

# BATTERIES & BATTERY-POWERED DEVICES

## Aviation Incidents Involving Smoke, Fire, Extreme Heat or Explosion

As of March 10, 2008, 98 air incidents involving batteries have been recorded since March 20, 1991

Note: These are recent cargo and baggage incidents that the FAA is aware of. This should not be considered as a complete listing of all such incidents. The incident summaries included here are intended to be brief and objective. They do not represent all information the FAA has collected, nor do they include all investigative or enforcement actions taken.

DATE/ SOURCE	TYPE OF BATTERY	DEVICE  (if applicable)	AIRCRAFT TYPE  (Passenger or Cargo)	INCIDENT SUMMARY
07-SEP-2008  Report from UK CAA	Gel type lead acid	Wheelchair	Passenger	Initial report indicated that a battery-powered wheelchair burst into flames as it was being unloaded from a passenger aircraft in Manchester, England.
08-AUG-2008	Lithium ion/Type CF623/11.1-volt	Dell laptop computer	Passenger	While in flight, a passenger on American Airlines flight 1539 from Washington National to Dallas Ft Worth, noticed his Dell laptop was smoking. The passenger removed the battery pack and gave it to a flight attendant. The flight attendant placed the battery in a coffee pot in the aft gallery and poured water and Sprite on it. Dell has been advised of the incident.
06-AUG-2008 Air carrier report	Lithium ion	Electrical equipment	Cargo	UPS Airline reports that a package containing LED lamps powered by excepted lithium ion batteries was transported on UPS#0213 on 04-AUG from Louisville, KY to Cologne, Germany. It was subsequently observed smoking in a UPS ground sort facility in Copenhagen, Denmark.
04-APR-2008	Battery Wet, Non- Spillable, UN2800		Cargo	A package was offered to UPS by Enersys Inc. in Warrensburg, MO, destined for Espoo, Finland. During the handling process in Copenhagen, Denmark, the package of Non-spillable sealed lead acid batteries erupted into flame while being loaded on a truck. The local fire brigade and bomb squad responded and have possession of the package. It was determined that the terminals consisted of bolts screwed into energized sockets.

18-MAR-2008 United Airlines (UALA) Pilots' internet forum	"CR123A" Lithium metal	Flashlight	Passenger	In Denver, a UALA employee had two flashlights that contained CR123A Lithium batteries. Flashlight used for inspection of aircraft started to dim. Flashlight was turned off and placed in storage compartment in cockpit of 757. A banging noise described like gunshots originated from the flashlight. Cap on the on/off switch blown off and became projectile. Employees hand and fingers burned when he touched the flashlight to move it to the rear of the cockpit. Mechanic responded and safely removed the flashlight.
04-MAR-2008	Lithium ion/polymer/3.7V 1000mAH	Personal binocular video control unit	Passenger	An i-Theater Video Display Unit used for viewing entertainment systems was charged at home prior to United flight from Chicago to Tokyo. Control unit was in use for 2.5 hrs. during the flight. Control unit began to generate heat, caused the plastic case to swell and emitted 10" plume of sparks and debris. United Captain doused unit with water. Small area of carpet damage to aircraft and no injuries to passengers or crew.
29-FEB-2008 TSA report	"C" Cells	Make-shift power unit	Passenger	The make-shift power unit for a passenger's laptop computer began to smoke during pre-board security screening at Terminal 7 of the Los Angeles International Airport.
14-FEB-2008	Under investigation	Flashlight	Passenger	Approximately two-thirds of the 389 passengers had boarded a Northwest Airlines Tokyo-Hong Kong flight, when a passenger's carry-on bag caught fire in an overhead bin. Flight attendants put out the fire with two fire extinguishers. One passenger suffered a minor burn when he tried to put out the fire by hand. Early indications are that a battery in a small flashlight inside the bag caught fire.
27-DEC-2007 Air carrier incident report	Lithium metal (lithium manganese dioxide) <i>House of Batteries</i> prototype, 15-volt, (Five <i>Ultralife</i> 3-volt D cells connected in series). The battery contained 16.65 grams of lithium (3.3 grams per cell).	SSCOR medical suction pump	Cargo	Shipment was submitted to UPS for "2 <sup>nd</sup> day Air" service. After pick-up and ground transportation, the package "spontaneously combusted" on the conveyor at a UPS package sort facility in Cerritos, Calif. An employee put out the fire with a facility fire extinguisher.

15-DEC-2007 Air carrier incident report	Lithium ion/polymer for radio controlled model helicopter	Packed with radio controlled helicopter kit	Cargo flight	A package containing an R/C helicopter kit with lithium polymer batteries was being sent from Hong Kong to the Netherlands. It was discovered emitting smoke at the FedEx sort center in Frankfurt, Germany. The package was brought outside the building and the fire was extinguished.
11-DEC-2007 Air carrier report	Lithium ion/polymer for radio controlled model planes: FlightPower F3A, 5350 mAh, 18.5 V		Cargo flight	A package of lithium polymer batteries for remote control aircraft was being transported by UPS from Argentina to San Marino via Cologne, Germany. At the UPS hub in Cologne, a customs inspector cut into the box with a knife, accidentally cutting into a battery which then caught fire. The battery had a soft plastic exterior without a hard metal shell. A fire alarm was triggered and 400-500 people were evacuated from the facility for 35 minutes. The transport section of the accompanying MSDS stated the batteries were "non-regulated".
30-SEP-07 Air carrier report	Lithium-ion <i>Xiamen Powerlong</i> 3.7v, 4000 mAh and 5200 mAh		Cargo flight	After flying from Hong Kong, a Korea-bound box was emitting smoke upon offload at the FedEx Hub at Subic Bay, Philippines. No flames were seen. The box was removed from the sort. The outer-most box was an overpack containing three inner fiberboard boxes. It's believed each of the inner boxes contained 120 lithium-ion batteries. The fire was contained to one inner box.
08-AUG-2007 Report from German transport officials	Lithium polymer (ion) <i>Arkai</i> 11.1 Volt		Cargo flight	The batteries traveled from Hong Kong to Frankfurt on a FedEx flight. During customs inspection, one of the 440 batteries in the package started to burn.
14-June-2007 Police report. FAA agent statement.	Lithium CR123A (probable lithium metal)	Ecoquest "Fresh Air Buddy" personal air purifier	Passenger flight	While walking in the Long Beach, CA, airport terminal prior to flight, a passenger's personal air filter worn around her neck exploded in a streak of fire. The battery was ejected at high speed across the terminal and melted the carpet where it came to rest. Passenger was uninjured but suffered scorches/burns on her clothing. A non-rechargeable lithium metal battery may have been put into a recharger before inserting it into the air purifier.

5-June-2007  Airline report. Video from witness also posted to the internet.  DOT incident report # 2007070001	Lithium ion	Dell laptop computer	Passenger flight	While waiting in the airport gate area, a passenger plugged his laptop computer into an electrical outlet on a column in the seating area. At some point the computer began smoking. Airline agent suggested the passenger unplug or shutoff the computer but passenger did not. The computer eventually burst into flames. Fire extinguishers were used to suppress—but not quickly extinguish—the fire.
15-May -2007 (report date)  NASA ASRS Report # AB 2007: 26/9-1 5/15/07 730630	Lithium-ion battery pack for Sony PSP	No indication that battery was in or attached to Sony PSP device	Passenger flight	Ramp worker removed checked bag that was on fire when loading passenger aircraft. Fire department determined that the fire was caused by a battery-pack for a Sony PSP handheld video game.  <i>Note: This information comes from an anonymous report via the NASA ASRS. Airline, location, persons involved and exact date are unknown.</i>
22-MAR-2007  FAA report	Two Nexergy Promark 15-volt, 78 AH, alkaline battery packs (30 cells each)		Cargo flight	A battery pack caught fire at the FedEx facility in Forest Park, GA. Apparently, a soldering error during manufacture contributed to a short circuit of the battery. The manufacturer has redesigned the battery and external packaging.
19-MAR-2007  Air carrier report	“CR123” lithium metal  <i>Reportedly; battery fragments were disposed of by crew</i>	Possibly a camera  <i>No passenger took responsibility for the battery</i>	Passenger flight	1 ½ hours into a passenger flight from Buenos Aires to Miami a small explosion occurred in the Business Class section of the aircraft. There were sparks then a flash and smoke. Flight attendants, then the Captain, responded. Battery fragments were the only evidence found. It is suspected that the battery dropped into a seat and arced against a metal seat frame causing it to explode. The ruptured battery splattered debris on overhead bins. A fragment hit a passenger in the head burning her hair near her earlobe. Seven flight attendants were affected by smoke/fume inhalation. All refused medical treatment in Miami. One aircraft seat bottom and four seat covers were damaged and replaced.
9-MAR-2007  Air carrier reports	Lithium ion	Laptop computer and power converter.	Passenger flight	Passenger flight from Toronto to Dallas/Ft. Worth diverted to St. Louis after strong electrical burning smell in the cabin. Source was laptop being used by a passenger while plugged in to aircraft power port via power converter. Power converter reportedly heated up. Aircraft power port and laptop reportedly in normal working condition afterwards.

<p>1-MAR-2007</p> <p>Australia CASA report</p>	<p>Lithium metal (non-rechargeable)</p> <p>Twenty-four <i>Surefire</i> SF123A batteries</p>		<p>Passenger flight</p>	<p>US mail package from EBay internet vendor containing the batteries was transported on a passenger flight from LAX to Sydney and caught fire at the Sydney Mail Gateway Facility.</p>
<p>26-Feb-07</p> <p>FAA case # 2007NE700130</p>	<p>Two 12-volt batteries</p>		<p>Passenger flight</p>	<p>During checked baggage screening, TSA personnel discovered two 12-volt batteries in a passenger's tool box, reportedly for a business demo. The battery terminals were exposed. Upon examination, one of the terminals touched the ETD table and sparked causing the screener to drop the battery. The battery landed with both terminals down and started smoking. TSA determined the batteries were not "hazmat" and the airline agreed to transport the batteries as long as the terminals were protected.</p>
<p>10-FEB-2007</p> <p>Air carrier reports</p>	<p><i>Energizer</i> lithium metal 9-volt, <i>Energizer</i> lithium metal AA, and <i>IDX NP-L50S</i> lithium ion batteries were all present.</p> <p>One <i>Energizer</i> lithium metal 9-volt was destroyed in the fire and seems most likely to be source of the fire.</p>	<p>Packed with professional audio/video equipment</p>	<p>Passenger flight</p>	<p>While still climbing after takeoff from JFK, smoke began pouring from an overhead bin in the passenger cabin. Passengers alerted the flight attendants who responded. A flight attendant opened the bin and saw thick black smoke and flames in the rear of the bin. As the plane returned to the airport for an emergency landing flight attendants were able to put out the fire, discharging two Halon fire extinguishers. Water was applied to some cloth embers that continued to burn after the Halon was used.</p> <p>Cockpit crew smelled some light smoke in the cockpit and donned O2 masks for approx. 20 seconds until the smoke dissipated.</p> <p>Source of fire, bag with audio-video equip was secured in a lavatory. Aircraft landed and taxied to the gate. One passenger complained of chest pains and needed assistance in exiting the aircraft.</p> <p>The fire apparently was caused by loose batteries that were packed in a bag with other audio-video equipment.</p>

<p>15-Dec-2006</p> <p>Media reports and airport operations incident report.</p>	<p>One Lithium metal CR123A (probable)</p> <p><i>Passenger also purchased Lithium-ion rechargeable CR123A battery and charger for the device</i></p>	<p>“Fresh Air Buddy” personal air filter</p>	<p>Passenger flight</p>	<p>On a Houston-Portland passenger flight, a personal air filter, being worn on a strap around a passenger’s neck, started a fire in the cabin. The device started making hissing sounds and then emitted bright sparks/flash and a clap/bang sound. The passenger removed the device and it fell between two seat cushions where it continued to burn and smoke. Passengers dumped water on the device and then flight attendants put out the fire with a Halon fire extinguisher. The aircraft diverted to Colorado Springs. The passenger wearing the device suffered a superficial burn to his chest. Dozens of passengers were examined by EMT personnel, mainly for complaints related to inhalation of smoke and/or Halon fumes. Five or six passengers were taken to the hospital. The two fire-resistant aircraft seat cushions were replaced due to having holes burned in them.</p> <p>The airline flight attendant accidentally disposed of the battery, so a determination of what type of lithium battery (primary vs. secondary) could not be made. NTSB took possession of the device and sent to their lab for analysis. Lab analysis of the damaged device was inconclusive in determining what caused the malfunction.</p>
<p>14-Dec-2006</p> <p>Report from air carrier</p>	<p>Counterfeit CR123A, lithium metal</p>	<p>Flashlight “Superfire WF-501B”</p>	<p>Cargo flight</p>	<p>During a UPS cargo flight from Sydney, Australia to Guangzhou, China, at 38,000 ft., the crew heard a loud bang. A crewmember found that his flashlight in a bag next to his seat was warm and had a strong odor coming from it. The flashlight was opened and there was soot/residue from burning. One of the two batteries (now determined to be counterfeit) was damaged. Earlier the crewmember had dropped the flashlight about 6 inches into his bag and heard a thump.</p>
<p>25-Nov-2006</p> <p>FAA agent summary</p>	<p>Nonspillable lead acid, 12-volt, VRLA industrial (Marathon M12V155FTX)</p>		<p>Cargo flight</p>	<p>A pallet of eight batteries was being shipped from Canada to Brazil. At the FedEx Memphis sort center, one of the batteries fell from the wooden skid and cracked open its housing, causing some burning/scorching.</p>

<p>11-Nov-2006</p> <p>Notification by US Customs and CPSC</p> <p>FAA case # 2007WP700045</p>	<p>Lithium ion cell phone batteries</p>		<p>Cargo flight</p>	<p>After being shipped by air from China to the US, some batteries were selected for inspection by US Customs. While on the desk of an import specialist, the battery started emitting sparking flames and smoke.</p>
<p>15-Sep-2006</p> <p>FAA Case # 2006GL700427</p>	<p>Silver oxide button cells, various sizes</p>		<p>Cargo flight</p>	<p>During off-loading at their Plymouth, MN facility, DHL/Airborne personnel discovered two boxes that were warm to the touch. The boxes were opened and found to contain hundreds and hundreds of button cell batteries loosely packed together in a plastic bag liner. Batteries were being shipped by a small business battery recycler that stated they thought all batteries were discharged. Tests showed many still had positive voltage.</p>
<p>15-Sep-2006</p> <p>United Airlines report</p>	<p>Lithium-ion laptop battery</p>	<p>IBM Laptop computer</p>	<p>Passenger flight</p>	<p>Approximately 15 minutes prior to departure of a LAX-LHR transatlantic flight, the laptop computer of a passenger began to smoke. The relief pilot and purser assisted the passenger in removing the laptop from the airplane. The laptop was placed on the floor of the gate area where it continued to smoke from the battery pack area and a small flame appeared. A customer service representative discharged a fire extinguisher on the fire. The battery pack continued to smoke for an additional couple minutes with white smoke and a strong odor. The Fire Department responded and discarded the burnt battery pack. The passenger stated the laptop was an IBM that belonged to his company and had been in his possession the entire time, having original parts and never having been serviced. The passenger was reportedly not using aircraft power to operate the computer. The airplane remained in service and departed on time without the incident passenger.</p>
<p>17-Jul-2006</p> <p>Fedex Notification to FAA</p>	<p><i>EaglePicher-Kokam</i> Lithium ion/polymer (used for remote control models), 122 batteries of various sizes</p>		<p>Cargo flight</p>	<p>The unlabeled/marked package was discovered to have caught fire while being held in bond for customs clearance in Korea. Package had traveled to Korea in FedEx system from Vienna via Paris and Subic Bay.</p>

<p>15-July-2006</p> <p>UPS report to FAA</p> <p>FAA case # 2006SO700328</p>	<p>Two <i>North Star</i> 12-volt nonspillable, 70 Ah, model NSB70</p>		<p>Cargo flight</p>	<p>A package caught fire while being unloaded from a ULD at the UPS sort facility in Louisville. Airport fire personnel responded and inside the box they found two 12-volt nonspillable batteries. The terminals were not protected and the batteries were not secured to prevent movement inside the box. The inner packaging consisted of Styrofoam peanuts and paper. The statement from the fire personnel indicated the terminals on one battery came in contact with the other, arced, then caused a fire.</p>
<p>??-July-2006</p> <p>UK CAA report to FAA</p>	<p>Unknown</p>	<p>Photographic flash gun</p>	<p>Passenger flight</p>	<p>Upon arriving at home after a flight, a British Airways passenger found that his battery-powered photographic flash unit in his baggage had burnt holes in some of his clothing. Plastic housing on flash unit had also melted.</p>
<p>02-June-2006</p> <p>China CAA report</p>	<p>Lithium ion / polymer, 7.4-volt; 10000 mAh</p>		<p>Passenger flight</p>	<p>An Air China passenger flight from Guangzhou to Chengdu diverted takeoff due to a lithium battery fire in the cargo hold. While taxiing for departure the fire alarm for the lower deck cargo compartment activated. The Captain immediately released the fire extinguisher and the aircraft stopped taxiing. Passengers were evacuated. A burnt package containing lithium polymer batteries was discovered in the cargo hold up against the ceiling of the compartment on top of the other packages. Burn marks were visible on the ceiling. Shipment was declared as electric parts; there was no indication of lithium batteries or Dangerous Goods. No UN test report was available for the batteries. Eleven other boxes were in the shipment.</p>



<p>15-May-2006</p> <p>Lufthansa DG Occurrence Report # 0001/06</p> <p>DOT incident report # 2006060033</p>	<p>Lithium-ion</p> <p>(VGP-BPL2/VGP-BPS2 or equivalent)</p>	<p>Laptop with spare battery</p>	<p>Passenger flight</p>	<p>Shortly before flight departure, a burning smell was detected in the first-class cabin of a Lufthansa ORD-MUC flight. Maintenance personnel were called to check and found it was coming from hand luggage inside an overhead luggage bin above seat 2A. The flight attendants evacuated the passengers in first class and first 2 rows of coach class. Crew used extinguishers to prevent setting off what was seen as the beginning of a slow fire. Maintenance immediately brought the bag outside the aircraft onto the ramp where it started to catch fire. Fire dept was called to assist. Fire was eventually put out after reigniting once. Fire apparently started from the extra battery pack for a laptop which was purchased on eBay. Flight departed 1 hour 18 minutes late.</p>
<p>29-Mar-2006</p> <p>DOT Incident report # 2006040159</p>	<p>Lead Calcium</p>		<p>Cargo flight</p>	<p>Air package shipped from Puerto Rico to Georgia containing a battery was discovered smoking while out for Fedex delivery to final destination. The package was removed and extinguished. Consignee accepted the package.</p>
<p>03-MAR-2006</p> <p>FedEx incident report</p>	<p>Lithium ion button cells, mfr. by <i>Lixing</i></p>		<p>Cargo flight</p>	<p>US-bound package was noticed to be smoking at outbound FedEx station in Shenzen, China. Upon inspection, the package of lithium ion batteries was discovered to be on fire.</p>
<p>28-FEB-2006</p> <p>FAA case # 2006NM700106</p>	<p>Two NiCad cordless drill batteries</p>		<p>Passenger flight</p>	<p>Employee had power tools in baggage. TSA observed smoke emitting from suitcase on baggage belt and pulled it off the belt. Fire dept. was notified and extinguished the fire. Bag contained two NiCad cordless drill batteries. One battery had melted. Company of traveling employee paid \$15,000 civil penalty.</p>
<p>23-FEB-2006</p> <p>FAA Special Agent statement and UK CAA message</p>	<p>Nickel Metal Hydride (NiMH)</p>		<p>Cargo flight</p>	<p>During cargo sort operations in Memphis, FedEx personnel discovered a smoking fiberboard box. Four boxes contained 250 Nickel metal hydride batteries. Four of the batteries had short circuited. The non-spec fiberboard boxes apparently lost their structural integrity due to the weight of the batteries which were packaged loosely without proper short circuit protection. The batteries were being shipped from London to St. Louis. The UK fined the shipper a total of £2800.</p>

4-OCT-2005 UK CAA report	Dry cell / rechargeable	Portable drill	unknown	After being unloaded from a domestic flight in England, a package caught fire due to the activation of a portable drill inside. DHL driver suffered smoke inhalation and was treated at a hospital.
14-SEP-2005 FAA Agent report	Eight large heavy-duty industrial 12-volt batteries (Specs: 1350 CCA, 245 Amp Hrs @ 20 Hrs)	Batteries in metal racks for solar panels	Cargo flight	During loading of outbound FedEx flight in Portland, ME, a package fell off the forklift and landed upside down. Sparks and a small fire were seen immediately. The cardboard outer packaging was removed exposing eight large batteries connected to each other inside a metal frame on a wooden pallet. Terminals were all exposed. Visible burn marks were on two of the batteries as well as on the crossbar of the metal frame. No package marking or labels indicated batteries. Documentation indicated the shipment contained solar panels and school supplies.
18-JUL-2005 FAA case # 2005NM700175	Two <i>Ryobi</i> 14.4-volt NiCad rechargeable batteries		Passenger flight	TSA officer observed smoke coming from baggage. United and TSA personnel discovered 2 <i>Ryobi</i> 14.4-volt NiCad power tool batteries. One battery has short circuited. Company of the employee carrying batteries paid \$10,000 civil penalty.
29-JUN-2005 FAA case # 2005WP700218 DOT Incident report # 2005080470	Lithium Ion	Battery-pack	Cargo flight	At UPS in Ontario, Calif., during unloading of a ULD from Shanghai, it was discovered that a fire had taken place inside the ULD. A package containing a lithium-ion battery pack was identified as the source of the fire. Upon discovery, the burnt package and its contents were cool to the touch and there was no smoldering evident.
18-MAY-2005	18 D-cell batteries	Marine buoy	Cargo flight	A FedEx employee in Fredericksburg, VA, was injured when a package that he was loading into a ULD exploded. The package contained a marine buoy powered by a battery-pack containing 18 D-cell batteries. Apparently some of the batteries had deteriorated causing gas to build up in a sealed container. Static electricity generated by sliding the box may have been the ignition source.

<p>25-MAR-2005</p> <p>TSA report to FAA ANE</p> <p>FAA case # 2005NE700152</p>	<p>Twenty-four 9-volt <i>Energizer Industrial</i> batteries</p>	<p>None</p>	<p>Passenger flight</p>	<p>TSA screeners discovered smoldering batteries in a passenger's checked baggage. They discovered 24 9-volt batteries, most of them packed loosely inside a cardboard box in the baggage. Only nine of the batteries had their terminals protected (with plastic caps or electrical tape). There were other loose metal objects in the box that apparently came in contact with the terminals; one metal object was visibly charred. At least one of the batteries was still hot to the touch.</p> <p>Passenger paid \$1500 fine.</p>
<p>11-FEB-2005</p> <p>FAA incident summary</p> <p>DOT incident report # 2005030047</p>	<p>Lithium battery, solid cathode, manufactured by <i>Eagle Picher</i> of Surrey, BC, Canada.</p>	<p>None</p>	<p>Cargo flight</p>	<p>An undeclared package containing 18 lithium batteries caught fire while being unloaded from a conveyor belt at the FedEx facility in White Bear Lake, MN. FedEx cargo handlers report hearing a "pop" sound and then seeing the box "lifted" off the conveyor belt by the force. The shipment had flown from Los Angeles to Minneapolis and was to be trucked to Clear Lake, WI. Only one battery caught fire.</p>
<p>29-OCT-2004</p> <p>Greensboro FSDO briefing paper and media accounts</p>	<p><i>Ultralife</i> 9-volt lithium (traditional 9-volt form: rectangular with two terminals on top)</p>	<p>Camera equipment</p>	<p>Passenger flight</p>	<p>Shortly after departure, the battery exploded in the hand of a cameraman traveling on the VP campaign plane of Sen. Edwards (the cameraman reportedly was in the process of changing batteries). It spewed shrapnel and ignited a fire in the seat which was extinguished by flight attendants and others. The flight crew declared an emergency and returned to Raleigh-Durham airport without further incident.</p>
<p>14-SEP-2004</p> <p>FAA field agent initial report</p>	<p>Two 12-volt, nonspillable, sealed rechargeable lead-acid batteries</p>	<p></p>	<p>Cargo flight</p>	<p>One of the batteries was packaged so that its terminals were able to come into contact with metallic sensor tape that was packed with it. This resulted in a short circuit and fire discovered at the Greenville-Spartanburg FedEx facility after the flight.</p>

04-SEP-2004 FAA incident summary statement	Dry, Alkaline, C-cell, (four)	Diving flashlight	Passenger flight	Diving flashlight exploded at LAX as it was removed from checked baggage by TSA personnel during the CTX screening process. Minor injuries to nine people. The incident occurred prior to the baggage being loaded on the passenger aircraft. A 1996 NIOSH report indicates that exploding flashlights are not uncommon—particularly among airtight flashlights with old, damaged, or improperly installed batteries. One of these batteries (Exp. Date: MAR 2005) may have been improperly installed according to the FAA summary.
07-AUG-2004 FAA incident summary statement, DOT Incident Report #2004081622	Lithium-ion	Lithium-ion batteries assembled together in a plastic case	Cargo flight	Prototype lithium batteries shipped under a competent authority approval from California to Europe apparently started a fire in a ULD during the loading process at the FedEx Memphis hub. The ULD had just been loaded for a transatlantic flight (Memphis-Paris). The ULD and many other packages in it were damaged/destroyed by fire. Shipment apparently was in violation of the DOT approval allowing the prototype battery to be shipped.
28-APR-2004 DOT Incident report #2004050033	Dry batteries		Cargo flight	While unloading a container in Dothan, AL, a FedEx ground handler smelled burning plastic. The package was located and opened. Several dry batteries inside had wires attached. Plastic bag inner packaging was melted and inside of box showed burn marks.
18-APR-2004 FAA incident summary	Ni-Cad, 18-volt, rechargeable	DeWalt cordless power drill	Passenger flight	A power drill with battery attached was activated in checked baggage. Drill generated heat, setting fire to the bag and other bags on the luggage cart while waiting to be loaded on to the passenger aircraft.
01-APR-2004 Transport Canada	CR123 lithium batteries	Flashlight	Passenger flight	A flight attendant lent a passenger a flashlight which was recently purchased in Beijing. The passenger dropped the flashlight while it was on. Later the passenger put the flashlight in a seatback pocket. A few minutes later, the flashlight began to emit smoke and noxious fumes. The flashlight became so hot it could only be handled with oven mitts.
02-NOV-2003	Ni-Cad, Ni-Metal Hydride, and/or Lithium (according to label on computer)	Notebook computer – Toshiba Satellite model # 815-S129	Passenger flight	At security screening, a passenger’s bag contained a computer bearing a warning label on the bottom near the battery compartment: “Warning: Hot base may cause burn. Avoid prolonged contact with bare skin.” Battery compartment was hot. Screener had passenger turn off computer.

25-OCT-2003 FAA incident summary	<i>PowerSonic</i> Nonspillable, Lead Acid gel-cell, 12-volt, 35 AMP hours	Powered hand truck	Passenger flight	Powered hand truck shipped as cargo accidentally switched on. Motor and battery generated heat and smoke in cargo compartment of the pax aircraft forcing it to return to gate.
01-AUG-2003 FAA # 2003NE700110	<i>Sanyo</i> six nickel metal hydride battery pack		Cargo flight	Battery pack self-ignited and burned while in transit at the UPS facility in Brewer, Maine. Medical instrument vendor had sent a replacement battery pack to the shipper with written instructions to return the battery pack they were using which had been recalled because of potential problems with it overheating after charging.
09-JUN-2003	Ni-Cad, 18-volt, rechargeable	Battery for DeWalt cordless drill – unattached	Passenger flight	As part of routine baggage screening it was noticed that the battery, packed loosely in a toolbox, was hot. The unattached drill battery with unprotected terminals had come in contact with metal objects in the toolbox.
04-JUN-2003 DOT Incident report # 2003060805	Non-spillable batteries	None	Cargo flight	Package burst into flames at FedEx sort facility. Terminals not protected from short circuit, arced and started fire.
16 FEB-2003 Civil Aviation Safety Authority of Australia	Non-spillable, sealed, lead-acid	Wheelchair	Passenger flight	Upon unloading Virgin Blue flight # DJ621 from Launceston to Melbourne, Australia staff noticed the arching wheelchair battery. A pre-existing fault in an attached electrical cord appeared to be a contributing factor, but it was not possible to prove exactly what caused the short circuit.
12-AUG-2002 DOT Incident report #2002090134	Lithium battery (excepted)	Samsung mini computer (palm pilot)	Cargo flight	Burning odor detected by handlers at the Los Angeles FedEx inbound package sort center. Battery apparently short-circuited causing the bubble wrap in the package to burn and melt onto the unit.
12-APR-2002 DOT Incident report #2002050519	Lithium batteries	None	Cargo flight	Lithium batteries shipped under exception by Abbott Labs did not have terminals protected from short circuit. Started fire inside package at FedEx Indy sort facility.
25-MAR-2002	<i>Hawker Cyclon</i> , sealed lead, rechargeable, nonspillable batteries	<i>Cyclon</i> batteries contained in larger battery: <i>Lucent/Hawker</i> , sealed lead, rechargeable, 45-volt, 2.5-Amp Hour	Cargo flight	After the initial flight, the package containing the battery/batteries caught fire at the FedEx sort facility in Memphis.

09-MAY-2001 DOT Incident report #2001061356	Wet acid batteries, nonspillable, two 6-pound batteries		Cargo flight	Shipment was being unloaded from of inbound aircraft when handlers noticed fumes and smoke. Package was located and had a burn hole on its side. Batteries apparently short-circuited.
26-FEB-2001	Wet nonspillable battery	Portable welder	Cargo flight	After air transport and in route to final destination, UPS truck driver observed smoke coming from the trailer. Package had been undeclared.
03-NOV-2000 FAA EIR # 2001NM710044 DOT incident report # 2000110896	<i>Hawker</i> lithium sulphur dioxide batteries	None	Cargo flight	While in route by road to the FedEx Cargo facility in Portland, OR, a lithium battery shorted and ruptured, burning its packaging. The shorted battery had long flexible protruding positive and negative terminals. Two FedEx drivers were treated at a hospital after inhaling fumes from the incident.
25-OCT-2000 DOT Incident report #20010043	<i>Hawker Cyclon</i> , 2-volt, nonspillable	None	Cargo flight	Eleven batteries (approx. D-size), with positive and negative terminals on the same end were packed loosely in a box. They shorted and caught their packaging on fire. Discovered at FedEx cargo sort center in Ft. Worth after first flight.
07-SEP-2000 DOT Incident report #2000091202	Rechargeable sealed lead acid battery	None	Cargo flight	Handlers at Fedex outbound center in Raleigh, NC, noticed the package had an odor. Package was opened. Discovered slight smoke and two battery wires that had melted.
23-JUL-2000 DOT Incident report	Nonspillable wet batteries	None	Cargo flight	One package discovered leaking; another displayed evidence of electrical shorting. Outer packaging marked "Batteries, wet, nonspillable"
21-JUL-2000	Four AA or AAA batteries	None	Passenger flight	During unloading of checked baggage off flight from Miami to Ecuador, handlers discovered a bag containing several battery-powered gifts destroyed by fire started by pack of small batteries. Bag also contained broken bottle of cologne.
06-JUL-2000 DOT Incident report	20 nonspillable lead acid batteries	Cables attached to terminals; related power supply equipment	Cargo flight	Ramp personnel handling the shipment noticed that several of the batteries were sparking or arcing while being moved and that the terminals on the batteries were not sealed properly. Subsequently discovered that some of the cables normally interconnecting batteries still attached to terminals. Also, related equipment, switching panel and controller placed directly on top of batteries. Outer package marked "12-volt BAT-0048 Sealed, no maintenance rechargeable battery for UPS applications."

11-FEB-2000 ANM EIR# 2000NM- 710146 DOT Incident report # 200002135	Two <i>PowerSonic</i> , sealed rechargeable, lead acid batteries, 12-volt, 7 Amp Hr.		Cargo flight	Ramp workers noticed a burning smell emanating from a box after aircraft unloaded. Employees opened box and discovered two sealed lead acid batteries packed together without protection from short circuiting. Terminals of both batteries were partially melted and scorch marked. Battery cases were significantly warped and cases bubbled.
26-JAN-2000 DOT Incident Report #2000021369	Eight nonspillable wet batteries	None	Cargo flight	Package broke open in cargo facility. Two batteries shorting when discovered. Little post on battery described as practically burned off. Paper packing material had black scorched spots. Terminals not protected against short circuits.
17-DEC-1999 DOT Incident Report # 2000010495	Four auto-sized batteries	Uninterruptible power source (UPS)	Passenger flight	Four automotive-size batteries inside the metal cabinet, wired in sequence by battery cables. Appears batteries not adequately secured within cabinet, shifted during handling and appear to have shorted out against the metal cabinet, causing burning. Outer container, a fiberboard box on a skid, showed signs of burning.
12-SEP-1999 DOT Incident report	Nonspillable battery (non-regulated or undeclared)	None	Cargo flight	Box found smoking during sort process. Battery had its posts bent inside the box. Posts allegedly came into contact with the metal slide in the sort, allowing the arc to occur and resulting in fire.
12-SEP-1999 DOT Incident report # 19990913126	Nonspillable batteries (undeclared)	None	Cargo flight	During unloading of FedEx ULD in Denver, box discovered allegedly emitting smoke. Report indicates box containing 2 rechargeable, lead-acid batteries caught on fire.
31-AUG-1999 DOT Incident Report # 1999091333 and FAA 1999EA- 610653	Nonspillable battery (undeclared)	None	Cargo flight	During outbound package sort, battery apparently initiated and caught fire. There were holes burned completely through the fiberboard box closures.

24-AUG-1999  Taiwan Aviation safety Council report # ASC-AAR- 00-11-001 Accident Investigation Report	12v motorcycle battery		Passenger flight	UNI Air passenger flight from Taipei to Hualien. Upon landing there was explosion then smoke and fire in the forward part of the passenger cabin. Investigators found that a motorcycle battery and container of gasoline had been brought into the passenger cabin. It is believed the gasoline leaked from its unmarked plastic bottle onto the battery causing a short circuit and fire. The aircraft was destroyed by fire. 14 passengers suffered critical injuries, 14 passengers suffered minor injuries.
24-JUL-1999  DOT Incident Report # #1999081536	12-volt battery	Connected to a phone jack	Passenger flight	America West ramp agents noticed smoke coming from a piece of luggage that was on the belt loader (transferring from inbound flight to outbound flight). Bag was removed and firefighters called. There was visible melting and charring of a wire connected to the negative terminal of the battery.
07-JUN-1999  DOT Incident Report	“Non-regulated” batteries. Actual type unknown.	None	Cargo flight	Package noticed during FedEx operation in Greensboro, NC to have burning smell. Inner batteries apparently arced causing batteries to burn inside the package. Incident report stated batteries had not been packaged correctly.
JUN-1999  NASA ASRS Report	Camcorder battery	Possibly Camcorder	Passenger flight	During ground maintenance delay, flight attendant noticed burning smell. Passengers deplaned. Overhead bin opened to reveal smoke from a passenger bag. Upon opening, cloth items discovered to be smoldering, and a camcorder battery in the bag was extremely hot.
04-JUN-1999  FAA AEU and FAA AEA msgs	Dry cell batteries	None	Cargo flight	U.S. cargo air carrier transported shipment containing batteries and gas cartridges to foreign destination. Fire broke out as cargo being offloaded and smoking pallet discovered. Examination of the pallet revealed steel rods placed on top of the dry batteries loosely piled on the pallet.
28-APR-1999  AWP report/ NTSB Rec. A-99-85	Primary Lithium batteries, <i>Sanyo</i> CR2 (excepted)	None	Passenger flight	120,000 lithium batteries were being shipped on two pallets. After being unloaded from a passenger flight from Japan, a cargo employee at LAX mishandled one of the two pallets causing lithium batteries to dislodge from their packaging. The pallet later caught on fire along with the second pallet which it was placed next to. Initial attempts to extinguish the blaze using water/chemical fire extinguishers failed.



10-OCT-1998 FAA AAL Special Agent statement	Unknown	336 laptop computers	Cargo flight	Fire warning diverted cargo aircraft. Captain/flight engineer inspected cargo area. Both noted heat rising between pallets on jet flat, as well as strange odor and lung irritation. Fire fighters sprayed pallet with retardant. No further evidence of heat exposure or fire.
03-OCT-1998 DOT Incident Report # 1998100548	Nickel cadmium batteries	None	Cargo flight	Two batteries somehow arced and short-circuited. This malfunction started a fire inside the box. The fire self-extinguished.
07-JUL-1998 Rapid City SD Incident Report 98-002106	9-volt battery	Baby Monitor Remote	Passenger flight	Fire damaged bag discovered during unloading. Carrier employee noted fire odor and checked bag felt warm. Fire appeared to have been caused by a short in the monitor remote, possibly because of close proximity to luggage frame.
19-MAY-1998 DOT Incident Report # 1998071744	Wet acid battery		Cargo flight	Sort center employee smelled unusual odor coming from container during unloading. A 70-lb package singled out and opened by emergency responder. Fanny pack burned and corroded, hot and smelled of fumes.
19-MAY-1998 FAA #EA19980082	Unspecified batteries	Uninterruptible power supply (UPS) units (2)	Cargo at IAC warehouse	One of the UPS units exploded during offloading of a truck.
12-MAR-1998	Wet batteries	Engines		Ramp agent at Miami Int'l airport noticed flames and smoke coming from one of the pallets during unloading after a flight from the Netherlands. One of the engine batteries was not protected and had come into contact with a steel cable causing the cable to spark and burn.
25-NOV-1997 FAA ASW investigation  FAA press release 9/9/98	Nonspillable wet electric storage batteries	None	Intended as cargo on passenger aircraft	Courier company dispatched driver to pick up package consignment consisting of global positioning system-based survey equipment. Package self-ignited, smoked and burst into flames. An entire CO2 chemical extinguisher could not extinguish the fire, so firefighters applied dry chemical extinguisher. The FAA, NASA and the city arson bureau analyzed the fire and determined that it was caused by cables placed directly on top of battery.

13-NOV-1997 FAA ASO Investigation # 98S0730067	Nospillable wet batteries	UPS	Cargo flight	During cargo sort operation, this shipment was discovered burning. The device consisted of a battery with associated circuitry. A subsequent failure analysis report revealed that the burning initiated in a printed circuit board, with the battery acting as the source of energy.
15-MAY-1997 FAA AEA security summary BUF-97-017	Dry cell batteries	None	Cargo flight	As cargo being offloaded from aircraft, ramp employee noticed open, empty box in cargo bin. Then the employee noted four batteries on floor, which sparked as she attempted to pick them up.
28-JAN-1997 FAA AEA # 97EA710078	Nospillable batteries (16)	Battery backup cabinet (UPS?)	Passenger flight	16 nospillable batteries were part of an extended battery cabinet used as backup power for computers. The air cargo package ignited while being delivered after transport aboard a passenger aircraft.
26-SEP-1996 DOT Incident report #1996110343	Lithium batteries	None	Cargo flight	Eight lithium batteries were connected in a series and packed with bubble wrap inside a plastic express envelope. There were exposed connections on one end and loose wires on the other end. The batteries were not secured from movement within the package and a short-circuit resulted causing the packaging to burn. Burnt package discovered at Airborne sort center after first flight and prior to trans-Pacific cargo flight.
09-JUN-1996 DOT Incident Report # 960700024	Nickel cadmium battery	Power pack belt, lamp	Passenger flight	One of three passenger checked bags discovered smoldering and burning in air carrier baggage make-up area. During bag handling, power pack belt had button pushed into "on" position, causing high intensity lamp in bag to power up. Heat from lamp set bag on fire.
19-MAR-1996 DOT Incident Report # 960401424	<i>Hawker Cyclon</i> , sealed-lead rechargeable batteries. (1000)	None	Cargo flight	Fiberboard box top came unsealed. Box contained rechargeable batteries. Terminals on loose batteries connected, causing them to arc, catching the box on fire and igniting surrounding freight. This box was one of ten pieces in the shipment. Other boxes were located and loose batteries repacked prior to movement to hazmat area. Each box contained two layers of 50 batteries each. Inner packagings consisted of batteries separated by cardboard dividers with layer of styrofoam sheeting across the top. Packaging tape on outer box failed.

20-FEB-1996  FAA ASO investigation  FAA press release 3/3/98	Lawn-mower batteries (declared)	Lawnmower	Cargo flight	Shipment consisting of 106 boxes (each containing a battery-powered lawn mower) was offered for transport to various destinations. Air carrier employees discovered smoke coming from one box. Lawn mower battery had become dislodged and shorted out, causing the mower's wires, plastic housing and battery to burn/melt. Subsequent recall of all boxes revealed that more than 50 of the batteries had short-circuited and several had burned enough to char the boxes in which they were being shipped.
07-FEB-1996  DOT Incident Report # 19960300554	Wet acid batteries (undeclared)	None	Cargo flight	Package failure caused battery terminals to come into contact with metal slide, resulting in short circuit and sparks/fire. Heat generated melted the batteries.
18-NOV-1995  DOT Incident Report #1995120471	Wet cell battery	Removed from electric wheelchair	Passenger flight	Wet cell batteries were removed from passenger's wheelchair and packaged separately by airline staff. Battery cables were left attached to battery causing a short-circuit during air transportation. This melted the plastic bag inner packaging. Overheated battery then boiled over, releasing acid which was mostly absorbed by the absorbent packaging material but reached the outer fiberboard box packaging.
08-MAY-1994  UK CAA DG Occurrence Report Database (G. Leach)	<i>Duracell</i> lithium batteries (excepted from ICAO regulation by SP A45)	None	Intended to go as cargo on passenger aircraft	Consignment of lithium batteries found emitting smoke in ULD during truck transport to LHR. Fire damage. Batteries were smaller in diameter than a dime and about 5 mm high. They had been tossed loosely into a box. Positive and negative terminals had "tails" which were prone to short circuiting. The shipper was prosecuted by the UK CAA for failure to comply with Special Provision A45 of the ICAO Technical Instructions and fined £1200 with £300 costs.
20-MAR-1991  DOT Incident Report # 910404294	Nonspillable battery	None	Cargo flight	During air transportation, a package containing a nonspillable battery was discovered smoking in the upper deck cargo area. Aircraft rerouted for emergency landing.