Tactical Obedience Training for Police K-9 Deployments: Introduction

Improving Your Bitework Related Control

Debunking Tracking Myths: #1 Rain and Water Destroys the Track
Readers of this magazine are well aware that a canine’s keen sense of smell enables it to detect targeted contraband that would otherwise go undetected. However, to fully capitalize on a canine’s innate abilities, it is imperative that handlers understand the behavior and nature of odor plumes so that they can direct the animal in performing a complete and proper search.

One well-understood (but sometimes ignored) handling concept is starting/working downwind of suspected items. While molecular diffusion alone will yield odor dispersion in all directions, studies have convincingly shown that even the smallest of air currents will dictate odor plume movement. Thus, getting the canine downwind significantly improves the likelihood of encountering any emitted odors. Another handling concept that warrants more emphasis in day to day training and operational searches is the identification of odor escape points; all things being equal, odor molecules/particles will travel
almost exclusively via the path of least resistance. Thus, luggage zippers, box seams, door gaps, window sills, etc. all represent likely productive areas for detection canines.

One common, but unsubstantiated, belief in the detection canine community is that ‘odor falls’. In reality, the buoyancy of a vapor plume (i.e., heavier than air, neutral, or lighter than air) is characterized by the Richardson number, a dimensionless quantity based on the density and concentration of the gas making up the plume. Richardson calculations for several common explosive formulations reveal that their odor plumes are actually neutrally buoyant. In other words, these odor plumes have no natural preference to sink or rise – instead, their height will be determined by the location of the target material, paths of least resistance, air flows, and air temperature gradients, among other parameters. Because fully knowing and accounting for the many influencing factors is impossible, canine teams must consistently employ a range of search heights. Relying on odor to be found low or on the ground can have potentially devastating effects on team performance.

Understanding these concepts allows canine handlers to appropriately structure their search tactics and techniques, improving their contribution to the team, and thus, the overall quality of the search.