

Jet Vehicle Best Practices

Operation of Turbine Powered Ground Vehicles at Air Shows.

Disclaimer: ICAS Best Practices were developed to establish a baseline from which Air Show operations should be conducted. They are presented here as a written summary of conventional wisdom and common practices among experienced professionals within the Air Show community. They are not intended to be the sole source of guidance for these Jet Vehicle operations. ICAS strongly recommends that they be used as one part of a multi-faceted training, education and operations program.

Terms and Definitions: Jet vehicle refers to any turbine powered ground vehicle.

Training and Required Experience: Given the substantial differences between airshow operations and drag racing and that ICAS is not a sanctioning body for jet vehicles, it is required that all jet vehicle drivers confirm that they have the necessary training, experience and specific jet vehicle expertise to perform safely in an airshow environment. Jet vehicle and driver licensing by the National Hot Rod Association (NHRA) or the International Hot Rod Association (IHRA) by itself should not serve as the sole qualifying factor for airshow performances.

For the jet vehicle drivers who don't hold a current license with either NHRA or IHRA, it is required that written assurances be provided that the driver has attempted to meet the most recent vehicle and driver safety standards established by either NHRA or IHRA for jet vehicles.

Performance Location at the Airport: A demonstration location at least 500 feet from the spectator show line with at least 3000 feet of clean, smooth, usable runway should be available for the jet vehicle performance. The 500 foot distance from the spectator area should be treated as an absolute minimum in these guidelines for any high speed performances.

Briefing with the Air Boss: Like all acts performing at Air Shows attendance at the Air Boss briefing is required. No brief – no performance. The following should be discussed in detail with the Air Boss prior to the first jet vehicle performance at each Air Show.

1. Determine the engine start location and the route to be used for the entire performance. All drivers or crew chiefs are required to communicate with the Air Boss on Air Boss frequency using an aircraft radio. No movement is allowed without Air Boss permission.

2. All drivers need to understand the necessary precautions required to perform “Smoke and Fire” exhibitions near the crowd line and any parked aircraft. Jet blast from the afterburner and reasonably slow taxi speeds should both be considered at all times when in close proximity to spectators or aircraft.

3. If a jet vehicle/airplane “race” is scheduled all parties must brief and thoroughly understand every detail of the entire performance including starting point, safe separation distances and maximum speed for the jet vehicle. Communication from jet vehicle/or crew chief to the race plane and Air Boss is absolutely critical.

4. The jet vehicle driver/or crew chief should also brief with the airport fire/rescue team on emergency procedures to be used in the unlikely event of an accident.

Equipment: ICAS recommends that Air Shows use only “Exhibition Jet” category vehicles powered by thrust. ICAS does not recommend use of wheel driven vehicles with extremely high power like “Funny Cars” or other vehicles fueled by alcohol or nitro-methane. It is noted that these vehicles are designed to operate on highly groomed surfaces on a race track where barriers have been designed to protect spectators from out of control vehicles and other mishaps.

All jet vehicles and crew chiefs must have a working aircraft radio for communication with the Air Boss and other air show personnel.

Minimum Weight of Jet Vehicle: *(The following recommendations have been added because of special circumstances that prevail at Air Shows.)* Because of possible high wind conditions and uneven runway surfaces including unsafe and uneven conditions from crossing runway transitions it is highly recommended that all Jet Vehicles performing high-speed runs with acceleration distances greater than 1,320’ at air shows have a minimum weight of 2000 lbs. Many jet vehicles performing at drag races weigh as little as 1200 - 1300 lbs. History has shown that these light weight jet vehicles have demonstrated a tendency to lift off and crash at high speeds when one or more of the above conditions exist.

Conditions in the air show environment are far different from the controlled environments found at drag racing facilities. It also should be noted here that as in Stock Car Racing, lead weights *could* be added to the chassis to ‘make weight’ if secure and safe attachment to the chassis is possible.

Weather Requirements and Limitations: A dry runway surface is required for all high speed runs. *No Exceptions.* A “Smoke and Fire” show can be performed at slow taxi speeds only on a damp or wet surface while on the crowd line parallel taxi way or the runway. This performance should be briefed with the Air Boss and performed only if jet vehicle driver is 100% confident it can be done safely.

High wind conditions should be treated in the same manner. It is only to be performed at the driver and Air Boss’s comfort level. Safety is paramount here for all parties involved.

Insurance: All Air Shows should require a Certificate of Insurance be provided by all Jet Vehicle drivers at least 30 days in advance naming the Air Show as Certificate Holder and also naming any required Additional Insureds. This Certificate should declare One Million Dollar Liability Coverage for all activities and performances for the Jet Vehicle and Driver at your Air Show.

Riders and Passengers in Jet Vehicles: It first must be stated this should be strictly prohibited during the Air Show Waiver on Air Show Days (typically Saturday and Sunday). If the Jet Vehicle is so equipped to handle a passenger the following recommendations shall apply:

Passenger must wear appropriate fire suit, gloves and helmet and be secured and protected in the Jet Vehicle in a similar fashion as the driver.

All passenger rides must be done either prior to the air show waiver times or after and it is *highly recommended* that any high speed runs should be avoided while a passenger is on board. Any passenger rides must be done while monitored and witnessed by either the tower or the Air Boss. Radio communication must be in place and a fire/rescue team must be ready to respond.

Rides in vehicles without roll cages and below 2,000 pounds are prohibited.

Medical Certificates: All jet vehicle drivers should complete a medical physical (FAA class III, NHRA/IHRA physical or similar) to meet or exceed all NHRA or IHRA rules every 2 years to determine physical fitness to drive under the extreme conditions they are subjected to. Proof of this should be provided upon request by the air show.

Finally, it is generally understood that *ICAS is not a sanctioning body for Jet Vehicles* but an Air Show membership organization only.

Our goal is to promote safe and quality entertainment at all Air Shows and to recommend known procedures in all facets of Air Show management and performances which keep general common sense and safety at the forefront for not only the Air Show performers but just as importantly the safety of our spectators.

American air shows have a very enviable safety record regarding the lack of spectator injuries and fatalities. We want to do everything in our power to continue that tradition.