

# EFFICIENCY PRODUCTION, INC.

AMERICA'S TRENCH BOX BUILDER™

## Ground Quick-Release Shackle Operation & Parts Manual/ Tabulated Data

U.S.A. Patents Pending

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America's Trench Box Builder™

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Ground Quick-Release Shackle  
Operations & Parts Manual / Tabulated Data

### Introduction

Efficiency Production's new **Ground Quick-Release Shackle** is designed and engineered for the quick and easy handling and lifting of Slide Rail System components.

The use of these Ground Quick-Release Shackles compliments "Feet on the Ground" approach to Slide Rail System Components installation. When used in conjunction with other shackles and tools provided in "**Job Box**" by **Efficiency Production, Inc.** there is no need for jobsite personnel to go above the safety of top frame level for releasing the lifting shackles.

**The Ground Quick-Release Shackles are suitable for lifting all Efficiency Production Slide Rail System Components, with combined weight up to 12,000 lbs. (5,450 kg.) of load.** Also, it is capable of lifting any loads (up to 12,000 lbs.) which lifting lugs can fit in to the 2 in. wide fork gap.

#### **FOR INSTALLATION OF EQUIPMENT ONLY**

Design complies with ASME BTH-1-2005 (Design of Below-the-Hook Lifting Devices, An American National Standard of the The American Society of Mechanical Engineers) Code, **Design Category A Service Class: 1**; ASME B30.20-2006; AISC-9th Edition (1991) and Design of Welded Structures by Omer W. Blodgett – The James F. Lincoln Arc Welding Foundation (2002); and RR-C-27D from Sep. 1990 and RR-C-27C from July 1986.

The ASME Code Service class and Design Category and maximum load capacity are clearly engraved on the front of Ground Release Shackle. Special wide throat shackles is designed to accommodate Slide Rail System Components lifting devices.

The Ground Quick-Release Shackle is designed to withstand a measure of unavoidable misuse. Slide Rail System Components, when stacked together, tend to jam together occasionally. The shackle is stiffened to resist spreading of the forks under such overload conditions at ninety degrees to the axis of the element. (See "Safety Check List"). However, using shackle fork as a crow bar shall be avoided.

**When lifting Slide Rail Panels in pairs of individual posts weighing more than the safe working load of the shackle, it is necessary to use a pair of shackles.** Pairs of shackles are mounted on a two-legged steel wire rope sling. The ring at the top of the sling can be hooked directly onto a standard crane hook block, "D" shackle, or fork anchor.

## **Features**

**NOTE: FOR *INSTALLATION* OF EQUIPMENT ONLY**

- A. Capacity of 12,000 pounds (5,450 kg.) of static vertical load.
- B. High-strength steel body;
- C. Corrosion coating on alloy steel pin;
- D. High-strength alloy steel pin and accidental releasing pin protection;
- E. Highly visible color;
- F. Heavy web stiffening to withstand side loading imposed when lifting elements from a stack  
(See "Safety Check List" for proper working practice);
- G. Lifting ring at the top of the shackle enables lifting from a variety of angles;
- H. Indicator bar at the back of lifting pin giving a clear visual indication that plunger has engaged element-lifting hole completely;
- I. Shackle throat depth designed for Efficiency Production, Inc. Slide Rail System;
- J. Quick coupling and release of shackle from any elements ensuring maximum productivity;
- K. Pin rotation ability allows change in pin release angle as per user preference;
- L. "Safety Ring" to protect against accidental pin release cause by poor working practices;
- M. Pin release mechanism – via hitting the pin at the back with small hammer;
- N. Pin release mechanism is also designed to prevent the pin from being damaged if two Ground Release Shackle with pins in "open position" hit each other accidentally.
- O. Easy replacement of the top holding pin;
- P. Clear indication of possible hand pinch points;
- Q. Pre-selected Tag-Line (Release Rope) 50' long;
- R. Pictorial instructions for proper use attached to the shackle

### Method of Operation

1. Tie a length of rope (provided by EPI) to the pull ring on the pull-wire assembly. In any case the rope should be about 3 feet longer than the lifting length. Do not use a continuous loop as this will become snagged. For your convenience EPI rope standard length is 50 ft.
2. Set desired angle of release by rotating the pin via provided square opening in the front of the pin.
3. Before positioning the Ground Release Shackle, it is necessary to retract the shackle pin. Pull the release wire until the trip mechanism holds the pin in the open position.
4. Separate the Slide Rail System Element to enable the main body of the Ground Release Shackle to be slid over the lifting lug. With the plunger tube assembly up, slide the fork of the Ground Release Shackle over the lifting lug with the throat of the shackle.
5. With the pin over the slide rail element-lifting hole, firmly tap the indicator bar end extending from the plunger tube assembly. If the plunger does not locate directly through the hole, move the main shackle body until the plunger goes through the lift lug hole and into the shackle body on the underside. **The indicator bar should be flush with the plunger tube assembly.**
6. Repeat this for both lift lugs when lifting slide rail elements (panels);
7. Install the safety ring over the plunger tube assembly as shown on the photos.
8. With the plunger properly located, the safety ring engaged, the element can then be lifted into position, for installation. It is advisable to tie the shackle ropes in suitable manner in order to prevent them from being trapped, snagged, or blowing out of reach in strong winds.
9. To release the shackles after threading is complete, the safety ring must first be unhitched by flicking the release rope, then simply pulling on the release rope. If there is a tendency to jam, have the crane give the shackle some slack and try to release again.
10. Unauthorized alterations invalidate the tabulated data of this document.

### **Warning:**

**“Jerking” of the Ground Release Shackle under full load or forcing the Shackle Pin in to the lifting lug with a lot of force may lead to bending or cracking of the pin, and/or bending of the fork. It will prevent the pin from fully closing and will make the Ground Release Shackle unusable. It also will void this Operation and Parts Manual /Tabulated Data and the Engineering Certification. FOR INSTALLATION OF EQUIPMENT ONLY.**

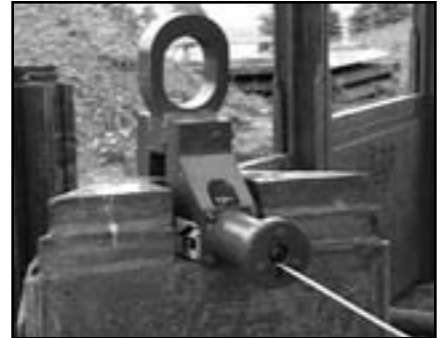
### D. Installation Instructions



1. Position the Shackle with pin in open position, over hole of the lift lug.



2. Engage the pin by striking with small hammer.



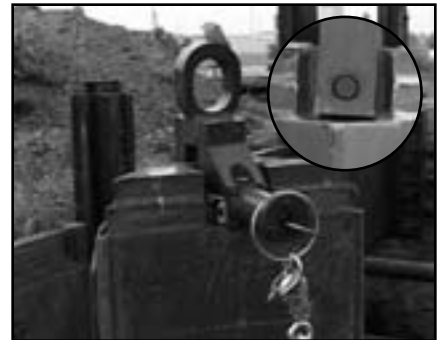
3. When the pin is flush with the housing, the Shackle is fully engaged.



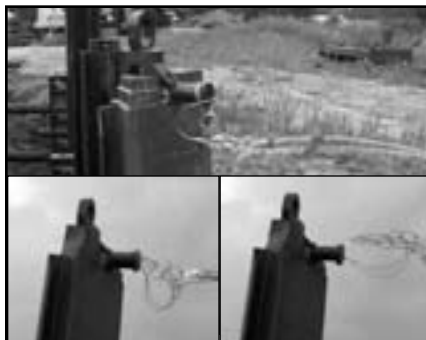
4. Place the safety ring over the housing.



5. Repeat all steps above for additional lift lugs, or other components.



6. Component is ready for lifting and positioning.



7. After positioning and securing the component, release the safety ring by pulling the release rope/line.



8. Then pull on the release cable to free the Shackle from Component lifting lug.



9. Fully released shackle ready to be removed from component.

### **Safety Check List**

NOTE: FOR *INSTALLATION OF EQUIPMENT* ONLY

**1. SAFETY FIRST!**

2. Pre-Installation Checks:

- a. Establish the weight of the lift involved and ensure a shackle with appropriate safe working load is being utilized. The shackle capacity is 12,000 lbs. (5,450 kg).
- b. Ensure the lifting hole is at the correct distance relative to the top of the lifting lug. If Ground Release Shackle is used with Efficiency Production, Inc. Slide Rail System Sliderail panels or posts – the fit shall be no problem. In case of lifting parallel beams, the additional shackle may be used – it is provided in EPI “Job Box” or can be purchased directly from EPI.
- c. The lifting hole should be neatly drilled or punched and of a suitable size for the lift taking place.

**3. Do not use the lifting Ground Release Shackle for hammering or extracting.**

4. Set desired angle of release by rotating the pin via provided square opening in the front of the pin.
5. Ensure that the main pin has gone through both sides of the shackle body - check that the indicator bar is flush with the end of the main plunger housing.
6. Do not modify the lifting shackles of any part of the lifting apparatus. Keep the oxygen/acetylene and all other torches well clear of the Ground Release Shackle.
7. Care should be taken to avoid the release rope from getting snagged.
8. The angle between the two legs of the lifting bridal (when using twin shackles) should never exceed 60 degrees.
9. Always use the safety ring to prevent accidental release - it only takes an extra second or two.

***Maintenance/Trouble-Shooting on Next Page***

### **Training**

Before using the Shackle, all personnel should have received basic training in lifting and control of heavy loads. It is strongly recommended that the following areas be covered.

1. Basic safety in lifting operations.
2. Supervision during lifting operations.
3. Detailed instruction on how the Ground Release Shackle operates.
4. Safety features of the Ground Release Shackle.
5. Dangers and malpractices.
6. Correct choice of Ground Release Shackle for the job.

### **Maintenance & Trouble-Shooting**

The Shackle is manufactured from high quality material and assembled in a manner designed to offer long service with a minimum of maintenance. However, verify working condition of shackle before each use. Disassemble, clean and inspect shackle as required.

In order to preserve the product in this state, it is necessary to ensure that it is not misused or used for purposes outside its recommended use and to carry out regular inspections and servicing. The shackle is designed only for the installation of slide rail components, not the removal of components from the ground.

Regularly checking that the product has not been distorted due to overload and that the pin functions smoothly throughout its travel, are all that is necessary apart from a regular light application of oil to all moving parts.

If the loading pin (Part # GRS-F) is stuck in closed or open position, gently turn the loading pin using a wrench or screw driver. DO NOT use a sledge hammer to strike loading pin back to open position.

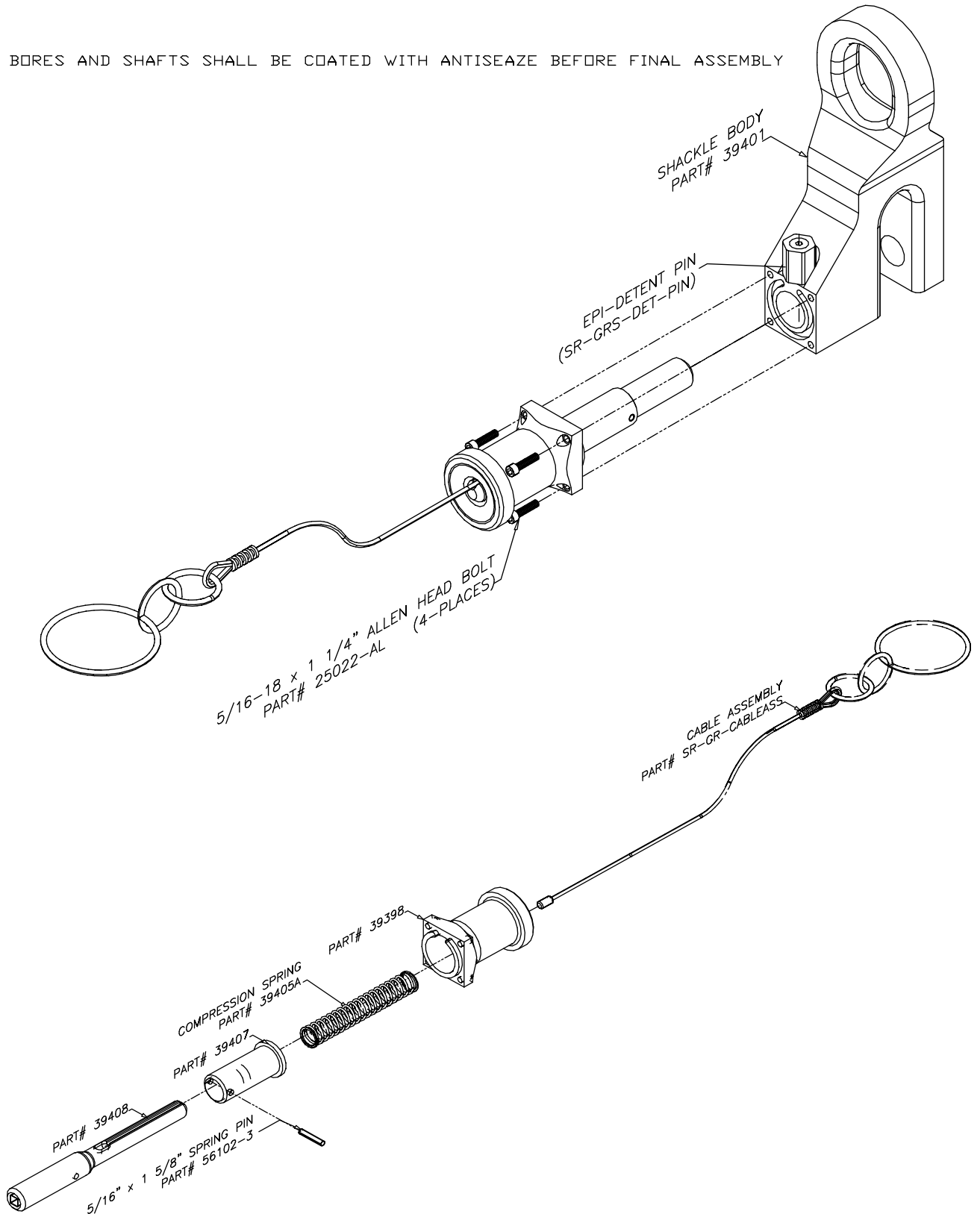
If the product does not operate perfectly, contact your distributor for advice, or return for immediate attention. If at any time your shackle needs parts or service, please contact your distributor or Efficiency Production Inc. for expert attention.

Keep the plunger mechanism clean and well lubricated. A shot of WD-40 once a day on the pin and the sleeve. If the pin gets stuck, use a graphite spray and gently work the pin in and out.

Efficiency Production will provide training to a designated client personnel upon request. Unauthorized disassembly and reassembly of the unit by unauthorized personnel will void this tabulated data and any liability on behalf of Efficiency Production, Inc.

### Parts List

BORES AND SHAFTS SHALL BE COATED WITH ANTISEAZE BEFORE FINAL ASSEMBLY





### Assembled

