G55

User Manual v1.2

GINETTA

Contents

Welcome to the Ginetta family

Congratulations on your purchase of the Ginetta G55 GT4 car and welcome to the Ginetta family.

Ginetta has been building British road and race cars since 1958 and, as one of the few remaining British sports car manufacturers, are responsible for some of the most iconic race and road cars in history.

With a great reputation in international motorsport, Ginetta continues to take the lead in British race car manufacturing, putting the UK at the heart of world-class motorsport. We are one of the most significant players on the global motorsport scene, selling cars across the world and training the brightest stars in motorsport.

My vision for Ginetta is to provide affordable motorsport for all levels of driver and offer a genuine route for progression from entry level competition, right the way through to international motorsport platforms.

We get to know each and every one of our customers, and look to support them throughout their motorsport journey with us. This user manual has everything you should need to get out on track and begin your winning ways!

Enjoy,

Lawrence,

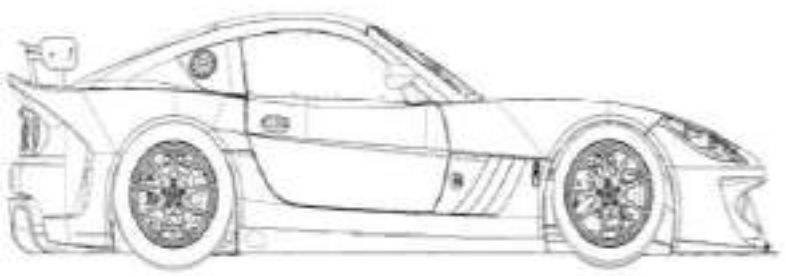
The Ginetta G55 GT4

Homologated for the international stage, the Ginetta G55 GT4 is eligible for competition within the Michelin Ginetta GT4 SuperCup, British GT4 and a variety of UK and European endurance and sprint racing series.

Introduced in 2011 to replace the ground-breaking Ginetta G50, the Ginetta G55 GT4 produces 355bhp from a 3.7 litre V6 engine. The driver cycles through the gears with a six speed sequential gearbox with pneumatic paddle shift system.

As Ginetta's most popular export car, the G55 GT4 car is racing on circuits around the globe and in varying temperatures and terrain. With that in mind, recent modifications have been made with hot climate competition in mind, increasing reliability and resale value.

The Ginetta GT4 car is a multiple class winner in the Dubai 24 Hour Endurance race, proving its might as one of the front-running endurance racing cars on the market today, whist benefitting from being one of the most cost-effective.



Full Specification

With many components hand crafted in-house, Ginetta employs some of the UK's brightest engineering and manufacturing talent to bring to life the Ginetta G55 GT4 car.

The Ginetta G55 GT4 car has been created to be a winner across both sprint and endurance racing platforms, with an impressive specification as outlined below. The Ginetta G55 GT4 car can be built to any one of the following three specifications:

Standard / Super Cup Spec:

- FIA approved steel spaceframe chassis with integral roll over structure
- Sealed Ford 3.7 Litre V6 Engine
- 107 litre FIA Approved Fuel Cell
- Independent double wishbone suspension system
- Adjustable front and rear anti-roll bars
- Two way adjustable Ohlin's dampers
- Adjustable rear wing
- Six pot brake calipers with 378mm dia vented brake discs front
- Four pot brake calipers with 330mm dia vented brake discs rear
- Six speed sequential gearbox
- M150 ECU and C125 Dash update
- Lower wishbones running spherical bearings
- Larger rear toe links
- Larger convex side mirrors

Alterations to Standard Spec for GT4 Spec:

- Smaller rear wing
- Front splitter
- Headlights
- Front damper eye lengths

Alterations to Standard Spec for PWC Spec:

- Rear wheel speed loom
- Motec GPS
- Motec C125 dash logging upgrade
- Exhaust upgrade
- Brake pressure sensors
- Lambda sensors

Optional Extras

There are a number of optional extras which can be added to the car both before and after purchase. These include;

- Brake pressure sensor kit
- Steering angle sensor kit
- Motec GPS
- Motec C125 dash logging upgrade
- Damper pots
- Standard fuel filler cap to replace the dry brake system (allows for the use of a fuel jug instead of a dump churn)
- Upgraded Lambda sensors (GT4 specification only)
- Centre Lock kit (Endurance specification only)
- 11” Rear wheels (Endurance specification only)
- Side exit exhaust (where noise limits allow)
- Fuel pump out kit
- Ohlins C spanners
- Larger mirrors

Recommended Tools and Equipment

The Ginetta G55 GT4 is designed to be straightforward to work on. This section is designed to highlight the various instruments you may need when working on certain areas of the car.

Wheels and Tyres

For a race weekend it is ideal to have 4 ½ sets of wheels, as detailed below:

- Two sets of wets - one to use and a full spare set.
- One set of slicks - mounted for testing, plus one front and one rear spare.
- One set of slicks - mounted for racing. Using the spare front and rear rims from testing to have race spares on.

In total this amounts to nine front 9" wheels and nine rear 10" wheels. Keep in mind the tyres are directional and have different rim widths for the front and rear.

Figure 1.1

The barcode on each tyre shown in figure 1.1 is used to identify your tyre nomination at a race weekend. This allows the event scrutineers to keep track of how many tyres you have used throughout both the race meeting and the championship year.

Charged Gas Bottle

The car is raised and lowered using pneumatic air jacks. The compressed air used to actuate the jacks is stored in a steel cylinder gas bottle.

The gas bottle can be connected on the right hand side of the car, shown in figure 1.2.

The gas bottles can be supplied by CES Europe Ltd. (www.ceseuropeltd.co.uk / 01295 279558)

Figure 1.2

Air Lance With Correct Hose

Each car comes with an air lance, used to connect the gas bottle to the car, as shown in Figure 1.3.

Figure 1.3

Air Jack / Gas Bottle Regulator

Once the gas bottle has been connected to the car via the air lance, you are ready to raise the G55 off the ground.

In order to fully extend the air jacks, the regulator needs to be set to 34 bar of pressure, as indicated by the red arrow in figure 1.4.

It is very important that you **DO NOT** exceed 40 bar of pressure as this can cause damage to the air jack system.

The fittings and regulator can be supplied by CES Europe Ltd. (www.ceseuropeltd.co.uk / 01295 279558).

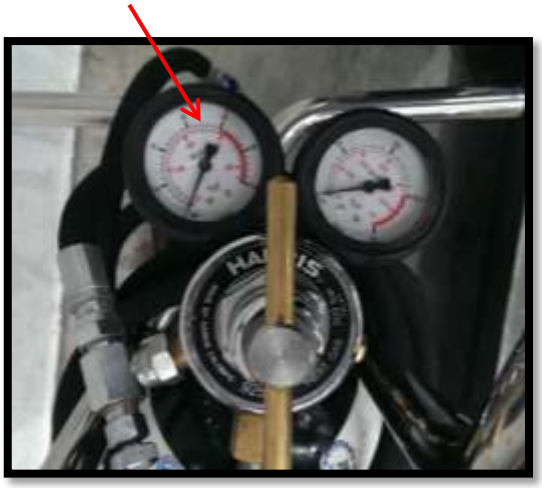


Figure 1.4

ECU Download Lead

In order to download data from the car, you will need a download lead.

For cars with an M150 ECU, an Ethernet cable is supplied with the car along with the Motec software required to download data directly to your laptop.

For cars with the M800 ECU, a UTC download lead is needed. This can be purchased directly from Ginetta. (www.ginetta.com / 0113 385 4164).

Dump Churn

The standard Ginetta G55 comes with a dry brake filler only. Therefore, a dump churn is an essential piece of equipment which will be used for quick and easy refuelling of the car.

Figure 1.5

Recommended Tool List

Standard Tools

- 1/4 socket set 5-15mm set
- 3/8 socket set 8-19mm set
- 1/2 Socket set 17-32mm set
- Allen key set 2-10mm set
- 1/2" wheel gun and 19mm socket
- 1/2" Torque wrench
- Spanner set 6-19mm
- Needle nose pliers
- Flush cut pliers
- Side cut pliers
- Screw Driver set
- Digital Vernier callipers
- 30cm Ruler
- Inside Vernier's
- Inside circlip pliers
- Outside circlip pliers
- LED Torch
- Stanley knife
- Rubber hammer
- Ball pein hammer
- Compressor
- Air line
- Tyre Pressure gauge
- Tyre inflator

G55 Specific tools

- 22mm Spanner for smaller oil pipes
- 32mm Spanner for larger oil pipes
- 36mm Socket for Drive shaft nuts
- 27mm Socket for top gearbox fitting (To fill gearbox with oil)
- 2 x Ohlins C spanners
- Brake bleed bottle
- Air jack safety stands

Bodywork Removal

The Ginetta G55 comprises three main pieces of bodywork; the bonnet, the rear section and the main body shell, shown in the images below. Both the bonnet and the rear section can be removed with relative ease, as outlined within this section.

Figure 2.1

Figure 2.2

Removing The Bonnet

The bonnet is retained with six fasteners; four Aero catches and two over centre style catches. The four Aero catches are located on the top of the bonnet as indicated in figure 2.3.

Figure 2.3

To release the Aero catches, first apply a downward force on the smaller area of the catch, highlighted in figure 2.4 below. This will allow the larger section of the catch to pop up. Lifting the larger section up retracts the locking pin from the lug which is mounted to the chassis, as shown in figures 2.6 and 2.7.

Figure 2.4

Figure 2.5

Figure 2.6

Figure 2.7

The last two fasteners holding the bonnet are Protek over centre type catches. These are located to the side of the front wheel on both sides of the car as shown in figure 2.8.

Figure 2.8

To unlock the catch, push the sliding block in the direction of the green arrow in figure 2.9, at this point the rear of the catch can be lifted. The catch will now lose its tension and can be unhooked from the mount. With all six fasteners released the bonnet can now be removed from the car.

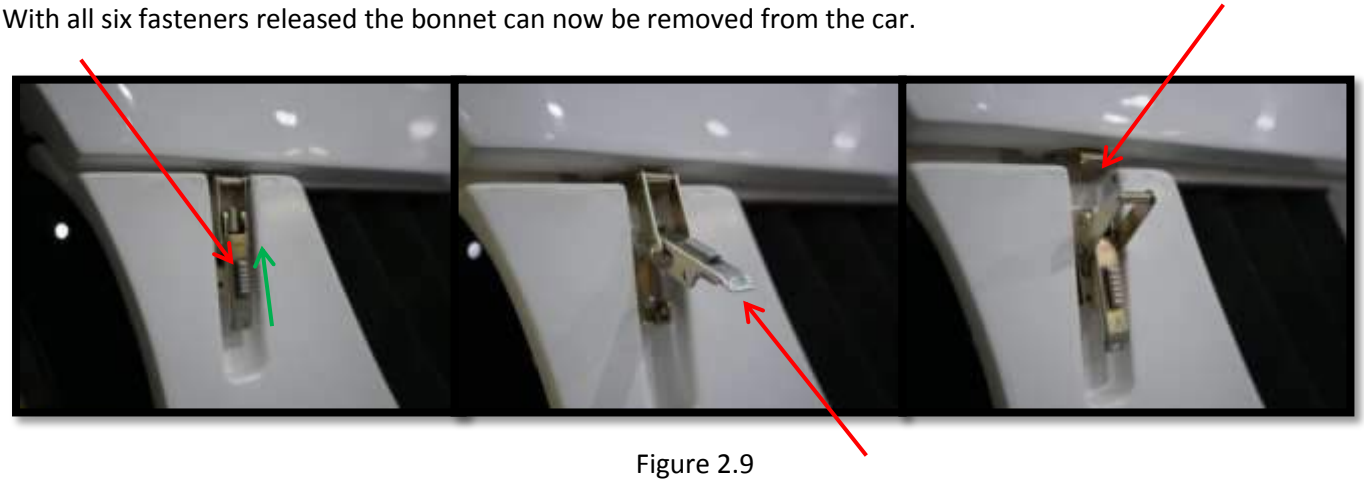


Figure 2.9

Removing The Rear Body Section

The rear body section is fixed into position with five fasteners; all five are the Protek over centre type catches as used on the side of the bonnet.

Two are positioned alongside the rear of each door as shown in figures 2.10 and 2.11.

Figure 2.11

Figure 2.10

Another two fasteners are underneath the bodywork at the rear of the car as shown in figure 2.12.

Figure 2.12

The final fastener is located below the rear wing, shown in figure 2.13.

Figure 2.13

Before fully removing the rear of the car, there is an electrical plug that needs disconnecting, shown in figure 2.14. For left hand drive cars the plug is located on the rear right hand side of the car. For right hand drive cars the plug is located on the rear left hand side of the car.

Figure 2.14

Raising The Car

To raise the car, first the air lance needs to be connected to the car. The hook up point is located on the right hand side, front quarter of the car as shown in figure 3.1.

To attach the lance correctly, grip the hose just behind the lance with one hand, with the other hand hold the outer handle. Engage the lance on the hook up point and then slide the outer handle forward.

To remove the lance correctly, take the same grip as when attaching the lance, pull back on the outer handle until it stops, then pull the whole unit away from the car.

Figure 3.1

Use a pressure of 34 bar to raise the car. ***DO NOT*** exceed 40 bar of pressure as this will damage the air jack system. Once the air lance is connected to the car, open the valve on the gas bottle. The air jacks will then lift the car, at which point the air lance can be removed.

If the car is being left in the air for any period of time, safety stands should be placed around each jack as shown in figure 3.2.

Figure 3.2

NO WORK SHOULD BE CARRIED OUT UNDERNEATH THE CAR WITHOUT ALL THE SAFETY STANDS CORRECTLY POSITIONED.

It is important that the safety stands are placed the correct way up as they will not fit correctly upside-down. Each stand is clearly labelled to show the correct orientation. Every car is supplied with three safety stands, two for the front and one larger one for the rear as shown in figure 3.3.

Figure 3.3

Once all three safety stands are in place the jacks can be retracted by releasing the air. Gently pulling back on the blue handle pictured in figure 3.4 will release the air pressure.

Figure 3.4

Lowering The Car

First, the air jacks need to be re-engaged. This is done by connecting the air lance to the fitting, and once connected, opening the valve. Next, remove the safety stands from underneath the car to allow it to be lowered. Once the safety stands (and mechanics) are clear of the car, it can be gently lowered to the ground by controlling the amount of air released with the blue handle on the cars air fitting.

To lower the car to the ground quickly during a pit stop, safety stands should not have been used. Therefore, the blue handle can be pulled, to fully release the air, rapidly dropping the car back on the ground. It is important that everything is out of the way before lowering the car; it is prudent to shout "Going Down" for example before lowering the car to make people aware it will be lowered.

Leave the blue valve open when the car is out on track to ensure the system cannot pressurise and cause the air jacks, or car, to be damaged on track.

Standard Car Setup

Like many race cars, the Ginetta G55 has two key setups when running on track; one for a dry session and one for the wet. Below is detail of a factory setup Ginetta G55 in GT4 SuperCup specification with 10L of fuel.

Dry Set Up

Roll bar stiffness:

- H4 hardest
- H1 softest

(See Figure 4.1 and 4.2 on the following page)

Set up	Front	Rear
Ride height	62	76
Roll bar	H2	H1
Springs	800lb	750lb
Camber Shims	8mm ^ 8mm	4mm ^ 4mm
Damper		
-Bump	-5 from stiff	-5 from stiff
-Rebound	-5 from stiff	-5 from stiff
Toe in	1mm Out / wheel	1mm In / wheel
Wing	N/A	Hole 3
Cold pressure	22 psi	21 psi
Hot pressure	28 psi	28 psi
Tyre	Michelin S8L Slick	Michelin S9L Slick

Wet set up

Roll bar stiffness:

- H4 hardest
- H1 softest

(See Figure 4.1 and 4.2 on the following page)

Set up	Front	Rear
Ride height	62	76
Roll bar	H2	H1
Springs	800lb	750lb
Camber shims	8mm ^ 8mm	4mm ^ 4mm
Damper		
-Bump	-5 from stiff	-5 from stiff
-Rebound	-10 from stiff	-10 from stiff
Toe in	1mm Out / wheel	1mm In / wheel
Wing	N/A	Hole 7
Cold pressure	22 psi	21 psi
Hot pressure	28 psi	28 psi
Tyre	Michelin P2G Wet	Michelin P2G Wet

Anti-roll Bar Drawings

Front

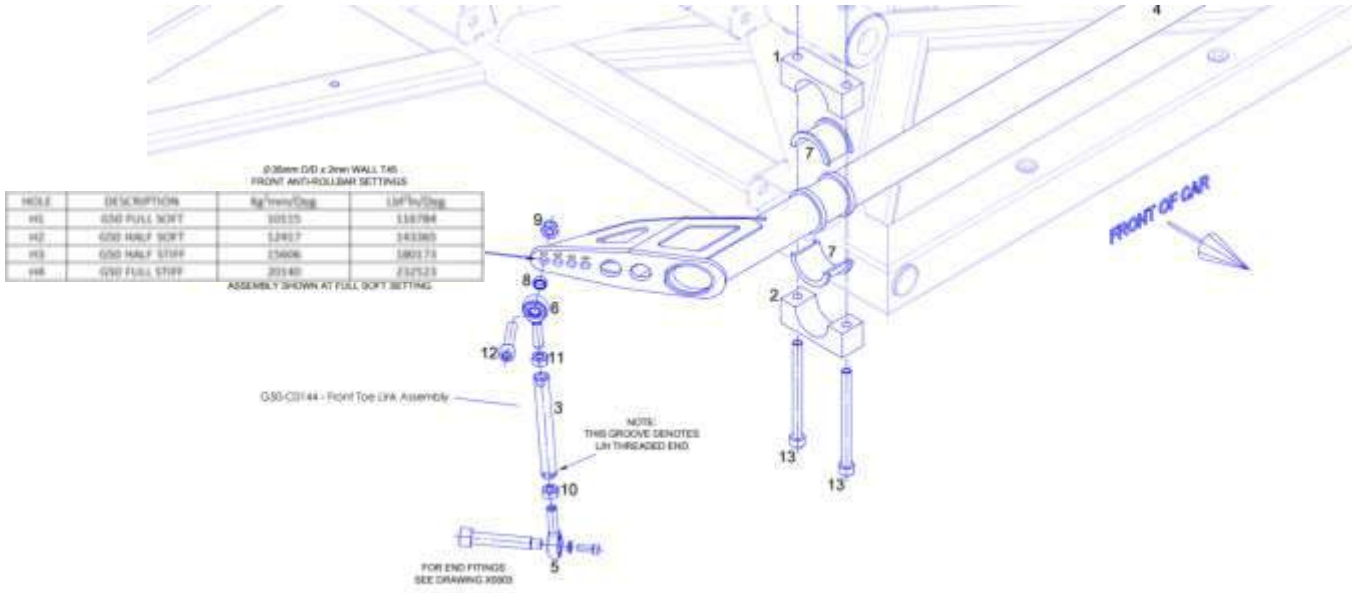


Figure 4.1

Rear

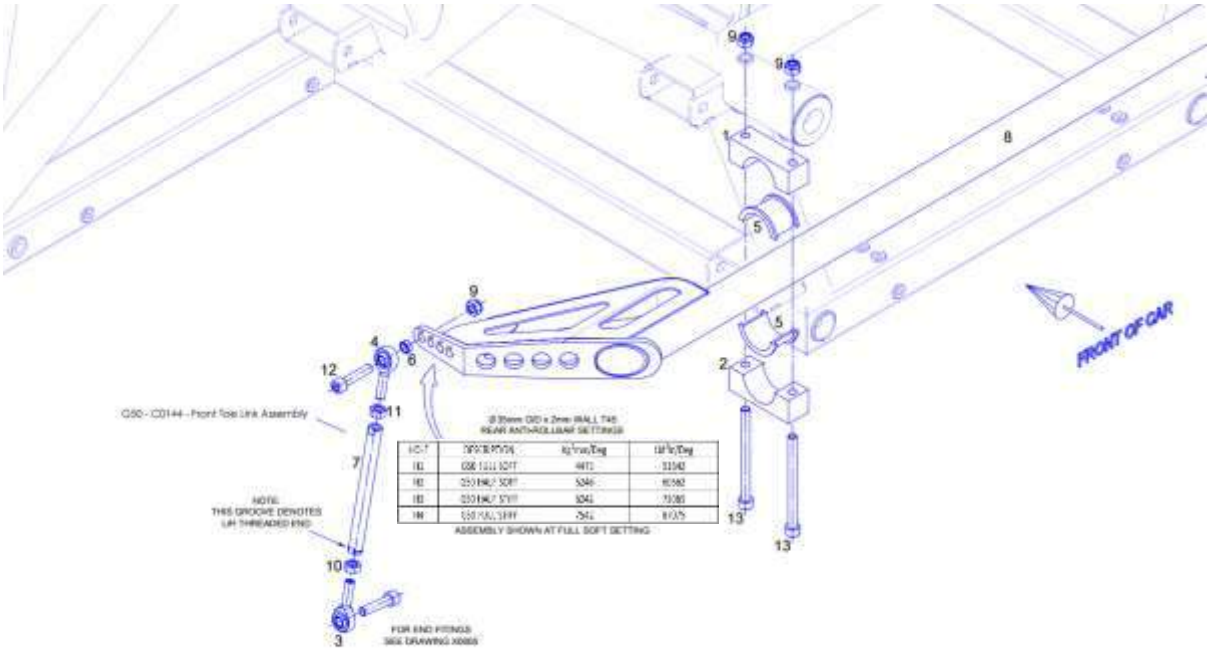
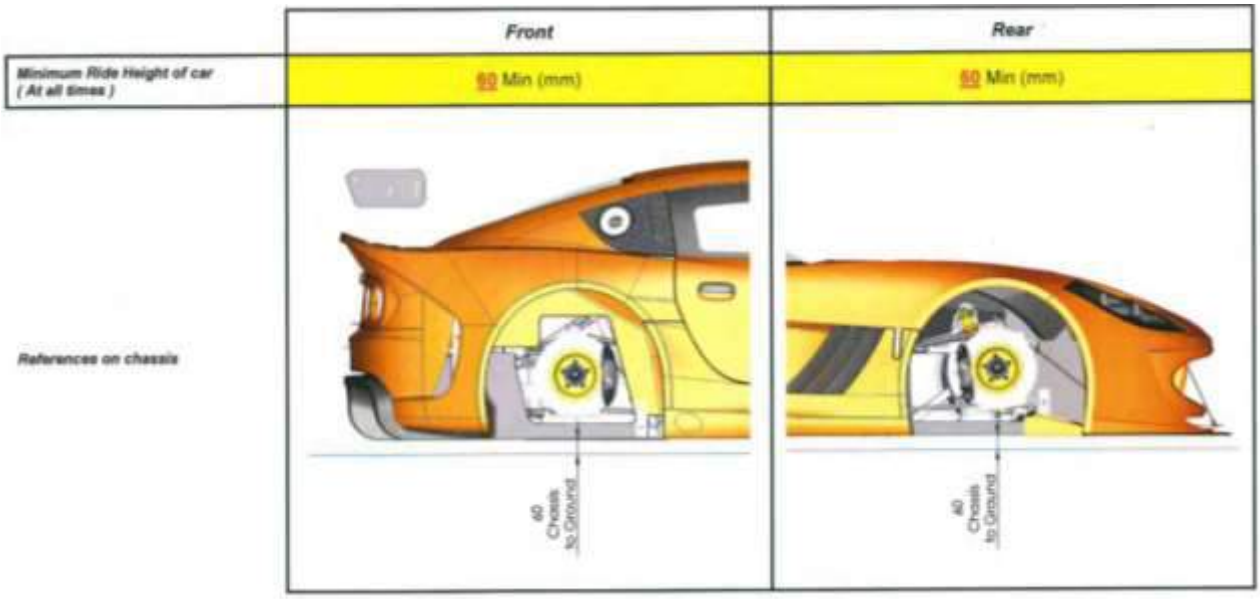


Figure 4.2

Ride Heights



Note:- This measurement is for set-up use only, and ***should not be used*** as a measurement for the championship regulations minimum ride height.

Set Up Adjustment Details

	Front	**Rear**
Ride Height	1 TURN SPRING PLATFORM = 2.5 MM RIDE HEIGHT	Change 1 TURN SPRING PLATFORM = 2.5 MM RIDE HEIGHT
Camber Change	3 MM SHIM = 0.5 DEGREES	3 MM SHIM = 0.5 DEGREES
Toe Change	¼ TURN TRACK ROD = 2.5 MM TOE CHANGE @ WHEEL	¼ TURN TOE LINK = 2.5 MM TOE CHANGE @ WHEEL
Ride Height Change With Camber Change	1 DEGREE CAMBER CHANGE = 3 MM RIDE HEIGHT	1 DEGREE CAMBER CHANGE = 3 MM RIDE HEIGHT
Toe Change With Camber Change	NO CHANGE	NO CHANGE
Anti-roll bar adjustment, hole 1 – hole 2	STIFFNESS INCREASE = 22.8%	STIFFNESS INCREASE = 17.3%
Anti-roll bar adjustment, hole 2 – hole 3	STIFFNESS INCREASE = 25.7%	STIFFNESS INCREASE = 19.0%
Anti-roll bar adjustment, hole 3 – hole 4	STIFFNESS INCREASE = 29.1%	STIFFNESS INCREASE = 20.8%

Setting Platform Heights

You must begin by setting the platform height on each of the 4 dampers to an equal level so the car has a ride height just above the limit. Once completed, use corner weights to adjust the rear two platform heights accordingly to make the car balanced, ensuring the car remains on or above the required ride height.

Figure 4.3

Tyre Pressures

Before running the car the tyre pressures should be set. The rear tyres should be set to lower pressures as they are the driven wheels and consequently will get hotter than the fronts during use.

For right hand (RH) circuits the tyres on the left hand side (LHS) will get hotter, therefore they should start with slightly lower pressures, and vice versa for left hand (LH) circuits.

*All pressures are in PSI and are weather dependant as ambient conditions affect cold pressures.

Target hot pressures: 28 psi all round.

RH Circuits

21	22
19	20

LH Circuits

22	21
20	19

Damper Settings

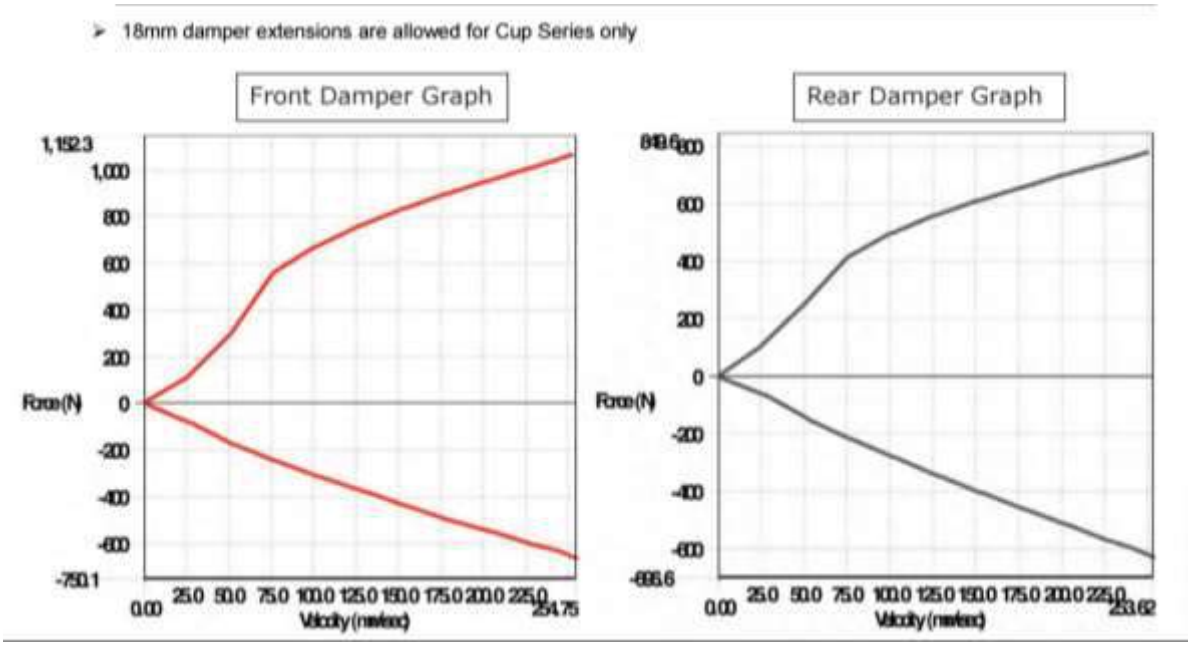
Bump: To set the bump on the damper, firstly wind the adjuster on the damper canister towards the housing, feeling the clicks as this is completed. When a noticeably bigger click is felt and it stops moving, the damper is at full stiff. This is the starting point to set bump, now wind the adjuster in the opposite direction one click at a time, until the required setting is reached.

Rebound: Setting the rebound is much the same. Start by winding the adjuster on the damper body towards the top of the damper until it stops, this is now at full stiff. Then wind the adjuster back out, counting the clicks to the required setting.

Damper Graphs

	FRONT DAMPER	REAR DAMPER
Make and type	**OHLINS OIL FILLED DOUBLE ADJUSTER**	**OHLINS OIL FILLED DOUBLE ADJUSTER**
Maximum open length	**437** mm	**437** mm
Minimum closed length	**350** mm	**350** mm

➢ 18mm damper extensions are allowed for Cup Series only



Fuel

The Ginetta G55 on average uses approx. 1.2L per minute (although this should be checked throughout testing, see page 37 for more information on fuel usage). To ensure the first session is completed without any fuel issues put **45L** into the car.

Ensure fuel is vented correctly when filling car, and always fill the same side on each fill to avoid airlocks.

Only use fuel with an octane rating of 98 or higher and under less than 2% oxygenated.

Spanner Check

The car needs to be spanner checked before leaving the workshop, and daily whilst at track. Using the supplied checklists on pages 32, 33, and 35, as part of a routine visual check will ensure nothing is over looked.

Fluids

Engine oil: 8L (from a dry system) Carlube 10W60 Fully Synthetic Motorsport Racing Oil

Gearbox oil: 2.25L (from a dry system) 75w90

1.25L for the gearbox, 1L for the cooler and lines

Diff oil: Approx. 2.1L / up to fill hole- 80W90

Brake and Clutch fluid: RBF 600

Power steering fluid: Fuchs ATF 6000 SL

Clutch and Brake

Figure 5.1 shows the two brake fluid reservoirs as well as the clutch fluid reservoir.

Each reservoir has a line to indicate the level of fluid that should be inside, ensure all three are filled to the correct level.

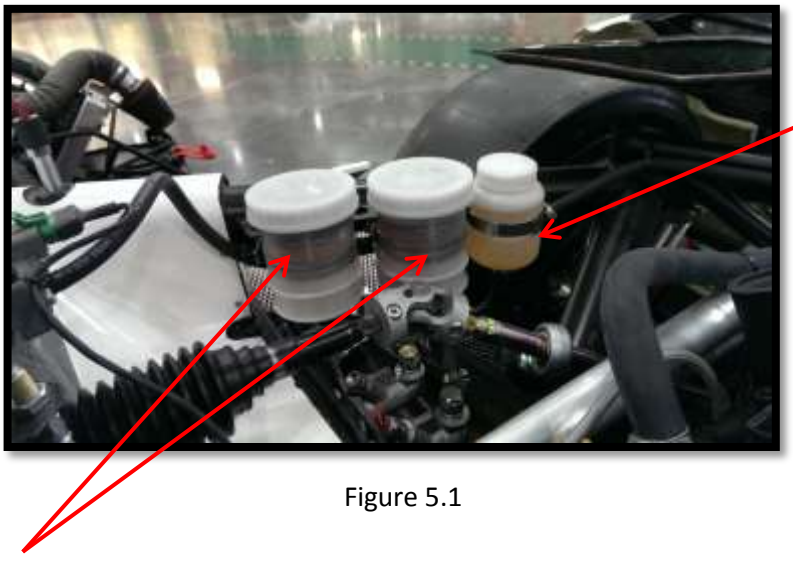


Figure 5.1

Engine Oil

Engine oil should be checked when the oil is up to temperature. Always check immediately after the engine has run to avoid any oil draining back into the sump. Ideally hold at approx. 3000 rpm for 5 seconds, turn off the engine, and then check level.

With the engine hot, the oil level should be approx. 20mm below the second baffle as shown by the red arrow in Figure 5.2.

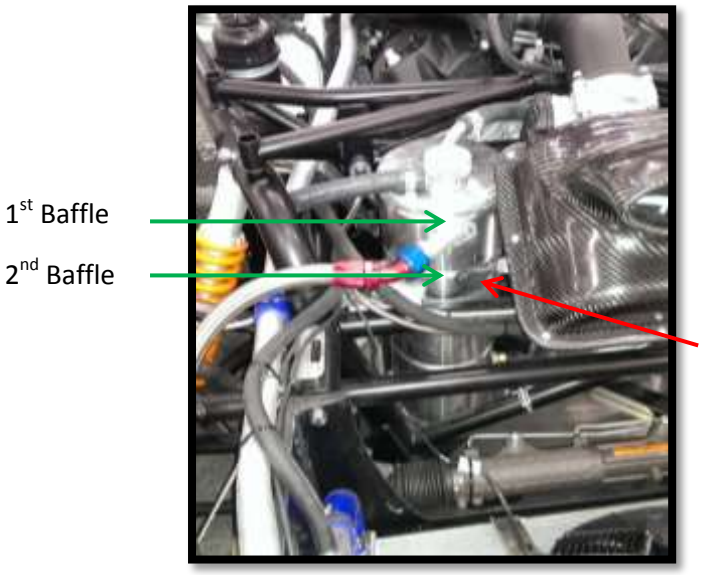


Figure 5.2

Figure 5.3 helps show a method of checking the engine oil is at a safe level to run the car. The distance from the top of the neck to 20mm below the second baffle is 165mm. Marking a T-Bar or other measuring device at 160mm and 170mm gives a min and max line. The measuring device can be lowered into the oil tank until the neck and then removed. If the oil mark is in between the min and max lines the car is safe to run.

Figure 5.3

Power Steering

Power steering fluid should be checked when the engine is hot.

The correct level is approx. half full.

Figure 5.4

Coolant

Before checking the coolant level, first turn on the car with the coolant cap off to make sure the coolant is circulating through the system.

Note: Coolant should be checked with the engine cold. The ideal fluid level is approx. two thirds full.

Figure 5.5

Sills

It is common for small pieces of rubber from the front tyres to get caught in the sills.

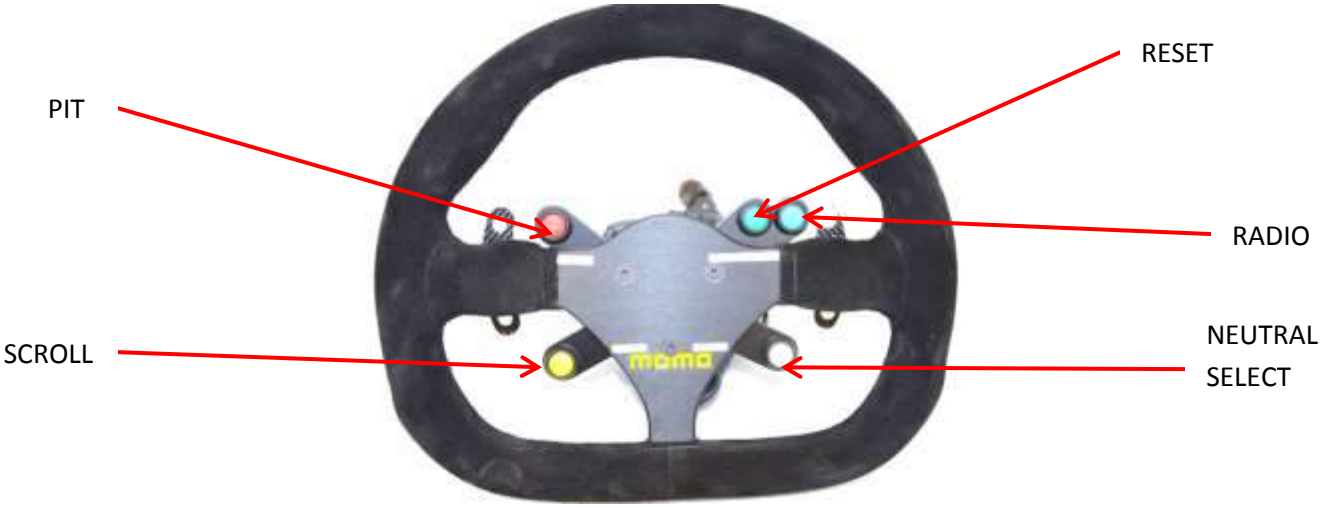
These pieces of rubber will melt and create smoke due to the proximity of the exhaust, especially in the pit lane when the air flow around the area is greatly reduced.

To prevent the pieces of rubber entering the sill, ensure the meshing shown in figure 5.5, is correctly fitted and the sills are regularly removed and cleared of any debris.

Figure 5.6

Steering Wheel Controls

The steering wheel has five buttons as standard, below is a list of their functions.



(Figure 6.1)

PIT: The pit button is used to limit the speed of the car in the pit lane. With the car in **second gear,** the pit button can be depressed limiting the top speed of the car to 60 Kmph. The limited speed can be altered to the desired amount for each track using the M1 tune. The pit button is either a push and hold, or a latch button.

RESET: The reset button is used to wipe/cancel any alarms that may have occurred. It also is used to perform a session or fast lap reset, see page 37.

RADIO: The radio button can be used during testing and practice or for the Michelin Ginetta GT4 SuperCup, but does require some wiring. (The radio function is not legal for use during Michelin Ginetta GT4 SuperCup races.)

SCROLL: The scroll button is used to navigate through the on board digital display. The display has three main screens, WARM UP, PRACTICE, and RACE. Holding the scroll button down momentarily, switches the display to the next screen.

Within each main screen there are multiple secondary screens containing various read outs relevant to the main screen it is found within. To move through the secondary screens the scroll button can be pressed once to cycle to the next secondary screen.

NEUTRAL SELECT: The NEUTRAL SELECT button allows the driver to cycle through reverse, neutral and first gears.

- Selecting first gear from neutral

Press the clutch as normal, then press and hold the white neutral button whilst simultaneously pulling the 'up' paddle. If first gear does not engage immediately, keep holding the 'up' paddle and carefully slip the clutch to rotate the gearbox until the dogs align and engage. As soon as the car is rolling, there is no requirement to use the clutch either for up or down shifts until the car comes to a standstill. However, at very low engine speed in the pit-lane and around the paddock, the driver may choose to use the clutch to make the shifts a little smoother.

- Selecting neutral

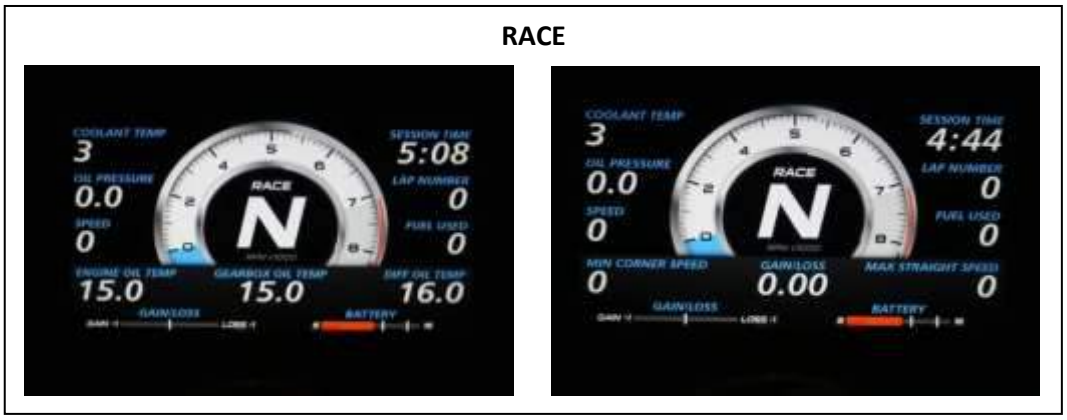
Neutral can only be selected from first gear. When bringing the car to a stop, the driver should get into the habit of selecting first gear before the car comes to a standstill, otherwise it can be difficult to get back to neutral if the dogs aren't in alignment. When first gear is selected, press and hold the white neutral button and pull the 'down' paddle to select neutral.

- Selecting reverse gear

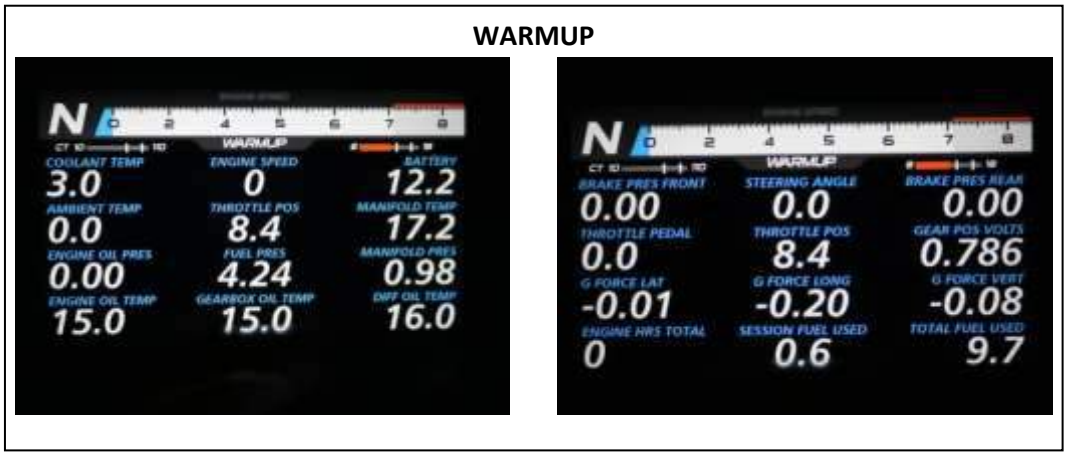
To select reverse, first select neutral as above, then press and hold the white neutral button and pull and hold the 'down' paddle for one second. The one second delay is to prevent the driver from accidentally selecting reverse before the car has come to a complete stop, as doing so would cause severe gearbox damage! The reverse gear is for EMERGENCY ON TRACK USE ONLY, NOT FOR USE AROUND THE PADDOCK, engine rpm should NOT exceed 2500rpm whilst in use.

Figures 6.2, 6.3 and 6.4 show the parameters that are measured on the digital display in the car.

(Figure 6.2)



(Figure 6.3)



(Figure 6.4)

Dashboard Controls

The dashboard has eighteen buttons as standard, below is a list of their functions.

(Figure 6.5)

IGNITION: The IGNITION switch is used to turn on the ignition. The toggle switch moves up for OFF and down for ON.

M/ON: M/ON is the master on switch used to power up the car.

M/OFF: M/OFF is the master off switch used to power down the car.

WIPER: The WIPER switch is used to turn on the wiper blade. The toggle switch moves up for SLOW and down for FAST.

INDI: The INDI switch is used to turn on the left or right indicators. The toggle switch has to be held to the left to indicate left or held to the right to indicate right.

RAIN: The RAIN switch is used to turn on the rear rain light. The toggle switch moves up for OFF and down for ON.

FUEL LOW: The FUEL LOW light is a red L.E.D that warns the drivers that the fuel has reached a low level and will need refuelling soon.

LIGHTS: The LIGHTS switch is a twisting toggle that turns the cars headlights and rear lights on or off.

ENGINE START: The ENGINE START button is used to crank the engine, it can be pressed with the ignition off to prime the oil pressure, or with the ignition on to fire up the engine.

CIRCUIT BREAKERS: There is a selection of six circuit breakers on the dashboard; they are all clearly labelled with the component they are connected to. If a circuit breaker trips it can simply be pushed back in to reset it. It is important to find the reason that the circuit breaker tripped.

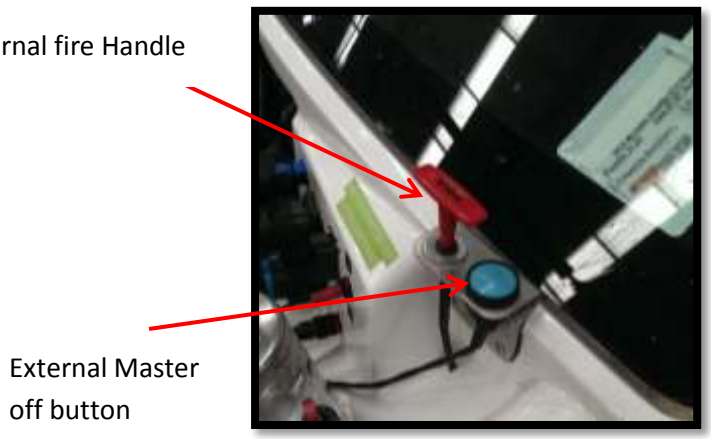
HEATED SCREEN: The HEATED SCREEN button is used to demist the windscreen; **the engine has to be running for this component to function** and is set on a 20 minute timer. If the screen is cracked or damaged the heated element may not work.

PADDLE SHIFT EMERGENCY: The PADDLE SHIFT EMERGENCY switch is a toggle switch, that when flicked down activates the emergency shifting mode. This mode can be used to limp the car back to the pits if an electrical fault stops the standard shifting system from working.

NOTE: THE GEARBOX WILL SHIFT INTO NEUTRAL AND REVERSE WITHOUT THE USE OF THE NEUTRAL SELECT BUTTON WHEN IN THIS MODE.

FIRE: The FIRE handle is linked to a fire extinguisher. The extinguisher is plumbed into various points around the car and is automatically released when the handle is pulled. It is important that the pin in the fire extinguisher is removed before the car leaves the pits when heading out to track and also replaced before transporting the vehicle.

Along with the Fire Handle on the dashboard there is another handle located on the external of the car between the bonnet and windscreen. The blue button is a Master off button which should be used to shut off the power to the car in an emergency.



(Figure 6.6)

Starting Procedure

To start the engine follow the five steps listed below.

1. Press the green master button on the dashboard to power up the car.
2. With the ignition off, press and hold the “ENGINE START” button for five seconds to crank the engine and get initial oil pressure when starting from cold.
3. Flick the ignition switch to the ON position.
4. Press and hold the “ENGINE START” button to fire up the engine.
5. Let the car warm up on idle until the water temperature has reached 85°C and the engine oil temperature is above 40°C.

Paddle Shift Instructions

When on track, upshifts can (and should) be made without lifting off the accelerator or pressing the clutch. The control electronics automatically makes the appropriate torque reduction to allow disengagement of the current gear.

Downshifts should also be made without using the clutch as the system automatically ‘blips’ the throttle and matches the engine speed for the next gear. During downshifts, the driver must not make any attempt to perform a manual ‘heel & toe’ throttle blip as this will interfere with the ECU strategy and may result in missed shifts or gearbox damage.

The system incorporates several safety strategies to prevent engine and gearbox damage. One important safety feature is the downshift over-rev protection. If the driver requests a downshift that would cause an engine over-rev, the system will decline the request.

In this instance the driver must call for the shift again when the engine RPM is within safe limits. The RPM limit is calculated for each gear based on the programmed gear ratios. It’s important to note that that the driver should not rely on this feature by indiscriminately pulling the downshift paddle in the hope of maximising engine speed.

Note also that the downshift over-rev protection is rendered ineffective if the driver requests several downshifts while the clutch is depressed.

Paddle Shift Maintenance

Pneumatic systems are very reliable in operation and there is very little regular maintenance required. However, as with any compressed air system, it is recommended that that air accumulator tank is drained periodically. The draining interval should be approximately 20-30 hours running, depending on the operating environment. Operation in wet and humid conditions will cause a greater accumulation of water in the tank. However, failure to drain the tank is unlikely to lead to problems as the entire pneumatic system is manufactured from corrosion resistant materials. It’s very important that the air compressor is kept cool and dry at all times. If the compressor ingests water then it will fail in a very short period of time. The compressor has a thermal protection switch that disables the unit if the temperature exceeds 70oC (approx.). If the thermal switch operates, it will take approximately 20-30 minutes before the compressor cools sufficiently to resume operation. The compressor has a temperature monitoring strip attached to the motor body. You should check this regularly to ensure that the compressor is operating within its safe temperature range. At the end of each racing season, the gearbox actuator and valve assembly should be returned to the factory for servicing and seal replacement. No other servicing is necessary, and no attempt should be made to disassemble the shift system components.

What To Look For Whilst Warming The Car Up

- All fluid levels are correct
- No fluid leaks
- Nothing is in contact with the exhaust manifolds
- All belts are tight and intact

Making Sure The Fan Comes On And Goes Off

To check if the radiator fan is working, warm the car up until it is hot enough to cause the radiator fan to come (this will happen at around 93°C. Leave the car running whilst you check the cooling system is circulating and has no airlocks. If everything is ok with the cooling system, the coolant temp will drop, and when it is below 85°C, the fan will switch off.

Check Tyres Are At Correct Cold Pressure

RH Circuits

21	22
19	20

LH Circuits

22	21
20	19

All pressures are only a guide, in PSI and weather dependant

Wheels Fitted Correctly

It is easy to mistake the front and rear wheels when in a rush before a session. The difference between them is the width. The front wheels are a 9J width and the rears are 10J. This is labelled on the inside of the rim but the difference can be seen by holding one of each wheel next to each other.

Figure 7.1

Figure 7.2

Wheels Are Correctly Torqued

The wheels are held on by five wheels nuts, as shown in figure 7.3. These should be tightened to 60 ft.lbs with a calibrated torque wrench.

Figure 7.3

Fire Extinguisher Pin Is Out

Before the car leaves the garage ensure the extinguisher pin shown in figure 7.4 has been removed.

Figure 7.4

Workshop Preparation Checklist

Date:
Chassis:
Mechanic:

Job list	Yes	No	Quantity	Comments
Set down				
Check for any bodywork damage				
Check windscreen for damage				
Check wheels for play before removal				
Straight edge wishbones, any bent?				
Check brake pads and discs for wear				
Remove sills, check for any rubber / blow out				
All exhaust springs still attached?				
Check exhaust side brackets for cracks				
Check cats				
Check backbox hangers for snapping				
Blow out radiators, check for leaks				
Full spanner check				
Roll bar adjuster nuts tight?				
Manifold bolts tight?				
Toe link lock nuts tight?				
Check prop bolts both ends				
Check damper bushes for play				
Check brake line routing				
Drain catch tank, replace drain plug				
Drive shaft nuts				
Drive shaft play?				
Check hub nut torque (180 ftlb)				
Remove gearbox and check clutch plates for wear				
Remove floor trays, check for leaks				
Any damage to underside?				
Full clean underneath				
Refit floor trays with new bolts				
Full spanner check pedal box, pedal pads too				
Check seat rail and mount bolts				
Check wiring and piping in engine bay for chafing				
Bleed brakes				
Clean bleed nipples				
Does clutch need a bleed?				
Check water and power steering fluid				
Check engine oil, when was filter last changed?				
Does gearbox oil need checking?				
Drain paddleshift air tank				
Check paddles on wheel for swarf				
Drain fuel, how much came out?				
Refuel, how much? 10L for setup if unsure				
Set dampers, what are bump and rebound set to?				
Full clean outside, clean glass too				

Job list	Yes	No	Quantity	Comments
Hoover and clean inside, wipe dash etc				
How many slicks are mounted?				
How many wets are mounted?				
How many spare rims do you have?				
What springs are fitted?				
Set cambers				
Set rear wing, what hole?				
Tracking, what does it need setting to?				
Set platform heights, what are they set to?				
Run up to temp, run through box and check fan operation				
Weight tray fitted?				
Seat belts set for driver?				
Beacon on correct side?				
Transponder fitted? Number				
Championship stickers				
Check lights				
Is there enough seat padding?				

Final Checks

Prior to qualifying / race, you must work through the following final checklist to ensure the car is ready to go out onto track.

- Torque wheels
- Check tyre pressures
- Set dampers
- Ensure sufficient fuel
- Lock all bodywork clips
- Remove extinguisher pin

Installation Lap

An installation lap should be taken before a session if any major work has been carried out on the vehicle. Such work would include (but is not limited to) an engine refit or repair of accident damage. The car should do one lap at good speed - but not race pace.

This helps to identify any issues without risking further damage to the car. After the car has finished the installation lap, a thorough visual check of the car is required. It is strongly recommended that all oil, water and fuel lines are checked for security, along with the wheel nuts.

Following this, a further run of four laps should be completed, after which a thorough spanner check must be carried out to check the security of all components. Particular attention should be paid to hub nuts, CV joints, braking and steering systems, suspension mounts and lock nuts, and also the air jack locking rings

Bedding In The Brakes

Brake discs for competition use need to be bedded-in to ensure heat stabilization and improve resistance to cracking.

On the first lap, perform several snubs with progressively higher pedal pressure and braking force and from higher speeds. You will feel the effectiveness of the brakes increase with each successive brake application. This should take six to ten snubs per lap and is usually completed in one or two laps. If non-PFC friction materials were previously run on the discs then this procedure could take as many as three to five laps. This is because the non- PFC friction material transfer layer must first be cleaned from the disc and then a fresh transfer layer must be imparted to the disc.

Running additional laps is the best way to accomplish the new transfer layer and, due to the higher surface temperatures, will assure a complete removal of the old friction materials from the disc. Braking effectiveness should be excellent at this point and the car can be driven normally. (Performance Friction)

General Track Maintenance

When the car has returned to the pits from an installation lap, it is necessary to check for any play in each corner. Jacking the car up off the ground allows the wheels to be shook from side to side. There should be no knocking or unwanted movement from each wheel. The tyres should be around 28-29 psi when hot.

Race Weekend Checklist

Job list	Yes	No	Quantity	Comments
Fill in set down sheet				
Ask driver about any problems				
Do you need to mount any more tyres?				
Check for any bodywork damage				
Check windscreen for damage				
Check wheels for play before removal				
Straight edge wishbones, any bent?				
Check brake pads and discs for wear				
Remove sills, check for any rubber and blow out				
All exhaust springs still there?				
Check exhaust side brackets for cracks				
Check back box hangers for snapping				
Blow out radiators, check for leaks				
Full spanner check				
-All corners				
-Diff mounts				
-Engine and gearbox mounts				
-Roll bar adjuster nuts tight?				
-Manifold bolts tight?				
-Toe link lock nuts tight?				
-Check prop bolts both ends				
-Check damper bushes for play				
-Check brake line routing				
-Drain catch tank, replace drain plug				
-Drive shaft nuts				
-Drive shaft play?				
-Check hub nut torque (180 ftlb)				
Check Clutch isn't dragging after session				
Any damage to underside?				
Full clean underneath				
Check wiring and piping in engine bay for chafing				
Do the brakes need bleeding?				
Does clutch need a bleed?				
Check brake and clutch fluid levels				
Check water and power steering fluid				
Check engine oil				
Drain paddleshift air tank				
Drain fuel, how much came out?				
Refuel, how much?				
Set dampers, what to?				
Set platform heights				
Set cambers				
Set rear wing				
Tracking				
Full clean inside and out, clean glass too				
Tracking, what does it need setting to?				
Run up to temp, run through box and check fan				
Does the car need any more weight fitting?				
Championship stickers				

Cleaning Air filter

First remove the 7 bolts that hold the two halves of the air box together shown in figure 8.1. With the bolts removed the top section of the air box can be lifted away, exposing the air filter inside

Figure 8.1

Figure 8.2

Next, loosen the jubilee clip fastened around the neck of the filter, shown in figure 8.2. This releases the grip on the filter allowing it to be removed. With the filter removed turn it inside out and use an airline blower to clean the filter from the inside out, this ensures no debris is lodged in the filter potentially blocking the air flow.

With the filter cleaned the removal process can be reversed to re-install the filter.

Draining The Catch Tank

It is important to drain the catch tank periodically to prevent excess oil from blowing through the breather filter. To drain the catch tank the drain plug needs to be removed. The plug is located on the bottom of the catch tank as shown in figure 8.3. Place a suitable container underneath the tank, then using a 6mm hex key remove the plug allowing the oil to drain out.

Once the catch tank has been drained replace the plug and safely dispose of the oil.

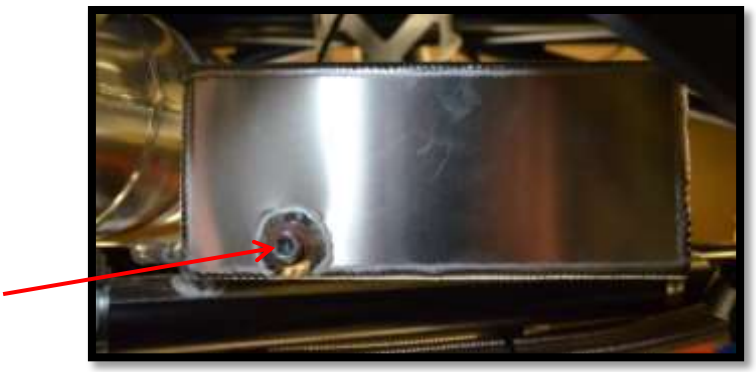


Figure 8.3

Fuel usage

It is important to know how much fuel the car is using so that the car can be sent out with just enough fuel to last the session, over fuelling a car will reduce the performance greatly. This section outlines how to measure the cars fuel usage.

Defueling

Figure 9.1

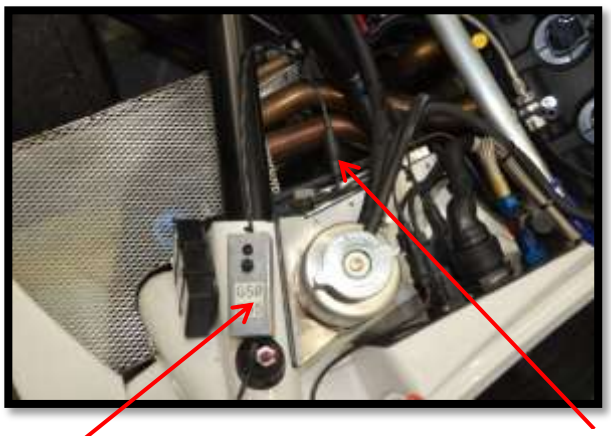


Figure 9.2

Attach the fuel drain hose to the dry brake connector on the fuel line, as shown in figure 9.1. With the drain hose connected, the fuel pump out kit needs to be attached. To attach the pump out kit, first connect the sure seal connector to the corresponding plug on the car, labelled “P.Out”, shown by the arrow on figure 9.2. The Pump out kit can then be connected to a 12V battery source. Finally, with the open end of the drain hose in a suitable container, the pump out kit can be turned on via the latch switch.

Once the flow of fuel from the drain hose, becomes intermittent the de fuelling process should be stopped. This prevents the fuel pump from becoming damaged due to running dry.

With the fuel drained a manual measurement of the fuel can be made, comparing this measurement with the amount of fuel put into the car will show how much fuel has been used.

The C125 dash offers an alternative method of measuring the amount of fuel used by the car. The dash automatically counts the fuel used, and displays it to the driver. To accurately measure the fuel used in a session it is important to reset the dash before starting, this zero’s the parameters that the dash displays. There are two types of reset’s that can be performed, a session reset, and a fast lap reset. To zero the dash, the “reset” button on the steering wheel needs to be pushed and held for either 3 seconds (session reset) or 5 seconds (fast lap reset). A session reset will zero all the parameters bar the fastest lap time. A fast lap reset will zero every parameter.

Figure 9.3

Figure 9.4

Engine Warranty

For 2016, Ginetta will introduce an engine warranty scheme for the G55 cars. This will apply to both Supercup and GT4 in the UK. All new cars, new lease packages, engine purchases and engine rebuilds will come with a 12 month or 60 hour warranty, whichever comes first. Any validated warranty claim will be subject to an excess payment of £1500 + VAT.

As part of the warranty scheme, Ginetta will require customers to:

1. Use the Ginetta approved oil which will be supplied at RRP by Ginetta.
2. Use the Ginetta approved oil filter which will be supplied at RRP by Ginetta.
3. Undertake oil and filter changes at intervals of 10 hours running.
4. Maintain a log book, to be supplied by Ginetta, documenting oil and filter changes and engine run time.
5. Check and inspect engine data following each session (test session, free practice, qualifying, race etc.)

In the event of an engine failure and to validate the warranty, teams will be required to:

1. Return the engine and ECU to Ginetta for inspection. The ECU must contain the data from the engine failure – to be clear, the customer must take care not to wipe the data from the ECU if, and when, they download the data from the car for their own purposes. The oil tank, oil cooler, oil lines and air filter are also to be re-turned for cleaning or replacement where required.
2. Pay an excess of £1500 + VAT

The warranty will be void if there is evidence of misuse/abuse of the engine or negligence. Misuse/abuse includes the fol-lowing conditions – this is not an exhaustive list:

1. The engine must not be run with a water temperature in excess of 110 deg C for more than 20 seconds and / or 130 deg C for any length of time. REFERENCE ECU DATA
2. The engine must not be run with an oil temperature in excess of 150 deg C for more than 10 seconds and / or 160 deg for any length of time. REFERENCE ECU DATA
3. The engine must not have exceeded revs of 7500 rpm. REFERENCE ECU DATA
4. The engine must NOT rotate for any longer than 5 seconds with the oil pressure below the low pressure alarm value. REFERENCE ECU DATA
5. Failure due to ingestion of a foreign body.

In the event of an issue, which hasn't resulted in failure up to that point (for example, an engine that has run hot but not failed, an engine that has had an oil pressure alarm, or lost the oil pump belt but not failed, over rev due to rear wheel locking allowing early downshift) the engine and ECU are to be returned to Ginetta for inspection – costs incurred will be payable by the customer. Ignoring a previous problem will invalidate the warranty.

At the point of an engine rebuild/ refresh/ new car sale, Ginetta are to clear the log file of maxima and minima values and engine run time. In addition, warranty engines will carry an official identifier.

In the event of Ginetta replacing engine parts as part of a warranty claim, thus making an engine a "zero miles" engine, a percentage of the standard rebuild charge will be payable based upon hours used up to the point of failure. For example, if the engine has run for 30 hours, 50% of the standard rebuild charge will be payable.

The warranty does not include any accident damage, collateral damage (damage to the car as a result of debris from the engine), fire damage, loss of earnings, loss of sponsorship that may be considered to be a result of an engine failure.

The warranty excludes any engine ancillaries including; alternator, starter motor, clutch, flywheel, power steering pump, wiring loom and engine sensors.

Life program

	NDT/Inspect	Replace/Recon
Suspension		
Lower wishbones	2,500km	7,000km
Upper wishbones	2,500km	10,000km
Uprights	2,500km	
Suspension rose joints	500km	7,000km
Anti-roll bars and drop links	2,500km	7,000km
Wheel bearings	500km	7,000km
Wheel rims	2,500km	7,000km
Suspension bolts		5,000km
Rear toe links	2,500km	7,000km
Bushes	500km	5,000km
Steering		
Steering column	2,500km	7,000km
Steering rack	2,500km	7,000km
Front toe links	2,500km	7,000km
Steering bolts		2,500km
High pressure power steering hose	1,500km	7,000km
Steering arm bolts		2,500km
Engine		
Engine		60Hrs
Alternator		10,000km
Power steering pump		7,000km
Gauze filter	500km	
Oils		500km
Oil filter		500km
Drivetrain		
Driveshafts assembly	1,000km	2,500km
Propshaft	2,500km	10,000km
Diff	2,500km	7,000km
Gearbox	2,500km	7,000km
Clutch	2,000km	7,000km
Propshaft bolts		2,500km
Belts		
Power steering	500km	1,500km
Alternator	500km	1,500km
Oil pump	500km	1,500km
Fuel		
Fuel tank		Dated
Fuel filter		1,500km
Fuel pump		7,000km
Brakes		
Brake discs	500km	2,500km
Disc bells	500km	5,000km
Brake pads	250km	
Safety		
Extinguisher		Dated
Seats		Dated
Seat belts		Dated

	NDT/Inspect	**Replace/Recon**
Fluids		
Gearbox oil		1000km
Diff oil		1000km
Power steering oil		1000km
Brake fluid	250km	1000km
Paddle shift system		
Paddle shift compressor air filter	500km	1,500km
Compressor air tank	500km	7,500km
Steering wheel shifter magnets	500km	
Valve block	500km	2,500km
Wiring		
Wiring loom	1,000km	
Wheel speed sensors	250km	
Relay block	500km	