

## INSTALLATION & OWNER'S MANUAL



### **WARNING**

**DO NOT INSTALL, OPERATE OR SERVICE THIS PRODUCT UNLESS YOU HAVE READ AND FULLY UNDERSTOOD THE ENTIRE CONTENTS OF THIS MANUAL. FAILURE TO DO SO MAY RESULT IN PROPERTY DAMAGE, BODILY INJURY OR DEATH.**

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## ABOUT THE ML10 MECHANICAL VEHICLE RESTRAINT

The Blue Giant **ML10 Mechanical Vehicle Restraint** is a high performance yet low cost solution for loading docks worldwide. Its many features and benefits include:

- A restraining power of 30,000 lbs (13,636 kg).
- A broad horizontal restraining range of 0" to 12" (305mm).
- Services transport vehicles with ICC bars from 11" to 29" (279 mm to 737 mm) above ground level.
- Restraint Arm constructed from 1" (25 mm) solid steel.
- Minimal maintenance requirements.
- Single detachable control rod allows dock attendant to operate the ML10 safely and efficiently.

The system can be upgraded to include an Automatic Lights Communications System for added safety at the loading dock.

### 1. 1

### OWNER'S PURCHASE RECORD

OWNER'S PURCHASE RECORD Please record information for future inquiries	
<b>Dealer:</b>	<b>Date in Service:</b>
<b>Serial Number(s):</b>	<b>Number of Units:</b>
	<b>Door # :</b>

The manufacturer offers a full line of dock levelers, dock safety equipment, accessories, ergonomic and scissor lift equipment, and industrial trucks. Concurrent with a continuing product improvement program, specifications are subject to change without notice. Please contact the manufacturer for latest information. Some features illustrated may be optional in certain market areas.

## 2.

## INTRODUCTION

The following is a quick reference to important procedures that must be followed while using the Vehicle Restraint System. It is not intended to cover, or suggest that it does cover, all procedures necessary to ensure safe operation. All operators should be aware of and abide by all workplace safety regulations applicable to the operation of the Vehicle Restraint System. These laws and regulations include but are not limited to:

- The Occupational Safety and Health Act (USA)
- Occupational Safety and Health Acts for Individual States (USA)
- Canadian Material Handling Regulations

For additional information on these regulations as well as industry standards that may apply to this product, please contact:



American National Standards Institute (ANSI)  
1430 Broadway  
New York, NY 10018  
(212) 642-4900



ALSO MEMBERS OF :  
Loading Dock Equipment Manufacturers  
A Product Section of Material Handling Industry of America,  
A Division of Material Handling Industry  
8720 Red Oak Blvd., Suite 201, Charlotte, NC, 28217-3992  
Telephone: (704) 676-1190 Fax: (704) 676-1199

## 2.1

## WARRANTY INFORMATION

Thank you for purchasing Blue Giant products. We appreciate your business, and are confident that our product will serve you for many years to come. In the event that you experience a problem with our product, our Warranty Center is here to support the Blue Giant Product(s) that you have purchased.

To validate warranty on recently purchased equipment, please complete and submit your information with our on-line Warranty Registration at [www.BlueGiant.com](http://www.BlueGiant.com).

For more information about Blue Giant's Warranty Support, please contact your local Blue Giant Equipment dealer, representative or authorized partner near you. You may also visit [www.BlueGiant.com](http://www.BlueGiant.com) or phone 1-905-457-3900.

\* Note that failure to validate warranty at the time of receipt can seriously affect the outcome of any claim.

## 2.2

## EXCLUSION OF LIABILITY

The manufacturer assumes no liability for damage or injury to persons or property which occur as a result of defects or faults in or incorrect use of Vehicle Restraint System. The manufacturer also assumes no liability for lost profits, operating downtimes, or similar indirect losses incurred by the purchaser. Injury to third parties, irrespective of its nature, is not subject to compensation.

The manufacturer reserves the right to make changes at any time to the modules, components, and accessories, concurrent with its continuing product development program. Specifications, operating instructions, and illustrations included in this manual are subject to change without notice. Please contact manufacturer for the latest information.

## 2.3

## MANUFACTURER'S NOTE

The Vehicle Restraint has been carefully inspected and tested at the manufacturer's plant prior to shipment, but should be checked upon receipt for transport damage. Any observed transport damage is to be listed on the signed copy of the freight document. Notify the freight forwarder of any damage WITHIN 48 HOURS.

### 3. OPERATOR'S MANUAL SAFETY MESSAGE COLOR IDENTIFICATION


This manual includes color-coded safety messages that clarify instructions and specify areas where potential hazard exists. To prevent the possibility of equipment damage and serious injury or death, please observe strictly the instructions and warnings contained in the messages. If warning decals become damaged or missing, replace them immediately. Avoid accidents by recognizing dangerous procedures or situations before they occur.

<b>⚠ DANGER</b>	<b>IMPORTANT</b>
Serious injury or death will likely occur if the instructions are not followed.	Procedures marked <b>IMPORTANT</b> must be followed in order to prevent damage to machinery.
<b>⚠ WARNING</b>	<b>⚠ CAUTION</b>
Serious injury or death may occur if the instructions are not followed.	Instructions marked <b>CAUTION</b> concern safe operating procedure. Failure to comply may result in personal injury.

#### 3.1 OPERATIONAL SAFETY WARNINGS

**⚠ DANGER**

**Keep Hands and Feet away from operating space of the Restraint Arm.**



**CRUSH HAZARD.**

1. Do not operate the Vehicle Restraint while anyone is standing in its path.
2. Lift the Vehicle Restraint with suitable hoisting equipment only. Do not stand under the Restraint or any heavy object while it is being hoisted.

<b>⚠ WARNING</b>	<b>IMPORTANT</b>
<ol style="list-style-type: none"> <li>1. Installation must be performed only by trained and authorized personnel.</li> <li>2. Prior to installation, place adequate barriers to prevent vehicle traffic from entering the work area.</li> <li>3. Use caution when unbanding the Vehicle Restraint. Keep hands and feet clear of pinch points and wear appropriate safety attire.</li> <li>4. During installation, anchors must be properly torqued to achieve the necessary anchoring strength. <b>DO NOT USE IMPACT DRIVERS.</b></li> <li>5. Any electrical work must be performed by qualified personnel only.</li> <li>6. Do not remove the wheel chocks until loading /unloading is finished and the truck is cleared for departure or the Vehicle Restraint has been released and the lights have changed to RED inside and GREEN outside.</li> </ol>	<ol style="list-style-type: none"> <li>1. Do not ground welding equipment to any electrical components.</li> <li>2. Do not allow the drill to go too deeply into the control box, as damage may occur to the control systems.</li> <li>3. Never use air to blow debris from the control box. Use a vacuum to perform any necessary cleaning.</li> <li>4. Do not connect green ground lead into control box or junction box until all welding has been completed.</li> <li>5. If an extension plate / box is required, securely mount it on the Restraint with hardware provided before shimming and drilling.</li> <li>6. Improper adjustments and / or lubrication may cause operational problems with equipment.</li> </ol>

**⚠ CAUTION**

1. Only trained personnel should operate or service this equipment.
2. Do not operate the Restraint until the transport vehicle is parked against the dock bumpers.
3. Always return the Restraint Arm to the released position after use.
4. Conduct routine inspections and maintenance. Failure to do so could cause equipment damage and or personal injury.
5. Always call your authorized service representative or manufacturer immediately if a malfunction occurs.

## 4.

## INSTALLATION INSTRUCTIONS

**⚠ WARNING**

1. **Installation must only be performed by trained and authorized personnel.**
2. **Prior to installation, place adequate barriers to prevent vehicle traffic from entering the work area.**
3. **Use caution when unbanding the Vehicle Restraint. Keep hands and feet clear of pinch points and wear appropriate safety attire.**

1. Prior to installation, clear away all debris and dirt from the driveway and dock face where installation is to take place, and perform a visual inspection of both areas.
2. To ensure maximum strength, install the Vehicle Restraint on a poured concrete dock face and driveway. If installation will be performed on cement block construction or a poor concrete dock face, contact the manufacturer for custom lag plates and/or lag anchors. Damaged asphalt driveways should be replaced by a 6" (150mm) deep concrete pad.
3. Using proper hoisting equipment, position the ML10 square against the dock face and centered with the door opening.
7. Mount the exterior signs (and communication lights, if applicable) permanently onto the exterior wall adjacent to the doorway at approx. 84" (2134mm) above the driveway.
8. Securely mount the Operating Hazards placards permanently onto an interior wall adjacent to the control station in a location approx. 6 feet (1800mm) above floor level. Confirm that the placard is clearly legible to the operator.
9. When optional light package is included and conduits were not poured-in with the concrete, install 1/2" dia. (13mm) rigid conduit for (surface mounted) electrical wires from the ML10 along the dock face, up and through the wall, and up to the control station.

**⚠ CAUTION**

**Do not attempt to lift the ML10 without suitable hoisting equipment. The approximate weight of the Vehicle Restraint is 180 lbs.**

4. Keep the Vehicle Restraint base-plate at a 90 degree angle to the dock face and place a sufficient density of shims (not supplied) between the driveway surface and the outer edge of the base-plate. (See illustration at the bottom of this page.) Shims must be a minimum 13" (326mm) x 6" (150mm) in size and must be permanently welded together to the base-plate. Note: If an extension plate / box is required, securely mount it onto the ML10 with hardware provided before shimming and drilling.
10. Install 1/2" dia. (13mm) rigid conduit from the control station, through the wall to the exterior communication lights.
11. Complete the electrical hook-up between the ML10 and control station, and exterior lights to control station.
12. Remove the Release Arm from its vertical shipping position on the ML10 and using the removed pin - spacers - cotter pin, remount horizontally into the same brackets in its working position.
13. Mount Hanger Bracket for Control Rod in the appropriate location on interior wall adjacent to ML10. Place the Control Rod in the bracket.
14. Review Installation Instructions and verify that all work has been performed.

**IMPORTANT**

**If an extension plate / box is required, securely mount it on the hardware provided before shimming and drilling.**

5. With the ML10 properly positioned, and using back-plate as a template, drill six holes 5/8" dia. X 6" (15mm x 150mm) deep, in the dock face concrete. After cleaning out the holes, insert and permanently install anchors and lag bolts supplied with the unit. Tighten securely.
6. When optional light package is included, mount the control station c/w operating switch and communication lights permanently onto an interior wall adjacent to the doorway opening, at approx. 50" (1270mm) above floor level.

**4.1 Final Inspection**

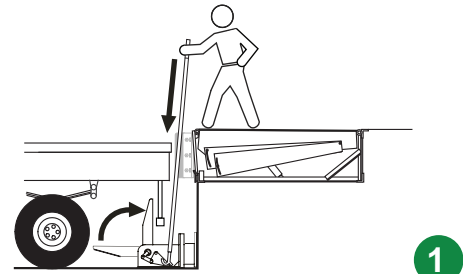
Clean up the entire work area and apply touch-up paint to all welds, scratches and burns. Ensure that all fasteners have been tightened and locked. Check that all electrical conduits and wires are mechanically protected against damage and are adequately secured. Cycle test the ML10 several times. Ensure that the lock is fully engaged when the Restraint Arm is fully raised (vertical). Test operate the Automatically Actuated Communication Lights System (if applicable). Replace all wiring diagrams into the control box. Leave these instructions with the ML10 for use by the operator.

## 5.

## OPERATING INSTRUCTIONS

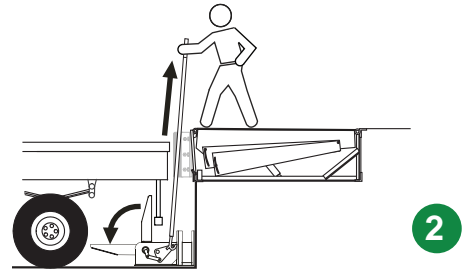
## 5.1 Engage Restraint

1. When the freight carrier reverses into position firmly against the dock bumpers, activate the ML10 by using the Control Rod to press down on the Engagement Arm until the Restraining Arm is in the fully vertical position. **Vehicle is not restrained if the Restraining Arm is not fully vertical. If Restraint is unusable, tires MUST be manually chocked.**
2. Do a visual inspection to confirm that the vehicle under ride guard is securely restrained before proceeding with loading / unloading operation. For added safety, use wheel chocks in addition to the Vehicle Restraint when operating in manual override mode .
3. With vehicle secured, perform loading / unloading operation.



## 5.2 Disengage Restraint

1. When the loading / unloading operation is completed and all personnel and equipment are clear of the vehicle, release the ML10 by quickly and firmly pulling up on the Release Arm with the Control Rod. The Restraining Arm will return to the fully lowered, horizontal position. (If the freight carrier is applying pressure to the Restraining Arm, it may be necessary to have the driver back up before the Restraining Arm can be released.)
2. The vehicle departs and normal cycle is completed.



**6.****MAINTENANCE****6.1 Planned Maintenance**

In addition to the daily operator inspection, Blue Giant recommends (and government regulations may require) that a planned maintenance and safety inspection program (PM) be performed by a trained and authorized mechanic on a regular basis to keep your equipment in safe operating condition. The PM will provide an opportunity to make a thorough inspection of the Vehicle Restraint's operating condition.

Necessary adjustments and repairs can be done during the PM, which will keep components in good operating form, reduce unscheduled downtime and increase safety. The procedures for a periodic planned maintenance program that covers inspections, operational checks, cleaning, lubrication, and minor adjustments are outlined in this manual.

This manual is intended to be readily available. Keep it near the Vehicle Restraint as a ready reference for anyone who may operate or service it.

**6.2 Operator Maintenance and Care**

It is the operator's responsibility to check the Vehicle Restraint's condition before use and make sure that it is safe to operate. Perform a visual inspection of the Restraint and its major components. This includes the Light Communications System, if used in conjunction with the Restraint.

If damage or maintenance problems are observed, either during an inspection or while operating the Vehicle Restraint, a report must be made to a supervisor and repairs completed by qualified personnel before the unit is put back into service.



6.

MAINTENANCE

6.3

Operator's Daily Checklist

**INSTRUCTIONS FOR USE:** Indicate "OK for Use" with a check mark (✓) in the appropriate box of each inspection point.

- Visually inspect the Vehicle Restraint and take note of obvious damage that may have been caused by operation during the last shift.
- Check that the Operating Hazards Placard is present in correct location and is legible.
- Inspect for damaged or missing parts, rust, corrosion, bent parts, cracks, etc.
- Inspect operating controls to assure they are not missing, damaged or broken.
- Clean away all foreign material such as parts of broken skids, etc. from area in which the Vehicle Restraint is located.
- Check for missing or damaged dock bumpers mounted on dock face.
- Visually inspect the Vehicle Restraint for signs of structural damage or mechanical malfunction as you operate the Vehicle Restraint throughout the day. Be alert to abnormal sounds or operation.

Explain faults briefly in the space provided below.

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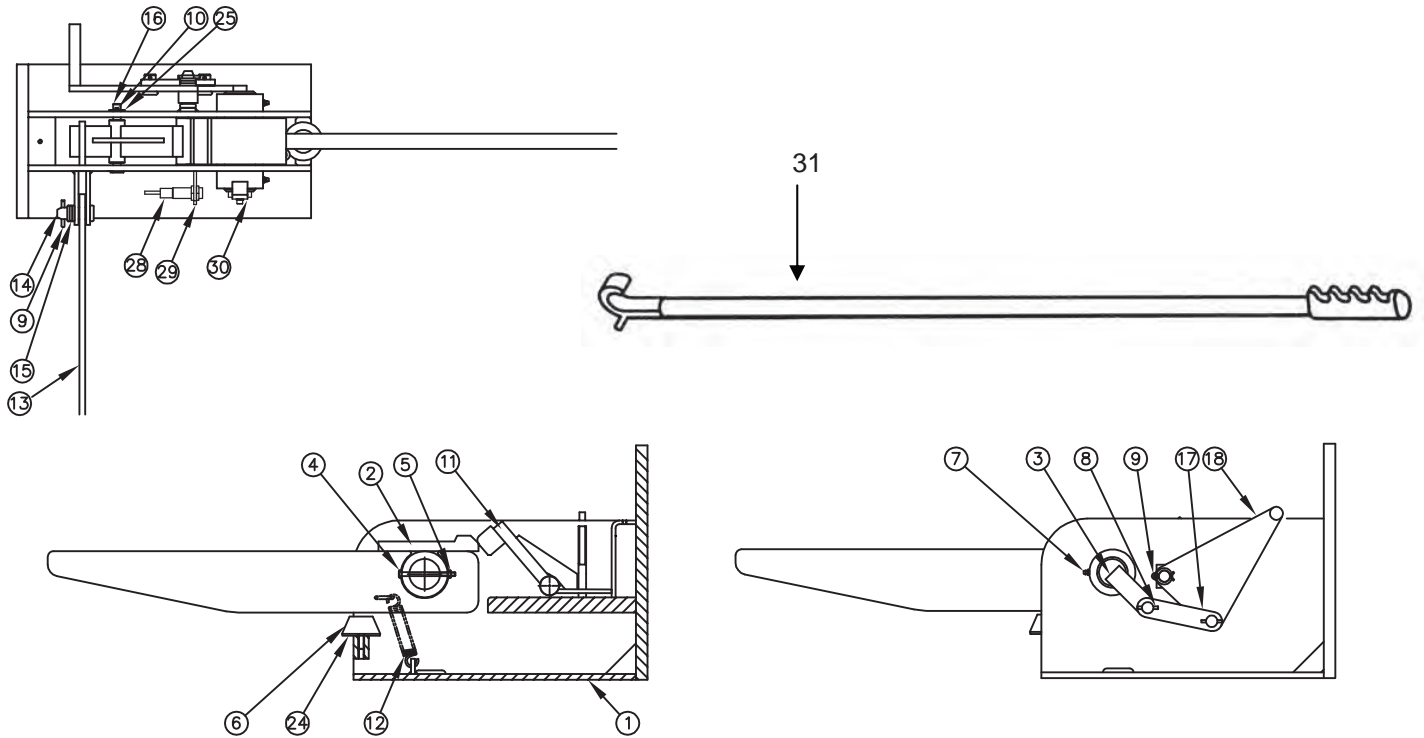
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**INSPECTED BY:** \_\_\_\_\_ **DATE:** \_\_\_\_\_

Forward checklist to the person responsible for Vehicle Restraint maintenance.

7. TROUBLESHOOTING	
<b>⚠ WARNING</b>	Do not attempt to install, make repairs or adjustments. Only a trained and authorized service technician should perform the installation process. Contact your local dealer or distributor for assistance.
PROBLEM	PROBLEM CAUSE
Restraining Arm will not raise when the operator pushes down on the Actuating Arm.	<ol style="list-style-type: none"> <li>1. Damaged Actuating Arm or Linkage.</li> <li>2. Foreign material preventing movement of actuating arm or linkage.</li> <li>3. Lack of lubrication at pivot points.</li> <li>4. Operator needs to push down with more force.</li> </ol>
Restraining Arm is not reaching fully vertical position.	<ol style="list-style-type: none"> <li>1. Foreign material is preventing full movement of the actuating linkage.</li> <li>2. ICC Bar on the transport vehicle is bent forward or otherwise undetectable by the sensor.</li> <li>3. The truck is not parked firmly and squarely against dock bumpers, causing the Restraint Arm to contact the ICC Bar.</li> <li>4. Damaged Actuating Arm or Linkage.</li> <li>5. Lack of lubrication at pivot points.</li> <li>6. Operator needs to push down with more force.</li> </ol>
Restraining Arm raises to full vertical position, but does not lock.	<ol style="list-style-type: none"> <li>1. Lock (internal component) is not lowering into its locked position. Foreign material inside enclosure may be preventing normal movement of the lock.</li> </ol>
Restraining Arm will not lower when the operator raises the Release Arm.	<ol style="list-style-type: none"> <li>1. Lock is not released when Release Arm is raised. Pull the Control Rod up quickly and sharply.</li> <li>2. The freight carrier is applying pressure against the Restraint Arm and lock. Reverse the vehicle firmly against the dock bumpers, and then operate the release arm quickly and sharply.</li> <li>3. Foreign material may be lodged inside enclosure, preventing lock from raising.</li> <li>4. Damaged or broken actuating linkage may be preventing the Restraint Arm from lowering.</li> <li>5. Damaged or broken springs.</li> <li>6. Lack of lubrication.</li> </ol>

9. MECHANICAL COMPONENTS- STANDARD



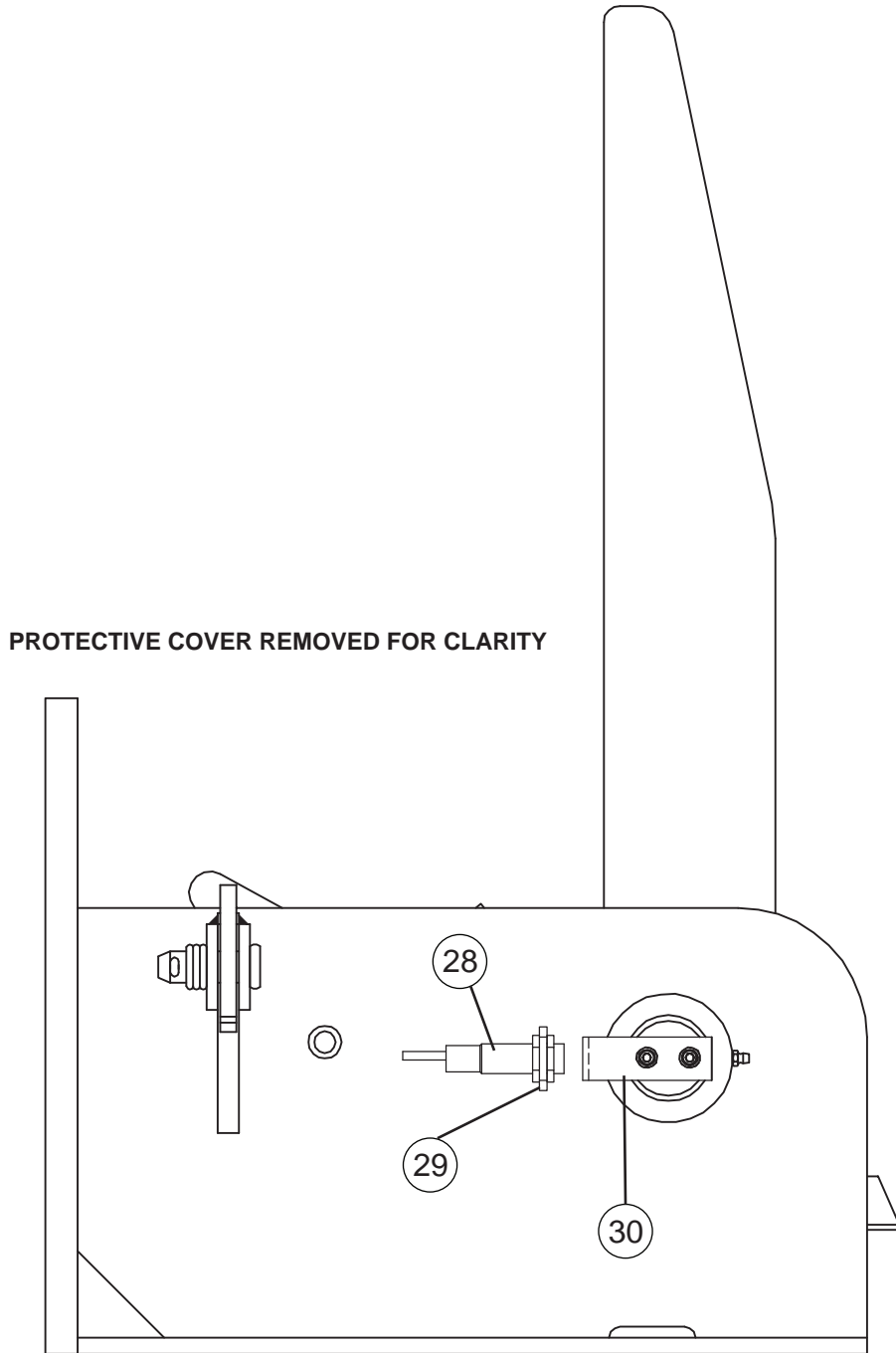
ITEM	QTY	PART NO.	DESCRIPTION
1	1	522-5003C	BODY WELDMENT
2	1	522-5004C	LOCKING ARM ASSEMBLY
3	1	522-5005A	SHAFT ARM ASSEMBLY
4	1	011-141	¼-20 UNC. X 3.5 LG. HEX HEAD CAPSCREW
5	1	011-506	¼-20 UNC HEX NUT
6	1	091-041	BUMPER
7	2	019-500	¼" STRAIGHT GREASE NIPPLE
8	2	013-066	5/32" DIA. X 1-1/4' SPRING PIN
9	2	013-025	3/16 DIA. X 1-1/2" LG. COTTER PIN
10	1	013-018	3/32 DIA. X 1" LG. COTTER PIN
11	1	522-5001A	LOCK WELDMENT
12	1	017-012	TENSION SPRING
13	1	522-0000A	RELEASE ARM
14	1	107-196	CLEVIS PIN
15	6	105-880	WASHER, SPACER ¾ X 1/8
16	1	782-391A	LOCK ROLLER SHAFT ASSEMBLY
17	1	522-0010	ACTUATOR LINKAGE
18	1	522-0010A	ACTUATING ROD
19	2	119-278	CLEVIS PIN
20	1	119-409A	BODY COVER
21	2	012-211	5/16 DIA. FLAT WASHER
22	2	011-020	¼-20 UNC. X ¾ R/H SLOT MACHINE SCREW
23	1	038-064	DRIVER WARNING SIGN
24	1	107-046	WASHER
25	1	012-239	½ I.D. X 1" O.D. X 1/8" WASHER
28	1	028-200	PROXIMITY SENSOR
29	1	52-003236	PROXIMITY HOLDER
30	1	52-003245	WAND CAM
31	1	782-371	CONTROL ROD

NOT SHOWN  
 NOT SHOWN  
 NOT SHOWN  
 NOT SHOWN  
 NOT SHOWN

OPTIONAL FOR INTERLOCK SWITCH \*  
 OPTIONAL FOR INTERLOCK SWITCH \*  
 OPTIONAL FOR INTERLOCK SWITCH \*

9.

MECHANICAL COMPONENTS- OPTIONAL



ITEM	QTY	PART NO.	DESCRIPTION
28	1	028-200	Proximity Sensor
29	1	52-003236	Proximity Holder
30	1	52-003245	Wand Cam
32	1	119-722	Protective Cover (not shown)

NOTES

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NOTES

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