

# SPORT-TACH Application Note

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## How the Sport-Tach can help improve your skating skills.

Skater's can now perfect their jump and spin form with the Sport-Tach jump and spin training aid by measuring their own rotational maximum speed, each rotation speed and total number of revolutions – Instantly. Fun, Fast, Accurate and Repeatable

## Using the Sport-Tach together with a Jumping Harness or on ice.

Those of you in the competitive world of figure skating are familiar with the safety benefits associated with the use of on and off ice training jumping harnesses or jumping poles. They will greatly reduce the time required to learn double, triple and quad jumps by allowing the coach to direct the take-off curve, keep the skater straight in the air and keep the skater's back in position upon landing. This translates into fewer injuries and increased confidence in doing difficult jumps.

When used in conjunction with a jumping harness or jumping pole, the **Sport-Tach** greatly enhances the training process by INSTANTLY providing precise rotational speed and total revolutions of spins. The Sport Tach will display the skaters maximum spin speed in RPS (revolutions per second) or RPM (revolutions per minute). With this information a coach can quickly determine if the maximum spin speed on all rotations made during a jump were too fast or too slow and thereby make necessary adjustments to the skaters form.

The average skater's jump time is approximately 0.5 seconds in the air. If they are going to execute a quad they must complete 4 full rotations or spin at a rate of 8 RPS (rotations per second) while in the air. The **Sport-Tach** measures your maximum rotational speed each rotational speed and counts the total of full revolutions at the same time.

Use the following times as only a guideline to determine how fast a skater must rotate in the air for singles, doubles, triples or quads. Assume when the skater jumps they stay off the ice for .50 seconds as an EXAMPLE.

### Example of JUMP TIMES based on .50 second in the air

Revolutions /spins in air	Time guideline in RPS	Time guideline in RPM
1	2 RPS	120 RPM
2	4 RPS	240 RPM
3	6 RPS	360 RPM
4	8 RPS	480 RPM

Notes: RPS revolutions per second

RPM revolutions per minute - RPS times 60 seconds equals RPM

The Sport Tach must be set up in the RPS (revolution per second) menu mode. The best measurement method is NOT to use the tach / display in the Locked -on mode. If the display is in the locked-on mode the Lock icon will be shown on the display -

you want it off. Each time the big Start button is pushed the previous readings are RESET.

When you hold your finger on the big start button the display is on and reads 0.00 and RPS. While viewing the aiming line –of –sight lines molded on top of display aim at the skaters waist area keeping your finger on the start button. The on target indicator is a small bulls eye to the left of the numbers. Practice aiming the display at the transmitter placed 20 feet away placed on the top of the boards as example to see the bulls eye go on and off.

Follow the skater's path aiming at their waist / transmitter location. Just before the skater lines up for the jump press and hold the start / big button. Once the skater completes one full rotation on the ice or in the air, the real numbers will appear on the display not 0.0.

After finishing the jump, take finger off start button and push the Menu button to first read RPS then RPS MAX example 3.14. The 3.14 were the maximum RPS the skater rotated / spins during the jump. If the skater was trying to complete a double they are too slow - needed 4.00 RPS. Push Menu button again. The total number of revolutions REVS will be displayed for that jump. The Sport Tach cannot measure partial rotations with only one transmitter being worn. Push Menu again the RPM - M MAX measurements are displayed. Pushing button again the display reverts back to RPS. The display will turn off if no buttons are pressed in 90 seconds to save the batteries.

### **Measuring each spin / jump rotation speed**

Using the Sport Tach for measuring each spin speeds rate in RPS or RPM. The Sport Tach will still display the total number of revolutions and max speed during a spin in RPS or RPM.

Push the on /off button on the transmitter so the green LED stays on indicating correct transmitter operation. With the transmitter on verify the bulls eye on target indicator is blinking when the tach / display is aimed at the transmitter. The bulls eye will blink once per revolution.

Do not use the display in the Locked on mode you want the LOCK symbol to be off during the spins/jumps. Press the Menu and Start / Reset button at same time to turn auto Lock on or off.

Press the Menu button until RPS is displayed. You must hold the Start button down during the entire time of a jump or a spin. Each time you press the Start button the previous readings will be Reset back to 0.0.

Aim the display at the skater and the display will read 0.0 unless they rotated the transmitter when they skated away from you. Example the skater is moving from your right to left. The best place to stand is in their direct line of travel away from you. When the skater jumps and spins the transmitter rotates once per revolution. You will need to practice the best place to stand while taking measurements.

Once the skater stops rotating after the jump push the right up arrow to display each actual speed of that rotation number 1 through 16 can be displayed in memory. Pressing the left down arrow will read backwards from last to first. If the skater is doing a double the first rotation will be slower then second rotation but each speed is measured.

The max speed in RPS or RPM of any spin or jump is displayed by pressing Menu to show S MAX or M max then the number. The total Revolutions is displayed when REVS is pressed in the Menu. If you see all bars across the display just push Menu button to reset to 0.0.

Any questions call Dick Peters Monarch Instrument Amherst NH 1 800 999 3390

Enjoy.