Thrusters

How to Utilize Thruster Current Measurements to Improve Safety and Optimize DP Control Systems

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Kongsberg Maritime, Norway

October 9-10, 2007

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..about me

ØYVIND LØKLING

Manager Product & Development - DP & Navigation in Kongsberg Maritime AS
Working with Dynamic Positioning since 1988

10 years working

- 10 years - traveled “the 7 Seas”, working with Dynamic Positioning System – Hardware & Software.

9 years managing

- 5 years managing DP SW Application Department
- 2 years startup new office in New Orleans, LA
- 2 years managed product & development

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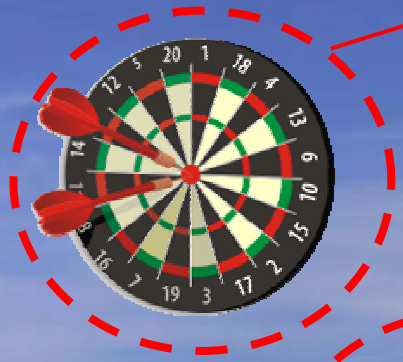
Why current measurement on each thruster?

Safety

Performance



Economy

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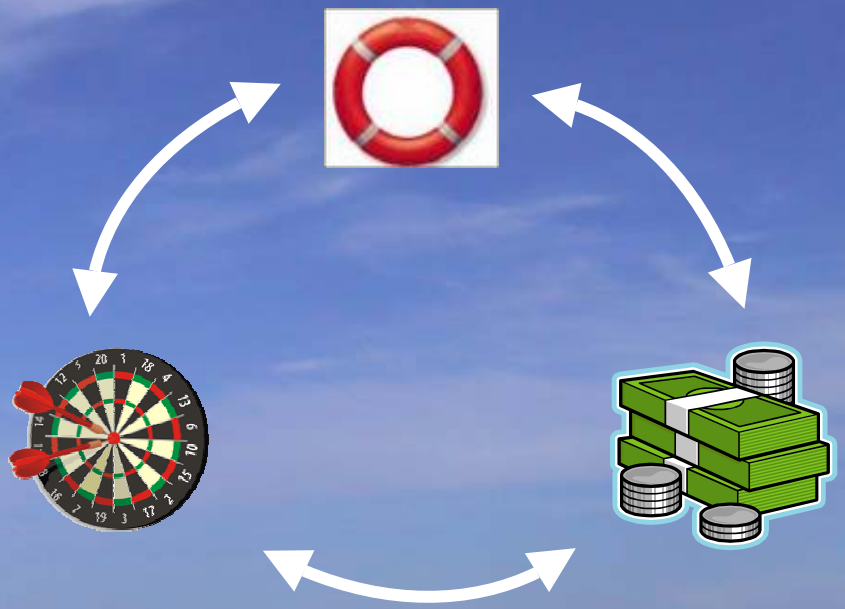
Is Wear & Tear issues Economy, is it Safety or is it Performance?



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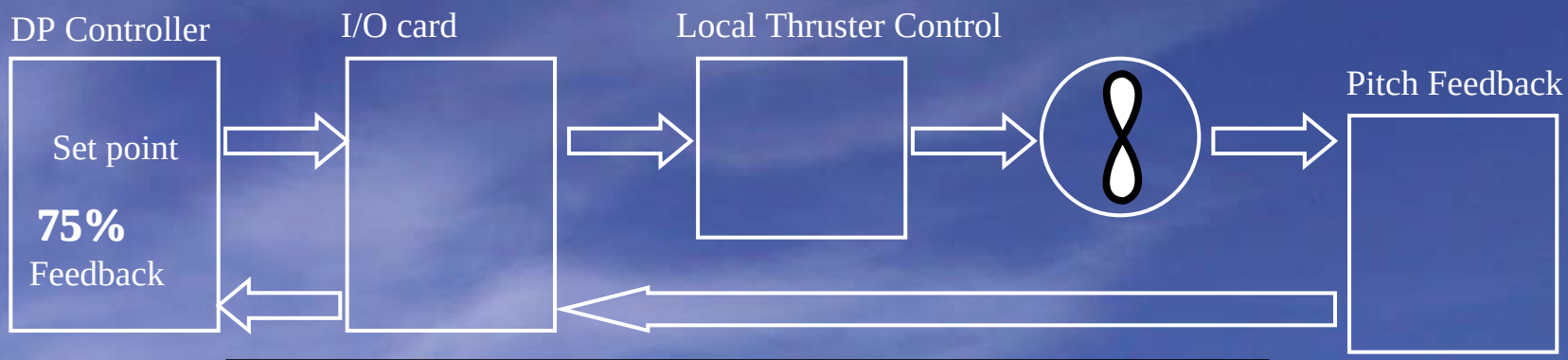

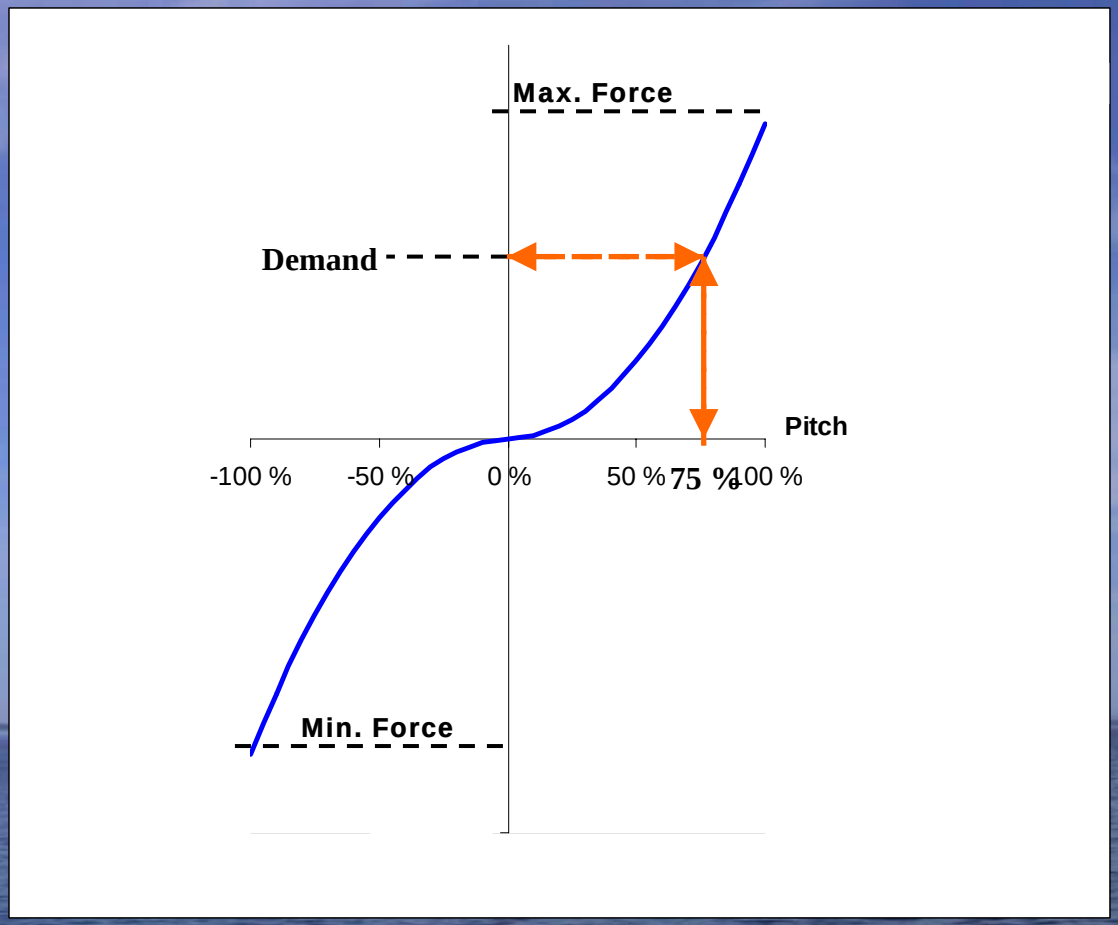

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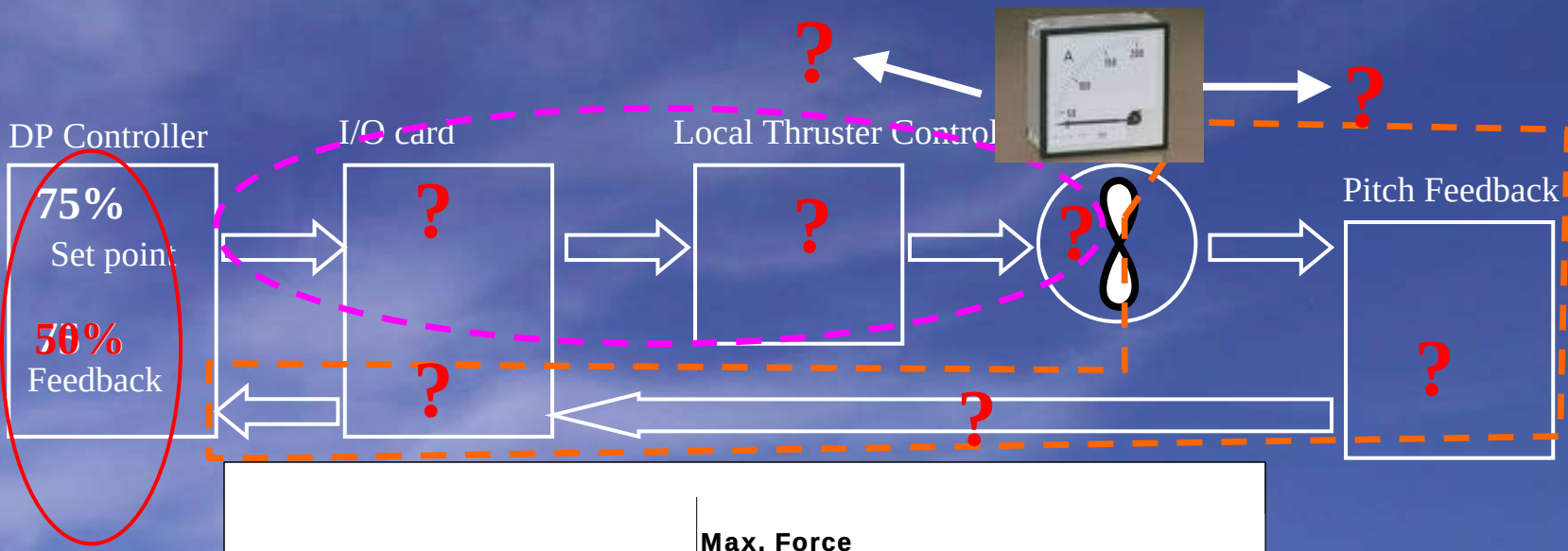
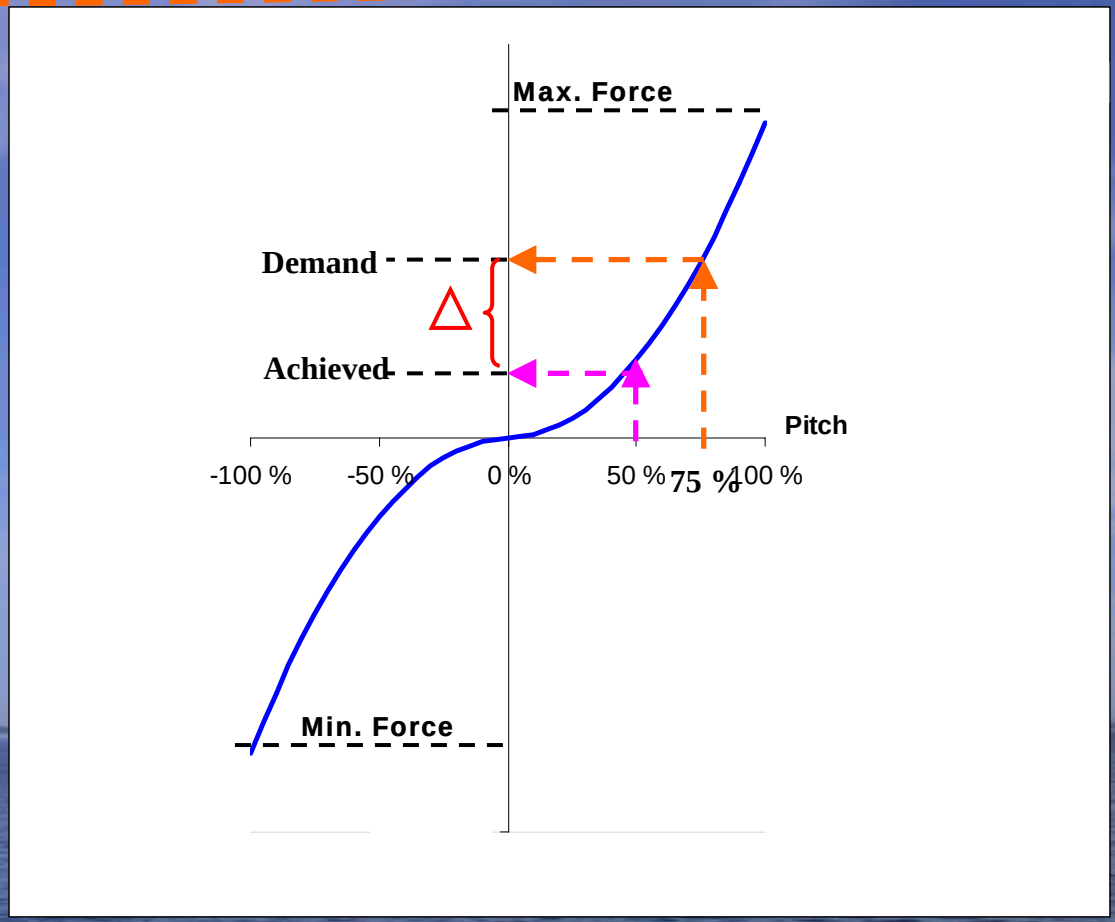


Difference alarm!



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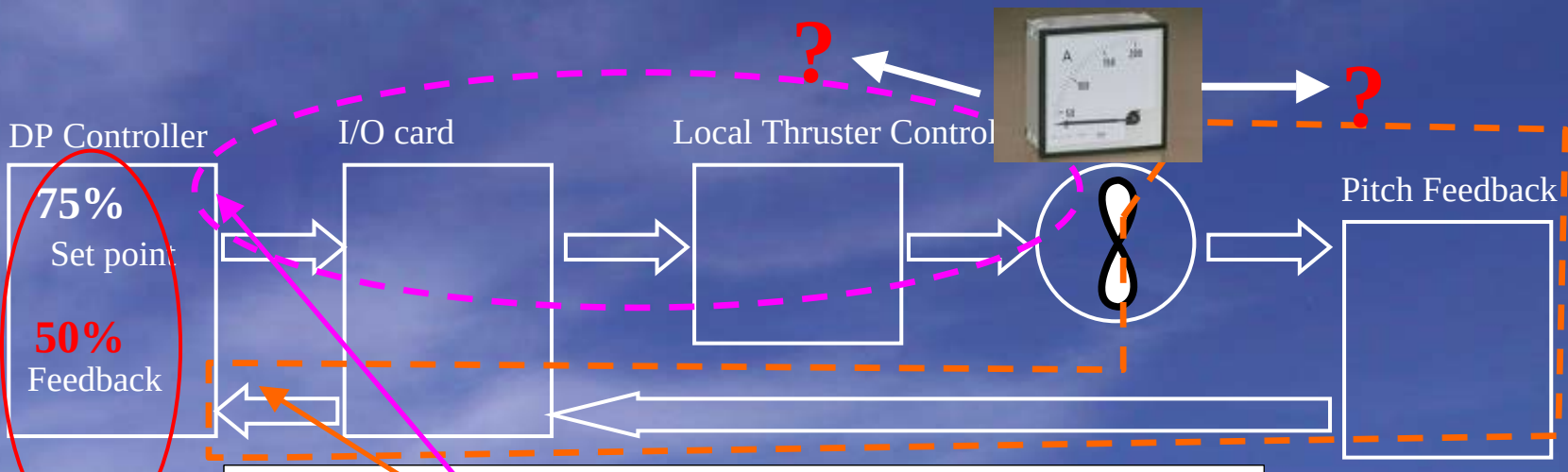

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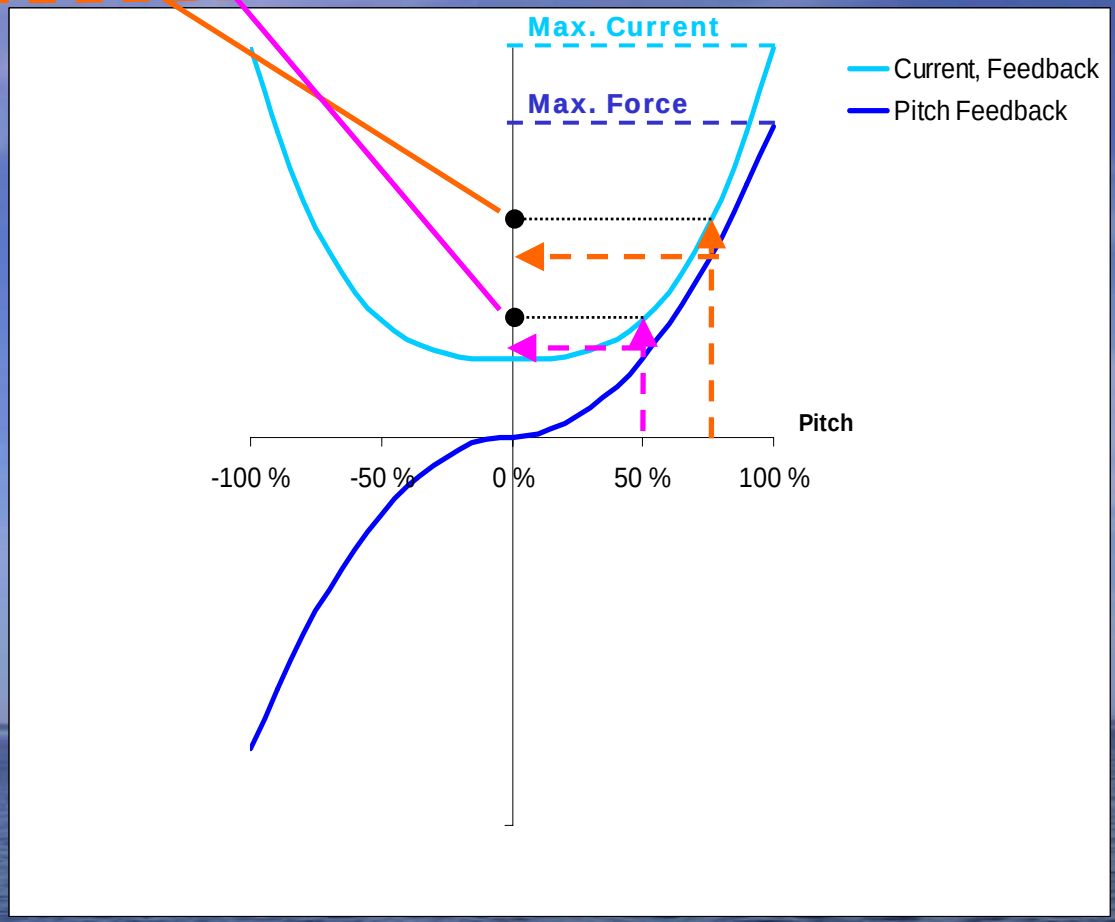

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We know it's a difference between setpoint and feedback

Availability of current/load measurement on a thruster, gives the DP System possibility to determine;
...if it's dealing with it **Setpoint failure**, or
dealing with a **Feedback failure**.

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If we **KNOW** we have a feedback problem, the DP could switch to “estimated feedback” and continued to use the actual thruster, until the problem is solved.

If we **KNOW** we have a setpoint problem, the DP could Give a clear alarm saying; **STOP THE THRUSTER!!**

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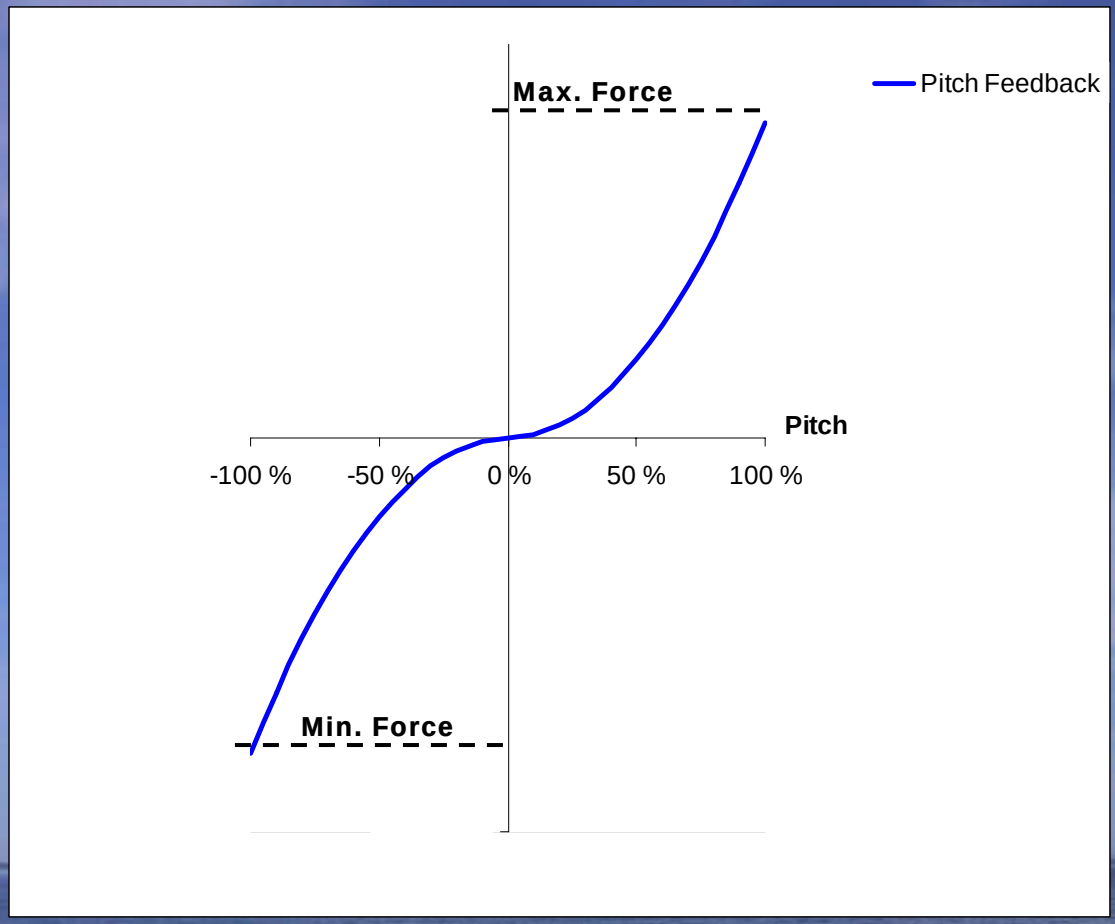
“Potmeter Out of zero” detection



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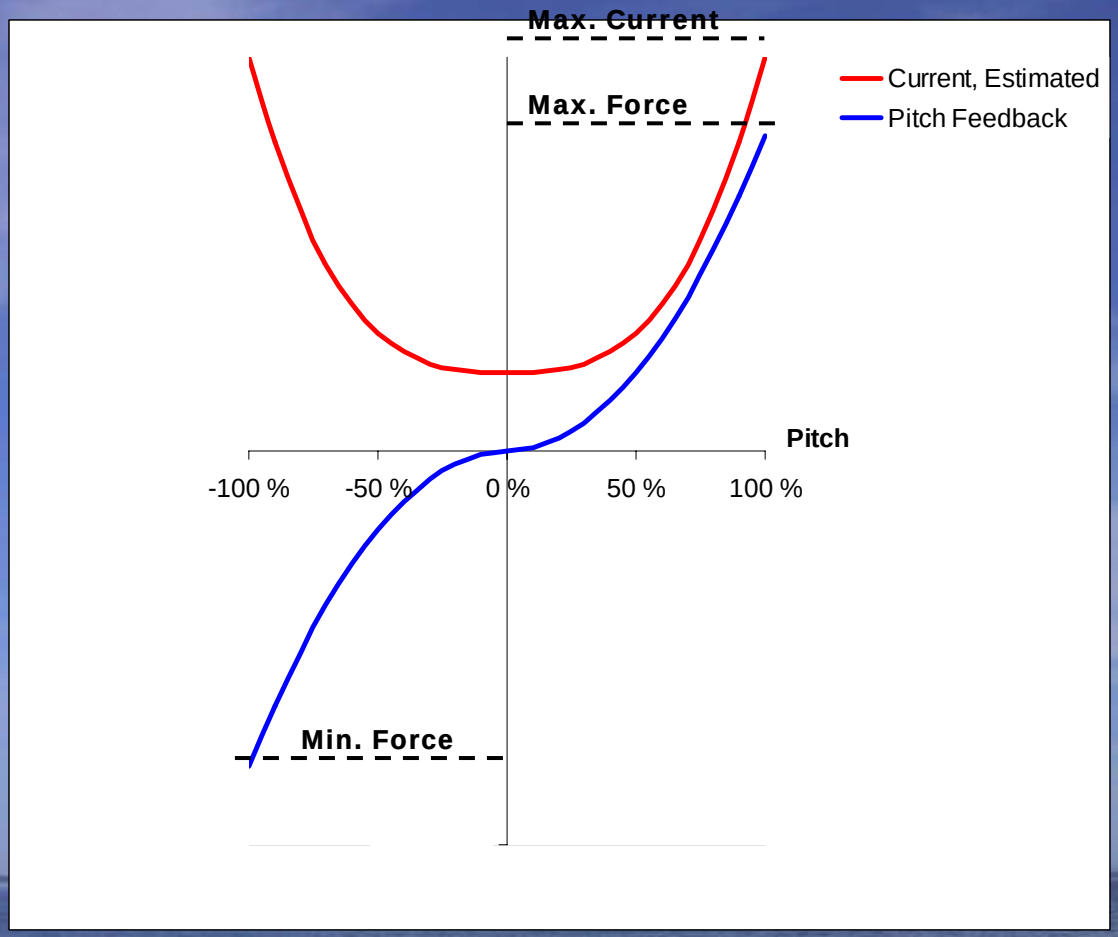
“Potmeter Out of zero” detection



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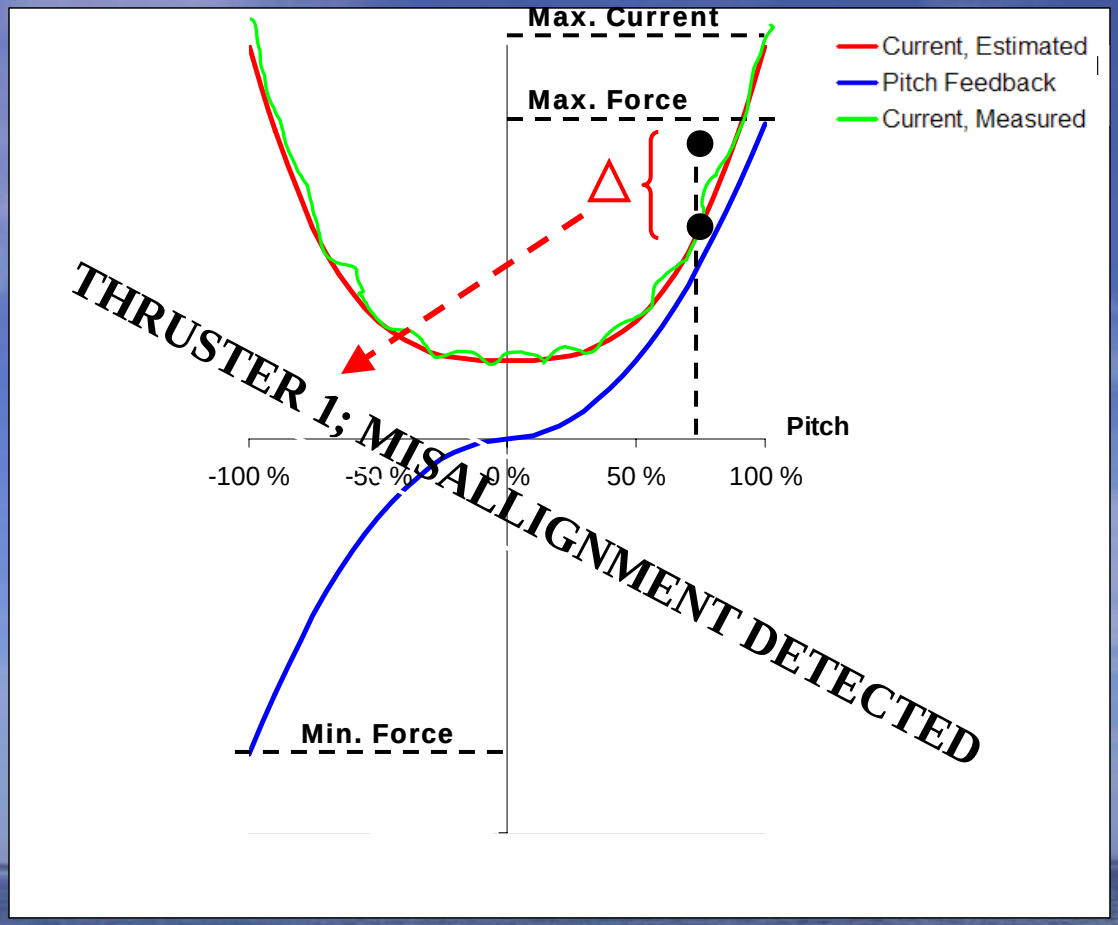
“Potmeter Out of zero” detection



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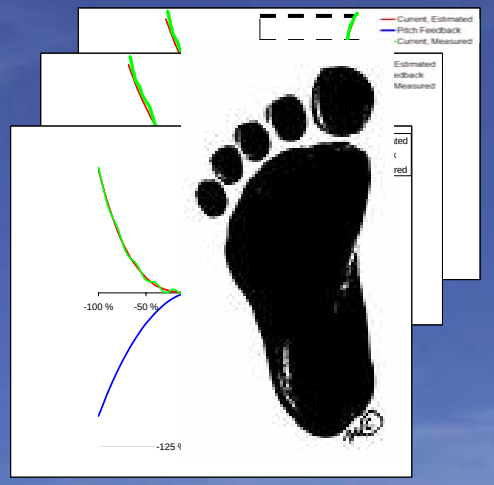
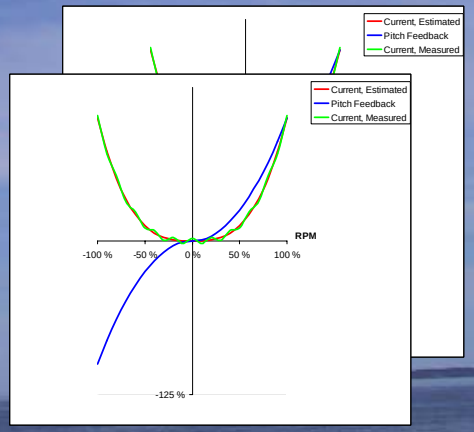
…on the DP trial…





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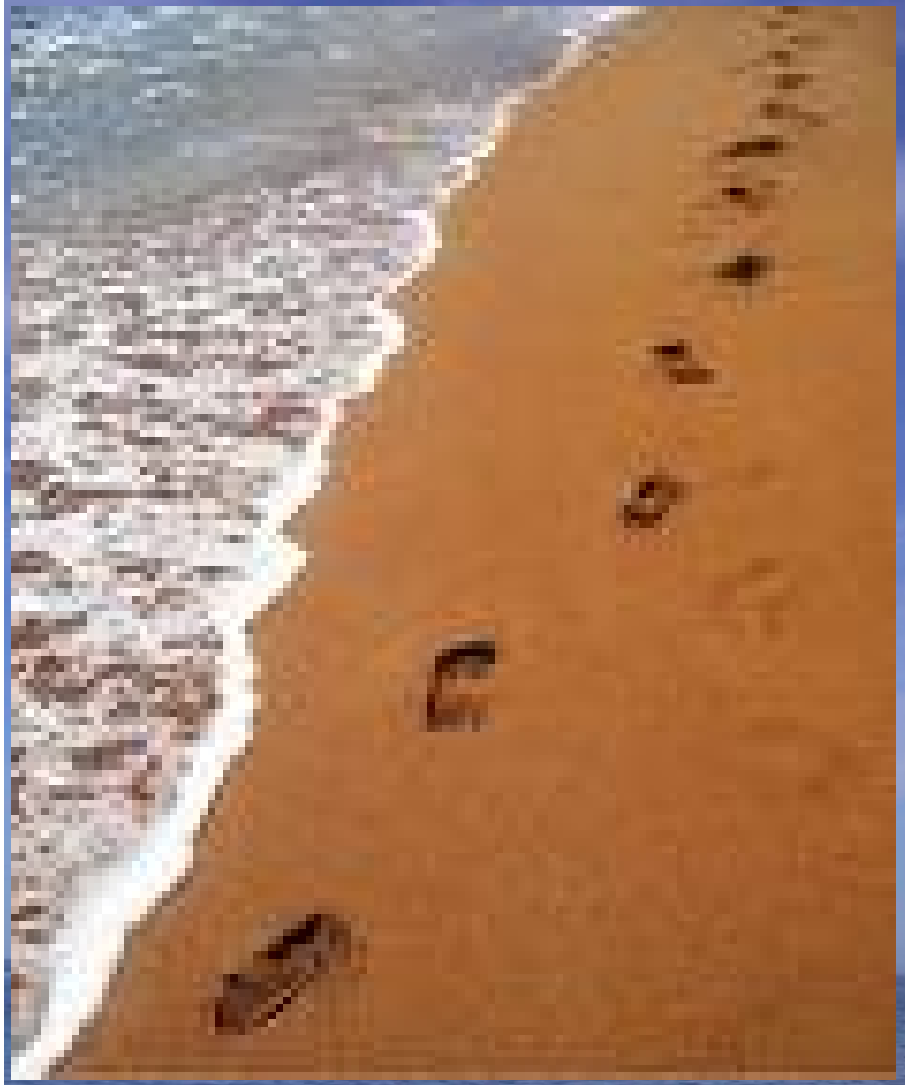
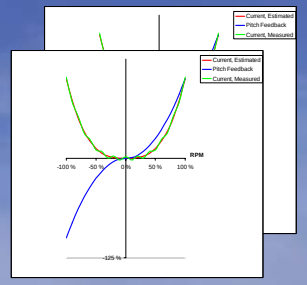
..like footprint in the sand…





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Thruster Ventilation

Air suction and **“in and out of water effect”…..**

….is what we call “***thruster ventilation***”.

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Ventilation

"I hope my over speed protection works!"

"Man, isn't this great! My system keeps the ship in position in this weather!"

"How can I model this stuff? I am supposed to work with liquid, not air!"

"My maintenance budget Is already sky high!"

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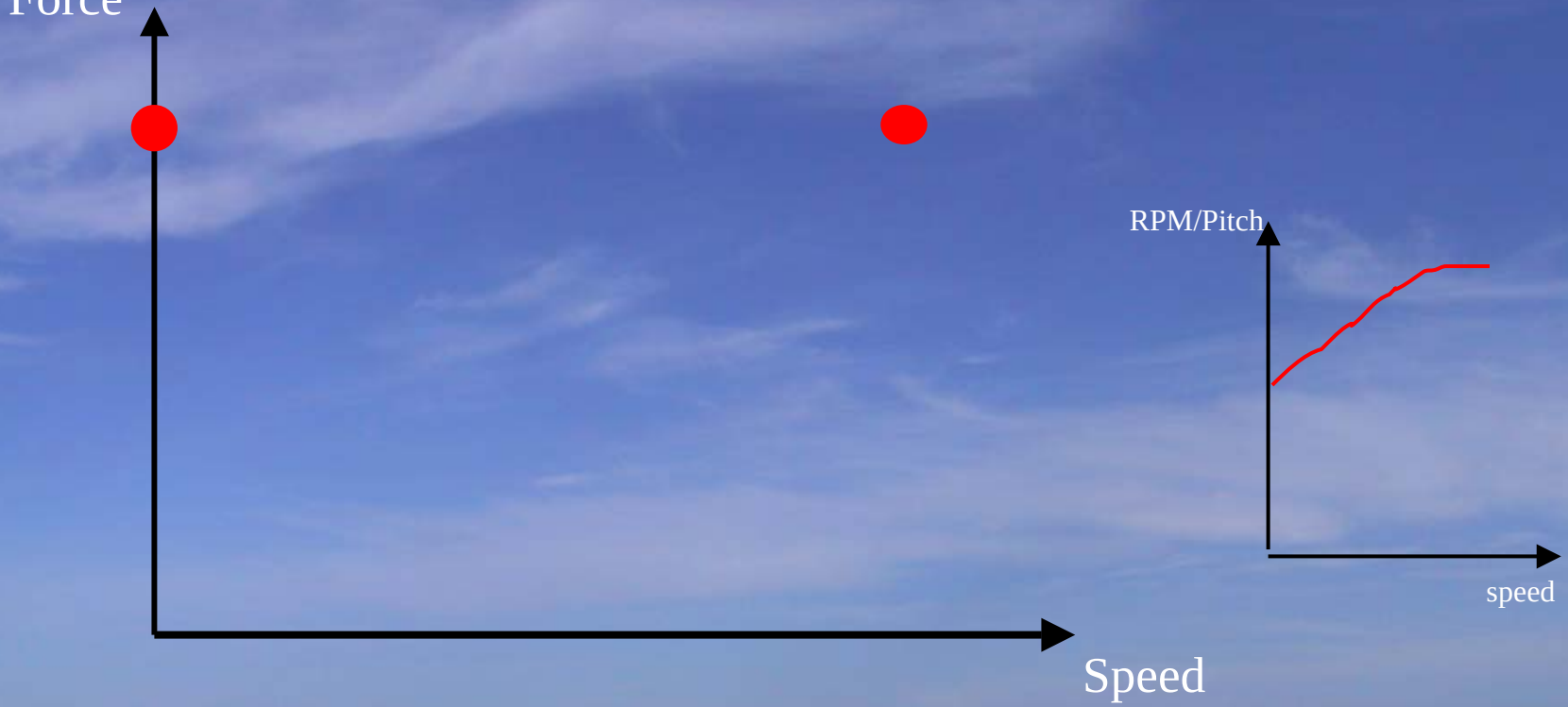
From “bollard pull” to “service speed”



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