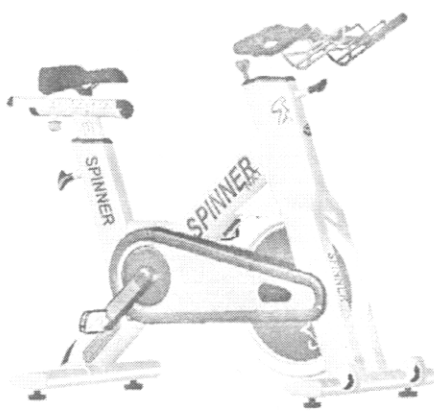
STAR TRAC®

Spinner® Bike

Service Manual



NXT 7000

ELITE 6900

PRO 6800

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1. Installation Instructions

SPIN BIKE ASSEMBLY AND SETUP

Use the following procedures to unpack and assemble your ***STAR TRAC SPINNER ® BIKE***.

Prepare the area that you will be unpacking and assembling the bike to be free from debris that may cause damage. Observe all safety precautions and care while unpacking and assembling the bike.

UNPACKING

Open the shipping carton, carefully remove all parts from the shipping carton and foam inserts, inspect all packaging material for parts or screws and verify that the following parts are included in your shipment:

NXT Parts List

Description	Qty.	Description	Qty.
Handlebar Post	1	M10x1.5, 55mm Button Head Screw	4
Handlebar	1	M10x1.5, 65mm Button Head Screw	4
M8x1.25, 16mm Flat Head Screw	2	M10x1.5 Nyloc Hex Nut	8
M8x1.25, 16mm Socket Set Screw	1	10mm Washer, Flat	16
Seat Post	1	Wrench Hex, 5mm	1
Seat Slider Assy, with Saddle	1	Wrench Hex, 4mm	1
Pedal set	1 set	Multi Wrench	1
Front Leg Assy. With Transport Wheels	1	Spare Parts Kit (USA Only)	1 Kit
Rear Leg Assy.	1		

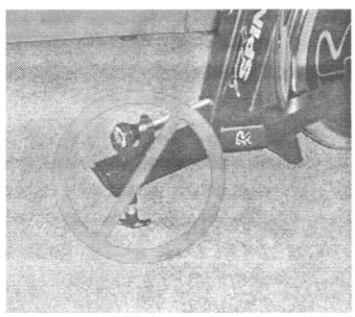
Pro/Elite Parts List

Description	Qty.	Description	Qty.
Handlebar Assy.	1	M10x1.5, 55mm Flat Head Screw	4
Seat Post	1	M10x1.5 Nut	4
Seat Slider Assy, with Saddle	1	10mm Washer, Flat	4
Pedal Set	1 set	Wrench Hex, 5mm	1
Front Leg Assy. With Transport Wheels	1	Wrench Hex, 4mm	1
Rear Leg Assy.	1	Multi Wrench	1
		Spare Parts Kit (USA Only)	1 Kit

Spare Parts Kit- Save the box of spare parts in a safe place so you have service parts when needed in the future. The spare parts kit contains a spare saddle, brake pad and pedals straps. These items are not included in the parts warranty.

NOTE: If you are missing any of the parts listed above, inspect the packing material and the box for items that may have been overlooked.

If parts are missing, or if you have any product questions, please call Star Trac's Service Department at (800) 503-1221, please have your Spinner® serial number ready.



CAUTION: Damage to the bike during assembly is not covered as part of the limited Star Trac warranty. Take care not to drop or lean the bike on the handle bar pop pin. Carefully stand the bike up in the normal upright position on a stable surface so it will not tip over during assembly.

Assembly

Following these steps in order will minimize the build time and ensure proper assembly.

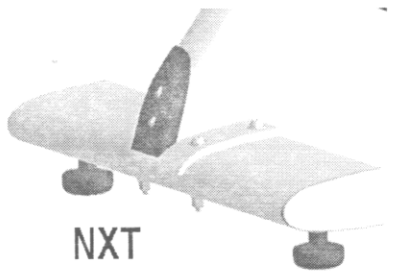
Note: Not all of the following procedures are performed on all models; Spinner ® Pro, Elite and NXT.

If the procedure is particular to that model only it will be noted as follows. (NXT Only) or (Pro/Elite Only) or (NXT/Elite Only)

Installation of the Rear Leg Assembly

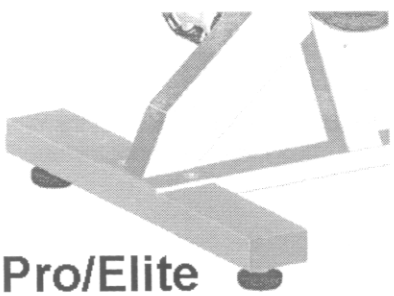
Lift up the rear of the bike frame and place the rear leg assembly in position under the frame, aligning the holes in the leg with the holes in the frame.

NXT Only



1. Position the leg so the thicker end faces toward the front of the bike
2. Using the 5mm hex wrench and a 13mm combination wrench insert 2- M10X55mm (rear-most holes) and 2- M10X65mm (front-most holes) button head screws, nuts and washers (under bolt head and nut), to secure the rear leg assembly to the frame. The nut should be on the bottom of the bike and the head of the screw on the top of the bike.
3. Tighten all hardware securely using a torque wrench to 85 Inch Pounds

Pro & Elite Only



1. Lift up the rear of the bike frame and place the rear leg assembly in position under the frame, aligning the holes in the leg with the holes in the frame.
2. Using the 5mm hex wrench and a 13mm combination wrench insert 2- M10X55mm flat head screws, nuts and washers to secure the rear leg assembly to the frame. The nut should be on the bottom of the bike and the head of the screw on the top of the bike.

Tighten all screws/nuts securely using a torque wrench to 85 Inch Pounds

Position the bike on a flat surface and adjust the leveling feet so the bike is stable.

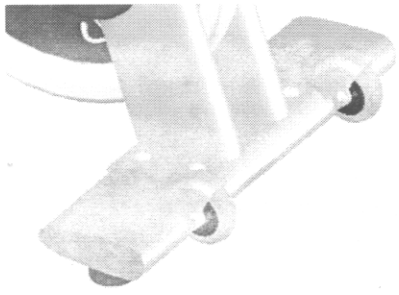
Installation of the Front Leg Assembly

NOTE: The front foot assembly has wheels attached to the front edge. Be sure the wheels face forward when installing the front leg assembly.

Stand the bike frame upright and gently tip the front of the bike up and position the front foot under the frame, with the wheels facing forward.

Attach the front foot assembly to the frame, aligning the holes in the foot with the holes in the frame.

NXT Only



1. Position the leg so the thicker end faces toward the front of the bike
2. Using the 5mm hex wrench and a 13mm combination wrench insert 2- M10X55mm (rear-most holes) and 2-M10X65mm (front-most holes) button head screws, nuts and washers (under bolt head and nut), to secure the rear leg assembly to the frame. The nut should be on the bottom of the bike and the head of the screw on the top of the bike.
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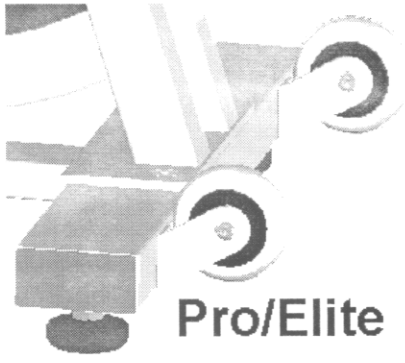
Pro & Elite Only

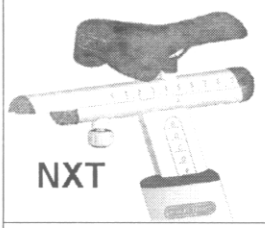


1) Using the 5mm hex wrench and a 13mm combination wrench insert 2- M10X55mm flat head screws, nuts and washers to secure the rear leg assembly to the frame. The nut should be on the bottom of the bike and the head of the screw on the top of the bike.
2) Tighten all screws/nuts securely using a torque wrench to 85 Inch Pounds

Position the bike on a flat surface and adjust the leveling feet so the bike is stable.

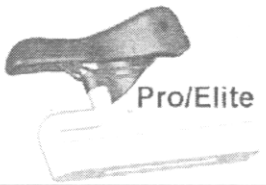
Installation of the Saddle and Seat Slider

1. Install the seat post into the frame and lower it to the lowest position and tighten the pop pin securely.
2. Slide the seat slide into the top of the seat post with the saddle pointed towards the front of the bike.



NXT Only

1. Rotate the seat slider lock knob as needed so that the slider clamp is in alignment with the guide rail
2. There is a locking pin under the saddle that has to be pulled up as you move the slider into position. Release the pin when the indicator is within the 0 to 9 range.
3. Test the seat slide for proper operation and full travel.

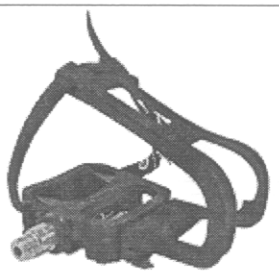


Pro & Elite Only

1. Unscrew the seat slider pin far enough to allow the slider to pass over the pin.
2. Tighten screw with the slider within the usable range.
3. Test the seat slide for proper operation and full travel.

Installation of the Pedals

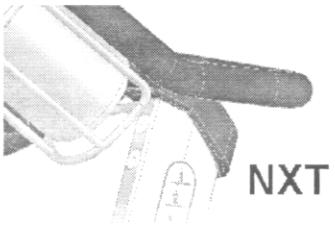
NOTE: The pedal shafts are marked "R" and "L". Trying to install the pedals on the wrong side may damage the pedal and the crank arm. Take caution to attach the pedals to the correct side of the bike (picture shown is for Elite/NXT).

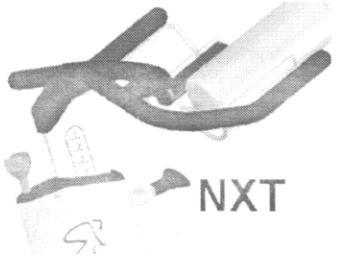


1) Install the pedals on the pedal cranks using a 15mm open-end wrench and tighten securely.

2) Turn the left pedal spindle counterclockwise when threading into the left crank arm; turn the right pedal spindle clockwise when threading into the right crank arm.

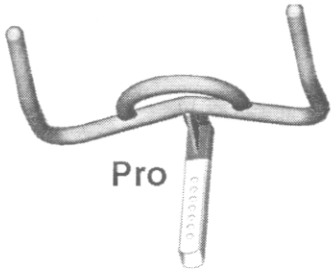
Assembly and Installation of the Handlebar and Post

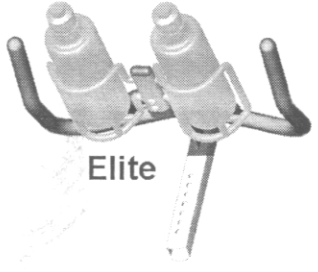




NXT Only

1) Positioning the handlebar post with the numbers 1 on top and insert the handlebar into the handlebar sleeve locking it at number 4.
2) Slide the handlebar onto the handlebar post insert with the water bottle holders facing forward and align the three screw holes.
3) Insert the socket head set screw into the handlebar but do not tighten at this time.
4) Insert the 2 flat head screws into the handlebar but do not tighten at this time.
5) Check for proper alignment then tighten the 2 flat head screws using a 5mm hex wrench to 60 inch pounds.
6) Tighten the set screw to 60 inch pounds using a 4mm hex wrench.
7) Slide the handlebar post into the frame making sure the holes face the front of the bike.
8) Allow the post to go into the frame all the way in to level 1 and align the pop pin so it snaps into the hole then tighten the pop pin and test for steadiness.
9) Loosen the pop pin and raise the handlebar to its highest position number 10 and tighten the pop pin and test for steadiness.





Pro & Elite Only

1) Slide the handlebar post into the frame making sure the holes face the front of the bike.
2) Allow the post to go into the frame all the way in to level 1 and align the pop pin so it snaps into the hole then tighten the pop pin and test for steadiness.
3) Loosen the pop pin and raise the handlebar to its highest position and tighten the pop pin and test for steadiness.

Testing the bike

Use this checklist to perform the bike test procedure to ensure the bike is operating properly.

- ☐ Recheck all bolts to make sure they are all tightened to the proper torque specification and no parts were left off the bike or are missing.
- ☐ Test the handlebar and seat post to make sure they move freely and you are able to lock in at different positions.
- ☐ Check the seat to make sure it is level and tight and does not rotate around or tilt forward or backward. Tighten and adjust as needed.
- ☐ Test the seat slide for easy movement front to rear and the ability to adjust it to different settings.

Testing the flywheel and brake mechanism.
CAUTION: The flywheel will continue to spin after you pedal and the crank arms and pedals will rotate with the flywheel. Brake tension is adjustable by turning the red resistance knob in the front of the bike, clockwise to tighten the brake and counterclockwise to loosen the brake. Pressing down on the knob will apply the brake momentarily if you need to stop quickly.

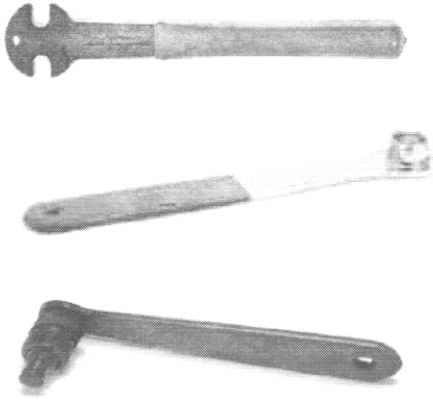
- ☐ Adjust seat post and handlebar post to your comfort. Ride / test the bike for proper operation according to the owner's manual.
- ☐ Pedal the bike at a moderate pace and test for proper and smooth resistance changes while varying the amount of turns on the resistance knob.
- ☐ When the testing is complete tip the bike forward using the handlebars and roll it on a smooth surface to the final location. Check and adjust the leveling feet so the bike is stable.

Service tool kit

Startrac recommends the **Minimum** following tools to be used when servicing the bikes.

4mm Allen Wrench
5mm Allen Wrench
7mm Allen Wrench
Pedal Wrench (15mm)
Crank Arm Puller
10, and 13mm Combination Wrench
10, 13 and 14mm Socket Wrench
Torque Wrench in inch pounds
29MM Deep Socket

Park tool company sells tools for bikes and these tools are compatible for spin bikes, check your local bike shop or http://www.parktool.com/



Pedal Wrench PW-3

Crank Bolt Wrench CCW-14R

Crank Arm Puller CCP-2

Spinner Pro / Elite and NXT bikes Maintenance Checklist

With durable, high performance components, ***STAR TRAC BIKES*** are designed for heavy usage with minimal maintenance required. To keep your bike in top condition, Star Trac strongly recommends performing the regular daily, weekly and monthly preventive maintenance routines outlined below. Any unusual symptoms, such as a loud continuous noise during operation, should be reported to **STAR TRAC PRODUCT SUPPORT DEPARTMENT** at (800) 503-1221, or USA 1-714-669-1660.

D= Daily W= Weekly M=Monthly (depending on the amount of use, some procedures may need to be performed more frequently)

Preventative Maintenance

D	W	M	Procedure
X			• **The daily maintenance** of the bike will determine the life of the bike by how consistently it is performed.
X			• Wiping down the bike at the end of each class will prevent rust and other forms of corrosion to build-up. Never use abrasive cleaning liquids or oil base when wiping down the bike.
	X		• **The Weekly maintenance** should focus on the overall performance of the bike. During this portion of the maintenance look for vibration and possible loose assemblies. This check will require an experienced rider to help.
	X		• Bottom Bracket Assembly (BBA) will come loose periodically and require tightening. Loose play (left and right motion) will determine if the BBA needs adjusting.
	X		• Inspect each bike for loose parts, bolts and nuts.
		X	• **The monthly maintenance** check should be a comprehensive inspection of the overall frame and main assembly components of the bike.
		X	• Inspect all wear items for adjustments or possible part replacement.
		X	• The drive chain will require lubrication once a month or after every 100 hours of use. The chain should be lubricated with a light oil (preferably lubrication that comes with a spray hose that fits in front of the lubrication can) and a dry clean towel.

Cleaning

1 General
- ✓ Wipe the bike down after each use with a clean soft towel.
- ✓ Keep the area well ventilated.

2 Daily
- ✓ Cleaning the bike after each use with a non corrosive all purpose cleaner such as diluted Simple Green®

3 Bi-Weekly
- ✓ Applying a rust inhibitor such as LPS 1 will greatly inhibit the formation of rust.
- ✓ Apply a small amount to a rag and wipe the bike down.
- ✓ Concentrate on areas where rust forms
  - Welded Frame Corners (Pro & Elite)
  - Frame Edges (Pro & Elite)
  - Inside rim of flywheel (All Spinners)
- ✓ On steel bikes (Pro and Elite), remove handle bar and seat posts. Remove plastic sleeves and thoroughly clean it and the inside of the frame (Stiff brush and cleaner works well). Wipe down plastic with a rust inhibitor, as well as the inside of the tube.
- ✓ Thoroughly clean the handlebar and seat posts, reassembly, and check for proper fit and operation.

Torque Spec's

Tighten the pedals and crank arms weekly using the proper pedal wrench.

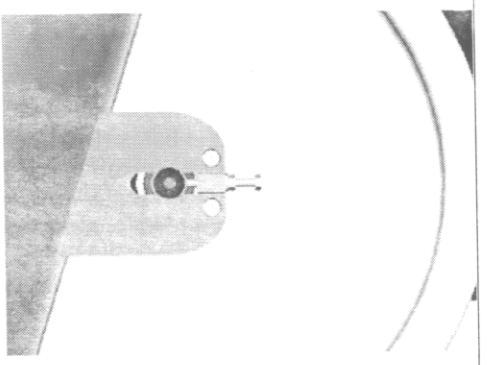
Weekly inspect all screws for proper tension using a torque wrench. Refer to the TORQUE spec table below.
Product Torque Specifications (Ref: 12 Inch pounds =1 foot pound)

NXT	Elite	PRO	Description	Part	Torque (kgf◦cm)	Torque (ft◦lbs)	Torque (in◦lbs)
X	X	X	Brake Spring Block Bolt	M6x1.0*30L	20.0	-	17.0
X	X	X	Back Chain Guard Bolt	M5x0.8*16L	15.0	-	13.0
X	X	X	Chain Guard Bolt	M5x0.8*50L	15.0	-	13.0
X	X	X	Back Chain Guard Bolt	M4x0.7*12L	10.0	-	9.0
X	X	X	Chain Tensioner Bolt	M6x1.0*16L	25.0	-	22.0
X	X	X	Back Chain Guard Mounting Bracket Bolt	M5x0.8*16L	25.0	-	22.0
X	X	X	Chain Guard Bolt	M5x0.8*30L	25.0	-	22.0
X	X	X	Chain Guard Bolt	M5x0.8*16L	15.0	-	13.0
X	-	-	Handlebar Sleeve bolt	M4x0.7*12L	5.00	-	4.0
X	-	-	Handlebar bolt	M8x1.25*16L	70.0	-	60.0
X	-	-	Handlebar bolt	M8x1.25*16L	70.0	-	60.0
X	-	-	Seat Post Sleeve Bolt	M4x0.7*12L	5.00	-	4..0
X	X	X	Crank Bolt	M8x1.0*22L	414.0	30.0	-
X	X	X	BB Axle Nut	M20x1.0*6L	140.0	10.0	-
X	X	X	Leg to Frame	M10x1.5*55L	96.0	7.0	-
X	-	-	Leg to Frame	M10x1.5*65L	96.0	7.0	-

Flywheel /Chain Adjustment

Adjustment to the chain should only be made if the chain is too loose or too tight. Over tightening the chain will result in chain breakage or reduction in life of the chain, leaving the chain too loose will result in the chain coming off the sprocket.

Loosen the nuts on the sides of the flywheel.
Loosen the lock nuts on the chain adjust screws.
Tighten or loosen both chain adjust screws equally.
Slowly turn the crank while keeping your fingers away from the chain.
Adjust the chain tension so the chain falls smoothly onto the sprockets and does not pop. Too tight or too loose will make the chain pop or jump as it goes over the teeth of the sprockets.
Align the chain to the sprockets by adjusting the angle of the flywheel so the chain runs smoothly over the teeth of the sprockets.



Clutch Test Procedure (Elite Only)

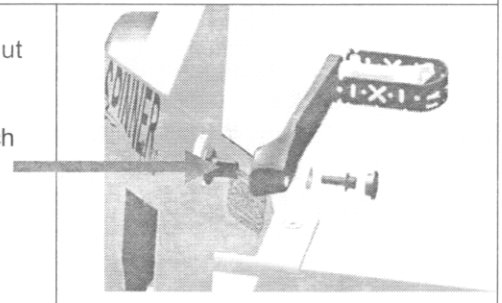
The clutch may need adjusting if the flywheel does not break free when the pedals are stopped or if the flywheel slips excessively while pedaling.

1. Remove the left crank arm (the one without the sprocket and chain). Remove the plastic dust cover by popping it off with a small screwdriver to expose the 14 mm bolt. Remove the 14 mm bolt by turning it counter-clockwise.
2. Remove the crank arm using a crank-extraction tool.

Crank Arm Puller CCP-2

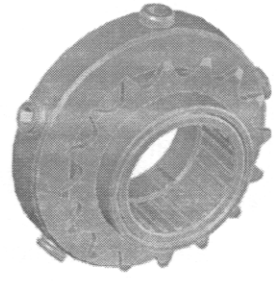
Be sure to sufficiently thread the crank extraction tool before turning the crank extraction arm. Failure to do so can result in stripped threads.

3. Tighten the brake knob as tight as possible BY HAND ONLY.
4. **DO NOT check the torque by applying the torque wrench to the 14 mm bolt. 45 ~ 50 ft-lbs.** exceeds the recommended maximum tightening torque of 30 ft-lbs. and WILL BREAK THE BOLT, REQUIRING REPLACEMENT OF THE BOTTOM BRACKET.
5. Set the torque setting of the torque wrench to 45 ~ 50 ft-lbs.
6. Using a torque wrench and a 29 mm deep socket on the bearing retaining nut.(RED ARROW) Turn the retaining nut in a clockwise direction so that the bottom bracket axle rotates backwards.
7. If the torque is not 45 ~ 50 ft-lbs. Use the following Clutch adjustment procedure to adjust the torque



Clutch Adjustment Procedure

1. Remove the chain guard by removing the four screws.
2. If the torque is not 45 ~ 50 ft-lbs. using a 5 mm allen wrench, give each of the set screws a little clockwise turn. A "little turn" is about 10 degrees. Be sure and turn all 5 set screws so they have equal pressure to obtain the proper adjustment. Recheck the torque for different positions around the clutch. If it is still not 45 ~ 50 ft-lbs. repeat the procedure.



NOTE: The goal is to make all the set screws have the same pressure on the clutch.

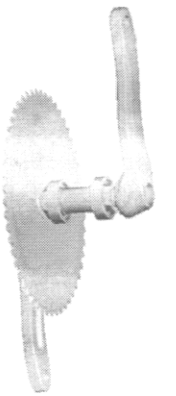
3. Install the chain guard with the 4 screws.

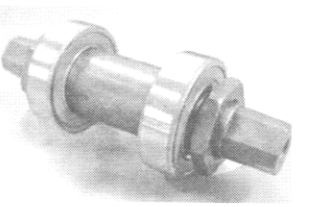
Reattach the crank arm, and tighten the 14 mm bolt to 30 ft-lbs. Pop the plastic dust cover back on. Test the clutch system for proper operation for normal riding use. Observe all safety practices.

Parts Replacement

Bottom bracket

1. Cranks must be removed from the spindle to service the bottom bracket bearings.
2. Remove the cranks arm bolts using the 14 MM socket
3. Remove the crank arms using a crank removal tool CCP-2
4. Remove the 29MM nut from the right side of the bottom bracket
5. Using a rubber coated mallet carefully knock out the bearing by hitting the bottom bracket spindle on the right side. It will take some force to release the bearings from the frame, follow safe working practices.
6. Note: If you will be using the spindle again, take care not to damage it.
7. Once the bearing and spindle are out of one side of the frame use a punch and mallet to remove the bearing and nut off the spindle and use the spindle to knock out the remaining bearing. Discard the bearings, they re not reusable and if the spindle is damaged discard it.
8. Clean the inside of the bearing housing and remove any remaining Loctite.
9. Apply some Green # 680 Loctite to the new bearing and align it with the frame and using the rubber coated mallet, tap the bearing into the frame. NOTE do not hit the inner race of the bearing.
10. Insert the bottom bracket spindle into the bearing from the other side of the frame.
11. Apply some Green # 680 Loctite to the second bearing and install it into the frame and onto the spindle.
12. Apply some Loctite #242 and attach the nuts to the spindle and using two 29MM open end wrenches tighten the nuts to press the bearing into the housing.
13. Tighten the nuts until the bearings are both firmly seated into the housing then back off both nuts just until there is smooth rotation of the bottom bracket spindle. Test the nuts to make sure they are at 10 foot pounds.
14. Check for side to side play or looseness before re-installing the cranks and chain guard.
15. Remember to torque the crank arm bolts to 30 foot pounds.
16. Check the pedals for looseness and tighten if needed,
17. Observe proper safety precautions while testing the bike for proper smoothness while pedaling.





Crank installation

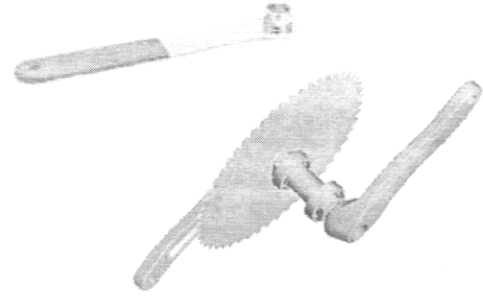
Cranks are pressed tight onto the tapered square spindle. The square spindle is made with a slight upward sloping taper. The crank square fitting also has a slight taper. The crank bolt acts as the pressing tool and forces the arm up the slope of the spindle. The bolt or must be tight enough to keep from loosening, use a torque wrench and tighten to 30 foot pounds.

Crank Set Testing

1. Cranks connect the pedals to the bottom bracket spindle. The arms are pressed tightly to the bottom bracket spindle. Cranks must be removed from the spindle to service the bottom bracket bearings.

2. If the crank arm is allowed to be used while it is loose it may damage the crank arm and the bottom bracket spindle. Check the crank arms for looseness and proper fit on the square end of the spindle if the crank is still wobbly after the crank bolt is properly tightened using the crank bolt wrench or a socket to 30 foot pounds it will need replacement.

Crank Bolt Wrench CCW-14R



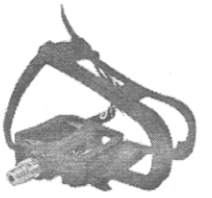
Crank removal

1. Remove the chain cover, loosen the flywheel axle bolt and loosen the chain tension screws. Take the chain off the right side crank.
2. Remove the crank bolts.
3. Use a crank arm puller such as the Park tool number CCP-2 to remove the crank arms.
4. Look for bolt or nut at end of crank in line with bottom bracket spindle. If no bolt is visible, remove dust caps.

5. Before installing crank puller into crank, turn puller nut away from internal driver as much as possible. If puller nut happens to unthread from internal driver, thread it back on only 3-4 turns.
6. Thread large external thread of puller (nut) into arm, taking care not to cross thread. Tighten puller nut into crank using wrench.
7. Thread internal driver into puller nut. Using handle or adjustable wrench, tighten driver until crank is loose on spindle. Pull arm from spindle and unthread both parts of tool from arm. Use care not to skin knuckles when removing tool. Repeat process on other crank.

Pedals

Using a bike pedal wrench such as the Park tool number PW-3, or a 5/8 inch open end wrench tighten the pedals weekly. Failure to tighten the pedal can result in pedal wear or breakage.



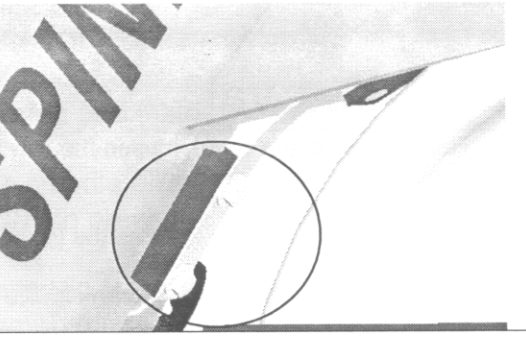
Brake Tension Knob

1. Remove the acorn nut and locknut from the bottom of the brake knob assy.
2. Unscrew the brake knob all the way and the large brass nut, spring and alignment wedge will fall out.
3. Pull the brake knob assy up and out of the bike.

4.

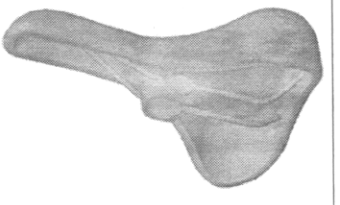
Brake Pad

1. To remove the brake pad for replacement, first remove the 2 bolts that hold the brake block on the frame. The spring and brake pad will come off.
2. Unscrew the brake pad from the spring and install a new brake pad assy.
3. Attach the spring/brake assy to the brake block.
4. Tighten the bolts to 1.45 foot pounds US or 20 kgf/cm Metric.
5. Test the brake for proper operation.



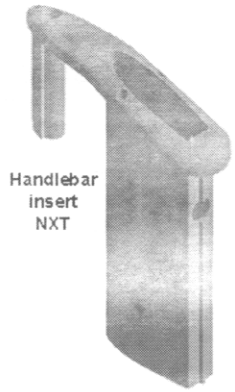
Seat

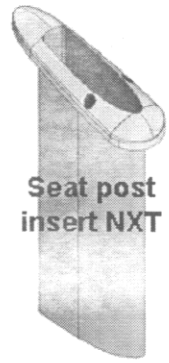
1. Loosen the seat adaptor using two 14MM open end wrenches.
2. Lift the seat and adaptor off the seat post.
3. Loosen the seat adaptor enough to take the adaptor off the rails if the new seat does not have an adaptor and transfer the adaptor to the new seat.
4. Hand tighten the adaptor on the rails



Handlebar / Seatpost sleeve

1. **(NXT Only)**Using a small Allen wrench, unscrew the small screws at the top of the plastic insert.
2. Unscrew and pull out the pop pin while pulling up on the handlebar or seatpost.
3. Pull up the insert while pulling out the pop pin.
4. Reverse the steps to install. And tighten the screws to



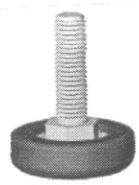


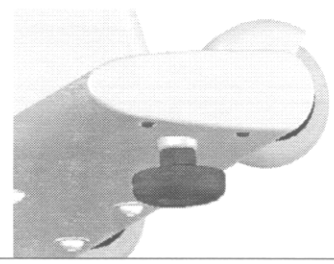
Pop Pin

1. Pull the pop pin out and lift the seatpost or handlebar post out of the bike.
2. Using a 20MM open end wrench, unscrew the nut holding the pop pin and it will unscrew out of the frame.

Adjustable foot

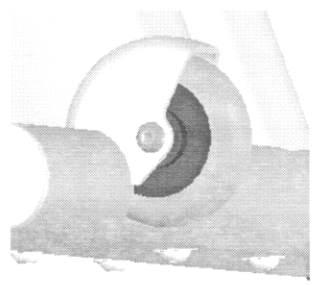
1. Using a number 3/4" open end wrench, unscrew the foot.
2. Insert the new foot and screw it in by hand until it is all the way in.
3. Stand the bike upright and level all four feet.
4. Tighten the lock nut on each foot.





Front transport wheel

1. Using a number 4 allen wrench, loosen the bolt and remove the wheel assy.
2. Insert the new bolt and wheel and thread by hand into the other side and tighten.



NOTES:

Startrac Product Maintenance Log

Model_____ Serial Number_____ Mfg Date_____

Date	Cleaning	Problem/Adjustment	Part Replaced	Service performed by

Comments:

WEB SITE
http://support.startrac.com/

PHONE
800-503-1221

FAX
714-669-0739

EMAIL
SUPPORT@STARTRAC.COM

Spinning® Computer

Installation and Service Manual

Table of Contents

FCC Regulatory Statements

1. This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) this device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.
2. Changes or modifications not expressly approved by Star Trac could void the user's authority to operate the equipment.

Parts List

All **727-0083 Spinning® Computer** Kits include:

Spinner Computer Kit	Quantity	Description
727-0092	1	Spinner Computer Assembly
580-0310	4	AA Panasonic Batteries
727-0093	1	Spinner Computer Mounting Bracket
140-3362	1	V2 Bracket Mounting Insert
140-3363	1	Pro Bracket Mounting Insert
727-0084	1	Spinner Computer Cadence
727-0094	1	Cadence Magnet Assembly
620-7654	1	Spinner Computer Manual
290-0039	1	M5 Allen Assembly Tool
290-0041	1	M2 Allen Assembly Tool

Parts List- cont'd

The Spinner bike computer consists of the following:

- **Computer -** mounts on the handlebars. This is the user interface and will show HR, RPM, kCal, total distance and elapsed time. The computer receives signals from both the cadence unit and a heart rate strap.

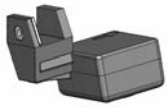
- **Mounting Bracket and Inserts** – mounts onto V-Bikes and Pro-Bikes. The thicker wall insert is used on the V-Bike bracket assembly. While the thinner wall insert is used on the earlier versions of the Pro-Bike (i.e. Johnny G series).

Computer Mounting Bracket Clamp

V2 Insert (Thick Wall)

Pro Series Insert (Thin Wall)

- **Cadence sensor** - mounts under the left (looking from back of bike) flywheel mount. It transmits a signal to the computer in which it calculates the user's RPM speed.



- **Magnet** - mounts on the left (looking from back of bike) side of the flywheel. It activates the Cadence sensor when it passes by the internal reed switch.

Before installing the Spinning® Computer, verify that all the parts needed for mounting on your bikes are included. If any of the items are missing, call StarTrac at 800-503-1221 to order a replacement kit.

Computer Window and Buttons

Start pedaling then press any button to turn on the spinning computer.

Pressing the Left button (LIGHT BUTTON) turns on the backlight for low lit rooms.

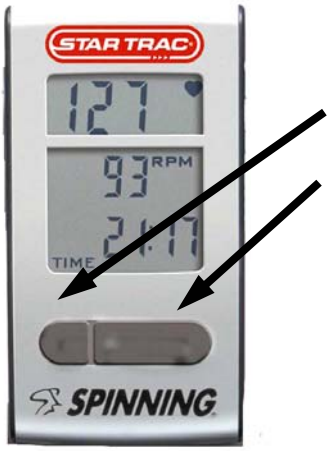
Pressing the Right button (TOGGLE BUTTON) displays the following information:

HR- Displays the Heart Rate of the user wearing a compatible Polar HR telemetry strap in beats per minute.

RPM- Shows the pedaling speed of the user in Revolutions Per Minute.

Total Distance- Distance measured in miles or kilometers depending on the setup selection.

Elapsed Time – The length of time in minutes from the time the computer has been activated or reset.



Buttons:

Light button – Turns on the backlight to enable viewing in low lit settings.

Toggle Button - Toggles between: Total Distance and Elapsed time.

Setup Mode

Setup is required only if you need to change a setting or view information.

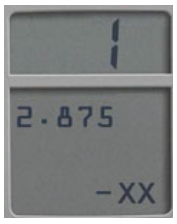
To activate Set-Up Mode:

1. Press any button to activate computer.
2. Wave a magnet along the right side of the Spinning® Computer until the display window shows all LCD segments flash.

3. Press Toggle (right) button to scroll through available set-up options.
4. Press the Light (left) button to change settings on the current display option.

Setup mode options:

GEAR and **Software Version** - Gear Ratio, Select 1 (2.875) for V Bike models or 2 (3.250) for all other models.



- **Units** - Miles or KM

- **BLON** – (Default Back Light On) the amount of time the backlight will stay on when the left button is pressed. NOTE: A shorter backlight time will result in longer battery life (recommended). Select between 1 second to 60 seconds using the Light button and press Toggle button to save.

- **BLU** – (Back Light Usage) Total time in minutes that the back light has been on since the last data clearing. Press the Light button to clear data, if desired, then press Toggle button to accept and advance to the next setting

- **UH** – (Usage Hours) Total operation time in hours of display since the last data clearing. Press the Light button to clear data, if desired, then press Toggle button to accept and advance to the next setting

- **ODO** – Total miles / KM
  Pressing the toggle button again will exit setup mode.

- **SON** – (Summary ON Time) Number of seconds that the summary will be displayed at the end of the workout. Options: 30, 60, 90, or 120 seconds select by using the Light button and press Toggle button to accept.

5. To exit Set-Up mode, press the Toggle button several times until the computer returns to Workout Mode (Refer to figure in page 4).

6. Once out of Set-Up mode and in the Workout mode, one could start monitoring the workout.

Sync Mode

Syncing will need to be performed in any of the following events:

- First receiving the Spinning Computer Kit.
- Changing the 4AA batteries on the Computer.
- The original cadence and computer are no longer a pair. (i.e. when users swap handlebars with the computer attached.)

<u>Syncing process when first receiving the kit or installing/replacing the 4 AA batteries:</u>

1. Remove the battery lid on the backside of the Spinning Computer and insert or replace the 4 AA batteries.
2. Once the batteries are installed, the user will see characters on the display window which confirms that the Workout mode has been activated.
3. To begin the Syncing process, press and hold Toggle and Light buttons simultaneously. The display should now show **"Conn** _ _ _**"** on the window.
4. Within one minute, press the Reset button on the Cadence and wave the magnet along any of the Cadence sides.

Press Reset Button

5. **Note:** If Cadence and magnet are already mounted onto the Spinning bike, move flywheel of Spinning bike to pass magnet by Cadence.
6. Once the magnet passes by the Cadence (may have to pass magnet by cadence several times), the syncing process will be confirmed when a random ID is displayed **"Id xxxxx"** (e.g. Id 45896)
7. Accept ID by pressing the Toggle button.
8. Once the Syncing process is done, the display should start showing the Workout mode.

Syncing process for when the original cadence and computer are no longer a pair:

1. To begin the Syncing process, press and hold Toggle and Light buttons simultaneously. The display should now show **"Conn** _ _ _**"** on the window.
2. Within one minute, press the Reset button on the Cadence and wave the magnet along any of the Cadence sides.

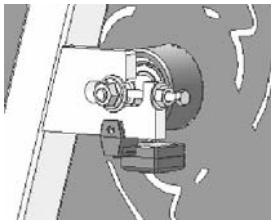
Press Reset Button

Note: If Cadence and magnet are already mounted onto the Spinning bike, move flywheel of Spinning bike to pass magnet by Cadence.

5. Once the magnet passes by the Cadence (may have to pass magnet by cadence several times), the syncing process will be confirmed when a random ID is displayed **"Id xxxxx"** (i.e. Id 45896)
6. Accept ID by pressing the Toggle button.
7. Once the Syncing process is done, the display should start showing the Workout mode.

Installation of Cadence Sensor – All Spinners®

1. Before the cadence sensor is securely fastened to the flywheel dropout, it must be adjusted so that it is about 5 mm (.20 in) from the magnet face. Install the magnet on the flywheel so that it aligns with the arrow on the end of the cadence sensor. Note the distance between the end of the cadence sensor and the magnet face. Remove the cadence bracket and adjust the distance by pulling or pushing the cadence bracket.



2. Tighten the set screw on the cadence mounting bracket using the M2 Allen tool. **Caution!** Do not over tighten the set screw.

3. Mount the magnet with the adhesive tape side onto the flywheel by positioning the magnet so it will line up in front of the cadence sensor as the flywheel turns.

Installation Procedure V Bikes

Time required:

- 15 Minutes

Parts required:

- 727-0083 Spinning® Computer Kit

NOTE: The thick insert is used on the V bikes

Tools required:

- M5 Allen Wrench
- M2 Allen Wrench

4. Place the thick insert inside the bottom part of the Mounting Bracket Clamp. Then position the mounting bracket onto the center-curved portion of the handlebars. Once positioned correctly, tighten the 4 M6x20 screws using the M5 Allen tool.

5. Install the computer onto the mounting bracket by sliding the computer clamp over the long portion of the bracket. Tighten computer clamp with the M6 screw and nut using the M5 Allen tool.

Time required:

- 15 Minutes

Parts required:

- 727-0083 Spinning® Computer Kit

NOTE: The thin spacer is used on Pro 5800/6800 and Elite 5900 bikes.

Tools required:

- M5 Allen Wrench
- M2 Allen Wrench

1. Place the thin insert inside the bottom part of the Mounting Bracket Clamp. Then position the mounting bracket onto the center-curved portion of the handlebars. Once positioned correctly, tighten the 4 M6x20 screws using the M5 Allen tool.

2. Install the computer onto the mounting bracket by sliding the computer clamp over the long portion of the bracket. Tighten computer clamp with the M6 screw and nut using the M5 Allen tool.

Installation Procedure Elite 6900 and NXT 7000

Time required:

- 15 Minutes

Parts required:

- 727-0083 Spinning® Computer Kit

NOTE: The inserts and mounting bracket are **not** used on the NXT or Elite 6900

Tools required:

- M5 Allen Wrench
- M2 Allen Wrench

1. Install the mounting bracket to the center flat section of the handlebar by slightly prying the computer bracket clamp open.

2. Secure clamp down by tightening the M6x20 screw and M6 nut.

Installing or Replacing the Batteries

Low Battery Indicator

Time required:

- 5 Minutes

Parts required:

- 4 AA Alkaline batteries

Tools required:

- Slotted or Phillips Screwdriver

1. Remove the computer from the handlebar or Spin Computer Mounting Bracket.
2. Loosen the captive screw on the back of the battery cover (Screw will not completely come off, it will remain captive.)
3. To remove the cover, pull on the captive screw and lift.

4. Exchange the batteries with 4 new AA Alkaline batteries.
5. Take note of the way the batteries are inserted into the computer, they are not in a plus and minus, plus and minus pattern. The + sign indicates the positive (+) side on the battery and the - indicates the negative (-) side on the battery.
6. Attach the battery cover and tighten the screw.
7. Finally, attach the computer onto the handlebar or computer mounting bracket and test.

FAQ's and Troubleshooting

- **No Display**
  - **Press any button**
  - **Pedal the bike and then press any button**
  - **Check batteries in computer**

- **No Heart Rate**
  - **Is the user wearing a Polar brand heart rate strap?**
  - **Moisten the strap and wear it against the skin**
  - **The battery in the strap might be low, try another strap**

- **Which Heart Rate Strap works with my spinning bike computer?**
  - **Any Polar® Brand HR Strap. However, in a group environment, suggest to use any Polar® "coded" series to reduce HR Crosstalk.**

- **Picking up another riders heart rate**
  - **Bikes might be too close to each other and receiving HR from another rider, move the bikes so there is more space from the computer of your bike to the chest of the other rider. See diagram page 23.**
  - **Each rider should wear a Polar® "coded" series.**

- **No RPM**
  - **Is the magnet on the left side of the flywheel and aligned with the cadence sensor?**
  - **Sync up the computer and cadence unit.**
  - **Check the battery in the cadence sensor**
  - **If pedaling exceeds 120 RPM, the computer will flash the 120 value until rpm's decrease.**

- **What is the battery life?**
  - **Computer batteries last approximately 1 year depending on usage and backlight use. (Note: "Low Batt" will be displayed underneath the Heart symbol, suggesting battery replacement)**
  - **Cadence sensor battery lasts approximately 2.5 years.**

- **What does the computer display?**
  - **Cadence= RPM**
  - **Heart Rate = BPM**
  - **Total Distance= MILES / KM**
  - **Elapsed Time = Minutes**
  - **Total Calories = kCal**

- **Replacement battery?**
  - **Computer batteries 4 AA Alkaline**
  - **Cadence sensor battery is a Lithium CR2032**

Specifications

Computer:	
Heart Rate Range	**Approximately 30” From Computer to users HR strap**
Battery	**Qty 4 each AA Alkaline**
Battery life expectancy	**1 year (depending on use and backlight usage)**
Cadence unit:	
Battery	**Lithium CR2032**
Battery life expectancy	**approximately 2.5 Years (depending on use)**
Distance to magnet	**approximately 5mm**

Marketing Statement Regarding Heart Rate Acquisition on the Star Trac Spinning® Computer:

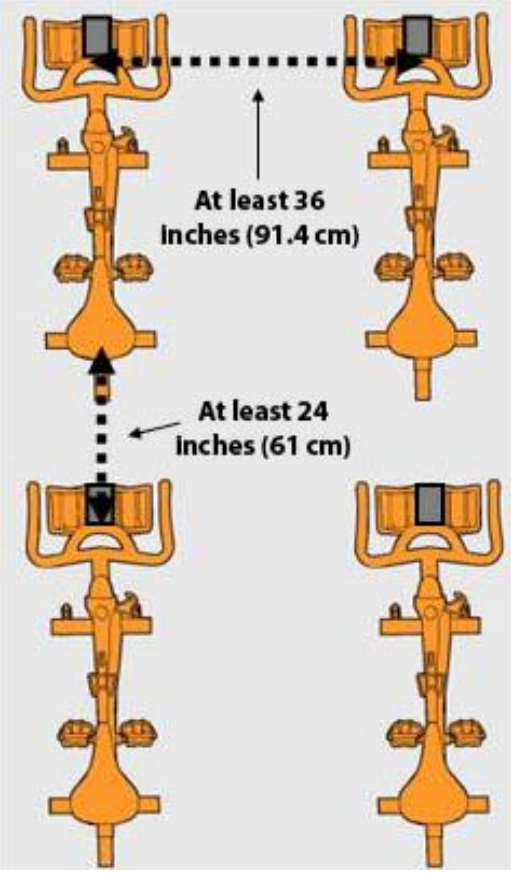
Star Trac takes the acquisition and accuracy of heart rate very seriously and has developed a system to perform to the best ability that technology will allow. Star Trac has engineered a product that has taken every precaution possible to acquire an accurate heart rate signal as well as eliminate "cross-talk" interference that may be caused by other monitors being placed too close together.

To achieve the best possible results from your Spinning® Computer, please abide by the following important parameters:

1) Users should wear **Coded Transmitters (such as Polar© T61, Polar© T31C or Polar© WearLink®)** when operating the Spinner® bike with the Spinning Computer. Although all Polar-compatible transmitters are compatible with the Spinning® Computer, the use of a **Coded Transmitter** will allow a "one to one" relationship with the Spinning Computer and will minimize potential crosstalk interference. If users wear non-coded straps, there is significantly increased potential for "cross-talk" which may cause erratic heart rate display and reduce the consistency of accurate heart rate reporting. .
2) Bikes should be spaced so that the side-to-side distance from the Spinning Computer on one bike and the Spinning Computer on bikes to the left or right is at least 36 inches (91.4 cm). In addition, the distance from the bottom of the Spinning Computer on one bike to the seat of the bike in front of it (where another rider and his/her transmitter would be seated) should be at least 24 inches (61 cm) in order to significantly reduce chances for interference. Please see the diagram on page 19.
3) Calorie calculations are displayed as a summary only and will ONLY be shown if a user utilizes a heart rate strap throughout the entire workout.

If there are any questions regarding operation or usage of the Spinning Computer, please contact Star Trac Customer Support at 800-503-1221.

Layout Diagram



Maintenance Checklist

Star Trac strongly recommends performing the regular daily, weekly and monthly preventive maintenance routines outlined below. If any items need replacement call **STAR TRAC PRODUCT SUPPORT DEPARTMENT** at (800) 503 -1221, or USA 1-714-669-1660. To order replacement parts we will need the serial number and model number.
D= Daily W= Weekly M=Monthly (depending on the amount of use, some procedures may need to be performed more frequently)

Preventative Maintenance

D	W	M	Procedure
✓ ✓ ✓			**Daily maintenance** of the computer will determine its life of the computer by how consistently it is performed. • Wipe down the computer with a soft cloth after each use. • Dilute Simple Green (1) with water (30) (30:1 ratio) spray onto a soft cloth then wipe the Spinner Computer. NOTE: Never spray directly onto the Spinner Computer. • Never use abrasive cleaning liquids or oil base, ammonia or alcohol when wiping down the computer.
	✓ ✓		**The weekly maintenance** should focus on the overall performance of the computer. During this portion of the maintenance look for vibration and possible loose assemblies. • Inspect each computer for loose parts, bolts and nuts. Adjust as necessary. • Remove any computers that are not properly mounted and are deemed unsafe.
		✓ ✓ ✓ ✓	**The monthly maintenance** check should be a comprehensive inspection of the overall assembly components of the computer. • Inspect all areas for proper adjustments • Inspect all parts to determine damage which will require possible part replacement. • Battery Low will display when the battery needs replacement. Replace the batteries in the computer with 4 High quality AA Alkaline batteries such as Duracell or Energizer. • Inspect the mounting of the cadence sensor and magnet to insure it is intact and working properly.

Spinning Education

CADENCE, RESISTANCE AND INTENSITY

Understanding the relationship between cadence, resistance and intensity is key to Spinning® program classes that meet training goals. By using the Spinner® computer, you will become more proficient at increasing power, gaining efficient leg speed and mastering the relationship between ideal resistance and heart rate intensity.

HEART RATE MONITORING

Before discussing cadence and how to use the **Spinner® computer** effectively, one needs an understanding of heart rate monitoring. Heart rate monitors are used in the Spinning program for continuous feedback on exercise intensity. For effective training, it is desirable sometimes to exercise at **anaerobic** intensity and **aerobic** intensity at some other times. Heart rates are used to tell whether a person is in aerobic or anaerobic intensity. Generally speaking, when heart rate is between 65 % – 80% of one's maximum heart rate (MHR) it is aerobic, and is anaerobic when the heart rate is above 80%.. An easy way to estimate one's maximum heart rate is to use the age-predicted formula: 220 – age. Subtract one's age from 220 to get age-predicted maximum heart rate. For example, a 30 years old has 220 – 30 to get age-predicted maximum heart rate of 190 beats per minute (BPM).

Energy Zones™
The Spinning Energy Zones are the foundation of heart rate training in the Spinning® program. Each Energy Zone is a type of training based on exercise intensity (indicated by heart rate).

Energy Zone	Intensity Range	Purpose
Recovery	50% to 65% of MHR	Relaxation and energy accumulation.
Endurance	65% to 75% of MHR	Raises metabolism, burns fat, increases energy.
Strength	75% to 85% of MHR	Improves muscular endurance and mental stamina.
Interval	65% to 92% of MHR	Trains the heart to recover quickly from work effort.
Race Day	80% to 92% of MHR	To challenge the well conditioned exerciser.

ENERGY ZONE HEART RATE CHART

AGE	RECOVERY 50%-65%	ENDURANCE 65%-75%	STRENGTH 75%-85%	INTERVAL 65%-92%	RACE DAY 80%-92%
20-23	100-129	129-149	149-168	129-182	160-182
24-27	98-126	126-146	146-165	126-178	155-178
28-31	96-123	123-143	143-162	123-175	153-175
32-35	94-120	120-140	140-159	120-172	150-172
36-39	92-118	118-137	137-155	118-168	146-168
40-43	90-116	116-134	134-151	116-164	143-164
44-47	88-113	113-131	131-148	113-161	140-162
48-51	86-110	110-128	128-145	110-157	137-157
52-55	84-108	108-125	125-141	108-153	133-153
56-60	82-105	105-122	122-139	105-150	131-150

ENERGY ZONE™ **HEART RATE CHART**

What is Cadence?
Cadence is defined as the number of times the pedals revolve per minute, also known as RPM for revolutions per minute. The safest, most efficient and most realistic cadences are 80–110 RPM for a flat road and 60–80 RPM for a hill. These ranges are based on studying the cadences of elite cyclists as well as understanding how the muscles work together to turn the pedals in the most efficient manner.

Cadence Range for Flat Roads: 80-110 RPM
Pedaling faster than 110 RPM is both unrealistic and counterproductive. On the Spinner bike, the resistance knob is used to increase friction on the flywheel in order to simulate realistic external forces one would encounter on an outdoor bike, such as road surfaces, bike weight and wind resistance.

Pedaling faster than 110 RPM is unrealistic because:

- It's like pedaling very fast in a very low gear—there's a low *power to resistance ratio*.
- It's wasted energy. If a person pedaled like this on street bike, he/she wouldn't generate much power or speed.
- Only a skilled cyclist who has worked on her pedal stroke for many years and has trained the nervous system to react quickly is able to pedal efficiently at 100+ RPM for an extended period. Because of his/her strength and ability to overcome the higher resistance at faster leg speeds, it is said that he/she has a high *power to resistance ratio.*

Pedaling faster than 110 RPM is counterproductive because:

- No amount of high-cadence/low-resistance pedaling on a Spinner® bike will succeed at training the nervous system properly. The flywheel is doing most of the work.
- One won't achieve his/her performance and weight loss goals.
- One won't build leg strength.

Is it good to pedal faster than 110 RPM?

Those who have a high power to resistance ratio may occasionally attain these leg speeds. This means they have the ability to overcome resistance through strength and speed. The rare, highly skilled Spinning® enthusiast (often cyclists) who have mastered a smooth pedal stroke and who understand the dynamics of cadence can pedal faster than 110 RPM for 1-3 minutes. A high performance sprint, used judiciously in ride profiles may require cadences over 110 RPM for 10-20 seconds.

Bouncing in the Saddle

When riding at cadences of 100-120 RPM with too little resistance, the rider will bounce in the saddle. What causes the bouncing has to do with the pedal stroke. There are four phases to the pedal stroke. Many riders, however, usually have only one phase—straight down. That means that they haven't perfected sweeping the foot back at the bottom of the pedal stroke and pushing the toe forward at the top. As a result, they push down furiously on the pedals and rely on the flywheel to carry their foot the rest of the way. When their foot reaches the bottom of the crank arm, the leg can go no further, and the hip is raised up off the saddle, creating that familiar bouncing. The short-term solution is to add more resistance, but one must also work on pedal stroke technique and cadence drills.

Cadence Range for Hills: 60-80 RPM

Since 1998, Lance Armstrong has amazed the cycling world with his ability to pedal at 90 RPM up some of Europe's toughest climbs. But keep in mind that Lance can ride at 400 watts for several hours and stay aerobic (watts is a measure of power; 400 watts is a lot of power), whereas many skilled cyclists may be lucky to achieve 400 watts for a few minutes. In order to pedal at 90 RPM up a steep hill, one must either be superhuman or must choose a gear that is so low (granny gear), that the bike barely moves. The granny gear is the small cog found on the front chain ring of mountain bikes and some road bikes—it allows the rider to climb hills at a much higher cadence and lower resistance, but his/her power and speed are reduced.

It's not dangerous to exceed 80 RPM on a hill, but for extended periods it will likely raise the rider's intensity too high and won't achieve the strength benefits of climbing. It is all right to exceed 80 RPM for brief periods, such as in a standing climb for the last 10-20 seconds. The rider intensity will increase dramatically, so make sure one has planned for this in his/her profile.

The lower limit of 60 RPM on a hill is for safety reasons. There won't be many situations where a cyclist will pedal slower than 60 RPM. If one cannot turn the cranks at a faster cadence than 60 RPM the resistance is too high. A key indicator is the need to contort the body by throwing his weight into pushing the pedal downward while pulling on the handlebars. This excessive

resistance places too much load on the knee joint and puts the hips and low back at risk. One wouldn't perform a bicep curl with a weight that would require the rider to throw his/her hips forward. The same applies to resistance while pedaling. A rider must build the strength in his legs using appropriate resistance at a cadence no lower than 60 RPM. If a steep hill is the goal, find the highest amount of resistance one can maintain while employing good form at 60 RPM without contorting the body to turn the pedals. Remember, 60 RPM is one revolution of the pedals per second.

TIPS FOR CHOOSING AN APPROPRIATE CADENCE AND RESISTANCE

1. **Warm-Up.** The first ten minutes of a Spinning ride are critical for establishing proper cadence. With no resistance during warm-up, one may tend to pedal too quickly thus raising the heart rates prematurely. During the warm-up, it's important to work on cadence by keeping intensity under control (65% or less). Use the warm-up to establish a smooth cadence and gradually establish a balanced intensity. Similarly, after the warm-up, be cautious of increasing cadence over 100 RPM with light resistance (this will also cause a potential anaerobic event and one may spend the remaining class time attempting to recover). In other words, if one chooses to climb after the warm-up, ensure that intensity and cadence are increasing equally.

2. **Resistance.** Resistance is good. Some riders are afraid to add resistance because they think they'll end up with bulging quadriceps. But in cycling, it is the sprinters who have the larger quadriceps (*high cadences, lower resistance*), and the skilled climbers generally have the longer, leaner legs *(lower cadences, higher resistance)*.

3. **Intensity.** Slower cadence does not necessarily mean lower intensity. Perhaps a rider feels that if he/she slows down the RPM his/her heart rate will drop too low. But in fact, he/she is in control of the intensity because he/she can add resistance as needed. Subtle turns of the knob should eventually generate the required response. Wearing a heart rate strap is critical to monitor one's intensity goals using the right combination of cadence and resistance.

4. **Putting it Together.** Cadence and resistance are inversely related. The next section will explain how cadence and resistance work together to elicit a given intensity. With this understanding, one can coach others to select the appropriate resistance and cadence for the terrain they have selected.

Cadence, resistance and intensity are interrelated. For any given intensity, there is a correlated cadence and resistance combination. In other words, if one knows the intensity (heart rate) he/she wants to exercise at, and selects the cadence at which to ride, he/she can find the right resistance to get to that intensity. Or if given a target intensity and target cadence, one can dial in the right amount of resistance.

In other words, for every selected cadence parameter combined with a heart rate range, one should be able to find a resistance that will attain that heart rate. The goal is to find that resistance through experimentation. Remember that on some days the resistance may be slightly different than other days due to factors such as fatigue, stress, overtraining, or medication.

APPLYING THE CONCEPT

The following examples will help the rider to understand and learn to apply this relationship between cadence, heart rate and intensity.

1. Ride at a steady state heart rate of 75% maximal heart rate (MHR) on a flat road, at a cadence in the range of 85–95 RPM. Dial in the amount of resistance necessary to reach that goal.

2. Now find a moderate to hard seated climb at a cadence of 65-70 RPM and at a high-end aerobic HR of around 80% MHR (a range is sufficient). Dial in the right amount of resistance to reach that goal.

3. Now suppose the hill just became a little easier, but one wants to maintain the *same* HR of 80%. Because it's still a hill, his/her cadence should not rise above 80 RPM. What does one need to do to stay at the same intensity as cadence increases? Answer: reduce the resistance just a little.

4. Find a tough climb without exceeding 85% MHR. Continue adding resistance
until one feels the need to rise out of the saddle in a standing climb. (Outdoors, cyclists
stand on a climb when the road becomes steeper.) Maintain a cadence of 70–75 RPM.
Play with these three variables, finding the right combination to meet the parameters. If cadence picks up too fast, one will have to increase the resistance. If heart rate rises too high, one will need to adjust one or both of the other variables (cadence and/or resistance).

These exercises will help a rider becomes the master of the road and in control of his/her intensity. Instead of being told to turn the resistance knob a particular number of rotations, One will be able to find the appropriate resistance for the cadence and intensity desired.

CADENCE DRILLS

Now let's look at some specific cadence drills which one can incorporate into his/her rides

Cadence Drill #1: Teaching the concept of cadence vs. resistance
This drill introduces the relationship between cadence, resistance and intensity. The goal is to maintain the same intensity even though the terrain changes. An outdoor cyclist would accomplish this by changing gears.

Begin on a flat road and ride at an intensity of 80% MHR and a cadence of 85 RPM for 5 minutes (this will allow you to internalize the feel of the cadence and resistance). Ride at 85, 90 and 95 RPM for 3-4 minutes each, all the while maintaining the same heart rate. If at any point one cannot maintain the intensity, he/she should ride at the last cadence to maintain the desired intensity which could mean togo back down the ladder from 95 to 80 RPM.

Next, add a little hill while maintaining the same intensity. Remain seated and ride a progressively steeper hill by gradually adding resistance every 3-4 minutes. Try to maintain the same intensity of 80%. In order to do so, one will have to slow his/her legs down as the hill becomes steeper. Ride at 80, 75, 70, 65 and 60 RPM. If one cannot maintain the intensity he/she should ride at the last cadence where he/she could.

Now for the hard part—transition to a standing climb. Once standing, ride back up the ladder from 60 to 80 RPM, reducing the resistance slightly each time. It will be difficult to maintain the 80% MHR as the hill becomes less steep because heart rate often rises with faster cadences on a hill. Take caution to find the correct amount of resistance (one that allows the rider to maintain the desired cadence) while at the same time staying connected to the crank arms (no jerky pedal strokes). On this drill, reduce the time spent at each level to 1 minute each.

Bounce Test

This drill introduces a basic and reliable method for determining your maximum cadence and also helps one determine the highest cadence where one can safely and efficiently pedal without bouncing in the saddle. Skilled riders can achieve a higher cadence, which will help train leg speed. With training and focus, one can improve skill and leg speed.

Select a flat road resistance at an aerobic intensity of 70-75% of MHR. Gradually increase the cadence from 80 to 100 RPM about 3 RPM every minute, all on a flat road. One can make subtle adjustments to his/her resistance if needed. Intensity will undoubtedly increase, but one should hit maximum cadence before reaching an anaerobic intensity. Stay seated deeply into the saddle while pedaling. Pull the feet back at the bottom and push forward at the top of the pedal stroke.

If one start to bounce, reduce the cadence a few RPM to determine the exact point one can ride without bouncing. One will probably need to raise the resistance slightly.

Ladders

Ladders are a progressive increase or decrease in one of the following variables: cadence, resistance or intensity. This drill is best employed using seated or standing flats and seated or standing climbs. Jumps do not work well for ladders.
One can use a combination of the following drills in any profile:

- Constant cadence with increasing resistance in a seated flat or standing flat. The terrain gradually becomes a hill.
- Constant resistance with increasing cadence, in a seated or standing position. Intensity can increase very quickly, so this requires close attention to your heart rate monitor. This drill is also known as spin-ups or accelerations (see below).
- Measured heart rate increases (5 beats at a time) using a combination of cadence or resistance to elicit the increase in intensity. This is an excellent tool to practice control.

Spin-Ups

Spin-ups (also known as accelerations) are a type of ladder where riders progressively increase the cadence over a fairly short period of time. This drill requires a long warm-up. Spin-ups are done in intervals and can be quite intense, but they're an excellent way to train leg speed and improve muscle firing patterns in the legs. It also trains muscular endurance on hills. Spin-ups help the rider to move beyond the cadence where he/she tends to bounce.

These drills are done in intervals with ample recovery in between. The work to rest ratio should be at least 1:2 or even 1:3. This guarantees that when one begins the next interval, he/she is rested enough to give it his/her all. Insufficient recovery will hamper the ability to perform the work interval.

On the Flats: Establish a flat road resistance at 80 RPM at an aerobic intensity. The first drill will be for 90 seconds, progressively raising the cadence to 110 RPM. Every 10-12 seconds, raise cadence by 2-3 RPM. As one approaches and surpasses 100 RPM, extra effort should be made to stay seated deeply in the saddle without bouncing (if one cannot do this without bouncing, he/she should not go beyond that point—it will defeat the purpose).

Next, try this over 60 seconds, raising the cadence 2 RPM every 4 seconds.

Seated Climbs: Climb at 60 RPM with enough resistance to bring the intensity to 75%. Gradually increase the cadence to 80 RPM over 60 seconds. If possible, use 85% MHR as a ceiling. One may have to try this several times to find a hill that allows him/her to stay within the desired intensity. Once reaching 80 RPM, hold this cadence for progressively longer periods. (15, 30, 45 and 60 seconds).

Standing Climbs: Begin at 60 RPM and gradually increase the cadence to 80 RPM. Intensity will no doubt rise quickly, so limit the intervals to 45–60 seconds.

Spinning® Ride Profile
This Strength Energy Zone™ ride takes a rider on three hills, each one a little longer, steeper and therefore more difficult. For the first hill, attempt to keep the heart rate at 80%max. Allow heart rate to rise to 85% with the second and third hills.

Elapsed Time	Duration	Movement/Cadence	Intensity	Technique
0:00 – 5:00	5 min	Seated Flat 80-110 RPM 	50-65% MHR	Warm up for 5 minutes and allow heart rate to rise up to 65% MHR.
5:00 – 9:00	4 min	Seated Climb 80 RPM 	80% MHR	Settle in to the back of the saddle as you gradually add resistance and take your cadence to 80 RPM.
9:00 – 12:00	3 min	Seated Flat 90-100 RPM 	75% MHR	Unload resistance and increase cadence to 90-100 RPM. Find the right resistance to maintain a heart rate effort at 75%.
12:00 – 20:00	8 min	Seated Climb 60-80 RPM  Jumps on a Hill 60-80 RPM 	80-85% MHR	Add resistance to moderate/heavy and combine the two movements in any combination. Example: 3 min seated climb, 1 min jumps on a hill, repeat
20:00 – 23:00	3 min	Seated Flat 90-100 RPM 	75% MHR	Unload resistance and increase cadence to 90-100 RPM. Find the right resistance to maintain a heart rate effort at 75%.

23:00 – 35:00	12 min	Seated Climb 60-80 RPM  Jumps on a Hill 60-80 RPM  Standing Climb 60-80 RPM 	80-85 MHR	Add resistance to moderate/heavy and combine all three movements in any combination. Example: 2 min seated, 1 min jumps, 2 min standing, 3 min seated, 2 min jumps, 2 min standing.
35:00 – 40:00	5 min	Seated Flat 80-110 RPM 	50-65% MHR	Decrease resistance to light and allow HR to come down to 50-65%.

800-503-1221

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