

## SCUBA TANK SAFETY

The pressurized air normally used is at 3000 PSI (pounds per square inch) and has enormous energy potential. The kinetic energy potential contained within an average SCUBA tank is 1.3 MILLION foot-pounds. This is enough energy to lift a 100-ton diesel locomotive off its tracks and into the air.

Because of the potential dangers of using these high-pressure vessels, manufacturers and other parties in the dive industry have set specific guidelines and recommendations for safe usage of these tanks. DOT and OSHA also have some regulations pertinent to SCUBA tank usage. These are typically beyond the average user but do apply to commercial air fill stations and employees where compressed air is used.

Tanks are required to be visually inspected at least once a year. The visual inspection consists of removing the valve and having a thorough look inside and outside the tank for evidence of corrosion, cracking or other damage that could lead to an explosion or other failure of the tank. After an inspection with no faults found, an Evidence of Inspection (EOI) sticker is attached to the tank by the inspector, with date and standards used to evaluate the cylinder noted. SCUBA tanks must also be hydro-tested every five years by a certified hydro-test facility and will bear stampings to this effect including the date on the shoulder of the tank leading up to the valve. Hydrostatic testing is the method of determining the cylinder's expansion properties in an overfilled pressure state.

Safety needs to be stressed at all times. There have been cases of a tank being dropped, causing the valve to be broken off, and the resulting stream of air causing the tank to become a missile, and propelling itself through solid concrete walls. With that in mind, the following safety precautions should be adhered to when handling tanks:

\*SCUBA tanks should be secured tightly against movement when being carried in vehicles to prevent damage to the valve or scraping, gouging or denting the tank walls due to the forces due to motion.

\* Drive safely obeying all traffic laws and require occupants to wear safety belts.

\* Containers must not be dropped or slid in a way that damages the cylinder walls or allows sharp objects to damage the cylinder walls

\*Tanks also should be securely attached at their permanent location to prevent tipping over, causing damage either to the tank itself or to the user or a bystander.

\* Never carry SCUBA tank over your shoulder. Temporarily losing your balance due to tripping or avoiding someone could cause the tank to fall on the valve. If the valve shears off, that tank instantly becomes a huge projectile. Always carry the tank in a manner to protect the valve in the event of an unexpected droppage.

\* It is recommended that tanks be stored vertical in order to concentrate any moisture to a smaller area resulting in less oxidation.

\* SCUBA tanks should be stored in a cool area away from any heat source.