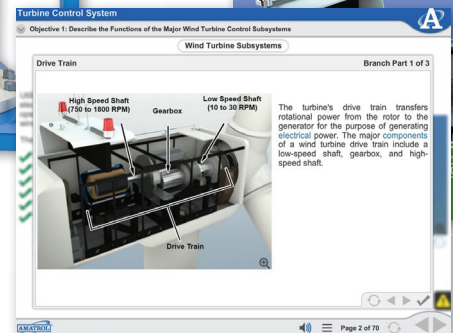
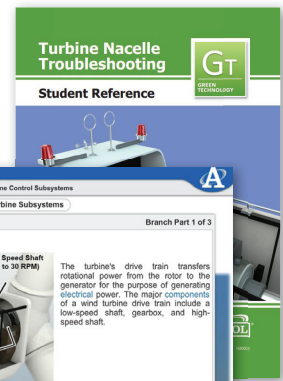
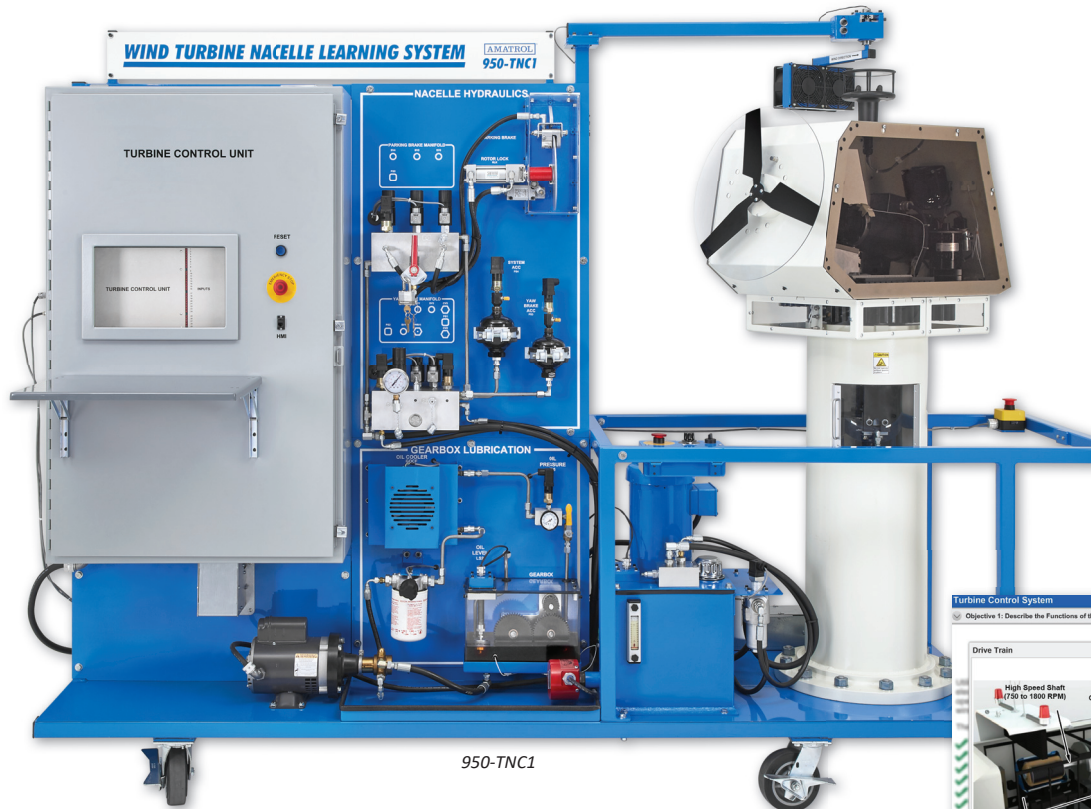


Turbine Nacelle Troubleshooting Learning System

950-TNC1



Interactive Multimedia and Student Reference Guide

Learning Topics:

- Turbine Control Systems
- Turbine Safety
- Yaw Brakes
- Parking Brakes
- Rotor Lock
- Yaw Drive
- Twist Box
- Meteorological System
- Turbine Communications
- Hydraulic Power Troubleshooting
- Yaw Troubleshooting
- Turbine Control Troubleshooting

Amatrol's Turbine Nacelle Troubleshooting Learning System (950-TNC1) teaches learners the unique skills required to operate, adjust, troubleshoot, and maintain wind turbine nacelle systems. The system replicates a fully-functional, utility-scale nacelle, allowing learners to develop and practice component-, subsystem-, and system-level skills.

The system also features FaultPro, Amatrol's exclusive computer-based fault insertion system. FaultPro allows an instructor to electronically insert realistic nacelle problems into the system and then track a learner's progress in troubleshooting and solving the problems. The system can also be connected to the Turbine Electric Hub Learning System (950-TEH1) and the Turbine Generator Control Learning System (950-TGC1) to create a comprehensive wind turbine learning experience.



Technical Data

Complete technical specifications available upon request.

Mobile Workstation

Turbine Control Unit

- Contactors
- Electrical Protection Devices
- Controller with Discrete and Analog I/O
- Network Communications Interface
- Signal Conditioners
- Circuit Disconnects

Nacelle Tower Module

- Yaw System
- Braking System
- Wind Sensors
- Hub Control Communications

Wind Simulator Unit

- Wind Control Unit
- Wind Fan Simulator
- Ultrasonic Wind Sensor

Hydraulic System

- Hydraulic Power Unit
- Yaw Brakes
- Parking Brake
- Rotor Lock

Gearbox Lubrication System

Nacelle Monitor Software

FaultPro Computer-Based Fault Insertion Software

Pressure Gauge Assembly

Lockout/Tagout Kit

Cables (USB & Cat 5E)

Hydraulic Oil (5 gal.)

Multimedia Curriculum (M20015)

Instructor's Guide (C20015)

Installation Guide (D20015)

Student Reference Guide (H20015)

Additional Requirements:

- Engineering Services Start-Up and Installation –
 - Wind Turbine Technology (90-START5)
- Wind Concepts Learning System (950-WC1)
- Computer (Visit www.amatrol.com/support/computer-requirements for details.)

Utilities Required:

- Electric (208 VAC/60 Hz/3 phase)

Options:

- Turbine Electric Hub Troubleshooting System (950-TEH1)
- Turbine Generator Control Learning System (950-TGC1)

Study Wind Turbine Troubleshooting and Practice on Real-World Equipment



Hands-On Practice with Real-World Equipment

Amatrol's Turbine Nacelle Troubleshooting Learning System (950-TNC1) teaches learners troubleshooting skills essential for wind turbine technicians. The system features industry-standard components, such as a turbine control unit, hydraulic power system, yaw drive with dual motor drive, twist box, and ultrasonic anemometer. A wind simulator allows learners to operate the system under varying wind speeds and directions, training them to operate the yaw control and turbine safely. The system replicates realistic troubleshooting situations utilizing FaultPro, Amatrol's exclusive computer-based fault insertion system. Instructors can target training by electronically inserting faults across all key subsystems: electrical, mechanical, and hydraulic.

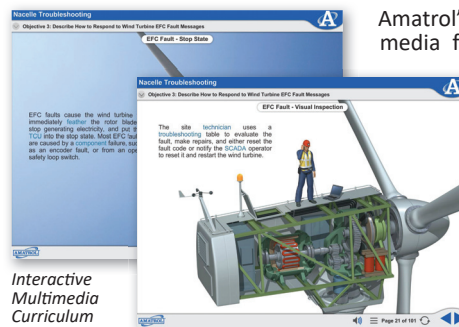
Add Optional Systems To Create a Comprehensive Wind Turbine Learning Experience

The system can be connected to Amatrol's Turbine Electric Hub Troubleshooting System (950-TEH1) and Turbine Generator Control Learning System (950-TGC1) to create a realistic operating and troubleshooting wind turbine environment. Fiber optic communications connect the controls of the three systems and control the entire system using the turbine control software, just as they would on a real wind turbine. Learners can even bring the turbine online with the grid.



950-TNC1 with Optional 950-TEH1 & 950-TGC1 Systems

Engaging, Highly-Interactive Multimedia



Interactive Multimedia Curriculum

Amatrol's curriculum features a highly-interactive, multimedia format that includes stunning 3D graphics and videos, voiceovers of all text, and interactive quizzes and exercises designed to appeal to learners with different learning styles. The 950-TNC1 curriculum teaches learners about troubleshooting utility-scale wind turbine nacelle systems. Specifically, learners will study how to troubleshoot hydraulic power, yaw, and turbine control problems. The combination of theoretical knowledge and hands-on skills solidifies understanding and creates a strong basis for pursuing more advanced skills.

Student Reference Guide

A sample copy of the Turbine Nacelle Troubleshooting Student Reference Guide is also included with the system for your evaluation. Sourced from the system's curriculum, the Student Reference Guide takes the entire series' technical content contained in the learning objectives and combines them into one perfectly-bound book. Student Reference Guides supplement this course by providing a condensed, inexpensive reference tool that learners will find invaluable once they finish their training, making it the perfect course takeaway.

