

ROYAL ALLOY

Gran Turismo 2
Owner's Manual

GT2 · GT2 R

Foreword

Thank you for choosing the Royal Alloy **Gran Turismo 2**. Royal Alloy scooters stand for advanced technology and reliability. They were developed by RA Engineering Co., Ltd and its partners, drawing on many years of experience with touring, leisure and sports scooters. This model holds a leading position in its market segment.

This manual explains the operation, use, basic inspection and maintenance of your scooter. **If you have any further questions about operation or maintenance, please contact your dealer or a qualified specialist workshop.**

The scooter meets the emissions standards in force at the time of manufacture. To keep it compliant, carry out the maintenance described in this manual together with your dealer, and follow the instructions given.

Safety messages used in this manual

WARNING Instructions that must be followed to prevent injury to people or damage to property.

CAUTION Instructions that must always be followed; otherwise your personal safety may be put at risk.

NOTE Instructions that must be followed to avoid damaging the scooter.

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CHAPTER 1
Safe riding

Obey the rules of the road and think about your safety before every ride. Ride carefully and keep your speed within safe limits.

Practise before riding

Before riding in traffic, practise in a spacious, traffic-free area until you can ride safely and are familiar with the scooter's controls. Practice is important for your safety. Make sure you hold the required licence before riding on public roads.

Keep to a safe speed

Your safe maximum speed depends on the road conditions, your riding ability and the weather. Observe the legal speed limits.

Take care in rain and bad weather

Wet or slippery roads call for extra attention. Avoid high speeds and take particular care when turning. Remember that braking distances in the rain can be twice those on a dry road.

Helmet

Always wear a helmet when riding and make sure it is correctly fastened.

Riding clothing

We recommend light-coloured, well-fitting clothing that does not restrict movement — ideally motorcycle clothing — and suitable footwear with flat heels.

Maintenance and inspection

- Carry out a check before every ride.
- Have servicing and maintenance carried out according to the maintenance schedule.

Caution: high temperature

The silencer (exhaust) gets very hot and can cause serious burns. Always park the scooter so that nobody can accidentally touch the hot silencer. Watch out for children and pedestrians.

No modifications

Modifications to the vehicle are not permitted. They can affect riding safety and invalidate the vehicle's road approval.

CHAPTER 2

Serial numbers



Figure 1 Locations of the engine number, VIN and identification plate

Engine number	Stamped on the rear of the engine casing.
VIN (frame number)	Engraved on the inside of the frame at the front.
Vehicle identification plate	On the right-hand side of the vehicle.

NOTE Make a note of your engine number so that you can easily order the correct spare parts from your dealer.

Please record your vehicle numbers here:

VIN / frame number	
Engine number	

CHAPTER 3

Controls and operation

3.1 Multifunction display (GT2)

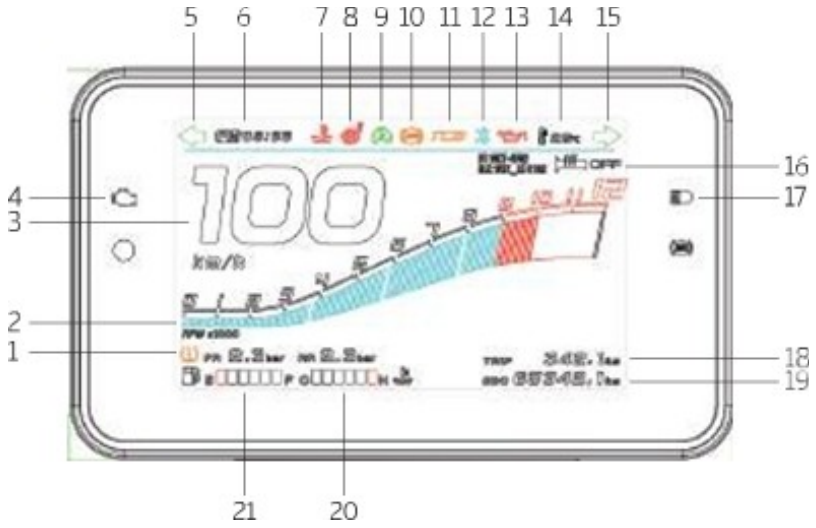


Figure 2 Multifunction display, GT2

1 Tyre pressure

Shows the front and rear tyre pressures. A front pressure of 1.8–2.3 bar and a rear pressure of 2.0–2.8 bar are shown as optimal.

2 Rev counter

Shows engine speed.

3 Speedometer

Shows road speed in mph or km/h.

4 Engine management light (MIL)

Indicates a fault in the engine management system.

WARNING If this warning light comes on while riding, contact your dealer or a specialist workshop straight away.

5 / 15 Right and left turn indicators

Flash when the turn signal switch is pushed to the right or left.

6 Clock

Shows the time.

7 Coolant temperature warning light

Lights when the coolant temperature exceeds 120 °C.

WARNING Stop immediately and switch off the engine.

8 Heated seat

Lights when the heated seat is on.

9 Automatic start-stop

Lights when start-stop is active.

10 ABS indicator

Lights when the engine is started and goes out after a few metres. If it lights while riding, the ABS is not working — contact your dealer or a specialist workshop.

11 TCS indicator

Flashes when traction control (TCS) is intervening and stays on when TCS is switched off. It also stays on if there is an ABS fault or a TCS failure.

12 Bluetooth indicator

Blue = Bluetooth connected; grey = not connected.

13 Oil pressure warning light

Stop immediately and check the oil level. If the level is correct, contact your specialist workshop.

14 Outside temperature

Shows the outside air temperature.

16 Heated grips

Lights when the heated grips are on.

17 High beam indicator

Lights when the high beam is on.

18 Trip meter

Shows the distance covered on the current trip.

19 Odometer

Shows the total distance the scooter has covered.

20 Coolant temperature gauge

Shows the coolant temperature.

21 Fuel gauge

Shows the amount of fuel in the tank. When the bars reach "F", the tank is full. When only 2 red bars remain, you are on reserve. When the reserve is almost used up, the first bar flashes — refuel immediately.

Pairing the tyre pressure sensors



Figure 3 Tyre pressure sensor adapter

1. Press and hold MODE to open the menu. Briefly press MODE to go to sensor settings, briefly press SEL, then briefly press MODE to select pairing for the front or rear sensor.

2. Press the confirm button on the adapter and move it gently up and down along the edge of the tyre. The display shows "Matching Code".
3. When you hear a beep, the adapter has read the sensor in the tyre and the display receives the signal to complete pairing. Pairing with the adapter is assigned automatically.

Menu

Press and hold MODE to open the menu. Then use the buttons as follows:

Menu item	How to use it
Display mode	Briefly press MODE to move the cursor and SEL to open the submenu. Briefly press MODE to choose night, day or automatic. Press and hold SEL to exit.
Clock	Move the cursor to Clock settings with MODE and open it with SEL. Briefly press SEL to change the value and MODE to move the cursor. Press and hold SEL to exit.
Backlight	Move the cursor to Backlight with MODE and open it with SEL. Briefly press MODE to choose level 1–5 or automatic. Press and hold SEL to exit.
Language	Move the cursor to Language with MODE and open it with SEL. Briefly press MODE to switch between Chinese and English. Press and hold SEL to exit.
Bluetooth	Move the cursor to Bluetooth with MODE and open it with SEL. Briefly press MODE to switch Bluetooth on or off. Press and hold SEL to exit. The Bluetooth and BLE names appear on your phone's Bluetooth screen.
Tyre pressure	Move the cursor to Tyre pressure with MODE and open it with SEL. Briefly press SEL to change units; move to front or rear sensor pairing with MODE and press SEL to pair. Press and hold SEL to exit.
System information	Move the cursor to System information with MODE.
Factory mode	Move the cursor to Factory mode with MODE and open it with SEL. Briefly press SEL to enter the password, and MODE to set or reset operating parameters and other functions.

3.2 Multifunction display (GT2 R)



Figure 4 Multifunction display, GT2 R

1 / 4 Right and left turn indicators

The left indicator light (4) flashes when the turn signal switch is pushed to the left; the right indicator light (1) flashes when it is pushed to the right.

2 Bluetooth indicator

Blue shows an active Bluetooth connection; grey shows an inactive one.

3 Clock

Shows the time.

5 Speedometer

Shows road speed in km/h or mph.

6 Rev counter

Shows engine speed.

7 Voltage display

Shows battery voltage.

8 Trip meter

Shows the distance covered on the current trip.

9 Fuel gauge

Shows the amount of fuel in the tank. When the bars reach "F", the tank is full. When only 2 red bars remain, you are on reserve. When the reserve is almost used up, the first bar flashes — refuel immediately.

10 Heated grips

Lights when the heated grips are on.

11 Heated seat

Lights when the heated seat is on.

12 High beam indicator

Lights when the high beam is on.

13 Left and right buttons

Used to operate the menu.

14 Automatic start-stop

Lights when start-stop is active.

15 Engine management light (MIL)

Indicates a fault in the engine management system.

> **WARNING** If this warning light comes on while riding, contact your dealer or a specialist workshop straight away.

17 Tyre pressure warning light

Lights when a tyre pressure is too low or too high.

18 TCS indicator

Flashes when TCS is intervening and stays on when TCS is switched off. It also stays on if there is an ABS fault or a TCS failure.

19 ABS indicator

Lights when the engine is started and goes out after a few metres. If it lights while riding, the ABS is not working — contact your dealer or a specialist workshop.

20 Coolant temperature warning light

Lights when the coolant temperature exceeds 120 °C. Stop immediately.

21 Outside temperature

Shows the outside air temperature.

3.3 Smartphone connectivity

1. Switch on Bluetooth on your smartphone.
2. Download the MotoFUN app to your smartphone.
3. Press and hold the left button on the display to open the menu. Briefly press the left button to move the cursor to Phone Bluetooth, then briefly press the right button to open it. Briefly press the right button to make sure Bluetooth is on; the screen shows the Classic Bluetooth and BLE names.
4. Open MotoFUN and connect via Bluetooth. When connected, the Bluetooth symbol appears on the display.

3.4 Ignition switch



Figure 5 Ignition switch

Ignition on	Insert the key and turn it clockwise.
Unlock the seat	Turn the key anticlockwise.
Open the fuel filler	Push the key in and turn it anticlockwise.
Lock the steering	Push the key in and turn it anticlockwise.

NOTE If the remote key is close to the scooter, these operations can be carried out without inserting the key.

3.5 Left handlebar switches (GT2)

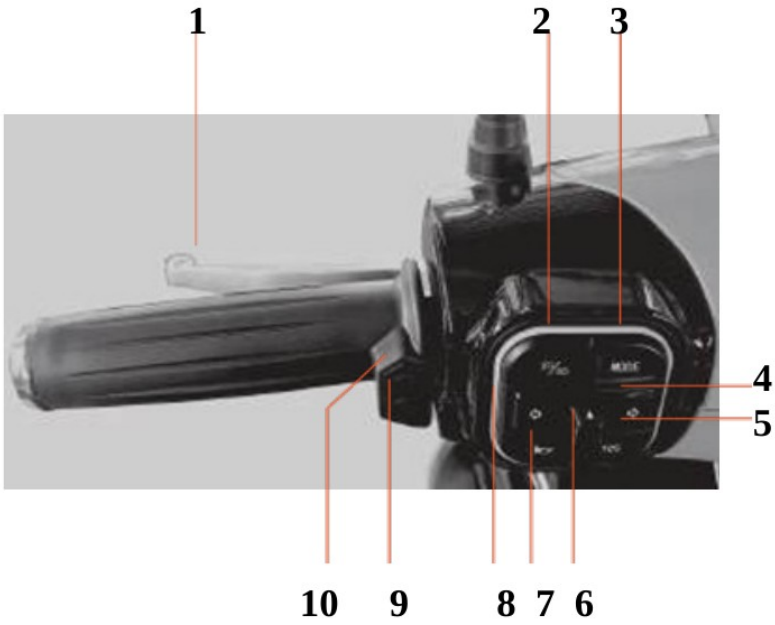


Figure 6 Left handlebar switches, GT2

1 Left brake lever

Operates the rear brake to control the scooter's speed, down to a standstill. The brake light comes on when the lever is pulled.

2 Dip switch

Switches between high beam and low beam.

3 MODE button

Briefly press to open the connection screen. Scan the QR code to download the app, then set up navigation and phone screen mirroring in the app. Press and hold to open the menu; briefly press to select options.

4 / 8 Right and left indicator symbols

Show which way the indicators are set.

5 TCS button

Press and hold for 3–5 seconds to switch TCS off. The TCS warning light comes on to show that TCS is off.

6 Turn signal switch

Operates the left or right indicators. Push the switch in at the centre position to cancel.

7 Horn button

Sounds the horn.

9 / 10 Heated grips button and indicator

Each press steps the heated grips through 3 levels; the 4th press switches them off. The LED shows blue for level 1, green for level 2 and red for level 3.

3.6 Right handlebar switches (GT2)

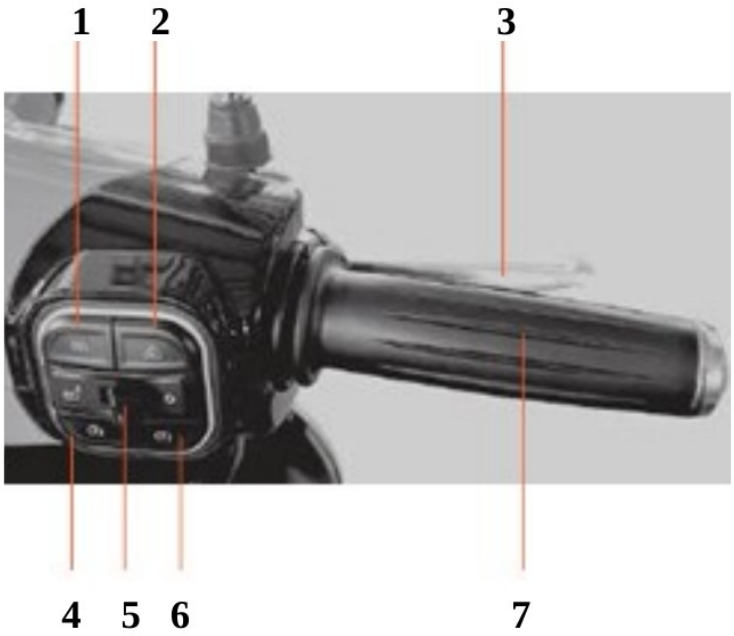


Figure 7 Right handlebar switches, GT2

1 SEL button

Briefly press to switch between metric and imperial units; press and hold to reset the trip meter. In the menu (opened by pressing and holding MODE), briefly press SEL to open a submenu or change a value, and press and hold SEL to exit.

2 Hazard warning button

Switches the hazard warning lights on and off.

3 Right brake lever

Operates the front brake to control the scooter's speed, down to a standstill. The brake light comes on when the lever is pulled.

4 Start-stop button

Press for 2–3 seconds until the start-stop indicator on the display lights to switch automatic start-stop on. Press for 2–3 seconds again until the indicator goes out to switch it off.

5 Heated seat switch

Left position: heated seat on. Centre position: off.

6 Starter button

Operates the starter motor.

7 Throttle grip

Controls engine load and speed, and therefore road speed.

3.7 Left handlebar switches (GT2 R)



Figure 8 Left handlebar switches, GT2 R

1 Dip switch / headlamp flasher

Lower position: low beam. Upper position: high beam. Press the button to flash the headlamp.

2 Horn button

Sounds the horn.

3 Turn signal switch

Operates the left or right indicators. Push the switch in at the centre position to cancel.

4 Heated grips button and indicator

The LED shows blue for level 1, green for level 2 and red for level 3.

5 Brake levers

The left lever operates the rear brake and the right lever the front brake. The brake light comes on when either lever is pulled.

3.8 Right handlebar switches (GT2 R)

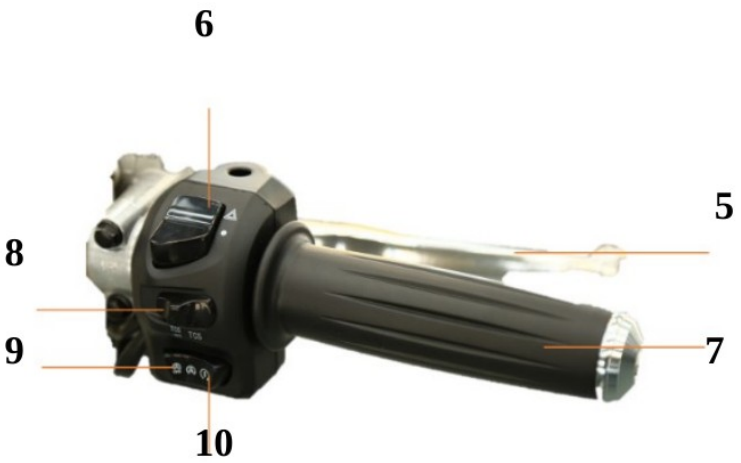


Figure 9 Right handlebar switches, GT2 R

6 Hazard warning switch

Upper position: hazard warning lights on.

7 Throttle grip

Controls engine load and speed, and therefore road speed.

8 TCS switch

Press and hold for 3–5 seconds to switch TCS off. The TCS warning light comes on to show that TCS is off.

9 Start-stop switch

Press for 2–3 seconds until the start-stop indicator on the display lights to switch automatic start-stop on. Press for 2–3 seconds again until the indicator goes out to switch it off.

10 Starter button

Operates the starter motor.

3.9 Fuel filler



Figure 10 Fuel filler flap release



Figure 11 Fuel cap and holder on the flap

1. Insert the key, press the central button and turn clockwise. The fuel filler flap on the left opens. With the remote key active, you do not need to insert the key.
2. Turn the fuel cap anticlockwise to open it. While refuelling, you can place the cap in the holder on the flap.
3. Close the cap by turning it clockwise.

3.10 Coolant cap



Figure 12 Coolant cap

WARNING Do not open the coolant cap when the engine is hot — risk of scalding.

3.11 Stands

Side stand

Push the foot of the side stand forward until it locks in place.

NOTE The starter will not work unless the side stand is fully retracted.

Centre stand

Press down on the stand lever with your foot and pull the scooter back onto the centre stand by the luggage rack.

3.12 Seat lock and storage compartment



Figure 13 Storage compartment



Figure 14 Seat catch (1)

Turn the ignition key anticlockwise to unlock the front seat. To close, press the seat down firmly at (1) until it locks.

CAUTION Do not keep fragile or valuable items in the storage compartment.
Do not keep fuel or oil in the storage compartment.
Only store waterproof items in the storage compartment.

CHAPTER 4

Fuel and oil

4.1 Fuel

Use unleaded Super E5 petrol or — where this is not available — unleaded petrol with an octane rating of 95 or higher. We recommend using the highest-octane fuel available.

4.2 Engine oil

A high-quality four-stroke engine oil extends engine life. The specified oil is API class SN or SJ with a viscosity of SAE 10W-40. Capacity: 950 mL.

4.3 Gear oil

SAE 75W-80 gear oil. Capacity: 170 mL.

CHAPTER 5

Running-in

The first 1,000 km (600 miles) are the most important in the life of your scooter. Running it in correctly during this period makes a big contribution to its maximum life and performance. The components are made of high-quality materials and the engine parts are manufactured to very close tolerances. Correct running-in lets the parts bed in against each other. This is complete after about 60 hours of running, during which the engine gradually frees up and performance improves noticeably.

Recommended maximum throttle

First 160 km (100 miles)	Less than ½ throttle
First 400 km (250 miles)	Less than ¾ throttle

Vary the engine speed

Vary the engine speed rather than holding it constant. This exposes the components to different loads. However, avoid excessive full load during this period.

Avoid constant low engine speed

Do not ride at a constant low engine speed. Let the engine accelerate freely within the recommended limits, but do not use full throttle for more than 10 minutes during the first 1,600 km (1,000 miles).

Let the engine oil circulate before riding

After a cold start, let the engine idle long enough before putting load on it or revving it. This gives the oil time to reach all the important engine components.

First service

The 1,000 km (600-mile) service is the most important service your scooter will receive. During running-in, all the engine components bed in. At this service, all settings are checked and corrected if necessary, all fasteners are retightened and the running-in oils are changed. Having the 1,000 km service done on time ensures optimum engine life and performance.

CHAPTER 6

Inspection before riding

Always check the following items before riding the scooter.

WARNING Make sure the battery is fully charged and that the battery and its terminals are secure. Loose battery terminals can damage electrical components, including the engine control unit (ECU).

Check	Check for
Steering	Moves smoothly and freely · no play
Brakes	Correct brake lever free play · correct braking performance
Tyres	Correct pressure · sufficient tread depth · no cracks or cuts
Fuel	Enough fuel in the tank
Lights	All lights working
Warning lights	Warning lights and indicator lights working
Horn	Working correctly
Engine oil	Level within the specified range
Throttle	Correct cable free play · operates smoothly and returns fully to closed when released

6.1 Brake performance and lever free play

Pull each brake lever until you feel resistance and measure how far the end of the lever has moved. It should be **10–20 mm**.

6.2 Front brake and anti-dive linkage

Twist the anti-dive damper from side to side to check that it moves freely. If there is excessive play, replace the bearing as required.

6.3 Tyres

Check the tyres for wear, and check and correct the tyre pressures. Measure tyre pressures with the tyres cold.

Front	2.2 bar / 32 psi
Rear	2.3 bar / 34 psi

Check the tyre surface:

- Is there any visible damage?
- Are there nails, stones, glass or other objects in the tyre or tread?
- Is there any unusual wear?

6.4 Fuel level

Switch on the ignition and check the fuel level on the multifunction display (see the fuel gauge in section 3.1 or 3.2).

6.5 Engine oil level

> **CAUTION** The oil level must always be as close as possible to the maximum mark (B) on the dipstick — never above it, and never below the minimum mark (C) — otherwise the engine may be damaged.



Figure 15 Oil filler cap / dipstick



Figure 16 B = max · C = min

1. Hold the vehicle upright on level ground.
2. Start the engine, let it idle for a few minutes, then switch it off.
3. Wait at least 5 minutes for the oil to drain back into the sump.
4. Unscrew the oil filler cap/dipstick and remove it.
5. Wipe the oil off the dipstick.
6. Put the dipstick back in **without screwing it in** — otherwise the reading will be wrong, showing a falsely low level that can lead to engine damage. Remove it again and check the level: it must be between marks B and C.
7. If necessary, top up to mark B, taking care not to go above it.
8. Refit the dipstick and screw it in firmly.

6.6 Changing the engine oil

The engine must be at normal operating temperature so that the oil drains completely.



Figure 17 Oil drain plug (D)

1. Hold the vehicle upright.

2. Place a container under the oil drain plug (D).
3. Undo the oil drain plug (D) and let the oil drain out.
4. Check the rubber ring and retaining ring of the drain plug for damage and replace them if necessary.
5. Refit the drain plug (D) and tighten it to **20 N·m**.
6. Fill with oil through the filler opening (950 mL).
7. Start the engine and let it idle for at least 2–3 minutes.
8. Switch off the engine and check the oil level as described in section 6.5.

NOTE Clean the filter screen whenever you drain the oil.

6.7 Gear oil

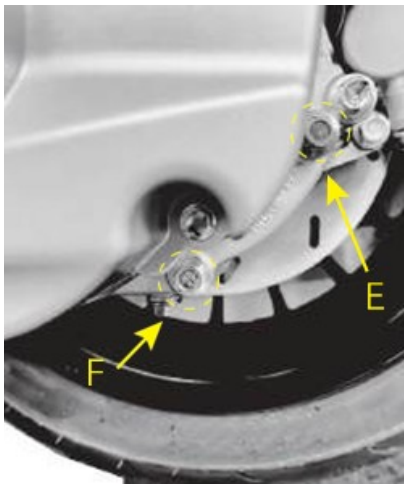


Figure 18 Gear oil filler screw (E) and drain screw (F)

1. Stop the warmed-up engine and wait about 5 minutes.
2. Put the scooter on its centre stand.
3. Remove the oil filler screw (E) and check the oil level visually.
4. If necessary, add SAE 75W-80 gear oil through the filler hole until oil just starts to drip out.
5. To change the gear oil, open the drain screw (F) and let all the oil drain out. Retighten the drain screw (F) and fill with new oil through the filler opening (170 mL).

6.8 Lights and mirrors

1. Start the engine and check that the headlamp and rear light are on.
2. Operate the front and rear brakes one at a time and check that the brake light comes on each time.
3. Operate the turn signal switch and check that the indicators work properly.
4. Sitting in your normal riding position, check that you can see clearly behind and to the sides in the mirrors. Make sure the mirrors are clean, undamaged and secure.

6.9 Reflectors and number plate

Check that the number plate and reflectors are clean and undamaged. The number plate must be clearly legible.

CHAPTER 7
Riding

CAUTION Before starting the engine:
1. Check the fuel and engine oil levels.
2. Put the scooter on its centre stand.
3. Make sure the scooter is on level, firm ground.
4. Apply the brakes.

7.1 Starting the engine

Insert the ignition key and turn it to ON.

1. Pull the left brake lever.
2. Press the starter button.
3. Release the starter button as soon as the engine starts, to avoid damaging the starter motor or gears.
4. Once the engine is running, open the throttle slightly and let the engine reach operating temperature.

CAUTION Release the starter button as soon as the engine starts, otherwise the starter motor and gears may be damaged.
If the engine does not start after several attempts, open the throttle ⅛ to ¼ and try again. Release the throttle as soon as the engine starts.

7.2 Getting ready to move off

1. Sit on the scooter, hold the handlebars with both hands and push the scooter off its centre stand. Apply the brakes.
2. Support yourself with your left foot.
3. Switch on the appropriate indicator.
4. Look around to check that the road behind is clear.
5. Keep the left brake lever pulled until you move off.

CAUTION Pay particular attention to traffic coming from behind.

7.3 Moving off

Release the left brake lever and slowly turn the throttle to accelerate.

CAUTION Turning the throttle too far can cause sudden acceleration and loss of control.

7.4 Controlling speed

Road speed is controlled with the throttle. Turn the grip anticlockwise to accelerate — open it gently. Turn it back clockwise to slow down.

7.5 Braking

Close the throttle and apply both brake levers together.

> **CAUTION** Braking with only one brake can cause the scooter to slide or skid. Hard braking in a bend is one of the main causes of accidents and should be avoided.

7.6 Rain and winter conditions

Take particular care in rain and winter conditions. Damp or wet road surfaces reduce grip. Avoid hard acceleration in bends. Ride with anticipation and keep a sufficient distance from the vehicle in front. Remember that braking distances on wet roads can be twice as long.

7.7 Brakes after washing or riding through water

After washing the scooter or riding through puddles, the brakes may be less effective. Ride slowly with the brakes lightly applied to dry the discs and pads and restore normal braking.

7.8 Parking

> **CAUTION** Never park facing downhill or on loose or soft ground, so that the scooter cannot tip over or fall off its centre stand.

Use the steering lock. When you park, turn the handlebars to the left and turn the ignition key to LOCK to lock the steering and protect the scooter from theft.

CHAPTER 8

Inspection and maintenance

The maintenance schedule gives the intervals for regular maintenance. Carry out the specified work on time. If your scooter is used hard — for example long periods at full throttle or riding in dusty conditions — carry out maintenance more often to keep the machine reliable. Your dealer will be happy to advise you. Steering, suspension and wheel components are important parts that need particularly careful maintenance; have them checked regularly by your specialist workshop.

8.1 First service

The 1,000 km inspection is by far the most important inspection in the life of your scooter. The engine and gear oils are changed after running-in, and any wear particles are removed from the engine with the oil and filter change. To ensure long engine life and good performance, have the 1,000 km service carried out on time.

> **CAUTION** Use genuine spare parts. Have the scheduled maintenance carried out by an authorised dealer or qualified specialist workshop. You can carry out the checks and simple tasks described in this chapter yourself.

8.2 Maintenance schedule

The first service is due at 1,000 km or after 3 months, the second at 5,000 km or after 1 year, and then every 5,000 km or every year, whichever comes first.

Key: **I** = inspect and clean, adjust if necessary · **C** = clean · **R** = replace · **A** = adjust · **L** = lubricate

Interval (× 1,000 km)	1	5	10	15	20	25	30	35	40	45	50
Bolts and nuts — retighten if necessary	I		I		I		I		I		I
Variator cover plastic sliders			R		R		R		R		R
Clutch bell		C	C	C	C	C	C	C	C	C	C
Spark plug			R		R		R		R		R
Drive belt			R		R		R		R		R
Throttle cable	A		A		A		A		A		A
Air filter		C	C	C	C	C	C	C	C	C	C
Variator cover filter			I		I		I		I		I
Oil filter	R		R		R		R		R		R
Valve clearance			A		A		A		A		A
Brake system	I	I	I	I	I	I	I	I	I	I	I
Electrics and battery	I		I		I		I		I		I
Brake fluid **	I		I		I		I		I		I
Coolant **	I		I		I		I		I		I
Gear oil *	R		I		R		I		R		I
Engine oil *	R	I	R	I	R	I	R	I	R	I	R
Headlamp alignment			A		A		A		A		A
Variator rollers			R		R		R		R		R
Road test	I		I		I		I		I		I
Variator pulley			I		I		I		I		I
Radiator	I/C	I/C	I/C	I/C	I/C	I/C	I/C	I/C	I/C	I/C	I/C
Wheels and tyres	I	I	I	I	I	I	I	I	I	I	I
Suspension			I		I		I		I		I
Steering	I		I		I		I		I		I
Fuel line ***	I		I		I		I		I		I
Anti-dive bearing	I	I	I	I	R	I	I	I	I	R	I

* Check level every 3,000 km (1,800 miles).

** Replace every 2 years.

*** Replace every 4 years.

8.3 Tightening torques

Tighten nuts and bolts to the specified torque after the first 1,000 km (600 miles) or 3 months, and then every 5,000 km (3,125 miles) or 24 months.

No.	Item	N·m
1	Front axle nut	53
2	Handlebar bolt	49
3	Steering head nut	30
4	Handlebar positioning bolt	25
5	Front fork bolt	45
6	Brake master cylinder bolts	10
7	Brake line bolt	23
8	Brake caliper mounting	26
9	Bleed valve	7.5
10	Front panel screw	23
11	Rear axle nut	100
12	Rear shock absorber bolt	40
13	Rear brake nut	11
14	Engine mount	98
15	Engine mounting bolt	80
16	Anti-dive lever	26

8.4 Battery

The maintenance-free MG12-BS-C gel battery is under the rear seat cover, beneath a cover plate.

8.5 Spark plug

Remove the storage compartment to reach the spark plug.



Figure 19 Spark plug access

1. Pull the spark plug cap off the spark plug.
2. Blow dirt and dust out of the spark plug seat with compressed air.

3. Loosen the spark plug with the plug spanner from the tool kit. Unscrew it carefully by hand so as not to damage the delicate thread.
4. Cover the open spark plug hole with a clean cloth so that no dust or foreign objects can fall into the cylinder.
5. Check that the side and centre electrodes and the ceramic insulator are free of carbon deposits and dirt.
6. Clean the plug with a wire or brass brush, then blow it off thoroughly with compressed air so that loosened dirt cannot get into the cylinder. Replace the plug if the terminal nut or thread is corroded, the insulator is cracked, or the electrodes are worn beyond the limit.
7. Check the electrode gap with a feeler gauge. It should be **0.7–0.8 mm**; if necessary, adjust it by carefully bending the side electrode.
8. Make sure the sealing washer is in perfect condition.
9. Carefully screw the plug into the cylinder head by hand, taking care not to damage the delicate thread.
10. Tighten the plug with the plug spanner to a torque of **10 N·m**.
11. Refit the spark plug cap and press it firmly down until it locks, so that it cannot work loose with engine vibration.

CAUTION Tighten the spark plug correctly, otherwise the engine may overheat and be damaged. Use only the recommended spark plug type; other types may reduce engine life and performance.

Standard spark plug	NGK CR8EKB
Electrode gap	0.7–0.8 mm
Tightening torque	10 N·m

8.6 Fuel hoses

Replace the fuel hoses every 4 years.

8.7 Air filter



Figure 20 Air filter element

The air filter element is covered with polyurethane foam. A filter clogged with dust increases intake resistance, which reduces performance and increases fuel consumption.

- Carefully blow the filter out with compressed air.

- If the element is damaged or heavily soiled, replace it.

8.8 Throttle cable adjustment

1. Loosen the lock nut.
2. Turn the adjuster to set the throttle cable free play to **0.5–1.0 mm**.
3. Retighten the lock nut.

8.9 Brake fluid

Brake fluid: **DOT 4.1**.

NOTE Use only glycol-based DOT 4.1 brake fluid in this vehicle. Do not mix it with silicone-based or oil-based fluids — this can damage the brake system.
Brake fluid absorbs moisture, so do not use fluid from a container that has been open for some time.
Check the level in the reservoir sight glass.
If brake fluid gets onto paintwork or other sensitive surfaces, remove it immediately to prevent damage.

8.10 Tyres

Cold tyre pressures — Europe and UK (may differ in warmer climates):

Front	2.2 bar / 32 psi
Rear	2.3 bar / 34 psi

CAUTION Tyre pressures and general tyre condition are extremely important for the scooter's performance and safety. Check your tyres regularly for wear and correct pressure.

Tread condition

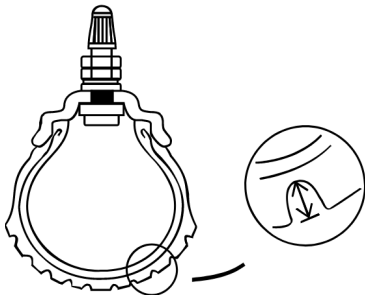


Figure 21 Checking tread depth

Riding on worn tyres reduces stability and can lead to loss of control. Replace the tyres no later than when the remaining tread depth reaches **1.6 mm**.

CAUTION The standard tyres are 120/70-12 front and rear. Fitting different tyres may cause problems.

8.11 Fuses

The fuse is in the battery box under the rear seat cushion. If an electrical circuit fails, check the fuses first.

CAUTION Always replace a blown fuse with one of the correct rating. Never bridge a blown fuse with foil, wire, screws or any other substitute.

If the spare fuse blows again shortly afterwards, there is an electrical fault. Contact your dealer or a qualified specialist workshop.

CHAPTER 9
Troubleshooting

9.1 Engine will not start

1. Is the side stand fully retracted?
2. Does the battery have enough charge to start the engine?
3. Is there enough fuel in the tank?

9.2 Engine misfires

- Check the amount of fuel in the tank.
- Check that the spark plug cap is firmly in place.

CAUTION If there is a fault, contact your dealer or a qualified specialist workshop — especially if your scooter is still under warranty.
Do not attempt repairs yourself. Unauthorised work on the vehicle will invalidate the warranty.

CHAPTER 10

Storage

If the vehicle is not going to be used for a long period — over the winter, for example — it needs preparation that calls for specialist knowledge. We therefore recommend that you ask your dealer to lay it up. If you want to do it yourself, follow the points below.

10.1 Preparing for storage

Scooter	Put the scooter on its centre stand and clean it thoroughly, removing all dust and dirt.
Fuel tank	Fill the tank with ethanol-free fuel to prevent water building up in the fuel and corrosion in the tank. We recommend Aral Ultimate 102.
Oil	Change the engine oil. This removes combustion residues, condensation and acids that build up during use.
Battery	Clean the battery with a mild cleaning agent and remove corrosion and dirt from the terminals. Store it in a frost-free room and connect a charger with a maintenance function.
Tyres	Inflate the tyres to the normal pressure (see section 8.10).
Exterior	Spray all vinyl and rubber parts with a rubber care product. Spray unpainted surfaces with a water-displacing spray such as WD-40. Apply a high-quality vehicle wax to painted surfaces, for example 3M Polish Rosa high-performance wax 80345N.

NOTE We recommend protecting the scooter in this way for the first time straight after buying your new Royal Alloy, and then at the end of each season.

10.2 Returning to service

1. Clean the entire scooter.
2. Refit the fully charged battery.
3. Check the tyre pressures and correct them if necessary.
4. Carry out the inspection before riding as described in Chapter 6.

CHAPTER 11

Specifications

Model	GT2 / GT2 R
Dimensions and weights	
Overall size, L × W × H (mm)	1920 × 695 × 1110
Wheelbase (mm)	1380
Net weight (kg)	145
Maximum payload (kg)	295
Fuel tank capacity (L)	9
Engine	
Engine model	1P59MJ-2
Engine type	Single-cylinder, four-stroke, four-valve, liquid-cooled
Idle speed	1,800 ± 100 rpm
Bore × stroke (mm)	54.0 × 54.0
Displacement (cm³)	124
Compression ratio	11 : 1
Maximum net power	10 kW (14 hp) at 8,250 rpm
Maximum net torque	12 N·m at 6,500 rpm
Starter	Electric
Lubrication	Pressure and splash
Engine oil	SAE 10W-40, 950 mL
Gear oil	SAE 75W-80, 170 mL
Fuel	Super 95 E5, or unleaded petrol with an octane rating of 95 or higher
Spark plug	NGK CR8EKB
Chassis	
Front tyre	120/70-12
Rear tyre	120/70-12
Tyre pressure	Front 2.2 bar / 32 psi · Rear 2.3 bar / 34 psi
Front brake	Disc
Rear brake	Disc
Electrical	
Headlamp	12 V LED
Turn indicators	12 V LED
Tail lamp / brake lamp	12 V LED
Instrument display	Elegance & Sport: 5" TFT · Fun: 3" TFT
Battery	12 V 9 Ah
Horn	12 V 1.5 A, 90–100 dB(A)
Maximum noise	≤ 82 dB(A) at 7 m

CHAPTER 12

Warranty terms

12.1 Royal Alloy warranty

Engine and frame	24 months from the date of sale or 20,000 km, whichever comes first.
Main wiring harness, exhaust, front and rear shock absorbers, front and rear wheels, ABS, bodywork, ECU (electronic fuel injection)	1 year or 10,000 km, whichever comes first.

Use the specified oil and genuine Royal Alloy spare parts, as these are of the same quality as the components fitted to the vehicle. Genuine parts are available from authorised Royal Alloy dealers and service centres.

Regular maintenance in line with the regulations is a requirement for quality assurance and warranty claims. It also helps to extend the vehicle's life and keep it safe to ride. Proper, verifiable maintenance records are a requirement for making a warranty claim. Maintenance records from any authorised dealer or authorised service centre are equally valid. Royal Alloy also reserves the right not to recognise work by unauthorised third parties or non-standard repairs that lead to vehicle faults or damage, and to reject warranty claims on that basis.

Authorised dealers are responsible for carrying out the pre-delivery inspection according to the checklist before handing a vehicle over to a customer. They must explain to the customer how to operate the vehicle, the need for regular maintenance, the terms and limitations of the warranty, and safe riding.

12.2 Exclusions

The warranty does not cover:

- Damage to the vehicle caused by accidents.
- Damage caused by improper use of the product, failure to follow the owner's manual on use, maintenance and care, neglect of important information in the owner's manual, or failure to heed vehicle warnings.
- Use of non-genuine spare parts.
- Use in competitions or extreme events.
- Unauthorised maintenance by third parties, or improper dismantling of major components such as the bodywork, transmission or engine.
- Alteration of the VIN or engine number without authorisation.
- Individual sensory perceptions that do not affect mechanical performance, such as heat, vibration or noise.
- Damage caused by other force majeure, such as improper use of the vehicle or natural or man-made disasters.

12.3 Consumable parts

The following consumables and wearing parts are not covered by the warranty: bulbs, fuses, tyres, seat cushions, batteries, brake discs and pads, rubber parts, stickers, filter elements, oils, lubricants and greases, washers, sprockets and chains (normal wear), spark plugs, bearings, hoses, and rust within the normal range.

Your Royal Alloy dealer

Your ROYAL ALLOY dealer is an experienced scooter specialist with expertise in selling and servicing these vehicles. The dealer uses only genuine ROYAL ALLOY spare parts on your machine, obtains the parts required, and has the special tools needed to repair and diagnose your scooter. Their aim is to make sure you are completely satisfied with your ROYAL ALLOY.

Royal Alloy – Enjoy Life.

Your local ROYAL ALLOY dealer
(dealer stamp)

With their stamp and signature, your ROYAL ALLOY dealer confirms that the pre-delivery inspection has been carried out.

Date

Dealer signature

Service record

Have each service recorded and stamped by your authorised Royal Alloy dealer. Verifiable service records are required for warranty claims.

1st service **1,000 km** or after 3 months Dealer stamp Date_____ km_____	**2nd service** **5,000 km** or after 1 year Dealer stamp Date_____ km_____	**3rd service** **10,000 km** or annually Dealer stamp Date_____ km_____
4th service **15,000 km** or annually Dealer stamp Date_____ km_____	**5th service** **20,000 km** or annually Dealer stamp Date_____ km_____	**6th service** **25,000 km** or annually Dealer stamp Date_____ km_____

7th service **30,000 km** or annually Dealer stamp Date_____ km_____	**8th service** **35,000 km** or annually Dealer stamp Date_____ km_____	**9th service** **40,000 km** or annually Dealer stamp Date_____ km_____
10th service **45,000 km** or annually Dealer stamp Date_____ km_____	**11th service** **50,000 km** or annually Dealer stamp Date_____ km_____	**12th service** **55,000 km** or annually Dealer stamp Date_____ km_____

13th service **60,000 km** or annually Dealer stamp Date_____ km_____	**14th service** **65,000 km** or annually Dealer stamp Date_____ km_____	**15th service** **70,000 km** or annually Dealer stamp Date_____ km_____
16th service **75,000 km** or annually Dealer stamp Date_____ km_____	**17th service** **80,000 km** or annually Dealer stamp Date_____ km_____	**18th service** **85,000 km** or annually Dealer stamp Date_____ km_____

19th service **90,000 km** or annually Dealer stamp Date_____ km_____	**20th service** **95,000 km** or annually Dealer stamp Date_____ km_____	**Service** **_____ km** Dealer stamp Date_____ km_____
Service **_____ km** Dealer stamp Date_____ km_____	**Service** **_____ km** Dealer stamp Date_____ km_____	**Service** **_____ km** Dealer stamp Date_____ km_____

Notes



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