DEVELOPMENT PROGRAM 500

EQUIPMENT UPKEEP

Developer Guide

Contents

EQUIPMENT UPKEEP OVERVIEW-500

Welcome

Welcome to the Equipment Upkeep Development Program. This program aims to teach you about more car wash equipment and how to perform minor upkeep and maintenance tasks.

Program Overview

The program will start by reviewing ancillary and more complex equipment used to operate the car wash and how to perform various maintenance tasks on those components. Once you understand the individual maintenance tasks, you will learn how to complete the weekly PM checklist and its tasks and how to troubleshoot any issues discovered during the weekly PM process. Finally, you will learn how to safely use a come-along and remove a link from the chain.

Notes and Questions

As you review each development program module, please follow along and take notes. Taking notes will help you remember any key points or questions you want to discuss. Once you have completed each module, you can review the information and your questions with the manager.

Quiz

Once you have finished watching the module, there will be a quiz to review the information. A score of 100% must be achieved to pass each quiz. If you do not pass the quiz on your first attempt, retry the quiz. If you do not pass on your second attempt, locate a manager. Your manager will review the module with you and address any questions you may have. Once you have passed the quiz, exit the module and locate a manager to proceed to the Demonstration for this module. Your manager will then review the information and any questions you may have.

ADVANCED EQUIPMENT KNOWLEDGE-501

Welcome

Welcome to the Advanced Equipment Knowledge Module. In this module, you will expand on the equipment knowledge you gained in the Team Leader 1 Development Program. In the Equipment Knowledge modules, you learned about the core equipment of the tunnel and equipment room. Now, you will learn about the ancillary components of that equipment as well as other equipment used to produce many of the equipment functions.

Notes and Questions

As you go through the module, please follow along and take notes as you go. Taking notes will help you remember any key points or questions that you would like to discuss. Once you have completed each section and completed your quiz, you can review the information and your questions with a manager.

Quiz

Once you have finished watching the module, there will be a quiz to review the information in the module. A score of 100% must be achieved to pass each quiz. If you do not pass the quiz on your first attempt, retry the quiz. If you do not pass on your second attempt, locate a manager. Your manager will review the module with you and address any questions you may have. Once you have passed the quiz, exit the module and locate a manager to proceed to the Demonstration for this module. Your manager will then review the information and any questions you may have.

Why

We want everyone in our stores to understand the equipment they are working with daily. The purpose of being knowledgeable about the equipment used in the car wash tunnel is to ensure effective communication with your team about any observed issues and familiarity with how each piece should function. Solid knowledge of the equipment lays the groundwork for later when you begin helping to maintain, troubleshoot and repair equipment.

What

The following are the items you will need to become knowledgeable about the equipment in the tunnel:

List of Additional and Ancillary Equipment Used in the Tunnel and Equipment Room

You will receive this list at the completion of this module to allow you to review and study the information.

Educate

In each of our car wash tunnels, we use several different pieces of equipment, and each one serves an essential purpose. The equipment package varies from wash to wash, and your location may not have everything discussed in this module, but your manager will review the equipment at your site. Now, let’s review the additional and ancillary pieces of equipment, starting in the tunnel.

Air Cylinders

Air cylinders are one of the most used pieces of equipment in the car wash tunnel, with much of the equipment relying on them to function correctly. Air cylinders function by using air to extend and retract the arm. The arm extends as air enters the cylinder, and as air is released, the arm retracts. As we review each piece of tunnel equipment, we will point out the pieces that utilize air cylinders.

Shocks

Like air cylinders, shocks are commonly used and found on multiple pieces of equipment in the tunnel. Depending on the piece of equipment, shocks are used to hold tension on a pivot arm or to help the equipment move smoothly back to its home position. As we review each piece of tunnel equipment, we will point out the pieces that utilize shocks.

Bearings

Rotational bearings attach to the equipment's shaft and rotate 360 degrees as the equipment spins. On the other hand, pivotal bearings do not make full rotations and have varying degrees of movement. Pivotal bearings are attached to a pivot arm and allow equipment to move toward, around and away from vehicles.

Applicators

In addition to the foam generator and CTA you've already learned about, three other applicators are used in our tunnels.

K-nozzle

K-nozzles dispense a light foamy product onto the vehicles in a V-pattern. The angle of the nozzle will vary depending on the product being dispensed.

Max Foamer

The max foamer dispenses products applied to the vehicle from the top of the arch on which it is mounted.

Banana Foamer

Banana foamers feature a curved tube that dispenses product through a series of holes in one side of the tube.

Motors

Throughout the tunnel, many pieces of equipment are powered by motors that rotate them. These motors can be either hydraulic or electric, but they both serve the same purpose.

Hydraulic

Hydraulic motors are powered by hydraulic oil flowing in and out. The hydraulic fluid is sent from a power pack in the equipment room to the motor in the tunnel and back again. This fluid cycling causes the motor to move and the attached equipment to spin.

Electric

Electric motors are powered by electricity and individually power the equipment on which they are mounted.

Conveyor

The conveyor is the workhorse of the car wash, and it is the most critical piece of equipment in the tunnel. The conveyor is responsible for moving vehicles through the tunnel and can move several full-sized vehicles simultaneously. When referring to the conveyor, multiple components make up the piece of equipment, and each piece is important to the overall functionality of the conveyor. In Module 204, Equipment Knowledge-Tunnel, you learned about the basic components of the conveyor, the chain and rollers and the take-up and drive sections. Now, let's review some of the additional components of the conveyor.

Chain & Rollers

The chain is a series of interlocking links that travel the length of the conveyor in a loop, and the rollers are intertwined with the chain. The rollers sit behind the rear tire and move with the chain to push vehicles through the tunnel. At our locations, we have various types of chains and rollers, but regardless of type, they all serve the same purpose and function.

Conveyor Decks

The conveyor decks refer to the surfaces that the rollers move along as they go through the tunnel. The top deck is the deck rollers travel on when moving a vehicle. When the rollers are moving from the entrance to the exit of the tunnel, but they aren't behind the tire moving the vehicle, they are on the middle deck. When rollers on the top or middle deck reach the tunnel exit, they change direction and move along the bottom deck.

Take-up Section

The take-up section is at the tunnel entrance right after the correlators. It consists of the take-up drum, roller-up forks, shocks and an air cylinder.

Take-up Drum

The take-up drum is a free-spinning wheel that allows rollers to move from the bottom deck to the middle deck and back towards the tunnel exit.

Roller-up Forks

The roller-up forks sit just before the conveyor decks start and move rollers to the upper deck. When the back tire crosses the tire switch, a signal is sent to activate the air cylinder, which moves the forks into position. After the appropriate rollers have been moved to the top deck, the air cylinder disengages and the fork returns to their home position. When not engaged, the forks will lay flat, allowing rollers to move freely to the middle deck.

Drive Section

The drive section is the last part of the conveyor and is located at the exit end. It consists of the sprocket, HECO drive and, depending on your location, the pulse switch.

HECO Drive

The HECO drive is a gear reducer that allows the hydraulic or electric motor to attach to the sprocket.

Sprocket

The sprocket is like a gear with teeth that grip chain links as the motor turns. The sprocket style and configuration will differ based on the chain style, but the function remains unchanged. The sprocket holds onto the chain and moves it from the top or middle deck to the bottom and back toward the tunnel entrance.

Pulse Switch

The pulse switch calculates the conveyor's distance traveled. Attached to the sprocket or located in the equipment room, it measures the time the photo eyes are broken as the vehicle enters the tunnel. The appropriate timing for device operation on that vehicle can be configured from that data.

Blowers

As you already know. the blowers are used to dry the vehicle and are powered by individual motors that allow blowers to function independently of one another. Additionally, some blowers will have additional components.

Blower Gates

When blowers turn on and off, the initial ramp-up takes an incredible amount of electricity and can stress the blower motors unnecessarily. To help reduce the electricity needed and stress on the motors, the blower gates allow the motors to start unloading. In other words, air isn’t flowing through the blowers as they start, which leads to less strain on the motor. Once the vehicle reaches the appropriate point in the tunnel, the blower gate will open and allow the full flow of air through the blower.

Mufflers

Mufflers dampen the sound produced by the blowers. When activated, the blowers generate over 90 decibels of sound, and reducing the sound emitted by the blowers is necessary at some locations, especially those near residential areas.

Motor Control Center (MCC)

Motor Starters

A motor starter turns a motor ON or OFF in an instant. When engaged, the motor starter activates the motor and immediately stops the motor when disengaged.

Variable Frequency Drive (VFD)

A variable frequency drive, or VFD, is used to help regulate the flow of electricity to a motor. By regulating the flow of electricity, the speed of the equipment can be maintained. VFDs also allow for

the ramp-up of a motor. Unlike a motor starter, with a VFD, you can control the rate at which a motor reaches maximum power, which helps prolong the motor's life.

Solenoid

Solenoids are used to control the flow of water or air. Controlled by a relay in the TC, solenoids activate to engage water and airflow. Solenoids are used for chemical pumps, low-pressure water applications, and air functions.

Water Manifold

The water manifold controls the flow of all low-pressure water in the tunnel. For example, all the rinse applications dispensed via rain bars use low-pressure water. Another example would be the water used to help lubricate the brushes and mitters. The water manifold uses a ball valve and solenoid to control the flow of the water. The ball valve dictates how much water flows. By adjusting the ball valve, the amount of water flowing increases or decreases. The solenoid dictates when the water flows. When the relay on the TC activates, the solenoid receives the signal and allows the water to flow.

Chemical Pumps

For water-driven pumps, a solenoid opens and activates the water flow to the pump. As the water flows, the chemical draws from its container and mixes. We utilize two types of water-driven chemical pumps. Let’s review each type and its components.

Chemical Mixing Station

A chemical mixing station comprises four main components: a hydrominder, float, holding tank and flojet pump. The holding tank contains the solution produced when water and chemicals are mixed and added to the tank. The hydrominder is used to control when the flow of water and chemical into the holding tank occurs. Attached to the hydrominder is a float that determines when the hydrominder engages. As the solution level in the tank drops, so does the float. When the solution level reaches the minimum threshold, the float causes the hydrominder to engage. When engaged, water flows, which draws the chemical to produce the solution. The solution is then sent to the tunnel using a Flojet pump, which draws the chemical solution into the pump and then out to the tunnel.

Chemical Injection Panel

The chemical injection panel is another water-driven pump that utilizes an air solenoid, a water solenoid and a centralized water source to create and dispense chemical solutions. With a chemical injection panel, the chemical is drawn, mixed with water and sent to the tunnel simultaneously. The panel is also used to send air to the foam generators in the tunnel to assist with foaming products before application.

When the relay dictates, the air solenoid engages and sends air through a line to a T-connector. One airline will go through the air regulator and out to the foam generator. Adjusting the regulator adjusts the amount of air going to the foam generator, which then adjusts the foaminess of a product. The regulator will be capped if a product doesn’t utilize a foam generator in the tunnel. The other airline on the T-connector goes to the water solenoid. Once the air reaches the water solenoid, it engages and allows water to flow. As the water flows, it passes through an injector where the chemical is combined with the water after being drawn through the metering tip.

Booster Pump

Like the high-pressure pump, booster pumps increase the pressure of the water coming into it. However, booster pumps do not generate high-pressure water; they regulate water pressure and ensure it stays constant.

The water running through our chemical dispensers must be maintained at a specific pressure to dispense and apply products to vehicles properly. The pressure of the water entering the building will fluctuate each day. The booster pump takes that water, boosts the pressure to the appropriate level, and ensures the pressure remains constant. Depending on location, the booster pumps may be fed from an above-ground tank, below-ground tank or directly from the city water source.

Air Manifold

The air manifold controls the air cylinders in the tunnel. It comprises a series of valves that connect to a specific piece of equipment. The air pressure for each piece is also regulated in the air manifold.

Air Dryer

As the compressor generates compressed air, the air is at a higher temperature than the inside of the holding tank. As the compressed air enters the tank, the temperature difference creates condensation, which builds up in the tank. This condensation then gets into the airlines and can cause equipment issues. The air dryer removes the moisture in compressed air to prevent these issues.

Reclaim

At some of our locations, we utilize a reclaim unit. The reclaim unit recaptures water used in the wash process, filters it, and reuses it in the tunnel. Once the water leaves the tunnel, it goes through a series of settling tanks that remove large debris and materials from the water. The water then goes through a final filtration in the reclaim unit before being used in the tunnel. Typically, reclaimed water is used for high-pressure rinses and wheel blasters, among other things.

Advanced Equipment Knowledge Quiz

Once the employee has completed the module, they must complete the quiz. To pass the quiz, the employee must score 100%. If the employee does not pass their first attempt, they must take the quiz again. If they do not pass on their second attempt, you will need to review the quiz and answers with them before they attempt it again.

1. Which of the following is a type of motor used in the car wash tunnel? (Check all that apply)
   - **a. Hydraulic**
   - b. Water-powered
   - **c. Electric**
   - d. Solar-powered
2. Which of the following are types of Applicators? (Check all that apply)
   - **a. K-nozzle**
   - b. J-sprayer
   - **c. Max Foamer**
   - **d. Banana Foamer**
3. The Tunnel Controller is used to control the _____ of equipment function.
   - a. Speed
   - b. Power
   - **c. Timing**
   - d. All the above
4. On a water manifold, the _____ dictates when the water flows and the _____ dictates how much water flows.
   - a. Ball valve; solenoid
   - **b. Solenoid; ball valve**
   - c. Solenoid; relay
   - d. Conveyor; ball valve
5. The MCC may contain motor starters or VFD's, but the MCC never contains both.
   - a. True
   - **b. False**
6. Match the following equipment with its description.

Top Deck	The deck that rollers travel on when they are moving a vehicle.
Middle Deck	The deck that rollers travel on from the entrance to the exit of the tunnel when they aren't moving the vehicle.
Bottom Deck	The deck that rollers travel on from the exit to the entrance of the tunnel

7. Match the following equipment with its description.

Take-up Drum	A free-spinning wheel that allows rollers to move from the bottom deck to the middle deck.
Roller-up Forks	Sit just before the conveyor decks start and move rollers to the upper deck.
Sprocket	A gear with teeth that grip chain links as the motor turns.

HECO Drive A gear reducer that allows the hydraulic or electric motor to attach to the sprocket.

8. Match the following equipment with its description.

Air Dryer Used to remove the moisture in compressed air.

Air Manifold Used to control the air cylinders in the tunnel.

9. Match the following equipment with its description.

Booster Pump Used to regulate water pressure and ensure the pressure stays constant.

Air-driven Pumps Function by drawing water and chemical into a small, self-contained holding tank, then pumping the solution to the tunnel.

Water-driven Pumps Functions when water flow is activated, and the water flow is used to draw the chemical from its container.

Solenoids Used to control the flow of water to individual pieces of equipment.

10. Match the following equipment with its description.

Shocks Used to hold tension on a pivot arm or to help equipment move smoothly back to its home position.

Air Cylinders Function by using air to extend and retract the arm.

Rotational Bearings Attach to the equipment’s shaft and rotate 360 degrees as the equipment spins.

Pivotal Bearings Attached to a pivot arm and have varying degrees of movement.

Advanced Equipment Knowledge Demonstration

During the Demonstration, it is important that you do not stop to answer questions or provide additional information. The goal is for the employee to see the process performed in as close to a real-life scenario as possible. This uninterrupted performance will help to connect the steps or information that was learned. We will answer all questions and address any issues after the Demonstration.

Once the team member has passed the quiz, ask if they have any questions and provide the answers. Then, go to the tunnel and equipment room to show the team member where each piece of equipment is located.** As you go, point out each piece of equipment and answer any additional questions that the team member has about each one.

Once all team member questions have been answered, give the team member their copy of **Advanced Equipment Knowledge Handouts 1& 2** to review and study. Then, instruct the team member to study the handouts and be prepared to explain each piece of equipment.

**Depending on location, equipment may be in multiple places and/or rooms. In these situations, ensure the team member also knows the exact locations of each piece of equipment.

Advanced Equipment Knowledge Perform & Coach

During Perform & Coach, it is important that you do not stop to answer questions and shouldn't stop the team member to provide additional information. The goal is for team members to complete the process. Coaching will be provided upon completion.

Have the team member take you through the tunnel and equipment room to identify where each piece of equipment is. They will also need to be able to explain the purpose and function of each piece of equipment. Initially, the team members can use their handouts during the performance, but sign-off can only be achieved when they can go through the process without assistance. After each performance, provide feedback and coaching utilizing the Coaching Model. Repeat the process until the team leader can sufficiently identify and answer questions about the equipment.

Advanced Equipment Knowledge Handout 1-Tunnel

Air Cylinders

Air cylinders are one of the most used pieces of equipment in the car wash tunnel, with much of the equipment relying on them to function correctly. Air cylinders function by using air to extend and retract the arm. The arm extends as air enters the cylinder, and as air is released, the arm retracts. As we review each piece of tunnel equipment, we will point out the pieces that utilize air cylinders.

Shocks

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Applicators

In addition to the foam generator and CTA you've already learned about, three other applicators are used in our tunnels.

K-nozzle

K-nozzles dispense a light foamy product onto the vehicles in a V-pattern. The angle of the nozzle will vary depending on the product being dispensed.

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appropriate point in the tunnel, the blower gate will open and allow the full flow of air through the blower.

Mufflers

Mufflers dampen the sound produced by the blowers. When activated, the blowers generate over 90 decibels of sound, and reducing the sound emitted by the blowers is necessary at some locations, especially those near residential areas.

Advanced Equipment Knowledge Handout 2-Equipment Room

Motor Control Center (MCC)

Motor Starters

A motor starter turns a motor ON or OFF in an instant. When engaged, the motor starter activates the motor and immediately stops the motor when disengaged.

Variable Frequency Drive (VFD)

A variable frequency drive, or VFD, is used to help regulate the flow of electricity to a motor. By regulating the flow of electricity, the speed of the equipment can be maintained. VFDs also allow for the ramp-up of a motor. Unlike a motor starter, with a VFD, you can control the rate at which a motor reaches maximum power, which helps prolong the motor's life.

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Reclaim

At some of our locations, we utilize a reclaim unit. The reclaim unit recaptures water used in the wash process, filters it, and reuses it in the tunnel. Once the water leaves the tunnel, it goes through a series of settling tanks that remove large debris and materials from the water. The water then goes through a final filtration in the reclaim unit before being used in the tunnel. Typically, reclaim water is used for high-pressure rinses and wheel blasters, among other things.

GREASING-502

Welcome

Welcome to the Greasing Module. In this module, you will learn about the greasing procedure and how to complete each step in the process.

Notes and Questions

As you go through the module, please follow along and take notes as you go. Taking notes will help you remember any key points or questions that you would like to discuss. Once you have completed each section and completed your quiz, you can review the information and your questions with a manager.

Quiz

Once you have finished watching the module, there will be a quiz to review the information in the module. A score of 100% must be achieved to pass each quiz. If you do not pass the quiz on your first attempt, retry the quiz. If you do not pass on your second attempt, locate a manager. Your manager will review the module with you and address any questions you may have. Once you have passed the quiz, exit the module and locate a manager to proceed to the Demonstration for this module. Your manager will then review the information and any questions you may have.

Why

Regularly greasing car wash equipment ensures smooth operation and prevents premature wear and tear on bearings or other components that interact with bearings. By maintaining and replacing bearings, we can ensure that our tunnel equipment is functioning optimally and that we are able to provide the best possible wash product for our customers.

What

The following are the items you will need to complete the greasing tasks successfully:

1. Safety Glasses
2. Gloves
3. Multi-Purpose Grease (Lithium-Based or Synthetic)
4. Grease Gun
5. Flexible Grease Gun Hose
6. Grease Gun Coupler
7. Cleaning Rag

Educate

Grease is a lubricant composed of a base oil, thickener, and additives. It reduces friction between moving parts, prevents corrosion, protects against contaminants, and acts as a seal to prevent dirt and moisture ingress. Completing greasing as scheduled ensures smooth equipment rotation and reduces friction, wear, and heat buildup in bearings. Additionally, greasing extends bearing life by reducing metal-to-metal contact, prevents rust and corrosion, and improves equipment efficiency by reducing power consumption.

Bearings

Bearings are mechanical components that support and guide rotating or sliding machine parts, reducing friction between moving surfaces. There are two types of bearings: ball bearings and roller bearings. Ball bearings use spherical balls as rolling elements, while roller bearings use cylindrical or tapered rollers.

Depending on their placement on equipment, bearings will function as rotational or pivotal bearings. The differences between the two are where they attach to the equipment and their degree of rotation. Rotational bearings are attached to the equipment’s shaft and rotate 360 degrees as the equipment

spins, whereas a pivotal bearing is attached to a pivot arm and has varying degrees of movement but never makes a full 360-degree rotation.

Greasing Schedule

At our locations, we perform the greasing procedure weekly. However, the bearings that are greased will vary depending on the week. This is due to pivotal bearings being greased less frequently than rotational bearings. Because pivotal bearings only have a limited rotation, the bearing does not use grease at the same pace as rotational bearing which are performing full rotations multiple times a day at high speeds. So, pivotal bearings are greased monthly while rotational bearings are greased weekly. Your management team will advise you on the exact schedule for your location.

Grease Zerk (Fitting)

A grease zerk is a small metal fitting that is used when injecting grease into equipment bearings. It provides a one-way valve to prevent contaminants from entering and enables the precise application of grease to bearings and other components.

Under-Greasing vs. Over-Greasing

Another key to greasing is ensuring that the right amount of grease is added to each bearing. Improper greasing can lead to premature wear and failure of a bearing. Under-greasing may lead to increased friction and heat, causing bearing damage. Over-greasing can cause excess heat due to the churning of the lubricant and lead to seal damage, resulting in lubricant leakage. To prevent over-greasing, apply grease gradually and stop once you feel any indication that the grease has reached the necessary areas within the bearing. Remember, it's always better to slightly under-grease than over-grease a bearing.

Greasing Procedure

The following are the steps for completing the greasing procedure:

Ensure all power is turned off and follow lockout/tagout procedures before starting greasing.

1. Load the grease gun with the appropriate grease and attach a flexible hose and coupler to the grease gun.
2. Locate grease fittings on the equipment and inspect the fittings for blockage or damage.
3. Use a cleaning rag to wipe away old grease and dirt from the fittings.
4. Securely attach the grease gun coupler to the grease fitting.
5. Gradually apply grease and stop once you feel any indication that the grease has reached the necessary areas within the bearing.
    - Remember to avoid over-greasing.
6. Inspect for leaks around the fittings after greasing.
7. Wipe away excess grease with a cleaning rag and dispose of used rags and cleaning materials properly after use.
8. Repeat Steps 2-7 for all appropriate grease fittings.

Conclusion

In conclusion, mastering the greasing procedure is essential for maintaining the smooth operation and longevity of car wash equipment. Proper and regular greasing prevents premature wear and tear on bearings, ensures efficient performance, and reduces the risk of equipment failure. By following the detailed steps in this module and adhering to the recommended greasing schedule, you can ensure that all bearings, whether rotational or pivotal, receive the right amount of lubrication. This will enhance the overall efficiency of your car wash system and contribute to delivering a consistently high-quality wash experience for your customers. Remember, proper greasing is a key factor in extending the life of your equipment and maintaining optimal functionality.

Greasing Quiz

Once the employee has completed the module, they must complete the quiz. To pass the quiz, the employee must score 100%. If the employee does not pass their first attempt, they must take the quiz again. If they do not pass on their second attempt, you must review the quiz and answers with them before their third attempt.

1. Which item is used to apply grease to the equipment bearings?
    a. Broom & Dustpan
    b. Safety Glasses
    c. Grease Gun
    d. Cleaning Rag
2. What type of grease is recommended for the greasing tasks?
    a. Water-based grease
    b. Multi-Purpose Grease (Lithium-Based or Synthetic)
    c. Oil-based grease
    d. Silicone-based grease
3. How often are pivotal bearings typically greased?
    a. Daily
    b. Weekly
    c. Monthly
    d. Annually
4. Rotational bearings are attached to a pivot arm and have limited movement.
    a. True
    b. False
5. It is better to slightly under-grease than over-grease a bearing.
    a. True
    b. False
6. Bearings that perform full rotations at high speeds are greased less frequently than bearings that only pivot.
    a. True
    b. False
7. Before starting the greasing process, all power must be turned off, and lockout/tagout procedures must be followed.
    a. True
    b. False
8. Grease reduces _____ between moving parts, prevents corrosion, and acts as a seal to prevent dirt and moisture ingress.
    a. Speed
    b. Grinding
    c. Friction
    d. Substances

9. To prevent over-greasing, apply grease _____ and stop once you feel any indication that the grease has reached the necessary areas within the bearing.
    a. Gradually
    b. Forcefully
    c. Quickly
    d. All the above
10. After greasing, there's no need to inspect for leaks around the fittings or wipe away excess grease, as the extra grease helps the bearing.
    a. True
    b. False

Greasing Demonstration

During the Demonstration, it is important that you do not stop to answer an employee's questions or provide additional information. The goal is for the employee to see the process performed as close to a real-life scenario as possible. This uninterrupted performance will help connect the steps or information learned. We will answer all questions and address any issues after the Demonstration.

Once the employee has passed the quiz, ask if they have any questions and provide the answers. Next, show them where all the tools and resources for the closing procedure are located and how to operate each one successfully. Then, without commentary or interruption, and in real-time, demonstrate each of the tasks in the closing checklist.

After the demonstration, review the process and any team member questions. Then, give the team member **Greasing Handouts 1 & 2**, and answer any additional questions that arise.

Greasing Perform & Coach

During Perform & Coach, it is important that you do not stop to answer any team member's questions, and you shouldn't stop the team member to provide additional information. The goal is for the team members to complete the process. Coaching will be provided upon completion.

Without commentary or interruption, and in real-time, have the team member perform each of the tasks in the greasing process. During the performance, observe steps performed correctly and incorrectly so that accurate coaching may be delivered at the completion of the performance. Once complete, deliver feedback and coaching on the performance.

Repeat the Perform & Coach process until the team member has complete knowledge and understanding of all the information covered in this module, and you and the team member both feel confident they can perform the tasks and procedures to standard. Once the team member demonstrates the ability to consistently perform the tasks and procedures correctly, they are ready for development sign-off.

Greasing Handout 1-Greasing Overview

Grease is a lubricant composed of a base oil, thickener, and additives. It reduces friction between moving parts, prevents corrosion, protects against contaminants, and acts as a seal to prevent dirt and moisture ingress. Completing greasing as scheduled ensures smooth equipment rotation and reduces friction, wear, and heat buildup in bearings. Additionally, greasing extends bearing life by reducing metal-to-metal contact, prevents rust and corrosion, and improves equipment efficiency by reducing power consumption.

Bearings

Bearings are mechanical components that support and guide rotating or sliding machine parts, reducing friction between moving surfaces. There are two types of bearings: ball bearings and roller bearings. Ball bearings use spherical balls as rolling elements, while roller bearings use cylindrical or tapered rollers.

Depending on their placement on equipment, bearings will function as rotational or pivotal bearings. The differences between the two are where they attach to the equipment and their degree of rotation. Rotational bearings are attached to the equipment's shaft and rotate 360 degrees as the equipment spins, whereas a pivotal bearing is attached to a pivot arm and has varying degrees of movement but never makes a full 360-degree rotation.

Greasing Schedule

At our locations, we perform the greasing procedure weekly. However, the bearings that are greased will vary depending on the week. This is due to pivotal bearings being greased less frequently than rotational bearings. Because pivotal bearings only have a limited rotation, the bearing does not use grease at the same pace as rotational bearing which are performing full rotations multiple times a day at high speeds. So, pivotal bearings are greased monthly while rotational bearings are greased weekly. Your management team will advise you on the exact schedule for your location.

Grease Zerk (Fitting)

A grease zerk is a small metal fitting that is used when injecting grease into equipment bearings. It provides a one-way valve to prevent contaminants from entering and enables the precise application of grease to bearings and other components.

Under-Greasing vs. Over-Greasing

Another key to greasing is ensuring that the right amount of grease is added to each bearing. Improper greasing can lead to premature wear and failure of a bearing. Under-greasing may lead to increased friction and heat, causing bearing damage. Over-greasing can cause excess heat due to the churning of the lubricant and lead to seal damage, resulting in lubricant leakage. To prevent over-greasing, apply grease gradually and stop once you feel any indication that the grease has reached the necessary areas within the bearing. Remember, it's always better to slightly under-grease than over-grease a bearing.

Greasing Handout 2-Greasing Procedure

The following are the steps for completing the greasing procedure:

Ensure all power is turned off and follow lockout/tagout procedures before starting greasing.

1. Load the grease gun with the appropriate grease and attach a flexible hose and coupler to the grease gun.
2. Locate grease fittings on the equipment and inspect the fittings for blockage or damage.
3. Use a cleaning rag to wipe away old grease and dirt from the fittings.
4. Securely attach the grease gun coupler to the grease fitting.
5. Gradually apply grease and stop once you feel any indication that the grease has reached the necessary areas within the bearing.
    - Remember to avoid over-greasing.
6. Inspect for leaks around the fittings after greasing.
7. Wipe away excess grease with a cleaning rag and dispose of used rags and cleaning materials properly after use.
8. Repeat Steps 2-7 for all appropriate grease fittings.

FOAMER & APPLICATOR MAINTENANCE-503

Welcome

Welcome to the Foamer & Applicator Maintenance Module. In this module, you will learn how to perform maintenance tasks on foam generators and chemical applicators.

Notes and Questions

As you go through the module, please follow along and take notes as you go. Taking notes will help you remember any key points or questions that you would like to discuss. Once you have completed each section and completed your quiz, you can review the information and your questions with a manager.

Quiz

Once you have finished watching the module, there will be a quiz to review the information in the module. A score of 100% must be achieved to pass each quiz. If you do not pass the quiz on your first attempt, retry the quiz. If you do not pass on your second attempt, locate a manager. Your manager will review the module with you and address any questions you may have. Once you have passed the quiz, exit the module and locate a manager to proceed to the Demonstration for this module. Your manager will then review the information and any questions you may have.

Why

Maintaining the foam generators and applicators helps ensure the car wash can apply soaps and waxes to vehicles effectively so that customers receive the highest quality wash possible.

What

To successfully perform foamer and applicator maintenance, you will need:

1. Safety Glasses
2. Gloves
3. Towel
4. Bucket or Container
5. Cleaning Solution
6. Water Hose
7. Replacement Foam Generator Pads

Educate

Our daily goal provide our customers with a consistent, high-quality car wash, and by maintaining foamers and applicators, we can ensure the uniform application of cleaning and conditioning chemicals. Additionally, proper maintenance leads to reduced downtime by preventing blockages and malfunctions that lead to equipment downtime and increased equipment longevity of applicators by preventing corrosion and wear. The following are the common maintenance tasks performed on foamers and applicators.

Cleaning Foam Generators

Foam generators are tubes that contain course, sponge-like material that chemicals move through once the chemical is dispensed from the equipment room. To ensure foam generators are always clean and functioning properly, perform the following steps:

1. Shut off the chemical using the TCS cabinet relay switch.
2. Disassemble the foam generator tube to expose the foaming pads.
3. Inspect for damage or wear. Replace as necessary.
4. Use a mild detergent and water to clean the pads.
5. Reassemble the applicators.

Cleaning Foot Valves

Foot valves filter out potential solids and keep chemical lines full. To maintain foot valves, perform the following steps:

1. Remove the stinger from the bucket.
2. Wipe built-up chemicals off the filter screen.
3. Check the foot valve screen for damage.
4. Replace if necessary.

Cleaning Applicators

Applicators are used to direct product towards a region(s) of the vehicle. To ensure that applicators do not get clogged, perform the following steps:

1. Use a tip cleaner to break up debris or coagulated chemicals.
2. Turn on the chemical to flush out the debris.
3. If necessary, remove and clean the applicator piece by piece with mild detergent and water.

Foamer & Applicator Maintenance Quiz

Once the employee has completed the module, they must complete the quiz. To pass the quiz, the employee must score 100%. If the employee does not pass their first attempt, they must take the quiz again. If they do not pass on their second attempt, you must review the quiz and answers with them before their third attempt.

1. What can proper maintenance of foamers and applicators prevent?
   a. Higher water bills
   b. Equipment downtime due to blockages and malfunctions
   c. Customer complaints about the facility
   d. Reduction in the variety of chemicals used
2. Which part of the foam generator needs to be inspected for damage or wear during maintenance?
   a. The exterior casing
   b. The foaming pads
   c. The chemical relay switch
   d. The water hose
3. What should be used to clean the pads in a foam generator?
   a. Strong industrial cleaner
   b. A mild detergent and water
   c. Solvent
   d. Vinegar
4. What tool is suggested for breaking up debris or coagulated chemicals in applicators?
   a. A brush
   b. A screwdriver
   c. A tip cleaner
   d. A sponge
5. What is the next step after cleaning the pads and reassembling the applicators?
   a. Turn off the water supply
   b. Run a test application to ensure proper function
   c. Replace the safety glasses and gloves
   d. Disassemble the foam generator again

Foamer & Applicator Maintenance Demonstration

During the Demonstration, it is important that you do not stop to answer an employee's questions or provide additional information. The goal is for the employee to see the process performed as close to a real-life scenario as possible. This uninterrupted performance will help connect the steps or information learned. We will answer all questions and address any issues after the Demonstration.

Once the employee has passed the quiz, ask if they have any questions and provide the answers. Next, show them where all the tools and resources for foamer and applicator maintenance are located and how to operate each one successfully. Then, without commentary or interruption, and in real-time, demonstrate the maintenances tasks discussed in the module.

After the demonstration, review the process and any team member questions. Then, give the team member the **Foamer & Applicator Maintenance Handout**, and answer any additional questions that arise.

Foamer & Applicator Maintenance Perform & Coach

During Perform & Coach, it is important that you do not stop to answer any team member's questions, and you shouldn't stop the team member to provide additional information. The goal is for the team members to complete the process. Coaching will be provided upon completion.

Have the team member perform the maintenance tasks discussed in the module without commentary or interruption, and in real time. During the performance, observe steps performed correctly and incorrectly so that accurate coaching may be delivered after the performance. Once complete, deliver feedback and coaching on the performance.

Repeat the Perform & Coach process until the team member has complete knowledge and understanding of all the information covered in this module, and you and the team member both feel confident they can perform the tasks and procedures to standard. Once the team members can consistently perform the tasks and procedures correctly, they are ready for development sign-off.

Foamer & Applicator Maintenance Handout

The following are the common maintenance tasks performed on foamers and applicators.

Cleaning Foam Generators

Foam generators are tubes that contain course, sponge-like material that chemicals move through once the chemical is dispensed from the equipment room. To ensure foam generators are always clean and functioning properly, perform the following steps:

1. Shut off the chemical using the TCS cabinet relay switch.
2. Disassemble the foam generator tube to expose the foaming pads.
3. Inspect for damage or wear. Replace as necessary.
4. Use a mild detergent and water to clean the pads.
5. Reassemble the applicators.

Cleaning Foot Valves

Foot valves filter out potential solids and keep chemical lines full. To maintain foot valves, perform the following steps:

1. Remove the stinger from the bucket.
2. Wipe built-up chemicals off the filter screen.
3. Check the foot valve screen for damage.
4. Replace if necessary.

Cleaning Applicators

Applicators are used to direct product towards a region(s) of the vehicle. To ensure that applicators do not get clogged, perform the following steps:

1. Use a tip cleaner to break up debris or coagulated chemicals.
2. Turn on the chemical to flush out the debris.
3. If necessary, remove and clean the applicator piece by piece with mild detergent and water.

SOLENOIDS-504

Welcome

Welcome to the Solenoids Module. In this module, you will learn about solenoids, their function, and how to replace them when they become worn or defective.

Notes and Questions

As you go through the module, please follow along and take notes as you go. Taking notes will help you remember any key points or questions that you would like to discuss. Once you have completed each section and completed your quiz, you can review the information and your questions with a manager.

Quiz

Once you have finished watching the module, there will be a quiz to review the information in the module. A score of 100% must be achieved to pass each quiz. If you do not pass the quiz on your first attempt, retry the quiz. If you do not pass on your second attempt, locate a manager. Your manager will review the module with you and address any questions you may have. Once you have passed the quiz, exit the module and locate a manager to proceed to the Demonstration for this module. Your manager will then review the information and any questions you may have.

Why

By understanding how solenoids control the distribution of cleaning agents and following the proper maintenance and replacement procedures, we can ensure optimal performance, reduce waste, and enhance the overall efficiency and reliability of the car wash. Regular inspection and maintenance will help prevent issues and extend the lifespan of the equipment, contributing to the successful operation of the car wash facility. This knowledge is crucial for maintaining high cleaning standards, minimizing downtime, and ensuring customer satisfaction.

What

The following are the items you will need to successfully complete maintenance tasks on the solenoids:

1. Solenoid
2. Screwdriver (Phillips or flat-head, depending on solenoid design)
3. Wrench or pliers
4. Teflon tape or thread sealant
5. Safety gloves
6. Goggles

Educate

Solenoids control the distribution of water, soap, wax, and other cleaning agents throughout the car wash system. They also provide precise control over fluid flow, ensuring consistent application of cleaning agents which is essential for maintaining the effectiveness of cleaning. Ensuring proper function of solenoids leads to better cleaning performance and reduced waste.

Solenoids work in conjunction with the Tunnel Controller to ensure that the right amount of each fluid is delivered to the appropriate part of the car wash process When the Tunnel Controller signal to the solenoid to open, it generates a magnetic field the moves a plunger inside the solenoid. The movement of the plunger opens or closes the valve, allowing or stopping the flow of fluid.

Replacing a Solenoid

Replacing a solenoid in a car wash system involves careful attention to detail to ensure the new solenoid functions correctly. The following are the steps to safely and effectively replace a worn or defective solenoid to ensure optimal performance and reliability.

1. Ensure the car wash system is powered off to prevent electrical shock or injury.

2. Close the ball valve on the water supply line and open a valve to relieve any pressure in the system.
3. Disconnect the power supply to the solenoid to avoid electrical hazards.
4. Label or take a picture of the electrical connections to ensure proper reconnection later.
5. Unscrew any mounting brackets or screws holding the solenoid in place using a screwdriver or wrench.
6. Gently remove the old solenoid from its position.
7. Inspect the new solenoid and ensure it is your system's correct type and configuration.
8. Apply Teflon tape or thread sealant to the threads of the new solenoid, if necessary.
9. Secure the new solenoid in the mounting position using screws or brackets.
10. Reconnect the electrical wires to the new solenoid, following the labels or reference picture.
11. Open the ball valve on the water supply line.
12. Turn the power supply back on to the solenoid and activate it to ensure it operates correctly, checking that it opens and closes as intended.
13. Ensure all electrical connections are secure.
14. Observe the solenoid during daily operations to confirm no issues.

Conclusion

In conclusion, understanding and maintaining solenoids is crucial for efficiently operating car wash systems. Properly functioning solenoids ensure precise control over the distribution of cleaning agents, leading to better cleaning performance and reduced waste. By following the detailed steps for replacing a worn or defective solenoid, you can ensure the system continues to operate smoothly and reliably. Regular inspection and maintenance of solenoids will help prevent issues and extend the lifespan of your equipment, ultimately contributing to the overall success and efficiency of the car wash facility.

Solenoid Quiz

Once the employee has completed the module, they must complete the quiz. To pass the quiz, the employee must score 100%. If the employee does not pass their first attempt, they must take the quiz again. If they do not pass on their second attempt, you must review the quiz and answers with them before their third attempt.

1. What is the primary function of solenoids in a car wash system?
    a. To power the conveyor belt
    b. To control the distribution of water, soap, wax, and other cleaning agents
    c. To manage the lighting system
    d. To operate the payment station
2. What happens when the Tunnel Controller signals a solenoid to open?
    a. It powers off the entire car wash system
    b. It generates a magnetic field that moves a plunger inside the solenoid
    c. It starts the car wash conveyor belt
    d. It increases water pressure
3. Which step is necessary before removing an old solenoid?
    a. Apply Teflon tape to the new solenoid
    b. Open the ball valve on the water supply line
    c. Disconnect the power supply to the solenoid
    d. Turn on the power supply to the solenoid
4. Why is it important to label or take a picture of the electrical connections when replacing a solenoid?
    a. To ensure proper reconnection later
    b. To check for any manufacturing defects
    c. To document the replacement for the manager
    d. To compare with other solenoids
5. The _____ sends a signal to the solenoid to open.
    a. Wash queue
    b. MCC
    c. Tunnel Controller
    d. None of the above
6. Solenoids provide precise control over fluid flow, ensuring consistent application of cleaning agents.
    a. True
    b. False
7. Regular maintenance of solenoids helps extend the lifespan of the equipment.
    a. True
    b. False
8. The movement of the plunger inside the solenoid opens or closes the valve, allowing or stopping fluid flow.
    a. True
    b. False

9. Solenoids do not need to be inspected regularly as they rarely fail.
    a. True
    b. False
10. Properly functioning solenoids lead to better _____ performance and reduced waste.
    a. Volume
    b. Conversion rate
    c. Cleaning
    d. Tunnel efficiency

Solenoids Demonstration

During the Demonstration, it is important that you do not stop to answer an employee's questions or provide additional information. The goal is for the employee to see the process performed as close to a real-life scenario as possible. This uninterrupted performance will help connect the steps or information learned. We will answer all questions and address any issues after the Demonstration.

Once the employee has passed the quiz, ask if they have any questions and provide the answers. Next, show them where all the tools and resources for replacing a solenoid are located and how to operate each one successfully. Then, without commentary or interruption, and in real-time, demonstrate replacing a solenoid.

After the demonstration, review the process and any team member questions. Then, give the team member the **Solenoid Handout**, and answer any additional questions that arise.

Solenoids Perform & Coach

During Perform & Coach, it is important that you do not stop to answer any team member's questions, and you shouldn't stop the team member to provide additional information. The goal is for the team members to complete the process. Coaching will be provided upon completion.

Without commentary or interruption, and in real-time, have the team member perform the procedure for replacing a solenoid. During the performance, observe steps performed correctly and incorrectly so that accurate coaching may be delivered at the completion of the performance. Once complete, deliver feedback and coaching on the performance.

Repeat the Perform & Coach process until the team member has complete knowledge and understanding of all the information covered in this module, and you and the team member both feel confident they can perform the tasks and procedures to standard. Once the team member demonstrates the ability to consistently perform the tasks and procedures correctly, they are ready for development sign-off.

Solenoids Handout

Replacing a solenoid in a car wash system involves careful attention to detail to ensure the new solenoid functions correctly. The following are the steps to safely and effectively replace a worn or defective solenoid to ensure optimal performance and reliability.

1. Ensure the car wash system is powered off to prevent electrical shock or injury.
2. Close the ball valve on the water supply line and open a valve to relieve any pressure in the system.
3. Disconnect the power supply to the solenoid to avoid electrical hazards.
4. Label or take a picture of the electrical connections to ensure proper reconnection later.
5. Unscrew any mounting brackets or screws holding the solenoid in place using a screwdriver or wrench.
6. Gently remove the old solenoid from its position.
7. Inspect the new solenoid and ensure it is your system's correct type and configuration.
8. Apply Teflon tape or thread sealant to the threads of the new solenoid, if necessary.
9. Secure the new solenoid in the mounting position using screws or brackets.
10. Reconnect the electrical wires to the new solenoid, following the labels or reference picture.
11. Open the ball vale on the water supply line.
12. Turn the power supply back on to the solenoid and activate the solenoid to ensure it operates correctly, checking that it opens and closes as intended.
13. Ensure all electrical connections are secure.
14. Observe the solenoid during daily operations to confirm no issues.

INJECTORS-505

Welcome

Welcome to the Injectors Module. In this module, you will learn comprehensive information on how injectors and dilution tips work, their importance, troubleshooting methods, and the differences between various types of dilution tips and injectors as well as how to replace a worn or defective injector.

Notes and Questions

As you go through the module, please follow along and take notes as you go. Taking notes will help you remember any key points or questions that you would like to discuss. Once you have completed each section and completed your quiz, you can review the information and your questions with a manager.

Quiz

Once you have finished watching the module, there will be a quiz to review the information in the module. A score of 100% must be achieved to pass each quiz. If you do not pass the quiz on your first attempt, retry the quiz. If you do not pass on your second attempt, locate a manager. Your manager will review the module with you and address any questions you may have. Once you have passed the quiz, exit the module and locate a manager to proceed to the Demonstration for this module. Your manager will then review the information and any questions you may have.

Why

Understanding how injectors and dilution tips work is crucial for optimizing chemical usage, reducing costs, and ensuring uniform fluid distribution. This knowledge enhances the effectiveness of applications across various industries. Proper use and maintenance of these components are vital for achieving consistent and reliable performance.

What

The following are the items you will need to perform maintenance tasks on the injectors:

1. Injectors
2. Screwdriver (Phillips or flat-head, depending on injector design)
3. Wrench or pliers
4. Teflon tape or thread sealant (if needed)
5. Safety gloves and goggles

Educate

Injectors and dilution tips are essential components of chemical delivery systems and are designed to deliver precise amounts of chemicals or solutions. They are widely used in various applications and provide the following benefits:

- Efficiency of chemical usage, reducing waste and cost.
- Consistency of distribution of fluids, enhancing the effectiveness of the application.
- Suitable for a wide range of fluids and applications.

Injectors

Injectors are specialized devices used in fluid management systems to introduce chemicals or solutions into a stream of water. They are essential for precise chemical dosing, ensuring that the correct amount of chemical is mixed with water to achieve the desired concentration for various applications

Injectors operate on the venturi principle, where the fluid flows through a constricted section and creates a pressure differential, drawing in the chemical solution. This mixture is then delivered at the desired dilution rate. The frequency at which injectors will need to be changed varies based on the

frequency of use and the types of chemicals used in the injectors, but regular inspections will help determine when replacements are needed.

Dilution Tips

Dilution tips restrict the flow of the chemical being drawn into the water stream by the injector. The size of the opening in the dilution tip determines the flow rate of the chemical, thereby controlling the dilution ratio. Users can achieve the desired chemical concentration in the water by selecting the appropriate dilution tip. They come in different colors, each representing a specific flow rate. Standard metering tips are color-coded to control the amount of chemicals mixed with water, ensuring a precise chemical mix ratio. Always refer to the color-coding chart for guidance on exact ratios.

Hose Barb Configurations

Types of Hose Barb Configurations

Hose barbs are critical components in fluid management systems, designed to connect hoses securely to injectors and other fittings. They play a significant role in determining how chemicals are diluted with water, affecting the overall efficiency and effectiveness of the fluid application process. Injectors feature different hose barb configurations to cater to varying needs and applications.

- Single Hose Barb

  A single hose barb is designed to dilute one chemical with water. It is the simplest configuration, suitable for applications where only one type of chemical needs to be mixed with water.
- Dual Hose Barb

  A dual-hose barb configuration allows for simultaneously diluting two different chemicals with water. Ideal for applications where multiple additives (such as color or scent) are required alongside the primary chemical.
- Triple Hose Barb

  A triple hose barb configuration is designed to dilute three chemicals with water. It is suitable for on-site blending of multiple chemicals to achieve specific treatment combinations.

Replacing an Injector

Replacing a solenoid in a car wash system involves careful attention to detail to ensure the new solenoid functions correctly. The following are the steps to safely and effectively replace a worn or defective injector to ensure optimal performance and reliability.

1. Turn off the relay in the Tunnel Controller for the injector you intend to replace.
2. Shut off the water supply to the injector.
3. Carefully note or label the tubing and hoses to ensure proper reconnection later.
4. Use a wrench or pliers to disconnect the tubing and hoses from the injector ports.
5. Carefully remove the old injector from the system. If the injector is mounted, unscrew it from its mounting position using a screwdriver or wrench.
6. Inspect the new injector to ensure its configuration is the correct type and configuration.
7. Apply Teflon tape or thread sealant to the threads of the new injector if required.
8. Secure the new injector in the mounting position using screws or bolts.
9. Reconnect the tubing and hoses to the appropriate ports, ensuring a secure fit.
10. Match the labels or notes during disconnection to ensure proper reconnection.
11. Turn on the water supply to the injector you replaced.
12. Turn on the relay in the Tunnel Controller for the injector you replaced.
13. Inspect the connections for any leaks.
14. Activate the injector to ensure it operates correctly and delivers the correct chemical mix.

15. Ensure all connections are secure and there are no signs of leaks.
16. Observe the system briefly to confirm the injector is functioning as expected.

Conclusion

In conclusion, mastering the operation and maintenance of injectors and dilution tips is essential for optimizing the efficiency and effectiveness of various applications in the tunnel. Understanding the principles behind these components and proper replacement techniques ensures consistent chemical dilution and fluid distribution. By following the detailed steps and safety protocols outlined in this module, you can maintain optimal performance and reliability of your equipment, ultimately leading to cost savings and improved operational outcomes. Regular inspections and adherence to best practices will help prevent issues and extend the lifespan of your injectors and related components.

Injectors Quiz

Once the employee has completed the module, they must complete the quiz. To pass the quiz, the employee must score 100%. If the employee does not pass their first attempt, they must take the quiz again. If they do not pass on their second attempt, you must review the quiz and answers with them before their third attempt.

1. What is the primary function of injectors in fluid management systems?
    a. To control the water temperature
    b. To introduce chemicals or solutions into a stream of water
    c. To regulate airflow
    d. To monitor water quality
2. What principle do injectors operate on?
    a. Hydraulic principle
    b. Venturi principle
    c. Pascal's principle
    d. Einstein principle
3. What is the purpose of dilution tips?
    a. To measure water pressure
    b. To restrict the flow of chemicals being drawn into the water stream
    c. To heat the water
    d. To filter out impurities
4. Proper use and maintenance of injectors and dilution tips are vital for achieving consistent and reliable performance.
    a. True
    b. False
5. Injectors and dilution tips are suitable for a limited range of fluids and applications.
    a. True
    b. False
6. It is acceptable to over-grease a bearing as it ensures maximum lubrication.
    a. True
    b. False
7. A triple hose barb configuration is designed to dilute three chemicals with water.
    a. True
    b. False
8. Replacing an injector does not require shutting off the water supply to the injector.
    a. True
    b. False
9. Regular inspections and adherence to best practices do little to help prevent issues and extend the life of injectors and related components.
    a. True
    b. False
10. Properly functioning injectors ensure the correct amount of chemical is mixed with water to achieve the desired concentration for various applications.
    a. True
    b. False

Injectors Demonstration

During the Demonstration, it is important that you do not stop to answer an employee's questions or provide additional information. The goal is for the employee to see the process performed as close to a real-life scenario as possible. This uninterrupted performance will help connect the steps or information learned. We will answer all questions and address any issues after the Demonstration.

Once the employee has passed the quiz, ask if they have any questions and provide the answers. Next, show them where all the tools and resources for replacing an injector are located and how to operate each one successfully. Then, without commentary or interruption, and in real-time, demonstrate replacing an injector.

After the demonstration, review the process and any team member questions. Then, give the team member the **Injectors Handout**, and answer any additional questions that arise.

Injectors Perform & Coach

During Perform & Coach, it is important that you do not stop to answer any team member's questions, and you shouldn't stop the team member to provide additional information. The goal is for the team members to complete the process. Coaching will be provided upon completion.

Without commentary or interruption, and in real-time, have the team member perform each step of the procedure for replacing an injector. During the performance, observe steps performed correctly and incorrectly so that accurate coaching may be delivered at the completion of the performance. Once complete, deliver feedback and coaching on the performance.

Repeat the Perform & Coach process until the team member has complete knowledge and understanding of all the information covered in this module, and you and the team member both feel confident they can perform the tasks and procedures to standard. Once the team member demonstrates the ability to consistently perform the tasks and procedures correctly, they are ready for development sign-off.

Injectors Handout

Replacing a solenoid in a car wash system involves careful attention to detail to ensure the new solenoid functions correctly. The following are the steps to safely and effectively replace a worn or defective injector to ensure optimal performance and reliability.

1. Turn off the relay in the Tunnel Controller for the injector you intend to replace.
2. Shut off the water supply to the injector.
3. Carefully note or label the tubing and hoses to ensure proper reconnection later.
4. Use a wrench or pliers to disconnect the tubing and hoses from the injector ports.
5. Carefully remove the old injector from the system. If the injector is mounted, unscrew it from its mounting position using a screwdriver or wrench.
6. Inspect the new injector to ensure its configuration is the correct type and configuration.
7. Apply Teflon tape or thread sealant to the threads of the new injector if required.
8. Secure the new injector in the mounting position using screws or bolts.
9. Reconnect the tubing and hoses to the appropriate ports, ensuring a secure fit.
10. Match the labels or notes during disconnection to ensure proper reconnection.
11. Turn on the water supply to the injector you replaced.
12. Turn on the relay in the Tunnel Controller for the injector you replaced.
13. Inspect the connections for any leaks.
14. Activate the injector to ensure it operates correctly and delivers the correct chemical mix.
15. Ensure all connections are secure and there are no signs of leaks.
16. Observe the system briefly to confirm the injector is functioning as expected.

MAC VALVES-506

Welcome

Welcome to the MAC Valves Module. In this module, you will learn about the operation, importance, troubleshooting, and maintenance of MAC valves.

Notes and Questions

As you go through the module, please follow along and take notes as you go. Taking notes will help you remember any key points or questions that you would like to discuss. Once you have completed each section and completed your quiz, you can review the information and your questions with a manager.

Quiz

Once you have finished watching the module, there will be a quiz to review the information in the module. A score of 100% must be achieved to pass each quiz. If you do not pass the quiz on your first attempt, retry the quiz. If you do not pass on your second attempt, locate a manager. Your manager will review the module with you and address any questions you may have. Once you have passed the quiz, exit the module and locate a manager to proceed to the Demonstration for this module. Your manager will then review the information and any questions you may have.

Why

Understanding MAC valves is essential for ensuring efficient and reliable operation of pneumatic systems. Proper knowledge of these valves helps in minimizing downtime, optimizing performance, and ensuring safety.

What

The following are the items you will need to complete maintenance tasks on MAC Valves:

1. MAC Valve
2. Screwdriver (Phillips or flat-head, depending on valve design)
3. Wrench or pliers
4. Teflon tape or thread sealant (if needed)
5. Safety gloves and goggles

Educate

MAC valves are a critical component in our car washes as they control the flow of air to multiple pieces of equipment in the tunnel. MAC valves ensure precise control of air flow, leading to efficient operation of our systems. MAC valves operate by using an electromagnetic solenoid to move a valve spool which directs air flow through the valve. The solenoid is activated by a signal from the Tunnel Controller, which moves the spool to open or close different air passages.

Types of MAC Valves

MAC valves come in various types and configurations, each designed to meet specific needs. A 2-, 3-, or 4-way MAC valve is used depending on those needs. Let’s review each type.

- 2-Way Valves: Control airflow in a single direction.
- 3-Way Valves: Direct airflow between three ports, allowing for more complex control.
- 4-Way Valves: Used in applications requiring dual actuation, such as double-acting cylinders.

Replacing a MAC Valve

Replacing a MAC valve involves several steps to ensure the process is performed safely and effectively. To replace a MAC valve, perform the following steps:

1. Turn off the relay in the Tunnel Controller for the MAC valve you intend to replace.
2. Disconnect the air supply to the valve you intend to replace.
3. Carefully note or label the electrical connections to ensure proper reconnection later.
4. Use a screwdriver or appropriate tool to disconnect the wires from the solenoid.
5. Use a wrench or pliers to disconnect the air tubing from the valve ports.
6. If the valve is mounted, unscrew it from its mounting position using a screwdriver or wrench.
7. Inspect the new MAC valve to ensure its configuration is correct type and configuration.
8. Apply Teflon tape or thread sealant to the new valve's threads if required.
9. Secure the new valve in the mounting position using screws or bolts.
10. Reconnect the air tubing to the appropriate ports, ensuring a secure fit.
11. Reattach the electrical wires to the solenoid, matching the labels or notes taken during disconnection.
12. Reconnect the air supply to the valve you replaced.
13. Turn off the relay in the Tunnel Controller for the MAC valve you replaced.
14. Activate the valve to ensure it is operating correctly.
15. Ensure all connections are secure and no signs of air leaks.
16. Observe the system briefly to confirm the valve is functioning as expected.

Conclusion

In conclusion, mastering the operation, troubleshooting, and maintenance of MAC valves is crucial for pneumatic systems' efficient and reliable performance in car washes. You can minimize downtime and ensure optimal system functionality by understanding the different types of MAC valves, their specific applications, and the detailed steps for replacing them. Regular inspections, proper maintenance, and adherence to best practices are essential to prevent issues and extend the lifespan of these critical components. Equipped with this knowledge, you can contribute to your car wash facility's smooth and effective operation, ultimately enhancing service quality and customer satisfaction.

MAC Valve Quiz

Once the employee has completed the module, they must complete the quiz. To pass the quiz, the employee must score 100%. If the employee does not pass their first attempt, they must take the quiz again. If they do not pass on their second attempt, you must review the quiz and answers with them before their third attempt.

1. What is the primary function of MAC valves in car washes?
    a. To regulate water temperature
    b. To control the flow of air to multiple pieces of equipment
    c. To monitor chemical levels
    d. To power the conveyor belt
2. How do MAC valves operate?
    a. By using a hydraulic piston
    b. By using an electromagnetic solenoid to move a valve spool
    c. By manually adjusting the valve
    d. By using a pressure sensor
3. What should be done before removing an old MAC valve?
    a. Apply Teflon tape to the new valve
    b. Open the air supply to the valve
    c. Disconnect the power supply to the solenoid
    d. Turn off the relay in the Tunnel Controller for the valve
4. MAC valves are critical components in car washes as they control air flow to multiple pieces of equipment.
    a. True
    b. False
5. Replacing a MAC valve without turning off the air supply is safe.
    a. True
    b. False
6. Regular maintenance of MAC valves helps extend the lifespan of the equipment.
    a. True
    b. False
7. The movement of the valve spool inside the MAC valve directs airflow through the valve.
    a. True
    b. False
8. All MAC valves operate on the same principle, regardless of their type.
    a. True
    b. False
9. Before starting the replacement process, ensure the car wash system is powered off to prevent electrical shock or injury.
    a. True
    b. False
10. After replacing a MAC valve, observing the system to confirm there are no leaks is unnecessary.
    a. True
    b. **False**

MAC Valves Demonstration

During the Demonstration, it is important that you do not stop to answer an employee's questions or provide additional information. The goal is for the employee to see the process performed as close to a real-life scenario as possible. This uninterrupted performance will help connect the steps or information learned. We will answer all questions and address any issues after the Demonstration.

Once the employee has passed the quiz, ask if they have any questions and provide the answers. Next, show them where all the tools and resources for replacing a MAC valve are located and how to operate each one successfully. Then, without commentary or interruption, and in real-time, demonstrate replacing a MAC valve.

After the demonstration, review the process and any team member questions. Then, give the team member the **MAC Valves Handout**, and answer any additional questions that arise.

MAC Valves Perform & Coach

During Perform & Coach, it is important that you do not stop to answer any team member's questions, and you shouldn't stop the team member to provide additional information. The goal is for the team members to complete the process. Coaching will be provided upon completion.

Without commentary or interruption, and in real-time, have the team member perform each step of the procedure for replacing a MAC valve. During the performance, observe steps performed correctly and incorrectly so that accurate coaching may be delivered at the completion of the performance. Once complete, deliver feedback and coaching on the performance.

Repeat the Perform & Coach process until the team member has complete knowledge and understanding of all the information covered in this module, and you and the team member both feel confident they can perform the tasks and procedures to standard. Once the team member demonstrates the ability to consistently perform the tasks and procedures correctly, they are ready for development sign-off.

MAC Valves Handout

Replacing a MAC valve involves several steps to ensure the process is performed safely and effectively. To replace a MAC valve, perform the following steps:

1. Turn off the relay in the Tunnel Controller for the MAC valve you intend to replace.
2. Disconnect the air supply to the valve you intend to replace.
3. Carefully note or label the electrical connections to ensure proper reconnection later.
4. Use a screwdriver or appropriate tool to disconnect the wires from the solenoid.
5. Use a wrench or pliers to disconnect the air tubing from the valve ports.
6. If the valve is mounted, unscrew it from its mounting position using a screwdriver or wrench.
7. **Prepare the New Valve**:
8. Inspect the new MAC valve to ensure its configuration is correct type and configuration.
9. Apply Teflon tape or thread sealant to the new valve's threads if required.
10. Secure the new valve in the mounting position using screws or bolts.
11. Reconnect the air tubing to the appropriate ports, ensuring a secure fit.
12. Reattach the electrical wires to the solenoid, matching the labels or notes taken during disconnection.
13. Reconnect the air supply to the valve you replaced.
14. Turn off the relay in the Tunnel Controller for the MAC valve you replaced.
15. Activate the valve to ensure it is operating correctly.
16. Ensure all connections are secure and no signs of air leaks.
17. Observe the system briefly to confirm the valve is functioning as expected.

WEEKLY PM CHECKLIST-507

Welcome

Welcome to the Weekly PM Checklist Module. In this module, you will learn about the weekly preventative maintenance and the tasks involved.

Notes and Questions

As you go through the module, please follow along and take notes as you go. Taking notes will help you remember any key points or questions that you would like to discuss. Once you have completed each section and completed your quiz, you can review the information and your questions with a manager.

Quiz

Once you have finished watching the module, there will be a quiz to review the information in the module. A score of 100% must be achieved to pass each quiz. If you do not pass the quiz on your first attempt, retry the quiz. If you do not pass on your second attempt, locate a manager. Your manager will review the module with you and address any questions you may have. Once you have passed the quiz, exit the module and locate a manager to proceed to the Demonstration for this module. Your manager will then review the information and any questions you may have.

Why

Preventive maintenance is crucial for the smooth operation of our equipment, wash systems, and facilities. These weekly preventative maintenance checks help reduce equipment repair costs and wash downtime. By keeping our washes functioning optimally, we can ensure that we deliver exceptional quality and service to our customers on every visit.

What

The following are the items you will need to successfully complete the Weekly PM Checklist:

1. Phone/Tablet
2. Weekly PM Checklist Form
3. Knowledge of Car Wash Equipment

Educate

The management team submits the Weekly PM Checklist after completing all its tasks. This weekly report ensures that we examine every piece of equipment and its function. It also communicates vital information on critical maintenance issues or repairs to the operations and facilities teams. Let’s review each section of the checklist and the tasks involved.

Equipment Room Maintenance

The following are the tasks for the Equipment Room Maintenance section of the Weekly PM Checklist:

Salt Tank Level

Check if the salt in the salt tank is over halfway full.

- If you notice the salt level is low, fill the tank until it reaches above the halfway mark. This ensures the water softener functions correctly and prevents scale buildup in the equipment.

Oil Levels in Powerpacks

Use the sight gauge to check the oil level.

- If it's below the 3/4 mark, top it up with the recommended oil type until it reaches the desired level.

Air Compressor Settings

Ensure all air compressor tank drains are set to 10 seconds every 4 hours.

- Refer to the air compressor manual to adjust the timer settings to 10 seconds every 4 hours to prevent moisture buildup in the tanks.

Air Compressor Operation

Check all air compressors to ensure they are operating correctly and document any issues in the notes section if they are not operating correctly.

> ***Example:*** If pressing the test button does not activate the compressor, check for tripped breakers or loose connections and document the findings in the notes section for further action.

Air Compressor Pressure Range

Use the pressure gauge to check the PSI.

- If the pressure is outside the 140-175 PSI range, adjust the regulator until the correct pressure is achieved.

Air Compressor Oil Levels

Using the sight gauge, check if the oil in the air compressors is at the appropriate levels.

- If the sight gauge shows the oil level is low, add the recommended compressor oil until it reaches the correct level.

Air Compressor Oil Condition

Inspect the oil in the air compressors to ensure it is not milky.

- Replace the oil immediately if it is milky. Milky oil indicates water contamination. Drain the contaminated oil, replace it with fresh oil, and check for sources of water ingress.

Chemical Pumps

Open the drain valve on the air separators to release any accumulated water, ensuring the pumps operate efficiently.

Chemical Lines

Check if all chemical lines are free of backflow issues.

- If you notice air bubbles in the lines, use a priming pump to clear the lines of air and restore proper chemical flow.

Air Leaks

Listen for any air leaks in the equipment room.

- If leaks are detected, spray soapy water on suspected areas. If bubbles form, tighten fittings or replace damaged hoses to stop the leak.

Chemical Delivery Panels

Use a pressure gauge to check the PSI.

- Adjust the regulator to maintain a consistent pressure between 200-250 PSI.

Foot Valves

Remove and clean any debris from the foot valves and replace damaged valves to prevent leaks or blockages.

High-Pressure Pumps

Use a pressure gauge to check and adjust the high-pressure pumps to the specified PSI settings.

- Omni/Side Blaster: 500 PSI
- Prep: 1,200 PSI

Thermostat Settings

Check if the thermostat is set to the appropriate temperature (Winter: 55 degrees, Summer: 70 degrees).

- Adjust the thermostat if necessary.

Grit Trap

Pump excess water from the grit trap using the grit trap water removal guide and upload a picture of the water level if necessary.

Tunnel Maintenance

The following are the tasks for the Tunnel Maintenance section of the Weekly PM Checklist:

Entrance Photo Eyes

Gently wipe the photo eyes with a microfiber towel to remove any dust or debris that could interfere with their function.

Foam Generators

Disassemble the foam generators and clean the scrubbies to remove soap build-up, ensuring a consistent foam output.

VPD Functionality

Verify if the VPD is functioning properly.

- If the VPD is not working, check the power supply and connections. Refer to the troubleshooting guide to resolve common issues.

Tunnel Lights

Ensure all tunnel lights are functioning (overhead lights, colored LEDs, indicator lights, and signage).

- Replace or repair the lights if they are not functioning.

Timing Settings

Use the control panel to check and adjust the timing settings for different components to ensure they activate at the correct time.

Tunnel Camera Lenses

Wipe the camera lenses with a microfiber towel to remove any smudges or dirt that could obstruct the view.

Conveyor Maintenance

The following are the tasks for the Conveyor Maintenance section of the Weekly PM Checklist:

Chain Tension

Use a tension gauge to measure the chain tension.

- Adjust the tension system as necessary if it is outside the 70-80 PSI range.

Chain Tension Check

Check the position of the take-up carriage.

- If the take-up carriage is at the end of its travel, remove a few links from the chain to maintain proper tension.

Grates

Check all grates and reposition or replace them to ensure they are flat and secure, with the rough side facing up for better traction.

- Adjust or replace the grates if necessary.

Take-up Section

Verify if the take-up section plate is secure.

- Tighten any loose bolts or replace damaged components to secure the take-up section plate.

Take-up Door

Inspect the rubber pads for wear and tear.

- Replace any worn-out pads to maintain a proper seal.

Air Leaks

Listen for any air leaks in the take-up section.

- If leaks are detected, spray soapy water on suspected areas. If bubbles form, tighten fittings or replace damaged hoses to stop the leak.

Conveyor Decks

Clean all three conveyor decks at the take-up and drive sections and ensure they are free of debris.

Drive Section Plate

Check and tighten any loose bolts on the drive section plate to ensure it is firmly in place.

Bearings and Cylinders

Ensure proper lubrication and functioning.

- Apply grease to the bearings and Fluid Film to the air cylinder to maintain smooth operation based on the location greasing schedule.

Chain Inspection

Examine the chain closely and replace any damaged rollers or links to prevent further issues.

Brushes Maintenance

The following are the tasks for the Brushes Maintenance section of the Weekly PM Checklist:

Bearings

Ensure smooth operation of bearings

- Use a grease gun to apply grease to all rotational bearings, ensuring they move smoothly without resistance based on the location's greasing schedule.

Oil Reservoirs

Check if there is a sufficient amount of fluid in all oil reservoirs (Omni, Tire Shiner, Top Brush, Wraps).

- Open the oil reservoirs and add the appropriate oil if the levels are low.

Air Cylinders

Ensure proper lubrication and operation.

- Apply Fluid Film to all air cylinders to prevent rust and ensure smooth movement.

Tire Shiner Brushes

Check if the tire shiner brushes are receiving chemical at all sections and if there is any excess tire shine on the ground.

- If there is excess tire shine on the ground, adjust the chemical supply or fix any leaks to prevent wastage and ensure proper application.

Brush and Mitter Material

Inspect all brush and mitter material for worn or damaged brush material.

- Replace the material if it is not in good condition.

Brush Rotation and Retracts

Check that all brushes are rotating within the acceptable RPM range (70-80 RPM, site-specific), and that all retracts (front, side, and rear) are functioning.

Blowers Maintenance

The following are the tasks for the Blowers Maintenance section of the Weekly PM Checklist:

Blowers Functionality

- Verify if all blowers are functioning properly.
- Fix or replace blowers if they are not functioning.

- Example: Check the power supply and connections for each blower. Repair or replace any blowers that do not operate correctly.

Blower Timing

Check if all blowers engage at the appropriate time.

- Adjust the timing settings if necessary.

Blower Gates

Check the operation of blower gates and adjust their timing or repair any faulty gates to ensure proper operation.

Blower Housings and Screens

Ensure all blower housings and inlet screens are clean and free of debris.

- Remove any debris from the blower housings and screens to maintain optimal airflow and performance.

Blower Position

Check the alignment and positioning of each blower and make adjustments to ensure they are aimed correctly for effective drying.

Vacuums - Central Vacuum Unit Maintenance

The following are the tasks for the Central Vacuum Unit Maintenance section of the Weekly PM Checklist:

Filter Bags

Inspect the filter bags and clean or replace them to ensure proper suction and prevent clogging.

Mini Separators

Remove the mini separators and clean out debris to maintain effective vacuum performance.

Separator Sections

Check if the top and bottom sections of the separator are clean and free of debris.

- Disassemble the separator and clean both the top and bottom sections to ensure unobstructed airflow.

Vacuum Functionality

Test each vacuum for proper operation

- Repair or replace any units that do not work.

Lot Maintenance

Vacuum Stations

Test the suction at each station and clear any blockages or repair any issues to restore full suction power.

Vacuum Tools

Check for wear and tear on vacuum tools and replace any that are damaged to ensure effective cleaning.

Vacuum Hoses and Couplers

Ensure all vacuum hoses and couplers are attached securely.

- Tighten any loose connections and replace any damaged hoses to prevent air leaks and loss of suction.

Mat Cleaners

Verify if all mat cleaners are clean and functioning properly.

- Clean the mat cleaners and repair any issues to ensure they operate effectively.

Air Guns

Check if all air guns are attached and in good condition and if they are functioning without air leaks.

- Fix the leaks or replace the air guns if necessary.

Spray Stations

Clean the spray nozzles and check the water supply to ensure the stations work as intended.

Trash Cans and Towel Baskets

Check the stability and condition of trash cans and towel baskets, repairing or replacing any that are damaged.

Vacuum Leaks

Listen for any vacuum leaks or noises.

- Use soapy water to locate vacuum leaks and tighten connections or replace damaged hoses as needed.

Office Maintenance

The following are the tasks for the Office Maintenance section of the Weekly PM Checklist:

HVAC Filter and Vents

Remove the HVAC filter and vents, clean them thoroughly to remove dust and debris, and replace them to ensure proper airflow.

Weekly PM Checklist Quiz

Once the employee has completed the module, they must complete the quiz. To pass the quiz, the employee must score 100%. If the employee does not pass their first attempt, they must take the quiz again. If they do not pass on their second attempt, you must review the quiz and answers with them before their third attempt.

1. Why is preventive maintenance crucial in a car wash?
    a. To reduce water usage
    b. To ensure smooth operation and reduce repair costs
    c. To increase customer waiting time
    d. To save on electricity
2. What are the items needed to complete the Weekly PM Checklist?
    a. Phone/Tablet, Weekly PM Checklist Form, Knowledge of Car Wash Equipment
    b. Phone/Tablet, Cleaning Supplies, Toolbox
    c. Phone/Tablet, Water Hose, Knowledge of Car Wash Equipment
    d. Phone/Tablet, Safety Gear, Weekly PM Checklist Form
3. What should you do if the salt level in the salt tank is low?
    a. Leave it as it is
    b. Fill the tank until it is above the halfway mark
    c. Empty the tank completely
    d. Add more water to the tank
4. How often should air compressor tank drains be set to drain?
    a. Every 2 hours
    b. Every 6 hours
    c. Every 4 hours
    d. Every 8 hours
5. What is the correct PSI range for air compressor pressure?
    a. 100-150 PSI
    b. 140-175 PSI
    c. 175-200 PSI
    d. 200-250 PSI
6. How do you check for air leaks in the equipment room?
    a. Use a pressure gauge
    b. Spray soapy water on suspected areas
    c. Listen for silence
    d. Check the temperature
7. What should you use to clean the photo eyes at the entrance of the tunnel?
    a. Paper towel
    b. Microfiber towel
    c. Cotton cloth
    d. Tissue paper
8. What is the correct chain tension range for the conveyor?
    a. 50-60 PSI

b. 60-70 PSI
c. 70-80 PSI
d. 80-90 PSI

9. What should be done if the take-up carriage is at the end of its travel?
    a. Add more links to the chain
    b. Remove a few links from the chain
    c. Tighten the carriage bolts
    d. Lubricate the chain
10. What should you do if a blower is not functioning properly?
    a. Ignore it
    b. Check the power supply and connections, and repair or replace as needed
    c. Adjust the blower timing
    d. Clean the blower housing

Weekly PM Checklist Demonstration

During the Demonstration, it is important that you do not stop to answer an employee's questions or provide additional information. The goal is for the employee to see the process performed as close to a real-life scenario as possible. This uninterrupted performance will help connect the steps or information learned. We will answer all questions and address any issues after the Demonstration.

Once the employee has passed the quiz, ask if they have any questions and provide the answers. Next, show them where all the tools and resources for completing the Weekly PM Checklist are located and how to operate each one successfully. Then, without commentary or interruption, and in real-time, demonstrate completing the Weekly PM Checklist and performing all tasks involved.

After the demonstration, review the process and any team member questions. Then, give the team member **Weekly PM Checklist Handouts 1-7** and answer any additional questions.

Weekly PM Checklist Perform & Coach

During Perform & Coach, it is important that you do not stop to answer any team member's questions, and you shouldn't stop the team member to provide additional information. The goal is for the team members to complete the process. Coaching will be provided upon completion.

Without commentary or interruption, and in real-time, have the team member complete the Weekly PM Checklist and perform all tasks involved. During the performance, observe steps performed correctly and incorrectly so that accurate coaching may be delivered after the performance. Once complete, deliver feedback and coaching on the performance.

Repeat the Perform & Coach process until the team member has complete knowledge and understanding of all the information covered in this module, and you and the team member both feel confident they can perform the tasks and procedures to standard. Once the team member can consistently perform the tasks and procedures correctly, they are ready for development sign-off.

Weekly PM Checklist Handout 1-Equipment Room Maintenance

The following are the tasks for the Equipment Room Maintenance section of the Weekly PM Checklist:

Salt Tank Level

Check if the salt in the salt tank is over halfway full.

- If you notice the salt level is low, fill the tank until it reaches above the halfway mark. This ensures the water softener functions correctly and prevents scale buildup in the equipment.

Oil Levels in Powerpacks

Use the sight gauge to check the oil level.

- If it's below the 3/4 mark, top it up with the recommended oil type until it reaches the desired level.

Air Compressor Settings

Ensure all air compressor tank drains are set to 10 seconds every 4 hours.

- Refer to the air compressor manual to adjust the timer settings to 10 seconds every 4 hours to prevent moisture buildup in the tanks.

Air Compressor Operation

Check all air compressors to ensure they are operating correctly and document any issues in the notes section if they are not operating correctly.

> ***Example:*** If pressing the test button does not activate the compressor, check for tripped breakers or loose connections and document the findings in the notes section for further action.

Air Compressor Pressure Range

Use the pressure gauge to check the PSI.

- If the pressure is outside the 140-175 PSI range, adjust the regulator until the correct pressure is achieved.

Air Compressor Oil Levels

Using the sight gauge, check if the oil in the air compressors is at the appropriate levels.

- If the sight gauge shows the oil level is low, add the recommended compressor oil until it reaches the correct level.

Air Compressor Oil Condition

Inspect the oil in the air compressors to ensure it is not milky.

- Replace the oil immediately if it is milky. Milky oil indicates water contamination. Drain the contaminated oil, replace it with fresh oil, and check for sources of water ingress.

Chemical Pumps

Open the drain valve on the air separators to release any accumulated water, ensuring the pumps operate efficiently.

Chemical Lines

Check if all chemical lines are free of backflow issues.

- If you notice air bubbles in the lines, use a priming pump to clear the lines of air and restore proper chemical flow.

Air Leaks

Listen for any air leaks in the equipment room.

- If leaks are detected, spray soapy water on suspected areas. If bubbles form, tighten fittings or replace damaged hoses to stop the leak.

Chemical Delivery Panels

Use a pressure gauge to check the PSI.

- Adjust the regulator to maintain a consistent pressure between 200-250 PSI.

Foot Valves

Remove and clean any debris from the foot valves and replace damaged valves to prevent leaks or blockages.

High-Pressure Pumps

Use a pressure gauge to check and adjust the high-pressure pumps to the specified PSI settings.

- Omni/Side Blaster: 500 PSI
- Prep: 1,200 PSI

Thermostat Settings

Check if the thermostat is set to the appropriate temperature (Winter: 55 degrees, Summer: 70 degrees).

- Adjust the thermostat if necessary.

Grit Trap

Pump excess water from the grit trap using the grit trap water removal guide and upload a picture of the water level if necessary.

Weekly PM Checklist Handout 2-Tunnel Maintenance

The following are the tasks for the Tunnel Maintenance section of the Weekly PM Checklist:

Entrance Photo Eyes

Gently wipe the photo eyes with a microfiber towel to remove any dust or debris that could interfere with their function.

Foam Generators

Disassemble the foam generators and clean the scrubbies to remove soap build-up, ensuring a consistent foam output.

VPD Functionality

Verify if the VPD is functioning properly.

- If the VPD is not working, check the power supply and connections. Refer to the troubleshooting guide to resolve common issues.

Tunnel Lights

Ensure all tunnel lights are functioning (overhead lights, colored LEDs, indicator lights, and signage).

- Replace or repair the lights if they are not functioning.

Timing Settings

Use the control panel to check and adjust the timing settings for different components to ensure they activate at the correct time.

Tunnel Camera Lenses

Wipe the camera lenses with a microfiber towel to remove any smudges or dirt that could obstruct the view.

Weekly PM Checklist Handout 3-Conveyor Maintenance

The following are the tasks for the Conveyor Maintenance section of the Weekly PM Checklist:

Chain Tension

Use a tension gauge to measure the chain tension.

- Adjust the tension system as necessary if it is outside the 70-80 PSI range.

Chain Tension Check

Check the position of the take-up carriage.

- If the take-up carriage is at the end of its travel, remove a few links from the chain to maintain proper tension.

Grates

Check all grates and reposition or replace them to ensure they are flat and secure, with the rough side facing up for better traction.

- Adjust or replace the grates if necessary.

Take-up Section

Verify if the take-up section plate is secure.

- Tighten any loose bolts or replace damaged components to secure the take-up section plate.

Take-up Door

Inspect the rubber pads for wear and tear.

- Replace any worn-out pads to maintain a proper seal.

Air Leaks

Listen for any air leaks in the take-up section.

- If leaks are detected, spray soapy water on suspected areas. If bubbles form, tighten fittings or replace damaged hoses to stop the leak.

Conveyor Decks

Clean all three conveyor decks at the take-up and drive sections and ensure they are free of debris.

Drive Section Plate

Check and tighten any loose bolts on the drive section plate to ensure it is firmly in place.

Bearings and Cylinders

Ensure proper lubrication and functioning.

- Apply grease to the bearings and Fluid Film to the air cylinder to maintain smooth operation based on the location greasing schedule.

Chain Inspection

Examine the chain closely and replace any damaged rollers or links to prevent further issues.

Weekly PM Checklist Handout 4-Brushes Maintenance

The following are the tasks for the Brushes Maintenance section of the Weekly PM Checklist:

Bearings

Ensure smooth operation of bearings

- Use a grease gun to apply grease to all rotational bearings, ensuring they move smoothly without resistance based on the location's greasing schedule.

Oil Reservoirs

Check if there is a sufficient amount of fluid in all oil reservoirs (Omni, Tire Shiner, Top Brush, Wraps).

- Open the oil reservoirs and add the appropriate oil if the levels are low.

Air Cylinders

Ensure proper lubrication and operation.

- Apply Fluid Film to all air cylinders to prevent rust and ensure smooth movement.

Tire Shiner Brushes

Check if the tire shiner brushes are receiving chemical at all sections and if there is any excess tire shine on the ground.

- If there is excess tire shine on the ground, adjust the chemical supply or fix any leaks to prevent wastage and ensure proper application.

Brush and Mitter Material

Inspect all brush and mitter material for worn or damaged brush material.

- Replace the material if it is not in good condition.

Brush Rotation and Retracts

Check that all brushes are rotating within the acceptable RPM range (70-80 RPM, site-specific), and that all retracts (front, side, and rear) are functioning.

Weekly PM Checklist Handout 5-Blowers Maintenance

The following are the tasks for the Blowers Maintenance section of the Weekly PM Checklist:

Blowers Functionality

- Verify if all blowers are functioning properly.
- Fix or replace blowers if they are not functioning.
    - Example: Check the power supply and connections for each blower. Repair or replace any blowers that do not operate correctly.

Blower Timing

Check if all blowers engage at the appropriate time.

- Adjust the timing settings if necessary.

Blower Gates

Check the operation of blower gates and adjust their timing or repair any faulty gates to ensure proper operation.

Blower Housings and Screens

Ensure all blower housings and inlet screens are clean and free of debris.

- Remove any debris from the blower housings and screens to maintain optimal airflow and performance.

Blower Position

Check the alignment and positioning of each blower and make adjustments to ensure they are aimed correctly for effective drying.

Weekly PM Checklist Handout 6-Central Vacuum Unit Maintenance

The following are the tasks for the Central Vacuum Unit Maintenance section of the Weekly PM Checklist:

Filter Bags

Inspect the filter bags and clean or replace them to ensure proper suction and prevent clogging.

Mini Separators

Remove the mini separators and clean out debris to maintain effective vacuum performance.

Separator Sections

Check if the top and bottom sections of the separator are clean and free of debris.

- Disassemble the separator and clean both the top and bottom sections to ensure unobstructed airflow.

Vacuum Functionality

Test each vacuum for proper operation

- Repair or replace any units that do not work.

Weekly PM Checklist Handout 7-Lot & Office Maintenance

Vacuum Stations

Test the suction at each station and clear any blockages or repair any issues to restore full suction power.

Vacuum Tools

Check for wear and tear on vacuum tools and replace any that are damaged to ensure effective cleaning.

Vacuum Hoses and Couplers

Ensure all vacuum hoses and couplers are attached securely.

- Tighten any loose connections and replace any damaged.

Mat Cleaners

Verify if all mat cleaners are clean and functioning properly.

- Clean the mat cleaners and repair any issues to ensure they operate effectively.

Air Guns

Check if all air guns are attached and in good condition and if they are functioning without air leaks.

- Fix the leaks or replace the air guns if necessary.

Spray Stations

Clean the spray nozzles and check the water supply to ensure the stations work as intended.

Trash Cans and Towel Baskets

Check the stability and condition of trash cans and towel baskets, repairing or replacing any that are damaged.

Vacuum Leaks

Listen for any vacuum leaks or noises.

- Use soapy water to locate vacuum leaks, tighten connections, or replace damaged hoses.

Office Maintenance

The following are the tasks for the Office Maintenance section of the Weekly PM Checklist:

HVAC Filter and Vents

Remove the HVAC filter and vents, clean them thoroughly to remove dust and debris, and replace them to ensure proper airflow.

TROUBLESHOOTING EQUIPMENT ISSUES-508

Welcome

Welcome to the Troubleshooting Equipment module. In this module, you will learn about common equipment issues and how to perform the troubleshooting to determine the cause.

Notes and Questions

As you go through the module, please follow along and take notes as you go. Taking notes will help you remember any key points or questions that you would like to discuss. Once you have completed each section and completed your quiz, you can review the information and your questions with a manager.

Quiz

Once you have finished watching the module, there will be a quiz to review the information in the module. A score of 100% must be achieved to pass each quiz. If you do not pass the quiz on your first attempt, retry the quiz. If you do not pass on your second attempt, locate a manager. Your manager will review the module with you and address any questions you may have. Once you have passed the quiz, exit the module and locate a manager to proceed to the Demonstration for this module. Your manager will then review the information and any questions you may have.

Why

Ensuring that all our equipment is functioning properly is a critical component of delivering high-quality wash services to our customers, so we must quickly identify, diagnose, and resolve issues anytime they are observed.

What

The following are the items you will need to successfully troubleshoot equipment issues:

1. Knowledge of Car Wash Equipment
2. Phone/Camera
3. Various tools based on the task

Educate

Keeping our car wash functioning at its best results from frequent checks of our equipment and quick reactions when issues arise. The following are common issues and their troubleshooting steps taken to ensure the equipment returns to proper function.

Conveyor

Conveyor Not Moving

Cause: Power issue, motor failure, or jammed belt.

Solution: Check the power supply, inspect the motor for faults, and remove any obstructions from the belt.

Chain Slippage

Cause: Worn or misaligned rollers.

Solution: Replace the belt if worn and realign the rollers as necessary.

Water Pumps

No Water Pressure

Cause: Blocked filter, damaged impeller, or air lock in the pump.

Solution: Clean or replace the filter, inspect and replace the impeller, and bleed the air from the pump.

Pump Overheating

Cause: Running dry, clogged intake, or inadequate ventilation.

Solution: Ensure the pump is always primed, clean the intake, and improve ventilation.

High-Pressure Rinse

Not Spraying

Cause: Clogged nozzle, faulty unloader valve, or pressure switch failure.

Solution: Clean or replace the nozzle, check and replace the unloader valve, and test the pressure switch.

Inconsistent Pressure

Cause: Air leaks, worn seals, or fluctuating water supply.

Solution: Seal any air leaks, replace worn seals, and ensure a steady water supply.

Chemical Dispensers

No Chemical Dispensing

Cause: Empty chemical tank, blocked dispenser line, or faulty solenoid.

Solution: Refill the tank, clean the dispenser line, and check the solenoid operation.

Incorrect Chemical Mixing

Cause: Calibration error, blocked mixing valve, or improper chemical supply.

Solution: Recalibrate the dispenser, clean the mixing valve, and verify the chemical supply.

Drying Systems

Blowers Not Working

Cause: Electrical issue, motor failure, or obstructed airflow.

Solution: Check electrical connections, inspect and replace the motor, and clear any obstructions in the airflow path.

Uneven Drying

Cause: Misaligned blowers, worn nozzles, or inconsistent air pressure.

Solution: Realign the blowers, replace worn nozzles, and ensure consistent air pressure.

Solenoids

No Response from Solenoid

Causes: Lack of power supply, blown fuse, or faulty wiring.

Solutions: Check the power supply, replace any blown fuses, and inspect the wiring for damage or loose connections.

Intermittent Operation

Causes: Poor electrical connections, loose wires, or fluctuating power supply.

Solution: Secure all electrical connections and ensure the power supply is stable.

Solenoid Stuck Open or Closed

Causes: Debris or sediment buildup, worn or damaged internal components, or a broken spring.

Solution: Disassemble the solenoid, clean out any debris, and replace worn or damaged parts.

Low Flow or No Flow

Causes: Partial blockage in the valve, insufficient water pressure, or incorrect solenoid size.

Solution: Clean any blockages, verify the water pressure is adequate, and ensure the solenoid is the correct size for the application.

Leaking Solenoid

Causes: Damaged or worn seals, improper installation, or cracks in the solenoid body.

Solution: Replace seals, ensure proper installation, and inspect the solenoid body for cracks or damage.

Troubleshooting Equipment Issues Quiz

Once the employee has completed the module, they must complete the quiz. To pass the quiz, the employee must score 100%. If the employee does not pass their first attempt, they must take the quiz again. If they do not pass on their second attempt, you must review the quiz and answers with them before their third attempt.

1. What should you check if the conveyor is not moving?
    a. Water pressure
    b. Power supply, motor faults, and obstructions in the belt
    c. Chemical levels
    d. Air compressor settings
2. What is the likely cause of chain slippage on the conveyor?
    a. Insufficient water pressure
    b. Worn or misaligned rollers
    c. Blocked filter
    d. Loose wiring
3. If there is no water pressure from the water pumps, what should be checked first?
    a. Air compressor oil levels
    b. Blocked filter, damaged impeller, or air lock in the pump
    c. Chemical dispenser lines
    d. Solenoid operation
4. What could cause the high-pressure rinse not to spray?
    a. Low salt level in the tank
    b. Clogged nozzle, faulty unloader valve, or pressure switch failure
    c. Misaligned blowers
    d. Loose chains
5. What should you do if the chemical dispenser is not dispensing any chemicals?
    a. Check the thermostat settings
    b. Refill the chemical tank, clean the dispenser line, and check the solenoid operation
    c. Realign the blowers
    d. Replace the conveyor belt
6. What could cause uneven drying in the drying systems?
    a. Electrical issue
    b. Misaligned blowers, worn nozzles, or inconsistent air pressure
    c. Low water pressure
    d. Air lock in the pump
7. What should be done if a solenoid is stuck open or closed?
    a. Check for air leaks
    b. Disassemble the solenoid, clean out debris, and replace worn or damaged parts
    c. Check the thermostat settings
    d. Recalibrate the chemical dispenser

Troubleshooting Equipment Issues Demonstration

During the Demonstration, it is important that you do not stop to answer an employee's questions or provide additional information. The goal is for the employee to see the process performed as close to a real-life scenario as possible. This uninterrupted performance will help connect the steps or information learned. We will answer all questions and address any issues after the Demonstration.

Once the employee has passed the quiz, ask if they have any questions and provide the answers. Next, show them where all the troubleshooting tools and resources are located and how to operate each one successfully. Then, without commentary or interruption, and in real time, demonstrate the troubleshooting tasks from the module.

After the demonstration, review the process and any team member questions. Then, give the team member the **Troubleshooting Equipment Issues Handout** and answer any additional questions.

Troubleshooting Equipment Issues Perform & Coach

During Perform & Coach, it is important that you do not stop to answer any team member's questions, and you shouldn't stop the team member to provide additional information. The goal is for the team members to complete the process. Coaching will be provided upon completion.

Without commentary or interruption, and in real-time, have the team member complete the troubleshooting tasks from the module. During the performance, observe steps performed correctly and incorrectly so that accurate coaching may be delivered after the performance. Once complete, deliver feedback and coaching on the performance.

Repeat the Perform & Coach process until the team member has complete knowledge and understanding of all the information covered in this module, and you and the team member both feel confident they can perform the tasks and procedures to standard. Once the team member can consistently perform the tasks and procedures correctly, they are ready for development sign-off.

Troubleshooting Equipment Issues Handout

The following are common issues and their troubleshooting steps taken to ensure the equipment returns to proper function.

Conveyor

Conveyor Not Moving

Cause: Power issue, motor failure, or jammed belt.

Solution: Check the power supply, inspect the motor for faults, and remove any obstructions from the belt.

Chain Slippage

Cause: Worn or misaligned rollers.

Solution: Replace the belt if worn and realign the rollers as necessary.

Water Pumps

No Water Pressure

Cause: Blocked filter, damaged impeller, or air lock in the pump.

Solution: Clean or replace the filter, inspect and replace the impeller, and bleed the air from the pump.

Pump Overheating

Cause: Running dry, clogged intake, or inadequate ventilation.

Solution: Ensure the pump is always primed, clean the intake, and improve ventilation.

High-Pressure Rinse

Not Spraying

Cause: Clogged nozzle, faulty unloader valve, or pressure switch failure.

Solution: Clean or replace the nozzle, check and replace the unloader valve, and test the pressure switch.

Inconsistent Pressure

Cause: Air leaks, worn seals, or fluctuating water supply.

Solution: Seal any air leaks, replace worn seals, and ensure a steady water supply.

Chemical Dispensers

No Chemical Dispensing

Cause: Empty chemical tank, blocked dispenser line, or faulty solenoid.

Solution: Refill the tank, clean the dispenser line, and check the solenoid operation.

Incorrect Chemical Mixing

Cause: Calibration error, blocked mixing valve, or improper chemical supply.

Solution: Recalibrate the dispenser, clean the mixing valve, and verify the chemical supply.

Drying Systems

Blowers Not Working

Cause: Electrical issue, motor failure, or obstructed airflow.

Solution: Check electrical connections, inspect and replace the motor, and clear any obstructions in the airflow path.

Uneven Drying

Cause: Misaligned blowers, worn nozzles, or inconsistent air pressure.

Solution: Realign the blowers, replace worn nozzles, and ensure consistent air pressure.

Solenoids

No Response from Solenoid

Causes: Lack of power supply, blown fuse, or faulty wiring.

Solutions: Check the power supply, replace any blown fuses, and inspect the wiring for damage or loose connections.

Intermittent Operation

Causes: Poor electrical connections, loose wires, or fluctuating power supply.

Solution: Secure all electrical connections and ensure the power supply is stable.

Solenoid Stuck Open or Closed

Causes: Debris or sediment buildup, worn or damaged internal components, or a broken spring.

Solution: Disassemble the solenoid, clean out any debris, and replace worn or damaged parts.

Low Flow or No Flow

Causes: Partial blockage in the valve, insufficient water pressure, or incorrect solenoid size.

Solution: Clean any blockages, verify the water pressure is adequate, and ensure the solenoid is the correct size for the application.

Leaking Solenoid

Causes: Damaged or worn seals, improper installation, or cracks in the solenoid body.

Solution: Replace seals, ensure proper installation, and inspect the solenoid body for cracks or damage.

COME ALONG-509

Welcome

Welcome to the Come Along Module. In this module, you will learn about the come along and the proper steps for safe use.

Notes and Questions

As you go through the module, please follow along and take notes as you go. Taking notes will help you remember any key points or questions that you would like to discuss. Once you have completed each section and completed your quiz, you can review the information and your questions with a manager.

Quiz

Once you have finished watching the module, there will be a quiz to review the information in the module. A score of 100% must be achieved to pass each quiz. If you do not pass the quiz on your first attempt, retry the quiz. If you do not pass on your second attempt, locate a manager. Your manager will review the module with you and address any questions you may have. Once you have passed the quiz, exit the module and locate a manager to proceed to the Demonstration for this module. Your manager will then review the information and any questions you may have.

Why

This module aims to ensure the proper use and safety protocols associated with operating a come-along. This includes understanding the tool's components and functionality, following step-by-step instructions for its safe operation, and adhering to safety guidelines to prevent accidents and ensure effective usage. By thoroughly covering these aspects, the module aims to ensure users are well-prepared to handle a come-along safely and efficiently in various applications.

What

The following are the items you will need to successfully submit a facility support request:

1. Come along
2. Heavy-duty gloves
3. Safety goggles
4. Secure anchor point
5. Load or object to be moved

Educate

A come-along is a versatile tool for pulling or lifting heavy loads through a ratcheting mechanism. It consists of a sturdy cable or strap, a set of hooks or chains for securing an anchor point and the load, and a ratchet handle allowing incremental movement.

Come-Along Components

- Handle/Lever: Provides leverage for tightening the cable or strap.
- Ratchet: Engages to apply tension with each lever pull.
- Cable or Strap: Transfers the pulling force to the conveyor.
- Hooks: Attach the come-along to an anchor point and the conveyor.

Electric Come Along

An electric come-along is powered by electricity, making it more efficient and suitable for repetitive, continuous, or heavy-lifting tasks. However, an electric come-along has a limited battery life, so a traditional come-along should be used for tasks requiring more than 45 minutes of continuous use. Additionally, the battery should always be at full capacity before the start of any project.

Come-Along Safety

- A come-along should be checked for fraying or broken pieces before use. If the come-along cable or device is damaged, remove it from service.
- When in use, keep all body parts away from pinch points. Verify that all connections are thoroughly secure before tightening the device.
- Always exercise extreme caution when using the come-along, as it has many moving pieces and pinch points.
- Always adhere to the rated load capacity on the come-along to avoid accidents.
- Keep yourself and others clear of the path of the load to prevent injury in case of slippage or failure.
- Ensure the anchor point is strong enough to handle the load and won't give way under pressure.

Operating a Come Along

The following are the steps for properly operating a come-along:

1. Ensure the come along is in good working condition, free from visible damage or wear.
2. Operate the ratcheting mechanism without a load to ensure it engages and releases properly.
3. Select a sturdy anchor point, such as a post or solid structure, that can withstand the load.
4. Securely attach the come-along hook or chain to the anchor point. Ensure the connection is stable and will not slip.
5. Attach the other hook or chain to the load you intend to move.
6. Ensure the connection to the load is stable and secure, preventing any slippage during operation.
7. Extend the cable or strap that comes along to reach the load.
8. Ensure the ratcheting mechanism is engaged and ready to operate.
9. Place the handle properly to start ratcheting and pull the handle back and forth to engage the ratchet and move the load. Each handle motion will incrementally pull the load closer or lift it higher.
10. Keep tension on the cable or strap to ensure smooth and continuous movement.
11. Monitor the load's movement to ensure it progresses as intended.
12. If the load becomes unstable or you need to change direction, pause and make necessary adjustments.
13. Once the load is in the desired position, stable, and secure, carefully disengage the ratcheting mechanism to release tension on the cable or strap.
14. Safely detach the hooks or chains from the anchor point and the load.
15. After use, inspect the come-along for any signs of wear or damage.
16. Return the come along in a dry, secure location to prevent rust and damage.

Conclusion

In conclusion, understanding and mastering safe and effective use is essential for operating a come-along. This module has provided comprehensive information on the components, operation, and safety protocols associated with the come-along, including manual and electric versions. By following the detailed steps and adhering to the safety guidelines, you can ensure this versatile tool's efficient and secure operation. Regular inspection and maintenance are crucial for extending the life of the come-along and preventing accidents. Equipped with this knowledge, you are better prepared to operate a come-along safely and efficiently, enhancing both productivity and safety in your tasks.

Come Along Quiz

Once the employee has completed the module, they must complete the quiz. To pass the quiz, the employee must score 100%. If the employee does not pass their first attempt, they must take the quiz again. If they do not pass on their second attempt, you must review the quiz and answers with them before their third attempt.

1. What is the primary purpose of a come-along?
    a. To measure water pressure
    b. To pull or lift heavy loads through a ratcheting mechanism
    c. To cut materials
    d. To store tools
2. What component of the come-along provides leverage for tightening the cable or strap?
    a. Hooks
    b. Cable or Strap
    c. Handle/Lever
    d. Ratchet
3. What should be done if a come-along cable or device is damaged?
    a. Continue using it
    b. Replace it after the project
    c. Remove it from service immediately
    d. Use it for lighter loads only
4. A come-along should be checked for fraying or broken pieces before use.
    a. True
    b. False
5. It is safe to operate a come-along without securing it to an anchor point.
    a. True
    b. False
6. Keeping all body parts away from pinch points is a crucial safety measure when using a come-along.
    a. True
    b. False
7. Always adhere to the rated load capacity on the come-along to avoid accidents.
    a. True
    b. False
8. The _____ engages to apply tension with each lever pull in a come-along.
    a. Cable or strap
    b. Hooks
    c. Ratchet
    d. Anchor point

9. Ensure the _____ is strong enough to handle the load and won't give way under pressure.
    a. Cable or strap
    b. Handle/Lever
    c. Ratchet
    d. Anchor point
10. When the load is in the desired position, _____ disengage the ratcheting mechanism to release tension on the cable or strap.
    a. Carefully
    b. Quickly
    c. Immediately
    d. Never

Come Along Demonstration

During the Demonstration, it is important that you do not stop to answer an employee's questions or provide additional information. The goal is for the employee to see the process performed as close to a real-life scenario as possible. This uninterrupted performance will help connect the steps or information learned. We will answer all questions and address any issues after the Demonstration.

Once the employee has passed the quiz, ask if they have any questions and provide the answers. Next, show them where all the come along resources are located. Then, without commentary or interruption, and in real-time, demonstrate how to properly operate the come along while following all safety guidelines.

After the demonstration, review the process and any team member questions. Then, give the team member the **Come Along Handout**, and answer any additional questions that arise.

Come Along Perform & Coach

During Perform & Coach, it is important that you do not stop to answer any team member's questions, and you shouldn't stop the team member to provide additional information. The goal is for the team members to complete the process. Coaching will be provided upon completion.

Without commentary or interruption, and in real-time, have the team member perform the steps for properly operating the come along while following all safety guidelines. During the performance, observe steps performed correctly and incorrectly so that accurate coaching may be delivered at the completion of the performance. Once complete, deliver feedback and coaching on the performance.

Repeat the Perform & Coach process until the team member has complete knowledge and understanding of all the information covered in this module, and you and the team member both feel confident they can perform the tasks and procedures to standard. Once the team member demonstrates the ability to consistently perform the tasks and procedures correctly, they are ready for development sign-off.

Come Along Handout

Come-Along Safety

- A come-along should be checked for fraying or broken pieces before use. If the come-along cable or device is damaged, remove it from service.
- When in use, keep all body parts away from pinch points. Verify that all connections are thoroughly secure before tightening the device.
- Always exercise extreme caution when using the come-along, as it has many moving pieces and pinch points.
- Always adhere to the rated load capacity on the come-along to avoid accidents.
- Keep yourself and others clear of the path of the load to prevent injury in case of slippage or failure.
- Ensure the anchor point is strong enough to handle the load and won't give way under pressure.

Operating a Come Along

1. Ensure the come along is in good working condition, free from visible damage or wear.
2. Operate the ratcheting mechanism without a load to ensure it engages and releases properly.
3. Select a sturdy anchor point that can withstand the load, such as a post or solid structure.
4. Securely attach the hook or chain of the come-along to the anchor point. Ensure the connection is stable and will not slip.
5. Attach the other hook or chain to the load you intend to move.
6. Ensure the connection to the load is stable and secure, preventing any slippage during operation.
7. Extend the cable or strap that comes along to reach the load.
8. Ensure the ratcheting mechanism is engaged and ready to operate.
9. Place the handle properly to start ratcheting and pull the handle back and forth to engage the ratchet and move the load. Each handle motion will incrementally pull the load closer or lift it higher.
10. Keep tension on the cable or strap to ensure smooth and continuous movement.
11. Monitor the load's movement to ensure it progresses as intended.
12. If the load becomes unstable or you need to change direction, pause and make necessary adjustments.
13. Once the load is in the desired position, stable, and secure, carefully disengage the ratcheting mechanism to release tension on the cable or strap.
14. Safely detach the hooks or chains from the anchor point and the load.
15. After use, inspect the come-along for any signs of wear or damage.
16. Return the come along in a dry, secure location to prevent rust and damage.