

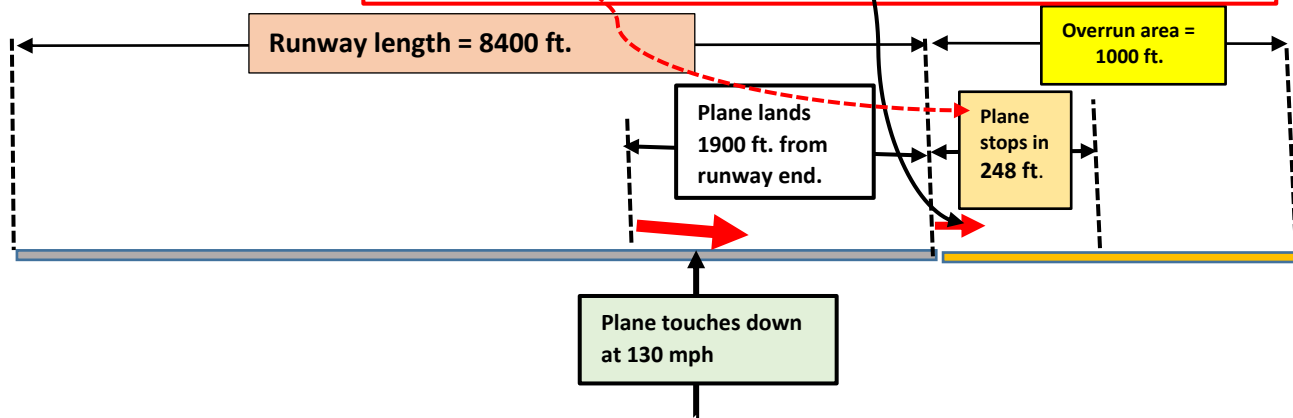
KINEMATICS

Physics application from Aeronautics. Unit 4 & 5 Dr. John P. Cise, Professor of Physics, Austin Com. College, 1212 Rio Grande St. Austin Tx. 78701 jpcise@austincc.edu % New York Times May 13, 1999 by Matthew L. Wald

New Cement System Reins In Runaway Plane



INTRODUCTION 1: Normal landings are at 130 mph stopping in 3000 ft. (see article)
QUESTIONS: (a) Convert 130 mph to ft./s.?, (b) Find normal plane deceleration (a_1) while landing at 130 mph and stopping in 3000 ft.?, (c) Now knowing normal deceleration, find plane speed at end of landing 1900 ft. from end of runway? (d) Arresting cement stops plane safely in 248 ft.. Find a_2 stopping?
HINTS: 88 ft./s. = 60 mph, $v^2 = v_0^2 + 2 a x$
ANSWERS: (a) 190.67 ft./s., (b) -6.06 ft./s.^2 , (c) 130.3 ft./s., (d) -34.23 ft./s.^2



WASHINGTON, May 12— **A twin-engine commuter plane that touched down too close to the end of a runway at Kennedy International Airport was stopped from plunging into a tidal bay by a prototype ("arresting system,") a kind of flypaper for runaway airplanes.** Federal officials said today that it saved the lives of the people on board.

The incident on Saturday morning marked the first operational use of the system, installed two years ago where a jumbo jet went off the end of the same runway, forcing passengers to swim to safety. "We actually saved lives with this," said Dr. Jan M. Brecht-Clark, deputy director of aviation research at the Federal Aviation Administration.

The plane, an American Eagle flight arriving from Baltimore, was probably **traveling about 130 miles per hour, experts said. It chewed up 248 feet of the arrestor bed, a newly developed, crushable cement; its wheels were mired to a depth of 2 1/2 feet** and the plane stopped about 150 feet short of Thurston Basin. Only one of the 27 passengers was hurt, suffering a twisted ankle.

The SAS accident prompted the F.A.A. to demand that runways have a **1,000-foot overrun area "where practicable,** The flight was landing in quarter-mile visibility under a 100-foot ceiling of clouds, according to Robert J. Gretz, an investigator with the National Transportation Safety Board's New York-area office. **The plane flew 6,500 feet, or about a mile and a quarter, beyond the beginning of the runway, and ((touched down just 1,900 feet from the runway end))),** according to a preliminary analysis. **Stopping distance depends on the plane's weight and weather conditions, but is usually more than 3,000 feet. Typical touchdown speed for the plane is about 130 m.p.h.**

Photo: Cement stopped a plane that landed too close to the end of a runway at Kennedy International Airport Saturday. (The Port Authority of New York and New Jersey)