

Class Descriptions

41st LMS Seminar — April 17-19, 2018

Preliminary – Subject to change as additional speakers confirm
As of February 26, 2018

General Session Tuesday Morning:

The Alarming Workplace Safety Challenge Facing the Ski Industry

Ryan Levoier • Keystone Resort

With 11 recent fatalities at ski areas across all departments, ski areas face an alarming workplace safety and culture problem. Simply put, ski areas are industrial workplaces, and we need to change expectations dramatically to improve conditions and reduce risks. Not only do we owe a moral responsibility to our employees and their families, it's also a growing dilemma financially for ski areas, from escalating worker comp premiums and costs, to escalating OSHA citations and fines. Whether its lost arms, lift maintenance fatalities, or on-mountain deaths of our co-workers—our employees, managers, and owners must emphasize, and invest, in safety. The culture must change.

A-1 Electrical Safety - NFPA 70E 2015 3-Hour Class

Paul Gelinias • Burlington Safety Laboratory, Inc

Basic Three 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-2 Introduction to Basic Electricity

Mike Taylor • Keystone Resort

This course will cover the basics of electricity and will expand upon various electrical components typically found on ski lifts.

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-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?

With several accidents this past year, OSHA will be looking at work carriers and their usage. This open discussion will start with these items and the new requirements of the ANSI B77.1-2017 Standard and what steps you need to review and update to meet the requirements.

A-6 Operational Impacts of B77.1-2017 on

Fixed and Detachable Chairlifts

Mary Davis • ASC B77 Evacuation Subcommittee

What's New and what has changed in the Operational and Signs requirements with the approval of the B77.1-2017 Ropeway Standard in the Operations and Signs .

This session will update attendees on changes that will affect all lifts, not just new installations, major modifications, or relocated lifts.

A-7 Maintenance Training Guideline

Michael Lane • National Ski Areas Association

Update on the Maintenance Guideline that NSAA is working on to help areas with their training need for their maintenance training program.

A-8 The Math of Making Snow:

What Every Snowmaker Needs to Know!

Ian Jarrett • HKD Snowmakers

Given the many challenges brought on by climate change, competition and the overall

demands of the skiing public, snowmaking is the most critical discipline for almost every resort

in North America. As snowmakers, we must strive to understand our craft. The basic principles of snowmaking and their importance to the survival of the ski industry are what drove

innovators such as Herman K. Dupre (HKD) to pursue greater levels of efficiency and

performance. In this session we will address the essential metrics and principles that continue

to be the basis of success (and failure) in snowmaking.

B-2 Introduction to the Usage of the Digital Multi-Meter

Mike Taylor • Keystone Resort

This course will cover the workings and usage of digital multi-meters.

Bring your meter.

B-3 Sunkid Wonder Carpets

Maintenance, Operation and Troubleshooting

Conor Rowan • Star Lifts, USA

Panel with Dan Etman - Green Mountain Control Systems

The class will cover all things SunKid

Maintenance, Operation and Troubleshooting.

B-4 Concerned about Aging Lifts and Other Mechanical Equipment?

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

Many of our ski lifts are over thirty years old and much of our other machinery is aging. This presentation reviews the common causes of mechanical deterioration, what we can do to prevent further degradation, and some steps we can take to improve their mechanical reliability.

B-5 Planetary Gearbox Concepts

Walt Read • Doppelmayr USA, Inc.

Panel with Donnie Martin

We will discuss the following:

- Types of CAT planetary drives - How to identify, important differences for maintenance;
- Failure modes - What has happened to others, what have you experienced.;
- Accessibility without removing the rope - Safety precautions;
- What to inspect and how;
- Other failure prevention measures.

B-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.

B-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..

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General Session Wednesday Morning:

Jiminy Roundtable - Little Shop

Mike Lane • National Ski Areas Association

Sid Roslund, and others from insurance, authorities, and maintenance personnel. The year in review! What went "right and wrong," trends that have been noticed concerning Ropeways, and the people who maintain and operate them.

C-1 AC Variable Frequency Drives (VFD's)

Tom Bates • New Hampshire Electric Motors

Discussion and explanation on the construction and operation of VFD's. Poly phase (3Ø) motors are used in all aspects of ski area operations, lifts, and snowmaking. Tom will explain the application, installation parameters and theory of operation of VFD's. He will discuss with you the advantages of using a VFD and possible pitfalls.

C-2 Troubleshooting Comm. Lines and Mechanical Deropement Switches

Mike Taylor • Keystone Resort

This course utilizes a mock comm. line to demonstrate what type of faults can occur and how a digital multi-meter can be used to diagnose electrical problems. Prerequisite for this course is Introduction to Basic Electricity if one is not familiar with electrical power flow.

C-3 Gear Box Fundamentals, Inspection & Repair Procedures

Nick Chieppo • Artec Machine Systems

Gear Box Fundamentals & Applications, Modes of Failures and Preventative Maintenance Tips, Gearbox Inspection Techniques, Repair Procedures

C-4 Magic Carpet Conveyors

Dave Kelly • Magic Carpet Lifts

Panel With Sam Geise

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

C-5 Adaptive Evacuation Workshop

Mary Davis • ASC B77 Evacuation Subcommittee

Panel with Joe Hurley and Betsy Hurley

Review of the "common adaptive equipment", interfacing it with resort evacuation equipment, and the ANSI/RESNA Standard. This session will include a Hands-on workshop working with typical adaptive ski equipment in an evacuation setting. An opportunity to explore adaptive evacuation procedures at various resorts.

Note: Held at the Detachable outside of the JJ's Lodge

C-6 Lets Talk Lift Inspections

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!

C-7 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.

C-8 Record Keeping for Lifts, Beyond Satisfying Our Lift Inspectors

Bob Ackland • Steep Management, LLC

The intent is not to focus on the more notable reason for record keeping, legal, defenses etc., but rather the inherent value knowing where one is creates purpose and leads to better quality.

D-1 AC/DC - Electric Motors for the Mechanic

Bob Haywood • Troy Industrial Solutions

Panel with Karl Butz

One of the critical parts of your ski area is the Electric Motor. This class will show the types in use today, A.C and D.C., the differences, typical installation techniques and the maintenance required. This class will be good for maintenance staff on Snowmaking plants as well as Lifts.

D-1 AC/DC - Electric Motors for the Mechanic

Karl Butz • Troy Industrial Solutions

Panel with Haywood

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 Short - Circuit Current Rating (SCCR)

Christina Rosati • Eaton Bussmann Fuse

The 2017 National Electrical Code specifically addresses the Short Circuit Current Rating

of electrical equipment including the typical control(s) cabinet. Over current and short circuit fault protection is extremely important to your ski area.

D-4 Failure Analysis of Ski Area Mechanical Equipment - with emphasis on shafts and fasteners

3-Hour Class

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

The presentation starts by defining and showing examples of the physical, human and latent roots (causes) of failures. It then goes into detail about how to diagnose the physical causes and includes a number of hands-on examples. The last portion of the class is a review of several ski area failures and how their diagnosis can lead to preventing additional equipment problems. Students are encouraged to bring failed parts to the class for hands-on analysis.

D-5 Hydraulic Controls Brake and Tension

3-Hour Class

John Schilly • Skytrac Inc.

Panel with Andy Pierce

Part 1 - Training on Hydraulic Components, Assemblies, Diagrams, Troubleshooting and Theories for Brake and Tension Systems.

Part 2 - Finish any topics not completed and the a troubleshooting roundtable. Please bring your questions and experiences.

D-6 The Fundamentals of Fasteners

Michelle Pesanelli • Bolt Depot

Panel with Jason Bourque and Paige Mathewson

This is an introduction to identifying and sizing fasteners. Student will learn how to distinguish fasteners by type and materials and learn how to size them. They will learn to recognize the difference between US and Metric fasteners.

D-7 Basic Ski Lift Math and Physics

Sid Roslund • National Ski Areas Association

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.

D-8 SMI Snow Makers -

We've Got You Covered

John Parker • SMI Snow Makers

This Hands-On session will focus on equipment maintenance tips and tricks to make sure that your equipment is ready for the season.

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E-1 D.C. Drives

Bruce Wyman • S-K-I Electric

This class will go back to the basics of D.C. Drives. You will learn the fundamentals of D.C. Drives and see the relationship between voltage, current, and speed of D.C. drives. If you have this type of Drive, a must see.

E-2 (RPD) Rope Position Detection - Doppelmayr Systems

Mike Taylor • Keystone Resort

This class will explain how proximity switches produced by Efector are utilized for haul rope location by Doppelmayr. The two methods of deropement detection (Matrix and Individual tower) will be explained along with the troubleshooting of each system. There will be a demo of the Efector switch showing the function of the sensor.

E-3 Conveyor Safety - During Maintenance and Operations

Sam Geise • Geiise Engineering

Panel with:

Conor Rowan - Star Lifts

Pete Kavanough - Star Lifts

Dave Kelly - Magic Carpet Lifts

Sam Geise will facilitate this session. Conveyor Safety and how to implement protocols, best practices, procedures to reduce the risks to maintenance and operational personnel is the main focus of this session. To many people are getting injured while performing maintenance and routine operations on these installations.

E-6 Practical Applications of Bearings In The Ski Industry

Steve Greene • Action Bearing Company

Lifts, Groomers, Pumps, compressors, Etc. all have bearings. This will be a dialog based discussion on bearing applications in the ski industry. Bring your questions, and stories from the field for sharing..

E-7 Advanced Ski Lift Math and Physics

Michael Lane • National Ski Areas Association

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.

E-8 Lift Operations Roundtable - Where's the Cheese?

Jason Perl • Mount Snow Resort

This course will be an interactive discussion focusing on key aspects of lift operations including: maze design, line management, ticket checking, guest coaching, and more. Please come prepared to share your best practices and bring your sense of humor!

At the end of the class at 3:00pm, the discussions will continue with a beer at Christiansen's Tavern.

F-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.

F-2 Lift Electric Roundtable

Andy Pierce • AP Electrical Service, LLC

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 How and Why Accidents Happen

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

A review of the common causes of accidents looking at the human errors and systematic procedures (or lack of them) that cause accidents. In the class we'll discuss a number of practices that we can take both as individuals and supervisors to reduce the probability of future accidents. Included will be some ski area examples..

F-4 Introduction to Brakes - 101

Michael Lane • National Ski Areas Association

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.

F-5 Leitner-Poma of America

Customer Service Round Table

3-Hour Class

Rod Stocking • Leitner-Poma of America, Inc.

Panel With Patty and Kuseno

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.

F-6 Evacuation Planning - What's New, What's Different?

Mary Davis • ASC B77 Evacuation Subcommittee

B77.1-2017 has changes in the evacuation requirements. This session will address what has changed (and why) along with the history of the evolution of evacuation equipment and "best practices" as impacted by OSHA and other standards.

G-2 Get a Grip on Your Slippage

Larry Wollum • All Ski Lifts

The discussion will start with the requirements of the ANS B77.1 Standard for grips. The designs of several grip types will be looked at and how they accomplish the requirements. We will then look at the springs and spring washers that apply the force to accomplish the attachment of the grip to the cable.

G-3 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.

G-4 ANSI B77 - What's Is In the New 2017 Edition

Mike Lane • National Ski Areas Association

The ANSI B77.1 Standard was approved by ANSI May 11, 2017. This session will review what is new in the standard and what steps you need to take to adjust to the new standard.

G-6 9-1-1: Recognizing An Emergency

Jason Perl • Mount Snow Resort

This course will be an interactive presentation focused on recognizing medical/traumatic emergencies and how to respond in a calm and professional manner. Topics will include: suspension trauma, stroke, heart attack, heat related emergencies, and allergic reactions.