E A S Y R A C E R S O W N E R ' S M A N U A L

Specifications subject to change without notice.
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WELCOME

Welcome to the world of *EASY RACERS* recumbent bicycles. We are happy you have joined the world of recumbent bicycles. Recumbent riders are people who have chosen to ride more comfortably; in order to relieve themselves of their back pain and pelvic pressure that is inherently found when riding with regular “upright” bicycles.

Most recumbent bicycles help you conserve energy when cycling against the wind because you are sitting in a relaxed, laid back “recumbent” position, which presents less frontal area.

Most recumbent bicycles look "cool”, thereby, they “turn” people’s heads towards you. These bikes make onlookers smile with curious delight. So don’t be surprised if you find yourself drawing a crowd of friendly people and constantly making new friends.

Preliminary Reading

Note: Read the "Owner's Manual" and comply with the safety-tips/instructions/guidelines before ever sitting/riding/getting on your *EASY RACERS* bike.

The symbol ⚠ means "**WARNING**". The symbol will be followed by one or a series of comments which will give you constructive advice and/or give you warnings regarding carelessness. You must therefore take heed of the information presented to you after the ⚠ symbol. This information is intended to protect you and your bicycle, and to promote safety in your riding and in your bicycle, and to avoid injury and death.

NOTE: A sticker that reads "*READ OWNER’S MANUAL BEFORE RIDING THIS RECUMBENT BIKE*" is found on your frame of your *EASY RACERS* recumbent bicycle as a constant reminder to revisit the “Owner’s Manual” whenever deemed necessary.

WAIVER: *EASY RACERS* will not hold itself responsible if any problems arise due to the Information which is presented in this “Owner’s Manual”, as it was written by a non-professional group and therefore some information may be obsolete, erroneous, outdated or inconvenient. Furthermore, some of the information given in this manual may not apply to all models of recumbent bicycles.

⚠ The "Owner's Manual" is not fully comprehensive, as it cannot predict nor take into consideration every aspect of every situation or circumstance you encounter while riding an *EASY RACERS* recumbent bicycle under all indoor and outdoor riding scenarios. Thereby, EASY RACERS will not hold itself responsible in dealing with the risks associated with your usage of any upright and recumbent bicycle.

⚠ Due to the chaotic nature of the human environment, EASY RACERS will not hold itself responsible for any proper/improper action by you, that may result in damages to the bike or minor to moderate to serious injury incurred on you and/or another party, up to and including death.

⚠ It is your full responsibility as the purchaser to properly: assemble/ disassemble/service/utilize/check/repair/maintain your *EASY RACERS* recumbent bike and components with the aid of this "Owner's Manual" and a certified, professional bicycle mechanic. You must learn recumbent-bike facts and features. It is not the responsibility of *EASY RACERS* to perform aforementioned actions, including other actions of safety unknown, unmentioned or unavailable in this Owner’s Manual.

⚠ *EASY RACERS* will not hold itself liable for your limited English language grasp, nor a misunderstanding nor misconstruction of the contents in this Owner’s Manual.

⚠ The "Owner's Manual" is meant to give you a general knowledge of the components and features of your *EASY RACERS* recumbent

bicycle. It is not a fully comprehensive manual, as it does not explain in full detail the functioning of the components, nor the assembly of the individual components. Furthermore the "Owner's Manual" does not cover all the features, components, accessories, models or knowledge of recumbent bicycles available in the market.

⚠ The warranty is valid only to you, the original purchaser of the bike. Any damage incurred on the bike from careless behavior by you or another party could result in the voiding of the warranty.

⚠ The world of recumbent bicycles consists of things such as delicate bicycle components, custom items/components, accessories, equipment, gear, specialty tools, diet products, rider-wear, etc. It is your responsibility to consult members of a competent and experienced recumbent-cycling clinic/association. Make sure, wherever applicable, they teach you to properly do the following (the list not being entirely inclusive):

Mount; assemble; inspect; maintain; operate; wear; carry; attach; fit; install; dismantle; size-up; disassemble; utilize; measure; engage-into; disengage-out-of; consume; change; operate; choose; and overhaul items related to recumbent and upright bicycles. And most importantly, routinely (and before every ride) check all items to make sure they are functioning within accordance of the lawful practices taught to you at these clinics. This is for your own safety.

⚠ Every time you choose to practice your riding/speed/maneuver scenarios, you always do so in isolated/quiet/appropriate/safe spacious places.

Note: For faster adjustment, some recumbent bicycle manufacturers use QR[1] parts instead of bolts. If you choose to change any bolts to QR's, you do so at your own risk, and this action may void the warranty of your bike.

Introduction to *EASY RACERS*:

EASY RACERS is an American registered recumbent bicycle company which promotes an environmentally friendly product. The bikes are the original products of Gardner Martin. *EASY RACERS* bicycles are designed and built in USA and Taiwan to meet the strictest riding standards of recumbent bicycle riders. Our bikes are carefully hand-built, one at a time, by experienced bike fabricators in USA and Taiwan. Our bikes are designed to be of the highest quality while maintaining affordability for you - the consumer. Our in-house California builders and Taiwanese builders have had an excellent reputation for years, building the highest quality bikes for the severely strict recumbent bike community and for prestigious bicycle events.

EASY RACERS recumbent bicycles are designed to be lightweight - in order to save energy in the climbs - while maintaining very tough structural integrity in the frame and in the moving parts[2] of all components. The engineers of *EASY RACERS* want you to be happy and proud to be riding an affordable but beautiful recumbent bicycle that outperforms most of the competitors.

How your *EASY RACERS* recumbent bicycle works:

Your seat

⚠ Your seat should not slide or have any play while you sit or ride. Make sure everything is properly assembled, fastened and tightened in and around and under your seat.

⚠ Do NOT apply uneven pressure to the seat (for example, stand on the seat). You could damage the seat\bracket\frame\hardware and render the bike unsafe to ride.

By virtue of their design, recumbent bike seats generally allow your lower and upper body to feel more comfortable and relaxed throughout the day compared to an upright bicycle.

EASY RACERS models come with different kinds of seats: a) Fiber Reinforced Plastic (FRP) unitary seat and foam padding covering the entire seat area and back area. b) Carbon fiber unitary seat and foam padding covering the entire seat base area and seatback area.

c) Carbon fiber saddle-base, heavy-foam saddle, carbon fiber seat-back and stainless steel frame around the seat-back. d) Plywood saddle-base, heavy-foam saddle, mesh seat-back and aluminum or steel frame around the seat-back.

All the seats are designed for extreme comfort in long distance rides and touring.

The seat base

The base area is designed to distribute buttocks pressure evenly when you sit.

Under the base of your seat there is an aluminum bracket which attaches to and pivots on the frame, via two bolts in the cross-tube. The seat's fore and aft movements can be adjusted throughout the slot in the bracket.

The seat-back

The back area is designed to distribute back pressure evenly when you pedal.

The seat can recline to different seat-angles.[3]

The upper/lower struts

The upper strut is fixed to the seat-back via hardware and a seat-back bracket, and the lower strut is fixed to the frame's rear triangle via hardware and bosses.

Your wheels

The "EASY RACERS' MODEL" model has a 20 inch (406 millimeters) front wheel[4] and 26 inch (559 mm) rear wheel (the diameter measured from bead to bead).

The drivetrain wheel is the rear wheel. It uses a standard bicycle drivetrain assembly. With a large rear wheel, you can better preserve your speed momentum while coasting at high speeds because of the effect of high gyroscopic inertia.

Your wheels have a QR through the hub. The QR is designed to keep your wheel fastened to the dropouts of the forks and to the dropouts of the rear stays. The QR allows you to easily and quickly dismantle your wheels off your bike. The QR also allows you to easily mount and clamp the wheels onto the dropouts of the forks and dropouts of the rear stay.

Your Tires

The tires[5] of your "EASY RACERS' MODEL" model are generally thin, which are appropriate for road touring.

Note: Tires come in many sizes/widths/diameters/brand-names/models/ tread-pattern-designs in order to adapt to all kinds of terrains, riding scenarios and weather conditions.

Tire Valves

Your inner tube is equipped with a Schrader or Presta valve.

Note: Please follow instructions of how to inflate tires properly, using corresponding pump.

Note: Please follow instructions of how to use valve adaptors (if the need arises to use them).

Your drivetrain

Your drivetrain[6] are all the components on the bike which allow you to move forward when you pedal.

When you pedal, a certain section of the chain is known as the driver chain[7], and another section is known as the "return chain".[8]

Depending on the EASY RACER'S model you own, the entire chain goes through a chain idler roller and/or PU tubes.

The PU tubes are used in order to protect the chain from the outdoor environment and to route the chain in specific directions.

Your rear wheel and cassette

The rear wheel is used to drive the bicycle forward, by using 8, 9 or 10 different gear sprockets in the hub. These sprockets together are known as a cassette[9].

Your brake system

Your brake system consists of a linear-pull[10] brake system, road-bike brakes or disc brake.

Note: Linear-pull brakes are also known as V-brakes[11].

Adjusting the bicycle to fit to your body

Note: Depending on the *EASY RACERS* model you own, the bicycle is designed to fit most riders with a stature between 60in. and 75in. If you are outside this size range, please consult *EASY RACERS* for proper fitting and model you need.

Note: Most *EASY RACERS* models are designed for riders up to 250 pounds (114 kg). If you are heavier than this, your warranty may be considered "VOID". If you are outside this weight limit, please consult *EASY RACERS* for proper fitting and model you need.

Note: Some instructions pertain to a right-footed person.

The Seat Base:

To adjust the seat-base of your bike to your desired riding position, follow these steps:

1) With your hands, place the cranks parallel to the ground. Note: Left pedal must be furthest away from you, and right pedal nearest you.

2) Carefully sit on the bike with your feet firmly on the ground.

3) Squeeze both brakes – to prevent yourself from moving - and press your back gently against the seat-back.

4) While seated, lean your body slightly on your right foot (to prevent yourself from falling regarding next step).

Place the heel of your foot on the center of the left pedal (farthest away from you). This leg-adjustment technique is designed such that if your leg is straight, then there will be a slight bend at the knee when the ball of your foot is centered on the pedal.

5) If the leg cannot reach the pedals, or your leg is bent, then go to step 9)

6) Remain leaning slightly on your right foot. Disengage your shoe carefully from the left pedal and place it flat on the ground. Gently, lift one leg over the bicycle and get off the bicycle carefully.

7) Loosen the seat strut clamp attached to the dropout and loosen the bolts holding the seat base.

8) If your heel was not able to reach the pedal, then slide the seat forward towards the front wheel. If your leg was bent then slide the seat backwards, towards the rear wheel. Stop at a desired place in the slot of the seat-base bracket. See photo.

9) Tighten the seat base when the desired position is achieved then tighten the clamps on the seat struts to achieve you desired angle of inclination.

Note: You may need to repeat these step until you have achieved the ideal riding position, be sure to tighten all components and test thoroughly in a safe open area before proceeding to regular riding.

The Seat Back Angle:

Most recumbent bicycles that are sold for "leisure" riding are no more difficult to ride and get accustomed to than an upright bicycle. Recumbent bicycles that are easy to ride have the seating position as if you were sitting on your automobile seat. As the seat-back begins to recline more and more, the riding position becomes more extreme. The more horizontal or "lying down" you are, the more difficult it becomes to maneuver the recumbent bike at slow speeds and to get accustomed to your new head position - looking down towards your chest. You may want to recline your seat-back farther than the "leisure" position if you want to release buttocks pressure or reduce your frontal area – in order to go faster.

How to recline or tilt up your seat

1) Take a look at the back of your bicycle. In some Easyracer's models you will see a strut going through a clamp in each dropout or, you will see the upper strut overlapping inside the lower strut in other models.

2) To recline or incline your seat, loosen the bolt of the clamp or, remove both clevis pins from the two strut sets.

3) Recline or tilt up the seat to the desired position.

4) Fasten the clamp at the desired seating position or, push in, close and fasten the clevis pins back into the hole. Note: Make sure each pin is going through a hole in the overlap section of the upper and lower struts.

How your steering system works:

Depending on the Easyracer's model you own, your bicycle's steering system[12] [13] may be equipped with a combination of the following items: a pivot mast[14], standard stem[15], handlebar, goose neck, pivoting-stem, telescoping-masts, etc

The steering system is designed to provide maximum comfort while you ride long distances. Your arms and hands must be relaxed during the ride.

The pivot stem, standard stem and goose neck cause the handlebars to leans back/forward, creating "tiller"[1] effect.

Note: You must play with all the components of the steering system to find your most comfortable hand position.

How the controls on the handlebar work

⚠ General rule: In Japan, the left brake lever stops the rear wheel and the right brake lever stops the front wheel. In USA, the right brake lever stops the rear wheel and the left brake lever stops the front wheel. Thereby inspect your braking system and learn to use the controls properly with the aid of an experienced rider.

List of all the main controls

The controls on your handlebar consist of the left twist-grip shifter, the right twist-grip shifter, the brake levers and the handle grips - and all the corresponding cables, ferrules and housings.

The left brake lever

The left brake lever is used to slow down and stop the front wheel.

The right brake lever

The right brake lever is used to slow down and stop the rear wheel.

How to shift gears

To shift gears you must turn the left and right twist-grip shifters

The left shifter

The left shifter is used to shift the front-derailleur Low, Medium and High speed gearing. The small ring is used for climbing, the medium and large ring will be used most of the time for general and high speed riding.

The right shifter

The right shifter is to shift the rear-derailleur it is used most often to select the gear for best pedal speed so adjust your pedal speed so it is neither to easy or to hard for your given conditions.

Your crankset

Your crankset houses two (2) or three (3) chain rings. The chain rings are assembled respectively with the granny gear[16] nearest the frame, the middle chain ring next to the granny gear, and the big chain ring furthest away from your frame, next to the middle chain ring.

Note: The three (3) chain rings of the crankset produce more drastic and noticeable upshifting/downshifting torque than your rear-wheel's cassette.

How to park your bicycle

To park your bike do the following: a)Find flat terrain. b)Carefully get off the bike towards the side that has the kickstand-leg, b)Put one hand on the handle-grip and one on the seat. c)While holding the bike with both hands, kick out the kickstand, c)gently lean the bike towards the kickstand d)rest the bike on the kickstand

Note: The kickstand is intended for use on level surfaces only.

How to ride your *EASY RACERS* recumbent bicycle

⚠ Practice all recumbent-bike riding scenarios with the help of an experienced recumbent rider until you are confident to ride alone. The helper can guide you verbally and can push you forward and help you maintain your balance by grabbing firmly onto the seat back with both hands. Make sure to maintain a constant line of communication and inform the helper of your speed and maneuver intentions.

⚠ Try to avoid pedaling backwards on all your riding scenarios in order to avoid jamming your drivetrain.

⚠ Make sure you are always listening to the environment around you. Use your peripheral vision to be "aware" of the environment around you while you ride. Watch where you're going at all times, taking time to look at the environment around you when deemed safe to take your eyes off the road in front of you.

First time riding: Coasting

First you must learn to sit on your bicycle, grab the handlebar with both hands and walk it around like a baby walking on a baby walker. Then you must learn to coast the bike at a decent jogging speed with your feet dangling below the seat. Operate the bicycle in a quiet/isolated/flat-pavement area. Once you have done this with the help of an experienced recumbent rider and you feel confident, then you are ready for the "Propel Mode".

First time riding: Trying the "Propel Mode"

⚠ The following practice instructions – "Propel Mode" - should be performed with the help of an experienced recumbent rider.

⚠ Beginner riders must ride with comfortable running shoes which comfortably grip onto platform pedals[17]. Do not use fancy shoes and pedals with binding mechanisms[18]

⚠ If you will ride with something other than rubber-sole shoes and platform pedals, please follow the guidelines for choosing and operating pedals /cleats/shoes/bindings with an experienced recumbent-bike dealer. Your cleats must be compatible with your shoes and with your counterpart binding mechanism – located within your pedals.

⚠ Before trying the "Propel Mode" you must follow all the aforementioned guidelines for adjusting yourself onto the bike. Please read "Adjusting the bicycle to fit your body" section.

Find a huge, empty, and safe, flat-pavement area.

Now you must put the drivetrain in the Propel Mode[19]. To do this, have a helper lift the rear wheel of your bike while you shift and rotate the cranks with your hands.

Have a helper stand behind your bike and support you by holding on to the frame of your seat back.

Sit on the bicycle gently.

While you are seated with your feet flat on the ground, gently lean your body and put a little extra weight on the left foot - opposite the Propel Pedal[20] - to prevent yourself from falling, regarding next step.

Gently, raise your right foot off the ground and put your shoe on the "propel pedal". If you have upgraded your gear, then engage your shoe's cleat into the propel pedal's binder.

Give the "verbal" command to your helper that you are ready to pedal.

Push on the propel pedal with strong force and accelerate.

As you begin coasting, put the left foot on the left pedal. If you have upgraded your gear, then engage your shoe's cleat into the pedal's binder.

Begin pedaling. Make sure the helper is behind you, holding you with both hands on the seat back as you ride at a speed which is comfortable for the both of you.

With the help of an experienced helper, continue practicing a) engaging your shoes onto the pedals and b) disengaging your shoes off the pedals and c) coming to a complete stop safely by placing your foot/feet on the ground with proper timing with respect to your deceleration and stoppage.

⚠ Continue practicing until you become comfortable enough to engage your shoes onto the pedals and disengage your shoes off the pedals with swift agility before you decide you are safe to ride alone, without a helper. This includes, being able to accelerate from a standstill position by pushing on the Propel Pedal and simultaneously engaging the other foot while maintaining a smooth trajectory towards where you intend to go as you accelerate. This also includes being able to maintain a smooth trajectory towards where you intend to go as you decelerate, and place one foot on the ground with proper timing with respect to your deceleration and stoppage.

⚠ You will encounter many challenging situations on a daily basis where you need to immediately clamp your feet on the pedals and unclamp your feet off the pedals with swift agility (e.g. at busy intersections).

How to practice turning

Ride on the Propel Mode as aforementioned.

In a quiet/isolated/safe/flat-pavement area, practice turning left and right at long radiuses (The front wheel is slightly offset from straight line riding).

Do not look down on the floor or at an eye level below your feet. Always look up in front of you and around you when you ride and turn. The better you become at turning, the less of a “neurotic squirrel” you look like when you turn the handlebars.

⚠ Turning at a sharp angle at slow speed can be tricky and dangerous. Make sure to practice turning at a sharp angle at slow speed until it is second nature to you.

How to practice upshifting

1) Ride on the Propel Mode as aforementioned in a safe environment with long, flat pavement.

2) Right-grip upshift[21] to the next gear. You may notice your cadence has dropped. In order to increase your speed and cadence, you need to increase your pedaling power. Push harder on the pedals with smooth progression. Now you should be going faster!

3) Continue right-grip upshifting while pedaling and accelerating until you reach the smallest cog. Note: Per each cog you shift into, as you increase speed, you must exert pedaling power and reach a comfortable cadence before you upshift to the next smaller cog.

4) If you feel that you have reached top speed while the chain is in the middle chain ring and in the smallest cog of your cassette, and you want to go faster, then you can upshift to the big chain ring.

5) To upshift to the big chain ring, keep pedaling the bicycle forward at a smooth and comfortable cadence, and do a left-grip upshift[22]. When the chain shifts into the big chain-ring, you can push as hard as you want on your pedals and try to go as fast as you want.

Note: If you are NOT comfortable with this big drop in cadence (because of the big chain ring) and you are having difficulty accelerating, we recommend you do a right-grip downshift. Continue downshifting until you find the right gear that makes you comfortable with your cadence and torque.

How to practice downshifting

In a quiet, isolated area with long flat-pavement, ride on the Propel Mode as aforementioned.

Right-grip upshift[23] through the gears, and pedal until you reach a person's running speed.

Now you are ready to practice downshifting. Do a right-grip downshift[24] just one gear. You will notice that your pedaling has become easier and your cadence has increased slightly.

In order to return to your regular/comfortable cadence, you need to reach a slower speed. Rotate the cranks with negligible force on the pedals and you may apply the brakes gently if deemed necessary.

Once you have slowed down, exert power on the pedals and continue pedaling at your usual cadence. You should now be riding at a slower speed.

To practice downshifting through the whole gear range, try climbing a gentle hill. Exert pedal power at a continuous cadence while you do right-grip downshifting through all the gear sprockets of the cassette. When you reach the biggest gear sprocket and want to continue downshifting, you must move to the granny gear.

To downshift to the granny gear, keep pedaling the bicycle forward up the hill at a smooth and comfortable cadence. Do a left-grip downshift nice and gently. Keep pedaling while the chain moves into the granny gear. Note: If you are NOT comfortable with this big increase in cadence and torque (because of the granny gear), and you are having difficulty pedaling at such high cadence, do a right-grip upshift until you find the right gear that makes you comfortable with your cadence/torque.

How to brake on your *EASY RACERS* recumbent bicycle

Note: It takes hundreds of hours of practice to learn to balance the art of decelerating in the desired trajectory, and coming to a complete stop safely at the desired location without falling off your bike under all conceivable terrain/weather/riding/environment conditions.

In the real world, in normal pavement conditions, the average recumbent rider uses about 65% front wheel braking force and 35% rear wheel braking force.

In wet and slippery conditions, braking distance is further than in dry pavement. Please consult an experienced clinic for advice on braking techniques and front-wheel/rear-wheel braking ratio on all conceivable terrain/weather/riding/environment conditions.

When you want to slow down, squeeze on the brake levers at a progressive and smooth rate until you are slowing down at desired deceleration. Once desired deceleration is reached, maintain a constant brake pressure.

When you have reached your desired speed, you may release the brake levers at a smooth and progressive rate.

If your desire is to stop, make sure you slow down at a comfortable deceleration that allows you to release your foot/feet off the pedal(s) and put it/them down on the ground on time and safely when you stop.

When you want to slow down quickly, you need to squeeze on the brake levers with more strength than under normal braking conditions. Just make sure to squeeze progressively and smoothly on the brake levers until you attain the desired deceleration. ⚠ You must be realistic as to what is considered a safe limit of "hard" braking and "urgent" deceleration. Make sure you DO NOT lock your front wheel at any time during your braking; you may slip and fall and get seriously hurt

General Knowledge of Components and Accessories

⚠ This Owner's Manual only mentions general bicycle items. This Owner's Manual does not teach you extensive knowledge, nor proper usage, fitting, maintenance and assembly of any components and accessories. With the help of an expert recumbent-bicycle dealer, you must study as many components, tools, gear, equipment and accessories as possible which are available on the market in order to maximize your comfort, visibility and

safety in your recumbent-bicycle rides, no matter how simple or complicated your ride will be.

The dealer must teach you to read instruction manuals, and proper assembly, fitting, maintenance and usage of all the items you are interested in acquiring.

Pumps

⚠ The pencil-looking gauge at gas stations is sometimes inaccurate. A pressure gauge recommended by an experienced bicycle store should be used to periodically check the pressure while you inflate your tires at a gas station.

⚠ Follow the pumping instructions of your pump by reading the manual and following the advice of an experienced dealer. You must learn to properly: unscrew the cap, insert the mouth of the pump into the valve, secure the mouth onto the valve, and pump air. Due to the speed sensitivity of some pumps - especially gas station pumps – you must inflate your tires with short bursts of air while constantly checking the pressure with a properly-working gauge.

⚠ Ask your dealer how to properly maintain your pump.

⚠ Make sure your inner tube is always compatible with the rims and tires of your bicycle. If they are not, you could be in danger of getting seriously hurt.

Most pumps have a lever you have to lift when you insert the mouth of the pump into the valve.

The pump should: inflate to the maximum tire pressure, it must pump air at a safe speed and must have a mouth which is compatible with your valve. Most importantly, the pump must be easy to operate; and preferably it must have a properly functioning gauge.

Make sure to consult your bicycle dealer to see what pump you need. For example, you may want a pump with the ability of the head to pump Schrader and Presta valves; you may want a compact pump in your pockets which has fast pumping action; you may want a pump just for your garage; you may be looking for an inexpensive pump that does the job good enough, etc.

Some pumps use Carbon Dioxide cylinders for inflation. These cartridges are lightweight and ideal for quick inflation, and since they are compact, they are easy to store and carry. The cartridges have a limited pressurized life, and eventually need to be replaced with more refill cartridges.

Some pumps use a simple cylinder with a pumping handle and shaft at one extremity. The other extremity of the cylinder has a head with a small lever. To operate the pump, you insert the head into the opened valve and flip up the small lever of the head. This lever is designed to keep the pump head tightly bound to the valve and should allow the air to enter the inner tube. You then begin pumping air with the handle.

In America, you can buy "Plug-in" pumps. They are 12-Volts and are Direct Current. Be very careful to periodically check air pressure when you pump air into the inner tube. These pumps can inflate up to 300 pounds per square inch. That's more than the 60 psi[25] required in mountain-bike inner tubes and 100 psi required in road racing bicycle inner tubes.

Floor pumps are long, cylindrical pumps that stand vertically on a foot platform. These pumps are bulky and thereby mainly used in people's garage and bicycle shops. You pump air by stepping on the foot platform and pumping air up and down on its handle. They are ideal for pumping air quickly. Some floor pumps have a gauge that shows you the real-time pressure of the inner tube as you inflate it. Some floor pumps can inflate up to 160 psi, which is more than the 60 psi required in mountain-bike inner tubes and 100 psi required in road racing bicycle inner tubes. Therefore, be very careful when you pump and check periodically the air pressure when you pump air into the inner tube.

Foot pumps work by pumping air with your feet, without the need to use your hands. Some foot pumps have a gauge that shows you the real-time pressure of the inner tube as you inflate it. The foot pump is designed such that the frame on which the cylinder rests is actually the foot-leverage device. Once you have clamped the pump's head into the valve, simply place the foot pump on the floor and begin pumping with your foot. Take constant heed of the inflating pressure by checking the gauge. You don't want to over-inflate your tires.

Bicycle frame pumps are hand pumps that can be attached to your bicycle frame. Frame pumps come in all shapes and sizes. Some frame pumps fit entirely across the top tube or on the downtube or on the seat tube of the "upright" bicycle. They usually rest in plastic or metal supports which are attached onto the frame. Some frame pumps have a fish-mouth shape at both extremities which allow it to rest on the elbows of the top tube, or the elbows of the seat tube or the elbows of the downtube of an "upright" bicycle.

Mirrors

Mirrors come in all shapes and sizes. You can buy mirrors that mount to your handlebars, to your helmet, and to your bar ends. Note: Please go to your local recumbent bicycle dealer so they can explain to you all the various types of mirrors available.

Hydration system

⚠ It is extremely important to always carry some sort of hydration system (filled with hydrating liquids) on your bicycle/cycle-wear/cycle-bags, to constantly hydrate your body while you ride.

The main reason to always carry hydrating fluids with you is to evade trouble when you find yourself far away from a water source. You could literally die from overheating and dehydration. Try to keep your hydration system filled with hydrating fluids as often as possible. Hydrating systems can include hydro back packs, water bottles, bottles, canteens, bladders, etc.

Note: Make sure to consult a doctor or a professional bicycle dealer for the latest merchandise and food-products related to hydration. They should be able to explain to you how much water/hydrating-liquid you must intake according to the temperature conditions and your body physiology and the amount of riding you will be doing. Never underestimate the amount of hydrating fluids you must bring with you on your ride. Be paranoid and bring extra fluids if necessary.

Fenders

Fenders are generally used in touring bikes. Riding in the rain and mud without fenders causes people's back and feet to get wet and stained. This leads to uncomfortable riding, and even worse, could lead to hypothermia and frostbite. If you will be doing long distance touring, we recommend you equip your bike with fenders.

Fairing

Recumbent riders and touring riders do NOT underestimate the power of energy conservation.

Remember, the advantage of a riding a recumbent bicycle is that you are seated in an aerodynamic (recumbent) position, which allows you to conserve energy compared to an upright bicycle; and you can further enhance your energy conservation and average speed by mounting a fairing to your bike.

Note: Fairings are used for: 1) Riding at higher speed. 2) Increasing your aerodynamic advantage against the wind and 3) To reduce overall trip time in your long distance trips. 4) To conserve energy.

Racks, bags and compartments

Racks and bags are generally used in touring and city-commuter bikes.

Racks and bags are used to keep your arms, shoulders, back and waist operating freely while you ride. Without racks and bags you will become fed up with the discomfort created when you mount backpacks and waist-packs to yourself. You will have difficulty concentrating on the road because a)your body will become tired more quickly; b)your back will sweat more easily; c)bulkiness; d)chafing; e)overheating; f)weight discomfort; g)poking corners/edges, etc

You must carry your belongings inside cycling bags/compartments to avoid exposing them to a harmful environment such as rain, snow, exhaust fumes, soot, gravel, dirt, and splashing water from vehicles hitting flooded potholes

Racks can be mounted on: a)seat-stays; b)dropouts; c)seat posts; d)handlebars; e)forks; f)some bosses around your frame; g)brake bosses; h)brake bridges; i)seat, etc

Bags come in all shape and sizes. The volume of most bags is measured in Liters.

Computers

Riders use computers to check their average speed, their max speed, the distance achieved per day, the overall distance achieved per trip, the overall distance achieved since the computer was rebooted, etc

Computers come with all kinds of designs and features.

Some computers are wireless and some computers require a wiring harness that you need to install.

Kickstands

Kickstands are installed on bicycles to stop them from tipping over and crashing to the floor and getting damaged. A kickstand can help you preserve the paint on your bike. Most bicycles are scratched when people lean them against things – walls, poles, fences, bikes, trees, bike racks - or when the bicycle tips over and crashes to the floor.

Kickstands mount to the frame of a bicycle at the chainstays, seatstays, welded brackets, welded plates, etc.

Your kickstand of your “EASY RACERS’ MODEL” mounts to the bracket which is welded under the chainstays.

Light system

You must buy some form of light system that mounts on your bicycle and/or your helmet and/or on your clothing. You never know when you may encounter a tunnel or dark environment. There are many dangers constantly lurking all around you, especially at night. With a light system you can increase the visibility of your surroundings and thereby better predict whether you are coming into danger. A light system will also help you to be seen by pedestrians and motorists.

Note: Blinking lights are usually more effective in been seen by motorists and pedestrians than constantly luminescent lights.

Horns

Note: Make yourself as visible and audible as possible to the environment around you

Horns are extremely important for riding in crowded bicycle paths and riding across intersections and riding when the visibility is reduced.

Horns are used to warn people that they need to move out of the way so that you can go through your trajectory.

Horns are used to warn car drivers, motorcycle riders, cyclists, heavy-vehicle drivers and pedestrians that there is a recumbent rider in their vicinity.

Horns come in all models and decibel levels.

Head protection

Make sure to wear a CPSC, CSA, ANSI, Snell or CE approved cycling helmet. There are many features to look for in a helmet, such as aerodynamic aesthetics, strength, and whether it's a full face helmet or standard open-face

helmet. The more holes there are in a helmet, the cooler you will be.

⚠ Always wear a helmet when you ride a bicycle. Make sure the helmet fits snuggly and is properly fastened to your head and face, and that the straps are tightened snuggly on/under your chin.

Hand protection

We recommend you wear cycling gloves to a) avoid losing the skin on your knuckles and on the palm of your hands when you fall b) to protect your hands from the environment – heat, sun, snow, rain, cold, sandstorm, wind, mud, and c) to prevent calluses.

Most cycling gloves have padding in the palm area. Some cycling gloves cover your thumbs and fingers completely and some have the end of the fingers exposed.

For winter, there are cycling gloves and cycling mittens.

There are cycling gloves that have the finger extremities exposed, but can turn into a mitten

When you choose gloves you might even want to have separate pairs of gloves for rain, winter and summer riding.

Leg protection

When you crash, you usually injure your shins, knees, ankle, hips, lap, buttocks and thighs. *EASY RACERS* recommends you ride with comfortable cycling tights which fully protect your shins, hips, knees, buttocks and thighs. Many recumbent bicycle riders use tights that are designed for downhill mountain biking. These tights are equipped with localized safety padding around the contour of your lower body.

Note: Protect yourself as much as you can. Make sure there is no loose clothing flopping around in the wind to prevent getting them caught in your bicycle's drivetrain. Wear comfortable clothing and safety gear that won't hinder your visibility around you.

Visibility aides

As a recumbent rider, it is your responsibility to try and absorb everything around you when you ride your bicycle, and to make yourself as visible and audible as possible to the environment around you. *EASY RACERS* recommends that you wear and attach many reflective and lit-up items. You need to make yourself visible at the sides, the front and the back of your bicycle.

Pedals

There are generally three types of pedals[26] that you can choose for recumbent bikes: 1) Platform pedals 2) Toe clip pedals with straps and 3) Clipless pedals.

⚠ Warning!!! Ride with regular platform pedals. Do not ride with Toe-clip or clipless pedals until you are fully comfortable riding your bike. This may take a few weeks to a few months.

Eyewear

EASY RACERS recommends that you wear specialized eyewear for each riding scenario. You must wear eyewear that A) enhances vision during reduced visibility riding, B) protects against bugs, dust, fumes, pebbles, etc. C) Protects against all harmful aspects of the sun. D) Blocks glare and blinding sunshine and preserves visibility in the sun.

Other cycling items

Consult your nearest bicycle dealer to see what other gear/ tool/ item/ equipment/ clothing/ component, etc, they recommend which *EASY RACERS* overlooked, related to safe riding in all kinds of weather, terrain, and human environments.

Defensive riding

⚠ Warning!!! Mount a long pole to the back of your bike, running perpendicularly to the ground, up to a height of a SUV roof. The pole should be equipped with a fluorescent flag at

the top and may have additional lights and reflective strips. This is a common practice by recumbent bike riders.

⚠ Warning!!! Every single time you get on your bike you must constantly be on the lookout for “riding environment dangers”.[27]

⚠ Warning!!! Be very aware of the human environment around you. Ride defensively. Assume the worse scenario WILL happen. For example, nobody can see nor hear you; nobody is paying attention to the road in front of and around them; the riding environment around you and in front of you is unsafe; people are trying to run the red and yellow light, etc

Always remember that motorists have less visibility around them than a recumbent bicycle rider.

The usual outdoor sounds are muffled inside the enclosed steel and glass cabin of motorists’ vehicles, and the problem is further exacerbated by the noise of their roaring engine and the radio.

Motorists also drive at higher speeds than recumbent bicycle riders, which limit their ability to see any danger or obstacles in front of them and/or react to those dangers on time.

Health awareness

Do not ride under the influence of or a combination of substances which could make you drowsy or impair your motor skills and your judgment.

Choosing Pedals

If you choose to ride with pedals with a cage/toeclip area, you must make sure that these pedals are designed such that you can swiftly engage your shoes inside the toeclip/cage area and swiftly disengage them. The “ball area” of your feet must be resting on the pedals.

If you choose to ride with clipless pedals, the cleats in the shoes must be compatible with their counterpart binding mechanism in the pedals (binders). You must make sure that these pedals are designed and adjusted such that you can swiftly engage your cleats into the pedals and swiftly remove them.

⚠ Riding with toe-clip or clipless pedals may delay your engaging and disengaging from the pedals and cause loss of control resulting in death or injury.

Coming to an intersection

⚠ City intersections are tricky places where MOST accidents occur. You MUST treat city intersections as potential DEATH TRAPS. This is not a joke. Your life is in considerable danger even when you cross intersections with extreme caution and even while obeying all the rules. Do not attempt to ride on the roads or approach any intersections until you feel comfortable performing all the guidelines mentioned in this "Owner's Manual".

As you become a more experienced recumbent rider, you learn to better balance the art of braking with the art of maneuvering under emergency situations because coming through/into/out-of intersections is one of the most perilous situations you will encounter as a recumbent rider.

Intersections are busy places where people and vehicles meet from all directions. As you approach an intersection, you have to pay full attention to the environment around you. If the traffic light is green for you, and you are approaching the intersection, slow down and look all around for pedestrians and vehicles. If you see that everyone is slowing down or stopped, and no vehicles are running the red light, then proceed with caution. Keep studying the environment around you as you ride through the intersection.

Intersections are dangerous because you may find yourself riding between a vehicle and the curb of the sidewalk, or between two vehicles, and suddenly having to slow down or turn or stop. Your space between vehicles or between

vehicle and sidewalk may vary from “wide”, to “narrow”, to “dangerously narrow”.

Intersections are dangerous because cars, 18-wheeler trucks, SUV’s and buses and other big trucks can’t see you. They can kill you when their tires rub against the curb of the sidewalk, or climb their tires onto the sidewalk, or squash you as they attempt to drive through or turn right or turn left.

Make sure you are always riding on a safe path that isn't slowing down traffic and is not endangering the safety of your ride. If you feel that you will not make it through the intersection safely because someone or something is blocking your path, or you can't race the yellow traffic light, then you must decelerate and/or stop safely before the intersection. Note: As you go through the process of slowing down and/or stopping, you must unclamp your foot/feet off the pedals, with proper timing, so that you don't fall off the bike and you don't lose the direction in which you were intending to go. When you come to a complete stop, don't lean yourself and your bicycle to the side too much in order to avoid scratching the vehicles beside you. Your seat and your handlebars are potential dangers for scratching vehicles. As you are at a complete stop, study carefully the intersection. This means that you must study the behavior of the traffic and pedestrians around you. When the light turns green and you feel you are safe, you should push hard on the Propel Pedal in order to maximize acceleration, and you must push on the pavement with the other foot in order to balance yourself. As you propel yourself forward and accelerate, fasten the foot that was touching the ground back into the pedal. If you are an experienced rider, you should be able to – from a standstill position - propel yourself forward and fasten the foot that was touching the ground back into the pedal without losing the direction in which you are intending to go and without falling over and without thrashing your handlebars and your bike erratically from side to side like a neurotic squirrel.

⚠ Practice all riding scenarios acceleration scenarios and deceleration scenarios that are related to intersections, under the supervision of an experienced recumbent bicycle rider.

General Rules When Riding

When you climb a hill, it is recommended that you pedal at a comfortable cadence and torque that you feel is not straining your knees. Do not pedal on a gear that you feel is causing strain or pain on your knees. If you have pain, then stop riding the bike and consult with members of an experienced and competent bicycle clinic in order to determine the correct crank-length, cadence, body-position or other factors. If the problem persists, consult a sports physician.

Do a left-grip upshift to dramatically reduce cadence and torque. Do a left-grip downshift to dramatically increase cadence and torque.

Do a right-grip upshift to progressively reduce cadence and torque towards your comfort level. Do a right-grip downshift to progressively increase cadence and torque towards your comfort level.

The average recumbent rider pedals with the chain in the middle chain ring during flat pavement rides, with the chain in the granny gear ring during uphill climbs, and with the chain in the big chain ring when pedaling downhill.

When you want to gradually speed up or slow down, you can do right-grip upshifting and downshifting. As you become more experienced, you will notice that over 80% of your rides involve having the chain in the middle chain ring while you shift through the gear cluster of the rear wheel’s cassette (doing right-grip upshifting and right-grip downshifting).

Comply with all applicable laws, hand signals, regulations, licensing and the riding rules of the area where you will be riding. You may be required to install specific safety devices, including properly equipping yourself and your bike as the law requires.

Observe and yield the right of way to others.

Never hitch a ride by holding on to another vehicle or a rope that is attached to a vehicle.

Never pull/tow somebody with your bicycle.

Ride at a speed that doesn't slow down the traffic behind you, as frustration by drivers can lead to road rage and your safety could be endangered by an angry driver.

Ride at a speed and trajectory that you feel is within the limits of safe riding for the road conditions you are experiencing.

Ride around curves at a safe speed and trajectory. There are cars coming around the curve that can't see you, and you could crash into them.

Watch out for vehicles, things and pedestrians stepping out in front of you, coming from concealed exits.

When riding beside parked cars pay close attention for people inside them, between them and in the sidewalk next to them. Watch out for car doors opening. Watch out for people stepping out onto the road from between parked cars.

Get a map of the bike lanes of the city where you will be riding, and use them safely.

Do not ride with any electronic device that disturbs or muffles the natural hearing ability of your ears. (e.g. headphones, walkmans, portable stereos, portable CD player, iPODS, MP3 player, radios, portable radios, etc.)

Do not ride with items which hamper your visibility; e.g. sunglasses at nigh, baseball cap, hat.

When coming to an intersection, decide whether it's safe to proceed. If the traffic light is yellow, it is your discretion to see if it's safe to proceed, or better to come to a complete stop and not cross the intersection.

Don't ride your *EASY RACERS* recumbent bicycle while carrying things in your arms or carrying things that obstruct your vision. Don't carry or strap things to your bicycle that can become entangled in the moving parts of the bicycle. Utilize proper, racks and bags.

Don't carry a person on your *EASY RACERS* recumbent bicycle.

When riding parallel to the curb of the sidewalk, do not suddenly veer into the curb and attempt to climb onto it. Your wheel could strike the curb and you could fall over and off your bike and get seriously hurt.

Do not bunnyhop[28] your bike.

Do not hit the sidewalk curb dead on when you ride. This will cause your rim to get damaged and your tire to puncture. Furthermore, you could fall off your bike and get seriously hurt. A damaged rim will cause your wheel to wobble from side to side and bob up and down. A damaged rim could also cause spokes to break, further exacerbating the problem when you ride. If the sidewalk doesn't have a smooth entrance ramp, then safely slow down to a complete stop and get off your bike. Then put your bike on the sidewalk, get on it again and continue riding.

Don't try to do stunts such as riding with your hands off the handlebars, trying to do an endo[2] or trying to do a wheelie[3], or racing, or jumping.

Don't weave in and out of traffic. Don't make moves that surprise and/or endanger others and as a consequence can endanger you.

Wear proper riding attire to protect yourself against riding environment dangers.

⚠ When a steel plate/sewer-grate/manhole-cover is wet, its surface behaves as if it was ice. You could easily slip and injure yourself and even die.

Mount a loud horn to your bike and use it at your discretion when you come across “riding environment dangers”. (See footnote 27 and page 15).

Reduced-visibility riding

⚠ The visibility of yourself and your recumbent bicycle to other people, and the visibility of the environment around you is constantly being compromised every single time you ride. There will always be something that will reduce your visibility and other people's visibility. The visibility of your riding environment may already be reduced once you start riding (e.g. foggy day) and/or you may accidentally have an impromptu encounter with a "riding environment danger" (See footnote 27 and page 15).

⚠ Make yourself constantly visible and increase your own visibility of your surroundings: Mount a light-system and reflective-gear on your bicycle, clothes and helmet. When you ride, you may better predict whether you are coming into danger with a "riding environment danger" (See footnote 27 and page 15).

⚠ Most accidents occur at street intersections. Intersections are also considered "Reduced Visibility" entities: People can't see through all the cluster of cars/pedestrians; SUV and truck drivers can't see beyond their hoods and beyond their limited cabin "blind spots"; people aren't paying attention to other dashing "intersecting" people/vehicles; the muffled enclosure of vehicles' cabin keeps people "sedated"; the noise of the radio keeps drivers distracted.

⚠ Recumbent bicycles are considered "reduced visibility" machines. They are low to the ground. Thereby a lot of recumbent bicyclists get run over from behind by motorists. We highly recommend that you equip the back or your bicycle with lots of reflective tape, reflective accessories, blinking red lights, and aforementioned flagpole.

Rain and wet pavement riding

Riding in the rain and in wet pavement dramatically increases your chances of encountering danger. For example, the hearing ability and the visibility are reduced on motorists, pedestrians and bicycle riders.

Water also impairs your braking ability. Water behaves as a lubricant between the brake pads and the walls of the rims.

It will take you a longer distance to slow down on wet pavement than on dry pavement under the same initial speed. If you are not careful, you could miss your stoppage point and could get seriously hurt. For example, you overshoot the intersection and get killed by a car.

Use discretion on wet pavement when you brake in a straight line or brake while turning; your tires have less traction. You want to avoid losing traction - due to locking the wheel or due to the slippery road - because you may skid and slip and fall and even die.

Use discretion when riding over water-filled potholes or uneven pavement because they do not show their depth. You may hydroplane your wheel over the water, or get the front wheel stuck. You may lose control of your steering and fall and get seriously hurt and even die.

Always ride defensively, looking out everywhere around you for "riding environment dangers". (See footnote 27 and page 15).

Use tires for wet riding conditions or all-purpose safe riding.

Take extra caution when coming towards intersections and around turns. Assume nobody can see you, so make yourself as audible and visible as possible. You have to anticipate the need for hard braking when you encounter danger, without loosing tire grip.

Checking your bike before riding

⚠ Before you embark on your rides, always have an expert recumbent-bicycle mechanic do an entire safety check of your drivetrain, brake system and steering system. The mechanic must make sure everything is working properly.

The entire bicycle should be functioning within a considerable noise level and whirring and

churning noise level when you shift and/or pedal smoothly.

When you sit on your bicycle and you squeeze both brakes, rock the bike back and forth and turn the handlebars from side to side to make sure there is no play, no friction, nothing clunking, nothing jiggling, nothing clanking, nothing rubbing, no resistance, nothing rattling and nothing loose.

When you ride your bike, you should not feel nor hear any symptoms of something loose or working improperly.

EASY RACERS has written below some helpful advice on what to look for when you check your bike:

Brake check

When your V-brakes begin to wear out, your brake levers travel further towards the handlegrip compared to when you first got your bike. The brake levers on the handlebars should NEVER touch the handlegrips when you squeeze them. Even when you brake with full force - but not to the point that the braking action locks the wheel - the levers should not touch the handlegrips. If they do, then the brakes are not properly set up. For example, the brake pads may be worn out; the cables may be stretched; the cantilevered brake arms may need to be readjusted; something in the brake mechanism may need to be replaced and/or tightened and/or adjusted. Note: Make sure to consult your local bike dealer to determine the maximum acceptable travel of the brake levers/pads/cantilevers when you apply the brakes.

When your road-bike brakes begin to wear out, you will hear squeaking noises, metal-on-metal rubbing, and you will take longer to brake compared to a properly function road-bike brake.

When your disc-brakes begin to wear out, you will hear squeaking noises, metal-on-metal rubbing, and you will take longer to brake compared to a properly function disc-brake.

Have an expert bike mechanic properly inspect, diagnose and service your brake system and, if needed, replace any worn out parts.

Make sure the cable ends are always capped. If the cable ends are not capped they could fray and cut up your legs and hands and clothing. If the cables are not capped, go to your nearest bicycle store to have them capped.

If you are using hydraulic disc brakes, make sure all components are functioning properly and there is nothing loose, leaking or malfunctioning.

When you squeeze on the brakes, the flat surface of the brake pads must be evenly mating with the walls of the rim/disc. For V-brakes, the edges of the brake pads cannot be touching the tires or protruding beyond the edge of the rims.

⚠ Rims need professional truing[4] in order for the brakes to work properly. If a rim is out of true, it could wobble from side to side and up and down. An untrue rim could also cause you to break a spoke and further exacerbate the problem. Consult a bike mechanic and have him/her fix the untrue rim before riding the bicycle.

Make sure that the brake pads are not rubbing against the rim/tire/disc when you release the brakes.

Make sure that when you squeeze on the brakes, the brake pads are rubbing with even pressure against the rims/discs. (The left brake pad makes contact with the rim/disc at the same time as the right brake pad).

Improper brake system setup could: cause your brake pads to rub against the wheel/disc/rim; cause you to slow down and waste pedaling energy; cause your tires and pads to wear out faster; cause your tire/inner-tube to burst.

Drivetrain check

Make sure the chain is properly traveling smoothly through the PolyUrethane chain-tube(s) and/or chain idler roller.

Make sure the chain is properly lubricated with proper chain lubricant. It should not be squeaking.

Make sure the front and rear derailleur are working properly and are properly maintained and are properly set up.

Steering system check

Make sure there is nothing rattling, clinking, churning, whirring, clanking or loose or with play in your entire steering system when you ride your bike and when you brake and accelerate.

When you turn the handlebars, there should be no considerable friction on the headset[29] (e.g. the headset may have been over-tightened).

To test the steering system, A) Stand in front of your bike, facing the rear wheel, straddle the front wheel with your legs and try to turn the handlebars with considerable force. If the handlebars don't twist around the axis of the steerer tube, then the steering system has been tightened enough. B) Sit on the bike with both feet flat on the ground. Squeeze on the brakes and attempt to rock the bicycle back and forth; if the headset is properly tightened, there should be no considerable play or rocking or swaying motion with respect to the headtube[30]. There should be no considerable friction when turning the handlebars left and right. C) Pull on the handlebars. The steering system shouldn’t move, and there should be no rotation of the handlebars around the steerer tube’s axis. Make sure all parts of the steering system are tightened. Make sure there is nothing rattling, clanking, causing friction, sliding, twisting or moving with play.

⚠ 1)While gripping the handlebars at the handlegrips, never pull or push with violent, jerking force. This may occur while servicing your bike, while riding your bike, while

attempting to accelerate or decelerate your bike or while attempting to get on your bike. These actions could: seriously injure you; render the bike unsafe to ride; cause parts to get damaged; cause parts to become loose; cause you to lose your pedaling rhythm fall off the bike.
2) Never ride your *EASY RACERS* recumbent bicycle without proper assembly of the steering system.

Pedal check

⚠ You will always encounter situations where you need to put your foot down immediately and then start pedaling immediately. Therefore, if you choose to ride with clipless pedals – pedals with binders, and counterpart cleats – EASY RACERS assumes you are able to clamp your shoes on the pedals and unclamp your shoes off the pedals with swift agility, and desired binding force.

Your binding system should have no unusual play or jangle.

⚠ Not all cycling shoes are interchangeable or compatible with all cleats and pedals and binders.

Make sure you are comfortable riding or walking around with the shoes you chose. Consult an experienced recumbent bike expert to find the proper pedals with their corresponding cleats and shoes because their discomfort could harm you or distract your ride and you could lose focus and concentration and you could crash and get seriously hurt.

Note: Some pedals are designed to have "floating" play when you ride to avoid knee stress.

Strut Check

Make sure the upper and lower struts are properly fastened and attached under the seat. If you have a single strut, make sure the struts are properly clamped by the clamp in the dropout/seatstay/chainstay area.

Make sure all bolts are properly tightened.

If your bike has clevis pins for the upper and lower struts, make sure each clevis pins is pushed in and fastened into the transverse hole, in the overlap section of the upper and lower strut. Make sure the levers of the clevis pins are closed once you have inserted them.

⚠ Grab the seat and slightly push and pull it in all directions. There shouldn't be any considerable play; there shouldn't be anything loose; there shouldn't be any considerable rattling or clicking. Before riding your bike, consult an experienced recumbent bike dealer to make sure that the play, if any, is within acceptable limit. The dealer must determine what is considered "acceptable" minimal play in a seat.

If you feel there is unacceptable play in the seat-back or seat-base while you sit and/or ride, do not ride the bike any further and have the problem repaired by a professional recumbent bicycle mechanic.

Wheel Check

Make sure you are following proper pumping procedures when you pump air in your tires with your pump of choice.

Make sure your tires are not frayed anywhere.

Make sure the lip of the tire is inside the bead of the rim.

When your tires and inner tubes are being changed, make sure it is by an experienced bike mechanic.

Make sure the valves of your wheels are protected from dirt by screwing on its corresponding cap.

When your wheels are mounted onto your bike, make sure it is by an experienced bike mechanic.

All the spokes in your wheels should be tight enough and should have proper tension. You can have a dealer show you how to test for proper tension.

None of the spokes should be protruding through the rim's protective tape. There should

be a rubber liner inside the rims protecting the inner tube from the spokes' tip.

The QR's of the wheels should be fully closed and the lever curving into the frame. The acorn nut and cam of QR must be mating properly in their respective slot position of the rear dropout and fork-end slot. The acorn nut and cam of QR must be mating against the outside surface of the rear-dropout walls and outside surface of fork-end walls. The wheels must not be lob-sided.

The rims must be trued and spinning in a perfectly balanced manner. When you spin the wheel, your rim should not be wobbling from side to side or bobbing up and down.

Frame Check

Take a look at your frame. Make sure there are no cracks, no deep scratches or dents in the frame. If there are any signs of cracks or fatigue, do not ride your bike and take it to a professional bicycle dealer for proper inspection

If the bicycle is not riding in a straight line, the frame is most likely bent. Take it to a professional bicycle dealer for proper inspection.

Glossary

[1] **QR**: A quick-release skewer mechanism (QR). A QR consists of a bicycle wheel's standard quick-release skewer (which come in various lengths) with a threaded end, a tension adjusting nut, a cam and a lever.

[2] **Moving Parts**: The moving parts in a recumbent bike: the wheels, the drivetrain, the seat, the braking system and the steering system.

[3] **Seat-back angle**: The angle – with respect to the ground – at which the seat-back of a recumbent seat reclines. A recumbent seat' back generally reclines between 35 and 80 degrees.

[4] **Wheels**: A complete wheel includes the rims, spokes and nipples, complete hub, QR, rim-tape, tires and inner tubes.

[5] **Tires**: A)Tires must be inflated using a pump which matches the Shraeder or Presta valve and which is equipped with a pressure gauge. B)Never under inflate or over inflate your tires; it could jeopardize your ride. C) Tires must be inflated within the correct pressure range or within maximum pressure limit which is written on their sidewall. D)Make sure the tire width you choose is within the limits of the maximum and minimum tire width allowed on the rim. E) The bead rim diameter must match the lip-diameter of the tires. F) When your tire is inflated at the maximum tire pressure allowed, it has the lowest rolling resistance. On hard pavement, you will be able to coast nice and far with each pedal stroke. G) When your tire is inflated at the minimum tire pressure allowed, it has a high rolling resistance. On soft dirt roads, you will have a nice grip on the irregularities of the surface. You will get more tired with each pedal stroke compared to hard pavement riding. H) Some tires have treads that are unidirectional. They must be mounted on the wheel correctly so they rotate and work properly in the right direction. These special tires have an arrow on the sidewall showing the direction in which they must rotate. I) Do not under-inflate or over-inflate your tires. Keep your tire pressure within the pressure range written on the sidewall. J) Make sure your inner tube and valve are always compatible with the rims and tires of your bicycle. K)Make sure your rims are properly trued, so that your tires can perform properly.

[6] **Drivetrain**: Your drivetrain consists of your chain, front derailleur, rear derailleur, a Polyurethane (PU) chain tube and a chain idler roller, your crankset (chainrings, nuts, axle, bottom bracket (BB) inside BB shell, and crank-arms), pedals, cassette (attached to the rear-wheel hub) and your rear wheel.

[7] **Driver chain**: The top section of the entire chain loop. The chain links are in tension when you pedal, and they "drive" the rear wheel's cassette into a clockwise spin. The driver chain goes from the top of one of your crankset's chain-ring, through the bottom of the chain idler roller and to the top of one of the cogs of the rear-wheel cassette.

[8] **Return chain**: The bottom section of the entire chain loop. The chain links "return" to the rear-wheel cassette when they exit the crankset. The return chain is under minimal tension when you pedal. The tension is created by the rear derailleur's spring. This section is going from the bottom of one of the crankset's chain-rings, through the top of the chain idler roller, and to the cage of the rear derailleur. The return chain's own weight exerts very little friction and downward force on the PU tube and chain idler roller.

[9] **Cassette**: The rear wheel of your bike is designed with a freewheel mechanism within the hub that houses 9 gear sprockets. The whole cluster of the 9 gear sprockets is called a cassette. The cassette is assembled into the rear wheel's hub on the right side of the bicycle. The rear wheel's cassette has the gear sprocket cluster stacked progressively, with the biggest gear sprocket closest to the wheel and the smallest gear sprocket farthest away from the wheel. When properly assembled, the cassette always looks like a cone with a flat top. When you pedal forward, and engage your chain in one of the sprockets, you "drive" the rear wheel forward by turning the cassette clockwise. If you stop pedaling or attempt to pedal backwards while you are coasting, the freewheel mechanism disengages the cassette from the rear wheel. This inherent design allows you to relax your legs while you coast and continue moving forward.

[10] **Linear Pull brakes**: Linear pull brakes are also known as direct-pull and "V" brakes. Each brake (front and rear) consists of a brake lever, two cantilevered brake arms, two brake pads, a cable, ferrules and the housing for the cable. The cantilevered brake arms are fitted on each side of the forks' or stays' cantilever bosses. The cantilevered brake arms are fitted with brake pads. One of the cantilevered brake arms has a steel "noodle" inside a retaining bracket, and the other cantilevered brake arm has the "pinching" mechanism that grabs the end of the cable. The brake mechanism is designed such that the cable travels from the brake lever to the "pinching" mechanism by way of cable housings, cable stops, cable guides and the steel noodle. When you squeeze on the brake lever, you are pulling on the cable. When you create tension on the cable, the two cantilevered brake arms come together towards each other. This action causes the brake pads to evenly compress the rim wall from both sides, thereby slowing the wheel down.

⚠ The brake system must be balanced in order to squeeze the rims with even pressure. The brake pads must be assembled properly when they are changed. The rims must be true in order for the brakes to work

properly. If a rim isn't true, it could wobble from side to side and up and down. An untrue rim could also cause a spoke to break and further exacerbate the problem.

[11] **V-brakes**: Also known as Linear Pull Brakes.

[12] **Steering system**: The pivot mast, a standard stem, forks, a headset, handlebars, and the headtube.

[13] **Steerer tube**: Also known as "steerer". The tube that is bonded or welded to the forks' crown, and which must be compatible with the headset and headtube.

[14] **Pivot mast**: The pivot mast is part of the steering system. It consists of a long mast and a short stem, which both pivot around a joint. The joint pivots transversely to the stem and mast's axis. The short stem has a wedge-nut at the end. The short stem is designed to insert axially inside the steerer tube. The stem locks into the steerer by tightening the allen bolt atop of it. This action causes the wedge-nut to press against the steerer's inside surface. To adjust the tiller (lean-back angle) of the long mast, you must loosen the locking device at the pivot joint. You must open the QR piece and pop out the toothed-plate in order to disengage it from the teeth of the joint. Once you have tilted the long mast to the desired recline position, you must lock it by tightening and closing the QR. The top of the pivot mast is designed to house a standard stem. The standard stem is inserted axially inside the long mast. The standard stem can be adjusted by sliding it axially a few centimeters up or down inside the long mast. Note: There are many kinds of pivoting systems for the steering system of recumbent bicycles. Make sure to consult an expert bicycle dealer to teach you how to assemble, operate and do maintenance on your steering system.

[15] **A standard stem**: Your *EASY RACERS* bike uses a standard stem. The stem consists of a long bolt, a wedge nut, a quill and an extension-stem (the length of the part of the standard stem that runs forward from the shaft to the handlebar), and a clamp at the end of the extension-stem. The standard stem is designed such that the quill fits inside the steerer of the fork. *EASY RACERS* uses the standard stem to fit it inside the pivot mast. Make sure to comply with the maximum outward-protrusion limit marked on the quill. . Once the desired quill extension is reached, the standard stem is locked by tightening the head of the bolt at the top (using an allen key). This action causes the wedge-nut to press against the pivot mast's inside surface. The standard stem houses the handlebars at the clamp of the extension-stem. The hand position of handlebars can be adjusted by rotating the handlebars around the axis of the clamp. Once desired position is reached, the handlebar is locked by tightening the bolts in the clamp (with an allen key).

[16] **Granny gear**: The smallest chain ring of the crankset. It is located closest to the frame.

[17] **Regular platform and block pedals**: Platform and block pedals (made of nylon, plastic, rubber, steel alloy, titanium, aluminum alloy, etc) that are used simply as standard platform pedals. If the pedals have teeth, take all the necessary safety measures to avoid hitting them against your shins.

[18] **Binders/binding-mechanism/bindings**: The mechanisms in your pedals which come with counterpart cleats. These cleats attach onto the sole of your cycling shoes by means of bolts and washers and other hardware. An expert mechanic must properly adjust the cleats and the pedal's binding mechanism such that you can clamp the cleats into the pedal's binding mechanism and unclamp the cleats off the pedal's binding mechanism with the desired force, and ride on the pedals with the desired "feel".

[19] **Propel Mode**. The Propel Mode is a safe riding mode, practicing mode and a starting mode for beginners. This is a safe way to start learning to ride your bike. It consists of putting your pedals in the Propel Pedal position, and putting your chain in the middle chain-ring of your crankset and in the biggest gear sprocket of the rear-wheel cassette. Once the drivetrain is set up in these two gears, you can learn to accelerate and ride in these two gears. Note: For safety, it is recommended that you use an experienced helper to lift the rear wheel, and your own hands to turn the crankset and shift into the "Propel Mode" and put the pedals in the Propel Pedal position.

[20] **Propel Pedal**: The Propel Pedal consists of putting the cranks perpendicularly to the flat pavement. The Propel Pedal is the pedal at the highest position relative to the other pedal. The Propel Pedal is used to get your bicycle started from a standstill position. You push hard on the pedal with your foot, and accelerate as smoothly and fast as you can. Note: Some people use their most comfortable "kicking foot" to place it on the Propel Pedal; but you may prefer to use it to place it on the ground as you lean on it and place the other foot on the Propel Pedal.

[21] **Right-grip-Upshifting**: If the right twist-grip shifter is twisted clockwise - as if easing off the gas on a motorcycle - then you are upshifting gears. When you upshift, you are moving the chain from a bigger gear sprocket to a smaller gear sprocket in the rear-wheel's cassette. You may want to do Right-grip-upshifting when your cadence is higher than you want it to be and you want to reduce it; when you encounter a downhill; when you want to speed up your bike progressively and smoothly without going through the chain rings of the crankset.

When you upshift, your crank's leverage decreases, your cadence decreases, and you have to pedal harder if you want to continue increasing your speed.

[22] **Left-grip-Upshifting**: If the left twist-grip shifter is twisted clockwise - as if accelerating on a motorcycle - then you are upshifting gears into two (2) of the three (3) chain rings of your crankset. In other words, as you are pedaling, you are moving your chain from the granny gear, up to the middle chain ring and up to the biggest chain ring in that respective order. You may want to do Left-grip-upshifting when your cadence is too high and you want to reduce it considerably and abruptly; when you encounter a downhill; when you want to speed up your bike without going through the gear clusters of the rear-wheel's cassette. ⚠ When you upshift, from the granny gear, up to the middle chain ring, and from the middle chain ring up to the largest chainring, your cadence will decrease abruptly and considerably. Your crank leverage decreases abruptly and your pedaling becomes harder. Your pedaling torque will be reduced considerably due to less leverage of the cranks.

[23] **Left-grip Downshifting**: If the left twist-grip shifter is twisted counter clockwise - as if easing off the gas on a motorcycle - then you are downshifting gears into two (2) of the three (3) chain rings of your crankset. In other words, as you are pedaling, you are moving your chain from the big chain ring down to the middle chain ring and from the middle chain ring, down to the granny gear in that respective order. You may want to do Left-grip-downshifting when your cadence is too low and you want to increase it considerably and abruptly; when you encounter a sudden and steep uphill; when you want to slow down your bike without going through the gear clusters of the rear-wheel's cassette; when you are getting tired and you want to slow down your speed; when you need to pedal suddenly at a considerably higher cadence. ⚠ When you downshift, from the big chain ring down to the middle chain ring, and from the middle chain ring down to the granny gear, your cadence will increase considerably and abruptly because your crank leverage increases considerably and abruptly. Your pedaling will become considerably easier because your pedaling torque will be considerably greater due to more leverage of the cranks.

[24] **Right-grip Downshifting**: If the right twist-grip shifter is twisted counterclockwise - as if accelerating on a motorcycle - then you are downshifting gears. When you downshift, you are moving the chain from a smaller gear sprocket to a bigger gear sprocket in the rear wheel's cassette. You may want to do Right-grip-downshifting when your cadence is lower than you want it to be and you want to increase it; when you encounter an uphill; when you want to slow down your bike without going through the chain rings of the crankset; when you need to ride at lower speed; when you need to stop; when you are getting tired and you want to slow down your speed; when you need to pedal at a higher cadence. Note: When you downshift, your cadence increases, your crank leverage increases and your pedaling becomes easier. This is because your pedaling torque is greater due to more leverage of the cranks. Note: When you downshift, you may want to pedal faster to keep the same speed as before you downshifted.

[25] **psi** = pounds per square inch

[26] **Pedals**: General pedal types are: 1)Clipless 2)Toeclips/Straps 3)Platform

Clipless pedals: Clipless pedals have a binding mechanism (binders) incorporated within the pedals. They have the same function as ski bindings, to keep the shoes/boots securely fixed. Your cycling shoes have a hardware known as a cleat (made of nylon, steel, titanium, aluminum, plastic, .etc). It is screwed into the bottom of your footwear, around the ball area of your foot. The function of the cleat is to clamp into its compatible counterpart binding mechanism within the pedals. The cleat and binding mechanism are designed to maximize pedaling power, especially when you pull on the pedals with your feet. Note: The clipless pedals, the binding mechanism, the cleats and the shoes must all be perfectly compatible with each other. Please consult an expert bicycle shoe-fitter for the proper shoes and pedals.

Pedals with toeclips and straps: The straps pass through a slot in the toeclips and wrap around the instep area of the shoes. The straps are generally adjustable to all foot sizes. On top of the pedals there is a cage/toeclip (made of steel or aluminum alloy, nylon. plastic, etc). It covers the toe and instep section of the shoes. The straps are made of leather, nylon, woven fabric, etc. The straps insert through the hoop of the toeclip. The fastening mechanism of the straps could be a buckle, velcro strap, teeth/tip that bite into the straps, etc.

Platform pedals: They are the standard flat-platform pedals that you rest your running shoes on.

[27] **Riding Environment Dangers**: These are the hazards that are constantly lurking all around you and that can easily get you injured or even kill you when you ride your bicycle on planet Earth. Every single time you ride your bicycle, you will encounter all kinds of terrain, weather, and human-environment scenarios that can potentially harm you and even kill you. These dangers include things such as (the list not entirely inclusive): stormy weather; foggy day; cloudy day; rainy day; road surface irregularities; moving and static vehicles/ pedestrians/ obstacles/ animals; flurries; drizzle; sleet; mild rain; heavy rain; partly cloudy day; reduced-visibility-rain; typhoon; hurricane; black ice; leaves; wet leaves; debris; gravel; wet environment; sand; puddles, potholes, water-filled potholes; sewer grates; wet manhole covers; wet sewer grates; branches; wet branches; manhole covers; steel covers; railroad tracks;

intersections; sidewalk; ramps; curbs; reduced-visibility environment; nightfall; fog; a tunnel; dimmed light; tile floors; marble floors; uneven pavement; any type of wet pavement; any type of wet floor; road killed animals; construction zones; buildings; curves; narrow trail; isolated area; icy environment; traffic; the city streets; crowds, floods, tornadoes, drunk drivers, careless pedestrians, careless drivers, etc

[28] **Bunny hop**: BMX bicycle riders do a stunt called "bunny hop". A BMX bicycle is designed such that you can use the vertical position of your entire body to lift the bicycle off the ground – to "bunnyhop". To bunnyhop means to kick down on the pedals; and propel yourself and the bike upwards while holding on to the handlebars. The seating anatomy of a recumbent bike doesn't allow you to "bunnyhop" or lift your recumbent bike off the ground. You can't push your body up because you are in a horizontal position and because your pedals are in front of you, not under you. Therefore you cannot kick down on the pedals to propel yourself upwards. When you pedal on a recumbent bike, your legs are in front of you, pushing on the pedals, causing your body to push back onto the seat-back; you are never pushing upwards.

[29] **Headset**: The bearing assembly that binds the steer tube of your front forks to your headtube, and permits the steer tube axis to rotate coaxially within the axis of the headtube. Most recumbent bike headsets generally consist of a crown race, upper-bearing race, lower and upper cups, lower and upper seal, upper and lower bearings. In the assembly, there shouldn't be any considerable friction and there shouldn't be any play. There are generally two types of headsets: threaded or threadless (also known as "Ahead" headsets). The size of the headset is generally for a 1-inch or 1,125 inch steerer tube.Note: In general, if recumbent-bicycle manufacturers need to use the inside of the steerer tube – without the star nut - to insert the steering mast, they use a threaded headset or some custom "2-piece" threadless headset. The top piece binds to the steerer via a transverse bolt. The bottom piece threads downwards until it binds to the headtube's upper seal and tightens the steering system securely. Once the desired headset tightness is achieved, the transverse bolt of the bottom piece is tightened. The bolts are generally tightened with allen keys..

[30] **Headtube**: The headtube is the tube that is welded to the frame, for the steering system.

[31] **Tiller:** The "swinging" effect of the pivot-stem when you steer. This is due to the fact that when you lean it back/forward, the axis of the pivot-stem is no longer aligned with the axis of the steerer tube of the forks.

[32] **Endo:** BMX bicycle riders do a stunt called "endo". A BMX bicycle is designed such that you can lean over the handlebars. The "endo" stunt is done by pedaling the bike, and squeezing on the front brake as you simultaneously lean over the handlebars. This forces the bicycle to slow down as your body leans over the handlebars; causing the rear wheel to lift off the ground.

⚠ Never do an "endo" on any bicycle. Endos are for professional BMX riders only.

[33] **Wheelie:** BMX bicycle riders do a stunt called a "wheelie". A BMX bicycle is designed such that you can pedal hard and lean your body back as you lift the front wheel off the ground. ⚠ Never do a "wheelie" on any bicycle. Wheelies are for professional BMX riders only.

[34] **Truing a rim**: If your wheel moves slightly from side to side as you ride, your rim is out of true. The brakes may "wump, wump, wump" as you apply them. The bike may wobble at high speeds. To true a rim, you must put the rim on a truing stand and you must tighten/loosen the spoke nipples with a spoke wrench, until then rim is spinning perfectly centered - without moving from side to side or up and down. Warning!!! This definition of "Truing a rim" is for a rim with negligible damage. Please consult a professional bicycle mechanic for other definitions of "Truing a rim".

Easy Racers Guarantee

Easy Racers lifetime guarantees your frame, the fork for a period of five years, excepting crash damage. The seat and fairing are guaranteed for one year. All moving components such as chain, gears, pedals and cables are guaranteed for six months against breakage or premature wear. Our company has been building recumbent bicycles since 1979. We have the best reputation in the industry because recumbent bicycles are our only business and we stand behind our products.

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Registration Card

First Name:_____

Last Name:_____

Street Address:_____

Address (cont.)_____

City:_____

State/Province:_____

Zip/Postal Code:_____

Country:_____

Home Phone:_____

Email:_____

Product Name:_____

Serial Number:_____

Date of Purchase:_____

Place of Purchase:_____