

# F1 Setup Cheat Sheet

Updated: 3 April 2019

## Step 1 – Choose the Right Tyres and Additive

The correct tyres are critical. For rubber tyres on asphalt low-medium grip tracks (most of Australia) we recommend:

Track Temp $\geq 20^{\circ}\text{C}$	Track Temp $< 20^{\circ}\text{C}$
Ride GR (#26040 front & #26042 rear), or	Schumacher / Pit Shimizu 573 front & 575 rear, or
Volante (Green front & Double Pink rear)	Ride GR front (#26040) and Schumacher / Pit Shimizu 575 rear

**Additive:** Choose an asphalt additive. Apply across the entire surface of the rear tyres. Wait until dry (or use tyre warmers). If your car is handling well but needs more steering then apply additive to the front tyres as well. Start on one quarter of the tyre surface (from the inside of the tyre ie: closest to the chassis) and increase to one third, then one half or the entire surface as necessary (this may cause the rear to oversteer).

For more information on tyres visit our website (menu Tech Tips > Tyres).

## Step 2 – Radio / ESC Settings and Driving Tips

**Radio** – for a 21.5 brushless motor set the Brake EPA (End Point Adjustment) to 80%. Turn on ABS if you have that option. You should now be able to use brakes by pumping the brakes like you would in a real car to prevent wheel lockups. Only ever brake in a straight line or the car will veer to one side. If you brake too hard the car will veer to one side or spin because only the rear wheels are braked. When accelerating, feed on the power gradually as only the rear wheels are driving the car. Grabbing a handful of trigger may cause the car to spin. You can set Throttle Expo on your radio to minimise this issue until you get used to it.

**ESC** – turn off drag brake, set the throttle aggressiveness to a medium or midway setting.

## Step 3 – Car Check-Up

1. Make sure the rear pod moves freely side to side and up and down, with and without the body fitted. If it “clicks”, loosen centre pivot screws.
2. Remove tyres and place chassis on flat surface. Chassis should be flat on surface and not rock. If rocks loosen chassis screws and re-tighten screws in the pattern shown in diagram 1 below. Should then sit flat.
3. Side links move smoothly without binding.
4. Front kingpins should move up and down smoothly when the front suspension is compressed with no binding.
5. Front wheels spin freely and do not stop spinning at full steering lock.
6. With pinion removed rear wheels should spin freely. Rear axle should have a little side to side play.
7. Turn car over so bottom of chassis is parallel to ground, hold main chassis in one hand. Twist the rear pod slightly one way to simulate cornering. When you let the rear pod go it should return to being in the same plane as the main chassis. Twist the other way. If doesn't return to same plane check side spring pre-load with “coin trick”.
8. Check that the motor wires don't bind on the chassis or on the body.
9. Check the various shims which control the setup and ensure the same number and thickness of shims are used on both sides of the car (left = right).
10. Set the ride height. Start with: Front 5mm, Middle 5.5mm, Rear 5.5mm.
11. Set the rear pod droop to between 1mm and 1.5mm. Diagram 2 below.

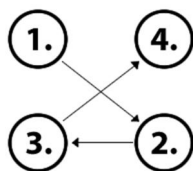


Diagram 1

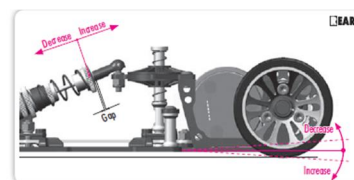


Diagram 2

12. Re-check the ride height as changing the rear droop will change the ride height. If you change the ride height, re-check the rear droop.
13. Set the toe out to  $1.5^{\circ}$  (or measure the distance between the front tyres at the front most point of the outside of the wheel which should be 1-2mm greater than the most rearward point of the outside of the wheel).
14. Check the camber is  $1^{\circ}$  or  $1.5^{\circ}$ . If you change the camber then re-check the ride height.
15. Set side spring preload using the “coin trick”.

16. Starting Final Drive Ratio (FDR) with 21.5 motor 2.9:1 (Spur/pinion). When you first test the car keep an eye on motor temperature. Should be 72°C (162°F) or less at the end of a run. See website (menu Tech Tips > A-Z of Gearing with Blinky ESCs).

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## Regular Maintenance

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1. Re-build the centre shock if it leaks. Change oil every couple of months or more often if not rebounding.
2. Re-grease the side damper tubes every race meeting.
3. Lubricate the kingpins every race meeting.
4. Re-build the differential when it feels notchy, if you have problems with oversteer, or every few race meetings. Initial setting: tighten diff with a wrench so that it is tight (without cranking down), then let off 1/4 of a turn.

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## Troubleshooting

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### ***To Increase Rear Traction***

Listed in the recommended order. Make one change at a time and check the result. If the car has insufficient rear traction or is oversteering (losing the rear end) or spinning out then:

1. Side Damping – If your car manufacturer offers the choice of side damping tubes or a side shock then the latter is better for low-medium traction conditions.
2. Centre Shock – add shims at the rear or reduce shims at front of shock mount to increase the shock angle.
3. Battery Position – forward (if practical).
4. Ride Height – reduce (if practical).
5. Centre Shock – lower viscosity oil, softer spring.
6. If your car has a T-bar – loosen the screw (T-bars are in older cars + Tamiya F104 Pro II + option for Tamiya TRF103).
7. Rear Wing – larger wing or mounted higher.
8. Centre Shock – if location can be changed then move towards the front.

If your car has been handling well and then begins to lose rear grip here is a checklist of potential causes:

1. Rubber tyres - Are the tyres cold? – Make sure you do a couple of warm up laps or use tyre warmers if necessary.
2. Rubber tyres - Track Temperature – has the track temperature changed? Are the tyres you are using the correct ones for the new temperature?
3. All tyres - Tyre gluing – check your tyres to see if any of them have come unglued from the wheel.
4. Differential – is the differential still set correctly?
5. Rear wing – has the rear wing been damaged?
6. Screws – are all the chassis screws done up properly. Losing screws can cause unpredictable handling.
7. Had an accident? Go through the Car Check-Up above to make sure nothing has been knocked out of alignment.

### ***Make Car Easier to Drive***

Listed in the recommended order. Make one change at a time and check the result:

1. Ackermann – reduce.
2. Side Links – outer position ie: set the side links so they are parallel to each other.
3. Camber – decrease.
4. Steering Linkage Angle – increase.
5. Side Damper – increase viscosity.
6. Side Damper – flatter angle (if you have the option to change it).
7. Battery Position – cross chassis, move forward.
8. Track Width (rear) – wider.
9. Track Width (front) – wider.

Check out [www.rcformula1.com.au](http://www.rcformula1.com.au) for more setup information.

For a comprehensive guide to setting up and driving an F1 car keep an eye on our Facebook feed for the release date of Dave Stevens' 130 page book "Essential 1/12<sup>th</sup> and F1 RC Racer's Guide" or add email address to the noticeboard sheet.

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