2022 WORLD FINAL

OHVALE MANUAL

FIM

ROAD TO motoGP

MOTUL

OHVALE

PIRELLI

VIRUS POWER

KYT

Beta

PRAMAC

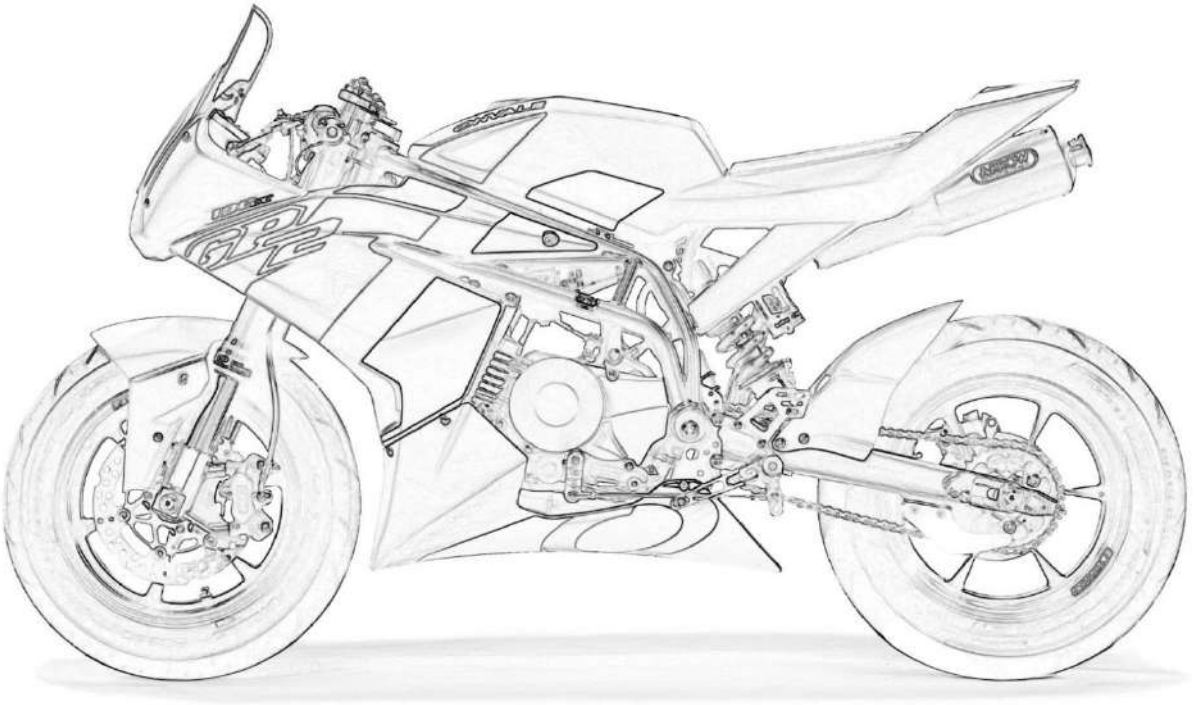
panta MOLGROUPITALY RACING FUEL

THERMAL TECHNOLOGY

OHVALE

BEFORE STARTING

Use & Maintance



GP-0

GP2

This manual must be considered as an integral part of the vehicle and includes the most up-to-date information at the time of going to print. Ohvale S.r.l. therefore reserves the right to make changes of any kind to this manual at any time without notice and without any obligation in this regard.

The vehicle reproduced in this manual may differ from the vehicle owned.

1. WARNINGS

Using the motorcycle safely is an important responsibility. One of the purposes of this manual is to inform about the possible risks that is possible to incur with an incorrect use of the vehicle. Therefore, in order to guarantee safety and driving pleasure, it is expressly recommended to: (i) read this manual carefully; (ii) strictly follow the recommendations contained in this manual; (iii) pay attention to the messages contained in this manual, as well as on the vehicle; (vi) take the time necessary to practice with the vehicle in safe places in order to understand its operation and get used to overall dimensions and weights.

The maximum technically permissible load on the bike is 110 Kg.
The transport of passengers or luggage is prohibited. Excessive loads, as well as the transport of passengers or luggage, can cause accidents resulting in serious injury or death.

The vehicle is not approved for road use and it is forbidden to use it on public roads. The GP-0 / GP-2 motorcycle can only be used in suitable facilities or private areas equipped for the use of this type of vehicle. In any case, it is recommended that you never drive the vehicle beyond your capacity or faster than the conditions of the road allows.

Always wear appropriate personal protective clothing, an approved full-face helmet, full leather suit, boots, gloves and approved back protector before using the vehicle. The use of helmets and approved protective clothing helps to significantly reduce the number and severity of injuries to the head and other parts of the body.

Make sure you are in perfect psycho-physical health and that you are not under the influence of alcohol and / or drugs. Even only one alcoholic drink can reduce reaction time and the ability to react to changing conditions.

Make sure that the vehicle is subject to proper and constant maintenance in order to ensure that it is always in condition to be driven safely. In particular, it is recommended to check the condition of the vehicle and its components before each ride and carry out at least all the maintenance recommended in this manual. Improper vehicle maintenance can cause accidents resulting in serious injury or death. It is expressly not recommended to install accessories that can make the vehicle dangerous, as well as the use of non-original spare parts and accessories (i.e. not designed by Ohvale Srl), as well as making changes of any kind to the vehicle that alter the its original project. This could compromise the safety of the vehicle (which could cause accidents resulting in serious injury or death), as well as voiding the warranty.

Be sure to use the vehicle's engine in non-enclosed or partially enclosed areas as the exhaust gases contain carbon monoxide, a colorless and odorless gas which inhalation can cause unconsciousness and even death. It is therefore recommended to start the vehicle engine only in open and well-ventilated areas.

2. HALF-HANDLEBAR POSITION

Fixing of the half-handlebars:

- In the case of half-handlebar bracelets as in fig. A, lay them against the upper steering plate and hold them in position manually.
- Insert the half-handlebar inside the seat of the bracelet and rotate it until obtaining the ideal position for rider's ergonomics.
- Tighten the fixing screw of the half-handlebars indicated by the arrow. (tightening torque max 22 Nm)
- Repeat the operations for the other half-handlebar.

3. CHOKE – STARTING THE ENGINE

3.1. HANDLEBAR CHOKE COMMAND

Choke command is placed on the left side half-handlebar for mod. 110 Automatic, 110 4s EVO, 160 4s EVO and GP-2 190 4s.

To activate it, it is necessary to press the lever along its entire stroke according to the direction indicated in the figure and keeping it in position.

3.2. CARBURETOR CHOKE COMMAND

The choke command is present on the left-side of the carburetor. To activate it, press the lever along the direction indicated in the figure.

Mikuni 22

For mod. 110 4S std

ZS PZ27

For mod. 160 4S std

3.3. ENGINE START mod. 110 AUTOMATIC

To start the cold engine:

- Open the fuel taps of the tank and of the carburetor by rotating the command counter clockwise.
- Activate the choke control and hold it in position (follow the direction of the arrow in the photo).
- Set the engine kill command in ON position.
- Pull the rear brake. (hand master cylinder on the left half-handlebar).
- Push the starter button.
- Deactivate the choke command with the engine running and let it run at minimum rotation speed for a few minutes to warm it up.

Info Do not use the choke command to start up the engine when it's hot.

Info Do not use the throttle during start-up to avoid problems with kickback of the start lever and backfires inside the carburetor.

NOTE ***If the engine doesn't start in 5 seconds, release the start button and wait 10 seconds before trying again.***

NOTE ***For correct engine start-up and operation, check that the minimum rotation speed is approximately 2000 rpm.***

3.4. ENGINE START with KICK STARTER

To start the cold engine:

- Open the fuel tap by rotating the command counter clockwise.
- Activate the choke command and hold it in position as previously indicated.
- Set the shift in neutral.
- Set the engine kill command in ON position.
- Push the kick starter lever until the TDC* piston position (the effort increases). ** TDC = Top Dead Centre*
- Keep the lever pressed and when the effort begins to decrease, push the lever quickly and vigorously throughout its stroke.
- Deactivate the choke command with the engine running and let it run at idle speed for a few minutes to warm it up.

Info Do not use the choke command to start up the engine when it's hot.

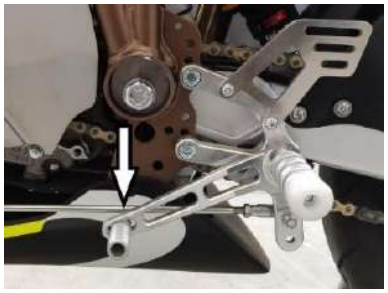
Info Do not use the throttle during start-up to avoid problems with kickback of the start lever and backfires inside the carburetor.

Pay attention to the return of the starting lever. If the lever does not return to its initial position turn off the engine.

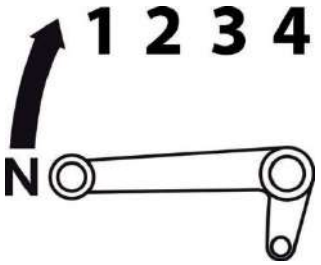
NOTE ***If the engine does not start after 10 attempts, wait a few minutes and try again by deactivating the choke command.***

NOTE ***For correct engine start-up and operation, check that the minimum rotation speed is approximately 2000 rpm.***

4. SHIFT LEVER



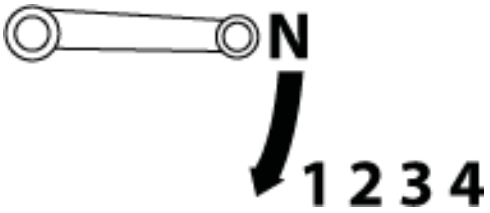
The shift lever is placed
on the left side of the engine.



Gears positions
The neutral (N) is placed before the first gear.

4.1. REVERSE SHIFT LEVER

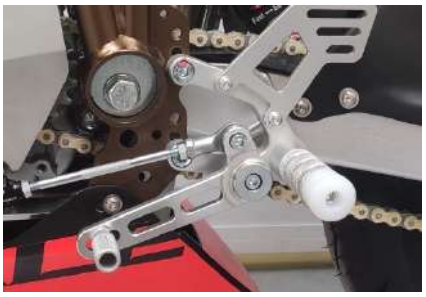
The shift lever is placed
On the left side of the engine.



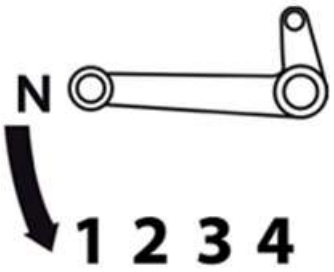
Gears positions.
The neutral (N) is placed before the first gear.

4.2. REVERSE SHIFT LEVER with LEVERAGE

GP-0 110/160 EVO e GP-2 190



The shift lever is placed
On the left side of the engine.



Gears positions.
The neutral (N) is placed before the first gear.

NOTE ***To avoid gearbox problems, you MUST partially CLOSE the throttle, pull the clutch lever, change gear, release the clutch lever and re-open the throttle.***

5. REFUELING

To refuel:

- Place the motorbike on the rear stand.
- Turn the tank cap counterclockwise to remove it.
- Refuel, taking care not to overfill the tank causing spills.
- Insert and screw in the tank cap making sure it is properly closed.

6. ENGINE RUNNING-IN

During the first 2 hours of use, follow the instructions below to ensure future reliability and performance of the motorcycle.

- Leave the engine running at the minimum rotation speed for a few minutes before use the motorcycle.
- Avoid turning on the gas completely.
- Avoid rapid acceleration and hard braking.
- Do not exceed the specified engine performance:

Hours of use	Throttle opening
From 0 - 30 minutes.	Up to and not over 1/2.
From 30 - 90 minutes.	Up to 3/4.
From 90 - 120 minutes.	Up to 100%

NOTE
For a correct use, avoid the start of the limiter, take advantage of the torque of the engine.

After completing the running-in, it's recommended to upshift within the engine RPM ranges indicated below. If you have the ***Alfano 6*** dashboard (optional), it is advisable to set the switch on of the last two red LEDs for the minimum and maximum value of the ranges indicated here:

ENGINE	RANGE UPSHIFTING (RPM)
110 4S	10000 / 10200
160 4S	10000 / 10200
190 DAYTONA	10200 / 10400

7. NGINE OIL

Use engine oil **MOTUL 300V 4T 10W40** only.

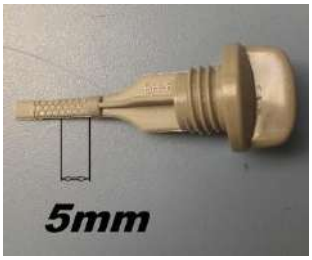
7.1. OIL QUANTITY (with engine completely empty)

ENGINE	QUANTITY (total)
110 A	1100 cc
110 4S	850 cc
160 4S	1100 cc
190 DAYTONA	1000cc

7.2. ENGINE OIL LEVEL CHECK

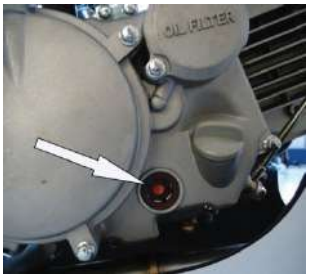
110 A model

- Start the engine and let it run at the minimum rotation speed for 3/5 min, then turn it off.
- After 2/3 min. place the vehicle on a flat surface in vertical position (without stand).
- Remove the filler cap placed on the right side of the engine, clean the level rod and insert it in again without screwing it.
- Remove level rod and check the level (the oil should be nearly the max marker). Eventually, add the correct amount of oil in order to restore the correct level.
- Screw the cap until it's firmly close.



110 4S e 160 4S model

- Start the engine and let it run at the minimum rotation speed for 3/5 min, then turn it off.
- After 2/3 min. place the vehicle on a flat surface in vertical position (without stand).
- Remove the filler cap placed on the right side of the engine, clean the level rod and insert it in again screwing it in completely.
- Remove level rod and check the level (the oil should be at 5 mm [0.20 in] from max marker). Eventually, add the correct amount of oil in order to restore the correct level.
- Screw the cap until it's firmly closed.



190 Daytona model

- Start the engine and let it run at the minimum rotation speed for 3/5 min, then turn it off.
- After 2/3 min. place the vehicle on a flat surface in vertical position (without stand).
- The oil level must be between the half and the top of the porthole.
- To restore the correct oil level, open filler cap placed on the right side of the engine and add the necessary quantity of oil.

NOTE ***Overfilling oil or using the vehicle with insufficient oil can cause engine damage. It is recommended not to use different types of engine oil.***

8. VALVE CLEARANCE

The valve clearance for all engines must be:

INTAKE	EXHAUST
0,10 (±0.02) mm	0,15 (± 0,02) mm
0,0039 (± 0.0008) in	0,0059 (± 0,0008) in

Info Check the valve clearance when the engine is cold.

9. BATTERY (VERSIONE 110 A)

Characteristics:

- Lithium battery 12V – 24Wh – 140A.
- Battery with acid 12V – 6Ah – 130A.

9.1. WARNINGS

- **Do not short circuit the battery to avoid dangerous situations that can cause serious injury.**
- Charge the battery at least every six months**, the voltage must never drop below 10 V.**
- Do not charge the battery for more than 24 hours.
- Do not charge the battery using a voltage higher than 15V.
- Do not over charge or over discharge the battery.
- Do not reverse the polarity of the battery.
- Do not disassemble, deform or modify the battery.
- Keep out of reach of children.

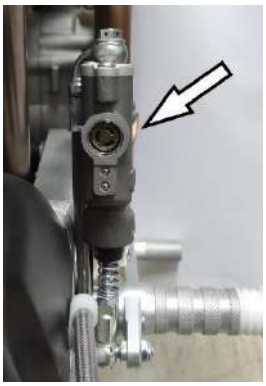
NOTA: Carefully read the battery instruction manual supplied with the motorcycle for information regarding installation, charging process and maintenance.

10. BRAKES

It is recommended to avoid hard braking (which can reduce the stability of the vehicle), as well as to reduce the speed near curves in order to avoid the risk of falls and slips.

10.1. BRAKE FLUID LEVEL CHECK

Use only brake fluid **MOTUL RBF 600 Factory Line**.



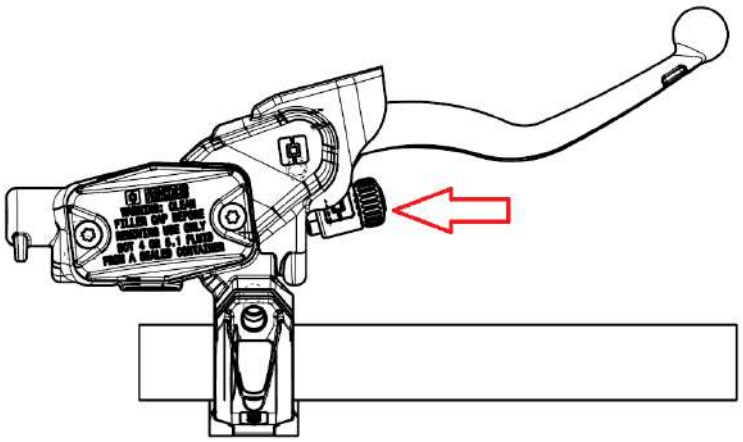
Before each use, check the brake fluid level through the appropriate porthole located on the front and rear brake pump (see pictures).

The brake fluid must be replaced every 2 years. Maintenance operations must be carried out by authorized personnel only.

The liquid used in the braking system is highly corrosive to painted parts and tires. Make sure that none of the parts mentioned come in contact with the liquid. Protect the fairings and other painted parts from even minimal contact with the liquid and follow all the warnings and instructions indicated in the package.

10.2. BRAKE LEVER REGULATION – JJUAN BRAKE SYSTEM

Rotate the adjustment ring to adjust the height of the brake lever.



10.3. BRAKE PADS RUNNING-IN

Run in the brake pads as follows:

• Brake gently for 4-5 laps at medium speed. Avoid any thermal shock to the new pads.

• At least 90% of the pad surface must be in contact with the disc surface to consider running in completed.

• Return to the box and let the brakes cool naturally.

NOTE If possible, run in the new pads using used brake discs.

In rainy or wet conditions, the brakes tend to decrease braking efficiency. It is therefore recommended to brake with extreme care and caution in wet asphalt conditions. Also, if the brakes are wet, you have to brake while driving at low speed to allow them to dry.

11. TRANSMISSION

11.1. CHAIN LUBRICATION

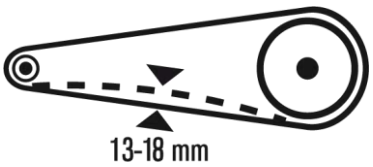
Place the motorcycle on the rear stand, with the engine off and the gearbox in neutral, spray the grease on the chain while turning the rear wheel with your hand continuously and quickly. Lubricate the chain every 3 hours of use and use chain spray.

Use MOTUL C4 CHAIN LUBE FL and MOTUL C1 CHAIN CLEAN.

11.2. CHAIN TENSION CHECK

• Place the motorcycle on the rear stand with the engine off and the gearbox in neutral.

• Check the oscillation in different points of the chain, in the center line between the pinion and the crown. The value must be as shown:



TENSIONE CATENA A MOTOCICLO SCARICO
CHAIN TENSION WITH NO LOAD

11.3. ADJUSTING CHAIN TENSION

RACING CHAIN TENSIONER

- Place the motorcycle on the rear stand with the engine off and the gearbox in neutral.
- Loosen the rear wheel pivot.
- After loosening the locking nut, turn the adjusting screws until the correct chain tension is obtained. Screw in the screws to tighten the chain, unscrew the screws and push the rear wheel forward to loosen the chain.
- Check the alignment of the rear wheel pivot by verifying that the position of the chain tensioners is the same on both sides with reference to the stampings.
- Hold the adjustment screw firmly and tighten the nut.
- Tighten the rear wheel pivot nut (tightening torque 60 Nm).

STANDARD CHAIN TENSIONER (only mod.GP-0)

- Place the motorcycle on the rear stand with the engine off and the gearbox in neutral.
- Loosen the rear wheel pivot
- After loosening the locking nut, turn the adjusting screws until the correct chain tension is obtained. Unscrew the screws to tighten the chain, screw in the screws and push the rear wheel forward to loosen the chain.
- Check the alignment of the rear wheel pivot by verifying that the position of the chain tensioners is the same on both sides with reference to the stampings.
- Hold the adjustment screw firmly and tighten the nut.
- Tighten the rear wheel pivot nut (tightening torque 60 Nm).

11.4. PINION / SPROCKET RATIO TABLE mod. GP0

RATIO		
17	23	1,35
16	23	1,44
17	25	1,47
15	23	1,53
16	25	1,56
17	27	1,59
14	23	1,64
17	28	1,65
15	25	1,67
16	27	1,69
17	29	1,71
16	28	1,75
17	30	1,76
13	23	1,77
14	25	1,79
15	27	1,80
16	29	1,81
17	31	1,82
15	28	1,87
16	30	1,88
17	32	1,88
13	25	1,92
14	27	1,93
15	29	1,93
16	31	1,94
17	33	1,94
14	28	2,00
15	30	2,00
16	32	2,00
17	34	2,00
17	35	2,06
16	33	2,06
15	31	2,07
14	29	2,07
13	27	2,08
17	36	2,12
16	34	2,13
15	32	2,13

RATIO		
14	30	2,14
13	28	2,15
17	37	2,18
16	35	2,19
15	33	2,20
14	31	2,21
13	29	2,23
17	38	2,24
16	36	2,25
15	34	2,27
14	32	2,29
17	39	2,29
13	30	2,31
16	37	2,31
15	35	2,33
14	33	2,36
16	38	2,38
13	31	2,38
15	36	2,40
14	34	2,43
16	39	2,44
13	32	2,46
15	37	2,47
14	35	2,50
15	38	2,53
13	33	2,54
14	36	2,57
15	39	2,60
13	34	2,62
14	37	2,64
13	35	2,69
14	38	2,71
13	36	2,77
14	39	2,79
13	37	2,85
13	38	2,92
13	39	3,00

Stock Ratio

110 4S	190 DAYTONA	110 A	160 4S

11.5. PINION / SPROCKET RATIO TABLE mod GP2

RATIO		
17	28	**1,65**
17	29	**1,71**
16	28	**1,75**
17	30	**1,76**
16	29	**1,81**
15	28	**1,87**
16	30	**1,88**
17	32	**1,88**
15	29	**1,93**
14	28	**2,00**
15	30	**2,00**
16	32	**2,00**
17	34	**2,00**
17	35	**2,06**
14	29	**2,07**
17	36	**2,12**
16	34	**2,13**
15	32	**2,13**
14	30	**2,14**
13	28	**2,15**
17	37	**2,18**
16	35	**2,19**
13	29	**2,23**
16	36	**2,25**
15	34	**2,27**
14	32	**2,29**
13	30	**2,31**
16	37	**2,31**
15	35	**2,33**
15	36	**2,40**
14	34	**2,43**
13	32	**2,46**
15	37	**2,47**
14	35	**2,50**
14	36	**2,57**
13	34	**2,62**
14	37	**2,64**
13	35	**2,69**
13	36	**2,77**
13	37	**2,85**

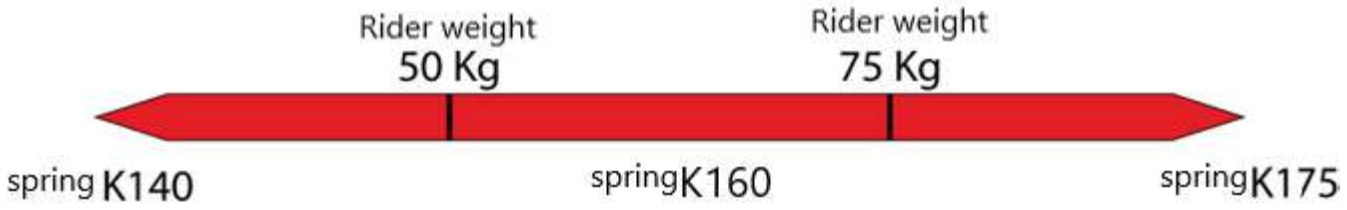
Stock ratio

190 DAYTONA	110 A	160 4S

12. SUSPENSIONS

12.1. REAR SHOCK ABSORBER

The rear shock absorber is adjustable in length, spring preload, hydraulic compression and rebound. (length adjustment on the frame). Many spring are available: the softest spring (K140) is recommended for pilots weighing less than 50Kg while the stiffest one (K175) is recommended for pilots weighing more than 75Kg (as an option). The standard one has K160.



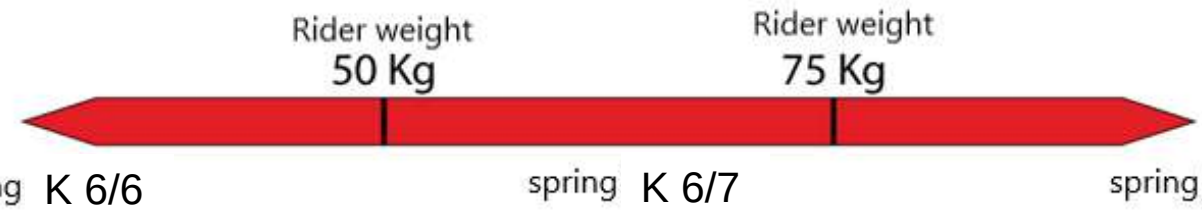
	Spring free length	K140: 135mm K160: 135mm K175: 130mm
GP-0	1 Spring pre-load	K140: 8mm K160: 7mm K175: 3mm
	2 Hydraulic compression	open 6 click from fully closed
	3 Hydraulic extension	open 5 click from fully closed
GP-2	1 Spring pre-load	K140: 10mm K160: 10mm K175: 5mm
	2 Hydraulic compression	open 8 click from fully closed
	3 Hydraulic extension	open 9 click from fully closed

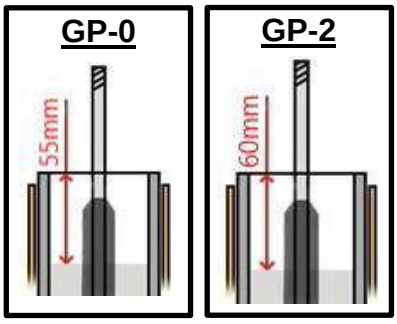
12.2. ADJUSTABLE PRING PRE-LOAD KIT FOR FRONT FORK

The spring preload can be set by acting on the appropriate adjusters; screwing in to increase the preload or unscrewing to decrease it.

Standard regulation: 5 turns.

A softer spring (K6) is available (as an optional) and it's recommended for pilots weighing less than 50Kg. The standard springs are K 7/7.





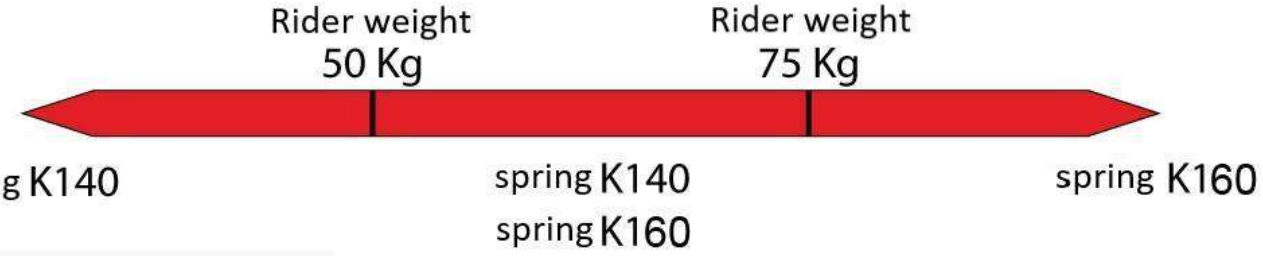
Before proceeding with the replacement of the fork springs, it is necessary to check the oil level inside the stem.
Then you have to gently remove the spring, trying to lose as less oil as possible and perform the measurement indicated in the image.
If necessary, restore the oil level.

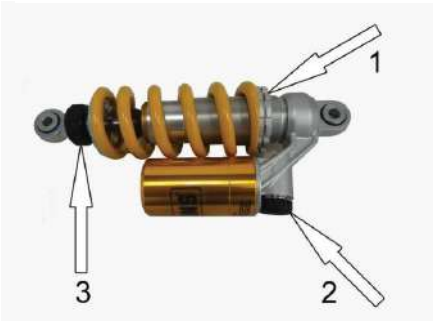
Is recommended to use the specific fork oil: **MOTUL FORK OIL FL SAE 15W**

12.3. REAR SHOCK ABSORBER OHLINS (OPTIONAL)

The OHLINS rear shock absorber is adjustable in spring preload and hydraulic compression & rebound. (length adjustment on the frame)

Two types of springs are available: with K160 for pilots weighing of more than 75kg and a softer one with K140 recommended for pilots weighing less than 50Kg.

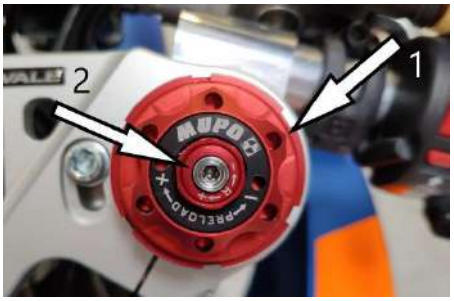




	Spring free length	K140: 145mm K160: 145mm
GP-0	1 Spring preload	K140: 8mm K160: 7mm
GP-2	1 Spring preload	K140: 10mm K160: 10mm
	2 idraulica in compressione	aperto 8 click da fully closed
	3 idraulica in estensione	aperto 9 click da fully closed

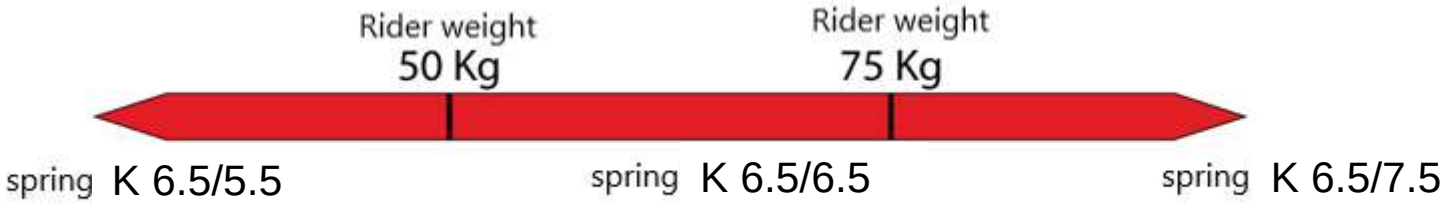
12.4. MUPO FRONT FORK (OPTIONAL)

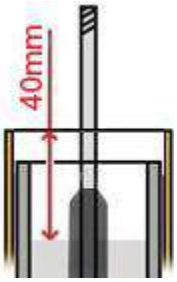
The spring preload can be set by acting on the appropriate adjusters; screwing in to increase the preload or unscrewing to decrease it.



1 Spring preload	5.5 turns = 11 clicks (from fully open)
2 Hydraulic compression (C engraved on the cap)	28 clicks (from fully closed
2 Hydraulic extension (R engraved on the cap)	15 clicks (from fully closed)

The fork in standard configuration (for riders weighing more than 75 kg) has a spring of K7.5 stiffness (on the right sheath) and a spring of K6.5 stiffness. It's possible to **replace only the right spring**: with a softer one with K6.5 for pilots weighing between 50kg and 75kg or with K5.5 for pilots weighing less than 50kg.





Before proceeding with the replacement of the fork springs, it is necessary to check the oil level inside the stem.

You will have to gently remove the spring, trying to lose as less oil as possible and then perform the measurement indicated in the image. (oil level 40mm from the fork sheath).

If necessary, restore the oil level.

It's recommended to use the specific fork oil: MOTUL SAE 5W.

13. DASHBOARD ALFANO (optional)

The ***Alfano 6*** dashboard has an acquisition system capable of recording:

- Engine RPM.
- Velocity.
- Lap times.
- Position inside the track.

It is possible to set LEDs to display the rotation speed at which changing gear. The ***Alfano 6*** dashboard is equipped with a backlit display in order to be able to view the data while riding. Data can also be downloaded via Bluetooth and viewed on PCs and Smartphones using the software created by ***ALFANO*** and downloadable from: https://www.alfano.com/it/software/ or from the App Store for Android and iOS systems.

NOTE: For more information, refer to the instruction manual supplied with the dashboard.

14. FLUIDS and LUBRIFICANTS

Type	*Brand*	*Description*
ENGINE OIL	MOTUL	300V 4T Factory line 10w40
FORK OIL (d.33 fork)	MOTUL	Fork Oil Factory Line Medium SAE 10W
FORK OIL (d.38 fork)	MOTUL	Fork Oil Factory Line Light SAE 5W
BRAKE FLUID	MOTUL	Racing Brake Fluid 660 Factory Line
CHAIN CLEANER	MOTUL	C1 Chain Clean
CHAIN LUBE	MOTUL	C4 Chain Lube Factory Line

Ohvale recommends Motul.

15. TRIM AND SETTINGS

15.1. SAG REGULATION

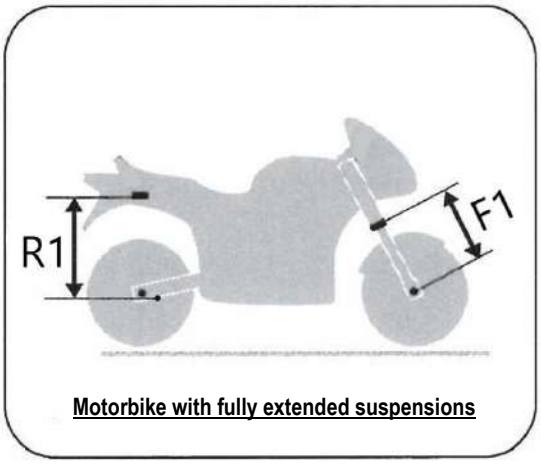
In order to obtain a correct behavior of the motorcycle during the use, it is necessary to check that the suspensions are properly calibrated with respect to the rider's weight. To verify this, perform the following steps:

SAG MEASURE

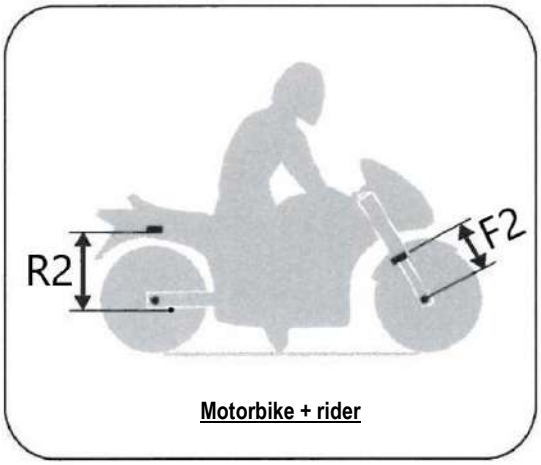
1. Raise the front of the motorcycle so that the front wheel is not touching the ground and the fork is fully extended.
2. Measure the distance between the front wheel pivot and the base of the fork sheath. (F1)
3. Lift the rear of the bike so that the rear wheel does not touch the ground and the shock absorber is fully extended.
4. Measure the distance between the axis of the stand peg and the lower rear frame tube. (R1)
5. Place the motorcycle vertically with the wheels on a flat ground.
6. Repeat the measurements of points 2 and 4 with the rider in the driving position and wearing protective clothing (F2 & R2)

The differences between the measurements made with and without the rider must be respectively equal to:

GP-0	**GP-2**
FRONT (F1-F2) = 11 ÷ 15mm. **REAR (F1-F2) =** 18 ÷ 22mm.	**FRONT (F1-F2) =** 14 ÷ 18 mm. **REAR (F1-F2) =** 17 ÷ 21 mm.



Motorbike with fully extended suspensions



Motorbike + rider

SUSPENSION SETTING

If the measurements are not within the ranges shown, it will be necessary to act on the suspension preloads.

- **FRONT SUSPENSION:** Act on the spring preload adjusters, screwing them in if the sag measurement is higher than the indicated range. On the contrary, unscrew the register if the SAG is lower than the indicated range.
- **REAR SUSPENSION:** Act on the spring preload adjustment ring nut by screwing it in case the sag measurement is higher than the indicated range. On the contrary, unscrew the ring nut if the SAG is lower than the indicated range.

In the event that the SAG measures do not fall within the ranges indicated through the use of the registers and the ring nut, it will be necessary to replace the springs with a harder or softer set (see SUSPENSION chapter).

16. PERIODIC MAINTENANCE

	After running in	Every 10 h	Every 20 h	Every 40 h	If necessary	NOTES
ENGINE OIL	S	S				Check the level after race.
ENGINE OIL FILTER	S	S				
INTERNAL NET OIL FILTER			P			
VALVE CLEARANCE	C	C				Chech with cold engine.
VALVE SPRINGS				C	S	Check lenght.
CAM SHAFT				C	S	Inspect cams surfaces.
SHIFT-GEARS-SHIFT FORKS-DESMO				C	S	Check the wear of gears and forks.
PISTON				S		
PISTON RINGS				S		
PISTON PIN				S		
ENGINE HEAD				C+P	S	Check valve seats and clean carbon deposits. Change gasket.
CYLINDER				C	S	Inspect for scratches. Check wear.
ENGINE SHAFT				C	S	Check connecting rod and bearings.
CLUTCH		C			S	Inspect clutch bell, discs and clutch springs.
TIMING CHAIN - GEARS			C	S		Check wear of chain and teeth.
FLYWHEEL NUT	C		C		S	Maximum tightening torque 50Nm (35 lbft).
CARTER				C		
SPARK PLUG	C	S			S	
AIR FILTER		P	S		S	Use air filter oil or equivalent.
CARBURETOR		C+P				
FUEL SYSTEM		C				Check pipes, gas tap and carburetor.
OIL RADIATOR	C	C			S	Check for leaks and wear of pipes.
BRAKE FLUID	C	C	S			Check level.
BRAKE PADS		C			S	Check wear.
BRAKE SYSTEM		C			S	Check brake discs and hoses. Revise if necessary.
TIGHTENING BOLTS & NUTS	C	C				See table "TIGHTENING TORQUES".
FRONT FORK			C			Check for oil leaks.
RECOVERY TANK					C	Check and empty if necessary.
WHEELS AND TYRES	IN CASE OF TIRES REPLACEMENT ALWAYS CHECK THE SLIDING AND CLEARANCE OF THE BEARINGS.					
STEERING BEARINGS	C		C			Lubricate and if necessary register every hour of use.
TRANSMISSION CHAIN	L+R		S			
PINION & SPROCKET			C		S	Check teeth wear.
CLUTCH COMMAND	C	C			S	
THROTTLE COMMAND		C				

C: CONTROL AND CLEAN, REGISTER, LUBRICATE --
L: LUBRICATE -- **P:** CLEAN -- **S:** SUBSTITUTE -- **R:** REGISTER

17. TIGHTENING TORQUES

	Q.ty	Thread	Nm	Kgm	Lb ft	Notes
Front wheel pivot	1	**(*)**	60	6	44	**(*)** M12 mod. GP-0 M14x1,5 mod. GP-2
Rear wheel pivot	1	M14x1,5	60	6	44	
Swingarm pivot	1	M12	60	6	44	
Steering ring nut – ball bearing	1	M25x1,5	10	1	7,5	
Steering ring nut – tapered bearing	1	M25x1,5	15	1,5	11	
Steering pivot screw	1	M16x1,5	40	4	29,5	
Inferior steering plate screws	4	M6	10	1	7,5	
Superior steering plate screws	2	M8	15	1,5	11	
Half-handlebar bracelet screw	2	M8	15	1,5	11	
Half-handlebar screw	2	M8	22	2,2	16,5	
Brake disc screws	6	M8	20	2	15	Medium thread lock
Brake calipers screws	4	M8	25	2,5	18,5	
Sprocket stud bolts	3	**(*)**	25	2,5	18,5	Strong thread lock **(*)** M8 mod. GP-0 M10 mod. GP-2
Sprocket fixing nuts	3	**(*)**	25	2,5	18,5	**(*)** M8 mod. GP-0 M10 mod. GP-2
Gear/brake lever peg screws	2	M8	15	1,5	11	Medium thread lock
Footrest protection screws	2	M6	8	0,8	6	Medium thread lock
Footrest support fixing screws	4	M8	25	2,5	18,5	Medium thread lock
Shock absorber support fix. nut	1	M14x1,5	60	6	44	
Engine support fixing nuts	2	M8	25	2,5	18,5	160-4s
Engine support fixing nuts	2	M7	16	1,6	12	110-A – 110-4s
Front support engine stud bolts	2	M8	15	1,5	11	190 - 212 + Strong thread lock
Front support engine nuts	2	M8	25	2,5	18,5	190 - 212
Engine fixing screws	2	M8 (10.9)	35	3,5	25,5	
Spark plug	1	M10x1	14	1,4	10,5	
Oil drain screw	1	M12x1,5	24	2,4	18	
Kick lever fixing screw	1	M8	25	2,5	18,5	
Fairing / front fender fixing screws	16	M5	3	0,3	2	
Fairing / rear fender fixing screws	6	M6	5	0,5	3,5	
Fixing tank cover screws	2/3	M6	8	0,8	6	

18. APPROVED TIRES for mod. GP-0

PIRELLI	**front** *Diablo SBK* 100/80 10 - **slick** compound **SC1** **rear** *Diablo SBK* 120/80 10 - **slick** compound **SC1**
PIRELLI	**front** *Diablo RAIN* 100/80 10 - **rain (NO tyrewarmers)** **rear** *Diablo RAIN* 120/80 10 - **rain (NO tyrewarmers)**

COLD TIRE PREASSURE for mod. GP-0

Front 1.2/1.4 bar (120/140 kPa) RAIN **Front** 1.6 bar (130 kPa)

Rear 1.1/1.3 bar (110/130 kPa) RAIN **Rear** 1.4 bar (140 kPa)

19. APPROVED TIRES for mod. GP-2

PIRELLI	**front** *Diablo Scooter* 100/90 12 **carved** *Diablo SBK* 100/90 12 **slick** – compound **SC1** **rear** *Diablo Scooter* 120/80 12 **carved** *Diablo SBK* 120/80 12 **slick** – compound **SC1**
MT	**front** 100/90 12 **slick** – compound **S** **rear** 120/80 12 **slick** – compound **S**
DUNLOP	**front** *TT93F GP* 100/90 12 **carved** – compound **STD** **rear** *TT93 GP* 120/80 12 **carved** – compound **S**
Mitas	**front** *MC 35* 100/90 12 **carved** – compound **S** **rear** *MC 35* 120/80 12 **carved** – compound **S**

COLD TIRE PREASSURE for mod. GP-2

Front 1.2/1.4 bar (120/140 kPa)

Rear 1.1/1.3 bar (110/130 kPa)

Driving with excessively worn or improperly inflated tires can cause crashes resulting in death or serious injury. It is therefore recommended to follow the instructions contained in this manual with reference to tire inflation and maintenance.

The use of incorrect tires on the vehicle can affect control, stability, safety and can cause accidents resulting in serious or fatal injuries. It is therefore recommended to use only tires of the type and size indicated in this manual.

In case of rain or on wet track it's recommend to use rain tires. Using a type of tire that is not suitable for the road surface conditions can cause accidents resulting in serious or fatal injuries.

20. TIREWARMERS

To ensure excellent grip of the tires from the first laps, the use of ORIGINAL OHVALE TIRE WARMERS is recommended.

See instructions regarding use, cleaning and precautions, contained in the user manual supplied with the tirewarmers.

NOT USE Tirewarmers with RAIN tires.

INDEX

1. WARNINGS 2
2. HALF-HANDLEBAR POSITION 3
3. CHOKE – STARTING THE ENGINE 3
3.1. HANDLEBAR CHOKE COMMAND 3
3.2. CARBURETOR CHOKE COMMAND 3
3.3. ENGINE START mod. 110 AUTOMATIC 4
3.4. ENGINE START with KICK STARTER 4
4. SHIFT LEVER 5
4.1. REVERSE SHIFT LEVER 5
5. REFUELING 5
6. ENGINE RUNNING-IN 6
7. ENGINE OIL 6
7.1. OIL QUANTITY (with engine completely empty) 6
7.2. ENGINE OIL LEVEL CHECK 6
7.3. VALVE CLEARANCE ..... Errore. Il segnalibro non è definito.
8. BATTERY (VERSIONE 110 A) 7
8.1. WARNINGS 7
9. BRAKES 8
9.1. BRAKE FLUID LEVEL CHECK 8
9.2. BRAKE LEVER REGULATION – JJUAN BRAKE SYSTEM 8
9.3. BRAKE PADS RUNNING-IN 9
10. TRANSMISSION 9
10.1. CHAIN LUBRICATION 9
10.2. CHAIN TENSION CHECK 9
10.3. ADJUSTING CHAIN TENSION 9
10.4. PINION / SPROCKET RATIO TABLE mod. GP0 10
10.5. PINION / SPROCKET RATIO TABLE mod GP2 11
11. SUSPENSIONS 12
11.1. REAR SHOCK ABSORBER 12
11.2. ADJUSTABLE PRING PRE-LOAD KIT FOR FRONT FORK 12
11.3. REAR SHOCK ABSORBER OHLINS (OPTIONAL) 13
11.4. ANDREANI FORK CARTRIDGES (OPTIONAL only for mod. GP-0) . Errore. Il segnalibro non è definito.
11.5. MUPO FRONT FORK (OPTIONAL) 13
12. DASHBOARD ALFANO (optional) 14
13. TRIM AND SETTINGS 15
13.1. SAG REGULATION 15
14. PERIODIC MAINTENANCE 16
15. TIGHTENING TORQUES 17
16. APPROVED TIRES for mod. GP-0 18
17. APPROVED TIRES for mod. GP-2 18
17.1. TIREWARMERS 18

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P.IVA E C.F. 04604340267

ALFANO 6

Manual (EN)

ALFANO

For more than 20 years, Alfano S.A. is major player in the Karting industry. After more than three years of development and extreme testing in house or in colaboration with our partners in the industry we are proud to release the Alfano 6.

Developped without compromises, the Alfano 6 is presently known as the best device on the market according to the professionnals of the sector. The factory setup allows you to directly enjoy your device with all the automatised features while letting you go deeper in the settings and options (see additional products).

Alfano, we took the time to be performant

In technical terms, the Alfano 6 it's :

• 2600 tracks in an ever expanding database
(consultable in Parameters > Track Consultation or on the Alfano 6 App)

• An automatised feature that recognize your track or create it

• The reception of three GPS satellite networks for worldwide coverage and ever higher accuracy, Navstar USA, Glonass UK and Galileo EU (operational since November 2017)

• A battery with a very superior endurance (40 hours of use) to any other competitive products rechargeable via a USB cable (provided) and allowing charging via a Powerbank if you do not have access to a socket.

• A simple, intuitive Bluetooth connection linked to a powerful App that allows data analysis on all iOS or Android platforms.

• The developers of Off Camber Data also offer PC analysis software compatible with your Alfano 6.

Setup

L'Alfano 6 : The Alfano 6 is designed for installation on your steering wheel. You can instal it in place using the screw thread on the back of the unit and the nut (supplied). For a greater comfort of use and a reduction of vibrations pay attention to place on both sides of your steering wheel the rubber washers (provided). The shell of your device should not hit against your steering wheel, if needed you can use the black washer to space out your device.

Before continuing your use of the Alfano 6 we recommend that you configure your device according to your requirements and preferences to facilitate its use and any future manipulations.

Info : You can get at any time more information directly on your Alfano 6 thanks to the "info" option accessible by pushing the central right button of your Alfano 6

Settings

Usage preferences: to turn on your Alfano 6, press the button at the bottom right. Once the Alfano 6 is running, we invite you to configure the various parameters available in the menu represented by a gear

Language: Using the top and bottom buttons on the left of the device, navigate to the Languages icon represented by the flags and select your language.

Settings

Units: In the submenu menu Settings (indicated by two crossed tools) you will find the sub-menu "Units". You will be able to choose between kmh and mph, kilometers and miles, degrees Celsius and Fahrenheit

Format - Time zone hour: In the Date and Time submenu you can select the format that corresponds to your preference and time zone. This information is important to help you find your data during their analyzes. As for the schedule, the GPS will automatically adjust your Alfano 6.

Your visual preferences: In the Settings menu, enter Brightness sub-menu represented by a lit bulb.

Viewing Configuration

1. **Backlighting :** By default the backlighting is activated automatically thanks to a brightness sensor but you can choose to activate or desactivate it permanently

2. **Color:** Choose the color of your backlight according to your preferences

3. **Power :** Set the intensity of your backlight here

4. **LED Power :** Set the intensity of the indicator lights on the top of your device according to your preferences. These LEDs can show you several types of information such as RPMs, temperatures, lap times and more. You will find information on this topic in the chapter "Display Course".

Driver name: In the settings menu you can enter the names of the drivers (up to 6) on the headset icon so that they appear on the home screen and in your datas.

Standby: In the settings menu you will find the sub-menu "Standby" where you can set the time before stand-by (in minutes) as well as the idle time before the Alfano 6 stops.

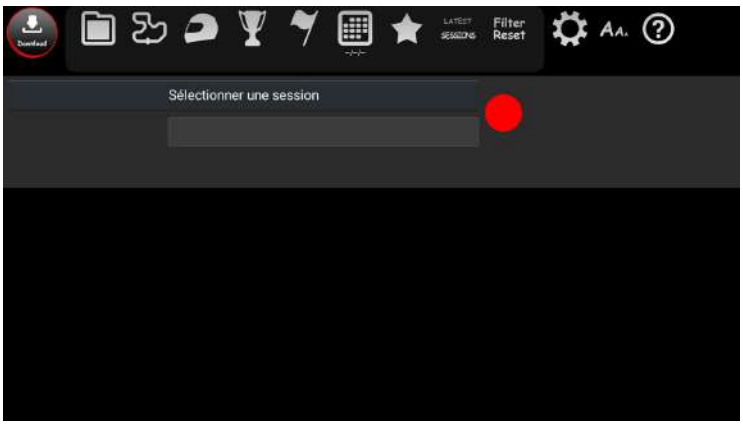
While on standby, the Alfano 6 consumes almost no energy and will light up when an RPM signal is received (see "The RPM Sensor" - page 7) or by pressing the "On / Off" button ".

Connectivity and APP

For optimal use of your Alfano 6 you can connect your device to its dedicated App. To do so, download the application ALFANO 6 (Android or iOS) on your smartphone or tablet and then pair it with your device.

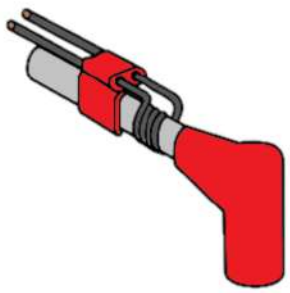
To do this, press the middle button on the right labeled with the Bluetooth logo and activate your application on your iOs or Android support (see the section dedicated to the App)

You can also download the data of your Alfano 6 with a USB cable (not supplied - Ref: A4520) and read them on PC with Off Camber Data (not supplied - paying)



You can connect your Android tablet to your Alfano 6 using a mini or micro USB adapter (not included)

RPM



The RPM Sensor: In order to transmit to your Alfano 6 the RPM signal of your engine it's necessary to install the RPM sensor (ref A1600) on your spark plug cable.

You can use the RPM sensor as shipped or, if the signal is too weak, place turns around the cable as in the diagram above.

Then connect it to your Alfano 6 using the notch provided on the left side of the back of the device

Configuring your Alfano 6: In your Parameters submenu, enter in the RPM sub-menu your maximum RPM (according to your engine manufacturer's recommendations). The most common value for "RPM Factor" is "x1"

Configuring your LEDs: In your "Display Config" sub-menu, enter the LED Indicator submenu and select the "RPM Mode" feature. Here you can configure the color and the corresponding RPM level of each LED.

Temperatures

Temperatures: Your Alfano 6 can read two temperatures. These are connected to the red input on your Alfano 6. If you want to simultaneously read the two temperatures listed below, you will have to use a Y-connector (ref: A2190) or Box12 (ref: A1160)

Water temperature: To install this sensor we recommend using the location provided for this purpose on your engine or our hose adapters and place the sensor in the space provided for this purpose.

References Water Temperature Sensor: A2101, A2152
References Adapter Hoses: A261, A262, A263

In order to monitor the temperature of your engine, you can use one of the two LEDs alarms and set a minimum and maximum temperature.

Configuring your alarms (LEDs): In your "Display Config" submenu, enter the Max or Mini LED left (or right) alarm submenu. Here you can set the temperature type (in this case T ° 1 Water / Cylinder head) but also the maximum or minimum temperature, the color of the LED and its display mode.

Temperatures

Exhaust Temperatures: Most of today's kartings have an exhaust that provides a hole for sensor placement. If not, we recommend welding a nut (Ref: A272A) to fix the sensor.

References Exhaust Sensor:
A2151 (Professional), A2158 (Standard)

For the use of this type of sensor, an extension (Ref: A3401) will be necessary.

Configuring your alarms (LEDs): In your "Display Config" submenu, enter the Max (or the left) Alarm LED submenu Max or Mini. Here you can configure the temperature type (in this case T ° 2 Exhaust gases) but also the maximum or minimum temperature, the color of the LED and its display mode.

Caution: For greater durability of your equipment we invite you to configure these two parameters as well as related alarms according to manufacturer recommendations or to seek advice from your dealer or preparator.

Interfaces

Interfaces: The Alfano 6 offers you to customize your racing interfaces and thus create your display according to your preferences or needs. You can also navigate through the racing interfaces by pressing the button on the top right.

In order to customize your interfaces, go to the Course Display Setup menu (icon at the top right corner of your main menu) where you can create up to 4 screens.

Configuration:

1. Add a cell with the "+" icon
2. Move the cell on the screen
3. Choose the size of the cell
4. Change it's color (black or white)
5. Delete the cell
6. Name the interface
7. Pre-visualize the interface
8. Exit, Save or Delete the interface

Info: We indicate as "cell" a set of data displayed in connection with a sensor.
Example: The RPM sensor data is represented in the RPM cell

The light bulb icon allows you to configure the use of the LEDs for the interface you are designing.

Transmission

Transmission: If you have a shifter kart and wish to display your gear in real time, you can select the option in the settings menu and select the "Transmission" page.

After having selected the gearbox mode in the Transmission menu you can enter the number of gear and then start learning. This quick and intuitive process that you can perform on the truck will require you to switch each gear (engine speed between 3000 and 5000RPM). The Alfano 6 will learn from itself.

A new learning session will be required if the gearbox, gearing or crown are replaced.

Info: To use this function, the use of an RPM sensor (supplied) and a speed sensor is mandatory (see page 14)

Track Management

The Alfano 6 offers you three track management options: Automatic, Professional and Magnetic Classic. You will find below the details of each mode.

Automatic:

By default, your Alfano 6 will be in Automatic mode and will recognize by itself the track if it is in the database.

If this is not the case, the Alfano 6 will create the track based on your GPS information during your first lap.

In the case of several nearby tracks or a track proposing several layout, the Alfano 6 will be semi-automatic mode and will suggest you to choose the configuration corresponding to your use.

Track Management

Professional:

In professional mode, two possibilities are available:

Circuit design in GPS mode only:
In this mode, indicate that you want to create a circuit then make a tour of the circuit, the latter will be created automatically once the first lap is done.

Circuit design in GPS-Magnetic:
In this mode, your Alfano 6 will cross magnetic field data and associate them with GPS positions.

Magnetic field informations will have priority for your timing. However the registered GPS coordinates can replace the magnetic fields in case of malfunction of the latter.

In the case of a magnetic circuit, the starting line will necessarily be a magnetic field. You can also choose which magnetic field acts as a starting line. However, as opposed to Classic Magnetic mode, you do not need to configure the number of magnetic fields available.

Once the circuit is created, several options are available:

Choose : Allows you to choose a circuit in your "Professional" database

Edit : Allows you to add, modify, delete or move intermediaries (up to 5 GPS intermediaries) or move the starting line (in the case of a GPS point).

Remove : Allows you to delete a circuit from your "Professional" database

Duplicate: Allows you to copy a circuit. This action will allow you to create two versions of the same circuit

Magnetic Classic:

The Alfano 6 also offers a 100% Magnetic mode for indoor circuits (requiring A1302 sensor against).

In this mode, when creating a new circuit, Alfano 6 will ask you to configure the number of available fields on the track and the field on which you want to place the start line.

Additional equipment

The Boxs:

The Boxs allow you to increase the capacity of your Alfano 6. We offer two models:

Box4Move (ref: A1204):

This box incorporates a G force sensor and allows you to connect three position sensors
(pedals and wheels - see below)

Box12 (ref: A1160):

This box integrates a G force sensor and allows you to use up to 12 inputs:

3 position sensors,
1 valve sensor
4 temperature sensors,
4 speed sensors
1 analog input
1 lambda sensor
1 additional bus connection
1 external charge input of the battery
1 input to connect your Box12 to your Alfano 6

Some physical inputs can be doubled via the use of a HUB
Ref: A2194, A2193, A2190

Additional equipment

Sensors :

Speed sensor (ref: A2203):

This sensor allows to know your speed relative to the rotation of the ring placed on the axle. This data is a more accurate, more responsive and real-time representation of your speed than that presented by the GPS module (professional use). This sensor will allow you for example to better identify the moments when your karting is not touching the tarmac

Ring Reference : A441, A442, A443, A444, A445, A4461

To correctly configure your displayed speed, go to the parameter menu and then in the "Speed sensor" sub-menu to select the number of magnets in the ring and the circumference of the wheel (this measurement must be taken with a designer ribbon). to take into account the wear and pressure of the tire)

Pedal Sensor (ref: A2405):

This sensor allows to know the position of each of the pedals during your analysis (App and software).

The installation of this sensor requires the use of a Box4Move (A1204) or Box12 (A1160). For more information please refer to the previous page.

The calibration functions will unblock with the connection of one of these products and are available in the Settings menu.

Additional equipment

Steering wheel sensor (ref: A2401):

This sensor allows to know the position of your steering wheel during your analysis (App and software).

The installation of this sensor requires the use of a Box4Move (A1204) or Box12 (A1160). For more information please refer to page 13.

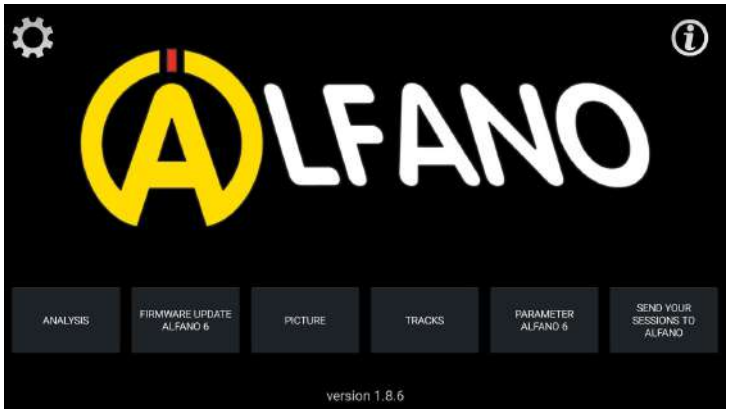
The calibration functions will unblock with the connection of one of these products and are available in the Settings menu.

The Alfano 6 App

The Alfano 6 app is available for free on Android and iOS under the name ALFANO6.

When you open your application, it automatically activates the Bluetooth, thank you to leave this function on to allow the exchange of information with your Alfano 6.

Home Page



On the home page you will find two icons:

Allows you to configure your application settings like:
Language
The unit of speed (kmh or mph)
The temperature unit (C or F)
The date format
Your Vehicle Type (Karting, Motorcycle, Car)

Redirect you to the manual of Alfano 6

The tabs on the lower part of the screen gives you access to several features that we will detail.

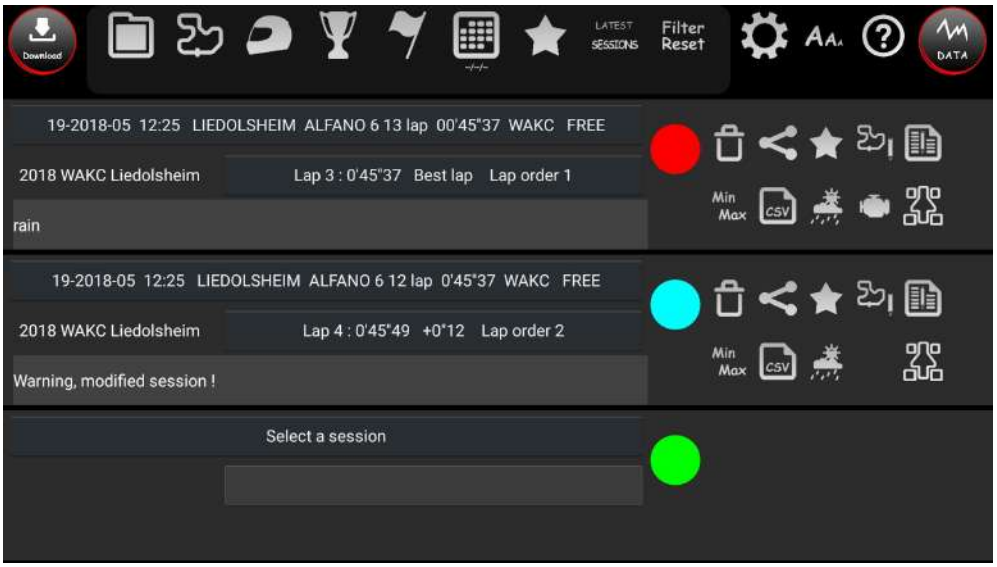
Analysis

By pressing the analysis button you enter the menu of the same name.

To download the data from your Alfano 6 press Download (top left).
This will start the pairing between your application and your Alfano 6. You can also select the number of sessions you want to download.

Once the data is retrieved you can, using the filter bar, navigate through all of your sessions and select the one you want to analyze.

The Alfano 6 App



On the upper part of the screen you will find several filters allowing you to find the session you want to analyze in your database. Each icon proposes a filter according to different variables:

The folder where you saved your session

The circuit on which the session was recorded

The driver who recorded the session

The championship during which the session was recorded

The type of test corresponding to the session

The date of the session

Filter the number of sessions displayed

Reset your filter settings

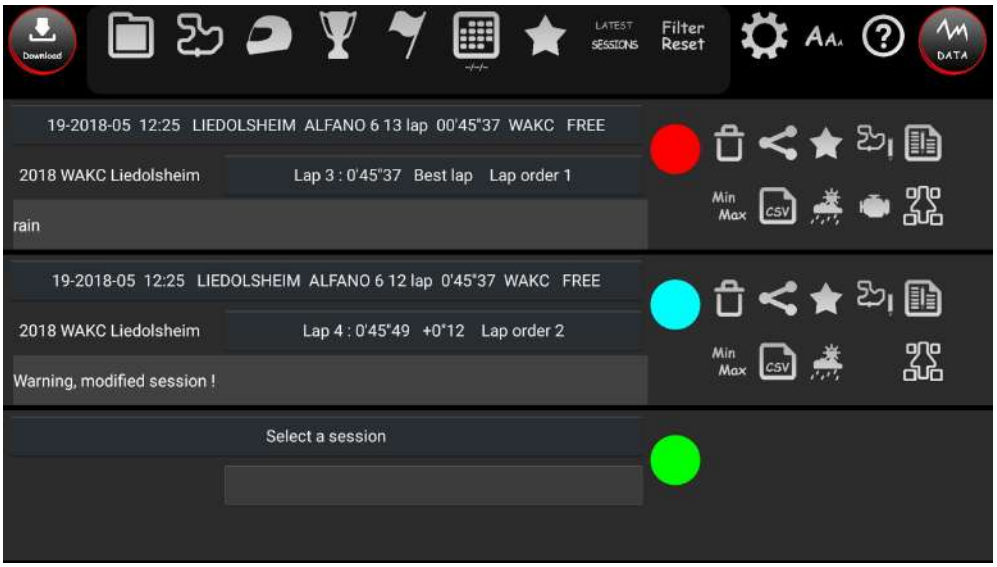
For Android users: Allows you to change the size of the font

Parameters for Back-up

Informations for the page

Once the session is selected you can insert a comment to help you better understand the analysis of your session later (example: register a race incident).On the colored circle you will be able to select the color corresponding to this session.

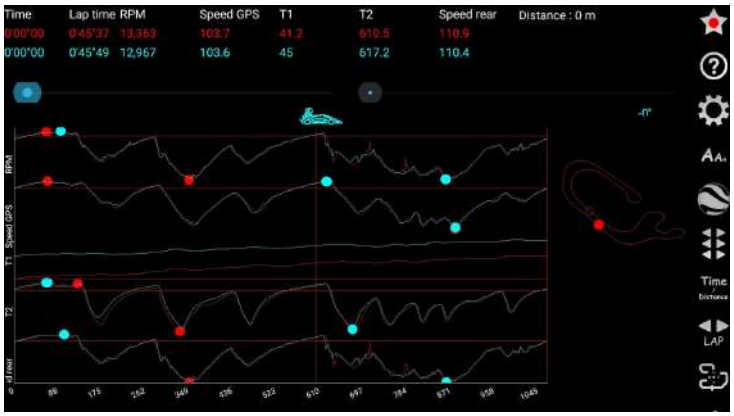
The Alfano 6 App



The icons shown to the right of each session allow you to:

- Delete session
- Share the session
- Place this session in your favorites
- Delete one or more sector(s) and offset the following
- Modify information about the session (circuit, driver, championship etc.)
- Consult the minima and maximas of your session
- Export your data in CSV format
- View weather information
- See the time of use of your engine
- Add setting information of your Karting

The Alfano 6 App



Using the "Data" button you can view your data graphically (and compare them if two or more sessions are selected).
On this page you will find several options in the side menu.

Using this button, you can configure the displayed analysis options:

Allows you to choose the channels to analyze and to set the graph

Allows you to choose the size of data display (only Android)

View your laps on Google Earth

Allows you to shift the samples of your lap

Allows to work in time scale or distance

Allows you to select / change your lap to analyze

Allows you to choose the display orientation of the track layout

Hides the track

Access the engine speed analysis menu

Acceleration Analysis Menu

Adds a filter to the gearbox

Access to the analysis menu of the gearbox

Allows access to the analysis menu of Min & Max sensors as well as partials

Access the speed analysis menu

Load or save your different analysis configurations

Access the comparison menu

Automatically scroll the cursor

Moves back the cursor

Moves the cursor forward

Adds a background grid

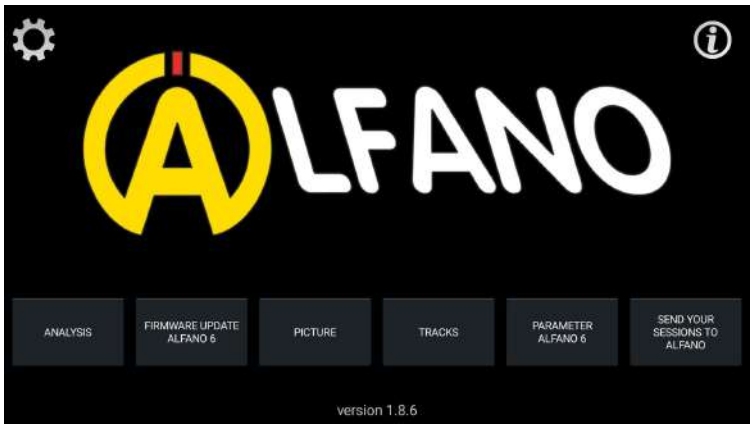
Allows you to change the background color

Provides access to the Virtual Partial Analysis menu

The Alfano 6 App

To customize your display, you can also hold your finger on the track in the right part of your screen and slide to configure the split between graph and Mapping

The home page also offers you the following actions:



Firmware update Alfano 6

This tab allows you to update your Alfano 6.

Picture

This tab allows you to import a picture that will appear when you turn on and off your Alfano 6.

Tracks

This tab allows you to consult the circuits available in the Alfano 6 database.
It also allows you to manage your circuits created in professional mode.

Parameters Alfano 6

This tab allows you to access, via the App, the same features as those included in the device. You can configure the various parameters related to your Karting (Transmission, RPM, LEDs, etc.) or the race display.

Send your sessions to Alfano

This tab allows you to send your sessions to Alfano S.A. This action allows us to integrate them into the company's database (including Track Database) and contributes to our research and development. You can also transmit this information via the button "Data Sharing" already mentioned.

Options

Cables

A4510
USB Charger Cable

A4520
USB Download Cable

Magnetic and Speed Sensors

A1302
Magnetic sensor 90cm

A2203
Speed Sensor 195cm

A4461
50mm ring
4 magnets
Speed sensor A2203

Motion Sensors

A2401
Steering Wheel Sensor

A2405
Pedal Sensor

Options

Hubs and Extensions

A3301
Extension "NTC"
135cm

A3401
Extension "K"
135cm

A2194
HUB
Mag-Speed
20cm

A2190
Extension
"NTC" + "K"
135cm

Temperatures

A2103
Water Sensor
"NTC"
M5 - 45cm

A2104
Sparkplug Sensor
"NTC"
14mm/45cm

A2151
Sensor "K"
Exhaust
40cm (PRO)

A2158
Sensor "K"
Exhaust
45cm (Standard)

A2155
Sensor "K"
Sparkplug
14mm/40cm

A2156
Sensor "K"
Sparkplug
12mm/40cm

A2157
Sensor "K"
Sparkplug
10mm/40cm

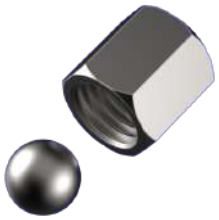
Options

Accessories

A561
Steering Wheel Cover

A576
Support TonyKart

A272A
Nut Sensor Exhaust
A2151 and A2158



A272B
Obturator for the 272A

A261
Hose Adapter for WATER Sensor
A2103 and A2152
17mm

The products represented here are the most requested but our entire range of products is available on our website:

www.alfano.com