



VARIABLE VALVE TIMING SOLENOIDS & CAMSHAFT PHASERS

THE AFTERMARKET'S MOST COMPREHENSIVE COVERAGE

- COVERAGE
- PATENTED DESIGNS
- EXCLUSIVE SKUS
- PREMIUM MATERIALS
- GASKETS AND HARDWARE INCLUDED
- LIMITED LIFETIME WARRANTY
- SUPERIOR CATEGORY MANAGEMENT

VARIABLE VALVE TIMING SOLENOIDS

Dorman engineers its VT solenoids in North America for years of reliable performance. Each one is an original Dorman design – not a reboxed part from another manufacturer like our competitors – made to our exacting standards in exclusive facilities and backed by a lifetime warranty against defects. Our OE FIX solenoids have been redesigned to improve on known problems in the original equipment VVT solenoid's design for greater reliability.

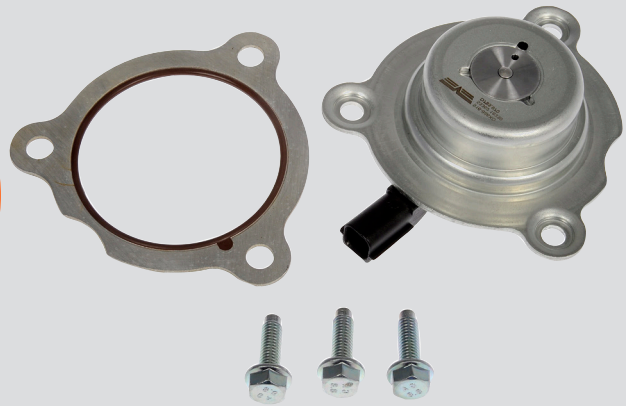
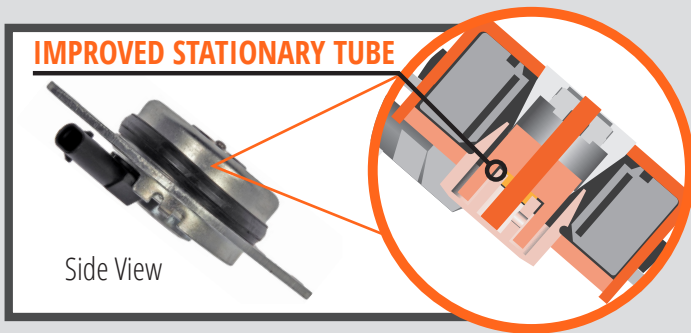


917-200

Ford 2014-04, Ford 2001, Lincoln 2014-05, Mercury 2010-06



THE OE FIX 916-886XD



PROBLEM:

Original equipment rotor and vane backing plate wear prematurely, resulting in loss of oil pressure and poor performance.

OE FIX:

Dorman's patented design features an improved rotor and stronger alloy locking plate to reduce friction, allowing smoother operation while reducing premature wear.

CASE STUDY 917-215



DORMAN

Grade 8.8 bolt w/ retainer ✓

Tight, premium-grade copper ✓

Welded screens for increased durability ✓

Limited Lifetime ✓

HARDWARE

WINDING

OIL SCREENS

WARRANTY

COMPETITOR

X Grade 5.8 bolt, no retainer

X Loose, lower-grade copper

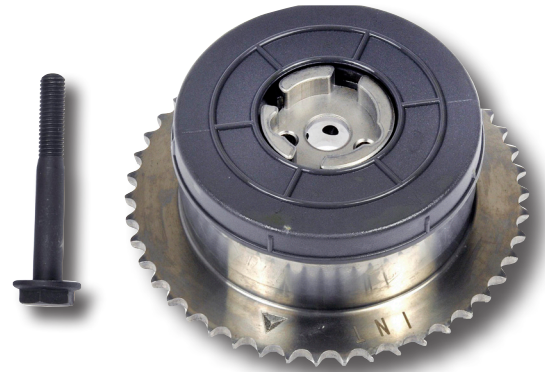
X Spring retainers instead of OE welding

X 3 years/36,000 miles



VARIABLE VALVE TIMING SPROCKETS (Camshaft Phasers)

Dorman's VVT sprockets are precision engineered in North America and made to our exacting standards in exclusive facilities under close supervision. Each one is backed by a lifetime warranty against defects. Our OE FIX camshaft phasers have been redesigned to improve on known problems in the original equipment VVT sprocket design for greater reliability.

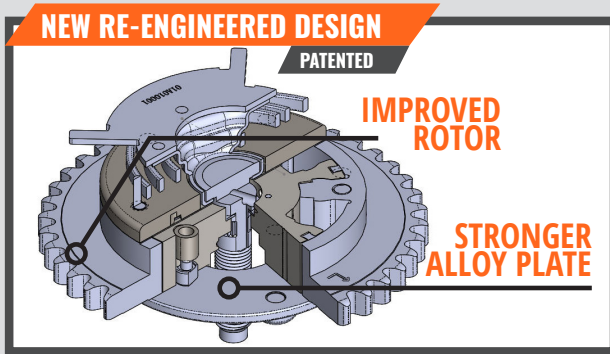


917-270

Buick 2016-10, Chevrolet 2012-06, GMC 2011-10, Pontiac, Saturn 2010-06



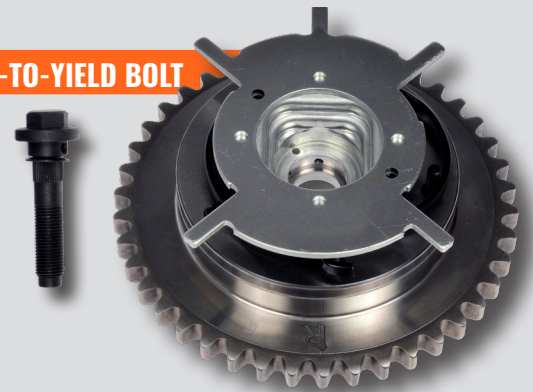
THE OE FIX 917-250XD



INCLUDES TORQUE-TO-YIELD BOLT

917-250XD

Ford 2014-04, Ford 2001, Lincoln 2014-05, Mercury 2010-06



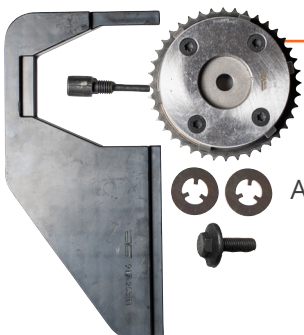
PROBLEM:

Original equipment rotor and vane backing plate wear prematurely, resulting in loss of oil pressure and poor performance.

OE FIX:

Dorman's patented design features an improved rotor and stronger alloy locking plate to reduce friction, allowing smoother operation while reducing premature wear.

CASE STUDY 917-253



DORMAN

New torque-to-yield bolt included ✓

Alignment and timing tools included (\$100 value) ✓

Precision-machined steel ✓

Limited Lifetime ✓

HARDWARE

INSTALL TOOLS

MANUFACTURING

WARRANTY

COMPETITOR

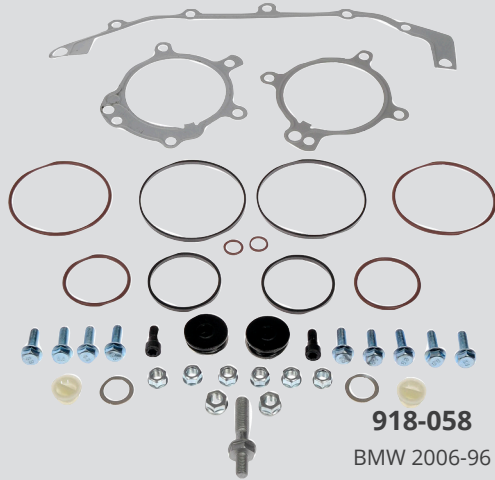
No hardware included ✗

No tools included ✗

Manufacturer markings filed off ✗

3 years/36,000 miles ✗





VANOS REPAIR KIT

Dorman's OE FIX repair kit for the BMW VANOS variable valve timing system includes all the O-rings, gaskets and hardware needed to rebuild the unit, saving time and money. The O-rings are made of an upgraded high-grade material for greater durability than the original equipment O-rings.



PROBLEM:
Low grade O-ring materials fail frequently due to temperature extremes



OE FIX:
Dorman's O-rings are manufactured with improved materials that tolerate temperature extremes to resist failure

CASE STUDY 916-511XD



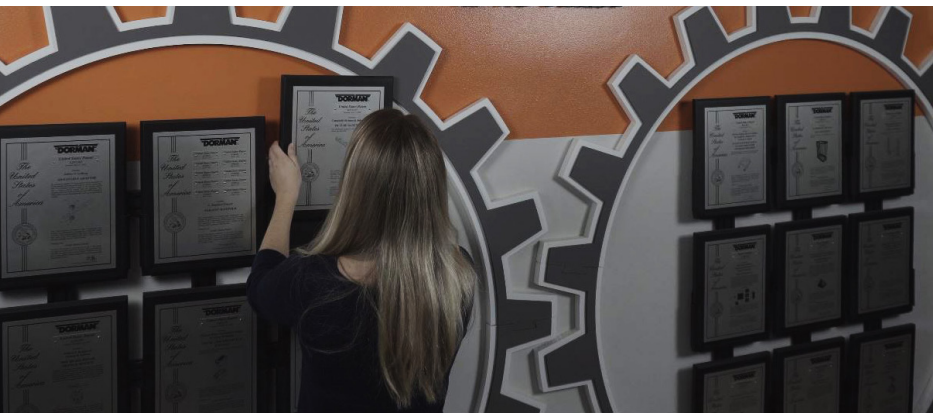
DORMAN

- Compression-tested premium material ✓
- Heat-resistant aluminum housing ✓
- Mounting hardware included ✓
- Patented design with improvements ✓
- Limited Lifetime ✓

- O-RINGS**
- CONSTRUCTION**
- HARDWARE**
- INNOVATION**
- WARRANTY**

COMPETITOR

- ✗ Standard quality material
- ✗ Heat-susceptible plastic housing
- ✗ No hardware included
- ✗ Original equipment reproduction
- ✗ 3 years/36,000 miles



DORMAN'S WALL OF INNOVATION highlights our patented solutions that improve on OE designs.

INNOVATION NOT DUPLICATION

8 PATENTED VVT IMPROVEMENTS

- | | |
|-----------|------------------------|
| 917-250XD | 916-574XD |
| 916-511XD | 916-886XD |
| 916-592XD | 918-190 PATENT PENDING |
| 918-005 | 918-182 PATENT PENDING |