



**VERTICAL EXPRESS**

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# Double Bottom Cylinder

Hydraulic elevators installed before 1971 (1977 in Canada), probably have 2 single-bottom cylinders buried beneath the ground and exposed to the possible risks of corrosion and electrolysis. As a result, the cylinders may leak hydraulic oil, leading to cylinder pressure failure and environmental contamination. The ASME A17.1, 2000 Code now requires replacement of all single bottom cylinders with double bottom cylinders, or the cylinders must be equipped with code compliant safeties.

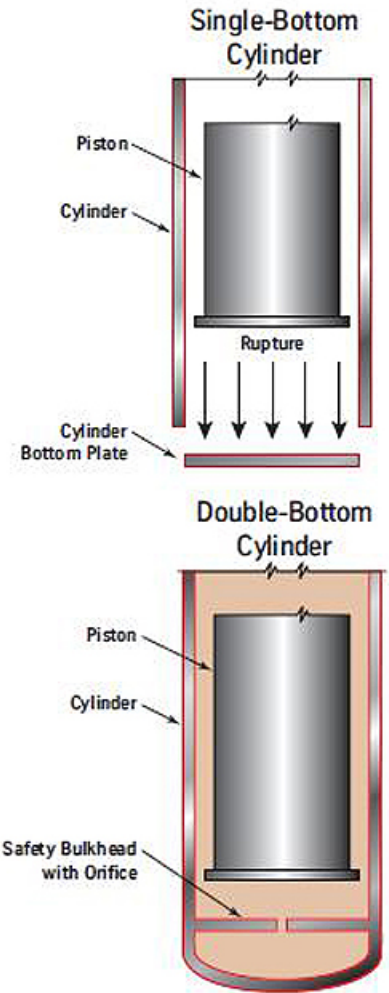
## Why Upgrade?

Many hydraulic elevators operate by pumping pressurized oil into an underground cylinder. As oil enters the cylinder, the plunger rises, forcing the elevator car upward. To lower the car at the appropriate rated speed, oil is gradually released from the cylinder back into a power unit. If there is a leak in the cylinder and the oil escapes, there is no way to control the speed of the elevator's descent. Elevators with single bottom cylinders are especially at risk.

Double bottom cylinders feature a bottom plate plus a safety bulkhead with a relief opening. Should the bottom plate rupture, the opening allows only a small amount of oil to escape at a time, slowing the elevator's descent.

## Features

- Lowers the risk of catastrophic cylinder failure
- Lowers the risk of environmental pollution
- Upgrades equipment to current code standards



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