



Presents:



### Diagnosing Variable Valve Timing



## Spring CLINIC TOUR

**Saskatoon April 23, 2019**

**Edmonton April 24, 2019**

**Calgary April 25, 2019**

You requested we bring Drew back..

We listened!

Registration on reverse.

# Registration Form



Location : APD BRANCH

Registration / Food 5:45pm—6:15pm

COURSE : 6:15—9:00PM

ONLY \$75First Technician

\$50 each additional tech from same shop.

## DRV.6041.1.FC | Diagnosing Variable Valve Timing

This clinic will focus on the different types of variable valve timing (VVT) systems used by vehicle manufacturers today. After multivalve technology became standard in engine design, VVT became the next step to enhance engine output, increasing engine power and torque output along with reducing emissions. Without VVT technology, engineers previously had to choose the best compromise in valve/cam timing and ended up sacrificing one thing to gain in another area. VVT allows the best of both worlds – increased performance and economy and lower emissions. There are a multitude of Diagnostic Trouble Codes (DTCs) that can set related to VVT faults stemming from oil contamination to inoperative cam actuators and oil control solenoids. We explain the variations of VVT systems used by manufacturers today and look at diagnostic tests that can be performed on this system using the scan tool and other diagnostic equipment to confidently diagnose these systems before the costly and labor-intensive engine teardown for service.

After completing this clinic, the student will have the knowledge to:

- Identify the VVT system types used by manufacturers
- Understand the VVT DTC stored in the Powertrain Control Module (PCM)
- Relate to the scan tool parameters used by various manufacturers to validate camshaft control and operation
- Realize the importance of lab scope testing to validate camshaft to crankshaft correlation
- Perform mechanical engine tests with a variety of test equipment to avoid timely engine teardowns for diagnostic purposes
- Utilize new scan tool information and techniques to reduce diagnostic time in the service bay for VVT related faults or symptoms

Check City

Sign me up:

- Saskatoon April 23
- Edmonton April 24
- Calgary April 25

Business Name

Account Number

Phone

PO

First Tech \$75.00

\_\_\_\_\_ Additional Techs

@ \$50 ea.

TOTAL

\$ \_\_\_\_\_