NORDOCK®



Vertical Storing Hydraulic Dock Leveler COLDSTORAGE Series Model "NV" 25,000 to 50,000 lbs. Capacity

Installation and Operation Manual

This manual applies only to vertical storing dock levelers with the following serial number(s): **50966-50973**

54650-OM

NORDOCK INC.

Preface

PLEASE READ AND UNDERSTAND THIS MANUAL COMPLETELY

This manual gives detailed information and instruction on how to operate and maintain your equipment correctly. Failure to do so could result in personal injury, and/or equipment damage. Please consider this manual a permanent part of the unit and keep it with the dock leveler for reference whenever needed.

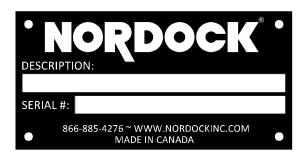
If you have any questions about this manual, the dock leveler, its components, or our products and services, please call us at 1-866-885-4276 and we will be happy to assist you. With proper care and maintenance, this dock leveler is designed to work effectively and efficiently for many years to come.

Problems, Errors and Omissions

This manual has been prepared with the utmost care and attention to detail as to ensure accurate parts and service information should the need arise. Nordock Incorporated believes this manual will provide the operators of this unit all the necessary information required to operate and maintain it for many years. If you believe there is an error, if you have a problem following the guidelines, or if there is information that you feel is missing from this manual, please contact us at the above number so we may attend to the issue immediately.

Dock Identification

It is very important that in order to provide the best possible service from Nordock Inc., please include the model, serial number and capacity of the dock leveler whenever you contact us. Below is the same serial number decal that will be found on the left side frame rail (standing on the dock, facing the lip). Please fill in the information from the decal on the dock leveler to this area. This will greatly reduce the possibility of improper parts being shipped to you.



Copyright

This manual is copyright to Nordock Incorporated. All information, text, drawings, and technical data contained herein are for reference only. No part of this manual may be copied, altered, or stored on electronic media, and cannot be revealed to others for the purpose of competition.

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Warranty

Nordock Inc. expressly warrants that all of its manufactured product shall remain free of defects in material and workmanship under normal use for a period of one-year from the date of delivery to the purchaser. The purchaser must maintain and operate the product in accordance with proper procedures. In the event the product proves defective in material or workmanship, Nordock Inc. will at its option either:

- 1. Replace the product or the defective portion thereof without charge to the purchaser; or,
- 2. Alter or repair the product on site or elsewhere, as Nordock Inc. may deem advisable, without charge to the purchaser.

The warranty stated herein is that offered by Nordock Inc. and expressly disclaims all implied warranties including those of merchantability and fitness. This warranty does not cover any failure caused by improper installation, misapplication, overloading, abuse, negligence, or failure to maintain and protect the equipment from vehicle impact. Nordock Inc. or its representative assume no responsibility or liability for any incidental or consequential damages of any kind including loss of use of any equipment, damage or failure resulting from the use of unauthorized replacement parts or equipment modification, or damages resulting from the misuse of the equipment.

Nordock Inc. warranties extend only to the product itself. Nordock Inc. disclaims all liability of any kind arising out of the workmanship, methods and materials used by the installer or premature product wear, product failure, property damage or bodily injury arising from improper installation.

These warranties as stated herein are the exclusive remedies for all claims.

Safety

The operators of this unit must read these safety practices before installing, operating or servicing the dock leveler. Failure to follow these safety practices may result in bodily injury, property damage or death.

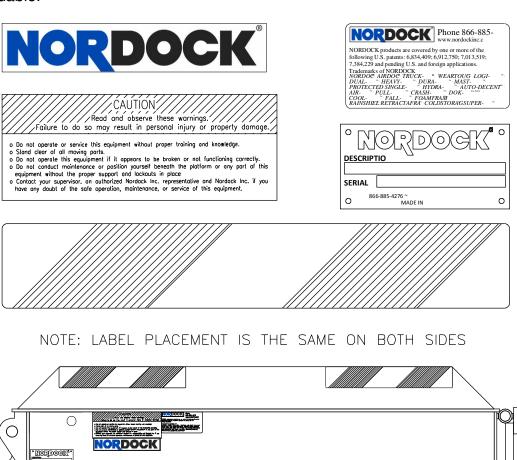
Read and follow the operating instructions contained in this manual before operating the dock leveler. If you do not understand the instructions, contact your supervisor for explanation and instruction on the safe operation of this unit. The following guidelines are to be used in conjunction with all laws, governances and codes in effect where the dock leveler is installed.

- 1. Inspect the dock leveler both before the truck arrives, and once it has left to ensure that all parts are undamaged and in good working order. If the dock leveler does not appear to function properly, or if it looks damaged, disconnect the power supply, lock out the control panel and immediately report it to your supervisor and safety representative.
- Be sure that the tires of the truck are properly chocked, or that the truck is properly locked in place by a functioning restraining device before loading or unloading.
- 3. Stay clear of the dock leveler when it is in motion.
- 4. Do not operate the dock leveler with equipment, material, or people on the ramp or lip, and never use a fork truck or any type of material handling equipment to lower the ramp.
- 5. Keep hands and feet clear of hinges at all times. Do not attempt to raise or lower the ramp or lip manually. If the dock leveler fails to operate using the procedures contained in this manual, do not use the dock leveler. Disconnect the power supply, lock out the control panel and immediately report it to your supervisor and safety representative. Contact Nordock Inc. or an authorized service representative for service.
- 6. Use extreme caution when installing the maintenance/support pin. Stay clear of the dock until it has risen fully, and do not stand in front of the dock after the stand has been removed. The ramp or lip may fall rapidly, striking the worker. Make sure the maintenance pin is retained with a lock (provided by others) when engaged or the supplied bridge pin clip when disengaged. Be sure that the maintenance/support pin is locked in place and the power has been disconnected with the control panel locked out before entering the dock leveler pit area.
- 7. Any work to be performed on the electrical system must be carried out by a qualified electrician.

- 8. Any work to be performed on the hydraulic system must be carried out by a qualified hydraulic technician or specialist.
- Ensure the dock leveler is clear of all material, equipment, or people before the chocks are removed, or the truck is released from the restraint. After loading or unloading, make sure the dock has been returned to its vertical, stored position.
- 10. If you have any questions, contact your supervisor or your local Nordock Inc. representative.

Labels

The labels and decals on the dock leveler must be kept in clean, legible condition at all times. The following shows the decals and their placement on the dock leveler. Please check their condition on a daily basis, and replace them immediately if they become unreadable.



Installation

△ WARNING

Before operating or maintaining the dock leveler, read and follow the safety practices contained in this manual. Failure to follow the guidelines in this manual and those in effect in the workplace can result in serious bodily harm and equipment damage.

Pit Check

- 1. Check the entire pit area for proper construction according to the certified pit drawings. Ensure the pit walls are square and plumb. If this is a replacement unit, ensure the steel sections are in good, weldable condition. Check the electrical service running to the pit and make sure it is the same as the voltage and phase as shown on the attached electrical diagram.
- 2. Complete any pre-wiring procedures <u>before</u> the dock is placed in the pit. Ensure that any cables, plugs or leads are connected to the dock, and that there are correct corresponding leads, receptacles or device boxes with covers in the pit.
- 3. Make sure that any conduit and/or junction boxes do not interfere with the frame uprights.

Ensure wires are routed such that they cannot be pulled taught or pinched.

Dock Installation

Note: When moving the dock leveler in preparation of installation, it is crucial that the unit be moved using only the lifting points provided. See following steps for additional detail.

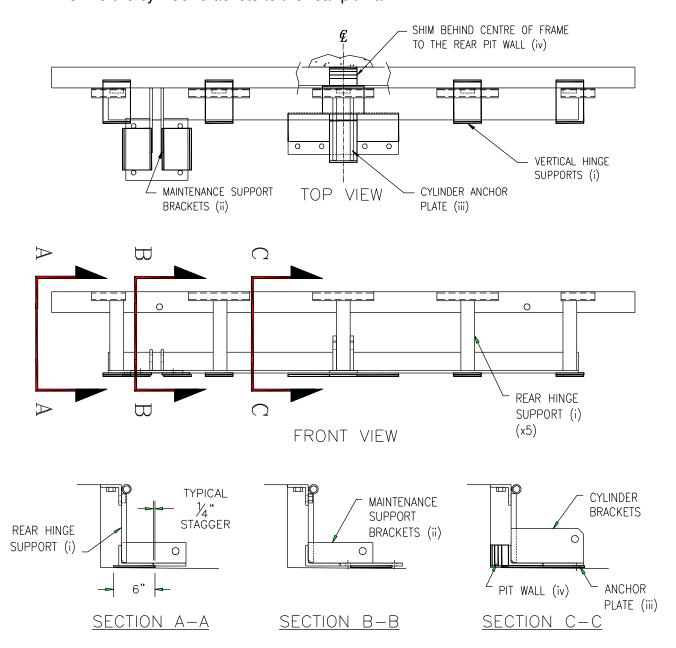
1. Shims may be placed in the pit prior to the installation of the dock. Make sure shim heights all equal the same depth from the edge of the pit area. Stagger shims at least 1/4" for best weld groove. At this time, only tack-weld the shims.

Note: The rear of the frame must be supported between the main cylinder and the rear pit wall. Several steel blocks have been supplied to provide this support. The nominal gap between the base of the frame and the rear pit wall is 2-5/8". A 2-1/2" block has been provided as a basis shim. If additional shimming is required, it is to be provided and installed by others.

- All shims (unless specified otherwise) are shown as ½" x 4" x 6" plate.
- Shims are staggered 1/4" to allow secure welding.
- Shims are centred with rear hinge supports, cylinder brackets/centre hinge support and maintenance support brackets.

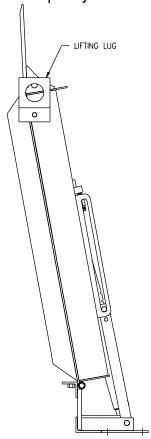
Shims must be placed in the following areas indicated:

- i. Under each of the five vertical rear hinge supports
- ii. Under the brackets for the maintenance support
- iii. Under the cylinder anchor plate
- iv. Behind the cylinder brackets to the rear pit wall



Make sure lifting devices are in good condition and have a rated capacity of at least 3000 lb. at the lifting angle they are being used. Stand clear of the dock leveler when it is being placed into the pit. Never allow anyone to stand on or near the dock leveler when it is being lifted or placed into the pit. The dock leveler can tip or swing into bystanders; SERIOUS INJURY OR DEATH MAY RESULT.

2. The dock leveler has been shipped with lifting lugs on each side. Use these to lift and manoeuvre the unit to the desired location. All chains must be minimum grade 80 and chain hooks have a minimum 1-ton capacity.

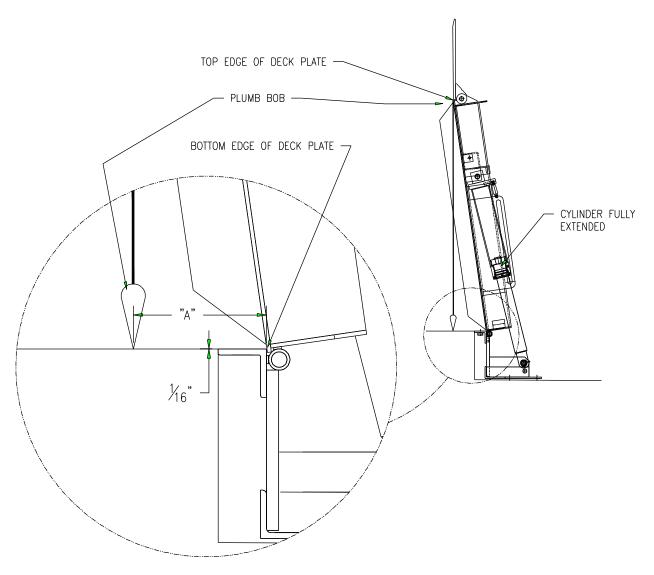


- 3. Place the dock leveler in the pit. If required, leave room between the dock leveler and the rear pit wall so that any electrical connections can be made.
- 4. Position the dock so that the hinge angle is flush and tight to pit angle and centered between side pit curb angles.

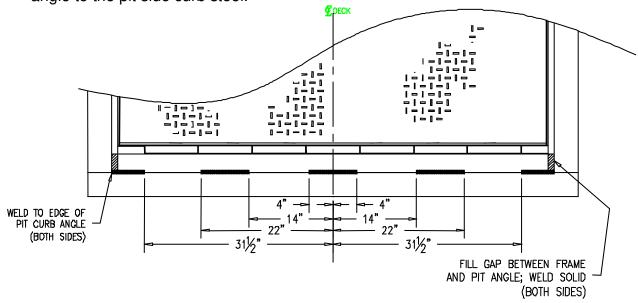
MARNING

- 5. There should be **no more than 1/16**" **in height difference** at any point between the pit curb angle and the dock leveler. Add or remove shims as necessary to achieve this condition.
- 6. **Ensure stored angle is correct.** Leveler centre of gravity stores just behind the hinge centre and requires the frame be shimmed accordingly to achieve the correct deck storage angle. Failure to achieve the correct storage angle may result in an unstable storage condition with the centre of gravity ahead of centre allowing the deck to creep forward over time.

Deck Plate Length (in)	Reference Dimension "A" (in)		
46-1/8" - 58-1/8"	6"-7"		
58-1/8" - 82-1/8"	7"-9"		



7. Weld the rear hinge angle to the pit curb angle according to the following diagram. Weld the angle behind all stationary hinge tubes and shim and weld the ends of the angle to the pit side curb steel.



△ WARNING

DO NOT, AT ANY TIME, STAND IN THE PIT AREA OF THE DOCK LEVELER WHEN THE MAINTENANCE PIN IS NOT SECURED IN THE ENGAGED POSITION. SERIOUS INJURY OR DEATH MAY RESULT IF UNSUPPORTED RAMP FALLS FORWARD.

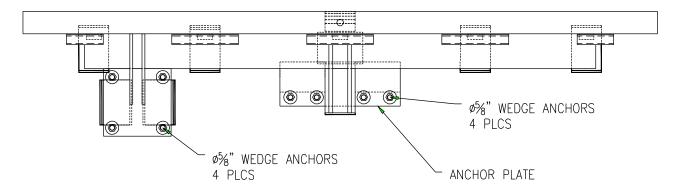
8. Make sure maintenance stand is engaged as detailed below. Locking pin must be installed as shown. (Lock-out lock to be provided by others).





- 9. With dock leveler safely supported, weld all shim packs to sub-frame.
- 10. Install eight 5/8" x 5" wedge style anchors (supplied by Nordock) and tighten to the anchor manufacturer's recommended specifications.

TOP VIEW



- 11. Mount the control panel and hydraulic power unit assembly in a suitable location.

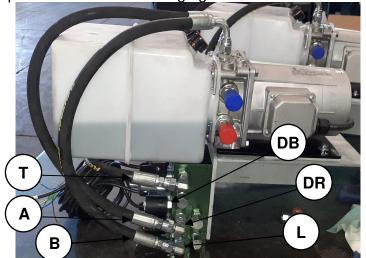
 Power unit must be mounted horizontally. This equipment was supplied with 3 hydraulic hose assemblies. If it is necessary to mount the power unit further away, longer assemblies must be used. Contact the factory for the correct hose and fitting specification.
- 12. Mark hose assemblies with tape or a wire tie to facilitate identification after each is fed through the conduit.

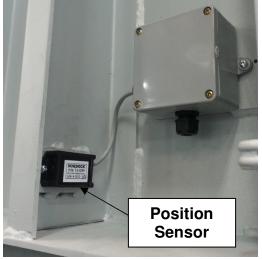
13. After verifying that the ends of the hose assemblies are securely capped, feed the three hoses through conduit from the pit to the power unit location.

Ensure hoses are routed such that they cannot be pulled taught or pinched.

14. Remove the caps from the ends of the hoses and connect to the capped fittings at the

power unit. See following figure for details.





MARNING

Before doing any electrical work, the power must be disconnected and properly locked/tagged off. Failure to do so could result in death or serious injury. All electrical work must meet all applicable codes and be carried out by a qualified technician.

- 15. Using the supplied wiring diagram, have a qualified electrical technician supply power to the control panel and wire the power unit with control valves and leveler mounted device(s) from the junction box to the control panel (local disconnect, wire and materials supplied by others).
- 16. Leave the position sensor temporarily disconnected. This will allow the RAISE button to run the motor continuously during the "INITIAL START-UP" procedure.
- 17. If equipped, the outside signal light is to be placed approximately 9 ft. above the driveway on the driver's side of the door opening. Drill a hole through the wall at the centre of the signal light mounting position.
- 18. Run a length of 16/3 electrical cable (supplied by others) from the control panel location through the wall. Make connections in panel and signal light assembly as indicated in the wiring diagram located at the back of this manual.
- 19. Fasten the signal light housing to the wall.
- 20. The installation is now complete. Proceed to the INITIAL STARTUP section.

Initial Start Up

△ WARNING

At this stage the maintenance strut must be pinned in the engaged position as shown on page 9 of this manual. Stay clear of the area between the dock door and the ramp at all times when the maintenance strut is not installed. Failure to have the maintenance strut correctly installed may result in serious injury or death if the ramp were to fall forward striking a bystander.

NOTE

If there is an interconnect circuit to protect the dock door, it may be necessary for the door to be raised in order for the dock leveler controls to be functional.

Ensure dock position sensor is disconnected.

- 1. With the maintenance strut correctly installed, power up the control panel.
- 2. Press and hold the "LOWER" pushbutton on the control panel. It may take 15 to 20 seconds for the main cylinder and hoses to build pressure and pull the leveler ahead against the maintenance pin. If there is no movement, press and hold the "RAISE" button for 15-20 seconds to push the deck towards the upper limit of the cylinder.

If there is no movement in the board after 30 seconds in either direction, the motor is may be rotating in the wrong direction. For three phase motors, interchange any two lines. With the motor direction changed, try the "RAISE" and "LOWER" buttons again.

NOTE

The maintenance arm should not be in tension when the deck cylinder is fully extended. If it is, adjust frame shimming under the cylinder and/or maintenance arm such that the deck will raise high enough to engage the maintenance pin through the arm but not so high as to put the arm in tension. Refer to the maintenance position diagram in the installation section.

- 3. Once upward pressure is observed by the "RAISE" button, disconnect power and reconnect the **Position Sensor**.
- 4. With the power disconnected, execute the "START-UP SEQUENCE" described below. This will teach the fully raise position to the system to complete the operation program.
 - a. With lip extended and dock fully raised:
 - b. Press and hold "OK" button on ILM-100 dock leveler circuit board (labelled "D" if more than one board).
 - c. Keep the "OK" button held and reconnect power.
 - d. Hold the "OK" button for 10 seconds and then release
 - e. Dock leveler "PARKED" position now set.

WARNING

- 5. Verify the main cylinder is pressurized in the extended position.
- 6. Verify that there is no one between the ramp and the dock door. **Standing TO THE SIDE of the pit**: unpin the maintenance strut and store locking pin in socket provided.

 Lock pin in stored position with attached hitch pin clip.
- 7. Press and hold the "LOWER" button on the control panel. The ramp will lower as long as the button is depressed. Release button when dock is approximately 45°.
- 8. Test the lip functions. Press and hold the "LIP RETRACT" button until lip fully retracted. Press and hold the "LIP EXTEND" button until lip is fully extended and release button.
- 9. Press and hold the "LOWER" button. Ensure sensors will not be impacted by moving parts as the dock lowers. Once the ramp reaches the working range, it will lower fully on its own and the lip will retract if not supported.

NOTE

- 10. Make sure no wires or hoses become pinched, stretched or abraded throughout the motion of the leveler.
- 11. Press and hold the "RAISE" button. The lip will remain in position as the ramp raises. The lip will droop some even if the lip was supported because line pressure has been released.
- 12. While holding the "RAISE", at approximately 45° the leveler will stop and the lip will extend. After the lip has extended, the leveler will continue to raise to the fully raised position while the "RAISE" button is held.
- 13. When the ramp reaches the fully raised position it should be leaning behind the pit. Release the "RAISE" button once the deck has reached full extension.
- 14. Run the leveler through the full range of functions. Ensure all wires and hoses are routed to avoid damage and that there are no malfunctions or mechanical interferences.
- 15. With the dock fully operational, present this manual to the customer and instruct them on the correct operation of this dock leveler.

NOTE

<u>Do not adjust</u> any RELIEF VALVE settings. These have been factory set to suit the weight of the dock and <u>cannot</u> be adjusted to speed-up or slow-down the "RAISE" and "LOWER" functions. For technical support, please call Nordock Inc.

1-866-885-4276

Mon. - Fri., 8am - 5pm EST

Operation



Before operating or maintaining the dock leveler, read and follow the safety practices contained in this manual. Failure to follow the guidelines in this manual and those in effect in the workplace can result in serious bodily harm and equipment damage.

Operating Instructions

TO SERVICE TRAILER

(Door closed, ramp in vertical stored position)

- 1. Open dock door.
- 2. Ensure truck is against bumpers and brakes are set.
- 3. Chock truck wheels or use trailer restraint.
- 4. Tell the driver to remain at the dock.
- 5. Press and hold the "LOWER" button.
 - a. Red light will flash until leveler is in working range.
- 6. Release the "LOWER" button once the lip contacts the truck bed.
 - a. Red light will be off.
- 7. Proceed with loading/unloading.

TO STORE LEVELER

- 1. Press and hold the "RAISE" button to raise the leveler.
 - a. The inside light will change to flashing RED.
- 2. Release the "RAISE" button once the ramp reaches the fully raised position with the lip extended.

NOTE: The leveler will stop at ~45° to extend lip before proceeding.

- a. The RED light will stop flashing.
- 3. Remove chock or store truck restraint.
- 4. Tell driver them may now leave.
- Close the dock door.

TO RETRACT LIP (for performing end load operations)

RAMP IN STORED POSITION

- 1. Lower ramp partially using instructions 1 & 2 under TO SERVICE TRAILER (above)
- 2. Release the "LOWER BUTTON" when ramp is at approximately a 45° angle.
- 3. Press and hold the "LIP RETRACT" button until the lip has folded completely.
- 4. Press and hold the "LOWER" button until the ramp comes to rest on the pit floor.
- 5. Proceed with end loading operations
- 6. If regular (lip in trailer) type loading is necessary, press and hold the "RAISE" button until lip is clear of trailer bed.
- 7. Release the "RAISE" button and hold the "LIP EXTEND" button in until the lip is fully extended
- 8. Press and hold the "LOWER" button until the ramp and lip contact the trailer bed.
- 9. Proceed with loading/unloading.
- 10. Store dock leveler
- 11. Close dock door

RAMP AND LIP IN TRAILER

- 1. Press and hold "RAISE" button until ramp is at approximately a 45° angle.
- 2. Release the "RAISE" button and hold the "LIP RETRACT" button until the lip has folded completely.
- 3. Press and hold the "LOWER" button until the ramp comes to rest on the pit floor.
- 4. Proceed with end loading operations.
- 5. Store leveler.
- 6. Remove chock or store trailer restraint.
- 7. Tell driver they may now leave.
- 8. Close dock door

TO EXTEND LIP (after end loading)

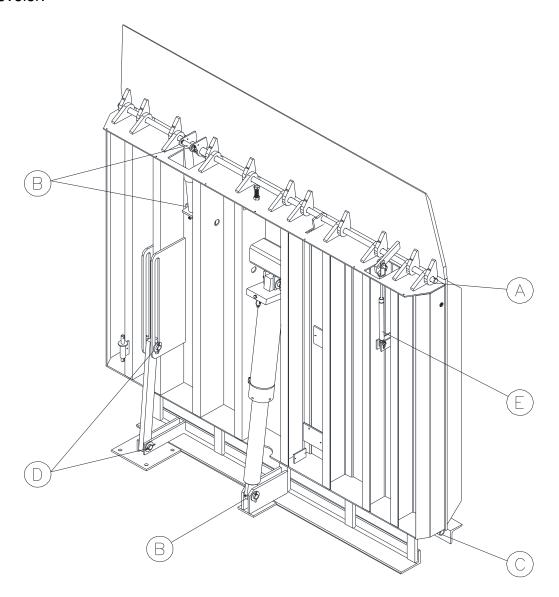
- 1. Press and hold "RAISE" button until the ramp is high enough that lip will clear the trailer bed when it extends.
- 2. Release the "RAISE" button.
- 3. Press and hold the "LIP EXTEND" button until the lip has fully extended.
- 4. Press and hold the "LOWER" button until the lip comes to rest on the trailer bed.
- 5. Proceed with loading/unloading operations
- 6. Store leveler
- 7. Remove chock or store trailer restraint.
- 8. Tell driver they may now leave.
- 9. Close dock door

Maintenance and Lubrication

MARNING

Before operating or maintaining the dock leveler, read and follow the safety practices and maintenance procedure contained in this manual. Failure to follow the guidelines in this manual and those in effect in the workplace can result in serious bodily harm and equipment damage.

Note: Use only the lubricant grades specified in this manual. Failure to use the materials listed may lead to premature failure, and will void any warranty claims for the dock leveler.



Item	Lubrication	Adjustment	Cleaning
- A -	Every 90 days	None	Remove debris as
Lip Hinge	Using grease		required
- B -	Every 90 days	None	Remove debris as
Cylinder Pivot Pins	Using light oil		required
- C -	Every 90 Days	None	Remove debris as
Dock Hinge	Using light oil and		required
	grease as required		
- D -	Every 90 Days	None	Remove debris as
Maintenance Strut	Using light oil		required. Check locking
Pins			pin for damage
-E -	None	As Req'd	Every 90 days.
Gas Spring			Check function and any
			physical damage
-F -	Check level daily	None	Remove and clean strainer
Hydraulic Unit	Change fluid Annually		And magnet annually
-G-	None	None	Every 90 days or as
Pit Area			required to remove debris

Acceptable Lubricants and Oils

Hydraulic

Oils used in the hydraulic system must meet minimum ISO grade 22 standard. E.G.:

COMMERCIAL OIL MULIT-VIS MV22 MOBIL AERO HFA (49011) EXXON UNIVIS GRADE J13 TEXACO AIRCRAFT OIL #1537BB U.S.OIL CO. #5606 (LOW TEMP) SHELL TELLUS T22

Optional biodegradable oils (Nordock PN 13-0807) are E.G.: Greenland ES Green Plus Forsythe 6282/B2 Power Flo

<u>Grease</u>

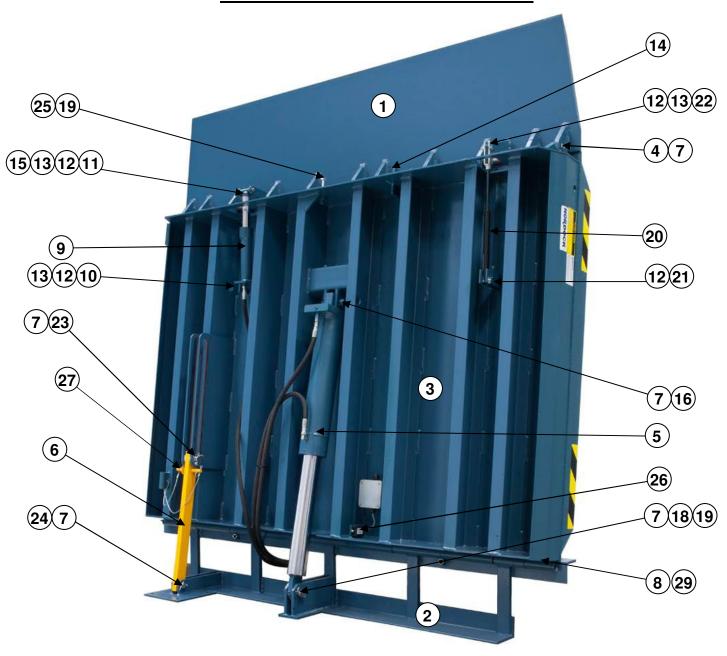
Grease used for hinges must meet a minimum EP-2 grade. E.G.:

CHEVRON DURA-LITH EP-2

Light Oil

Light oils used should have good penetration and adhesion qualities.

Parts and Service Tables

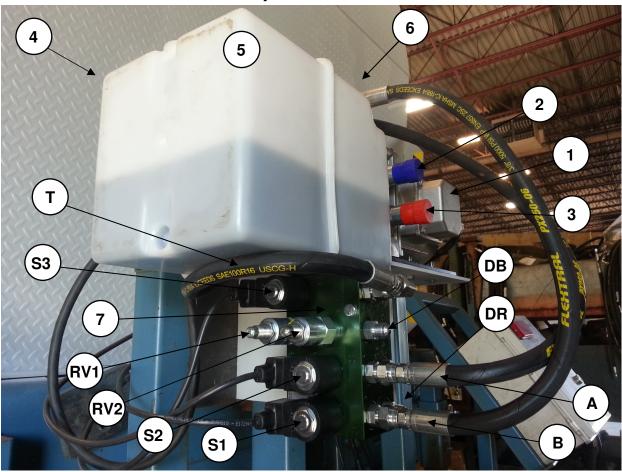


Item	Qty.	Description / Model	P/N	Note
1	1	Lip Weldment	42-0331	
2	1	Frame Weldment	50145-FA	
3	1	Deck Weldment	51799-DA	
4	1	Lip Hinge Rod		
		6' wide deck	43-0148	
		6.5' wide deck	43-0149	
		7" wide deck	43-0150	
5	1	Deck Cylinder (w/ spherical bearing and bushings)	33850-CYL	
6	1	Maintenance Support Arm	C/F	
7	9	Cotter pin, 1/4" x 1-3/4"	13-0992	

8	1	Rear Hinge Rod (stainless steel)		
		6' wide deck	43-1060	
		6.5' Wide deck	C/F	
		7' wide deck	43-1371	
9	1	Cylinder, Lip	C1-0009	N/S
10	1	Clevis Pin, ½" x 4-1/2	13-3672	N/S
11	1	Clevis Pin, 1/2" x 3-1/2"	13-0399	N/S
12	2	Cotter Pin, 1/8" x 1"	13-0171	
13	4	Washer, Flat, 1/2", STD, ZP	13-0267	
14	1	Lip Safety Lock Lug	43-0252	N/S
15	1	Lip Cam Weldment, 25-50K	42-0821	
16	1	Pin, Main Cylinder Base	43-2515	N/S
17	1	Bearing, 1" Spherical	13-0248	
18	1	Pin, Main Cylinder Ram	43-2516	
19	1	Lip Stop Bolt, 5/8" x 4"	13-0302	
20	1	Gas Spring	42-1568	
21	1	Clevis Pin, 3/8" Dia. x 1-5/8"	13-0500	
22	1	Clevis Pin, 1/2" Dia. x 2"	13-0398	
23	1	Guide Pin, Maintenance Strut	43-0174	
24	1	Clevis Pin, 1" Dia. x 2-1/2"	13-0222	
25	1	Nut, 5/8"-11	13-0289	
26	1	Position Sensor	13-3299	
27	1	Locking Pin, Maintenance Strut	42-3901	
28	1	Drop Curtain (not shown)	51027-DC	
29	2	Spring-pin	13-0555	
N/S	8	Frame Anchors, 5/8" x 5" Lg. Wedge Type	13-0779	
N/S	2	Bumper	61-0069	
N/S	2	Bumper Risers	50454-BR	
N/S	2	Lip keeper	16377-LK	

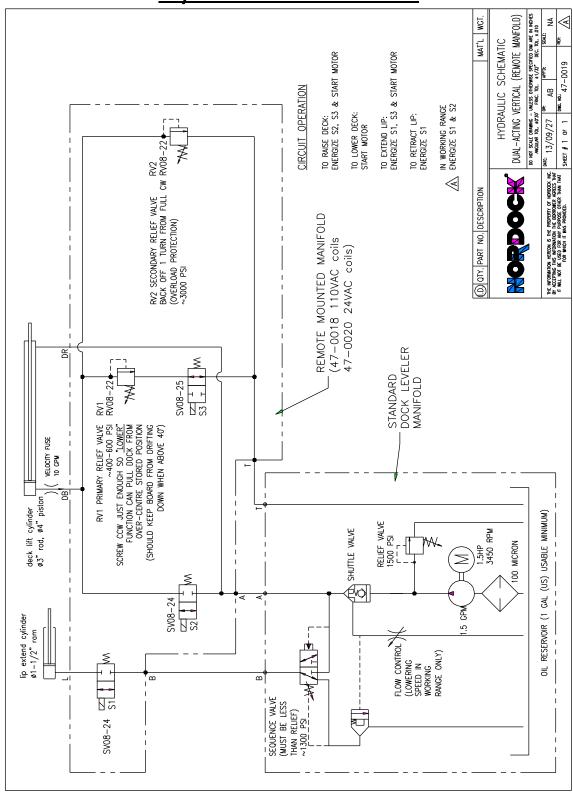
 $N/S - Not Shown \\ N/A - Not Applicable$

Hydraulics



Item	Qty.	Description / Model	P/N	Note
	1	Complete Hydraulic Power Unit (Items 1-6)		
		110/220/1/60	13-4011	
		208/230/460/3/60	13-0791	
		575/3/60	13-0792	
1	1	Motor		
2	1	Sequence Valve Pressure Adjustment (blue cap)		
3	1	Main Pressure Relief Valve (red cap)		
4	1	Flow Control - Lowering speed in service range only		
5	1	Reservoir		
6	1	Filler Breather		
7	1	Dock Manifold, 120 VAC Coils	47-0018	
		Coil only	13-0595	
Α		"A" Line		
В		"B" Line		
Т		"T" Line		
DB		"DB" Line - Deck Cylinder Base		
DR		"DR" Line - Deck Cylinder Rod		
L		"L" Line - Lip Cylinder		
RV1		"RV1" - Relief Valve 1- Holds dock when above service range		
RV2		"RV2" - Relief Valve 2 - Overload relief		
S1		"S1" - Solenoid Valve 1, N/C - see hydraulic schematic		
S2		"S2" - Solenoid Valve 2, N/O - see hydraulic schematic		
S3		"S3" - Solenoid Valve 3, N/C - see hydraulic schematic		

Hydraulic Schematic



<u>Do not adjust</u> any RELIEF VALVE settings. These have been factory set to suit the weight of the dock and <u>cannot</u> be adjusted to speed-up or slow-down the "RAISE" and "LOWER" functions. For technical support, please call Nordock Inc.

1-866-885-4276 Mon. - Fri., 8am - 5pm EST

Electrical Schematics

