

**GOT  
WHEELS?**

*QC4V*  
by

**MERCURY**  
**RACING**  
Fast. Present. Future.

[mercuryracing.com](http://mercuryracing.com)

For over 70 years, Mercury Racing has been the world leader in high performance marine propulsion systems.

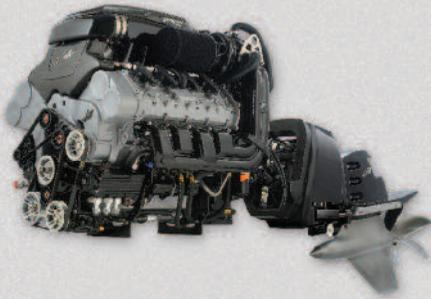
The Fond du Lac, Wisconsin company produces engines, transmissions, drives & propellers designed to endure the harsh marine environment.



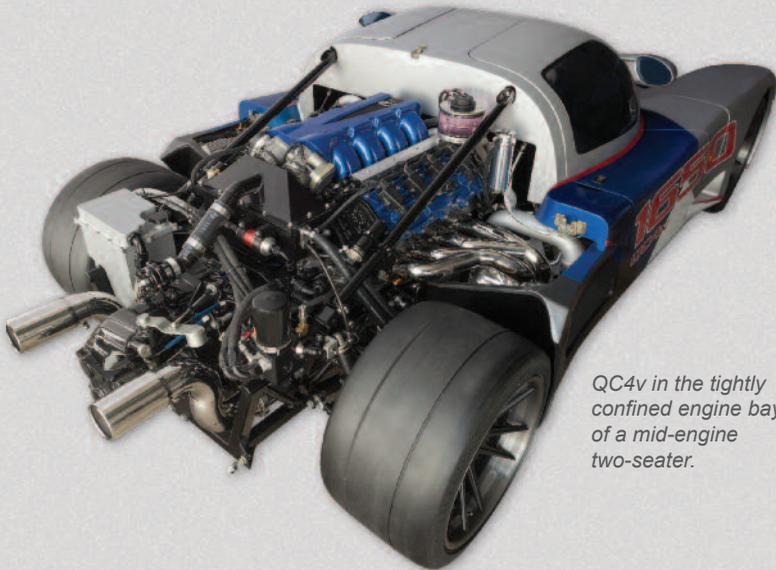
*QC4v 1650 powered supercar.*

## Faster. Stronger.

QC4v is a modern large displacement engine created as a response to increasing customer expectations. Designed, developed, and manufactured completely in house, the 9.0 liter power plant provides immense power with luxury car like drivability. The engine is capable of producing in excess of 1350 Hp on pump fuel and 1650+ Hp on 112 AKI race fuel.



*1650 RACE sterndrive*



*QC4v in the tightly confined engine bay of a mid-engine two-seater.*

# Burn Rubber!

QC4v is the quintessential crate engine for non-marine applications. Nothing matches it in terms of performance, run quality, durability & reliability.

It shares all of the attributes of its marine cousin.

A multitude of configurations are possible, from basic long blocks to turn key, ready-to-run engines.



## Exclusive Features

- Designed/Developed/Produced by Mercury Racing
- 9.0L – 90 degree DOHC V-8
- Quad cam, four valve (QC4v) design optimizes power and torque throughout the engine RPM range
- Fuel efficiency rewards of 20 to 30% vs. similarly rated engines
- Electronic wastegate management delivers a broad “mesa shaped” torque curve under all operating conditions
- Pulse separated exhaust tuning (from Mercury Racing’s expertise in high performance 2-stroke engines) improves low RPM turbocharger response
- Designed with installation flexibility in mind

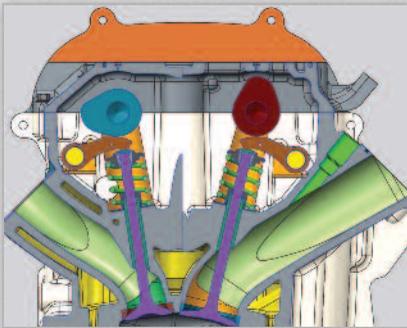
## Engineering Excellence

Mercury Racing is unique in the high performance powertrain business, in that we design and develop integrated systems.

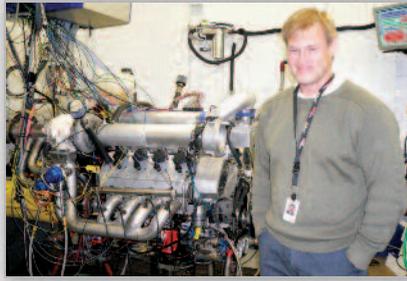
We even go as far as developing our own electrical and engine management systems. Mercury's unique powertrain control module, featuring internally written software, provides the opportunity for customization and application specific needs.



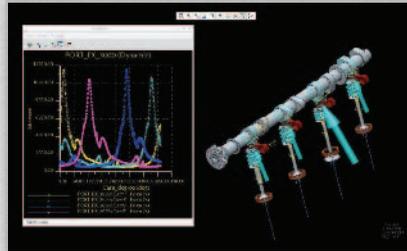
FEA results of QC4v connecting rod small end stresses.



A cut-a-way view of the robust QC4v valve train.

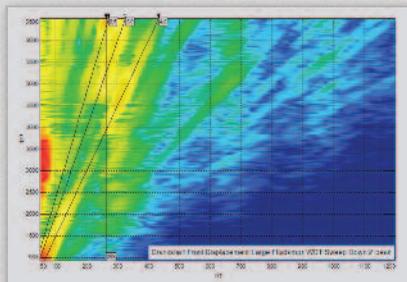


QC4v concept prototype.



Kinematic analysis of QC4v's valve train.

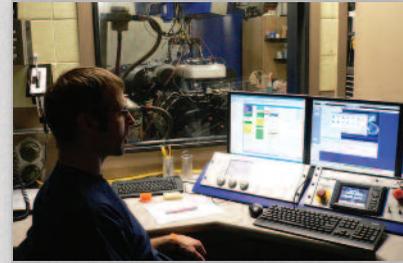
The QC4v platform extends the durability, performance & refinement of Mercury's supercharged DOHC outboards to high performance automobiles. The design resolved the limits encountered with traditional pushrod engines.



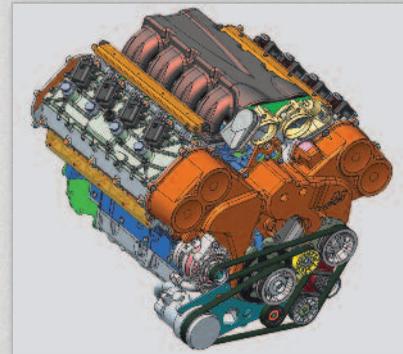
Crankshaft torsional vibration measurements.

## Analysis

Our vertically integrated product development process is what enables us to develop high specific output powertrains that are efficient and reliable.

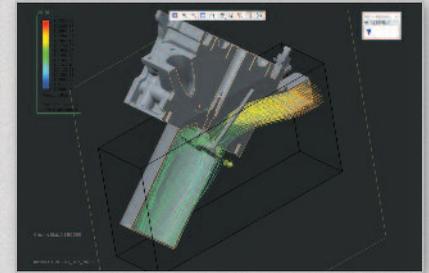


Mercury Racing utilizes state-of-the-art testing facilities for development, endurance, and regulatory compliance. Mercury Racing is an ISO 9000 & RCD certified laboratory.



CAD model of automotive QC4v crate engine.

CAD models create the product's mathematical geometry utilized for fit & function, analysis, and part production. To ensure maximum customer satisfaction, this geometry is continually optimized.



CFD analysis of QC4v intake flow.

One dimensional cycle simulation modeling is used to optimize initial combustion, valve events, ports, and air delivery systems. Engineers also conduct 3D Computational Fluid Dynamics (CFD) analysis on air flow, cooling, fuel, and lubrication systems. All of the data generated, plus knowledge gained from other engine projects, can then be used as boundary conditions for our Finite Element Analysis (FEA) studies. Intense FEA studies are conducted on head, block, and rotating components. Kinematic and dynamic analyses were relied upon heavily during the development of the valve train system.

## Testing

Prototype testing is where the rubber meets the road. We conduct fired engine, motored engine, and dynamic rig testing. We conduct these tests to calibrate engine management systems, evaluate in-cylinder combustion, and measure timing drive dynamics and torsional excitation, just to name a few. Our people, capabilities, and facilities are some of the best in the industry have been recognized through ISO 9000 and EU RCD certifications. We think you will agree.

# ROAD TRIP

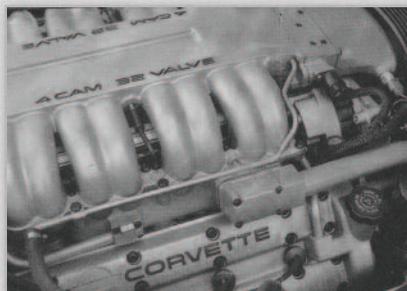


*Kiekhaefer Mercury dominated NASCAR from 1955-57.*

This isn't our first road trip. The late Carl Kiekhaefer, founder of Mercury Marine, revolutionized NASCAR from 1955-57. Mr. Kiekhaefer dominated the sport by winning 80% of the races he entered and capturing three national championships.

The innovator changed the sport forever with many firsts. His crew was the first to wear matching uniforms and practice pit stops. His Chrysler 300 race cars were fully decorated with the legendary Kiekhaefer Mercury Outboards sponsor logos.

In 1990, General Motors approached Mercury Marine to produce the all aluminum 5.7 litre LT-5 engine for the Chevrolet ZR-1 Corvette.

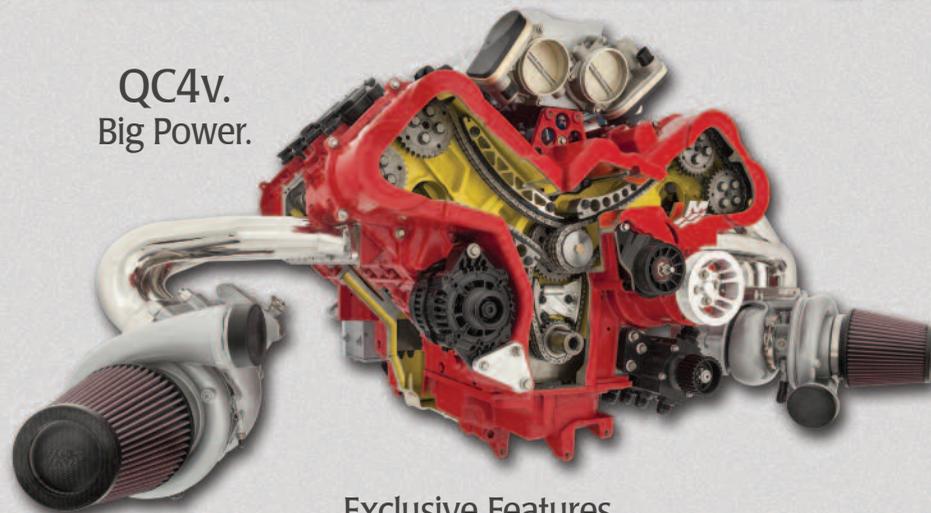


*GM turned to Mercury Marine for its technology and expertise in manufacturing aluminum engines.*

The ZR-1 was a world-class sports car in its day. The quad cam, 32-valve V8 produced 405 horsepower at 6,800 rpm. In 1990, the LT-5 powered ZR-1 broke a 50 year old FIA endurance record by averaging 175.9 mph over 24 hours.

# TAKIN' IT TO THE STREETS!

QC4v.  
Big Power.



## Exclusive Features



*Custom Air Inlet Plenum*



*Four Valves per Cylinder*



*Robust Finger Follower Valve Train*



*Heavy Duty Timing Drive*



*Dual Overhead Cams*



*Mercury Racing Designed Dry-Sump Oil Pump*



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