# WOODWARD

IPCS006—2301A&D Load Sharing Speed Control

DESCRIPTION

This class will provide you the opportunity to learn more about the 2301A (Analog) and the 2301D (Digital) Load Sharing Speed Control. Ideal for those who need the understanding of how the 2301A and 2301D control, actuators, and their associated accessories allow their engines to operate together, either on or off the infinite bus (utility). During the course both hardware and software configuration / monitoring will be explained.
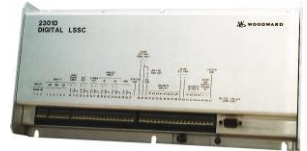
CLASS OBJECTIVES

Upon successful completion of this course, the student will be able to:
• Demonstrate a strong foundation on governor control theory pertaining to the 2301A and 2301D family of controls.
• Field calibrate the controls and adjust actuators, linkage and accessories.
• Demonstrate an understanding of power management issues such as; soft loading and unloading, base loading, peak shaving, import/export control, and power transfer.
• Describe the concepts of basic adjustments, paralleling, and droop.
• Demonstrate an understanding of theory, methods of synchronizing, and paralleling of electrical generators.

CLASS OUTLINE

A. Concepts of Basic Control Theory
• A review covering governor fundamentals of mechanical and electrical governors, governor terminology, basic power generation, and paralleling generators.

B. Mechanical Overview (Actuators, Oil, Linkage)
• EG and EGB family of actuators and governor/actuators including calibration, EG and EGB adjustments, and linkage adjustments.
• Oil selection and oil changing requirements.

C. 2301A Control Systems
• MPU, Speed trim and Motor Operated Potentiometer (MOP)
• Input & Outputs (I/O) of the 2301A controls.
• Calibration and Adjustment of the 2301A controls - Single engine.
• Calibration and Adjustment of the 2301A controls with Load Sharing - Multi-engine.
• Troubleshooting 2301A controls (Hands-on exercises with engine simulators.)

D. 2301D Control Systems
• Comparisons of the 2301A and 2301D controls.
• Input & Outputs (I/O) of the 2301D controls.
• Calibration and Adjustment of the 2301D controls with Woodward Watch Window for both Single engine and Multi-engine.
• Troubleshooting 2301D controls (Hands-on exercises with engine simulators.)
• Power management overview.

The instructor reserves the right to modify the class content to best suit the class needs.