. Since the Remy 940F is about 1/8" larger in diameter than original equipment (4.567" vs 4.461"), the strap and bracket mount needed to be modified. Geometry suggests that removing material to a depth equal to the difference in radius would be needed (1/2 difference in diameters). I used a die grinder with a rotary burring bit to machine the "lands" of the aluminum bracket.

I was concerned that modifying the bracket not introduce misalignment between the shafts of the water pump and generator. As I was grinding, I would continue to mount the bracket and set the generator in the bracket to see how the progress was coming and to make sure not to take off too much material. Once completely machined; the shafts of the generator and the water pump aligned very closely. This was by far the most difficult and critical step in the whole project.



Going, then gone; two steps in removing the mounting ears of the Remy 940F.



Detail of the oiler and drive adapter on the Remy 940F as installed in the car

You are now ready to oil your generator, wire up your distributor, run plug wires, set timing and then go for a drive!

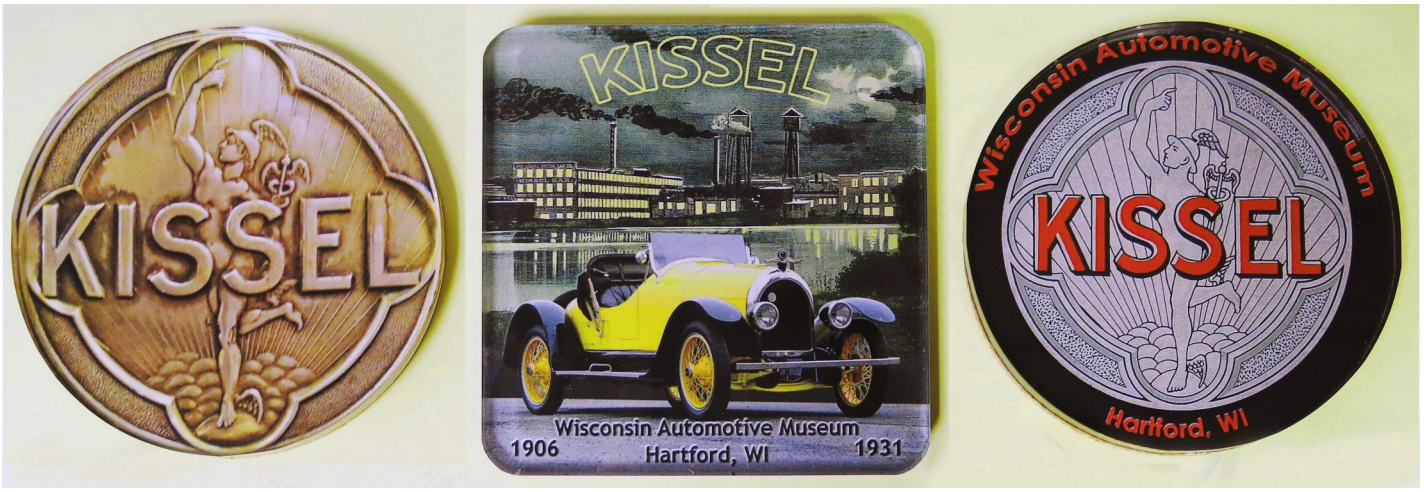
[Editor: Joe Leaf first told me about the concept of using a Buick 6 generator to replace the unrepairable distributor drive on a Kissel 6 generator. Although he considered the idea, Joe instead decided to painstakingly cast a new distributor –drive housing for his 1922 Kissel Speedster's generator (car# 45-6026).

Bruce Yeaton is also pursuing Joe's suggestion adapting a Remy 940M for use in his 1922 Kissel Speedster (car# 45-5061). Bruce has elected to make all the alterations to the Remy 940M leaving Kissel parts unmodified. This involved shortening and reducing the diameter of the generator case.

Mark A Kissel is the first to document his efforts and we are thankful for his contribution to the Klub. Mark's approach requires modifications to Kissel parts.

Joe, Bruce and Mark should be lauded for their efforts to keep these magnificent Kissel vehicles running.]

Mark A Kissel moved to Colorado in 2007 and retired there in 2015. He bought his 1923 Kissel Phaeton in 2001 and has been working on a slow restoration since then. To receive Mark's full report on the generator modification, you can contact Mark via email to 'Mark.A.Kissel@kisselkar.net'.



We now have Kissel Koasters

From: **Dawn Bondhus Mueller**, Executive Director Wisconsin Automotive Museum

I'm sending an image of 3 styles of acrylic coasters we now carry in the Museum store. They are similar in size to the refrigerator magnets that we've have been available for some time.

The two round styles are the same in appearance and size as our 2-3/8" magnet styles.

The square coaster has a backdrop of a postcard in the museum collection, the Kissel factory at night.

We are offering them for $6 per coaster. Shipping to USA addresses for 1 or 2 coasters is $4; for 3-4 coasters, $4.50. Contact the Museum for shipping of larger quantities or foreign addresses.

A Kissel with Bling!

*From: **Ronald Hausmann**, P.E., Classic Car Specialist, KisselKar Klub Director*

Ron has an amazing and growing collection of Kissel vehicles and components.

Here is an image of the Model 6-38 engine (eng# 38-4730) that Ron is currently rebuilding.

Ron has fabricated the plug wire loom and carb heater duct out of copper, and moved the wire rail to the left side of the head. Rather than paint them factory black, he has opted to polish them for a look that makes up in bling what it lacks in correctness.

Ron informs your editor that the engine is targeted for use in his 1918 Kissel Gibraltar Sedanlet (car# 38-4944). This is the only known surviving car with this body type. (Also see The Kisselgraph Vol 41. No 2, Dec 2015)

ClassicSpeedsters.com

Classic Speedsters: the Cars, the Times, and the Characters Who Drive Them

From: **Ronald Sieber**,
www.classicspeedsters.com

I have been researching, writing, and gathering photos and permissions for each of the 12 chapters in my book in progress, ***Classic Speedsters***. Each chapter highlights a different manufacturer, covers the times this manufacturer produced their cars, and showcases a personality who owned or drove one of that company's speedsters.

Many of you have contributed photos, edited or fact-checked my chapters as they pertained to your expertise, volunteered your support in some manner, and encouraged me to keep working on this project. For your help and support, I am eternally grateful. *[Ed: The KisselKar Klub has contributed to this effort]*

Progress Report: I have drafted all of the chapters and have had the majority of them fact-checked for accuracy. There are several more steps to take before publishing, but I feel that the speedster story needs to get out now, even before the book is completed and published.

Toward that goal, I created a website called ***ClassicSpeedsters.com*** and started a journal on the website. The journal's purpose will be to cover the world of classic speedsters: their history, their variety, and their influence on past and current automotive design. The online journal will cover more cars and topics, and use a broader brush than the book will. I will also write about some of the people who owned and drove these fascinating cars, just as I have done in my book. The variety and number of these special cars could not be adequately covered in just one book, hence the blog journal.

So many folks on so many different auto enthusiast sites have repeatedly asked the same questions: "what is a speedster?" And, "who made them, and when?" My journal will aim to address those questions and more. The timeline for speedsters begins in 1905 but has continued on to this day. And they keep being created: there are speedsters being manufactured as I write this — speedster mojo is alive and well!

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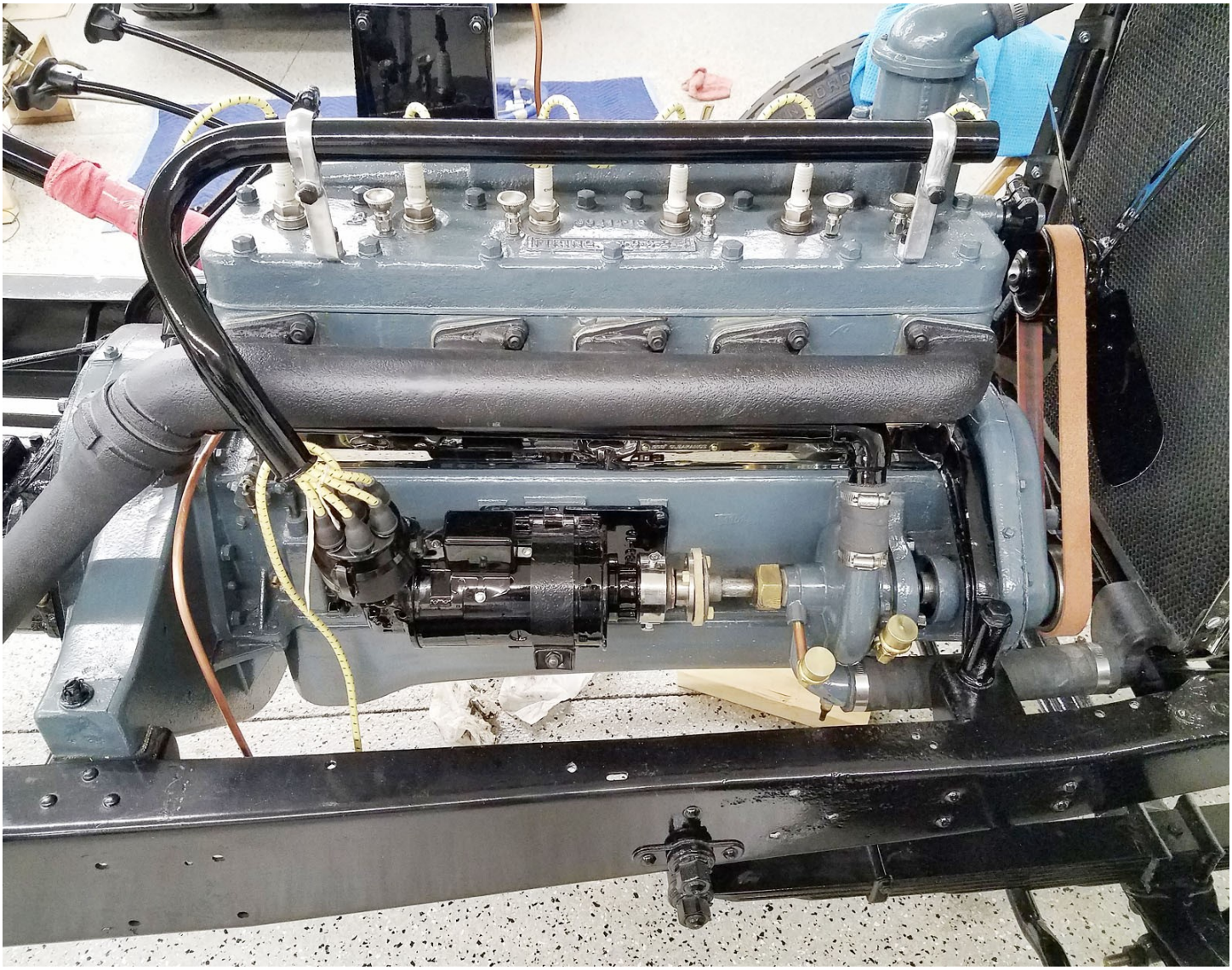
The Deteriorated Generator on a Model 6-55 Engine Replaced



The right side of the engine #55-1928 in Mark A Kissel's 1923 Kissel 6-55 Phaeton. Here we see the installed Remy 940F that he adapted to replace the deteriorated original-equipment generator. Mark tells us of his successful efforts to accomplish this feat inside this issue. (Compare this photo with the factory illustration on the cover of this issue.)