



Radical Owners Handbook



RadicalSportscars.com



Contents

Introduction

Dear Radical Owner 3

Getting to know your Radical

Cockpit layout 4

Engine bay layout 4

Front and rear suspension layout 5

ECU locations ⚠ 6

Engine electrical sensor locations ⚠ 6

Coolant temperature sensor locations ⚠ 6

Checks before driving your Radical

Preparation for shake-down 7

Check ALL fluid levels ⚠ 7

Driving position 8

Manual sequential gear change 8

Dashboard layout 8

Driving your Radical

Starting the engine 9

Running-in ⚠ 9

Shake-down 9

Bedding-in brakes 10

Brake bias settings 10

Manual gear change 10

Paddle shift gear change 10

Driving technique 11

Fuel ⚠ 11

Fuel filter 11

Preparing your Radical

Centre-lock hub nuts 12

Air jacks 12

Suspension - set-up 12

Ride height 12

Suspension pre-load 12

Corner weights 13

Triple adjustable intrax dampers 13

Gearing 14

Gear drive unit - ratio change 14

Radical set-up guide 16

Component 'lifing' chart 17

Torque guide for Radical cars 18

ECU hardware/software

Life ECU PTMON run up screen 18

Engine management system 18

To download stored data 19

To view the data you have just downloaded 19

To view previously stored data 20

To view data 20

Additional information

SR3 RS dimensions 21

Notes 22

Parts manual

SR3 RS Parts manual 23

Dear Radical Owner



Thank you for purchasing a SR3 RS and "welcome" to the worldwide Radical family. Since its launch in 2001 we have continually developed, refined and improved the SR3 into a truly unique sportscar.

If properly maintained your SR3 RS will give you amazing driving experience, every time you head down the pit lane. Although your car has been carefully inspected and run-up on our rolling road dynamometer, please do not press the 'Start' button until you have read through this manual, carried out all the checks and learnt how to get the best from your car.

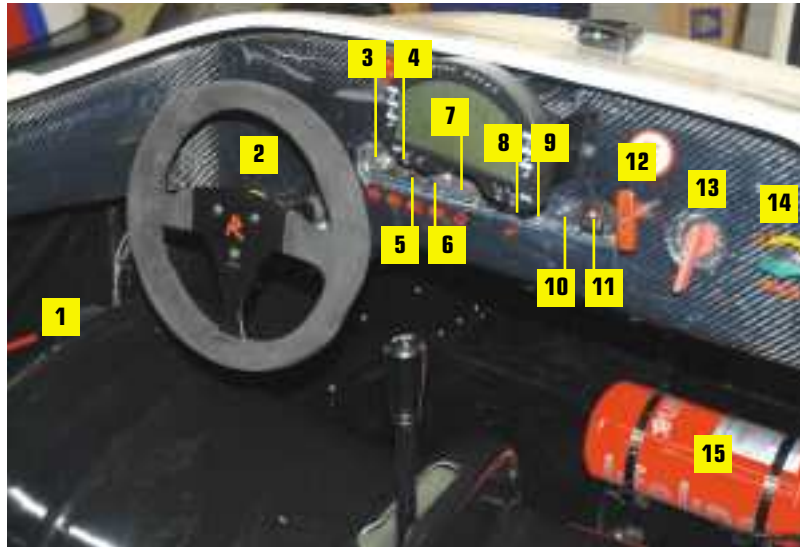
You will find all the help and support you need via our global web site network at www.radicalsportscars.com. Parts, consumables and merchandise can be purchased online, while technical advice, sales assistance and race series information is just an email away.

Phil Abbott
Radical co-founder



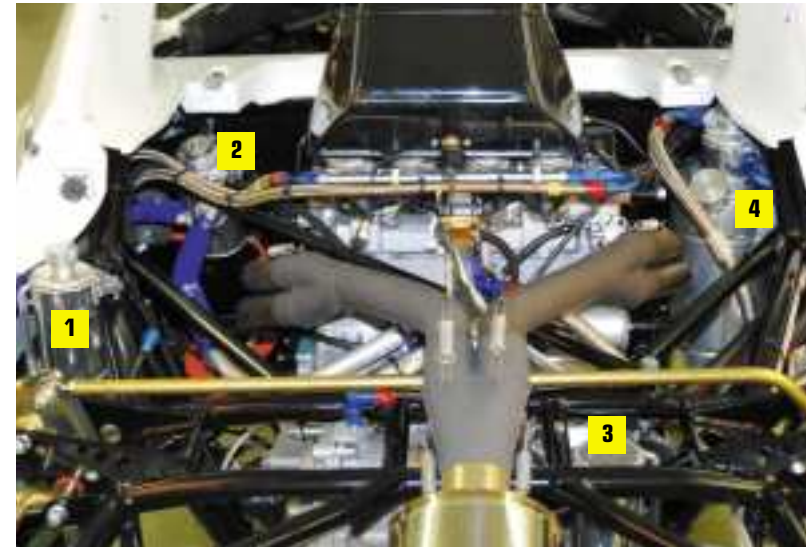
Getting to know your Radical

Cockpit layout



- 1 Reverse gear lever
- 2 Paddle- shift dash plug - (If fitted)
- 3 Indicator switch - (If fitted)
- 4 Dip/main beam switch - (If fitted)
- 5 Headlight on switch - (If fitted)
- 6 Fog light on switch
- 7 Starter button
- 8 Ignition switch
- 9 Circuit breaker
- 10 Circuit breaker
- 11 Hazard warning light switch - (If fitted)
- 12 Extinguisher pull cable - (If fitted)
- 13 Battery isolator
- 14 Brake bias adjuster
- 15 Fire extinguisher - (If fitted)
- 16 Data plug (not shown, situated on left side of dash panel)

Engine bay layout



- 1 Coolant expansion tank
- 2 Coolant swirl pot
- 3 Oil catch tank
- 4 Dry sump oil tank

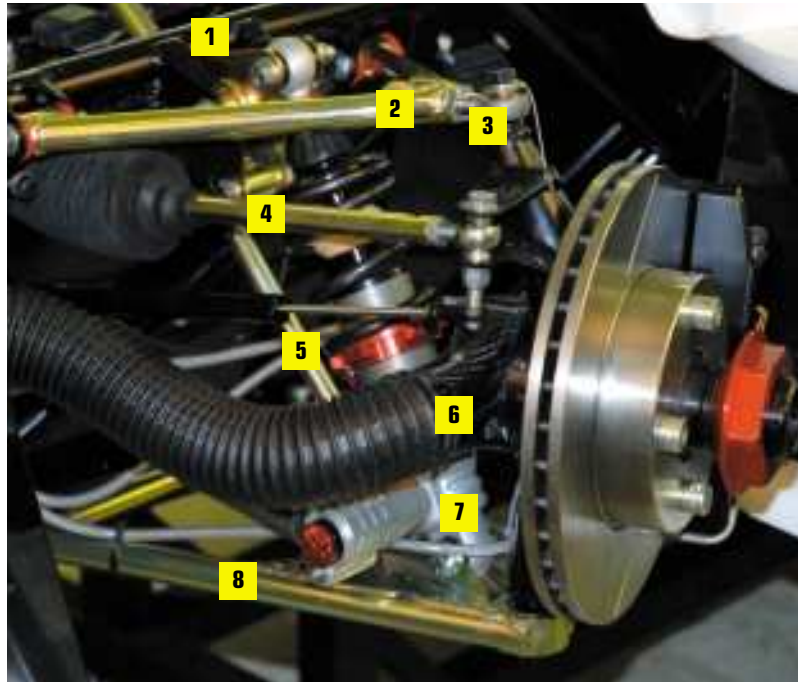


WARNING!

Do not rev the engine to more than 4,000rpm until the oil is above 50°C. When cold, the oil can run at excessive pressure, which may damage the engine.

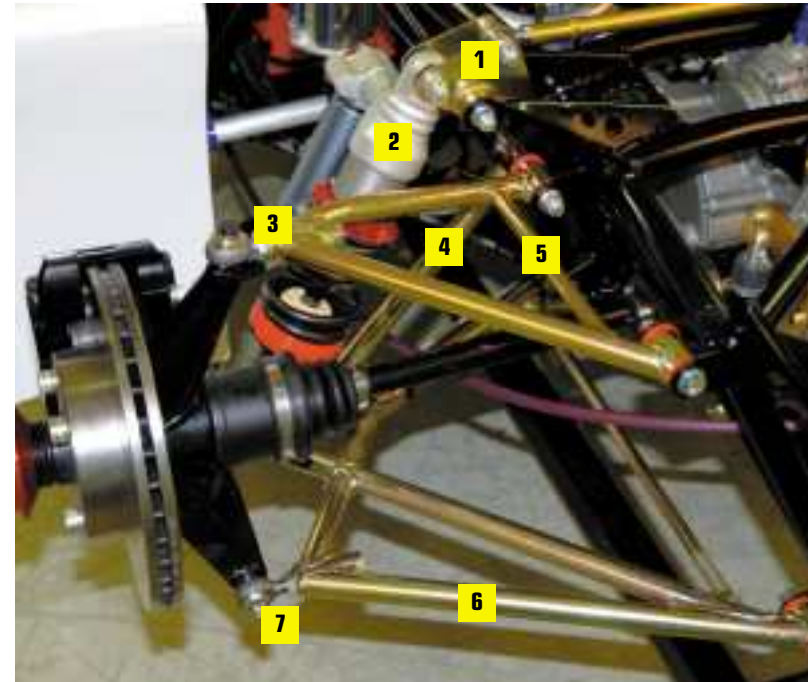
Getting to know your Radical

Front suspension layout



- | | |
|-----------------------------------|--------------------------------|
| 1 Front rocker arm | 6 Brake duct |
| 2 Top wishbone | 7 Front damper assembly |
| 3 Front camber adjuster | 8 Lower wishbone |
| 4 Front track rod | |
| 5 Adjustable front pushrod | |

Rear suspension layout



- | | |
|----------------------------------|---------------------------------|
| 1 Rear rocker arm | 5 Top wishbone |
| 2 Rear damper assembly | 6 Lower wishbone |
| 3 Rear camber adjuster | 7 Rear tracking adjuster |
| 4 Adjustable rear pushrod | |



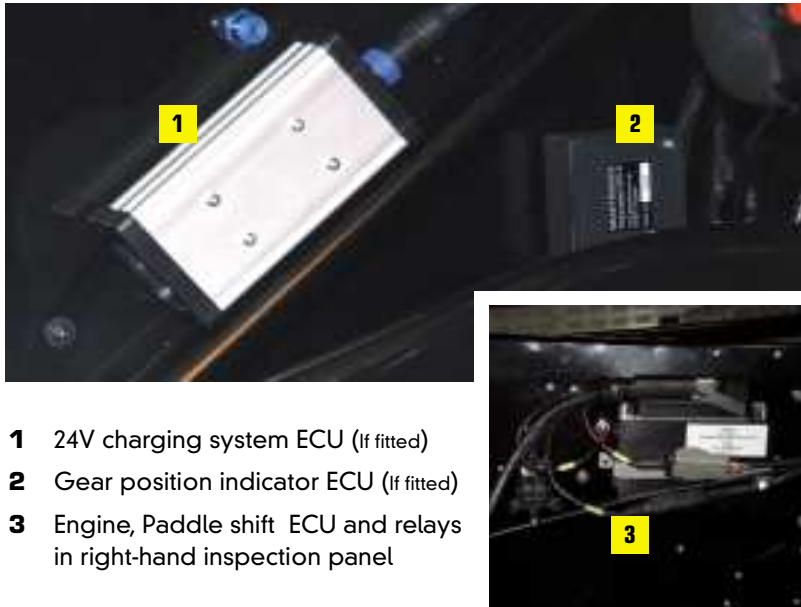
IMPORTANT Before your SR3 RS leaves the factory it is thoroughly inspected, the suspension is set on a flat patch to factory recommended settings and the car is run-up and fully checked on our rolling road dynamometer.

Despite this, it is essential that before taking to the track, you carry out a thorough spanner check, paying particular attention to all hoses, connections and suspension fixings, brake bias adjuster etc.



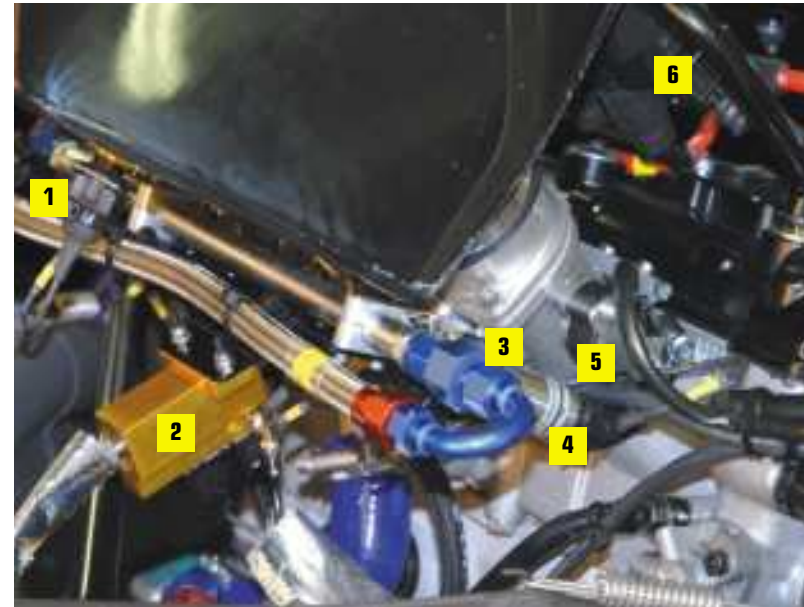
Getting to know your Radical

ECU locations



- 1 24V charging system ECU (If fitted)
- 2 Gear position indicator ECU (If fitted)
- 3 Engine, Paddle shift ECU and relays in right-hand inspection panel

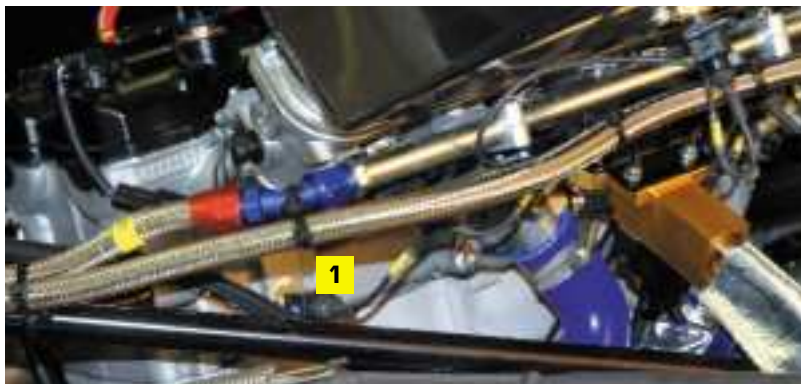
Engine electrical sensor locations



- 1 Air temperature sensor
- 2 Paddle shift blipper actuator (If fitted)
- 3 Fuel injector
- 4 Fuel pressure sensor
- 5 Throttle position sensor
- 6 Ignition coil

24V starting battery is in left-hand sidepod. The pod inspection panel can be removed to gain access.

Coolant temperature sensor location



- 1 ECU coolant temperature sensor

Checks before driving your Radical

Preparation for shake-down

Before your SR3 RS leaves the factory it is thoroughly inspected, the suspension is set on a flat patch to factory recommended settings and the car is run-up and fully checked on our rolling road dynamometer. Despite this, it is essential that before taking to the track, you carry out a thorough spanner check, paying particular attention to all hoses, connections and suspension fixings, brake bias adjuster etc.

Check engine oil level

The oil level in the dry sump tank must be checked using the dip stick supplied. The level must be maintained between the top two marks when warm (a minimum of 40°C oil temperature), and between the bottom two marks when cold. The level should be checked AFTER running the engine, and holding the revs at 4,000rpm for ten seconds, to allow the oil to be scavenged. The engine should be turned off to check the level. (The sight-glass in the side of the engine should be ignored.)

Only use Radical-recommended oil which is formulated to run in the integral gearbox and clutch, as well as the engine. Recommended synthetic-based racing oil is available online.

NOTE: The oil level on pre-2009 cars fitted with the Powertec-Suzuki wet sump engine, should be no lower than three quarters up the sight-glass, with the car on level ground and the motor warm and running. The sump is baffled and the oil takes some time to settle. Later wet sump engines are fitted with a dip stick in the top of the engine to aid checking oil levels.



Check other fluid levels

In the brake and clutch master cylinders, use only Radical approved high temperature racing brake fluid which is available online.

The engine cooling system uses a 50:50 anti-freeze/water mixture. The level should be to the top of the swirl pot.

The Powertec gear drive system should be filled with Radical-approved gear oil, available online, to the level of the side inspection plug.



WARNING!

Do not rev the engine to more than 4,000rpm until the oil is above 50°C. When cold the oil can run at excessive pressure, which may damage the engine.

Radiator cooling fans are not fitted as standard. Do not let the water temperature exceed 90°C when warming the engine to check oil level.



Checks before driving your Radical

Driving position

The combined driver and passenger seat may be adjusted forward and backward to suit individual drivers.

PLEASE NOTE: The seat belt crutch strap will also need adjusting.



The position of the pedals can also be adjusted by **a)** adjusting the pedal face, **b)** adjusting the pedal angle and **c)** by moving the pedal pivot shaft. **PLEASE NOTE** that **c)** will require changing the master cylinder push-rods which are available online.

Manual sequential gear change

The SR3 RS is supplied with the gear lever set to "pull back on the gear lever to shift up the box" and "push forward to shift down the box". By moving the gear linkage rose joint from the lower fulcrum to the upper fulcrum in the engine bay, the gearshift direction will be reversed.

If your SR3 RS is fitted with a Powertec pneumatic power shifter, please refer to driving technique section 10.

Dashboard layout



- 1 Low water temperature warning light
- 2 High water temperature warning light
- 3 Low fuel pressure warning light
- 4 Oil pressure warning light
- 5 Low oil temperature warning light
- 6 High oil temperature warning light
- 7 Memory button (pressing this after a run will show best lap time and maximum revs etc.)

The high water temperature warning light will illuminate when the temperature exceeds 95°C.

The low water temperature warning light will stay illuminated until the engine has reached its minimum operating temperature of 60°C.

A comprehensive manual is included on the CD that is supplied with the dashboard system, or is available from the Radical technical department.

Driving your Radical

Starting the engine

Cold Start: with the engine in neutral, switch on the ignition. Start the engine with the throttle closed.

Warm Start: depress the throttle a small amount and start the engine.



WARNING! Do not drive the car until the engine is at a minimum 60°C water temperature and minimum 50°C oil temperature.

Do not run the engine in-gear with the wheels off the ground. This will damage the gear box.

Running-in

Powertec Suzuki 1340cc motors are filled with mineral oil and bedded in on Radical's rolling-road dynamometer. The car should be run for an hour with the revs kept below 8,000rpm, before being driven at maximum revs. The oil should be changed to Radical-approved fully synthetic racing oil, available online, after six hours of running.

Powertec Suzuki 1500cc motors are fully run-in and filled with fully synthetic racing oil, and can be driven at race speeds after completion of 'shake down' where temperature and oil pressure have been observed.

Shake down

Carry out several installation laps while watching the temperature and pressure read-outs. Return to the pits regularly, and thoroughly check all fluid levels and around the engine and cooling system for leaks.



WARNING! Do not run the engine under load if:-

- a) Oil temperature is below 60°C
- b) Oil temperature is above 130°C
- c) Water temperature is below 60°C
- d) Water temperature is above 100°C
- e) Oil pressure when up to temperature at 4,000rpm is under 50psi.

Should you accidentally run the engine under load in any of these situations, contact Radical's technical department to arrange for the data to be emailed for analysis.

The oil pressure when the engine is started from cold should run at approximately 90psi at 4,000rpm. When up to temperature the oil pressure should read 60psi at 4,000rpm.

Maximum engine revs: 10,500rpm

If over-revved from 10,500rpm-12,000rpm for more than two seconds, in any one hour of operation the engine will require stripping for inspection and repair, at the customer's cost, prior to any further running. (Any over-rev will be recorded on their ECU histogram.) If revved to over 12,000rpm for any length of time, the engine will require stripping for inspection and repair, at the customer's cost, prior to any further running.

The rev limiter is set to 10,500rpm. Persistent use of the rev limiter will damage the engine.

It is important to log the number of hours the engine is run. Under race conditions, the engine should run for no more than 40 hours before being returned to the factory for a rebuild. Engines which are not raced, regularly cover over 90 hours without requiring attention.



Driving your Radical

Bedding-in brakes

The car comes fitted with carbon metallic brake pads. To bed in the brakes and achieve maximum stopping power, a film of carbon must be transferred to the discs; gently apply brakes six to eight times at medium speed. Increase speed to simulate race conditions, and apply brakes hard a further six to eight times.

Allow brakes to cool for 15 minutes. Do not apply brakes whilst stationary during the cooling down period. Use only Radical-recommended brake pads, available online.

Brake bias settings

Set central to two turns towards the front (clockwise on the dash adjuster). Further adjustment can be made to suit individual circuits and tyre configurations. Adjust bias to the rear in wet conditions.



WARNING If you spin, depress the clutch quickly or you may damage the starter motor.

Manual gear change

If you are unfamiliar with a sequential shift car, it is recommended that you change gear using the clutch when going both up and down the gearbox. Once you have become familiar with the technique, changing gear up the box can be achieved by lifting the throttle quickly and simultaneously 'snicking' the gear in, without depressing the clutch. On down changes it is imperative the driver depresses the clutch and raises the engine speed before engaging the gear. Smooth gear changes can be best achieved by using the 'heel-and-toe' technique. Only change down one gear at a

time, releasing the clutch pedal between gears. As with any dog-engagement gearbox, aggressive gearchanges will damage the gear dogs, which will result in gear engagement problems. Only use a maximum of 7,000-8,000rpm while getting used to driving your SR3. If you accidentally down-change instead of an up-change, you are less likely to over-rev the engine. If you do over-rev the engine, make your way slowly back to the pits. If you have revved the engine over 12,000rpm, switch off and return the engine to Radical for inspection immediately. The Radical dash will display the maximum rpm.

Paddle-shift gear change

If your SR3 RS is fitted with the Powertec, steering wheel-mounted paddle-shift system, it is possible to flatshift when you are changing up the gearbox, and to have clutchless downchanges. You will need to use the clutch to engage first gear, to pull away from stationary, and when stopping the car.

To select first gear, depress the clutch and pull the left-hand paddle. To change to second gear you then use the right hand paddle. It is recommended to use the clutch when changing up the gearbox, from first to second, at all times. Once you are on the track, and up to track speed, then it is just a matter of accelerating, and pulling the right hand paddle. A very slight delay will be felt as the engine ignition is cut, and the system selects the next gear.



NOTE It is also recommended that gearchanges are not made while experiencing wheelspin, such as exiting slow speed, hard acceleration corners, as this can damage the gearbox.

When changing down the gearbox, simply brake where you need to and operate the left-hand paddle. The system will blip the throttle for

Driving your Radical

you and select the gear. When changing down from second to first, it is recommended to use the clutch.

The gearchanges should feel smooth. If any mis-shifts or harsh gearchanges are experienced, then it is recommended to return to the pits and investigate the problem. Most gearchange problems won't go away with more driving.

Neutral on the gearbox is between first and second gear. To select neutral with the paddleshift system, it is best to change all the way down to first gear and flick the right hand paddle (with the clutch depressed). This may have to be repeated several times to engage neutral. (Alternatively switch the engine off, leave in gear and attempt the above with the engine off).

Driving technique

Ensure that the tyres and brakes are fully up to temperature before pushing hard.

The Radical SR3 RS has phenomenal braking performance and will carry considerable speed into a corner. Practice braking hard, but come off the brakes smoothly and concentrate on carrying speed into a corner. On exiting the corner, the throttle should be fed in progressively. Driving smoothly is the secret to quick lap times.

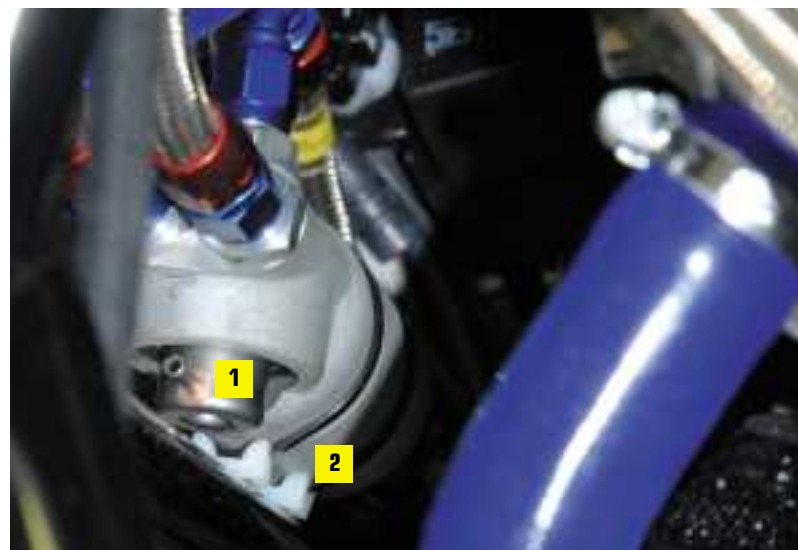
Fuel

Powertec Suzuki 1340 engines may run on 98 octane regular unleaded fuel. The Powertec Suzuki 1500 engine should only be run on Super Unleaded 98 octane, or 100 octane race fuel.

Powertec engines in the USA should only be run on racing fuel such as cam2, or a minimum of 108 octane, available at most American tracks.

Fuel filter

The fuel filter will require changing after the initial run. It is located at the left-front corner of the engine bay.



- 1 Regulator
- 2 Filter housing



Preparing your Radical

Centre-lock hub nuts

Torque setting - 200ft/lbs

Anodised RED for left-hand side,

Anodised BLUE for right-hand side.

Air jacks

Cars fitted with air jacks are supplied with an air lance, which is inserted into a valve at the rear of the car. The lance requires connection to a bottled air supply, and the pressure should be regulated to 250-300psi.

Suspension set-up

The Radical SR3 RS' suspension is set up at the factory, but the final settings should be determined by testing for driver preference and the particular circuit. Try to check the tyre temperatures for balance across the contact patch within one minute of a fast lap. The inside edge can be 10° – 15°C higher than the outer edge on Radical-approved Dunlop tyres, on the front and 5° – 10°C higher on the rear. Temperature should be close to 100°C, while temperatures over 110°C will cause damage.



WARNING! Running tyres below the recommended pressure may lead to tyre damage or failure.

WARNING! Do not drive at speeds over 120mph until your tyres are up to temperature and pressure.

SR3 RS, dry suspension settings:

Front:		Rear:	
Ride height:	80mm	Ride height:	70mm
Pre-load (no. of turns):	3	Pre-load (no. of turns):	0
Shock settings: Avo:	6	Shock settings: Avo:	8
	Intrax: centre of range		Intrax: centre of range
Tyre pressure: Hot:	28-30psi	Tyre pressure: Hot:	28-30psi
	Cold: 20-22psi		Cold: 22-24psi
Spring rate: 100/80	7", 450lb	Spring rate: 100/95	7", 550lb
Camber:	-3.5°	Camber:	-2°
Toe out:	2 - 3mm overall	Toe in:	2m - 3mm overall
Nik-link:	Medium bar	Nik-link:	Medium bar

Note: Measure the ride height at front of the chassis and at the seat back bulkhead, (below rollover bar) with the driver seated and 15 litres of fuel in the tank.

Suspension pre-load

Setting the front pre-load is achieved by raising the car front until the front wheels are off the ground. Unwind the spring platform until the spring is loose then retighten until finger tight. Only tighten three full turns beyond the point at which the spring 'grips' in its seat. Front pre-load stops the front of the car from touching the ground, at higher speeds circuits, more will be required, and at low-speed circuits, less pre-load. Three turns is suitable for most tracks. A more comprehensive handling guide can be obtained by emailing technical@radicalsportscars.com

Preparing your Radical

Corner weights

For maximum performance, your Radical should have the corner weights accurately set with the driver in situ. The procedure is as follows:-

- 1 Position the car on a flat, horizontal surface.
- 2 Equalize all tyre pressures to 30 psi.
- 3 Take all readings with driver in-car, or equivalent weight in the seat.
- 4 Remove bolt from one end of the front and rear Nik-Link, and adjust shocks to full soft.
- 5 Ensure the factory springs have three turns of pre-load (new cars will have this done at the factory, and the top platform marked with a '3'). See left to set pre-load.
- 6 Set the ride height at the front by adjusting the push-rods
- 7 Set the ride height on the rears by adjusting the spring platforms.
- 8 Set the camber front and rear.
- 9 Set the toe-in front and rear.
- 10 Put car on corner-weight scales, and set corner-weights by adjusting rear spring platforms. It is usually difficult to achieve identical settings on each corner. Ensure that the sum of the diagonal weights are as near as possible.
- 11 Re-check ride height and diffuser height with the bodywork on.
- 12 Lock spring platforms.
- 13 Refit Nik-Links, rear anti-roll bars, reset shocks, and set tyre pressures.
- 14 You are now ready to "rock & roll".

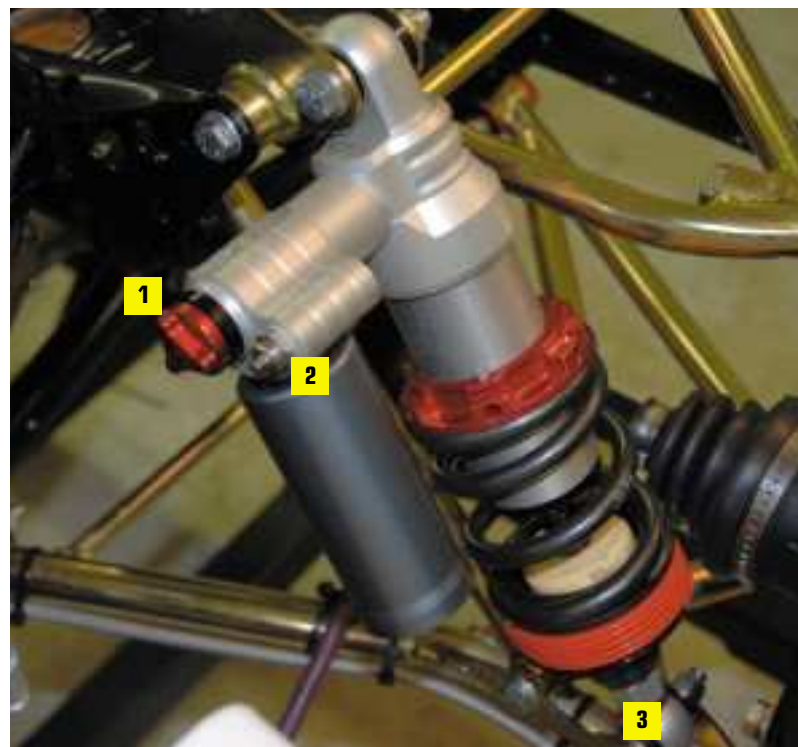
Ride height with passenger

The ride height may need increasing when carrying a passenger. The ride height may be increased up to 100mm at the diffuser, by adjusting the spring platforms. If you intend carrying a passenger for the majority of the time, the above procedure should be carried out with him/her also in the car.

Triple Adjustable Intrax Damper (option)

High speed compression (bump) low-speed compression (bump) and rebound can be adjusted independently, enabling a more refined set up to be achieved.

- 1 Red adjuster on canister: High-speed compression, 50 clicks turn clockwise for more damping.
- 2 Small 4mm screw: Low speed compression, 18 clicks turn clockwise for more damping.
- 3 Black adjuster on spindle eye: Rebound, turn clockwise for slower rebound (stiffer).



Preparing your Radical

Gearing

The Powertec gear drive system incorporates a reverse gear, a torque biasing limited-slip differential, oil pump/cooler and changeable gear ratios.

Gear Drive Unit - ratio change

Tools required 5mm allen key, 34mm socket, 42mm socket, 13mm spanner, long extension bar or impact wrench, torque wrench, electric heat gun (optional), 28mm spanner, gasket sealant, gasket scraper and Loctite 243 threadlocking compound.

- a) Drain oil from unit through lower drain plug.
- b) Remove level plug from gear cover plate.
- c) Remove the eight M6 cap screws and washers from the gear cover plate and separate from the unit. Care must be taken not to damage the 'O'-ring seal located in the groove in the main case. The gear ratios can now be accessed.

It is important to note at this stage that the front 34mm retaining nut is a conventional right-hand thread and is removed in a counter-clockwise direction. The rear 42mm retaining nut is left-hand thread and is removed in a clockwise direction.

- d) Both the retaining nuts are treated with a medium strength threadlock such as Loctite 243. It may be necessary to lightly heat the nuts with a heat gun.



WARNING! Do not use a blowtorch or other high temperature heat source as this may damage the shafts.

Radical Gear Drive Unit ratios

		Ratio:			Standard factory-fitted ratio (UK cars)					
		3.594:1	3.409:1	3.235:1	3.071:1	2.917:1	2.770:1			
No. Teeth / Part No.:		32 A-3R1-20	33 A-3R1-22	34 A-3R1-24	35 A-3R1-26	36 A-3R1-28	37 A-3R1-36			
No. Teeth / Part No.:		46 A-3R1-21	45 A-3R1-23	44 A-3R1-25	43 A-3R1-27	42 A-3R1-29	41 A-3R1-37			
Gear	No.Teeth (input)	No.Teeth (output)	Ratio	Rev drop at 10,500 RPM	Speed in MPH drop	Speed in MPH drop	Speed in MPH drop	Speed in MPH drop	Speed in MPH drop	Speed in MPH drop
1st	13	34	2.615:1	2721.50	49.61	52.30	55.10	58.05	61.13	64.36
2nd	16	31	1.938:1		2228.35	66.96	70.59	74.38	78.36	82.51
3rd	19	29	1.526:1	1655.17	85.00	89.61	94.42	99.46	104.74	110.29
4th	21	27	1.286:1		1219.70	100.91	106.38	112.09	118.08	124.34
5th	22	25	1.136:1	858.26	114.17	120.36	126.82	133.60	140.69	148.13
6th	23	24	1.043:1		124.34	131.08	138.11	145.49	153.21	161.32
Max. Revs:					10,500 RPM					
Rolling tyre circumference:					1.901m (0.605m dia.)					
Primary reduction ratio:					1.596:1 (83/52)					

- e) The nuts can now be removed with the correct size socket and a long extension bar, or an impact wrench on a low setting. It may require some force to overcome the locking tabs on the nuts.
- f) Once the nuts have been removed, the front and rear gears, the roller bearing and the spacer can be removed from the shafts. (Note the orientation of all these parts for re-fitting.)

Preparing your Radical

- g)** Select the new ratios and install on the shafts (the shoulder on each gear towards the centre-line of the unit) and re-fit the spacer and roller bearing.
- h)** The threads on each shaft should be clean and coated in Loctite 243 or equivalent before the nuts are fitted. Both the 34mm and the 42mm nuts should be torqued to 45ft/lb before the locking tabs are punched into the respective grooves.
- i)** Clean the surfaces between the cover plate and the main unit. Fit the rubber O-ring seal into the groove on the main case. Apply a thin film of gasket sealant to both surfaces, this also helps to hold the seal in place during the fitting process. Allow time for the sealant to cure.
- j)** Re-fit the cover plate and tighten the M6 cap screws and washers evenly.
- k)** Replace the lower drain plug, remove the upper plug and refill the unit with Radical-approved synthetic transmission oil until it runs from the level plug on the cover plate. A gear drive system including cooler will hold about 1.5 litres of oil.
- l)** Re-fit the level plug and the upper plug and check all bolts and fittings for tightness. Check the unit for leaks after the first short period of running. Remove the cooler return pipe (top fitting) and check the oil is being pumped round the system as the wheels turn.



- 1** Oil level plug
- 2** Oil filler plug



Preparing your Radical

Standard Radical set-up guide/record sheet

Triple dampers		Springs/Preload		Triple dampers	
Low-speed Bump: 6	80Nm 100mm	Rear Nik-link		Low-speed Bump: 6	3 Turns
Bump HS: 25		Soft	100mm	Bump HS: 25	
Rebound: 25		Medium		Rebound: 25	
Intrax Single dampers	Hard	Intrax Single dampers			
25				25	
AVO dampers				AVO dampers	
8				8	



Triple dampers		Springs/Preload		Triple dampers	
Low-speed Bump: 7	95Nm 100mm	Rear Nik-link		Low-speed Bump: 7	0 Turns
Bump HS: 25		Soft	100mm	Bump HS: 25	
Rebound: 25		Medium		Rebound: 25	
Intrax Single dampers	Hard	Intrax Single dampers			
25				25	
AVO dampers				AVO dampers	
8				8	

Dive Planes:		Tyre Pressure (HOT)		Pads
1:	2:			
		28	28	



Holes/Slot#		Pads
Rear wing		
Main		
Flap	28	28

Camber		
-3.5	↑	-3.5
-2.0		-2.0

Toes		
2mm OUT	↑	2mm OUT
2mm IN		2mm IN

Corner Weights/Ride Height		
80mm	↑	80mm
70mm		70mm

SR3 Gearing	
2.917	
3.071	
3.235	
3.409	

After set-up reset pressure to recommended cold pressures

Preparing your Radical

Component 'lifing'

This chart gives the recommended life expectancy of components under 'normal, on-track racing conditions'. If some of your racing time is done 'off-track' or you hit kerbs, pot holes or other cars - hard, then you will need to consider reducing the timescales recommended. On the other hand, more 'gentle' trackday use will obviously extend the recommended time!

One new addition to the list is the wing support stays, the life of these is greatly shortened if the wing is used to push, and particularly pull the car around in the pit lane, garages and trucks. It works perfectly to support the wing and the downforce generated in the direction intended, and not at an angle to the centre-line of the vehicle.

Model	Hours	Action
Engine/Gearbox 1340cc	40	Rebuild
Engine/Gearbox 1500cc	30	Rebuild
Gear Drive Unit	50	Inspect/rebuild
Suspension Bushes	30	Replace
Suspension Rose Joint	30	Replace
Front Upright (including Hub)	50	Replace
Front Wishbones	60	Inspect/replace
Rear Upright (including Hub)	50	Replace
Rear Wishbone	60	Inspect/replace
Drive Shafts	30	Replace
Calipers	60	Rebuild
Brake Discs	10	Inspect/replace
Shock Absorbers	60	Rebuild
Steering Rack	50	Inspect/rebuild
Brake Master Cylinder	60	Inspect/replace
Wing Support Stays	60	Inspect/replace
Fuel Tank		Remove & inspect annually

Torque guide (FT/LBS)

DRIVE SYSTEMS

Powertec drive unit ratio nuts	80
	Loctite

WHEEL BEARING/HUB NUTS

Rear	240
------	-----

WHEEL NUTS

Centre lock nuts	200
------------------	-----

ENGINE OUTPUT

Drive coupling	115
	Loctite

BRAKES

Floating discs to bells	8
	Lock wire

Recommended fluid change intervals (HOURS)

Engine oil	6
Drive unit oil	12
Brake fluid	6
Fuel filter	12
Clutch fluid	6



ECU hardware/software

ECU PTMON run up screen



- 1 Engine oil temperature - will change colour when over 50°C
- 2 Air charge temperature sensor - air inlet temperature
- 3 Engine ecu temperature
- 4 Engine coolant temperature - this will change colour when over 50°C
- 5 Engine rpm - set to 1500rpm
- 6 Throttle position sensor - needs to be set to 4 (%) at idle
- 7 Engine syncstate - should be at 720 when engine is running
- 8 Engine oil pressure - 70psi when cold at idle / 20psi when hot at idle
- 9 Baro sensor pressure - below 1030
- 10 Fuel pressure - should read above 3000
- 11 Battery voltage - above 12.5V

Engine management system

From 2009, the Radical SR3 RS has the LIFE engine management system (ECU) fitted as standard. This is a guide on how to use the software. The more familiar you become with it, the more useful it will be.

The LIFE ECU incorporates an engine data logging system. This enables you to download the engine data from a race or test and review it.

Main parameters logged:

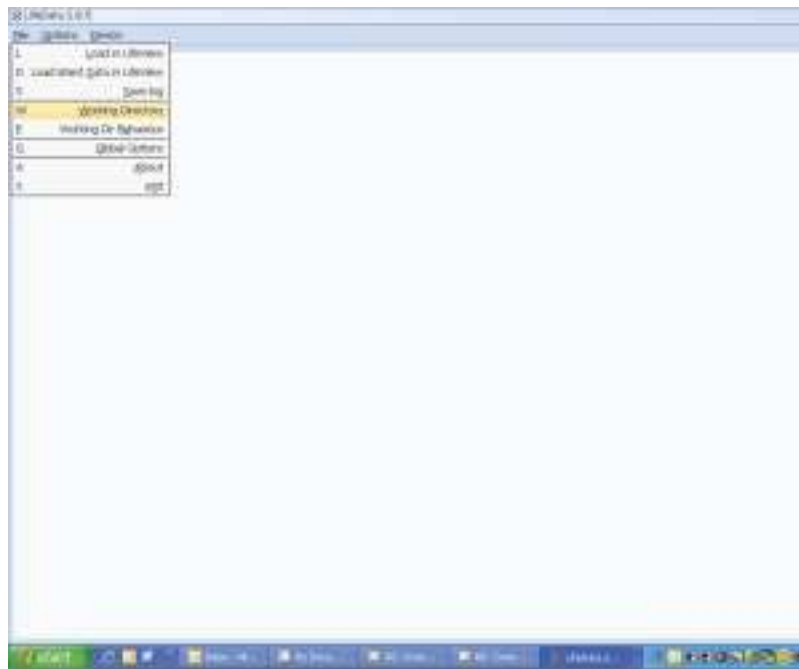
Fuel pressure	Battery voltage
Oil pressure	Throttle position
Oil temperature	Engine rpm
Coolant temperature	Air inlet temperature

WHEN USING THE LIFE SYSTEM, THE KEYBOARD MUST BE USED RATHER THAN THE MOUSE.

ECU Hardware/Software

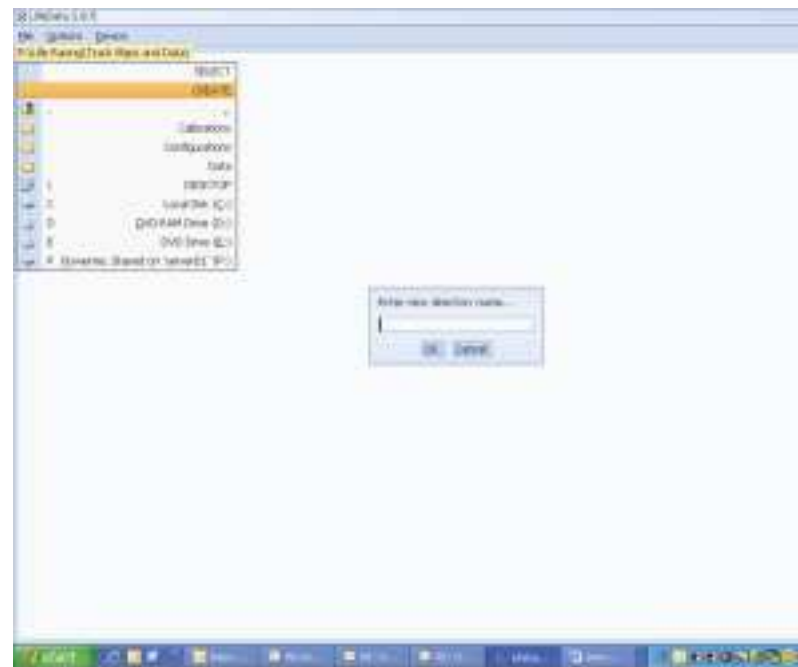
To download stored data

When downloading the data, it must be saved under track maps and data, model of car, the driver's name, then the track. **Click** on the desktop icon LIFE DATA.



To create a new file, **press F** for file. If it is the first time you are using the software, you will need to create a working directory to store the downloaded data into. First **press W** for working directory. You will need to create a file so select create (using the arrow keys and enter), type in TRACKMAPS AND DATA, then **press enter**.

Next you will need to create another file for the models of cars. So select create again, type in the model of car i.e. SR3, then **press enter**. At this stage it is a good idea to set up the other files for the other models. So using the arrows, **select the " .."** and **press enter**.



This will take you back to the TRACKMAPS AND DATA file. (Whenever you need to go back to the previous file, you need to highlight " .." and **press enter**). Once you have done this, highlight the Radical model you are working on and **press enter**.

Next you need to create the driver's file. So again highlight create, enter the drivers name and **press enter**.

Next you need to create a file of what track you are at. So highlight create, enter the track name and **press enter**.

Next highlight the track you are at and **click enter**. A small screen will pop up asking you if you want to create a LIFE config file, **select YES**.

Next it will ask you if you want a shortcut placed onto your desktop. **Select NO**. You are now ready to download the data.



ECU Hardware/Software

This process is important and needs to be understood and set up correctly so you can quickly and easily retrieve downloaded data.

If you have previously created the correct file, then all you need to do is highlight the correct details and **press enter** as you go.

Next **press D** for device and **select R** for read data.

A small Powertec screen will pop up. Just **press enter**.

To view the data you have just downloaded

Press F for file - the **L** for load in LIFE view

It will automatically open LIFE view.



Down the right-hand side will be a list of all the items that have been logged. You can view these by using the arrow keys and **enter**.

Sometimes the colors will be similar. You can change this by holding the mouse arrow over the items coloured box, **right click** the mouse, select **C** for colour then choose your colour and **enter**.

The left-hand side of the screen shows the values the data is measured in against time along the bottom. The scale will always be in the value of the data that has been highlighted in the right hand column.

To view previously stored data

Press F for file - **press L** for load - (use the arrow keys and enter to find the file you wish to view) **click** on the run you wish to view and **click enter**.

To view data

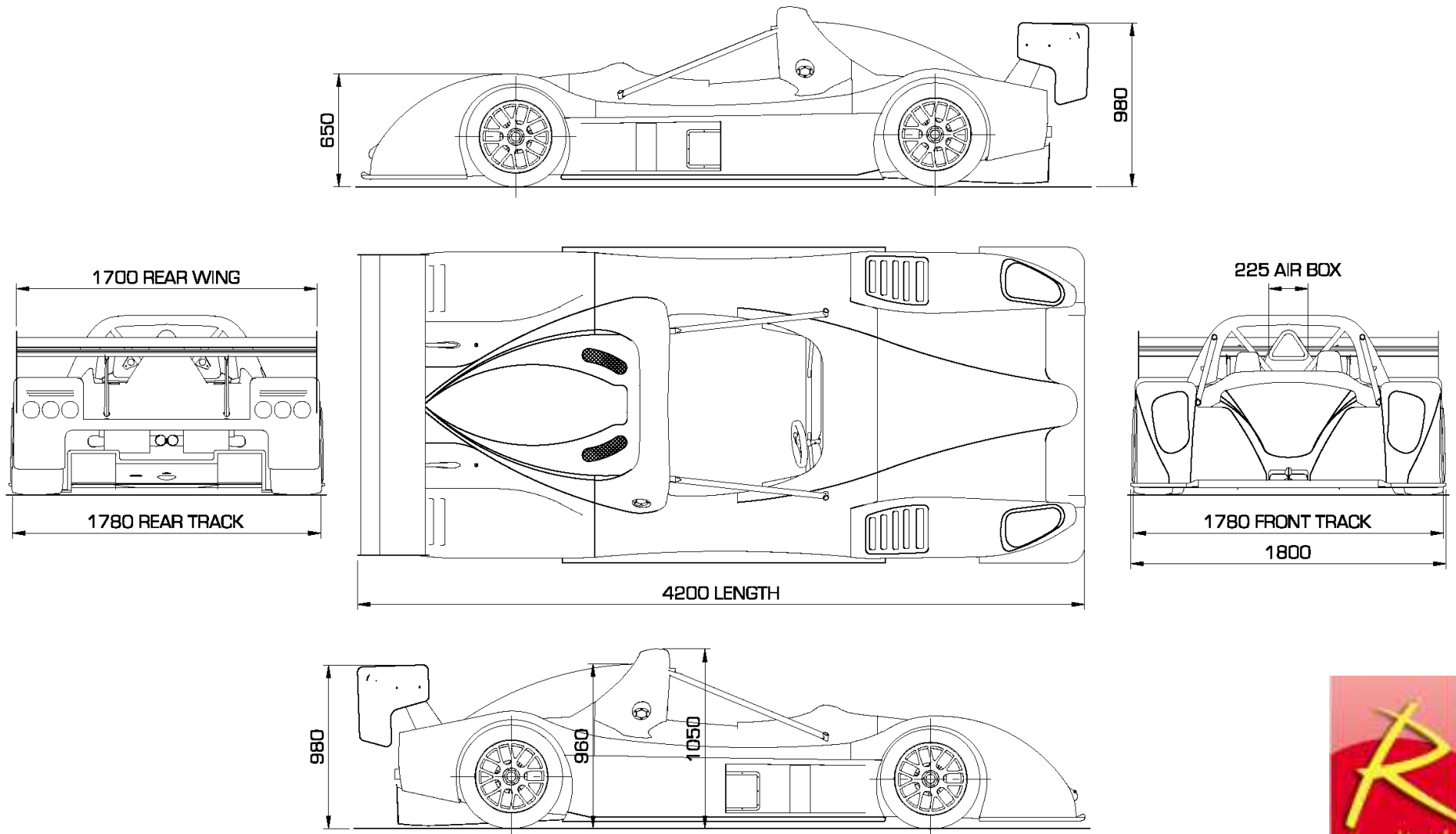
Click on the desktop icon LIFE VIEW.

Press L for load and using the "." and **enter**, find the file you are looking for, select downloaded data, highlight the correct date you are looking for and **press enter**. Highlight the run you are looking for and **press enter** and it will bring up the data.

If it needs to be e-mailed go through My Computer, Program Files, Life Racing, Track maps & Date, sr3/sr5/sr8, customer, track & date select file or files to be e-mailed etc.

Additional information

SR3 RS dimensions



Parts manual

SR3 RS Parts manual

The parts manual CD lists all SR3 RS components and their part numbers. Quote the relevant part number when ordering or order using the on-line shop on www.radicalsportscars.com



Last revision: 01 AUGUST 2010

Radical Sportscars
24 Ivatt Way Business Park,
Westwood, Peterborough PE3 7PG
United Kingdom.

T +44 (0)1733 331616
F +44 (0)1733 264959
Sales@RadicalSportscars.com

RadicalSportscars.com

