MARLEY®

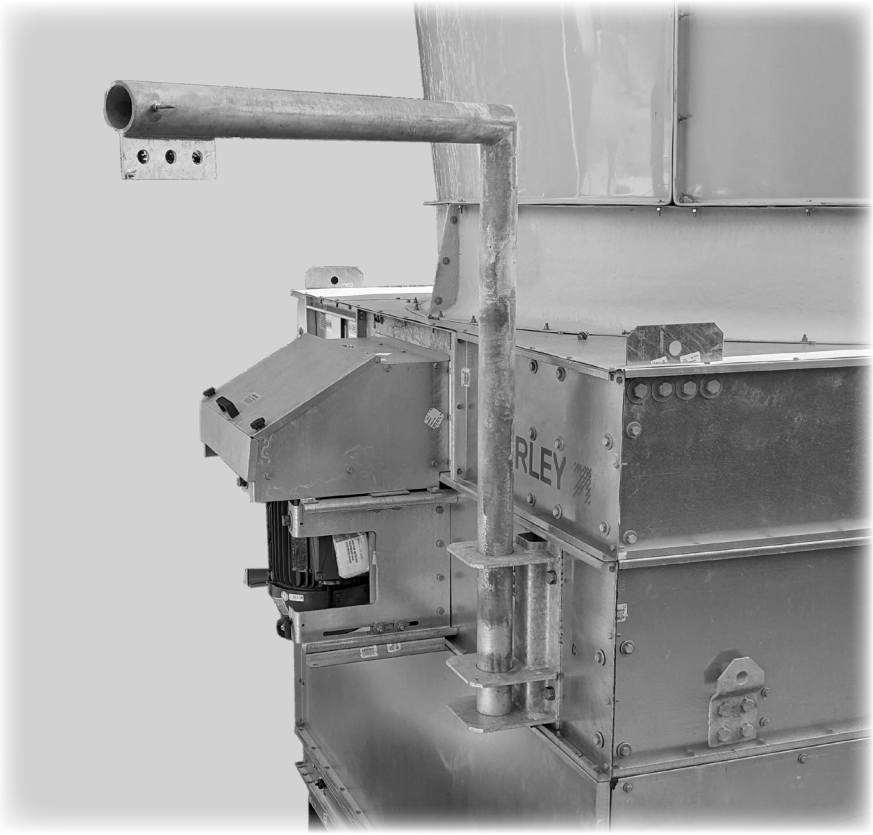
user manual

Davit Crane Arm MD cooling tower — DT fluid cooler / evap condenser

INSTALLATION - OPERATION - MAINTENANCE

10000019359 ISSUED 1/2023

READ AND UNDERSTAND THIS MANUAL PRIOR TO INSTALLING, OPERATING OR MAINTAINING THIS PRODUCT.



contents

Note

This manual contains vital information for the proper installation operation, and maintenance of the Marley Davit Crane Arm. Carefully read the manual (including all Warnings, Cautions and Notes) before installation, operation or maintenance of the Davit Crane Arm and follow all instructions. Save this manual for future reference.

Introduction 3
Safe Operation 4
Installing the Davit Crane Arm 6
Lubrication of the Crane Arm 10
Lifting and Moving Load 10
Rotating the Crane Arm 11
Maintenance and Inspection 13
Inspection Checklist 14
Davit Crane Arm Repair 17
Storage 17

The following defined terms are used throughout this manual to bring attention to the presence of hazards of various risk levels, or to important information concerning the life of the product.

⚠ Warning

Indicates presence of a hazard which can cause severe personal injury, death or substantial property damage if ignored.

⚠ Caution

Indicates presence of a hazard which will or can cause personal injury or property damage if ignored.

Note

Indicates special instructions on installation, operation or maintenance which are important but not related to personal injury hazards.

introduction

The Occupational Safety and Health Act of 1970 states that it is the employer's responsibility to provide a workplace free of hazard. All equipment should be installed, operated, and maintained in compliance with applicable trade, industrial, federal, state, and local regulations. It is the equipment owner's responsibility to obtain copies of these regulations and to determine the suitability of the equipment or its intended use.

This manual and warning labels attached to the equipment are to serve as guidelines for safe installation, operation, and maintenance.

Note

The chain hoist or lifting device is to be supplied by others. Consult your local safety official for guidance. SPX Cooling Tech, LLC is not responsible for, and expressly disclaims any and all liability arising from, any chain hoist or lifting device used in connection with the Davit Crane Arm.

⚠ Warning

The sole intended use of the Davit Crane Arm is to occasionally lift and lowering the motor on MD and DT towers. Any other use of the Davit Crane Arm may create a dangerous condition or result in serious personal injury, death or property damage. Accordingly, SPX Cooling Tech, LLC is not responsible for, and expressly disclaims any and all liability arising from, any use of the Davit Crane Arm other than to lift and lower the motor on MD and DT towers.

Note

The rated capacity of any chain hoist or lifting device must meet or exceed the rated capacity of the Davit Crane Arm which is rated for 650 lb (295 kg) maximum load

This load includes the lifted equipment and the chain hoist or wire rope and the guide chain or rope and any other items attached to the Davit Crane Arm.

⚠ Warning

Failure to comply with these rated capacity and load limits may cause serious personal injury, death or property damage.

This manual provides information regarding the installation, operation and maintenance of the Davit Crane Arm. Any deviation from, change or modification to this User Manual, the original design conditions or the sole intended use of the equipment may result in improper installation, operation or maintenance of the Davit Crane Arm.

introduction

Any such deviation, change or modification shall be the responsibility of the party or parties making such deviation, change or modification. **SPX Cooling Tech, LLC expressly disclaims all liability for any such deviation, change or modification.**

If you have questions about the installation operation or maintenance of this Davit Crane Arm and you do not find the answers in this manual, please contact your Marley sales representative.

Safe Operation

Operation of the Davit Crane Arm is manual. The force to operate the Davit Crane Arm must be applied to the horizontal section of the Davit Crane Arm in a horizontal direction. If the tower maintenance access platform option is not present, it is the user's responsibility to provide a lift or other safe working surface in order to horizontally rotate the Davit Crane Arm.

The term "tower" is used to indicate the cooling unit, either an MD cooling tower or DT fluid cooler / evaporative condenser.

⚠ Warning

Failure to use a tower maintenance access platform, lift or other safe working surface to access and operate the Davit Crane Arm may result in serious personal injury, death or property damage.

installation

The following instructions must be reviewed and followed by any individual responsible for installation, operation and/or maintenance of the Davit Crane Arm.

⚠ Warning

Failure to comply with any of these instructions may result in serious personal injury, death or property damage.

- The Davit Crane Arm should only be installed, operated and maintained by individuals qualified and trained for the safe installation, operation and maintenance of cranes, including the Davit Crane Arm.
- Operators must be in good health, alert, and properly clothed (hard hats, safety shoes, safety glasses, gloves and appropriate attire).
- Keep hands away from the rotating Davit Crane Arm to base holes.
- Keep everything (people, animals, property, etc.) out of the drop-and-lift path of the lifted object.
- Keep everything (people, animals, property, etc.) out of the path of the chain or wire rope that might snap and cause injury.
- Prior to the Davit Crane Arm operation, ensure that a path is planned and cleared of all obstacles.
- Do not attempt to operate if the Davit Crane Arm and load are not visible during the entire operation.
- Swing the Davit Crane Arm by applying force to the horizontal section of the Davit Crane Arm in a horizontal direction. Perform this only from a safe tower maintenance access platform, lift or other safe working surface.
- Do not move a load that exceeds the rated capacity of the Davit Crane Arm. The Davit Crane Arm is rated for 650 lb (295 kg) maximum load.
- Do not use other lifting equipment in combination with the Davit Crane Arm to move a load that exceeds the load rating of this single Davit Crane Arm. Shifting loads could overload the equipment.
- Do not wrap the chain or wire rope around the load. This may damage the chain or wire rope and could cause the load to shift and/or escape. Always use a lifting sling or other approved safe lifting device. Consult your local safety official for guidance.
- Do not leave a lifted load unattended. Place the lifted object on the ground or safely secured to the tower in its original location if it must be left unattended. If left on the tower, reinstall any bolts and other hardware.

Installing the Davit Crane Arm

Determine the tower model from this list:

MD5006	DT8509
MD5008	DT8512
MD5010	DT1012
MD5016	DT1212

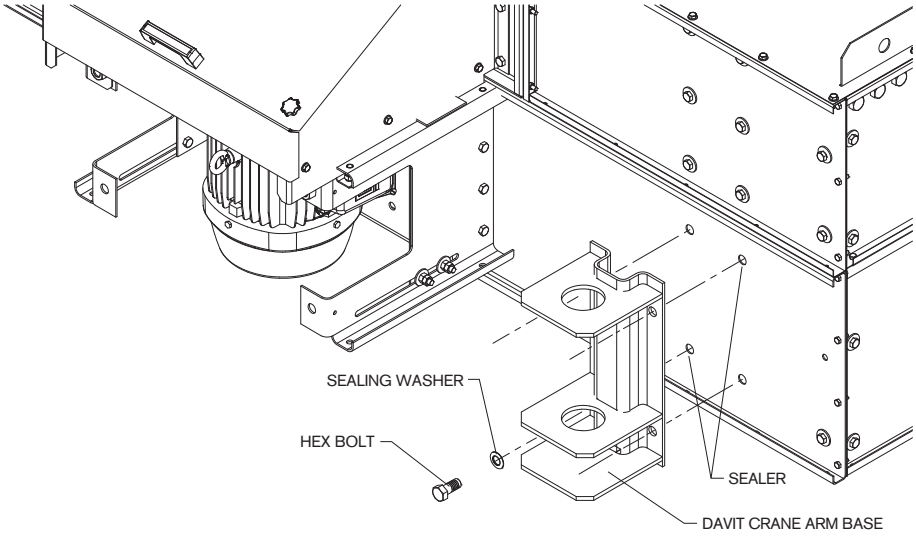
Inspect the Davit Crane Arm and Davit Crane Arm base according to the instructions for Periodic Inspection in this manual. This will give you a record of the condition of the Davit Crane Arm with which to compare future inspections. Contact your Marley sales representative if any parts are worn or damaged.

Davit Crane Arm Base Installation

The wall mounted Davit Crane Arm base may be factory-installed and ship installed on the unit. If not use the following instructions and provided drawings to install the Davit Crane Arm base. The Davit Crane Arm base weight is 34 lb (15.5 kg).

Base Installation MD5006 - MD5008 - MD5010 - DT8509 - DT8512

Remove existing hardware (bolts and lock washers) and reinstall the Davit Crane Arm base using this hardware. Place sealant around each hole, between the Davit Crane Arm base and the tower casing panel.



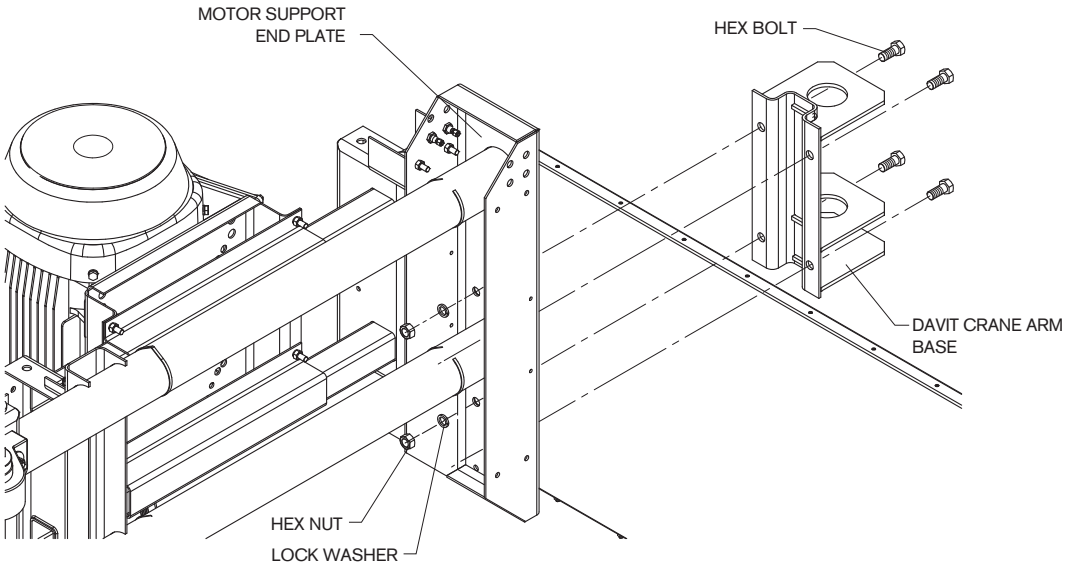
⚠ Warning

Always shut off electrical power to the tower fan motor prior to installing, operating or performing any maintenance to the Davit Crane Arm on the tower. Any electrical switches should be locked out and tagged out to prevent others from turning the power back on.

installation

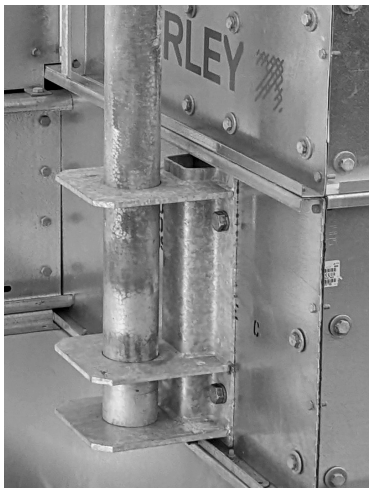
Davit Crane Arm Base Installation MD5016 - DT1012 - DT1212

Remove existing hardware (bolts, lock washers and nuts) and reinstall the base using this hardware. Access to inside of cooling tower will be required.



Davit Crane Arm Installation

Insert the Davit Crane Arm into the Davit Crane Arm base through both holes in the Davit Crane Arm base. The Davit Crane Arm weight is 86 lb (39 kg)



Two persons may be required to install the Davit Crane Arm. Ensure that a safe method of lifting and installing the Davit Crane Arm is provided.

Install the Davit Crane Arm into the Davit Crane Arm base through the two horizontal plates with holes. The arm should rest on the bottom stop plate.

⚠ Warning

Always shut off electrical power to the tower fan motor prior to installing, operating or performing any maintenance to the Davit Crane Arm on the tower. Any electrical switches should be locked out and tagged out to prevent others from turning the power back on.

Safety Decal Installation

Safety decals provided should be installed on the motor side of the tower. Refer to drawings provided for suggested locations

operation

Note

It is the owners responsibility to detect and account for different factors affecting the condition and performance of this equipment.

The sole intended use of the Davit Crane Arm is to lift and lower motors on MD and DT towers.

Prior to operation of the Davit Crane Arm, inspect the Davit Crane Arm base and Davit Crane Arm according to the instructions for Periodic Inspection in this manual. Compare your inspection findings to previous inspections to ensure the equipment is in safe operating condition.

Prior to operating the Davit Crane Arm, inspect the user-provided crane hoist or other lifting device and ensure it is good working order per the operating instructions for the device.

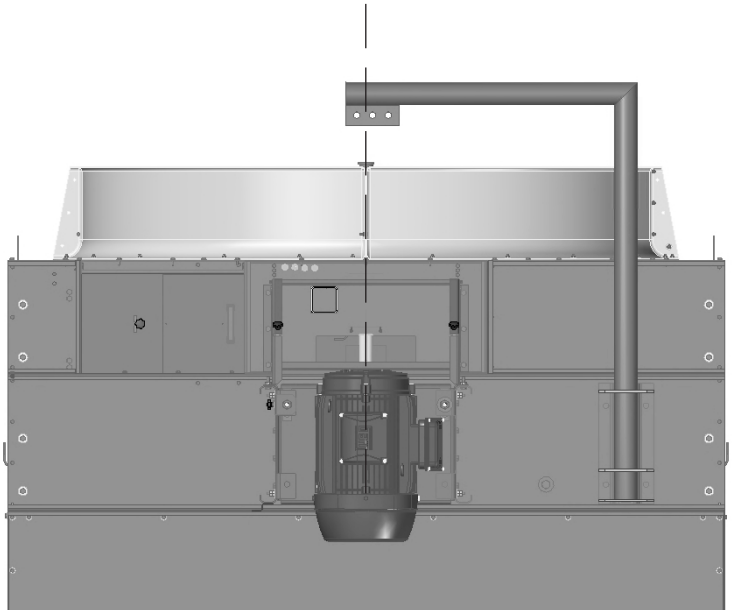
⚠ Warning

Failure to comply with any of these instructions may result in serious personal injury, death or property damage.

- Verify crane hoist rating meets or exceeds the Davit Crane Arm load rating.
- Prior to operating, inspect the chain and hooks on the crane hoist or lifting device and ensure they are in good condition.
- Prior to operating, inspect the lifting eyebolt on the motor and ensure it is secure and in good working condition.
- The force required to lift the load must not exceed the load rating of the Davit Crane Arm. Consider the total force required to lift the load, and all equipment supported by the Davit Crane Arm, not solely the weight of the load.
- Operation of the crane hoist or other lifting device should be at a slow smooth pace to avoid additional load on the Davit Crane Arm.
- This Davit Crane Arm is rated for **650 lb (295 kg) maximum load**
- This load includes the lifted equipment and the chain hoist or wire rope and the guide chain or rope and any other items attached to the Davit Crane Arm.
- Know the load of the lifted object and verify that the lifted object plus lifting device are less than the load rating:
- **Motor or lifted object weight + lifting device + guide chain or rope should be less than or equal to 650 lb maximum load**
- Under maximum load the Davit Crane Arm will have visible deflection at the end. Expected deflection at the end of the Davit Crane Arm at maximum rated load is approximately 1.5" (38mm).
- Operators must be in good health, alert and thoroughly trained in operating the equipment and properly clothed (hard hats, safety shoes, safety glasses, gloves and appropriate attire).

operation

Position Davit Crane Arm over the object to be lifted. Place the crane lifting device in the crane lift hole that most closely aligns with the center of the object to be lifted.



Lift Alignment

Vertical mount motors with shaft up should be lifted with an eyebolt threaded into the motor shaft.

⚠ Warning

Do not wrap the chain or wire rope around the lifted object or load. This may damage the chain or wire rope and could cause the load to shift and/or escape. Always use a lifting sling or other approved safe lifting device. Consult your local safety official for guidance.

⚠ Warning

Clear objects from the path of the load so you can move it freely and observe it at all times during the operation. Make sure the chain or wire rope is not twisted. A twisted chain or wire rope could cause the load to spin. Use a hook with a closing latch with a load rating the meets or exceeds the rated load for the Davit Crane Arm.

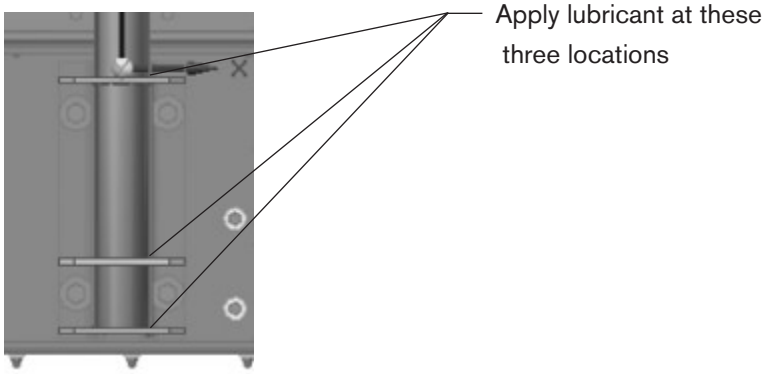


operation

Lubricate the Davit Crane Arm

The Davit Crane Arm is not supplied with a bearing, therefore heavy loads will result in high friction where the Davit Crane Arm passes through the holes in the Davit Crane Arm base and make the Davit Crane Arm difficult to turn. Lubrication should be applied to contact surfaces to lower the friction impact. Lubricating the Davit Crane Arm will also limit damage to the galvanized coating on the arm and base during use.

Lubricate the crane arm at the (3) locations where it touches the Davit Crane Arm base.



WD-40 penetrating oil or NLGI #2 lubricant grease is acceptable. Apply lubricant thoroughly on all touching surfaces. Failure to use lubricant may result in high turning loads if the lifted object or load approaches the load rating of the Davit Crane Arm.

⚠ **Warning**

Lifting and Moving the Load

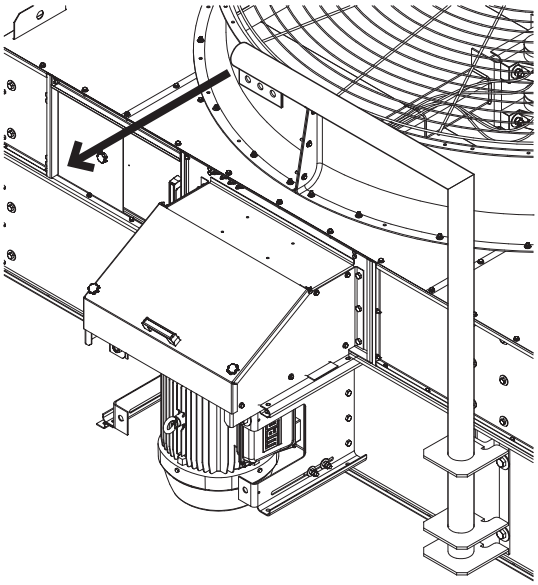
- **Obey a stop signal from anyone.**
- **If the crane and load are not visible during the entire operation, get additional help.**
- **Appoint a supervisor if more than one person is involved in the operation, this will reduce confusion and increase safety.**
- **When lifting an object or load, use a tag line to keep the load from swinging or twisting, while keeping yourself away from the load.**
- **Do Not use the tag line to pull or turn the Davit Crane Arm. You may improperly load the Davit Crane Arm and exceed the Davit Crane Arm load rating.**

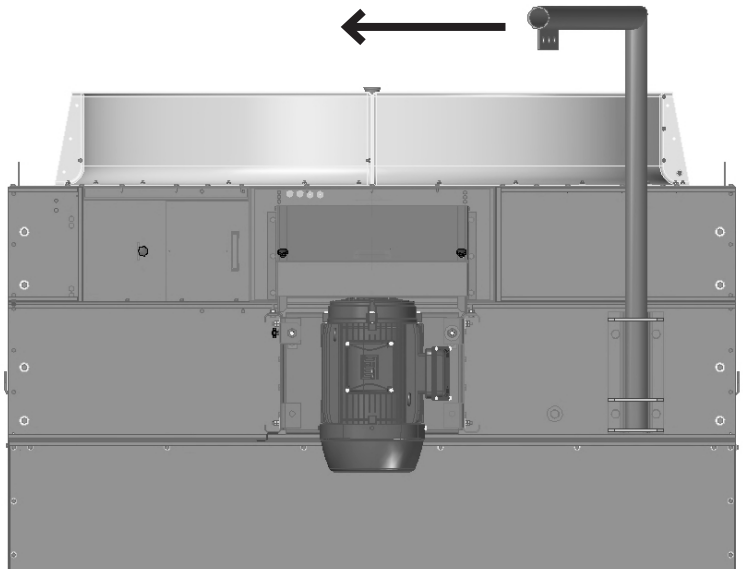
operation

Rotating the Davit Crane Arm

Ensure the turning path of the Davit Crane Arm and lifted object or load is free of interfering objects. Once the load is supported by the Davit Crane Arm and free of surrounding objects turn the Davit Crane Arm by applying a horizontal force to the horizontal Davit Crane Arm.

If an optional maintenance access platform is not installed on the tower, use a man-lift or other safe working surface from which the turning load can be safely applied horizontally.





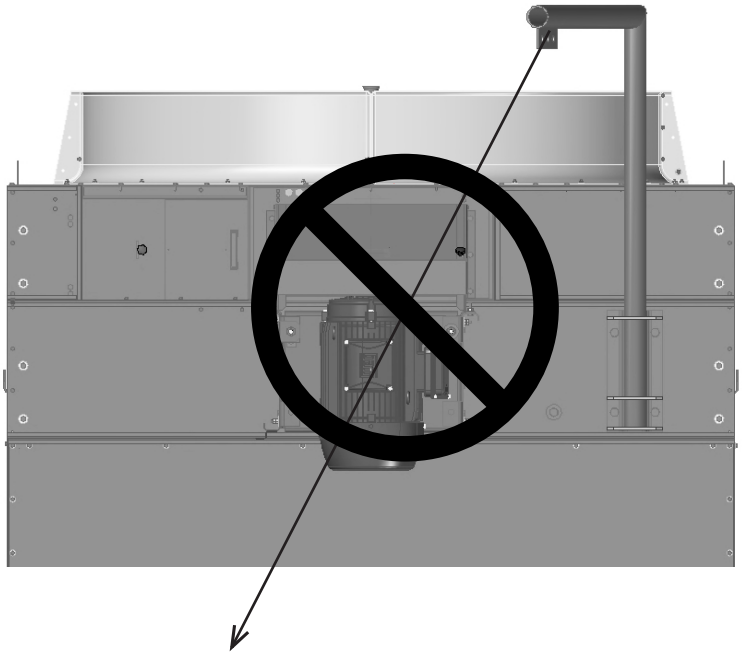
⚠ Warning

Failure to use a tower maintenance access platform, lift or other safe working surface to access and/or install, operate or maintain the Davit Crane Arm may result in serious personal injury, death or property damage.



⚠ Warning

Do not pull the load at a downward angle with a tie line from the ground level.



maintenance

The Davit Crane Arm assembly is hot-dip galvanized. Given that the sole intended use of the Davit Crane Arm is for the occasional removal of the motor, the galvanizing should last as long as the cooling tower. Damage to the galvanized coating during rotation will be limited if sufficient lubrication is applied. Scratches or damage to coating of the Davit Crane Arm at the rotation surfaces can be touched up with cold galvanized spray.

Before painting raise the Davit Crane Arm by placing two inch blocking under the Davit Crane Arm at the base stop plate. Examine the Davit Crane Arm for damage to the coating due to rotation under load. Prior to painting, lightly sand any rusted bare metal until rust is removed. Apply cold galvanized paint to the area and let dry. Remove blocking.

Periodic Inspection

- Start an inspection program as soon as the Davit Crane Arm is put into service.
- Appoint a qualified person to be responsible for regular inspection.
- Keep records of inspection with photo records, this allows comparison with previous inspections to monitor changes in condition.
- Perform inspection before each operation and at least every three hours during operation to check for signs of damage or problems with operation.
- In addition to inspection of the Davit Crane Arm and Davit Crane Arm base, inspect chain hoist and clevis devices.

⚠ Warning

Failure to inspect all equipment before each operation and at least every three hours during operation may result in serious personal injury, death or property damage.

⚠ Warning

Do not use damaged or malfunctioning equipment. Place an "Out of Order" sign on the Davit Crane Arm if it is damaged or malfunctioning. Do not use the Davit Crane Arm until the sign is removed by a qualified maintenance person who has completely corrected the problem.

Consult applicable codes and regulations for specific rules on inspecting the crane and other equipment. Refer to this User Manual for inspecting the Davit Crane Arm and Davit Crane Arm base. Refer to the user manuals for inspection of other lifting devices which is not covered here. Visually inspect the entire Davit Crane Arm, Davit Crane Arm base and all other equipment involved in the operation.

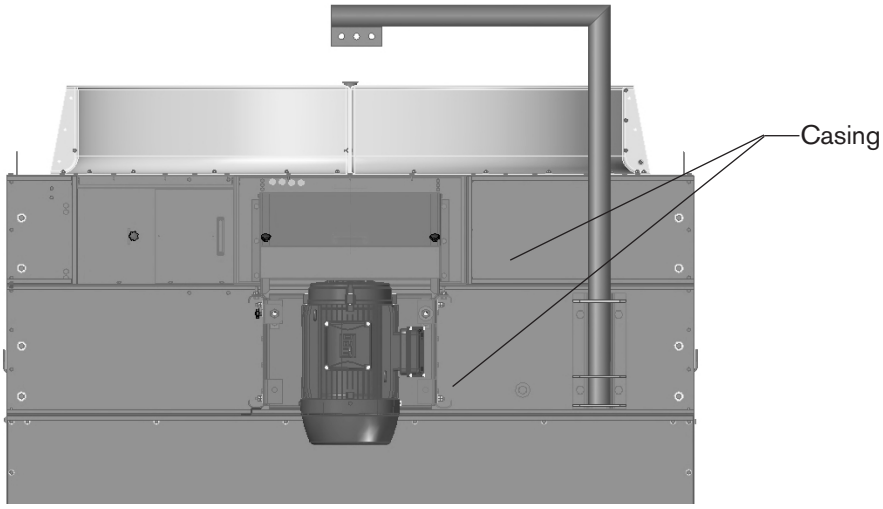
Note

Please store inspection records so they are a source of information for the next inspection.

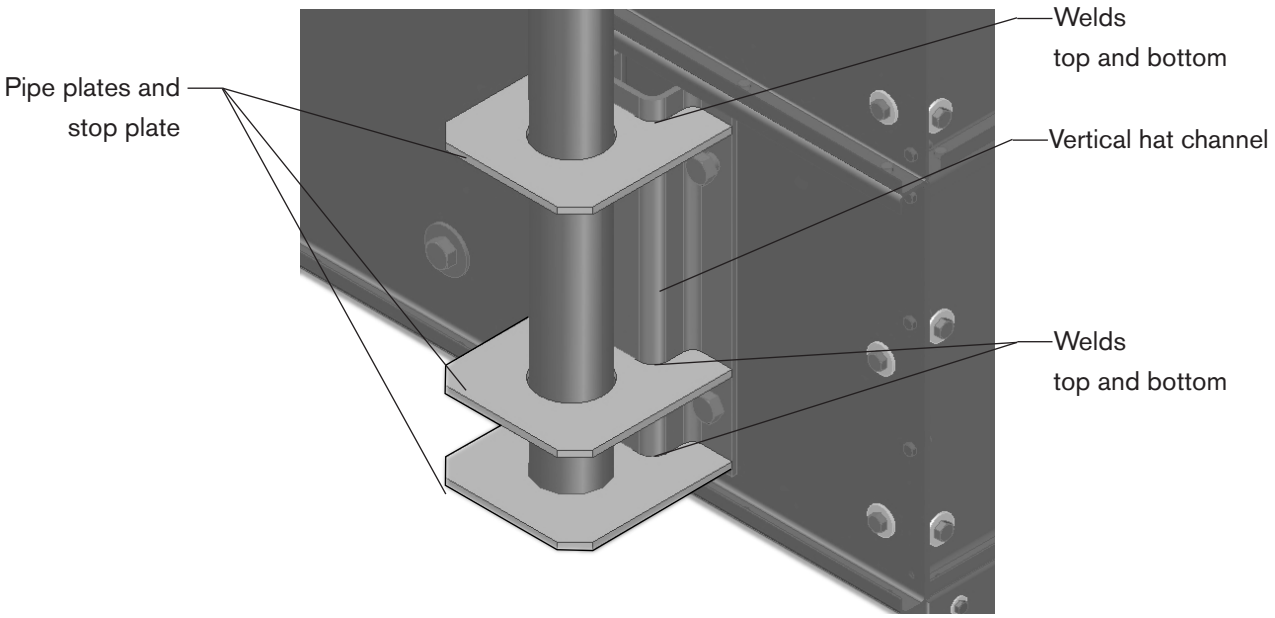
maintenance

Inspection Date:_____

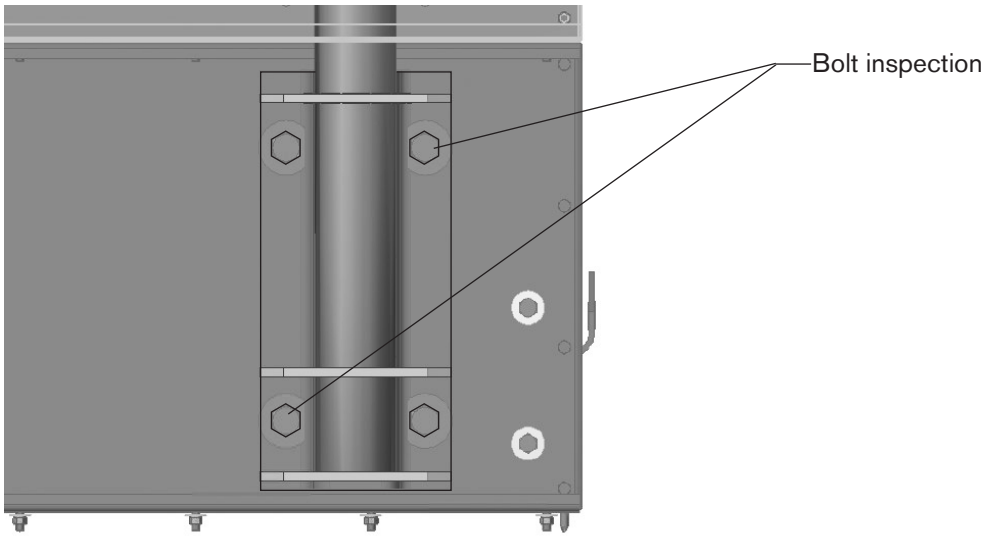
Inspection Item Number	Item Inspected	Area of Focus	Issue yes - no	Inspected By
1	Tower Casing Wall	Tower casing panel has no corrosion and coating is in good condition. Not applicable for stainless steel towers.		
2		Tower casing panel is in good condition, free of dents or other damage.		
3		Decals and safety labels for Davit Crane Arm are not faded or in bad condition.		
4	Davit Crane Arm Base	Davit Crane Arm base horizontal stop plate and pipe plates are straight and level, free of dents.		
5		Davit Crane Arm base vertical hat channel is straight, level and free of dents.		
6		Welds between the horizontal stop plate and the vertical hat channel are in good condition, with no cracks or deterioration.		
7		Welds between the horizontal Davit Crane Arm pipe plate and the vertical hat channel are in good condition with no cracks or deterioration.		
8		Bolts are installed between Davit Crane Arm base and tower. Bolts are in good condition and free of corrosion.		
9	Davit Crane Arm Base Internal Support	Inside of the tower, on the back side of the tower casing, the Davit Crane Arm base bolts to a heavy steel support. Inspect support for corrosion. Warning! Ensure power is disconnected prior to entering unit.		
10	Davit Crane Arm	Inspect coating of Davit Crane Arm. Verify coating is in good condition and arm does not have visible corrosion.		
11		Verify Davit Crane Arm is in good condition, free of dents or other damage.		
12		Inspect painted load rating on horizontal arm. If paint is damaged or faded, refresh the paint so load rating is clear.		
13		Verify Davit Crane Arm vertical pipe is level.		
14		Verify Davit Crane Arm horizontal pipe is level.		
15		Inspect weld between horizontal and vertical pipes in beveled corner. Welds should have no cracks or deterioration.		
16		Inspect weld between horizontal arm and hanger plate. Welds should have no cracks or deterioration.		
17		Inspect hanger plate at end of horizontal arm. Hanger plate should be in good condition, free of cracks and free of excessive deformation at holes		
18	Lifting Device (by others)	Inspect lifting device (chain hoist or other) per the instructions provided with that device. Ensure device is in good working order.		



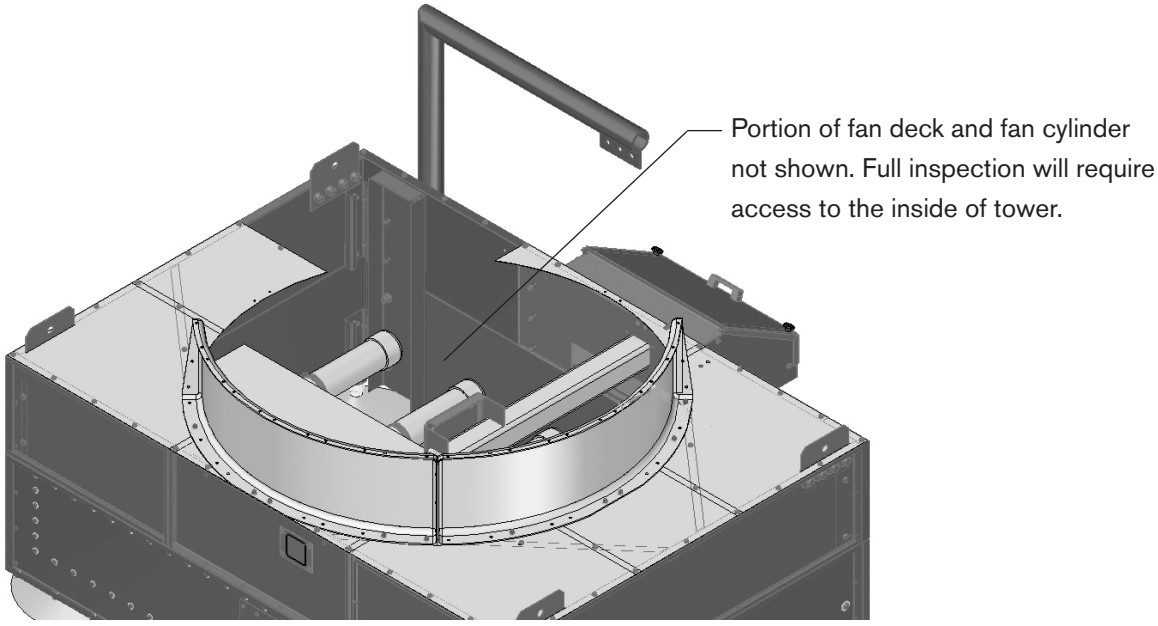
Inspection Items 1 - 2 - 3



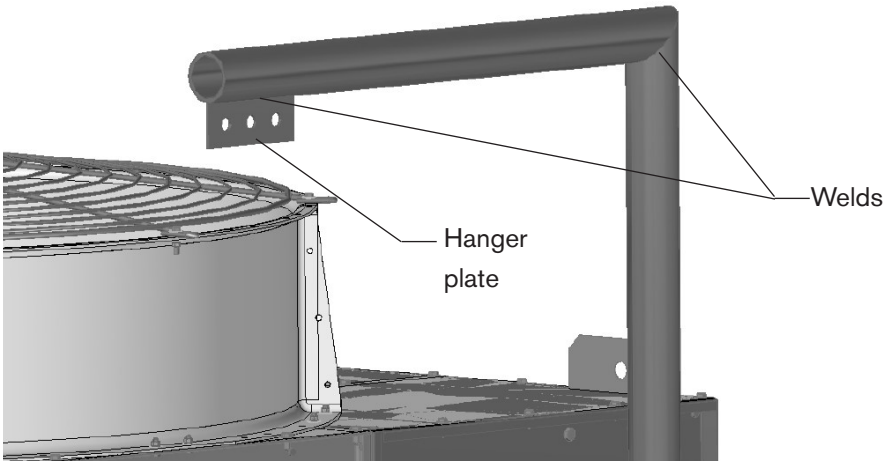
Inspection Items 4 through 7



Inspection Item 8



Inspection Item 9



Inspection Items 10 through 17

Davit Crane Arm Repair

If issues are found during inspection please contact your Marley sales representative. To find your local Marley representative see **spxcooling.com/rep-search** or call 1**-800-4-MARLEY**.

Your Marley sales representative can assist you in determining if field repair or replacement components are required based on inspection findings.

Davit Crane Arm Storage

The Davit Crane Arm and Davit Crane Arm base are hot dip galvanized and can remain installed on the tower. It is recommended that the Davit Crane Arm base remain installed on the tower.

If indoor storage is desired, store in a dry environment.

Davit Crane Arm

USER MANUAL

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