



SMART-HOOK™ SERIES AR-20K

Rotating Hook Vehicle Restraint

Installation & Owner's Manual

This manual applies to model AR-20K restraints manufactured beginning June 2019 with serial numbers 46680 and greater

P/N 59-0066 rev A

NORDOCK INC.

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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 near the restraint for reference whenever needed.

If you have any questions about this manual, the restraint, 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 restraint 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 to provide accurate parts and service information should the need arise. Nordock Incorporated believes this manual will provide the operators of this restraint 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 that we may resolve the issue immediately.

Restraint Identification

It is very important that in order to obtain the best possible service from Nordock Inc., please provide the model and serial number of the restraint whenever you contact us. Below is the same serial number plate that will be found on the left hand hook side plate (standing outside facing the restraint). Please record the information from the decal on the restraint in the area below. 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.

Warranty

Nordock Inc. expressly warrants that the Model AR-20K Vehicle Restraint shall remain free of defects in material and workmanship under normal use for One-Year from the date of delivery to the purchaser. The purchaser must maintain & 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 within the first year 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.

In addition to the above, the structural components are covered by an extended Five-Year period. In the event a structural component proves defective in years two through five, Nordock will provide a replacement part at no charge. The owner will be responsible for the cost to ship and install the replacement part during this extended period.

All guarantees are based on limitations as outlined below.

Components covered in first year include electric motor, gear drive, hook, hook sensor, LED lights and bearings.

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 do prescribed maintenance 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 Practices

The operators of this unit must read these safety practices before installing, operating or servicing the AR-20K restraint. Failure to follow these safety practices may result in bodily injury, property damage or death.



WARNING

READ AND FOLLOW THE OPERATING INSTRUCTIONS CONTAINED IN THIS MANUAL BEFORE OPERATING THE AR-20K restraint. If you do not understand the instructions, contact your supervisor for explanation and instruction on the safe operation of this unit.

Improper installation of the AR-20K could result in serious injury or death to dock workers or other users of the restraint.

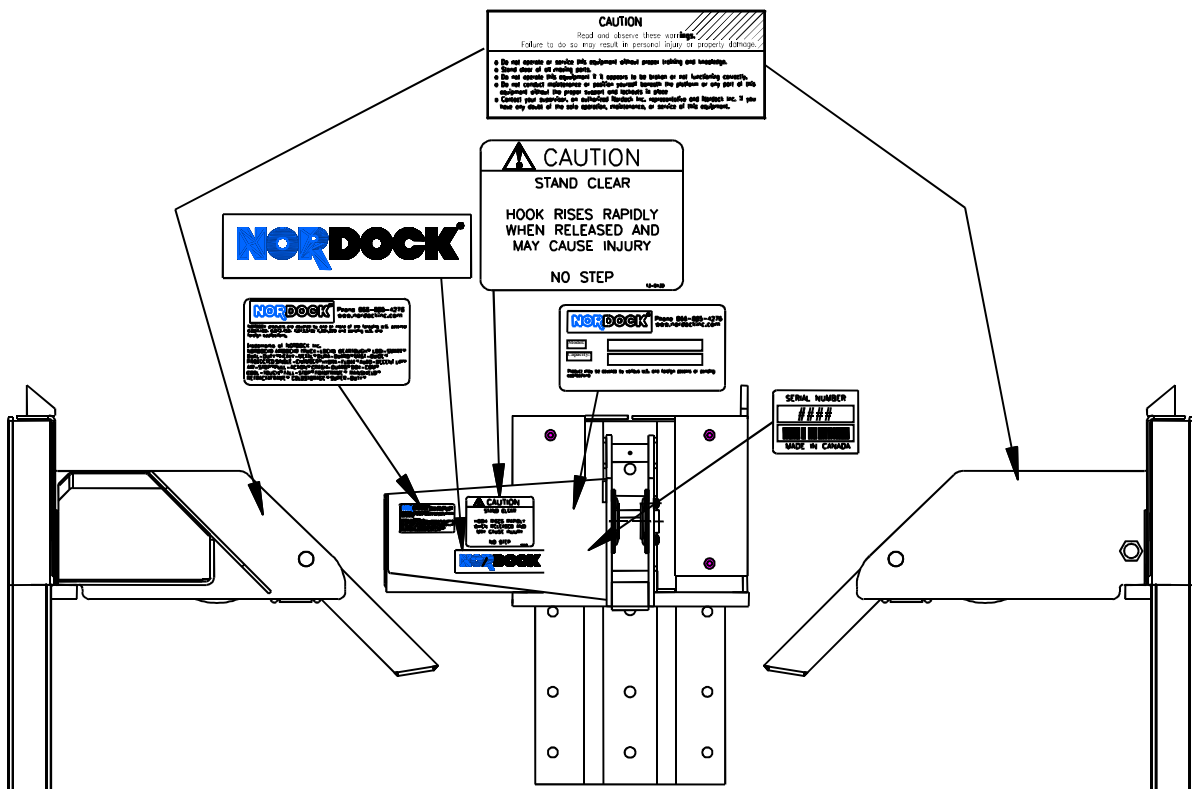
The following guidelines are to be used in conjunction with all laws, governances and codes in effect where the AR-20K restraint is installed.

1. Use by untrained people can cause property damage, serious injury and/or death. Your supervisor should instruct you on the safe and proper way to use the AR-20K restraint. Read and follow the complete OPERATING procedure on page 14 before use.
2. DO NOT USE THE RESTRAINT IF IT IS NOT WORKING RIGHT. Tell your supervisor it needs repair.
3. Be certain all people in the driveway stand clear when the restraint is being operated.
4. Do not stand in the driveway between the dock and a backing truck.
5. Keep all body parts clear of restraint guide tracks and moving parts at all times.
6. Do not install the restraint anchor bolts into concrete of questionable integrity.
7. Do not load or unload any truck until you make certain that the restraint has securely engaged the truck's ICC bar and the brakes are set. If the restraint does not hitch the truck's ICC bar for any reason, BE CERTAIN TO CHOCK THE TRUCK WHEELS BEFORE PROCEEDING WITH LOADING OR UNLOADING.
8. Do not use the restraint as a step.
9. All electrical troubleshooting and repair must be done by a qualified technician and must meet all applicable codes. Before doing any electrical work, make certain the power is disconnected and properly tagged or locked out.

10. If the restraint fails to operate using the procedures contained in this manual, do not use the restraint. Contact Nordock Inc. or an authorized service representative for service.
11. Whenever any maintenance or repair is to be performed on the restraint, barricade the area around the dock floor and driveway and place clear signage on the perimeter that the dock and restraint are not to be operated.
12. If you have any questions, contact your supervisor or your local Nordock Incorporated representative.

Labels

The labels and decals on the AR-20K restraint must be kept in clean, legible condition at all times. The diagram below shows the decals and their placement on the restraint. Please check their condition on a daily basis, and replace them immediately if they become unreadable.



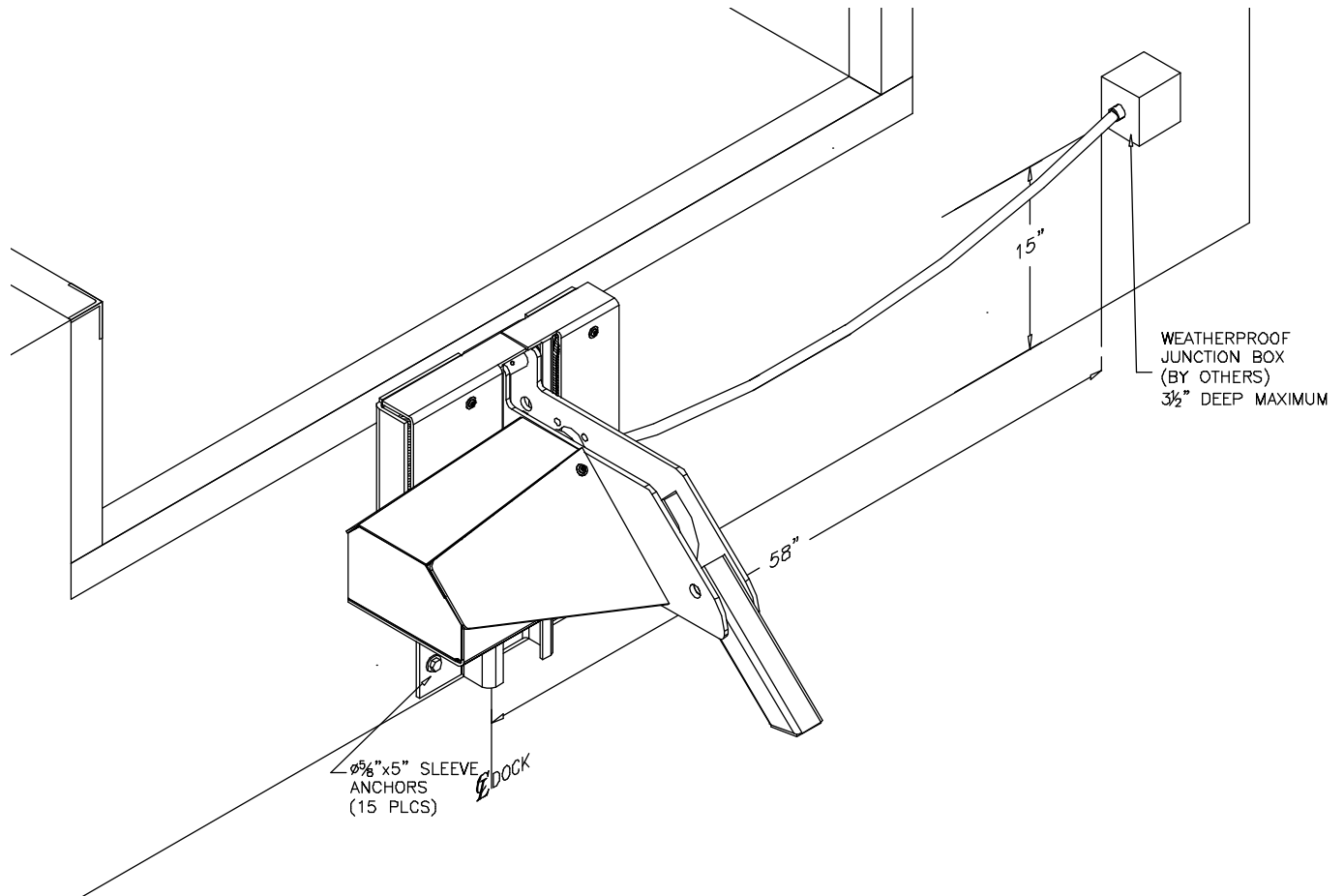
Installation



WARNING

IMPROPER INSTALLATION OF THIS VEHICLE RESTRAINT COULD RESULT IN SERIOUS INJURY OR DEATH TO DOCK WORKERS OR OTHER RESTRAINT USERS

A typical AR-20K Rotating Hook restraint installation is shown below.



The following installation materials are included with the restraint:

15 pcs. $\text{Ø}5/8$ " x 5" concrete sleeve anchors (bolt head style)

All other materials required are to be provided by the installer.

Tools Required

- Welder
- Hammer drill with Ø5/8" diameter masonry bit
- 3/4" wrench
- General hand tools
- Touch up paint (Silver)
- Torque wrench (100 ft-lbs. min.)

Mounting Requirements

1. The dock face on which the restraint is to be mounted must be flat and vertically plumb for correct operation. If the dock face is not flat, it may be necessary to use shims behind the backplate of the restraint or to modify the dock face to provide a flat mounting surface. If shimming is required, it is necessary to place shims at all of the anchor hole locations where the backplate does not contact the wall. This will prevent distortion of the backplate when the anchors are tightened.
2. This vehicle restraint requires a 4" bumper projection from the front of the bumper to the rear of the back plate of the restraint. Less than 4" of projection can allow trailer ICC bars to damage the restraint.
3. Some types of dock levelers that use lip saddles may interfere with the vehicle restraint. Depending upon the lip length, dock height, bumper projection, use of standoffs etc., modification to the restraint and/or dock leveler may be required. Consult the factory for specific applications.
4. The standard concrete anchors (Ø5/8" x 5" sleeve-type) provided with this restraint may only be used on dock faces constructed of solid concrete. Docks constructed of other materials require special mounting considerations. Contact your local Nordock distributor for application specific information.
5. Do not install the restraint anchor bolts into concrete of questionable integrity.
6. If the driveway beneath the restraint is affected by frost, additional clearance between the restraint and the driveway may be required to prevent damage due to heaving.
7. When the optional driveway mounting plate is used the driveway material must be concrete. See Installation of Optional Driveway Mounting Plate section of this manual.

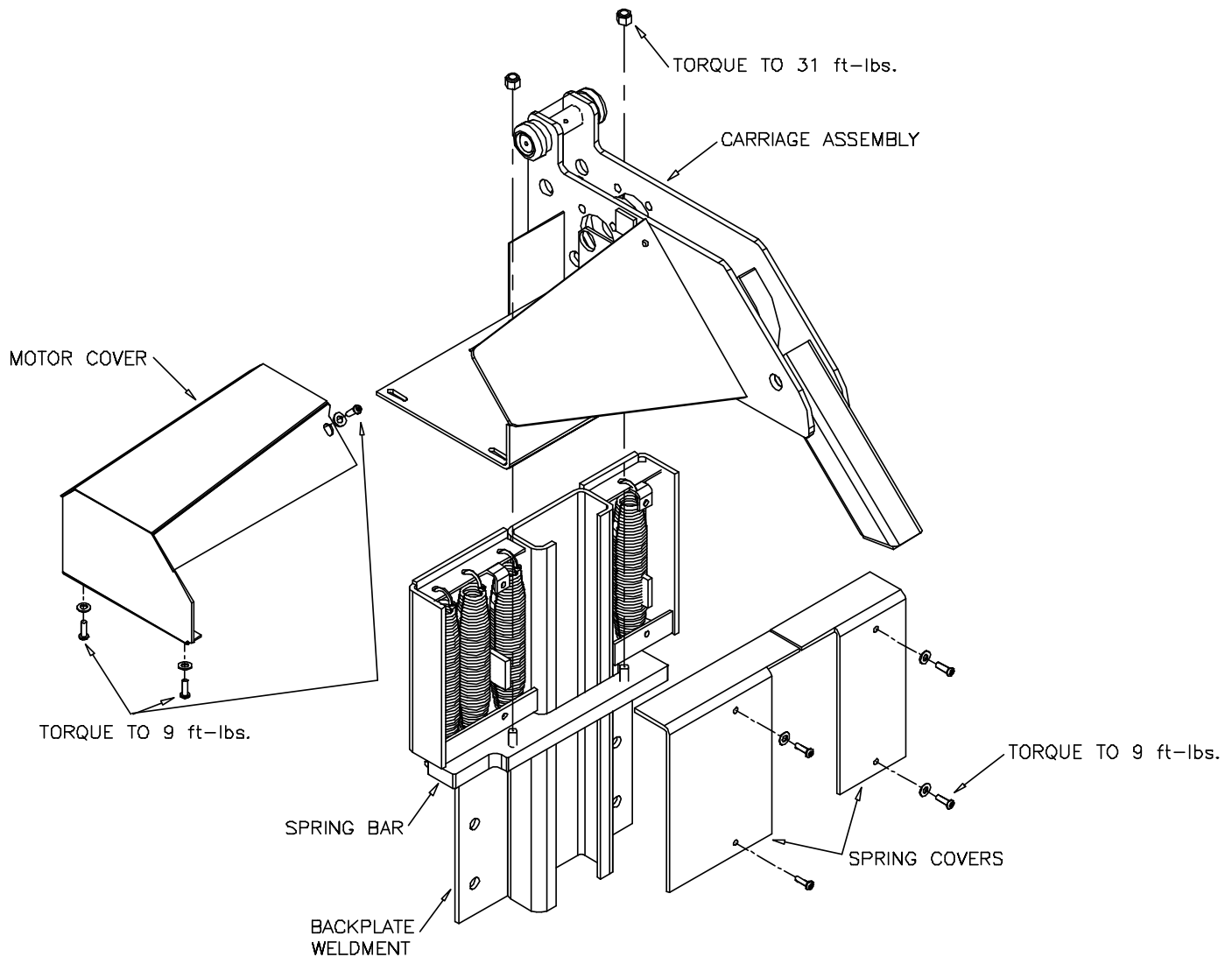
Installation with Pit Type Levelers



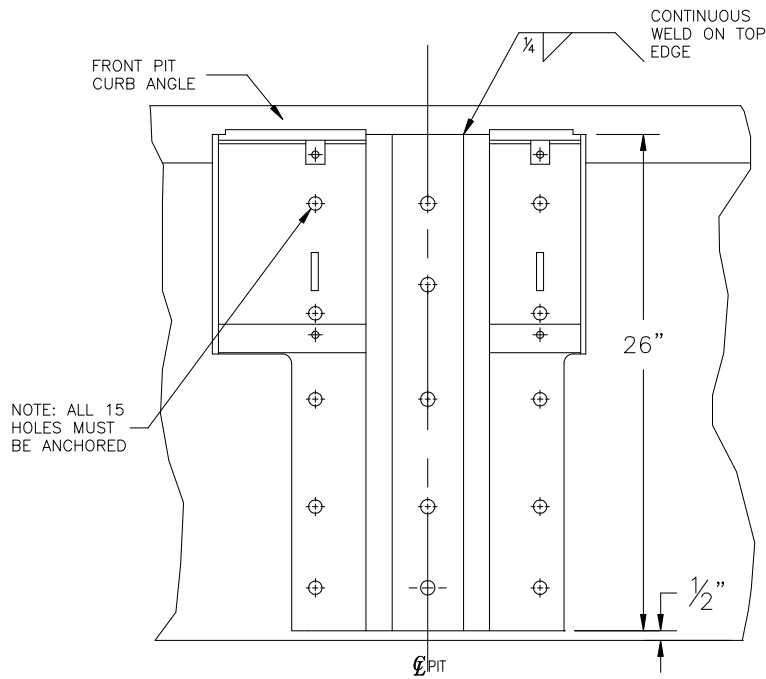
WARNING

ALWAYS USE DOCK LEVELER SUPPORT WHEN WORKING UNDER A DOCK LEVELER RAMP OR LIP

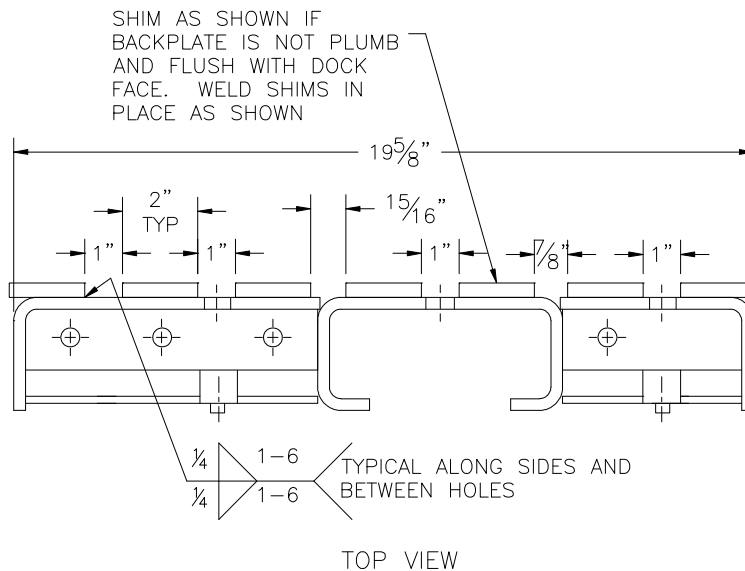
1. Place barricades around pit on dock floor and driveway while installing the vehicle restraint
2. The carriage assembly must be removed from the backplate before it is anchored to the wall (refer to the diagram below)
 - a. Remove the motor and spring covers.
 - b. Remove the two nuts that attach the spring bar to the carriage assembly
 - c. Slide the carriage assembly up out of the track, making sure to keep the rollers on the axles



3. Place the bottom edge of the backplate $\frac{1}{2}$ " above the driveway and centre with the pit. If the driveway is susceptible to frost heaving, remove material from the driveway under the restraint to provide additional clearance.



4. Drill $\text{Ø}5/8$ " dia. holes into the pit wall (minimum $4\text{-}5/8$ " deep) using the backplate as a template.
5. Check to make sure that the backplate is plumb and flush with the dock wall. If it is not, then use (7) shims 2 " wide x $25\text{-}5/8$ " long. (refer to diagram below for placement) If shims need to be more than $1/2$ " thick, longer anchors will be required.

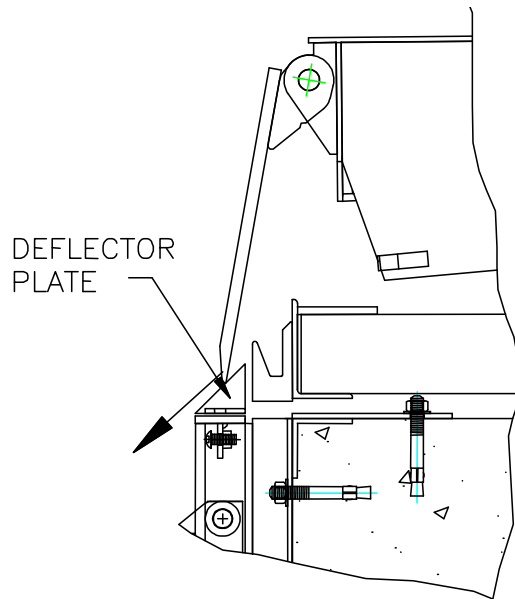


If the backplate needs to be shimmed out more than 1 ", a buildout bracket will be required (Contact Nordock In

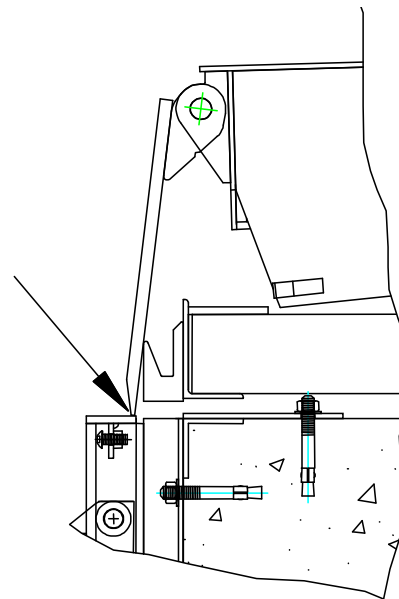


WARNING

Improper installation that allows the pendant dock leveler lip to support the weight of the dock leveler could result in serious injury or death. It is sometimes necessary to install lip deflector plates to prevent the possibility of the pendant lip storing on top of or behind the restraint backplate. Refer to diagram below. Materials to be supplied by installer.



DEFLECTOR PLATE
PREVENTS LIP FROM
RESTING ON TOP OF
RESTRAINT



UNSAFE CONDITION –
LIP IS SUPPORTING
WEIGHT OF DOCK
LEVELER

The anchors should be installed as the holes are drilled to prevent the restraint from shifting.

CAUTION

The anchor bolt heads MUST be tight against the backplate to prevent interference with the carriage assembly

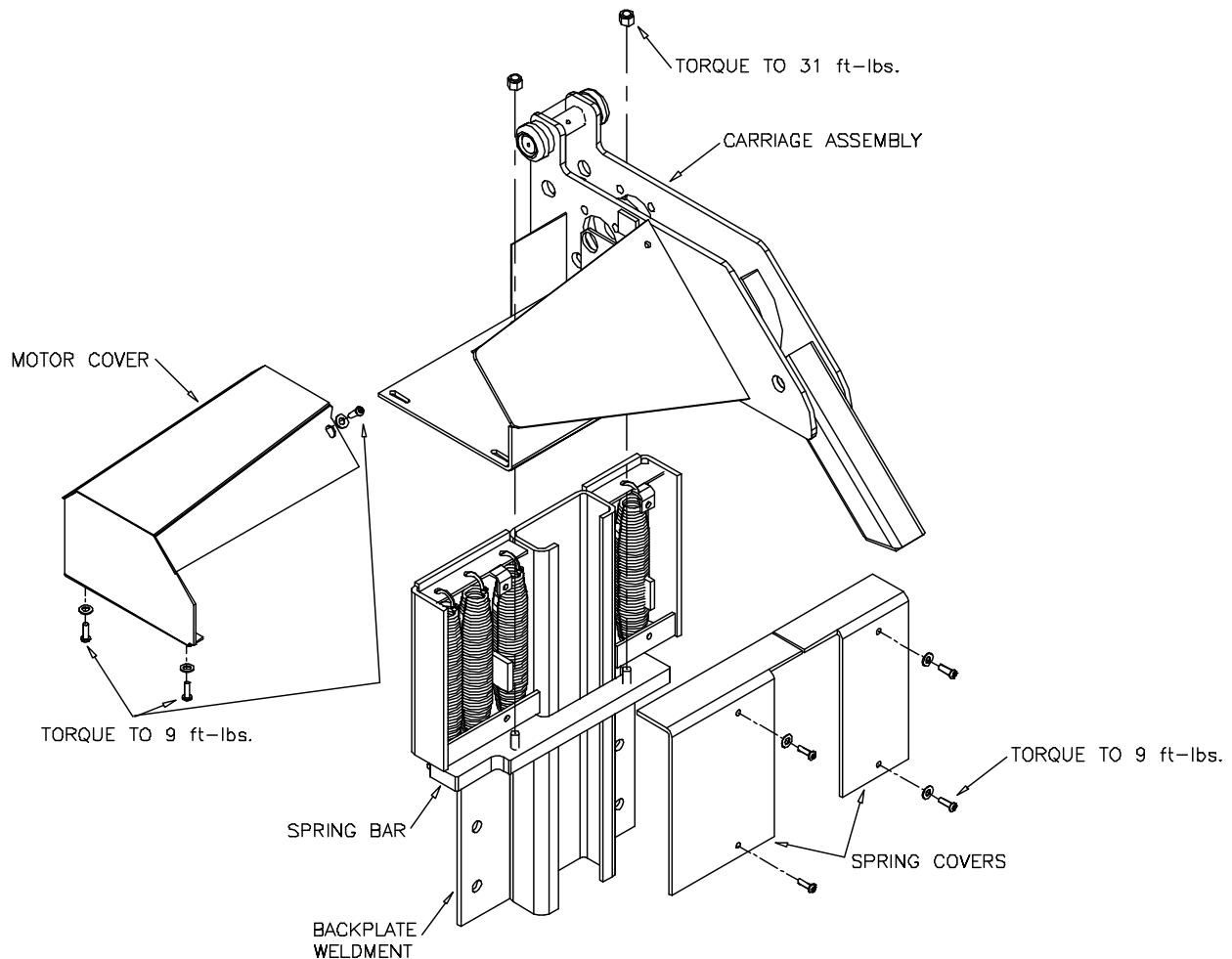
6. Anchor the restraint backplate to the dock face using the (15) 5/8" dia. x 4" long anchors provided. The anchor bolts must be torqued to 100 ft-lbs. to achieve their maximum holding strength.

If the top portion of the roller track plate is in contact with the front pit curb angle (ie. 24" deep pit) weld across the top of the backplate to the curb angle.

CAUTION

NEVER weld on the restraint after it has been wired to the control box and the power is on. Damage to the controls or wiring may result.

7. Reinstall the carriage assembly into the backplate weldment. (reference diagram below)
 - a. Attach the four springs to the spring bar and the top of the backplate
 - b. Slide the carriage assembly into the track
 - c. Bolt the spring bar to the bottom of the carriage assembly
 - d. Install the spring and motor covers



WARNING

When lifting the carriage during service or assembly, use a lifting device. Lifting by hand may result in back injury.



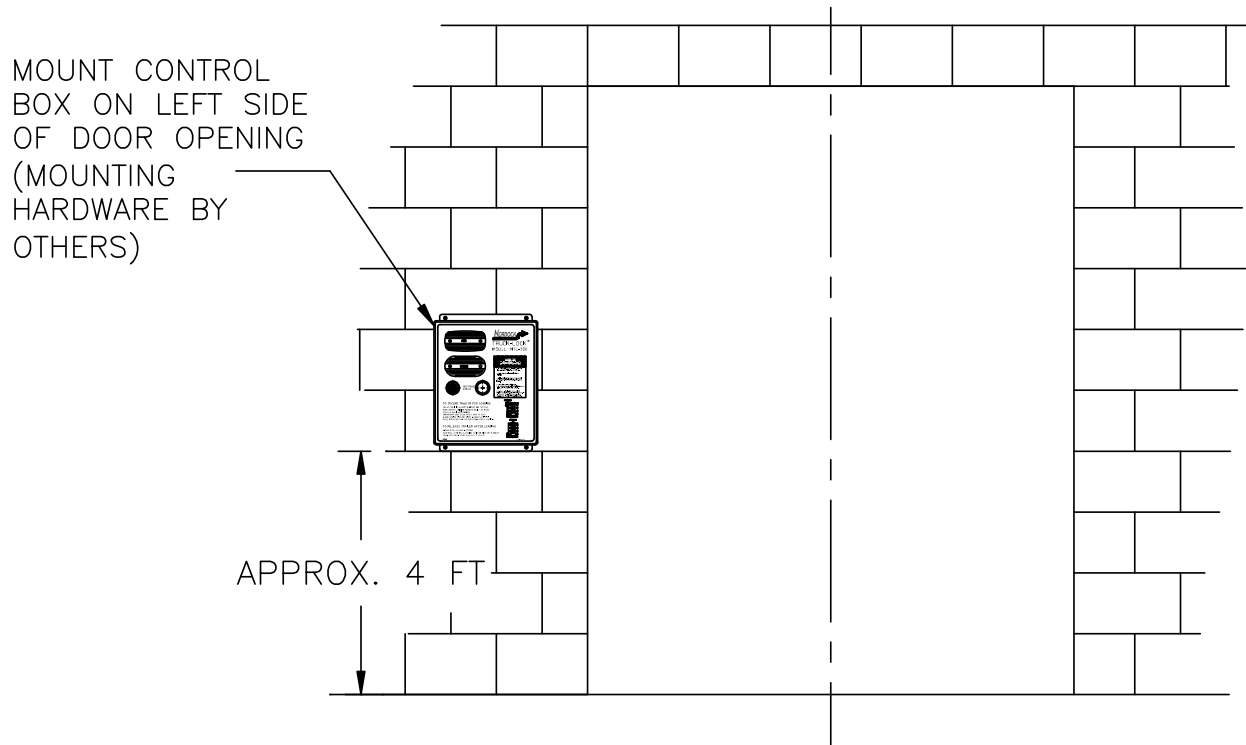
WARNING

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.

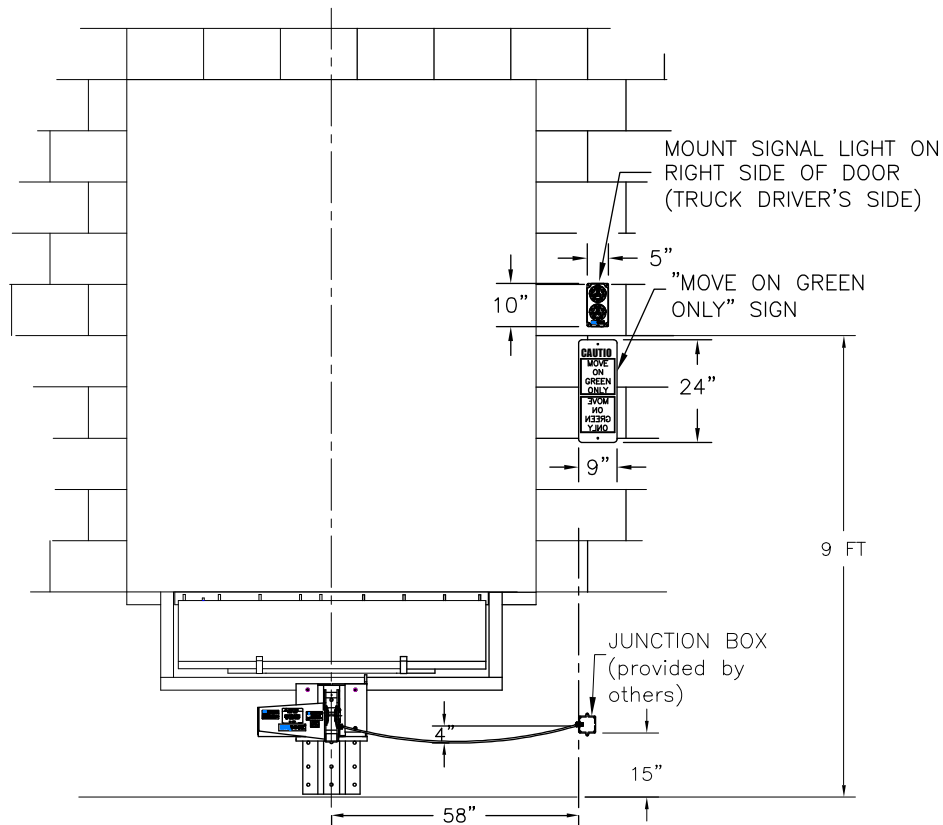
NOTE

The control voltage for this restraint is 24 VDC. All motor power wires or other high voltage wires should be run in a separate conduit.

8. Mount the control box inside the building, to the left of the doorway, 4 ft. above the floor. Refer to diagram below



- The outside signal light is to be placed approximately 9 ft above the driveway on the driver's side of the door opening as shown in the diagram below. Drill a hole through the wall at the centre of the signal light mounting position.



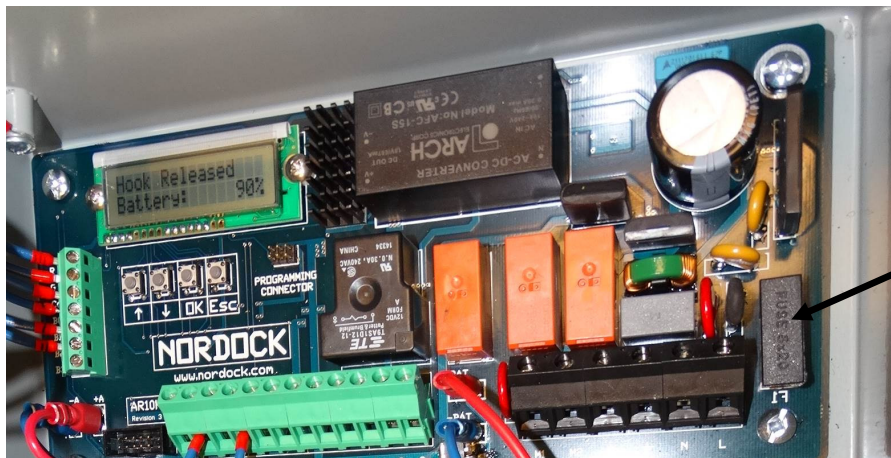
- Run a length of 18/3 (18 ga. min.) electrical cable (not supplied) from the control box location through the wall. Make connections in panel and signal light assembly as indicated in the wiring diagram located at the back of this manual.
- Fasten the signal light housing to the wall.
- Mount the "Move On Green Only" sign provided to the exterior wall under the signal light as shown in the diagram above.
- The restraint includes a length of 18/5 cable for connecting to an exterior mounted junction box (to be provided by others) Mount the junction box to the exterior wall adjacent to the restraint in the location shown in the diagram above.
- There are 5 electrical connections to be made between the exterior junction box and the control panel. Run a length of 18/5 (or one 18/3 and one 18/2) electrical cable (not provided) from the control box to the exterior junction box. Make connections inside the control box and junction box as indicated on the wiring diagram located at the back of this manual.
- Bring 110/1/60 power to panel and wire according to the diagram located at the back of this manual.

16. Apply power to the control box and verify correct operation as follows:
 - a. One light must be on, both interior and exterior at all times.
 - b. With the hook in the released position, the exterior light will be solid GREEN and the inside light will be solid RED.
17. If the lights do not operate as described above, there is a field wiring problem. Turn off the power and check the wiring per the Wiring Diagram at the back of this manual. Rewire as required.

VERY IMPORTANT NOTE !!!

Once the previous electrical and mechanical installs are complete, the hook STORED POSITION LEARNING PROCEDURE must be carried out.

This procedure needs to be carried out prior to hooking up the battery backup system.



Remove fuse to shut power off to the control board

Stored Position Learning Procedure

- ***Hook must be in the stored position***
- ***Wires to batteries must be disconnected***
- ***Remove fuse on right hand side of circuit board (picture above)***
- ***Press and hold in the yellow “RESTRAINT BYPASS” button on the front of the panel (if panel has keyswitch instead of button – turn and hold the keyswitch in the bypass position)***
- ***With the button held in, re-install the fuse. There will be a series of short beeps followed by a longer beep***
- ***The display on the board will read: “SETUP MODE – LOWER LIMIT IS SET”***
- ***Release the yellow button once the message appears on the screen***

When the sequence is complete, the light on the front of the panel should be solid red and the outside traffic light should be green.

NOTE:

If you have any other combination of inside/outside lights, shut the power off to the panel for approximately 10 seconds and then turn it back on. Press the “RELEASE” button and wait for 10 seconds. If the lights do not indicate as specified above, contact the factory at (866) 885-4276 and ask for technical support.

NOTE: RETURN TRIPS TO CARRY OUT THE “STORED POSITION LEARNING” PROCEDURE WILL NOT BE COVERED UNDER WARRANTY

The battery may now be connected using the procedure detailed on page 16.

Dock Leveler Interconnect

There is one set of “dry” contacts provided in the AR-20K control panel for the purpose of interconnecting a powered dock leveler, air seal or other piece of dock equipment.

These contacts close when the inside light is either solid green (TRUCK HITCHED) or alternately flashing red/green (RESTRAINT BYPASS).

The contacts are rated at 8A@250VAC (PF=1) or 5A@24VDC.

These contacts are **NOT** “motor rated” and are **ONLY** to be used for control voltage and current levels.

NOTE

If the rated coil voltage for the dock leveller motor starter exceeds 250VAC, a separate stepdown transformer or external relay (with 600V rated contacts) will be required. (TO BE SUPPLIED AND INSTALLED BY OTHERS)

Refer to the wiring diagram at the end of this manual for the terminal numbering for this interconnect function.

Battery Back-up System

The AR-20K restraint is equipped with a 24VDC battery backup system. In the event of a power outage, the battery will maintain the hook in the restraining position and the red/green signal lights (interior and exterior) will remain on.

A fully charged battery system will maintain the hook in the raised position and the signal lights functioning for a period of approximately 24 hours.

Once the AC power is restored, the battery will begin charging automatically. It takes approximately 72 hours to fully recharge the battery once it has been exhausted.

NOTE: To extend battery life, the inside and outside lights will flash when the panel is operating on battery power.

Installing and Connecting the Battery

IMPORTANT NOTE !!!

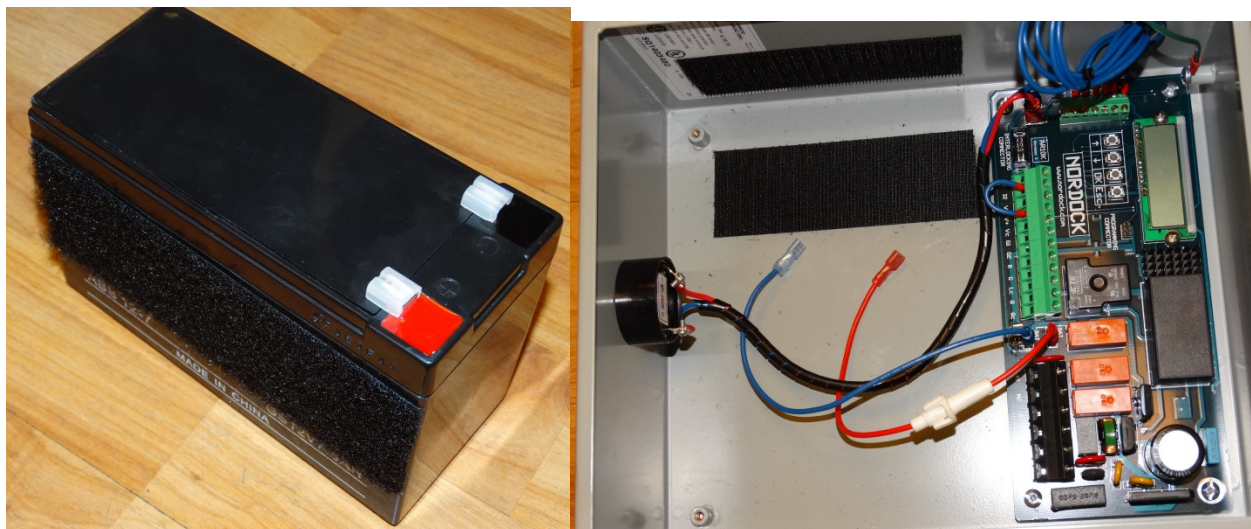
It is strongly recommended not to connect the battery until the control panel has been mechanically and electrically installed and the power has been turned on. If the battery is connected prior to the power being hooked up to the panel, it will exhaust itself in approximately a 24hr period.

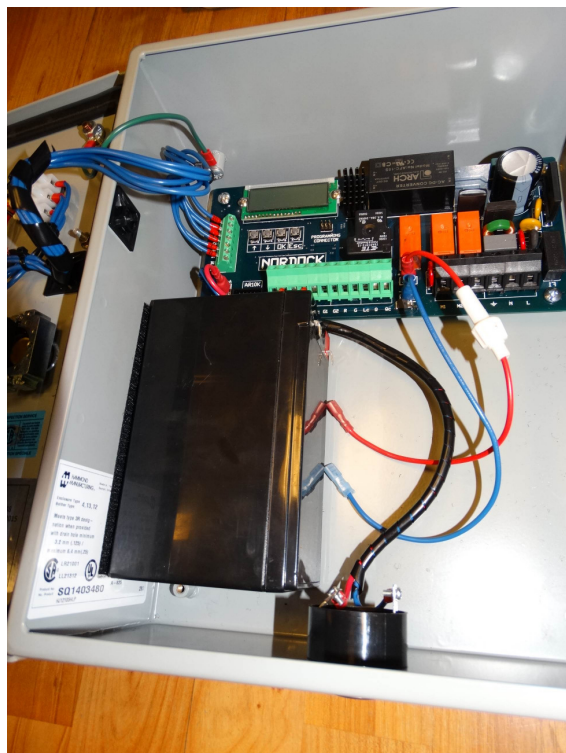
NOTE: IF THE BUILDING POWER IS TO BE SHUT OFF FOR MORE THAN A 24HR PERIOD, IT IS STRONGLY RECOMMENDED THAT THE BATTERY BE DISCONNECTED UNTIL THE POWER IS RESTORED.

ALLOWING THE BATTERY TO BECOME SEVERELY DISCHARGED MAY CREATE RESTRAINT OPERATIONAL PROBLEMS ONCE THE POWER IS RESTORED. IF THIS OCCURS, DISCONNECTING THE BATTERY SHOULD RESTORE NORMAL OPERATION TO THE RESTRAINT. IF THIS OCCURS, THE BATTERY WILL NEED TO BE RE-CHARGED OUTSIDE OF THE CONTROL PANEL USING AN EXTERNAL CHARGER (SUPPLIED BY OTHERS)

If the battery has been packaged separately (to avoid possible interior panel damage during shipping), follow the procedure below..

The battery (pictured below - left) is fitted with Velcro on two sides to secure it inside the control panel (pictured below – right)





Install the battery in the panel as shown in the adjacent picture.

It is positioned top of the metal stand-off post on the bottom left of the panel and the terminals are oriented to the upper right.

It is attached to the back and left side of the enclosure with the pre-attached hook and loop fastener strips.

The battery is then connected by attaching the red fused wire to the red (+) battery terminal and the blue wire to the black (-) terminal

This completes the electrical portion of the restraint install.

18. Instruct the dock workers how to correctly use this truck restraint. The Operating Procedure can be found in the next section.

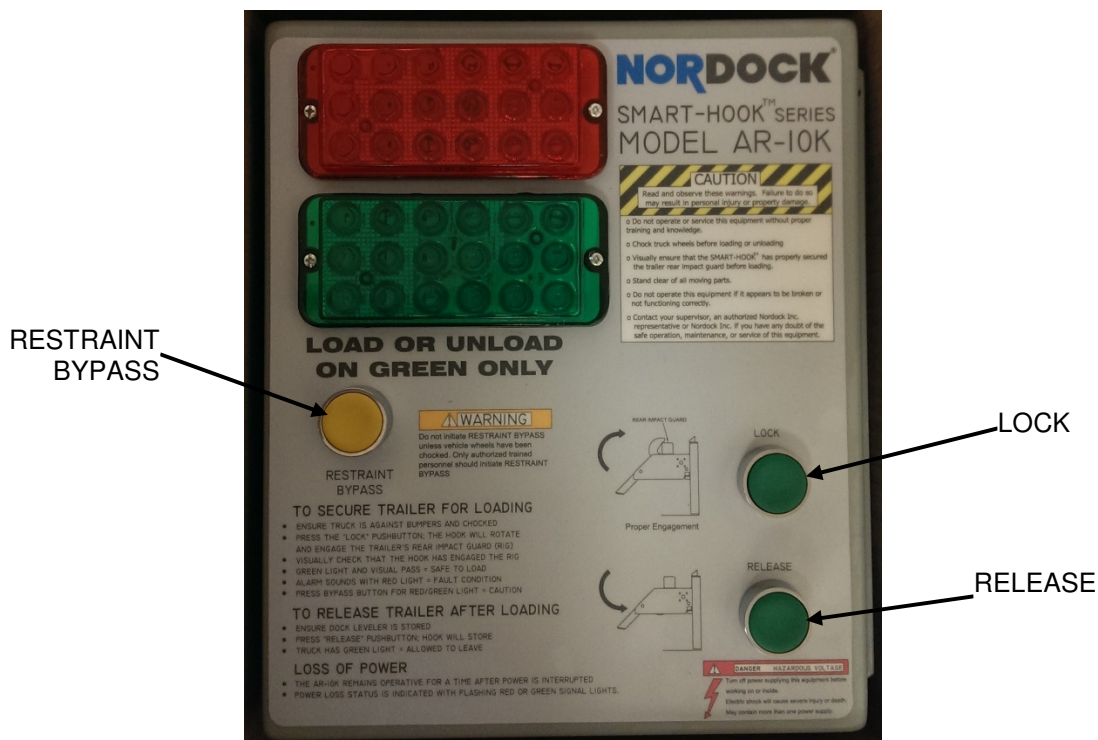
Operation



WARNING

Before operating or maintaining this truck restraint, 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.

Do not load or unload any truck unless you make certain the AR-20K Rotating Hook restraint has securely engaged the truck's ICC bar and that the truck brakes are set. If the AR-20K Truck Restraint does not engage the truck's ICC bar for whatever reason, THE TRUCK'S WHEELS MUST BE CHOCKED BEFORE LOADING OR UNLOADING CAN BEGIN.



STANDARD CONTROL PANEL

This section covers correct trailer restraint operation using the standard AR-20K control panel (pictured above)

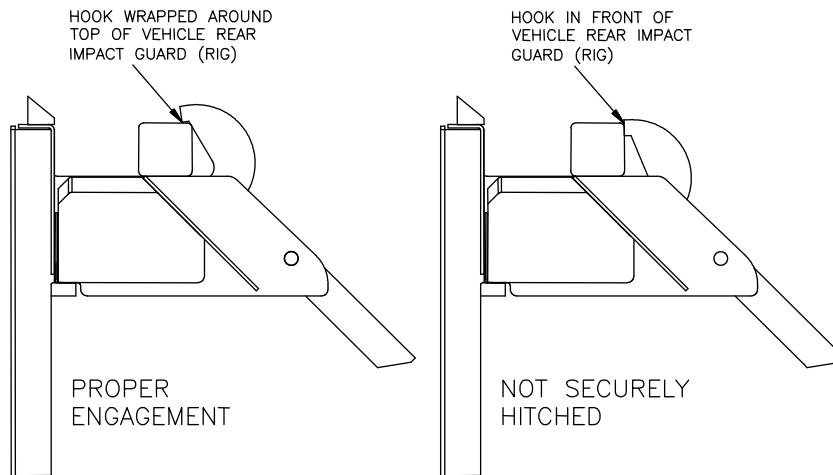
If the control panel provided differs from what is shown above, the operating instructions will be given on the panel cover.

To Hitch the Truck:

1. Position truck against dock bumpers and set brakes.
2. Press the “LOCK” button on the control panel. The hook will rotate up to engage the truck’s ICC bar.

NOTE

Visually inspect the vehicle to ensure proper Rear Impact Guard (RIG) engagement by the hook. (Refer to drawing below) The hook must wrap around the top of the vehicle’s RIG.



3. Visually check that the hook wraps around the top of the vehicle’s RIG bar. (see drawing above)

ENTER VEHICLE ON GREEN LIGHT ONLY

4. If the truck cannot be hitched, the inside red light will continue to flash, the hook will store and an alarm will sound. Chock the trailer wheels and make certain that the brakes are set. Press the “RESTRAINT BYPASS” button. This will silence the alarm. The interior lights will alternately flash red and green.

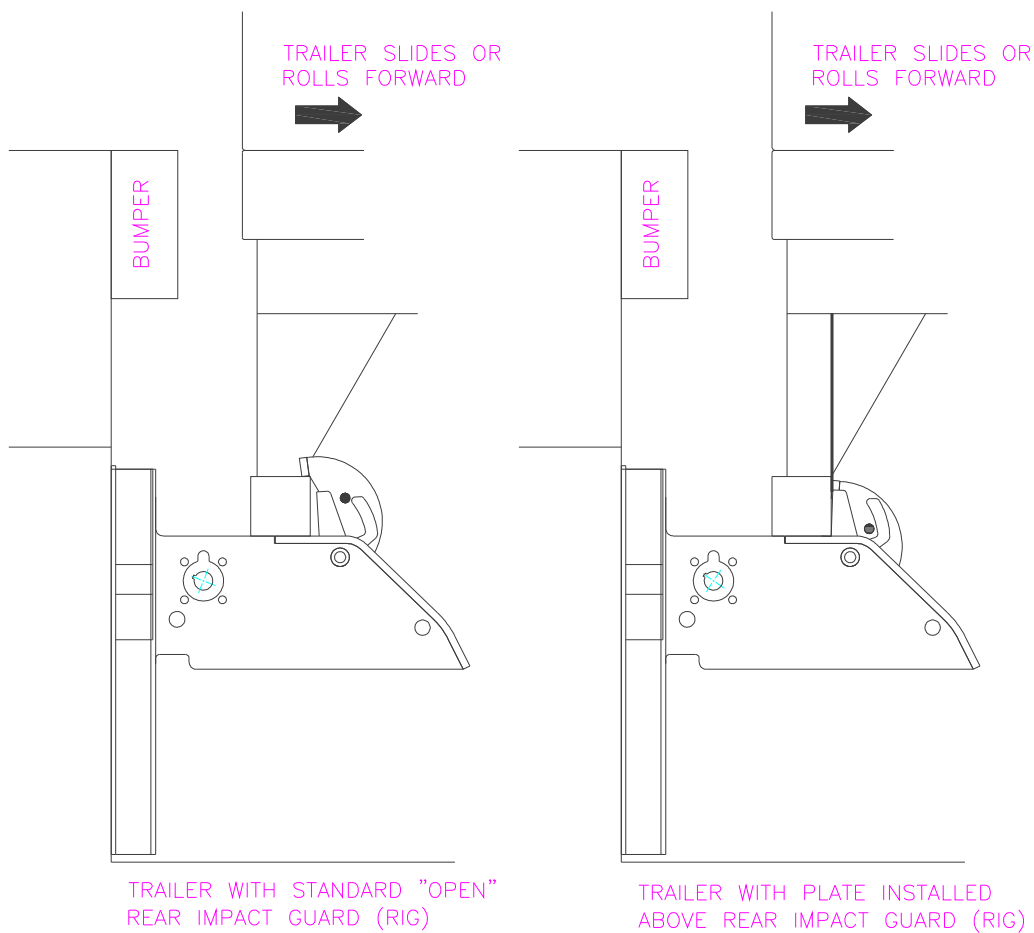
To Release the Truck:

1. Ensure the dock leveller is stored.
(If a dock stored switch is installed, ensure the dock stored switch is triggered when the dock leveler is stored in order to activate hook “RELEASE” function)
2. Press the “RELEASE” button. The hook will rotate down to its stored position.

NOTE

Sometimes during the loading/unloading process, the trailer may “creep” ahead a few inches. This may create a condition with the restraint known as trailer “pinch”. The hook cannot rotate down to the lowered position because it is either catching on the corner of the RIG bar which has now moved ahead or the auxiliary locking mechanism has engaged. (Please refer to Figure below). If this occurs, the only solution is to back the trailer up to the bumpers and then release the restraint.

For applications where trailer “creep” is a common occurrence, it is recommended that the driver be instructed to chock his tires once the trailer is backed up and the brakes are set. The wheel chocks may prevent the trailer from sliding forward enough to create “pinch” condition.



3. Once the hook is stored, the inside light will switch to a solid red and the exterior light will turn green.
4. The truck may now pull out.

Power Outages:

The AR-20K is equipped with a 24 VDC battery backup system that is designed to maintain both hook and communication light functions in the event of a power outage.

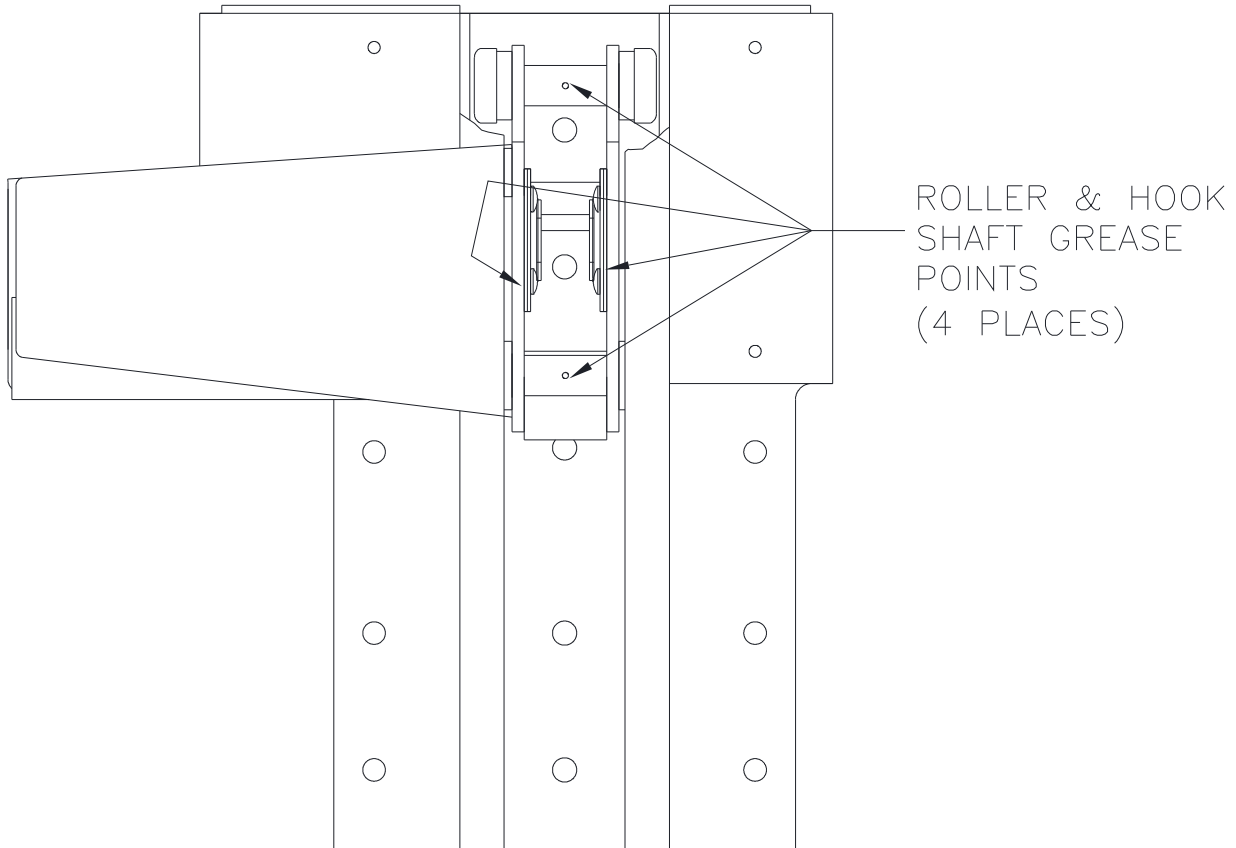
On a full charge, the battery can maintain hook engagement and communication light function for up to 24 hrs.

When on battery power, the inside and outside traffic lights will switch to a flashing mode. This is done to extend battery life by conserving power.

Maintenance Schedule

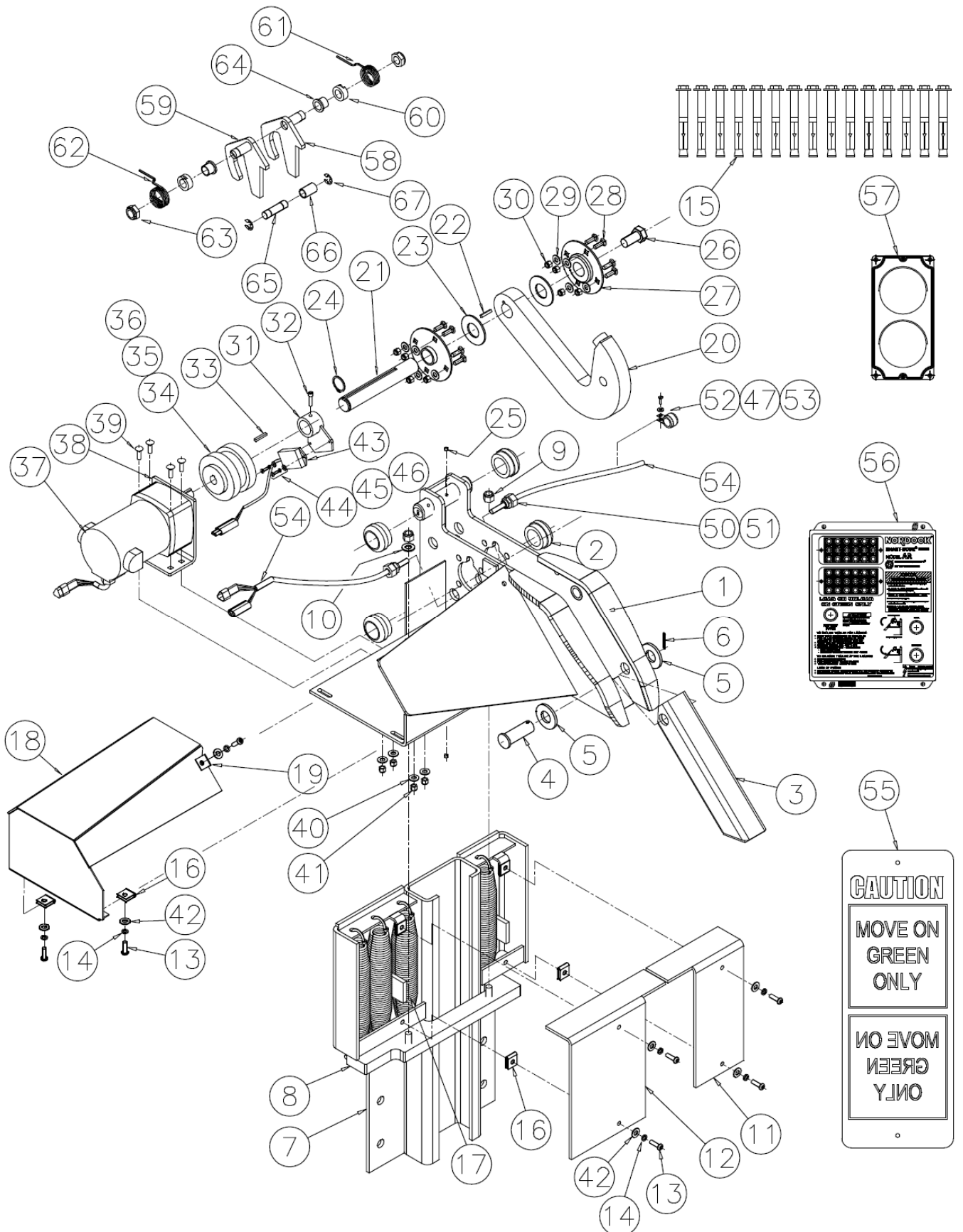
 **WARNING**

Before servicing this restraint, 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.



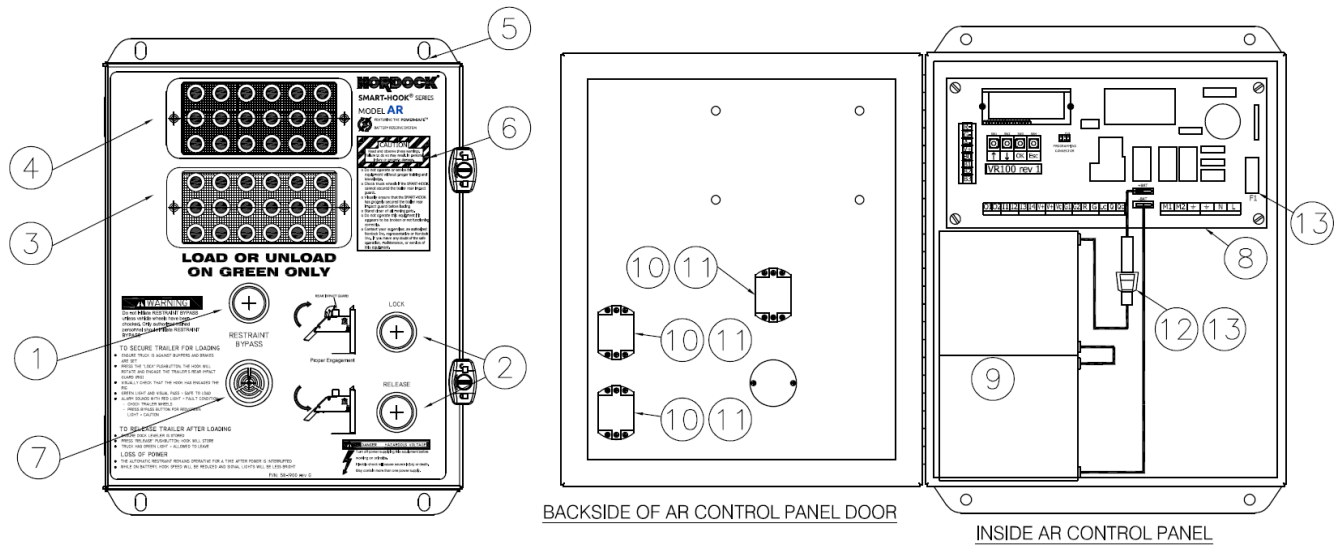
Item	Lubrication	Inspection	Cleaning
Roller & Shaft Grease Fittings (4 locations)	Every 180 days using Mobilith SHC220 No. 2 (or equivalent temperature range lithium based grease)	None	Remove debris as required
Track & Rollers	None required	Weekly – Check for bent track or damaged rollers	Remove debris as required
Driveway Area Around Restraint	None required	None	As required to remove debris
Signal Lights & Signs Inside & Outside	None required	Daily - check that all lights are working and that signs are present and clearly legible	Clean lenses as required – replace signs as necessary
Concrete Anchors (15 locations)	None required	Every 180 days - check that all anchors are tight. Re-tighten if necessary	None required

Parts List



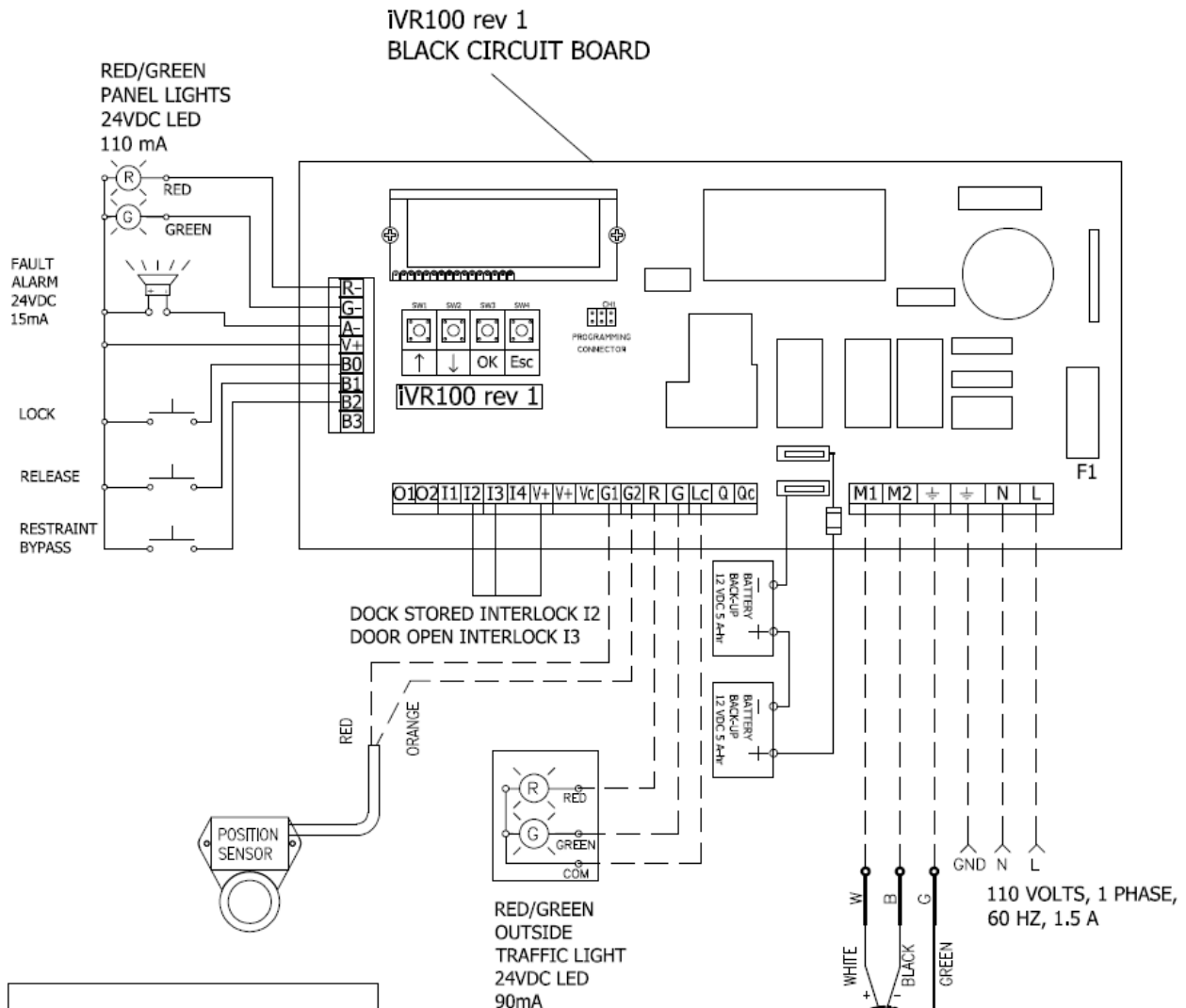
Item	Qty	Description / Model	P/N	Note
1	1	Carriage Weldment	52-1053	
2	4	Roller, Carriage (w/ bearing)	52-1014	
3	1	Slope Extension Weldment	52-1013	
4	1	Clevis Pin, 1" x 4" Steel, Non Plated	13-2658	
5	2	Washer, 1", Flat, Steel, Plated, SAE	13-2030	
6	1	Cotter Pin, 3/16" x 1-3/4", Steel, Plated	13-0304	
7	1	Backplate Weldment	52-1006	
8	1	Spring Bar	52-1019	
9	2	Nut, 1/2" Nylock	13-0750	
10	1	Washer, 1/2" flat, Plated	13-0267	
11	1	Spring Cover, Right	53-1088	
12	1	Spring Cover, Left	53-1089	
13	7	Cap Screw, Button Hd, 5/16"-18 x 1", plated	13-2684	
14	7	Washer, 5/16", Lock, Plated	13-0946	
15	15	Anchor, Sleeve, Bolt Head, 5/8 x 5, plated	13-2660	
16	6	Nut Retainer, Clip -on, J-Type, 5/16-18	53-1103	
17	4	Spring	53-1001	
18	1	Motor Cover	52-1010	
19	1	Nut Retainer, Clip -on J-Type, 5/16-18	13-2446	
20	1	Hook Weldment	52-1015	
21	1	Hook Shaft, 1 1/4" diameter	53-1102	
22	1	Keybar, 1/4" x 1-1/4" long	13-0752	
23	2	Washer, 1-1/4", plated	13-1527	
24	1	Retaining Ring, External, 1-1/4"	13-2731	
25	2	Grease Fitting, 1/4" Straight	13-2785	
26	1	Bolt, Hex Hd, 5/8"NC x 1"	13-2740	
27	2	Bearing, 4-Bolt Flange, 1-1/4"	13-2372	
28	8	Bolt, Carriage, 3/8" x 1"	13-2661	
29	8	Washer, 3/8" flat plated	13-0968	
30	8	Nut, 3/8-16 Nylock Jam, plated	13-1331	
31	1	Position Sensor Mounting Bracket	52-1054	
32	1	SHCS, 1/4-28 x 1", ZP	13-2066	
33	1	Keybar, 1/4" x 1-1/2" long	13-0752	
34	1	Coupling, Flex, Flange 3/4" Bore	13-2377	
35	1	Coupling, Flex, Flange 1-1/4" Bore	13-2378	
36	1	Coupling, Flex, Sleeve Size 6	13-2379	
37	1	Gearmotor, 130V DC, IP66 w/ waterproof connector	13-4180	
38	1	Motor Mounting Plate	53-1015	
39	4	Bolt, Carriage, 5/16" x 1"	13-2662	
40	4	Washer, 5/16", Flat, Std, plated	13-0624	
41	4	Nut, 5/16 Nylock, plated	13-0846	
42	7	Washer, 5/16", Flat, SAE, plated	13-3121	
43	1	Hook Position Sensor w/ Weatherpak connector	13-4240	
44	2	Screw, 8-32 x 3/4", Combo Head, Plated	13-2722	
45	2	Washer, Lock, Split, #8, ZP	13-3118	
46	2	Washer, Flat, #8, ZP	13-3117	
47	1	Screw, 10-24 x 1/2", Combo Head, Plated	13-0124	
48				
49				
50	2	Connector, 3/4" Thread, Strain Relief, Metal (Mtr)	13-2501	
51	2	Connector, Strain Relief, 3/4" Metal (on carriage)	13-3840	

Item	Qty	Description / Model	P/N	Note
52	1	Strap, Rubber Cable Clamp	13-2786	
53	1	Washer, #10, Plated	13-1956	
54	1	Control Cable, AR-10/20K, w/ waterproof connectors	53-1097	
55	1	Sign, Outside Caution	23-0124	
56	1	Control Panel, AR-10/20K, 115V	58-1800	
57	1	Outside Traffic Light, LED, Red and Green, 10-32 VDC	13-3282	
58	1	Locking Plate Weldment, Left, AR-20K	52-1062	
59	1	Locking Plate Weldment, Right, AR-20K	52-1063	
60	2	Locking Plate, Spring Arbor, AR-20K	53-1119	
61	1	Lock Plate Spring, RH Wind, AR-20K	53-1251	
62	1	Lock Plate Spring, LH Wind, AR-20K	53-1250	
63	2	Nut, 3/4-16 UNF, Jam, Nylock, ZP	13-4300	
64	2	Bushing, Oilite, Flange, 3/4"IDx7/8"ODx3/4"LG	13-4326	
65	1	Rotating Pin, AR-20K	53-1121	
66	1	Bushing, Oilite, Sleeve, 5/8"IDx13/16"ODx1-1/4"LG	13-4408	
67	2	Retaining Ring, 5/8", "E-style", ZP	13-4311	



Item	Qty	Description / Model	P/N	Note
1	1	Pushbutton, Flush Face, Yellow	13-1178	
2	2	Pushbutton, Flush Face, Green	13-1181	
3	1	Light, Marker, Rectangular, LED, Green, 24 VDC	13-3358	
4	1	Light, Marker, Rectangular, LED, Red, 24 VDC	13-3357	
5	1	Enclosure, 12"H x 10"W x 5"D, Steel, Hinged Cover	C/F	
6	1	Overlay, AR-Series, 12"x10" Enclosure	58-1900	revG
7	1	Fault Alarm, 24Vdc	13-1239	
8	1	Circuit Board, iVR100 Rev 1 – "black"	13-4338	
9	2	Battery, 12V, 5 AH	13-4400	
10	3	Contact Block, N/O, 10A, GREEN	13-2375	
11	3	Mounting collar for contact blocks	C/F	
12	1	In-Line Fuse Holder	C/F	
13	2	Fuse, 2A 250V, 22mm x 5mm	13-4128	

Standard Wiring Diagram



--- FIELD WIRING BY OTHERS

NOTES:

DOOR OPEN INTERLOCK:
CONNECT DOOR OPEN LIMIT SWITCH (OR SENSOR), WHICH CLOSES WHEN DOOR IS FULLY OPEN, TO V+ AND I3 TERMINALS ON CIRCUIT BOARD. DOOR OPEN INTERLOCK BLOCKS DOCK LEVELER FUNCTIONS IF DOOR IS NOT FULLY OPEN.

DOCK STORED INTERLOCK:
CONNECT DOCK STORED LIMIT SWITCH (OR SENSOR), WHICH CLOSES WHEN DOCK IS STORED, TO V+ AND I2 TERMINALS ON CIRCUIT BOARD. DOCK STORED INTERLOCK PREVENT RELEASING RESTRAINT WHEN DOCK IS NOT STORED.

IF A SENSOR REQUIRES NEUTRAL CONNECTION, CONNECT ITS NEUTRAL LINE TO Vc TERMINALS ON CIRCUIT BOARD.

ONLY P TYPE SENSOR CAN BE USED TO I2 AND I3 INPUTS.

