How to Build a Racing Mower

This is a basic guideline on how to build your racing mower
Using your own ideas and ingenuity is a must to suit the type of mower you wish to modify
(please download and print off these documents and the following photos to assist you)

- Remove cutting deck and any related attachments
- Strip mower down to bare chassis and prepare for new paintwork etc
- Remove front axel assembly from underneath the mower chassis and reposition on the front of chassis, to lower the ride height and weld solidly to chassis
- You are permitted to make your own front axel assembly out of strong material if you wish
- All moving parts must be in good condition and ALL nuts must be new Nylocks nuts secured by split pins, where possible
- Remove rear axel assembly and modify rear chassis mounting points to allow for carrier bearings to be mounted on top of the new rear chassis rail assembly to create the lower ride height
- Now have a solid rear axel made by an engineering company out of 25-30mm axel steel, complete with keyways cut in for your rear sprocket and brake disc mounting positions
- You may also be required to have keyways cut into each end of the axel to securely mount your rear wheels
- The maximum length of your rear axel is 1 meter long, you can make this smaller if it's more suited to your type of mower
- The wheel track should be similar front and rear for example … a 1 meter axel with wheels attached is approximately 1100-1150mm outside of wheel to outside of wheel, so then that dictates that the front wheels overall measurement should be 1mt-1050mm – out side to outside, to assist in creating the correct cornering stability at high speeds
- To find the correct camber and caster angles we suggest that you check out the Ackerman Steering Principle section on our Information page, which will assist you in setting up the front end of your racer which will enable you to drive through left and right hand corners at pace with minimal understeer and minimal oversteer
- When making the rear axel try and work out the position of the rear sprocket and brake disc assembly so that it is off centre so you can set your seating position as low as possible to the rear axel i.e. in between your rear tyres, so you are sitting on top of the centre of the rear axel or as near as possible to it, the reason for this is to create the correct weight distribution and ultimately create a balanced racer
- You can strengthen the mower chassis with angle bar or box section steel if you wish, however please note that these machines don't work to well if they are too ridged, some flex in the chassis is advisable
- You can modify your mower bodywork to whatever you feel is suitable for the model of mower
- It is compulsory to make sure that any exposed edges are protected by the use of a clip on product similar to the product that is used around the edges of car doors etc, it is also suggested and soon to be compulsory that you install side intrusion or nerf bars along the side of your racer in between the front and rear wheels to protect your lower leg area
- You can turn the front body work into a full tilt front assembly to allow for easy access to your engine bay for easy repairs etc, just make sure that when its back in its closed position that it is held down with straps of some description
- Do Not use any worn parts in the steering assembly, from the steering wheel down to the C Section mount for your front stub axels as this area can be extremely dangerous if not built correctly and will be scrutineered by race officials at all races

Engine sizes – maximum displacement

- For mower engines the maximum size is a 30 hp V-Twin
- Please note – that when setting up the throttle cable that you bypass the governor and work directly off the carburettor butterfly assembly and that you use a positive return spring, so that if your cable breaks the engine will automatically return to idle
- For motorbike engines the maximum size is 450cc V-Twin or single cylinder
- It is advisable to also place a positive return spring on your throttle if your engine doesn't have one
- Any size prior to these maximums are allowed

Exhaust Systems

- It's recommended that mower engines have a minimal 800mm length of exhaust pipe prior to the hot dog muffler to create the correct back pressure for the engine to reduce the risk of burning out valves
- For the motorbike engines, any type of expansion chamber or standard system used on the engine that you are using is advised to enable you to achieve the correct performance from your engine

Mower Build cont ….

- If you use a mower engine, it is suggested that you run your drive through a 90 degree single gear box, so that the power from your engine is via a pulley and B-Section belt assembly from the engine to the input shaft on the 90 degree box and then via a sprocket and chain assembly from the output shaft of the 90 degree box to the main rear sprocket, with your clutch system mounted under the chassis on the drive belt from the engine to the box - as illustrated in the photos
- If you use a motorbike engine, it is suggested that you use the correct sized rear sprocket so that you only use 3 out of the 5 gear available to reduce the amount of time required in changing up and down in gears

Tyres

- Knobby tyres can be used front and rear but are normally only good for traction on a grass surface
- Most of our top race tracks are now demanding the use of standard turf tyres front and rear to reduce the amount of damage on the track surface, and as most of these tracks are flat clay surfaces the turf tyres grip and power slide through the corners very smoothly
- Bald tyres are not allowed

At all times during your mower build think of safety for yourself and the safety of the other drivers

Compulsory Items

Each racing mower must have the following items ….

- A Kill Switch with a lanyard to attach to your arm or leg
- Disc or Drum brakes that must lock up the rear wheels of your mower when applied, brakes will always be scrutineered prior to any race and sometimes during the day
- Front and rear tyres must have adequate tread i.e. more than 20%
- All nuts on every part of the mower body; steering assembly; main wheel nuts front & rear MUST be Nylock nuts
- Please note if you remove the same Nylock nut more than a couple of times, you will need to replace them as the nylon bush at the end of the nut will seriously weaken and may unwind
- A securely mounted seat, we suggest that some form of side bar or padding is used to reduce the risk of you sliding off your seat when cornering
- All exposed edges must have protection as noted in the mower building information i.e. car door edging
- Battery and Fuel tank must be secured and/or covered
- Rear flashing lights. The best value for money is the Cats Eye battery operated flashing bike lights. These must be mounted on the back of your seat or your rear bodywork area out of harms way. The main reason for these lights are for when you are racing in dusty conditions amongst other mowers, you can normally always see the flashing light through the dust, so you know that you wont run into the mower immediately in front of you if they spin out etc

Drivers

Each driver must have the following item ….

- A full faced helmet or motor cross helmet and goggles
- Motorbike gloves or some type of leather glove
- Motorbike boots or sturdy work boots
- Racing overalls; general overalls or motocross nylons if you wish (not advisable)
- Neck brace i.e. Hanns Device etc
- Personal Accident Insurance – Colonial Mutual have tailored a policy for our members that covers us whilst racing; fishing; at home or at work for approx $15-20 per week
- All safety gear worn by the drivers will be scrutineered along with your mower prior to any racing in insure that you and your mower comply with the regulations

Tool Kit

- Each driver is expected to have there own basic tool kit to enable them to do running repairs on their machine on race day, major tools and accessories are normally carried by the heads of each club. A basic range of spares is suggested, as follows ….
- Spare drive belt; chain; a range of front sprockets; spark plugs; wheel bearings – inner & outer; some spare new Nylock nuts; tubes for tyres; your own fuel, oil & chain lube

Prior to Racing

After building your mower you will need to take it to your local club scrutineer for inspection prior to the next race meeting along with your safety gear
You will also need to purchase your own scrutineering diary so that any faults found with your mower can be noted by the scrutineer, fixed by you during or after the meeting and rechecked by the scrutineers and given a green pass initialled sticker which will enable you to continue racing

Machine & Driver

Please take pride in building your racer, do your best to make sure you and your machine are well presented i.e. good paint job etc
As we are now getting good TV coverage our clubs want to present a professional looking motor sport that will in turn help to attract new members and general public interest

Mow On !!!