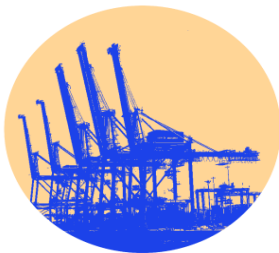


2017 TRAINING GUIDE



PTTI

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Introduction/Table of Contents

The following 2017 Training Guide is a complete compendium of training available to operating and maintenance personnel. Included, as an overview, is a summary table of available courses, course length as well as any course prerequisites. Many of these courses are flexible; the content & length can be modified to suit a specific customer's needs. Some of these courses are intended to be conducted at a customer's site location as noted. Other courses can be offered at PTTI's NJ location or possibly at a customer's location. Additional courses can be developed upon request. Please contact PTTI for additional information.

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Summary Course Table

Summary reference table of training courses, prerequisites and course length:

		Recommended	Length	
		Prerequisites	Days	Comment
100	EQUIPMENT OPERATOR COURSES			
101	POWER INDUSTRIAL TRUCK		1/2	
102	FORKLIFT CLASS A OPERATOR TRAINING	101	1 1/2	
103	YARD TRACTOR OPERATOR TRAINING	101	2-10	
104	FORKLIFT CLASS B OPERATOR TRAINING	102	1	
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200	ELECTRIC-12/24 VOLT DC			
201	DC ELECTRIC FUNDAMENTALS		4	
202	METER FUNDAMENTALS DC CIRCUITS	201	4	
203	ADVANCED DC CIRCUITS	201, 202	8	
204	ELECTRIC & ELECTRONIC TRANSMISSIONS	201, 202	8	
300	ELECTRIC-120/240/480 VOLT AC/DC			
301	ELECTRICAL HAZARD AWARENESS		1	
302	METER FUNDAMENTALS AC/DC CIRCUITS	201, 202	8	
303	INTERMEDIATE ELECTRIC	302	8	
304	ADVANCED ELECTRIC	302, 303	8	
305	IEC ELECTRICAL SCHEMATICS	302, 303, 304	2	
306	ELECTRIC STRADDLE CARRIER		Varies	CUSTOM, UPON REQUEST
307	RUBBER TIRED GANTRY		Varies	CUSTOM, UPON REQUEST
308	SPREADER 101		Varies	CUSTOM, UPON REQUEST
400	ELECTRIC-OTHER			
401	PLC 101		8	
402	PLC 102	401	8	
403	FACILITY BASIC ELECTRIC		8	
500	HYDRAULICS			
501	HYDRAULICS 101		8	
502	HYDRAULICS 102	302, 501	8	
600	DIESEL			
601	BASIC DIESEL ENGINES		4	
603	CUMMINS INSITE TRAINING		Varies	CUSTOM, UPON REQUEST
700	REFRIGERATION			
701	BASIC REFRIGERATION / AIR CONDITIONING		5	
702	CONTAINER REFRIGERATION - NO ELECTRIC	701	2	
703	CONTAINER REFRIGERATION - WITH ELECTRIC	701	4	
704	TYPE II AIR CONDITIONING SYSTEMS - NO ELECTRIC	701	2	
705	TYPE II AIR CONDITIONING SYSTEMS - WITH ELECTRIC	701	4	
706	EPA SECTION 608 CERTIFICATION - TYPE II	701	2	
706	EPA SECTION 608 CERTIFICATION - TYPE II		3	
707	EPA SECTION 609 MACS CERTIFICATION		3	
708	BRAZING		1	
709	REFRIGERATED CONTAINER GENERATOR		4	
800	CONTAINERS & CHASSIS			
801	CHASSIS AIR/ABS BRAKES & INSPECTION		7	
802	ANNUAL CHASSIS INSPECTION / BRAKE INSPECTOR		2	
803	FMCSA RULES & REGULATIONS UPDATE		1	
804	INTERMODAL CHASSIS OUT OF SERVICE CRITERIA		1	
900	WELDING			
901	SHIELDED METAL ARC WELDING (SMAW) FUNDAMENTALS		8	
902	WELDING GAS HANDLING (OXYGEN & ACETYLENE)		1	
903	SHIELDED METAL ARC WELDING (SMAW) CERTIFICATION	901	8	
904	GAS METAL ARC WELDING (GMAW) FUNDAMENTALS	901	3	
905	FLUX CORE ARC WELDING (FCAW) FUNDAMENTALS	901	3	
1000	OTHER COURSES			
1001	RIGGING		2	
1002	FIBER OPTICS		4	
1003	DOT (PHMSA) HAZARDOUS MATERIALS AWARENESS/OSHA CHEMICAL HAZARD COMMUNICATION (GHS)		1/2	

EQUIPMENT OPERATOR COURSES

100 - Any operator or mechanic who drives a forklift, yard tractor, man lift, container handler, straddle carrier, etc. must have a 4-hour PIT course plus they must have classroom & hands-on training for the specific piece of equipment they are operating. Available courses:

101 - Power Industrial Truck (PIT): General Safety & Awareness – Length ½ Day

Course prerequisites: none.

This is an entry level course covering the minimum OSHA 29 CFR 1910.178, 29 CFR 1917 & 29 CFR 1918 requirements for powered industrial trucks (PIT). The objective of this course is for the student to understand the requirements of OSHA's PIT Operator standard: safe operation of various types of equipment used in marine terminals, hazard identification, abatement methods and procedures. Certification given upon successful completion of the course.

Note: The following courses are typically performed at the customer's site on the customer's equipment.

102 - Forklift A Operator Training – Length 1.5 Days

Course prerequisites: 101.

This course covers the OSHA safe operation and handling of general use forklifts including 4 hours of classroom training followed by one day of hands-on training. The objective of this course is to ensure that the operator has the knowledge and skills needed to be able to identify the forklift components & controls, to understand the basic workings of a forklift and to safely operate a forklift. Certification given upon successful completion of the course.

103 - Yard Tractor Driver Training – Length 2-10 Days depending on capability & experience

Course prerequisites: 101.

This is course covers the OSHA safe operation and handling of a terminal yard tractor with chassis and containers of varying sizes. The course covers the safety, operating controls and functions of the yard tractor including four hours of classroom training followed by hands-on training. The objective of this course is to ensure that the operator has the knowledge and skills needed to be able to identify the yard tractor components & controls, to understand the basic workings of a yard tractor and to safely operate a yard tractor. Certification given upon successful completion of the course.

104 – Forklift B Operator Training – Length 1 Day

Course prerequisites: 102 plus one year of experience.

This course covers the OSHA safe operation and handling of forklifts capable of handling cargoes greater than 30,000 lbs. The course includes 4 hours of classroom training followed by 4 hours of hands-on training. The objective of this course is to ensure that the operator has the knowledge and skills needed to be able to identify the Class B forklift components & controls, to understand the basic workings of a Class B forklift and to safely operate a Class B forklift. Certification given upon successful completion of the course.

105 – Forklift Operator Training – Carton/Paper Roll Clamps – Length 1 Day

Course prerequisites: 102 plus one year of experience.

This course covers the OSHA safe operation and handling of forklifts equipped with carton and paper roll clamps. Included are 4 hours of classroom training followed by 4 hours of hands-on training. The objective of this course is to ensure that the operator has the knowledge and skills needed to be able to properly and safely utilize these attachments to minimize cargo damage. Certification given upon successful completion of the course.

106 – Container Handler Operator Training – Length 1 Day

Course prerequisites: 104 plus one year of experience.

This course covers the OSHA safe operation and handling of top loaders, reach stackers and empty handlers. The course includes 4 hours of classroom training followed by 4 hours of hands-on training for each type of container handler. The objective of this course is to ensure that the operator has the knowledge and skills needed to be able to identify the components & controls for each container handler, and to understand the basic workings of, and to safely operate, each container handler. Certification given upon successful completion of the course.

107 – Straddle Carrier Operator Training – Length 5 Days

Course prerequisites: 106 plus one year of experience.

The course covers the safe operation of a straddle carrier including eight hours of classroom training followed by 32 hours of hands-on training. The objective of this course is for the operator to be able to identify the straddle carrier components & controls and to understand the basic workings of, and to safely operate, a straddle carrier.

Training can also be provided on the following equipment:

108 - Transtainer Operator Training – Length 5 Days

Course prerequisites: 106 plus one year of experience.

The course covers the safe operation of a rubber tired transtainer including eight hours of classroom training followed by 32 hours of hands-on training. The objective of this course is for the operator to be able to identify the transtainer components & controls and to understand the basic workings of, and safely operate, a transtainer.

109 - Crane Operator Training – Length 5 Days

Course prerequisites: none.

The course covers the safe operation of STS Cranes including eight hours of classroom training followed by 32 hours of hands-on training. The objective of this course is for the operator to be able to identify the crane components & controls, understand the basic workings of a STS Crane and be able to safely operate a STS Crane.

TECHNICAL MAINTENANCE COURSES

All courses include custom binders prepared by PTTI and technical books for selected courses. For certain courses meters, tools and safety equipment are provided for the student to use during training and to take back to the workplace. Each student receives a Certificate of Completion for each completed course.

200-400 ELECTRICAL

200 – 12/24 VOLT DC

Courses for Mechanics working on equipment with 12/24 volt DC electrical systems to include: Diesel Straddle Carriers, Reach Stackers, Top Loaders, Empty Container Handlers, Yard Tractors, Forklifts & Pick-up Trucks

201 - DC Electric Fundamentals – Length 4 Days

Course prerequisites: none

This is an entry level course essential to the success of a modern technician exploring DC principles, theories and concepts needed for a strong foundation in the fundamentals of electricity and DC circuits. The course is designed for those with minimal or weak understanding of meters and the foundation of electrical knowledge. The objectives of this course are to provide the student with a basic understanding of Ohm's law and its relation to voltage, current, resistance and power and to be able to use a digital multi-meter (DMM). In addition, this course focuses on power equipment electrical systems, batteries, starting systems and charging systems. Hands-on training on use of test equipment and meters on the various systems will be performed. Students are shown how to use a CAT IV DMM for testing and troubleshooting likely to be encountered in their work environment.

202 - Meter Fundamentals DC Circuits – Length 4 Days

Course prerequisites: 201

This is an entry level course covering the electrical systems on port power equipment. The objective of this course is for the student to be able to name and identify the electrical components on port power equipment, to be able to understand how these components work together for safe operation and to be able to perform basic troubleshooting using a digital multi-meter. This course provides a more in-depth understanding of electronic quantities (Ohm's Law), circuit connections, different types of circuits, switches and switching concepts, magnetism and electromagnetism, DC power sources, use of digital multi-meter functions and circuit diagrams. Hands on testing and troubleshooting performed through use of Lab-Volt's F.A.C.E.T system and a CAT IV DMM with applications in everyday work environment.

203 – Advanced DC Circuits – Length 8 Days

Course prerequisites: 201, 202

This is an advanced course covering solid-state devices, pulsed width modulation (pwm), symbols used in schematic reading, detailed use of diagrams, practical on-line troubleshooting, inverter rated three-phase motors and drives. The objective of this course is for the student to be able to understand solid-state devices, principles of inverter rated motors and drives. Hands-on labs include fault finding on circuits utilizing the Lab-Volt Training System with test equipment (DC/AC TRMS clamp meter, Digital Multi-Meter, Insulation Tester).

204 - Electric & Electronic Transmissions – Length 8 Days

Course prerequisites: 201, 202

This is an intermediate level course covering Electric and Electronic Transmissions, electronic display error code troubleshooting, fault finding utilizing schematics, different components utilized in various transmissions. The objective of this course is for the student to be able to diagnose faults. This course

covers Electric and Electronic Transmissions, electronic display error code troubleshooting, fault finding utilizing schematics, different components utilized in various transmissions (transmission types covered include the Allison WTEC II/WTEC III (if applicable), Allison 4th Gen, Clark-Hurth 28000 – 40000 series, Dana TE, ZF and other electronic transmissions).

300 – 120/240/480 VOLT AC/DC

Courses for Mechanics working on equipment with electrical systems greater than 24 volts (120/240/480 volts AC/DC) to include: Cranes, RTG's, RMG's, Electric Straddle Carriers, Refrigeration Equipment, AC Systems (Type II Split)

301 - Electrical Hazard Awareness – Length 1 Day

Course prerequisites: Some Basic Electrical knowledge preferred.

This is an entry level course covering the National Fire Protection Association NFPA 70E Standard for Electrical Safety in the Workplace tailored to the port environment that identifies requirements for safe work practices considered necessary to protect personnel working around electricity and electrical panels & disconnects by reducing exposure to major electrical hazards. The objective of this course is for the student to understand the hazards of working around electrical equipment, to understand the precautions that need to be taken and to be familiar with the proper PPE to be worn in different categories of electrical work. Topics covered include electrical hazards (shock, arc-flash, arc-blast, shock hazard boundaries, lock out/tag out, effects of electrical shock, risk and risk assessment, properly de-energizing equipment, precautions for working on live equipment. This course is for all maintenance personnel working on or near electricity (control voltage DC 60 volts, AC 120 volts or higher). Employers are required to document this training and retraining is required every 3 years.

302 - Meter Fundamentals AC/DC Circuits – Length 8 Days

Course prerequisites: 201, 202 recommended.

This is an entry level course covering basic electrical theory, electrical circuits & devices found on various higher voltage equipment. The objective of this course is for the student to understand the electrical system for this equipment and be able to use a digital multi-meter for testing and troubleshooting. This course covers Electrical Safety (PPE in the workplace); Electrical Quantities (Ohm's Law - what your digital multi-meter is measuring); Series / Parallel circuits (differences in testing and troubleshooting); Switches and switching concepts; Electromagnetism (how they work, testing and troubleshooting coils, relays, solenoids); AC vs. DC voltage / current and Transformer concepts.

303 - Intermediate Electric – Length 8 Days

Course prerequisites: 302

This is an intermediate level course covering the principles of DC and AC Motors & Generators, Solid-State devices, Motor Starters, Overload Relays, Relays, Contactors, Sensors, Control Transformers. The objective of this course is for the student to understand motors and components and be able to troubleshoot faults and perform preventative maintenance. This course covers principles of Motor Control, Solid-State devices, Motor Starters, Overload Relays, Relays, Contactors and Motor Starters, Sensors, Control Transformer, Motor Control circuits, DC and AC Motor control, symbols and schematic diagrams, reading large schematic diagrams, DC and AC motors. Labs performed utilizing Delmar's Virtual Laboratory in Industrial Motor Control.

304 - Advanced Electric – Length 8 Days

Course prerequisites: 302, 303

This is an advanced level course covering the principles of DC & AC Motor Controls, Testing Equipment and Troubleshooting. The objective of this course is for the student to understand the principles of DC & AC Motor Controls and to be able to troubleshoot using an oscilloscope, motor insulation tester and advanced digital multi-meter techniques. This course covers advanced electrical troubleshooting on DC, single-phase and three-phase AC circuits, components and motors, collecting information, detailed use of

diagrams, practical on-line troubleshooting, specialized tests and equipment, Hands-on labs include fault finding on circuits utilizing the Lab-Volt Industrial Motor Controls Training System with test equipment (insulation tester, DC/AC TRMS clamp meter, Digital Multi-Meter).

305 - IEC Electrical Schematics – Length 2 Days

Course prerequisites: 302, 303, 304 (Recommended)

This is an intermediate level course designed for students to learn how to read IEC Electrical Schematics. The objective of this course is for the student to identify and name the various types of symbols, understand the color-coding insulation identification system and learn how to follow the various types of circuits for troubleshooting. Day 1 focuses on generic symbols, Day 2 is customized to focus on schematics for specific equipment maintained by students attending the class.

Customized Courses for Mechanics working on equipment greater than 24 volts (120/240/480 volts AC/DC). These courses are designed to focus on a specific type of equipment for a specific customer upon request. Course length will vary based on what is requested. For more details, contact PTTI.

306 - Electric Straddle Carrier – Length Varies

Course prerequisites: none.

This course is an intermediate level course covering the dangers, warnings, cautions and notices when working on a hybrid Straddle Carrier. The objective of this course is for the student to learn different types of Drives and AC components utilized for safe operation of Electric Straddle Carriers plus how to test and troubleshoot for faults. This course covers Dangers, Warnings, Cautions and Notices when working on hybrid equipment, Electrical Safety, AC Electrical Theory and Basic circuits on Variable Frequency Drives, PPE requirements. Different types of drives for front and back end, AC components utilized for operation of equipment. Variable Frequency drives utilizing Lab-Volt's Industrial Motor Controller Training System. Specialized tests and equipment, Hands-on labs include DC / AC voltage testing with test equipment (insulation tester, DC/AC TRMS clamp meter, Digital Multi-Meter).

307 - Rubber Tired Gantry – Length Varies

Course prerequisites: none.

This is an intermediate level course covering RTG/RMG components and their locations, Diesel Engine Control, Power Generation, Spreader, Steering and Hydraulics. The objective of this course is for the student to be able to identify and name the various components of an RTG/RMG, understand how the components work together for a safe operation, be able to perform routine maintenance tasks and be able to effectively troubleshoot faults.

308 - Spreader 101 – Length Varies

Course prerequisites: none.

This an intermediate level course covering spreader controls, components, electrical system, hydraulic system, mechanical systems, troubleshooting and maintenance. The objective of this course is for the student to be able to identify and name all of the spreader components, understand how all of the components work together for safe operation, perform routine maintenance tasks and be able to troubleshoot faults.

400 – ELECTRIC OTHER

401 - PLC 101 – Length 8 Days

Course prerequisites: none.

This is an advanced level course covering the basics of Programmable Logic Controllers (PLCs), Input and Output modules and Counters and Timers. The objective of this course is for the student to understand the basics of PLCs, to be able to name and identify the components associated with PLCs and to be able to read logic diagrams. Hands-on labs performed on the Siemens S7-200, Omron CPM1A and Allen-Bradley Micrologix 1000 including troubleshooting, understanding and interpreting PLCs in schematics.

402 - PLC 102 – Length 8 Days

Course prerequisites: 401

This is an advanced level course covering the troubleshooting and maintenance programming of PLCs. The objective of this course is for the student to be able to log into a PLC program for troubleshooting, testing and minor programming. The student will learn how to view and edit parameters, view motor and control status, view, view and force limit switches and how to decipher and debug faults. Hands-on labs performed utilizing the Lab-Volt Siemens S7-200, Omron CPM1A or Allen-Bradley Micrologix 1000 with Hydraulics and / or Motor-Control Trainer(s).

403 - Facility Basic Electric – Length 8 Days

Course prerequisites: none.

This course is an entry level course covering electrical working drawings, electrical component types (commercial and industrial), recommended conductor color coding, different types of materials used in commercial / industrial environments (receptacles, switches, breakers, etc.). The objective of this course is for the student to understand and perform proper techniques in wiring components and troubleshooting in facility maintenance. Hands on labs include wiring / replacing ballasts, panel circuit breakers, receptacles, GFIC protection, single-pole, three-way, four-way and double pole switches.

500 – HYDRAULICS

501 - Hydraulics 101 – Length 8 Days

Course prerequisites: none.

This is an entry level course covering the basic principles of hydraulics, hydraulic components (actuators, pumps, motors, valves and ancillary hydraulic mechanisms), symbols, circuitry and schematics. The objective of this course is for the student to be able to identify and name the various hydraulics components, understand how these components work together, to be able to read hydraulic schematics and troubleshoot faults. Hands-on labs performed using the Lab-Volt Hydraulics Trainer and LVVL Hydraulics Simulator.

502 - Hydraulics 102 – Length 8 Days

Course prerequisites: 302, 501

This is an advanced level course covering the Electrical (PLC) Control of Hydraulic Systems with sensors, servo controls, control relays, timers, counters, pressure switches and proportional controls. The objective of this course is for the student to be able to name and identify the hydraulic electrical controls, understand how these electrical devices control hydraulic components and to be able to troubleshoot and test for faults. Hands-on labs performed using the Lab-Volt Hydraulics Trainer and LVVL Hydraulics Simulator.

600 – DIESEL

Basic Diesel Engines – Length 4 Days

Course prerequisites: none.

This is an entry level course covering mechanical operation of a diesel engine. The objective of this course is for the student to be able to identify and name the mechanical components of a diesel engine, understand how a diesel engine operates. The course covers compression verses spark, fuel systems, lube system, combustion, turbo, basic servicing (fuel filters, injectors, etc.), preventative maintenance, problem solving (how does it work, repair procedures, basic troubleshooting, causes, effects) and working around heavy duty batteries. Specific OEM maintenance manuals will be used in the course as available.

Cummins INSITE™ Training – Length Varies

Course prerequisites: none.

Training can be provided on the Cummins INSITE™ system which performs diagnostics and displays electronic information for Cummins diesel engines. This system provides a wealth engine information on diagnostics, fault information, engine drawings, and schematic diagrams necessary for maintenance and troubleshooting. In combination with training information, parts and service information available on Quick Serve Online, this course will provide a solid basis for maintenance of Cummins engines. This is a customized course focused on specific engines. For more details, contact PTTI.

700 – REFRIGERATION

Courses for Mechanics working on Refrigerated Containers, Type II Air Conditioning Systems and Gen-Set Equipment.

701 - Basic Refrigeration / Air Conditioning Fundamentals - Length 5 Days

Course prerequisites: none

This course provides a broad fundamental overview of refrigeration and air conditioning systems to include: system fundamentals, system components and functions, refrigerant chemistry and applications, and system operation, service & diagnostics. The objective of this course is to provide the student with a solid understanding of refrigeration to facilitate understanding of more advanced courses focusing on container refrigeration and Type II air conditioning systems as well as to prepare the student for EPA Section 608 Refrigerant Gas Certification. Hands on instruction includes use of refrigerant recovery only equipment, refrigerant recovery & recycling equipment as well as refrigerant evacuation & charging procedures.

702 - Container Refrigeration (NO ELECTRIC) – Length 2 Days

Course prerequisites: 701.

This course provides a more detailed application of basic refrigeration fundamentals to container refrigeration equipment. The objective of this course is to provide the student with a solid knowledge of container refrigeration component identification, theory of operation as well as system diagnostics and troubleshooting. Hands-on training is provided on a Thermo-King CRR40PS-309 refrigeration unit.

703 - Container Refrigeration (WITH ELECTRIC) – Length 4 Days

Course prerequisites: 701.

This course provides a more detailed application of basic refrigeration fundamentals to container refrigeration equipment. The objective of this course is to provide the student with a solid knowledge of container refrigeration component identification, theory of operation as well as system diagnostics and troubleshooting. Included is an explanation of the electrical system for this equipment; how to use a digital multi-meter for testing and troubleshooting; proper PPE to be used; testing and troubleshooting

coils, relays, solenoids; AC vs. DC voltage; and current and transformer concepts. Hands-on training is provided on a Thermo-King CRR40PS-309 refrigeration unit.

704 - Type II Air Conditioning (Comfort Cooling) Systems (NO ELECTRIC) – Length 2 Days

Course prerequisites: 701.

This course provides a more detailed application of basic refrigeration fundamentals to Type II air conditioning systems used in cranes, yard equipment and buildings. The objective of this course is to provide the student with a solid knowledge of Type II air conditioning system component identification, theory of operation as well as system diagnostics and troubleshooting. Hands-on training can be provided, upon request, on Type II systems that are made available at the customer's workplace.

705 - Type II Air Conditioning (Comfort Cooling) Systems (WITH ELECTRIC) – Length 4 Days

Course prerequisites: 701.

This course provides a more detailed application of basic refrigeration fundamentals to Type II air conditioning systems used in cranes, yard equipment and buildings. The objective of this course is to provide the student with a solid knowledge of Type II air conditioning system component identification, theory of operation as well as system diagnostics and troubleshooting. Included is an explanation of the electrical system for this equipment; how to use a digital multi-meter for testing and troubleshooting; proper PPE to be used; testing and troubleshooting coils, relays, solenoids; AC vs. DC voltage; and current and transformer concepts. Hands-on training can be provided, upon request, on Type II systems that are made available at the customer's workplace.

Refrigerant Gas Handling/Recycling & Recovery Certification

Any mechanic who handles refrigerant (puts gauges on an AC system or reefer unit) must have:

706 – EPA Section 608 Refrigerant Gas Certification – Length See Below

Course prerequisites: See below.

This course covers the Section 608 Refrigeration Gas review and certification test used in container refrigeration & Type II air conditioning systems. The course focuses on the correct handling procedures for refrigerants to include EPA refrigerant recovery, recycling and recharging procedures. The objective of this course is for the student to be able to pass the EPA Clean Air Act 608 Certification Exam which is given on the last day of the course. Certification levels include Type I, Type II, Type III and Universal.

Course length:

- a) Type II certification – 2 days assumes course 701 has been taken as a prerequisite or student has previous refrigeration knowledge.
- b) Type II certification – 3 days assumes course 701 has not been taken or student has no previous refrigeration knowledge.
- c) Type III or Universal certification (if requested) – 3 days assumes course 701 has been taken as a prerequisite or student has previous refrigeration knowledge.
- d) Type III or Universal certification (if requested) – 4 days assumes course 701 has not been taken or student has no previous refrigeration knowledge.

707 – EPA Section 609 MACS Certification – Length 3 Days

Course prerequisites: 701 or some basic refrigeration knowledge recommended.

This course covers the AC Theory, identification of system components, explanation of service procedures, the correct handling procedures for refrigerants, EPA refrigerant recovery, recycling and recharging procedures and system diagnostics used in motor vehicle like equipment. The objective of this course is for the student to be able to pass the EPA Clean Air Act 609 Certification Exam which is given on the last day of the course.

708 - Brazing – Length 1 Day

Course prerequisites: none.

This course covers the basics on how to handle a torch, prep work for tubing, proper techniques and safety. The objective of this course is for the student to be able to adequately perform brazing on refrigerant tubing using a torch.

709 - Refrigerated Container Generator – Length 4 Days

Course prerequisites: Some basic DC electrical knowledge recommended.

This course provides an overview of generator components and their functions to include: diesel engine, cranking system, battery and charging circuits, fuel system, cooling system, 12 v electrical system, and diagnostics / troubleshooting / repair process. Additionally, this course covers generator control circuits, sensors, testing using an electrical meter, fault codes, messages and an overview of components and their functions. The objective of this course is for the student to be able to a) identify the generator components, explain how the system works, troubleshoot the system operation and perform routine maintenance and b) identify the various control components and sensors and to perform system troubleshooting using an electrical multi-meter. Hands-on training performed on a Thermo-King SG 3000.

800 – CONTAINERS & CHASSIS

Courses for Chassis Mechanics

Federal Motor Carrier Safety Administration

Every motor carrier and intermodal equipment provider must systematically inspect, repair, and maintain or cause to be systematically inspected, repaired, and maintained, all motor vehicles and intermodal equipment subject to its control. Available courses:

801 - Chassis Air/ABS Brakes & Inspection – Length 7 Days

Course prerequisites: none.

This course covers the chassis electrical system, foundation air & ABS brake system and periodic chassis inspection in accordance with the Department of Transportation Federal Motor Carriers Safety Administration Intermodal Equipment Rules 49 CFR 390, 393 – Parts and Accessories Necessary for Safe Operation, 396 – Inspection, Repair & Maintenance, Appendix G to Subchapter B of Chapter III – Minimum Periodic Inspection Standards, and Appendix B to Part 386 - Penalty Schedule; Violations and Monetary Penalties. Upon successful completion, the student will be able to troubleshoot electrical faults, inspect (wheels pulled), service and adjust brakes and perform periodic “annual” FHWA inspections in accordance with the FMCSA rules and regulations. Hands-on shop work includes testing the electrical system, removal and replacing chassis brakes on both non-ABS and ABS chassis, diagnostics of ABS system on ABS chassis, brake adjustment and chassis inspection.

Brake focus includes: the different types, parts, assembly, adjustments, lubrication, seals, bearings, system operation, diagnostics & repairs, diagnostic codes, use of scanners and laptops for diagnostics and safety, proper tools to use during inspection and maintenance. Inspection focus includes: the brake system, lighting system, structural components, tires, rims, lug nuts, fifth wheel, glad hands, air lines, rear impact guard, suspension system and landing gear.

Upon successful completion of this course, a document is provided student’s employer to indicate the student has received training in these areas.

802 - Annual Chassis Inspection / Brake Inspector for Intermodal Equipment – Length 2 Days

Course prerequisites: none.

This course covers periodic chassis inspection in accordance with the Department of Transportation Federal Motor Carriers Safety Administration Intermodal Equipment Rules 49 CFR 390, 393 – Parts and

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Accessories Necessary for Safe Operation, 396 – Inspection, Repair & Maintenance, Appendix G to Subchapter B of Chapter III – Minimum Periodic Inspection Standards, and Appendix B to Part 386 - Penalty Schedule; Violations and Monetary Penalties. Hands-on shop work includes performing inspections of chassis brakes (wheels pulled). Upon successful completion of this course, the student will be able to inspect the brakes perform periodic “annual” FHWA inspections in accordance with the FMCSA rules and regulations.

Inspection focus includes: the brake system, lighting system, structural components, tires, rims, lug nuts, fifth wheel, glad hands, air lines, rear impact guard, suspension system and landing gear. Upon successful completion of this course, a document is provided student’s employer to indicate the student has received training in these areas.

803 - FMCSA Rules & Regulations Update – Length 1 Day

Course prerequisites: none.

This course covers updates to FMCSA Intermodal Equipment Rules. This course is recommended for all chassis mechanics who need an update on the current FMCSA Rules & Regulations affecting intermodal chassis. Upon successful completion of this course, a document is provided student’s employer to indicate the student has received training in these areas.

Courses for TIR Inspectors

Federal Motor Carrier Safety Administration

Every motor carrier and intermodal equipment provider must systematically inspect, repair, and maintain or cause to be systematically inspected, repaired, and maintained, all motor vehicles and intermodal equipment subject to its control. Available courses:

803 - FMCSA Rules & Regulations Update – Length 1 Day

Course prerequisites: none.

This course covers updates to FMCSA Intermodal Equipment Rules. This course is recommended for all chassis mechanics who need an update on the current FMCSA Rules & Regulations affecting intermodal chassis. Upon successful completion of this course, a document is provided student’s employer to indicate the student has received training in these areas.

804 - Intermodal Chassis Out of Service Criteria – Length 1 Day

Course prerequisites: none.

This course covers chassis out of service criteria in accordance with the Department of Transportation Federal Motor Carriers Safety Administration Intermodal Equipment Rules 49 CFR 390, 393 – Parts and Accessories Necessary for Safe Operation, 396 – Inspection, Repair & Maintenance, Appendix G to Subchapter B of Chapter III – Minimum Periodic Inspection Standards, and Appendix B to Part 386 - Penalty schedule; violations and monetary penalties. Upon successful completion of this course, the student will be able to perform a systematic “trip” inspection of an intermodal chassis in accordance with FMCSA rules and regulations and perform a “walk around” inspection of primary brake components (wheels not pulled) to identify any out of service conditions. Upon successful completion of this course, a document is provided student’s employer to indicate the student has received training in these areas.

900 - WELDING

Any individual who performs welding must be trained on both the safety and technique of welding, after which a welder can be tested/certified as requested. Available courses:

901 - Shielded Metal Arc Welding (SMAW) Fundamentals – Length 8 Days

Course prerequisites: none.

This is an introductory course providing students with theory and hands-on activities in Shielded Metal Arc Welding (SMAW or stick). Students will learn oxy/fuel torch handling, basic arc welding principles and applications, print reading, welding symbols, metal types and welding procedures. Students will develop skills in depositing quality welds on tee and groove joints in all positions on ½" thick low carbon steel using 1/8" diameter E-6010 and E-7018 electrodes. Students will also use an oxy/fuel cutting torch and SMAW to fabricate an assigned project during the course. Each student is provided with a complete welding kit for the course consisting of helmet, safety goggles/glasses, chipping hammer, gloves and other welding accessories.

902 - Welding Gas Handling (Safe Handling of Oxygen and Acetylene) - Length 1 Day

Course prerequisites: none.

This is an entry level course covering an introduction to Oxy-Acetylene Gas Welding & Cutting equipment, preparation, regulators, operation and applications, cutting attachments, cutting torches, cutting tips, heating assemblies, heating tips, peripheral equipment, fire extinguishing devices and system. The objective of this course is for the student to understand the proper procedures to handling Gas Welding & Cutting equipment. Demonstration and practice on proper lighting and adjusting the flame, shutting down and cleaning up. Applicable to all mechanics who handle a torch for welding, cutting and burning.

903 - Shielded Metal Arc Welding (SMAW) Certification – Length 8 Days

Course prerequisites: 901.

This is an advanced level course for welders and mechanics consisting of lecture and hands-on activities to prepare the student for the American Welding Society (AWS) D1.1 Welders Structural Welding Code Steel Performance test. Students will use a track burning Oxy/Fuel gas machine to prepare a 45 degree included angle groove on ½" thick A36 metal and utilize SMAW to attach a ¼" thick backing strip to the groove. Subsequently, students will practice with SMAW 1/8" diameter E-7018 electrodes to become proficient welding in the vertical and overhead positions. On the last day of the course, students will be tested in accordance with the AWS D1.1 test criteria on both test pieces (vertical and overhead). Upon meeting acceptable standards, students will be certified to weld in all positions (flat, horizontal, vertical & overhead) on plates in a thickness range of 1/8" up to and including one inch thick carbon steel. Course length can be reduced for welders with sufficient prior experience or capability.

904 - Gas Metal Arc Welding (GMAW) Fundamentals – Length 3 Days

Course prerequisites: 901.

This is an advanced level course covering lecture and hands-on instruction for welders and mechanics to become knowledgeable and skilled in the use of Gas Metal Arc Welding (GMAW), also known as MIG. Students will develop skills in machine setup, gas selection, types of metal transfer and procedures used to ensure quality welds on simulated tee and groove joints on thin to thick steels.

AWS D1.1 Certification can be offered, if requested, with additional course length.

905 - Flux Core Arc Welding (FCAW) Fundamentals – Length 3 Days

Course prerequisites: 901.

This is an advanced level course covering lecture and hands-on instruction for welders and mechanics to become knowledgeable and skilled in the use of Flux Core Arc Welding (FCAW). Students will develop

skills in machine setup, gas selection, filler metal selection and procedures used to ensure quality welds on simulated tee and groove joints on thin to thick steels.

AWS D1.1 Certification can be offered, if requested, with additional course length.

1000 – OTHER COURSES

1001 - Rigging – Length 2 Days

Course prerequisites: none.

Applicable to all mechanics, gear men, heavy lift personnel and marine superintendents using slings in their work environment. This is an entry level course covering an introduction to Rigging principles, proper hardware applications (ex. slings, knots, hooks, shackles, eye bolts, etc.), rigging (loads, rigging triangle, COG), inspection on rigging hardware, wire rope clips and terminations. The objective of this course is for the student to understand the proper procedures for overhead lifting as per current OSHA and ASME standards.

1002 - Fiber Optics – Length 4 Days

Course prerequisites: none.

This course is an entry level course covering an introduction to fiber optics, fiber theory, cables, connectors and terminations, fusion splicing, mechanical splicing, installation, test equipment, restoration and maintenance, system components, design issues, system design exercise. The objective of this course is for the student to understand the fundamentals of fiber optics, to be able to troubleshoot the system and be able to splice cables. Hands-on labs performed to include fusion splicing, terminations / connectors, cable preparation, OTDR operation and optical loss testing.

1003 - DOT (PHMSA) HAZARDOUS MATERIALS AWARENESS/OSHA CHEMICAL HAZARD COMMUNICATION (GHS) – Length ½ Day

Course prerequisites: none.

All workers within the U.S. transportation sector who are potentially exposed to hazardous cargoes must be provided with Hazardous Materials Awareness training within 90 days of beginning employment. Thereafter, those employees must be provided “refresher training” on an at least every three-year basis.

Moreover, all workers need to be trained about the hazards present within the specific chemical substances they use on the job (fuels, lubricants, paints, primers, adhesives, solvents, etc.). Employers shall train employees regarding these hazards, consistent with the new Globally Harmonized labelling elements and safety data sheets format that have been adopted by OSHA.

This course covers U.S. Department of Transportation characterization and classification of hazardous materials, the recognition of relevant labels and placards mandated by the Pipeline and Hazardous Materials Safety Administration, as well as methods of safeguarding against the hazards present in those cargoes. It also covers OSHA’s Hazard Communication Standard, labeling, physical and health hazards of handling chemicals, safety data sheets (SDS), Personal Protective Equipment (PPE), routes of entry and methods of control.