

**Subject: Testing hydraulic elevator and LPPD Low Pressure Switches**

**Issue:**

What are the requirements for inspection and testing of hydraulic elevator and Lift for Persons with Physical Disabilities (LPPD) low pressure switches/sensors while conducting an in-service inspection?

**Background:**

Low pressure switches/sensors (LPS) became a regulatory requirement in the early 80's in Alberta. The rationale was that if the elevator becomes caught in a hoistway where the Hydraulic Jack head(s) are above the tank and the down solenoids are energized allow air to enter the system through the head of the jack.

Since the tank is below the jack head gravity will allow the oil to flow back to the tank. Now that air has replaced the oil in the jack, and air, unlike oil can be compressed, elevators can now freefall when it is freed from being caught.

- The low-pressure switches/sensors are important safety device that if they are not functioning, the elevator is at risk of freefalling, presenting a number of dangers;
  1. Crushing hazard to passengers while entering or exiting car
  2. Crushing hazard to elevator personnel while working under or on top of the elevator car
  3. Sudden stops or impacts on buffers due to freefall conditions on buffers
- LPS need to be tested for proper switch function as they relate to controller operation. Current codes and guides give examples of how the LPS are to operate and be tested such as:
  1. Lowering the car on to the buffer and create a low-pressure condition so the switch can trip.
  2. Shutting the machine room gate valve and opening the manual lowering. Since most LPS are on the valve side of the machine room shutoff valve we can create a low-pressure condition similar to lowering the car on the buffer.
  3. The LPS shall prevent the operation of the lowering valve or valves unless there is positive pressure on the cylinder. While all manufacturers will not allow the elevating device to move in downward direction, some manufacturers do not all allow the elevating device to move in either direction.
- LPS are also required on rope-hydraulic elevators where the jack heads are located above the hydraulic tank.

**Supporting documentation:**

- **Code in effect:**
- ASME A17.1-2013/CSA B44-13
- CSA B355-09



Alberta Elevating Devices  
& Amusement Rides  
Safety Association

- **Code Requirements:**
- ASME A17.1-2013/CSA B44-13 clause 3.26.8
- ASME A 17.2 item 2.37.2
- CSA B355-09 clause 6.6.8
- AEDARSA/AMA policy -

### **Requirements:**

Although there are different methods of checking LPS it is recommended that AEDARSA SCOs check the LPS as follows:

1. Closing the gate valve in the machine room once the car is at least one floor above the bottom terminal floor.
2. Opening the manual lowering valve to create a negative pressure in the LPS (see pressure gauge) and close manual lowering valve.
3. Place a car call so the elevating device will want to move in the down direction.
4. Open the gate valve and the car must not travel in the down direction.
5. If the car does move in the down direction inform the owner that the elevating device is going to be removed from service until repairs are made citing the deficiency in writing.
6. If the owner gives permission, you can inform the elevating device service provider of infraction.
7. The use of a meter, by an AEDARSA SCO, to verify the electrical state of the solenoid is not required. If the SCO is unsure of the electrical operation of the LPS inform the owner that the elevating device is going to be removed from service until repairs are made citing the deficiency in writing.

### **Implementation:**

This information bulletin is effective immediately.

*Original signed by:*

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