

NOVA IntelliDock

COMBINATION CONTROL BOX MANUAL

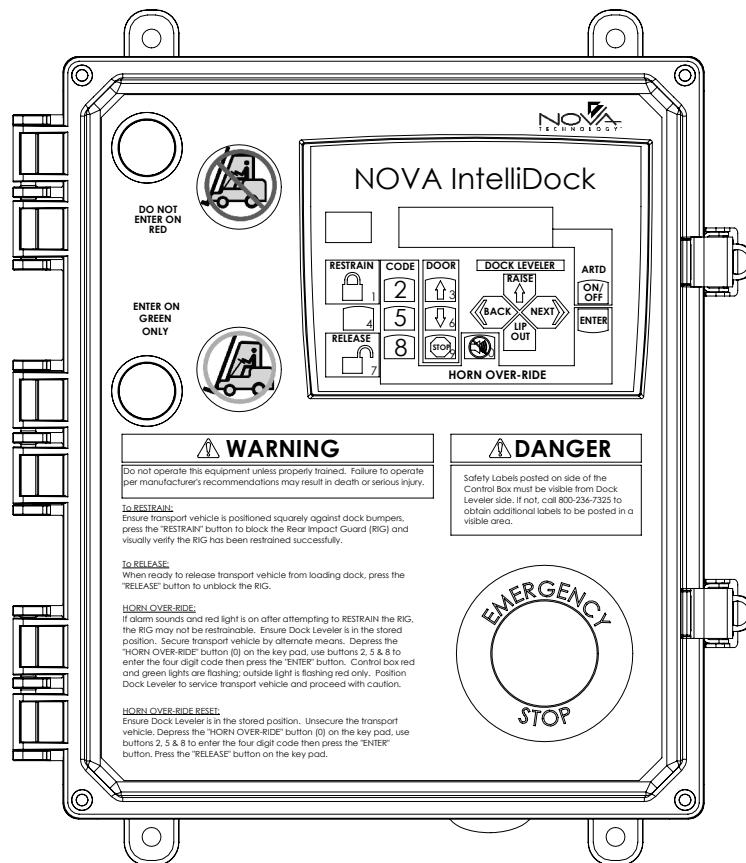



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PRECAUTIONS

Recognize Safety Information

Safety-Alert Symbol



The Safety-Alert Symbol is a graphic representation intended to convey a safety message without the use of words. When you see this symbol, be alert to the possibility of death or serious injury. Follow the instructions in the safety message panel.

 **DANGER**

The use of the word DANGER signifies the presence of an extreme hazard or unsafe practice which will most likely result in death or serious injury.

 **WARNING**

The use of the word WARNING signifies the presence of a serious hazard or unsafe practice which could result in death or serious injury.

 **CAUTION**

The use of the word CAUTION signifies possible hazard or unsafe practice which could result in minor or moderate injury.

NOTICE

The use of the word NOTICE indicates information considered important, but not hazard-related, to prevent machine or property damage.

SAFETY INSTRUCTIONS

Indicates a type of safety sign, or separate panel on a safety sign, where safety-related instructions or procedures are described.

General Operational Safety Precautions



Read and understand the Owner's/User's Manual and become thoroughly familiar with the equipment and its controls before operating the transport vehicle restraint.

Never operate a transport vehicle restraint while a safety device or guard is removed or disconnected.

Never remove DANGER, WARNING, or CAUTION signs, Placards or Decals on the equipment unless replacing them.

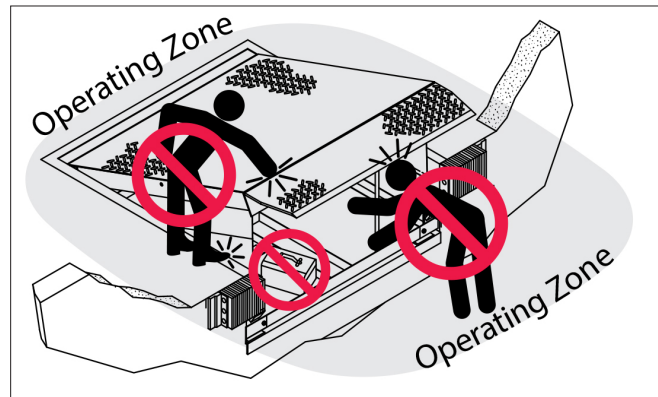



Figure 1

Do not start the equipment until all unauthorized personnel in the area have been warned and have moved outside the operating zone (see Figure 1).

Remove any tools or foreign objects from the operating zone before starting.

Keep the operating zone free of obstacles that could cause a person to trip or fall.

 **WARNING:** This product can expose you to chemicals including lead, which are known to the State of California to cause cancer or birth defects or other reproductive harm. For more information go to www.P65Warnings.ca.gov

PRECAUTIONS

Operational Precautions



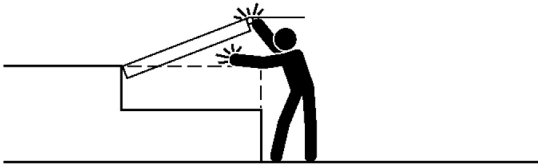
Learn the safe way to operate this equipment. Read and understand the manufacturer's instructions. If you have any questions, ask your supervisor.

DANGER

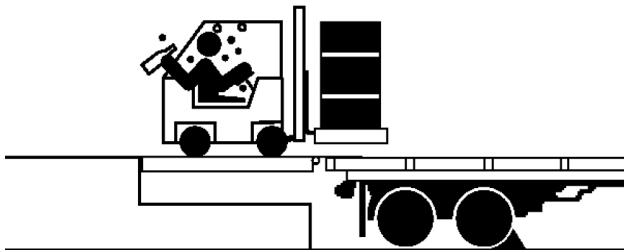


Stay clear of dock leveling device and restraint when transport vehicle is entering or leaving area.

Do not move or use the dock leveling device and restraint if anyone is under in front or near it.



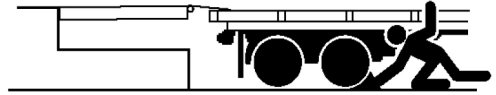
Keep hands and feet clear of pinch points. Avoid putting any part of your body near moving parts.



Do not operate any equipment while under the influence of alcohol or drugs.



WARNING



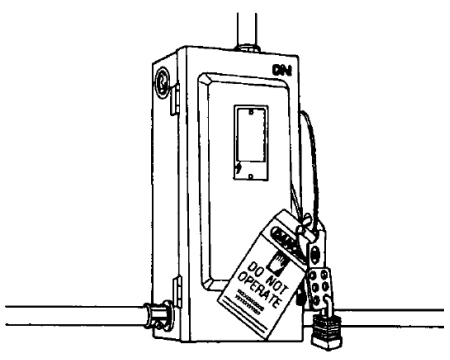
Chock/restrain all transport vehicles. Never remove the wheel chocks until loading or unloading is finished and transport vehicles driver has been given permission to drive away.

Do not use broken or damaged loading dock equipment. Make sure proper service and maintenance procedures have been performed before using.

PRECAUTIONS

Maintenance Precautions

⚠ DANGER



Electrical power must be OFF when servicing the equipment. For maximum protection, use an OSHA approved locking device to lock out all power sources. Only the person servicing the equipment should have the key to unlock the device.

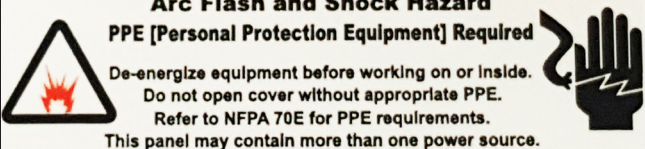
COMBINATION CONTROL BOX SAFETY DECAL'S

Every 90 days (quarterly) inspect all safety labels, placards and tags to ensure they are present, easily seen and legible. Refer to the Parts section of this publication to identify the location of the safety items listed below. Call NOVA Technical Service for replacements.

Page #	Item #	Description
53 & 54	5	Decal, Arc Flash
53 & 54	6	Decal, Hook Position

Read and understand the PRECAUTIONS/SAFETY sections of the OEM Owner's/User's Manual for each piece of loading dock equipment interfaced with the Combination Control Box.

⚠ DANGER




Arc Flash and Shock Hazard
PPE [Personal Protection Equipment] Required
 De-energize equipment before working on or inside.
 Do not open cover without appropriate PPE.
 Refer to NFPA 70E for PPE requirements.
 This panel may contain more than one power source.

MF2-202-000

Hazardous Voltage Will Result in Death or Serious Injury

⚠ WARNING



Always post safety warnings and barricade the work area at dock level and ground level to prevent unauthorized use of the unit before maintenance is complete.

ALWAYS disconnect electrical power source and ground wire before welding on restraint.

DO NOT ground welding equipment to any electrical components of the restraint. Always ground to the restraint frame.

DO NOT grind or weld if hydraulic fluid or other flammable liquid is present on the surface to be ground or welded.

DO NOT grind or weld if uncontained hydraulic fluid or other flammable liquid is present. Stray sparks can ignite spills or leaks near the work area. Always clean up the oil leaks and spills before proceeding with grinding or welding.

Always keep a fire extinguisher of the proper type nearby when grinding or welding.

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INSTALLATION INSTRUCTIONS

SET-UP PHOTOELECTRIC SENSOR (ONLY WITH OVERHEAD DOOR OPTION)

NOTE: Installation of photoelectric sensors must be completed before wiring overhead dock door controls into combination control box.

1. Verify the overhead door is fully closed. Fasten reflector bracket to stile on overhead door.
 - a. See FIGURE A.
 - i. Roughly 24 to 36 inches from the floor.
 - ii. Reflector must be facing the closest door track.
 - b. Use the following hardware.
 - i. 2 (CB-1017) No.12 X 3/4" Hex Head Self-Drilling Screw.
2. Mount photoelectric sensor bracket to door track across from reflector at lower part of door.
 - a. See FIGURE B.
 - b. Line up photoelectric sensor. Clearance hole to be in line with center of reflector.
 - c. Drill two Ø 5/16" clearance holes through door track for bolts to fasten bracket.
 - d. Use the following hardware to mount sensor bracket to door track.
 - i. 2 (CB-1018) 1/4"-20 Nyloc Nut.
 - ii. 2 (CB-1019) 1/4"-20 X 5/8" Button Head Cap Screw.
3. Open overhead door and verify overhead door is in the fully open position.
4. Mount photoelectric sensor bracket to door track across from reflector at upper part of door.
 - a. See FIGURE B.
 - b. Line up photoelectric sensor. Clearance hole to be in line with center of reflector.
 - c. Drill two Ø 5/16" clearance holes through door track for bolts to fasten bracket.
 - d. Use the following hardware to mount sensor bracket to door track.
 - i. 2 (CB-1018) 1/4"-20 Nyloc Nut.
 - ii. 2 (CB-1019) 1/4"-20 X 5/8" Button Head Cap Screw.
5. Install photoelectric sensor into top mounting bracket.
 - a. See FIGURE C.
6. Install photoelectric sensor into bottom mounting bracket.
 - a. See FIGURE C.
7. Connect the M12 cord (CB-1016) to each photoelectric sensor and route other end of the cord to the combination control box.
8. Perform electrical connections per instructions found on page 15.
9. Once the photoelectric sensors are wired and the combination control box is powered up, verify the three LEDs on each photoelectric sensor are on as listed below:
 - a. Green
 - i. On – Power is applied.
 - ii. Off – No power going to sensor, verify wiring on page 15.
 - b. Red
 - i. On – Output is on.
 - ii. Off – No Output coming from sensor.
 - c. Orange (LED will only be on if reflector is in front of sensor)
 - i. On (No Flashing) – Great alignment.
 - ii. Long Flashing – Good alignment.
 - iii. Short Flashing – Poor alignment.

INSTALLATION INSTRUCTIONS

SET-UP PHOTOELECTRIC SENSOR (ONLY WITH OVERHEAD DOOR OPTION)

- iv. Off – Out of alignment OR photoelectric sensor is out of range.

If orange LED is flashing, loosen bolts securing reflector to bracket. Move the reflector to a position that causes the orange LED to illuminate constantly. Secure the reflector in this position.

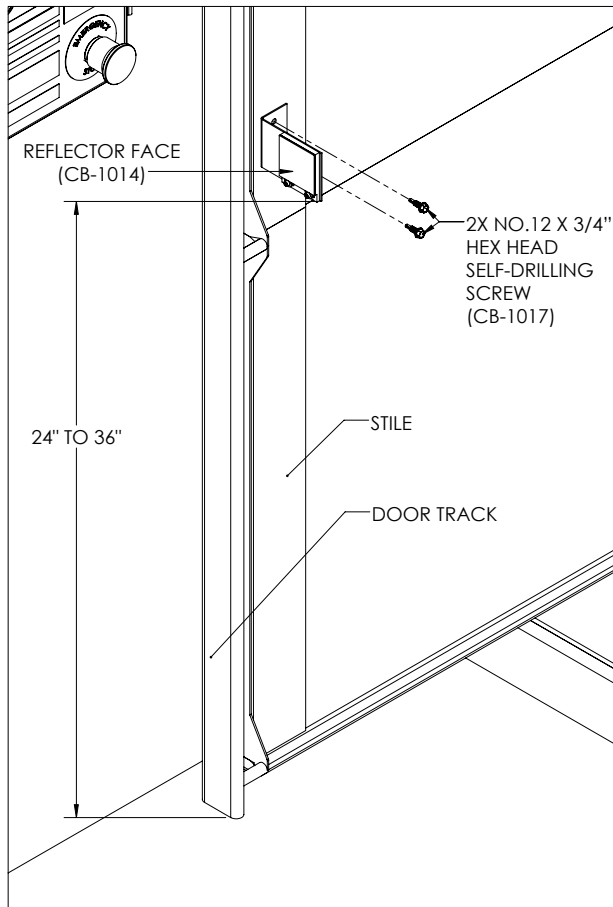


FIGURE A—MOUNTING REFLECTOR

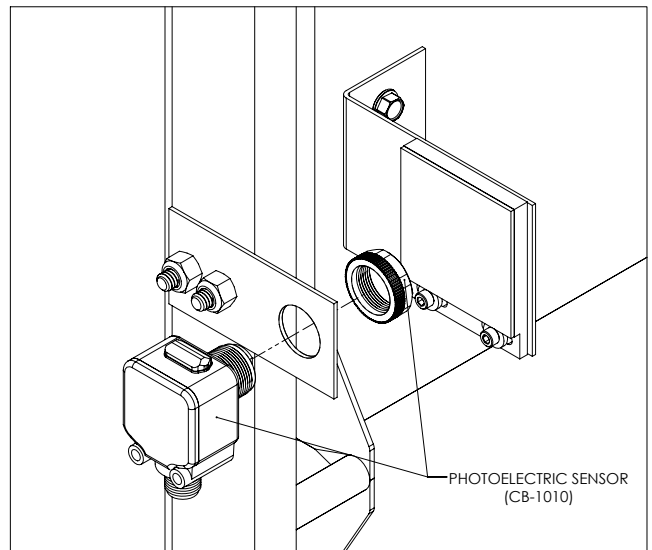


FIGURE C—INSTALLING PHOTOELECTRIC SENSORS

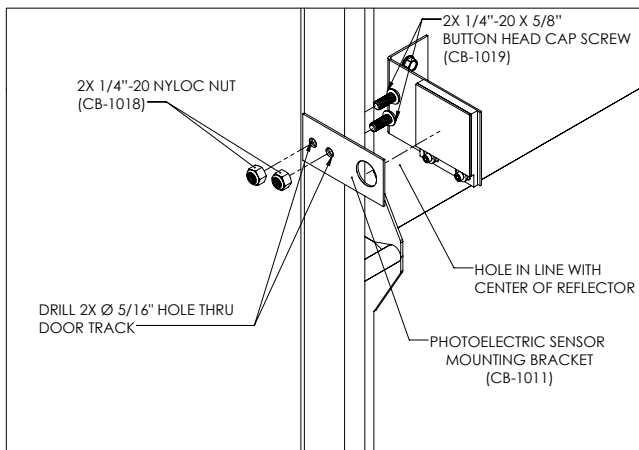


FIGURE B—MOUNTING REFLECTOR

INSTALLATION INSTRUCTIONS

SET-UP PROXIMITY SENSOR (ONLY WITH AIR BAG OR HYDRAULIC DOCK LEVELER)

- If the combination control box installation is with a new dock leveler installation see Section 1.
- If the combination control box installation is with a current dock leveler see Section 2.

Section 1:

Note: Installation and wiring of proximity sensor must be completed before wiring dock control to and powering up combination control box.

HYDRAULIC LEVELER

1. Read and understand the maintenance/service section of the original equipment manufacturer (O.E.M.) owner's/user's manual for the dock leveler.
2. Check that lip is fully resting on the lip keepers and at the lowest part of the keeper cradle in the center. If not, proceed to section: ADJUSTMENTS – ADJUST LIP STOP BOLT(S) on page 43.
3. Place the dock leveler in the maintenance/service position by following the O.E.M. instructions.
4. Place Proximity Sensor Bracket Assembly (CB-1028) on sub-frame as shown in Figure D on page 11.
5. Fasten the Proximity Sensor Bracket Assembly, with the two 1/4"-20 X 1" hex head self-drilling screws, to the sub-frame as shown in Figure E on page 11. (If bracket assembly cannot be fastened to sub-frame, remove sensor from bracket before welding bracket to pit metal).
6. Remove the end of the screws to eliminate any sharp points on the sub-frame and to create a flush surface as shown in Figure F on page 11.
7. Connect the M12 cord (CB-1016) to the proximity sensor and run other end of the cord to the pit junction box.
8. Perform electrical connections per instructions found on page 18.
9. Place the dock leveler in the stored position from maintenance/service position by following the O.E.M. instructions.
10. Once the proximity sensor is wired and the combination control box is powered up, verify the two LEDs on the proximity sensor are illuminated as listed below by using a mechanics mirror.
 - a. Green
 - i. On – Power is applied.
 - ii. Off – No power going to sensor, verify wiring on page 18.
 - b. Orange (LED will only be on if dock leveler lip is in front of sensor)
 - i. On – Output is on.
 - ii. Off – No Output coming from sensor.



CAUTION

All electrical work – including the installation of the disconnect panel, control panel, and final connections to the pit junction box – must be performed by a certified electrician and conform to all local and applicable national codes.

INSTALLATION INSTRUCTIONS

SET-UP PROXIMITY SENSOR (ONLY WITH AIR BAG OR HYDRAULIC DOCK LEVELER)

Section 1:

Note: Installation and wiring of proximity sensor must be completed before wiring dock control to and powering up combination control box.

AIR BAG LEVELER

1. Read and understand the maintenance/service section of the original equipment manufacturer (O.E.M.) owner's/user's manual for the dock leveler.
2. Check that lip is fully resting on the lip keepers and at the lowest part of the keeper cradle in the center. If not, proceed to section: ADJUSTMENTS – ADJUST LIP STOP BOLT(S) on page 43.
3. Place the dock leveler in the maintenance/service position by following the O.E.M. instructions.
4. Place Proximity Sensor Bracket Assembly (CB-1028) on sub-frame as shown in Figure D on page 11.
5. Fasten the Proximity Sensor Bracket Assembly, with the two 1/4"-20 X 1" hex head self-drilling screws, to the sub-frame as shown in Figure E on page 11. (If bracket assembly cannot be fastened to sub-frame, remove sensor from bracket before welding bracket to pit metal).
6. Remove the end of the screws to eliminate any sharp points on the sub-frame and to create a flush surface as shown in Figure F on page 11.
7. Connect the M12 cord (CB-1016) to the proximity sensor and run other end of the cord to the pit junction box.
8. Perform electrical connections per instructions found on page 16.
9. Place the dock leveler in the stored position from maintenance/service position by following the O.E.M. instructions.
10. Once the proximity sensor is wired and the combination control box is powered up, verify the two LEDs on the proximity sensor are illuminated as listed below by using a mechanics mirror.
 - a. Green
 - i. On – Power is applied.
 - ii. Off – No power going to sensor, verify wiring on page 16.
 - b. Orange (LED will only be on if dock leveler lip is in front of sensor)
 - i. On – Output is on.
 - ii. Off – No Output coming from sensor.



CAUTION

All electrical work – including the installation of the disconnect panel, control panel, and final connections to the pit junction box – must be performed by a certified electrician and conform to all local and applicable national codes.

INSTALLATION INSTRUCTIONS

SET-UP PROXIMITY SENSOR (ONLY WITH AIR BAG ON HYDRAULIC DOCK LEVELER)

Section 2:

Note: Installation and wiring of proximity sensor must be completed before wiring dock control to and powering up combination control box.

1. Read and understand the maintenance/service section of the original equipment manufacturer (O.E.M.) owner's/user's manual for the dock leveler.
2. Check that lip is fully resting on the lip keepers and at the lowest part of the keeper cradle in the center. If not, proceed to section: ADJUSTMENTS – ADJUST LIP STOP BOLT(S) on page 43.
3. Place the dock leveler in the maintenance/service position by following the O.E.M. instructions.
4. Place Proximity Sensor Bracket Assembly (CB-1028) on sub-frame as shown in Figure D.
5. Fasten the Proximity Sensor Bracket Assembly, with the two 1/4"-20 X 1" hex head self-drilling screws, to the sub-frame as shown in Figure E. (If bracket assembly cannot be fastened to sub-frame, remove sensor from bracket before welding bracket to pit metal).
6. Remove the end of the screws to eliminate any sharp points on the sub-frame and to create a flush surface as shown in Figure F.
7. Connect the M12 cord (CB-1016) to the proximity sensor and run other end of the cord to the pit junction box.
8. Perform electrical connections per instructions found on page 16 or 18.
9. Place the dock leveler in the stored position from maintenance/service position by following the O.E.M. instructions.
10. Once the proximity sensor is wired and the combination control box is powered up, verify the two LEDs on the proximity sensor are illuminated as listed below by using a mechanics mirror.
 - a. Green
 - i. On – Power is applied.
 - ii. Off – No power going to sensor, verify wiring on page 16 or 18.
 - b. Orange (LED will only be on if dock leveler lip is in front of sensor)
 - i. On – Output is on.
 - ii. Off – No Output coming from sensor.



CAUTION

All electrical work – including the installation of the disconnect panel, control panel, and final connections to the pit junction box – must be performed by a certified electrician and conform to all local and applicable national codes.

INSTALLATION INSTRUCTIONS

SET-UP PROXIMITY SENSOR (ONLY WITH AIR BAG ON HYDRAULIC DOCK LEVELER)

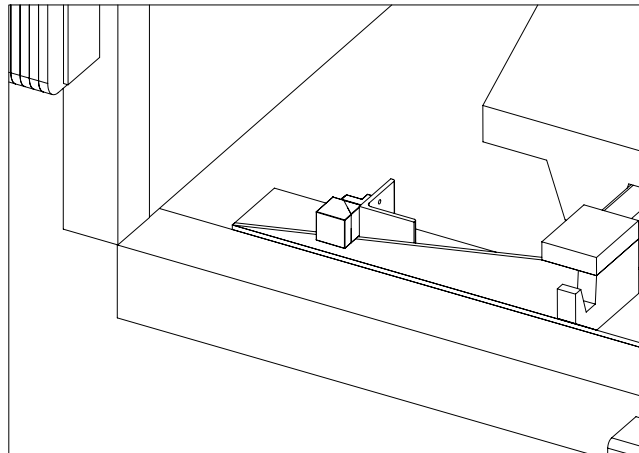


FIGURE D—INSTALLING PROXIMITY SENSOR BRACKET

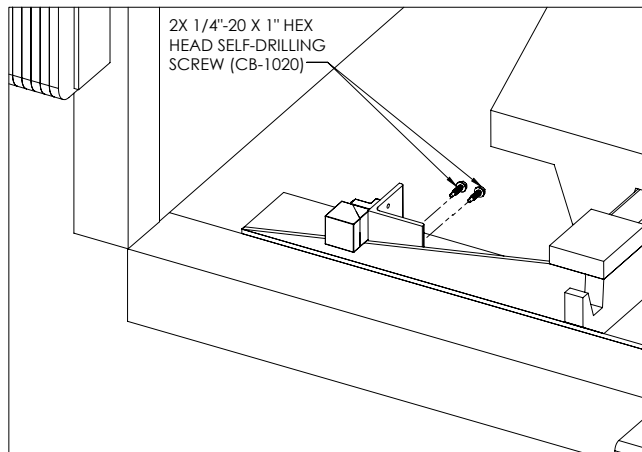


FIGURE E—FASTEN BRACKET TO SUB-FRAME

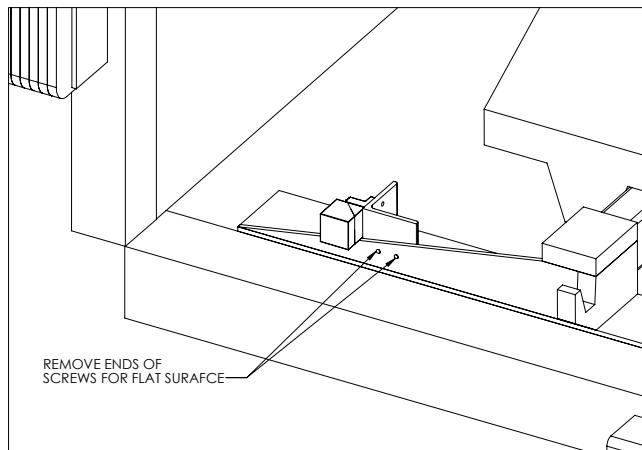


FIGURE F—REMOVED ENDS OF SCREWS

INSTALLATION INSTRUCTIONS

INSTALL ELECTRICAL COMPONENTS

For standard electrical component installation information, reference product Installation Manual. See table below for correct Installation Manual Number.


Product	Installation Manual Number
Lock-Up™	MF4-158-000
Lock & Load™	MF2-093-000
Truck Lock™ – Low Profile	NT-0-351
Truck Lock™ – Standard Profile	NT-0-350

NOTE:


Interlocked dock leveler and/or overhead door should be in the stored and/or closed position when turning on the Combination Control Box for the first time.

Disclosure:

- All graphics in the “INSTALL ELECTRICAL COMPONENTS” section are shown for representation.
- Actual TB1 and Relay Rail components and wire colors may differ.
- Terminal block labels will not differ.


DANGER

Make sure that the power source has been locked out and tagged according to OSHA regulations and approved local electrical codes.


DANGER

Where indicated, all components must be connected to a SAFETY EARTH GROUND that conforms to the 1999 National Electric Code Section 250-50 section (a) or section (c) for a grounding electrode system.

INSTALLATION INSTRUCTIONS

INSTALL ELECTRICAL COMPONENTS

CONTROL BOX WIRING – LOCK-UP™ / LOCK & LOAD™

Verify Part Number located on door inside control box.

If the control box is a CB-2XXXXXXXX OR CB-4XXXXXXXX make wire connections per Figure G.
 If the control box is a CB-1XXXXXXXX see next page.

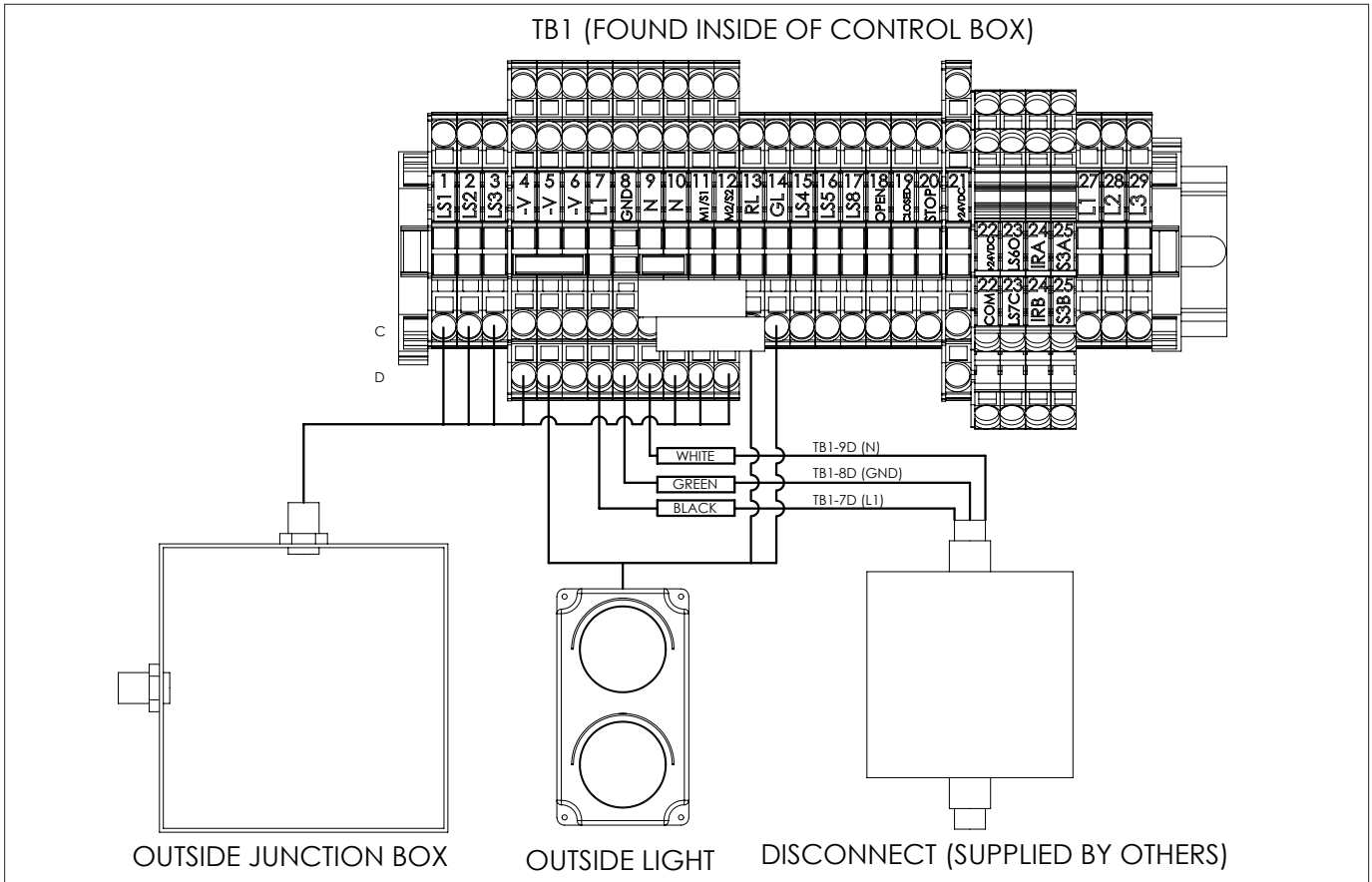


FIGURE G—LOCK-UP™ / LOCK & LOAD™ CONTROL BOX WIRING

INSTALLATION INSTRUCTIONS

INSTALL ELECTRICAL COMPONENTS

CONTROL BOX WIRING – TRUCK LOCK™

Verify Part Number located on door inside control box.

If the control box is a CB-1XXXXXXX make wire connections per Figure H.

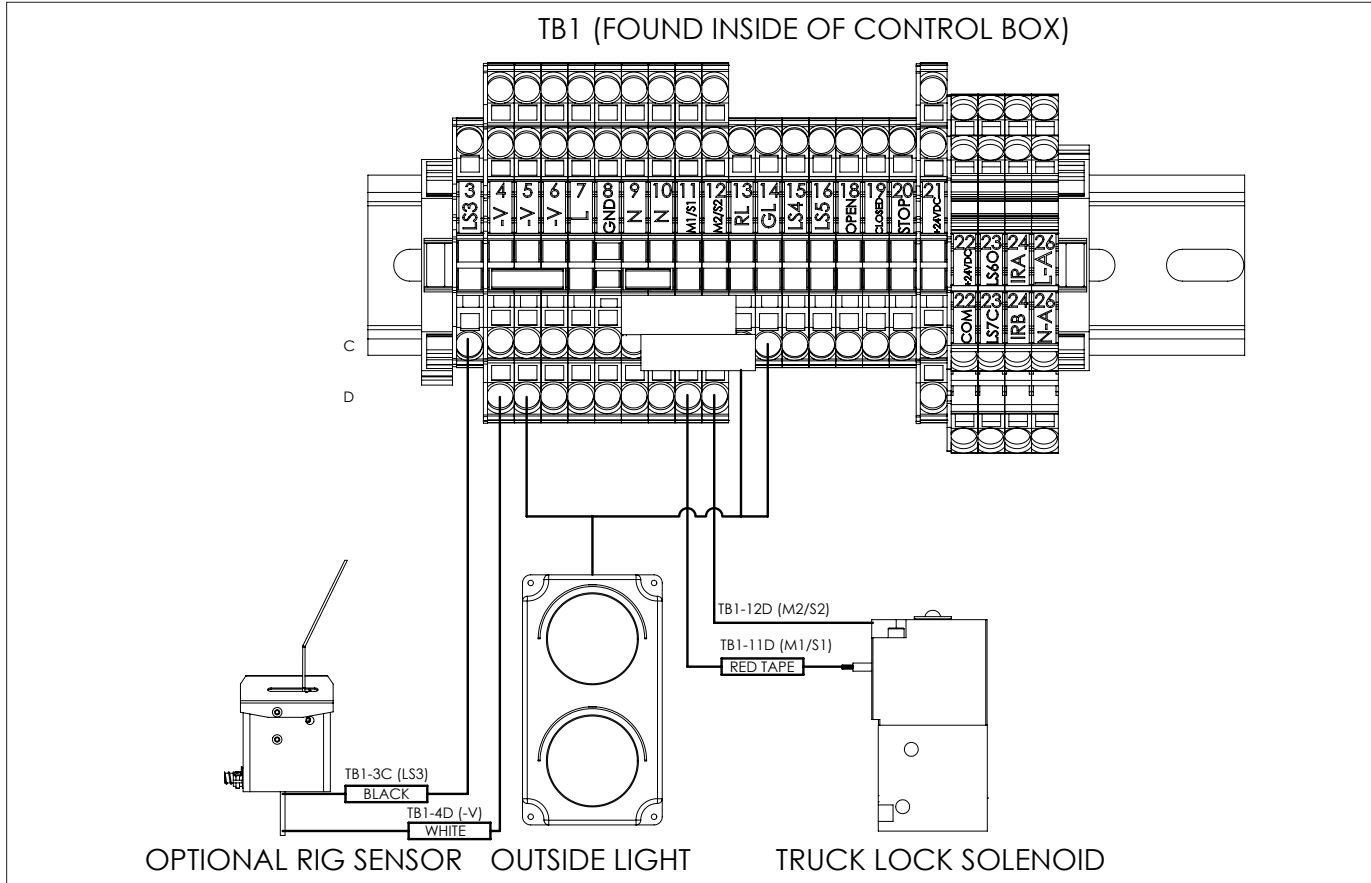


FIGURE H—TRUCK LOCK™ CONTROL BOX WIRING SCHEMATIC

INSTALLATION INSTRUCTIONS

INSTALL ELECTRICAL COMPONENTS

CONTROL BOX WIRING – OVERHEAD DOOR

Verify Part Number located on door inside control box.

If the control box is a CB-XXXXXDXXX make wire connections per Figure I.

If the control box is a CB-XXXXX0XXX ignore Figure I below.

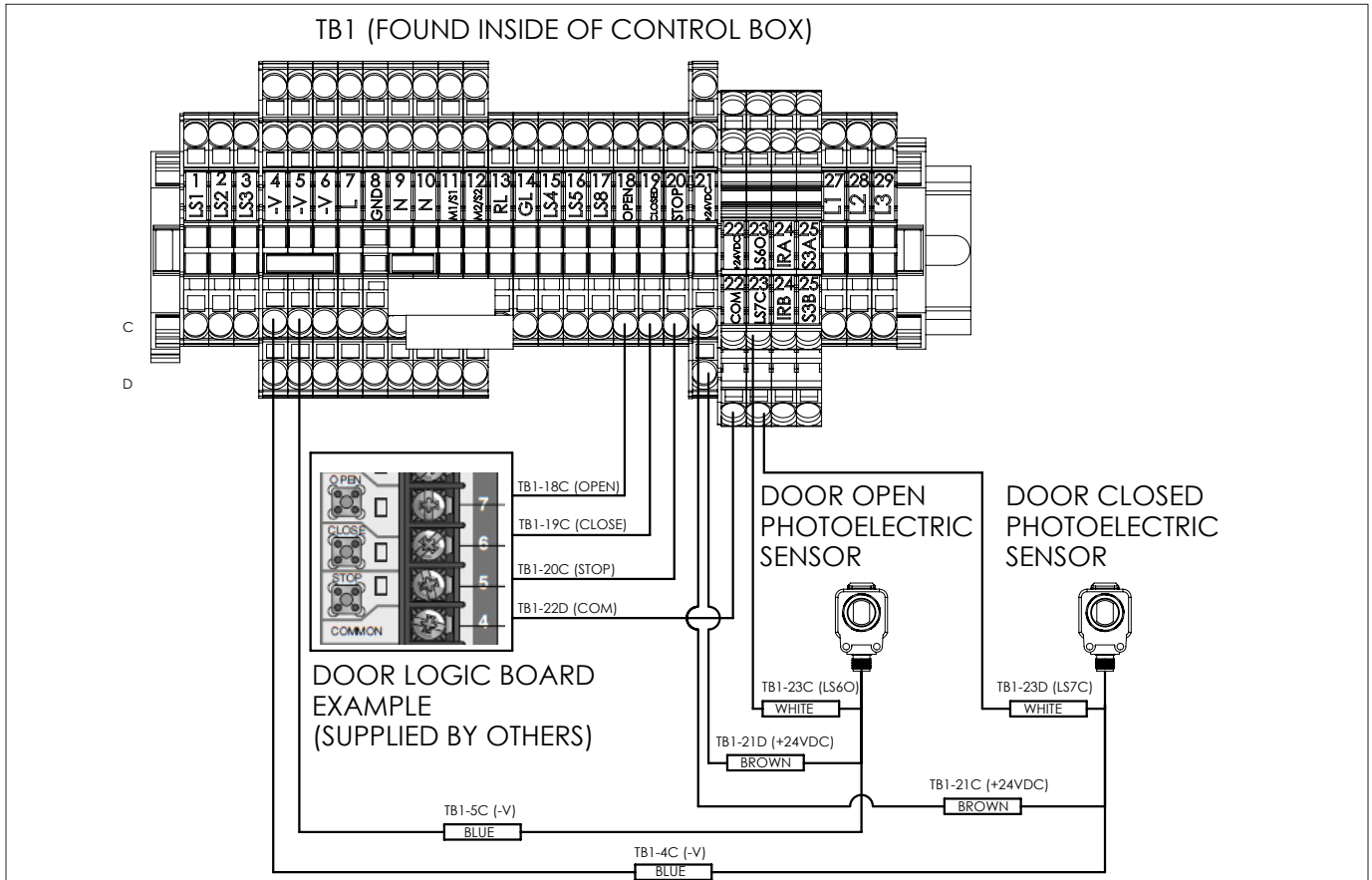


FIGURE I—OVERHEAD DOOR CONTROL BOX WIRING SCHEMATIC

INSTALLATION INSTRUCTIONS

INSTALL ELECTRICAL COMPONENTS

CONTROL BOX WIRING – AIR BAG DOCK LEVELER

Verify Part Number located on door inside control box.

If the control box is a CB-XXXXXXAXX make wire connections per Figure J.
 If the control box is a CB-XXXXXX0XX ignore Figure J below.

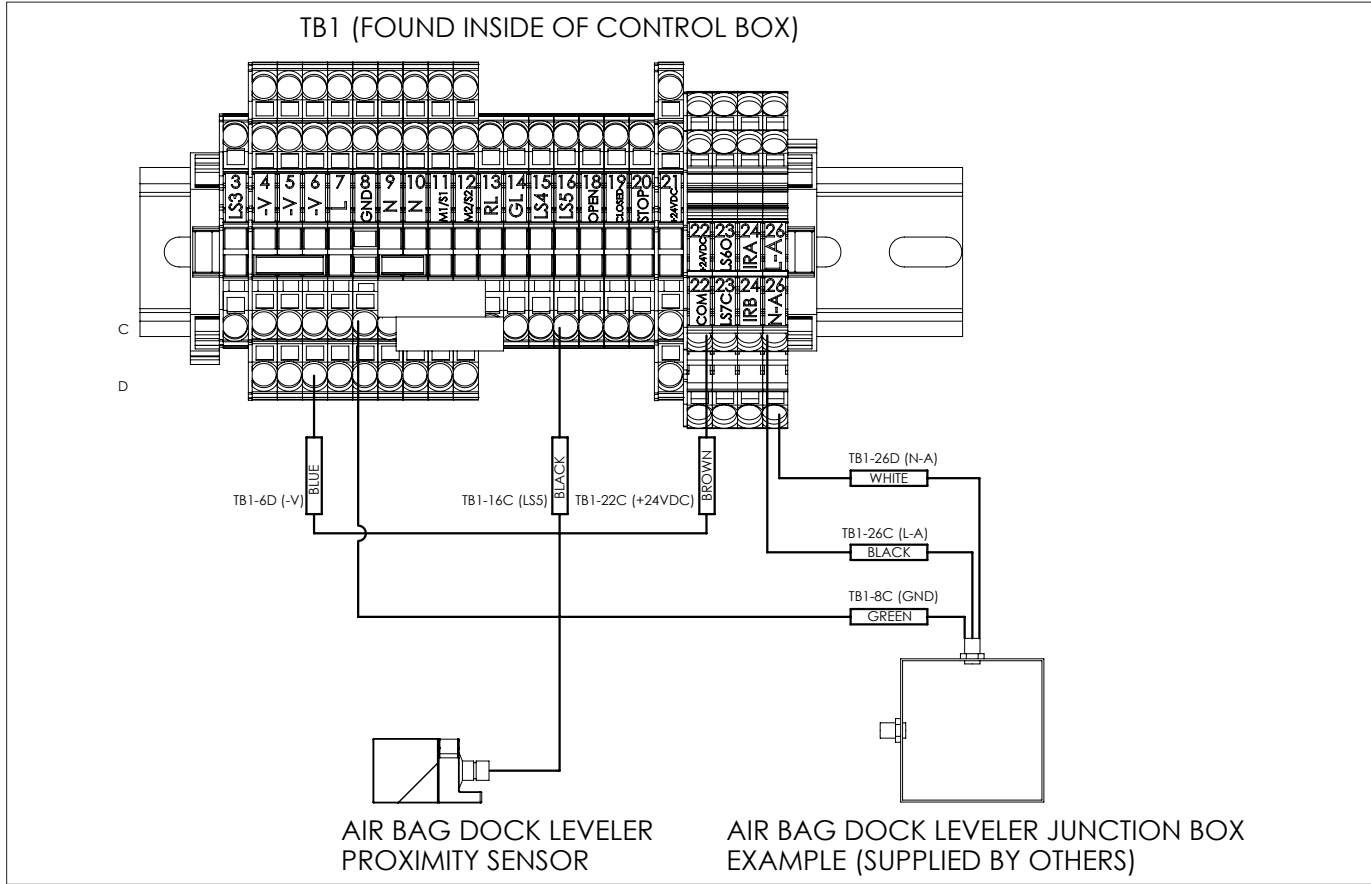


FIGURE J—AIR BAG DOCK LEVELER CONTROL BOX WIRING SCHEMATIC

INSTALLATION INSTRUCTIONS

INSTALL ELECTRICAL COMPONENTS

CONTROL BOX WIRING – HYDRAULIC DOCK LEVELER WITH INDEPENDENT LIP AND ARTD

Verify Part Number located on door inside control box.

If the control box has:

A hydraulic dock leveler CB-XXXXXX1 **OR** 3XX make wire connections per Figure K.

ARTD CB-XXXXAXXXX make wire connections per Figure K.

Independent Lip CB-XXXLXXXX make wire connections per Figure K.

If the control box is a CB-XXX0XX1 **OR** 3XX see next page.

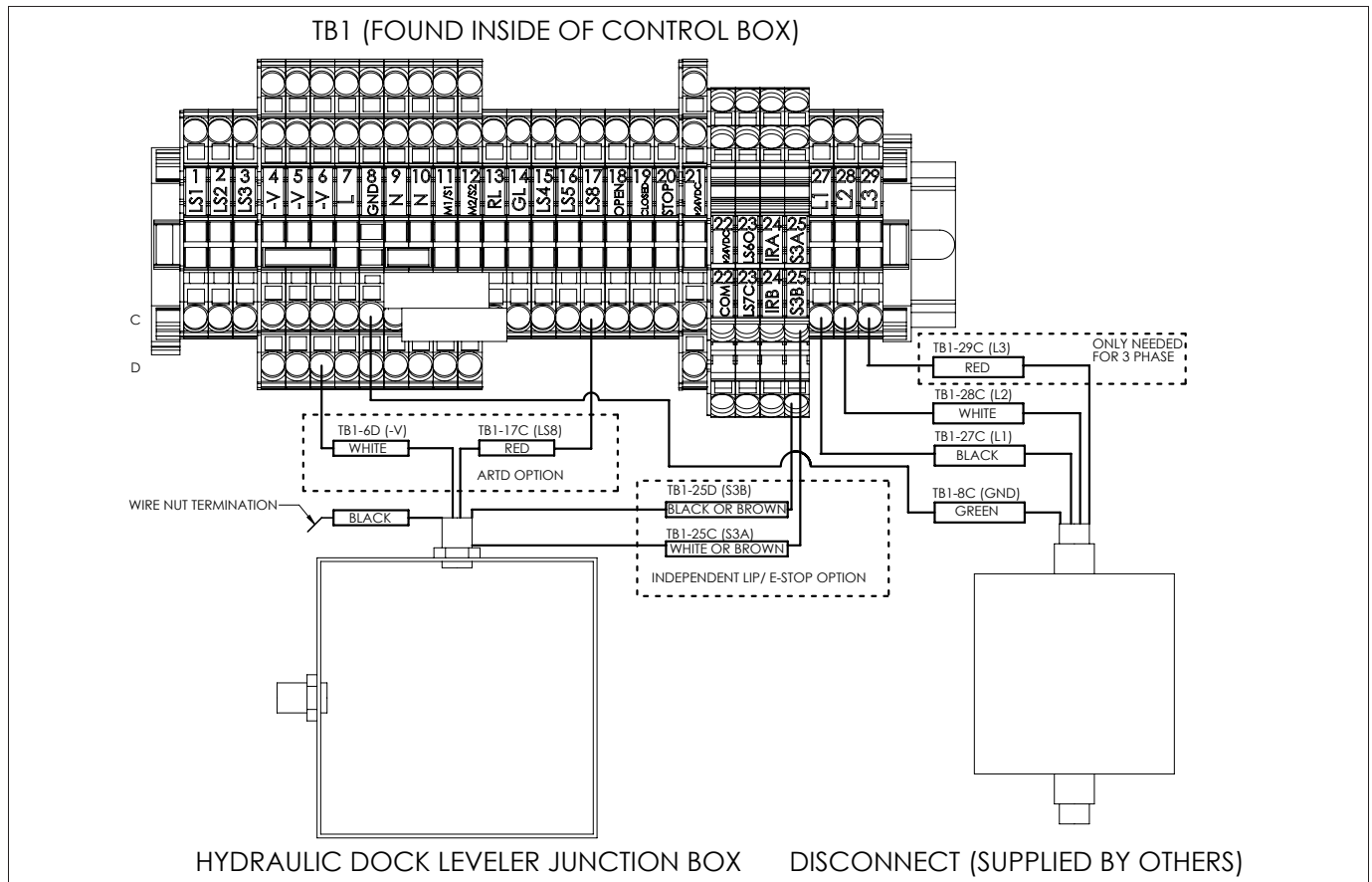


FIGURE K—HYDRAULIC DOCK LEVELER WITH INDEPENDENT LIP AND ARTD CONTROL BOX WIRING SCHEMATIC

INSTALLATION INSTRUCTIONS

INSTALL ELECTRICAL COMPONENTS

CONTROL BOX WIRING – HYDRAULIC DOCK LEVELER

Verify Part Number located on door inside control box.

If the control box is a CB-XXX0XX1 OR 3XX make wire connections per Figure L.

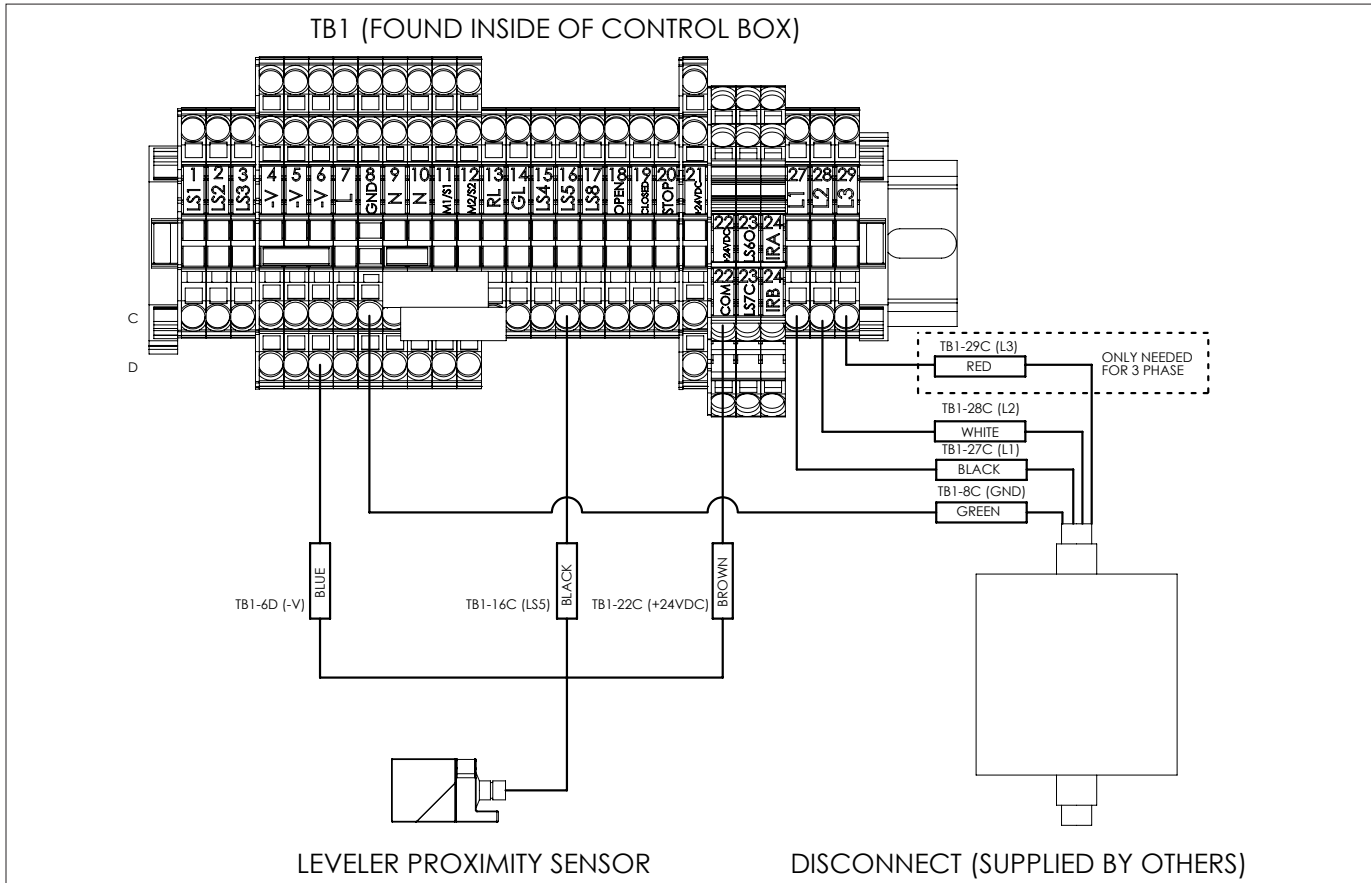


FIGURE L—HYDRAULIC DOCK LEVELER WITHOUT INDEPENDENT LIP CONTROL BOX WIRING SCHEMATIC

INSTALLATION INSTRUCTIONS

INSTALL ELECTRICAL COMPONENTS

CONTROL BOX WIRING – HYDRAULIC DOCK LEVELER MOTOR

Verify Part Number located on door inside control box.

If the control box is a CB-XXXXXX1 OR 3XX make wire connections per Figure M.

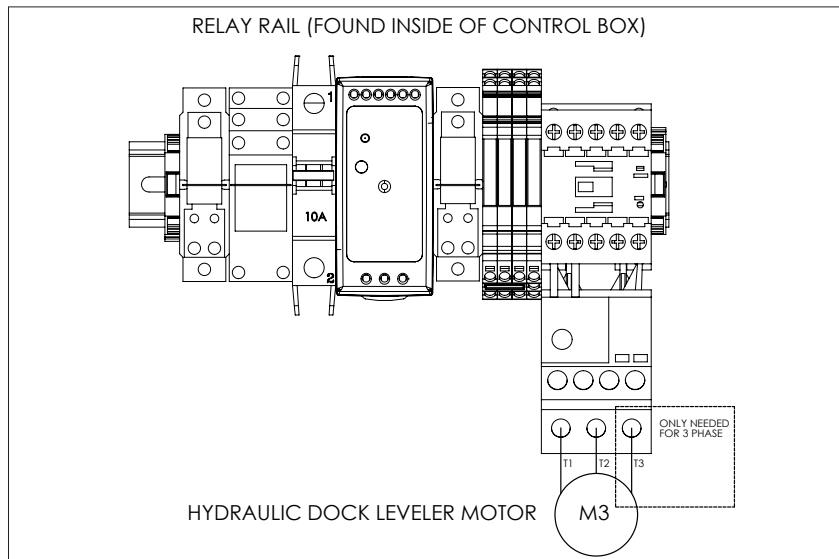


FIGURE M—HYDRAULIC DOCK LEVELER MOTOR CONTROL BOX WIRING SCHEMATIC

CONTROL BOX WIRING – AIR BAG DOCK LEVELER MOTOR

Verify Part Number located on door inside control box.

If the control box is a CB-XXXXXXAXX make wire connections per Figure N.

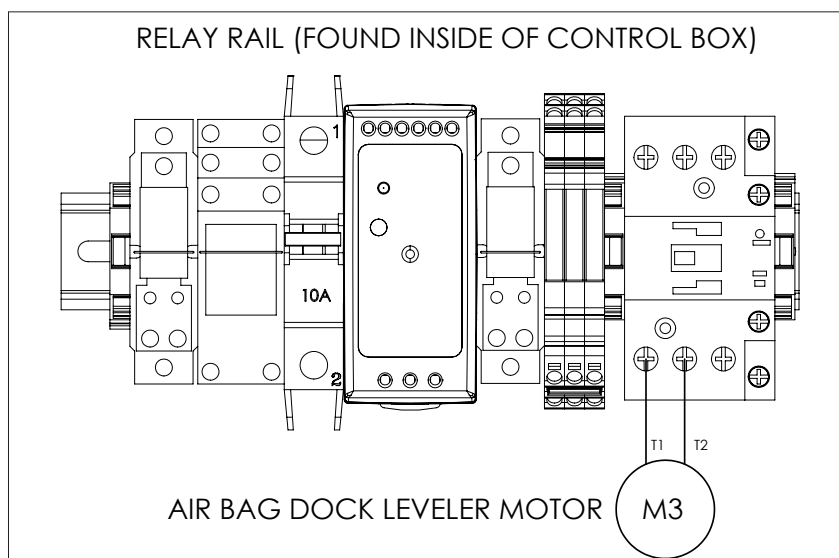


FIGURE N—AIR BAG DOCK LEVELER MOTOR CONTROL BOX WIRING SCHEMATIC

INSTALLATION INSTRUCTIONS

PUT NEW DOCK LEVELER INTO SERVICE

Read and understand the PRECAUTIONS/SAFETY sections of the appropriate original equipment manufacturer (OEM) Owner's/User's Manual for the Dock Leveler listed below that is interfaced with this Combination Control Box.

- **Hydraulic Dock Leveler** Manual No. 4111-0018.
- **Air Bag Dock Leveler** Manual No. 4111-0021.

Utilize the procedure specified in the "Put New Dock Leveler Into Service" section of the appropriate publication listed above with the exception of substituting the process detailed below for step #4.

4. Remove all sources of electrical power to the control box and utilize an OSHA approved Lock-Out/Tag-Out system.
5. Power-Up combination Control Box.
 - a. Unlatch metal clips on the right side of control box holding the door closed.
 - b. Open the door of the control box.
 - c. Turn on the circuit breaker by flipping switch upward.
 - d. Close the door of the control box.
 - e. Re-latch the metal clips to secure the door.
 - f. Remove protective film from PLC display.
6. Energize control box by turning on power at all external disconnects.
7. Enter Maintenance Mode on the Combination Control Box.
 - a. Depress the "HORN OVER-RIDE" button (#0).
 - b. The red light, on the control box, will start flashing if the green light was flashing. This is normal to notify the end user that they are about to enter a new mode.
 - c. Enter the Maintenance code 28252 and then press "ENTER".
 - i. If the wrong code was entered, the "Wrong PW: Reenter Or wait" display will appear. On this display, repeat steps 7a through 7c to enter maintenance mode.
 - ii. Or if no further input is completed within 30 seconds, the "Wrong PW: Reenter Or wait" display will clear and the screen will return to the previous display.
8. Use "BACK" button until display shows "Operate Leveler This Screen Only".
 - a. This display allows independent use of the dock leveler.
 - i. If combination control box also controls overhead door, to open Overhead Door depress the "BACK" button once.
 - ii. Display will show "Operate Door This Section Only"
 - iii. Depress the "Door ↑3" button.
 - iv. Once overhead door is fully open, depress "NEXT" button to "Operate Leveler This Screen Only".

NOTE: Automatic return to dock (ARTD) is automatically disabled when in maintenance mode. To test ARTD proceed to section: ARTD OPERATION.

9. Utilize the process detailed below after completing the requirements of the "Put New Dock Leveler Into Service" section of the OEM Owner's/User's Manual for the Dock Leveler.

INSTALLATION INSTRUCTIONS

PUT NEW DOCK LEVELER INTO SERVICE

10. Exiting Maintenance Mode on the Combination Control Box.

Key Point: This procedure can be done on any maintenance screen.

- a. If combination control box also controls overhead door, the overhead door must be closed before exiting maintenance mode.
- b. To close Overhead Door depress the “BACK” button once.
- c. Display will show “Operate Door This Screen Only”.
- d. Depress the “Door ↓6” button.
- e. Once overhead door is fully closed, if not already, depress the “HORN OVER-RIDE” button (#0 button).
- f. The red light, on the control box, will start flashing if the green light was flashing or remain a constant red. This is normal to notify the end user that they are about to enter a new mode.
- g. Enter the Maintenance code 28252 and then press “ENTER”.
 - i. If the wrong code was entered, the “Wrong PW: Reenter Or wait” display will appear. On this display, repeat steps 10a through 10c to leave maintenance mode.
 - ii. Or if no further input is completed within 30 seconds, the “Wrong PW: Reenter Or wait” display will clear and the screen will return to last display prior to entering maintenance mode.

OWNER'S/USER'S RESPONSIBILITIES

1. The manufacturer shall provide to the initial purchaser and make the following information readily available to the owners/users and their agents, all necessary information regarding Safety Information, Operation, Installation and Safety Precautions, Recommended Initial and Periodic Inspections Procedures, Planned Maintenance Schedule, Product Specifications, Troubleshooting Guide, Parts Break Down, Warranty Information, and Manufacturers Contact Information.
2. The owner/user should recognize the inherent dangers of the interface between the loading dock and the transport vehicle. The owner/user should, therefore, train and instruct all operators in the safe operation and use of the restraining device in accordance with manufacturer's recommendations and industry standards. Effective operator training should also focus on the owners/users company policies, operating conditions and the manufacturer's specific instructions provided with the restraining device. Maintaining, updating and retraining all operators on safe working habits and operation of the equipment, regardless of previous experience, should be done on a regular basis and should include an understanding and familiarity with all functions of the equipment. Owners/users shall actively maintain, update and retrain all operators on safe working habits and operations of the equipment.
3. When selecting a restraining device, it is important to consider not only present requirements but also future plans and any possible adverse conditions, environmental factors or usage. The owners/users shall provide application information to the manufacturer to receive recommendations on appropriate equipment specifications.
4. The owner/user must see all nameplates, placards, decals, instructions and posted warnings are in place and legible and shall not be obscured from the view of the operator or maintenance personnel for whom such warnings are intended for. Contact manufacturer for any replacements.
5. Modifications or alterations of restraining devices shall be made only with prior written approval from the original manufacturer. These changes shall be in conformance with all applicable provisions of the MH30.3 standard and shall also satisfy all safety recommendations of the original equipment manufacturer of the particular application.
6. An operator training program should consist of, but not necessarily be limited to, the following:
 - a. Select the operator carefully. Consider the physical qualifications, job attitude and aptitude.
 - b. Assure that the operator reads and fully understands the complete manufacturer's owners/users manual.
 - c. Emphasize the impact of proper operation upon the operator, other personnel, material being handled, and equipment. Cite all rules and why they are formulated.
 - d. Describe the basic fundamentals of the restraining device and components design as related to safety, e.g., mechanical limitation, stability, functionality, etc.
 - e. Introduce the equipment. Show the control locations and demonstrate functions. Explain how they work when used properly and maintained as well problems when they are used improperly.
 - f. Assure that the operator understands nameplate data, placards and all precautionary information appearing on the restraining device.
 - g. Supervise operator practice of equipment.
 - h. Develop and administer written and practical performance tests. Evaluate progress during and at completion of the course.
 - i. Administer periodic refresher courses. These may be condensed versions of the primary course and include on-the-job operator evaluation.
7. It is recommended that the transport vehicle is positioned as close as practical to the dock leveling device and in contact with both bumpers. When an industrial vehicle is driven on or off a transport vehicle during the loading and unloading operation, the transport vehicle parking brakes shall be applied and wheel chocks or a restraining device that provides equal or better protection of wheel chocks shall be engaged. Also, whenever possible, air-ride suspension systems should have the air exhausted prior to performing said loading and unloading operations.

OWNER'S/USER'S RESPONSIBILITIES

8. When goods are transferred between the loading dock and a trailer resting on its support legs/landing gear instead of a tractor fifth wheel or converter dolly, it is recommended that an adequate stabilizing device or devices shall be utilized at the front of the trailer.
9. In order to be entitled to the benefits of the standard product warranty, the dock safety equipment must have been properly installed, maintained and operated in accordance with all manufacturer's recommendations and/or specified design parameters and not otherwise have been subject to abuse, misuse, misapplication, acts of nature, overloading, unauthorized repair or modification, application in a corrosive environment or lack of maintenance. Periodic lubrication, adjustment and inspection in accordance with all manufacturers' recommendations are the sole responsibility of the owner/user.
10. Manufacturer's recommended maintenance and inspection of all restraining devices shall be performed in conformance with the following practices: A planned maintenance schedule program must be followed, only trained and authorized personnel shall be permitted to maintain, repair, adjust and inspect restraining devices, and only the use of original equipment manufacturer parts, manuals, maintenance instructions, labels, decals and placards or their equivalent. Written documentation of maintenance, replacement parts or damage should be kept. In the event of damage, notification to the manufacturer is required.
11. Restraining devices that are structurally damaged shall be removed from service, inspected by a manufacturer's authorized representative, and repaired or replaced as needed or recommended by the manufacturer before being placed back in service.

LOCATION AND FUNCTION OF EACH BUTTON

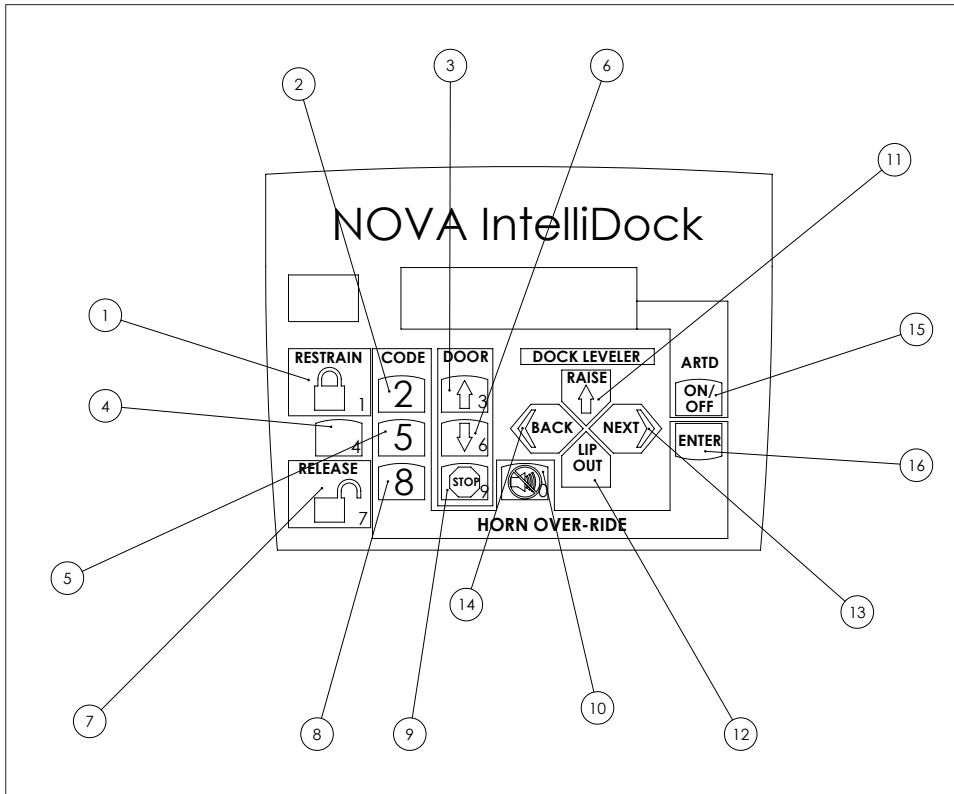


FIGURE O—CONTROL BOX BUTTONS

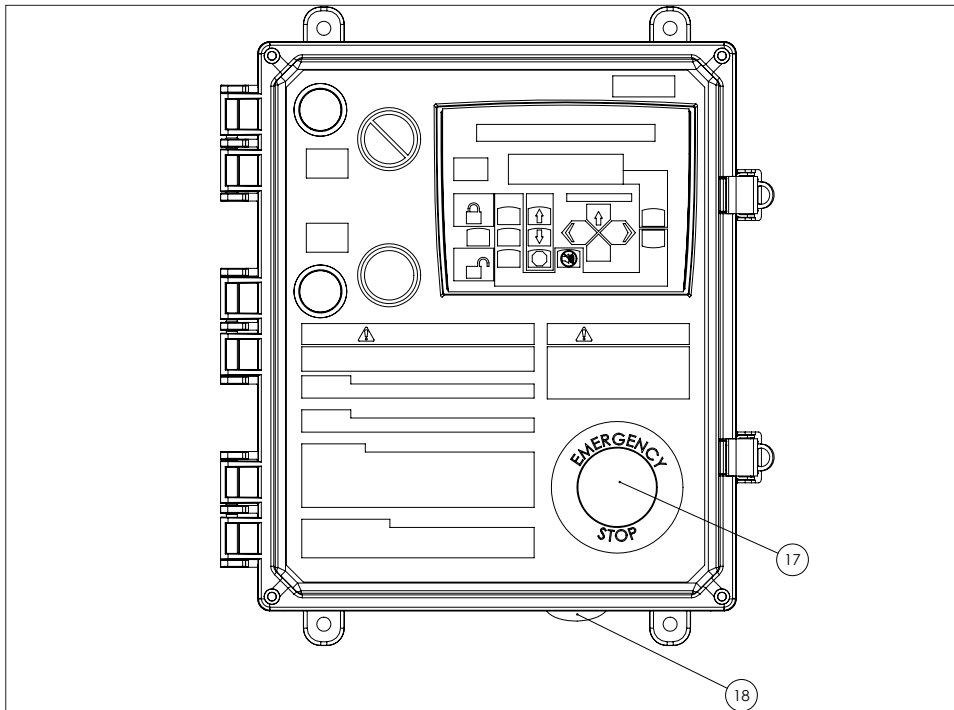


FIGURE P—E-STOP AND AUDIBLE ALARM

LOCATION AND FUNCTION OF EACH BUTTON

See Figure O and P for the location of each button. Function of each button is listed below:

1. #1 – Locking the vehicle restraint (RESTRAIN).
2. #2 – Used for factory Horn Over-Ride code.
3. #3 – Open overhead door.
4. #4 – Unused.
5. #5 – Used for factor Horn Over-Ride code.
6. #6 – Close overhead door.
7. #7 – Unlocking the vehicle restraint (RELEASE).
8. #8 – Used for factory Horn Over-Ride code.
9. #9 – Stop overhead door.
10. #0 – Enter or exit Horn Over-Ride / maintenance mode.

Buttons 0 through 9 can also be used to customize horn over-ride password. See “Enter New Override Password” display in the troubleshooting section - maintenance mode procedure.

11. Up Arrow – Raising dock leveler (RAISE).
12. “LIP OUT” – Extend independent lip.
13. Right Arrow – Scroll to the right through maintenance mode displays (NEXT).
14. Left Arrow – Scroll to the left through maintenance mode displays (BACK).
15. ARTD Button – Turns on and off automatic return to dock (ARTD).
16. Enter – To reset counters, entering Horn Over-Ride and maintenance mode.
17. Emergency Stop – Will halt all interlocked dock equipment when depressed.
18. Audible Alarm – Sounds when there is a fault when restraint locking or unlocking, and when buttons are pressed.

OPERATING PROCEDURES

! WARNING

Before loading or unloading a vehicle at your loading dock while using a NOVA vehicle restraint, always visually inspect to be sure that the restraint is engaged the Rear Impact Guard (RIG). If the restraint is still not engaged after backing the trailer firmly against the dock bumpers, secure the trailer by other means.

Be sure that the area around the RIG assembly is clear of obstructions.

Lock & Load™ Only: Rear Impact Guards with cover plates should be secured by other means.

Always operate the NOVA vehicle restraints from the top of the dock.

Inspect all restraint lights daily to make certain they work properly.

Perform maintenance on restraints in accordance with Maintenance found in vehicle restraints owner's manual.

NOVA vehicle restraints should be operated only by authorized personnel who have read and understand the Owner's Manual.

If you have questions, call your local representative or NOVA at (800) 236-7325.

! WARNING

Verify the text present in the display of the PLC matches the product logo to the left of the PLC display as illustrated in Figure Q.

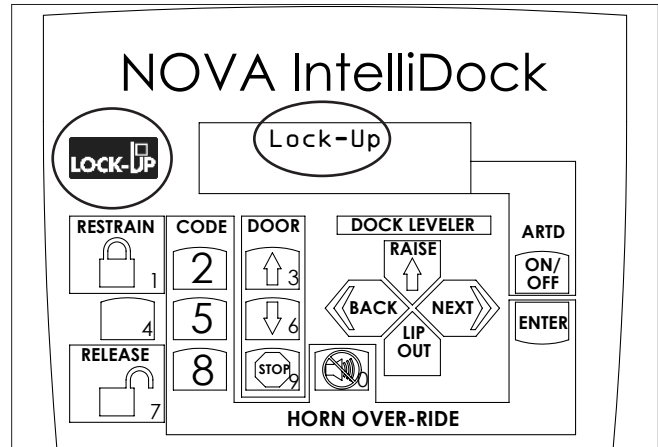


FIGURE Q—VERIFY PLC DISPLAY

Locking Vehicle Restraint Procedure Stored Position / Restraint UNLOCKED

Barrier is in the STORED position. Inside light is flashing red alerting forklift operator unsafe condition exists. Outside light is flashing green alerting truck driver it is safe to back in. Refer to Figure R.

Note: Lock-Up™ restraint is shown for representation in Operating Procedures. Actual operating procedure for vehicle restraint may differ.

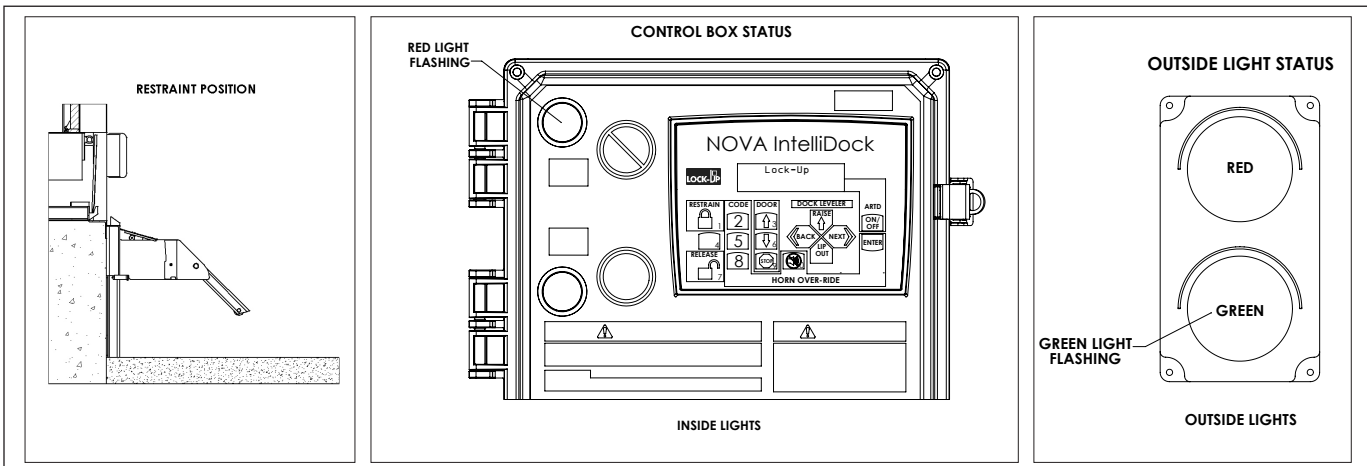


FIGURE R—STORED POSITION/NO VEHICLE PRESENT

OPERATING PROCEDURES

Stored Position / Restraint UNLOCKED / Vehicle Present

Restraint is in the stored position. Inside red light is on constant. Outside light is flashing green. The PLC display will change to “Vehicle Present”. Refer to Figure S.

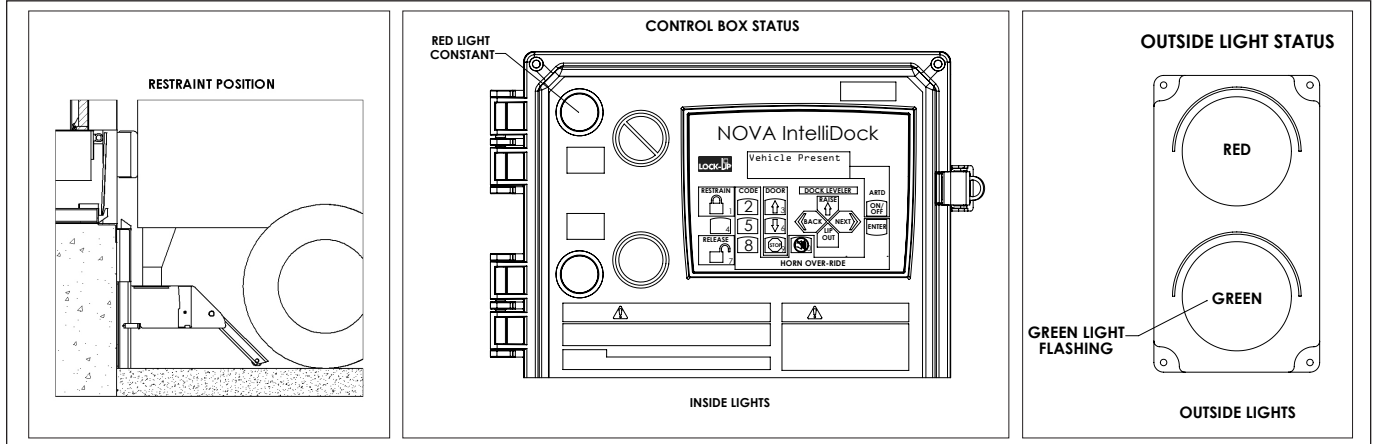


FIGURE S—STORED POSITION/VEHICLE PRESET

Press RESTRAIN / (#1) Button - Restraint LOCKING

The transport vehicle has backed into loading dock and is parked firmly against dock bumpers. The alarm will sound while the barrier transitions from stored position to securely capture RIG. The PLC display will change to “Restraint Locking”. The inside light is flashing red. Outside light is flashing red alerting truck driver not to move. Refer to Figure T.

If horn continues to sound, proceed to FAULT, otherwise proceed to Restraint LOCKED.

⚠ CAUTION

If trailer can not be restrained due to a lift gate or other obstruction that could become damaged, proceed to horn over-ride state.

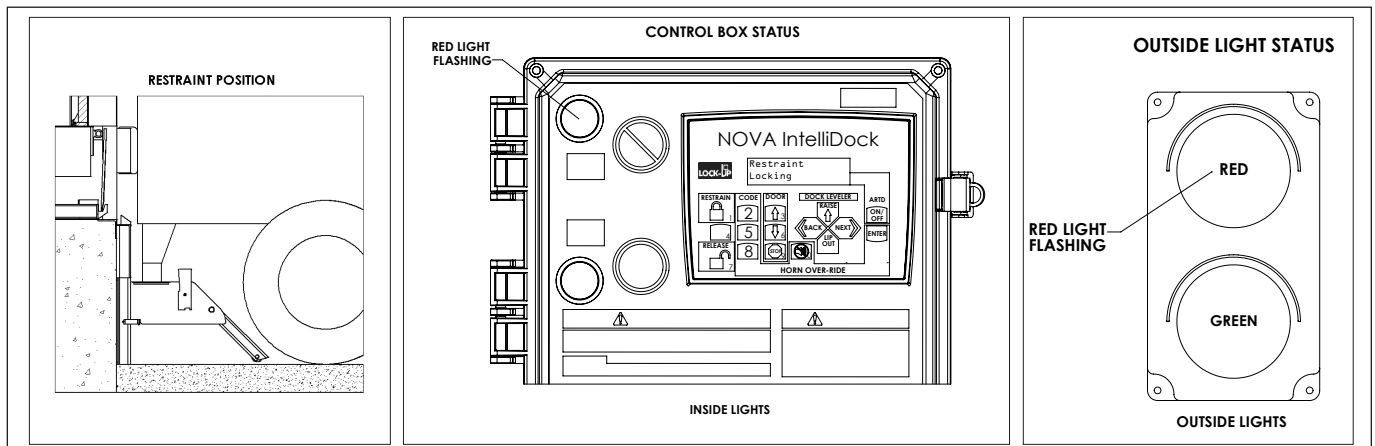


FIGURE T—RESTRAINT LOCKING

OPERATING PROCEDURES

Restraint LOCKED

Once the RIG is securely captured by the vehicle restraint barrier, a LOCKED condition exists. The PLC display will change to "Restraint Locked". Inside light is flashing green alerting the forklift operator a safe condition exists. Outside light is flashing red alerting truck driver not to move. This light pattern will not change for the rest of the procedure unless noted otherwise. Refer to Figure U.

If during loading/unloading the inside light turns red and the horn sounds, press RESTRAIN button to secure the RIG.

WARNING

Visually inspect to ensure that the NOVA vehicle restraint barrier securely captures the RIG of the trailer before operating the dock leveler.

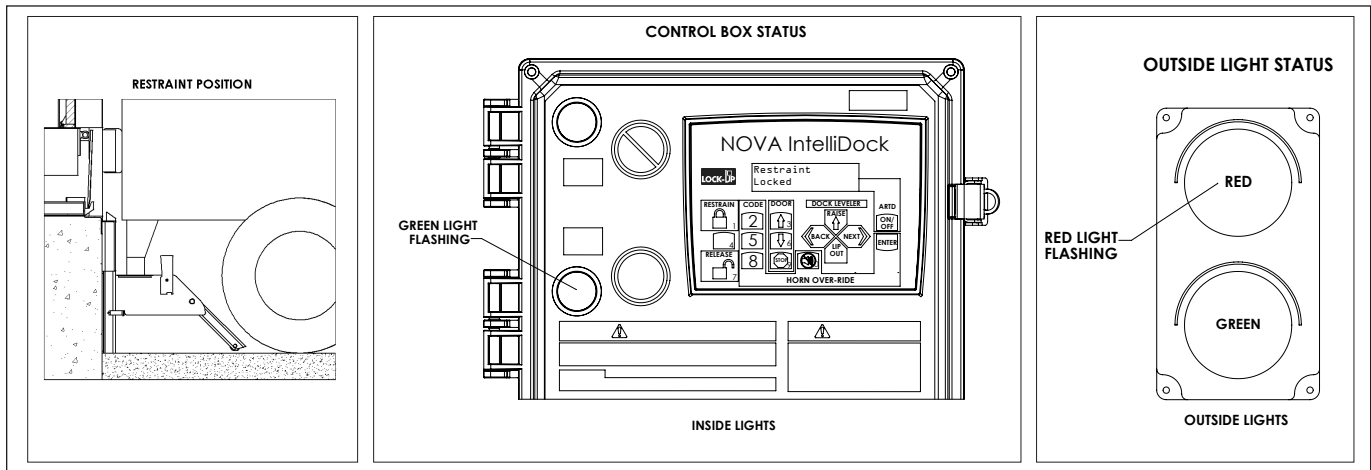


FIGURE U—RESTRAINT LOCKED

OPERATING PROCEDURES

If overhead dock door control is “Not Active”, proceed to Raising Dock Leveler Procedure on page 30.

Opening Overhead Dock Door Procedure Press Overhead Dock DOOR OPEN / (#3) Button - Door OPENING

The RIG is securely captured by the vehicle restraint barrier, a LOCKED condition exists. Overhead dock door is opening. The PLC display will change to “Door Opening”. Refer to Figure V.

NOTE: This display will only appear when DOOR OPEN/#3 button is pressed. If overhead door is opened with remote control, Combination Control Box will alarm.

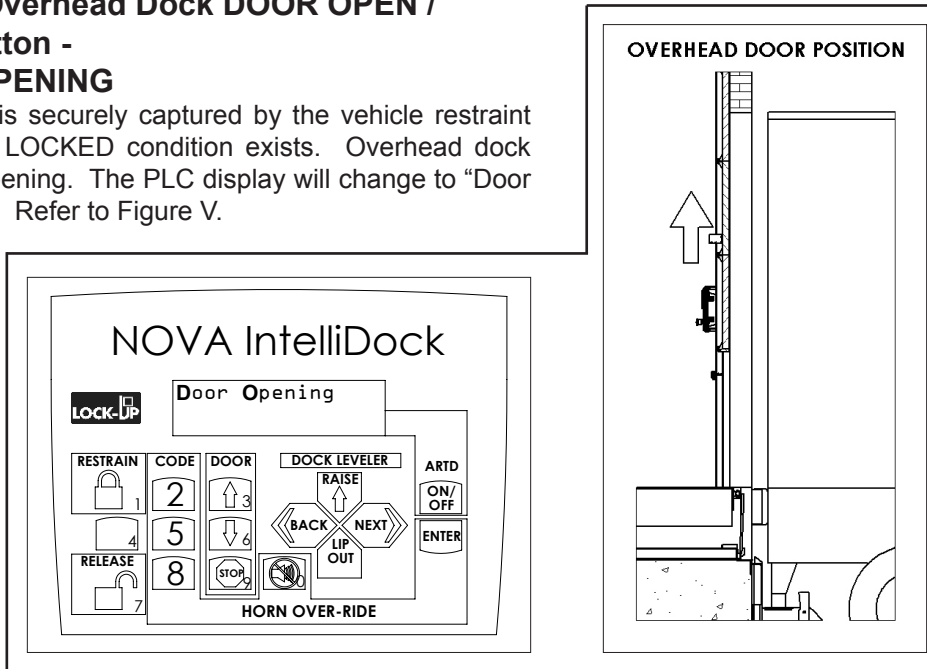


FIGURE V—OVERHEAD DOCK DOOR OPENING

Door OPENED

Overhead dock door is fully opened. The PLC display will change to “Door Opened”. Refer to Figure W.

Once unloading/loading is completed, and dock leveler is stored, proceed to Closing Overhead Dock Door Procedure on page 32.

(If dock leveler is not controlled through the combination control box, this display will not change while transport vehicle is unloading/loading).

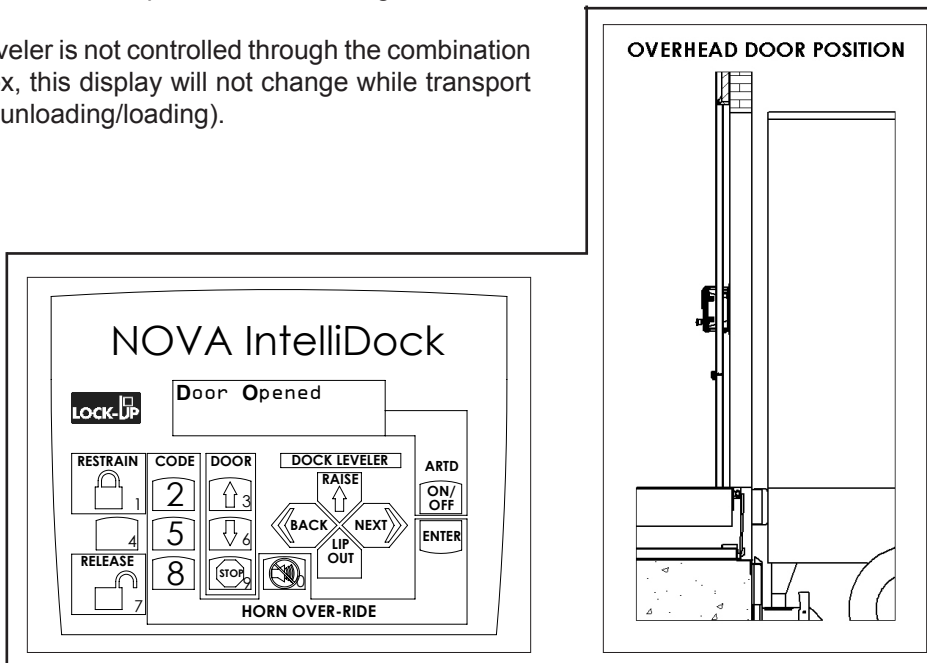


FIGURE W—OVERHEAD DOCK DOOR OPENED

OPERATING PROCEDURES

If dock leveler control is “Not-Active”, proceed to Closing Overhead Dock Door Procedure on page 32.

Raising Dock Leveler Procedure

**Press and hold DOCK LEVELER “RAISE” /
↑ Button -**

Dock Leveler Raising

The RIG is securely captured by the vehicle restraint barrier, a LOCKED condition exists. If Overhead Dock Door is active, door is fully opened. The PLC display will change to “Deck Raising Hold Button Till Desired Position Then Release”. Refer to Figure X.

– Independent Lip Control

**Press and hold DOCK LEVELER “LIP
OUT” Button Lip Extending**

When lip travels above transport vehicle, release DOCK LEVELER “RAISE” button. Then press and hold DOCK LEVELER “LIP OUT”. The PLC display will change to: “Lip Extending Hold Button Till Desired Position Then Release”. Refer to Figure Y.

– No Independent Lip Control

Release DOCK LEVELER “RAISE” /

↑ Button

OR

– Independent Lip Control

**Release DOCK LEVELER “LIP OUT”
Button**

Dock Leveler Lowering

Release button once lip is extended. The PLC display will change to “Dock Leveler Lowering”. Refer to Figure Z.

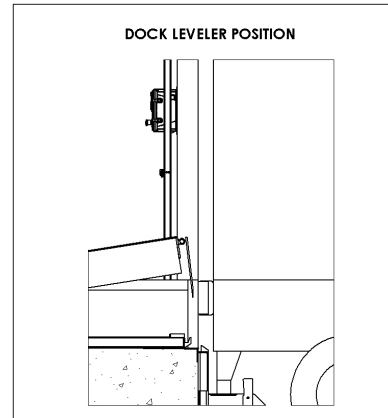


FIGURE X—DOCK LEVELER RAISING

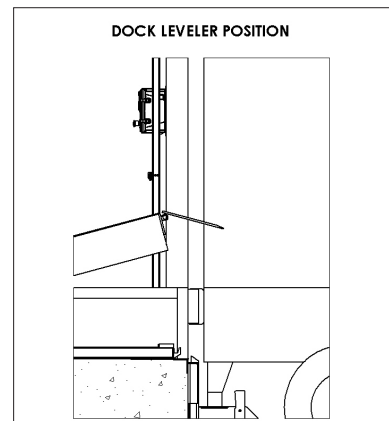


FIGURE Y—INDEPENDENT LIP EXTENDING

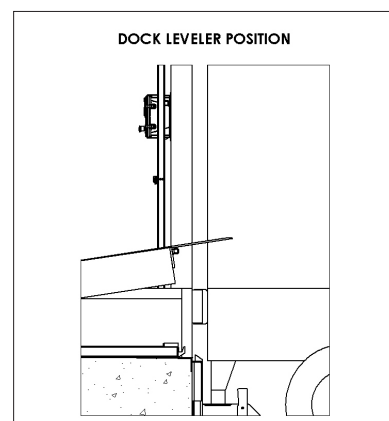


FIGURE Z—DOCK LEVELER LOWERING

OPERATING PROCEDURES

Service Transport Vehicle Procedure

Service Vehicle

The RIG is securely captured by the vehicle restraint barrier, a LOCKED condition exists. If Overhead Dock Door is active, door is fully opened. If Dock Leveler is in the back of the transport vehicle, the PLC display will change to “Service Vehicle”. Perform unloading/loading of transport vehicle. Refer to Figure AA.

(This display will only appear if combination control box controls dock leveler.)

If dock leveler control is “Not Active”, proceed to Closing Overhead Dock Door Procedure on page 32.

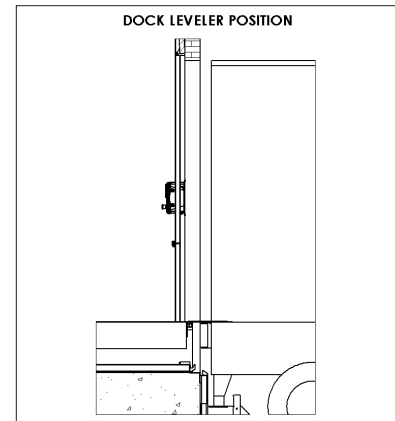


FIGURE AA—SERVICE VEHICLE

Storing Dock Leveler Procedure

Press and hold DOCK LEVELER “RAISE” /

↑ Button -

Dock Leveler Raising

The RIG is securely captured by the vehicle restraint barrier, a LOCKED condition exists. If Overhead Dock Door is active, door is fully opened. The PLC display will change to “Deck Raising Hold Burton Till Desired Position Then Release”. Refer to Figure AB.

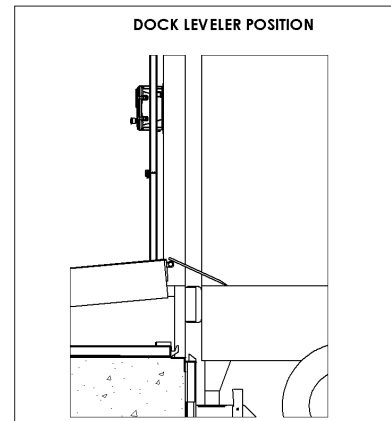


FIGURE AB—STORING DOCK LEVELER

Release DOCK LEVELER “RAISE” /

↑ Button

Dock Leveler Lowering

Release button once lip is retracted. The PLC display will change to “Dock Leveler Lowering” while the dock leveler returns to the stored position. Refer to Figure AC.

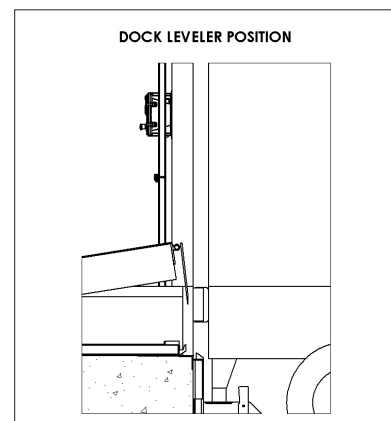


FIGURE AC—DOCK LEVELER LOWERING

OPERATING PROCEDURES

If overhead dock door control is “Not Active”, proceed to Unlocking Vehicle Restraint procedure on page 33.

Closing Overhead Dock Door Procedure **Press Overhead Dock DOOR CLOSE / (#6) Button - Door CLOSING**

The RIG is securely captured by the vehicle restraint barrier, a LOCKED condition exists. Overhead dock door is closing. The PLC display will change to “Door Closing”. Refer to Figure AD.

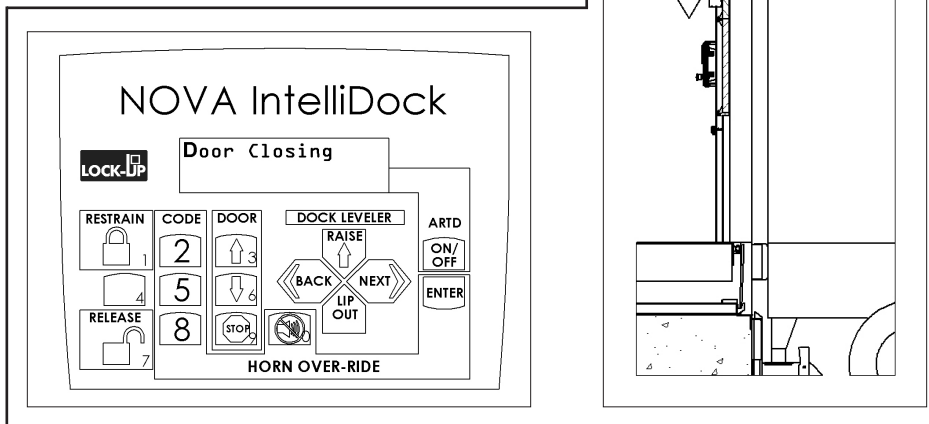


FIGURE AD—OVERHEAD DOCK DOOR CLOSING

Door CLOSED

Overhead dock door is fully closed. The PLC display will change to “Restraint Locked”. Refer to Figure AE.

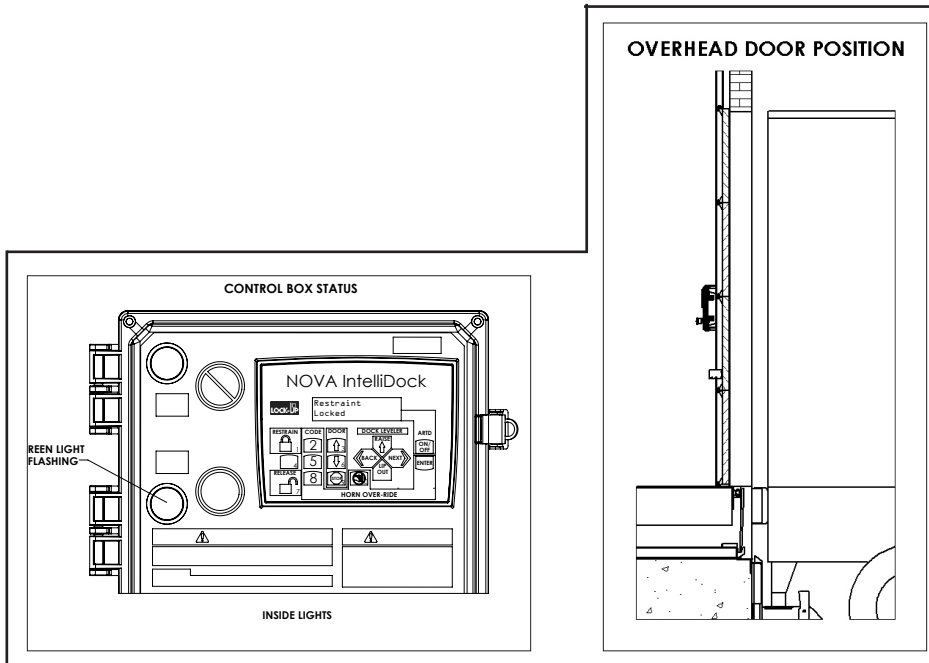


FIGURE AE—OVERHEAD DOCK DOOR CLOSED

OPERATING PROCEDURES

Unlocking Vehicle Restraint Procedure

Press RELEASE / (#7) Button - Restraint UNLOCKING

Restraint travels from the LOCKED position to the STORED position. Inside light is flashing red. Outside light is flashing red alerting truck driver not to move. The PLC display will change to “Restraint Unlocking”. Refer to Figure AF. When the process is complete, the restraint is in the stored position as shown in Figure S on page 27.

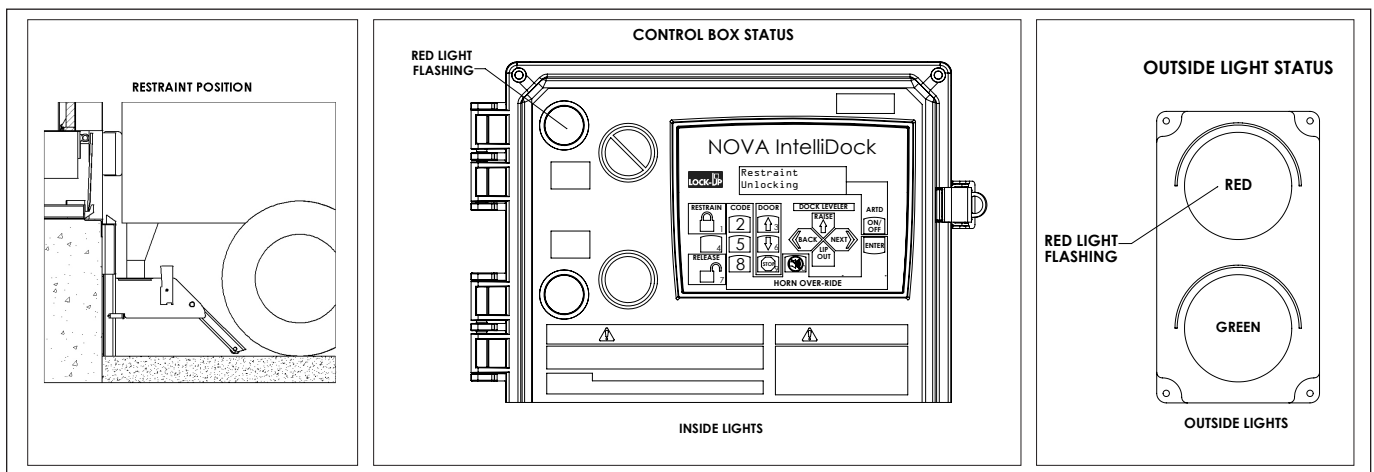


FIGURE AF—RESTRAINT UNLOCKING

OPERATING PROCEDURES

Vehicle Restraint Fault

FAULT from LOCKING State

Restraint cannot lock the RIG. This could be due to a RIG that is located too far toward the rear axle, bent, obstructed, presence of a lift gate, or missing. Inside light is flashing red and horn is pulsing, alerting the forklift operator that the trailer is not locked. Outside light is flashing red alerting the truck driver not to move. See Figure AG.

The PLC display will display what fault is occurring. See Troubleshooting Maintenance Mode Procedure for more information.

If the transport vehicle is parked firmly against the dock bumpers, proceed to horn over-ride state. If not, press RELEASE to clear the fault, have transport vehicle back up and repeat Restraint LOCKING procedure.

Note: LS1 On LS2 Off is shown for representation. Actual fault may differ.

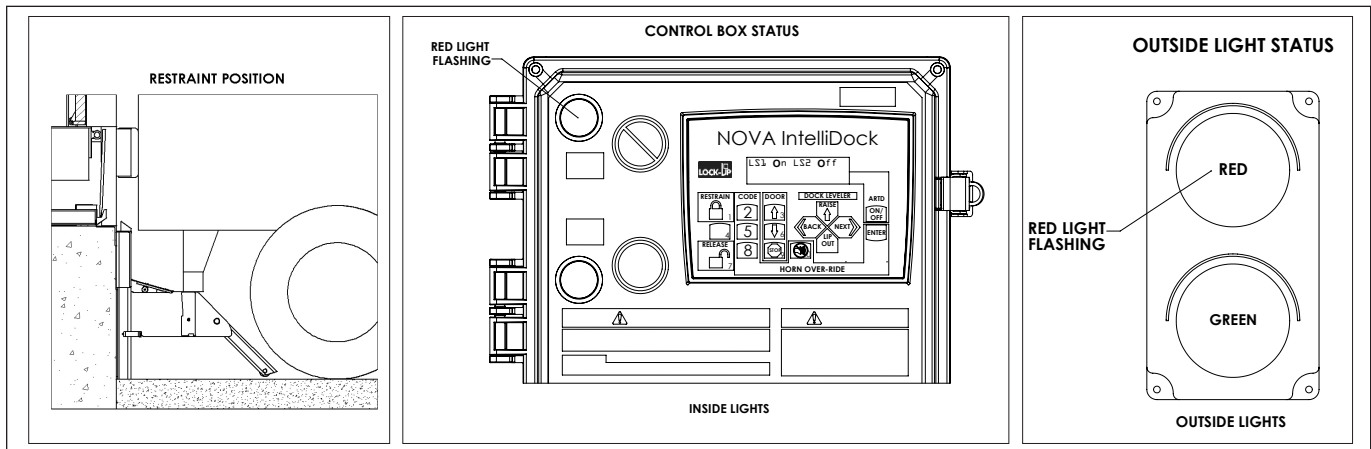


FIGURE AG—VEHICLE RESTRAINT FAULT STATE

Dock Leveler or Overhead Dock Door Fault

The RIG is securely captured by the vehicle restraint barrier, a LOCKED condition exists. Inside light is flashing green and horn is pulsing, alerting the forklift operator that the overhead dock door or leveler is not in the correct position. Outside light is flashing red alerting the truck driver not to move. See Figure AH.

The PLC display will display what fault is occurring. See Troubleshooting Maintenance Mode Procedure for more information.

Note: Door Not Open is shown for representation. Actual fault may differ.

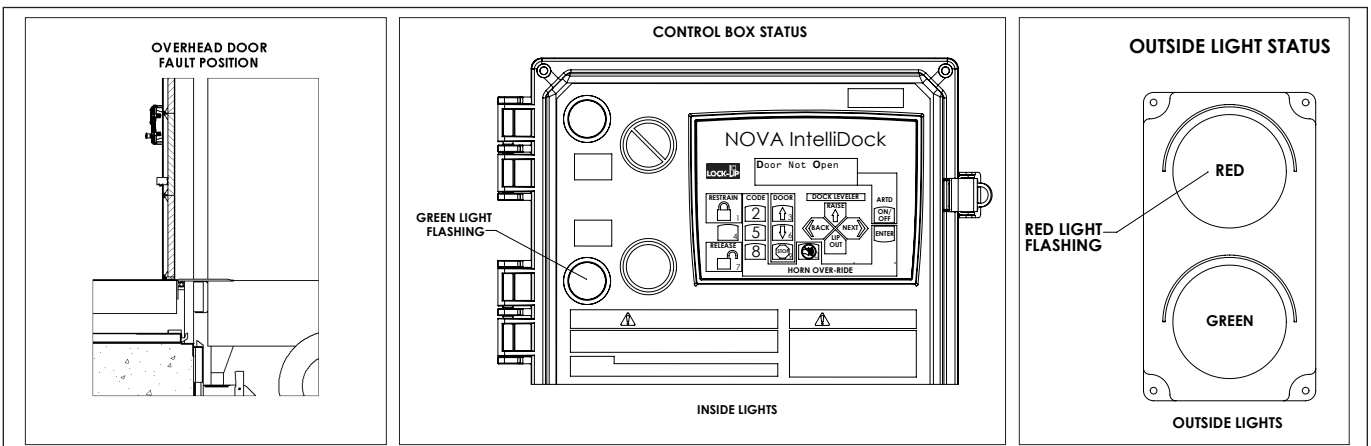


FIGURE AH—DOCK LEVELER OR OVERHEAD DOCK DOOR FAULT STATE

OPERATING PROCEDURES

Vehicle Restraint Horn Over-Ride

HORN OVER-RIDE

If alarm sounds and red light is on after attempting to RESTRAIN the RIG, the transport vehicle may not be serviceable. Ensure Dock Leveler is in the stored position. Secure transport vehicle by alternate means. Depress the “HORN OVER-RIDE” button (0) on the key pad, enter default over-ride code 5528 then press the “ENTER” button. Control box red and green lights are flashing; outside light is flashing red only. The PLC will change display to “OVERRIDE”. Position Dock Leveler to service transport vehicle and proceed with caution. 5528 = default over-ride code. The default over-ride code can be changed.

DANGER

Before activating “HORN OVER-RIDE”, ensure that dock leveler is in stored position, overhead dock door is closed and secure trailer by other means.

HORN OVER-RIDE RESET

Ensure Dock Leveler is in the stored position. Unsecure the transport vehicle. Depress the “HORN OVER-RIDE” button (0) on the key pad, enter default over-ride code 5528 then press the “ENTER” button. Press the “RELEASE” button on the key pad.

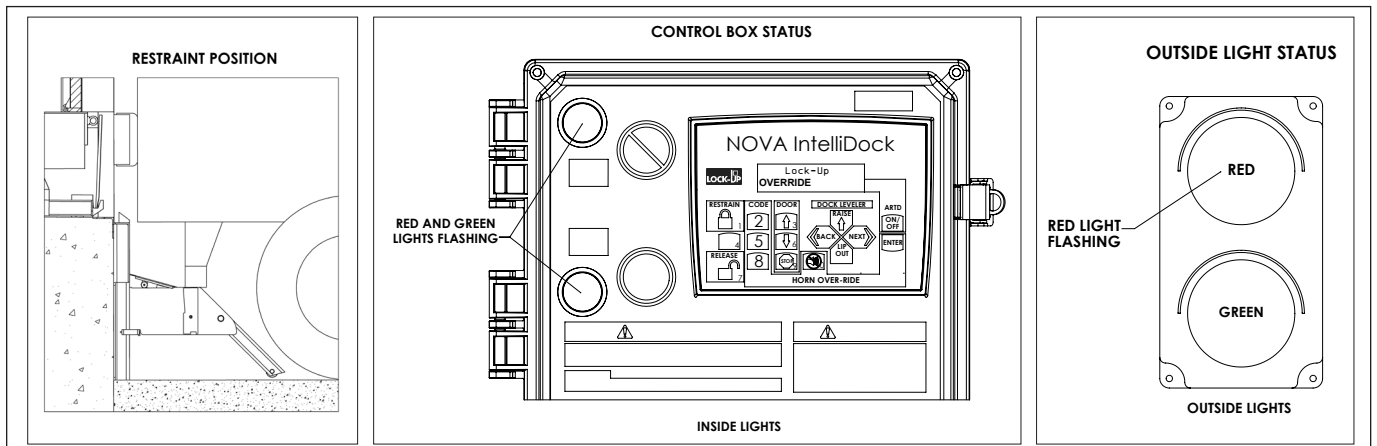


FIGURE AI—HORN OVER-RIDE STATE

Overhead Dock Door STOP Button

Pressed - Door STOPPED

Overhead dock door stops traveling. The PLC display will change to “Door Stop-Press ↑3 or ↓6 To Resume”. Only ↑3 or ↓6 can be pressed to reset door Stop. Refer to Figure AJ.

Note: Door must be stopped in order to change direction.

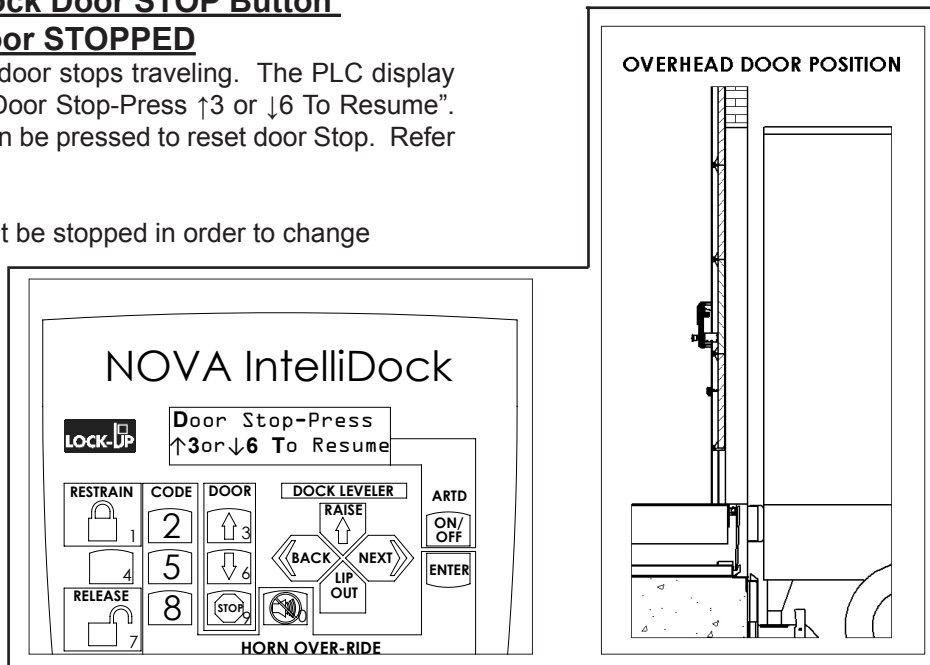


FIGURE AJ—OVERHEAD DOCK DOOR STOPPED

OPERATING PROCEDURES

Additional Functions Below Dock End Loading

If transport vehicle is below the dock floor level, and if ARTD is active, ensure the display shows “ARTD OFF”.

Turning ARTD off or on can be done by pressing the ARTD ON/OFF button. See Figure AK. Press and hold DOCK LEVELER “RAISE ↑” button. The PLC display will change to “Deck Raising Hold Button Till Desired Position Then Release”. Hold button until lip partly extends. Refer to Figure AL.

Release DOCK LEVELER “RAISE ↑” button. The PLC display will change to “Dock Leveler Lowering”.

When the dock leveler is completely lowered, the lip will be positioned between the transport vehicle and the lip saddles on the dock leveler. The PLC display will change to “Service Vehicle”. Refer to Figure AM.

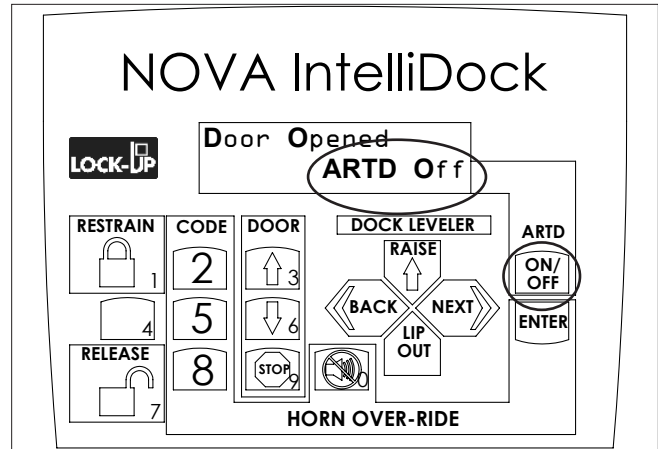


FIGURE AK—ARTD ON/OFF

NOTE: If ARTD is active, ARTD is automatically enabled when in Horn Over-Ride.

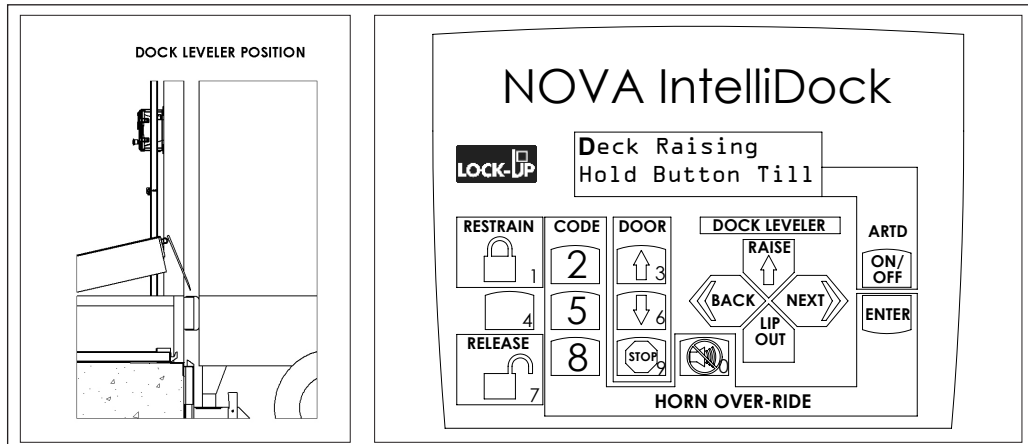


FIGURE AL—LIP PARTLY EXTENDED

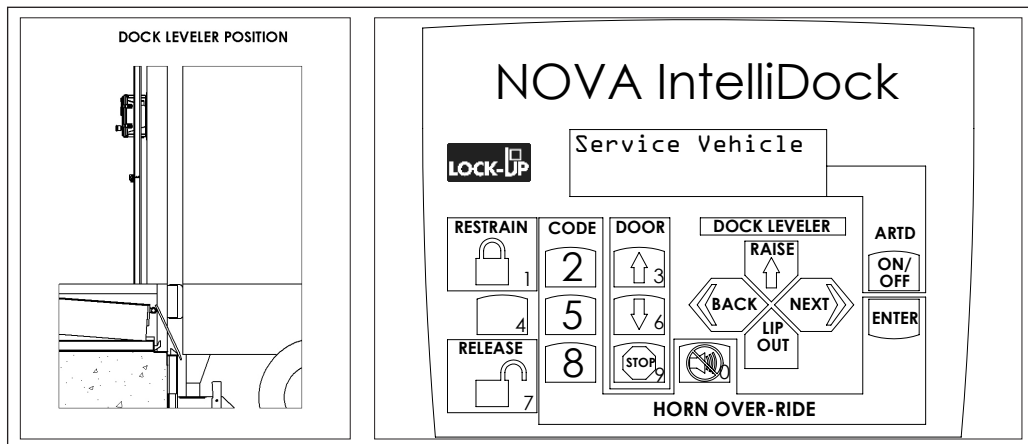


FIGURE AM—BELOW DOCK END LOADING / SERVICE VEHICLE

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EMERGENCY STOP OPERATION

Note: If E-Stop is depressed while the dock leveler is transitioning and the combination control box loses power, the dock leveler will lower at a controlled rate.

The emergency stop will halt all of the following interlocked dock equipment:

- Vehicle Restraint
- Overhead Door
- Hydraulic Dock Leveler

Emergency Stop Operation is as follows:

1. Depress Emergency Stop.
 - a. The control box display will change to “When Areas Safe, Release E-Stop”.
 - b. Control box light will change to flashing red.
 - c. Outside light will change to flashing red.
 - d. If the audible alarm was sounding, the alarm will be silenced until emergency stop is released or an input is pressed to continue.

2. Release Emergency Stop.
 - a. When the emergency stop is released one of the following will happen:
 - i. If no interlocked dock equipment was transitioning, the control box will return to the previous state before the emergency stop was depressed.
 - OR
 - ii. The control box display will change to “..... To Continue”. See Step 3.

3. ... To Continue
 Depending on when the emergency stop was pressed, different inputs are needed to continue using interlocked dock equipment.

Display Descriptions	
“Press UN/LOCK To Continue”	• The emergency stop was depressed while vehicle restraint was transitioning. Press “RESTRAIN” or “RELEASE to continue using loading dock.
“Press Door ↑3 or ↓6 To Continue”	• The emergency stop was depressed while overhead door was transitioning. Press #3 “Door Open” or #6 “Door Close” to continue using loading dock.
“Press RAISE ↑ To Continue”	• The emergency stop was depressed while the dock leveler was transitioning. Press “RAISE ↑”, or “Lip Out ↓” if independent lip is active and leveler was rising for more than three seconds before the emergency stop was depressed, to continue using loading dock.
“Press OVER-RIDE∅ To Continue”	• The emergency stop was depressed while there was a fault with the dock leveler or overhead door. Press “∅” or HORN OVER-RIDE button to enter maintenance mode to close or store the overhead door or dock leveler respectively.

Note: If dock leveler is stored and overhead door is closed, “∅” or HORN OVER-RIDE button can be pressed to exit maintenance mode.

AUTOMATIC RETURN TO DOCK (ARTD) OPERATION

If ARTD ON/OFF button is depressed and the display changes to “Not Active”, the operation listed below is not applicable.

If the combination control box displays “ARTD On” or “ARTD Off”, see operation below:

When the combination control box displays “ARTD On”, ARTD is active and if dock leveler lowers below dock, the following will happen:

1. The combination control box display will change to “WARNING! LEVELER STORING”.
2. The control box lights will flash red while leveler is storing.
3. The outside lights will flash red while leveler is storing.
4. The audible alarm on the combination control box will sound.
5. The hydraulic motor will activate for 6 seconds to store the dock leveler.
6. Once the leveler is stored, the control box and outside lights will return to flashing the color they were before ARTD became active.

If the leveler is unable to store, for example due to pallets placed on top of the leveler, the combination control box will begin to alarm. For more information about the alarm, see fault “Must Store Ramp” in troubleshooting - maintenance mode procedure section.

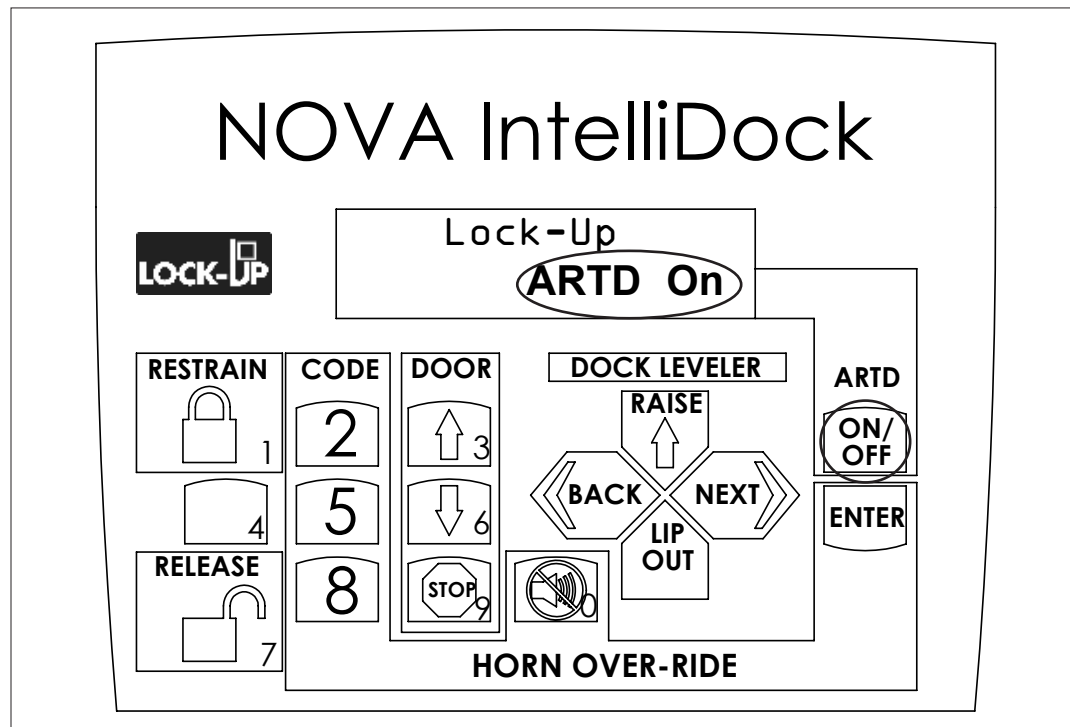


FIGURE AN—TURNING ARTD ON

Note: Automatic return to dock (ARTD) is automatically disabled when in maintenance mode.

CONTROL BOX DISPLAY EXPLANATIONS

DISPLAY	EXPLANATION
Inactive – Close Door First	<ol style="list-style-type: none"> 1. Can't unlock vehicle restraint until door is closed. 2. Can't lock vehicle restraint until door is closed. 3. Can't enter horn over-ride until door is closed. 4. Can't exit maintenance mode until door is closed.
Inactive – Door is Closed	<ol style="list-style-type: none"> 1. Can't close or stop door if door is fully closed.
Inactive – Door is Fully Opened	<ol style="list-style-type: none"> 1. Can't open or stop door if door is fully opened.
Inactive – Fully Open Door First	<ol style="list-style-type: none"> 1. Can't operate leveler until overhead door is fully opened.
Inactive – Lock Restraint First	<ol style="list-style-type: none"> 1. Can't unlock vehicle restraint if vehicle restraint is not locked. 2. Can't operate leveler if vehicle restraint is not locked. 3. Can't operate overhead door if vehicle restraint is not locked.
Inactive – Press #9 To Stop Door	<ol style="list-style-type: none"> 1. Can't close door while door is opening. 2. Can't open door while door is closing.
Inactive – Raise Leveler First	<ol style="list-style-type: none"> 1. Can't use independent lip until leveler has risen for at least 3 seconds and clears the back of the transport vehicle.
Inactive – Store Leveler First	<ol style="list-style-type: none"> 1. Can't enter horn over-ride while leveler is not stored. 2. Can't close overhead door while leveler is not stored. 3. Can't unlock vehicle restraint while leveler is not stored. 4. Can't lock vehicle restraint while leveler is not stored. 5. Can't exit maintenance mode until leveler is stored.

CONTROL BOX DISPLAY EXPLANATIONS

DISPLAY	EXPLANATION
Inactive – Unsafe Condition	<ol style="list-style-type: none"> 1. Can't open overhead door if fault occurs while overhead door is closed. 2. Can't use leveler if fault occurs while overhead door is opened and leveler is stored. 3. Can't use independent lip if fault occurs while raising leveler. 4. Can't use leveler if door fault occurs while leveler is stored. 5. Can't use overhead door if door fault occurs while leveler is not stored. 6. Can't use leveler if the overload relay tripped and/or coil is not working properly. 7. Can't use overhead door if the overload relay tripped and/or coil is not working properly. 8. Can't use overhead door if door fault – door open & close occurs. 9. Can't unlock vehicle restraint if door and/or leveler fault occurs and/or the overload relay tripped and/or coil is not working properly.
Need Maintenance Leveler Inactive	<ol style="list-style-type: none"> 1. Leveler's overload relay tripped. Enter maintenance mode to confirm. If overload relay tripped, the first display in maintenance mode will display "Reset Overload" proceed to section: RESET OVERLOAD RELAY. 2. Coil for contactor is not working properly. Enter maintenance mode to confirm. If coil did not work properly, the first display in maintenance mode will display "Replace Coil" proceed to section: STARTER / CONTACTOR REPLACEMENT PROCEDURE

CONTROL BOX DISPLAY EXPLANATIONS

DISPLAY	EXPLANATION
Not Active	<ol style="list-style-type: none"> 1. Appears when a button on the PLC is depressed and the control box does not have that function. EXAMPLE: Control box does not control the ARTD and ARTD ON/OFF is depressed. The Display will show "Not Active". 2. Appears when buttons #1 – Locking the Vehicle Restraint or #7 – Unlocking the Vehicle Restraint are depressed while in Horn Over-Ride.
Unsafe Condition Need Maintenance	<ol style="list-style-type: none"> 1. Appears when entering horn over-ride password while there is a fault with at least one of the following: <ul style="list-style-type: none"> • Overhead Door • Dock Leveler • Leveler Contactor Coil • Leveler Overload Relay • Proceed to section: TROUBLESHOOTING - MAINTENANCE MODE PROCEDURE

ADJUSTMENTS

ADJUST LIP STOP BOLT(S)

WARNING

Always post safety warnings and barricade the work area at dock level and ground level to prevent unauthorized use of the dock leveler before maintenance is complete.

WARNING

Always stand clear of the dock leveler lip when working in front of the dock leveler.

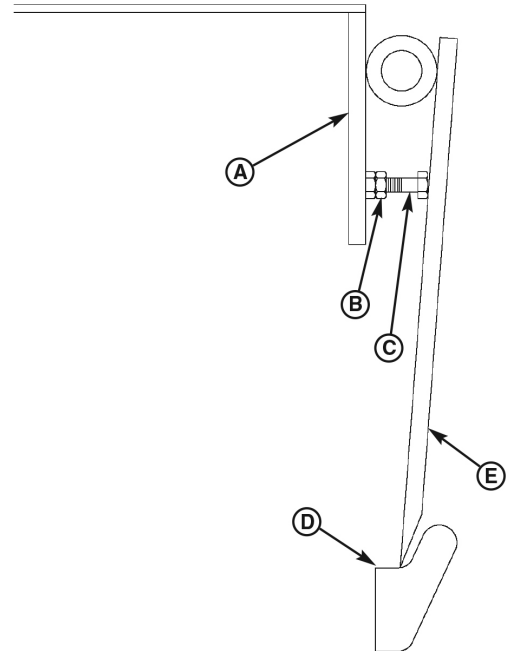
WARNING

The platform maintenance prop **MUST** be in the service position when working under the dock leveler. For maximum protection, use an OSHA approved locking device to lock the maintenance prop in the service position. Only the person servicing the equipment should have the key to unlock the maintenance prop.

Check that lip (E) is fully resting on the lip keepers (D) and at the lowest part of the keeper cradle in the center. If lip is not resting properly in keepers, perform the following adjustment.

1. Fully raise platform and engage the maintenance prop. Manually raise the lip:
 - **Air Bag Leveler:** Engage lip maintenance prop.
 - **Hydraulic Leveler:** Engage an external lip support device.
2. Loosen jam nut (B).
3. Adjust stop bolt (C) as necessary.
 - Turn stop bolt “in” (clockwise) to allow lip to fold closer to platform frame (A).
 - Turn stop bolt “out” (counterclockwise) to hold lip further away from platform frame (A).

Note: Hydraulic levelers have two lip stop bolts.



A—Platform Frame
B—Jam Nut
C—Stop Bolt
D—Lip Keeper
E—Lip

4. Tighten jam nut.
5. Disengage lip maintenance prop.
6. Depress RAISE button, disengage maintenance prop, allow platform to lower to cross-traffic (stored) position.
7. Check lip position in both keepers. Repeat procedure if necessary.

TROUBLESHOOTING

MAINTENANCE MODE PROCEDURE

1. ENTERING MAINTENANCE MODE ON THE CONTROL BOX

- a. Depress the “HORN OVER-RIDE” button (#0 button).
- b. Inside light is flashing red alerting forklift operator unsafe condition exists.
- c. Enter the Maintenance code 28252 and then press “ENTER”.
 - i. If the wrong code was entered, the “Wrong PW: Reenter Or wait” display will appear. (PW - Password = code) On this display, repeat steps 1a through 1c to enter maintenance mode.
 - ii. Or if no further input is completed within 30 seconds, the “Wrong PW: Reenter Or wait” display will clear and the screen will return to the previous display.

2. NAVIGATING THROUGH MAINTENANCE MODE

- a. Use the “NEXT” and “BACK” buttons to navigate through Maintenance Mode.

NOTE: Automatic return to dock (ARTD) is automatically disabled when in maintenance mode. To test ARTD proceed to section: ARTD OPERATION.

For standard fault information, reference product Owner’s Manual. See table below for correct Owner’s Manual Number.

Product	Owner’s Manual Number
Lock-Up™	MF4-159-000
Lock & Load™	MF2-012-000
Truck Lock™ – Low Profile	NT-0-351
Truck Lock™ – Standard Profile	NT-0-350

The table below shows what displays are available depending on what features are controlled through the Nova IntelliDock control box.

If “Standard” is listed under Feature, display information can also be found in product Owner’s Manual. For Owner’s Manual Number refer to table above.

Display Information	Feature	Page Number
Door Not Closed (Counter)	Overhead Door	45
Door Off Top Limit Switch (Counter)		45
Door Not Opened (Counter)		46
Door Open & Closed (Counter)		46
Ramp Not Stored (Counter)	Leveler	46
Must Store Ramp (Counter)		46
Operate Restraint This Screen Only	Vehicle Restraint	47
Operate Door This Screen Only	Overhead Door	47
Operate Leveler This Screen Only	Leveler	47
E-Stop (Counter)	E-Stop	47
ARTD (Counter)	Automatic Return to Dock	47
Horn Over-Ride (Counter)	Standard	47
Leveler Cycles	Leveler	47
Dock Door Cycles	Overhead Door	47
Restraint Cycles	Standard	48
Cycles to Service	Not Applicable	48

TROUBLESHOOTING

MAINTENANCE MODE PROCEDURE

Display Information	Feature	Page Number
9-16 Outputs	Not Applicable	49
17 Output	Not Applicable	49
Enter New Override Password:	Standard	49
IP Address 1-4	Ethernet	49
Subnet Address 1-4		49
Gateway Address 1-4		50

If “Standard” is listed under Feature, display information can also be found in product Owner’s Manual. For Owner’s Manual Number refer to table above.

Key Point: Counters listed on the chart from the previous page can be reset by following the instructions listed below.

Once on the display with the counter that needs to be reset follow steps 1-4 listed below.

1. Press and hold “ENTER” for five seconds.
2. After five seconds, the counter display will begin to flash, release “ENTER”.
3. Next, press the “HORN OVER-RIDE” button (#0 button) to set counter back to zero.
 - a. This is the only acceptable entry to reset the counters.
4. Once the counter is back to zero, press “ENTER” to successfully reset counter.

Display – Door Not Closed

This display shows the number of times the door was closed, but comes off of limit switch 7 (LS7) without any input from the control box.

This fault can occur if	Resolution
LS7 malfunctioned.	Verify photoelectric sensors yellow, green and red LEDs are illuminated and are constant. If not, see SETUP PHOTOELECTRIC SENOR on Page 6.
Door moved off LS7 from external means.	Return door to closed position through display – Operate Door (Page 47).
Door does not reach bottom limit switch (LS7) within 45 seconds of closing the door.	Ensure door track is clear of debris.

Display – Door Off To Limit Switch

This display shows the number of times the door was open, but comes off of limit switch 6 (LS6) without any input from the control box.

This fault can occur if	Resolution
LS6 malfunctioned.	Verify photoelectric sensors yellow, green and red LEDs are illuminated and are constant. If not, see SETUP PHOTOELECTRIC SENSOR on page 6.
Door moved off LS7 from external means.	Return door to closed position through display – Operate Door (Page 47).
Door does not reach top limit switch (LS6) within 45 seconds of operating the door.	Ensure door track is clear of debris.

TROUBLESHOOTING

MAINTENANCE MODE PROCEDURE

Display – Door Not Open

This display shows the number of times the door comes off of limit switch 6 (LS6) and turns on limit switch 7 (LS7).

This fault can occur if	Resolution
LS6 and LS7 malfunctioned.	Verify photoelectric sensors yellow, green and red LEDs are illuminated and are constant. If not, see SET-UP PHOTOELECTRIC SENSOR on Page 6.
Door moved off of LS6 from external means.	Return door to closed position through display – Operate Door (Page 47).
Door does not reach top limit switch (LS6) within 45 seconds of opening door and is still on bottom limit switch (LS7).	Ensure door track is clear of debris.

Display – Door Open & Closed

This display shows the number of times the both door limit switches, limit switch 6 (LS6) and limit switch 7 (LS7), are on at the same time.

This fault can occur if	Resolution
LS6 and LS7 malfunctioned.	Verify photoelectric sensors yellow, green and red LEDs are illuminated and are constant. If not, see SET-UP PHOTOELECTRIC SENSOR on Page 6.

Display – Ramp Not Stored

This display shows the number of times the leveler was stored, but comes off of limit switch 5 (LS5) without any input from the control box.

This fault can occur if	Resolution
LS5 malfunctioned.	<ul style="list-style-type: none"> Air Bag or Hydraulic Leveler: Verify proximity sensors orange LED is illuminated when leveler is stored. If not, see SET-UP PROXIMITY SENSOR on Page 9 or 8.
Leveler moved off of LS5 from external means.	Return leveler to stored position through display – Operate Leveler (Page 47).

Display – Must Store Ramp

This fault is activated two different ways:

1. Hydraulic and Air Bag Leveler: This display shows the number of times the leveler was in use, but returned to limit switch 5 (LS5) without any input from the control box while automatic return to dock (ARTD) is “Not Active “ or Off.

This fault can occur if	Resolution
LS5 malfunctioned.	<ul style="list-style-type: none"> Air Bag or Hydraulic Leveler: Verify proximity sensors orange LED is illuminated when leveler is stored. If not, see SET-UP PROXIMITY SENSOR on Page 9 or 8.
Transport vehicle departed from loading dock while leveler was in back of transport vehicle causing the lip to fall.	Return leveler to stored position through display – Operate Leveler (Page 47).

TROUBLESHOOTING

MAINTENANCE MODE PROCEDURE

- Hydraulic Leveler Only: This display shows the number of times the leveler was unable to return to the stored position after automatic return to dock (ARTD) was activated.

This fault can occur if	Resolution
Objects were on top of leveler when ARTD was activated and restricted leveler was rising fully and storing.	Remove objects from on top of leveler and store leveler.

Display – Operate Restraint This Screen Only

This display allows the vehicle restraint to be controlled independently from leveler and door. The “RESTRAIN” and “RELEASE” are the only buttons active on this display. The display will not change while operating the vehicle restraint. Use this display to help correct restraint faults. Restraint inputs can be verified on page 48.

Display – Operate Door This Screen Only

This display allows the door to be controlled independently from restraint and leveler. The #3 “DOOR ↑”, #6 DOOR ↓”, and #9 DOOR TOP” are the only buttons active on this display. The display will not change while operating door. Use this display to help correct door faults. Door limit switch inputs can be verified on page 48. Door must be in closed position in order to exit maintenance mode.

NOTE: Control box will automatically redirect end user to this display if trying to exit maintenance mode and door is not closed.

Display – Operate Leveler This Screen Only

This display allows the leveler to be controlled independently from restraint and door. The up arrow “DOCK LEVELER - RAISE ↑”, and DOCK LEVELER – LIP OUT are the only buttons active on this display. The display will not change while operating leveler. Use this display to help correct leveler faults. Leveler limit switch inputs can be verified on page 48. Leveler must be in stored position in order to exit maintenance mode.

NOTE: Control box will automatically redirect end user to this display if trying to exit maintenance mode and leveler is not stored.

Display – E-Stop

This display shows the number of times the E-Stop has been depressed.

Display – ARTD (Automatic Return to Dock)

This display shows the number of times the ARTD has been activated. ARTD becomes active when a transport vehicle departs from a loading dock while leveler is still in transport vehicle.

Display – Horn Over-Ride Count

This display is to show the number of times the Horn Over-Ride function has been activated. The Horn Over-Ride function should only be used when the vehicle restraint cannot properly secure the RIG.

Display – Leveler Cycles

This display shows the number of complete cycles the leveler has gone through. One cycle is defined as the leveler moving from the stored position to the service trailer state and back to the stored position.

Display – Dock Door Cycles

This display shows the number of complete cycles the overhead door has gone through. One cycle is defined as the door moving from the closed position to the open position and back to the closed position.

TROUBLESHOOTING

MAINTENANCE MODE PROCEDURE

Display – Restraint Cycles

This display shows the number of complete cycles the vehicle restraint has gone through. One cycle is defined as the restraint moving from the unlocked position to the locked position and back to the unlocked position.

Display – Cycles to Service

For standard restraint information, reference product Owner's Manual. See table for correct Owner's Manual Number (Page 44).

This display shows how many cycles the components of the control box can go through before service is needed. See table below.

PART NUMBER	DESCRIPTION	EQUIPMENT	QTY
CB-1007	RELAY, 8.5 AMP	DOOR CONTROL & INDEPENDENT LIP	4
CB-1030	STARTER	HYDRAULIC LEVELER SINGLE PHASE	1
CB-1031	STARTER	HYDRAULIC LEVELER THREE PHASE	1
CB-1029	CONTACTOR	AIR BAG LEVELER	1

Display – 1-8 Inputs

This display shows all inputs going to the control box. The number zero (0) means the input is off. The number one (1) means the input is on. All inputs are listed below.

- | | |
|-----------------------------|-------------------------|
| 1. LS1 (Restraint Unlocked) | 5. LS5 (Leveler Stored) |
| 2. LS2 (Restraint Locked) | 6. LS6 (Door Opened) |
| 3. LS3 (RIG Sensor) | 7. LS7 (Door Closed) |
| 4. N/A | 8. E-Stop |

Display – 9-11 Inputs

This display shows all inputs going to the control box. The number zero (0) means the input is off. The number one (1) means the input is on. All inputs are listed below.

9. Overload Relay - Hydraulic Leveler Only
10. Leveler Motor Contactor Auxiliary Contact
11. LS8 (Automatic Return to Dock)

Display – 1-8 Outputs

This display shows all outputs coming from the control box. The number zero (0) means the output is off. The number one (1) means the output is on. All outputs are listed below:

- | | |
|------------------------------|---------------------------------|
| 1. Control Box – Red Light | 5. Alarm Horn |
| 2. Control Box – Green Light | 6. N/A |
| 3. Outside – Red Light | 7. N/A |
| 4. Outside – Green Light | 8. Interlocked Equipment Active |

TROUBLESHOOTING

MAINTENANCE MODE PROCEDURE

Display – 9-16 Outputs

This display shows all outputs coming from the control box. The number zero (0) means the output is off. The number one (1) means the output is on. All outputs are listed below.

- | | |
|------------------------------|--------------------|
| 9. N/A | 13. Open Door |
| 10. N/A | 14. Close Door |
| 11. Independent Lip Solenoid | 15. Raise Leveler |
| 12. Stop Door | 16. Motor 1 – Lock |

Display – 17 Output

This display shows all outputs coming from the control box. The number zero (0) means the output is off. The number one (1) means the output is on. All outputs are listed below.

17. Motor 2 – Unlock

Display – Enter New Override Password:

This display is for changing the password to get into Horn Over-Ride. Once on this screen, press “ENTER” to change current password. Then enter new password. The new password can range from 1 to 9999. Once new password has been typed, press “ENTER” to successfully change the password. Any leading zeros will be eliminated. Provide the new over-ride password to authorized dock attendant(s).

Display – IP Address 1-4

This display is for verifying and changing the IP address for Ethernet capability. To change the IP address, see steps below.

1. Press and hold “ENTER” for five seconds.
2. After five seconds, the IP address will begin to flash, release “ENTER”.
3. Next, enter in new IP address:
 - a. To transition to the next section of the IP address press “ENTER”.
 - b. Leading zeros or trailing zeros will automatically be entered after “ENTER” is pressed.
4. Once the IP address is completed, press “ENTER” to successfully change the IP address.
Example IP Address: 192.168.001.100

Display – Subnet Address 1-4

This display is for verifying and changing the subnet address for Ethernet capability. To change the subnet address, see steps below:

1. Press and hold “ENTER” for five seconds.
2. After five seconds, the subnet address will begin to flash, release “ENTER”.
3. Next, enter in new subnet address:
 - a. Leading zeros or trailing zeros will automatically be entered after “ENTER” is pressed.
 - b. To transition to the next section of the subnet address press “ENTER”.
4. Once the IP address is completed, press “ENTER” to successfully change the subnet address.

TROUBLESHOOTING

MAINTENANCE MODE PROCEDURE

Display – Gateway Address 1-4

This display is for verifying and changing the gateway address for Ethernet capability. To change the gateway address, see steps below:

1. Press and hold “ENTER” for five seconds.
2. After five seconds, the gateway address will begin to flash, release “ENTER”.
3. Next, enter in new gateway address.
 - a. Leading zeros or trailing zeros will automatically be entered after “ENTER” is pressed.
 - b. To transition to the next section of the gateway address press “ENTER”.
4. Once the gateway address is completed, press “ENTER” to successfully change the gateway address.

Example Gateway Address: 192.168.001.254

3. EXITING MAINTENANCE MODE ON THE CONTROL BOX

Key Point: This procedure can be done on any maintenance screen.

Key Point: The leveler must be stored and the door must be closed in order to exit maintenance mode. If the leveler is not stored and/or the door is not closed, the control box will change the display to the Operate Leveler and/or Operate Door display to store leveler and/or close door.

- a. Depress the “HORN OVER-RIDE” button (#0 button).
- b. Inside light will continue to flash red alerting fork truck operator unsafe condition exists.
- c. Enter the Maintenance code 28252 and then press “ENTER”.
 - i. If the wrong code was entered, the “Wrong PW: Reenter Or wait” display will appear. On this display, repeat steps 3a through 3c to exit maintenance mode.
 - ii. Or if no further input is completed within 30 seconds, the “Wrong PW: Reenter Or wait” display will clear and the screen will return to last display prior to entering maintenance mode (PW = Password = code).

RESET OVERLOAD RELAY

(HYDRAULIC DOCK LEVELER)

First Maintenance Mode Display: “Reset Overload”

- This display appears when the “DOCK LEVELER RAISE ↑” is depressed, and the overload relay is tripped.
 - The overload relay is there to protect against damage from occurring to the hydraulic motor.
 - The overload relay measures the load current, and when the current exceeds the Full-Load-Amperage (FLA) setting, see Figure AO, over a specific time frame the overload relay is tripped.
 - A tripped overload relay prevents the contactor from operating the hydraulic dock leveler.

NOTE: During normal operation of the dock leveler (around 16 seconds) the FLA would need to exceed 5.5 to 7.5 times higher than the FLA setting depending on the duration of those 16 seconds.

Potential causes for overload relay tripping:

- Dock leveler is binding.
- FLA setting is not set properly (verify setting on electrical diagram found inside the combination control box)
- The hydraulic motor is wearing down.
- The hydraulic motor could be leaking fluid.
- PLC has failed and continues running dock leveler.

Nova Technology does not recommend adjusting the FLA setting to any number besides the proper setting called out on the electrical diagram found inside the combination control box.

Resetting Overload Relay

1. Turn off power supply to the control box at the disconnect(s), if not off already.
2. Open control box door.
3. Turn off circuit breaker.
4. Push down on the blue “RESET” tab located on the bottom of the starter. See Figure AO.
5. Turn on circuit breaker.
6. Close control box door.
7. Turn on power supply to the control box at the disconnect(s).

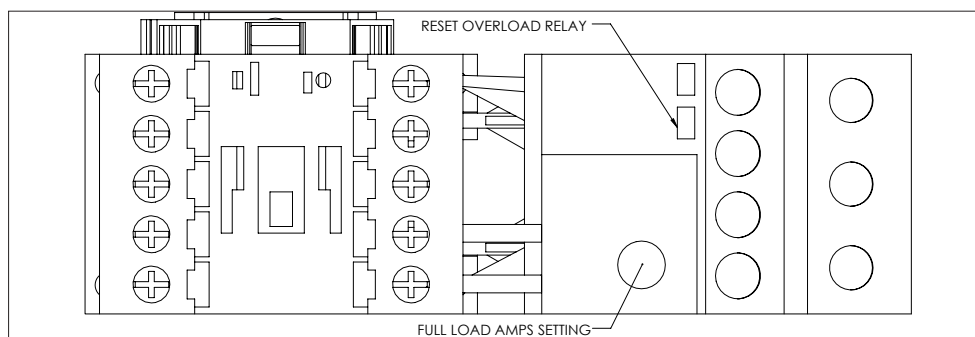


FIGURE AO—OVERLOAD RELAY FLA SETTING AND RESET

STARTER / CONTACTOR REPLACEMENT PROCEDURE

(FOR HYDRAULIC AND AIR BAG LEVELERS)

First Maintenance Mode Display: "Replace Coil"

- This display appears when the "DOCK LEVELER RAISE ↑" is depressed, but the coil in the contactor does not energize.

If dock leveler is not in the stored position when starter / contactor failed to energize, contact Nova Technology.

Replacing Contactor

Removing:

1. Turn off power supply to the control box at the disconnect(s), if not off already.
2. Open control box door.
3. Turn off circuit breaker.
4. Disconnect all wires connected to the contactor.
5. Once all wires are disconnected, pull contactor down toward bottom of the control box to compress the spring clip connecting the contactor to the din rail.
6. While still pulling the contactor down, tilt the bottom contactor upwards to release the bottom clip of the contactor from the din rail.
7. Keep the contactor tilted, but now start moving the contactor towards the top of the control box to relieve the compressed spring clip.
8. Then pull the contactor upward to remove it from the control box.

Installing:

1. Insert the contactor into the control box on top of the din rail.
2. Tilt the bottom of the contactor up and move the contactor up to connect the spring clip to the top of the din rail.
3. Pull the contactor downward while applying pressure between the contactor and din rail to keep the spring clip connected to the din rail.
4. Level the contactor while still applying pressure.
5. Move the contactor upwards so the bottom clip of the contactor can connect to the din rail.
6. Pull upward to verify contactor is connected to the din rail, if repeat the installing steps 1-5 again.
7. Reconnect all wires to the contactor.
8. Turn on circuit breaker
9. Close control box door.
10. Turn on power supply to the control box at the disconnect(s).

PARTS

CONTROL BOX PARTS

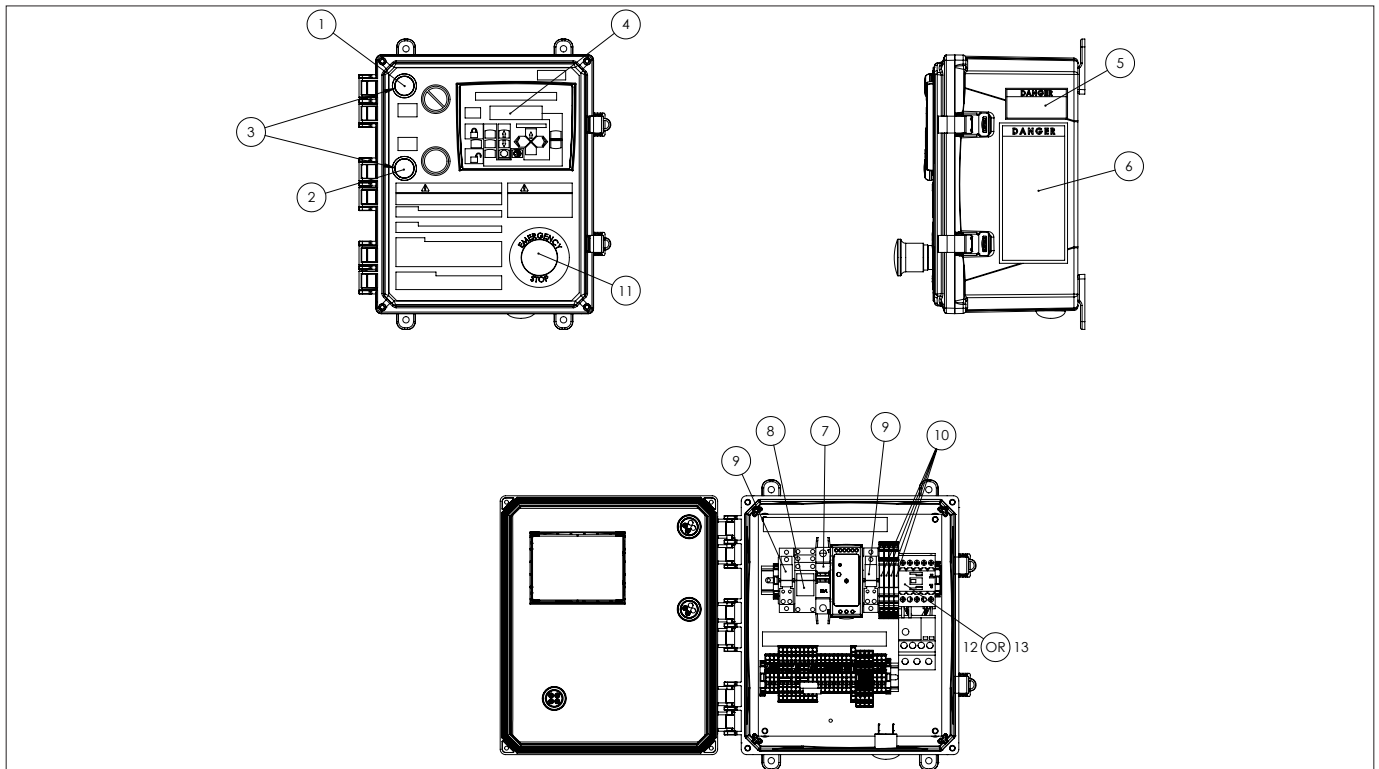


FIGURE AP—HYDRAULIC DOCK LEVELER CONTROL BOX PARTS

CONTROL BOX REPLACEMENT PART LIST

ITEM NO.	PART NUMBER	DESCRIPTION	QTY.
1	CB-1000	LIGHT, 24 VDC LED RED PILOT	1
2	CB-1001	LIGHT, 24 VDC LED GREEN PILOT	1
3	CB-1002	COVER, WHITE LED	2
4	CB-PLC-02	PLC - COMBINATION	1
5	MF2-202-000	DECAL, ARC FLASH	1
6	MF2-200-000	DECAL, HOOK POSITION (LOCK & LOAD™ ONLY)	1
7	CB-1003	BREAKER, CIRCUIT	1
8	CB-1004	RELAY, 12 AMP	1
9	CB-1005	RELAY, 20 AMP	2
10	CB-1007	RELAY, 8.5 AMP	4
11	CB-1008	EMERGENCY STOP	1
12	CB-1030	HYDRAULIC LEVELER SINGLE PHASE - STARTER	1
13	CB-1031	HYDRAULIC LEVELER THREE PHASE - STARTER	1

PARTS

CONTROL BOX PARTS

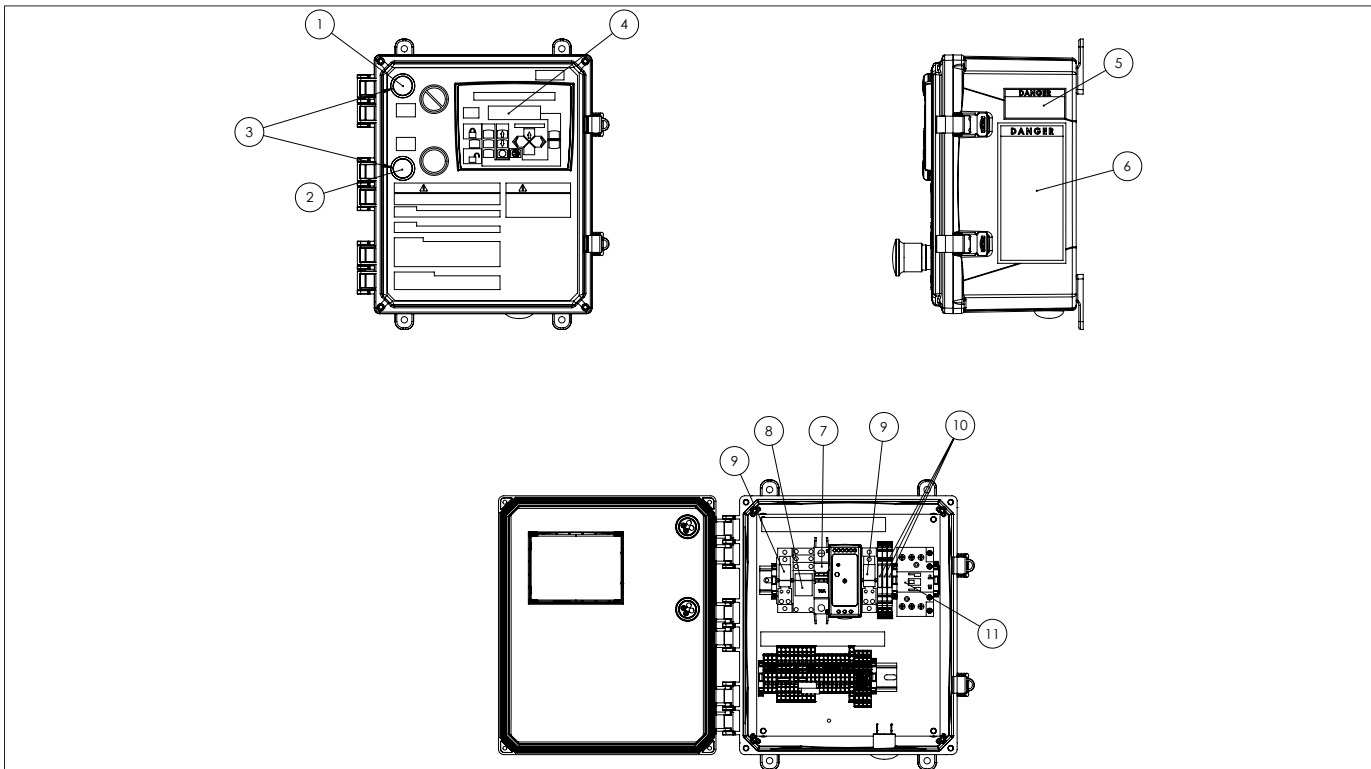


FIGURE AQ—AIR BAG DOCK LEVELER CONTROL BOX PARTS

CONTROL BOX REPLACEMENT PART LIST

ITEM NO.	PART NUMBER	DESCRIPTION	QTY.
1	CB-1000	LIGHT, 24 VDC LED RED PILOT	1
2	CB-1001	LIGHT, 24 VDC LED GREEN PILOT	1
3	CB-1002	COVER, WHITE LED	2
4	CB-PLC-02	PLC - COMBINATION	1
5	MF2-202-000	DECAL, ARC FLASH	1
6	MF2-200-000	DECAL, HOOK POSITION (LOCK & LOAD™ ONLY)	1
7	CB-1003	BREAKER, CIRCUIT	1
8	CB-1004	RELAY, 12 AMP	1
9	CB-1005	RELAY, 20 AMP	2
10	CB-1007	RELAY, 8.5 AMP	3
11	CB-1029	AIR BAG LEVELER - CONTACTOR	1

PARTS

SENSOR PARTS

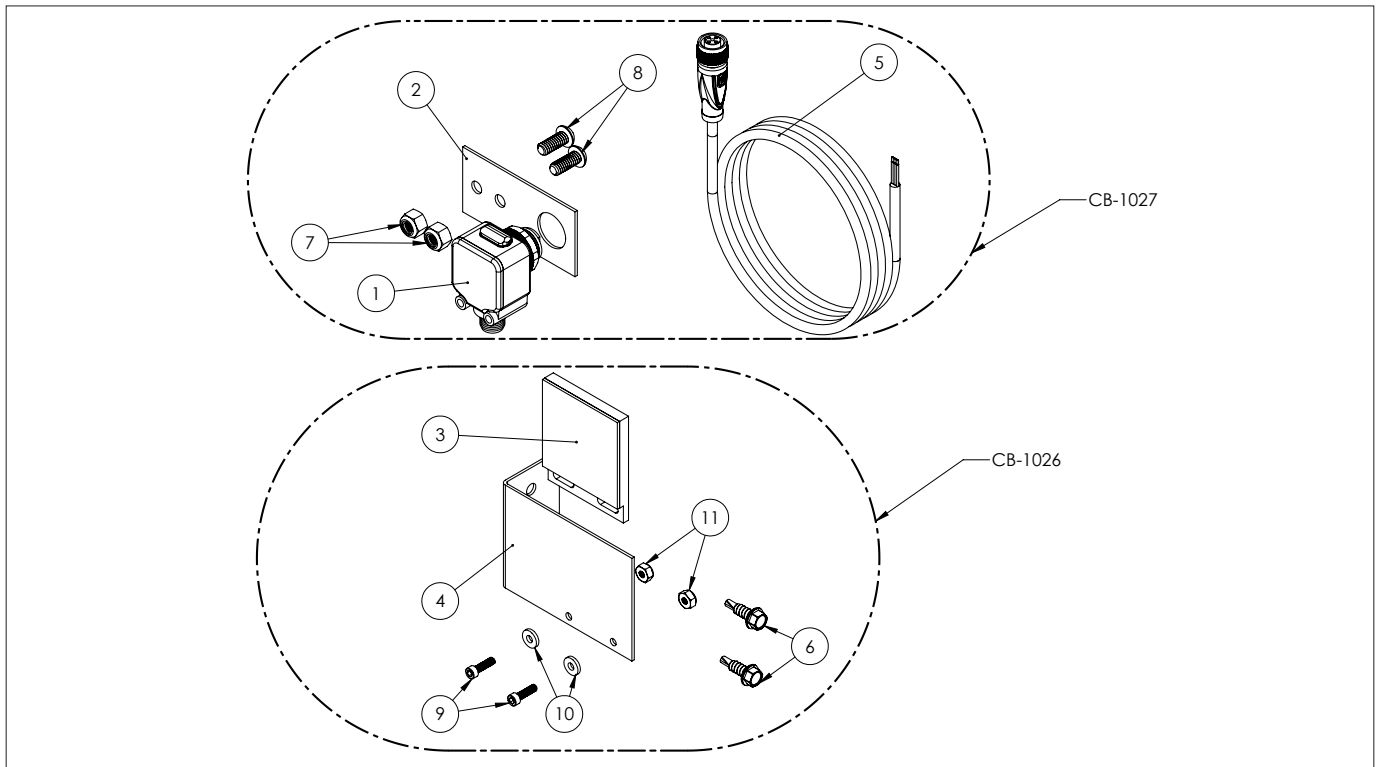


FIGURE AR—OVERHEAD DOOR SENSOR KIT PARTS

OVERHEAD DOOR SENSOR REPLACEMENT PART LIST

ITEM NO.	PART NUMBER	DESCRIPTION	QTY.
1	CB-1010	PHOTOELECTRIC SENSOR	2
2	CB-1011	PHOTOELECTRIC SENSOR MOUNTING BRACKET	2
3	CB-1014	PHOTOELECTRIC SENSOR REFLECTOR	1
4	CB-1015	REFLECTOR MOUNTING BRACKET	1
5	CB-1016	M12 CORD	2
6	CB-1017	#12 X 3/4" HEX HEAD DRILLING SCREW	2
7	CB-1018	1/4" - 20 NYLOC NUT	4
8	CB-1019	1/4" - 20 X 5/8" BUTTON HEAD CAP SCREW	4
9	CB-1021	6-32 X 1/2" SOCKET HEAD CAP SCREW	2
10	CB-1022	#6 SAE WASHER	2
11	CB-1023	6-32 NYLOC NUT	2

PARTS

SENSOR PARTS

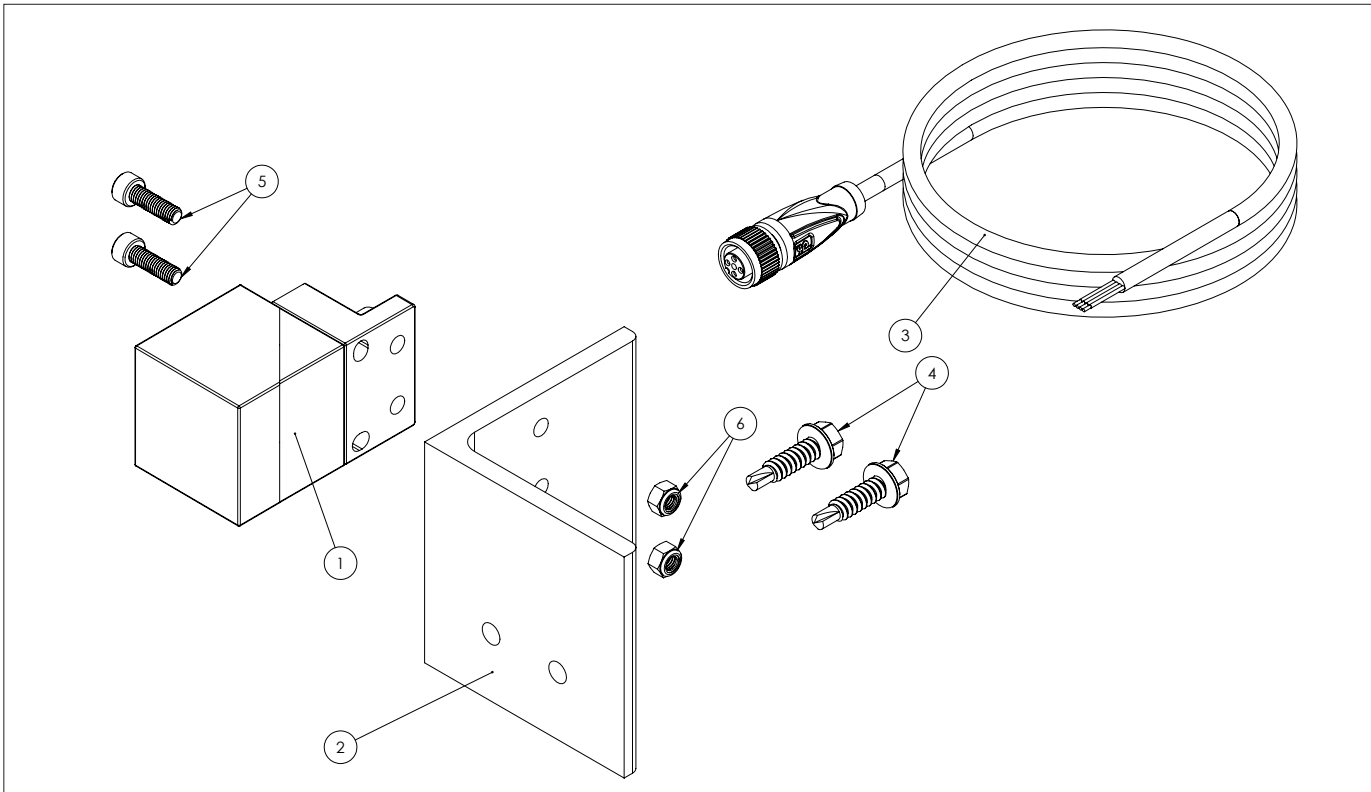


FIGURE AS—DOCK LEVELER SENSOR KIT PARTS (CB-1032)

DOCK LEVELER SENSOR REPLACEMENT PART LIST (CB-1032)

ITEM NO.	PART NUMBER	DESCRIPTION	QTY.
1	CB-1012	PROXIMITY SENSOR	1
2	CB-1013	PROXIMITY SENSOR MOUNTING BRACKET	1
3	CB-1016	M12 CORD	1
4	CB-1020	1/4"-20 X 1" HEX HEAD DRILLING SCREW	2
5	CB-1024	5M X 16 MM SOCKET HEAD CAP SCREW	2
6	CB-1025	5M NYLOC NUT	2

NOTE: This dock leveler sensor kit is only for air bag dock levelers or hydraulic dock levelers without independent lip.

WARRANTY

NOVA TECHNOLOGY INTERNATIONAL, LLC warrants that its products will be free from defects in design, materials and workmanship for a period of one (1) year from the date of shipment. All claims for breach of this warranty must be made within 30 days after the defect is or can with reasonable care, be detected. In no event shall any claim be made more than 30 days after this warranty has expired. In order to be entitled to the benefits of this warranty, the product must have been properly installed, maintained and operated in accordance with all manufacturer's recommendations and/or specified design parameters and not otherwise have been subject to abuse, misuse, misapplication, acts of nature, overloading, unauthorized repair or modification, or lack of maintenance. Periodic inspection in accordance with all manufacturers' recommendations is the sole responsibility of the Owner/User.

In the event of a defect, as determined by NOVA TECHNOLOGY INTERNATIONAL, LLC, covered by this warranty, NOVA TECHNOLOGY INTERNATIONAL, LLC shall remedy such defect by repairing or replacing any defective equipment or parts, bearing the cost for the parts, labor and transportation. This shall be exclusive remedy for all claims whether based on contract, negligence or strict liability.

PRODUCT SPECIFIC WARRANTY

In addition to the "Standard Product Warranty" provided with all Nova Products, NOVA TECHNOLOGY INTERNATIONAL, LLC guarantees materials, components and workmanship to be free of defects for the following extended period:

- Extended 2-Year General Warranty—for a period of two (2) years from date of shipment.

NOT COVERED UNDER WARRANTY

- Routine maintenance, lubrication, adjustments, including initial field set-up.
- Repairs required as a result of failure to follow routine maintenance procedures specified in this manual, abuse, accident, willful damage, neglect, improper installation, submersion, or shipping damage.

WARRANTY LIMITATIONS

THE ABOVE WARRANTIES ARE IN LIEU OF ANY OTHER WARRANTIES, WHETHER EXPRESSED OR IMPLIED, INCLUDING BUT NOT LIMITED TO ANY IMPLIED WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE. NOVA TECHNOLOGY INTERNATIONAL, LLC AND ITS SUBSIDIARIES SHALL NOT IN ANY EVENT BE LIABLE TO ANYONE, INCLUDING THIRD PARTIES, FOR INCIDENTAL, CONSEQUENTIAL OR SPECIAL DAMAGES OF ANY KIND INCLUDING BUT NOT LIMITED TO, BREACH OF WARRANTY, LOSS OF USE, LOSS OF PROFIT, INTERRUPTION OF BUSINESS OR LOSS OF GOODWILL.



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