

QuadGuard Elite Crash Cushion Maintenance Supplement

**BEFORE PERFORMING ANY MAINTENANCE
ON THIS SYSTEM ENSURE YOU HAVE READ
AND UNDERSTAND THE FOLLOWING
INSTRUCTIONS**

	<p>WARNING!</p> <p>SYSTEM MAY MOVE AT ANY TIME. REFER DOCUMENTATION AT REAR OF SYSTEM. FOR MORE INFORMATION PHONE 1800 803 795</p>
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**CALL INGAL CIVIL PRODUCTS 1800 803 795 IF
ADDITIONAL MAINTENANCE ASSISTANCE IS
REQUIRED**

Maintenance Instructions

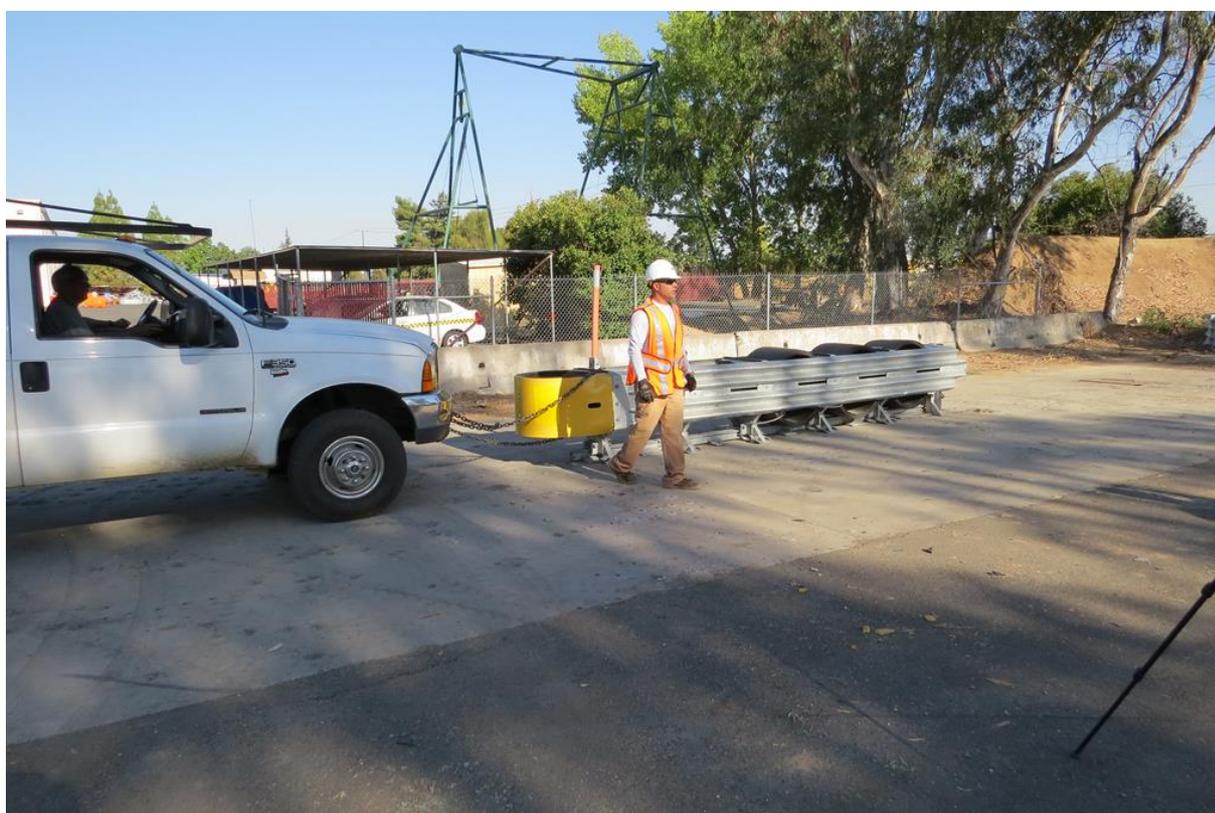


Warning: Self-restoring systems, such as the QuadGuard® Elite, have the ability to “store” spring-back energy that could potentially cause sudden movement of these systems and potential injury to unsuspecting workers. After impacts that exceed the NCHRP Report 350 criteria, these systems may suffer damage and bind up. This condition would be visually evident by Bays of the system staying collapsed after an impact (with Bay-spacing of 610mm or less for the QuadGuard® Elite). Extreme compression of QuadGuard® Elite cylinders after an impact, especially the thick-walled cylinder (QE2), is an indication that the system is storing large amounts of “spring-back” energy that could potentially cause sudden movement of the system and potential injury to an unsuspecting person.

Repair of QuadGuard® Elite in this condition must be done with caution.



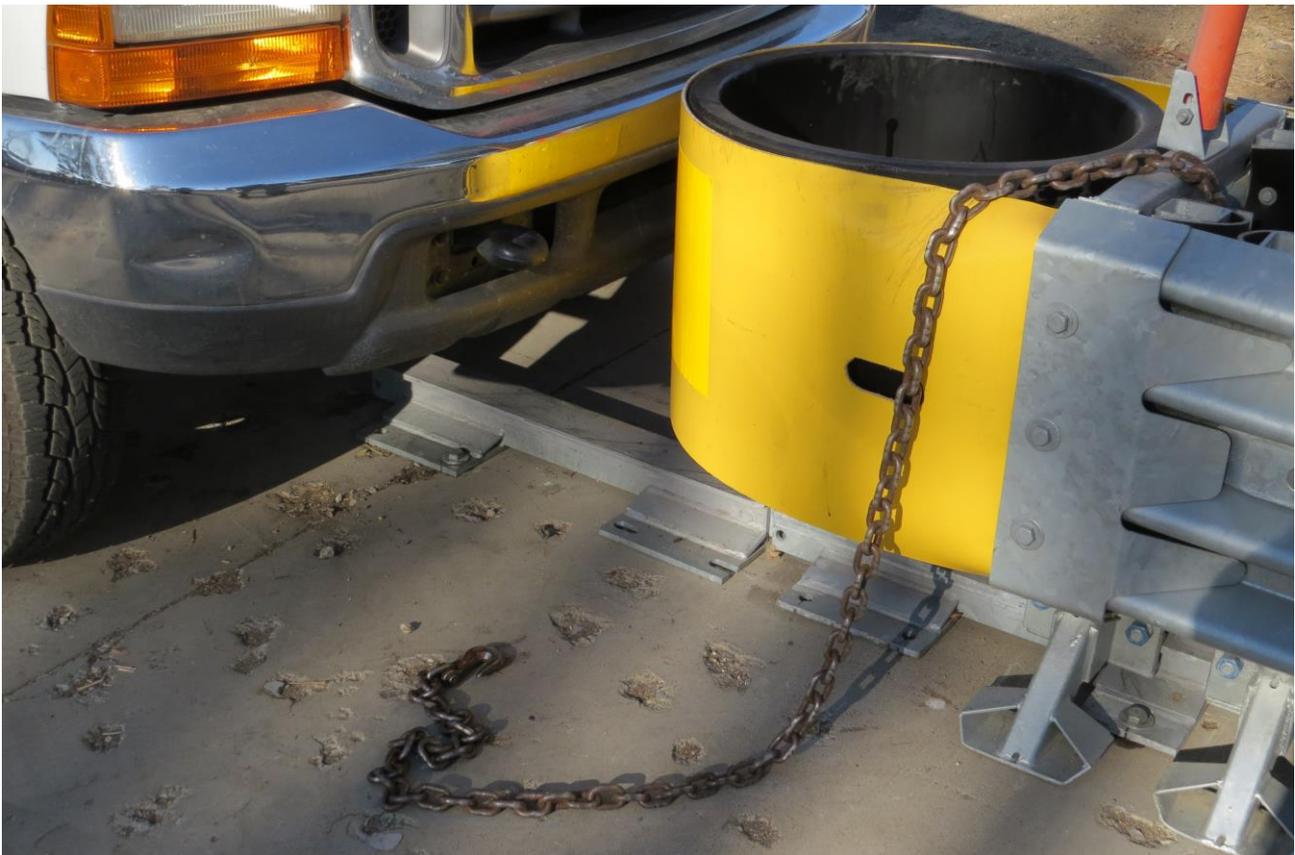
Warning: A compressed and locked up system may store large amounts of potential energy in the Cylinders. DO NOT stand in front of, on top of, or put any member of your body on or inside any portion of a collapsed system. Instead, use a chain and truck to pull from the front of the system, as explained in the next section.



Restoring Collapsed System

Before starting this procedure, please read and understand the foregoing “Warning” statement. The following instructions outline a set of steps for positioning a large vehicle up against a compressed system to prevent unexpected system spring-back while maintenance workers are attempting to repair the system.

- A) Position a truck of not less than 6000 kg, centered on the system just in front of the Nose Assembly. The truck should be presenting its strongest bumper to the system. The selected bumper’s height should be such that the center of the bumper rests on the middle of the system’s Nose Assembly (approximately, 610 mm in height).

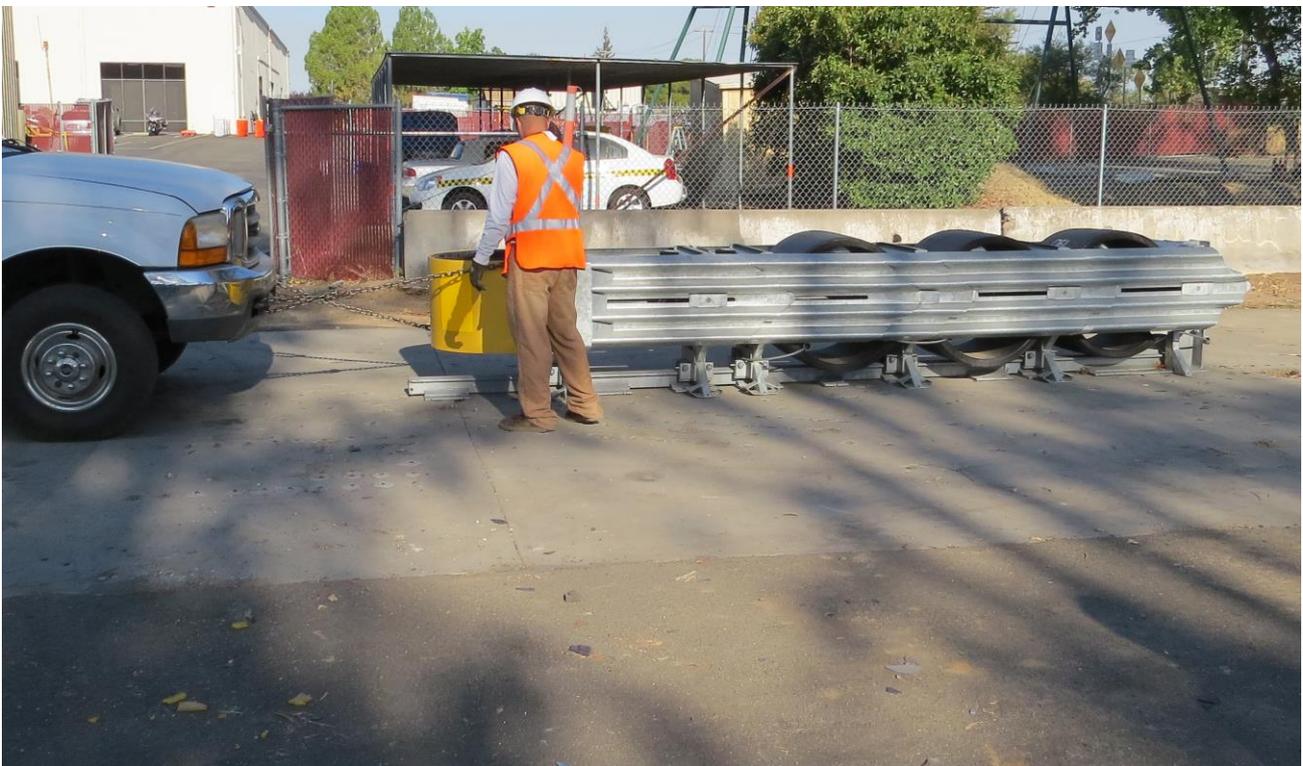


B) Drive the truck so that the bumper displaces the systems Nose Cylinder approximately 150 mm. In the absence of the Nose Assembly, place a protective material between the bumper and the leading Diaphragm leaving approximately 25 mm gap between the protective material and the vehicle's bumper. The driver should remain in the vehicle depressing the brake pedal after the vehicle has been placed in position.



 **Warning:** Once the leading bumper is over the system's Monorail, the vehicle may be subject to impact by the system due to an unexpected restoration. The driver should be wearing a seat belt and have the vehicle in the lowest possible gear when approaching the system. In the event that the system unexpectedly deploys before Step B is completed, the driver should apply the brakes immediately, bringing the vehicle to a controlled stop. The driver should then put the vehicle in neutral while still applying the brakes. Gradually release the brakes, allowing the system to push the vehicle back in a safe and controlled manner.

C) It should now be safe for a maintenance worker to inspect the system to determine where mechanical binding is present. Remove all debris from the system prior to checking for binding. The binding will probably be located at the monorail guides on the forward-most Diaphragm(s) or Fender Panels. Cautiously using a pry bar or jostling the system with a vehicle may aid in releasing the mechanism of binding. Once released, the driver should allow the system to extend in a safe and controlled manner. If no evidence of jamming or binding is present, the driver can extend the system using chains attached to the nose.



Warning: Use caution when releasing the mechanism of binding. Keep hands and other body parts as far away as practically possible from the system. Be careful of tools (pry bar, etc.) that may move unexpectedly by the system if binding is released.

D) Replace all damaged system components and reassemble per the QuadGuard Elite Manual Assembly instructions.



These maintenance instructions, along with the appropriate maintenance manual will be placed in a weatherproof document holder permanently fixed to the Tension Strut Backup.

