T-Ride

USER MANUAL

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Dear MAC PARA pilot

We congratulate you and appreciate your purchase of the MAC PARA T-RIDE paramotoring glider. Extensive research and development makes the T-Ride a state-of-the-art paramotoring glider. Numerous safety tests have been made to allow you to safely enjoy the performance of this glider. The entire Mac Para team welcomes you and we wish you many pleasant flights. To stay safe you **MUST** read this manual carefully before flying.

T-Ride Highlights

The T-Ride is a semi reflex paramotoring glider for two-seat trikes. It was designed for skilled advanced trike or quad pilots looking for an easy to use glider with a wide speed range and responsive handling. Other benefits are easy launch and landing speeds, excellent stability and efficient fuel consumption when paramotoring.

Please note the following details before you fly:

Get Proper Training

The purpose of this manual is to offer you information about the unique design features of the T-Ride for maximum enjoyment. **This Manual is in no way intended to be used as a training manual.** Paragliding and paramotoring are sports which demand high degrees of attentiveness, good judgement, and theoretical knowledge. Paramotoring can be a dangerous sport which may lead to injury and death. Get proper instruction before you attempt to fly with a qualified professional and accredited school.

Take Responsibility

The use of this paramotoring glider is solely at the owner's risk! The manufacturer and distributor do not accept any liability. You are responsible for your own safety and the gliders airworthiness. Mac Para assumes no responsibility. Mac Para recommends the pilot is in possession of a valid paramotoring licence for the glider's category, insurance, and training etc. for the country in which the glider is flown.

Manufacture Quality Control Checks

Before delivery, as well as during production, each paramotoring glider goes through a strict visual inspection. It should also be test-flown by your dealer. Stamps on the placard with a completed test-flight certificate confirm this. It is your responsibility to check that your new T-Ride paramotoring glider has been test-flown before your first flight. If it has not, consult your dealer.

Minimize Your Risks

Any inadequate use or misuse of your T-Ride increases the risks considerably. Below is a list of conditions that must be avoided.

GENERAL

DO NOT USE outside the manufacturers recommended weight range.

DO NOT USE during rain or snow-fall.

DO NOT USE in high or gusty wind conditions

DO NOT USE in cloud and fog.

DO NOT USE without sufficient knowledge or experience.

DO NOT USE under the influence of drugs, alcohol or sickness.

DO NOT USE for aerobatics or extreme manuvers.

NOTE: Any changes or modifications made to this paramotoring glider invalidate the certificate of airworthiness. Please check the warranty conditions near the end of this manual. Registration of your Mac Para T-Ride is required.

Mac Para Wants to Help

If you have read this manual and still have questions, suggestions or criticisms regarding the T-Ride manual, please do not hesitate to contact your dealer or Mac Para directly. Our mission is to design quality performance gliders that allow you the freedom of flight while keeping you as safe as possible.

PILOT LEVEL REQUIREMENTS

The T-Ride has been design for pilots that have been paramotoring for some time. It is not intended for beginners or for pilots that lack the necessary piloting skills to control its advanced performance features. We recommend you should have a minimum level of 200 flying hours in various conditions and have completed at least three full years flying paramotoring gliders with adjustable trimmers before flying the T-Ride.

Various Conditions

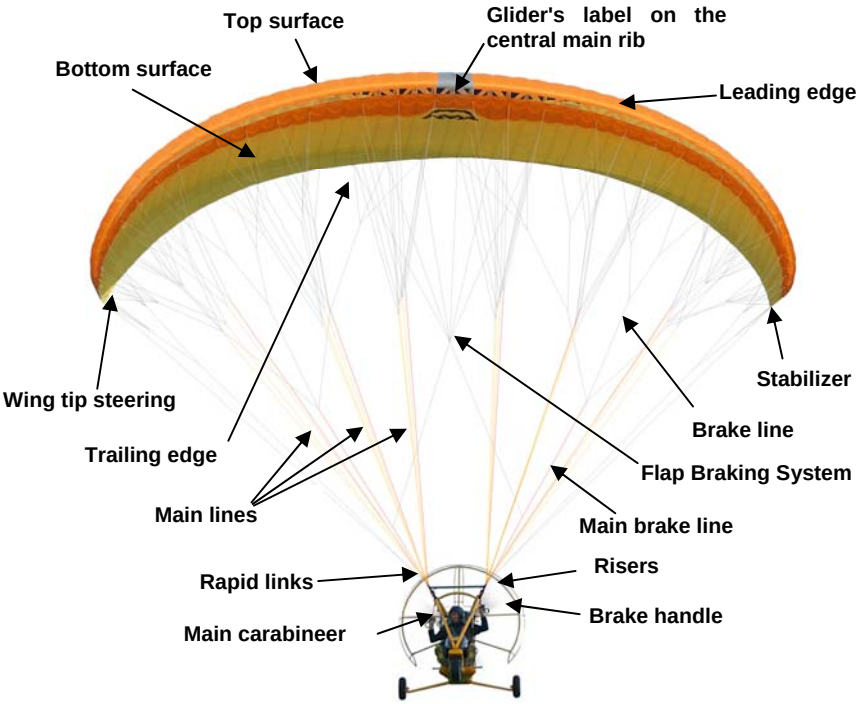
The T-Ride can adapt to suit a full range of conditions and types of paramotoring. The exception is acrobatic flying. In strong turbulence and gusting winds a partial or complete collapse of the canopy can result. Never fly in such conditions.

Certification

The T-Ride is light sport aircraft with an empty weight of less than 120 kg in the category paraglider.

Even though it is possible to use the T-Ride for free flying, please note it is not EN certified!

DESIGN



TECHNICAL DESCRIPTION

Construction of the canopy:

The canopy of the T-RIDE has a wingspan with 58 cells. The wingtips are slightly pulled down to act as a stabilizer. The T-Ride is a second rib diagonal-construction paramotoring glider. Every main rib is attached to 4 or 5 suspension lines. Between these main suspension ribs, intermediate ribs are suspended by diagonal segments. As complicated as this sounds, this construction ensures a smooth top surface and precise air foil design increasing performance and safety.

The internal reinforcements maintain the precise form of the canopy and increases stability. The cell openings on the under-surface of the leading edge provide good airflow into the glider. Stretch resistant support panels with diagonal ribs at the suspension points ensure an even distribution of load throughout the canopy.

TECHNICAL DESCRIPTION

Stretch resistant Mylar strips on the top and bottom panels of the openings run the length of the trailing edge defining the wingspan. This ensures optimized sail tension and guarantees high canopy stability. Large cross ports allow effective airflow inside the canopy providing good reinflation without interrupting the profiles shape.

The T-Ride is mainly made from proven high quality Nylon fabrics. Porcher Marine Skytex Rip-stop 9092 E85A, 9017 E38A and 9017 E29A are the carefully selected materials. Important care must be taken to maximize the life of your glider because like any synthetic material, this can deteriorate through excessive UV exposure.

Rigging system:

The suspension lines are comprised of “cascaded top lines” (attached to the under-surface),”cascaded middle lines” (cascade 2 to 2 top lines together on middle main lines), and “main lines”. Main lines lead to the “quick links” (a small triangle carabineer which connects lines to the risers). The “stabilizer lines” connect the upper stabilizer lines on the outer suspension points with the quick link. The “brake lines” are not load carrying suspension lines. They lead from the trailing edge of the canopy to the main brake lines and run through the pulleys on the D-risers to the brake handles. Two black marks on the main brake line indicate the two possible positions of the brake handles. This adjustment allows for sufficient brake to be applied during flight and landing safety. It also ensures that brakes are not too short causing permanent applied brakes during flight (especially when fully accelerated). Having your brakes too short is dangerous!

Special attention is required before adjusting your brakes. Note! There two options of brake line systems. First option is serial. This decrease the forces of brakes. The second option is a single brake line.

For differentiation purposes, the A-lines are coloured red, the brake lines are orange, and all remaining lines are yellow. The main suspension loop on the bottom of the riser is reinforced and covered red. This is where the main carabineer should be hooked in connecting the risers to the harness.

The lines of the T-Ride are made of strong and stretch resistant HMA Aramid/Kevlar (yellow core) lines and PES/Dynema (white core) for brake lines. The entire rigging system comprises of individual suspension lines looped and stitched at each end. This contributes to the glider being incredibly strong.

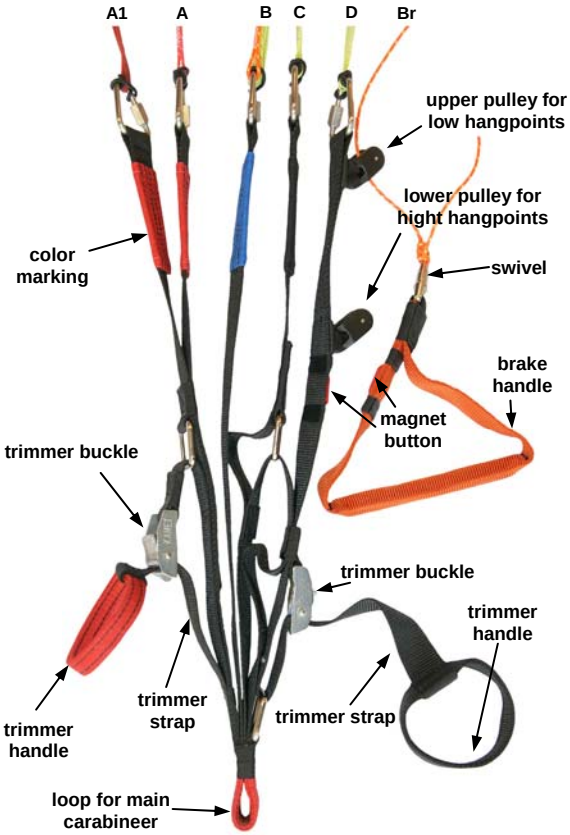
The main Polyester sheathed ARAMID lines have strengths from 190 up to 500 kg. The unsheathed Aramid upper cascade lines have strengths of 45kg, sheathed Aramid upper cascade lines have strengths from 60kg up to 160 kg. The Aramid middle cascade lines have strengths from 80kg up to 190 kg. The Dynema brake lines have strengths from 80kg up to 360 kg. Add up the strength of all the lines to understand the design of the T-Ride provides you with safety and confidence.

Risers with trim system:

The serial T-Ride is equipped with 5 risers per side (A, A1,B, C, D). The two central A-main lines per side are attached to the A-risers (red in colour) while the outermost A main lines are attached to A1 risers. The 3 B-main lines, the stabilizer lines and main brake line are attached to the B-riser. The 3 C-main lines are attached to the C-risers and the 3 D-main lines to the D-risers. The main brake lines attached on B riser lead through the pulleys on galery brake lines and then lead through the pulleys on the D risers. The higher pulleys are used when flying a low attachment style paramotor and the lower one for higher attachment paramotors.

The line connections are made to triangular carabineers (quick links) fitted with a rubber ”o- ring” in the form of a ”figure eight” which prevents any slipping of the lines on the quick link.

Riser`s scheme



RISERS

Trimmers:

The T-Ride has a wide in flight speed range due to the range of different trimmer settings. The trimmers have a deceleration range of 6 cm and 5cm of acceleration. On the faster setting (trimmers fully open and extended) the T-Ride's speed increases. The wing is less sensitive to turbulence and the stability improves. On slower trimmer settings (neutral or trimmers pulled all the way down), sink rate improves and the brake pressure becomes lighter. You will feel that the wing is more sensitive flying through bumpy air with trimmers pulled all the way in. **To help you identify the neutral position of each trimmer, look for the white stitching.** It is important to check and set the trimmers in the same position for each riser before take-off and in flight to avoid unwanted turns.

The back positioned trim system shortens and lengthens the C and D risers and changes the angle of attack. In normal flight, all risers are in a "neutral position" and are of equal length (46 cm to the bottom edge of the rapid links). This position is marked with a white line on the trimmer straps. When you pull down the straps that run through the trimmers, the C-risers are shortened up to 3 cm, D-straps up to 6 cm. When you open the trims (push the trim buckles) , the C-risers are extended up to 2.5 cm, and the D risers are extended by up to 5 cm.

The speed of the T-Ride (depends on wing loading) with closed trimmers (trimmers pulled all the way down) is around 39-43km/h with a relatively low effort of the engine. With additional brake pressure the cruising speed is around 34-37 km/h. This will give you the best sink rate and requires the least amount of thrust from your engine for level flight. The neutral trimmer position (marked with a white line) is the position where the risers are level. This is the most useful configuration for navigation and for precision ground tasks. The T-Ride still turns very well and restores plenty of energy flying around 44-47 km/h. It requires a little more RPM from your engine compared to the closed trimmer

The front positioned trim system shortens the A risers and changes the angle of attack. In normal flight, the A risers are in a "neutral position" and are of equal length (46 cm to the bottom edge of the rapid links). When you pull down red colored loop of the straps that run through the trimmers, the A-risers are shortened up to 3,5 cm. Note! You can pull straps on A-trimmers only when D-trimmers are set to neutral position or released!

The speed of the T-Ride (depends on wing loading) with fully closed A-trimmers and fully released D-trimmers is around 50-55km/h with higher effort of the engine. It requires a much more RPM from your engine compared to the closed trimmer

Attention!

Never fly with shortened A-trimmers in combination with shortened D-trimmers!

Brake handles:

The brake handles are equipped with swivels and neodyme magnets. Strong neodyme magnets hold the brake handles perfectly to the D risers. Attaching and releasing the brakes from the risers work very easily and quickly during flight. This minimises the danger of getting them caught in a spinning propeller.

Brake lines:

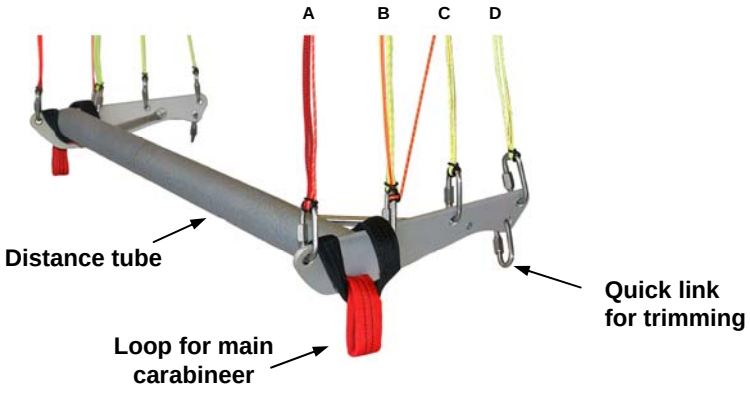
As mentioned before the T-Ride has two options of brake line systems. 1) the serial version is a special main brake line system. The main brake line is connected to the B riser then leads through the pulley that is connecting middle galery brake lines and then lead through the pulleys on the D risers. This is a pulley system, which reduces the forces on controls. 2) the single main brake line, which is common by paragliders. This causes much higher forces on controls. These main brake lines are added as serial equipment of the T-Ride.

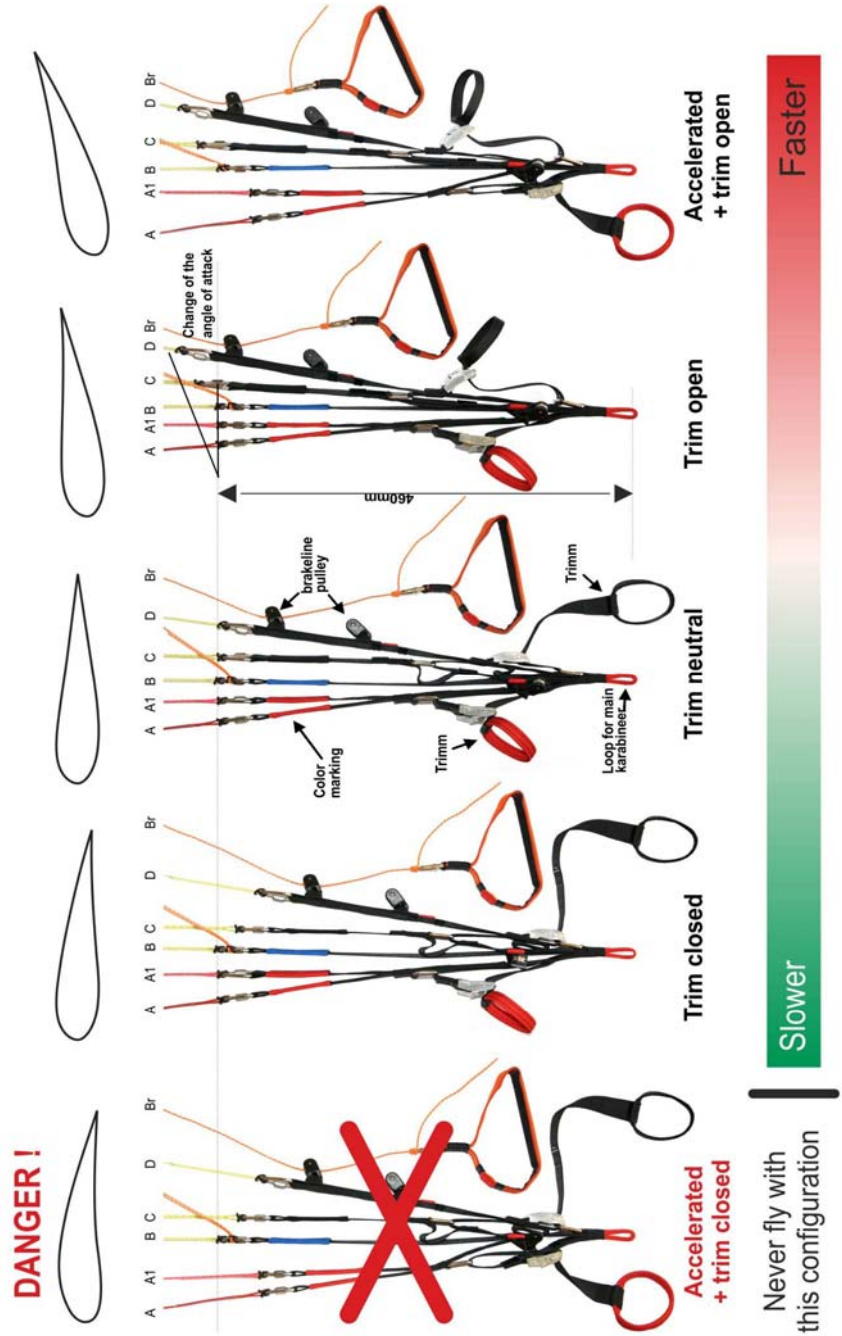
Special bar for heavy trikes:

Depending on the design of your trike the special T-Ride spreader bars that replace the risers can be used. The spreaderbar structure is composed of alloy plates with a spacing tube. On the alloy plates are positioned O-form quick links connecting each line row. The 3 main A-lines per side are attached to the A-quick links. The 3 B-main, the stabilizer lines and main brake line are attached to the B-quick links. The 3 C-main lines are attached to the C-quick links and the 3 D-main lines to the D-quick links. The main brake lines attached on B riser lead through the pulleys on galery brake lines and then lead through the pulleys attached on the trike frame.

The main attachment straps embrace the alloy plates and then are led through slots on the plates. Trike and spreaderbars must be connected with karabiners with min. strenghts of 2400 daN.

The speed of the T-Ride (the angle of attack) is operated from the trike. Under D-quick links are attached other quick links. On these links are connected trimmer lines leading from the trike.




DANGER !
Accelerated
+ trim closed
Never fly with
this configuration
Trim closed
Trim neutral
Trim open
Accelerated
+ trim open
Slower
Faster
A A1 B C D Br
Color marking
brakeline pulley
Trimm
Loop for main karabineer
Change of the angle of attack
460mm

Tissue

(PORCHER SPORT, Rue du Ruisseau B.P. 710,38290 ST. QUENTIN FALLAVIER, FRANCE)
Top Sail - Leading Edge - SKYTEX 45 E85A - 100% nylon 6.6 , 33 Dtex, 45 g/m^2
Top Sail - Trailing Edge - SKYTEX 40 E38A - 100% nylon 6.6 , 33 Dtex, 40 g/m^2
Bottom Sail - SKYTEX 40 E38A - 100% nylon 6.6 , 33 Dtex, 40 g/m^2
Main ribs, Diagonals - SKYTEX 40 E29A - 100% nylon 6.6 , 33 Dtex, 40 g/m^2
Ribs - SKYTEX 40 E38A - 100% nylon 6.6 , 33 Dtex, 40 g/m^2
Reinforcement Main Ribs - Grille Polyester 200 g/m^2
Reinforcement Ribs - W382 Polyester 180 g/m^2

Lines

(EDELMAN+RIDDER+CO. Achener Weg 66, D-88316 ISNY IM ALLGEAU, GERMANY)
Upper lines - Aramid A-8000-045, Breaking Load 45 kg
Upper lines - Aramid/Polyester A-6843-060, Breaking Load 60 kg
Upper lines - Aramid/Polyester A-6843-080, Breaking Load 80 kg
Upper lines - Aramid/Polyester A-6843-120, Breaking Load 120 kg
Upper lines - Aramid/Polyester A-6843-160, Breaking Load 160 kg
Middle cascade lines - Aramid/Polyester A-7343-140, Breaking Load 140 kg
Middle cascade lines - Aramid/Polyester A-7343-190, Breaking Load 190 kg
Brake lines - Dynema/Polyester A-7850-100, Breaking Load 100 kg
Brake lines - Dynema/Polyester A-7850-130, Breaking Load 130 kg
Main brake line - Dynema/Polyester A-7850-240, Breaking Load 360 kg
Main lines A1,B1 - Aramid/Polyester A-7343-420, Breaking Load 420 kg
Main lines C2,C3 - Aramid/Polyester A-7343-280, Breaking Load 280 g
Main lines C1,D2,D3 - Aramid/Polyester A-7343-190, Breaking Load 190 kg
Main lines D1 - Aramid/Polyester A-7343-140, Breaking Load 140 kg
Wing tip line - Aramid/Polyester A-7343-140, Breaking Load 140 kg
(ROSENBERGER TAUWERK, GERMANY)
Main lines A2,A3,B2,B3 - Aramid/Polyester TSL 500 , Breaking Load 500 kg

Attachment straps

(STAP a.s., 407 80 VILEMOV, CZECH REPUBLIC)
STAP-POLYESTERBRIDLE 13 mm, Breaking Load 70 kg

Risers

(MOUKA TISNOV ltd, Koráb 133, 66601 Tišnov, Czech Republic)
Polyester 366 040 025 912 20x1,5 mm Breaking Load 900 kg

Thread

(AMANN SPONIT ltd, Dobronická 635, 148 25 PRAHA 4, CZECH REPUBLIC)
Lines-SYNTON 60, Main lines-SERABOND 60, Canopy-SYNTON 40, Riser-SYNTON 30

Rapid links

(ELAIR SERVIS, Axmanova 3913/9, 767 01 KROMERIZ, CZECH REPUBLIC)
NIRO TRIANGLE 200 - Max. Load 200 kg

TECHNICAL SPECIFICATIONS

Category Intermediate MPG Size		T-Ride 39
Zoom flat	[%]	125
Area flat	[m^2]	38,88
Area projected	[m^2]	34,09
Span flat	[m]	14,21
Aspect ratio flat	-	5,20
Root cord	[m]	3,21
Cells	[kg]	58
Weight	[kg]	8,30
Weight range - PPG,MPG *	[kg]	200-400
Min.speed	[km/h]	25-27
Max. speed	[km/h]	41-43
Top speed (accelerator)	[km/h]	60-63
Glide ratio	-	8,9
Min. Sink rate	[m/s]	1,05
Certificate		-

* powered pilot equipped = weight naked + trike + all accessoriescca

GLIDER CHECKLIST

Before delivery, as well as during production, each T-Ride paramotoring glider goes through a strict visual inspection. Additionally, we recommend that you check your new glider in accordance with the following points below. The T-Ride is a form of aircraft and should be treated as such. We also recommend that you make these checks after flying extreme manoeuvres or similar events.

- Inspect the canopy for tears or damage. Pay particular attention to the seams. Look at where the ribs join at the upper and lower surfaces and the areas of the attachment tapes and brake-line connections.
- Inspect the lines for damage and look for damaged stitching. The line lengths must be checked after 50 hours flying time and/or whenever the flight behaviour of the glider changes.
- Inspect the attachment points for damage to the stitches. It is equally important to free brake-lines from tangles before each flight.
- Inspect the risers for overall condition and check for frayed seams. Rapid links must be secured.

Understand that with slight damage the glider could lose its airworthiness! Fly safe by spending extra time to perform regular checks on your gear.

SETTING UP THE CONTROLS

Brake adjustment and brake handles:

We strongly recommend brake adjustments be supervised by a paramotoring instructor or done by a pilot that understands the importance of proper brake line length. Improper brake line adjustment can lead to unsafe reactions of your glider. With a brake line adjusted too short the canopy will lose its easy take off behaviour.

Before flying the T-Ride please check the setting of the brake lines and adjust them in accordance to your hang points. On the risers diagram you can see there are two brake line pulleys on each riser, higher and lower. The brake lines have two black marks identifying recommended brakes positions.

Once you choose your appropriate brake line length that matches your paramotors hang point style, check the set up by inflating the glider in an open area with a constant breeze with the engine off. When the canopy is stabilised above your head, check that the trailing edge of the wing is not being pulled down. When you gently pull the brakes you should only have **5-10 centimetres of movement before the brakes start to pull down on the trailing edge of the wing.** Make sure that the brake length is the same for both sides. It is safer to have brake length a bit longer than too short.

When free flying (paragliding) the brake line should be pulled through the top pulley and the brake handle tied onto the upper black mark on the brake line. This makes the brake position perfect for a paragliding harness because of their lower hang points.

FLYING THE T-RIDE

The following information is NOT under any circumstances a manual for practising paramotoring. We would like to advise you of important information to increase safer flights and security while flying the T-Ride.

Paraglider Preparation

After unpacking and laying out the paramotoring glider in a slight horseshoe pattern, the following checks must be made:

Checklist before every flight:

Checking and inspecting the wing:

- Canopy without any damage?
- Risers without damage?
- Maillons (quick links) closed tight?
- Stitching of the main lines near the risers o.k.?
- All main lines run free from the riser to the canopy? Brake lines free?

FLYING THE T-RIDE

Before putting on the trike:

- o Warm up your engine and stop the engine before clipping in the risers.
- o Rescue/reserve handle and deployment pins secure?

Before take-off:

- Buckles (leg-, front riser) closed?
- Main carabineers attached and properly closed?
- Check specialy cover of main lines at the place of propeller frame.
- Ensure helmets are on and chin straps fastened.
- Check that the risers are not twisted.
- Look to see the trimmers are properly set to neutral (white stitching).
- Check the brake handles and brake lines are free and not twisted.
- Confirm nothing will get in propeller's way.
- Centre your trike relative to the wing (all lines same tension).
- Test engine to deliver full power.
- Check wind direction.
- Check for obstacles or tripping hazards on the ground.
- Identify free airspace.
- Look out for obstructions in the direction of desired flight path.

When laying out the glider, the wind direction must be observed for a successful launch. The canopy should be orientated into the wind so both sides are loaded symmetrically. The glider should be arranged in a semicircle (horseshoe) against the wind. This ensures that the A-lines in the centre section of the canopy will be tensioned before the wing tips. Doing this inflates the canopy evenly and allows for an easy launch in the desired direction.

All lines and risers should be carefully checked, untangled and arranged in a way that they do not catch on anything. It is equally important to untangle the brake lines so that they are free and clear so they do not catch on anything during launch. The brake lines should run freely through the pulleys to the trailing edge of the canopy. Make sure the risers are not twisted; this can prevent the brake lines from running freely through their pulleys. It is nearly impossible to untangle lines during flight. It is important that no lines are looped around the canopy. Also called a “line-over”, this may have disastrous consequences during take-off. Finally, connect the risers to your harness by using the main carabineers. Check carefully that they are closed properly.

Preparing for take-off:

As with any aircraft, a thorough pre-flight check must be made prior to each flight.
Before every launch check lines, risers and canopy for damage! Do not launch with even the slightest damage!

Also check the maillons connecting the lines to the risers. They must be closed tight.

Getting ready for Flight

Check if the handle of the reserve parachute is securely fastened to prevent accidental deployment. Look to see that the flaps of the outer container are fastened securely and correctly. The main carabineers must also be checked carefully. Replace carabineers if any damage is visible or if you have accumulated 300 flying hours. Finally, connect the paraglider risers to your harness with the main self-locking carabineers. Check carefully that they are properly closed.

ATTENTION! Never fly with an open main carabineer!

ATTENTION! Do not take off if you find any damage on your equipment!

Launch Technique

The T-Ride is very easy to launch. With a very weak or zero wind it requires an appropriate launch technique. Before take-off, recheck the canopy, trimmer setting, wind direction and the air space around you. When you are ready to take off, hold all A-risers and the brake handles in each hand. If there is wind present then just hold the central A risers in each hand.

The A-lines are identified by red coloured sleeves on the risers. Before take-off, place the trike in the centre of the glider while holding the A risers. Place the B, C and D lines on hooks of propeller frame. Continue holding the A risers with arms outstretched behind you. Pull up the canopy with good forward momentum done by trikes trust. (The stronger the head wind the fewer trust you need to inflate your canopy). Do not pull too much on the A's.

Once the canopy is inflated up to the angle of about 80° degrees, open up the throttle to full power. When you approach take off speed gently apply the brakes (max 30% of the brake range). The faster the trimmer setting is, the more brake input is required for take-off. Set the trimmers to neutral for easy launching. Once you have safely taken off continue heading into the wind.

Golden rule! For any aircraft the most important thing on take-off is proper amount of speed. High angles of attack and low speeds are more likely to cause a stall.

ATTENTION! You should always be able to land safely in case of engine failure.

Wind	Trim settings	Launching technique & additional settings
under 1 (m/s)	Released for 2-3 cm from neutral position.	**Forward launch** - start with lines under tension - try to minimize use of the brakes. - use of full thrust when canopy at 80°
1 - 3 (m/s)	Neutral	**Forward launch** - start with lines under tension - try to minimize use of the brakes. - use of full thrust when canopy at 80°
over 3 (m/s)	Neutral or closed for 1-2 cm	**Forward launch** - start with lines under tension - try to minimize use of the brakes. - use of full thrust when canopy at 80°

Flight

After take-off and applying full power the glider will be at a higher angle of attack. Some paramotoring configurations may have a tendency to roll under full power. The torque and gyro moments produced from different engines can lift you to one side developing a back and forth swinging motion. This happens more often on powerful engines with bigger propellers flying with lower wing loadings. The safest way to deal with this is to throttle back and release the brakes. Do not let go of the brakes.

Always fly with sufficient clearance from the terrain.

With power off the T-Ride best glide rate is with open brakes. Flying the T-Ride with minimal altitude loss can be reached by lightly applying brakes and having the D-trimmers closed (pulled all the way in).

In turbulent air fly with brakes lightly applied (10-15 cm) to maintain some internal pressure and trimmers set to neutral. This will help avoid canopy collapse. If the canopy pendulums forward correct this by promptly applying the brakes. A pendulum movement of the canopy backwards is corrected by easing up on the brakes to let the canopy move forward.

When you have become fully confident in your wing try experimenting with slower and faster trim-settings. The more time you spend on your T-Ride the more likely you will enjoy the extra speed and security it will offer you.

Different trimmer settings

NOTE: Adjusting trimmers in flight requires more pilot attention.

With the trimmers fully open (trimmer buckle over and passed the white line) the wing's speed increases (good for flying long distances). The canopy becomes stiffer and is less sensitive to turbulence and its stability improves. On faster trimmer settings the brake pressure increases and the handling changes.

Some pilots may have a tendency to keep the brakes slightly applied at all times. Such a technique is not advisable for paramotoring gliders. When you strongly apply the brakes while fully accelerated the wing could collapse because it loses its semi-reflex characteristic.

On the slower settings (trimmer buckle pulled below the white line), sink rate improves and handling becomes lighter, giving you an improved climb rate for thermaling and shorter and slower take-offs and landings.

Note!! If trims are not adjusted the same, the wing will turn. Trimmer setting is an important part of the checklist before every flight!

Accelerated flight

Do not use the fast trimmer settings in very turbulent conditions, close to the ground or near other airspace users. Always fly with sufficient clearance from the ground/obstacles and always keep the brake handles in your hands!

Steering - turns:

The T-Ride is a very responsive paramotoring glider and reacts directly and instantly to any steering input.

Attention! In the event that you lose your brakes lines, it is possible to control the T-Ride with the D-risers to steer and land the canopy.

Attention! Pulling brake too fast or too hard can result in the canopy entering a negative spin.

Approach and Landing:

It is important to start to prepare for landing at an adequate altitude to avoid surprises. This leaves you enough time to observe and appropriately deal with wind direction and any other aircraft in your vicinity.

The T-Ride is very easy to land thanks to the new Mac Flap Braking System. The final leg of the landing approach must be into the wind. There are two methods in landing a paramotor. One without power (this minimises the risk of propeller damage in the event of a fall) and the second with power.

Power off landing

When deciding to land your paraglider check the wind direction and your height. The next step is to power off your engine at about 30m. Glide toward your landing like a paraglider with trimmers set in the neutral setting with your brakes released. During your final glide just before touch down, you need to decelerate the glider by pulling your brakes converting your excess speed into lift before trike wheels touch the ground. Proper timing and how fast to pull your brakes depends on conditions. A general rule is to pull down on your brakes when trike wheels are approximately 0,2-0,3 m over the ground. If too much brake is pulled too early, the glider may climb gaining height resulting in a sudden drop to the ground. Strong wind landings require correspondingly less brake. Every pilot should practice landings without power because one day your engine will fail (run out of gas etc.) and this skill could be useful.

Power on landing

Fly towards your desired landing area at a shallow angle. Start to flare the wing before touch down to loose speed then switch off your engine immediately after touchdown. In no wind conditions, be prepared to turn the trike after touchdown when its ride decreases and pull the brake of the turn direction. The canopy still has kinetic energy but with this turn with trike and propper use of brake you avoid that the canopy crash down onto the leading edge or get tangles into the propeller.

The advantage of the power on landing is that if you get it wrong you can power up to launch and try again. The danger is the canopy falling over with the engine running and getting your lines caught in the propeller. Make sure you switch off the engine before the wing deflates on top of you.

Attention! The final glide on approach during the landing should be straight and not done with any steep or alternating turns. This can result in dangerous pendulum movements too close to the ground.

Attention! Do not allow the canopy to come crashing down onto the leading edge. This can destroy the internal structure of your glider and affects the life of the ribs at the leading edge.

Special Notes:

- If possible, get familiar with the landing field before the approach.
- Check the wind direction before landing.
- Landing with power off requires much more space.
- Practice makes the master. Practice until you feel totally safe.

TOWING, JUMPS FROM AIRCRAFT, AEROBATICS

WARNING!! The T-Ride is not suitable for towing.

WARNING!! The T-Ride is not suitable for jumps from aircraft.

WARNING!! The T-Ride is not designed to be used for aerobatics.

Alternative (emergency) steering:

If for some reason it becomes impossible to control the T-Ride with the brake lines, the D-risers may be used to steer and land the canopy safely.

Attention: When using the D-risers the brake range is much shorter (15-25 cm) then with the brakes. It is also possible to control the direction of the flight by pulling on a stabilizer line or by weight-shifting.

GOLDEN RULES

- Always carry out full pre-flight checks before launching.
- Never place your paramotor downwind of the glider.
- Check that there is no fuel leakage. Do you have enough fuel for the flight? It is always better to have too much than too little in case of an emergency landing.
- Check for any loose articles that could trail or fall into the propeller while flying and fasten them securely.
- If you spot a problem, no matter how small, land and fix it at once.
- Always put on and secure your helmet before getting into the harness.
- Do not fly over water, between trees or power lines and other places where engine failure will leave you helpless and in danger.
- After landing, control the wing facing the direction of flight to keep the lines out of the propeller. Turn to face your glider to avoid falling backwards in high winds once the engine is turned off.
- Keep in your mind the turbulence caused by other powered gliders, heavy trikes or other aeroplanes.
- Keep in mind the turbulence caused by your own paramotor, especially when flying sharp turns, spiralling or flying low.
- It is unwise to fly hands-off the brakes below 100m because of possible engine malfunction requiring immediate attention.
- Unless it is absolutely necessary (e.g. collision avoidance), do not make tight turns against the torque moments. During steep climbs you easily can enter a stall under power and increase your chances to induce a negative spin.
- Never trust your engine! It can stop at any moment. Always fly being prepared for this especially at low altitudes by looking for safe landing areas.
- Avoid low flying downwind. It drastically reduces your options for safe landings.
- Listen for change in engine performance or noise. A new engine tone or a new vibration may indicate trouble. Do not wait for the problem to grow. Land and check it out.
- Be certain of your navigation
- Not everyone is a friend of your paramotor noise. Keep within the rules and the laws. Care must be taken when flying near livestock and animals.

Looking after your canopy correctly will prolong the life of your paramotoring glider and enjoyment.

Deterioration: a few tips!

- The canopy is mainly made of NYLON cloth which like any synthetic material, deteriorates through excessive exposure to UV. Hence, it is recommended that you reduce UV exposure to a minimum by keeping the paramotoring glider packed away when not in use. Even when packed in the bag do not leave it in the sun.
- Keep the canopy and lines as clean as possible. Dirt may penetrate into the fibre and damage the lines or the cloth.
- Ensure that the lines are not folded tightly. It's extremely important to avoid any sharp bending of the lines, especially the main lines. Pay careful attention to the lines to avoid damaging them. Any over stretching of lines apart from the strain imposed during normal flight should be avoided as over stretching is irreversible.
- Be careful not to allow snow, sand or stones to enter inside the canopy's cells. The weight can change the angle of attack or even stall the glider. Additionally, the sharp edges of foreign material can destroy the cloth!
- Check line lengths after tree or water landings. They can stretch or shrink lines.
- Never drag the wing over rough ground! This will damage the cloth on the wear points. When preparing the wing on a take-off with rough ground, don't pull the wing over it (i.e. by pulling the brakes). Try your best to pack the wing on soft ground.
- Uncontrolled strong wind take-offs or landings can result in the leading edge of the canopy hitting the ground at a high speed which may cause rips in the profile and damage the rib material.
- Clean your glider with fresh water after contact with salt water. Salt water crystals can reduce line strength even after rinsing in fresh water. Replace lines immediately after contact with salt water.
- Check canopy fabric after water landings with water currents. Waves can place uneven forces and cause cloth to distort in specific areas. Always remove gliders from the water by holding only the trailing edge.
- Prevent lines from catching on anything as they could be stretched. Do not step on the lines. Although the lines were tested with a bending test they can be damaged if stepped on while on a hard surface or if they come into contact with sharp objects.
- Don’t always fold the canopy symmetrically to the centre cell. This can cause constant stress on the same centre cell over time.
- Clean your paramotoring glider with only water and a soft sponge. Avoid water hoses, pressure washers and mashing machines. It is best cleaned by hand.
- Do not use any chemicals or spirits for cleaning as these can permanently damage the cloth.

CARE AND MAINTENANCE

Storage:

- Store the paramotoring glider in a dry space at ambient temperature away from chemicals and UV light.
- Never pack or store the glider wet. This shortens the life of the cloth. Always dry glider thoroughly before any packing or storage.
- Avoid subjecting your wing to high temperatures (e.g. the luggage space of a parked car in the sun)! Take into consideration some materials of your paramotoring glider are temperature sensitive.
- Watch out for bugs. Insects such as grass-hoppers and ants will simply eat their way out if rolled up with the wing. Grazing cattle can literally lick the coatings off the fabric and mice love to make homes in canopies! Hang up your wing in its bag off the ground during long term storage.

When sending your wing in the mail take extra care packaging it.

Repairs and checks:

- Tears in the canopy must be professionally sewn. Adhesive patches are only adequate for very minor damage. Contact your dealer or MAC PARA directly if you are unsure.
- Repairs should only be carried out by the manufacturer, distributor or authorized workshops. Only original spare parts may be used!
- The line geometry must be checked after every 50 hours flying time or whenever the flight behaviour changes.
- Any changes to the canopy lines or risers, except those approved by the manufacturer, will void the certificate of airworthiness and warranty.
- **The T-Ride must be checked, after two years or after 100 flying hours by the manufacturer or authorized workshops.**

Disposal:

- The synthetic materials used in a paramotoring glider need professional disposal. Please send disused canopies back to MAC PARA for proper dismantle and disposal.

In Conclusion:

The T-Ride is a modern paramotoring glider. You will enjoy many safe years of flying with your T-Ride if you look after it correctly and adopt a mature and responsible approach to the demands and dangers flying can pose.

It must be clearly understood that all air sports are potentially dangerous and that your safety is ultimately dependent upon you. We strongly urge you to fly safe. This includes your choice of flying conditions as well as safety margins during flying manoeuvres. We recommend once more that you only fly with a certified harness, reserve parachute, and helmet.

For some countries the certification placard must be present on the glider. Every pilot should be suitably qualified, have a valid license and carry 3rd party insurance.

The T-Ride is delivered with a stuff-sack, Velcro compression strap, MAC PARA backpack, repair kit and user manual.

What to do if you break a line

Breaking a line or multiple lines on your glider is unfortunate but can be fixed. Most of the time lines can be easily replaced with your glider being restored back to factory settings within a short time. Depending on the extent of the damage, the line repair can be done by you or a qualified professional MAC PARA approved facility. Consult your closest MAC PARA dealer or MAC PARA directly with the type of line you may need.

Identifying which line you require to replace the broken line can be found by laying out your glider outside, looking at where the damage line is and referencing the line plan guide near the end of this manual. The better you know what you need and how many, the faster you will get help with the correct advice. Not all lines are made from the same material or are the same thicknesses.

Damage to the Canopy

Paramotoring involves fast moving parts like a spinning propeller and hot engines. Sometimes those parts come in contact with your glider and can quickly cause damage to your glider. Do not fly your glider that has sustained any damage. Any damage to your glider needs to be professionally repaired before your next flight.

ATTENTION: Do not risk your life by flying a damaged glider.

If the rip, tear or damage is small and you have consulted with your dealer first, then the repair may be performed by yourself with proper adhesive repair cloth. To avoid confusion, it is recommended to send detailed pictures to your Mac Para dealer or Mac Para directly. Do not attempt to repair or fix the glider yourself without the proper advice from a qualified professional. Failure to do so will void your warranty and put you at risk.

Warranty

MAC PARA guarantees free of charge repairs caused by the material or production faults according to the following scheme:

For powered flying the MAC PARA warranty covers 24 months (2 years) or 200 flight hours (whichever comes first).

Warranty does not cover:

- canopy colour fading
- damage caused by chemicals or salt water
- damage caused by incorrect use
- damage caused by emergency situations
- damage resulting from accidents (airborne or not)

CARE AND MAINTENANCE

Warranty is only valid if:

- Every flight is correctly registered in a logbook of the wing.
- Conditions and temperatures of each flight are registered in the logbook
- The paraglider is handled in accordance with this operating manual.
- The purchaser has not carried out any modifications or repairs by him/herself (excluding small minor repairs with self-adhesive patches)
- The paraglider has been inspected according to prescribed timetable described above.

If you have bought your paraglider second-hand, ask the previous owner for a copy of his/her logbook that lists total flying hours since the date of first purchase and details of any safety inspections.

RESPECT NATURE

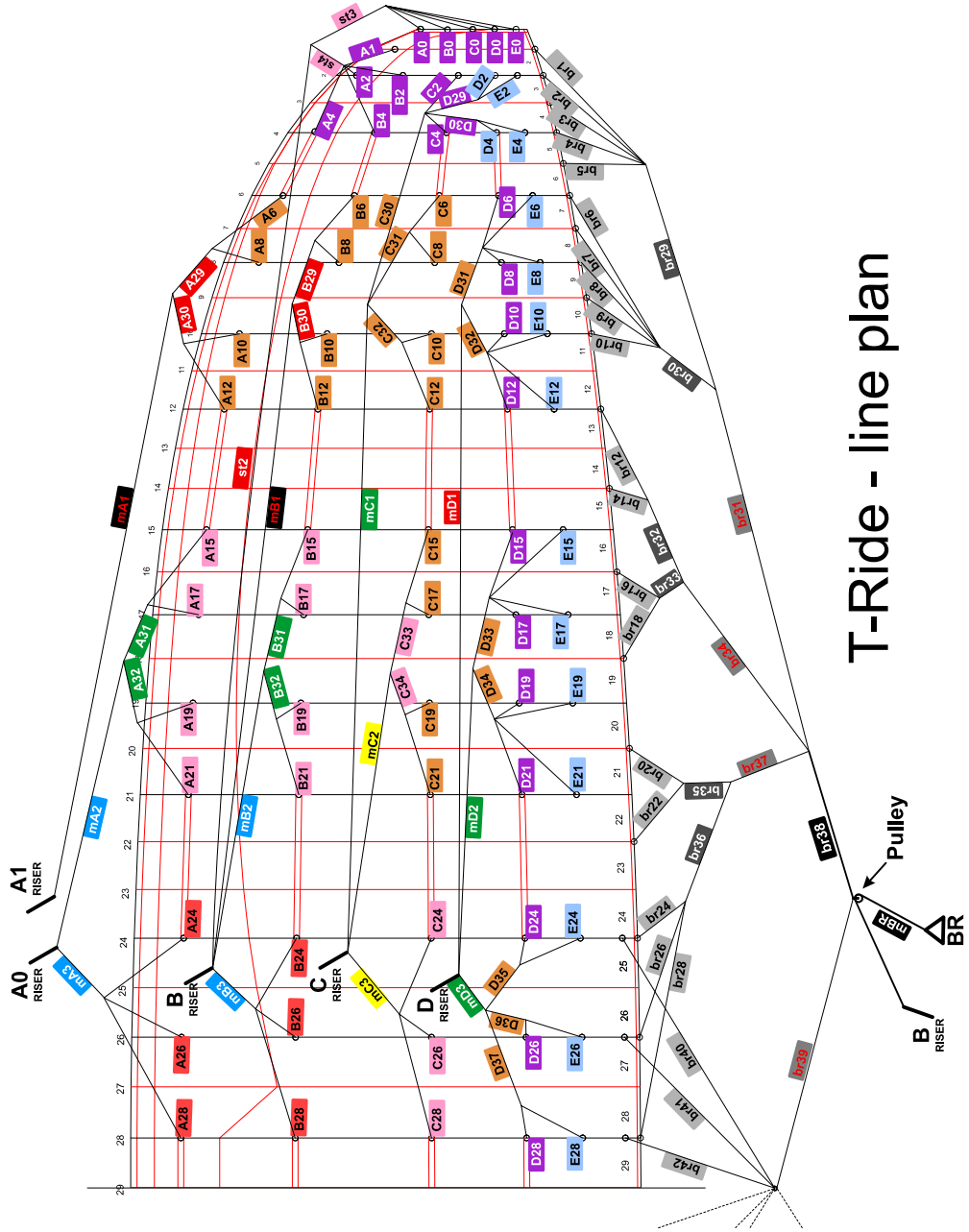
Practise your sport with respect for nature, wildlife and neighbours. Not everyone is a friend of your paramotor noise. Follow the rules and the laws in the country you fly in. Extra care must be taken when flying near livestock and animals.

T-RIDE LINE PLAN

Line descriptions:

The following printed line plans show the line configurations and line lengths.

Line strengths in colours


T-Ride - line plan
A1 RISER
A0 RISER
B RISER
C RISER
D RISER
Pulley
mBR
BR
B RISER

T-RIDE RISER LENGTHS

The lengths are measured from main attachment point to the lower edge of rapid links.

Riser lengths – T-Ride	A	A1	B	C	D
Trims in neutral position	460	460	460	460	460
Trims closed (slower)	460	460	460	435	410
Trims open (faster)	460	460	460	485	510
Accelerated + trims in neutral	425	425	460	460	460
Accelerated + trims open *	425	425	460	485	510

* Read more on the page 8

Brakeline system	1) serial brake line with pulley system	2) single brake line
Brakeline lenght	2,50 m	1,25 m

FULL LINE LENGTHS

Full line lengths T-Ride-39

All lengths are measured from riser`s main attachment point up to the tissue of canopy on attachment points. Brake lines are measured from the Swivel on brake handle up to the trailing edge.

Center	A	B	C	D	E	*Brakes*	*Brakes*
1	8290	8194	8287	8428	8553	9789	8938
2	8231	8132	8227	8363	8487	9373	9001
3	8236	8135	8234	8372	8495	9221	9120
4	8265	8172	8256	8400	8500	9003	
5	8238	8154	8236	8376	8472	8944	
6	8235	8152	8235	8367	8466	8803	
7	8282	8204	8273	8410	8505	8664	
8	8212	8140	8263	8309	8386	8556	
9	8141	8086	8147	8231	8302	8546	
10	8056	8000	8039	8127	8193	8495	
11	8013	7958	7938	8048	8107	8414	
12	7831	7769	7882	7935	8011	8361	
13	7614	7607	7778	7816	7901	8357	
14	7524					8371	
15	7426	7421	7437	7475	7549	8345	
16						8291	
17						8300	
18						8316	
19						8359	

Check-intervals

All paramotoring gliders used in flight must be checked at least every 24 months. For paramotoring gliders used by paramotoring schools the period is 12 months.

Personnel authorised to carry out checks

A valid flying license and training course by National associations are the basis for permission to carry out paramotoring glider checks.

Identification of glider

An identity sticker with details of certification and serial number is attached to your glider.

Components of the check

Porosity

The porosity of your glider should be checked with a porosity meter (JDC). Compare the results with the producer's manual.

Porosity measures should be taken on at least three points of both the top and bottom surface. The first point should be placed 20-30 cm from leading edge in the middle of canopy. Second and third points are placed left and right from first measure point at 25% of the span. One additional measurement should be made on the top surface of the wing tip.

The identified time should be higher than 30 seconds (JDC). In the event of the result being less than 30 seconds, the result of the check is a fail.

Overall strength check

The top and bottom canopy strength check should be made with a Bettsometer (B.M.A.A approved Patent No. GB 2270768 Clive Betts Sales), a small hole with a needle at the A-line attachment points. The exact verification should be made in accordance with the Bettsometer user manual. Consult your local paraglider inspection facility.

Line strength check

Line strengths should be as specified in accordance with the certification requirements. One main line should be taken from each array and have its strength checked with a tension-meter.

Required strengths should be higher than:

- A + B main lines x measured value > 8 x maximum take-off weight and higher than 1600 kg for the A + B arrays.
- C + D mean lines x measured value > 6 x maximum take-off weight and higher than 800 kg for the A + B arrays.

Replacements for damaged lines must be with new original lines. Line lengths are taken from the lines data page.

GUIDELINES FOR PARAMOTORING GLIDER CHECKS

Line length measurement

Lines should be separated and each line measured under a tension of 5 kg. Measurement is made from the line carabineer to the canopy according to the method of certification. Rib numbering begins in the middle of canopy and leads to the wing tip.

Measured lengths of the lines should be documented in the inspection record and compared with certified full line lengths protocol. Lengths should not differ by more than 20 mm. The opposite side of the paraglider should be checked for symmetry.

Canopy line-attachment points check

Attachment points should be checked for damage and stretching. Defects, loops and flares should be repaired.

Canopy fabric check

Ribs, diagonal ribs, top and bottom surface should be checked. Any damage to sewing or tears to the fabric could influence flying characteristics and must be repaired.

Lines

All lines should be checked for tears, breaks, and any damage to the sheath or signs of wear. Special attention should be paid to the sewing of the line loops. Damaged lines must be replaced.

The results should be documented in the inspection record.

Connector check

All line carabineers, trims (if used), speed systems and pulleys should be inspected for visible damage. Open or improperly secured connectors should be secured in accordance with the producers recommendations.

Risers

Both risers should be checked for tears, signs of wear or any damage and measured with a pull of 5 daN strength. Measured data should be documented in the inspection record. The difference must not be higher than 5 mm when compared to specified lengths.

Final check

The glider sticker and check sticker must be inspected for readability and correctness. The check must be documented with date, signature and stamp on the canopy and in the user manual.

TEST FLIGHT CERTIFICATE

Paramotoring glider type: **T-Ride – 39**

Serial number: . . . . – . . . .

Test flown on: _____

by

MAC PARA TECHNOLOGY

Confirmation by dealer: _____

TECHNICAL SPECIFICATION

Category Intermediate MPG Size		T-Ride 39
Zoom flat	[%]	125
Area flat	[m^2]	38,88
Area projected	[m^2]	34,09
Span flat	[m]	14,21
Aspect ratio flat	-	5,20
Root cord	[m]	3,21
Cells	[kg]	58
Weight	[kg]	8,30
Weight range - PPG,MPG *	[kg]	200-400
Min.speed	[km/h]	25-27
Max. speed	[km/h]	41-43
Top speed (accelerator)	[km/h]	60-63
Glide ratio	-	8,9
Min. Sink rate	[m/s]	1,05
Certificate		-

* powered pilot equipped = weight naked + trike + all accessoriescca

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