



# Logan Front of Engine PTO Clutches for Cummins QSB 6.7L Engines – Fire Fighting Boats

**Moose Boats, a boat designer and manufacturer in the San Francisco Bay Area, delivered one of its popular M2-38 Fire Rescue Catamarans to the City of Rochester, New York Fire Department (RFD). This is the first M2-38 Fire Rescue Catamaran to be delivered to Lake Ontario, in the Great Lakes region.**

Equipped with a Logan 600 Series PTO Clutch, the vessel joins several other Moose Boats M2 catamaran projects to date that use the Logan 600 Series PTO Clutch to power the firefighting pumps, including Sandwich Fire and Rescue, West Pierce Fire and Rescue, and Richmond Fire Department on San Francisco Bay.

## Logan PTO Clutch provides more pumping power

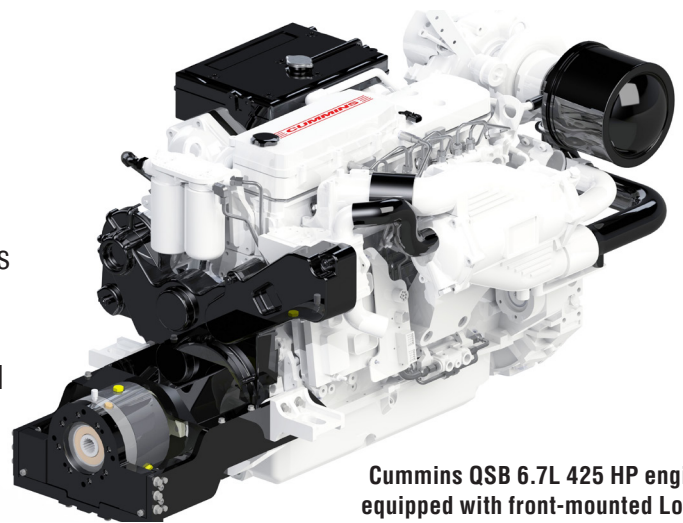
The new vessel, named **Marine 1 – Leonard E. Redon** in honor of the late deputy mayor of Rochester, is a significant improvement over RFD's previous vessel, a 17' Montauk Whaler with outboard motors with very limited capacity to perform rescues, and no capability to fight fires.

Twin Cummins 425 HP turbo diesel propulsion engines, Twin Disc™ transmissions and Hamilton water-jets power the M2-38 Marine 1. The vessel is equipped with a Hale fire pump system flowing in excess of 1,500 gallons per minute of fire suppression water to cabin roof and cockpit mounted monitors while simultaneously maintaining full maneuverability from both propulsion engines and jets. An integrated 5" diameter discharge will allow Rochester Fire to flow water to land-based fire apparatus where hydrant systems are not present.

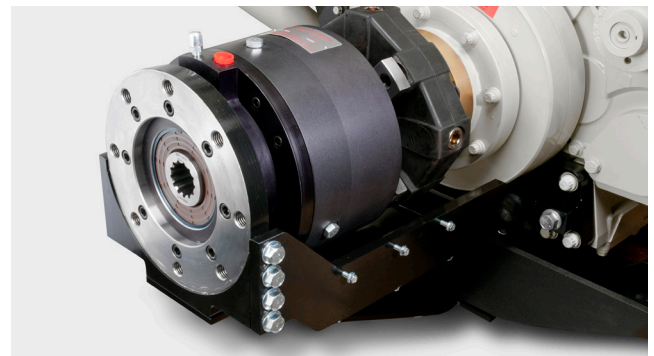
A Logan 600 Series Power Take-off (PTO) Clutch, is attached to the front of one of the Cummins QSB 6.7L 425 hp engines via a Logan Front Mount PTO Kit. Logan designed the bracket for the Cummins QSB 6.7, by collaborating with the Cummins engineers in Charleston, South Carolina. Logan also produced a solid model, and conducted a finite element analysis (FEA), using data supplied by Cummins. The clutch is pneumatically actuated at 120 psi. via a 24VDC switch with Logan Softstart for smooth engagement.



Front view of the Marine 1 – Leonard E. Redon



Cummins QSB 6.7L 425 HP engine equipped with front-mounted Logan 600 Series Power Take-off Clutch



The Logan Front Mount Kit ensures the clutch takes up minimal space while still holding up to the requirements of the application



**Logan Clutch Corporation**  
manufacturers of clutches and brake products



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Marine 1 – Leonard E. Redon showing off its fire-fighting pump capabilities

## Rochester Fire pleased with added capacity

When asked about the clutch’s performance, Captain Scott Daly, Captain of Engine 19 for RFD says, “There have been zero issues. I used thermal imaging to check on the operating temperature of the clutch when we’re pumping. I had a lot of questions about how many RPM we could run at.” The results of the thermal imaging test indicated that the Logan Clutch had zero issue standing up to the necessary capabilities. Daly continues, “The pump is rated for 1000 gpm but we’re probably putting out over 1700 gpm. So my question was could the clutch handle it. And we haven’t had an issue.” The Logan 600 series PTO clutch is capable of operating speeds up to 3000 RPM. Its low-profile, compact design make it suitable for workboats, fishing boats and pleasure craft.

## Logan PTO’s as an added power source

For other applications, during maneuvering the Logan PTO can be used as a separate power source for bow and stern thrusters. It can also directly connect to a pump drive – which could power winches, reels, hoists, and deck pressure washers – and can be coupled to an alternator to supply electric power to other power consumers on the vessel.

## Technical Specifications:

### Logan SAE PTO 600

- Air or fluid actuated.
- Maximum torque up to 912 ft-lb/1,237 Nm, and 600 ft-lb/ 813 Nm of continuous duty torque.
- Integrated Centaflex A torsional isolation coupling.
- Engagement up to 1,800 rev/min with optional soft-start.
- Installs in minutes with simple hand tools.
- Engineered mounting bracket for precise alignment.

### Cummins QSB 6.7

- Full-rated power capability for every engine up to 480hp.
- AE and metric mounting flanges available.

## Front of Engine PTO Clutch Advantages:

- Simple, efficient, high-torque design
- Reduces fuel consumption and CO2 emissions: engaging drives and pumps (only when required)
- Easier-engine starts: lowers horsepower draw and cranking power required during machine start-up by disconnecting the hydraulic system from the engine
- Reduces ambient noise: through intermittent use of pumps and equipment
- Cooler running hydraulic systems: heat is generated whenever oil dumps from high to low pressure without producing work. Disconnecting the PTO Clutch reduces the destructive effects of heat – lowering maintenance costs and hydraulic oil requirements
- Extends the life of drive systems and component



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