

Formula 500

Bringing Cost-Effective & High-Performance Formula Racing to Europe



Slipstream Research, LLC
(European Operations Division)

Agenda:

- Introduction & Background
- The Current State of European Motorsport
- The Trouble with Moving Up
- An alternative to the Status Quo
- Some History & Facts about Formula 500
- Why Formula 500? Making the Case...
- A Strategy for Success
- Conclusion & Final Thoughts

An Overview of Slipstream Research

- Founded in 1997 by Viorel “Franco” Vernica & Brian Link as “AeroSport Engineering Concepts”
- Initial emphasis was on 1:10-scale Radio-Controlled racing cars, then has progressed throughout the years into karting and aerospace ventures
- Captured 2001 IKF Region 7 Constructor’s Championship with its KT-100 kart
- First aviation client in 2006, participating in the Operational Test & Evaluation of the ADS-B Air Navigation & Traffic Control System with the FAA and NTSB
- First Experimental Flight Test client in 2008
- Commenced European Operations in 2011
- Changed group name to “Slipstream Research” in 2012 to reflect the group’s Automotive & Aerospace Engineering Specialties
- Current Participant in the European Rotax Max Challenge Kart Championship



About the Speakers...

•Brian Link

- Vice President and Technical Director for Slipstream Research
- B.S. Aerospace Engineering, California State Polytechnic University
- M.S. Aeronautical Science, Embry-Riddle Aeronautical University
- Certified Commercial Pilot in both Airplanes & Helicopters
- Actively involved in Motorsport since 1991, with multiple karting pole positions & victories
 - Licensed in Karts, SCCA Formula 2000, and USAC 410 Sprint Cars

•Arnd Ström

- Prototype Fabrication Lead, Slipstream Research Europe
- Graduate, Industrial Technology University, Munich (with Distinction)
- Certified Expert Automotive & Aerospace Machinist
 - CNC and Manual
 - Certified TÜV Quality Assurance Specialist
- Certified ADAC Master Automotive Technician
- Active in Motorsport since 1992, 2-time ADAC German Kart Masters Champion
 - Licensed in Karts and ADAC Formula 3

State of European Lower-Level Formulae

- In response to the escalating costs of kart racing, the Rotax Max Challenge has offered a more affordable alternative to competing against factory-supported racers in the CIK-FIA karting community
- With it's legendary history, Formula Ford continues to be relatively popular with both professional racer, fan and media alike as a proving ground for tomorrow's racing stars
- There are not many recreational racers participating in motorsport events across Europe on a regular basis, mainly due to existing championship structures & recent downturns in the world economy
 - The United Kingdom is the exception with the RAC, similar to the SCCA in the United States



The Trouble with Moving Up...

- Although Rotax Max has provided an excellent solution to the unchecked costs of kart racing, moving up into Formula racing is an extremely expensive endeavor
- For those wishing to move up, be it professionally or recreationally, a large investment must be made, on the order of several times an average racer's karting budget, with operating costs, spares and ancillary equipment notwithstanding



- For Example...



New Rotax Max Racing Kart: approx. €5,000 plus spares



New Formula 3 Car: approx. €135,000 plus spares*

*= To “Buy” a competitive seat, a racer can expect to spend upwards of €400,000 for the entire season!



New Formula 2000 Car: approx. \$105,000 plus spares*

*= Like Formula 3, to “Buy” a seat in a competitive car, look to spend upwards of \$350,000!



The Bottom Line:

Racing is Expensive. Moving up Costs even More.

(Read: No Deep Pockets, No Moving Up)

Imagine a Championship that features:

- Lap Times on par with a Formula 2000
- Top speeds in excess of 240 km/h (150 mi/h)
- Large Starting Grids
- Wheel-to-Wheel Competition
- Open Chassis & Aerodynamic Development

...and Significantly Less Expensive???



Formula 500



Formula 500: Quick History & Facts

- Began as Formula 440 in the early 1980's as a low-cost, high-performance Formula
- Formula emphasizes Driver & Car Set-Up skill
- Costs are controlled by way of strict regulations on Engine, Drivetrain & Shock Absorbers; Chassis & Aerodynamics are open to experimentation by builders & engineers (some restrictions apply)
- Average Starting Grids in excess of 25 cars
- Top Speeds and Lap Times on par with Formula 2000 cars
- Average cost of new Formula 500 car: Less than \$25,000 (€20,000)
- Average cost of used Formula 500 car: Less than \$10,000 (€7,800)



Posing with their respective machines are (L-R) Jerry Hansen, builder of the Marquis Stinger; Powell Hassell, Eastern distributor for Red Devil 440; Jim Jolliffe, designer and builder of Micro-Belmont Roadrunner; and Earl Holtzclaw, designer/builder of Holtzclaw Scorpion.

J. Vahn



Formula 500: Basic Technical Overview

- Type: Single-Seat, Mid-Engine Open Wheel
- Chassis: Chrome-Moly Tubeframe
- Front Suspension: Independent A-Arm
- Rear Suspension: Solid Axle w/Watts linkage
- Brakes: Dual Independent Disk Forward, Single-Disk Rear
- Body: Composite or Aluminum
- Ground Effects: Prohibited
- Wings: Prohibited
- Engine: 2-Stroke, 2-Cylinder 500cc Displacement
- Horsepower: 132 bhp (133 P.S.)
- Power-to-Weight Ratio: 0.155:1 (F2000 is same)
- Induction: Natural Aspiration
- Fuel: Gasoline/Oil Mix
- Drivetrain: Single-Speed Variable-Ratio Torque Converter (CVT)
- Maximum Length: 381 cm (150 in)
- Maximum Wheelbase: 203 cm (80 in)
- Maximum Width: 140 cm (55 in)
- Minimum Weight: 385 kg (850 lb)



Why Formula 500? Making the Case

- Excellent upgrade from karting due to lower cost
 - Will appeal to recreational and prospective professional drivers & teams
- Continuity of Technical Regulations ensure maximum competitiveness of equipment over time and lower costs
- F500 performance will show potential to move to higher formulae
- Open development formula will appeal to self-builders & engineers
- Formula has been proven very successful in the USA
 - Active F500 racers, teams & constructors ready to assist
 - Spare part supply chains already established
- Parts readily available on the open market
 - Engine & Drivetrain parts may already be locally available
- We can Race Now!

Implementation of Formula 500: A Strategy for Success

- European Formula 500 can use existing US SCCA Technical Regulations
 - Rules are already established and proven
 - The only required Short-Order editing would include the conversion of all measurements to their metric equivalents, as well as multi-language translations
- Current European FIA Formula 3 Sporting Regulations can be used
 - Similar to the SCCA rules, current sporting regulations would already be familiar to racing officials at European tracks
 - Many drivers & teams will also already be familiar with the regulations
- “Let’s use what is already proven”

Implementation of Formula 500: A Strategy for Success, cont.

- Plan for 2013:
 - Open Testing & Development among new entrants
 - Slipstream Research will commence testing as soon as possible
 - Stage “Match Races” using existing SCCA and FIA rules to test conformance & practicality, adjusting policies & procedures as needed
 - Marketing & Promoting F500 as a viable formula to prospective entrants & sponsors
 - Appearances at Karting, DTM, WTCC, F-1 & F-3 events
 - TV / Radio / Print / Internet (to include streaming & podcasts)
 - Establish a European F-500 website
 - Latest News & Information
 - Live Timing/Scoring & Video streaming capability
 - Driver, Team, Sponsor & Constructor Profiles
 - Fan, Driver, Team Interactive Forums
 - Private forums for data sharing

Implementation of Formula 500: A Strategy for Success, cont.

- Plan for 2014 & Beyond:
 - Inaugural European Formula 500 Championship
 - 6 to 10 Championship Race Events
 - Suggested venues include Hockenheim (D), Brno (CZ), Norisring (D), Red Bull Ring (A), Mugello (I), Nürburgring (D), Oschersleben (D), Sachsenring (D) and Zandvoort (NE)
 - Engage the Media with routine Press Releases
 - Continual releases will keep people interested and sponsors happy
 - Keep displaying the series at other sporting events
 - Utilize the European Formula 500 website as a primary means of Race-Day coverage!
 - Live Timing and Scoring & Video streaming to include in-car
 - Go Mobile! Ensure website is Mobile Phone compatible
 - Fans can follow the series on the go
 - Incentivize fan attendance with special promotions
 - Discounted & Free Tickets
 - Drawings for Formula 500 Test Drives?

Closing Thoughts & Conclusion

- Formula 500 is a sustainable, low-cost alternative to much more expensive forms of motorsport, while featuring close competition and high performance
- Technical Regulations ensure creativity & ingenuity while maintaining parity
- A European Formula 500 Championship will appeal to recreational & prospective professional drivers & teams alike who are ready to move up from karting
- Already established in the USA; current drivers, teams, constructors & suppliers stand ready to assist now
- A “Turn-Key” product, Ready to Go!