New Mechanical Shifting Devices in Automotive Transmission

SAE Transmission Academy Pre-Recorded Course
I.D.# WB1711
Duration: 40 minutes

The Controllable Mechanical Diode is a new technology that improves fuel economy, mass and packaging in modern automatic transmissions. In this xxx-minute course, participants will gain an understanding of the base construction, function and value of the new Controllable Mechanical Diode™ innovation. Advantages of its use in new automatic transmissions will be explained along with examples of the CMD’s alignment to electrified transmissions.

Learning Objectives
By participating in this course, you will be able to:

- Recognize a One Way Clutch and state its basic function in Automatic Transmissions
- Explain the fundamental construction of a Controllable Mechanical Diode (Controllable One Way Clutch)
- Explain the basic function of the CMD
- Explain the value proposition of the CMD
- Give examples of likely future applications of the technology

Who Should Attend
This course will be especially valuable for engineers who design, calibrate and/or integrate any common style transmission into the following types of vehicles: passenger cars, light trucks, light duty off-highway vehicles, light duty farm machinery, and military vehicles.

Topical Outline
- OWC Fundamentals in Automatic Transmissions
  - OWC base function
  - Types of OWC’s
- CMD Controllable One Way Clutch
  - Fundamental construction and function
  - Advantages & disadvantages
  - Current use in automatic transmissions
  - Future applications (alignment to electrified powertrains)

Instructor: Michael Doherty
Mike Doherty is Vice President of Marketing at Means Industries, where he is responsible for marketing, new business development and strategy. Means Industries is an industry leader in transmission clutching technology, products include – Mechanical Diode (MD)™ One Way Clutches, Controllable Mechanical Diodes (CMD)™ Selectable One Way Clutches, clutch plates, formed metal clutch housings, hubs, carriers and pistons. Mike has worked for Means for 20 years in various roles including Product Engineering, Sales, Operations and Marketing. In his product engineering role he led a team that developed wet disk clutches. He holds a BSME from Saginaw Valley State University and EMBA from Northwood University.