Manitowoc Crane Care Training
Dealers Course Catalog 2021
Latin America

Contacts and trainers

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Training Center Objectives

Dear Customers and Dealers,

At Manitowoc Crane Care we understand the need for technical training. Providing your service technicians with training increases your productivity, reduces costs and increases your bottom line.

The 2021 training schedule offers a comprehensive line up of technical courses for Grove, Manitowoc and National Crane machines. These courses will provide your technicians with the skills and knowledge necessary for the execution of preventive maintenance; failure analysis and an overview of security systems and equipment operation.

Our trainers are certified trainers from MTW USA and Germany trainings centers, so you will have available at your region the same level of knowledge

We offer modules all levels, from 3 to 1 week in:
- Crane Operating;
- Crane safety;
- Crane erection and rigging;
- Crane technology
- Or in any specific courses according to your needs.

We strive to provide a personalized training session for each customer, customized to your needs; and we are always available to discuss our training program and any questions you may have.

If you can not find the training courses or program you need, please do not hesitate to contact us, we are always looking to meet any special requirements that you may have.

If you want the training at your facility, we'll send one of our "flying trainers"!

Training Arrangements

Registrations:

1 – If you have access to Manitowoc Direct / Factory trainings

You can aplly online for all the trainings that are listed for the several product lines.

- Go to your Manitowoc Direct page;
- Select "**My Applications**"
- Select "**Technical Learning Center↑**"
- Select "**Course Catalogs**"
- Select "**Tecnical**"
- Then you choose the Product Line and trainings that you want to attend

2 – If you don't have yet access to Manitowoc Direct/ Factory Training option, please contact us via e-mail to treinamento@manitowoc.com for more information about the Manitowoc Direct and training center access.

Registrations can be made up to one week prior to the scheduled training. Bookings will only be confirmed upon advance payment.

Participants should be those who work directly or indirectly with the equipment or those who have a basic knowledge of equipment operation. All participants must be 18-years-old.

Training Arrangements

Training Shedules:

All training classes will begin at 8:30 a.m. and end at 5:30 p.m. with a one hour lunch break. Training duration depends on the training selected.

Training Locations:

Trainings will be held at the Manitowoc Training Center for Latin America in São Paulo - Brazil.

The classrooms for theoretical training are organized by Manitowoc as well the teaching materials and meals. Each training class requires a minimum of four participants.

Accommodations, transport, travel and meals (outside of class) are the responsibility of the participant.

Training Costs:

Final training costs will be communicated to the registrants when the class has met the minimum number of participants.

Training Arrangements

TRAINING LOCATIONS:

Trainings will be held at the Manitowoc Training Center for Latin America in São Paulo - Brazil. The classrooms for theoretical only training are organized by Manitowoc as well the teaching materials and meals and can be done on the MTW offices in Central and Latin America Each training class requires a minimum of four participants. Our MTW in Central and South America offices are prepared for upon request trainings, or the clients facilities

Accommodations, transport, travel and meals (outside of class) are the responsibility of the participant.

TRAINING COSTS:

Final training costs will be communicated to the registrants when the class has met the minimum number of participants.

Training Equipment

Equipment, tools of differentiation:

2 training rooms,

1 crane simulators rooms,

10 different types of crane simulators for practical teaching.

If you want the training at your facility, we'll send one of our "flying trainers"!

Find us on our web site:

www.manitowoc.com

http://training.manitowoccranes.com/MCG_CARE/Services/EN/Training.asp

Contact us:

treinamento@manitowoc.com

GMK, RT, Boom Trucks and Industrial Cranes Line

Course Summary

Course Number	Course Name	Location	Page
Prerequisite course			
CTO	Crane Technology & Operation	São Paulo, Brazil	10
CST	Crane System Theory	São Paulo, Brazil	11
GMK			
GMK 1.2	Setup & Operation CCS & ECOS	São Paulo, Brazil	13
GMK 2.2	GMK Schematics	São Paulo, Brazil	14
GMK 3.2	ECOS (Generation 1 & 2)	São Paulo, Brazil	15
GMK 4.2	CCS Intro & Diagnostics	São Paulo, Brazil	16
GMK 5.1	Flashing & Calibration	São Paulo, Brazil	17
GMK 6.2	Engine and Transmission	São Paulo, Brazil	18
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RT			
Grove 1.1	Intro to CANBUS	São Paulo, Brazil	22
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Grove 3.1	Orchestra	São Paulo, Brazil	24
Grove 4.1	Hybrids ECOS and EKS	São Paulo, Brazil	25
Grove 5.1	CCS Intro & Diagnostics	São Paulo, Brazil	26
Grove 6.1	Flashing & Calibration	São Paulo, Brazil	27
Grove 7.1	Troubleshooting	São Paulo, Brazil	28
National Crane			
National 1	Intro National Systems	São Paulo, Brazil	30
National 2	Advanced National Systems	São Paulo, Brazil	31

CTO

Grove Crane Technology & Operation

Contents:

This 4 ½ day course assumes no basic service and operational knowledge of Grove Rough Terrain, Truck Mounted and All Terrain crane systems.
The course begins with an in-depth overview of domestic RT & TMS crane terminology and technologies in relationship to crane systems. Grove domestic load charts are explained along with exercises to expose the students to how load charts are constructed and how to properly read and interpret them.
The GMK product line is next with an in-depth overview of GMK terminology and technologies. Students will then be taught GMK style load charts to include exercises to assure a full grasp of both the Grove domestic and GMK product types.
Rated Capacity Limiting systems programming and operation is covered to include exercises using RCL simulators. This allows the student to apply load chart theory learned earlier in class to how the RCL works.
Machine hands-on session will allow the students to experience how to properly set up and operate a Grove domestic crane. This will give students a working knowledge of a Grove crane and the foundation to continue their studies in Grove Hydraulics and Electrical systems.

Course Benefits:

At the end of the course, technicians will be able to:

- Have basic understanding of how to read and interpret load charts and explain them to operators during machine deliveries.
- Conduct start-up and programming of RCL systems
- Have basic understanding of how to setup and function a Grove crane functions and operates.

Prerequisites
Work with Manitowoc Cranes Line

Duration
4 days

Capacity
8 students

Dates available:

08/02 – 08/06/21

Grove Crane System Theory

Contents:

This 4 ½ day course requires no service knowledge of Grove, GMK or National crane systems and will be used as a prerequisite for all introductory level courses.
The course is designed to provide a basic understanding of hydraulics, electrical and pneumatic principles and how they are applied on the different mobile crane product lines. The course will consist of classroom time utilizing programs covering the basics of hydraulics, electrical and pneumatics along with their components and how these components operate and interact with each other. Schematics are used to help the students gain a basic understanding of schematic layouts and component symbols used on the different mobile product lines.
Hydraulic and Electrical test benches are incorporated into the course to help give the student a better understanding of the hydraulic and electrical theories learned in the classroom portion of the training. Manitowoc Crane Care online systems for parts, service and maintenance will be covered to help the students understand basic navigation and content of the different systems.

Course Benefits:

At the end of the course, technicians will be able to:

- Have the basic understanding of hydraulic, electrical and pneumatic principles.
- Have a basic understanding of how hydraulic, electrical and pneumatic principles relate to the different mobile crane systems.
- Have a basic understanding of schematic design and layout for the different mobile crane product lines.
- Have a basic understanding of hydraulic, electrical and pneumatic symbols used on mobile crane schematics.
- Have a basic understanding of Manitowoc Crane Care online systems navigation and content.

Prerequisites
CTO

Duration
5 days

Capacity
8 students

Dates available:

08/09 – 08/12/21

GMK Courses

Course Number	Course Name	Location	Page
GMK 1.2	Setup & Operation CCS & ECOS	São Paulo, Brazil	13
GMK 2.2	GMK Schematics	São Paulo, Brazil	14
GMK 3.2	ECOS (Generation 1 & 2)	São Paulo, Brazil	15
GMK 4.2	CCS Intro & Diagnostics	São Paulo, Brazil	16
GMK 5.1	Flashing & Calibration	São Paulo, Brazil	17
GMK 6.2	Engine and Transmission	São Paulo, Brazil	18
GMK 7.2	Steer By Wire	São Paulo, Brazil	19
GMK 8.1	Troubleshooting	São Paulo, Brazil	20

GMK 1.2 – Setup & Operation CCS & ECOS

GMK

Contents:

This 4 ½ day course is designed for individuals who are new to GMK cranes but would also be an excellent refresher course for more experienced technicians. The course covers the setup and operation focused toward current production GMK cranes equipped with CCS and previous version cranes with ECOS/EKS.
The course features a GMK4100L-1 and will begin with an overview of the carrier controls and continue through the proper use of transmission and driving controls, outriggers, suspension and rear steering systems.
During day two, fundamental safety for crane operators' overview will be covered followed by load chart and outrigger pad load table explanations. Superstructure cab controls will be covered including the proper setup of the Operation & RCL systems.
Day three will began with an overview of the Operation display and the Twin-lock boom control system. This will be reinforced with actual operation of the boom by each student.
Day four will primarily be used for hands-on operation of the boom in semi-automatic and automatic modes. Each student will be expected to demonstrate proficiency in all aspects of crane setup and operation. Each student will also be given tasks to complete during the week to include load charts and outrigger pad loads.

Course Benefits:

At the end of the course, technicians will be able to:

- Have a basic understanding of how to read and interpret load charts and outrigger pad load tables
- Conducted properly set up of GMK for highway travel or lifting operations.
- Be able to operate the boom telescope in semi automatic and automatic modes
- Have knowledge of basic error codes for Operation and RCL systems.

Prerequisites
CST training

Duration
5 days

Capacity
8 students

Dates available:

03/08 – 03/12/21

GMK 2.2 – GMK Schematics

GMK

Contents:

This 4 ½ day course assumes the student has completed all prerequisites and has basic crane knowledge. This course introduces students to an explanation of GMK schematic symbols to include pneumatic, hydraulic and electrical. Also students learn how to read and navigate GMK ELAN and SEE version electrical schematics.
Day #1 begins with an explanation of schematic symbols used on GMK schematics to include pneumatic, hydraulic and electrical. Next is an introduction into the ELAN electrical schematic format and navigation.
Day #2 will continue the study into ELAN electrical schematics used on Generation 1 GMK ECOS cranes with explanations of the different crane function circuits along with schematic task for the students.
Day #3 will begin with the study into SEE version ELAN electrical schematics used on Generation 2 GMK ECOS cranes with explanations of the different crane function circuits along with schematic task for the students.
Day #4 will begin with the study into GMK hydraulic and pneumatic schematics focusing on the carrier for both Generation 1 and Generation 2 cranes.

Course Benefits:

At the end of the course, technicians will be able to:

- Interpret and navigate GMK hydraulic and pneumatic schematics
- Have a basic understanding of Generation 1 and 2 carrier systems hydraulically and pneumatically.
- Have a basic understanding of how to navigate ELAN and SEE version electrical schematics.
- Have a basic understanding of Generation 1 and 2 systems electrically via ELAN and SEE schematics.

Prerequisites
GMK 1.2

Duration
5 days

Capacity
8 students

Dates available:

05/17 - 05/21/21

GMK 3.2 – ECOS (Generation 1 & 2)

GMK

Contents:

This 4 ½ day course assumes the student has completed all prerequisites and has basic crane knowledge. The program begins with a review of GMK ELAN & SEE electrical schematics used on Generation 1 & 2 ECOS models. GMK5200 GEN-1 and GMK5130-1 GEN-2 simulators are used for hands on portions of the class.
Day #1 will include a systems tour of the typical Generation 1 superstructure ECOS system focusing on CANBus and module specifics. Next will be a tour of the typical Generation 2 superstructure and carrier ECOS system focusing on CANBus and module specifics.
Day #2 will include a systems tour of the different Generation 1 and 2 superstructure hydraulic systems. Detailed explanations of each function circuit are covered using hydraulic and ELAN schematics.
Day #3 begins with an explanation of the TwinLock boom pinning system to include troubleshooting, error code diagnosing for both generations of ECOS and finally an overview of ECOS service software.
Day #4 will include Service Software for both GEN-1 and GEN-2 cranes with task on simulators of how to navigate and perform different task such as calibration, parameter file reading and writing and troubleshooting.

Course Benefits:

At the end of the course, technicians will be able to:

- Interpret and navigate GMK hydraulic, pneumatic and electrical schematics
- Have intermediate understanding of GMK GEN-1 and GEN-2 ECOS systems
- Have an understanding of theory of operation of the GMK TwinLock boom telescoping systems.
- Have an understanding of using Service Software for both GEN-1 and GEN-2 ECOS cranes.

Prerequisites
GMK 2.2

Duration
5 days

Capacity
8 students

Dates available:

05/24 - 05/28/21

GMK 4.2 – CCS Intro & Diagnostics

GMK

Contents:

This 4 ½ day course covers technology and diagnostics pertaining to the new CCS control system used on the GMK 3060, GMK5180 and 5250L models. Mode of instruction is primarily classroom theory and practical hands on utilizing a GMK CCS simulator.
The course begins with component identification, operational aspects and system overview to include electrical and hydraulic schematics. The class concludes with the students using and understanding the CST service software to include troubleshooting, calibration and flashing of system components.

Course Benefits:

At the end of the course, technicians will be able to:

- Understand operation of the CCS control system
- Troubleshoot the electrical and hydraulic systems utilized in the CCS control system.
- Perform calibration and flashing procedures necessary for proper operation of the CCS control system.
- Receive, upon successful completion of the final test, the CST service software, switchbox and cabling.

Prerequisites
GMK 3 or GMK3.1

Duration
5 days

Capacity
8 students

Dates available:

08/16 - 08/20/21

GMK 5.1 – Flashing and Calibration

GMK

Contents:

This 4 ½ day course assumes the student has completed all prerequisites and has basic crane knowledge. The program begins with a review of GMK ELAN & SEE electrical schematics used on Generation 1 & 2 ECOS models. GMK5200 GEN-1 and GMK5130-1 GEN-2 simulators are used for hands on portions of the class.
Day #1 will include a systems tour of the typical Generation 1 superstructure ECOS system focusing on CANBus and module specifics. Next will be a tour of the typical Generation 2 superstructure and carrier ECOS system focusing on CANBus and module specifics.
Day #2 will include a systems tour of the different Generation 1 and 2 superstructure hydraulic systems. Detailed explanations of each function circuit are covered using hydraulic and ELAN schematics.
Day #3 begins with an explanation of the TwinLock boom pinning system to include troubleshooting, error code diagnosing for both generations of ECOS and finally an overview of ECOS service software.
Day #4 will include Service Software for both GEN-1 and GEN-2 cranes with task on simulators of how to navigate and perform different task such as calibration, parameter file reading and writing and troubleshooting.

Course Benefits:

At the end of the course, technicians will be able to:

- Interpret and navigate GMK hydraulic, pneumatic and electrical schematics
- Have intermediate understanding of GMK GEN-1 and GEN-2 ECOS systems
- Have an understanding of theory of operation of the GMK TwinLock boom telescoping systems.
- Have an understanding of using Service Software for both GEN-1 and GEN-2 ECOS cranes.

Prerequisites
GMK 4.2

Duration
5 days

Capacity
8 students

Dates available:

08/23 – 08/27/21

GMK 6.2 – Mercedes Transmission & SCR Systems

GMK

Contents:

This 3 ½ day course covers the operational control and troubleshooting of the fully automated Mercedes G-240 and the new G-280 transmission used on various GMK crane models. Also covered in this course is the Mercedes SCR DEF system, Minidiag and Xentry tools.
Mode of instruction is classroom theory/discussion and hands-on practical exercises utilizing a GMK 4100L-1 model crane and simulators as applicable.
Day 1 and 2 will focus on the Mercedes G-240 transmission components and operation along with using the Minidiag II service tool. Mercedes SCR Def systems will also be covered.
Day 3 will focus on the Mercedes G-280 transmission components and operation along with the Xentry service tool. The course is finished on day 4 with a written exam.

Course Benefits:

At the end of the course, technicians will be able to:

- Understand operational aspects of the Mercedes G-240 & G-280 transmission.
- Troubleshoot and calibrate the Mercedes G-240 & G-280 transmission using the Minidiag II and Xentry service tools.
- Provide driving/operation instruction to customers when delivering machines equipped with the Mercedes transmission.
- Understand operational aspects of the Mercedes SCR def system.

Prerequisites
GMK 5.1

Duration
3 1/2 days

Capacity
8 students

Dates available:

11/22 – 11/24/21

GMK 7.2 – Steer By Wire

GMK

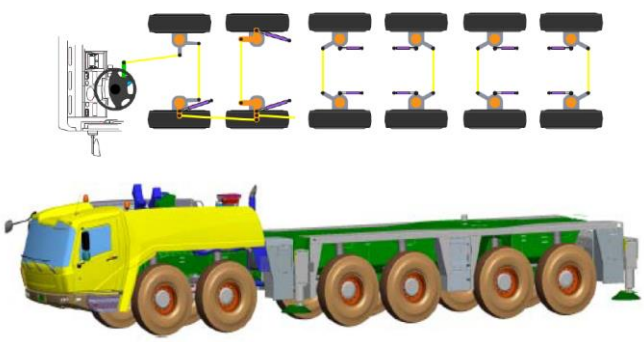
Contents:

This 3 ½ day course covers the ECOS "Steer by Wire" control system and the new CCS "Steer by Wire" control system used GMK crane models.
Mode of instruction is classroom theory/discussion and practical exercises utilizing a GMK ECOS model Steer by Wire simulator and a GMK CCS crane equipped with the CCS Steer by Wire control system.
Content will include electrical and hydraulic overview of system requirements, mechanical alignment, programming of control modules and calibration of systems controls.

Course Benefits:

At the end of the course, technicians will be able to:

- Troubleshoot the electrical and hydraulic systems utilized in the Steer-By-Wire control systems.
- Perform the mechanical alignment of the steering system necessary for proper operation.
- Program and calibrate the Steer-By-Wire controls.



Prerequisites
GMK 6.2

Duration
3 1/2 days

Capacity
8 students

Dates available:

When required

GMK Troubleshooting

GMK

Contents:

This 3 day course will cover troubleshooting the Grove GMK control systems learned in previous classes.
Classroom and practical training methods will be used to include a review of GMK systems along with troubleshooting procedures and technics related to the GMK product line. Understanding error codes and how to interpret their meaning will be focused on to help the students apply what they have learned about the systems and how that relates to the different error codes they will be confronted with.
Students will be tested on their troubleshooting skills by means of written task and hands on task. The task will include system errors, software procedures and calibrations. Class size will be limited to eight (8) students. The course will be approximately 30% classroom and 70% practical.

Course Benefits:

At the end of the course, technicians will be able to:

- Have an understanding of recommended troubleshooting technics
- Enhance their troubleshooting skills.
- Understand using crane service software for diagnostics
- Understand how to properly diagnose error codes
- Understand diagnostic screens

STUDENT MUST PROVIDE:

- Transportation, meals, room and board
- Laptop (per attached requirements)
- Voltmeter
- Proper classroom and shop attire, No SHORTS or SANDALS
- Arrive to class on time each day (Class start time is 8:30am)

Prerequisites
GMK 7.2

Duration
3 days

Capacity
4 students

Dates available:

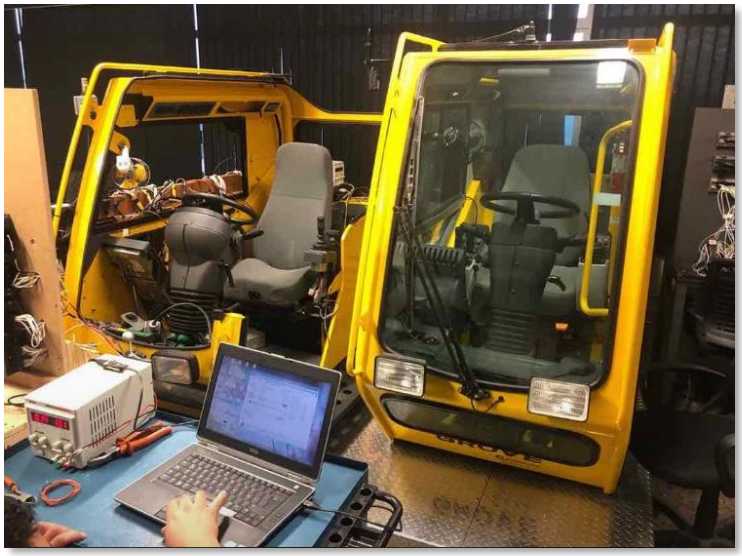
11/29 – 12/01/21

Grove RT Courses

Course Number	Course Name	Location	Page
Grove 1.1	PAT systems	São Paulo, Brazil	22
Grove 2.1	RT Gen #2	São Paulo, Brazil	23
Grove 3.1	RT Gen #3 Orchestra system	São Paulo, Brazil	24
Grove 4.1	RT ECOS and EKS	São Paulo, Brazil	25
Grove 5.1	CCS System	São Paulo, Brazil	26
Grove 6.1	Software RT	São Paulo, Brazil	27
Grove 7.1	Troubleshooting	São Paulo, Brazil	28

Grove 1.1

Aim/Course goals:
This course is for crane service technicians to gain knowledge that how CANBUS technology works and different types of LMI systems used in RT Cranes.



Program:
CANBUS technology and diagnostics; LMI PAT system circuits , sensors calibrations and troubleshooting; software procedures.

Training methods:
Training is conducted in lecture format supplemented with hands-on activities on the machine and simulators.

Materials and classrooms used:
Training theory, presentations, videos and manuals are provided to each participant on digital media.

Validation of knowledge:
Pre test, daily homework, daily tasks and final test.

Prerequisites
CST training

Duration
5 days

Capacity
8 students

Dates available:

02/08 - 02/12/21

Grove 2.1

Aim/Course goals:
This course is for crane service technicians to gain basic operational knowledge of Grove cranes and hydraulic, electric structure and software diagnostics programs for RT gen#2.

Program:
Identification of carrier and superstructure components; Identification, understanding hydraulic and electrical symbols and schematics; basics tests, procedures and troubleshooting using software program.

Training methods:
Training is conducted in lecture format supplemented with hands-on activities on the machine and simulators.

Materials and classrooms used:
Training theory, presentations, videos and manuals are provided to each participant on digital media and printed schematics.

Validation of knowledge:
Pre test, daily homework, daily tasks and final test.

Prerequisites
Grove 1.1

Duration
5 days

Capacity
8 students

Dates available:

04/05 – 04/09/21

Grove 3.1

Aim/Course goals:
This course is for crane service technicians works with Grove gen#3 CANBUS, multi modules schematics and Orchestra service software.

Program:
Identify hydraulic and electrical components; Troubleshooting and calibrations using hydraulic and electrical schematics and service software.

Training methods:
Training is conducted in lecture format supplemented with hands-on activities on the machine and simulators.

Materials and classrooms used:
Training theory, presentations, videos and manuals are provided to each participant on digital media and printed schematics.

Validation of knowledge:
Pre test, daily homework, daily tasks and final test.

Prerequisites
Grove 2.1

Duration
5 days

Capacity
8 students

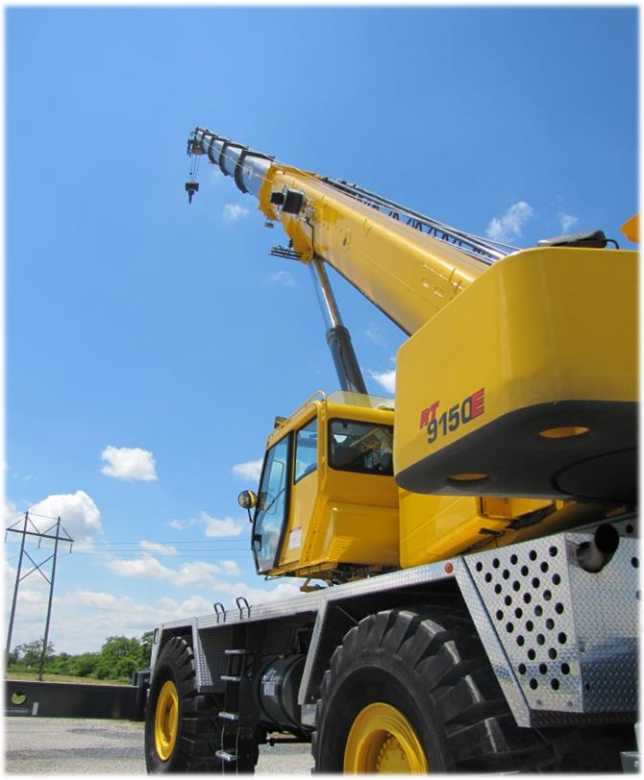
Dates available:

04/12 - 04/16/21

Grove 4.1 – ECOS and EKS

RT

Aim/Course goals:
This course is for crane service technicians to gain knowledge of the RT9150 and TMS9000E ECOS and EKS system machines.



Program:
Identify hydraulic and electrical components; Troubleshooting and calibrations using hydraulic and electrical schematics; ELAN schematics and service software.

Training methods:
Training is conducted in lecture format supplemented with hands-on activities on the simulators.

Materials and classrooms used:
Training theory, presentations, videos and manuals are provided to each participant on digital media and printed schematics.

Validation of knowledge:
Pre test, daily homework, daily tasks and final test.

Prerequisites
Grove 3.1

Duration
5 days

Capacity
8 students

Dates available:

07/12 – 07/16/21

Grove 5.1 – CCS System

Aim/Course goals:
This course is for crane service technicians works with the new Grove system CCS.

Program:
Identification of CCS components; CANBUS system of the CCS; understanding and troubleshooting electrical and hydraulic schematics; service software CCS; error codes identification.

Training methods:
Training is conducted in lecture format supplemented with hands-on activities on the simulators.

Materials and classrooms used:
Training theory, presentations, videos and manuals are provided to each participant on digital media and printed schematics.

Validation of knowledge:
Pre test, daily homework, daily tasks and final test.

Prerequisites
Grove 3.1

Duration
5 days

Capacity
8 students

Dates available:

07/19 – 07/23/21

Grove 6.1 – Software RT

Aim/Course goals:
This course is for crane service technicians works with different types of software RT.

Program:
HED Gen 1, 2 & 3 software; Hirschman software; Raico Wylie software; ECOS software; CCS Software procedures.

Training methods:
Training is conducted in lecture format supplemented with hands-on activities on the simulators and cranes.

Materials and classrooms used:
Training theory, presentations, videos; software and manuals are provided to each participant on digital media.

Validation of knowledge:
Pre test, daily homework, daily tasks and final test practical and theoretical.

Prerequisites
Grove 5.1

Duration
5 days

Capacity
8 students

Dates available:

09/27 - 10/01/21

GMK

Grove Troubleshooting

Contents:

This 3 day course will cover troubleshooting the Grove control systems learned in previous classes.
Classroom and practical training methods will be used to include a review of Grove Crane systems along with troubleshooting procedures and technics related to the Grove Crane product line. Understanding error codes and how to interpret their meaning will be focused on to help the students apply what they have learned about the systems and how that relates to the different error codes they will be confronted with.
Students will be tested on their troubleshooting skills by means of written task and hands on task. The task will include system errors, software procedures and calibrations. Class size will be limited to eight (8) students. The course will be approximately 30% classroom and 70% practical.

Course Benefits:

At the end of the course, technicians will be able to:

- Have an understanding of recommended troubleshooting technics
- Enhance their troubleshooting skills.
- Understand using crane service software for diagnostics
- Understand how to properly diagnose error codes
- Understand diagnostic screens

STUDENT MUST PROVIDE:

- Transportation, meals, room and board
- Laptop (per attached requirements)
- Voltmeter
- Proper classroom and shop attire, No SHORTS or SANDALS
- Arrive to class on time each day (Class start time is 8:30am)

Prerequisites
Grove 5.1

Duration
3 days

Capacity
8 students

Dates available:

10/04 - 10/06/21

National Crane Courses

Course Number	Course Name	Location	Page
National 1	Intro National Systems	In Company	30
National 2	Advanced National Systems	In Company	31

National 1

National Crane

Aim/Course goals:

The goal of this course is to familiarize participants with the working and operating principles of National Crane boom truck machines and technology.

Program:

Component description and location; interpretation of equipment load charts; preventive maintenance plans, configuration and operation of LMI system; understanding operating and service manuals and the principles of each function operation.

Training methods:

Training is conducted in lecture format supplemented with hands-on activities on the cranes* (if available).

Materials and classrooms used:

Training theory, presentations, videos; software and manuals are provided to each participant on digital media.

Validation of knowledge:

Pre test, daily homework, daily tasks and final test.

Prerequisites
CST Training

Duration
4 days

Capacity
8 students

Dates available:

When required

National 2

Aim/Course goals:
The course will cover the use of hydraulic and electrical schematics for failure diagnosis, and how to test and adjust pressures.

Program:
Advanced hydraulic, electrical and pneumatic principles; procedures for pressure adjustment and troubleshooting; CANBUS technology; Software procedures.

Training methods:
Training is conducted in lecture format supplemented with hands-on activities on the cranes* (if available).

Materials and classrooms used:
Training theory, presentations, videos; software and manuals are provided to each participant on digital media.

Validation of knowledge:
Pre test, daily homework, daily tasks and final test.

Prerequisites
National 1

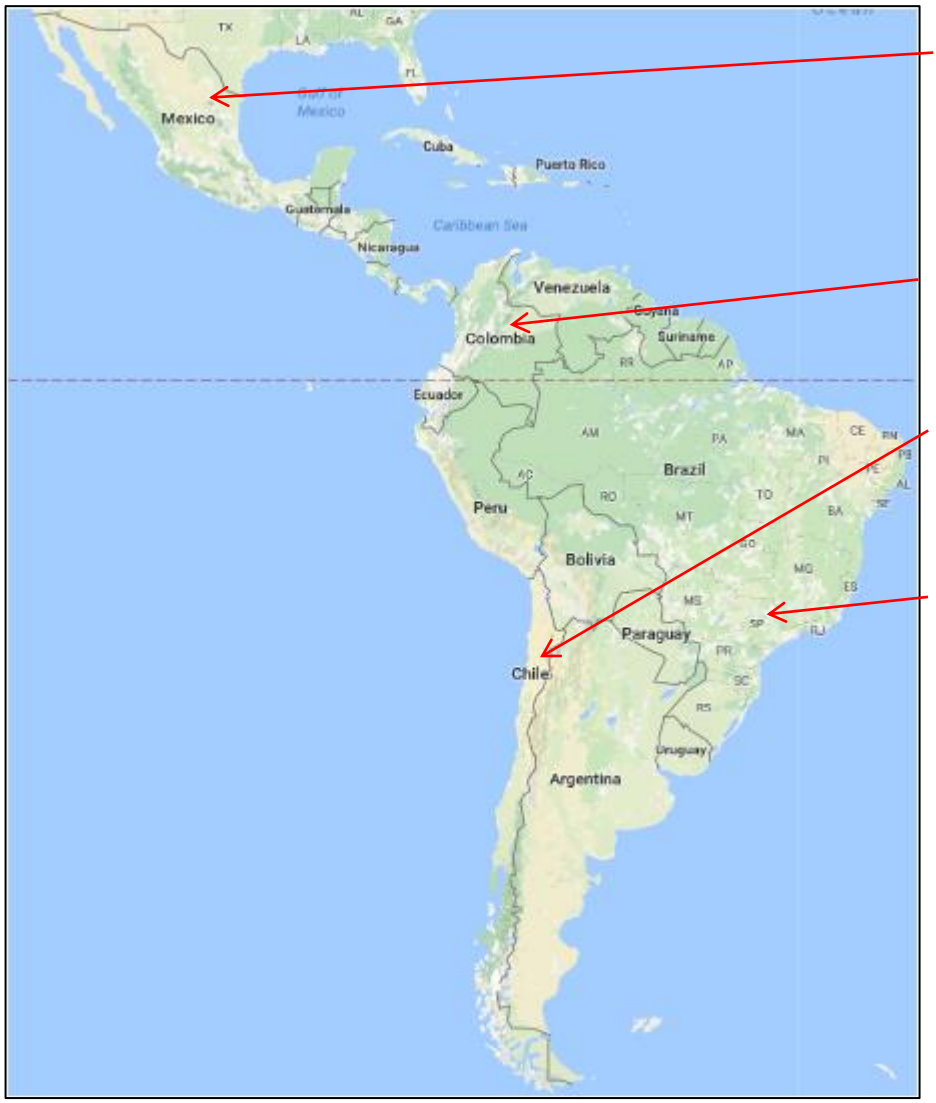
Duration
5 days

Capacity
8 students

Dates available:

When required

Manitowoc Regional Offices and Latin America Training Center



MTW LA Offices

Manitowoc Cranes - Colombia
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Zona Loma Larga Poniente, 66266
Nuevo León, Mexico

Manitowoc Cranes - Colombia
Carrera 18 No. 86ª - 14 Oficina 216
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