

CARBORUN ACTIVE WHEELCHAIR USER MANUAL



Congratulations!

You are now a user of Carborun, a beautiful active carbon fiber wheelchair designed for you, and we are proud of that. We hope you enjoy your experience and we will be with you throughout the way.

Thank you.

Who is this product made for?

Depending on type of disability, wheelchair users come in two categories: active users and passive users.

Passive users, usually with higher degree of disability, may need assistance from another person for their daily use of wheelchair and for its transportation, where the wheelchair is usually on heavier side and with much less maneuverability.

Active wheelchairs are designed for people with more control over their body, which helps them go on with their daily life with much less dependence on another person.

This requires active wheelchairs to be very lightweight, easy to assemble and disassemble for transportation and consequently having a very high agility and maneuverability.

Carborun is an active wheelchair made of carbon fiber composite with a transport weight of 5 kg and overall weight of 8.5 kg¹.

¹ Values may vary depending on accessories and options

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1- Introduction

About this User manual

We sincerely thank you for choosing Carborun active wheelchair.

This user manual contains important information and guidelines about using the wheelchair and maintaining it. It is suggested that you read the user manual before starting to use the wheelchair.

The signs used in this manual include:



Warning sign



Important note

After Sales Services

If possible, please check your wheelchair thoroughly before receiving it from the seller and in case of any existing defects or problems, return the wheelchair. We guarantee the absence of any defects and the functionality of the wheelchair.

- 1) The duration of guarantee for wheelchair is 12 months.
- 2) Only certified retailers and centers are qualified for giving after sale services.
- 3) The commercial warranty does not cover the normal wear, damages or faults that come directly or indirectly from accidents, falls, collisions, improper use, insufficient maintenance and alterations made by non authorized.
- 4) The accessories like cushion and inflator are not covered under warranty.

In case no other person is available for wheelchair user as companion, the user must have sufficient mental and physical capability to use the active wheelchair. Active wheelchairs enable their users to use them and go on with their life as independently as possible.



No liability for damages arising from non-compliance with user manual, incorrect use, natural wear and tear, unauthorized modification and accidents resulting in damages to the wheelchair are accepted by Avita Co.

A written authorisation of Avita Co. must be obtained before installing additional adaptations on a Carborun wheelchair, otherwise, no liability claims can be made.

2- Safety



If the wheelchair is not well adjusted it can lead to accidents with severe injuries



Active wheelchairs, due to their lighter weight and agility are prone to turning over more easily compared to conventional wheelchairs. It is highly recommended to master the wheelchair moves and controls.



Moving at high speeds can cause losing control of your wheelchair.

Never exceed the speed of 5km/h.

Avoid all types of collision.



Wheelchair chassis is made from carbon fiber composite which can burn if it is consistently exposed to fire. Also, do not expose wheelchair to temperatures of more than 50 degrees Celsius.




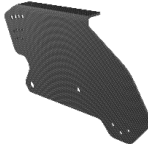






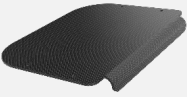

Moving on wet surfaces, gravel and uneven ground can lead to slipping.

Always adapt the speed and driving behavior to the different situations.

3- Wheelchair Structure

3-1- Components



Item	Material	Item Image
Main chassis	Carbon Fiber Composite	
Sideguard	Carbon Fiber Composite	
Parking Brake	Aluminum	
Front wheel	Aluminum-Polyurethane	
Rear Wheel	Aluminum-Rubber	
Armrest	Plastic foam	
Footrest Frame	Aluminum	
Backrest Frame	Aluminum	
Footrest plate	Carbon Fiber Composite	
Anti-Tip	Aluminum Profile	

3-2- Parking Brakes

The parking brakes are used to stop the wheelchair and prevent further wheelchair movements.



If during movement you use the parking brakes, it is no longer possible to control the direction and the wheelchair could become blocked and cause collisions or a fall from the wheelchair. Never pull the parking brakes while moving.



Adequate tire pressure is needed for proper performance of parking brakes. Check the correct tire pressure at section 8-3.



3-3- Backrest

Carbon backrest pad is made from a breathable and washable fabric that can be conveniently removed.

The height of backrest can be chosen per user's specifications and convenience when ordering the wheelchair.



3-4- Push handle

Carborun comes with a push handle (unless otherwise specified) for convenience of users who may require assistance from another person.



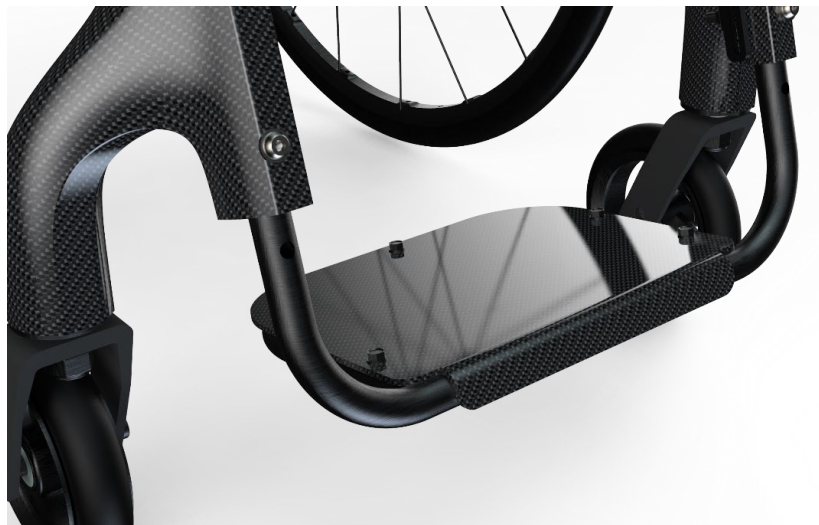
3-5- Sideguard

Depending on customer preference, sideguard can be equipped with tire curve or an armrest pad. It should be noted that the curved model cannot be equipped with armrest pad.



3-6- Footrest and Footrest Frame

Footrest frame is made of aluminum alloy whole the frame is made of carbon fiber composite. The height of footrest is adjustable using screws.



3-7- Anti-Tip device

The anti-tip prevents the wheelchair from tipping backwards and it uses a single-arm mechanism to minimize the weight.



To activate the anti-tip, pull the designated cord on the anti-tip and pull the profile out of its housing until it is fixed in its place and the pin fits in the hole correctly. To retract the anti-tip, do the opposite of above, while pulling the cord, push the anti-tip profile back to its housing.



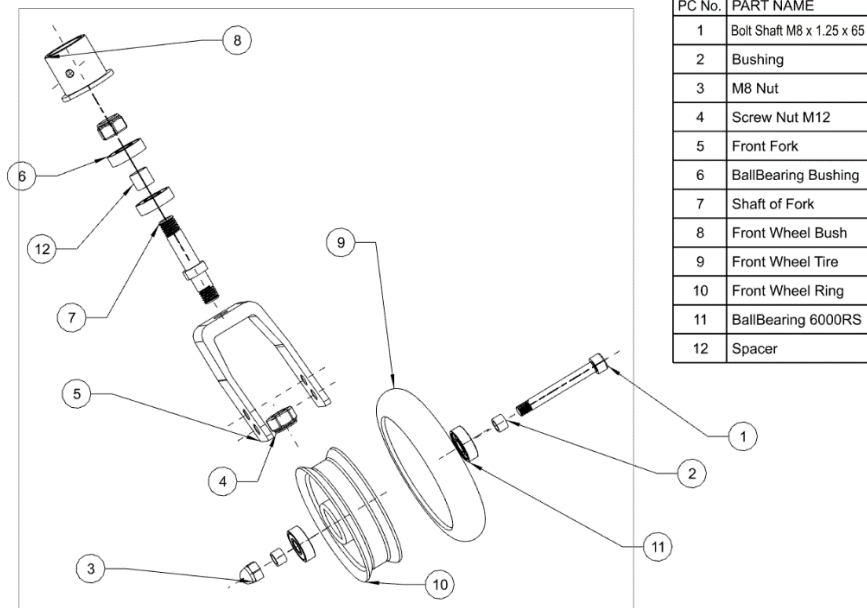
A wrongly adjusted or non-working anti-tip device can cause falls. Before every use of the wheelchair control it is functioning



Only use anti-tip device when you are on a flat and compact surface and avoid soft or uneven ground when utilizing the anti-tip.

3-8- Front Casters

Carborun can be equipped with 5” and 6” front casters per customer’s preference. The components of the wheel can be seen below.



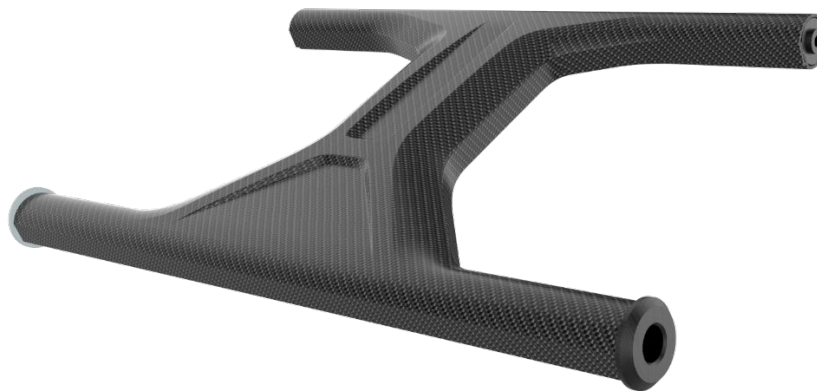
3-9- Center of Gravity

Center of gravity can be adjusted using the holes for the screws on the chassis and sideguard. It is preferred that this is performed by a designated specialist.



3-10- The linking part (X-plate)

With a unique design fully made from carbon fiber, this part is designed in a way to have optimum strength and weight.



3-11- Seat cushion

For comfort and even weight distribution, using a soft cushion with a suitable thickness is necessary. Upon customer's request, this cushion can be added to the order as an option.

4- Moving with wheelchair

4-1- Safety tips



If tire pressures of both rear wheels are not the same, the movement of the wheelchair can be compromised. Always check the tire pressure and make sure both wheels have the same pressure and the correct one, indicated in section 8-3.



Always move the wheelchair using handrims on the wheel, the distance between rear wheels and sideguard can be small and cause injury to fingers.

4-2- Braking during movement

It is possible to brake the wheelchair by putting pressure with your hands on the handrims while wheelchair is moving. Grab the handrim and apply a homogenous pressure until wheelchair is fully stopped.



Never pull the parking brakes while wheelchair is moving, this can cause losing control of wheelchair and even lead to a fall from wheelchair.



Risk of falling off the wheelchair If the wheelchair is quickly decelerated by a helper who pulls the push handles, the user could fall from the wheelchair. Make sure the person helping with the wheelchair and sufficient training in handling and moving the wheelchair.



The handrims could warm up in case you brake the wheelchair for a long duration, causing skin burns. Thus it is recommended to wear hand gloves in case it might be necessary.

4-3- *Sitting down and getting up from the wheelchair*



Warning! When sitting down on wheelchair, risk of falling can be high. Make sure the parking brakes are enabled, and get help from another person if it is necessary. Only sit down and get up from wheelchair if you are physically able to do so.



The wheelchair could tip forwards if you are standing on the footrest. Never step on the footrest whilst sitting down or getting up from the wheelchair. Carborun is designed in a way to minimize this effect, yet it is recommended to be cautious while getting on the wheelchair.

- Pull the parking brakes.
- Place your feet on the ground.
- Hold on tightly to the wheelchair and, if necessary, to a fixed object nearby.
- Slowly move onto the chair.

To determine the point of stability in wheelchair, when the brakes are not activated, move forward and then move slightly backward in a sudden push to lift front wheels of the wheelchair from the ground. Now you can adjust the balance point by shifting your weight and working with the handrim so that the wheelchair remains stabilized with two front wheels in the air.



To determine the point of stability for first few times, it is recommended that another person be available for help and to prevent the wheelchair from tipping backward.



4-4- Going up and down steps and drops

Danger of falling!



Going up and down steps you could lose balance and tip the wheelchair.

Always move slowly and carefully when going over steps, such as pavements and drops. Do not go over steps taller than 25cm.



Anti-tip device prevents the wheelchair from tipping backwards. Make sure it is in non-activated mode when trying to go up and down stairs.

•

- Going down a step with a helper

- Bring the wheelchair to the edge of the step and grab the push handle.
- The helper firmly grabs the push handles and inclines the wheelchair backwards, so that the front wheels lift from the ground.
- The helper keeps the wheelchair in this position, pushes it carefully over the step and inclines the wheelchair forwards so that the front wheels touch the ground again.



- Going down a step without a helper

- Bring the wheelchair to the edge of the step, lift the front wheels and balance.
- Let the back wheels slowly slide along the edge. Firmly grasp with both hands the handrims and hold on until the front wheels are touching the ground again.



Warning! Danger of tipping! If you attempt to go down a step with a helper, there is a danger of tipping backwards and falling off the wheelchair. Please learn the procedure and practice few times with a helper so that you master the wheelchair's point of stability and movement completely.

- Going Up a step with a helper

- Move the wheelchair to the edge of the step.
- The helper should gently push down the push handle and lift the front wheels from the ground and then push the wheelchair forward so that it climbs the step.



Make sure not to apply excessive force on aluminum back handle of the wheelchair which in may result in failure of the aluminum frame.

4-5- Going up and down stairs



Warning! Danger of falling! Always go up and down stairs with at least two helpers.

As described in picture below, one helper holds onto push handles behind the wheelchair and the second one holds the front part of the wheelchair to ensure the correct position of the wheelchair.



4-6- Going up ramps and Sloping surfaces



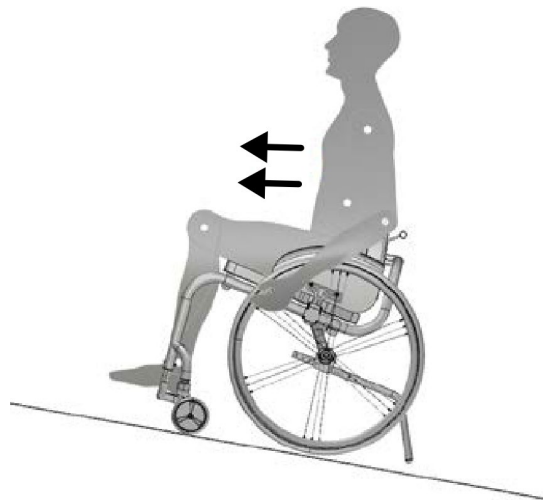
Warning! Going through sloping surfaces, the wheelchair could tip or fall backwards or forward. Make sure a helper is available when attempting to go on steep or long slopes. Avoid slopes of more than 7°.



If you want to stop on sloping surfaces, use the parking brakes or firmly have handrims in your grips to avoid unintentional movements of the wheelchair.

Moving upwards

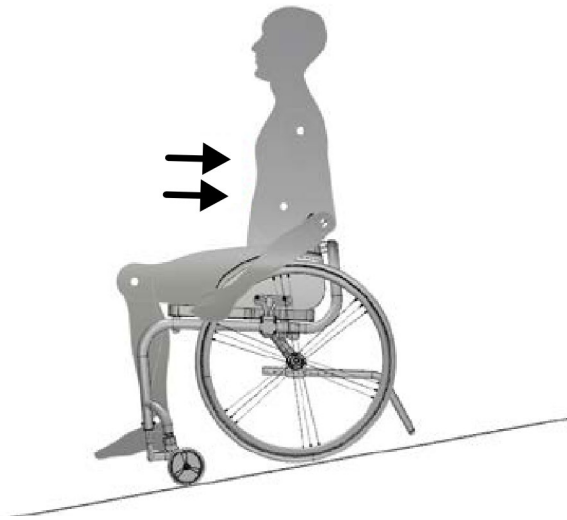
To move up a ramp or sloping surface, bend forward to move center of gravity more to the front side, avoiding back-tipping, and give strong and energetic pushes to the handrim to go up.



Moving downwards

Controlling the wheelchair speed and direction is very important when moving downward a slope. Lean against the backrest and let the handrim slide through your hands and prevent the wheelchair from speeding up too much. Also, the

handrim might warm up when sliding through your hands. If necessary, wear proper gloves.



4-7- Stability and Balance

Some daily activities may require you to stick out of wheelchair or lean forwards or backwards or sideways, which might affect the stability of the wheelchair. Pay attention to the following tips below:



Warning! Leaning forward too much can cause instability in the wheelchair. Do not move forward out of the wheelchair too much.

To lean forward:

- First align the front wheels in same direction (move a little forward and then backward to do this)
- activate parking brakes.
- Lean forward up to the point until your body is still above the front wheels.



If you lean backward too much, the wheelchair might tip backwards. Make sure the anti-tip device is utilized if necessary.

To lean backward:

- First align the front wheels in same direction (move a little forward and then backward to do this)
- Only grab the objects within your reach without moving too much out of wheelchair seat.

5- Transportation



Warning! Always extract the rear wheel when transporting the wheelchair with a car. Also try to fix the chassis and wheels so that in accidents or sudden braking, there is no risk of injury

5-1- Opening and Closing the wheelchair

1- To recline the backrest, pull the designated cord behind the wheelchair and at the same time, push the backrest forward and lower it into the seat.

2- Detach both rear wheels. You can put the chassis on car seats or in the trunk.





5-2- Detaching wheels



Warning! If the quick release axle is not properly fixed in its position, the wheel may fall off while using the wheelchair. Always check and verify that quick release axle is completely fixed in its position.

-To detach the rear wheels, push the button on quick release axle and at the same time, pull the wheel out.

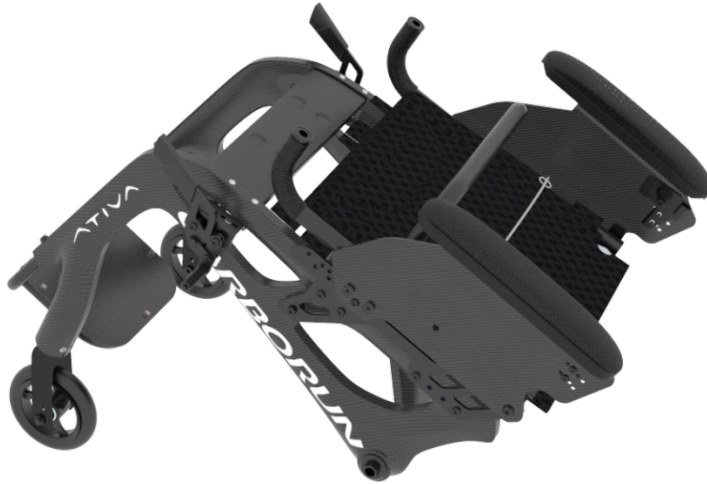
-To insert the wheel back in place, push the button on quick release axle and position the wheel, then insert the pin and release the button. Make sure the axle is fixed and blocked.



Inserting the wheel



Detaching the wheel



To remove the front casters, unscrew the axle shaft with a proper Allen key and remove the wheel.



6- Maintenance

To ensure smooth performance and reliability, perform the following maintenance regularly or have some specialist do them for you.

Item	Weekly	Monthly	Annually
Check tire pressures			
Check correct position of rear wheels			
Visual Check			
Cleaning of front Wheels			
Checking bolt connections			
Check Parking brakes			
Get wheelchair checked by a specialized dealer			

Check tire pressure

Measure the tire pressure checking with the relative pressures, (see the chapter 8.3 Tires).

- 1- Inflate the tire to the required pressure.
- 2- Check the tire profile as well.
- 3- If necessary, replace the tires.

Check the correct position of the rear wheels

- 1- Pull the rear wheel to check that the axle is correctly positioned in its location. It should not be possible to extract the wheel.
- 2- In case the rear wheels do not block into their location correctly, remove any deposit of dirt and scale. If the problem persists, get a specialized dealer to re-adjust the axle.

Visual Check

Check if the wheelchair presents any loose parts, cracks or other defects.

In case any defects are identified, get a specialized dealer to immediately check the wheelchair.

Cleaning the front wheels

- 1- Check if the front wheels can be rotated freely.
- 2- Remove any dirt and hair from the front wheel bearings.

Bolts

Bolts can loosen due to a constant use of the wheelchair.

- 1- Check that bolts are correctly tightened (footrest, seat cover, sides, backrest, frame, seat module).
- 2- Tighten any loose nuts with an adequate torque.



Important! Safety nuts and bolts lose their efficiency after they have been loosened and tightened several times.

Get a specialized dealer to replace the safety nuts and bolts.

Checking parking brakes

1. Check the correct position of the parking brakes in their location.

The brake is adjusted correctly if, when the brake is in use, the brake shoe penetrates into the tire for a few millimeters.

2. In case you realize the adjustment is incorrect, get a specialized dealer to adjust the brake correctly.

Repairing or replacement of the inner tube

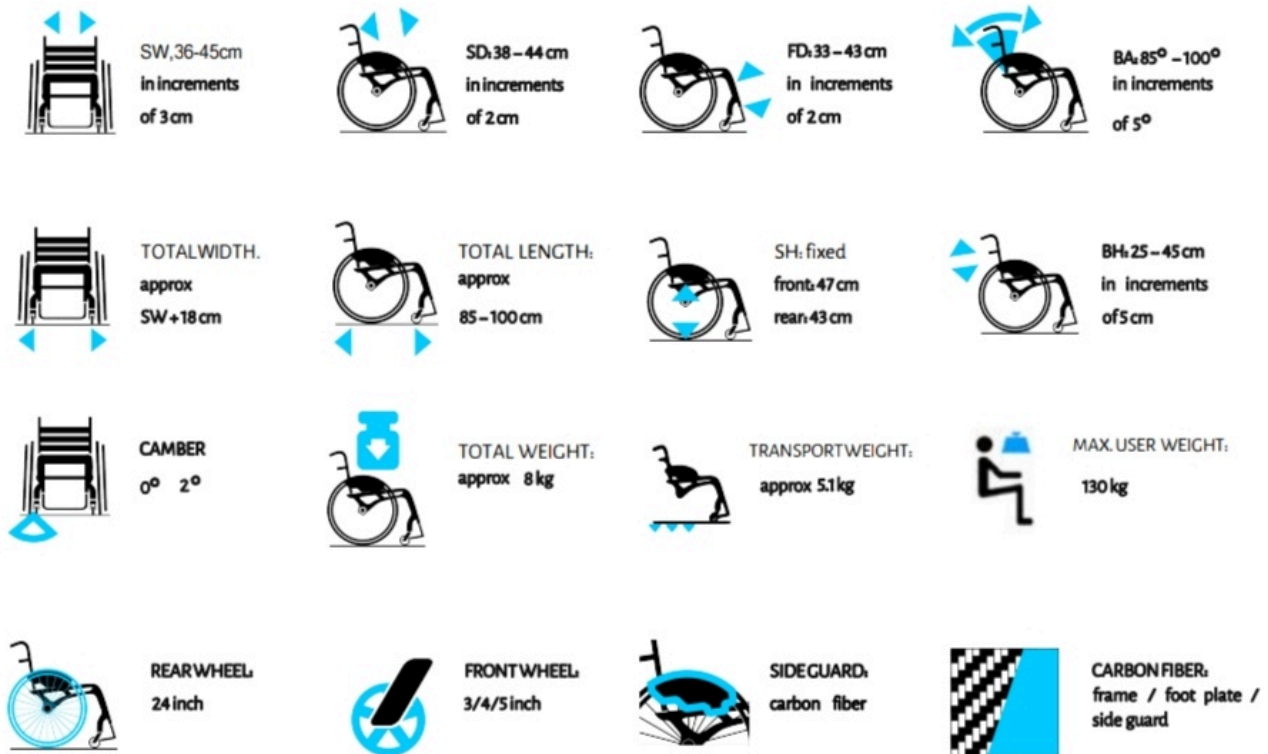
1. Disassemble the rear wheel and empty the inner tube from any remaining air.
2. Lift a heel of the tire from the edge of the wheel rim. Use a device to remove tires from bicycles; don't use a sharpened object, for example a screwdriver, as to avoid damaging the inner tube.
3. Extract the inner tube from the tire.
4. Repair the inner tube by using a repairing kit for bicycles or, if necessary, replace the inner tube.
5. Slightly inflate the inner tube until it achieves a rounded shape.
6. Introduce the valve into the valve hole in the wheel rim and insert the inner tube into the tire (the inner tube should adapt to the circumference of the tire without forming any creases).
7. Lift the heels of the tire on the edge of the wheel rim. Start from the area around the valve and use a device to remove tires from bicycles. Check all along the circumference that the inner tube is not stuck anywhere between the tire and the wheel rim.
8. Inflate the tire to its maximum pressure. Make sure there is no air leaking from the tire.

7- Identifying and solving problems in wheelchair

Problem	Possible cause	Solution
Wheelchair is not moving in a straight line	The pressure of one of wheels is incorrect	Adjust tire pressure (refer to 8-3)
	One of more spokes are broken	Replace broken spokes
	Spoke tensions are different	Check spoke tensions with a certified specialist
	Front wheel bearing is dirty or damaged	Clean the bearing or have it changed by a specialist
The wheelchair tips backward easily	Wrong backrest adjustment	Adjust the backrest correctly (by a specialist if necessary) to have a correct center of gravity for wheelchair
Brakes not functioning properly	Pressure of one or both tires are not adjusted.	Adjust tire pressure (refer to 8-3)
	Incorrect brake adjustment	Adjust brakes properly (by a specialist if necessary)
	Insufficient tire pressure of rear wheels	Adjust tire pressure (refer to 8-3)
Resistance to movement is high	Rear wheels are not parallel	Have the rear wheels checked by a specialist
	Front wheels are not moving freely	Check front casters and clean the bearing if necessary
	The bearing is damaged or dirty	Clean or replace the ball bearing

8- Technical Data

8-1- Dimensions and Weight



8-2- Environmental Conditions

Do not expose wheelchairs to temperatures below -20 °C and above 50 °C.

8-3- Tire pressure

Optimal tire pressure for rear wheels installed on Carborun are: 7.5 Bar or 755KPa or 110 psi.



CARBORUN