

Applications of **RIEGL** Laser Instruments

Problem: Velocity minimum unstick test for airplanes

Solution: Laser distance and speed meter LD90-3100-GF with glass-fiber coupled optical head MK42-Z80 mounted on the airplane's tail, looking downwards.



BOEING NEWS OCT. 7 / 1994: The first Boeing 777 strikes its tail on a runway at Edwards Air Force Base, Calif., as it performs one of many precertification tests. This test, called a velocity minimum unstick, or VMU, is used to determine the airplane's minimum takeoff speed. The test requires the airplane's protected tail to come in contact with the runway prior to takeoff. Boeing incorporates data from the test into flight manuals used by the airlines.

Advantages:

- ✓ Distance and sink speed measurement
- ✓ Short measurement time
- ✓ High accuracy
- ✓ High sensitivity, reliable measurement even against black runways
- ✓ No electronics contained of the optical head
- ✓ Optical head sealed and nitrogen purged
- ✓ Easy installation requiring only fiber optic cable through fuselage
- ✓ Rugged and easily maintained

Performance: (measurement to black asphalt)

- ✗ maximum range up to >10 meters
- ✗ minimum range 0.3 meters
- ✗ accuracy typ. ± 2 cm

Related applications:

(much greater maximum range possible)

- ☞ Altimeter for aerial photography, etc.
- ☞ Altimeter for crop dusting

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