



*For Watercraft that work like your Car,
You need Intelligent propulsion.*

Jeff Jordan, President
IntelliJet Marine, Inc.

Supported by
Art Anderson Associates





Now . . .

imagine a boat that works like your car.

Where a computer controls the motor
and the transmission,
so the system operates at peak efficiency
over wide ranges of
acceleration, speed, and load.

This is what IntelliJET provides,
and more



This Presentation will show you

- What the benefits of IntelliJet are
- Why IntelliJet works
- How IntelliJet works
- How IntelliJet provides its benefits



What the Benefits of IntelliJet Are

- ✓ Very high fuel efficiency
- ✓ Both high-speed and heavy-load capable
- ✓ Maneuverable at all speeds and conditions
- ✓ Size and weight savings
- ✓ High reliability and maintainability
- ✓ Safe operations
- ✓ Shallow draft capability
- ✓ Stealth characteristics



Why IntelliJet Works

$$F = 2 \frac{P}{v}$$



Why IntelliJet Works

Design Objectives

- ▲ Operate the motor efficiently
- ▲ Maintain pump efficiency
- ▲ Maintain inlet efficiency
- ▲ Minimize jet velocity



How IntelliJet Works

Design Features

- Variable-pitch spherical pump
- Variable nozzle
- Variable inlet
- Microcontroller
- Minimizes jet velocity.



How IntelliJet Works





How IntelliJet Works

Variable-pitch Propeller Pump

- Continuously Variable Power Transmission
- Reduces velocity up to 50% - doubles thrust
- Quick, smooth shifting forward/neutral/reverse
- Eliminates need for reversing “bucket”



How IntelliJet Works



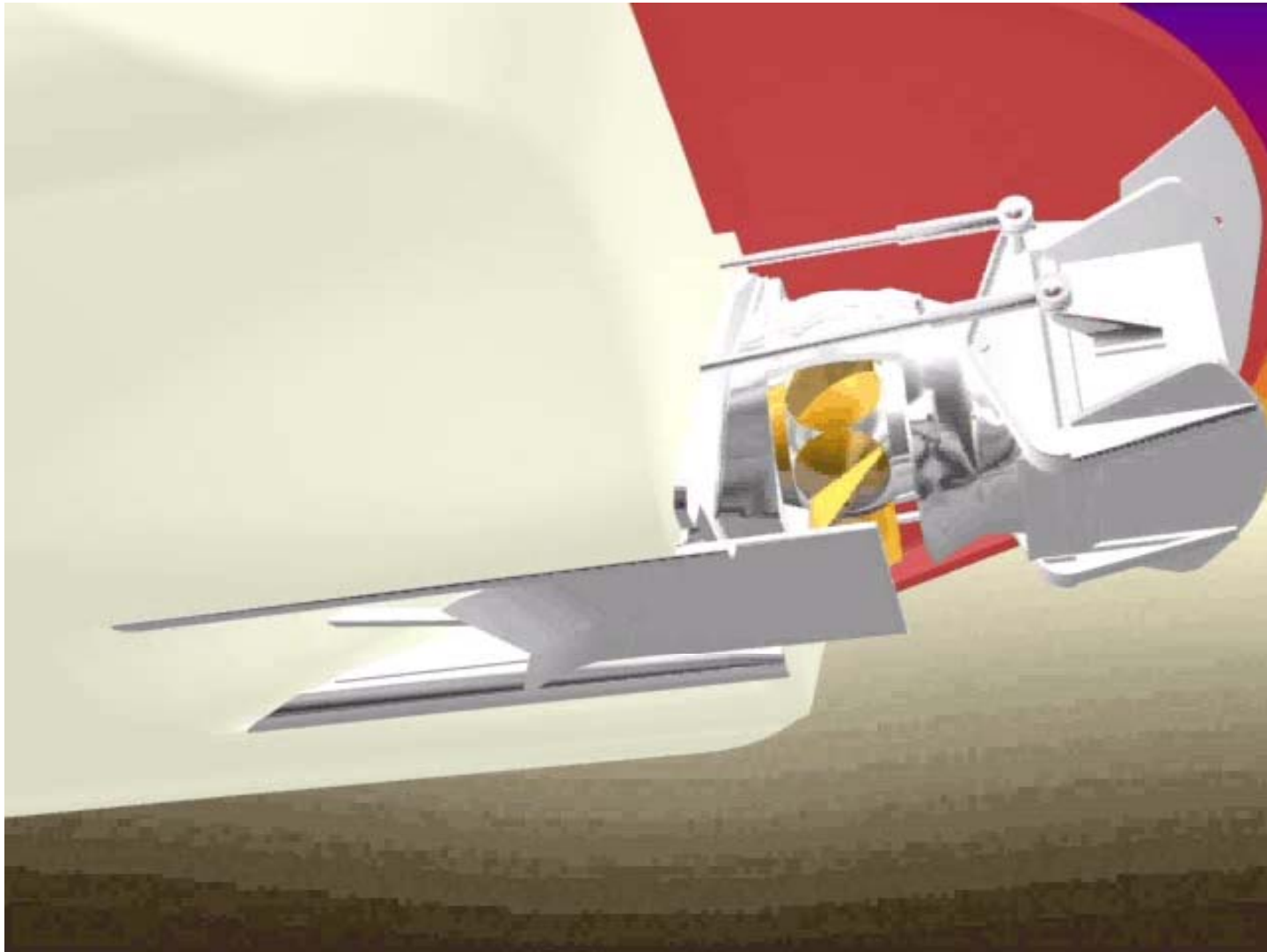


How IntelliJet Works





How IntelliJet Works





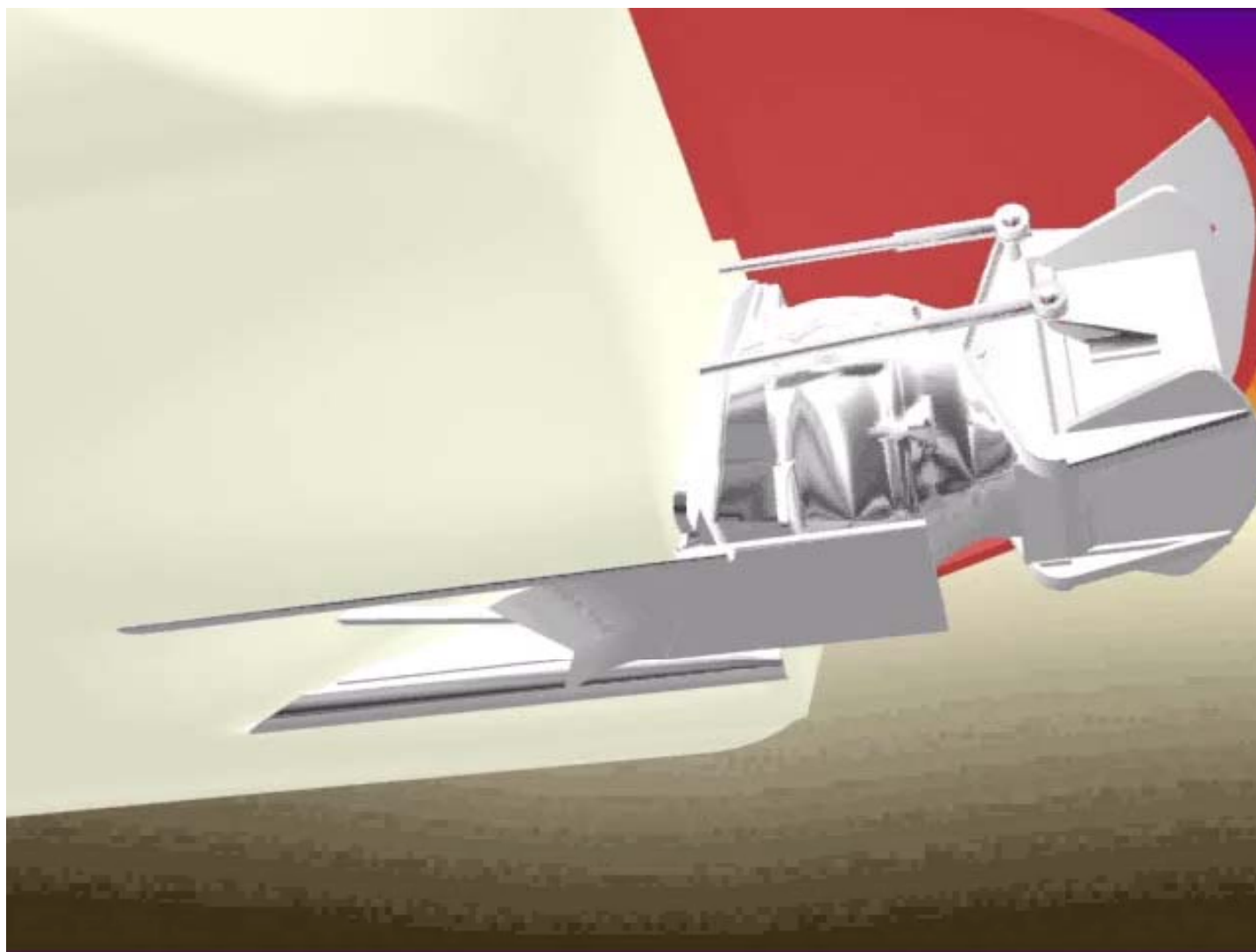
How IntelliJet Works

Variable Rectangular Steering Nozzle

- Computer maintains efficient pump operation by adjusting nozzle area.
- Provides steering in both forward and reverse.
- Allows elimination of reversing bucket.

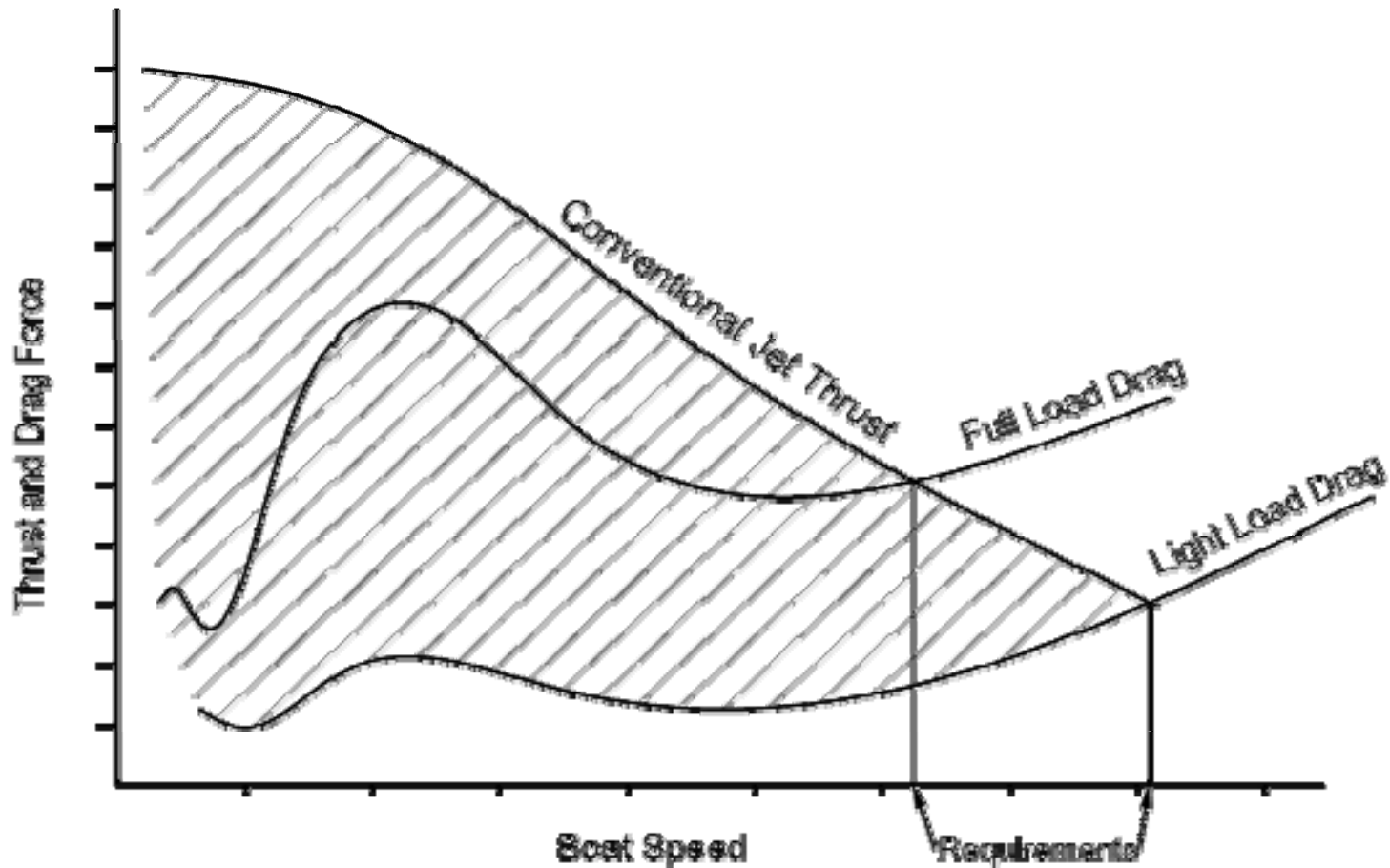


How IntelliJet Works





How IntelliJet Provides Its Benefits *Both High Speed and Heavy Load Efficiency*





How IntelliJet Provides Its Benefits

Both High-speed and Heavy-load Efficiency

The embedded microcontroller program regulates:

- ❖ **The pump to maintain motor efficiency and low velocity.**
- ❖ **The nozzle to maintain pump efficiency.**
- ❖ **The inlet to maintain recovery efficiency.**

So the total system operates at peak efficiency
at all speeds and under all loads and accelerations.



How IntelliJet Provides Its Benefits

Both High-speed and Heavy-load Efficiency

- ◆ Motor efficiency increased 20% +/-
- ◆ Exhaust emissions minimized
- ◆ Twice as much thrust for any given motor power
- ◆ Fuel consumption vs. fixed-vane pump
 - ★ Up to 20% reduction in motor fuel consumption
 - ★ 50% reduction in power demand by reduced velocity
 - ★ Up to 60% reduction in fuel consumption
- ◆ Advantage reduced with higher boat speed



How IntelliJet Provides Its Benefits

Size and Weight Savings

- ➡ Larger diameter pump, yet smaller envelope without a reversing bucket
- ➡ Inlet molded or welded into hull
 - ▲ Eliminates casting and machining of massive inlet duct
 - ▲ Thrust bearing in stator behind propeller
 - ▲ Regular inboard motor mounting



How IntelliJet Provides Its Benefits *High Maneuverability at All Speeds*

- ➔ Familiar single-handle control or any other
- ➔ Shift quickly without reducing RPM
- ➔ Quick steering response
- ➔ Multiple program selection – set it & forget it modes
 - ✳ Maximum performance when detection is unavoidable
 - ✳ Suppress Cavitation Noise when avoiding detection
 - ✳ Maximum fuel economy for cruising



How IntelliJet Provides its Benefits





How IntelliJet Provides Its Benefits *High Reliability and Maintainability*

- ❑ Out of harm's way, like a conventional jet
- ❑ Bearings immersed in pressurized oil
- ❑ Radial labyrinth around mechanical oil seal
- ❑ Crowned splines vs. U-joints on shaft
- ❑ Mechanical water seal vs. packing gland
- ❑ Modular pump units quickly exchanged



How IntelliJet Provides Its Benefits





How IntelliJet Provides Its Benefits

- Safe Operations
 - ◆ Enclosed Propeller
 - ◆ No Reversing Bucket
 - ◆ Nothing protrudes below the hull
 - ◆ No Pinch points
- Shallow Draft



How IntelliJet Provides Its Benefits *Stealth Characteristics*

- Cavitation suppressed at operating speeds
- Jet velocity is low relative to the wake
 - ⇒ No rooster tail
 - ⇒ Reduced wake luminescence
 - ⇒ Reduced noise



*For Watercraft that work like your Car,
You need Intelligent propulsion.*

IntelliJet is the Intelligent Propulsion that Provides:

- ✓ Very high fuel efficiency
- ✓ Both high-speed and heavy-load capability
- ✓ Maneuverability at all speeds and conditions
- ✓ Size and weight savings
- ✓ High reliability and maintainability
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