## Elevating and Amusement Devices
### Safety Division

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Subject: SUBJECT Hydraulic Elevator Muffler Inserts

Sent to: ALL ELEVATOR CONTRACTORS and Consultants

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1. **Background**

   Elevator contractors have reported two failures of hydraulic muffler inserts. The rubber insert material breaks up (see attached photos Annex B) and can make its way into the hydraulic control valve. This can result in the control valve sticking open and allowing the elevator to move down regardless of the state of the safety circuit.

   Further investigation with the muffler insert manufacturer Texacone, produced the attached memo (Annex A) from the muffler manufacturer Pinnco.

2. **Information to Contractors**

   - Elevator Contractors must immediately report to TSSA any failures of hydraulic muffler inserts. This will allow us to see how widespread the problem is.

   - Contractors should pay close attention to jobs that operate under conditions defined in the attachment as “severe” and take action as recommend by Pinnco, the muffler manufacturer.
Annex A

As part of Pinnco’s constant improvement to its products, we are upgrading the urethane compound on the hydraulic muffler insert. This material upgrade will improve resistance to severe storage and operational environments that the insert may be inadvertently exposed to.

In the period of time we have been selling this product, we have inspected a few inserts that have been unsuccessful during operation. The failure was due to hydrolysis (water absorption), which was resolved by chemical analysis. However, it is not known whether the water was absorbed during operation or the time it was stored.

The most common cause of hydrolysis among urethanes is from prolonged storage in humid environments. Another source of moisture can be from contained oil that the insert is exposed to during operation. In either case, hydrolysis degradation is significantly accelerated when it is coupled with high temperature (over 130 °F), which is typical on high use jobs.

This new urethane compound exhibits a dramatic increase in the resistance to hydrolysis. According to the process and specification data, no other properties such as sound deadening or rebound should be affected. Even though this new compound is resistant to hydrolysis, the potential for unforeseen storage conditions such as excessive humidity mandate that we initiate a shelf life rating of two years for this product.

In addition, the recommendation is to replace all inserts exposed to severe conditions before 10 years in operation. Severe conditions are defined as continuous oil temperature of 130 °F or higher, inventory storage conditions with high humidity, and older installations or high use jobs where the oil condition may have degraded. We are also recommending that a label be affixed to the manufactured insert housing stating the need for this replacement referencing the date of installation. As one of the necessary maintenance procedure, we would be pleased to supply the labels.

Please feel free to contact us with any comments or questions at 416-292-2144 or 1-800-265-0838. Or you may fax us at 416-292-2560 or 888-265-2560.

Pinnco Elevator Ltd.