



ICE

# Activate your warranty online

New for 2012!

Can all new customers please submit their Warranty within the first 30 days of ownership.

## How to activate your warranty

You will need your 6 digit frame number which can be located on the cross axle as well as a sticker somewhere on the underside of the cross axle.

You will then need to go to [www.icetrikes.co/support/warranty-activation](http://www.icetrikes.co/support/warranty-activation) and input the information needed.

Once submitted you will receive an automated email notifying you that your warranty has been submitted.

For further terms and conditions please visit:  
[www.icetrikes.co/support/terms-and-conditions](http://www.icetrikes.co/support/terms-and-conditions)



# 2012 Trike Owners Manual

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# 1.0 Introduction

Congratulations on being a new ICE trike owner. You have purchased the finest, most refined recumbent tricycle available today; we hope it brings you many years of enjoyment.

This manual has been written to help you set up and use your trike. Recumbent trikes may be a little different from the cycles you are familiar with, so please take a moment to read through this document. You will find the latest version of this manual in a download-able PDF format on our website.

Throughout the manual, we have included some tips, which have been learned from over 20 years of experience building trikes. They are well worth taking special note of.

If you have never worked on a bike before, you should consider purchasing a good book on bicycle maintenance. The ICE trikes use as many standard bicycle components as possible, and their adjustment and maintenance is no different from an upright bicycle. We can recommend Lennard Zinn's "Zinn and the Art of Mountain Bike Maintenance" as a thorough and easy-to-read reference.

If you are assembling your trike for the first time, please refer to the ICE Trikes Assembly Manual.

We hope you enjoy owning and riding your ICE trike as much as we like making these great machines.

On the off-chance that you have any issues with your trike please contact your dealer or ICE HQ. (see contact details towards the back of this Manual)

## 1.1 Overview



*ICE Sprint RS used in this example.*

## 1.2 Adjusting and closing quick-releases



Quick-releases are used in a number of places on your trike; it is important that they are tightened correctly. A quick-release that isn't fully and properly closed can result in parts coming loose or moving while riding. This could cause a serious accident. A quick-release system consists of two basic parts: a lever that provides the clamping force and an adjusting nut that alters the clamping tension.

With the part you are clamping located properly, adjust the quick-release by opening it, holding both ends and turning one clockwise until, when you close the lever, you feel some resistance. At this point, try to close the lever fully. The adjustment is correct when you can fully close the lever, but with some effort (the lever should leave its impression in the palm of your hand).

i

TIP:

When assembling your trike, please refer to the table in the appendix for the proper tightening torques for all fasteners. Do not overtighten.

If you can only close the lever part way, open it, unscrew the adjusting nut slightly and try again. If it closes too easily, tighten it up a tiny bit and try again. Do not try to tighten the quick-release by winding the lever around; it will not tighten enough to be safe.

## 2.0 Adjusting your ICE trike

Fine-tuning for leg length, seat angle, handle bar width / angle, brake lever reach, tyre pressure etc are all well worth taking time to set to your personal preference.

i

TIP:

Experiment but always go for a reasonable (a mile or two) test ride to decide if an adjustment is right for you.

## 2.1 Tyre pressure

Typical tyre pressure for the standard tyres is about 70psi (4.6 bar). Do not inflate the tyres more than the maximum pressure recommended on the tyre sidewalls. You will need to experiment a bit to find the tyre pressure that suits you best. Higher pressures will allow the trike roll more easily, but will transmit more road shock to the rider. Lower pressures will feel much more comfortable, but there can be more rolling resistance. Also try experimenting with tyres; there are now large cruiser tyres available which can provide a comfortable ride and reasonably low rolling resistance, as well as small high-pressure racing tyres that offer very-low rolling resistance and sport's-car type handling.



## 2.2 Folding and unfolding (Not Vortex 2012)

Folding and unfolding your trike is very simple. After you have practiced it a few times, you will be able to do it easily in under a minute.

To fold your trike:



1 Unscrew the knobs under the front of the seat and slide the clips off the frame cup in which the seat sits. They should be left at the end of the screws as seen here. They are there to prevent the knob from being unwound too far and falling out.



2 Release the QR (Quick Release) on the seat post. Remove the seat.



3 Release the QR on each handlebar and swing it backwards until each is horizontal. Re-fasten each QR.



4 Undo the QR on the hinge.



5

Swing the QR and its connecting pin backwards 90 degrees. Lift the QR and its pin to release the safety catch.



6

Swing the rear section of the frame up and to the left. Be sure to lift the chaintubes as shown in the photo. This will allow the chain to fold over properly.



7

Put the neoprene mat between any parts that touch after the fold.

Unfolding your trike is the same sequence in reverse order. To unfold your trike:

- Swing the rear section of the frame up and to the left and then down to the unfolded position.
- Put the neoprene mat in a safe place for next time you fold the trike.
- Lift the QR (Quick Release) latch to retract the safety pin, and close the hinge. Make sure the safety pin is properly engaged.
- Swing the QR and its connecting pin forwards 90 degrees (into the slot on the front part of the hinge).

- Tighten the QR on the hinge. If the QR is loose, the adjusting nut may be tightened slightly.
- Release the QR on each handlebar and swing them forward until each is vertical. Re-fasten each QR.
- Put the seat in place and slide the clips on the bottom seat rail over the frame cup in which the seat sits.
- Tighten the knobs under the front of the seat.

- Secure the seat angle adjustment onto the QR and tighten the QR.
- Make sure everything is secure before riding your trike.

## 2.2a Suspension adjustment

The front and rear suspension can both be fine-tuned to work well for you. The rear suspension can be adjusted by a combination of selecting one of three different hardness and five different fitting positions for the elastomer. The front suspension can be adjusted by selecting one of three different hardness elastomers. All trikes come with medium elastomers fitted to both front and rear suspensions. Other elastomers are available for purchase from ICE.

### Rear suspension

The adjustment is accomplished by the selection of elastomers and mounting positions. The elastomers are available in three hardnesses: Yellow/Soft, Red/Medium, Green/Hard. There are five mounting positions; the lowest/closest to the main pivot (numbered 1 here) will make the suspension feel softer. The highest/furthest from the main pivot position (5) will make the suspension feel harder. To setup the suspension you will need to select an elastomer and position it by using the table on page 9.

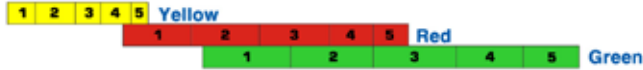
### Elastomer positions

Unclip the rear suspension by pulling the stainless steel clip on the left hand side over its pin. The purpose of this clip is to keep the rear swing arm from dangling when the trike is picked up; it is only unclipped when changing the elastomer .

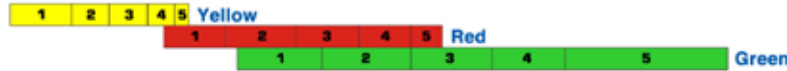


## Rear suspension elastomer selection table

Rider + full load on rack (25Kg)



Rider only



Kg



Lb



St



Rider weight

The elastomer is removed by pulling and twisting it off the shock pin. With the back end hinged open, screw the shock pin into the required hole in the shock plate. Firmly push the elastomer back onto the pin and close the swing arm back onto the stainless steel clip.

The position you have selected using the table above will give you a good starting point. Your trike should perform properly like this; however, it is worthwhile spending a little time experimenting with settings to find one that suits you best.

The elastomers have different compression characteristics, and you may find other combinations of elastomer hardness and pin position which suit the roads you ride on and your riding style better; it is just a matter of trying different combinations. The elastomer system is simple and small enough that you can carry a couple of elastomers in your bag and change them when you are out on a ride if you like.

If you ride on rough terrain or ride aggressively, you may benefit from a harder elastomer. If you are a leisurely rider, who rides predominantly on smooth tarmac, you may be able to use a softer elastomer. If the setup is too soft the trike may not reach its optimised comfort setting. If it is too hard comfort will be compromised.

You should generally get a better result with the hardest elastomer recommended for your weight, for example if your weight is 90kg use the green elastomer in position 2 rather than red in position 4.

If you are a light rider and have your suspension setup soft it is advisable to adjust it to a firmer setting; change for a harder elastomer if necessary before allowing a significantly heavier rider to sit on your trike, otherwise permanent damage to the elastomer may occur.

With rear or full suspension, tyres can be run at higher pressure while maintaining good comfort. Contrary to popular belief, elastomers do not significantly change stiffness with lower or higher temperatures.

## 2.2b Front suspension adjustment

**Note:** This operation is shown here with the wheel removed but it is possible to do it with the wheel in place. The elastomers are available in soft, medium and hard. All of them are coloured yellow, and can be identified by the letters: S, M, & H printed on the end.



1  
To remove the suspension elastomer, first loosen the stop screw.



2  
Compress the suspension unit and remove the rubber bumper.



3  
Slide the rubber gaiter off at the bottom.



4  
Push the bottom of the elastomer out of the locating hole.



5  
Slide the bottom of the elastomer around to the front of the king post.



6  
It should now be easy to remove the elastomer fully.



7  
To replace the elastomer, first grease the elastomer all over then slide it into the kingpost.



8  
Push the bottom of the elastomer around to the side and into the locating hole.



9  
Apply soapy water to the gaiter groove to aid fitting.



10  
Slide on the rubber gaiter at the bottom, checking to make sure that it is properly seated.



11  
Compress the suspension unit and insert the rubber bumper.



12  
Tighten the stop screw.

## 2.3 Mesh seat cover

When new, both the seat cover and the straps stretch a little, and in the first few weeks of use you may need to re-tension the seat by tightening up the straps. In time it will settle down. For maximum comfort you may need to tighten the cover more in some places than in others. In general, the base of the seat should be tight, and the back looser.

### 2.3a seat angle adjustment

The seat has 4 positions of adjustment, and adjustment is simple and quick.

- Loosen the seat angle adjustment quick-release lever.
- If you want to make the seat more reclined set it to the slots closest to the seat cup. If you want to make the seat less reclined, then set it to the slots furthest from the seat cup.
- Re-tighten the seat angle adjustment quick-release.



## 2.4 Hardshell seat adjustment

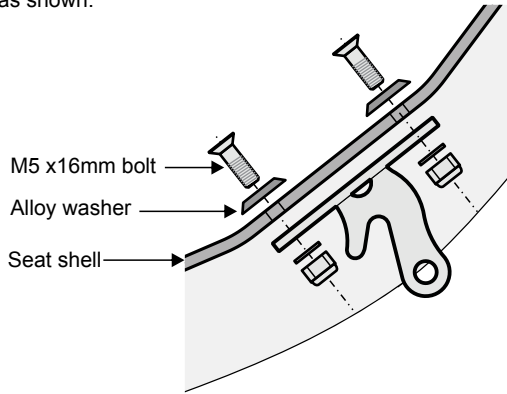
In order to correctly mount your hardshell seat onto the trike frame you will need to do the following:

There are three positions where the top mount brackets can be fitted. Bolt the brackets onto the seat shell using the appropriate set of pre drilled holes for the model of trike that you have. Assemble seat then check / adjust the position that the rear section of the frame is inserted into the main frame.

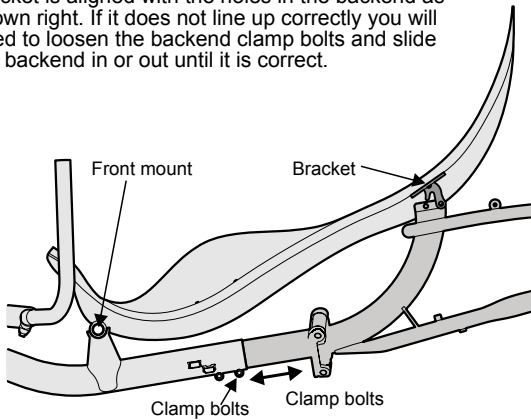
Bolt the notched plates to the brackets if required. The plates are used to give a range of easy to adjust seat angles. On the Vortex the brackets can be used on their own without the notched plates if you require maximum recline.



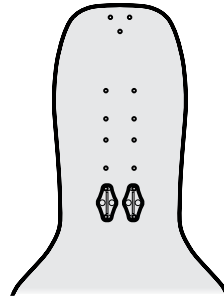
Bolt the brackets to the seat shell as shown.



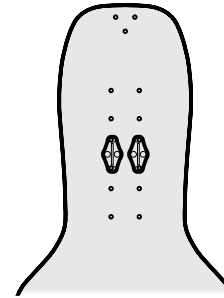
Assemble the seat as shown below and attach the seat to the frame at the front mount. Check that the bracket is aligned with the holes in the backend as shown right. If it does not line up correctly you will need to loosen the backend clamp bolts and slide the backend in or out until it is correct.



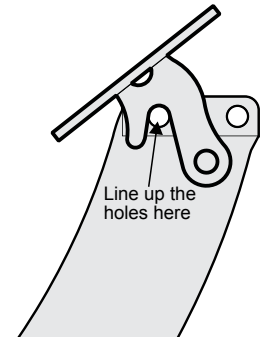
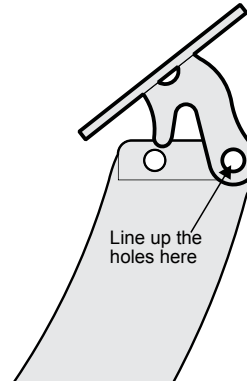
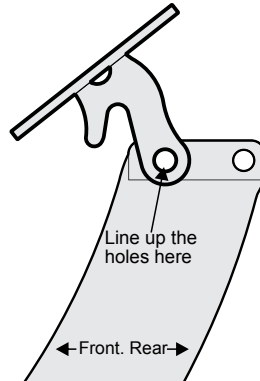
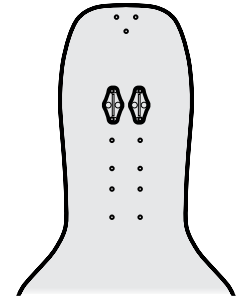
Adventure (Large hard-shell is interchangeable with the mesh seat if this bracket position is used)



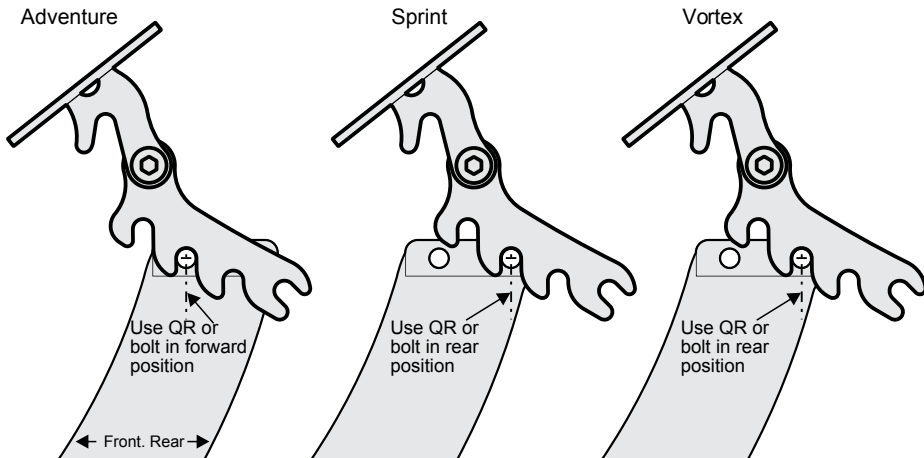
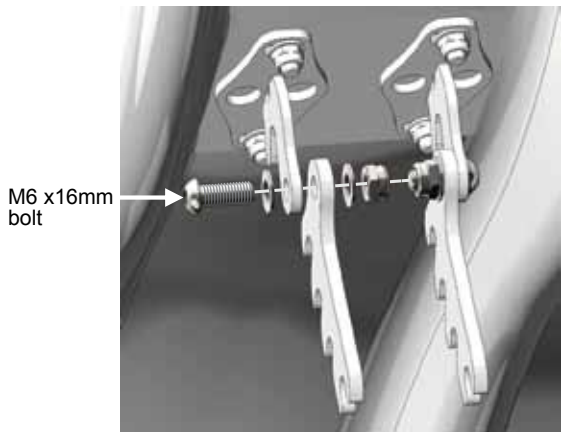
Sprint



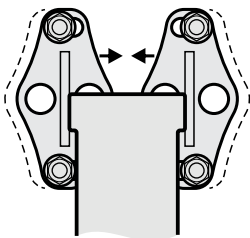
Vortex



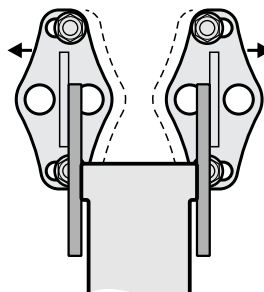
Bolt the notched plates to the brackets. The plates are used to give a range of easy to adjust seat angles. On the Vortex the brackets can be used on their own without the notched plates if you require maximum recline.



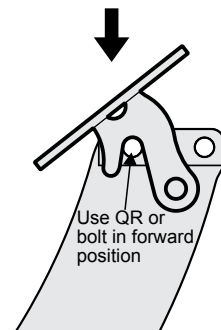
Note: the brackets have slotted bolt holes so that they can be positioned with or without the extra plates. The bracket should be slid to the correct position and the bolts all tightened.



Brackets only without the notched plates should be positioned closer together so that the space between fits the width of the mount point on the frame.



When using the notched plates the brackets should be positioned further apart so that the plates fit the mount point on the frame.



On the Vortex the brackets can be used without the notched plates like this if you require maximum recline.

## 2.5 Tailor fitting your hardshell seat

A lot of time went into the design of the ICE Air-Pro seat and seat cover to make it suitable for a wide range of people but obviously everyone is a slightly different shape.

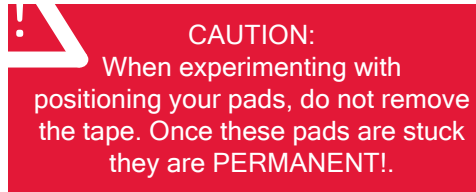
First ride your trike for a while with the standard pads. There is a good chance you will find it completely comfortable in which case you will not need to use the pads at all.

If, however you are finding that the shape does not suit you so well then the new seat pad system has been designed to tailor the fit of your ICE Air-Pro seat specifically for you, making this the most customizable hard shell seat currently on the market.

The kit comprised of 3 symmetrical pairs of foam pads. These pads are designed to be fitted on top of the ICE Air-Pro seat cover and can be fitted pretty much anywhere you would like.

If you look on the back of each pad you will see it has a raised strip down the centre with double-sided adhesive either side.

The raised strip on the back of each pad is there to hold it in place whilst you are experimenting with where to position the pads. It can be pressed directly into any of the slots in the seat cover and will stay put whilst you try it out properly.



Don't be too quick to get the pads stuck on permanently, experimentation is the key here so go out and give your trike a ride with the pads in various positions to find what suits you best.

Sit on your trike, go for a ride on it and get used to the feel of the seat shape.

- Try putting pads where you can feel gaps or spaces between your back and the seat.
- Press the pads firmly down along the middle to make the raised strip on the pad engage properly with the grooves in the seat cover.
- If you can feel a pressure point where your back is pressing on a localised spot, do not add a pad in that place, but pad around the spot leaving a space in that area.
- Once you are fairly happy with the positions they're in, go for a few more rides.
- Be careful not to lose them if they should get hooked up on your clothes.
- Now peel off the backing tape and stick the pads on.



## 2.6 Leg length

A small adjustment can be quite noticeable, just like adjusting the saddle on a conventional bike.

- Change gear to the smallest front and rear chainring.
- Undo the two clamp bolts under the front boom. They must be loose.
- Slide the front boom in or out by twisting and pulling or pushing
- Check the boom is vertical, by eye. It's not necessary to measure anything, if it looks upright, then it will be fine.
- Check that boom is not extended past the MIN INSERT mark on the boom.
- Tighten the two front boom clamp bolts (or quick releases) torque setting can be found in Appendix B.
- If you have moved the boom by more than approximately 10mm you will need to check that you have the correct chain length (see "Fitting the chain" section 2)



### TIP:

It is easier to move the boom if you get a helper to sit on the trike with both front brakes on.

## 2.7 Seat brackets

If you cannot adjust the boom to fit you (either it needs to be further in than the minimum insertion mark or your heels are coming very close to the cross axle of the frame), then ICE offers accessory seat mounting brackets for your trike.

The FF and FB (not FB on Vortex 2012, FF can't be fitted to Adventures) brackets are used to move the position of the seat forward or back when installed between the trike's seat mount and the seat. Contact ICE for more information or download the Seat Bracket Instructions from our website.



## 2.8 Brake lever adjustment

The position of the brake lever relative to the handlebars (the 'reach') can be adjusted. It can be useful to move the lever closer to the handlebar for riders with smaller hands.

For disc brakes levers, there is a reach adjustment screw on the underside of the lever body, between the cable entry and the handlebar clamp. Use a 2 mm hex key to adjust the screw. The red knob, located on the outside of the lever (only on Sprint X types and Vortex's), controls the leverage ratio of the brake lever. The correct position for Avid BB7 brakes is with the knob turned fully counter-clockwise, so that the maximum amount of cable is pulled.

For Tektro hydraulic brakes, there is a red adjustment knob on the outside of the lever near the pivot. Adjust the position of the lever using the adjuster screw to the desired lever reach.

For drum brakes, the lever has a reach adjustment screw on the underside of the lever body, between the cable entry and the handlebar clamp. Use a 2 mm hex key to adjust the screw. The other knob, located on the inside of the lever, controls the leverage ratio of the brake lever. Changing this setting changes the amount of cable the lever pulls, and affects the feel of the brakes. The usual position is with the knob turned fully clockwise, so that the minimum amount of cable is pulled (but with the maximum power).

## 3.0 ICE optional accessories

Instructions for our accessories are now packed with the accessory itself.

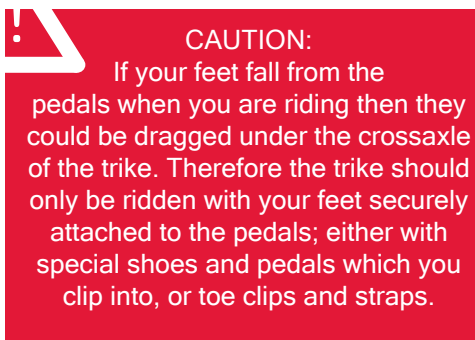
These include:

- Front mudguards
- Neck rest
- Full wrap rear mudguard
- Chaining guard
- Easy adjust chain management system
- Quick release kit
- Rear disc brake

If you require an additional copy of these instructions, they may be downloaded from our website at [www.icetrikes.co](http://www.icetrikes.co) under Support then Manuals.

### Pedals

We recommend the use of 'clipless' pedals. There is more information in section 6 of this manual. They are a safe way of attaching your feet to the pedals, Remember, because you are now riding a tricycle, there is no need to put your feet down until you want to get off the trike.



### Trailers

If you plan to attach a trailer to your trike we strongly recommend using a two wheeled trailer. One wheeled trailers have no lateral stability unlike the trike itself, so when cornering are able to transmit large twisting loads into the trike, possibly enough to cause serious damage to it. Two wheeled trailers are naturally stable and so do not cause this problem.

## 4.0 Riding your ICE trike

### 4.1 Getting on and off your trike

#### Mesh seats

##### Getting on

Begin by standing in front of the cross axle with one foot on either side of the front boom. Now bend down and reach back to hold the side of the seat to help lower yourself as you sit. Try not to push or pull on the handle bars as you get on and off.

##### Getting Off

This is much like getting on, but in reverse order. Sit forward on the seat and put your feet firmly on the ground. Reach behind you and hold the side of the seat while you push yourself up into a squatting position before standing up.

## Hardshell seat

Due to the Vortex's low profile it is slightly more difficult to get into than the other models. Therefore please take extra care when getting in and follow the method shown.

### Avoid:

- Applying any pressure to the handle bars.
- Applying pressure to a single side of the seat.
- Falling backwards onto the seat.
- Sitting towards the front edge of the seat.
- Sitting with items in the back pockets of clothing.



#### Getting On

When attempting to sit in the Vortex, first place one foot either side of the boom facing towards the pedals.



Then bring the cruciform forwards so the cross axle touches the back of your calves.



Then bend your legs placing one hand on the seat and the other on the wheel.



When doing this, ensure you place your hand on the front half of the wheel and apply pressure going away from you.

**!** **CAUTION:**  
It is possible to damage the Hardshell seat if these instructions are not followed. Not all parts of it are capable of handling the weight of a full grown person trying to get out of a trike. Seats damaged in this way are not covered under warranty.



**5**  
In the meantime, place the back of your hand half way up the hardshell seat.



**6**  
Slowly lower yourself into the seat and only when sat, remove the pressure from the front wheel and the seat.



**7**  
You are then ready to ride.....



**1**  
**Getting Off**  
When getting off sit upright and place both hands with the same positioning and pressure as used for getting in.



**2**  
Using the hand placed on the seat, push your-self off the seat and onto your feet.



**3**  
Only remove the pressure from the front wheel once you are confidently back on two feet. Once done you are good to go...

## 4.2 Initial test ride

Start on a flat piece of road or drive preferably away from traffic. The front brakes are independent so the left brake operates the left front wheel and the right brake operates the right wheel. Sit on the trike, clip in and make sure you know where the brakes are and that they stop you moving. Before you have ridden more than a few yards, check the front brakes.

### MAKE SURE YOU CAN STOP!

You should do this before each ride, as well as checking your brakes for damage and wear.

Steering is very easy and natural and you will soon become unaware of the movements required.

### Gear changing

As with any derailleur system you can only change gear when you are pedalling and moving forward. It is easier to change if you are not putting a lot of force on the pedals, particularly when changing from a high to a low gear. The rear derailleur is operated by the right shifter, and the front using the left shifter.

Do not change gear when the trike is rolling backwards, as the chain will jam in the rear derailleur and likely damage it. When you are riding, you can make minor adjustments to the indexing of the gears using the adjusters located where the cables exit the shifters.



#### TIP:

Also try to anticipate hills and change to a lower (easier) gear before you get onto the steep part of the hill hence avoiding changing gear under pressure.

## 4.3 Stopping in a low gear

As with an ordinary bicycle it is best to get into the habit of finishing your journey in an easy gear so that you can pull away easily when you start again.

## 4.4 Relax

Whilst riding sit back and relax. **DO NOT PULL ON THE HANDLEBARS;** just hold them lightly. The trike will tend to steer itself in a straight line depending on the road surface and camber.



#### TIP:

The steering of the trike runs on ball bearings so it is very smooth and requires minimal effort to steer. The gear cables run forward and backwards and the spring effect in these cables tend to make the trike slowly turn to the left if you let go of the handlebars completely. This is normal and we don't recommend riding without holding at least one of the handle bars or you will not have proper control of the trike.

## 4.5 Cornering

Your trike is inherently very stable under normal riding conditions. Cornering at high speed can cause your trike to lift a wheel, or in worse cases, roll over. Leaning into the corner can help this, and is a fun technique that all trike riders learn.

Take care on corners which have a 'reverse camber.' Reverse camber is where the outside of the corner is lower than the inside. On a corner with reverse camber, the trike will try to move to the outside of the curve, which could take you off the edge of the road, or into the oncoming lane.

We recommend that you find a quiet smooth-surfaced area (such as a car park or firm grassy field), and get a feel for handling your trike. Try turning at various speeds to find the point where your trike starts to lift a wheel. It is better to learn this in a quiet park than a busy street.

When you are negotiating a corner at speed, remember that your weight shifts away from the inside wheel.

You must remember that it is very easy to skid or lock the lightly loaded inside wheel, and that wheel is contributing less to your ability to brake and steer.

## 4.6 Handling

You should avoid riding the trike on two wheels. It is possible to do, with considerable practice, but it places unfair stresses on the wheels and you will not be able to control the trike properly.

If you lock the back wheel (using the rear parking or disk brake), it is possible to make the back end of the trike skid around; this is the so-called 'handbrake turn'. While fun to do in a quiet car park, this maneuver can cause a loss of control, and should not be attempted around other vehicles. It can also scrub the tread off an expensive tyre in a very short time.

Heavy loads should be carried as low as possible, and as much in the middle of the trike as you can. Heavy loads mounted high on the back of the trike will affect its handling, especially at higher speeds and when cornering. Do not carry a child in a child seat over the rear wheel. Besides affecting the trike's stability, the trike is not heavy enough to sufficiently support a child without someone sitting on it (it can fall over when you get out of the seat).

For carrying children or heavy loads, we recommend towing a trailer. There are plenty of 2 wheeled trailers on the market, and they can be very heavily loaded without affecting the handling of the trike. Crash tests done in Germany show a child is much safer in a trailer than in a child seat.

## 4.7 Brakes

The front brakes are operated independently by each main brake lever. The left lever operates the left brake, and the right lever operates the right brake. Normal braking should be done with both levers together and evenly for excellent stopping power; you will find your trike to be very stable under braking. Unlike other trikes, stopping using only one brake will not result in the trike veering from its intended course. This 'NoBrake-Steer' geometry is a safety feature that is an ICE innovation and is designed into every trike we make.

Because your weight is being supported on 3 wheels rather than 2, you will find it easier to lock up the brakes on the front wheels. The trike will not roll over, but it will slide. Locked wheels are hard on tyres, and are not as efficient for braking as a wheel which is still turning.

When you are braking into corner, you will find the unloaded inside wheel will lock up quite easily. It is not a problem, but remember that the lightly loaded wheel is not contributing much to steering or braking the trike.

## 4.9 Descending a hill

If you brake violently, at low speeds and with both brakes, you may find the trike wants to lift its back wheel. In extreme cases, you can brake hard enough for the chainring to hit the ground.

Brake drums, calipers and rotors will heat up when they are used. They can get very hot, especially after a long descent, and it is possible to burn yourself if you are not careful. Do not touch them while riding or immediately after dismounting from the trike. Check that the brake components have been cooled down before attempting to adjust the brakes.

## 4.8 Hill climbing

A recumbent trike tends not to climb a hill as quickly as an upright bike whose rider can get off the saddle to use his/her weight to put extra pressure on the pedals. It will climb in comfort at a lower speed and in a lower gear.

Try to keep your cadence (speed of which the pedals rotate) up by shifting down early. You should never need to get off and push, even when carrying a heavy load. Just shift down and keep spinning the pedals until you reach to the top of the hill.

**CAUTION**, take care on your first downhill rides until you gain experience. It is not unusual to reach speeds of over 40 mph on steep descents. You will find you can go faster and with much more confidence once you are used to the way the machine handles. Because there is less air drag in the recumbent position you will go faster than a bike. Remember you have powerful brakes with good stopping power.

**CAUTION**, the brakes are powerful and if they are applied sharply on some of our models with higher seats, you can cause the rear wheel to rise up. This can result in some loss of directional control.

## 4.10 Ground clearance

When going over very rough ground, it is possible, but unlikely, that the underside of the frame could make contact. If you think there is a chance that the underside of the frame may hit an obstacle, get off first and look under the trike to see how close things are getting. You will quickly learn to recognize terrain that your trike can easily handle.

If you do contact the underside of the frame it's unlikely any serious damage will be done (other than scratching the paint) but check to make sure everything is OK. A good way of riding over obstacles is to aim your trike so that the object goes directly under one of your feet. This way it misses the front wheel, the central frame, and the rear wheel.



## 4.11 Muscles

The first few times you ride your new trike, you will feel the muscles on your legs working harder than you may be used to. This is because pedaling from the recumbent position uses different muscle groups than riding in an upright position. You will find a noticeable improvement in this in a few days, and with a couple of months, you won't notice anything different at all.

When you are riding a recumbent, the best approach is to keep your cadence a little high, even if it means gearing down a little early. One good reason for this is that the recumbent seat allows you to brace yourself when you push on the pedals, and this makes it possible to put large loads into your knees. On an upright bike, if you pushed that hard, you'd lift yourself out of the saddle. Also, try to remember to shift down before you come to a stop; you will find starting off again to be much easier.

## 5.0 Maintenance

Your ICE trike has been built from quality materials and parts, and will last for many years with just a bit of simple maintenance. Although there is nothing on the trike that a bike shop can't maintain for you, doing your own basic maintenance gives you a good feel of how your trike is working.

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### TIP:

as with any cycle, a small amount of regular care will prolong the life of your trike and its components. The simplest thing you can do is to regularly give a quick drop of oil to all of the moving parts especially after riding in heavy rain. Always keep the chain and chain tubes oiled.

## 5.1 Lubrication

### Lubricating the Chain

At regular intervals, and always after riding in wet weather, you should lubricate the chain. The chain tubes supplied with your ICE trike will help keep the oil on the chain by protecting it from rain and dirt, prolonging chain life. Check with your local bike shop to see which chain lube works best in your area. It is not necessary to use a lot of lube on the chain; better to use a little every week than a lot once a month. Wiping the chain down occasionally with a dry cloth will help keep it clean and prolong its life.

### Other lubrication

Rear hub, headset and pedal bearings on your trike will need greasing from time to time depending on riding conditions, the same as any conventional cycle. The plain bearings in the suspension pivot need no lubrication. If they show any significant wear (unlikely), they are simply pushed out and replaced with new ones.

The steering ball joints don't require lubrication.

The front hub bearings, handlebar (stem) bearings, and pulley bearings are pre-lubricated and sealed. If they feel rough or sloppy, they should be replaced.

## 5.2 Adjusting derailleurs

Once set, derailleurs should only ever need minor tweaks to their cable tensions or limit screws to keep them changing and running smoothly.

Limit screws are designed to stop the derailleurs from moving too far in either direction and derailing the chain.

Cable tension on grip shift systems can be adjusted with the barrel adjuster on the shifter. If your trike has bar end shifters an in-line barrel adjuster is fitted in the gear cable just below the handlebar grips.



## 5.3 Drum brakes

The drum brakes on your trike have a very long life, and shouldn't ever need replacing under normal use. We have yet to see a worn-out set of pads. If you find that the brakes are not gripping as well as they used to, they can be disassembled and de-glazed. Remove the wheel from the bike, and then the backing plate from the wheel. Note how the spacer between the hub and the backing plate is located. If the pads are glazed, they will look somewhat shiny and smooth. Using some fine sandpaper, lightly sand the surface of the brake pads until they look dull again. Be careful about not breathing in the dust from the surface of the pads.

Clean the inside of the hubs out with a clean, dry cloth (use no oil, grease, or wax on the inside of the hubs), then reassemble the brake plates on the hubs. You should notice a difference in braking performance, and you should initially test them away from traffic until you are used to the improvement in braking. If you notice a gradual reduction in braking power over a period of time, check the condition of the brake cables and housing. Friction from dirty cables can considerably increase the effort required to stop the trike.

### Adjusting drum brakes

To adjust the brake cables, loosen the locking nut on the barrel adjuster (this is the part that hooks into the brake backing plate on the inside of the hub). Screw the barrel adjuster out a little and check the brakes. When squeezing the lever, it shouldn't come too close to touching the handlebar grips. When the lever is released, the wheel should turn freely and not drag on the brakes. When the cable is adjusted, tighten the locking nut. If you are out riding and feel the cable could be a bit tighter, you can turn the adjuster on the brake levers to fine-tune the cable tension.



**TIP :**  
Periodic removal and lubrication of the brake cables helps increase their life and gives smoother operating brakes. Disconnect them at the wheel, and then a small amount of light oil can be dribbled down the housing without removing the inner cable.

## 5.4 Disc brakes

Disc brakes (mechanical or hydraulic) require regular attention and maintenance. The most common task is replacing the disc pads. These will wear under normal use and will require periodic replacement to keep the brakes working properly.

Your disc brakes may squeal under braking. This is normal, and will change depending on how worn the pads are and how damp or cold the rotor is. A brake which is hot and dry will rarely squeal.

The braking performance will be severely reduced if the system is contaminated. Clean the calipers, lever, and rotors with water and a clean cloth. If the disc rotor becomes contaminated with oil or grease, it can be cleaned by wiping with a cloth with isopropyl alcohol or disc brake cleaning products designed specifically for disc brakes. It is almost impossible to properly clean contaminated pads; they should be replaced.

Check the caliper and lever for any signs of fluid leaks and the hose for any damage such as chafing or being roughly handled. A damaged hose could cause a system leak, which will severely impair braking performance or cause the brakes to fail.

Brake pads need replacing when the friction material is worn, contaminated or damaged. Don't wait until the friction material is worn through to the backing plate to replace the pads. To maintain safe and efficient braking, the pads need to be replaced if the material is worn down to 0.5mm.

Replacing Brake Pads – follow the instructions that are supplied with your brakes. Parts and spares are available from ICE.

### Adjusting mechanical disk brakes

Mechanical disk brakes work with standard brake cables and as such can be easily adjusted.

To adjust cable tension you can use the barrel adjuster on your brake lever, or for major adjustments the cable can be pulled through the clamp on the caliper.

Calipers can be adjusted from side to side and most have independent pad adjustment for fine tuning your brakes.

#### Note:

Always refer to, the separate manufacturers brake system manual supplied with the trike.

### Bleeding hydraulic brake systems

Bleeding the brake system is a procedure where new hydraulic fluid is used to replace leaked oil or to flush out any trapped air. Air in the system will reduce the braking performance and the feel of the brake. To bleed your brakes, follow the instructions that were supplied with your brakes. Parts and spares are available from ICE.

Your brakes use mineral oil, which is not the same as hydraulic fluid used for automotive brakes and clutches. Using automotive fluid will ruin the seals in your brakes and they WILL fail! Always use mineral oil; a good source is LHM mineral oil used in many Citroen and Jaguar motor vehicles. One litre is inexpensive and will last you a lifetime.



#### CAUTION:

If you are not confident about servicing your brakes correctly, we strongly recommended that you have a competent cycle mechanic service your disc brake system. Always wear protective clothing, safety glasses and gloves when servicing this system.

### Troubleshooting - Brakes

Symptoms	Possible Cause	Corrective Action
Lever goes to the handlebar	System leak Air in the system Brake pads worn out	Re-bleed the system Re-bleed the system Replace pads
Spongy Lever	Air in system	Re-bleed the system
Disc Rotor rubbing on the Pads	Caliper not centered over disc Inadequate clearance Bent rotor	Adjust Adjust/ Service Replace rotor
No braking power	Contaminated pads Worn out pads Contaminated disc	Replace pads Replace pads Clean disc with alcohol
Pads fall out	Missing pin	Replace pin
Fluid loss	Hose leaking Banjo leaking Caliper bleeding	Tighten hose nut Replace hose Replace banjo copper washer Tighten/replace bleeder nipple

The chain pulley on the tension side of the chain will wear over time. Initially it may make a small amount of noise, but within a few weeks it will bed in and run much quieter. A pulley should normally last about 10,000-12,000 miles, but if it shows significant wear, replace it.

Check that your cranks are tight after the first 50 miles of riding. These should be fastened firmly to the bottom bracket, with no play. Even a small amount of movement will cause the joint between the spindle and the hole in the crank to wear, resulting eventually in damage to the chainset.

The rear derailleur idlers tend to collect oil and dirt. Clean them with a dry rag. If they squeak, they can be disassembled and greased. When you lubricate your chain, put a drop of light oil on the moving pivots of the derailleur; they will last much longer.

### 5.5 Rear brake

The parking brake is operated from a small lever mounted on the left-hand handlebar. Because the brake functions as a parking brake, it is necessary to make sure that it holds securely. Check the brake's function, and if it appears to be slipping, tighten up the central bolt on the brake lever using a large flat screwdriver.



The more you ride your trike, the more familiar you become to the sounds it makes. If you notice any change in the sound your trike makes, check it carefully; it may be a sign of something needing attention.

## 5.7 The frame

The main cruciform and rear section of your ICE trike is powder-coated, a baked-on finish that is both tough and beautiful. It is possible to damage the coating, particularly if you scrape the trike over road obstacles. If this happens, touch-up paint is available from ICE to repair the damage. Lightly abrade the scrape with fine sandpaper, cover the exposed metal with regular metal primer, and then apply the coloured touch-up paint.

The front boom of your ICE trike is anodized and powder-coated. It requires little maintenance except for regular cleaning.

Mud, rain, road salt, salt air, and sweat can all affect the finish of your trike. Fitting mudguards will help to keep road dirt off your trike.

Regular cleaning and corrosion protection should be a part of your maintenance routine. We recommend hand washing your trike with warm soapy water and a rag or soft brush. Never use abrasive cleaners or solvents on the powder-coated finish. Rinse well and dry after, and then lubricate the chain.

Do not clean your trike using a pressure washer, as the water will force its way into bearings, removing the grease and causing corrosion.

Keeping the frame dry and clean will keep the coating looking its best for years to come.

If you need to clean the seat mesh, it should be hand-washed in warm soapy water, rinsed well, and hung up to dry. Do not tumble dry!

After the first 50 or 100 miles, check the steering components for signs of looseness. The headset bearings may need to be gently tightened after they have bedded in, and the axles should be checked for tightness as well.

After the first ride or two, the clamp bolts should be checked to ensure they are tight.



## 5.8 Tyres, tubes & wheels

### Tyres

Quality tyres are vital for good traction and control while accelerating, turning and braking. Each brand of tyre has its own individual mix of puncture protection, rolling resistance, pressure rating, and durability.

Finding the one that suits your riding style best is the challenge. Tyres should always be inflated according to the range marked on the sidewall, never above the maximum recommended, and they should be checked regularly. Worn tyres should be replaced.

Trikes often run with slightly reduced pressure, as the load is distributed across three tyres, not two. Lower pressure results in a more comfortable ride, but at the expense of higher rolling resistance. Balloon tyres are now available that combine relatively low rolling resistance, puncture protection, and a smooth ride; they are well worth considering. Your ICE trike has been designed to allow these larger tyres to be fitted.

## 5.9 Suspension

### Tubes & Punctures

Always use good quality inner tubes on your trike. It is easiest to carry a spare inner tube with you, and change it if you should be unlucky enough to have a puncture. Front punctures are fairly easy to mend, as the tyre can be removed without taking the wheel off the bike. You may find it easier to work on the front wheel if you put the trike on its side first. Repairing a rear wheel puncture is no different from any other cycle.

### Spokes

Occasionally check for loose spokes. Broken spokes are caused by spokes loosening up, and then undergoing stress every time they take a load. If you notice loose (or broken) spokes, or an untrue wheel, take your bike to your local bike shop to have the wheels re-trued. One loose spoke puts an unfair load on the spokes next to it, and one broken spoke is usually followed by another.

The rear suspension on ICE trikes runs on plain bearings. These bearings are made from a special low-friction, chemical resistant plastic. They do not normally require lubrication. If you should notice any significant amount of play in the suspension joint, the bearings can be easily adjusted.

There are 2 bolts under the swingarm bearings which adjust the tension on the bearings. Tighten these with a 4mm hex key only until the play is removed. Do not overtighten; it will make the suspension pivot stiff and wear the bearings prematurely.

When the bearings can no longer be adjusted, they will need to be replaced.

To do this:

- Undo the 2 pivot pin clamp bolts under the suspension mount. Loosen the bearing adjustment screws.
- Slide the pivot pin out of the bearings. If it is reluctant to slide, tap gently using a hammer and a small block of wood to move the pin. Remove the swingarm.
- Push the plastic bearings from the swingarm. This can usually be done with your fingers, although a small bit of wood and a hammer will remove a stuck bearing without damaging the swingarm.

- Gently push or tap the new bearings into place. Make sure they are pushed all the way in.
- Press the pivot pin back into place, and tighten the 2 pivot pin clamp bolts. Retighten the bearing adjustment screws to remove any play.



## 5.10 Adjusting the tracking

To avoid excessive tyre wear the front wheels must be kept parallel. Tracking only needs to be checked if you suspect damage through an accident, if unusual wear starts on one or both front wheels, or the feel of the steering changes. Before adjusting the tracking, check to make sure the track rods are not bent and the ball joints are in good condition as well as checking the wheel axles.

Use a long ruler or a piece of rod to measure between the inside of the tyres at the front of the tyres, and then at the rear, all measured at axle height. The distance (between the arrows) should be the same, or up to 2mm less at the front (toed-in).

If the tracking is out of adjustment, loosen the two lock nuts on one trackrod, and rotate the rod (a small rotation gives a fairly large change in track). Tighten up the lock nuts when the distance is correct.

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TIP:

note that the lock nuts at each end of the track rods have left- and right-handed threads (the left hand threaded nuts have a small notch to identify them). This allows the track to be adjusted very precisely.

## 5.11 Storage

If you are using the trike most days, it is best to store it somewhere dry and well ventilated. A damp, covered trike will quickly develop surface corrosion of its components, and eventually, the frame. If you are storing your bike for any considerable period (over winter or a long holiday):

- Clean the bike and lubricate.
- Store the trike indoors where it will be dry. Hanging storage is good. Outdoor storage under cover is acceptable if there good air circulation around the trike. Outdoors under a tarpaulin will actually accelerate any corrosion and can damage the paintwork and components.
- Set the gears to the smallest sprocket and chainring. This keeps the derailleur springs and cables under minimum tension.



- Ensure the tyres are properly inflated before storing the trike, and check them every month or two. Storing a trike on soft or deflated tyres is not recommended.
- Before putting the bike back into service, go through all the maintenance and adjustment instructions in this manual to ensure the trike is working properly.

## 5.12 Frame number

The frame number is marked on the under side of the main cross joint as well as on a sticker on the underside of the trike.



## 5.13 Recommended minimum tools and spares

Get you home kit	Full touring kit
Tyre levers	+Get you home kit
Spare inner tube	8mm spanner
Puncture repair kit	9mm spanner
Mini pump	10mm spanner
Small adjustable spanner	13mm spanner
3, 4, 5, 6mm Hex keys	8mm Hex key (for the chainset)
Small Phillips screwdriver	Chain link extractor tool
Spare chain link	Spare gear cable
Chain tool	Spare brake cable

## 5.14 First Service

We recommend a first service on your trike after approximately 500 miles (800km) or 6 months after purchase. Your dealer should be able to do this for you if you are not confident to do it yourself.

During the first few weeks of riding parts of the trike tend to work their way loose and out of alignment. This can lead to the trike performing sub-optimally leading to undue wear.

The first service is more of a safety check than anything. Check the torque of the major safety related fastenings (bars / stem / frame clamps etc.) check the indexing of gears front and rear (cables stretch initially), and check brake clearances, see if wheels are still true and evenly tensioned. Adjust if required.

It is vitally important that you keep your trike well maintained. A well maintained trike performs at its best and is a pleasure to ride and also ensures that your components last longer.



## 6.0 Safety

Between all of us here at ICE, we've ridden thousands of miles on trikes, and we've all developed good road sense. The following safety considerations are for your benefit; please give them serious consideration:

- We recommend always wearing an approved cycling helmet. Get the best you can afford. If you've got a cheap head, get a cheap helmet!
- Check your trike before each ride. In particular, check the tyres and brakes to ensure they are in good working order.
- If you are riding at night, make sure you have a legal white headlight and a red taillight. We recommend using both non-flashing and flashing LED taillights in tandem. The flashing light is very noticeable at a great distance, and the non-flashing light enables other road users to judge their distance from you.
- Use your rear view mirror, but don't rely on it. You must also turn your head to check behind you before turning or changing lanes.
- We highly recommend the use of 'clipless' pedals. Shimano's SPD system is a good choice, and there are many SPD compatible shoes and pedals on the market. Most cycling shoes will come with the necessary fittings to allow cleats to be fitted, and the only other thing that you'll need is a set of pedals. Pedals are available with cleat bindings on one side and a standard platform on the other (allowing you to go for a quick spin without having to change into your cycling shoes). For those that have not experienced clipless pedals, they have a small binding mechanism built into the pedal, which locks onto a cleat fastened to the bottom of the shoe. It works in a similar fashion to a ski boot binding. To lock your foot in, you hook the cleat into the binding and push. To remove your foot, you twist your heel sideways and the binding releases the cleat. Once you are clipped in, you will not need to put your feet down until you want to get off; being clipped in is comfortable, lets your legs relax when you are not pedaling, and allows power to be transferred more effectively to the pedals.
- Be careful of going too fast into corners. The immense stability of the trike is not absolute, and sharp high speed cornering may cause you to lift the inside wheel, or even roll over. As you ride more, you will gradually learn what the limits of the trike are.
- Be careful of downhill speeds. It is very easy to reach speeds in excess of 40 mph (60kph) when going downhill. Although you may feel in perfect control, be wary of and allow for road hazards and other road users doing stupid things.
- The drum brake hubs and disc brakes rotors can get hot after long descents. You can burn yourself on the hot surfaces.
- The usual practice is to brake evenly using both hands. You can brake at the maximum rate with the front brakes only. The trike is designed not to brake-steer if you brake only one side (a safety feature necessary if you are braking and signaling a turn at the same time), but violent, single-sided braking can cause the trike to pull slightly to the braked side.

- Use your flag. Most road users haven't ever seen anything like your trike, and will give you much more attention and room on the road than they would a standard upright bike. Nevertheless, using the flag will help to ensure you've been seen, especially in heavy traffic. You are low, and reversing cars may not be able to see you. Ride defensively, as if others can't see you.
- Consider bright visible clothes. They make good sense regardless of what you are riding.
- You might consider fitting a horn. The 'AirZound' is a lightweight air horn, charged with your bicycle pump, and it is LOUD! It is available from most good bike shops.
- Like any other cycle, try not to ride close to parked cars. Drivers can fling open a door or pull out suddenly.
- Although you are far more noticeable than any other cycle, motorists will almost always underestimate the speed of an approaching trike. They just don't seem to understand how fast you can be traveling. Be wary of cars which assume you are 'slow' and pull out in front of you with little warning. Also be wary of cars overtaking you close to a junction. They will often misjudge the space they have to get in front of you, and are rarely certain of what to do once they've realized their mistake.
- Don't ride close to the edge of the road. Rubbish tends to collect there and your tyre is at a greater risk of picking up a puncture. Although a trike is only a little wider than the handlebars of an upright bike, it is seen as being very wide by other road users. If you move out a little into the road, it is less likely that drivers will try to force their way past. Likewise, pay attention to timid drivers that refuse to overtake you (because you are so wide!) Pulling to the side to let the queue pass will earn you the respect of other road users.

## 7.0 Other important information

### 7.1 Recumbent/Trike forums on the internet

Now that you have your new trike, why not share your experiences with others on the internet forums?

#### Official ICE Pages

#### Facebook

Find "ICE Trikes" on facebook and "Like" our page to keep updated with everything that's going down at ICE HQ as well as letting us and others know what you are up to on your ICE Trike.

#### Flickr

Do you want great quality images of your trike to show your friends? Visit our Flickr "ICE Trikes" account to access all of our images in amazing quality.

#### YouTube

We love our short films and we think you will too, so why not visit our YouTube channel "ICE Trikes" where you can find loads of videos recumbent related filmed by ourselves.

## ICE Trikes (TRICE) Owners List

There is an online Trice Owners group, started in 2008. Run by Trice owners, it's the first place to go to discuss riding, maintenance, or anything else TRICE. It can be found at:

[www.sports.groups.yahoo.com/group/triceriders](http://www.sports.groups.yahoo.com/group/triceriders)

## Bent Rider Online

The BentRiderOnline website is a valuable source of information. They operate a message board (forum) that is moderated and is free to join. You will need to register before you can post a message, but the forum is available for anyone to read. To register, point your browser to [www.bentrideronline.com](http://www.bentrideronline.com) and click on the 'Message Board' link at the top of the page.

On this new page, you will find links to the FAQ (Frequently Asked Questions) and the registration page. Follow the simple instructions and you will be registered to participate in the discussion. There is a Trikes specific forum under Specialty Discussions, and you will find a number of ICE trike owners there.

## Recumbent and Tandem Rider

R&TR Magazine is the world's only magazine dedicated to the riders and enthusiasts of tandem and recumbent bicycles. Each issue has bike and equipment reviews, riding tips, travel stories, technical advice and maintenance ideas. Available by subscription for doorstep delivery, or for FREE at many US bike shops. More information can be found at

[www.rtmag.com](http://www.rtmag.com)

## VeloVision

VeloVision is a magazine, published in the UK, covering specialised bikes, cycling as transport and human power. We'd have to agree when they say "It's a quarterly dose of cycle inspiration." To get to the forum, point your browser to [www.velovision.co.uk/forum](http://www.velovision.co.uk/forum)

Follow the link to 'VV discussion'. To register, click on the 'Log In' link and then follow the link to 'Need a Login? Register Here'. The registration is painless and allows you to post on the forum. This forum is not arranged by subject, but just has a list of the topics presently under discussion.

## Human Power Clubs

The British Human Power Club was formed to foster all aspects of human-powered vehicles for competition, recreation and utility activities. The majority of the Club's activities revolve around land vehicles, which are usually, though not necessarily, recumbent bicycles or tricycles. They run an annual race series for non-UCI-approved machines, usually 8-10 events. Every six (at present) years, they also host the annual European Championships. If you're not competitively inclined, the race meetings are still good places to meet and socialize with fellow enthusiasts, and to try out people's strange machines.

British Human Power Club  
[www.bhpc.org.uk](http://www.bhpc.org.uk)

There are many other Human Power Clubs around the world; here are some of the clubs we know of:

America - [www.ihpva.org](http://www.ihpva.org)  
Netherlands - [www.ligfiets.net](http://www.ligfiets.net)  
Australia - [www.ozhvp.org.au](http://www.ozhvp.org.au)  
Germany - [www.hpv.org](http://www.hpv.org)  
France - [www.france-hpv.org](http://www.france-hpv.org)

## 7.2 Warranty information

### Warranty

New for 2012!

Your warranty should be submitted online within the first 30 days of ownership. (Information on how to activate your warranty can be found inside of the front cover).

Inspired Cycle Engineering warrants, to the original owner of each new ICE tricycle that the frame, seat, and steering components are free of defective materials and workmanship for ten (10) years from original date of purchase. Component parts are limited to one (1) year from original date of purchase. Warranty is conditional upon the trike being operated under normal conditions and being properly maintained. Warranty is offered to the original owner only, and is not transferable. This warranty does not apply to:

- damage through normal wear and tear
- neglect (inadequate care and maintenance)
- damage from crashes or jumping
- overloading through excess weight
- incorrect assembly
- modifications to the trike (additional or changed components)
- theft
- use as a non ICE-approved power driven vehicle
- failure to follow instructions or warnings in the owner's manual

- activities for which they were not designed

Bending of frames, handlebars, seats or wheel rims can be a sign of misuse or abuse.

Inspired Cycle Engineering reserves the right to make sole determination of whether any failure or damage claimed under warranty was caused by material or manufacturing defect, and reserves the sole discretion to repair or replace any parts covered by this warranty.

The owner shall be responsible for all labour, shipping, and travel costs connected with the repair or replacement of warranted parts. Inspired Cycle Engineering will, at our sole discretion, normally consider compensation for reasonable labour, shipping, and travel costs associated with warranty claims.

Inspired Cycle Engineering shall in no event be liable for incidental or consequential losses, damages or expenses in connection with its tricycle products.

In practice, if you think you have a warranty claim, contact your dealer or us. We are passionate about our product, and want you to be too. If it is our problem, then we will do our best to put it right.



## 7.3 Liability information

### Liability Waiver:

Taking part in any sporting activity can result in injury or death. Cycling is no different in this regard, and recumbent tricycles no different from upright bicycles. In many ways, recumbent trikes can be much safer than standard bicycles. Nevertheless, the rider (that's you) is expressly assuming the risk for any injury and/or property damage that may result from using our product, as well as for any and all injuries and/or property damages caused by someone riding your trike.

We have no control over how the trike is used or maintained. It's your trike; it is up to you to be responsible for yourself. You need to ensure that the trike is safe each time before you ride it. You need to ensure that it is maintained to a proper standard. Read and understand this manual; it has warnings and suggestions that will help you to use the trike safely. If you are in any doubt about any of the advice or procedures in this manual, please contact your dealer or ICE. It is up to you to know and obey traffic laws of the country or state where you will be riding your trike. Pedal cycles are regarded in most countries as vehicles when on the road and are subject to the same rules as motor vehicles.

If you are not comfortable on the road, or have little experience riding in traffic, try practicing riding on quieter streets, at least until you develop the necessary skills and road awareness. Many bike shops can offer instruction on advanced riding techniques. Inspired Cycle Engineering shall in no event be liable for incidental or consequential losses, damages or expenses in connection with its tricycle products.

## 7.4 Legal requirements

Legal requirements vary from country to country and you should always comply with them. The important areas you need to consider are lighting, and helmet use. Consult your local bike dealer for information about what is required in your area. Please also remember that even if not required by law, some equipment (such as helmets and lights) can increase your personal safety and should be carefully considered.

## 7.5 Contacting us

Your first point of contact should be your local dealer. They will be able to answer most of your questions and can provide you with the full line of ICE accessories. If you need to speak to us directly, we can be contacted in a number of ways:

In person;

Inspired Cycle Engineering Ltd  
Unit 9  
Tregonigge Industrial Estate  
Falmouth  
Cornwall  
TR11 4SN  
England  
UK

Telephone: 01326 378848  
(+44 1326 378848 outside UK)

Fax: 01326 379879  
(+44 1326 379879 outside UK)

E-mail: [sales@icetrikes.co](mailto:sales@icetrikes.co)

Website: [www.icetrikes.co](http://www.icetrikes.co)

Skype: [inspired\\_cycle\\_engineering\\_ltd](https://www.skype.com/en/contacts/inspired_cycle_engineering_ltd)

## Appendix A: Tyre pressures

PSI	BAR	PSI
	2	29.0
30	2.1	
	2.5	36.3
40	2.8	
	3	43.5
50	3.4	
	3.5	50.8
	4	58.0
60	4.1	
	4.5	65.3
70	4.8	
	5	72.5
80	5.5	80.0
	6	87.0
90	6.2	
	6.5	94.3
100	6.9	
	7	101.5
	7.5	108.8
110	7.6	
	8	116.0
120	8.3	
	8.5	123.3
130	9.0	130
	9.5	137.8
140	9.7	

## Appendix B: Tightening torques

Fastener	Uses Hex Key (mm)	nm	lb-ft
Front derailleur clamp bolt	5	5-7	4-5
Front derailleur cable clamp bolt	5	5-7	4-5
Chainset - central crank bolt	8	35-50	25-36
Chainset - chainring bolt	5 + Tool	8-10	6-7
Chainring guard bolt	5	6-8	4.5-6
Main frame clamp bolts	5	8-10	6-7
Mudguard adjusters	4	6-8	4.5-6
Mudguard main fasteners	5	8-10	6-7
Axle bolt	10mm Spanner	8-10	6-7
Steerer pivot bolt	5	90	70
Twist-grip clamp bolt (hex key)	3	1-2	1-2
Brake lever clamp bolt	5	6-8	4.5-6
Rear main frame joint	5	8-10	6-7
Mirror	3	3-5	2.4-6
Pivot pin clamp bolts	5	6-8	4.5-6
Shock pin	6mm spanner	5-7	4-5
Disc brake caliper mount	5	6-8	4.5-6
Rear mech hanger	5	8-10	6-7
Rear derailleur mounting bolt	5	8-10	6-7
Rear derailleur cable clamp bolt	5	5-7	4-5
Upper seat mount clamp bolts	4	5-7	4-5
Head rest clamps	4	5-7	4-5

Fastener	Uses Kex Key (mm)	nm	lb-ft
Headrest clamp pin	5	5-7	4-5
Disc rotor bolts	T-25	6-7	4.5-6
Master Cylinder Clamp Screw	T-10	1.7-2.3	
Caliper Bleed Screw	8mm Spanner	3-5	2.5-4
Caliper Mounting Bolts	5	11-13	8-10

All other M4 bolts, tighten to 5-6 nm (4-5 lb-ft)

All other M5 bolts, tighten to 6-8 nm (4.5-6 lb-ft)

All other M6 bolts, tighten to 8-10 nm (6-7 lb-ft)



# Accessories



Easy-adjust kit



Flags & mirrors



ICE Neckrest



FF & FB brackets



Luggage solutions



Rear mudguards



Rear rack and panier sides



Front light mounts



Front mudguards



Quick-release kit



Bottle cages

Notes.

# ICE

Inspired Cycle Engineering  
[www.icetrikes.co](http://www.icetrikes.co)

