

Class Descriptions

40th LMS Seminar — April 18-20, 2017

A-1 Electrical Power Distribution

Primary, Switchgear and Secondary Systems.

Bruce Wyman • S-K-I Electric

This class will familiarize you with low and medium voltage distribution system on your mountain. Discussions of reclosers, sectionalizers, types of transformers and related equipment in both Y and Delta distribution systems,

A-2 Electrical Safety - NFPA 70E 2015

3-Hour Class

Paul Gelinax • Burlington Safety Laboratory, Inc.

Basic Four Hour Electrical Safety for General Industry – The objective of this three hour program is to develop a strong commitment to safety, especially electrical safety. This program is designed to highlight the need for electrical safety, and provide a general treatment of the nature of electricity; the risks, hazards and solutions for a safe work environment. The program explores the inter-dependence of consensus standard NFPA 70E and OSHA Subpart S rules. Graphic illustrations of the consequences resulting from actual electrical accidents are presented. A review of LOTO procedures, PPE and other safety equipment is included.

The issue of "How do I know what I need?" and strategies for dealing with uncertainty of risk level are discussed. The basics of grounding, hand tool safety and how to select the proper voltmeter are included.

Suitable for all categories of employees, electricians, maintenance, operators, supervisors and management.

A-3 Introduction to Wire Rope

Sam Geise • Geise Engineering

Terminology, constructions, use;

How wire rope is made;

Basic inspection & Math (Broken Wires, etc.) MRT;

ANSI B77 Requirements.

A-4 Aging Machinery

What and What Not to be Concerned About

Neville Sachs, PE • Neville W. Sachs, P.E., PLLC

The steel in that 70 year-old ski lift tower or that 30 year-old car is as strong as the day it was made, and the replacement bearings available today have ratings far greater than the originals. But everybody has concerns about older machinery. This presentation will discuss what mechanical reliability we should be concerned about when it comes to evaluating aging equipment.

A-6 Worker Safety and OSHA Update

Ryan Patrick • Wells Fargo Safehold.

Tim Bruce • Wells Fargo Safehold.

Karl Lindberg • OSHA Springfield Area Office.

This will be an interesting session facilitated by Ryan Patrick about worker safety and how it interweaves with OSHA Regulations. The Regional Director of the Federal OSHA Regional Office will be present to discuss Lockout/Tagout in regards to the group lockout procedures used on ropeways, changes to the fall protection standards that were implemented last fall, reporting changes, and machinery guarding. Karl will also be able to give a brief summary and status report on the direction of OSHA under the new administration.

A-7 Leitner-Poma of America

Customer Service Round Table

3-Hour Class

Rod Stocking • Leitner-Poma of America, Inc.

Leitner-Poma of America would like to provide our customers the opportunity to discuss problems, concerns, procedures and Ideas for improvement.

This open forum discussion will be conducted By Rod Stocking, Leitner-Poma of America Service Manager. Rod requests everyone come prepared with your questions, comments and ideas for this 3 hour secession. This is your chance, don't let it pass you by.

A-8 Snowmaker Safety

Ian Jarrett • HKD Snowmakers

Techniques and strategies to protect the ski industries most valuable asset.

B-1 Variable Frequency Drives (VFD's)

Bob Twohill • Applied Dynamics / Yaskawa Drives

This class will take you through a generic VFD. We will discuss the design, construction, and application of various types of VFD's.

B-3 What's My Tension?

Don't Have Line Calcs? We Can Help!

Sid Roslund • National Ski Areas Association

We will look at how to calculate the tension on a haul rope at the location where you plan to install the rigging for a splice or project. Both hydraulic and counterweight systems will be reviewed and how to determine the initial tension in the rope, plus the additional vertical component/calculated rope weight and chairs for the location along the lift line.

Please bring your cell phone with a calculator.

B-4 Gearbox Maintenance; Inspection and Overhaul Procedures

Nick Chieppo • Artec Machine Systems

Of particular interest to lift maintenance crew, attendees will learn about the importance of preventive maintenance on the lift drive gearbox and the basic procedures to extend working life and reliability.

B-5 Work Carrier Safety:

It's Just Another Carrier and You're Just Along For The Ride

Brook Kasman • Stowe Mountain Resort

You load them up and climb on, but have you done your homework?

How much can they carry, have you done the grip maintenance, communication protocols, lockout-tagout? This open discussion will start with these items and end with a discussion of the proposed changes for Work Carriers that are coming in the next ANSI B77.1 standard.

B-6 Meet Your Lift Inspector

Mike Nellis • State of Vermont

Each State will explain how they do inspections.

What inspectors look for?

How many on staff and what it takes to become an inspector?

How each state deals with New Lifts, Modifications, Write ups, etc.

Bring Your Questions!

B-8 SMI Snow Makers -

We've Got You Covered

Peter Geise • SMI Snow Makers

Panel John Parker

We've got you covered with this session on the world of SMI snowmaking. We will kick things off with what's new at SMI and an inside peek of the 2018 Korean Olympic downhill venue. Followed by some automation and machine maintenance tips and tricks.

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C-1 Lightning/Surge Protection: The Coordination of Technologies for Ski Industry Applications

William (Bill) Percell • Meter-Treater, Inc.

This presentation explores the applications for Surge Protection as it relates to Power Quality issues associated with operating systems in real world environments. Material covered will provide insight on what to protect, how to select the technology/protector and where to interface/install with specific emphasis on application/technology coordination. Discussions will include lift operating systems, ac and dc drives, proximity (PROX) switches, weather instrumentation, security systems (access control, video & alarm), plus computers and communications networks. Grounding and bonding principles will be reviewed due to their critical relationship to system performance and personnel safety.

C-2 AC Motors

Tom Bates • New Hampshire Electric Motors

*Panel with Leighton Bates, Motor and Drive Specialist
Discussion and explanation on the construction and operation of AC motors. Single phase and poly phase motors are used in all aspects of ski area operations. Tom will explain the operation, construction and maintenance of various AC motors.*

C-3 SunKid Wonder Carpets

Connor Rowan • Star Lifts, USA

*Panel with Peter Kavanagh - Star Lifts:
The class will cover all things SunKid
Maintenance, Operation and Troubleshooting.*

C-4 How Accidents Happen

Neville Sachs, PE • Neville W. Sachs, P.E., PLLC

Accidents and injuries are rarely random events or "Acts of God" and they almost never have a single cause. Whether we talk about a major disaster like Bhopal or a simple car crash, it is almost always that a chain of seemingly unrelated events combine to set up an unwary person. This presentation will show how often humans make errors and things we can all do (in our lives and at the ski hill) to reduce the chance of an incident.

C-5 Electrical vs Mechanical-

Why Can't We All Just Get Along and Work Well With Each Other!

Andy Pierce • AP Electrical Service, LLC

An ongoing issue with all things electro-mechanical. To fight the ongoing fight myself and many have fought for years, we must dissect each problem deeply and determine the root cause of it. We welcome all that point the finger and please come with tales of your personal experiences, as a good class is always better with participation. Bring yourself and a friend, or better yet sign up your best mechanic and best electrical guy and let's hear them fight the fight.

C-6 Detachable Ropeways- History, Theory and Design

Michael Weise • Leitner-Poma Services, Inc.

This session will cover the History, Theory and Evolution of Design of Detachable Aerial Ropeways. Specific examples will be shown to give the participant a better understanding of these Systems.

C-7 Lift Operations Roundtable - Our Impact on the Resort

Jason Perl • Mount Snow Resort

This will be an interactive discussion and open forum to learn from industry peers and share your experience. What do you do to prevent misloads? How does your resort respond to a "hanger"? What are the duties/positions of lift operators? What do you do to educate guests about lift safety? How do you prevent operator injuries? Join us in a discussion about industry hot topics and learn from each other. At the end of the class at 3:00pm, the discussions will continue with a beer at Christiansen's Tavern.

C-8 Snowmakers Symposium

Dave LaCombe • Killington Resort

This is an open discussion where snowmakers can learn, discuss, and swap information on all aspects of slope maintenance.

D-1 DC Motors

Karl Butz • Troy Belting

DC motors have played an important role in ski lift drives. Karl will explain the theory of operation, the construction and maintenance requirements for your motors. A must class with the guy who can explain it all.

D-2 CPS's - Troubling Shooting Tower Faults

Mark Thorpe • Snowmass Ski Area

This session will address Poma style C.P.S. faults including:

- Introduction to Trouble shooting
- 3-wire switches - 4-wire old style switches;
- 4-wire new style switches - 5-wire newest switches.

D-3 Battle Mode:

When Your Lift is Down and You Have to Move It Somehow

Larry Wollum • All Ski Lifts

A discussion pertaining to situations where a lift is immobilized for some known reason (broken hydraulic line or similar) and moving the lift is preferable to rope evacuation.

Some examples:

- Non- functioning hydraulics
- Electrical Problem
- Seized Electric Motor

D-4 Lift Incident Investigation

Everade Hatch • MountainGuard Insurance Program.

"The forgotten side of lift operations....an update on incident investigation." This unique session will review the steps and requirements of an incident investigation.

D-5 Formalized Lift Maintenance Training- Where Do We Go From Here?

Michael Weise • Leitner Poma Services

Previous sessions addressed what Programs are in place and how to develop your Program. This session will briefly cover those topics again and discuss where this Program is headed with NSAA developing a Lift Maintenance Resource Guide for its Members. The preliminary direction of the Guideline will be discussed as well as how you can stay abreast of the developments.

D-6 How to Assist People with a Disability at Your Resort

Joe Hurley • Bart J. Ruggiere Adaptive Sports Center

Panel with Betsy Hurley

We will go over some methods of assisting people that have a disability. We will look at mazes, chair loading and unloading, and other issues in general. We will also go over some of the equipment that you might see. We will also cover some of the different disabilities that you might see.

D-7 Skytrac: Phased Lift Replacement Program

Maynard Russell • MCR Services

The financial impact of a lift replacement doesn't have to create overwhelming cash flow burden on your resort. Skytrac has created a program that steers away from complete installation to a phased lift replacement approach. The different consideration will be discussed concerning the lift replacement approach.

D-8 Snowmaking Pump Operation, Maintenance, Testing

Roger Regnaud • Vermont Pump & Fabrication

This class will cover the basic operation of single and multiple pumps. Maintaining packing and mechanical seals. What effects performance and efficiency. How to read a pump performance curve and simple testing to evaluate the condition of your pump. This class is intended for the hands-on ski area personnel that operate and maintain snowmaking pumps. You will walk away with a better knowledge of how your pumps operate and what causes performance and efficiency losses and how to test and evaluate the condition of a pump.

No tools required

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E-1 Low Voltage Control Circuits

3-Hour Class

Bruce Wyman • S-K-I Electric

We will start with the symbols of the different electrical components and start to add the lines (wires) that connect them together forming series and parallel circuits resulting in a circuit diagram. The inter action of external control devices actuating the relays contained in the above circuits combine to control the electrical functions of the lift. As more components are added the basic circuits will come to light. The protocols for the layout of circuit diagrams will be explained and how to start to trace a circuit through a drawing.

E-2 Basic Fuseology

Fred Tocco • Eaton-Bussman

Panel with David Chase

Over current and short circuit fault protection are extremely important to your facility. This class will introduce you to these concepts and show you how and where to look for protection.

E-3 Dialog on Bearing Applications & Implications in Lifts and Track Vehicles

Steve Greene • Action Bearing Company

Bring your questions, and stories from the field. This will be a dialog based discussion on bearing applications and lubrication in the ski industry - lifts, groomers, pumps and compressors.

E-4 Failure Analysis of Mechanical Components With Failed Components Segment

3-Hour Class

Neville Sachs, PE • Neville W. Sachs, P.E., PLLC

1. The multiple causes of mechanical failures.
2. A brief review of the physical properties of materials.
3. Comparing the features of overload vs. fatigue failures
4. Looking at a series of failed components, with the students diagnosing the causes for the failure.

E-5 Hydraulic Controls Brake and Tension

William Hartman • Skytrac Inc.

Training on Hydraulic Components, Assemblies, Diagrams, Troubleshooting and Theories for Brake and Tension Systems.

E-6 Accountability in Maintenance

Bob Ackland • Steep Management, LLC

Understanding the value of accountability in our lift maintenance programs. It is the teaching opportunity to improve the performance of a lift maintenance department. This course is intended for all, but mainly supervisors and managers of maintenance departments.

E-7 Basic Ski Lift Math and Physics

Ross Stevens • Stevens Engineering

Bring a simple calculator +/- SQ Root (Check your cell phone)

Presenting practical math applications for ski lift technology including photos, formulas and sketches of the basic things you need to know about. Your opportunity to ask questions, discuss concepts and understand fundamentals. This course is for anyone who wants to know more about an important tool we use every day and including mechanics, supervisors, inspectors and authorities. Bring any math issues you want to discuss.

E-8 Summer Maintenance of Fan Guns

3-Hour Class

Garrett Poole • TechnoAlpin USA Inc.

The session will look at the steps, inspection, maintenance and insights required to prepare your TA fan guns for the summer so that they wake up in the fall ready to rock.

E-9 Adaptive Lift Evacuation Workshop

Mary Davis • ASC B77 Evacuation Subcommittee

Panel with Joe Hurley and Betsy Hurley

Hands-on workshop working with typical adaptive ski equipment in an evacuation setting. An opportunity to explore adaptive evacuation procedures at various resorts.

F-2 Lift Electric Roundtable

Mark Thorpe • Snowmass Ski Area

This is an open forum for all those who practice the "Dark Art of Lift Electronics". All skill levels are welcome. We will discuss all flavors of Lifts, Snowmaking, and other electrical challenges. Please bring your questions, ideas, and anything else you would like to talk about.

F-3 Lift NDT Inspections - Focus on Bullwheels

Scott Shanaman • Aerial NDT Inspections Inc.

Scott will discuss bullwheel NDT testing and inspections, including service bulletins, techniques, best practices, and recent findings. Scott will discuss bullwheel NDT testing and inspections, including service bulletins, techniques, best practices, and recent findings.

F-6 Magic Carpet Conveyors

Dave Kelly • Magic Carpet Ski Lifts

Panel with Sam Geise

Conveyor Design, Hazard Analysis, Maintenance, Safety, Operation and Troubleshooting.

F-7 Advanced Ski Lift Math and Physics

Chris Hanrahan • USDA Forest Service

Michael Lane • USDA Forest Service

Bring a simple calculator +/- SQ Root (Check your cell phone)

This class will move beyond basics and will start with fundamental tensions, tower/sheave loading, rope angles, radial acceleration, grip slip forces, torque and horsepower requirements as a few examples. From these aspects the class then can expand on drive terminal locations, loss of tension issues, simple rigging and lift inertia.

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G-1 Fluke Multimeters

Bryon Brewer • Fluke Meters

One of the most important pieces of equipment you will use is your multimeter. Learn the various types, the right one to use for the job, and how to do it properly.

G-2 Overhead Comline Installation

Bruce Wyman • S-K-I Electric

The presentation will be an introduction to installing a comline. The presentation will show the steps needed to pull in a new comline, how to tension and balance loads on towers, and then how to "cut-in" a boot.

Hands-On Lab - Comline Installation class is a prerequisite.

Each lab will be a hands-on session with 4-6 people (See H-2). You will install a section of comline, tension it up and then cut in boot. 2- Sessions will be offered on Thursday. (See H-2) Sign up during class.

G-3 Doppelmayr Mfg. Session:

Introduction to the Support Portal

Walt Read • Doppelmayr USA, Inc.

Panel with Donnie Martin

Introduction and training on how to use the Doppelmayr Customer Support Portal, including services, parts, training, and complete Service Bulletin access.

G-4 Introduction to Brakes - 101

Michael Lane • USDA Forest Service

Chris Hanrahan • USDA Forest Service

This class will look at the different types of brakes, their physical characteristics, components, nuances, and adjustments. The session then applies the different brake types as they are used on ropeways and attempts to give an overview to help you understand their operation and how they relate to the requirements of the B77.1 Standard.

G-5 Ropeway Historical Accident Review

Sid Roslund • National Ski Areas Association

Discussion of past ropeway accidents and how they impacted the ski industry and the B77.1 Standard. This is a must class for new technicians to understand how ropeway standards and equipment has evolved to today's equipment.

G-6 Evacuation Planning - Are you Ready???

Mary Davis • ASC B77 Evacuation Subcommittee

The impacts of lift evacuation is not limited to rope handling and belaying. Designed for employees from all departments and presented in a workshop format, this session will guide the participants through the process of assessing their plan for evacuation of lifts. It addresses the challenges of lift types, variables that impact the operations, and explores potential additional resources to draw upon.

G-8 Pump Station Design, Automation, and Troubleshooting

Dan Duncan • Torrent Engineering & Equipment

We will discuss the different types of pump designs, pump control methods, instrumentation, remote access, and troubleshooting. Questions about specific pump problems will be encouraged.

H-1 Troubleshooting Tips for Tower Derail Circuits on Doppelmayr Equipment

Ryan Brenenstuhl • Doppelmayr USA

This presentation will lay out simple troubleshooting techniques and help identify potential points of failure in common tower derail detection circuits. We will use circuit diagrams from two different 2015 Doppelmayr installations- a fixed-grip chairlift to study the break fork circuit and a detachable chairlift to study the high signal RPD system. However, the troubleshooting techniques and tips outlined in this presentation will be applicable to nearly all installations, regardless of year or manufacturer. Participants should be experienced with the use of a digital multimeter to measure resistance and DC voltage. A familiarity with reading Doppelmayr electrical schematics will be helpful but not necessary.

H-2 Overhead Comline - Hands-On Lab

Bruce Wyman • S-K-I Electric

Comline Installation class is a prerequisite.

Kevin Southworth, Southworth Electric

Each lab will be a hands-on session with 4-6 people.

You will install a section of communications, tension it and then cut in the boot.

Thursday following the class.

H-3 Bullwheel Bearing

Donnie Martin • Doppelmayr USA, Inc.

Panel with Walt Read

As summer maintenance starts on bullwheels, this class will look at maintenance and inspections from bearing maintenance and service life expectations. We will look at types and arrangements of bullwheel bearing, failures, and indications of wear. This class will motivate everyone with things to think about, and look for while performing this year's work.

H-5 ANSI B77

What is in the 2017 Edition?

Sid Roslund • National Ski Areas Association

The ANSI B77.1 Standard was approved by ANSI May 2, 2011. The next required revision is due in 2017. This session will review proposals that the committee is looking at to revise the next standard. This will be your chance to find out what the ASC B77 Committee is discussing and add comments and opinions.

H-6 Who's Next?

Leadership Development

Jason Perl • Mount Snow Resort

This interactive presentation applies to all! Developing talent is critical to the industry and is an essential element to the continued success of any operation. As supervisors and managers, talent acquisition, retention and development should be a primary focus. Who is developing the leaders of tomorrow? What do you look for? How do you prepare them? This presentation will challenge you to think of the "unknown" and explore best practices for long-term operational success.