

Serious incident investigation aviation

- Place Genus All Nippon Airways Co., Ltd. exports (Flight
- Type Formula 692)
- Registration Boeing 787-8 type formula
- symbol JA804A
- Date and time January 16, 2013 (Wed) Around 8:26
of occurrence Sky near Takamatsu Airport An altitude of
Site of approximately 32,000 ft
occurrence

February 5, 2013

Transportation Safety
Board



One. Overview of the main battery

- The machine is equipped with two battery
 - Main Battery
 - APU battery (Auxiliary power unit APU)
- The same parts, the lithium ion secondary battery both in the same part Lithium-ion
- Eight cells connected in series
- Performance are as

follows:

Lithium-ion battery Lithium-Ion Battery

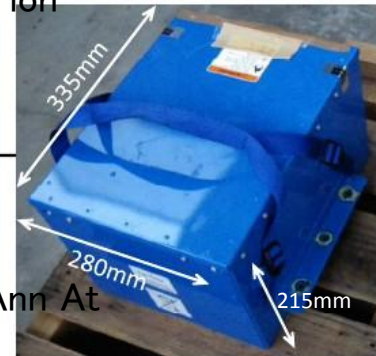
– Nominal voltage : DC 29.6V (3.7V × 8 cell)

Nominal capacity : 75Ah 5 nominal capacity (Ah) (Ann At A)

• Weight: 28.5kg

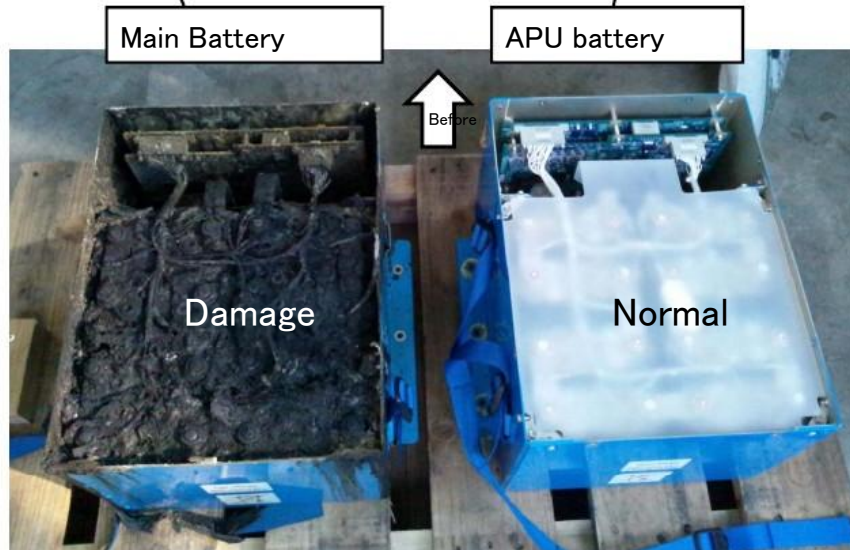
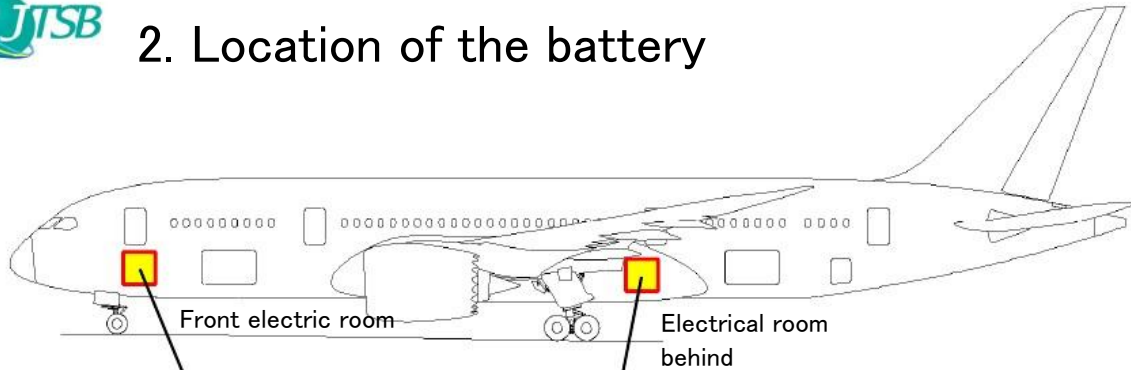
• Size: 215H × 280W × 335L (Mm)

(According to the
manufacturer's
documentation)

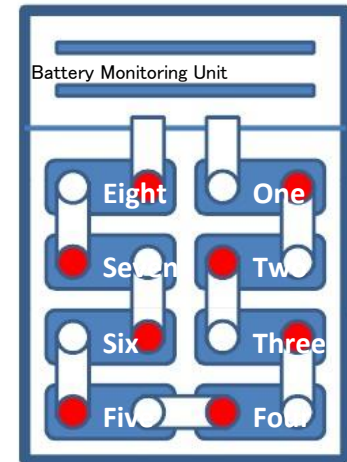




2. Location of the battery



(Same standard for both)



Three



3. Survey Battery

- APU battery and the main battery

- Japan Aerospace Exploration Agency (JAXA, Mitaka), the CT scan carried out

- Battery manufacturer in Kyoto Main battery battery Manufacturer in Kyoto, the main Battery Of

CT scan performed for each cell, the decomposition study

- Battery Monitoring Unit (BMU) Battery Monitoring Unit (BMU)

- Manufacturer at (Fujisawa), conducted a survey

- Battery Charger

- Manufacturer in the USA, conducted a survey

- Contactor and battery diode module (BDM)

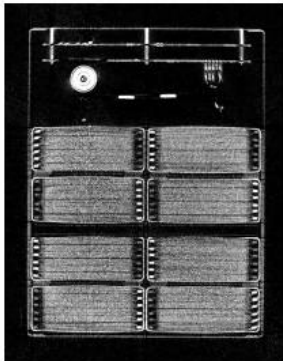
- Manufacturer in France, will study



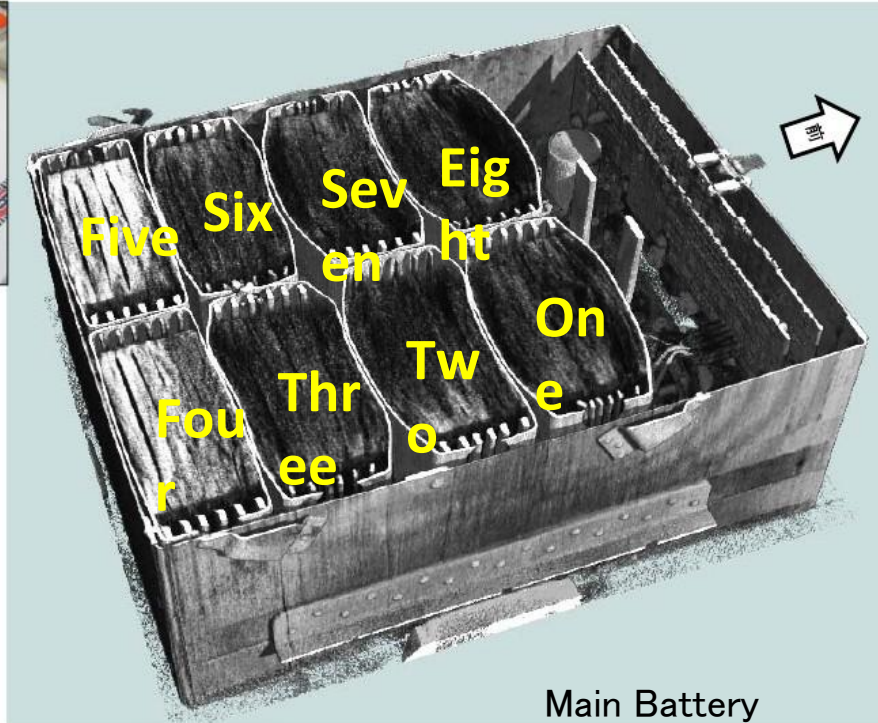
4. CT scan image



Main Battery



APU battery
(Normal)



Main Battery

CT scans into 3D images taken by JAXA

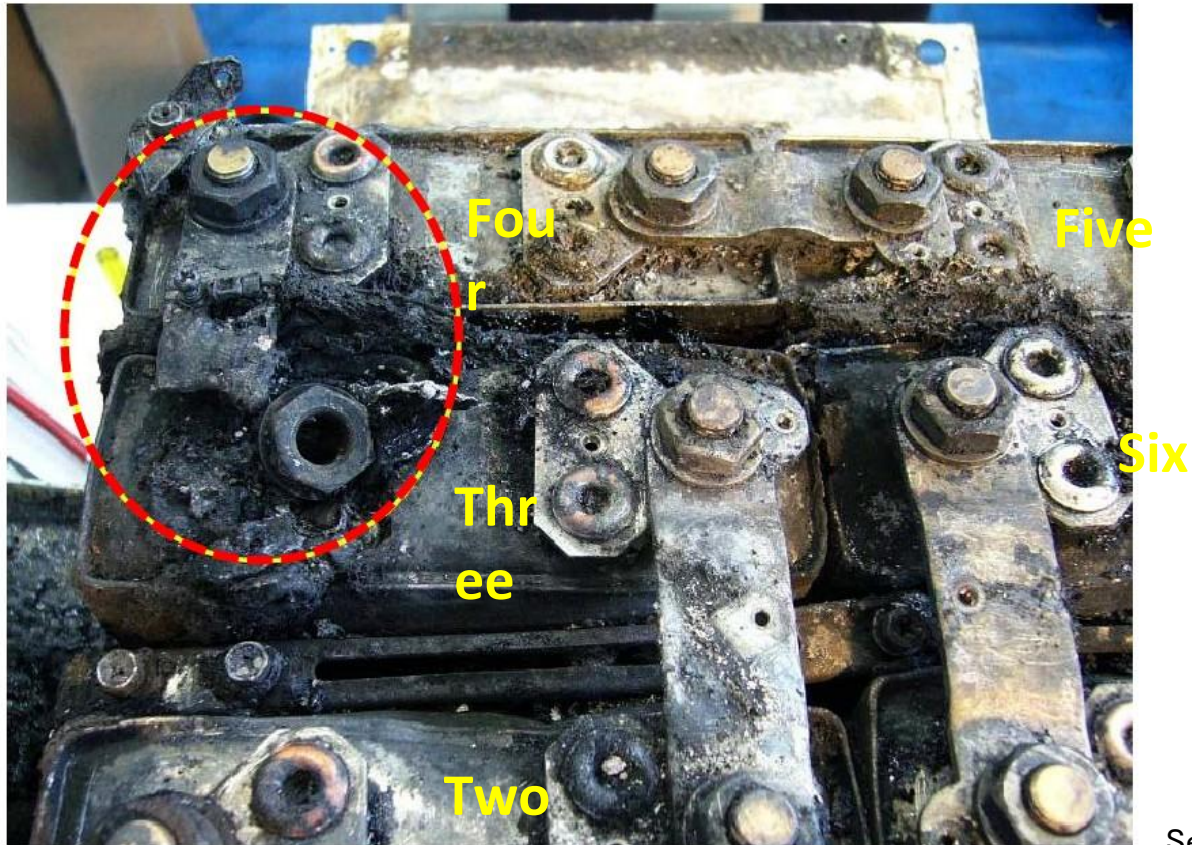


5. Degradation of the battery in the manufacturer's



Main Battery

6. Appearance of the cell (main battery)





7. Appearance of each cell (main battery)



Cell 1



Cell 2



Cell 3

Cell 6



Cell 5

Cell 4



Cell (7)



Cell 8

Eight



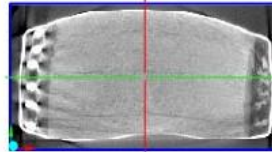
8. CT scan image of each cell

Cell 5



CT scan taken
Into a 3D image

Cell (7)



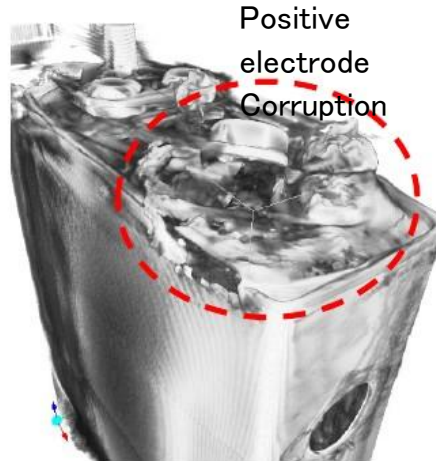
I dent and bulge

Cell 6



The positive
electrode
Internal wiring is
Meltdown

Cell 3

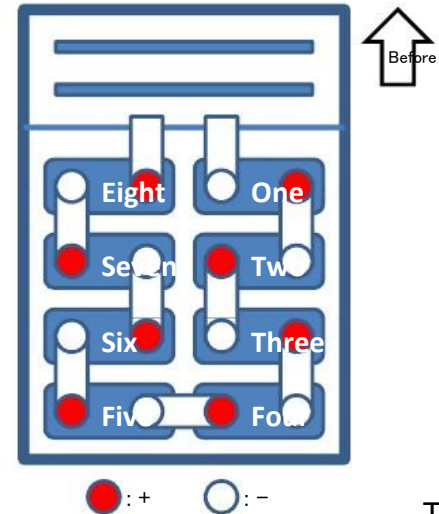


Positive
electrode
Corrosion



9. The status of the battery cell (Summary)

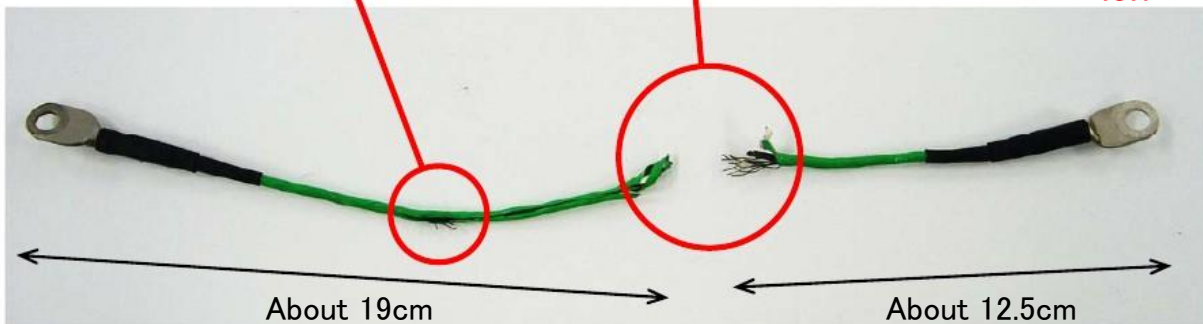
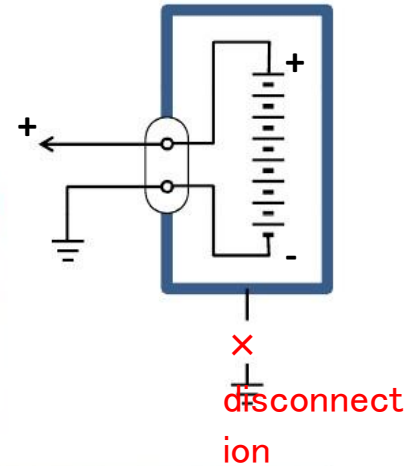
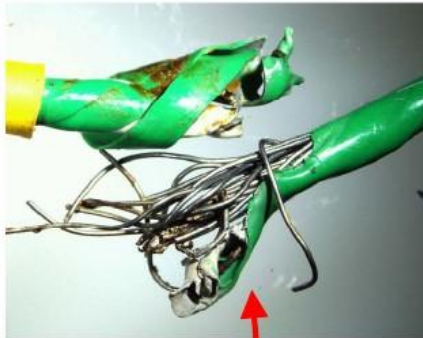
- Damage seen all eight cells.
3 cell and 6 cell damage particularly large
- Thermal damage is seen in all cells
- Seen thermal runaway
- The positive electrode of the cell 3
Damage damage is large size
- Except for cell 4 and cell 5
Six positive electrode of the cell
Observed in the internal fusing



Ten

10. Other

Ground wire of the enclosure battery is disconnected.





Summary

■ Server Terri Further investigate the situation further
damage to the battery cells further investigate the
situation further cell damage

· Decomposition study
■ continue, continue to find the cause of the
damage

· Data analysis, such as flight-data recorder,
Battery charger etc.

■ Continue the investigation of the
disconnection of the grounding wire enclosure

· Time, cause