

# Swivel Hoist Ring Installation & Use Instructions

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## Produced by:

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## WARNING

Improper use of Carr Lane Swivel Hoist Rings could result in injury, damaged equipment, and or death. In order to warrant maximum safety please review and understand the following safety guidelines prior to use of Carr Lane Swivel Hoist Rings.

## Items Covered by this Document

This document covers Swivel Hoist Rings manufactured by Carr Lane Manufacturing Co. (CLM) these items can be distinguished from others by two features:

1. An Item number, indelibly marked on the hoist ring, following this format: CL(M)-xxxx-SHR-x-x
2. A Hex shaped "Body," see Appendix I for additional details.

## Use Instructions

1. The load rating on each hoist ring is not simply total weight divided by the number of hoist rings. The resultant force can be significantly greater at shallow lift angles and with unevenly distributed loads. Determine the maximum load at any given lift angle by using this formula:

$$f = \frac{W}{N \sin A} \quad W = \text{total weight}, N = \text{the number of hoist rings}, \text{ and } A = \text{the lift angle}$$

See Appendix II for additional Details.

2. Despite the 5:1 safety factor on hoist rings, never exceed the rated load capacity. This safety margin is needed in case of misuse.
3. Tensile strength of parent material should be above 80,000 psi to achieve full load rating. For weaker material, consider through-hole mounting with a nut and washer on the other side.
4. Do not allow hoist rings to bind. Use a spreader bar, if necessary, to avoid binding. See Appendix III for additional Details.
5. Do not use spacers between the hoist ring and the mounting surface.
6. Mounting surface must be flat and smooth for full contact under hoist ring. Tapped mounting holes must be perpendicular to the mounting surface.

7. Tighten mounting screws to the torque recommended. All torque values are based upon dry installation without the use of a lubricant. Periodically check torque as screws could loosen in extended service.
8. Never lift with a hook or other device that could deform the lifting ring. Do not use cable assemblies for lifting. The radius of attaching hardware must be equal to or less than the inside radius of the hoist ring bail.
9. Do not reeve slings, chains, or wire, from one hoist ring to another.
10. Do not apply shock loads. Always lift gradually. If shock loading occurs, follow the "Inspection after "Shock-Load" Incident" Instructions that may be found further in this guide.
11. After installation, check that ring rotates and pivots freely in all directions.
12. Allowable Environmental Conditions; -20° F to 200° F, if intended use is outside of these conditions contact CLM for further use Instructions as load ratings will be decreased.
13. Chemically Active Environments, other than exposure to salt or salt water environments, require contact with CLM engineering to verify the suitability of the application.
14. If parts of the hoist ring are damaged, worn, lost, or otherwise no longer suitable for use only replacement items from CLM may be used.

### Inspection Interval

Swivel Hoist Rings (SHRs) shall be given visual inspections on not less than an annual basis. The higher the frequency of use, and/or the more hazardous the environment in which they are used, shall result in a more frequent visual inspection. See ASME B30.26-2015 section 26-2.8 for Inspection Intervals based upon use.

### Inspection Procedure

1. Inspect all components and sub-assemblies (See Appendix IV, V, and VI). Swivel Hoist Rings shall be removed from service if the following conditions are not met and are not to be returned to service until approved by the manufacturer.
  - a. Missing or illegible identification
  - b. Indications of heat damage (this includes weld spatter or arc strikes).
  - c. Excessive pitting or corrosion.
  - d. Bent, twisted, distorted, stretched, elongated, cracked, or broken load-bearing components.
  - e. Excessive nicks or gouges
  - f. A 10% reduction of the original or catalog dimension at any point.
  - g. Excessive thread damage or wear.

- h. Evidence of unauthorized welding or modification.
  - i. Lack of ability to freely rotate or pivot.
  - j. Other conditions, including visible damage, that cause concern of continued use.
2. Dis-assemble the SHR by carefully removing the retaining washer on the bolt. (See Appendix IV) This may be made of steel or plastic depending upon the item. If this is damaged during removal replacements are available for a nominal fee. Carefully segregate components. Do not mix components.
  3. Visually inspect the sub-assembly; specifically, the area where the shoulder pins meet the hex body. (See Appendix VI) Ensure the pins are parallel to the body and equally spaced on both sides. (Angled shoulder pins, or shoulder pins unequally spaced from the body are non-conforming.)
  4. If any of the conditions above is observed in the components, please contact CLM engineering department for further instructions.
  5. If none of these conditions is found re-assemble the SHR. Do not mix components.

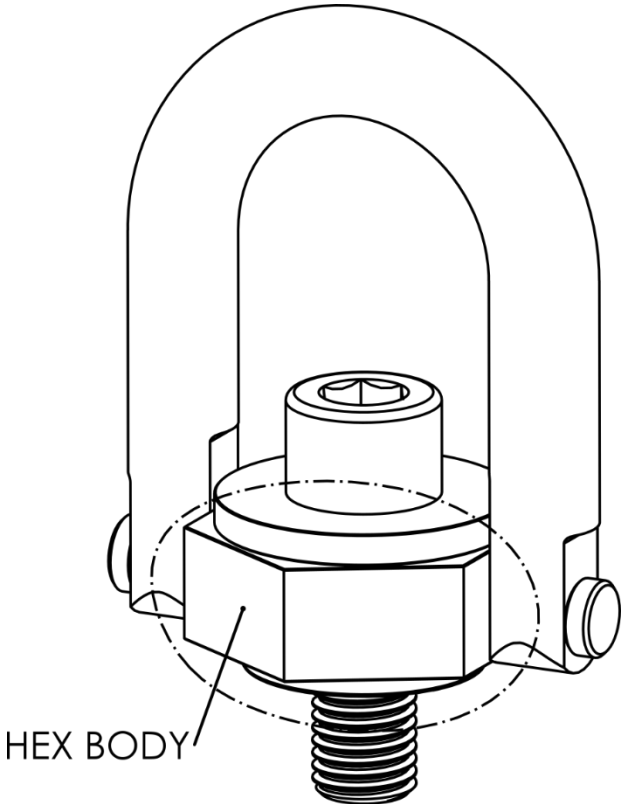
#### Recommended Additional Inspection for SHRs with Load Ratings of 10,000Lbs or Greater.

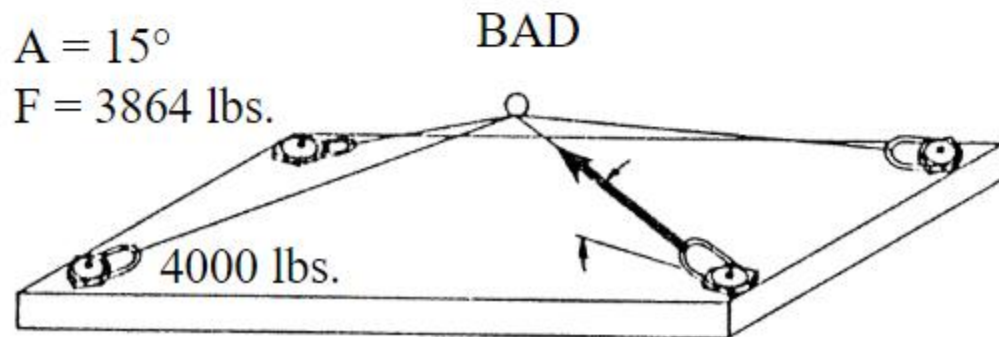
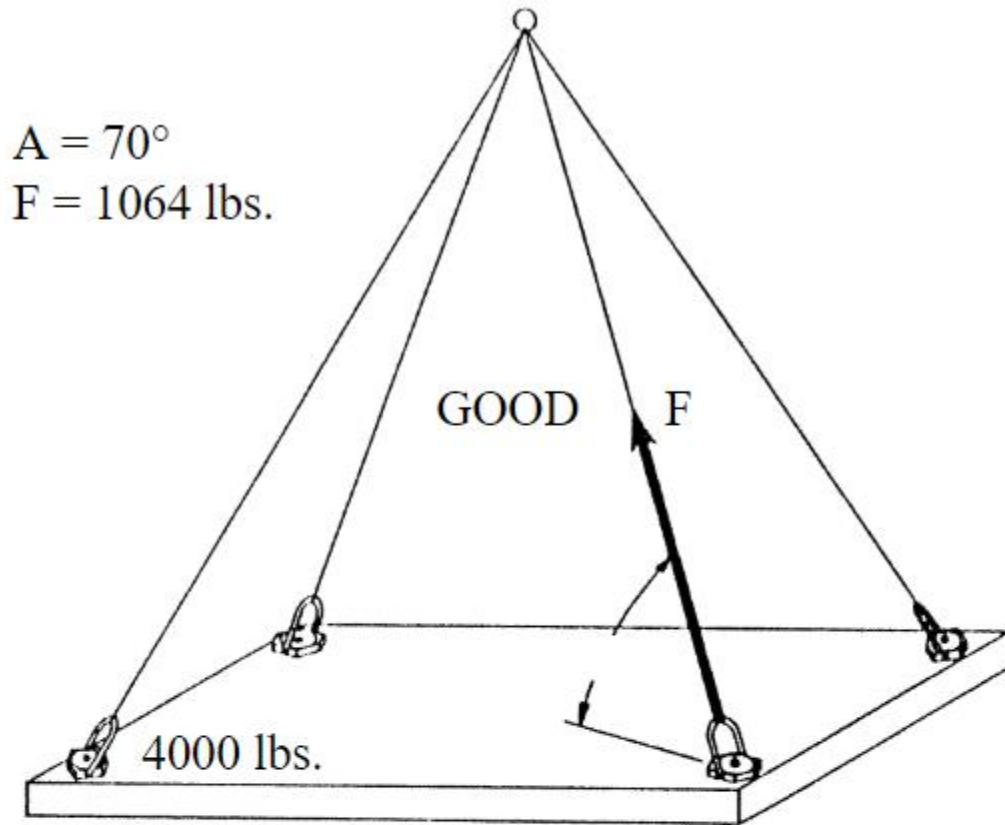
While not required it is the recommendation of CLM that all SHRs with load ratings of 10,000Lbs or greater (4,5 Metric Tons) be dis-assembled and Magnetic Particle inspected per ASTM E 1444, ASTM-A574, ASTM F788/F788M for material defects on an annual basis.

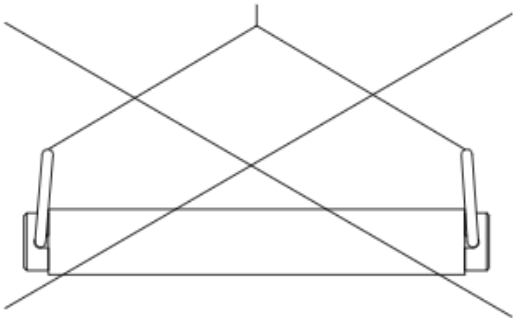
#### Inspection after “Shock-Load” Incident

A “Shock-Load” event is an event in which a significant load was applied to the SHR very quickly. This is a condition that can occur when “rolling” over a workpiece, when there is an issue with the lifting hardware, if the SHR becomes “frozen” or is unable to swivel and rotate freely, or many other possible causes.

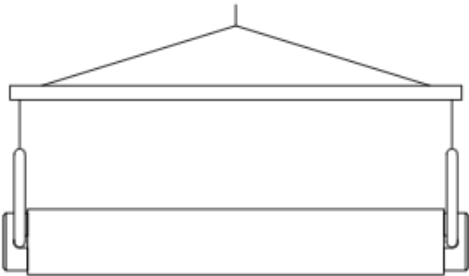
In the event that an SHR has been subjected to a “Shock-Load” the SHR must be inspected using the criteria above and must also be Magnetic Particle inspected. If any defects are found the entire assembly must be scrapped. Do not retain components.





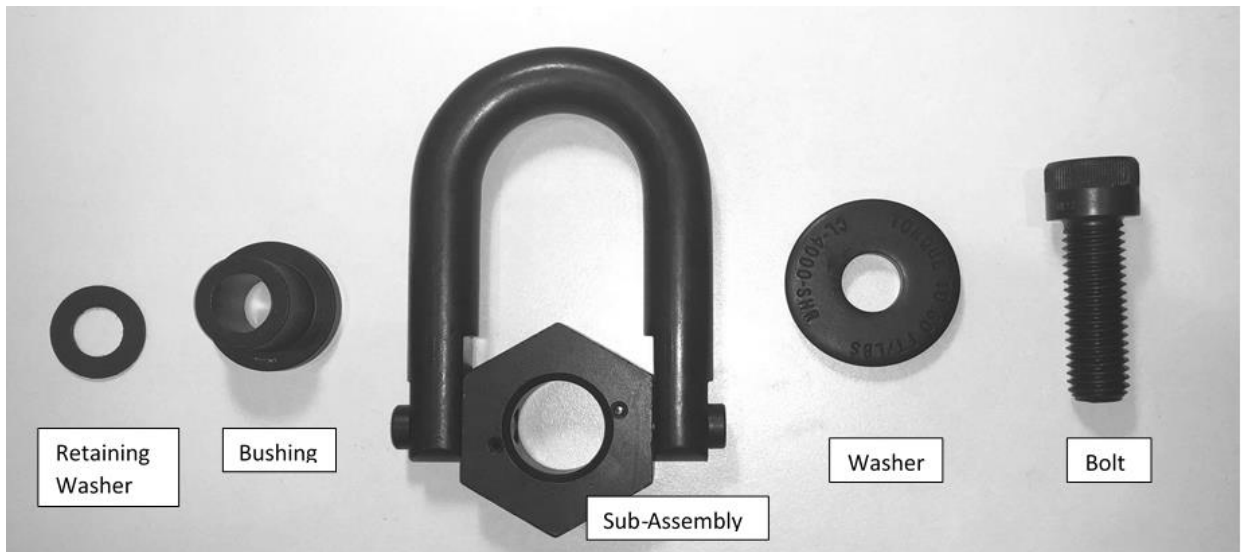


BAD

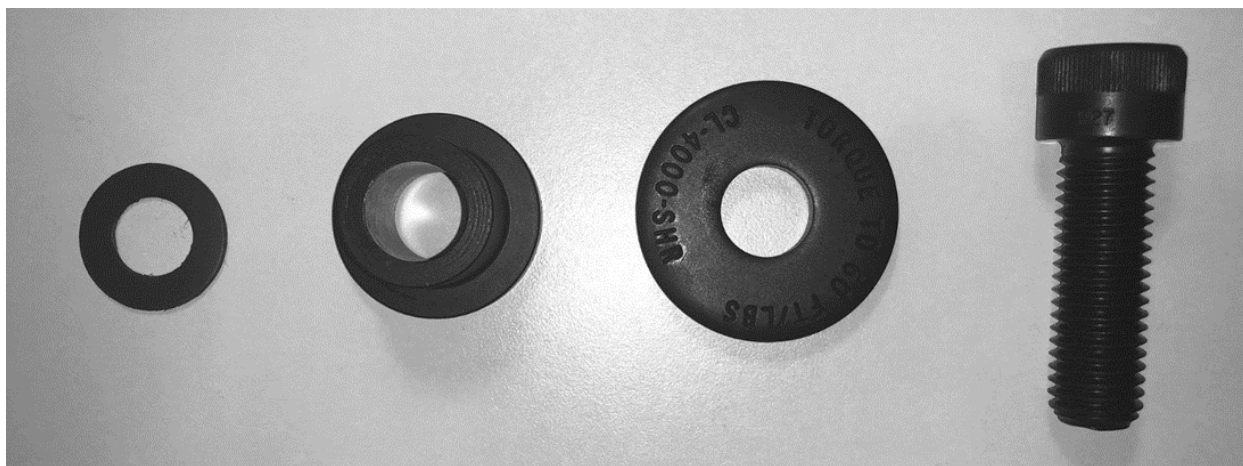


GOOD

Appendix IV



Appendix V



Appendix VI

