

Working Together to be the Best!

MEI - Total Elevator Solutions is always looking to provide our customers with solutions to help maintain the operational health and extend the life of your elevators. Through ongoing research with our industry partners, oil analysis and filtration has developed as a critical preventative procedure to incorporate in your hydraulic elevator maintenance planning.

According to Michael Johnson, author of *The Necessity of Oil Monitoring and Filtration*, **“Hydraulic oil is the lifeblood of the hydraulic system; it is estimated that 80% of failures in an oil system are related to oil quality and cleanliness.”**

Oil related failures are not simply inevitable... they are symptoms of the underlying problem. These oil related failures can include:

- ▶ **Overheating Oil**
- ▶ **Short Seal Life**
- ▶ **Valve failure***
- ▶ **Unintended Car Movement**
- ▶ **Vibrations and Noise**

**According to Maxton Valve, 20% of the valves returned for repair under warranty are contaminated; 90% of the valves returned for repair after the warranty period are contaminated.*

Today, there are no code specific maintenance requirements for hydraulic oil, so it is rarely addressed. This is where MEI has prepared to step in to help educate and assist our customers. The first step in starting this process is to have a MEI take a baseline sample of the oil. This will help determine the rate of oxidation and determine the oil's ability to perform against recommended specifications.

The baseline sample will analyze four markers:

- ▶ **Total Acid Number (TAN)** - measurement of oil degradation
- ▶ **Viscosity Index (VI)** - measurement of the oil's resistance to flow
- ▶ **Contamination (Particle Count)**
- ▶ **Water Content**

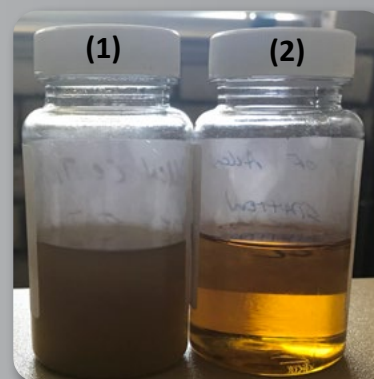
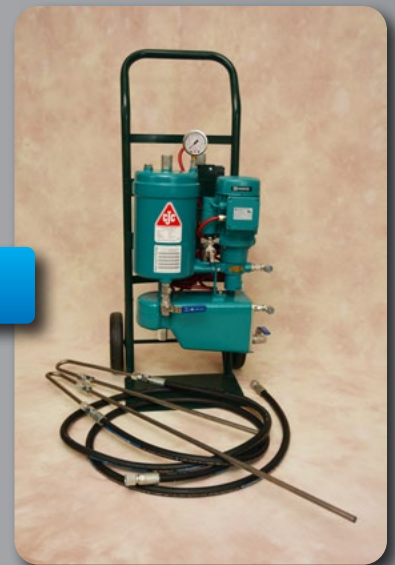
Additional descriptions and symptoms of degraded oil can be provided by your Account Manager together with your completed analysis.

To help you maintain the operational health and extend the life of your elevator, MEI will:

- ▶ Perform a baseline oil analysis, with a full report and explanation of the results.
- ▶ Provide a proposal for filtration scrubbing (as necessary per the analysis) to properly filter the elevator oil. This process can be completed **without shutting down the elevator!**

Ongoing, MEI recommends routine oil analysis, as recommended by our Field Mechanics (determined by equipment age, usage and condition) and filtration when dictated by the results reported. By doing so, industry experts suggest you can expect to increase the service life of your hydraulic components by two or four times.

Oil Filtration Unit



(1) Oil Before Filtration

(2) Oil After Filtration

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The cost of a break down or failure will significantly outweigh the cost of routine analysis and filtration, especially if the building only has one elevator supporting the passenger traffic. Below is an example of the average cost for replacing equipment that could have been avoided if oil analysis and filtration had been completed:

| Service Provided | Estimated Costs | Estimated Elevator Downtime | Inspection required in Wisconsin? |
|---------------------|------------------------------|-----------------------------|-----------------------------------|
| Oil change | \$1,600 - \$2,200 per barrel | ½ to 1 day | No |
| Pump replacement | \$5,000 - \$9,000 | 2 days | No |
| Valve Replacement | \$10,000 - \$15,000 | 2 days | Yes |
| Packing Replacement | \$2,500 - \$10,000 | ½ day to 2 days | No |

To discuss oil analysis and filtration in more detail, please give us a call!

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