



Eliminating Swing Fall and Providing Maximum Coverage for Overhead Fall Protection in Aviation Applications

There are as many different aircraft today as engineers can imagine with differing dimensions from the wings, fuselage, and stabilizers to the ground, and from one part of the aircraft to another. Maintenance of these aircraft often requires people work at height. Due to the variations in aircraft and continual upgrade to newer models of aircraft, it can be a challenge to have a fall protection system that will accommodate these changes. The key to solving this dilemma is to have a completely flexible system that allows the user to be anywhere on the aircraft, while also limiting the fall distance as much as possible while attached to the system. Flexbridge systems are a type of fall protection system that address both criteria.



Figure 1 - FLEXBRIDGE SYSTEM

Flexbridge fall protection systems consist of a rigid horizontal lifeline known as a bridge attached to rails at either end. The bridge has a trolley that allows users to travel the full length of the bridge and rails allow users to move the bridge along the rails. In this way, the user has full fall protection coverage over the aircraft. The rails and bridge constitute a rigid system that provides some of the lowest fall distances available, especially when combined with a class “A” self-retracting lifeline.

When designed properly, the user has the ability to move both the bridge and trolley as they change positions around the aircraft. This allows the anchorage point to remain directly

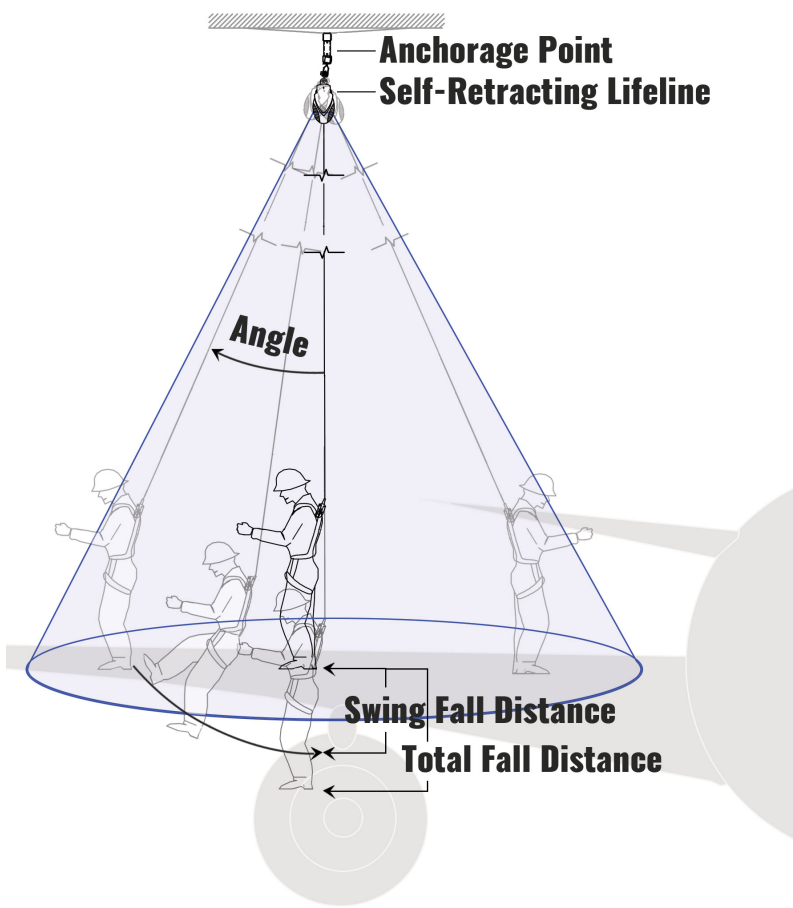


Figure 2- SWING FALL DISTANCE

overhead at all times. This eliminates additional fall distance due to swing fall. ANSI Z359.0 2.190 defines swing fall as, “A pendulum-like motion that occurs during and/or after a vertical fall. A swing fall results when an authorized person begins a fall from a position that is located horizontally away from a fixed anchorage”.

Rigid and flexible horizontal lifelines are always fixed anchorages in a lateral direction when the user is positioned on either side of the cable or rail. Rigid and flexible horizontal lifelines become fixed anchorages in a longitudinal direction when the user positioned in line, but beyond the end stop of the cable or rail. When an attached user falls, gravity will try to move the falling user back directly under the anchorage point. This can create several problems for the user. There may be objects obstructing the swing movement that the user may

strike. Another hazard would be the pendulum-like effect allowing the user to fall an additional distance called the swing fall distance. Swing fall distance has the potential to allow the user to make contact with the ground or another obstruction if not properly accounted for. ANSI Z359.0 2.191 defines swing fall distance as the vertical drop in height experienced by the worker using a fall arrest system from the onset of the swinging motion to the lowest point reached during the swing. When a Flexbridge system is used the anchorage stays overhead eliminating swing fall making them the superior choice when minimal fall distances and maximum mobility is required.

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