

High OE failure rates make ignition coils one of the industry's largest categories. We understand that you have a lot of choices when recommending ignition coils. Let's take a closer look at them.

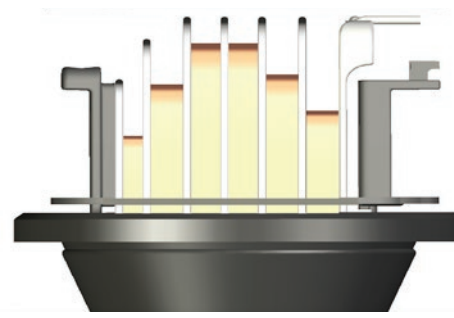
# WHAT'S IN YOUR BOX?™

## 1 A Low-Quality Part:

Less spark energy and capabilities than the original design

Many have less internal bobbin segments than OE, resulting in higher heat, leading to premature failure

Outsourced with limited engineering resources

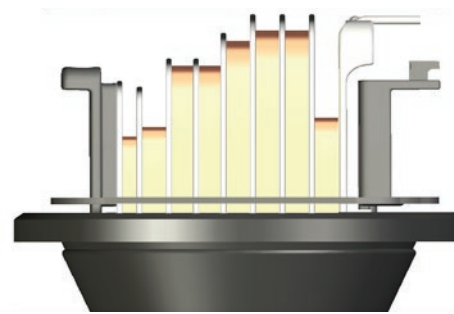


6 bobbin segments

## 2 An OE Part:

The same part that just failed on the vehicle

Many OE service coils are made in different factories and have less capabilities compared to the actual OE coil



8 bobbin segments

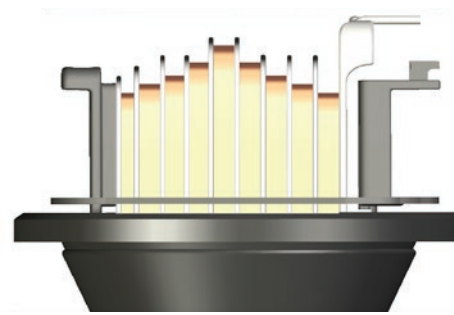
## 3 Precision-Engineered Replacement from NAPA® Echlin®:

Design improvements to reduce heat for performance and reliability

Additional capabilities with more spark energy and a longer discharge duration

In-house design, manufacturing, and testing

Industry-leading coverage makes it easier to find the Coils your customers are looking for



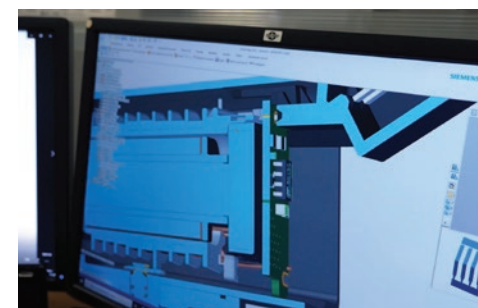
IC479, 9 bobbin segments

Additional precision-wound bobbin segment improves energy distribution and lowers operating temperatures, helping the coil last longer

## HERE IS WHAT'S IN OURS

### Research and Development

NAPA® Echlin® has 13 fully equipped design and development centers in North America and around the world. We design and engineer the best-performing Ignition Coils in the industry.



### Precision Manufacturing

NAPA® Echlin® Ignition Coils are manufactured at our IATF 16949-certified facility in Bialystok, Poland, allowing us to maintain complete control over the entire process.



### Testing and Performance Analysis

NAPA® Echlin® Ignition Coils undergo extensive lab testing for spark energy, discharge duration, thermal shock, thermal cycling, and are even salt spray tested to ensure reliability in harsh climates.



### On-Vehicle Validation

In addition to a full regimen of testing and analysis, NAPA® Echlin® Ignition Coils undergo on-vehicle validation to ensure they integrate correctly and match designed performance in all conditions and across the RPM range.



### Sales Support

The industry's best and most recognized training programs, robust marketing, world-class category management, and a salesforce that's second to none, is why we're more than just a part in the box.



# IGNITION COIL PROGRAM





## THE CAPABILITIES OF A COIL MATTER

Any component that doesn't have to work at its maximum all of the time will perform better and last longer. That is why we design our Ignition Coils, not just to match OE output for spark energy and discharge duration, but to exceed it. Let's think about ignition coils as runners.

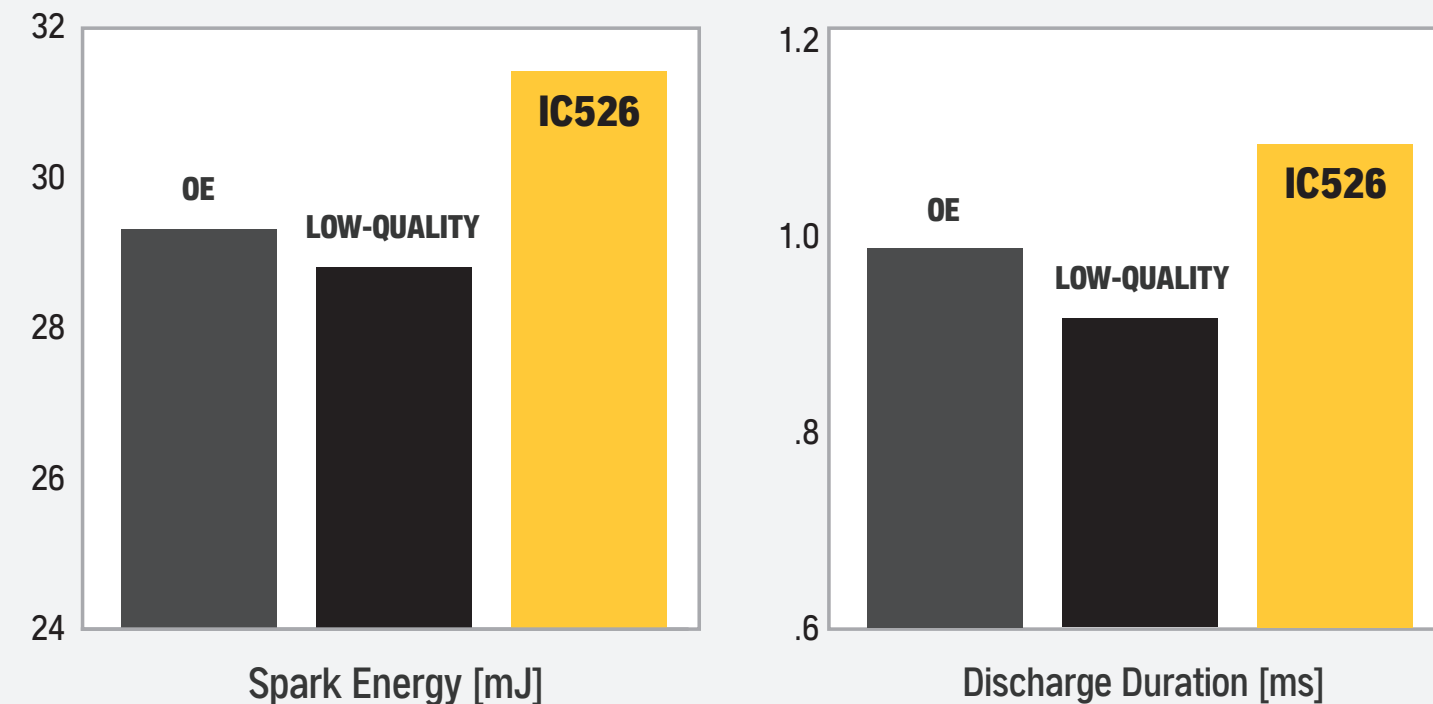


**Low-Quality Coil:** Limited capabilities are like a runner only capable of running 8 mph being asked to run 10 mph

**OE Coil:** This is a runner capable of running 10 mph being asked to run 10 mph

**NAPA® Echlin®:** This runner is also being asked to run 10 mph, but they are capable of running 12 mph. Their additional performance capabilities mean they won't have to work as hard, allowing them to run longer.

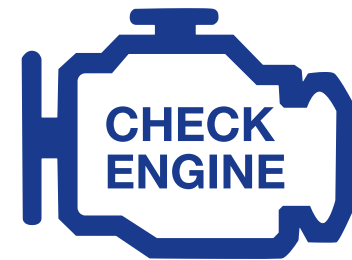
## IGNITION COIL PERFORMANCE CAPABILITIES



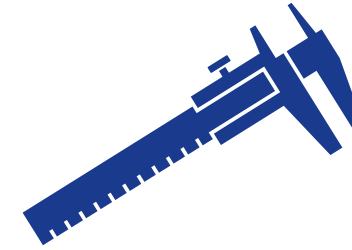
Source: SMP Poland Testing Lab

## THE NAPA® ECHLIN® ADVANTAGE

In addition to engineering our Coils with additional capabilities, we have also corrected the design flaws found in OE coils. The result is better-performing and more reliable Ignition Coils that you can recommend with confidence.



**OUR ENGINEERS IDENTIFY OE FLAWS**



**WE DESIGN IMPROVEMENTS TO OVERCOME THESE FLAWS**

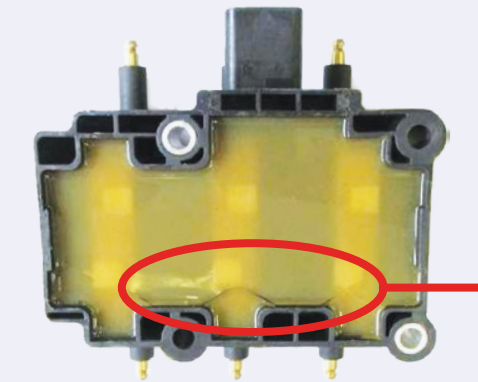


**WE MANUFACTURE A MORE RELIABLE, BETTER-PERFORMING COIL**

## ENGINEERING IMPROVEMENTS FOR THERMAL MANAGEMENT

### OE Problem:

Heat causes the steel core to expand, cracking the epoxy, leading to moisture intrusion and a coil failure

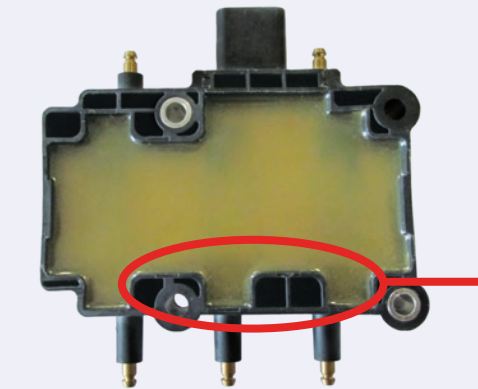


OE epoxy cracks after temperature test



### NAPA® Echlin® Advantage:

An elastomer overmold improves insulation and a high-temperature epoxy won't break down, even in high-heat conditions

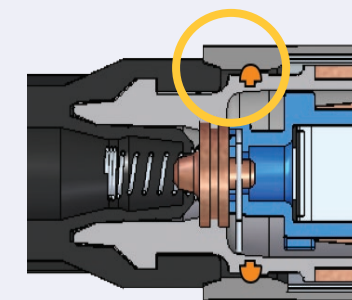


No cracks after temperature test

## ENGINEERING IMPROVEMENTS FOR RELIABILITY

### OE Problem:

Many OE coils use a two-piece design that requires an O-ring. Over time, the O-ring breaks down, allowing moisture to enter the coil and causing a coil failure

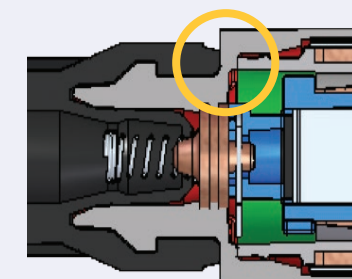


Two-piece design with O-ring



### NAPA® Echlin® Advantage:

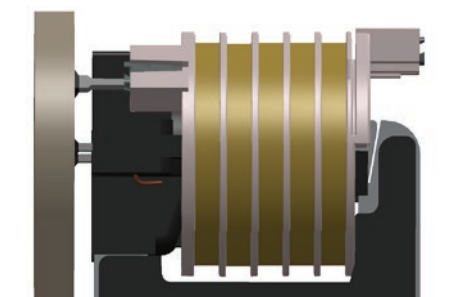
Our engineers created a sealed, one-piece design that doesn't require an O-ring, eliminating the risk of moisture intrusion



Sealed, one-piece design

### OE Problem:

Ignition coils on the Ford 4.6L generate too much heat, leading to a premature coil failure

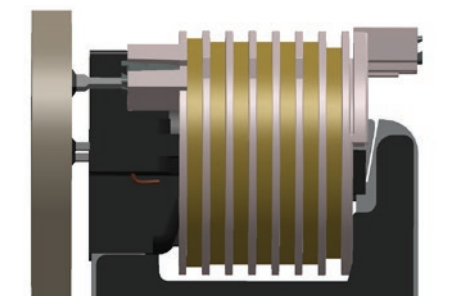


OE coil uses 5 bobbin segments with 27Kv (5.4kV per section)



### NAPA® Echlin® Advantage:

We added two additional bobbin sections to better distribute the energy, resulting in less heat and a longer service life



IC369 features 7 bobbin segments for 29kV (4.1 kV per section) 32% reduction in energy per section