

NOTE: Reading this PDF course book is not a substitute for completing the Self-Paced Online training portion of this course. This PDF course book is a resource that accompanies the online training.



B3

BOOM LIFT/SCISSOR LIFT RIGGING FOR STUDIO GRIPS

Presented by
Contract Services

As part of the
Safety Pass Training Program for the Motion Picture and Television Industry

© 2018 Contract Services. All Rights Reserved

English:

If you do not comprehend English, and you require Safety Pass training in a language other than English, please send notification in writing to 2710 Winona Avenue, Burbank, CA 91504. Please provide your name, along with contact information, and specify the language you comprehend. Thank you.

Spanish:

Si usted no comprende inglés y requiere la capacitación Safety Pass en un idioma diferente al inglés, por favor envíe una notificación por escrito a 2710 Winona Avenue, Burbank, CA 91504. Por favor provea su nombre, junto con la información de contacto, y especifique el idioma que usted comprende. Gracias.

Korean:

영어를 이해하지 못하시고 영어가 아닌 다른 언어로 **Safety Pass** 훈련을 받으셔야 한다면, 서면 통지를 **2710 Winona Avenue, Burbank, CA 91504** 로 보내주시기 바랍니다. 귀하의 성함과 연락처를 기재하시고 이해하실 수 있는 언어를 명시해주시십시오. 감사합니다.

Armenian:

Եթե դուք անգլերեն չեք հասկանում և ձեզ հարկավոր է **Safety Pass**-ի մարզում անգլերենից տարբեր լեզվով, խնդրում ենք գրավոր ծանուցագիր ուղարկել հետևյալ հասցեով՝ **2710 Winona Avenue, Burbank, CA 91504**: Խնդրում ենք ներկայացնել ձեր անունը, ինչպես նաև կապի տեղեկությունը, հատկապես նշելով ձեր հասկացած լեզուն: Շնորհակալություն:

This course book was created by Contract Services Administration Training Trust Fund (CSATTF) for use in connection with the CSATTF Safety Pass Training Program. It is intended to be used solely in conjunction with Safety Pass Instructor-led or online course presentations and other course materials. This course book is not intended to be used as a stand-alone instructional book or in conjunction with any training that is neither administered nor sanctioned by CSATTF. This course book should not be used as the sole source of information about industry safety guidelines or standards. CSATTF is not responsible for the misuse of any information presented in this course book. This electronic PDF course book is intended to be reviewed and used solely by those persons specifically authorized by CSATTF and should not be copied, nor reviewed by, used by, disseminated to or shared with anyone else. If you have not been specifically authorized to receive this PDF course book, you are hereby notified that any review, use, dissemination, copying or forwarding of this PDF course book is strictly prohibited.

Contract Services Administration Training Trust Fund
2710 Winona Avenue
Burbank, CA 91504

© 2004, 2018 by Contract Services Administration Training Trust Fund
All rights reserved. First edition 2004.
Second edition 2018 (v2.04)



Safety Pass Training Program

The Entertainment Industry is committed to maintaining a safe and healthful working environment. To that end, all major studios have a safety representative on staff. In addition, all employers have a safety program in force. This Safety Pass Program has been designed to further promote safety and health and to prevent injuries, illnesses, and accidents on all productions, both on-lot and off-lot.

Studios and production companies may have more restrictive safety requirements than those mandated by local, state, or federal laws or regulations. They also may assign different duties or responsibilities to employees. Therefore, in addition to this Safety Pass training course, employees should refer to the safety manual and materials provided by their employers.

Employees must adhere to all safety rules and regulations. Failure of any employee to follow safety rules and regulations can lead to disciplinary action, up to and including discharge. However, no employee shall be discharged or otherwise disciplined for refusing to perform work that the individual reasonably believes is unsafe.

No safety training can comprehensively cover all possible unsafe work practices. Each production and its employees, therefore, should fully promote each employee's personal obligation to work safely in order to prevent accidents involving, and injuries to, the employee and to his/her fellow employees.

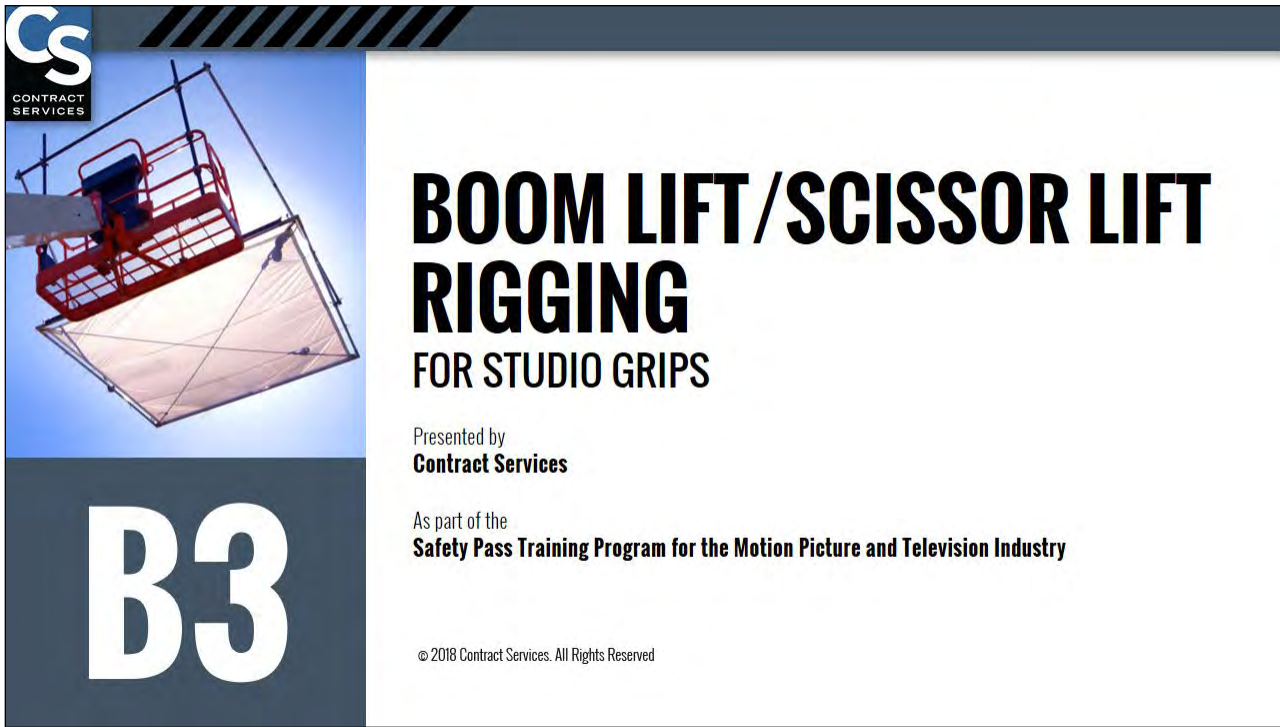
The Safety Pass Program derives from Federal and California Occupational Safety and Health Administration (OSHA) safety regulations. However, the material included in this workbook and its accompanying presentation should be used only as a general guideline. It is not intended as a legal interpretation of any federal, state, or local safety standard.

During the course of your employment, you may be acting as a supervisor or manager. In California, individuals with management authority and actual authority for the safety of a business practice could be convicted of a crime if they have actual knowledge of a serious concealed danger and fail to warn the affected employees and report the hazard. If a hazard exists, immediately notify the employer or studio safety department of the hazard and insure that potentially affected employees are informed of the danger and that steps are taken immediately to mitigate it.

Although the information contained in this training program has been compiled from sources believed to be reliable, the Alliance of Motion Picture and Television Producers, Contract Services Administration Trust Fund, Contract Services Administration Training Trust Fund, and the instructor make no guarantee nor warranty as to, and assume no responsibility for, the accuracy, sufficiency, or completeness of such information.

The Entertainment Industry is committed to maintaining a safe and healthful working environment.

Slide 1 - Welcome 1.1+1.2



The slide features a dark blue header with the 'CS CONTRACT SERVICES' logo on the left. Below the logo is a photograph of a red boom lift against a blue sky. To the right of the photo, the title 'BOOM LIFT/SCISSOR LIFT RIGGING FOR STUDIO GRIPS' is written in large, bold, black capital letters. Below the title, it says 'Presented by Contract Services' and 'As part of the Safety Pass Training Program for the Motion Picture and Television Industry'. In the bottom left corner, the text 'B3' is displayed in large white letters on a dark blue background. At the bottom center, there is a small copyright notice: '© 2018 Contract Services. All Rights Reserved'.

CS
CONTRACT
SERVICES

**BOOM LIFT/SCISSOR LIFT
RIGGING
FOR STUDIO GRIPS**

Presented by
Contract Services

As part of the
Safety Pass Training Program for the Motion Picture and Television Industry

B3

© 2018 Contract Services. All Rights Reserved

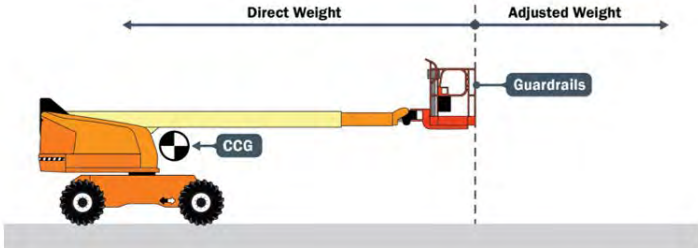

Hello, and welcome to the Online portion of course B3, *Boom Lift/Scissor Lift Rigging for Studio Grips*. The Online portion takes 120 minutes to complete.

This course is part of the Safety Pass training program for the motion picture and television industry; it is presented to you by Contract Services.

After you complete the Online portion, you will need to return the *Registration* page to enroll for the In-Person portion of the course. In order to receive credit for this course, you must successfully complete both the Online and In-Person portions.

You must complete the In-Person portion of this course by the date indicated on the *Registration* page; otherwise, you will need to complete the Online portion again.

Slide 2 - Welcome 1.3



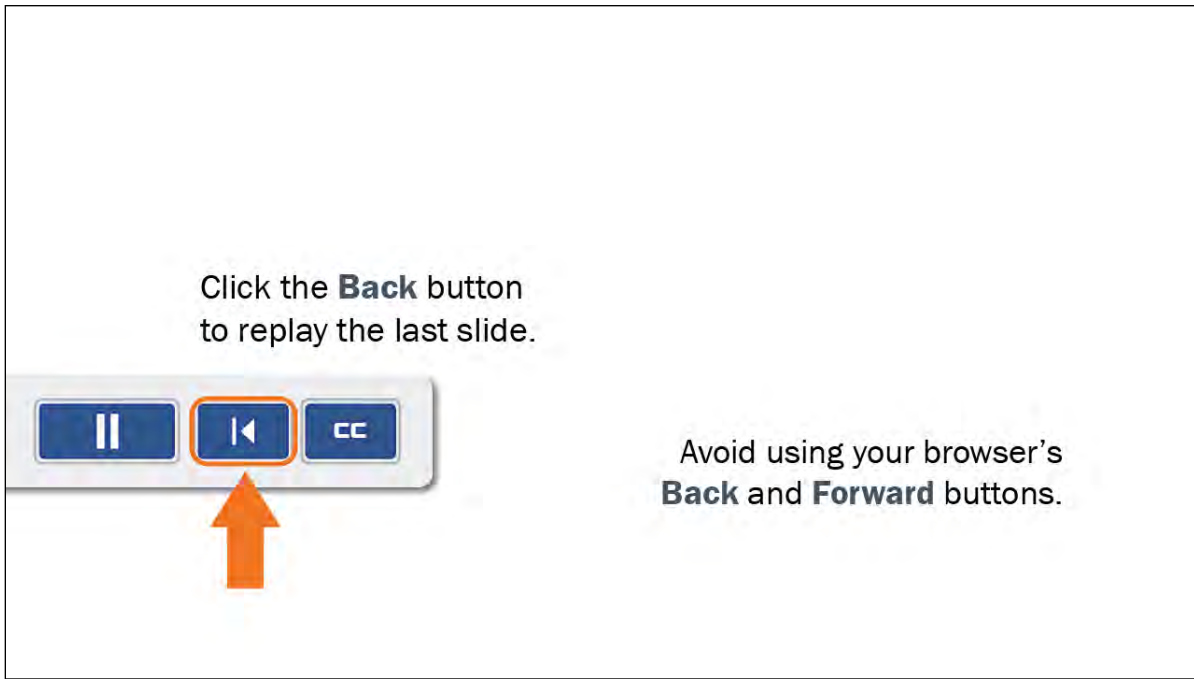
This Online course includes both
visuals and **narration**.

You should be hearing narration now.
If not, check your **volume** and **mute** settings.

B3

This Online portion of the course includes both visuals and narration. Please ensure you can read the on-screen text and hear the narration at a comfortable volume. This course is divided into scenes of related information. Along the way, you'll encounter Knowledge Check questions to help you retain the information.

Slide 3 - Welcome 1.4



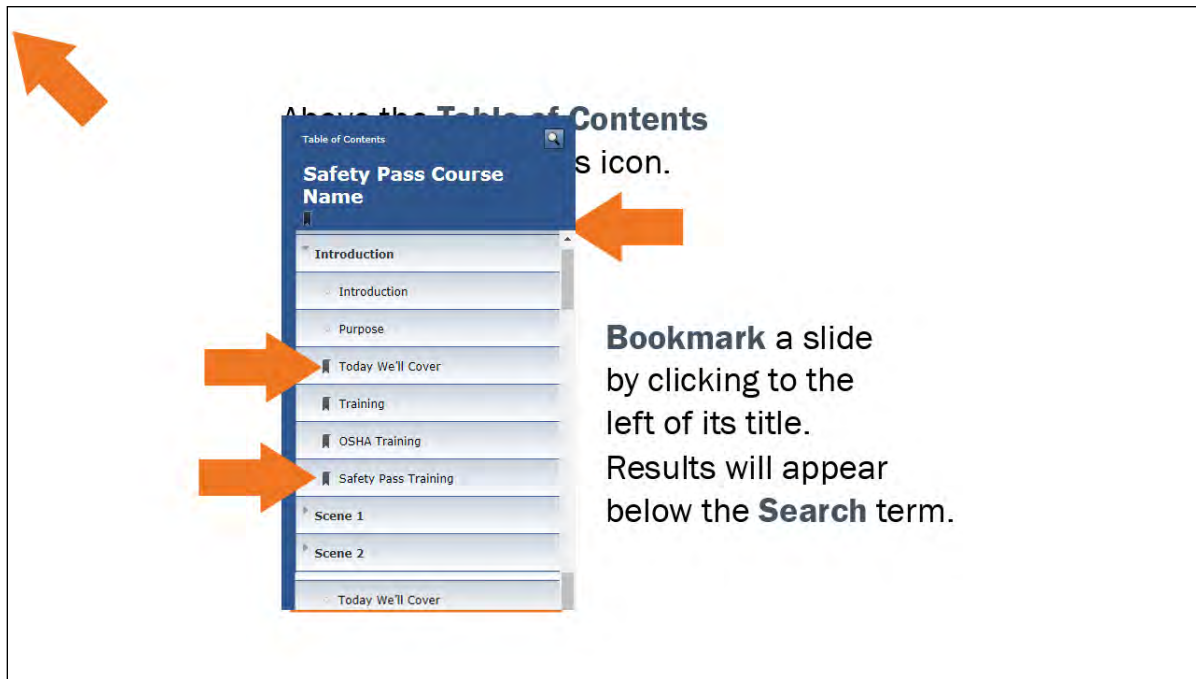
Closed captions are available by clicking the *CC* button on the bottom left of the player window. To the left of the *Closed Caption* button is a *Pause* button should you need to stop playback; a second click will resume the presentation.

Periodically the course will pause to give you a chance to absorb important information. When you are ready to move on, just click the *NEXT* button to continue.

Avoid using your browser's *Back* and *Forward* functions during the course. If you need to replay the last slide, click the *Back* button (between the *Pause* and *Closed Caption* buttons). To go back further, you can select a slide from the *Table of Contents* on the left. Only slides you've previously viewed will be available.

If you need to continue the course at a later time, click *Log Out* (in the top right corner) to ensure your progress is saved. When you log back in, the presentation will resume where you left off.

Slide 4 - Welcome 1.5



You can bookmark an important slide by clicking on the left of its title in the *Table of Contents*. Above the *Table of Contents* is a magnifying glass icon that reveals a search field to quickly locate key terms throughout the presentation. Search results will appear below the search term. Click the *Search* icon again to clear the results.

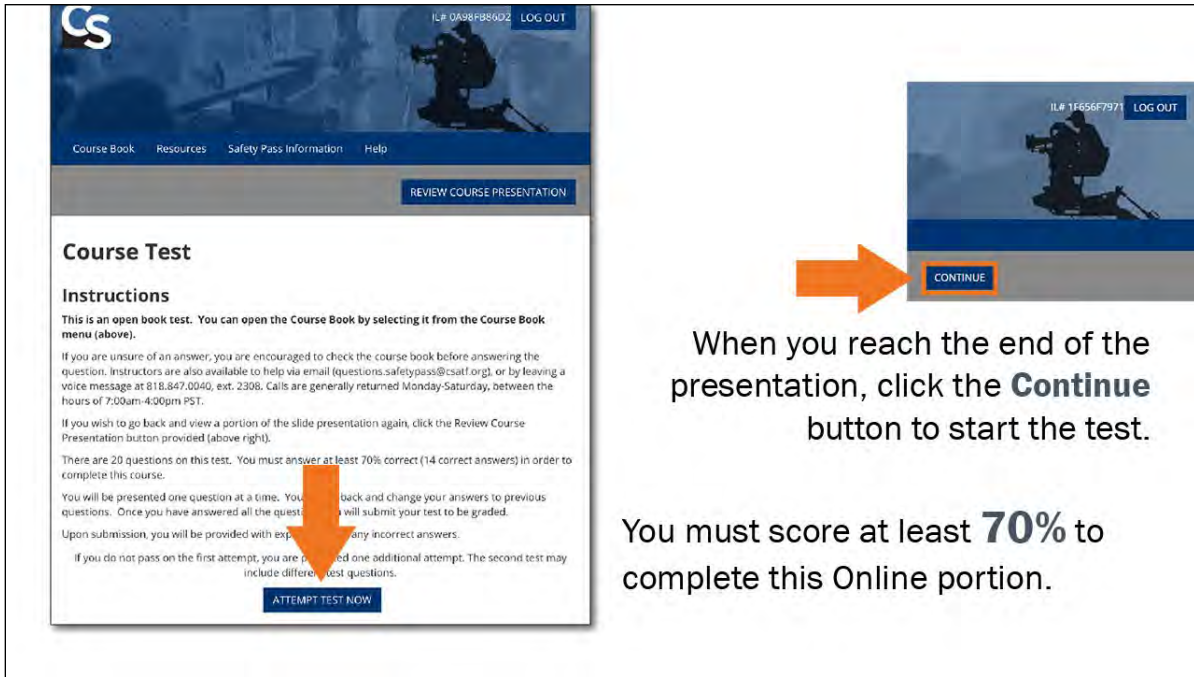
Above the player window, you'll find the *Resources* tab; hovering over the tab will display links to course-related resources like guidelines, regulations, and appendices.

The *Safety Pass Information* tab provides a link to current safety bulletins.

Under the *Course Book* tab you'll find a link to a PDF version of a supplementary course book. You may use the course book for reference while you are viewing the presentation.

Throughout the presentation you'll notice small book icons in the lower right corner of the slides; the numbers in these icons reference course book pages where you can find supplementary information about the topic being covered.

Slide 5 - Welcome 1.6+1.7



The screenshot shows a web interface for a 'Course Test'. At the top, there's a header with a 'CS' logo, a user ID 'IL# 0A98F850D2', and a 'LOG OUT' link. Below the header is a navigation bar with links: 'Course Book', 'Resources', 'Safety Pass Information', and 'Help'. A 'REVIEW COURSE PRESENTATION' button is also visible. The main content area is titled 'Course Test' and contains 'Instructions'. The instructions state that this is an open book test, encourage checking the course book, and provide contact information for instructors. It also mentions that there are 20 questions and a 70% passing score is required. At the bottom of the instructions is an 'ATTEMPT TEST NOW' button. An orange arrow points from the 'CONTINUE' button in the top right corner of the slide presentation area to the 'CONTINUE' button in the test interface.

When you reach the end of the presentation, click the **Continue** button to start the test.

You must score at least **70%** to complete this Online portion.

When you reach the end of the presentation, you will be directed to the test for the Online portion of the course. You must score at least 70% to successfully complete this Online portion. During the test, you are free to refer to the course book and provided resources. If you have a question about course content--you don't fully understand a topic, want more information regarding a regulation, or need clarification on a test question--first check the course book. If you need additional support, you can find subject-matter expert contact information by clicking on the *Instructor Help* link under the *Help* tab.


For issues affecting use of the course--like audio, video, or navigational problems--you can find technical support contact information by clicking on the *Technical Assistance* link under the *Help* tab.

Once you have passed the test you will need to return to the *Registration* page to enroll for the In-Person portion of the course.

As a reminder, in order to receive credit for this course, you must successfully complete both the Online and In-Person portions. You must complete the In-Person portion of this course by the date indicated on the *Registration* page or you will need to complete the Online portion again.


If you're ready to begin, click the *NEXT* button to get started.

Slide 6 - IIPP



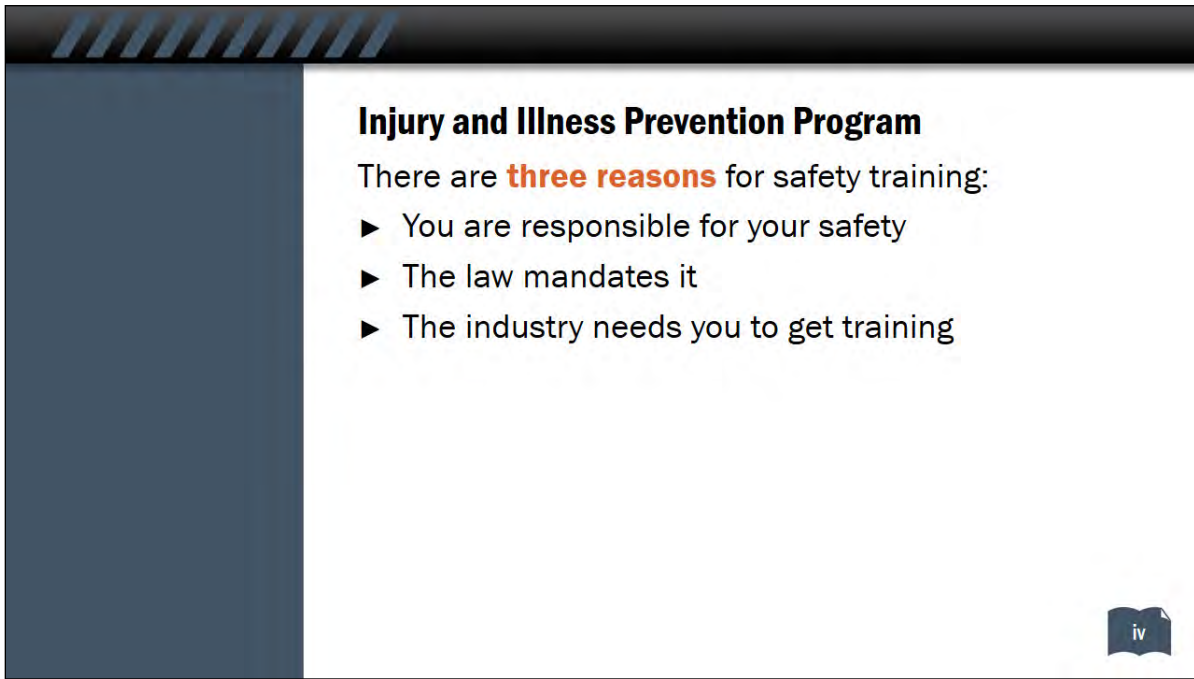
Injury and Illness Prevention Program

- ▶ This class is part of your employer's safety program.
- ▶ In the state of California, this is known as the Injury and Illness Prevention Program (IIPP).
- ▶ The IIPP and Safety Pass training courses are part of the employer's safety program.



This course is part of your employer's safety program. In the state of California, this is known as an Injury and Illness Prevention Program (or IIPP). The IIPP and the Safety Pass training courses are part of your employer's safety program.

Slide 7 - Three Reasons



The slide features a dark blue header with diagonal white stripes. The main content area is white with a dark blue vertical bar on the left. The title 'Injury and Illness Prevention Program' is in bold black text. Below it, the text 'There are **three reasons** for safety training:' is followed by a bulleted list of three points. A small blue icon with the Roman numeral 'iv' is in the bottom right corner.

Injury and Illness Prevention Program

There are **three reasons** for safety training:

- ▶ You are responsible for your safety
- ▶ The law mandates it
- ▶ The industry needs you to get training

iv

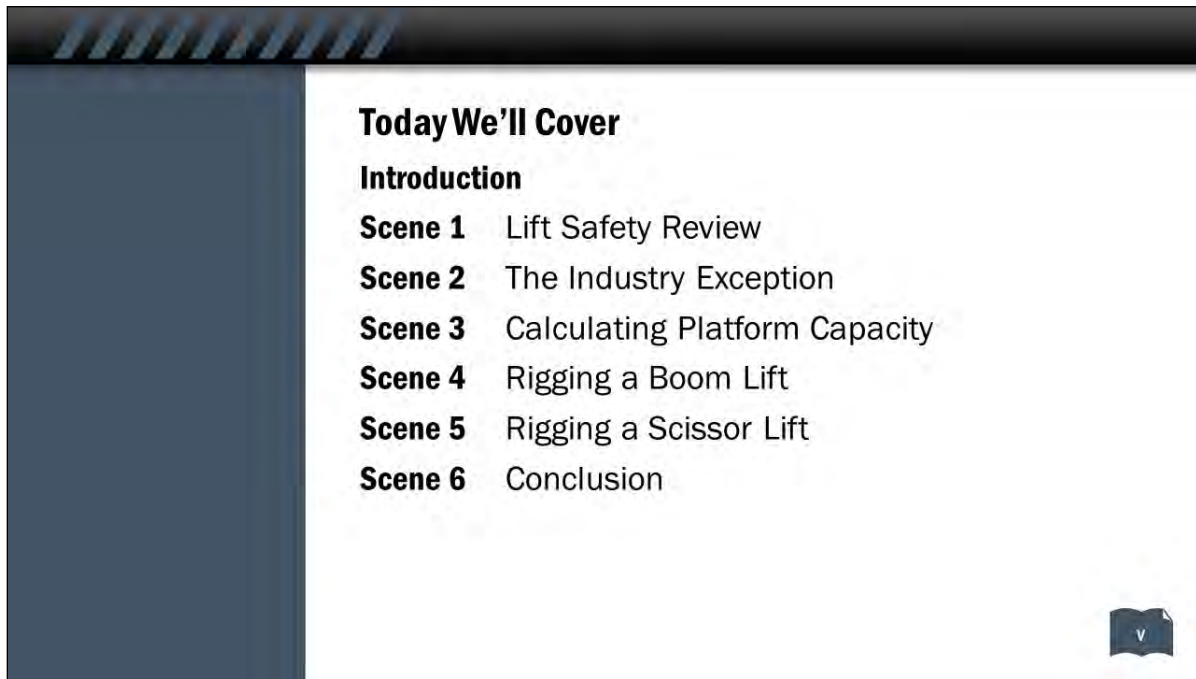
There are three reasons to get safety training.

First, you are personally responsible for your safety. You owe it to yourself and your coworkers to avoid accidents and injuries. The way you make a living and your quality of life depend on it.

Second, it is the law. Occupational safety and health standards guarantee the right to a safe workplace and require employers to train their employees in safety.

And third, the industry requires it. This course is part of a cooperative commitment between major motion picture and television studios and industry labor unions to deliver safety training.

Slide 8 - Today We'll Cover



Today, we'll begin with a review of basic lift safety and then cover procedures for rigging boom lifts and scissor lifts for the motion picture industry.

Let's get started.

Slide 9 - DISCLAIMER

DISCLAIMER

In order to take Safety Pass training course B3, *Boom Lift/Scissor Lift Rigging for Studio Grips*, a student must first take Safety Pass training course B, *Boom Lift/Scissor Lift Operator Safety*. No one other than Course B-trained persons will be allowed to take this course.

This book contains supplemental operator's manuals from Terex Corporation ("Genie"), JLG Industries, Inc. ("JLG"), and Snorkel. These manuals provide a special exception to the standard use of aerial lifts that permits camera and set lighting equipment to be attached to the platform guardrails by authorized and trained set lighting technicians and studio grips.

All safety rules, allowable wind speed charts, platform capacity reduction charts, and electrical distance requirements outlined in the supplemental manuals **must be followed**. Failure to comply with these specifications can result in serious injury or death and may void the permissions our industry has obtained from the above manufacturers.

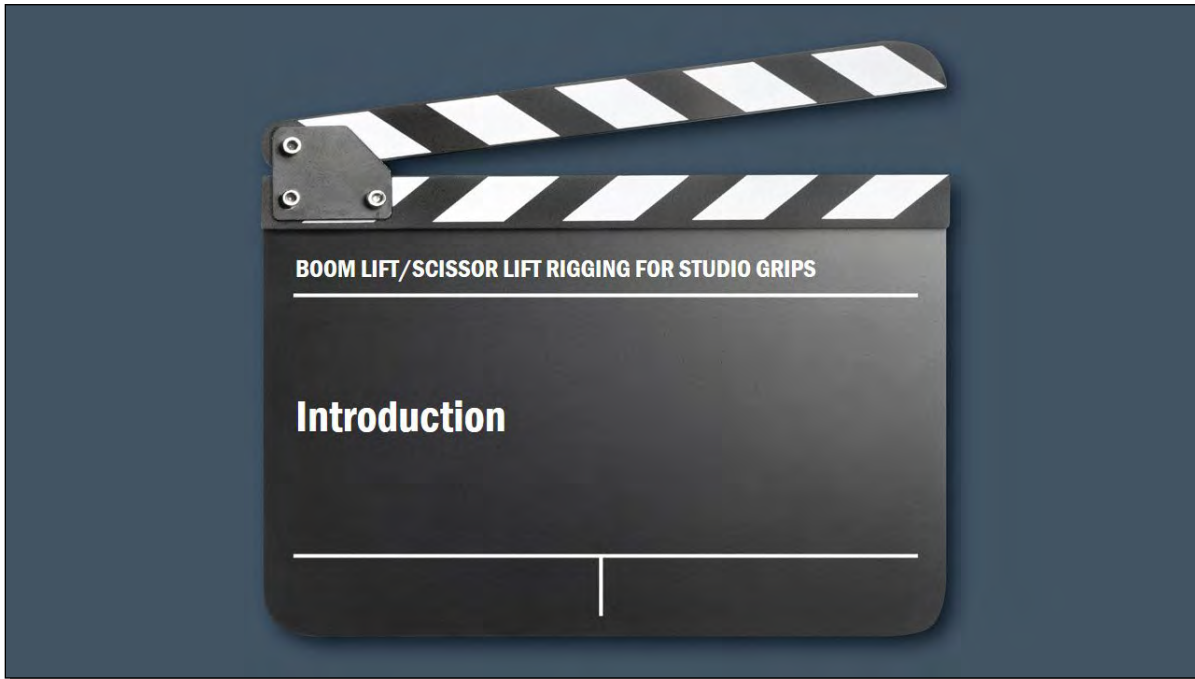
NEXT



In order to take Safety Pass training course B3, *Boom Lift/Scissor Lift Rigging for Studio Grips*, a student must first take Safety Pass training Course B, *Boom Lift/Scissor Lift Operator Safety*. No one other than course B-trained persons will be allowed to take this course.


This book contains supplemental operator's manuals from Terex Corporation, JLG Industries, Inc., and Snorkel. These manuals provide a special exception to the standard use of aerial lifts that permits camera and set lighting equipment to be attached to the platform guardrails by authorized and trained set lighting technicians and studio grips. All safety rules, allowable wind speed charts, platform capacity reduction charts, and electrical distance requirements outlined in the supplemental manuals must be followed. Failure to comply with these specifications can result in serious injury or death and may void the permissions our industry has obtained from the above manufacturers.

Slide 10 - Introduction



Introduction.

Slide 11 - About This Course



Introduction

About This Course

- ▶ Focus on concepts developed and approved by Genie, JLG, and Snorkel
 - ▷ Industry exception for attaching equipment to boom lifts
 - ▷ Reducing platform capacity in boom lifts
- ▶ Choosing the appropriate lift for the job
- ▶ Assessing wind resistance and speed
- ▶ Procedures for rigging in scissor lifts

1

This course focuses on concepts that have been developed and approved for studio grips by Genie, JLG, and Snorkel, specifically the exception given by the manufacturers to the motion picture industry for attaching equipment to boom lifts and determining and reducing platform capacity in boom lifts. We'll also talk about choosing the appropriate lift for the job, assessing wind resistance and speed, and procedures for rigging in scissor lifts, which are not covered by the industry exception.

Slide 12 - Terminology

Introduction

Terminology



Mobile elevating work platform (MEWP)
Aerial lift

NEXT 2

The lifts discussed in this course go by a number of names. In general, they can be called *mobile elevating work platforms* or *aerial lifts*. In OSHA regulations, a scissor lift is called an *elevating work platform*, and a boom lift is referred to as an *aerial device* or an *extendible boom platform*.

Boom lifts also have nicknames such as *Condor*, *stick boom*, *knuckle boom*, *cherry picker*, or *Z-boom*. In the interest of simplicity, this course will use *scissor lift* and *boom lift* to refer to the individual machines.

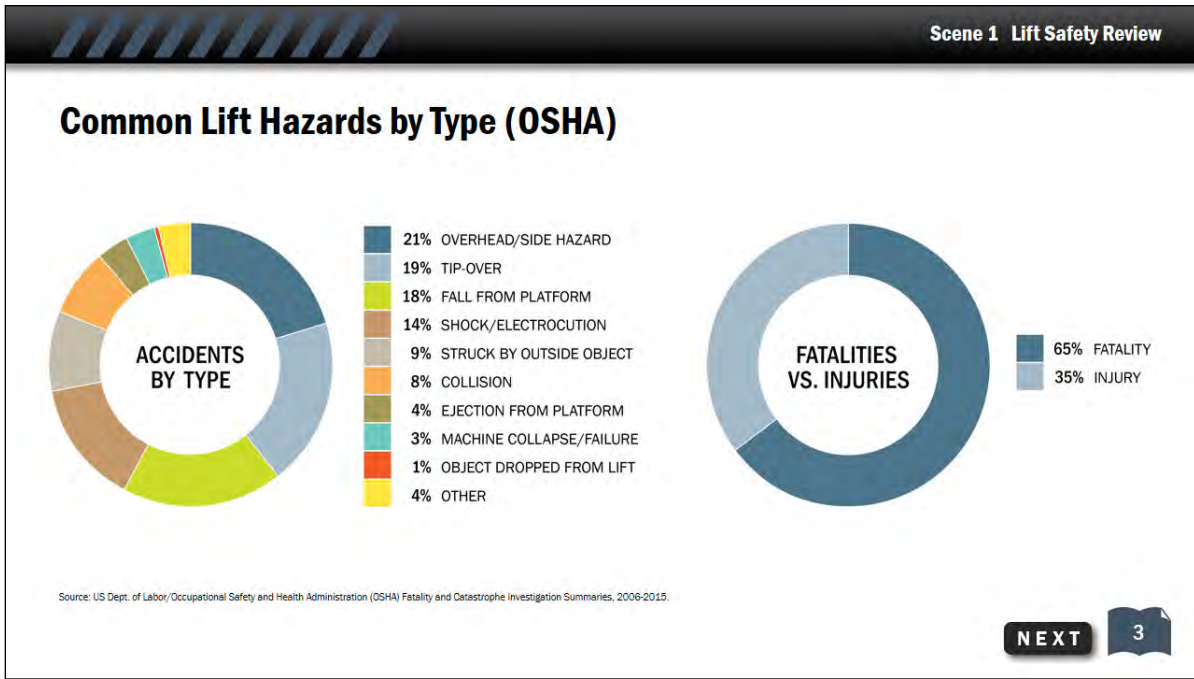
The terms *platform*, *machine*, *lift*, and *device* will apply to both types unless otherwise indicated. *Boom* and *basket* will apply only to boom lifts.

Slide 13 - Lift Safety Review



In this scene, we'll revisit the basic concepts of lift safety and operation that were presented in our B course, *Boom Lift/Scissor Lift Operator Safety*.

Slide 14 - OSHA Accident Statistics




These 10-year figures from the Occupational Safety and Health Administration, or OSHA, show that the top three causes of injuries involving boom lifts and scissor lifts were: contact with an overhead or side hazard, a machine tip-over, or a fall from the platform. They also show that 65%, or well over half, of all of the injuries were fatalities.

Slide 15 - Overhead/Side

Scene 1 Lift Safety Review

Common Lift Hazards and Possible Causes

Hazard	Description
 Overhead/Side Hazard	Operator or passenger gets pinched, trapped, or crushed between the platform guardrails and an outside structure or object


4

The top injury, involving overhead or side hazards, occurs when the lift operator gets pinched, trapped, or crushed between the platform guardrails and an outside structure and is not able to reverse the controls to get free.

Slide 16 - Overhead/Side 2

Scene 1 Lift Safety Review

Common Lift Hazards and Possible Causes

Hazard	Possible Causes
 Overhead/Side Hazard	<ul style="list-style-type: none">▶ Inattention to the direction of the platform's movement, especially overhead▶ Clothing or equipment snags on control lever▶ Unfamiliarity with controls

NEXT **4**

It's most likely to be caused by not looking in the direction of the platform's movement, especially overhead. It could also happen if the operator's clothing or equipment catches the control lever and inadvertently moves the platform. Or, the operator could be unfamiliar with the controls.

Slide 17 - Tip-Over

Scene 1 Lift Safety Review

Common Lift Hazards and Possible Causes

Hazard	Description
 Tip-Over	Lift becomes unbalanced and falls over


4

A tip-over is just what it sounds like—the lift becomes unbalanced and tips over, and the operator is injured by being thrown out of the platform or by being crushed by the falling machine.

Slide 18 - Tip-Over

Scene 1 Lift Safety Review

Common Lift Hazards and Possible Causes

Hazard	Possible Causes
 Tip-Over	<ul style="list-style-type: none">▶ Attaching equipment too far out of the platform▶ Not balancing the load in the platform▶ Driving over or working on too steep a grade▶ Driving over or parking on a curb, bump, edge, hole, or unstable surface▶ Working in high winds▶ Using the lift as a crane


NEXT 4

This may be due to attaching equipment too far out of the platform, not balancing the load in the platform, driving or working on too steep a grade for the machine, driving over or parking on a curb, bump, edge, hole, or unstable surface, working in high winds, or using the lift as a crane.

Slide 19 - Fall From Platform

Scene 1 Lift Safety Review

Common Lift Hazards and Possible Causes

Hazard	Description
 Fall From Platform	Falling while entering or exiting the platform, or falling from the platform while working


4

To avoid falling while entering or exiting the platform, face the platform and use three points of contact when getting on or off.

Slide 20 - Fall From Platform 2

Scene 1 Lift Safety Review

Common Lift Hazards and Possible Causes

Hazard	Possible Causes
 Fall From Platform	<ul style="list-style-type: none">▶ Not exiting or entering the platform safely▶ Standing on the toeboard, guardrails, or another object to gain height▶ Reaching too far over guardrails▶ Not wearing personal fall protection equipment (PFPE) when required▶ Not securing entry gate or chain


NEXT 4

To prevent a fall while working on an elevated platform, don't stand on the toeboard or guardrails, or place an object such as an apple box in the platform to gain height. Always keep both feet on the platform floor--reaching too far over the guardrail can cause you to lose balance. Wear personal fall protection equipment (or PFPE) when it's required and remember to close and secure the entry gate or chain.

Slide 21 - Electricity

Scene 1 Lift Safety Review

Common Lift Hazards and Possible Causes

Hazard	Description
 Electrical Hazards	Shock or electrocution through contact with energized wires, equipment, or the lift


4

Injuries from electrical hazards occur when a lift operator is shocked or electrocuted through proximity to, or contact with, energized wires or machinery.

Slide 22 - Electricity 2

Scene 1 Lift Safety Review


Common Lift Hazards and Possible Causes

Hazard	Possible Causes
 Electrical Hazards	<ul style="list-style-type: none">▶ Improper use or dressing of power cables▶ Using the lift as a ground for welding▶ Not following minimum safe approach distance (MSAD) requirements

NEXT 4

Causes for this include improperly using or dressing power cables, using the lift as a ground for welding, or not following MSAD, or minimum safe approach distance, requirements.

Slide 23 - MSAD - California



Follow all local regulations regarding MSAD at all times.

Scene 1 Lift Safety Review

Minimum Safe Approach Distance (MSAD)

California Boom-Type Lifting or Hoisting Equipment Clearances Required from Energized Overhead High-Voltage Lines

Nominal Voltage (Phase to Phase)	Minimum Required Clearance (Feet)
600.....50,000	10
over 50,000.....75,000	11
over 75,000.....125,000	13
over 125,000.....175,000	15
over 175,000.....250,000	17
over 250,000.....370,000	21
over 370,000.....550,000	27
over 550,000.....1,000,000	42

Source 8 CCR §2946 (2)

NEXT **5**

This table shows the MSAD requirements for lift work in California. If the voltage of a power line is between 600 and 50,000 Volts, all parts of the lift must be at least 10 feet away. The clearance distance increases as the voltage does.

What if you're not sure of the voltage of a power line? Note the number on the power line's pole, call the local power company, and ask for a "pole spotter" for information. In the meantime, and in general, follow the rule of thumb that when in doubt, always assume a line is energized and stay the maximum distance away.

Slide 24 - MSAD - Federal

Scene 1 Lift Safety Review

Minimum Safe Approach Distance (MSAD)

Federal Clearances Required When Working On or Near Exposed Energized Parts

Nominal Voltage (Phase to Phase)	Minimum Required Clearance (Feet)
50,000 or below	10
over 50,000	10 feet plus 4 inches for every 10,000 volts over 50,000 volts

Source 29 CFR §1910.333

Next **5**


Your employer may set stricter MSAD requirements than OSHA does.

This table shows the MSAD requirements set by federal OSHA, if you're not working in California. You can find both tables in Safety Bulletin #22A under the *Safety Pass Information* tab. Be aware that your employer may set greater MSAD requirements than either California or federal OSHA.

Slide 25 - Struck by Object

Scene 1 Lift Safety Review

Common Lift Hazards and Possible Causes

Hazard	Description
 Struck by Outside Object	Personnel in lift struck by a moving object or a falling structure


6

Let's get back to our list of lift hazards. The next one is, being struck by an outside object while in a lift.

Slide 26 - Struck by Object

Scene 1 Lift Safety Review

Common Lift Hazards and Possible Causes

Hazard	Possible Causes
 Struck by Outside Object	<ul style="list-style-type: none">▶ Not properly addressing work zone hazards▶ Inattention to work being done in or near the lift


NEXT 6


Possible causes of this may be not addressing overhead work zone hazards, or inattention to work being done in or near the lift.

Slide 27 - Collision

Scene 1 Lift Safety Review

Common Lift Hazards and Possible Causes

Hazard	Description
 <p>Collision</p>	Impact between a lift and another vehicle, object, or person





A collision can cause injuries when a lift strikes a person, a structure, or another vehicle.

Slide 28 - Collision 2

Scene 1 Lift Safety Review

Common Lift Hazards and Possible Causes

Hazard	Possible Causes
 <p>Collision</p>	<ul style="list-style-type: none">▶ Not signaling before moving machine▶ Not looking in the direction of the machine's movement▶ Allowing personnel and vehicles to enter the work zone▶ Not allowing for backswing (boom lifts)


**NEXT**

This could happen if the operator doesn't signal before moving the machine, isn't looking in the direction of the machine's movement while driving, allows personnel or vehicles to enter the work zone, or doesn't allow for the backswing of a boom lift.

Slide 29 - Ejection

Scene 1 Lift Safety Review

Common Lift Hazards and Possible Causes

Hazard	Description
 Ejection From Platform	Operator and/or passenger is catapulted from a boom lift platform


6

The long arm of a boom lift contains a certain amount of “give,” and under certain circumstances, it can sway so much that occupants of the platform could be catapulted out.

Slide 30 - Ejection

Scene 1 Lift Safety Review

Common Lift Hazards and Possible Causes

Hazard	Possible Causes
 Ejection From Platform	<ul style="list-style-type: none">▶ Driving over a curb, bump, edge, hole, or unstable surface▶ Platform caught under an obstacle, then released▶ Collision with another object or vehicle▶ Not wearing PFPE


NEXT 6

This includes driving over a curb, bump, edge, hole, or unstable surface, the platform catching under an obstacle and then being released, a collision with a structure or a vehicle, and not wearing PFPE.

Slide 31 - Collapse

Scene 1 Lift Safety Review

Common Lift Hazards and Possible Causes

Hazard	Description
 Collapse	Structural failure causes machine to collapse


6

In extreme cases, a boom lift or scissor lift may collapse, causing the platform to suddenly drop.

Slide 32 - Collapse 2

Scene 1 Lift Safety Review

Common Lift Hazards and Possible Causes

Hazard	Possible Causes
 Collapse	<ul style="list-style-type: none">▶ Poor maintenance▶ Defect in machine▶ Misuse of machine▶ Unauthorized modifications to machine▶ Overloading the platform


NEXT 6

This could be due to poor maintenance, a defect in the machine, misuse of the lift, unauthorized modifications to the lift, or overloading the platform.

Slide 33 - Entanglement

Scene 1 Lift Safety Review

Common Lift Hazards and Possible Causes

Hazard	Description
 Entanglement	Machine tip-over or equipment damage when cables become snagged


7

When cables are run from a lift platform to the ground, care must be taken to ensure that they don't get snagged on objects on the ground or driven over by the lift itself. Either situation can pull the lift over, or damage equipment in the lift or on the ground.

Slide 34 - Entanglement 2

Scene 1 Lift Safety Review

Common Lift Hazards and Possible Causes

Hazard	Possible Causes
 Entanglement	<ul style="list-style-type: none">▶ Not properly organizing cords and cables▶ Not properly assessing work zone hazards


7

To avoid entanglement hazards, keep cords and cables organized, and be aware of obstacles in the work zone.

Slide 35 - Environmental

Scene 1 Lift Safety Review

Common Lift Hazards and Possible Causes

Hazard	Description
 Environmental	Working in a hazardous environment (exhaust, toxic chemicals, combustible dust, flammable vapors, etc.)


7

Let's talk about hazards in the lift's environment. The area around a lift could expose workers to hazards such as machine and equipment exhaust, toxic chemicals, combustible dust, or flammable vapors.

Slide 36 - Environmental 2

Scene 1 Lift Safety Review

Common Lift Hazards and Possible Causes

Hazard	Possible Causes
 Environmental	<ul style="list-style-type: none">▶ Not properly assessing work zone hazards▶ Not wearing appropriate PPE▶ Operating a lift in a confined space▶ Operating a lift in an unapproved area


NEXT **7**

These conditions could arise due to not properly assessing work zone hazards, not wearing appropriate PPE, or operating the lift in a confined space or an unapproved area.

Slide 37 - Weather

Scene 1 Lift Safety Review

Common Lift Hazards and Possible Causes

Hazard	Description
 <p>Weather</p>	Operator injury or machine tip-over due to weather conditions


NEXT 7

The weather can be another type of environmental hazard when working on a lift.

Slide 38 - Weather 2

Scene 1 Lift Safety Review

Common Lift Hazards and Possible Causes

Hazard	Possible Causes
 <p>Weather</p>	<ul style="list-style-type: none">▶ Working in wind speeds that exceed industry or manufacturer limits▶ Carrying a load with a large surface area▶ Rain, ice, or snow causing the platform to become slippery or the ground to become unstable▶ Working in extreme heat or cold▶ Working during lightning or storms

NEXT 7

For example, high wind speeds can tip a lift over. Carrying a load with a large surface area can create wind resistance beyond the lift's wind speed ratings.

Rain, ice, or snow can cause the platform or the ground surface to be slippery or unstable.


Fog can affect visibility, and extreme temperatures can cause heat illness or hypothermia.

Never use a lift during a storm or when there is lightning.

Slide 39 - Other

Scene 1 Lift Safety Review

Common Lift Hazards and Possible Causes

Hazard	Description
 Other	Hazards caused by inattention or horseplay on or near a lift


7

A few other types of hazards that we haven't mentioned yet are a result of inattention or horseplay while working on the platform or near a moving lift.

Slide 40 - Other 2

Scene 1 Lift Safety Review

Common Lift Hazards and Possible Causes

Hazard	Examples
 Other	<ul style="list-style-type: none">▶ Being pinched or caught in moving parts▶ Injuries while using tools or equipment▶ Being struck by an object dropped from a lift

NEXT 7





These include being pinched or caught in moving lift parts, being injured by tools or other equipment on the platform or being struck by an object dropped from a lift.

Slide 41 - Knowledge Check 1

Scene 1 Knowledge Check 1

Let's Review

Drag each hazard icon on the left to the matching hazard description on the right.



Weather Hazard

Electrical Hazard

Overhead or Side Hazard

Fall from Platform

Submit

Let's review. Drag each icon on the left to the matching hazard description on the right. Then click *Submit*.

Slide 42 - Pre-Use Inspection 1

Scene 1 Lift Safety Review

NO HEAVY
EQUIPMENT
ON STAGE
WITHOUT PRIOR
APPROVAL FROM
BACKLOT
OPERATIONS
EXT 65110

Check the weight limits
of a stage floor or filming
location before operating a lift.

Three Parts of a Pre-Use Inspection

- 1 A **work zone inspection** identifies potential hazards in the immediate work area, including:
 - ▶ Ground conditions
 - ▶ Side and overhead obstructions
 - ▶ Non-load-bearing work surfaces
 - ▶ Concealed holes and pits


NEXT

8

A three-part inspection must be performed at the beginning of each workday or shift. The first part, the work zone inspection, identifies potential hazards in the immediate work area, including ground conditions, side and overhead obstructions, non-load-bearing work surfaces, and concealed holes and pits.

Always check weight limits of a stage floor or location before operating a lift.

Slide 43 - Pre-Use Inspection 2



Never touch hydraulic lines to check for leaks.

Scene 1 Lift Safety Review

Three Parts of a Pre-Use Inspection

2 A **walk-around inspection** is a visual assessment of the physical condition of the lift and ensures that:


- ▶ All parts of the machine are intact and in good working condition
- ▶ No leaks or cracked hoses
- ▶ All manuals and decals are present
- ▶ No unauthorized modifications

NEXT 8

The second part of the pre-use inspection, the walk-around inspection, is a visual assessment of the physical condition of the lift. It ensures that all of the parts of the machine are intact and in good working condition, that there are no leaks or cracked hoses, that all of the manuals and decals are present, and that there have been no unauthorized modifications to the machine.

Never touch hydraulic lines when checking for leaks. Hydraulic fluid is highly pressurized and can cause serious injection injuries.

Slide 44 - Pre-Use Inspection 3



Scene 1 Lift Safety Review

Three Parts of a Pre-Use Inspection

3 A **function test** focuses on the lift's power sources, controls, and operation:

- ▶ Checking ground and platform controls
- ▶ Extending and retracting the boom arm
- ▶ Raising and lowering the platform
- ▶ Testing drive and brake functions


NEXT 8

The last part of the inspection is the function test, which focuses on the lift's power sources, controls, and operation. It includes checking the ground and platform controls, extending and retracting the boom arm, raising and lowering the platform, and testing the drive and brake functions.


If any part of the machine fails an inspection, safely shut down the machine and contact a supervisor. Never operate a defective machine.

Slide 45 - PFPE and PPE

Scene 1 Lift Safety Review




Full-body harness with lanyard.



Fall protection anchor point.

PFPE and PPE


- ▶ All occupants in the platform of a boom lift must wear a full-body harness with a fall restraint or fall arrest lanyard of the appropriate length, connected to an authorized anchor point
- ▶ Occupants of a scissor lift are not required to wear PFPE unless it is required by the employer or local regulations
- ▶ Use the proper PPE for the job (if required), whether or not PFPE is used

NEXT 

All occupants in the platform of a boom lift must wear a full-body harness with a fall restraint or fall arrest lanyard of the appropriate length, connected to an authorized anchor point. Our industry does not allow the use of body belts for fall protection. Attach only one harness per anchor point. If the platform doesn't have dedicated fall protection anchor points, ask your employer or safety rep how to proceed. Occupants of a scissor lift are not required to wear PFPE unless it is specified by the employer or local regulations.

Whether PFPE is required or not, be sure you are using the proper PPE for the job at hand.

Slide 46 - Driving While Elevated



Some employers may not allow a boom lift or scissor lift to be driven while elevated.

Scene 1 Lift Safety Review

Driving While Elevated

Allowed only if:

- ▶ Driving surface is firm, smooth, and level
- ▶ Operator has a clear view of the travel path
- ▶ Lift is operated at a speed determined by the manufacturer
- ▶ Operator has the employer's approval
- ▶ Operator follows procedures when equipment is in the platform

NEXT 9

Lifts should be driven with the platform in the lowest recommended driving position. Driving with the platform elevated, as shown here, is allowed only if the following conditions are met: the driving surface is firm, smooth, and level, without any holes or debris, the operator has a clear view of the travel path, the lift is operated at a speed determined by the manufacturer, and, the operator has the employer's approval to do so. Some employers may not allow a boom lift or scissor lift to be driven while it is elevated.

There are additional procedures that must be followed when driving a lift with equipment rigged in the platform. We'll talk more about that in Scenes 4 and 5.

Slide 47 - Stability and CCG 1

Scene 1 Lift Safety Review

Stability and Combined Center of Gravity

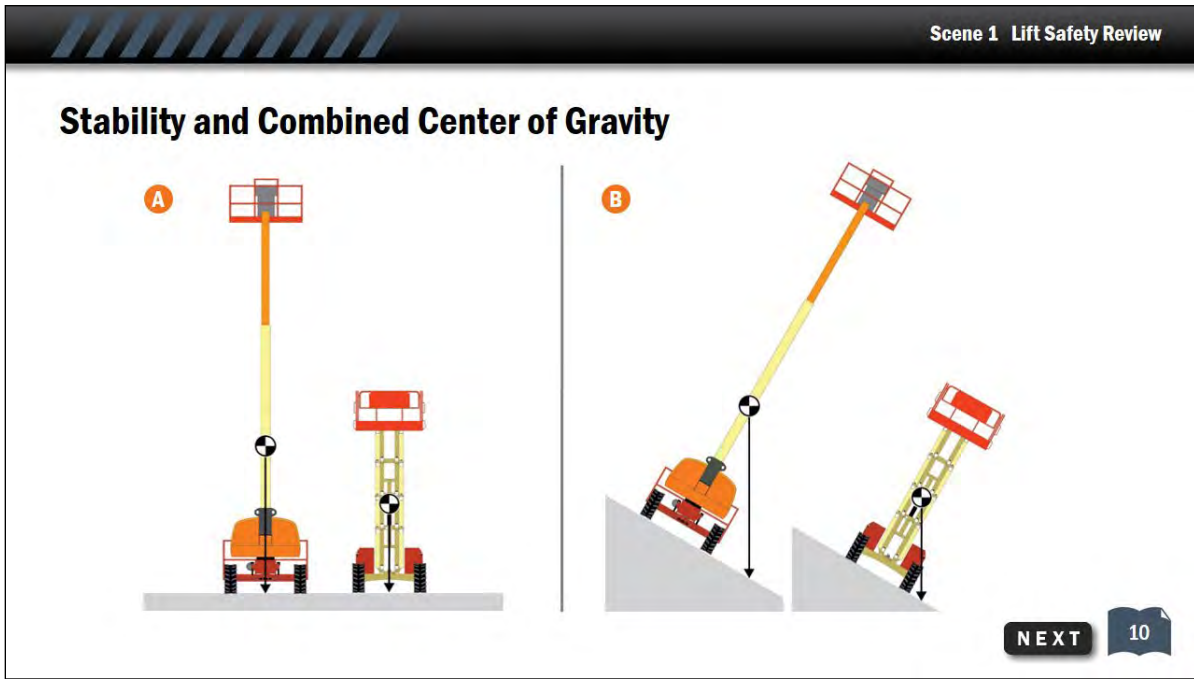
A lift's CCG is the point where the CG of the lift and the CG of the platform (and its load) are concentrated.

The diagram illustrates a boom lift on a horizontal surface. Three points of gravity are marked with bullseye symbols and labeled with arrows: 'Lift Center of Gravity (CG)' is located on the main body of the lift; 'Combined Center of Gravity (CCG)' is located on the boom, between the lift body and the platform; and 'Platform Center of Gravity (CG)' is located on the platform. The boom is shown in a horizontal position.

NEXT 10

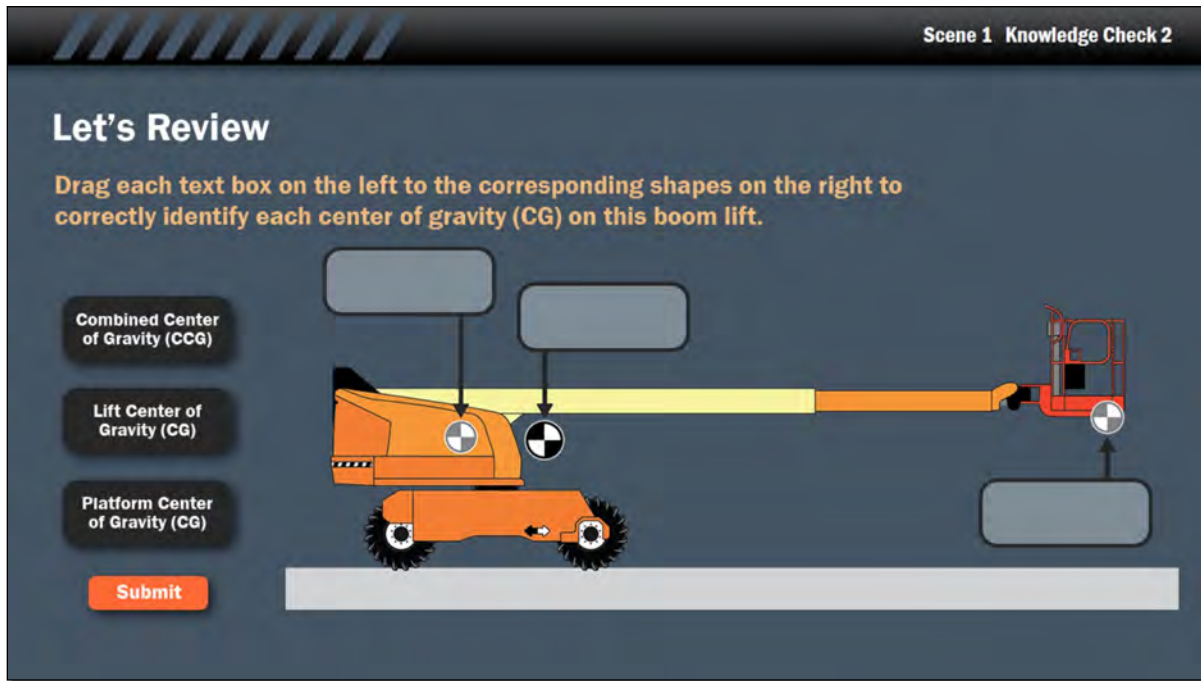
Every lift has a specific combined center of gravity, or CCG, which is the point at which the center of gravity of the lift and the center of gravity of the platform are concentrated. Any action that changes the configuration or angle of the machine, such as raising the platform, extending the boom, driving on an incline, or increasing the load weight will affect the CCG.

Slide 48 - Stability and Combined Center of Gravity



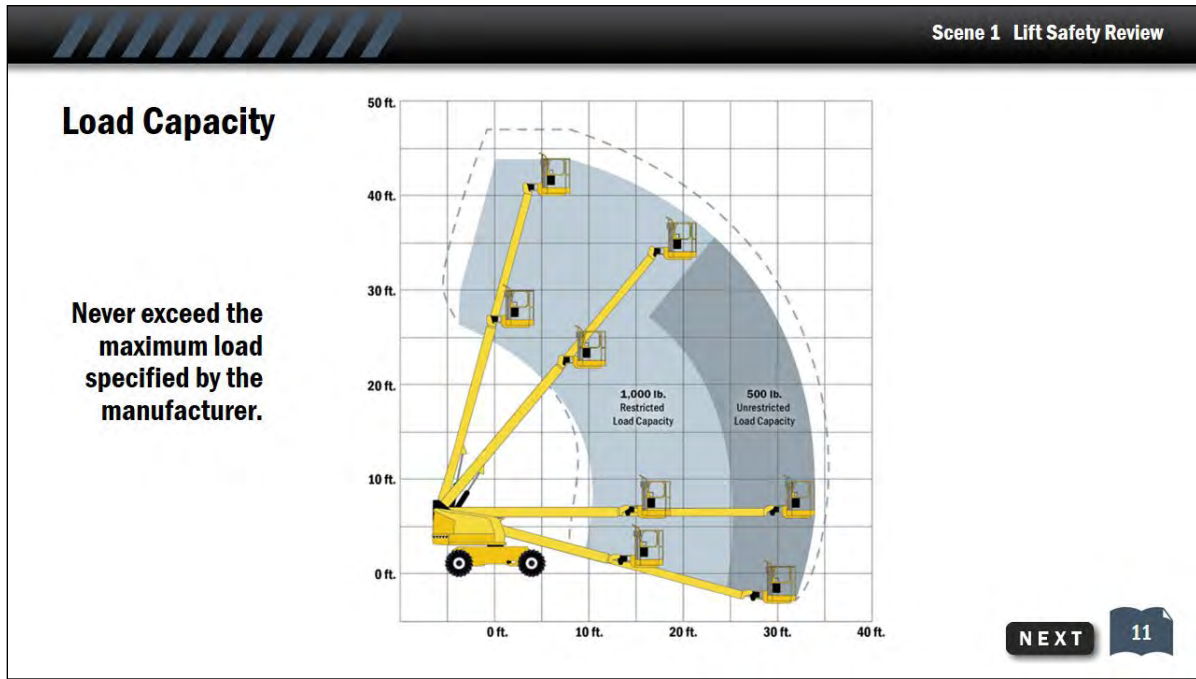
A lift rests on four wheels, which creates two tipping axes: front-to-back, or side-to-side. Within the wheelbase is an area of stability that supports the machine in its normal work positions. As long as the CCG remains within the lift's area of stability, as shown in Diagram A, the lift is designed to remain stable. If the CCG of a lift extends past the area of stability, shown in Diagram B, the machine is likely to tip, most commonly to one side. This could occur due to driving over a bump or a hole, working in high winds, traveling while elevated, side loading, or working on too steep of an incline.

Slide 49 - Knowledge Check 2



Let's review. Drag each text box on the left to the corresponding shapes on the right, to correctly identify each center of gravity (CG) on this boom lift. Then click *Submit*.

Slide 50 - Load Capacity




In order to maintain stability while working at height, lift manufacturers have limitations on the maximum load a platform can support. Often, a manufacturer will specify different maximum allowable loads based on the position of the platform and the weight of the load, known as **unrestricted capacity** and **restricted capacity**.


For example, this lift has an unrestricted load capacity of 500 pounds, and a restricted load capacity of 1,000 pounds. When the load is 500 pounds or less, the platform can be positioned anywhere in the shaded areas. When the load is between 500 and 1000 pounds, the platform is restricted to the lighter shaded area. A lift's allowable capacities will be affected if equipment is attached to the guardrails or extends past the platform. Scene 3, Calculating Platform Capacity, covers this in more detail.

Check the decals on the machine or the operator's manuals for capacity charts for the lift you are using. Never exceed the maximum load specified by the manufacturer.

Slide 51 - Working on a Grade



Scissor lift with outriggers.



Wood cribbing blocks.

Working on a Grade

Boom lifts and scissor lifts can be driven over inclines under certain conditions:

- ▶ Check for gradeability and sideslope restrictions
- ▶ Do not drive while elevated or make turns

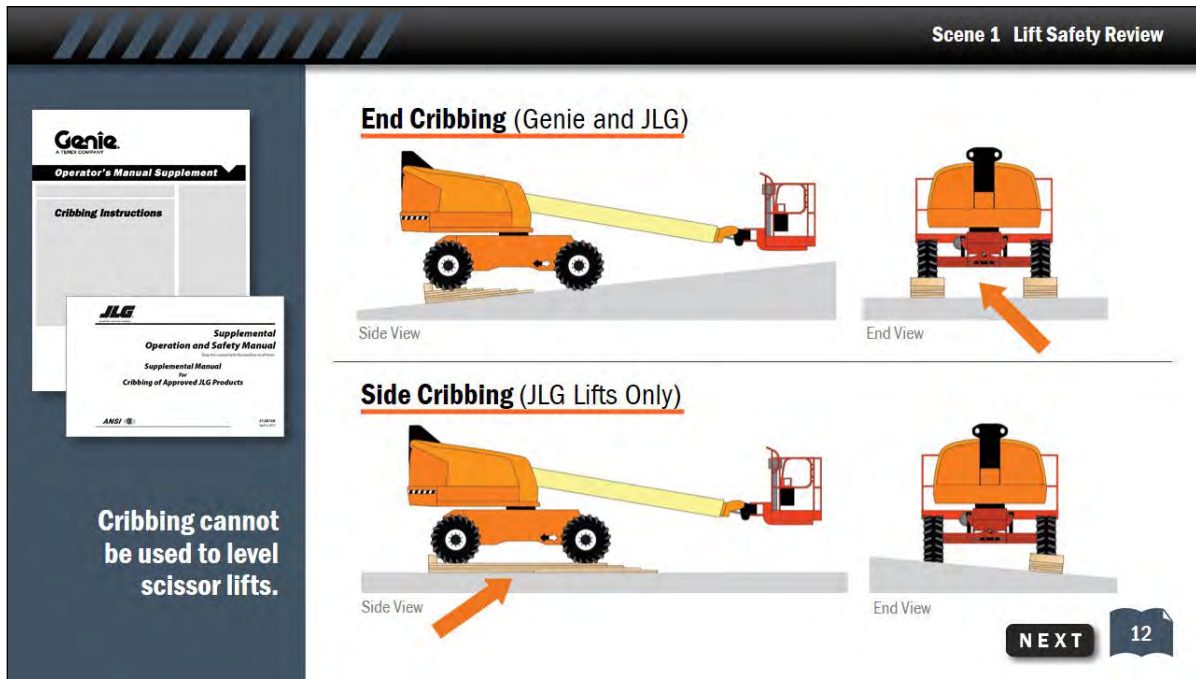
If it is necessary to work on an incline, some lifts can be made level with:

- ▶ Leveling features such as outriggers
- ▶ Cribbing blocks (certain boom lifts only)

12

Boom lifts and scissor lifts are designed to be operated on level surfaces. However, they can be driven over low inclines under certain conditions. Check the lift's decals or operator's manual for gradeability and side slope ratings to make sure that the incline doesn't exceed manufacturer limits. Don't drive on an incline while elevated or turn on an incline. If it is necessary to work on an incline, the lift itself must be made level. Depending on the lift type and model, this can be achieved with leveling features such as outriggers, or, for some boom lift models, cribbing blocks.

Slide 52 - Cribbing: Types




Two manufacturers--Genie and JLG--have given boom lift operators permission to use wood cribbing to level a lift that is on a grade. JLG also allows cribbing to be used to level a boom lift on a side slope. Snorkel does not allow its lifts to be leveled with cribbing blocks. Cribbing is allowed for boom lifts only. It is not approved for leveling scissor lifts.

These diagrams show end cribbing, in which two end tires are supported on two blocks, and side cribbing, in which two side tires are supported on one long block. End cribbing blocks cannot be used for side cribbing. In both situations, two tires must be driven onto the cribbing blocks--do not crib one tire alone.

Supplemental manuals for cribbing procedures can be found in your course book appendices, or they can be requested from Genie or JLG. Note that the supplemental manuals for cribbing are not the same as the supplemental manuals for rigging. Some boom lift models may be approved for cribbing, but not for rigging, and vice-versa.

A comparison chart of approved models for cribbing and rigging can be found in Appendix B in your course book, or under the *Resources* tab.

Slide 53 - Cribbing: Restrictions



Any lift used on cribbing must be equipped with a lockout switch.

Cribbing: Restrictions

- ▶ Crib only on a surface that can support the weight of the machine, its load, and the cribbing itself
- ▶ Check that the surface does not exceed the maximum grade allowance
- ▶ Do not use cribbing over a hole or bump
- ▶ Inspect the cribbing before driving onto it
- ▶ Do not make any turns on cribbing blocks
- ▶ Do not elevate platform until the lift is leveled on the cribbing and the lockout switch is engaged
- ▶ Follow wind speed charts

NEXT

13

When you use cribbing, keep the following in mind:

Crib only on a surface that is firm enough to support the weight of the machine, its load, and the cribbing itself.

Check that the surface does not exceed the maximum grade allowance specified in the manual. Do not use cribbing over a hole or a bump.

Inspect the cribbing before driving onto it. Drive onto the cribbing blocks slowly with the platform in the lowered position.

Do not make any turns on cribbing blocks. Both manufacturers require that any lift that is used on cribbing be equipped with a lockout switch, which disables the drive and steer functions while the machine is on the cribbing, and which must be engaged before raising the platform. If a machine does not have a lockout switch, one must be installed by an approved vendor.

Do not raise the platform until the machine is leveled on the cribbing blocks and the lockout switch is engaged.

And, pay attention to wind speed.

Slide 54 - Cribbing Specifications 1

Scene 1 Lift Safety Review		
Cribbing Specifications for Genie and JLG Boom Lifts		
	Genie	JLG
Cribbing manual name/Part number	Operator's Manual Supplement: Cribbing Instructions Part No. 82943GT	Supplemental Manual for Cribbing of Approved JLG Products Part No. 3128168
Approved models	Check Genie cribbing manual	Check JLG cribbing manual
Maximum allowable grade for end cribbing	10% (6°)	9% (5°)
Maximum allowable grade for side cribbing	Not permitted	9% (5°)
Maximum allowable height for end cribbing	8 inches	8 inches
Maximum allowable height for side cribbing	Not permitted	6 inches

NEXT 14

These tables give an overview of the construction requirements for Genie and JLG cribbing. Always follow the manufacturer's specifications and the list of approved models when building or using cribbing.

Slide 55 - Cribbing Specifications 2

Scene 1 Lift Safety Review		
Cribbing Specifications for Genie and JLG Boom Lifts		
	Genie	JLG
Maximum wind speed when platform is raised on cribbing	15 mph	25 mph*
Plywood specifications	APA-certified plywood sheets	APA-certified plywood sheets
Minimum plywood thickness	¾ inch	¾ inch
Minimum plywood width	24" (30" for TRAX models)	24" or twice the tire width, whichever is larger
Minimum resting surface for wheels	24 inches x 24 inches (30 inches x 62 inches for TRAX models)	24" square or twice the tire width square, whichever is larger (end cribbing); wheelbase + 24" or twice the tire width, whichever is larger (side cribbing)
Minimum chock size	6 inches x 6 inches	6 inches x 6 inches
Constructing and securing layers	Ramp must be constructed in a series of steps of at least 12" in length, with a minimum 24" overlap between joints. Use 6d ring shank nails, placed a minimum of 8" OC edge and 12" OC face. Use 8d ring shank nails for plywood over 1½" thick.	Ramp must be constructed in a series of steps of at least 12" in length, with a minimum 24" overlap between joints. Use 6d ring shank nails, placed a minimum of 8" OC edge and 8" OC face. Use 8d ring shank nails for plywood over 1½" thick.

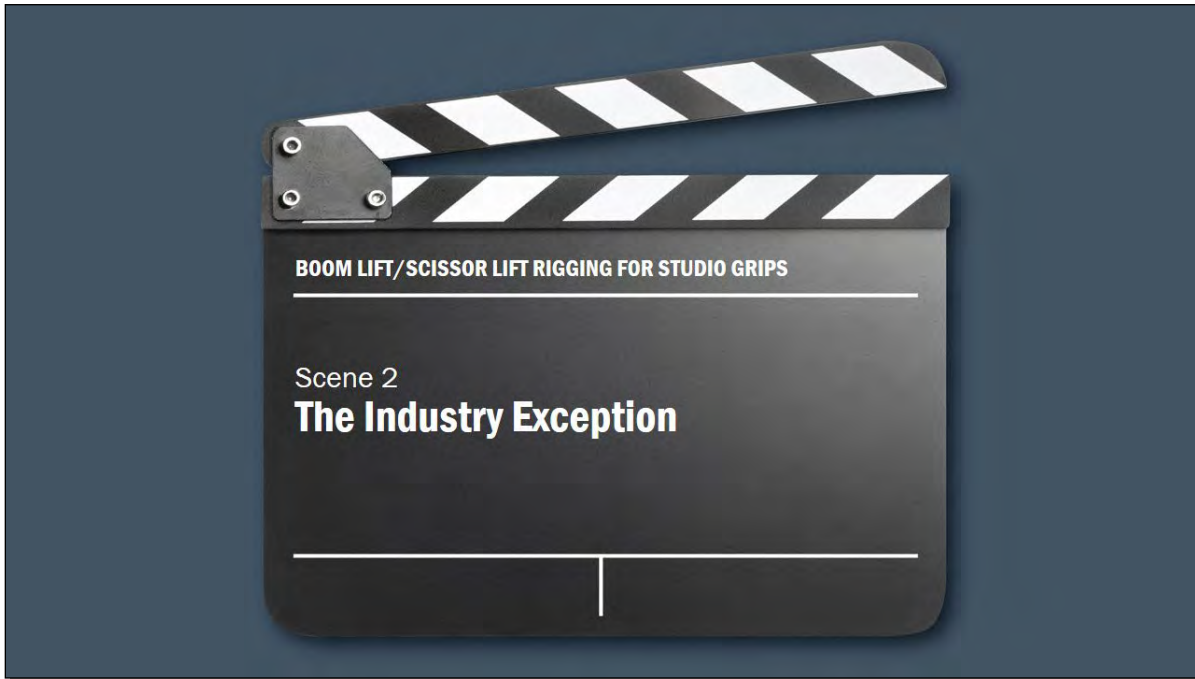
*Use the industry wind speed limit of 25 mph.

NEXT 14

Note that Genie allows a maximum wind speed of 15 miles per hour for lifts on cribbing. Do not exceed this limit when using Genie lifts.


JLG allows a maximum wind speed of 28 miles per hour when using cribbing; however, this exceeds our industry wind speed limit of 25 miles per hour for all lift work. Follow the industry standard when using JLG lifts.

Slide 56 - The Industry Exception



Now that you're caught up on some of the basics of lift safety, let's talk about the motion picture industry exception for rigging to boom lifts.

Slide 57 - Attaching Equipment



Scene 2 The Industry Exception

Attaching Equipment Outside of the Platform

A load that is attached to the guardrails of a boom lift or outside of the platform can increase the risk of a tip-over.

- ▶ The weight and position of the equipment can shift the lift's CCG outside of its area of stability
- ▶ Cables run from the platform to the ground can get snagged or run over
- ▶ A load with a large surface area can increase wind resistance

NEXT 15

The maximum capacity of a boom lift is based on a load that is evenly distributed in the platform. In our industry, however, there are situations where lighting or camera equipment may need to be attached to the guardrails or outside of the platform.

This practice may increase the risk of a tip-over for three main reasons.


First, the weight and position of the equipment may shift the lift's CCG too far outside of its area of stability.

Next, cables run from the platform to the ground could get snagged on an outside object or get run over by the lift.

Last, a load with a large surface area, such as a diffusion screen, can create wind resistance beyond the lift's wind speed ratings.

Slide 58 - Manuals for Rigging

Scene 2 The Industry Exception



Links to the Genie, JLG, and Snorkel rigging manuals are in the course book or under the **RESOURCES** tab.

Supplemental Manuals for Rigging


- ▶ Allow grips and set lighting technicians to attach lighting, camera, and diffusion equipment to boom lifts
- ▶ Describe how to
 - ▷ Calculate weight of load outside of platform
 - ▷ Reduce platform capacity
 - ▷ Determine maximum allowable wind speed
- ▶ For specific Genie, JLG, and Snorkel boom lift models only—scissor lifts are not covered

NEXT 16

At the request of our industry to address these issues, three manufacturers—Genie, JLG, and Snorkel—have produced special manuals that supplement their regular operator’s manuals. These supplemental manuals allow an exception for trained grips and set lighting technicians to safely attach lighting equipment, camera equipment, and light diffusion screens onto and outside of the guardrails of some of their boom lift models. They include procedures for calculating the weight of a load when it’s outside of the platform, reducing the platform’s capacity to account for a shifted load’s center of gravity, and determining the maximum allowable wind speed based on the surface area of the load. The supplemental manuals cover specific boom lift models only. The exception does not cover scissor lifts, manlifts, forklifts, or any other type of lift. We’ll talk about rigging scissor lifts in Scene 5.

Links to these manuals are available in the course book, under the **RESOURCES** tab, or from the manufacturer.

Slide 59 - Restrictions



This course fulfills the training requirement listed in the supplemental manuals.

Scene 2 The Industry Exception

The Industry Exception: Restrictions

In order to comply with the manufacturers' exception, grips and set lighting technicians must:

- ▶ be trained by an authorized person to perform the procedures described in the manuals;
- ▶ follow the procedures in the supplemental manual as well as in the regular operator's manual; and
- ▶ keep the supplemental manual with any other operator manuals on the machine at all times.

NEXT 17

In order to comply with the exception provided by the manufacturers in their supplemental manuals, grips and set lighting technicians must:

be trained by an authorized person to perform the procedures described in the manuals;

follow the procedures in the supplemental manual as well as in the regular operator's manual;


and keep the supplemental manual with any other operator manuals on the machine at all times.

This course fulfills the training requirement outlined by the manufacturers.

Slide 60 - Approved Lift Models

Scene 2 The Industry Exception

The Industry Exception: Approved Models

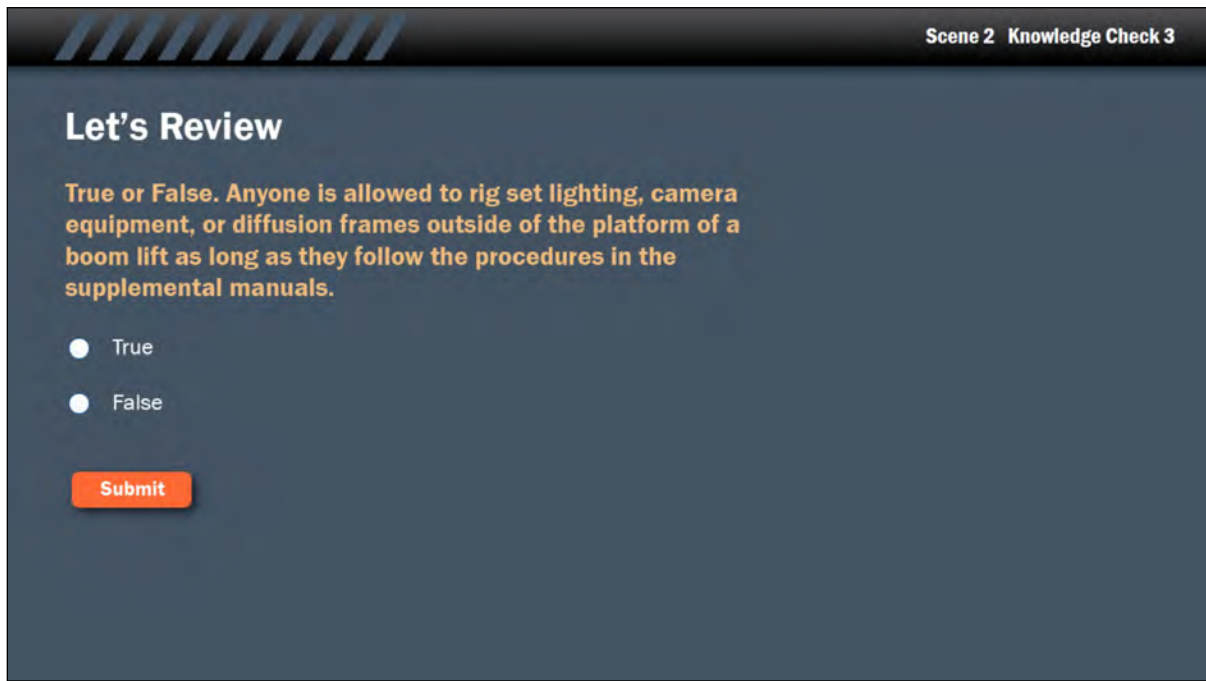


- ▶ The permission granted by each manufacturer in its supplemental manual applies **ONLY** to the models listed
- ▶ Any model not listed **CANNOT** be used for rigging
- ▶ Check the latest supplemental manual for current approved models

NEXT 17

The permission given by each manufacturer in its supplemental manual applies **ONLY** to the lift models listed. Refer to the latest manual for the current approved models. Any model not listed **CANNOT** be used for rigging any equipment in any manner that falls outside of the procedures described in its regular operator's manual.

Slide 61 - Knowledge Check 3

The image shows a digital interface for a knowledge check. At the top, there is a dark header bar with a series of white diagonal lines on the left and the text "Scene 2 Knowledge Check 3" on the right. Below the header, the main area has a dark blue background. The title "Let's Review" is displayed in white. The question text is in orange: "True or False. Anyone is allowed to rig set lighting, camera equipment, or diffusion frames outside of the platform of a boom lift as long as they follow the procedures in the supplemental manuals." There are two radio button options: "True" and "False", both with white dots. At the bottom left, there is an orange "Submit" button with white text.

Scene 2 Knowledge Check 3

Let's Review

True or False. Anyone is allowed to rig set lighting, camera equipment, or diffusion frames outside of the platform of a boom lift as long as they follow the procedures in the supplemental manuals.

☐ True

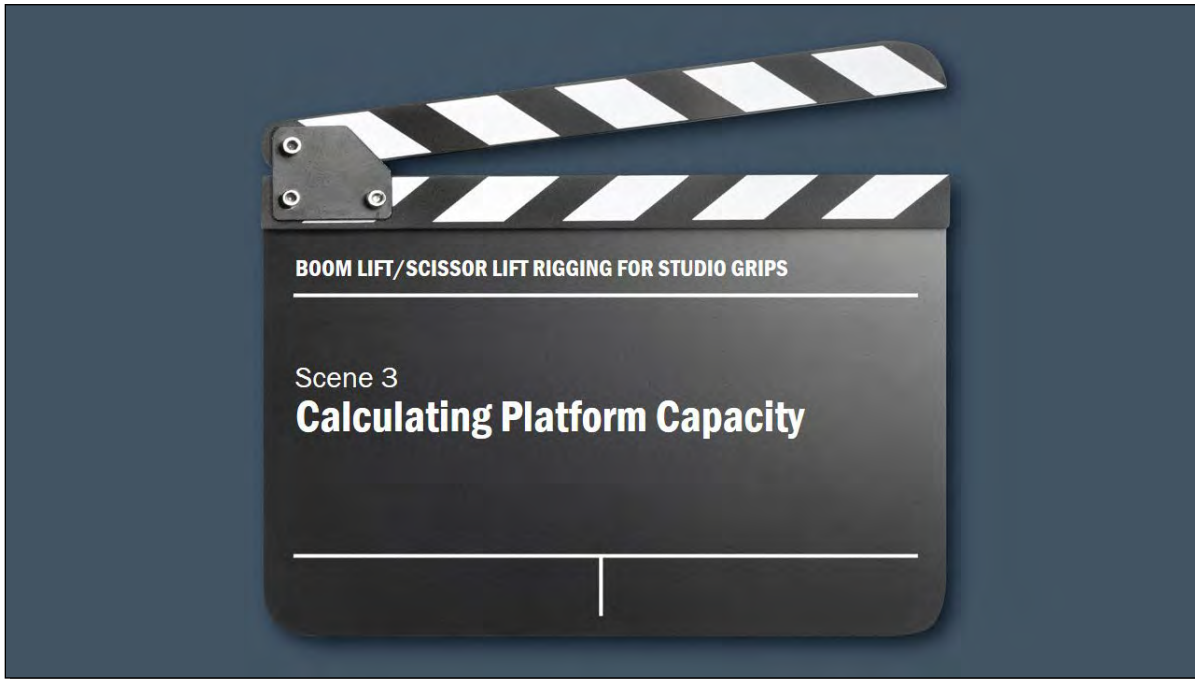
☐ False

Submit

Let's review.


True or false. Anyone is allowed to rig set lighting, camera equipment, or diffusion frames outside of the platform of a boom lift as long as they follow the procedures in the supplemental manuals.

Slide 62 - Calculating Capacity



This scene details the procedures for calculating platform capacity when rigging motion picture equipment to a boom lift.

Slide 63 - Four Factors: 1-2



Some employers may require authorization for lifts or lift work over a certain height.

Scene 3 Calculating Platform Capacity

Before attaching equipment to a boom lift, consider these four factors:

- 1 Approved Model.** Is the lift approved for attaching film production equipment? If it is not listed in the supplemental manual, it is not approved.
- 2 Capacity and Reach.** Check the load rating and reach charts in the supplemental or operator's manuals and compare them to the needs of your job.

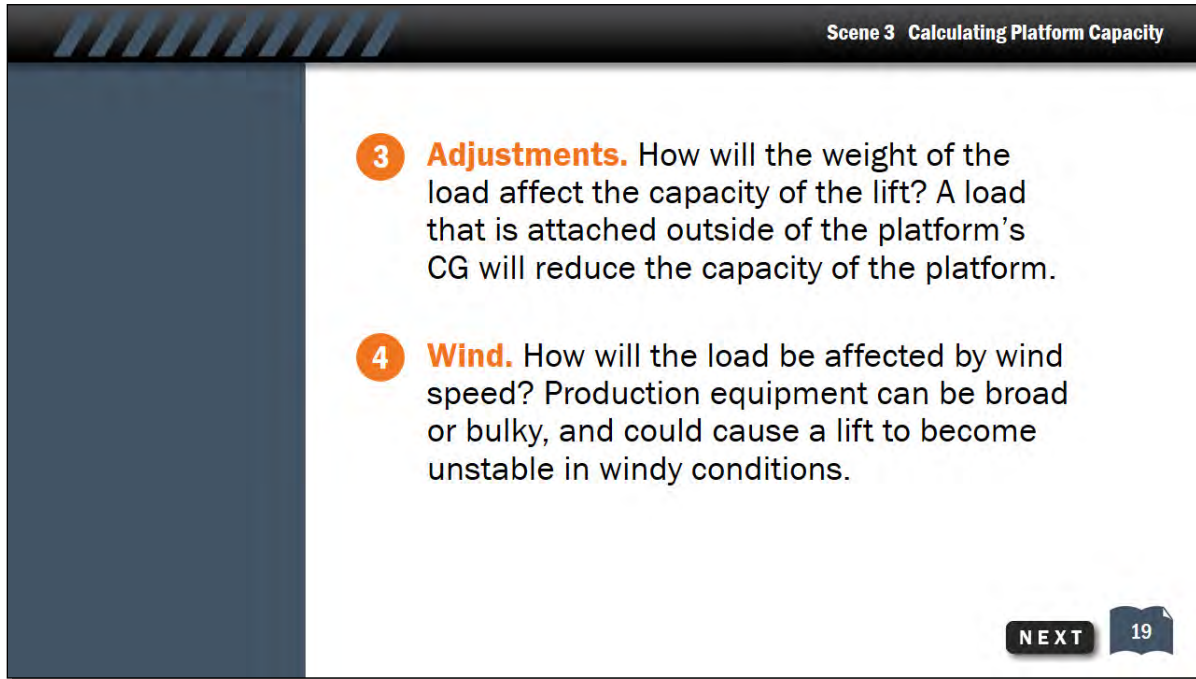
NEXT 19

Before attaching any equipment to a boom lift, consider these four factors:

One: Is the lift model approved for attaching film production equipment? If it is not listed in the supplemental manual, it is not approved.

Two: What is the lift's capacity and reach? Check the load rating and reach charts in the supplemental or operator's manuals and compare them to the needs of your job. Note that some employers may require authorization for lifts or lift work over a certain height.

Slide 64 - Four Factors: 3-4



Scene 3 Calculating Platform Capacity

- 3 **Adjustments.** How will the weight of the load affect the capacity of the lift? A load that is attached outside of the platform's CG will reduce the capacity of the platform.
- 4 **Wind.** How will the load be affected by wind speed? Production equipment can be broad or bulky, and could cause a lift to become unstable in windy conditions.

NEXT 19

Three: Adjustments. How will the weight of the load affect the capacity of the lift? A load that is attached outside of the platform's CG will reduce the capacity of the platform and will need to be adjusted. We'll talk about adjusted weight in a moment.

Four: How will the load be affected by wind speed? Production equipment can be broad or bulky and could cause a lift to become unstable in windy conditions. Always follow the wind speed charts in the supplemental manuals.

Slide 65 - Direct and Adjusted Weight

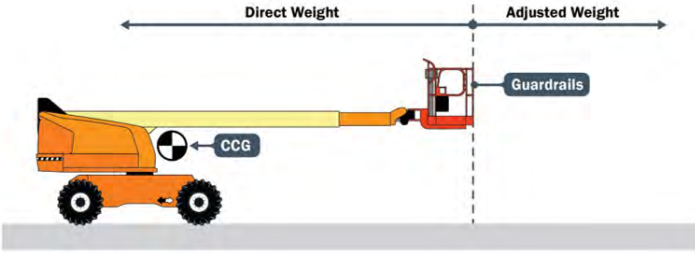
Scene 3 Calculating Platform Capacity

The weight of any personnel in the platform is always counted as direct weight.

Direct and Adjusted Weight

Direct Weight. The actual weight of a load.

Adjusted Weight. A calculation of a load's weight which compensates for the distance the load is away from the platform's center of gravity.




20

As discussed in Scene 1, every boom lift has maximum load capacities based on the combined center of gravity of the lift. These capacities apply to the DIRECT weight, or actual weight, of a load inside the platform, personnel operating or working in the lift, or cables extending down the boom arm. However, when equipment is attached to the guardrails of a boom lift or extends past the platform, the load is positioned outside of the lift's normal CCG, creating an increase in force that affects the lift's normal capacities. This type of load must be calculated as ADJUSTED weight, which compensates for the distance the center of gravity of the load is away from the center of gravity of the platform. The farther the load is outside of the platform, the greater the adjusted weight.

Adjusted weight will always be more than the actual weight of the equipment and will also reduce the capacity of the platform. Adjusted weight is calculated by using tables provided in the supplemental manuals. The weight of any personnel in the platform is never adjusted. It is always counted as direct weight.

Slide 66 - Platform Capacity



How do you find the weight of your equipment?

- Weigh it on a scale
- Check the owner's manual
- Research it online
- Contact the manufacturer

Scene 3 Calculating Platform Capacity

Reducing Platform Capacity

To calculate adjusted weight and reduce platform capacity, you will need to know:

- ▶ The actual weight of the equipment
- ▶ The distance from the toeboard under the control panel to the CG of the equipment
- ▶ How to use the capacity reduction charts in the supplemental manuals

The total weight of the load (direct, adjusted, or a combination) cannot exceed the maximum load rating for the lift in use.

NEXT 20

To calculate adjusted weight and reduce platform capacity, you will need to know the actual weight of the equipment, the distance from the toeboard under the control panel to the center of gravity of the equipment, and how to use the capacity reduction charts in the supplemental manuals. The total weight of the load, whether direct, adjusted, or a combination of the two, cannot exceed the maximum load rating for the lift in use.

How do you find the weight of your equipment? If it's small enough, you can weigh it on a scale. Or, you can check the owner's manual, research the weight online, or contact the manufacturer.

Slide 67 - Example 1.1

Scene 3 Calculating Platform Capacity

Reducing Platform Capacity

Example 1: Diffusion Frame
JLG 600S Boom Lift

1 Find the Equipment's Weight.
Determine the weight of each type of equipment being used.

8' × 8' frame with 1" round tubing.....	12 lb.
8' × 8' solid.....	6 lb.
1 1/2" Schedule 40 steel pipe.....	3 lb./ft.
1 1/4" Schedule 40 aluminum pipe.....	0.8 lb./ft.
Grid clamps.....	3 lb. each

Three 10' 1 1/2" Sch. 40 steel pipes
Eight grid clamps

One 8' x 8' frame with 1" round tubing
One 8' x 8' solid
One 10' 1 1/2" Sch. 40 steel pipe
Two 14' 1 1/4" Sch. 40 aluminum pipes
Six grid clamps

NEXT 21

Let's go through the process of adjusting the weight of a load.

Here we have an 8-by-8-foot diffusion frame, attached to both the front and the rear of the platform of a JLG 600S boom lift. We'll start by finding the weight of the equipment in use. The weight of the frame is 12 pounds, the solid fabric weighs 6 pounds, the Schedule 40 steel pipe is 3 pounds a foot, the Schedule 40 aluminum pipe weighs 0.8 pounds a foot, and each grid clamp is 3 pounds.

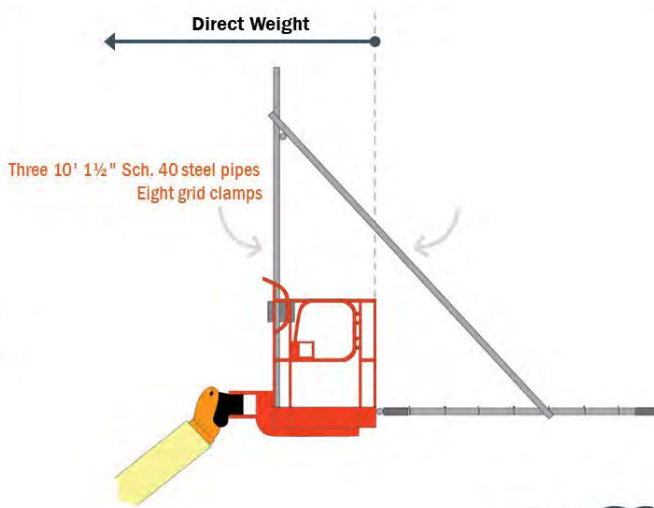
Slide 68 - Example 1.2

Scene 3 Calculating Platform Capacity

2 Calculate the Equipment's Direct Weight.

Count equipment placed or attached within the lift's CCG as direct weight, using the weights from Step 1.

Three 10' 1½" Schedule 40 steel pipes.....	90 lb.
Eight grid clamps.....	24 lb.
	114 lb.
	(Direct Weight)



NEXT 22

Now we'll take a look at where the equipment is positioned.

The equipment that is in the platform or within the lift's normal CCG will be counted as direct weight. Three 10 foot, 1-1/2 inch Schedule 40 steel pipes and eight grid clamps will count as 114 pounds of direct weight. Although the diagonal aluminum pipes that hold up the frame are attached to points both inside and outside of the platform, we'll count them as adjusted weight because they extend beyond the guardrails.

B3–Boom Lift/Scissor Lift Rigging for Studio Grips

Slide 69 - Example 1.3a

Scene 3 Calculating Platform Capacity

3 Calculate the Equipment's Adjusted Weight.

Follow steps **a** through **d** to adjust the weight of any equipment that will be placed or attached outside the platform's CG.

a Add up the weights of the equipment as determined in Step 1:

- One 8' x 8' frame with 1" round tubing.....12 lb.
- One 8' x 8' solid.....6 lb.
- One 10' 1 1/2" Schedule 40 steel pipe.....30 lb.
- Two 14' 1 1/4" Schedule 40 steel pipes.....23 lb.
- Six grid clamps.....18 lb.

89 lb.

Adjusted Weight

One 8' x 8' frame with 1" round tubing
One 8' x 8' solid
One 10' 1 1/2" Sch. 40 steel pipe
Two 14' 1 1/4" Sch. 40 aluminum pipes
Six grid clamps

84" Distance to equipment CG

NEXT

22

Next, we'll start to figure the adjusted weight.

We have the 8-foot frame, one 8-foot solid, one 10-foot 1-1/2 inch Schedule 40 steel pipe, two 14-foot, 1-1/4 inch Schedule 40 aluminum pipes, and six grid clamps, totaling 89 pounds.

Slide 70 - Example 1.3b

Scene 3 Calculating Platform Capacity

b Locate the platform capacity reduction chart(s) in the supplemental manual. Find the weight in the left column of the chart. Round up if necessary:

89 lb. → 100 lb. (rounded)

Weight of Added Equipment (lbs.)	Distance from Kickplate below control (in) to equipment CG (inches) (Distance A or Distance B)																
	20"	30"	40"	50"	60"	70"	80"	90"	100"	110"	120"	130"	140"	150"	160"	170"	
10	73	90	107	125	142	159	176	193	210	227	244	261	278	295	312	329	346
25	108	131	154	177	200	223	246	269	292	315	338	361	384	407	430	453	476
40	143	171	200	228	256	284	312	340	368	396	424	452	480	508	536	564	592
55	178	211	244	277	310	343	376	409	442	475	508	541	574	607	640	673	706
70	213	251	289	327	365	403	441	479	517	555	593	631	669	707	745	783	821
85	248	291	334	377	420	463	506	549	592	635	678	721	764	807	850	893	936
100	283	331	374	417	460	503	546	589	632	675	718	761	804	847	890	933	976
115	318	369	412	455	498	541	584	627	670	713	756	799	842	885	928	971	1014
130	353	408	451	494	537	580	623	666	709	752	795	838	881	924	967	1010	1053
145	388	446	489	532	575	618	661	704	747	790	833	876	919	962	1005	1048	1091
160	423	484	527	570	613	656	699	742	785	828	871	914	957	1000	1043	1086	1129
175	458	522	565	608	651	694	737	780	823	866	909	952	995	1038	1081	1124	1167
190	493	560	603	646	689	732	775	818	861	904	947	990	1033	1076	1119	1162	1205
205	528	597	640	683	726	769	812	855	898	941	984	1027	1070	1113	1156	1199	1242
220	563	634	677	720	763	806	849	892	935	978	1021	1064	1107	1150	1193	1236	1279
235	598	671	714	757	800	843	886	929	972	1015	1058	1101	1144	1187	1230	1273	1316
250	633	707	750	793	836	879	922	965	1008	1051	1094	1137	1180	1223	1266	1309	1352
265	668	743	786	829	872	915	958	1001	1044	1087	1130	1173	1216	1259	1302	1345	1388
280	703	779	822	865	908	951	994	1037	1080	1123	1166	1209	1252	1295	1338	1381	1424
295	738	815	858	901	944	987	1030	1073	1116	1159	1202	1245	1288	1331	1374	1417	1460
310	773	851	894	937	980	1023	1066	1109	1152	1195	1238	1281	1324	1367	1410	1453	1496
325	808	887	930	973	1016	1059	1102	1145	1188	1231	1274	1317	1360	1403	1446	1489	1532
340	843	923	966	1009	1052	1095	1138	1181	1224	1267	1310	1353	1396	1439	1482	1525	1568
355	878	959	1002	1045	1088	1131	1174	1217	1260	1303	1346	1389	1432	1475	1518	1561	1604
370	913	995	1038	1081	1124	1167	1210	1253	1296	1339	1382	1425	1468	1511	1554	1597	1640
385	948	1031	1074	1117	1160	1203	1246	1289	1332	1375	1418	1461	1504	1547	1590	1633	1676
400	983	1067	1110	1153	1196	1239	1282	1325	1368	1411	1454	1497	1540	1583	1626	1669	1712
415	1018	1103	1146	1189	1232	1275	1318	1361	1404	1447	1490	1533	1576	1619	1662	1705	1748
430	1053	1139	1182	1225	1268	1311	1354	1397	1440	1483	1526	1569	1612	1655	1698	1741	1784
445	1088	1175	1218	1261	1304	1347	1390	1433	1476	1519	1562	1605	1648	1691	1734	1777	1820
460	1123	1211	1254	1297	1340	1383	1426	1469	1512	1555	1598	1641	1684	1727	1770	1813	1856
475	1158	1247	1290	1333	1376	1419	1462	1505	1548	1591	1634	1677	1720	1763	1806	1849	1892
490	1193	1283	1326	1369	1412	1455	1498	1541	1584	1627	1670	1713	1756	1799	1842	1885	1928
505	1228	1319	1362	1405	1448	1491	1534	1577	1620	1663	1706	1749	1792	1835	1878	1921	1964
520	1263	1355	1398	1441	1484	1527	1570	1613	1656	1699	1742	1785	1828	1871	1914	1957	2000
535	1298	1391	1434	1477	1520	1563	1606	1649	1692	1735	1778	1821	1864	1907	1950	1993	2036
550	1333	1427	1470	1513	1556	1599	1642	1685	1728	1771	1814	1857	1900	1943	1986	2029	2072
565	1368	1463	1506	1549	1592	1635	1678	1721	1764	1807	1850	1893	1936	1979	2022	2065	2108
580	1403	1500	1543	1586	1629	1672	1715	1758	1801	1844	1887	1930	1973	2016	2059	2102	2145
595	1438	1536	1579	1622	1665	1708	1751	1794	1837	1880	1923	1966	2009	2052	2095	2138	2181
610	1473	1572	1615	1658	1701	1744	1787	1830	1873	1916	1959	2002	2045	2088	2131	2174	2217
625	1508	1608	1651	1694	1737	1780	1823	1866	1909	1952	1995	2038	2081	2124	2167	2210	2253
640	1543	1644	1687	1730	1773	1816	1859	1902	1945	1988	2031	2074	2117	2160	2203	2246	2289
655	1578	1680	1723	1766	1809	1852	1895	1938	1981	2024	2067	2110	2153	2196	2239	2282	2325
670	1613	1716	1759	1802	1845	1888	1931	1974	2017	2060	2103	2146	2189	2232	2275	2318	2361
685	1648	1752	1795	1838	1881	1924	1967	2010	2053	2096	2139	2182	2225	2268	2311	2354	2397
700	1683	1788	1831	1874	1917	1960	2003	2046	2089	2132	2175	2218	2261	2304	2347	2390	2433
715	1718	1824	1867	1910	1953	1996	2039	2082	2125	2168	2211	2254	2297	2340	2383	2426	2469
730	1753	1860	1903	1946	1989	2032	2075	2118	2161	2204	2247	2290	2333	2376	2419	2462	2505
745	1788	1896	1939	1982	2025	2068	2111	2154	2197	2240	2283	2326	2369	2412	2455	2498	2541
760	1823	1932	1975	2018	2061	2104	2147	2190	2233	2276	2319	2362	2405	2448	2491	2534	2577
775	1858	1968	2011	2054	2097	2140	2183	2226	2269	2312	2355	2398	2441	2484	2527	2570	2613
790	1893	2004	2047	2090	2133	2176	2219	2262	2305	2348	2391	2434	2477	2520	2563	2606	2649
805	1928	2040	2083	2126	2169	2212	2255	2298	2341	2384	2427	2470	2513	2556	2599	2642	2685
820	1963	2076	2119	2162	2205	2248	2291	2334	2377	2420	2463	2506	2549	2592	2635	2678	2721
835	1998	2112	2155	2198	2241	2284	2327	2370	2413	2456	2499	2542	2585	2628	2671	2714	2757
850	2033	2148	2191	2234	2277	2320	2363	2406	2449	2492	2535	2578	2621	2664	2707	2750	2793
865	2068	2184	2227	2270	2313	2356	2399	2442	2485	2528	2571	2614	2657	2700	2743	2786	2829
880	2103	2220	2263	2306	2349	2392	2435	2478	2521	2564	2607	2650	2693	2736	2779	2822	2865
895	2138	2256	2299	2342	2385	2428	2471	2514	2557	2600	2643	2686	2729	2772	2815	2858	2901
910	2173	2292	2335	2378	2421	2464	2507	2550	2593	2636	2679	2722	2765	2808	2851	2894	2937
925	2208	2328	2371	2414	2457	2500	2543	2586	2629	2672	2715	2758	2801	2844	2887	2930	2973
940	2243	2364	2407	2450	2493	2536	2579	2622	2665	2708	2751	2794	2				

B3–Boom Lift/Scissor Lift Rigging for Studio Grips

Slide 71 - Example 1.3c

Scene 3 Calculating Platform Capacity

c Determine the distance from the front of the platform to the equipment's CG. Find that result in the top row of the platform capacity reduction chart. Round to the next higher distance on the chart if necessary:

Distance from front of platform to CG of frame = 84" (on chart)

Weight of Added Equipment (lbs.)	Distance from kickplate below control box to equipment CG (inches) (Distance A or Distance B)																
	Number of Pounds to Reduce Rated Platform Load by																
	20"	30"	40"	50"	60"	70"	80"	90"	100"	110"	120"	130"	140"	150"	160"	170"	
10	11	10	9	8	7	6	5	4	3	2	1	0	0	0	0	0	0
25	26	25	24	23	22	21	20	19	18	17	16	15	14	13	12	11	10
50	51	50	49	48	47	46	45	44	43	42	41	40	39	38	37	36	35
75	76	75	74	73	72	71	70	69	68	67	66	65	64	63	62	61	60
100	101	100	99	98	97	96	95	94	93	92	91	90	89	88	87	86	85
125	126	125	124	123	122	121	120	119	118	117	116	115	114	113	112	111	110
150	151	150	149	148	147	146	145	144	143	142	141	140	139	138	137	136	135
175	176	175	174	173	172	171	170	169	168	167	166	165	164	163	162	161	160
200	201	200	199	198	197	196	195	194	193	192	191	190	189	188	187	186	185
225	226	225	224	223	222	221	220	219	218	217	216	215	214	213	212	211	210
250	251	250	249	248	247	246	245	244	243	242	241	240	239	238	237	236	235
275	276	275	274	273	272	271	270	269	268	267	266	265	264	263	262	261	260
300	301	300	299	298	297	296	295	294	293	292	291	290	289	288	287	286	285
325	326	325	324	323	322	321	320	319	318	317	316	315	314	313	312	311	310
350	351	350	349	348	347	346	345	344	343	342	341	340	339	338	337	336	335
375	376	375	374	373	372	371	370	369	368	367	366	365	364	363	362	361	360
400	401	400	399	398	397	396	395	394	393	392	391	390	389	388	387	386	385
425	426	425	424	423	422	421	420	419	418	417	416	415	414	413	412	411	410
450	451	450	449	448	447	446	445	444	443	442	441	440	439	438	437	436	435
475	476	475	474	473	472	471	470	469	468	467	466	465	464	463	462	461	460
500	501	500	499	498	497	496	495	494	493	492	491	490	489	488	487	486	485
525	526	525	524	523	522	521	520	519	518	517	516	515	514	513	512	511	510
550	551	550	549	548	547	546	545	544	543	542	541	540	539	538	537	536	535
575	576	575	574	573	572	571	570	569	568	567	566	565	564	563	562	561	560
600	601	600	599	598	597	596	595	594	593	592	591	590	589	588	587	586	585
625	626	625	624	623	622	621	620	619	618	617	616	615	614	613	612	611	610
650	651	650	649	648	647	646	645	644	643	642	641	640	639	638	637	636	635

NOTE: When working equipment, ALWAYS use the lowest weight (in pounds) in the platform load chart.
Always use the lowest weight (in pounds) in the platform load chart.

NEXT

22

The distance from the toeboard under the control panel to our equipment's center of gravity is 84 inches. That's on the chart, so we don't need to round it up.

Note that JLG refers to the toeboard as a "kickplate" on their chart.

Slide 72 - Example 1.3d

Scene 3 Calculating Platform Capacity

d Find the number at the intersection of the weight row and the distance column on the chart to determine the adjusted weight:

Intersection of 100 lb. and 84" → 299 lb. (Adjusted Weight)

Weight of Added Equipment (lbs.)	Distance from kickplate below control box to equipment CG (inches) (Distance A or Distance B)																
	Number of Pounds to Reduce Rated Platform Load by																
	20"	30"	40"	50"	60"	70"	80"	90"	100"	110"	120"	130"	140"	150"	160"	170"	
10	11	10	9	8	7	6	5	4	3	2	1	0	0	0	0	0	0
25	26	25	24	23	22	21	20	19	18	17	16	15	14	13	12	11	10
50	51	50	49	48	47	46	45	44	43	42	41	40	39	38	37	36	35
75	76	75	74	73	72	71	70	69	68	67	66	65	64	63	62	61	60
100	101	100	99	98	97	96	95	94	93	92	91	90	89	88	87	86	85
125	126	125	124	123	122	121	120	119	118	117	116	115	114	113	112	111	110
150	151	150	149	148	147	146	145	144	143	142	141	140	139	138	137	136	135
175	176	175	174	173	172	171	170	169	168	167	166	165	164	163	162	161	160
200	201	200	199	198	197	196	195	194	193	192	191	190	189	188	187	186	185
225	226	225	224	223	222	221	220	219	218	217	216	215	214	213	212	211	210
250	251	250	249	248	247	246	245	244	243	242	241	240	239	238	237	236	235
275	276	275	274	273	272	271	270	269	268	267	266	265	264	263	262	261	260
300	301	300	299	298	297	296	295	294	293	292	291	290	289	288	287	286	285
325	326	325	324	323	322	321	320	319	318	317	316	315	314	313	312	311	310
350	351	350	349	348	347	346	345	344	343	342	341	340	339	338	337	336	335
375	376	375	374	373	372	371	370	369	368	367	366	365	364	363	362	361	360
400	401	400	399	398	397	396	395	394	393	392	391	390	389	388	387	386	385
425	426	425	424	423	422	421	420	419	418	417	416	415	414	413	412	411	410
450	451	450	449	448	447	446	445	444	443	442	441	440	439	438	437	436	435
475	476	475	474	473	472	471	470	469	468	467	466	465	464	463	462	461	460
500	501	500	499	498	497	496	495	494	493	492	491	490	489	488	487	486	485
525	526	525	524	523	522	521	520	519	518	517	516	515	514	513	512	511	510
550	551	550	549	548	547	546	545	544	543	542	541	540	539	538	537	536	535
575	576	575	574	573	572	571	570	569	568	567	566	565	564	563	562	561	560
600	601	600	599	598	597	596	595	594	593	592	591	590	589	588	587	586	585
625	626	625	624	623	622	621	620	619	618	617	616	615	614	613	612	611	610
650	651	650	649	648	647	646	645	644	643	642	641	640	639	638	637	636	635

NOTE: When working equipment, ALWAYS use the lowest weight (in pounds) in the platform load chart.
Always use the lowest weight (in pounds) in the platform load chart.

NEXT

22

The intersection of 100 pounds and 84 inches on the chart is 299 pounds of adjusted weight.

Slide 73 - Example 1.4

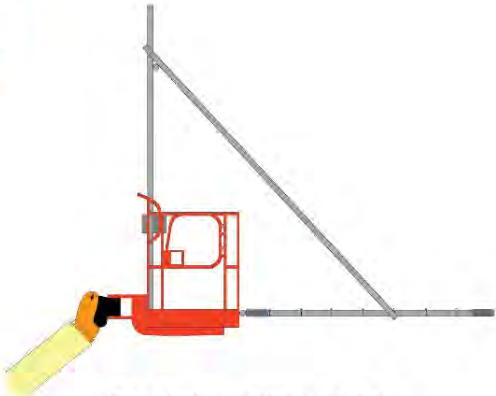
Scene 3 Calculating Platform Capacity

4 Add the Direct Weight and Adjusted Weight.

Direct Weight.....	114 lb.
Adjusted Weight.....	299 lb.
	413 lb. (Total)

The total reflects the increase in the load as it extends past the platform's CG. The equipment has the effect of weighing 210 more lb. than if it was in the platform.

The maximum capacity of the JLG 600S is 1,000 lb. The remaining capacity will be 587 lb. (1,000 lb. – 413 lb.).



Total Equipment Weight: 413 lb.
Remaining Capacity: 587 lb.

NEXT **23**

We're not quite finished.

To find the total weight of our equipment, we'll need to combine our direct weight of 114 pounds, with our adjusted weight of 299 pounds. The total, 413 pounds. The increase that the load places on the lift, when it's attached beyond the platform, has the effect of weighing 210 more pounds than if it was carried within the platform, and did not need to be adjusted.

The maximum capacity of the JLG 600S is 1,000 pounds. Subtracting the total weight of 413 pounds, for the diffusion frame, leaves 587 pounds of remaining capacity for the lift.

Slide 74 - Example 1.5a

Scene 3 Calculating Platform Capacity

Capacity/Reach Charts

Where To Locate Capacity and Reach Charts for Platform Capacity Reduction		
	Approved Model*	Chart Location
Genie	S-40, S-60, S-60HC, S-80, S-100, Z-34/22IC, Z-45/25, Z-45/25J, Z-60/34, Z-80/60	Refer to Supplemental Manual
	All other approved models	Refer to Operator's Manual
JLG	All approved models	Refer to Supplemental Manual
Snorkel	All approved models	Refer to Operator's Manual

*Approved models are subject to change.

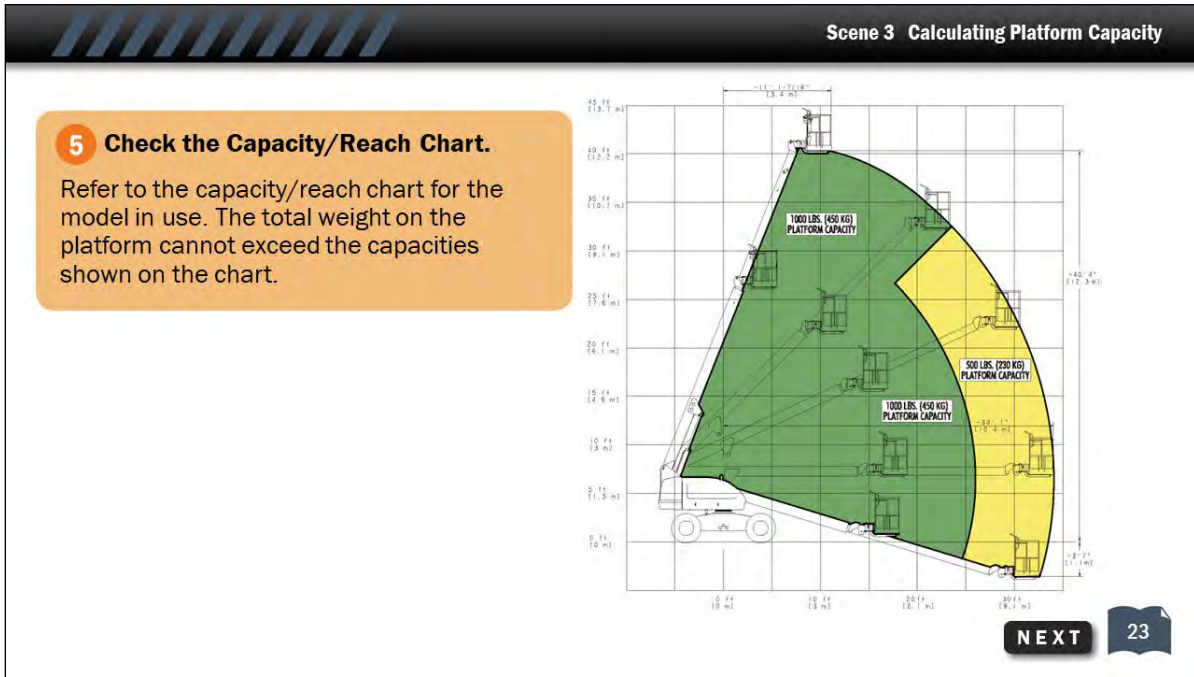
NEXT

23

Once you've found the total weight of your load and the lift's remaining capacity, check the capacity and reach chart for the model you're using. This table shows where they are located.

Note that for some lifts, the charts may be in the regular operator's manual for the lift, and not in the supplemental manual.

Slide 75 - Example 1.5b



Here is JLG's capacity and reach chart for this lift's model and serial number. The chart shows that if you don't add any more weight to the platform, your load of 413 pounds would be able to be positioned anywhere the platform will reach. If you add more weight, the increase may affect where you can position the platform. The maximum load weight that can be carried in this lift is 1,000 pounds.

Slide 76 - Example 2.1

Scene 3 Calculating Platform Capacity

Reducing Platform Capacity

Example 2: Lighting Equipment
Genie S-60 Boom Lift

1 Find the Equipment's Weight.
Determine the weight of each type of equipment being used.

Two 50' head feeders
One cable roller

One 20 K lamp head
One candlestick
Two pipe clamps

NEXT
24

Let's go through another example, lighting equipment attached to a Genie S-60 boom lift.

A 20K lamp head is 125 pounds. A candlestick support is 10 pounds. The clamps holding it to the guardrails are 3 pounds each, head feeder cables are 60 pounds each, and cable rollers are 25 pounds each.

The weights in our examples are approximations only. Always find the actual weight of your equipment each time you make your calculations.

Slide 77 - Example 2.2

Scene 3 Calculating Platform Capacity

2 Calculate the Equipment's Direct Weight.
Count any equipment within the lift's CCG as direct weight, using the weights from Step 1.

Two 50' head feeders.....	120 lb.
One cable roller.....	25 lb.
	145 lb.
	(Direct Weight)

Direct Weight

Two 50' head feeders
One cable roller

NEXT

24

Again, we'll start by finding the direct weight of any equipment inside the guardrails of the platform. In this case, the two head feeders and single cable roller total 145 pounds of direct weight.

B3–Boom Lift/Scissor Lift Rigging for Studio Grips

Slide 78 - Example 2.3a

Scene 3 Calculating Platform Capacity

3 Calculate the Equipment's Adjusted Weight.

Follow steps **a** through **d** to adjust the weight of any equipment that will be placed or attached outside the platform's CG.

a Add up the weights of the equipment as determined in Step 1:

Adjusted Weight

One 20 K lamp head
One candlestick
Two pipe clamps

34"
Distance to equipment CG

NEXT

25

Moving on to the equipment that will count as adjusted weight, we have the 20K lamp head, one candlestick, and two pipe clamps. Using the weights given previously, those items total 141 pounds.

Slide 79 - Example 2.3b

Scene 3 Calculating Platform Capacity

b Locate the platform capacity reduction chart in the supplemental manual. Find the weight in the left column of the chart. Round up if necessary:

Weight of Equipment (lbs)	30	36	48	60	72	84	96	108	120	132	144	156
50	67	68	81	94	106	119	131	144	156	169	181	194
75	100	103	122	141	159	178	197	216	234	253	272	291
100	133	136	163	188	213	238	263	288	313	338	363	388
125	167	172	203	234	265	297	328	359	391	422	453	484
150	200	206	244	281	319	356	394	431	469	506	544	581
175	233	241	284	328	372	416	459	503	547	591	634	678
200	267	275	325	375	425	475	525	575	625	675	725	775
225	300	309	366	422	478	534	591	647	703	759	816	872
250	333	344	406	469	531	594	656	719	781	844	906	969
275	367	378	447	516	584	653	722	791	859	928	997	
300	400	413	488	563	638	713	788	863	938			
325	433	447	526	606	681	756	831	906				
350	467	481	564	644	719	794	869					
375	500	516	603	688	763	838						
400	533	550	641	726	801							
425	567	584	681	771								
450	600	619	721									
475	633	653	761									
500	667	688	801									
525	700	722	838									
550	733	756	871									
575	767	791	906									
600	800	825	938									
625	833	859										
650	867	894										
675	900	928										
700	933	963										
725	967	997										

NEXT

25

We'll use Genie's platform capacity reduction chart to reduce the weight. Looking at the left side of the chart, we can see that the weight of our equipment, 141 pounds, falls between two numbers on the chart. Always round weights UP. So, we'll round our equipment weight of 141 pounds to 150 pounds.

B3-Boom Lift/Scissor Lift Rigging for Studio Grips

Slide 80 - Example 2.3c

Scene 3 Calculating Platform Capacity

c Determine the distance from the front of the platform to the equipment's CG. Find that result in the top row of the platform capacity reduction chart. Round to the next higher distance on the chart if necessary.

Weight of Equipment (lbs)	Load Center (inches) (Distance from back toeboard to center of gravity of load)															
	36	48	60	72	84	96	108	120	132	144	156	168	180	192	204	216
50	67	69	71	73	75	77	79	81	83	85	87	89	91	93	95	97
75	100	103	106	109	112	115	118	121	124	127	130	133	136	139	142	145
100	133	136	139	142	145	148	151	154	157	160	163	166	169	172	175	178
125	167	172	177	181	185	189	193	197	201	205	209	213	217	221	225	229
150	200	206	211	216	221	225	230	234	238	242	246	250	254	258	262	266
175	233	241	248	255	262	269	275	281	287	293	299	305	311	317	323	329
200	267	275	283	291	299	307	315	323	331	339	347	355	363	371	379	387
225	300	309	318	327	336	345	354	363	372	381	390	399	408	417	426	435
250	333	344	354	364	374	384	394	404	414	424	434	444	454	464	474	484
275	367	378	389	400	411	422	433	444	455	466	477	488	499	510	521	532
300	400	413	426	439	452	465	478	491	504	517	530	543	556	569	582	595
325	433	447	461	475	489	503	517	531	545	559	573	587	601	615	629	643
350	467	481	496	511	526	541	556	571	586	601	616	631	646	661	676	691
375	500	516	532	548	564	580	596	612	628	644	660	676	692	708	724	740
400	533	550	567	584	601	618	635	652	669	686	703	720	737	754	771	788
425	567	584	601	618	635	652	669	686	703	720	737	754	771	788	805	822
450	600	619	637	655	673	691	709	727	745	763	781	799	817	835	853	871
475	633	653	672	691	710	729	748	767	786	805	824	843	862	881	900	919
500	667	688	708	728	748	768	788	808	828	848	868	888	908	928	948	968
525	700	722	744	766	788	810	832	854	876	898	920	942	964	986	1008	1030
550	733	756	779	802	825	848	871	894	917	940	963	986	1009	1032	1055	1078
575	767	791	814	837	860	883	906	929	952	975	998	1021	1044	1067	1090	1113
600	800	825	849	873	897	921	945	969	993	1017	1041	1065	1089	1113	1137	1161
625	833	859	884	909	934	959	984	1009	1034	1059	1084	1109	1134	1159	1184	1209
650	867	894	920	946	972	998	1024	1050	1076	1102	1128	1154	1180	1206	1232	1258
675	900	928	956	984	1012	1040	1068	1096	1124	1152	1180	1208	1236	1264	1292	1320
700	933	963	993	1023	1053	1083	1113	1143	1173	1203	1233	1263	1293	1323	1353	1383
725	967	997	1027	1057	1087	1117	1147	1177	1207	1237	1267	1297	1327	1357	1387	1417

NEXT 25

Now we'll factor in the distance that our load's center of gravity is from the toeboard under the control panel. In our example, it's 34 inches. Looking at the top row of the chart, and rounding up again, we'll count that distance as 36 inches.

Slide 81 - Example 2.3d

Scene 3 Calculating Platform Capacity

d Find the number at the intersection of the weight row and the distance column on the chart to determine the adjusted weight:

Intersection of 150 lb. and 36"

Weight of Equipment (lbs)	Load Center (inches) (Distance from back toeboard to center of gravity of load)															
	36	48	60	72	84	96	108	120	132	144	156	168	180	192	204	216
50	67	69	71	73	75	77	79	81	83	85	87	89	91	93	95	97
75	100	103	106	109	112	115	118	121	124	127	130	133	136	139	142	145
100	133	136	139	142	145	148	151	154	157	160	163	166	169	172	175	178
125	167	172	177	181	185	189	193	197	201	205	209	213	217	221	225	229
150	200	206	211	216	221	225	230	234	238	242	246	250	254	258	262	266
175	233	241	248	255	262	269	275	281	287	293	299	305	311	317	323	329
200	267	275	283	291	299	307	315	323	331	339	347	355	363	371	379	387
225	300	309	318	327	336	345	354	363	372	381	390	399	408	417	426	435
250	333	344	354	364	374	384	394	404	414	424	434	444	454	464	474	484
275	367	378	389	400	411	422	433	444	455	466	477	488	499	510	521	532
300	400	413	426	439	452	465	478	491	504	517	530	543	556	569	582	595
325	433	447	461	475	489	503	517	531	545	559	573	587	601	615	629	643
350	467	481	496	511	526	541	556	571	586	601	616	631	646	661	676	691
375	500	516	532	548	564	580	596	612	628	644	660	676	692	708	724	740
400	533	550	567	584	601	618	635	652	669	686	703	720	737	754	771	788
425	567	584	601	618	635	652	669	686	703	720	737	754	771	788	805	822
450	600	619	637	655	673	691	709	727	745	763	781	799	817	835	853	871
475	633	653	672	691	710	729	748	767	786	805	824	843	862	881	900	919
500	667	688	708	728	748	768	788	808	828	848	868	888	908	928	948	968
525	700	722	744	766	788	810	832	854	876	898	920	942	964	986	1008	1030
550	733	756	779	802	825	848	871	894	917	940	963	986	1009	1032	1055	1078
575	767	791	814	837	860	883	906	929	952	975	998	1021	1044	1067	1090	1113
600	800	825	849	873	897	921	945	969	993	1017	1041	1065	1089	1113	1137	1161
625	833	859	884	909	934	959	984	1009	1034	1059	1084	1109	1134	1159	1184	1209
650	867	894	920	946	972	998	1024	1050	1076	1102	1128	1154	1180	1206	1232	1258
675	900	928	956	984	1012	1040	1068	1096	1124	1152	1180	1208	1236	1264	1292	1320
700	933	963	993	1023	1053	1083	1113	1143	1173	1203	1233	1263	1293	1323	1353	1383
725	967	997	1027	1057	1087	1117	1147	1177	1207	1237	1267	1297	1327	1357	1387	1417

NEXT 25

The intersection of our two numbers on the chart will give us the adjusted weight. The intersection of 150 pounds and 36 inches is 206 pounds of adjusted weight.

Slide 82 - Example 2.4

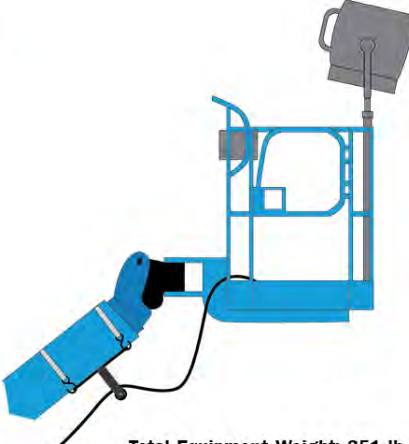
Scene 3 Calculating Platform Capacity

4 Add the Direct Weight and Adjusted Weight.

Direct Weight.....	145 lb.
Adjusted Weight.....	206 lb.
	351 lb. (Total)

The total reflects the increase in the load as it extends past the platform's CG. The equipment has the effect of weighing 65 more lb. than if it was in the platform.

The maximum capacity of the Genie S-60 is 1,000 lb. The remaining capacity will be 649 lb. (1,000 lb. – 351 lb.).



Total Equipment Weight: 351 lb.
Remaining Capacity: 649 lb.

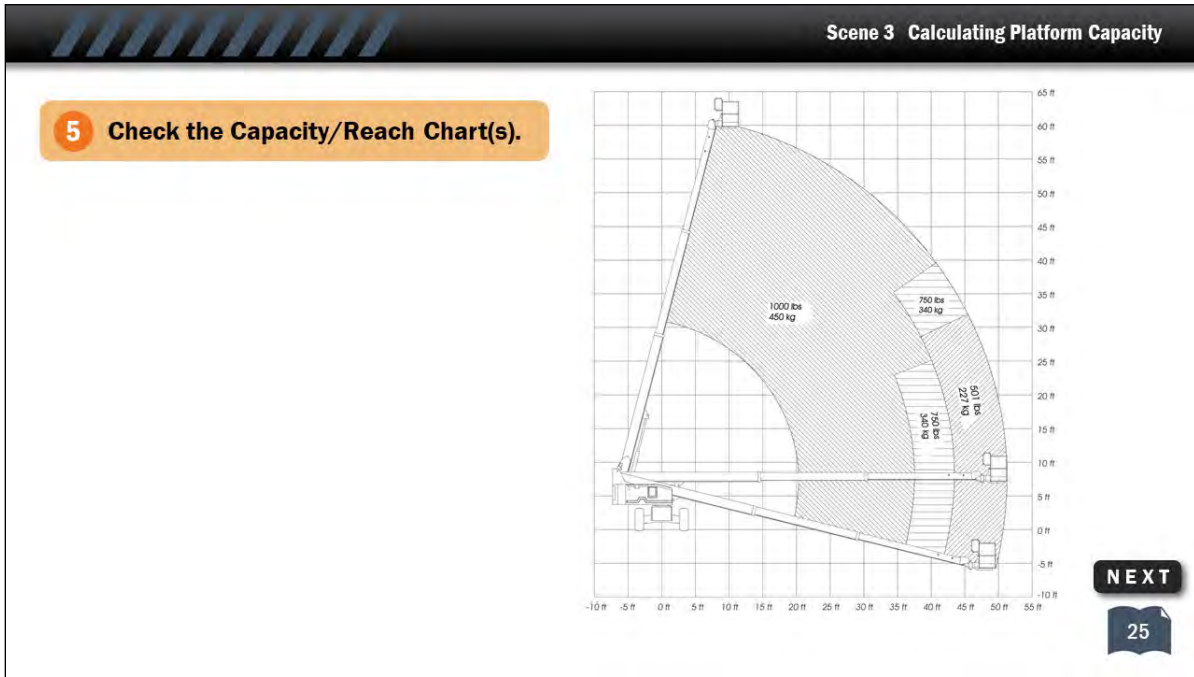
NEXT **25**

We're not quite finished.

To find the total weight of our equipment we'll need to combine our direct weight of 145 pounds, with our adjusted weight of 206 pounds, the total, 351 pounds, reflects the increase that the load places on the lift when it's attached beyond the platform, and has the effect of weighing 65 more pounds than if it was carried within the platform, and did not need to be adjusted. This total is also the amount by which the platform's capacity must be reduced.

The maximum capacity of the Genie S-60 is 1,000 pounds. Subtracting the total weight of 351 pounds, for the lamp and cables, leaves 649 pounds of remaining capacity for the lift.

Slide 83 - Example 2.5a



Here is Genie's capacity and reach chart for this lift's model and serial number. The chart shows that if you don't add any more equipment to the platform, your load of 351 pounds would be able to be positioned anywhere the platform will reach. If you add more equipment, the increase in weight may affect where you can position the platform.

The maximum load weight that can be carried in this lift is 1,000 pounds.

Slide 84 - Example 2.5b

Scene 3 Calculating Platform Capacity

5 Check the Capacity/Reach Chart(s).

Personnel in Genie Lifts
 For some approved models, when the weight of a load exceeds the machine's normal rated capacity, the procedures in the rigging manual apply to "material lifting applications only."

When attaching equipment to these lifts, no personnel can be in the platform when the adjusted weight is over 500 lb.

Check Genie's supplemental rigging manuals for details.

PLATFORM CAPACITY REDUCTION CHART

Weight of Equipment (lbs)	Load Center (inches) (Distance from back toeboard to center of gravity of load)															
	30	36	48	60	72	84	96	108	120	132	144	156				
50	67	69	81	94	106	119	131	144	156	169	181	194				
75	100	103	122	141	159	178	197	216	234	253	272	291				
100	133	138	163	188	213	238	263	288	313	338	363	388				
125	167	172	203	234	266	297	328	359	391	422	453	484				
150	200	206	244	281	319	356	394	431	469	506	544	581				
175	233	241	284	328	372	416	459	503	547	591	634	678				
200	267	275	325	375	425	475	525	575	625	675	725	775				
225	300	309	366	422	478	534	591	647	703	759	816	872				
250	333	344	406	469	531	594	656	719	781	844	906	969				
275	367	378	447	516	584	653	722	791	859	928	997					
300	400	413	488	563	638	713	788	863	938							
325	433	447	528	609	691	772	853	934								
350	467	481	569	656	744	831	919									
375	500	516	609	703	797	891	984									
400	533	550	650	750	850	950										
425	567	584	691	797	903											
450	600	619	731	844	956											
475	633	653	772	891												
500	667	688	813	938												
525	700	722	853	984												
550	733	756	894													
575	767	791	934													
600	800	825	975													
625	833	859														
650	867	894														
675	900	928														
700	933	963														
725	967	997														

= Material Lifting Applications Only

NEXT

26

Something to note about personnel in Genie lifts: Genie specifies that, for some approved models, when the weight of a load exceeds the machine's normal rated capacity, the procedures in the rigging manual apply to "material lifting applications only." In general, this means that when attaching equipment to these lifts, no personnel can be in the platform when the adjusted weight is over 500 pounds.

Check the supplemental manuals for details.

Slide 85 - Using Wind Speed Charts

Scene 3 Calculating Platform Capacity

Using Wind Speed Charts

Allowable Wind Speeds for Attached Movie Production Equipment			
Area of Attachments	Maximum Wind Speed (MPH)		
	Genie	JLG	Snorkel
4' x 4' (16 sq. ft.)	25 mph*	18-25 mph, depending on model	24 mph
6' x 6' (36 sq. ft.)	25 mph*	11-25 mph, depending on model	22 mph
8' x 8' (64 sq. ft.)	18-25 mph, depending on model	11-25 mph, depending on model	19 mph
12' x 12' (144 sq. ft.)	11-18 mph, depending on model	11-18 mph, depending on model	15 mph
20' x 20' (400 sq. ft.)	5-11 mph, depending on model	7-11 mph, depending on model	10 mph

*Higher allowable wind speeds may be listed in the rigging manual for some models—always use the industry wind speed limit of 25 mph.

NEXT

26

The large surface area of production equipment such as diffusion frames can increase wind resistance, creating a tip-over hazard. Refer to each manufacturer's supplemental rigging manual for the maximum allowable wind speed by size of attachment. If the lift is also approved for cribbing, refer also to the wind speed charts in the cribbing manual and follow the lowest wind speed indicated for that model.

Note that Safety Bulletin #22 does not allow lifts to be raised—with or without attached equipment—in winds exceeding 25 miles per hour.

Slide 86 - Knowledge Check 4

Scene 3 Knowledge Check 4

Let's Review

Calculate Equipment's Adjusted Weight

The diffusion equipment you've just installed on a boom lift weighs 192 lb., the distance to the equipment's CG is 70 in.

On the chart shown here, find the intersection of the equipment's weight and distance to the center of gravity to determine the **adjusted weight**.

Type your answer in the blank space below:


The intersection of 192 lb. and 70 in. is:

lb. (Adjusted Weight)

Submit **Clear**

Genie Platform Capacity Reduction Chart

Weight of Equipment (lbs.)	Load Center (inches) (Distance from back toeboard to center of gravity of load)															
	30	36	48	60	72	84	96	108	120	132	144	156				
50	67	69	81	94	106	119	131	144	156	169	181	194				
75	100	103	122	141	159	178	197	216	234	253	272	291				
100	133	138	163	188	213	238	263	288	313	338	363	388				
125	167	172	203	234	266	297	328	359	391	422	453	484				
150	200	206	244	281	319	356	394	431	469	506	544	581				
175	233	241	284	328	372	416	459	503	547	591	634	678				
200	267	275	325	375	425	475	525	575	625	675	725	775				
225	300	309	366	422	478	534	591	647	703	759	816	872				
250	333	344	406	469	531	594	656	719	781	844	906	969				
275	367	378	447	516	584	653	722	791	859	928	997					
300	400	413	488	563	638	713	788	863	938							
325	433	447	528	609	691	772	853	934								
350	467	481	569	656	744	831	919									
375	500	516	609	703	797	891	984									
400	533	550	650	750	850	950										
425	567	584	691	797	903											
450	600	619	731	844	956											
475	633	653	772	891												
500	667	688	813	938												
525	700	722	853	984												
550	733	756	894													
575	767	791	934													
600	800	825	975													
625	833	859														
650	867	894														
675	900	928														
700	933	963														
725	967	997														

 = Material Lifting Applications Only

Let's review.

Calculate equipment's adjusted weight. The diffusion equipment you've just installed on a boom lift weighs 192 pounds, and the distance to the equipment's center of gravity is 70 inches. On the chart shown here, find the intersection of the equipment's weight and distance to the center of gravity to determine the adjusted weight.


Slide 87 - Rigging a Boom Lift



This scene presents some general safety tips for rigging boom lifts.

There is no one way to properly rig equipment--for questions about specific procedures, check with a supervisor or your safety rep.

Slide 88 - General Safety 1



Scene 4 Rigging a Boom Lift

Rigging a Boom Lift: General Safety Considerations


- ▶ Calculate the adjusted weight of a load and the platform capacity reduction **before** attaching equipment to a lift
- ▶ Move the lift as close as possible to the location where it will be used. Do not block fire lanes, exits, doors, or stairs
- ▶ Attach equipment when the platform is in its lowest position—do not gain access to or exit the platform using the boom, rope, or a ladder

NEXT

27

Calculate the adjusted weight of a load and the platform capacity reduction, as described in Scene 3, **BEFORE** attaching equipment to a lift. Move the lift as close as possible to the location where it will be used. Do not block fire lanes, exits, doors, or stairs. Attach and adjust equipment when the platform is in its lowest position--do not gain access to or exit the platform using the boom, rope, or a ladder.

Slide 89 - General Safety 2



Scene 4 Rigging a Boom Lift

Rigging a Boom Lift: General Safety Considerations


- ▶ Limit the quantity and size of attached equipment by the surface area of the attachments and the maximum allowable wind speed
- ▶ Avoid contacting obstacles or power lines with the lift or its attachments
- ▶ Don't use boom lifts in tandem to raise or support equipment

NEXT

27

Even if meets the weight criteria for the lift, you may need to limit the quantity and size of equipment attached to the platform based on the surface area of the attachments and the maximum allowable wind speed. Avoid contacting outside obstacles or power lines with the lift or its attachments. Don't use boom lifts in tandem to raise or support equipment.

Slide 90 - Attaching Equipment 1



Scene 4 Rigging a Boom Lift

Rigging a Boom Lift: Attaching Equipment


- ▶ Inspect all equipment before rigging for damage or missing parts, and after rigging for secure connections
- ▶ Don't attach equipment to a fall protection anchor point
- ▶ Don't overtighten fasteners
- ▶ Don't drill, weld, or otherwise modify the platform or the guardrails without the manufacturer's authorization

NEXT

28

When rigging equipment, inspect all equipment before rigging for damage or missing parts, and after rigging for secure connections. Don't attach equipment to a fall protection anchor point. Don't overtighten fasteners, which may dent or damage guardrails. And, don't drill, weld, or otherwise modify the platform or the guardrails without the manufacturer's authorization.

Slide 91 - Attaching Equipment 2



Safety cable.

Scene 4 Rigging a Boom Lift

Rigging a Boom Lift: Attaching Equipment


- ▶ Use safety cables when necessary to prevent equipment from falling
- ▶ If personnel will be in the platform:
 - ▷ Don't block the platform entry gate, footswitch, control panel, fall protection anchor points, safety decals, or manual holder
 - ▷ Don't fasten equipment in any manner that blocks access to its switches or controls
 - ▷ Don't raise rigged equipment's switches or controls higher than the tallest occupant of the platform can reach

NEXT 28


Use safety cables when necessary to prevent equipment from falling off of the platform. If personnel will be working in the platform, don't block the platform entry gate, footswitch, control panel, fall protection anchor points, safety decals, or manual holder with equipment. Don't fasten equipment in any manner that blocks access to its switches or controls. And, don't raise equipment switches or controls higher than the tallest occupant in the platform can safely reach.

Slide 92 - Cable Management 1

Scene 4 Rigging a Boom Lift



Power cable running down the boom arm on rollers.



Cable roller with ratchet straps.

Rigging a Boom Lift: Cable Management

Cables must not restrict the platform or cause a side or vertical load. To do this:

- ▶ Extend the boom and run the cables through rollers, avoiding the power track
- ▶ Attach individual rollers with ratchet straps, keeping the ends of the straps away from moving parts
- ▶ Do not permanently attach cable rollers by drilling or welding to the boom arm


NEXT

29

When rigging equipment that requires power, the cables must not restrict the platform or cause a side or vertical load. This can be done by securing the cables to the boom arm. To do this, extend the boom horizontally and run the cables through rollers, avoiding the power track.

If the lift does not have pre-installed rollers, as shown in the top photo, attach individual rollers, such as those in the bottom photo, with ratchet straps, keeping the ends of the straps away from moving parts. Do not permanently attach cable rollers by drilling or welding to the boom arm.

Slide 93 - Cable Management 2



Leave slack in the cable between the platform and the first cable roller on the boom arm.

Scene 4 Rigging a Boom Lift


Rigging a Boom Lift: Cable Management

- ▶ Leave enough slack to allow for the extension of the boom and the movement of the platform
- ▶ Secure the cable on the ground so that it cannot be stretched, pinched, cut, snagged, or become unplugged
- ▶ Roll unused cable neatly in the platform, and tie it off to the guardrails
- ▶ Extend and retract the boom arm to check the cable **before** powering up any equipment

29

Leave enough slack in the cable between rollers and between the platform and the first cable roller to allow for the extension of the boom and the movement of the platform. Secure the cable on the ground so that it cannot be stretched, pinched, cut, snagged, or become unplugged. Roll unused cable neatly in the platform, and tie it off to the guardrails, away from the operator. Extend and retract the boom arm to check the cable **BEFORE** powering equipment.

Slide 94 - Moving While Rigged 1



Scene 4 Rigging a Boom Lift

Moving the Boom Lift While Rigged


If the lift must be moved, be sure that:

- ▶ All of the equipment is securely fastened to the platform
- ▶ The cable is unplugged from the power source
- ▶ The driver follows all of the normal safety procedures for operating the lift
- ▶ There is a clear route of travel, including the area above the lift—use a spotter if necessary

NEXT 30

Once equipment has been attached to a boom lift, it's preferable not to move the machine. However, if the lift must be moved, be sure that: all of the equipment is securely fastened to the platform, the cable is unplugged from the power source, the driver follows all of the normal safety procedures for operating the lift, and, there is a clear route of travel, including the area above the lift—use a spotter if necessary.

Slide 95 - Moving While Rigged 2



Scene 4 Rigging a Boom Lift

Moving the Boom Lift While Rigged

The machine may need to be de-rigged if:

- ▶ The driver cannot access the platform through the entry gate
- ▶ There is no room for the driver on the platform
- ▶ The driver cannot access the platform controls
- ▶ The weight of the driver exceeds the allowable weight limit for the platform and attached equipment
- ▶ The machine cannot be safely moved without the attached equipment causing a safety hazard









NEXT 30

The machine may need to have some of its equipment de-rigged if: the driver cannot access the platform through the entry gate, there is no room for the driver on the platform, the driver cannot access the platform controls, the weight of the driver exceeds the allowable weight limit for the platform and the attached equipment, or, if the machine cannot be moved without the attached equipment causing a safety hazard.

Slide 96 - Equipment Examples

Scene 4 Rigging a Boom Lift

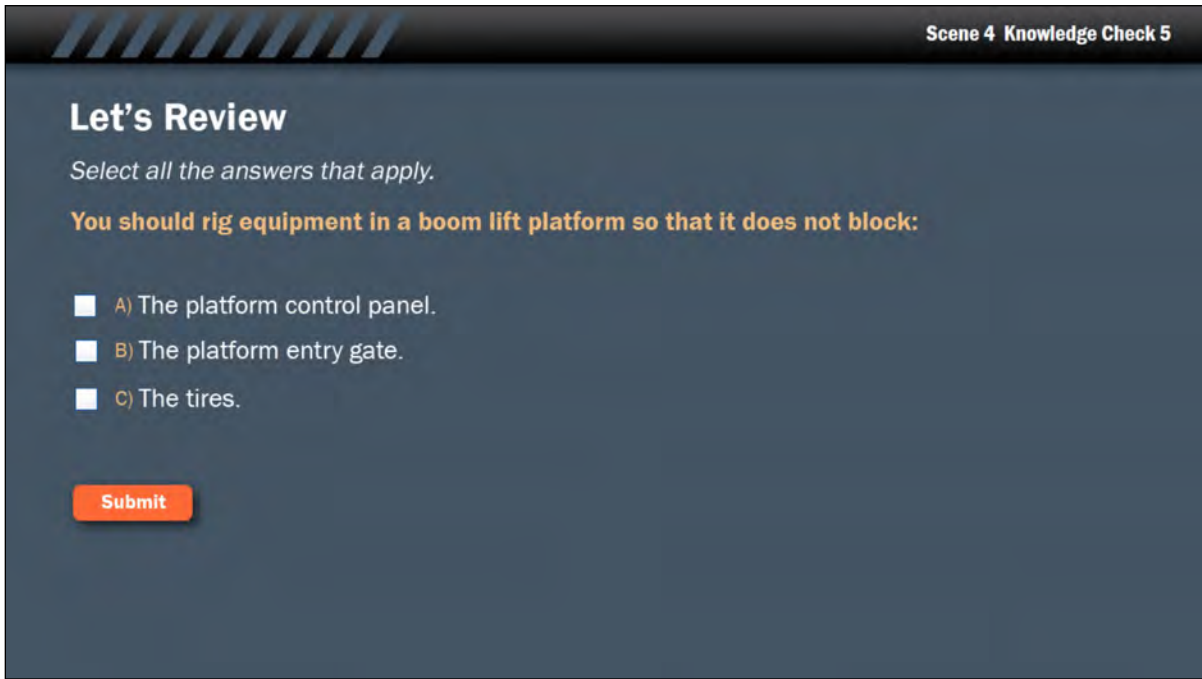
Examples of Lift Rigging Equipment

Swivel Clamps 	Ratchet Straps 	Candlesticks with Clamps 	Condor Mount 
Rope 	Safety Cable with Shackle 	Cup Blocks 	Span Set 

NEXT
30

Here are some common examples of equipment used to attach motion picture equipment to boom lifts.

Slide 97 - Knowledge Check 5



The screenshot shows a presentation slide with a dark blue background. At the top right, it says 'Scene 4 Knowledge Check 5'. The main heading is 'Let's Review'. Below it, the instruction reads 'Select all the answers that apply.' The question is 'You should rig equipment in a boom lift platform so that it does not block:'. There are three multiple-choice options, each with a checkbox: 'A) The platform control panel.', 'B) The platform entry gate.', and 'C) The tires.'. At the bottom left, there is an orange 'Submit' button.

Scene 4 Knowledge Check 5

Let's Review

Select all the answers that apply.

You should rig equipment in a boom lift platform so that it does not block:

- ☐ A) The platform control panel.
- ☐ B) The platform entry gate.
- ☐ C) The tires.

Submit

Let's review. Select all the answers that apply.

You should rig equipment in a boom lift platform so that it does not block:


- (A) the platform control panel,
- (B) the platform entry gate, or
- (C) the tires.

Slide 98 - Rigging a Scissor Lift



This scene covers general rigging procedures for scissor lifts.

Slide 99 - Restrictions



Scene 5 Rigging a Scissor Lift

Scissor lifts are not covered by the industry exception for rigging.

Rigging a Scissor Lift: Restrictions

Scissor lifts are NOT covered by the exception given by Genie, JLG, and Snorkel in their rigging manuals.

- ▶ Follow the lift's regular operator's manual for load handling procedures
- ▶ All camera, lighting, and grip equipment must fit within the confines of the platform
- ▶ Don't rig equipment onto the guardrails or beyond the platform without written permission from the manufacturer


NEXT

31

It is very important to know that scissor lifts are NOT covered by the industry exception for rigging given by Genie, JLG, and Snorkel in their supplemental rigging manuals. Instead, follow the lift's regular operator's manual for load handling procedures. All camera, lighting, and grip equipment must fit within the confines of the platform.

We'll talk about cables in a moment. Don't rig equipment onto the guardrails or beyond the platform without written permission from the manufacturer.

Slide 100 - General Procedures 1

A blue scissor lift is shown with a studio light rig attached to its platform. The rig consists of a blue light fixture mounted on a silver metal stand. The lift is positioned on a wooden floor against a grey wall.

Scene 5 Rigging a Scissor Lift

Rigging a Scissor Lift: General Procedures

- ▶ Move the lift as close as possible to the location where it will be used
- ▶ Inspect all equipment before rigging for damage or missing parts, and after rigging for secure connections
- ▶ Secure and adjust equipment when the platform is in its lowest position
- ▶ Place equipment so that the load is spread evenly on the platform
- ▶ Don't overload the platform

NEXT 32

Move the lift as close as possible to the location where it will be used.

Do not block fire lanes, exits, doors, or stairs at any time.

Inspect all equipment before rigging for damage or missing parts, and after rigging for secure connections.


Secure and adjust equipment when the platform is in its lowest position.

Do not gain access to or exit the platform using the scissor arms.

If possible, place equipment so that the load is spread evenly on the platform.

Don't overload the platform--check the operator's manual or machine decals for maximum load limits and remember to account for personnel weight.

Slide 101 - General Procedures 2



Scene 5 Rigging a Scissor Lift

Rigging a Scissor Lift: General Procedures

- ▶ Get assistance when lifting heavy equipment onto the platform
- ▶ Secure all materials to prevent them from falling inside or out of the platform—watch for trip hazards
- ▶ If personnel will be in the platform:
 - ▷ Don't block the platform entry gate, footswitch, control panel, fall protection anchor points, safety decals, or manual holder
 - ▷ Don't block access to the rigged equipment's switches or controls or raise them higher than the tallest occupant of the platform can reach

NEXT 32


Get assistance or use mechanical means, such as a crank stand, when lifting heavy equipment onto the platform.

Secure all materials to prevent them from falling inside or out of the platform and watch for trip hazards when using straps to secure equipment to the platform.

If personnel will be working in the platform, don't block the platform entry gate, footswitch, control panel, fall protection anchor points, safety decals, or manual holder with equipment.

And, don't fasten equipment in any manner that blocks access to its switches or controls or that raises the switches or controls higher than the tallest occupant in the platform can safely reach.

Slide 102 - General Procedures 3




Check with your safety rep regarding policies for the use of items with large surface areas (such as diffusion screens) in scissor lifts.

Scene 5 Rigging a Scissor Lift

Rigging a Scissor Lift: General Procedures

- ▶ Don't increase the wind area of the lift by covering the sides of the platform or by carrying items with large surface areas
- ▶ Before raising the platform, check overhead clearance (including equipment)
- ▶ Don't use scissor lifts in tandem to raise or support equipment


NEXT 

Don't increase the wind area of the lift by covering the sides of the platform or by carrying items with large surface areas. Check with your safety rep regarding policies for the use of items with large surface areas (such as diffusion screens) in scissor lifts.

Before raising the platform, check your overhead clearance, including the height of your equipment.

And, don't use scissor lifts in tandem to raise or support equipment.

Slide 103 - Cable Management 1



Scene 5 Rigging a Scissor Lift

Rigging a Scissor Lift: Cable Management


- ▶ The total weight of the cable extending from the platform to the ground **cannot** exceed the manufacturer's side force restrictions—check the operator's manual or machine decals for limits
- ▶ Run and secure all cables so that they cannot be pinched, stretched, cut, snagged, or become unplugged
- ▶ Leave enough slack in the cable to allow for raising the platform or moving the lift

NEXT 33

Power cables may extend over the platform of a scissor lift, if these procedures are followed. Most importantly, the total weight of the cable that extends from the platform to the ground CANNOT exceed the manufacturer's side force restrictions, or it could cause a tip-over from a side load. Check the operator's manual for these limits.

Second, all cables should be run and secured in a way that they cannot be pinched, stretched, cut, snagged, run over, or become unplugged. This will include leaving enough slack in the cable to allow for raising the platform or moving the lift if necessary.

Slide 104 - Cable Management 2



Scene 5 Rigging a Scissor Lift

Rigging a Scissor Lift: Cable Management

- ▶ Hang cable over the **narrow** end of the platform and secure it to the guardrails
- ▶ Raise and lower the platform to check the cable length **before** powering equipment
- ▶ Roll unused cable in the platform in an area that will not create a trip hazard for the operator or interfere with the operation of the lift


NEXT 33

Hang cable over the NARROW end of the platform and secure it to the guardrails.

Raise and lower the platform slowly to check the length of the cable BEFORE you power the equipment.

Roll any unused cable neatly in an area of the platform that will not create a trip hazard for the operator or interfere with the operation of the lift.

Slide 105 - Moving While Rigged 1



If you do not have a clear view of the work zone, use a ground spotter.

Scene 5 Rigging a Scissor Lift

Moving the Scissor Lift While Rigged


If the lift must be moved, be sure that:

- ▶ All of the equipment is secured to the platform
- ▶ Cables are unplugged from the power source
- ▶ There is a clear route of travel, including the area above the lift
- ▶ The driver follows all of the normal safety procedures for operating the lift

NEXT 34

Once a scissor lift has been rigged with equipment and cables, it is preferable not to move the machine. If the lift must be moved, be sure that all of the equipment is securely fastened to the platform, that power cables are unplugged from the power source, that there is a clear route of travel, including the area above the lift, and that the driver follows all of the normal safety procedures for operating the lift.

Slide 106 - Moving While Rigged 2



Scene 5 Rigging a Scissor Lift

Moving the Scissor Lift While Rigged

The machine may need to have some of its equipment de-rigged if:

- ▶ There is no room for the driver on the platform
- ▶ The driver cannot access the platform controls
- ▶ The weight of the driver exceeds the allowable weight limit for the platform and its equipment
- ▶ The machine cannot be moved without the rigged equipment causing a safety hazard

NEXT

34

The machine may need to have some of its equipment de-rigged if:

the lift needs to be moved, but there is no room for the driver on the platform;

the driver cannot access the platform controls;

the weight of the driver exceeds the allowable weight limit for the platform and attached equipment; or

the machine cannot be moved without the rigged equipment causing a safety hazard.

Slide 107 - Knowledge Check 6

The image shows a digital interface for a knowledge check. At the top, there is a dark header bar with a series of white diagonal slashes on the left and the text "Scene 5 Knowledge Check 6" on the right. Below the header, the main content area has a dark blue background. The title "Let's Review" is displayed in white. Underneath, the text "True or False." is shown in a smaller white font. The question, "Scissor lifts are not covered under the industry exception given by Genie, JLG, and Snorkel in their supplemental manuals.", is written in orange. Below the question, there are two radio button options: "True" and "False", both in white. At the bottom left of the content area, there is an orange rectangular button with the word "Submit" in white.

Scene 5 Knowledge Check 6

Let's Review

True or False.

Scissor lifts are not covered under the industry exception given by Genie, JLG, and Snorkel in their supplemental manuals.

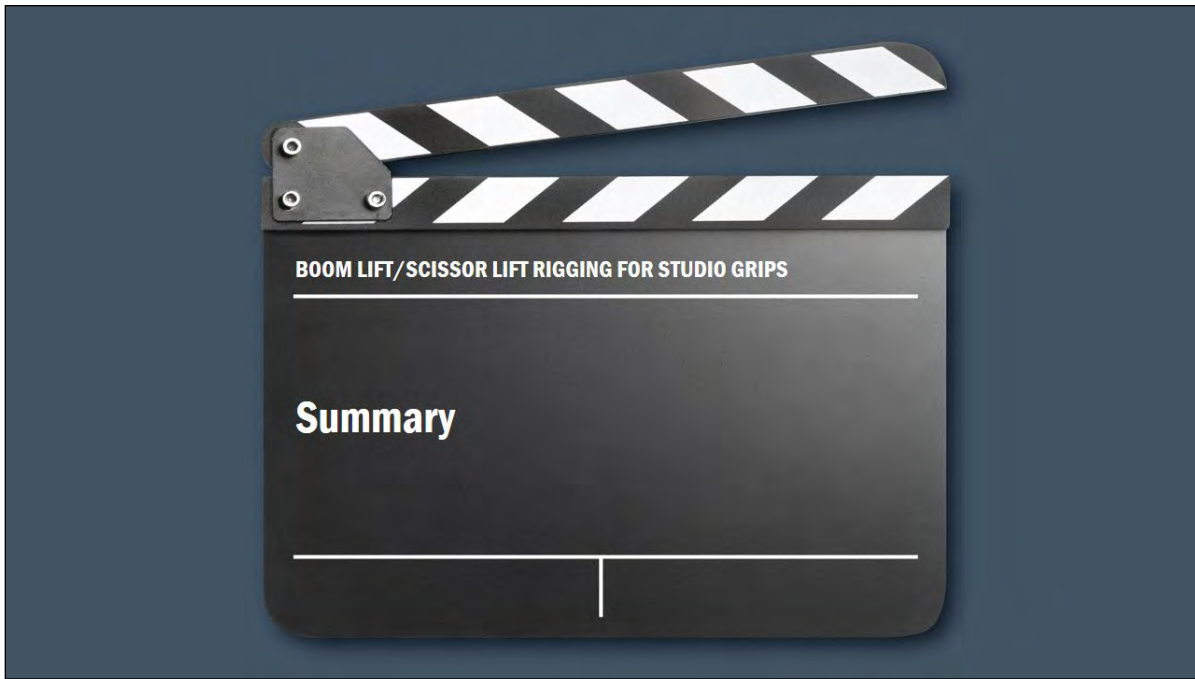
- ☐ True
- ☐ False

Submit

Let's review.


True or false. Scissor lifts are not covered under the industry exception given by Genie, JLG, and Snorkel in their supplemental manuals.

Slide 114 - Conclusion



Let's wrap up what we've learned about rigging boom lifts and scissor lifts today.

Slide 115 - When Rigging...



Summary


Any time you are rigging a lift with camera, lighting, or diffusion equipment:

- ▶ Be sure that the lift model you are using is approved for rigging
- ▶ Use the correct manual(s) for the lift in use
- ▶ Know the lift's load and reach limitations
- ▶ Know the weight of the equipment being rigged
- ▶ Adjust the load on a boom lift according to the manufacturers' supplemental manuals
- ▶ Account for wind speed
- ▶ Practice basic lift safety as well as rigging safety

NEXT 35

Any time you are rigging a lift with camera, lighting, or diffusion equipment: be sure that the lift model you are using is approved for rigging, use the correct manual--or manuals--for the lift in use, know the lift's load and reach limitations. Know the weight of the equipment being rigged, and if using a boom lift, adjust the load according to the instructions in the manufacturers' supplemental manuals. Be sure you account for wind speed, and always practice basic lift safety as well as rigging safety.

Slide 116 - S.A.F.E.

Summary

Remember...

- S**can your work site
to identify and correct potential safety hazards
- A**ssess tools and equipment
to make sure they work properly
- F**ind out
about the job and location
- E**nsure you and others
are trained to do the task assigned

Remember...

Scan your work site to identify and correct potential safety hazards.

Assess tools and equipment to make sure they work properly.

Find out more about the job and the location.

And, **ensure** you and others are trained to do the task assigned.



Industry Safety Resources

Safety Bulletins

Safety bulletins are researched, written, and distributed by the Industry Wide Labor-Management Safety Committee for use by the motion picture and television industry. The Industry Wide Labor-Management Safety Committee is composed of guild, union, and management representatives active in industry safety and health programs.

These safety bulletins are guidelines recommended by the safety committee. They are not binding laws or regulations. State, federal, and/or local regulations, where applicable, override these guidelines. Modifications in these guidelines should be made, as circumstances warrant, to ensure the safety of the cast and crew.

The committee and these safety bulletins are representative of the commitment of both labor and management to safe practices in the motion picture and television industry. The members of the committee and all those who contributed to its work have devoted a great deal of time and effort to these guidelines because of the importance of safety to our industry.

Current safety bulletins are available on the CSATF website:

<https://www.csatf.org/production-affairs-safety/safety-bulletins/>

24-Hour Industry Safety Hotline

The 24-hour industry safety hotline number directs callers to an automated system that will assist them in reaching the desired Studio Safety Hotline.

888-7-SAFELY

A list of the Studio Safety Hotlines can also be found on the CSATF website:

<https://www.csatf.org/production-affairs-safety/studio-safety-hotlines/>

**Safety is
everyone's
responsibility.**