

# FIGHTING BACK AGAINST LASER ILLUMINATIONS

## ALPA launches a multifaceted plan to combat the rising rate of laser illuminations of aircraft

By Jan W. Steenblik, Technical Editor

**W**hether with malicious intent or simply thoughtless and unaware, people pointing laser devices with beams of concentrated energy at aircraft pose an unacceptable risk to aviation safety.

In January, the FAA released data that show intentional laser illuminations of aircraft have increased sharply (see “FAA Stats on Laser Events,” page 20). The Association is also aware that laser illuminations of aircraft in Canada have also increased. In January, ALPA made public its comprehensive plan to reduce the rate and risk of these attacks (see “ALPA’s Plan to Thwart the Laser Threat to Aircraft,” page 20).

ALPA’s president, Capt. Lee Moak, declared, “We have reviewed the FAA’s data and have compared it to our own data and pilot reports. ALPA’s conclusion is that the risk associated with laser illuminations is unacceptable. Pointing lasers at aircraft in flight poses a serious safety risk to the traveling public, and we are calling on industry and government to take steps to safeguard the skies.”

Each week, laser illuminations of aircraft occur around the world. The potential negative effects of laser beams striking the human eye and interfering with flight operations are well documented. While no aviation accident has been attributed to a laser illumination, several significant cases of pilot injury have been reported. With hand-held lasers proliferating worldwide, the threat and the risk have increased.

ALPA, with support from the FAA, Transport Canada (TC), the Transportation Security Administration (TSA), the Federal Bureau of Investigation (FBI), the Federal Air Marshal Service (FAMS), the Joint Terrorism Task Force (JTTF), and the Royal

### Lasers IOI

Most aircraft laser illuminations have occurred during approach, landing, and takeoff in hours of darkness. The harmful effects of a laser illumination are more pronounced at night, when the dark-adapted human eye is significantly more sensitive to light. Laser illuminations can interfere with pilot vision, potentially affecting the safety of flight.

Hand-held lasers come in a variety of colors, usually red and green. Green lasers pose the greatest risk to the human eye. Because aiming and holding a hand-held laser beam directly on a moving aircraft is difficult, pilot exposure usually has involved sporadic, brief flashes. The chances of permanent injury to the eye resulting from an aircraft illumination are very slim.

However, laser illumination of the cockpit frequently produces a “startle response” in pilots that can lead to distraction and disruption of attention to aircraft control. In some cases, laser illuminations have led to temporary disorientation or temporary incapacitation, e.g., flash-blindness.

ALPA recommends that all pilots review FAA Advisory Circular (AC) 70-2 or TC Aeronautical Information Circular (AIC) 14/09. Both circulars provide guidance on flight crew laser mitigation procedures and how to report laser illumination events. To view the documents, go to the members-only site of [www.alpa.org](http://www.alpa.org). On the top menu bar, select Committees and click on National Security Committee; then select Threats at the top of the page and click on the Lasers link. [↗](#)

### Recommended Flight Crew Actions

1. If struck by a laser on approach, do not look into the beam. Shield your eyes and *go heads down immediately* to protect your eyes while the laser is illuminating the cockpit.
2. Consider executing a missed approach. As with other critical events such as low weather, the presence of birds, or an aircraft on the runway, a go-around may be your most prudent course of action in responding to a laser illumination.
3. Do *not* rub your eyes.
4. Consistent with flight manual restrictions, use cockpit automation to the fullest extent.
5. Maintain control of the aircraft, monitoring configuration, altitude, and airspeed to maintain or reestablish the desired flight profile.
6. Turn instrumentation and panel background lighting *up*.
7. Communicate with other cockpit crewmembers and assess their condition. If a crewmember has been injured, declare an emergency and request priority handling, if necessary.
8. Transfer control of the aircraft to other pilot, if necessary.
9. Expeditiously advise ATC of the laser event. Provide the most accurate description possible of the location of the laser source, beam direction, and color and length of exposure (flash or intentional tracking).
10. If you are notified while in the arrival area that a laser event has been reported and remains unresolved, request a different runway or ask for holding until the area has been secured and the threat has ceased.

# NATIONS

Canadian Mounted Police (RCMP), is working to educate the public on the dangers that lasers present to aviation and to support the law enforcement efforts in investigating and prosecuting perpetrators.

As part of that effort, ALPA leaders have provided ALPA members, via the Association's website, with a newly updated Jepp-sized information portfolio containing guidance on how to respond to and report a laser incident (see "Recommended Flight Crew Actions," page 18).

11. Consider diverting if the laser threat continues.
12. Follow all company protocols related to reporting laser illuminations in a safe and timely fashion, to include notifying local company officials.
13. Cooperate with law enforcement officials conducting an investigation of the event.
14. As soon as possible after landing, get an eye examination at the nearest emergency room (and/or with an ophthalmologist). Eye injuries should be reported to ALPA's Aeromedical Office (303-341-4435) as soon as possible. Additional information and treatment referrals, as appropriate, are available from that office. Please also contact the ALPA Safety Hotline at 1-800-424-2470.
15. When practicable, write a report on the event per directions in AC 70-2 or AIC 14/09, as appropriate, and send it to the FAA or the TC.

For more information, please contact ALPA's Engineering and Air Safety Department at 1-800-424-2470.

## Safety Distances for a Legal Green Laser Pointer (5 $\mu$ W, 532 nm)

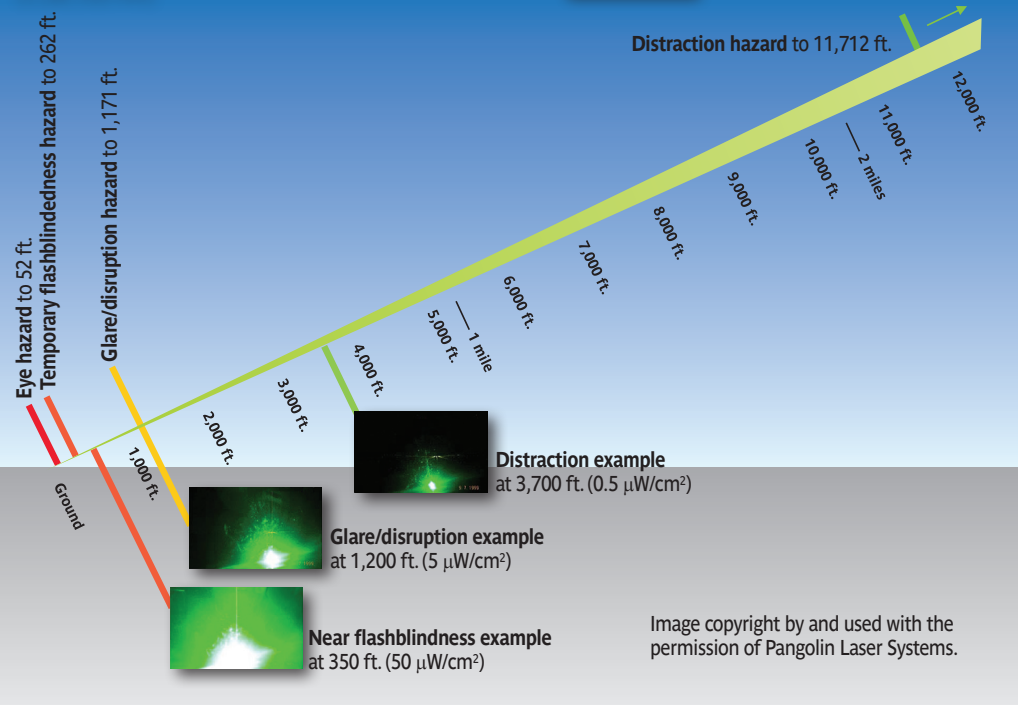


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## ALPA Commends U.S. House Judiciary Committee Action on Lasers

ALPA's president, Capt. Lee Moak, praised the unanimous action by the U.S. House Judiciary Committee on Jan. 26, 2011, to report the Securing Aircraft Cockpits Against Lasers Act of 2011 (H.R. 386), a bill that would make shining a laser at an aircraft a specific federal crime.

"The pilots of ALPA welcome the Judiciary Committee's unanimous action today to advance legislation that would make aiming a laser at an aircraft a federal crime," Moak said. "We deeply appreciate the efforts of the entire Committee, and especially the leadership of Rep. Dan Lungren (R-Calif.) for introducing the bill, and for the vocal support of Judiciary Committee Chairman Lamar Smith (R-Tex.), Rep. Bobby Scott (D-Va.), and Rep. John Conyers (D-Mich.)."

"Today's bipartisan effort is a critical step forward in protecting all who depend on air transportation. We urge the U.S. House of Representatives to swiftly pass the Securing Aircraft Cockpits Against Lasers Act of 2011."


# While no aviation accident has been attributed to a laser illumination, several significant cases of pilot injury have been reported. With hand-held lasers proliferating worldwide, the threat and the risk have increased.

## ALPA's Plan to Thwart the Laser Threat to Aircraft

On Jan. 25, 2011, ALPA issued a regulatory, legislative, and public awareness action plan to safeguard the skies from deliberate laser illumination of aircraft and the risk it poses to aviation.

On an industry level, ALPA urged implementing the following immediate responses:

- Congress must make intentionally aiming a laser at an aircraft a specific federal crime.
- The U.S. and Canadian governments must restrict the sale and use of portable lasers that are strong enough to cause injury.
- The FAA and Transport Canada (TC) must create and increase the size of laser-free zones around airports and prohibit the use of all lasers in such zones.
- The FAA, the TC, and NAV Canada must develop and implement improved air traffic control and pilot operating procedures for responding to, and notifying pilots about and rerouting aircraft around, threat areas when reports of illuminations are received.
- The NTSB must add deliberate laser illumination of all modes of transportation to its list of Most Wanted Transportation Safety Improvements.


"A threat this serious requires decisive action from every legislative and regulatory angle, but we also need the public to get engaged," ALPA's president, Capt. Lee Moak, noted in releasing the ALPA plan. "Consumers across the country and around the globe have a role and responsibility in ensuring aviation safety by eliminating accidental strikes and by being watchful for those who would misuse lasers by shining them at aircraft." 

## FAA Stats on Laser Events

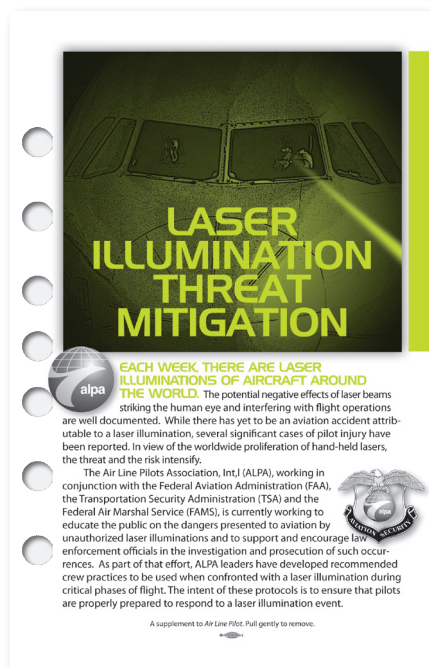
On Jan. 19, 2011, the FAA announced that in 2010 U.S. reports of lasers pointed at aircraft almost doubled from the previous year to more than 2,800—the highest number of laser events recorded since the agency began keeping track in 2005.

Los Angeles International Airport recorded the greatest number of laser events in the country for an individual airport in 2010 (102 reports), and the greater Los Angeles area tallied nearly twice that number (201 reports). Chicago O'Hare International was a close second, with 98 reports, and Phoenix Sky Harbor International and Norman Y. Mineta San Jose International Airports tied for third with 80 reports each.

U.S. laser event reports have increased steadily since the FAA created a formal reporting system in 2005 to collect information from pilots. Reports rose from almost 300 in 2005 to 1,527 in 2009 and 2,836 in 2010.

The FAA said the increase in reports "is likely due to a number of factors, including the availability of inexpensive laser devices on the Internet; higher power levels that enable lasers to hit aircraft at higher altitudes; increased pilot reporting of laser strikes; and the introduction of green lasers, which are more easily seen than red lasers." 

ALPA has published the "Laser Illumination Threat Mitigation" guide to alert pilots about this threat and the recommended actions to take if struck by a laser. To view the guide, go to the members-only site of [www.alpa.org](http://www.alpa.org). On the top menu bar, select Committees and click on National Security Committee; then select Threats at the top of the page and click on the Lasers link.



**EACH WEEK THERE ARE LASER ILLUMINATIONS OF AIRCRAFT AROUND THE WORLD.** The potential negative effects of laser beams striking the human eye and interfering with flight operations are well documented. While there has yet to be an aviation accident attributable to a laser illumination, several significant cases of pilot injury have been reported. In view of the worldwide proliferation of hand-held lasers, the threat and the risk intensify.

The Air Line Pilots Association, Int'l (ALPA), working in conjunction with the Federal Aviation Administration (FAA), the Transportation Security Administration (TSA) and the Federal Air Marshal Service (FAMS), is currently working to educate the public on the dangers presented to aviation by unauthorized laser illuminations and to support and encourage law enforcement officials in the investigation and prosecution of such occurrences. As part of that effort, ALPA leaders have developed recommended crew practices to be used when confronted with a laser illumination during critical phases of flight. The intent of these protocols is to ensure that pilots are properly prepared to respond to a laser illumination event.

A supplement to Air Line Pilot. Pull gently to remove.