

## IMPROPER TECHNIQUE CAN RUIN YOUR SKIS

**YOU SKI ON THE WHEELS, NOT ON THE SHAFTS:** If the roller ski shafts have scrape marks on one side, like the shaft shown in photo #1, the skier is not skiing within the envelope of acceptable technique. It is impossible to ski correctly and have the fork of the shaft touch the ground. When an Aero skate ski is angled to a degree where it touches the ground it is generally due to a combination of deficiencies. It could be weak ankles, improper body position, poor balance and stability or a combination of weak ankles and non supportive ski boots.

When skiing properly on a steep hill, as shown in photo 3, there is a minimum clearance between the fork and ground of 13 mm (1/ 2 inch.) After thousands of kilometers the roller ski shafts of elite skiers generally do not show any evidence of the shaft hitting the ground. There are exceptions, such as skiing on **very rough** roads. The shafts then would touch the ground due to very rutty conditions, but this is very different from angling the ski due to improper technique.

In order to make skis lighter, some manufacturers have sacrificed durability to a very high degree. If these skis are used regularly, the ski shafts must be replaced every year. One good New England skier, who now roller skis on V2, told us he fatigued four shafts in one year on a well known brand. He is on his fourth year on V2 without any shaft problems. We test all new shaft designs by applying a load of 2,000 Newtons, ( 440 pounds ) to the center of the shaft for 1000,000 cycles. In lieu of tires, metallic blocks are fastened to the forks. The test machine applies the load at a rate of 60 cycles per minute.

However, if your skis have scrape marks on the forks as shown in figure 1 or the bottom of your skis have deep gouge marks your shafts should be replaced. Shafts fail in tension and they fail on the bottom of the shaft. Deep gouges and damaged forks will lead to premature shaft failure. Check your skis every time you go out to ski.



This ski was tipped so severely the inside of the ski touched the pavement and metal on the fork was ground away. The scrape marks were due to improper technique and non supportive ski boots.

Typical Clearance between bottom of the fork and the road surface when skating on flat ground is 29 to 25 mm (1.125 to 1.00 inch.



This ski is at the limit of acceptable technique for a steep hill. The ground clearance is still over 13 mm ( .5 inch )



In this excessively tilted position the ski has 3 mm ground clearance. ( 1 / 8 inch ) The stress on the fork in this position is very high and will lead to premature fork failure.