Technician Safety: Drones, Maintenance Robots and Human Interaction Stats and Facts

FACTS

- **Unexpected Robot Movement:** Maintenance robots can start, stop, or change direction unexpectedly during programming, testing, or servicing, creating struck-by or caught-in hazards.
- **Human-Robot Interaction Zones:** Working within shared spaces without proper barriers or controls increases the risk of contact injuries during automated operations.
- **Drone Impact Hazards:** Drones operating overhead can lose stability or control, leading to collisions with workers or dropped objects.
- **Loss of Control During Maintenance:** Servicing or troubleshooting robots without proper lockout or isolation can expose workers to sudden activation and serious injury.
- **Limited Visibility and Awareness:** Autonomous or semi-autonomous systems may not detect workers in blind spots, increasing collision risk.
- **Battery and Electrical Hazards:** High-energy batteries in drones and robots can pose fire, explosion, or electrical shock risks during charging, handling, or damage.
- **Inadequate Training on Automation Systems:** Workers unfamiliar with robotic systems may misjudge movements or hazards, increasing the likelihood of unsafe interaction.

STATS

- In the United States, worker injuries involving robots have been increasing as automation expands, particularly in manufacturing and maintenance environments (U.S. Bureau of Labor Statistics, 2021–2023).
- U.S. data shows that contact with objects and equipment remains a leading cause of workplace injuries, including incidents involving automated systems and machinery (BLS, 2022–2023).
- In Canada, machine-related injuries, including those involving automated equipment, account for a significant portion of workplace incidents each year (Association of Workers’ Compensation Boards of Canada, recent years).
- U.S. safety reports indicate that failures in lockout/tagout procedures are a contributing factor in many serious and fatal incidents involving machinery, including robotic systems (OSHA, 2021–2023).
- In Canada, workplace data shows that workers interacting with machinery and

equipment face elevated risk of crushing, entanglement, and struck-by injuries (AWCBC, 2021–2023).