Quick Information

Tire & Wheel Information

Rear: 559 bead seat diameter, 1.5"-2.25" wide
Front: 406mm bead seat dia, 1.5" - 2.0" wide
Inflation Pressures: Inflate to the pressure moulded on tire sidewall. Do not exceed rated pressure.
Wheel dish: For extra strenght, our rear wheels are built without traditional dishing, call for exact specs.

Torque specifications

Front Pinch bolts: 45 in-lbs (5N-M)
Frame Pinch bolts: 65 in-lbs (6N-M)
Pinch bolt type: 6mm x 1mm -- 25mm long
Handlebar Stem bolt: 65 in-lbs (6 N-M)

Serial number location:

On back plate of rear main frame, facing the rear wheel

The Advanced Transportation Products Inc. Warranty

Advanced Transportation Products Inc. warrants each new VISION bicycle frame, fork, and seat frame against defects in workmanship and materials for the lifetime of the original owner. Paint and decals, seat fabric, and all original parts, are warranted for a period of one year from the date of purchase. This warranty is expresssly limited to the repair or replacement of a defective frame, fork, seat or defective parts and is the sole remedy of the warranty. This warranty applies to the original owner and is not transferable.

Claims under this warranty are to be made through an authorized VISION dealer. Proof of purchase is required. A Warranty Registration Card must be completed and received by Advanced Transportation Products Inc. before warranty claims may be processed.

The warranty does not cover normal wear and tear, improper assembly or maintenance, or installation of parts or accessories not originally intended or compatible with the bicycle as sold.

The warranty does not apply to damage or failure due to accident, abuse or neglect.

Advanced Transportation Products Inc. shall not be responsible for incidental or consequential damages. Labor charges for part changeovers is not covered by this warranty. The user assumes the risk of any personal injury or damage to the bicycle or other losses if the bicycle is used in any competitive event including but not limited to bicycle racing, triathalons, or similar activities.

Tandem
Owner's Manual

MODELS

R82 & R85

Advanced Transportation Products, Inc.
P.O. Box 249
Mountlake Terrace, WA 98043
Phone: 425-673-2448 Fax: 425-673-4668
E-Mail: Info@VisionBikes.com Web: VisionBikes.com

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Chapter 4: Accessories

Rear Rack / Panniers

We have an accessory mounting rack available for the Double Visions. This unit allows you to attach standard rear racks, as well as providing mounting points for our fender set.

Fenders

For wet weather riding your VISION will accept fenders. We sell a matched 20”/26” set of fenders. Part number FEN80

Kickstand

We have a wonderful center-stand available for your DV. Solid and sturdy.

Chapter 4: Accessories

to “flip” the toeclip forward with your toe so that it swings around onto your foot. After a while it becomes second nature!

SeatBack System

The SeatBack system consists of the WaterBack and the SeatBag. The WaterBack is designed to mount permanently to your seat, and carries standard hydration bladders (not included) as well as having room for some tools and money.

For added capacity, you can add the 800 Cu/in. SeatBag to the WaterBack.The bag is ideal as a day bag, or a touring companion bag for carrying valuable items. Fits on both the Captain's and Stoker's seats.

Chapter 1—Read Me First!

Thank you for choosing a Double VISION Tandem Recumbent! Here at Advanced Transportation Products we have tried to build for you the most advanced, full featured tandem recumbent available. Please take a few moments now to fill out your warranty registration card - we want to know what you think about your new bike.

Before we explore your new VISION's features, we would like to take a few moments to discuss some important points about recumbents and bike riding in general:

Always wear an ANSI or Snell approved helmet -- Yes, with their lower center of gravity and feet-first position, recumbents are significantly safer than upright bicycles, but you still need to protect your most valuable body part. Modern bicycle helmets are light, cool, and offer lifesaving protection.

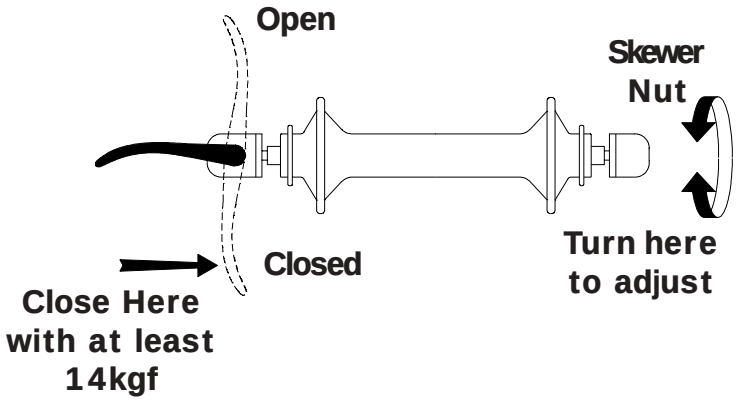
Check your bike carefully before each ride

Spend a few moments before each ride inspecting your VISION for problems.

*Check all the nuts, bolts and other fasteners to make sure none are loose.

*The tires should be inflated to the pressure moulded on the sidewall, and free of cuts or imperfections.

*The wheel quick release skewers should be clamped shut with at least 20 lbs (14kgf) of force, and a sharp blow to the top of the tire should not knock the wheel loose. Study the wheel / seat skewer operation diagram - the skewer handle has a curve in it that will face the tire when properly closed. Open the skewer handle, tighten the skewer nut slightly, then close the skewer handle (curve facing toward the wheel). It should take 20-45 lbs of force to close the handle as shown, and the skewer should emboss the metal of the wheel dropout.



Chapter 4: Accessories

Now that you are comfortable riding your new VISION, I'm sure that you will want to customize it for your particular riding needs. Your VISION recumbent has been designed to accept a full range of standard bicycling accessories, as well as some custom items that have been designed by ATP.

Mirror

If you ride in traffic, a mirror is a must. We sell the Rhode Gear mirror, and have models available for both under and above seat handlebars.

Computer

Virtually any small bicycle computer will fit on your Vision. We recommend that you mount the computer on the handlebars, although make sure that on underbar steering models the computer doesn't interfere with the seat frame as you turn the handlebars from side to side.

Pedals / Toeclips

Your VISION will accept all standard pedaling systems. Clipless pedals such as the SPD and LOOK work extremely well on recumbents - just remove your original pedals and screw in the new (the left pedal is left-hand thread). Toeclips are also recommended - practice getting in/out of them a while before hitting the streets. One technique for entering toeclips is

Chapter 3: Riding your VISION

smooth and predictable. You shouldn't feel like you have to do everything in one session. Many novice riders actually do much better working up to the open road in several short training sessions, often days apart.

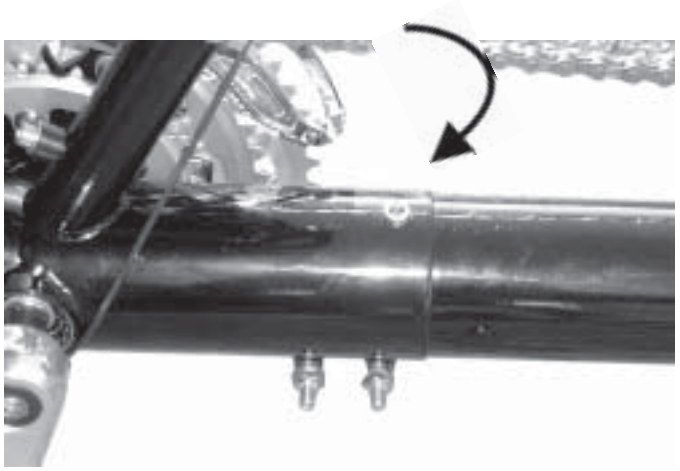
With some practice, the captain and the stoker become a team, involved in the joy of cycling together. Enjoy your bike, and have a world of fun with it!

Check your bike before each ride

*Squeeze each brake lever to make sure there is no binding and the brake pads press hard enough on the rims to stop the bike. The brake pads should be adjusted so they are 1/16" (2mm) away from the rim when not applied. The brake pads should be centered on the rim and not touching the tire itself.

*The seat quick release skewers should be closed with at least 20 lbs (14kgf) of force (see the skewer diagram).

*Check the tightness of the boom and main frame pinch bolts, and make sure the frame anti-rotate pin has engaged.
Do not ride a Double VISION without the anti-rotation pin locked in position!.



*****If you are unsure of the condition of your VISION recumbent, **Do Not Ride It** until the problem has been corrected. If you have any questions at all, see your VISION dealer.

Always Ride Safe!

Wear gloves — with its low center of gravity, you don't fall very far on a recumbent, but you will touch down with your hand first! A set of bicycling gloves will protect your skin.

Wear eye protection — Riding down the road at speed is no time to get a bug or dirt stuck in your eye! Goggles, glasses or both will save your sight and protect against a crash.

Practice riding your VISION — before you mix it up with traffic, spend enough time on your recumbent on a parking lot, driveway or other open area to get used to its unique riding position. We also recommend that a new Captain ride the VISION Tandem solo for a while before adding the Stoker. Chapter 3 has some important information about riding your VISION.

Never ride at night without a front and rear light!

Experiment with different seat positions, seat angles, and boom lengths during your practice period -- Your VISION recumbent has many adjustments and special features that fit the bike to you. Try them all!

Be careful when riding in wet conditions — All brakes, whatever their design, loose effectiveness in wet weather. Stopping distances and brake lever pressures all will increase. Practice!

Chapter 3: Riding your VISION

the bike, we've found a favorite technique. The captain holds the bike and allows the stoker to mount.

Once the stoker is comfortable, they support the bike and allow the captain to mount and clip into the pedals. Once the captain is ready, they signal their intention to ride, and start pedaling away. The stoker then lefts their legs and clips into the pedals. At stops, the captain signals the stoker to "prepare to stop" and the stoker releases their feet from the pedals and gets ready to drop their feet. When the captain brings the bike to a halt, the stoker drops their feet and supports the bike, allowing the captain to remain in the pedals, ready to accelerate away.

If the stoker is much lighter than the captain, you might be better off reversing this procedure, but it is so easy to support the Double Vision from the stoker's position that this method is usually the most comfortable. If your bike is equipped with the I.P.S., then it is even easier to start and stop; the stoker's and captain's cranks are independent of each other, so one won't be spinning madly with the other.

It's important for the captain and the stoker to understand their own responsibilities to the other. The captain should always advise their stoker of starting and stopping intentions, warn of potholes or bumps, and in general keep their stoker informed of their plans. The stoker should acknowledge all communications with the captain, and try to sit still without a lot of moving about. It's OK to turn your head and look at the scenery, just try to not shift your upper body about, and keep all your movements

Chapter 3: Riding your VISION

The last thing you should practice before hitting the open road is your shifting. You really need to be work on being aware of how the gears work. While the modern shifting systems work wonderfully, it's best to only shift with a light load on the pedals. That is, you should ease up on the pedaling pressure before you shift. This does take some practice, typically you only think to shift when it's almost too late; like when you're right in the middle of a monster hill.

Try to anticipate what gear you will need , and when. Typically, the front derailluer (your left handlebar control) with it's three positions controls a bigger "jump" in the gearing, but shifts slower and is more prone to pressure-induced miss-shifts. The rear derailler (controlled by your right hand control) operates over a range of seven or eight gears, shifts faster and cleaner when you need it, but each shift is a smaller "jump". The most important thing to remember is to practice shifting back to a nice starting gear BEFORE you come to a stop.

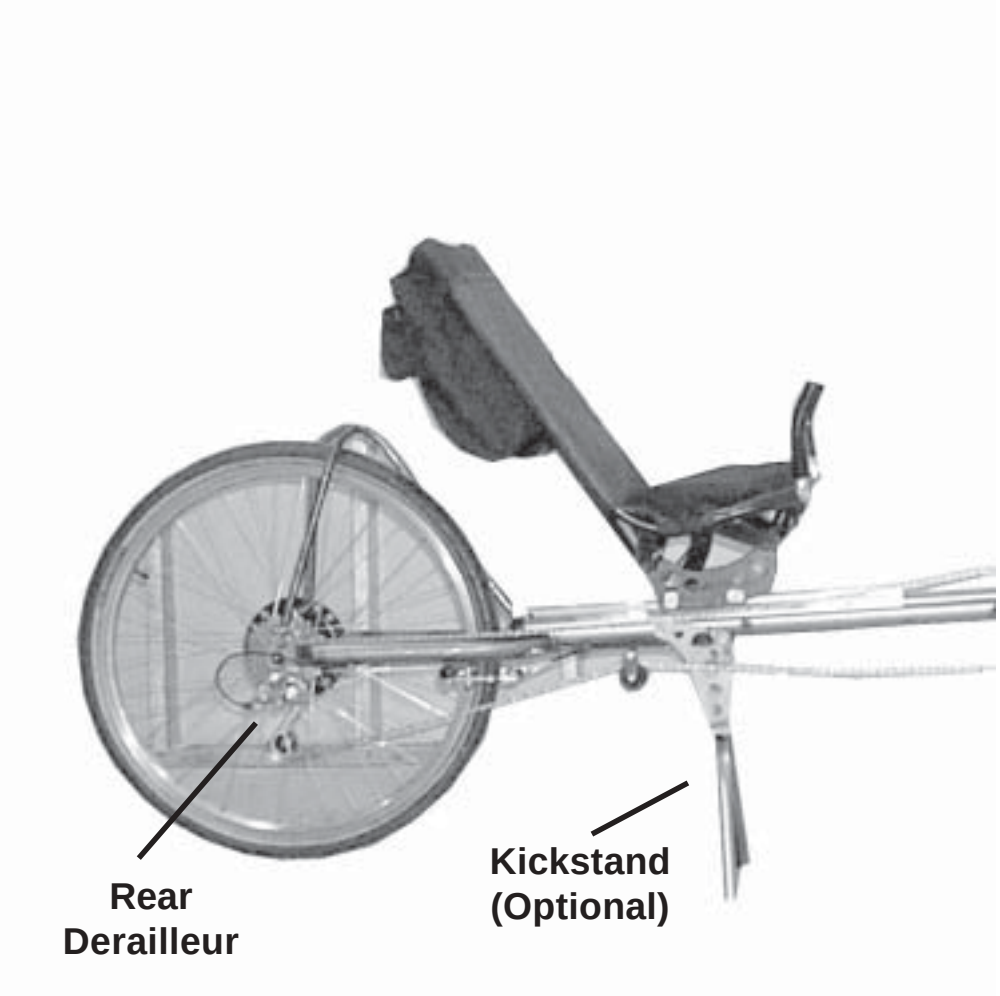
Try to start the bike in a high gear (like starting your car in fourth) and you will see why it's so important to remember to shift back to your favorite start gear. With a little practice, you will know what gear you want for different condition starts (uphill, level terrain, etc.) and be able to quickly dial in that gear.

Now it's time to add your partner. While everyone will probably find their own favorite method of mounting and starting

Keep your pedal cadence high —You can overstress your knees with the tremendous leverage you have on a recumbent. We recommend that you pedal in the 80-90 RPM range. If you experience knee pain, spin faster and check your leg length setting. It is probably too short - see Chapter 2 for leg length adjustment. You might also change your seat back angle.

Communicate **—** The key to successful tandem riding is teamwork between the captain and the stoker. Captains - tell your stoker when you are shifting, stopping, and if there are any bumps comming. Stokers - become part of the bike; don't make sudden movements that startle your Captain. One of the best parts of tandem riding is being able to talk to each other -- Do it!

Anatomy of a Double Vision



Chapter 3: Riding your VISION

You should really try to master turning slowly in as tight a curve as possible quite a few times, this gets you ready for the real world of poor directions and detours. If you find yourself wobbling or jerking the handlebars around, you are probably too tense. Relax, let your hands grasp the bars in a light but firm manner. Let your shoulders droop, relax your neck, don't "death-clench" your teeth. Once you relax you will have more control over the bike.

Next, you should practice using the brakes. Stop and take off a few times, getting a feel for how much pressure on the lever it takes to slow down or stop the bike. Remember to always use both brakes together, with gentle pressure at first to stop the bike smoothly. Drop both your feet to the pavement while giving the brakes the final squeeze to stop the bike. Lean forward a bit and stand up, while reaching behind you for the seat frame to steady the bike.

Practice stopping and dismounting, then starting off again. You should also practice stopping by dropping only one leg, typically your non-dominant leg. This exercise will help you deal with momentary stops, such as at stop signs and traffic lights. It does take a little practice to balance the bike leaning onto a single leg. Remember to keep one hand clamped on a brake to prevent the bike from rolling, it really helps. I usually immediately cock my "crank-bound" leg for the start, and then hold pressure against the brake until I'm ready to go. You should also carefully investigate what happens to the bike with gradually increasing brake lever pressure, so you will be comfortable with quick decisions on the road.

Chapter 3: Riding your VISION

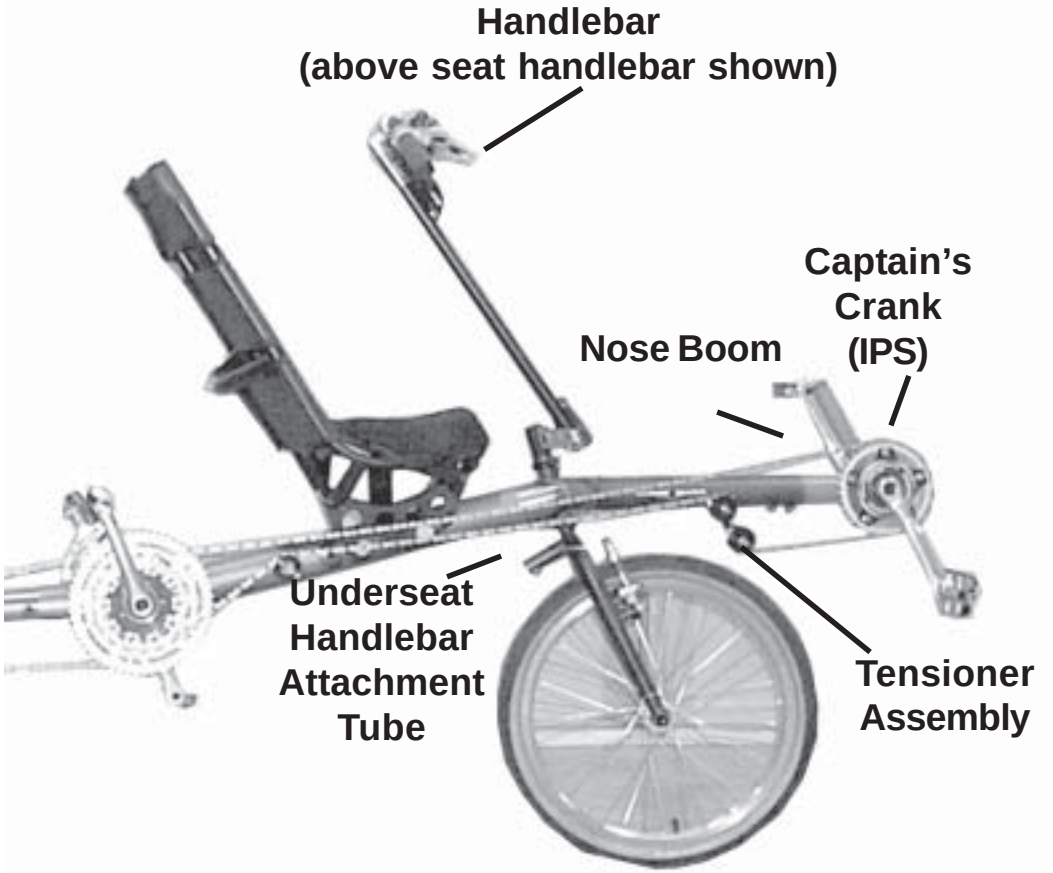
Once you're riding smoothly in a straight line, it's time to practice looking around. Now don't laugh, I'm not being funny nor condescending. Compared to a traditional bike you will find yourself looking at the world from a whole new perspective, a comfortable one. The biggest problem you will face is keeping your mind on the road. Since you are riding in a relaxing reclined position it's all too easy to forget about everything except the scenery in front of you.

Looking behind you is not difficult, but it does take practice. As you ride in a straight line—and are sure you're not about to take a long ride on a short pier—practice swinging your head to the left and right, taking quick glances behind you. The first time you do this you will inevitably shift your weight and hand position, causing the bike to swerve. Don't panic, this is why we are practicing in the park instead of a congested street.

While many riders like to use a helmet or bicycle mounted mirror—and we sell a beautiful unit that mounts onto the handlebar, see the accessories section of this manual—it's important to be able to actually look around behind you. This not only gives you options on checking out traffic, but practicing this will increase your skills and confidence on the bike.

At this point you should be feeling pretty good about life, zooming along nice and comfortable, relaxed and thinking about how much fun you are going to have on this thing. Well don't get too cocky yet. Before you hit the open road there are a some more exercises you should do. Practice circling, both to the right and to the left. Start out with gentle curves, and progress to tighter and tighter radius "U" turns.

Anatomy of a Double Vision

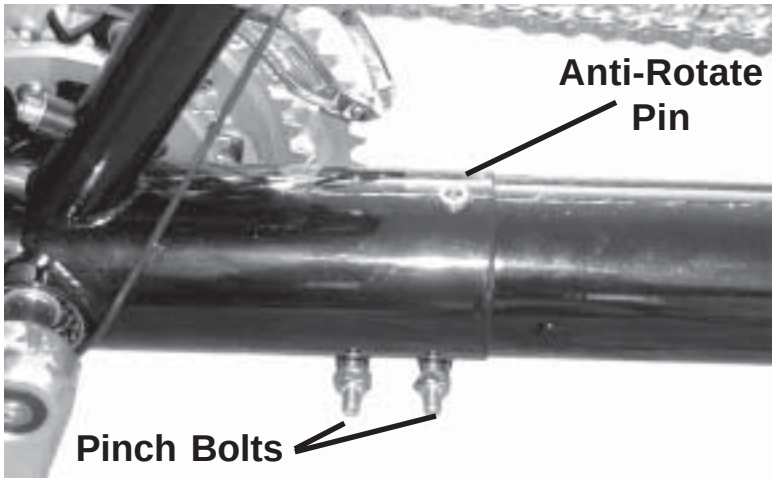


Chapter 2 - Set-Up & Adjustment

Your VISION dealer will have assembled your tandem and set the adjustments for you. Refer to the "Anatomy of a VISION" section for part names and locations. This section is intended to help you with making adjustments yourself.

The Double VISION main frame

The main frame comes in two parts - start by sliding the rear frame section into the front frame section. Do not grease the rear frame! Slide the sections together and adjust them until the anit-rotate pin pops into place. Then tighten the pinch bolts to 65 inch pounds.



<u>WARNING!</u> -Riding without the frame anti-rotate pin engaged can result in the frame folding underneath you. A crash and serious injury could result! Do not ride a Double VISION without the frame anti-rotate pin in place, and the pinch bolts tightened properly.

Chapter 3: Riding your VISION

forward on the seat, not being used to the relaxed, laid back position. Sit back! Enjoy the comfort!

Now pick a dominant leg. For most people this is your right leg, but go with whatever is most comfortable for you. Pick your leg up and swing the crank arm around so you can easily reach the pedal. If you are using toe straps, flip the pedal clip over your foot, but keep the strap nice and loose to start with. Swing the crank around until your foot is in a “cocked” position; somewhere close to the top of the pedal stroke. This spot is different for everyone, the key is to find the spot where you feel best about putting a lot of power into the pedal. It helps to hold the bike from rolling with either brake.

When you’re ready, release the brake, and push forward firmly on the pedal. As you start moving, lift your other foot up and keep peddling. At first you probably will wobble a little, but don’t panic and tense up! Just relax and concentrate on making small corrections with the handlebars. The most common beginners’ error is to over-control the bike, ending up steering a set of “S” curves down the lane. If you relax and let your hands sit lightly on the handlebars, you will find it easier to avoid this syndrome. Lean back! You are probably trying to lean forward, to mimic that “other” type bike you’ve been riding. Another common first time mistake is to stare at your feet — after all, you’ve never seen them before! Look ahead, see the scenery you’ve been missing.

Chapter 3: Riding your VISION

can spin the cranks and shift the gears. Don't forget that you should only shift when pedaling!

As you gain experience you will find yourself thinking ahead and shifting into your favorite "start-up" gear before you come to a stop. Your VISION's gears are shifted with "push-button" type shifters - they're right under your hands, and are very easy to use. Practice shifting a few times before you get into traffic!

Now let's get on the bike. I tend to always mount from the left, like on a horse, but the important thing is to establish a pattern and do it the same way every time so it becomes a habit. Starting on the left side, hold the seat back with your right hand. Standing in front of the handlebar and facing the bike, swing your right leg over the front boom. You are now looking forward, straddling the bike.

Now reach down and grab the handlebar grips, apply the brakes, and sit down. Settle yourself into the seat and get comfortable, remember, let's try this alone for the first couple of rides. The Double Vision rides beautifully with only a captain, and you can spend some time getting comfortable with the bike without having to worry about what the stoker is doing.

Sit awhile, rock back and forth and from side to side. Notice how the seat cradles you, and how comfortably close to the ground you are. Grasp the handlebars and rock the front wheel from side to side. Squeeze the brake levers. Yodel a few times. Do whatever it takes to relax. Many first time riders try to sit

Chapter 2 - Set-Up & Adjustment

Adjustment for Leg length

The nose boom is how the bike is adjusted for the captain's leg length. Set the boom so the rider's leg reaches full extension when at the far end of the pedal stroke. The rider's knee should not lock. When the boom is in position, align it square, and lock it into place with the pinch bolts. Tighten to 45 inch pounds. See the section on "Captain's Chain Tensioner" to check chain length after any adjustments are made—and BEFORE you ride.

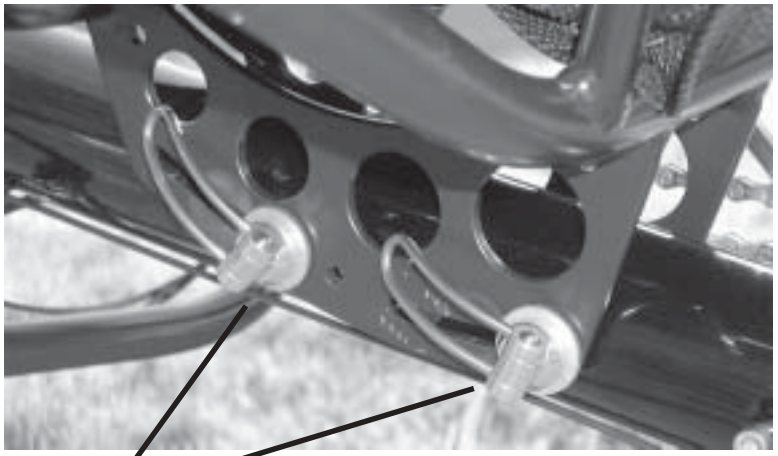
The stoker's leg length is accommodated by sliding the rear seat on it's track. Loosen both quick release skewers and slide the seat to an appropriate position, and re-tighten both skewers completely. Do not attempt to do this while in the seat!

<u>Note:</u> Replace the boom pinch and/or main frame pinch bolts after every 10 adjustments to prevent the bolt shearing off in the frame!

Chapter 2 - Set-Up & Adjustment

Seat Angle Adjustment

Both the captain's and the stoker's seat angle can be adjusted to suit you. Loosen the quick release skewers and slide the seat frame back or forward on it's track to the desired position, and then re-tighten the skewers. Changing the seat angle does effect the leg length adjustment.



Chapter 3: Riding your VISION

wear gloves when you ride. If you do have an accident and fall over, you'll probably catch yourself with your hands, so save your palms and wear gloves. You should also wear protective eyewear; road grit and flying insects do not make for happy eyes. Wearing cycling shoes, shorts and jerseys can help you be more comfortable, but they are not as essential as the helmet, gloves and glasses.

Now you're all set to hop on your Vision and pedal away into the sunset, right? Wrong! The key to riding smoothly and in a controlled fashion on any bicycle, recumbent or not, is to be comfortable enough to relax. If you are nervous and tense, you will tend to ride in a jerky, over-controlling fashion. Not only does this make you more uncomfortable, which leads to even worse riding, but it doesn't look cool.

So you need to approach the bike as your friend, someone you'll enjoy spending the day with. The intent here is to spend some relaxed time getting to know your bike before you get 20 miles into nowhere, or involved with city traffic. Pack a lunch and head for the park, relax and enjoy the day for a bit, and then set yourself up to ride in the parking lot, or any open space with no traffic.

Before you start to ride, look at your gears and make sure that you are set in a good gear to start in. On a flat surface this usually is in the middle chainring (up front) and in one of the three largest cogs (on the back). If the bike is not in one of these gears, have someone hold the rear wheel off the ground so you

Chapter 3: Riding your VISION

Riding a Vision recumbent tandem is no more difficult than riding a traditional diamond frame tandem, or a single rider recumbent. If you are new to cycling, you'll find it easy to learn to ride on a Vision. If you are an experienced rider, you'll have to learn some new habits, but the benefits of riding a recumbent far outweigh the small learning curve involved. Either way, it's important to spend a little time adjusting to your new bike before riding in traffic or committing to a long ride.

In this chapter I'm going to discuss some things that will make the transition to recumbents, or learning to ride on a recumbent, easier. We recommend that the captain take the Double Vision out solo for the first few rides, to get adjusted to the handling characteristics of the bike.

First of all, be sure to read the previous chapter about set up of the bike. To ride well you have to be comfortable, and to be comfortable you need to be sure that your Vision is adjusted to fit you properly. The seat angle is adjustable, and really affects how you feel on the bike. If you're just starting out with recumbents you will probably want to set the seat as upright as possible. Later you can recline the seat incrementally until you find your own ideal position.

If you're comfortable on your bike, it's time to go riding. First and foremost, the most important part of riding any bike is to wear proper safety equipment. We discussed safety equipment in Chapter 1, but I will repeat it here. It is essential to wear a helmet, all the time, anytime you ride. It's also very important to

Chapter 2- Set-Up & Adjustment

The Handlebar

Your VISION handlebar has been installed on your bike at the shop. The underseat handlbar is attached to the bike at the stem tube on the back of the fork. The above seat handlebar is inserted into the fork steerer tube. This bar does fold forward to facilitate mounting and dismounting the bike. There is an adjustable stop that limits it's rearward travel. Set this stop so when you pull the bars back toward you they stop at a comfortable distance from your body. The resistance of the above bar's fold can be adjusted by tightening or loosening the hex headed bolt at the bottom of the riser. Do not leave this adjustment too loose.

The Seat Fabric

For the first few weeks of use, the seat fabric will stretch a bit and appear loose. Simply tighten the fabric as needed — it will stabilize after about 100 miles or so. The back tension is set with the Velcro straps, and the seat base tension is set with a web strap. Check the seat before each ride for abrasions, tears and tightness.

Chapter 2 — Set-Up and Adjustment

The Seat Fabric

For the first few weeks of use, the seat fabric will stretch a bit and appear loose. Simply tighten the fabric as needed — it will stabilize after about 100 miles or so. The back tension is set with the Velcro straps, and the seat base tension is set with a web strap. Check the seat before each ride for abrasions, tears and tightness.

Front Tension Strap attachment

Step 1. Make a loop in the nose strap about 6” long.

Step 2. Loop the strap over the small stub tube in the center of the seat frame.

Step 3. If needed, adjust the lenght of the loop so the seat fabric is supported over the top of the stub tube.

Chapter 3 - General Maintenance

Take care of your chain and it will take care of you. If your chain gets really nasty, there are some nice cleaning systems on the market—boxes that enclose the chain in it's own little washing machine. We recommend these over removing the chain from the bike to soak it. You should avoid breaking the chain any more than is absolutely necessary.

Pump up your tires.

It is normal for tire pressure to drop slowly. Check the pressure every week with a good hand pump. Inflate the tires to the pressure rating printed on the tire itself. Don't use pumps at gas stations... you'll be sorry if you do, your tires might blow off the rim.

Lube your components. Using your chain lube, or better still, a drip bottle of general bicycle lubricant (NOT "3 in 1" oil), carefully apply drops of lubricant to all the pivot points of the components. Do the brakes and the derailleur. As you move around the bike examine all the cables and casing pieces for wear and tear. Also examine the components for any damage.

Know your bike.

It's simple—just get to know the feel of your bike. If something feels different, and you can't figure out what it is, bring your bike to a shop to have it checked out. All of the components on the Vision Tandem are bicycle standards, and any competent shop can service it.

Chapter 3 - General Maintenance

It's important to maintain your bike properly, to keep it in good running condition. A regular visit to your bike shop is very important to keep your bike running smooth and safe, but between trips to the shop your bike will love some simple attention.

Lube your chain.

This is probably the most important regular maintenance item on any bike, and just as probably the most ignored. You should lube your chain at least every month. More if you ride a lot and do it every time you get rained on. It's simple, if you start when your ride is finished, rather than 2 minutes before you head out. First, grab a trashy rag (not a paper towel) and wipe the chain down completely. I wrap my hand with the rag, grab the lower section of the chain and turn the pedals backwards.

Do this until the chain has travelled through the rag several times. Now apply a commercial bicycle chain lubricant (NOT WD-40!) to the chain. Follow the manufacturers directions, but what works for me is to drip it lightly onto the inner side of the chain, first the outer plates and then the inner. Now allow the bike to sit overnight.

After the lube has had a chance to penetrate the links, it's important to wipe off all the excess lube. This helps to keep the chain free of excess road grit. Do this by repeating the wiping procedure outlined above.

Chapter 2 — Set-Up and Adjustment

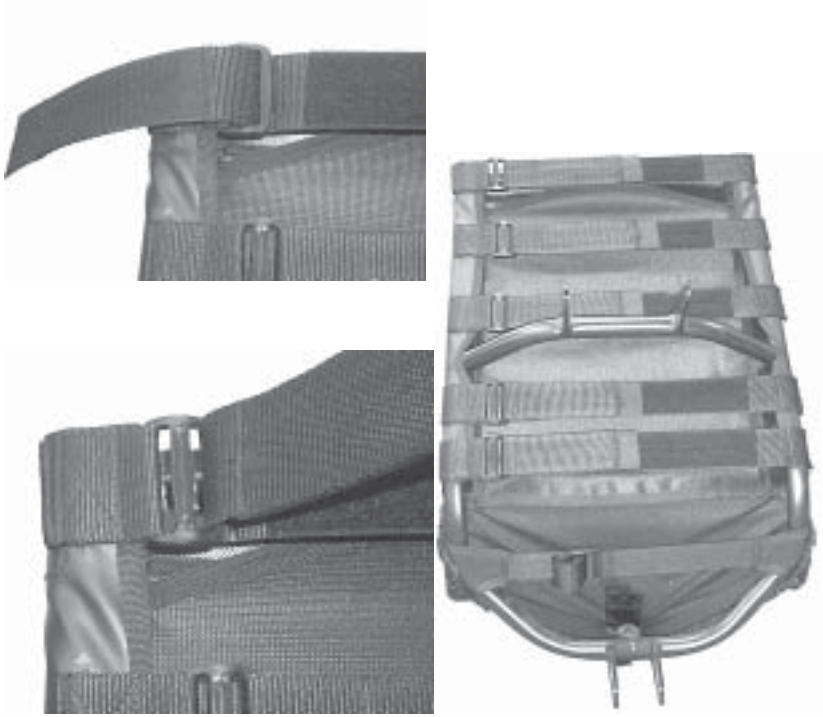
The Seat (cont.)

Seat Back Fabric Tension

Step 1. Drap the seat fabric over the seat side rails as shown.

Step 2. Thread the long strap through the buckle, laying it back on itself so the velcro engages.

Step 3. Adjust the tension of the straps to hold the fabric back firmly, but do not over-tighten.



Timing chain and Tensioner

The front chain has a chain tensioner in the loop to keep the timing chain tight. When the chain is not installed, the idler sits on the bike as in fig 1. (below). Rotate the idler counterclockwise (fig 2), and end up with the idler as shown in fig. 3. Now route the chain from the bottom of the chainring —heading to the back of the bike—through the idler, following the arrows. You should set the chain length so that, after the boom is adjusted for the captain, the idler is positioned like fig. 2.

Fig 1

Fig 2

Fig 3

IPS Unit

Your Vision tandem may be equipped with our Independent Pedaling System. This system allow for the stoker and captain to pedal at different intervals. This pedaling system can maximize the enjoyment of tandem riding, especially if two people aren't at the same level of fitness. The IPS requires no extra effort for maintaining it. Just treat it like any other normal crankset.