Lithium-Ion Battery Fire – Toronto Pearson Airport 29 Oct 2011 – *…The Facts as I Know Them*

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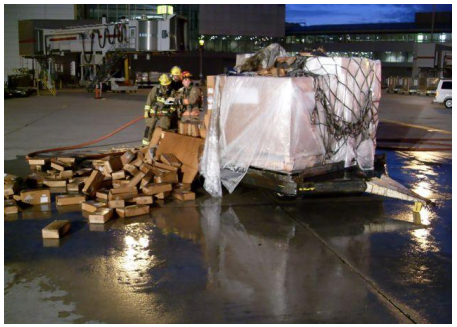
‘Equipment’:

- Li-ion battery assemblies – part of a kit to convert normal bicycle to electrical-power
- 52 cells per battery
- Batteries integrated into rigid padded plastic casing, with battery management system, status indicators and electrical connection points (*battery pack*)

Background:

- Shipment of two ~ 5x5x5 ft. cardboard boxes (*overpacks*) each containing 191 battery packs packaged individually
- On a pallet, awaiting to be loaded into ‘below-floor’ (presumably class C) cargo compartment of a pax-carrying B-767-300
- Shipment classified/packaged per UN 3481 – ‘Lithium-Ion batteries contained in equipment’
- Batteries at approx.80-90% charge



Event:

- Smoke emanating from one of the overpacks
- Action by airport fire services – initially assessed that there were 2 separate fire sources within the overpack
- ‘Offending’ overpack torn open, majority of battery packs removed to get to the seat of the fire(s) (and beyond), and fire(s) extinguished
- Occurrence under investigation by Canadian TSB

Findings:

From currently available information, it appears that:

- There was probably only one source of fire
- A cell likely went into thermal runaway and auto-ignited, igniting adjacent cells within the battery pack and, subsequently, adjacent battery packs

Findings (cont'd):

- 'Offending' battery pack and number of adjacent ones were destroyed / nearby units suffered significant fire/heat damage (although many appeared still 'functional')
- Current views from *dangerous goods* 'community' that shipment was misclassified

Status:

- Root cause not yet determined – investigation on-going
- No indication of physical damage to cells, batteries, battery packs or overpacks prior to the event
- No issues identified re. design and manufacture of the batteries / battery packs, or re. how the ‘packages’ were loaded within the overpack
- Battery pack manufacturer/shipper has elected to:
  - Reduce the batteries’ level of charge for shipping by air to ~30-40%
  - Air ship battery packs by freighter aircraft (Class E cargo compartment)

2 Li-Ion Battery Fire Incidents

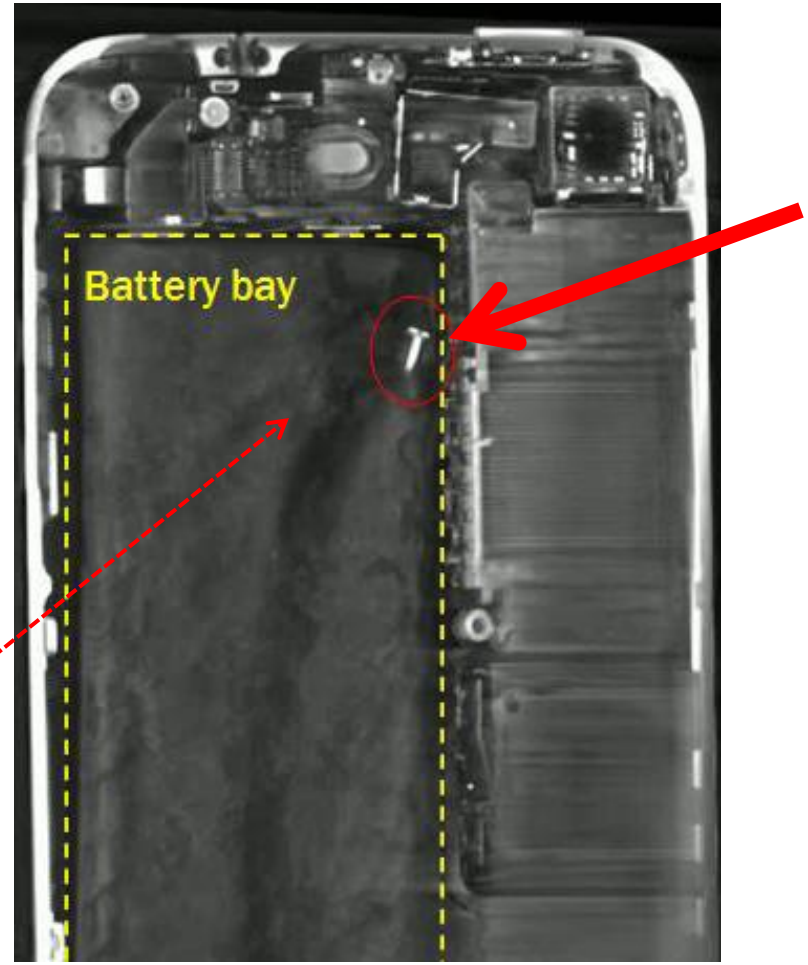
17 Apr 2012 – CRJ, Toronto to Minneapolis/St-Paul

FRONT

INSIDE

BACK

25 Nov 2011 – S340B, Sydney Airport



Thank You..!