XTO OFFSHORE™

INTEGRATED **POWER SYSTEM**

XTO OFFSHORE and XTO OS™ PROPELLERS

YAMAHA MARINE GROUP **HOT SHEET**

EFFECTIVE **MAY 16, 2018**

XTO Offshore: Next-Generation, Purpose-Built Design Yields Work of Engineering, Art and Advanced Reliability

Introducing features never offered in any outboard motor, Yamaha's XTO Offshore takes the brand's position of premium quality and reliability to a *new* height above the competition. Truly the next generation of outboard, it is called the V8 XTO Offshore, and its benefits are the *extreme.*

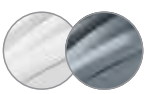
EXTREME

POWER AND THRUST

TOUGHNESS AND RELIABILITY

SYSTEM INTEGRATION

CONTROL, CONVENIENCE AND CARE

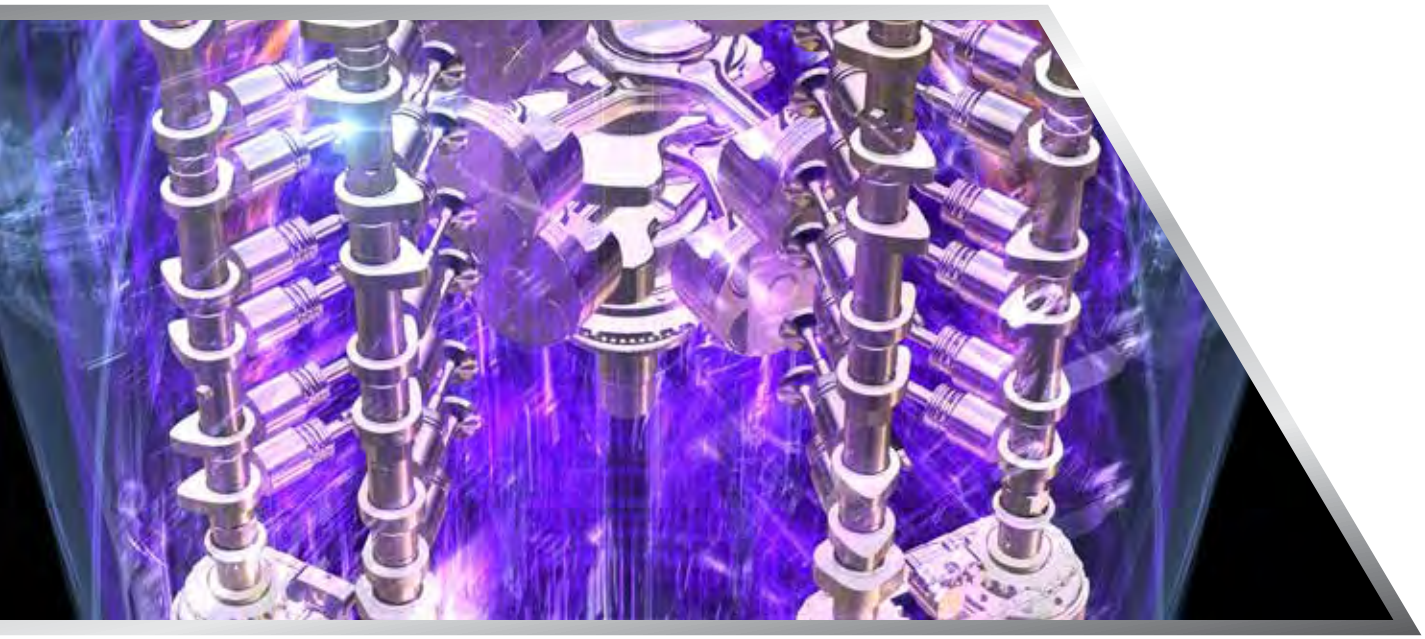


Available in new Yamaha white and traditional gray

Reliability Starts Here.®

YAMAHA

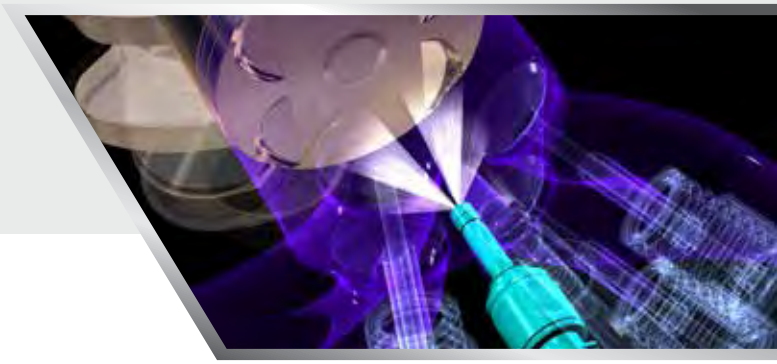
EXTREME POWER AND THRUST

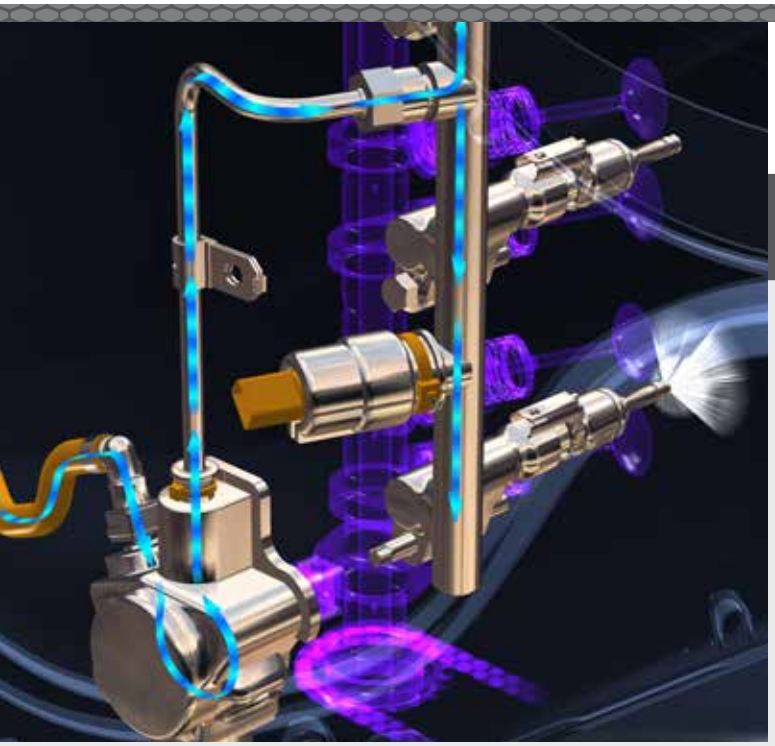


How do you design an outboard to push the heaviest offshore boats and yachts? You start by knowing you will need to drive extreme, large propellers. Then, you need a massive, rugged gear case, then an extreme powerhead. The result is the Yamaha V8 XTO Offshore. With 5.6-liters and the first ever outboard application of direct injection in a four-stroke, the V8 XTO Offshore delivers lots of thrust, and with 425 horsepower it provides extreme performance for the biggest boats.

DIRECT INJECTION

- V8 XTO Offshore is the first four-stroke powerhead in the outboard industry to use Direct Injection
- Injectors spray fuel at high pressure directly into the combustion chamber, rather than the intake track just before the intake valves
- Provides greatly improved atomization and increased effectiveness of the fuel burn for maximum power and fuel efficiency



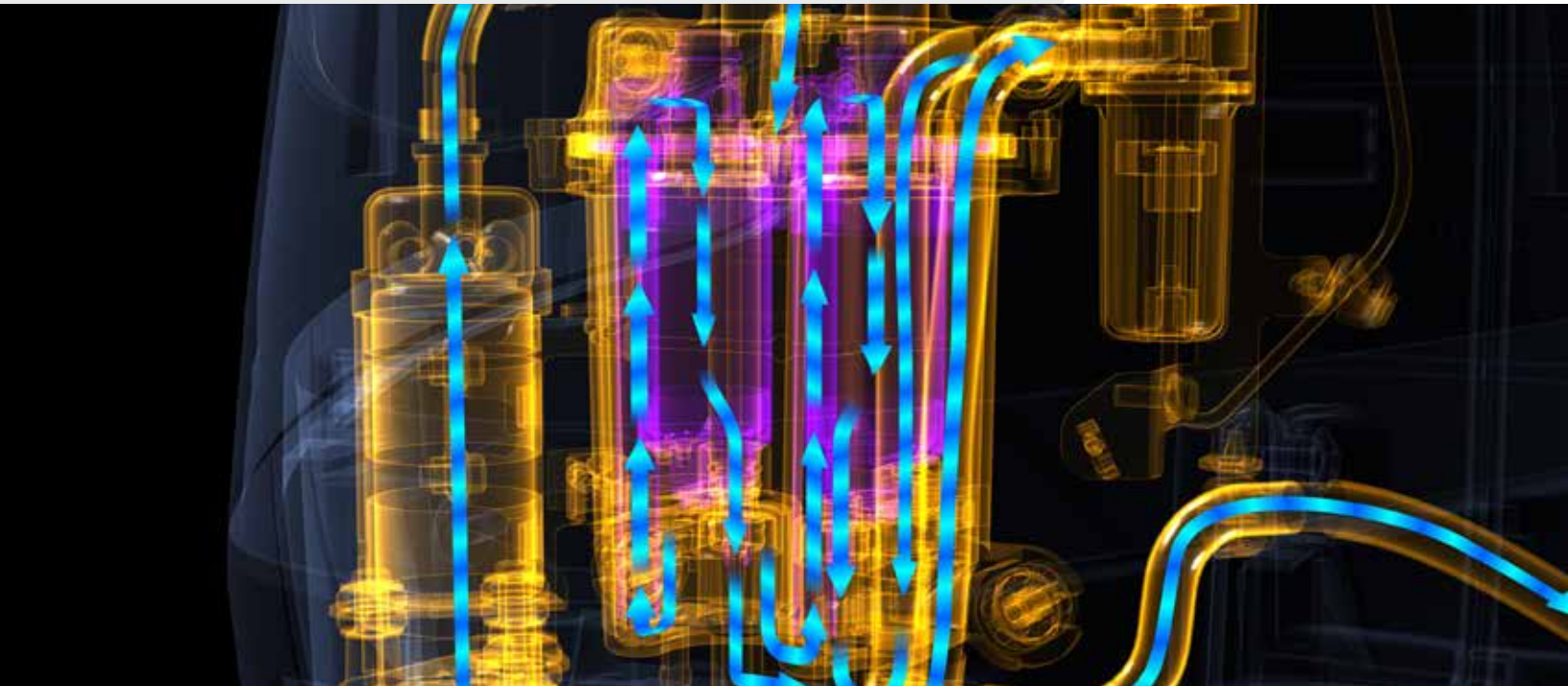


UNIQUE FUEL SYSTEM

- High pressure four-stroke direct injection
- Five fuel pumps (3 electrical, 2 mechanical) keep fuel moving throughout the RPM band
- ECU-controlled variable fuel pressure—by engine RPM and load—up to 2900 psi for outstanding atomization
- No-float Vapor Separator Tank (VST) with integral fuel cooler

THREE-STAGE FUEL PUMP SYSTEM
(LOW, MEDIUM, AND HIGH)

- One lift pump, two independent fuel pumps within the Vapor Separator Tank (VST) activate at specific, individual RPM to feed two mechanical high pressure fuel pumps
- Proper fuel flow and delivery, even at very high engine RPM



HIGHEST COMPRESSION RATIO IN AN OUTBOARD

- 12.2:1 compression ratio (enabled, in part, by the piston cooling effects of direct injection)
- More “bang” from every spark
- Higher compression means better efficiency, more power and incredible throttle response

XTO OS™ PROPELLERS

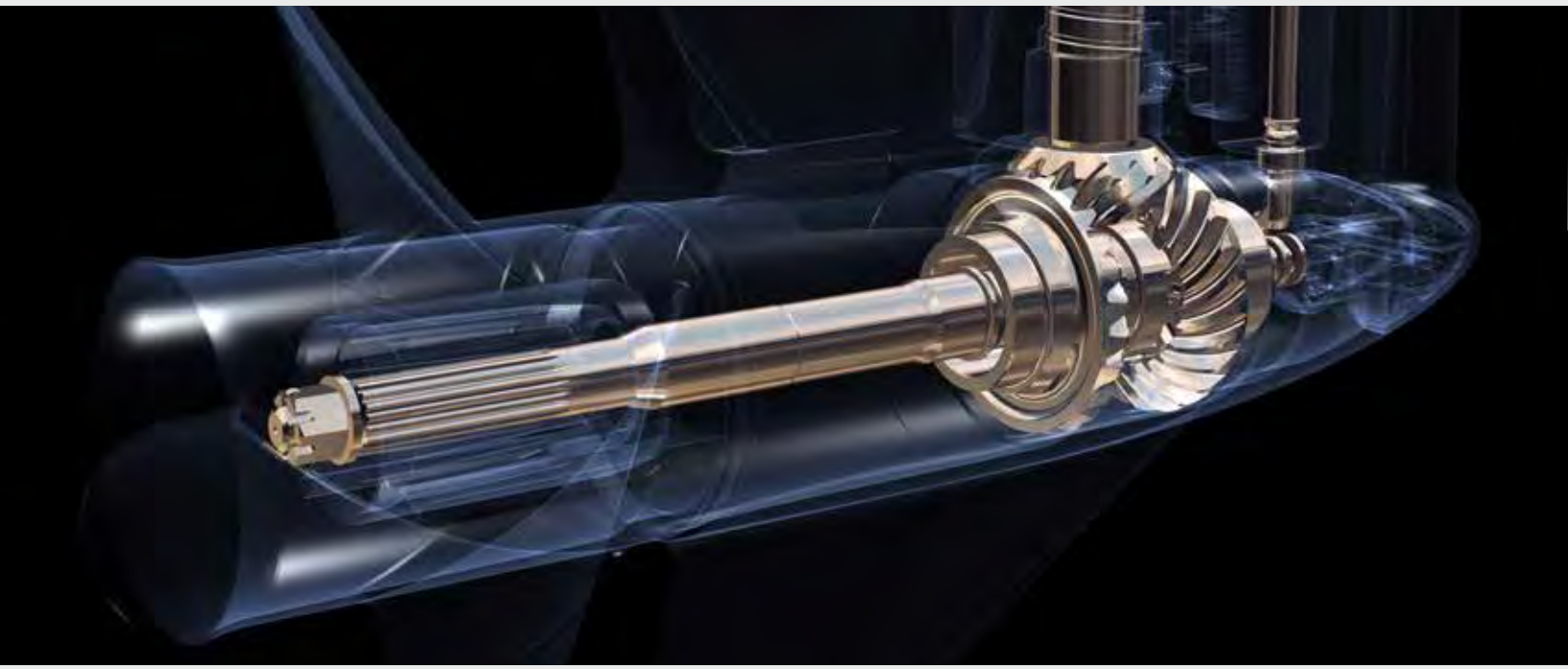
- XTO OS propellers are made to complement the torque potential of the Yamaha V8 XTO Offshore
- They work as part of a system to produce massive thrust in both forward and reverse, using diameters from 16 to 17⅛ inches
- Increased blade surface area is designed for moving big boats and yachts

IN-BANK™ EXHAUST

- Intake tracks enter the cylinder head from both sides of the powerhead
- Allows space for exhaust gases to have a direct route to the lower unit and out the propeller hub, improving flow

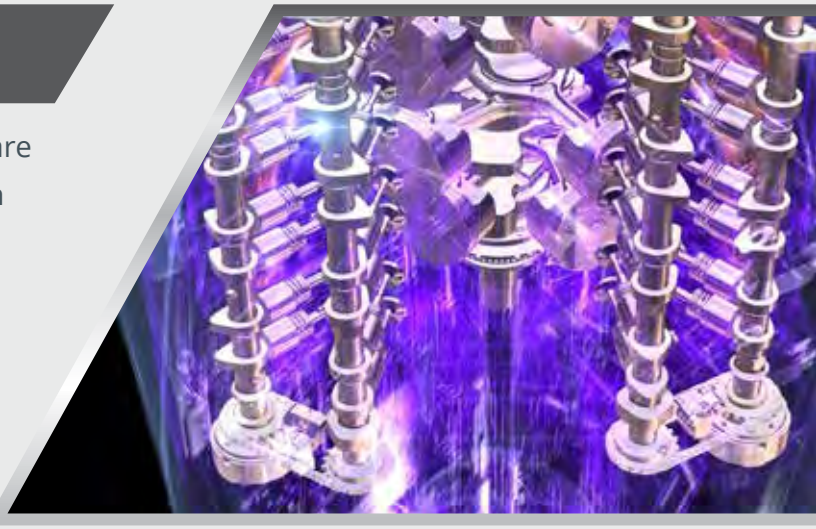
EXTREME TOUGHNESS AND RELIABILITY

You'd expect an oversized gearcase, hardened gears, a robust, offshore bracket and heavy duty motor mounts. And you'd expect proven technology – plasma fusion – for durability and light weight. You'll also get a two-stage water pump and a dual-chamber oil pump, each designed to respond to the heavy loads of high-RPM operation.



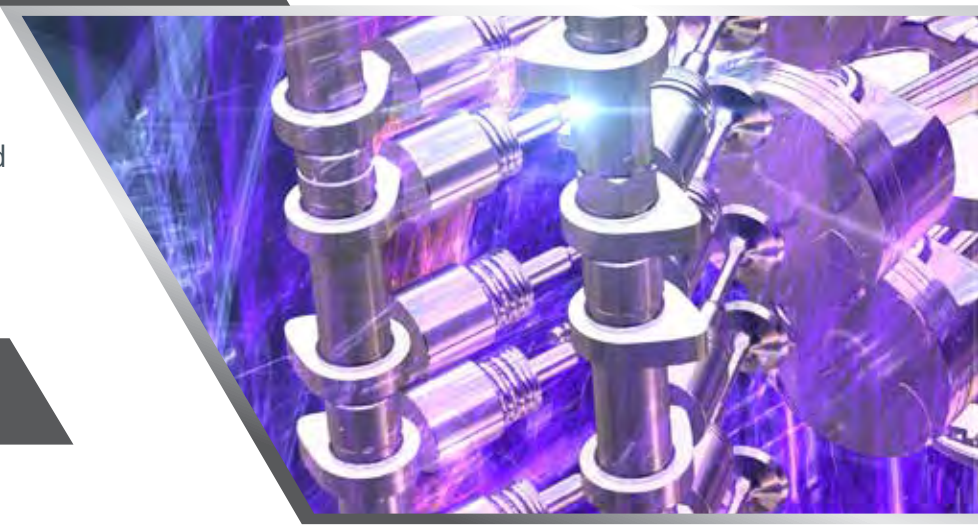
ENDURANCE DRIVEN CAMSHAFTS

- Dual overhead camshafts on each cylinder bank are connected via a self-tensioning chain immersed in an oil bath for accurate valve timing and long life
- System provides quiet and precise connection for proper and consistent valve timing
- One-sprocket belt engagement means narrower, more compact overall profile with quiet operation



CARBON-COATED LIFTERS

- Shimless, bucket-type valve lifters use a tough carbon coating
- The result is decreased friction and greatly increased durability

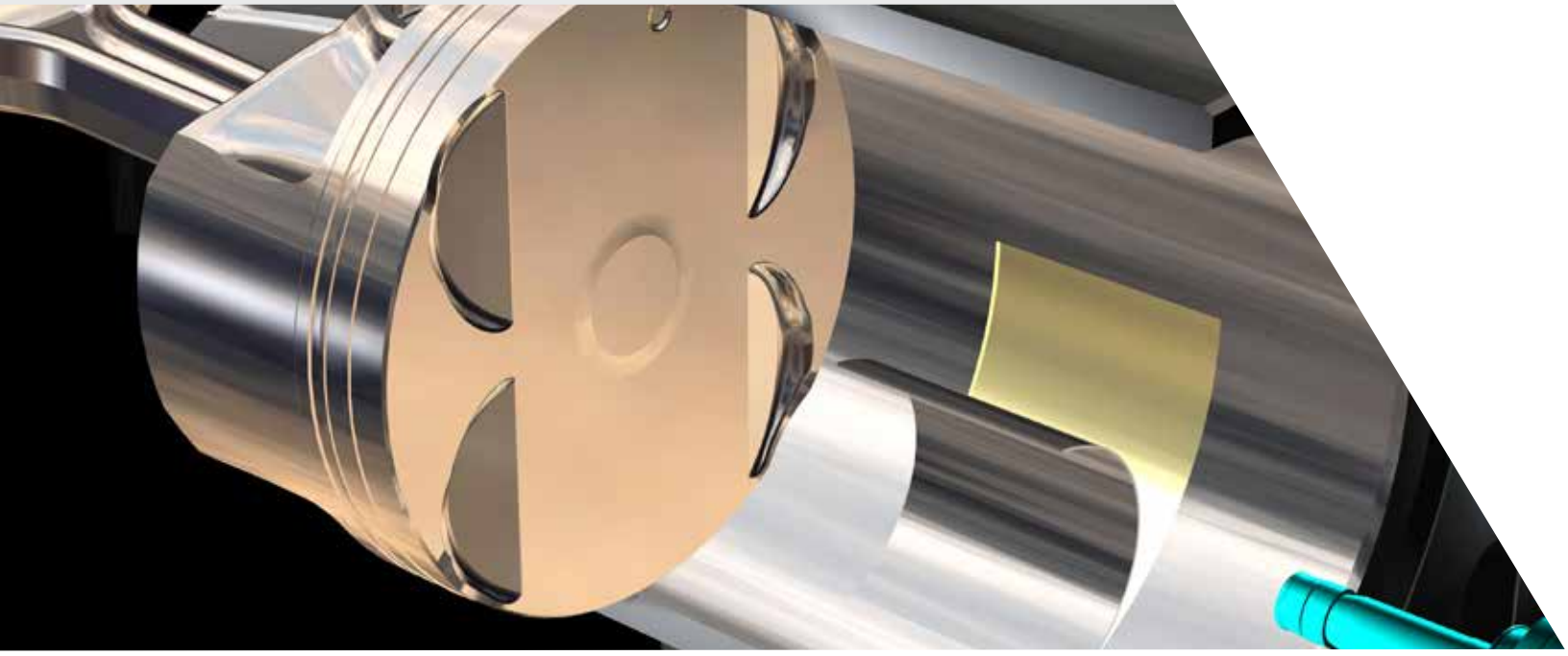


DUAL CHAMBER OIL PUMP

- Proper oil flow and delivery at every engine speed

PLASMA-FUSED SLEEVELESS CYLINDERS

- Plasma-fusion is used in place of conventional steel cylinder liners
- Micro-textured surface is 60 percent harder than steel and significantly lighter and thinner
- Process contributes to increased displacement without increasing the size of the powerhead
- Reduced friction, faster heat transfer and increased fuel economy



IRIDIUM SPARK PLUGS

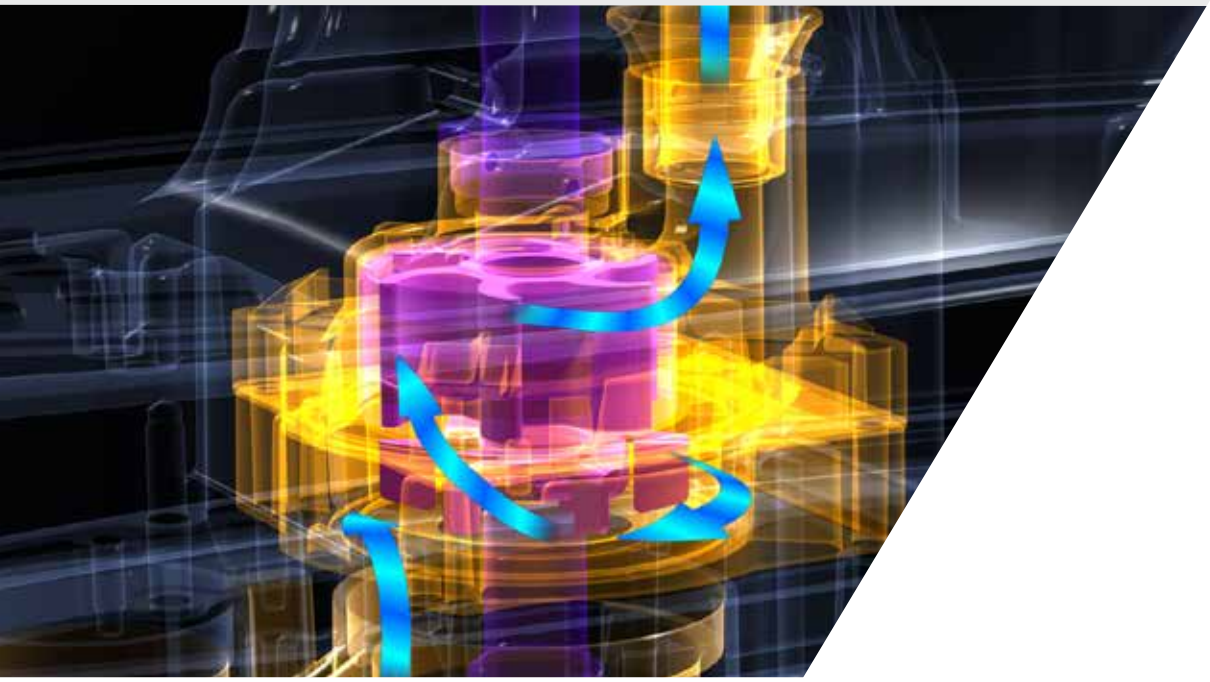
- ***Iridium*** is one of the rarest elements on earth and the second hardest
- It yields improved throttle response, fuel economy, power and service life

QUAD THERMOSTATS

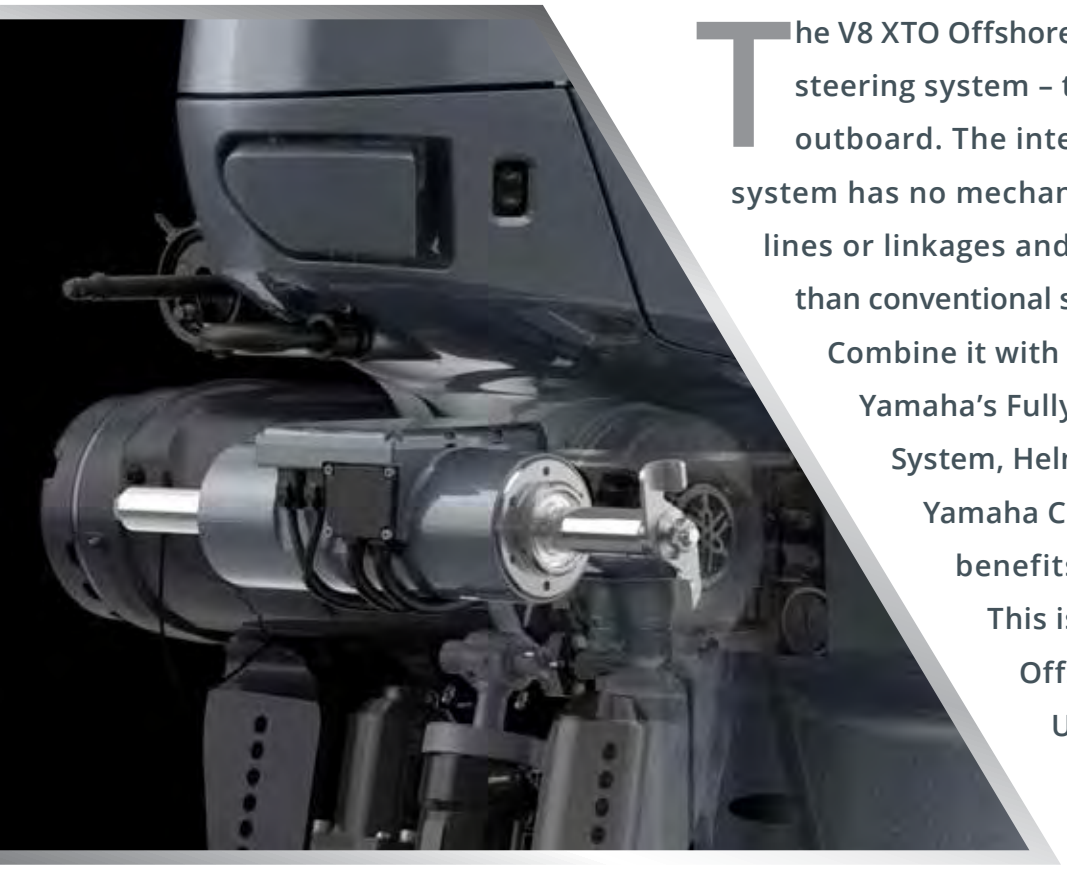
- Two thermostats per cylinder bank, for a total of four
- One pair helps regulate engine temperature; the other pair helps regulate oil temperature

TWO-STAGE WATER PUMP

- Unique design
- Massive rubber water impeller produces high pressure and flow
- A steel impeller helps provide ample water volume, even under the most extreme offshore conditions
- Proper cooling water flow at all RPM
- Improved temperature control



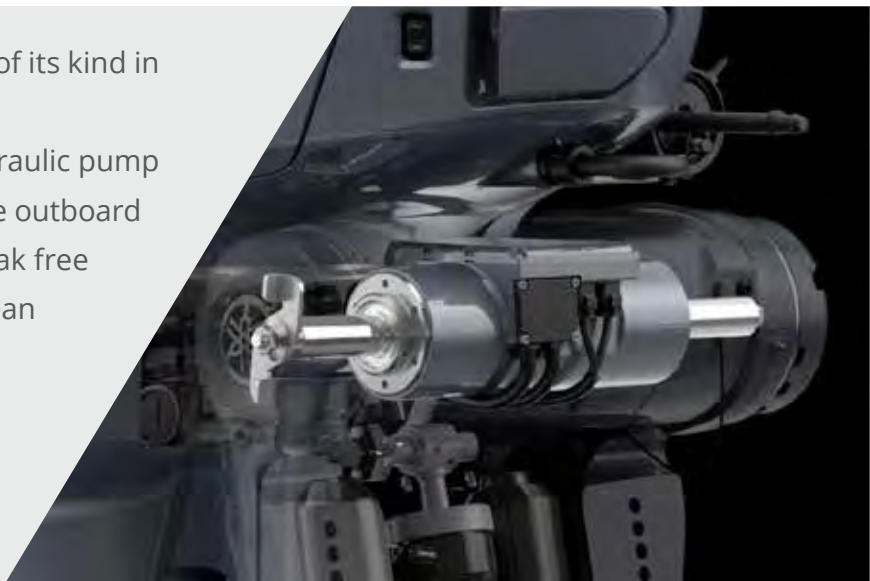
EXTREME SYSTEM INTEGRATION



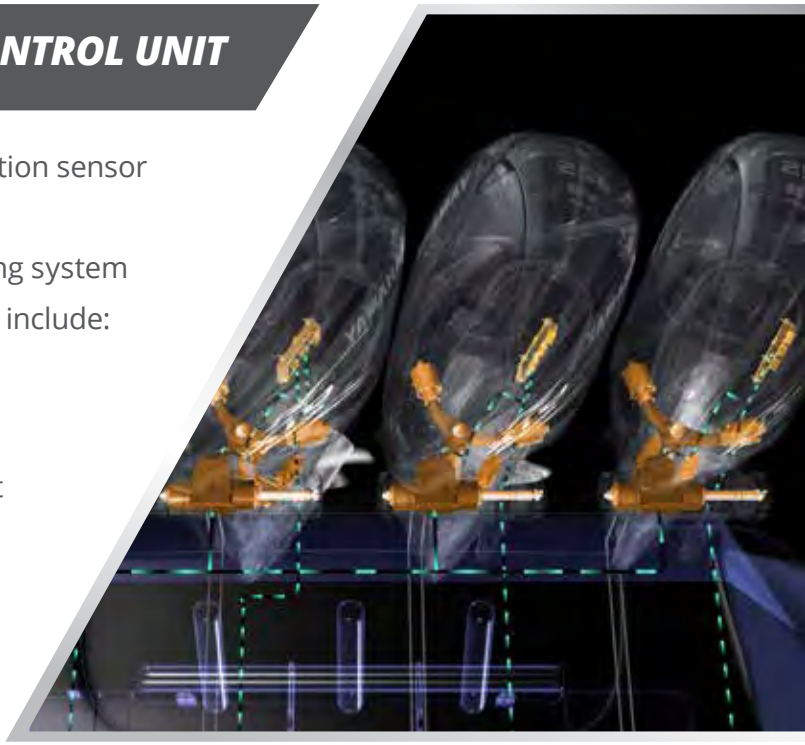
The V8 XTO Offshore has an integrated, electric steering system – the first of its kind in any outboard. The integrated electric steering system has no mechanical pump or hydraulic lines or linkages and responds more quickly than conventional systems to steering inputs. Combine it with the latest generation of Yamaha's Fully Integrated Boat Control System, Helm Master,® and the latest Yamaha CL7 display, and you have benefits offered nowhere else. This is why we call the V8 XTO Offshore an Integrated Power Unit. It truly is.

ELECTRIC STEERING

- Integrated electric steering system is the first of its kind in an outboard
- An electric motor (rather than an electric hydraulic pump and hydraulics) directly moves and secures the outboard
- The system is fast, precise, responsive and leak free
- The result is reduced power consumption, clean rigging, and a very orderly bilge area



INTEGRAL ELECTRONIC STEERING CONTROL UNIT



- Receives signals from the steering cylinder position sensor to carry out joystick and steering operation
- Functions are integrated into the electric steering system on Yamaha XTO Offshore outboards. Functions include:

- Joystick Calibration
- Lever Sensor
- Toe-in/out Adjust
- Joystick Thrust
- Lock to Lock
- Steering Friction Set

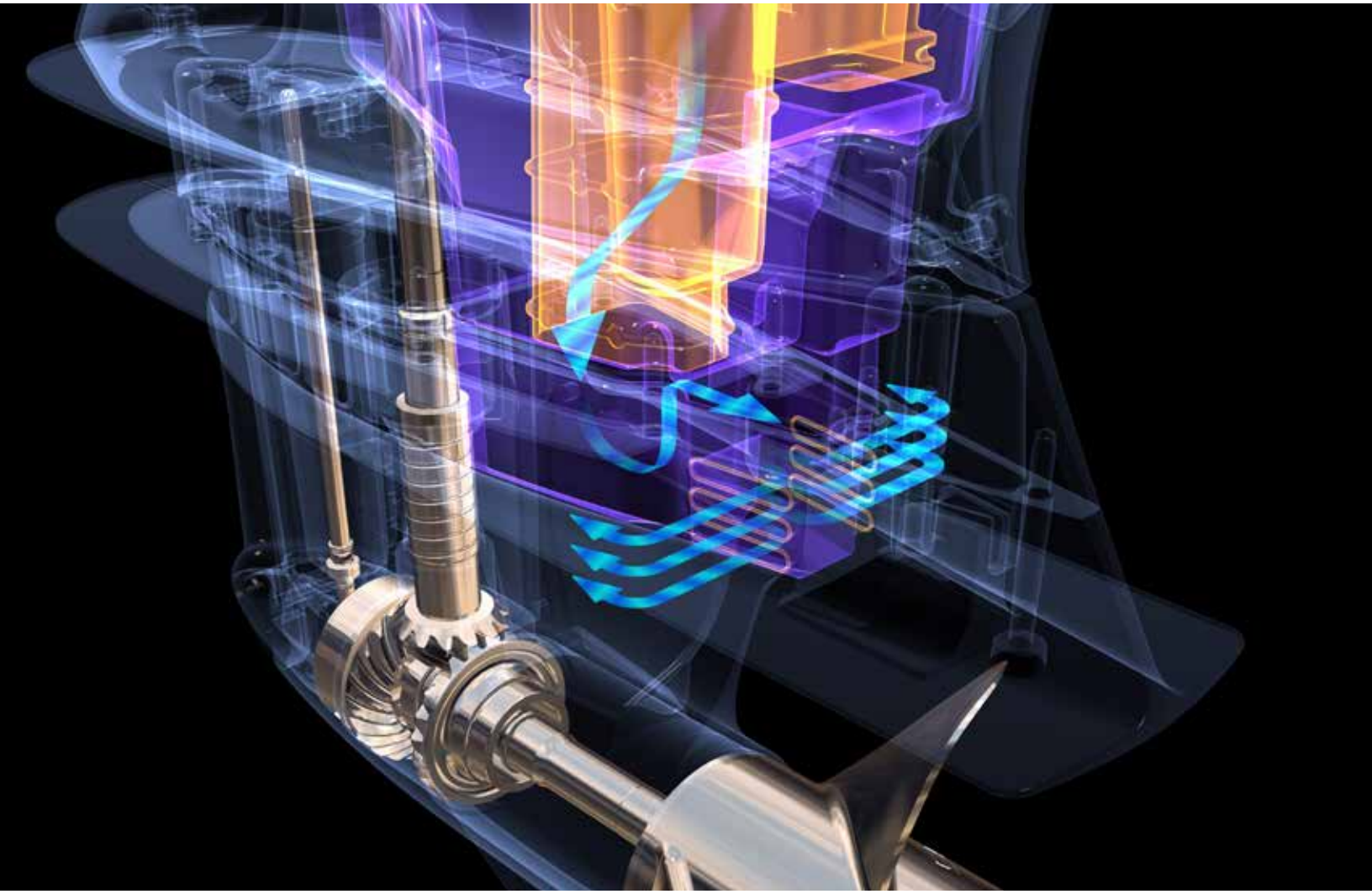
UPGRADED HELM MASTER®

- Greater convenience and mobility with the Helm Master SetPoint™ suite of functions
- New software allows fine-tuning of heading and/or position via the joystick while in DriftPoint™ or StayPoint™ or FishPoint™ mode (see separate *New Offshore Products* Hot Sheet for additional details)
- Allows on-the-fly precision adjustments – no need to exit the mode, adjust and return

UPDATED CL7™ DISPLAY

- Seven-inch, high-contrast touch screen makes for easier use
- Integrated gateway
- Two models: with detailed fresh and saltwater maps; and without
- Both models include fuel flow and other monitor functions
- Required for new Helm Master Set Point functions (See separate *New Offshore Products* Hot Sheet for additional details)

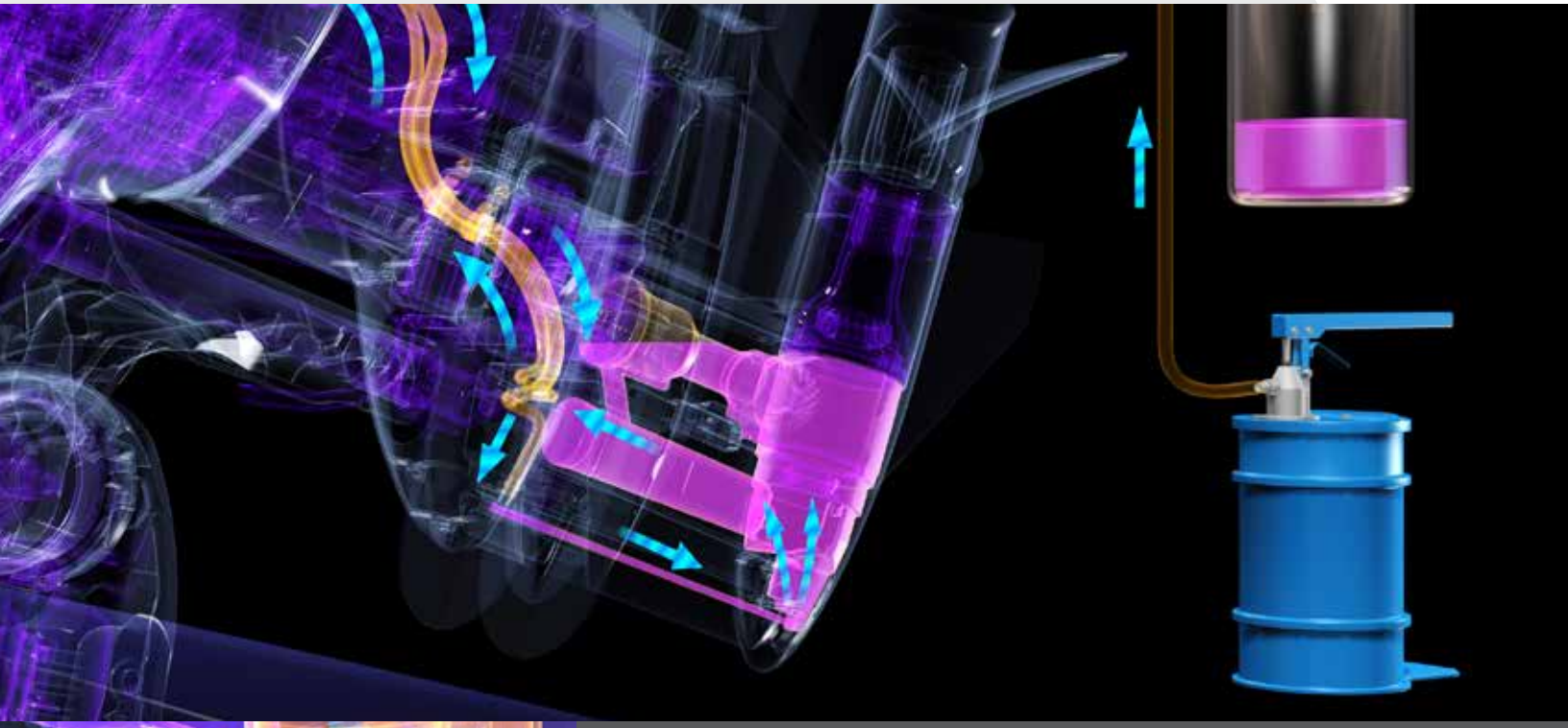
EXTREME CONTROL, CONVENIENCE AND CARE

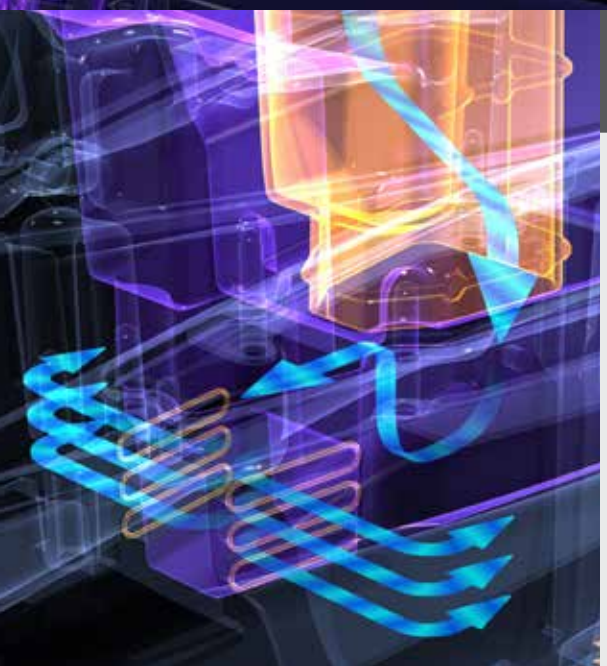


Thanks to an ingenious new exhaust-gas relief system, V8 XTO Offshore propellers bite clean water in reverse, which helps yield reverse thrust up to 300 percent of that developed by Yamaha's F350. That means easy maneuvering and more control in docking, particularly when the V8 XTO Offshore is matched with Yamaha's Fully Integrated Boat Control System, Helm Master.® Boats powered by the V8 XTO Offshore need go no further than the dock for a lower unit service, thanks to a unique gearcase lubricant exchange system that allows maintenance in the water. Backed by the best-trained dealer network in the industry and a five-year limited warranty for pleasure use. All of these benefits—coupled with Yamaha's traditionally great resale value—assure Yamaha V8 XTO Offshore owners will have an experience second to none.

IN-WATER GEAR LUBE CHANGE SYSTEM

- System allows draining and replacement of lower unit lubricant without having to remove the boat from the water
- Easier maintenance at dramatically lower cost for large, in-water boats





THRUST ENHANCING EXHAUST ROUTING

- Diverts engine exhaust away from propellers below 2,500 RPM
- Propeller bites "clean" water in both forward and reverse for maximum command and control at lower speeds
- Increases the effectiveness of the Yamaha Helm Master® fully-integrated boat control system

MULTI-PART COWLING SYSTEM

- Cowling and engine covers are integrated using captive fasteners and a special one-piece seal
- Allows easier access to specific parts of the powerhead and midsection, and further prevents water intrusion and the potential for corrosion

PUMP STOP POWER TILT LIMIT

- Tilt pump shuts off when it reaches maximum pre-set electronically adjustable tilt setting, rather than continuing to run
- Reduces noise, saves power

SEMI-CONDUCTOR POWER TRIM AND TILT RELAY

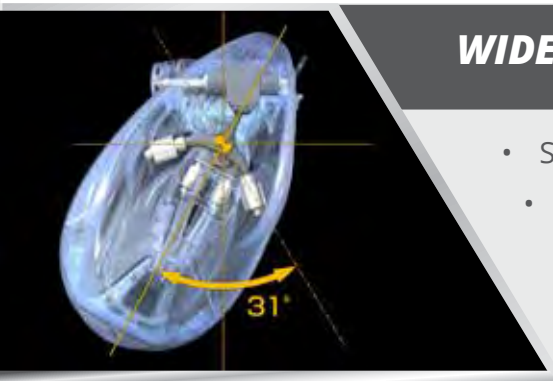
- Power trim and tilt relay uses semi-conductors, rather than direct voltage contacts
- No moving parts, increased reliability

WIDE-SPAN POWERHEAD MOUNTING SYSTEM

- Incredibly strong upper motor mounts are placed wide on the exterior of the upper mid-section
- Used in conjunction with our Long Span Mounting System
- Minimizes vibration transmitted into the boat, allows for a more compact design

WIDER TILT RANGE

- Increased tilt up range (up to 73 degrees.) At full extension, the XTO Offshore extends 5.4 inches higher out of the water than the F350
- Engineered to allow the entire motor and lower unit to be raised completely out of the water
- XTO Offshore can be used in most modern flat-transom applications



WIDE STEERING ANGLE

- Spans 31 degrees from center in either direction
- Increased maneuverability and control

DUAL FLUSH SYSTEM

Offers two methods of flushing the outboard:

- Through a built-in flushing system hose routed through the rigging tube/grommet
- Or through conventional front-mounted direct hose hook-up

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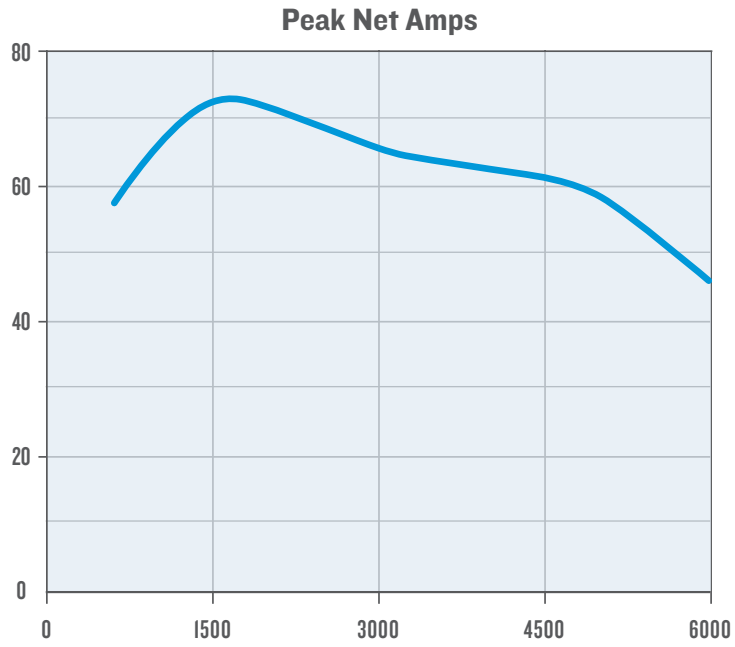
GREAT CHARGING POWER

The V8 XTO Offshore provides up to 90 amps of total (gross) power. The chart and graph below show net power output across the range of engine RPM. (Net power output is amperage after calculating the usage by the engine and electric engine accessories.)



RPM	Peak Net Amps
650	59
1000	67
1500	72
2000	71
3000	66
4000	63
5000	60
6000	46

**Amps remaining after steering and all engine functions are subtracted. These represent pure charging amps for boat systems and accessories.*

IMPROVED RIGGING TUBE

- Twenty five percent larger rigging tube and new grommet for cleaner, easier rigging
- Compatible with most flat transom installations
- Three and a quarter inches more clearance at motor well when tilted up
- Integral flush line is contained within rigging tube and routed direct through the grommet (where configured)

COLOR CHOICE

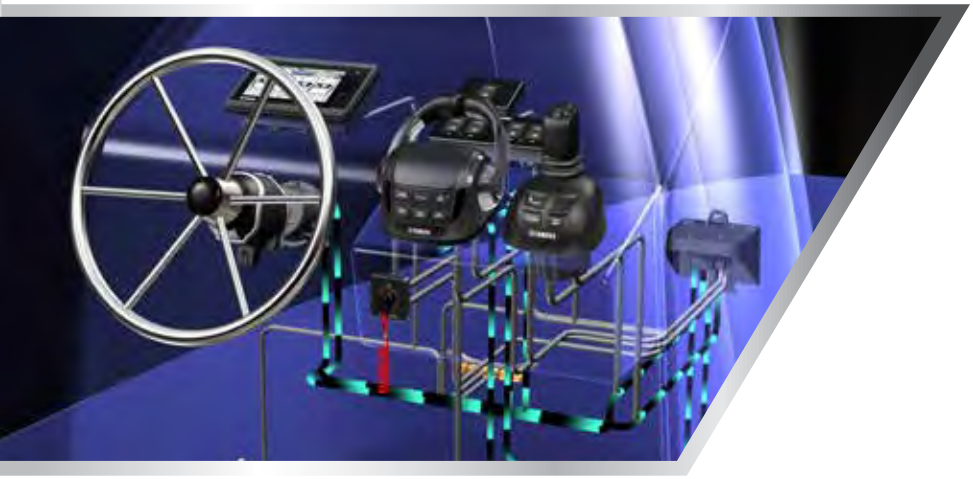
- Traditional gray
- Yamaha white
- Unpainted surfaces available for custom-color painting to suit customer tastes

FLEXIBLE RIGGING

- Shaft lengths include 25", 30" and 35"
- Right- and left-hand rotation
- Fits a wider variety of multi-engine boats

UPGRADES FOR HELM MASTER® AND CL7 DISPLAY

See separate *New Offshore Products* Hot Sheet



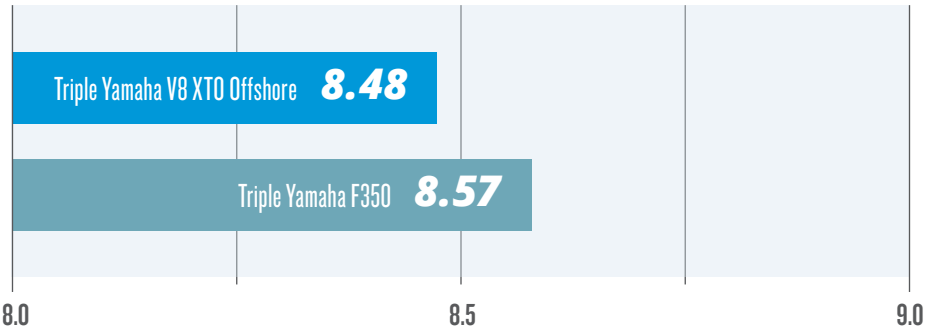
EXTREME XTO OS™ PROPELLERS

Yamaha's new family of XTO OS Propellers are made to complement the torque potential of the Yamaha XTO. Thanks to the new Thrust Enhancing Exhaust Routing, XTO OS propellers bite clean water in reverse, which helps yield reverse thrust up to 300 percent of that developed by Yamaha's F350. But the new props play a role themselves, with large diameters and increased blade surface area. They are designed for moving really big boats. With new stainless steel material, they are also more resistant to corrosion and surface discoloration, too.

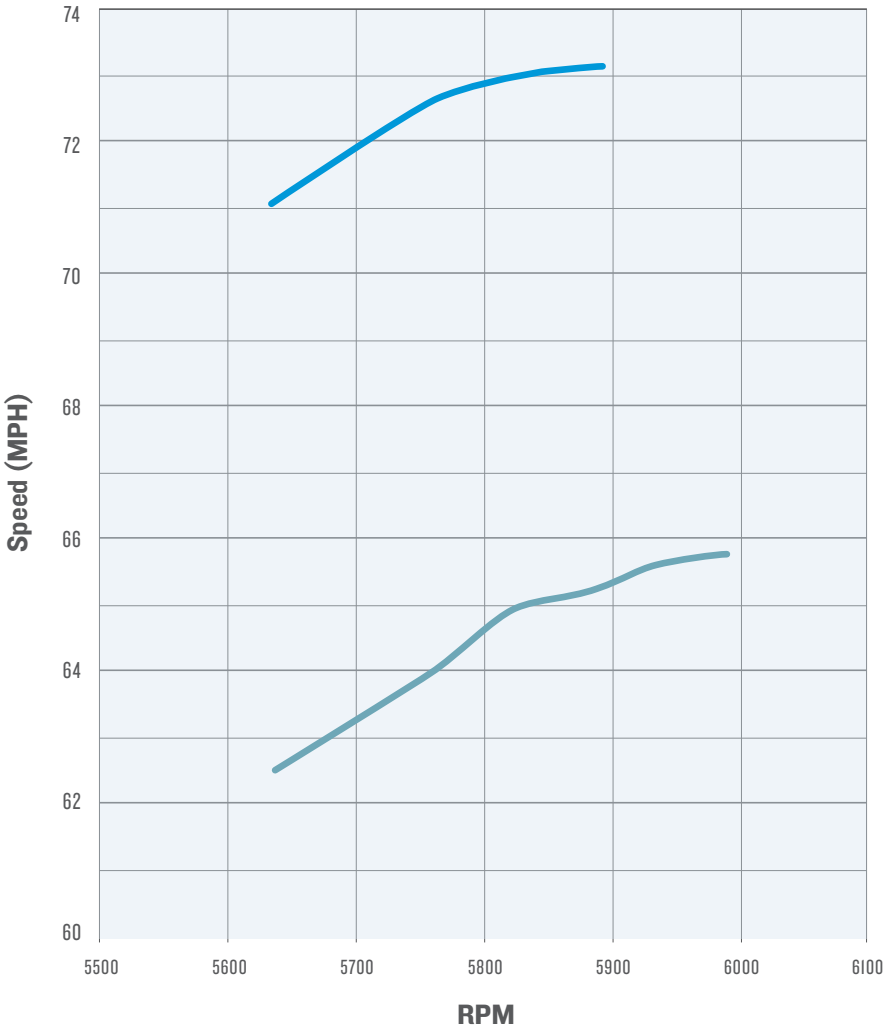
- "XTO" embossed in propeller cylinder
- Six new props include both right and left rotations

Diameter	Pitch	# Blades	Rotation	Material	Hub	Part Number
17 1⁄8"	15	3	RH	SS	SDS	6GR-45970-00-00
17 1⁄8"	15	3	LH	SS	SDS	6GS-45970-00-00
16 7⁄8"	17	3	RH	SS	SDS	6GR-45972-00-00
16 7⁄8"	17	3	LH	SS	SDS	6GS-45972-00-00
16 5⁄8"	19	3	RH	SS	SDS	6GR-45974-00-00
16 5⁄8"	19	3	LH	SS	SDS	6GS-45974-00-00
16 3⁄8"	21	3	RH	SS	SDS	6GR-45976-00-00
16 3⁄8"	21	3	LH	SS	SDS	6GS-45976-00-00
16 1⁄8"	23	3	RH	SS	SDS	6GR-45978-00-00
16 1⁄8"	23	3	LH	SS	SDS	6GS-45978-00-00
16"	25	3	RH	SS	SDS	6GR-45930-00-00
16"	25	3	LH	SS	SDS	6GS-45930-00-00

ACCELERATION COMPARISON



TOP SPEED COMPARISON



Triple Yamaha V8 XTO Offshore

Triple Yamaha F350

Testing conducted by Yamaha Marine Group at the Yamaha Marine U.S.A. Test Facility. All testing completed with triple-application on Contender® 39 ST. Speed varies depending on many factors including water conditions, engine maintenance, operator experience, and on-board weight.

SPECIFICATIONS

ENGINE

Type	4-Stroke, DOHC V8 - 32 valves
Displacement	5559 cm^3
Bore x Stroke	96.0 x 96.0 mm
Full Throttle RPM Range	5000 – 6000
Variable Trolling RPM Range	600 – 1000 RPM
Horsepower Rating at Propshaft	425hp @ 5500 RPM
Compression Ratio	12.2:1
Fuel Induction/Scavenging	DOHC, DI, 4 Valves per Cylinder
Alternator Output	90 Amps Gross, Max
Starting Method	Electric w/ PTT
Ignition	TCI Microcomputer
Lubrication	Wet Sump
Degree of Trim	-4° through +16°
Degree of Tilt	-4° through +73°
Exhaust	Through Propeller (Except in Reverse Under 2500 RPM)
Cooling	Water, Thermostatic Control
Steering	Integrated, Electric Actuation

DRIVE

Gear Shift	F-N-R
Gear Ratio	(25/14) 1.79
Control Method	Digital Electronic Control

SHAFT LENGTH

See Model Code	X = 25", U = 30", E = 35"

FUEL AND LUBRICATION

Recommended Fuel	Regular Unleaded (Minimum Pump Octane 89)
Recommended Oil	Yamalube Marine Lower Unit Gear Lube HD
Engine Oil Capacity	7.8L / 8.2 U.S. Quarts (with filter) 7.5L / 7.9 U.S. Quarts (without filter)

LIMITED WARRANTY

Pleasure	Five Years
Government	Three Years
Commercial	One Year

WEIGHT

XTO 25" = 432 kg / 952 lbs, XTO 30" = 443 kg / 977 lbs, XTO 35" = 453 kg / 999 lbs

*Weight estimated at time of publishing. Weight is measured without motor oil, gearcase oil and propeller.

FEATURES

POWER/PERFORMANCE

- 5.6-Liter Naturally Aspirated V8
- Direct Injection
- Highest Compression Ratio of Any Outboard (12.2:1)
- Unique Fuel System with Five Pumps and Up to 2900 PSI of Fuel Pressure
- In-Bank Exhaust
- Dedicated, Large-diameter XTO Propellers
- Iridium Spark Plugs

RELIABILITY/DURABILITY

- Endurance Driven Camshafts
- Carbon-coated Lifters
- Dual Chamber Oil Pump
- Two-stage Water Pump
- Quad Thermostats
- Plasma-fused Sleeveless Cylinders

CONVENIENCE/CONTROL

- In-water Gear Lube Change
- Thrust Enhancing Exhaust
- Multi-part Cowling
- Pump Stop Power Tilt Limit
- Semi-conductor Power Trim and Tilt Relay
- Wider Tilt Range
- Dual Flush System with In-Boat Flush
- Wide-span Powerhead Mounting
- High-output Net Charging Amps
- Improved Rigging Tube and Grommet
- Color Choice

REMEMBER to always observe all applicable boating laws. Never drink and drive. Dress properly with USCG-approved personal flotation device and protective gear. This document contains many of Yamaha's valuable trademarks. It may also contain trademarks belonging to other companies. Any reference to other companies or their products are for identification purposes only, and are not intended to be an endorsement. Due to Yamaha's ongoing commitment to product improvement, we reserve the right to change without notice, equipment, materials, specifications, prices or availability. The information and data contained herein is approximate and subject to many factors and variables, including but not limited to atmospheric, water and equipment conditions and operator ability. Therefore, such information and data is provided as a guideline only. ©2018 Yamaha Motor Corporation, U.S.A. All rights reserved.

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