

Earthsafe Systems, Inc.

Design Guide for Auto-Lube Systems for Power Generator Engines

As the energy grid changes to distributed sources and wind / power assets, one thing is certain – diesel and gas generator engines are running longer durations.

Lube Oil consumption and handling becomes critically important with longer run times. It’s a change in thinking for designers experienced in standby or backup generator applications.

The chart below is a gross estimate of lube oil consumption for engines in continuous operation. The chart indicates the volumes of fresh oil and waste oil that must be handled to keep the engines running properly while minimizing maintenance labor cost and machine downtime. Note that the calculations are approximate and may vary widely for different engines and applications – so please consult with your power generator specialist for more precision.

Estimated Lube Oil Consumption for Diesel / Gas Engines in Continuous Operation						
Engine KW	Engine Oil Capacity	Engine Oil Consumption	Oil Change Interval	3-Month Oil Consumption	Fresh Oil Tank Recommend	Waste Oil Tank Recommend
	GAL	GAL / DAY	HR	GAL	GAL	GAL
500	20	2	500	180	250	250
1000	40	4	500	360	500	500
1500	60	6	500	540	750	750
2000	80	8	500	720	1000	1000

Auto-Lube Strategies for Power Generator Engines can range from simple manual systems to fully automated. The following Systems Progressions will give you some ideas about where you need to be.

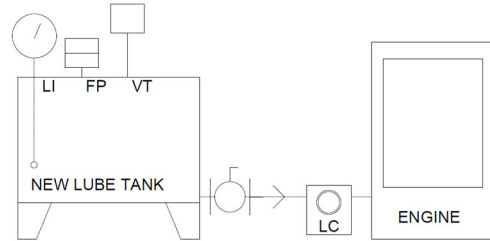
Systems 01-07 for Clean Oil Only

Systems 08-12 for Clean + Waste Oil

System 01: Manual Lube
Tank on stand to gravity feed to engine.

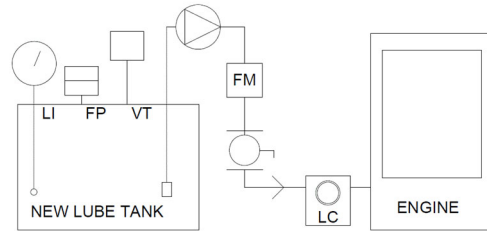
System 02: Auto Lube with Level Control

The level controller on the oil pan opens to allow automatic refill by gravity feed.

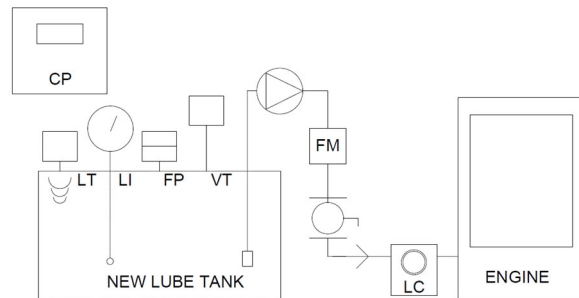


System 03: Auto Lube with Level Control, Oil Pump and Meter

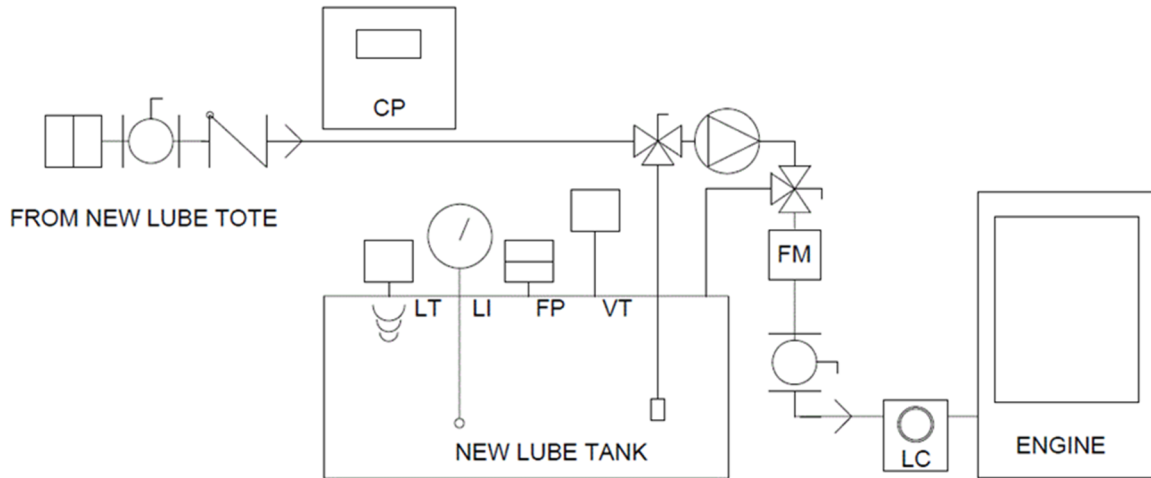
The level controller on the oil pan opens to allow automatic refill by pumped oil flow. Meter in pump discharge keeps track of oil use.



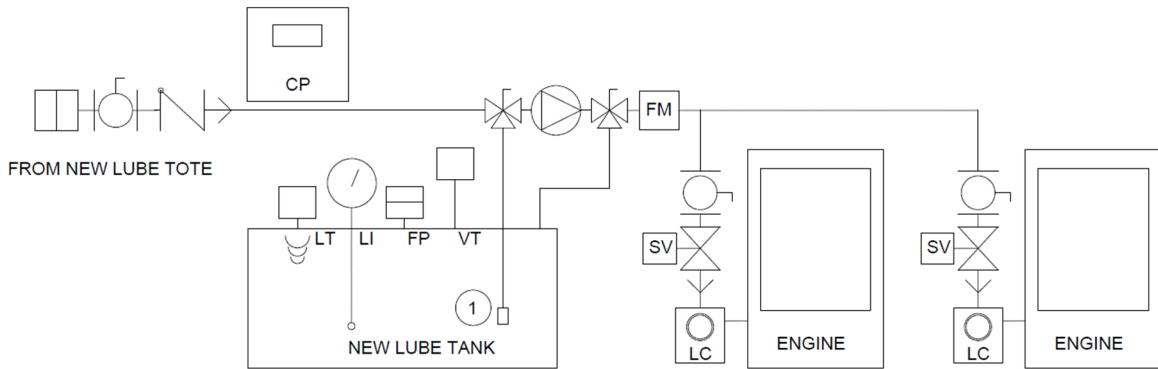
System 04: Adds a Control Panel and Level Transmitter for Remote System Monitoring



**System 05: Adds 3-Way Valves to the Pump
To Allow Suction of Oil from a Tote to Refill
The Tank**



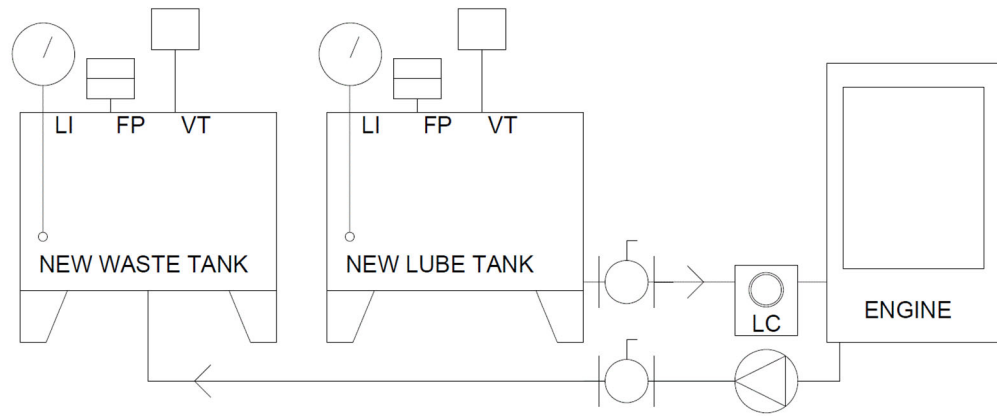
**System 06: Adds Additional Generators
For Multi-Gen Systems**



Systems 07-12 Include Clean Oil + Waste Oil

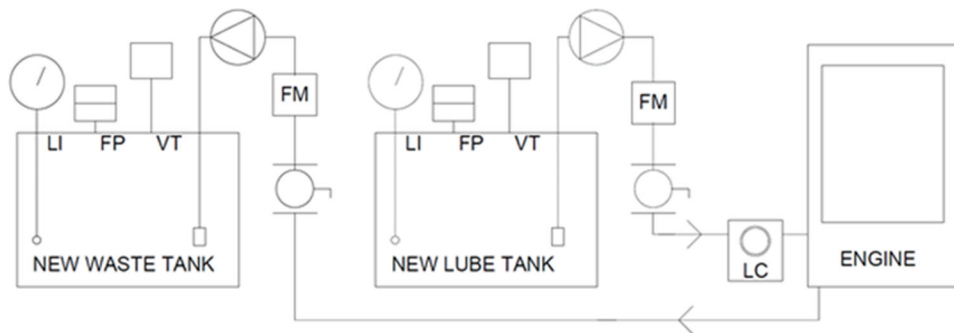
System 07: Auto Lube with Level Control + Waste

The level controller on the oil pan opens to allow automatic refill by gravity feed.
The waste pump is activated manually for fast oil change.

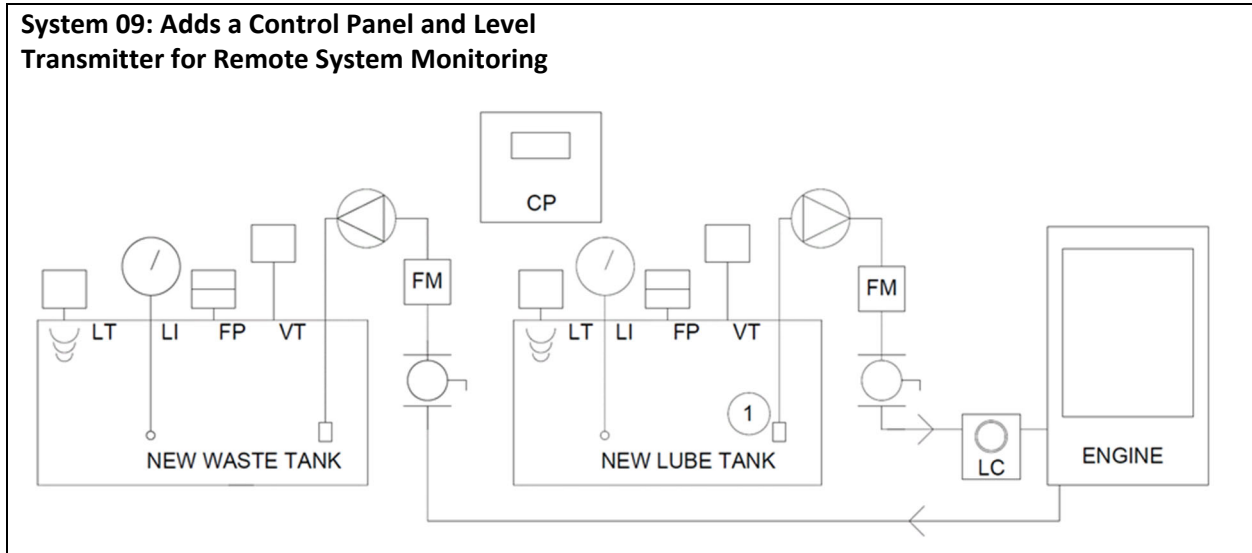


System 08: Auto Lube with Level Control, Oil Pump, Waste Pump and Meter

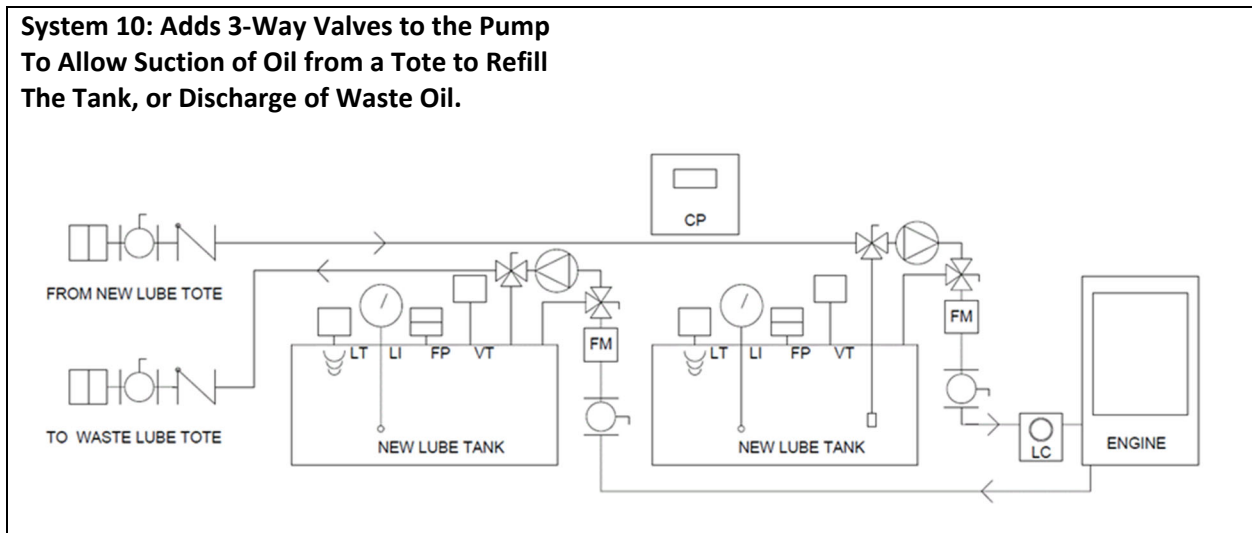
The level controller on the oil pan opens to allow automatic refill by pumped oil flow. Meter in pump discharge keeps track of oil use.



System 09: Adds a Control Panel and Level Transmitter for Remote System Monitoring



System 10: Adds 3-Way Valves to the Pump To Allow Suction of Oil from a Tote to Refill The Tank, or Discharge of Waste Oil.



**System 11: Adds Additional Generators
for Multi-Gen System**

