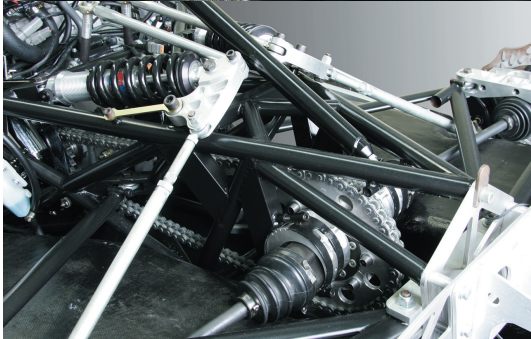


# SPEADS RACER

PART I/III

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[top] the beautifully machined uprights are identical on all four corners reducing costs on the number of spares that you need to carry [above] the view at the rear of the car showing the chain drive and Quaife differential, and the rear rocker arm suspension assembly [opposite] the front rocker assembly and the Flatshift electronic paddle-shift system; the whole package is incredibly neat and typical of a purpose built racecar, if it's there, it's there for a reason.. [below] purpose built Speads 13" wheel with Hoosier rubber; Hoosier provide up to nine different sizes and compounds that will suit the RS08



**A**s a 12 year old, I can still remember the extraordinary 1966 Ford win at Le Mans with the legendary GT 40.

This car was devastating, effectively beating the Europeans at their own game and ultimately delivering four Le Mans victories to Ford. The emergence of the Porsche 917 during the 1970's ensured a strong following for a sport that the general population could identify with.

Formula 1 was, and still is an esoteric category whereas sports cars have proper enclosed bodywork and great aesthetics more akin to road going super cars.

Sports car racing enjoyed one of its strongest decades during the Group C era of the 1980's and early 1990's, driven by innovations in aerodynamics and chassis design with support from major manufacturers such as Mercedes Benz, Porsche, and Jaguar. This has been followed by the all conquering performance of the Audi cars earlier this decade using diesel technology with direct relevance for reduced emissions and improved fuel consumption.

I have always wanted to race a Le Mans style car with their great looks, aerodynamics that are not an afterthought and in a package that doesn't make you wince every time you turn the key. The advent of large capacity, high performance motor cycle engines has delivered racing power plants for the masses. You can now have a state of the art race car that is both reliable and affordable. It has taken a while but vehicle technology has also caught up. Lightweight chassis's with

sophisticated suspension dynamics are now available to exploit this bike power while utilizing aerodynamic improvements to deliver lap times similar to Formula 3 cars! The proliferation of motor cycle engined sport cars in the UK, Europe and the US has spawned a number of specialist manufacturers including West, Radical, the Australian company Minetti, ADR and now **SPEADS**.

Over the next three editions of 321 Ignition, we will present the credentials of the SPEADS, follow the course of its local assembly and look to see how the car is tuned and presented for competition.

#### SPEADS the Company

SPEADS are a niche supplier of motorcycle engined race cars to the UK, US and South African markets with an enviable track record of success.

Since 2002, SPEADS cars have achieved 86 wins with 84 track records in the UK, and they have been consistent winners and top three finishers in the SCCA Formula 1000 (FB) and CSR/DSR competitions.

Meridian Motorsport has partnered with SPEADS to bring the cars to the Australian market.

They have two SPEADS models for sale. Both models are available in comprehensive kit form for DIY assembly or as turnkey cars ready to race.

The SPEADS RM08 is an advanced Formula style single seater being around 92% scale of a current Formula 1.

The RS08 is a Le Mans style sports racer with advanced full body aerodynamics

designed by renowned engineer Paul Haas. The cars feature the latest in safety, aerodynamics, suspension design, and styling, with an eye towards longevity and cost-of-ownership. Each uses an immensely strong tubular chassis for ease of maintenance and repair, and can accept any type or capacity of motorcycle engine.

#### CHASSIS

The Sports Racer chassis is an outstanding feature of the SPEADS. It is a lightweight space frame continuously developed over the last eight years in rig testing and racing in the USA, the United Kingdom and South Africa; all with a view to ever increasing stiffness and reliability.

From the plan view it takes the form of a narrow waisted diamond comprised of two triangles, with a confluence of longitudinal members providing extremely strong extremities. Chassis members are mild steel tubing of mainly 32mm diameter x 0.9mm wall thickness. Additional sections are used in high stress areas including differential supports, engine and suspension mounts. Main and dash roll bars are 38mm diameter x 2.1mm wall thickness. The frame is fully TIG welded ensuring consistency and quality with a minimum of distortion. There is an insulated double cockpit bulkhead which contains an FIA bladder fuel cell.

Chassis stiffness translates to outstanding mechanical grip and reduced tyre wear, enabling the SPEADS to use softer tyre compounds compared to its competition.



**"The Sports Racer chassis is an outstanding feature of the SPEADS. It is a lightweight space frame continuously developed over the last eight years in rig testing and racing in the USA, the United Kingdom and South Africa.. "**



This chassis provides not only great handling and a degree in composites technology is not required to carry out major repairs! High strength, hopefully means you won't have to straighten the chassis after off-track excursions, and side impact protection means you are safer in your car.

The RS08's cockpit is roomy and designed it to accommodate larger drivers of up to 1.9m and 110Kg which is important in the Australian environment particularly for us older drivers.

**SUSPENSION AND RUNNING GEAR**

John Sapsed the owner of SPEADS is the son of an English toolmaker. His background clearly shows in the design and fabrication of major suspension components including uprights, steering rack, rockers and even the universal joints for the steering column which are all beautifully CNC machined.

Pushrod suspension is used at all four corners. Left hand threads are utilised where quick adjustment is needed such as with pushrods for ride height alteration. Approximately 50 rod ends are used per car, ranging from 7/16" to 1/2" diameter.

Not only can toe and camber be adjusted easily, but caster can be altered in a matter of seconds. Camber adjustment is via shims allowing rapid and known camber changes at the track. Uprights are machined from billet and can be installed on any one of four corners to reduce need for corner specific spares.

Control arms are fabricated from aero tubing of 1.6mm wall thickness, and include anti-intrusion beams for added safety. The car uses very long wishbones for minimal camber change with consistent roll centre positioning.

Adjustable profile roll bars are used for tuning front and rear weight transfer allowing use of softer springs, thus increasing mechanical grip even further.

Brake calipers are radial mount Wilwood 4-spot Powerlite for additional installed stiffness, and

rotors are fully floating for improved pedal feel and longer life.

Vented rotors are fitted at the front with a scalloped, lightweight solid rotor being used at the rear. The bias adjustable pedal box is sculpted in aluminum with separate front and rear circuits. A neat fitting is the use of a V8 Supercar brake block allowing the installation of front and rear pressure sensors.

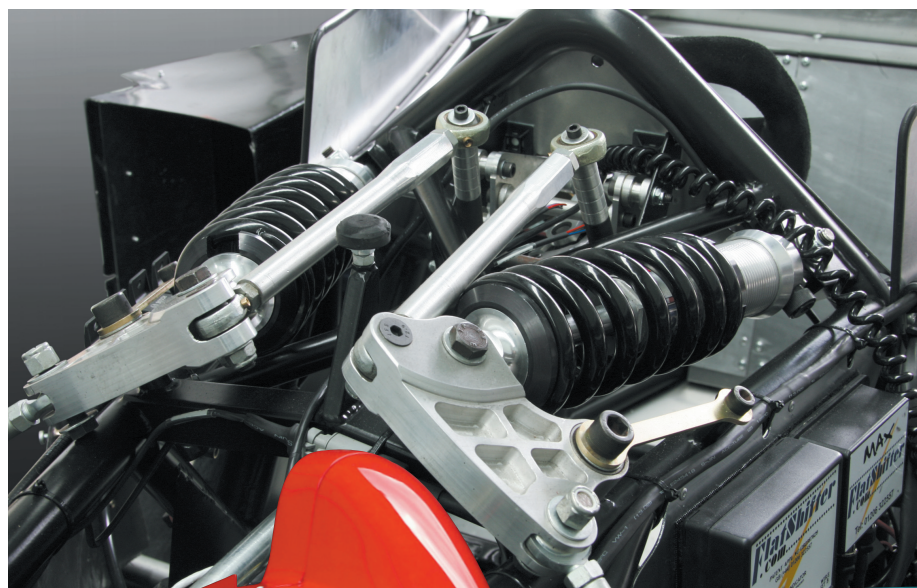
Dampers are a single adjustable aluminum bodied Protech shocks with 600lb-in springs front and rear. These are the result of a lot of careful valving development to handle the high aero loadings while maintaining bump compliance at lower speeds. Two and three way shocks do show small advantages but are often beyond the abilities of the driver to find optimum setup.

Centre-lock wheels are standard. SPEADS manufacture a 13" aluminum/magnesium wheel in widths of 8", 9" and 10" widths. The wheels are incredibly light with a 9" wheel and tyre combination weighing just 6.2kg!

**BODYWORK**

The fiberglass body comes from a high quality mold, and is self-colored Gel-coat. As a result, it requires no paint, so there are no ugly paint chips or "spider webs" to contend with. The bodywork consists of front, center and rear sections. It attaches with simple catch-latches requiring no tools to operate, and is manageable by one person. The cockpit has a form fitting seat which is moulded to sit under the edges of the centre section cockpit combing. A foot well moulding is also provided to keep feet in position under high G loadings.

A nose mounted brake cooling duct feeds air to the front brakes with two individual rear mounted ducts feeding air to the rear brakes. Two air ducts either side of the roll hoop feed cold "ram" air to the mid mounted engine. The twin tunnel diffuser floor is complemented by an adjustable front splitter and rear wing leading to incredible levels of down force, and cornering capabilities in excess 3G.



**TECHNICAL SPECS**

**SPEADS RS08**

- Model:** RS08 Sports Racer
- Chassis:** tubular steel space-frame
- Body:** GRP; high-quality Gelcoat finish
- Engine:** 1340cc Hayabusa in-line 4-cylinder, DOHC, 16-valve, electronic fuel injection
- Bore & stroke:** 81 x 65mm
- Compression:** 12.5:1
- Power:** 146KW @ 9800rpm (200bhp)
- Max torque:** 154Nm @ 10200rpm
- Drive:** chain
- Gearbox:** Hayabusa 6-speed paddle-shift sequential (plus reverse), with a Flatshifter automated gearshift system
- Differential:** Quaife ATB
- Cooling system:** pod-mounted aluminium radiators for oil and water, 3-pass Setrab oil cooler
- Engine management:** Race Tech. Dash 3
- Dash display:** Race Technology DL2
- Lubrication system:** purpose built billet aluminium wet sump system
- Fuel cell:** fully enclosed FIA approved fuel bladder behind drivers seat - 25 litres
- Suspension:** double wishbone front and rear, inboard pushrod
- Dampers:** gas pressurised single adjustable Protech shocks (double & triple adjustable options)
- Springs:** 600lb-in
- Brakes:** fully floating ventilated rotors front and rear with radial mount Wilwood 4-piston calipers and individual brake ducts, front and rear
- Tyres:** Hoosier 20x7.5R13 (front) 20x9R13 (rear)
- Wheels:** centre-lock Speads 13" aluminium/magnesium wheels (8", 9" and 10" widths available)
- Aero:** high downforce rear wing, front splitter with integral double underfloor diffusers, flat floor and rear diffuser
- Weight:** 350kg (no driver/fuel)
- Wheelbase:** 2640mm
- Track:** (front) 1420mm, (rear) 1400mm
- Length:** 4200mm, width (1710mm), height (1050mm)
- Ride height:** 55mm

## SPEADS RS08

[right] there are currently two Speads models available, the RS 'Sports Prototype' and the RM, open-wheel racer pictured. Targeted at the SCCA Formula 1000 category (for 1000cc bike-engined open-wheel race cars); models already involved in the category in the US include; Speads, Stohr, West, Van Diemen and Swift. Engines used are typically Honda, Yamaha, Suzuki or Kawasaki.



[www.speads.com.au](http://www.speads.com.au)

### ENGINE & DRIVETRAIN

The RS08 can accept almost any motorcycle engine. A popular fitment (depending on the class of racing) is the 1340cc Suzuki Hayabusa in-line four. The standard 09 Busa power output is 146Kw @ 9,800rpm with matching torque of 154Nm @ 10,200rpm. This can easily be improved with a performance exhaust and optimum tuning via something like a Power Commander. In summary, you can expect a reliable 200Hp from a package that you can physically pickup and manhandle.

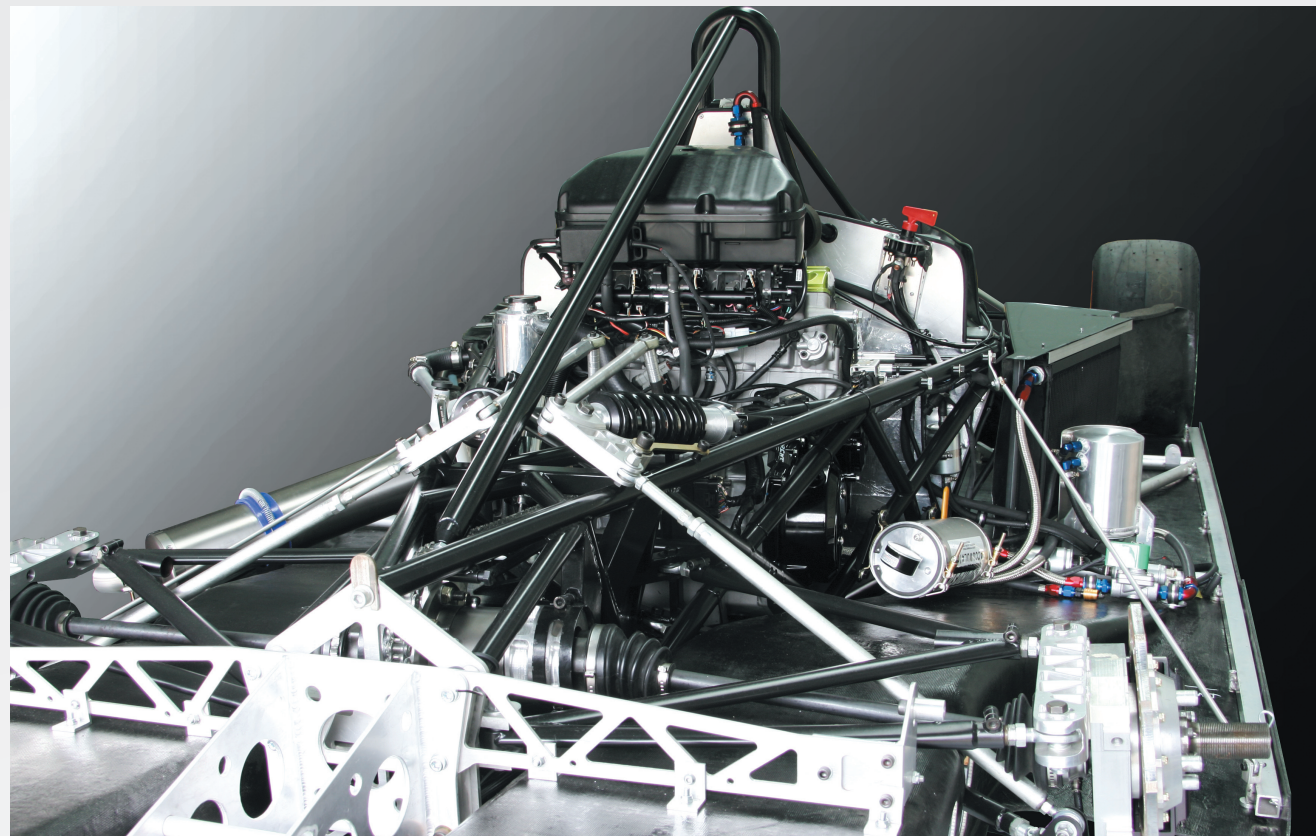
A Quaife, Torsen style differential is used at the rear. Unique to the Speads is an angled engine installation, allowing for equal length half-shafts. This reduces the number of spares that need to be carried and also eliminates torsional moments caused by unequal length half-shafts. Chain tension is adjusted by rotating the differential bearings which are located in eccentric mounts.

### ELECTRONICS

One of the issues with cars of this type is that there is usually not enough time for even the most mundane of driving operations! Gear changes are increasingly being handled by Jeremy Clarkson's beloved "flappy paddles". The Speads routinely uses an automated gearshift system from Flatshifter in the UK. This can be configured for clutch-less full throttle up and throttle blipping downshifts all controlled by a gear lever or steering wheel mounted paddles. This is not only quicker but is much kinder for the gearbox dogs and selectors.

Instrumentation is limited by the driver's available time to view data as well as available real estate to position electronic dashes and gauges. Cars must have a gear position indicator and shift lights as well as warning lights for critical systems. This Speads has adopted a Race Technology Dash 3 which is fully programmable, with multiple pages all accessible by the driver. The dash is driven by a Race Technology DL2 GPS based data logger. This logger is optioned with 6 G sensors to handle the high cornering speeds and lateral accelerations, as well as having multiple analogue and digital data inputs enabling a myriad of data to be collected.

In the next edition of Ignition 321, we shall look at assembly of the Speads, its costs to completion and traps for new players!



[above] the craftsmanship of the Speads is impressive and everything has its place; it's also obvious that weight saving is important with support parts lightened accordingly [right] Rill Tech in the US are heavily involved in SCCA competition with Speads in both the open-wheel and Sportscar categories and modify the race Hayabusas [below] the front end assembly of the RS08



## WHAT ARE YOU DRIVING IN 2010

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