

# techConnect

Written By Engineers For Engineers

## The Cost of Leakage: Oil Leak Calculator

### A dollars and sense approach to preventing hydraulic oil leaks

What's so bad about a few drops of oil? Try this: Three drops of oil a minute leaking from one connector in your hydraulic system will cost you \$168 a year just in replacement oil. And how many connectors are in your plant? From one engineer to another, I'd like to address the many costs and risks associated with hydraulic system oil leaks, possible causes and how you can prevent system leaks.

In my three-drops-a-minute example, you'd leak more than one-third of a gallon a day and 9.3 gallons in a year. At about \$18 per gallon for oil, it adds up to \$168 per leak point. And remember, this is for *one leak point*. Multiple leak points can drive the loss and cost of hydraulic oil up significantly over the course of one year.

The additional costs of an oil leak – those not always considered – are more than the kitty litter you use to

sop it up. There are energy losses, warranty issues, safety hazards, environmental issues, hazardous waste disposal, downtime for repairs and rising insurance premiums. All can result in lost revenue and increased MRO costs.

Plus, escalating EPA and OSHA scrutiny makes avoiding the consequences of hydraulic system leaks – fines and possible litigation – ever more important.

### OIL LEAK CALCULATOR

#### LEAK POINT COLLECTION DATA

Drops Per Minute	<input type="text"/>
Operating Hours Per Day	<input type="text"/>
Working Days Per Year	<input type="text"/>
Oil Cost Per Gallon	<input type="text"/>
Number of Leak Points	<input type="text"/>
Number of Vehicles/Machines (if applicable)	<input type="text"/>

#### VOLUME AND FINANCIAL IMPACT OF LOST OIL

Volume of Lost Oil From All Leak Points (gallons)	<input type="text"/>
Cost of Lost Oil From All Leak Points	<input type="text"/>

**ESTIMATED ANNUAL COSTS\***

You can calculate the approximate cost of lost fluid plant-wide using this oil leak calculator.

## Taking steps to prevent leaks makes sense

It all starts with understanding the common causes of leaks. Number one – we find it in 60 percent of all leak instances – is improper installation. Most often, the wrong fitting connections were chosen for the job. Best uses and practices for choosing fitting connections will be the subject of future discussions so I don't want to dwell on them here. But, here's a quick overview of the most common connector types and the most likely cause for them to leak:

- **37° flare – the most common fitting in the world, usually subjected to improper torque during assembly.**
- **O-ring face seal – O-ring pinched, not seated in groove or missing.**
- **24° flareless – also known as flareless bite type fittings, improper presetting of the ferrule on the tube.**

System design – incorrect routing, bending or clamping – is the second most common cause of leaks, accounting for about 20 percent of those we see.

Third is poor quality components, which account for 15 percent of leak causes. I know it sounds self-serving coming from a Parker engineer, but I urge you to avoid those low quality fittings that are flooding the market. If you can't ID the manufacturer, don't use them.

The final five percent of leaks are the result of system abuse – usually poor maintenance practices.

## Cleaning up the mess

If you have a leak, keep in mind the legal and environmental reporting requirements. Follow these steps to correct and report the problem:

1. Stop the leak/release
2. Contain the leak/release
3. Clean up the leak/release (necessary training/certification of cleanup personnel will vary depending on the type/amount of oil and the media impacted; e.g. soil, groundwater, wildlife habitat, etc.)
4. Dispose of or remediate impacted media
5. Dispose of contaminated devices
6. Replace contaminated devices
7. Report leak/release (if required) to applicable government agencies (e.g. EPA, Coast Guard); follow up with regulators
8. Implement a corrective action to prevent a future, similar leak/release
9. Modify leak/release control plans, if required

The keys to avoiding a hydraulic system leak are the same as the causes: ensuring proper fitting selection and installation, using high-quality components from reputable manufacturers and maintaining a regular maintenance program with MRO personnel trained in hydraulic connections and safety practices.

Parker offers training courses. Should a leak occur, identify the release point and contain it as soon as possible.

If you have questions or comments, please post them and I'll respond if warranted. If you want to talk to me directly, I can be reached at Parker Tube Fittings Division, **614.279.7070**.

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