PHOENIXEV^M

TRANNG CATALOG 2024

We believe in providing clean, quiet transportation for all. In support of that vision, we are delighted to present our 2024 Training Catalog, carefully crafted to empower your team in the efficient operation and maintenance of our buses, ensuring maximum value.

Within our comprehensive catalog, you will discover a range of standard courses meticulously designed to address the diverse roles involved in utilizing our buses. Recognizing that each organization is unique, we also extend our expertise to collaborate closely with you in tailoring programs that align perfectly with your specific requirements. Additionally, we can design, build, and deliver custom training aids to augment your training programs as needed.

At the heart of our mission is the dedication to assist in the development of your workforce. Together, we can ensure that your team is not only proficient in operating and maintaining our buses, but is also well-prepared to navigate the evolving landscape of sustainable transportation.

In addition to our commitment to excellence in transportation, we deeply care about the future and welfare of your employees. Our training programs extend beyond technical proficiency to encompass a holistic approach that considers the well-being and growth of each participant. We believe that a well-trained and content workforce is essential for the sustained success of any organization.

We look forward to the opportunity to contribute to the skill development and overall welfare of your team. Let's work together to usher in a future where clean, quiet, and efficient transportation becomes the norm.

Mike Finnern

General Manager, Transit

RECOMMENDED TRAINING PATHS

*Applicable to all legacy Proterra buses

FIRST RESPONDERS

• First Responder Training

OPERATORS

- Operator Training /with Depot Charging
- Operator Training /with Overhead Charging

OPERATOR TRAINERS

- Operator "Train-the-Trainer" Training /with Depot Charging
- Operator Training+ /with Overhead Charging

ALL MAINTENANCE TECHNICIANS

- eLearning Training Modules
- Technical Training Level 1
- Preventative Maintenance

ADVANCED MAINTENANCE TECHNICIANS

/Actively Working On PHOENIX EV Buses

- eLearning Training Modules
- Technical Training Level 1
- Preventative Maintenance
- Technical Training Level 2
- Ventura or Vapor Door Training
- Eberspaecher or Valeo HVAC Training
- Technical Training Level 3

PCS CHARGER MAINTENANCE TECHNICIANS

PCS Charger Training / Rhombus Chargers Only

BODY REPAIR TECHNICIANS

- Composite Body Repair Training
- Wrap and Decal Training

TABLE OF CONTENTS

First Responder Training 6
Operator Training (with depot charging) 7
Operator Training - Train The Trainer (with depot charging) 8
Operator Training (with overhead charging) 9
eLearning Training Modules 11
Technical Training Level 1 ····· 12
Preventive Maintenance (PM) 13
Technical Training Level 2 ······ 14
Technical Training Level 3 ····· 15
PCS Basic Charger Training (Rhombus Chargers Only) ······ 16
Ventura Door Training
Eberspaecher HVAC Training
Valeo HVAC Training
Composite Body Repair Training 21
Wrap and Decal Training
Training Aids
Training Videos
Contact Us 25



FIRST RESPONDER TRAINING

This course familiarizes students with a PHOENIX EV bus. The course will introduce key features that may be useful in the event of an emergency. The information can be used for local agencies to craft their own response procedures and training programs.

TOPICS

- High-Voltage System
- High-Voltage Safety
- Bus Body
- Fire Response Guidance
- Driver Controls
- Safety Equipment
- Emergency Exits
- Jacking, Hoisting, And Securing The Bus



INSTRUCTION TYPE

- > Instructor-Led Onsite Customer Location
- > Classroom Presentation
- > Bus Driving Activity

TARGET AUDIENCE

- > First Responders
- > Maintenance Technicians
- > Supervisors
- > Operators
- Dispatchers
- > Trainers
- > Safety

COURSE HOURS

> 2-4

MAX NUMBER OF PARTICIPANTS

> 12

COURSE REQUIREMENTS

- Access to a classroom with the ability to show a presentation
- > Access to a PHOENIX EV bus

COURSE PREREQUISITES

> None

OPERATOR TRAINING w/DEPOT CHARGING

This course provides bus operators a comprehensive overview of a PHOENIX EV bus. The students will learn about relevant features, characteristics, and best practices needed to efficiently and safely operate a PHOENIX EV bus. The course also covers how to successfully start and stop a depot charging session.

TOPICS

- Safety
- Bus Exterior
- Bus Interior
- Operator Controls
- Starting The Bus
- Driving The Bus
- Charging The Bus
- Boarding Passengers



INSTRUCTION TYPE

- > Instructor-Led Onsite Customer Location
- > Classroom Presentation
- > Bus Walkaround

TARGET AUDIENCE

- > Bus Operators
- > Dispatchers
- > Supervisors

COURSE HOURS

> 4

MAX NUMBER OF PARTICIPANTS

> 6

COURSE REQUIREMENTS

- > Access to a classroom with the ability to show a presentation
- > Plated bus made available during course hours
- > Operational depot charger made available during course hours

COURSE PREREQUISITES

> CDL

OPERATOR TRAINING /TRAIN THE TRAINER w/DEPOT CHARGING

This course provides bus operator trainers a comprehensive overview of a PHOENIX EV bus. The course covers the same material as the Operator Training with depot charging course, but allots time for deeper discussions and more questions.

TOPICS

- Safety
- Bus Exterior
- Bus Interior
- Operator Controls
- Starting The Bus
- Driving The bus
- Charging The Bus
- Boarding Passengers



INSTRUCTION TYPE

- > Instructor-Led Onsite Customer Location
- > Classroom Presentation
- > Bus Walkaround

TARGET AUDIENCE

- > Bus Operators
- > Dispatchers
- > Supervisors

COURSE HOURS

> 8

MAX NUMBER OF PARTICIPANTS

> 6

COURSE REQUIREMENTS

- > Access to a classroom with the ability to show a presentation
- > Plated bus made available during course hours
- > Operational depot charger made available during course hours

COURSE PREREQUISITES

> CDL

OPERATOR TRAINING w/OVERHEAD CHARGING

This course provides bus operator trainers a comprehensive overview of a PHOENIX EV bus. The students will learn about relevant features, characteristics, and best practices needed to efficiently and safely operate a PHOENIX EV bus. The course also covers the information necessary to successfully start and stop an overhead charging session.

TOPICS

- Safety
- Bus Exterior
- Bus Interior
- Operator Controls
- Starting The Bus
- Driving The Bus
- Charging The Bus
- Boarding Passengers



INSTRUCTION TYPE

- > Instructor-Led Onsite Customer Location
- > Classroom Presentation
- > Bus Walkaround

TARGET AUDIENCE

- > Bus Operators
- > Dispatchers
- > Supervisors

COURSE HOURS

> 8

MAX NUMBER OF PARTICIPANTS

> 6

COURSE REQUIREMENTS

- Access to a classroom with the ability to show a presentation
- > Plated bus made available during course hours
- > Operational depot charger made available during course hours

COURSE PREREQUISITES

> CDL



eLearning TRAINING MODULES

PHOENIX EV has partnered with a professional eLearning provider to offer a curated list of eLearning courses to help build foundational knowledge for technicians. Each registered technician will receive 12 months of access to 12 eLearning training modules. These courses teach the fundamentals that are necessary to be effective electric vehicle technicians. The courses are not specific to the PHOENIX EV platform; therefore, the knowledge can be applied across any vehicle fleet. PHOENIX EV strongly recommends technicians complete these eLearning courses prior to attending any instructor-led training.

TOPICS

- Basic Electrical 1, 2, and 3
- Basic Hand Tools
- CAN Bus System Fundamentals
- Electric Tools Fundamentals
- Electrical Schematic Overview
- Electric Vehicle (EV) Industry Basics
- Fundamentals of Electrical Safety
- Fuse Fundamentals
- Multimeter Fundamentals
- Resistor Fundamentals

INSTRUCTION TYPE

- > Computer-Based Presentation
- > Computer-Based Activities
- > Self-Paced

TARGET AUDIENCE

- > All Maintenance Technicians
- > Maintenance Supervisors

COURSE HOURS

> 12 / Self-Paced

MAX NUMBER OF PARTICIPANTS

> 1 / Per License

COURSE REQUIREMENTS

- > Access To Computer With Internet
- > Unique Email Per License

COURSE PREREQUISITES

> None



TECHNICAL TRAINING LEVEL 1

This course provides bus maintenance technicians an introductory overview of a PHOENIX EV bus. The students will be introduced to the bus systems and how to safely perform maintenance on the bus. The course is intended for maintenance technicians to work on a PHOENIX EV bus.

TOPICS

- Intro To A PHOENIX EV Bus
- Low-Voltage System
- High-Voltage System
- Jacking, Lifting, Towing
- Lockout/Tagout (LOTO)
- PHOENIX EV Diagnostic Tool (PDT)
- Preventative Maintenance (PM)
- Bus Driving



INSTRUCTION TYPE

- > Instructor-Led Onsite At Customer Location
- > Classroom Presentation
- > Hands-On Bus Activities

TARGET AUDIENCE

- > All Maintenance Technicians
- > Maintenance Supervisors

COURSE HOURS

>~16 / Over Two Days

MAX NUMBER OF PARTICIPANTS

> 8

COURSE REQUIREMENTS

- > Access to a classroom with the ability to show a presentation
- > PHOENIX EV bus made available during course hours
- Operational charger made available during course hours

- > Experience with transit buses
- > Basic knowledge of electricity, electronics, and usage of a digital multimeter
- > Digital multimeter rated at CAT 3 1000V DC
- > Personal Protective Equipment (PPE)
 - Class O rubber high-voltage gloves with leather outer gloves
 - Electrical Hazard (EH) footwear
 - Non-conductive safety glasses

PREVENTIVE MAINTENANCE

This course provides bus maintenance technicians an introduction to PHOENIX EV's Preventive Maintenance Inspection (PMI) schedule. The students will be taught how to read the schedule and perform the various maintenance items. The course is intended for any maintenance technicians to perform PMI on a PHOENIX EV bus.

TOPICS

- Intro To PMI Schedule
- Processes To Perform PM

INSTRUCTION TYPE

- > Instructor-Led Onsite At Customer Location
- > Classroom Presentation
- Hands-On Bus Activities

TARGET AUDIENCE

> All Maintenance Technicians

COURSE HOURS

>~5-8 / Depending On Bus Config.

MAX NUMBER OF PARTICIPANTS

> 8

COURSE REQUIREMENTS

- Access to a classroom with the ability to show a presentation
- > PHOENIX EV bus made available during course hours
- > Ability to lift the bus

- > Completion of the Technical Training Level 1 course
- > Experience with transit buses
- > Basic knowledge of electricity, electronics, and usage of a digital multimeter
- > Digital multimeter rated at CAT 3 1000V DC
- > Personal Protective Equipment (PPE)
 - Class O rubber high-voltage gloves with leather outer gloves
 - Electrical Hazard (EH) footwear
 - Non-conductive safety glasses

TECHNICAL TRAINING LEVEL 2

This course builds upon the Technical Training Level 1 course. The students will review the highvoltage system and be introduced to the PHOENIX EV wiring schematics, Controller Area Network (CAN) bus system, multiplexing (MUX) system. The students will also explore the PHOENIX EV Diagnostic Tool and Preventive Maintenance (PM) schedule in more depth. The course is intended for maintenance technicians who have at least 6 months of experience working on a PHOENIX EV bus.

TOPICS

- Review High-Voltage System
- Review Lockout/Tagout (LOTO)
- Wiring Schematics
- Controller Area Network (CAN) Bus System
- Multiplexing (MUX) System
- PHOENIX EV Diagnostic Tool (PDT)
- Bus Driving
- Preventive Maintenance (PM) Schedule



INSTRUCTION TYPE

- > Instructor-Led Onsite At Customer Location
- > Classroom Presentation
- > Hands-On Bus Activities

TARGET AUDIENCE

- > Maintenance Technicians
- > Maintenance Supervisors

COURSE HOURS

>~16 / Over Two Days

MAX NUMBER OF PARTICIPANTS

> 8

COURSE REQUIREMENTS

- Access to a classroom with the ability to show a presentation
- > PHOENIX EV bus made available during course hours
- > Operational charger made available during course hours

- Completion of Technical Training Level 1 Course
- > At least 6 months experience with PHOENIX EV buses
- Intermediate knowledge of electricity, electronics, and usage of a digital multimeter
- > Digital multimeter rated at CAT 3 1000V DC
- > Personal Protective Equipment (PPE)
 - Class O rubber high-voltage gloves with leather outer gloves
 - Electrical Hazard (EH) footwear
 - Non-conductive safety glasses

TECHNICAL TRAINING LEVEL 3

This course builds upon the Technical Training Level 2 course. The students will learn various troubleshooting techniques using a digital multimeter, insulation multimeter or megohmmeter, and the PHOENIX EV Diagnostic Tool (PDT). This course involves many hands-on troubleshooting activities. It is only intended for maintenance technicians who have at least 12 months experience with a PHOENIX EV bus. The course includes a written assessment and a handson practical assessment.

TOPICS

- Troubleshoot With A Digital Multimeter
- Troubleshoot Isolation/Insulation Issues
- Troubleshoot Controller Area Network (CAN) Bus System
- Troubleshoot PHOENIX EV Diagnostic Tool (PDT)
- Diagnosing A PHOENIX EV Bus
- Assessment



INSTRUCTION TYPE

- > Instructor-Led Onsite At Customer Location
- > Classroom Presentation
- > Classroom Activities
- > Hands-On Bus Activities

TARGET AUDIENCE

- > Maintenance Technicians
- > Maintenance Supervisors

COURSE HOURS

>~24 / Over Three Days

MAX NUMBER OF PARTICIPANTS

> 8

COURSE REQUIREMENTS

- Access to a classroom with the ability to show a presentation
- > The same PHOENIX EV bus made available the day prior to the class and throughout the class

- Completion of Technical Training Level 2 Course
- > At least 12 months experience with PHOENIX EV buses
- > Advanced knowledge of electricity, electronics, usage of digital multimeter
- > Access to an insulation multimeter or megohmmeter (megger)
- > Digital multimeter rated at CAT 3 1000V DC
- > Personal Protective Equipment (PPE)
 - Class O rubber high-voltage gloves with leather outer gloves
 - Electrical Hazard (EH) footwear
 - Non-conductive safety glasses

PCS BASIC CHARGER TRAINING

/Rhombus Chargers Only

This course introduces students to the PCS Rhombus charger. The students will learn about basic charger operations and how to safely perform maintenance on the charger. The course does not include how to diagnose the charger. It is intended for maintenance technicians who possess knowledge of electricity, electronics, and using a digital multimeter.

TOPICS

- Basic operations
- Lockout/Tagout (LOTO)
- Safety
- Maintenance



INSTRUCTION TYPE

- > Instructor-Led Onsite At Customer Location
- > Classroom Presentation
- > Hands-On Charger Activities

TARGET AUDIENCE

- > Maintenance Technicians
- > Maintenance Supervisors

COURSE HOURS

> 8

MAX NUMBER OF PARTICIPANTS

> 6

COURSE REQUIREMENTS

- > Access to a classroom with the ability to show a presentation
- > PHOENIX EV bus made available during course hours
- > PCS Rhombus charger made available during course hours
- > Access and equipment required to lock out charger energy at control panel

- > Basic knowledge of electricity, electronics, usage of digital multimeter
- Digital multimeter rated at CAT 3 1000V DC
- > Personal Protective Equipment (PPE)
 - Class O rubber high-voltage gloves with leather outer gloves
 - Electrical Hazard (EH) footwear
 - Non-conductive safety glasses
- > Arc flash gear

VENTURA DOOR TRAINING

This course provides an in-depth training for the Ventura door system on a PHOENIX EV bus. The students will learn about the doors and how to troubleshoot them. The course is intended for maintenance technicians who have at least 3 months of experience with working on a PHOENIX EV bus.

TOPICS

- Theory Of Operation
- Adjustment Points
- Common Issues
- Door Checklist
- Preventative Maintenance (PM)
- Software Diagnostics



INSTRUCTION TYPE

- > Instructor-Led Onsite At Customer Location
- > Classroom Presentation
- > Bus And/Or Mockup Hands-On Activities

TARGET AUDIENCE

- > Maintenance Technicians
- > Maintenance Supervisors

COURSE HOURS

>~16 / Over Two Days

MAX NUMBER OF PARTICIPANTS

> 8

COURSE REQUIREMENTS

- Access to a classroom with the ability to show a presentation
- > PHOENIX EV bus made available during course hours
- > Optional Door mockup made available during course hours

- > At least 3 months experience with PHOENIX EV buses
- > Ventura diagnostic tool
- > Ventura special torque tool

EBERSPAECHER HVAC TRAINING

This course provides in-depth training on the Eberspaecher HVAC system on a PHOENIX EV bus. This course provides a system overview as well as troubleshooting techniques. The course is intended for any maintenance technicians who have at least 3 months of experience with working on a PHOENIX EV bus.

TOPICS

- System Overview
- Component Identification
- Operation
- Maintenance
- Troubleshooting
- Common Issues
- Diagnostics

INSTRUCTION TYPE

- > Instructor-Led Onsite At Customer Location
- > Classroom Presentation
- > Hands-On Bus Activities

TARGET AUDIENCE

- > Maintenance Technicians
- > Maintenance Supervisors

COURSE HOURS

>~16 / Over Two Days

MAX NUMBER OF PARTICIPANTS

> 8

COURSE REQUIREMENTS

- Access to a classroom with the ability to show a presentation
- > PHOENIX EV bus made available during course hours
- > *Optional* System mockup made available during course hours

- Completion of Technical Training Level 1 course
- > Eberspaecher control unit and inverter diagnostic kits
- > At least 3 months experience with PHOENIX EV buses
- > Basic knowledge of electricity, electronics, usage of digital multimeter
- Digital multimeter rated at CAT 3 1000V DC
- > Personal Protective Equipment (PPE)
 - Class 0 rubber high-voltage gloves with leather outer gloves
 - Electrical Hazard (EH) footwear
 - Non-conductive safety glasses

VALEO HVAC TRAINING

This course provides in-depth training ond the Valeo HVAC system on a PHOENIX EV bus. This course provides a system overview as well as troubleshooting techniques. The course is intended for any maintenance technicians who have at least 3 months of experience with working on a PHOENIX EV bus.

TOPICS

- Product Information
- Safety
- Components
- System Control
- Diagnostics
- Circuit Diagram
- Refrigerant Charging
- Maintenance And Service

INSTRUCTION TYPE

- > Instructor-Led Onsite At Customer Location
- > Classroom Presentation
- > Hands-On Bus Activities

TARGET AUDIENCE

- > Maintenance Technicians
- > Maintenance Supervisors

COURSE HOURS

>~16 / Over Two Days

MAX NUMBER OF PARTICIPANTS

> 8

COURSE REQUIREMENTS

- > Access to a classroom with the ability to show a presentation
- > PHOENIX EV bus made available during course hours
- *Optional* System mockup made available during course hours

- > Completion of Technical Training Level 1 course
- > At least 3 months experience with PHOENIX EV buses
- > Basic knowledge of electricity, electronics, and usage of a digital multimeter
- > Digital multimeter rated at CAT 3 1000V DC
- > Personal Protective Equipment (PPE)
 - Class O rubber high-voltage gloves with leather outer gloves
 - Electrical Hazard (EH) footwear
 - Non-conductive safety glasses



COMPOSITE BODY REPAIR

This course is intended for any maintenance technicians who will perform body repairs on a PHOENIX EV bus.

TOPICS

- Composite Materials And Processes
- Construction Methods
- Damage Detection
- Damage Removal And Repair

INSTRUCTION TYPE

- > Instructor-Led Onsite At Customer Location
- > Classroom Presentation
- > Classroom Activities

TARGET AUDIENCE

- > Maintenance Technicians
- > Maintenance Supervisors

COURSE HOURS

> ~20 / Over Three Days

MAX NUMBER OF PARTICIPANTS

> 10

COURSE REQUIREMENTS

> Access to a classroom with the ability to show a presentation and room for in-class activities

COURSE PREREQUISITES

> None



WRAP AND DECAL TRAINING

This course provides in-depth training on how to prepare and install vinyl graphics on buses. The course is intended for any maintenance technicians who will perform wrap and/or decal repair, removal, or installation.

TOPICS

- Tools
- Material
- Placement
- Preparation
- Trimming
- Conforming
- Priming
- Pre-Heating
- Post-Heating
- Common Failures

INSTRUCTION TYPE

- > Instructor-Led Onsite At Customer Location
- > Classroom Presentation
- > Hands-On Bus Activities

TARGET AUDIENCE

- > Maintenance Technicians
- > Maintenance Supervisors

COURSE HOURS

>~24 / Over Three Days

MAX NUMBER OF PARTICIPANTS

> 8

COURSE REQUIREMENTS

- > Access to a classroom with the ability to show a presentation
- > PHOENIX EV bus made available during course hours

COURSE PREREQUISITES

> None



TRAINING AIDS

Training aids that are representative of systems on a PHOENIX EV bus are available for custom order. Reach out to PHOENIX EV training to discuss what training objectives you would like to accomplish with training aids.

TRAINING AID EXAMPLES

- > Front Axle With Steering Components
- > Rear Axle With Drivetrain
- > HVAC System
- > Multiplexing (MUX) Trainer
- > Door System
- > Bus Operator Simulator



TRAINING VIDEOS

Training videos can be custom ordered to help you achieve your training goals. PHOENIX EV can work with you to develop and produce high-quality, professional training videos.

Contact PHOENIX EV training to discuss your goals, and to see demos of many industry-leading training videos we have created.

TRAINING VIDEO TOPICS

- > Operator Training
- > Bus Familiarization
- > First Responder Training
- > Preventive Maintenance
- > Charging Training
- > Bus Troubleshooting



CONTACT US

QUESTIONS

Email us at **training@phoenixmotorcars.com** if you have any questions about our training programs.

SCHEDULE TRAINING

Email us at *training@phoenixmotorcars.com*