To: John Barry Smith <barry@johnbarrysmith.com>

From: John Barry Smith <barry@johnbarrysmith.com>

Subject: Air India Flight 182 wiring/cargo door explanation

Cc: 
Bcc: 
Attachments:

Air India
Boeing 747-237B
London - Heathrow (LHR / EGLL)
UK - England, Early 1980's
VT-EFO VT-EFO "Emperor Kanishka" (#21473/330, del.06/78).

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Opening statement:

Printed for John Barry Smith <barry@johnbarrysmith.com>
Grief is the loss of a huge airliner and the deaths of 329 men, women, and children and flight crew. I believe the probable cause of that airplane crash to be the same probable cause of about half of all the thousands of airplane crashes, a mechanical fault with the machine. I do not believe the cause of that in-flight breakup to have been caused by the rarest of causes for an explosion in a highly pressurized hull; sabotage and specifically a bomb explosion. My explanation is called the shorted wiring/unlatch motor on/ruptured open forward cargo door/explosive decompression/infight breakup explanation or wiring/cargo door for short. That electrical cause occurred for Air India Flight 182 and for several other early model Boeing 747s, in particular United Airlines Flight 811. That wiring problem can occur again and another 329 persons can needlessly die. The problems are mechanical and can be fixed thus preventing another in-flight explosion when that cargo door ruptures outward in flight, causing an explosion which mimics a bomb explosion. The hard evidence refutes a bomb explosion because the necessary scientific evidence which would confirm a bomb explosion is missing and the scientific evidence which confirms an explosive decompression due to a ruptured open cargo door is present. A bomb explosion on Air India Flight 182 is scientifically ruled out and an open cargo door is ruled in.

The defence (government) contends it was a bomb explosion in the aft bulk cargo compartment on the left side that caused the in-flight breakup of Air India Flight 182. They have offered as proof a complicated conspiracy theory involving a Mr. X, an adulterous affair, jealous lovers, misappropriated funds, shootouts, angry and revengeful savages, army assaults, religious conflicts and a potential breakaway civil war. Fine, that's all very exciting and a movie with those elements would be very entertaining, I'm sure. Air India Flight 182 was first and foremost an airplane crash. It was not a domestic disturbance that escalated into violence or a bank robbery. An airplane has to obey immutable laws of physics to fly and the same laws to breakup in flight and crash. Humans who commit crimes react to their own internal changing moral rules and can not be predicted. Machine behaviour can be predicted. The conspiracy guys will claim that the reason there were no convictions is because one of the conspirators perjured himself during trial and if he had just told the truth, convictions would have followed.

To understand and explain why Air India Flight 182 crashed I will stick to the facts and leave the intrigue to the newspapers and TV. Please bear with me as I present charts, photographs, text, expert opinions, similar airplane accidents with similar evidence, and closely reasoned conclusions. Swiss Air Flight 111 and TWA Flight 800 have taught the Canadian, UK, and USA government investigators much about the consequences of faulty wiring in widebody airliners.

Both sides, the conspiracy and the mechanical, have a common goal with different routes to get there. We want to protect the trusting flying public and prevent needless deaths. Here are my paths starting from the end and working backwards:
1. The known faulty and aging Poly X type wiring needs to be replaced in early model Boeing 747s.
2. The design flaw of non-plug cargo doors needs to be corrected by making the doors like the plug type passenger doors.
3. The design flaw of absent locking sectors on the two midspan latches of the two cargo doors needs to be corrected by inserting the missing locking sectors.
4. The USA Federal Aviation Administration will issue an Airworthiness Directive (AD) for emergency inspection of the cargo door wiring for chafing and charring based upon the Transportation Safety Board (TSB) updated findings.
5. The TSB (Air) will investigate and issue an updated CASB Aircraft Accident Report (AAR) for Air India Flight 182 based upon hindsight using the knowledge gained from several subsequent similar accidents, specifically United Airlines Flight 811, Swiss Air 111, and TWA Flight 800. I will assist the TSB in their investigation. The new AAR will be based upon the suggestion of the Commissioner of the Inquiry into Air India Flight 182.

6. The Commissioner will request TSB (Air) for their official opinion as to the cause of Air India Flight 182 since the last official accident report of twenty years ago by the predecessor CASB did not conclude the cause was a bomb and evidence at that time refuted the bomb explosion explanation and suggested an explosive decompression caused by structural failure.

7. I persuade Commissioner Major that it would be prudent to order an updated AAR to fulfill his mandate of a full and thorough inquiry and to satisfy his personal goal that the inquiry was to be very broad in the evidence that it heard, in order to rest the various theories, rumours and neglect that have occurred since the explosion in 1985.

8. The Attorney General of Canada will suggest to the Commissioner that I be granted standing as witness since I qualify under a Term of Reference and have submitted the paperwork in a timely manner.

9. I persuade the AG representative to act on my behalf because the evidence I present today warrants the checking out of the reasonable, mechanical, alternative explanation. I persuade the AG representative to solicit Crown expert opinions about Air India Flight 182 from the quasi-judicial and technical fields of the Commission of Inquiry and the TSB (Air) aircraft accident investigators.

The path of the Crown prosecutors and RCMP Air India Task Force appears to be to try to put several people in prison which will 'send a message' and salve some grief. The Crown has many who agree it was a bomb explosion which include the RCMP, the CSIS, the prosecutors, the accused, the defence counsels, newspapers, books, TV, radio, the manufacturer, the airline, the victim's families, justices, and the man in the street.

The start of my path is here today and I will now present my case for the mechanical explanation, the non bomb explanation, for Air India Flight 182. The only people who agree with me of not concluding it was a bomb explosion in the aft bulk cargo compartment are those who actually know why airplanes fly and why they don't; who know why airplanes mostly land safely and why they occasionally come apart in the air; that is, professional government aircraft accident investigators from four countries, the USA, the UK, India, and Canada. It should be an interesting argument, a pleasing myth believed by millions versus unpleasant science concluded by dozens.

Presenting the wiring/cargo door case. It's detailed, it's complex, it's science, it's logical, it's factual, and it makes sense.

Part I: I call several witnesses by means of quoting their official words in documents.

Speech excerpts - Prime Minister Harper announces inquiry into Air India bombing
"A full public inquiry is required. This inquiry will be launched immediately and led by an outstanding Canadian, retired Supreme Court Justice John Major. He has agreed to serve as Commissioner for this inquiry and I have every confidence that he will conduct a thorough and compassionate investigation into the events surrounding this tragedy. This inquiry is about analyzing the evidence that has come to light since 1985 and applying it to the world we live in today."
From transcript of 18 July 2006, Hearing on Standing, Commissioner Major:
The Commissioner: "Yes. Well, I will confirm that. The nature of this Commission was
to be very broad in the evidence that it heard, in order to put to rest the various theories,
rumours and neglect that have occurred since the explosion in 1985."

From transcript again: Mr. Barney Brucker:
Mr. Brucker: I just wanted to indicate to you, Commissioner, that I have provided this
morning to Mrs. Cook and to Commission counsel a brief submission that we had
prepared just on the general test for standing and issues that we submit you will be taking
into account.

The Commissioner: You can’t do much better than get standing, though, can you?

Mr. Brucker: No, we can’t, but we are concerned about the focus of the Inquiry. When I
attended here and listened to your Opening Statement I was struck by one comment that
you made and I will paraphrase that, perhaps not accurately, but what I took from your
comments was that you intended to conduct a thorough but efficient inquiry and that an
efficient inquiry does not mean that it has to take a great deal of time. We have, in my
submission to you, a very compressed time schedule in which we have to get things done
and my submissions simply highlight that in that environment, a matter which is of
interest to all Canadians, that there should be some judicious consideration of who will get
standing and who won’t or who may be an intervenor and who won’t, and that to ensure
that the process is thorough and efficient I have offered some general principles that I
submit might be of assistance to you.

The Commissioner: Thank you. That’s been filed and will be looked at."

End quotes.

I can not cross examine but I can comment on those statements. The Prime Minister
desires a full, thorough, and compassionate public inquiry into the events surrounding Air
India Flight 182 by analyzing the evidence that has come to light since 1985. The
direction for the Commission is pointed by the two leading authorities, the Prime Minister
and the Commissioner to be full, thorough, and broad.

Mr. Brucker recommends an efficient inquiry. Well, kangaroo courts are efficient and
lynch mobs are cheap and fast. "Thorough and broad" requires time for the presentation
of various theories since the explosion of 1985, one of which is the wiring/cargo door
explanation. That alternative explanation should have its time in front of the Commission
of Inquiry and that can be done by granting me witness or intervenor standing. It's been
twenty one years since the event and several more hours of listening to a 'various theory'
is certainly justified in the name of thoroughness. As far as efficiency goes, when the
wiring/cargo door explanation is confirmed by Crown aircraft investigators, the
Commission of Inquiry can reduce 90% of its workload since the reason for the acquittals
by Justice Josephson is obvious, the accused were innocent and the prosecutors, RCMP
and CSIS can be exonerated for failing to obtain convictions.

Does the wiring/cargo door explanation have validity? Is it as wild as a mid air with a
flying saucer explanation and thus not worthy of consideration? Or is the wiring/cargo
door explanation down to earth and real?

Let me present expert witnesses through their quotes:
CASB Aviation Occurrence Report on Air India Flight 182, 1986: "The Canadian Aviation Safety Board respectfully submits as follows:
4.1 Cause-Related Findings
5. There is considerable circumstantial and other evidence to indicate that the initial event was an explosion occurring in the forward cargo compartment."

From Kirpal Report for Air India Flight 182, 1986: "Mr. R.A. Davis, Head, Flight Recorder Section, Accidents Investigation Branch, Farnborough, U.K. 3.4.6.16 In conclusion, Mr. Davis reported as follows: - "It is considered that from the CVR and ATC recordings supplied for analysis, there is no evidence of a high explosive device having detonated on AI 182. There is strong evidence to suggest that a sudden explosive decompression occurred but the cause has not been identified. It must be concluded that without positive evidence of an explosive device from either the wreckage or pathological examinations, some other cause has to be established for the accident".

End quotes:

That 'other cause' was established by me in 1996 based on an event in 1989, United Airlines Flight 811, plus other accidents. (And there is good reason why it is called an 'explosive' decompression. It is an explosion that mimics a bomb.)

That non bomb concluding finding from CASB is absolutely correct. It does not conclude the destruction of the aircraft was caused by a bomb. It is specific on the location of the mystery explosion as the forward cargo compartment and rules out the rear cargo compartments. There are several alternative explanations for that confirmed explosion, from fire in the cargo hold or hull rupture at a door, or bomb in baggage explodes. I agree there was an explosion in the forward cargo compartment as did all the experts agree on that point in 1986 for solid reasons.

The Canadian and United Kingdom government experts in aircraft accident investigation for Air India Flight 182 did not state the cause was a bomb and in fact, the UK expert stated in 1986 it was not a bomb and gave strong evidence for his conclusion. To claim the Canadian Aviation Safety Board concluded the cause was a bomb is incorrect, prejudicial, and inflammatory.

The Canadian crash experts (CASB) called Air India Flight 182 a 'crash'. It was. The word 'bomb' was never used in relation with Air India Flight 182 in their entire CASB report. “Bomb” was used only once in reference to a different aircraft and event for comparison purposes and there was no match.

Aircraft accidents are sometimes complicated events and analogies may possibly explain the misunderstandings. Air India Flight 182 is but one tree in a forest of four early model Boeing 747s that experienced an inflight breakup leaving similar evidence.

Part II: An analogy to include the four trees in the forest but I'll call them brothers instead:

Early model Boeing 747s are machines. We say they die when they crash but they were never really alive, now were they? We anthropomorphize. Let me continue with the analogy.
It's as if a person falls down dead. The police, the media, the man's family, the courts, the prosecution, and the defence all agree, yes, it was a shot to the head that killed him but we'll argue about who and where and when he was shot. Several men are arrested, and at the trial the defence states that yes, the victim was shot in the head but their clients did not do it. All the while some physicians who examined the dead person are saying, no, it was not a gunshot to the head but a heart attack, while other physicians say we don't know how he died but we may find out later.

And then another man falls down dead at same spot and it's the brother of the previous dead man. Same thing happens, most non physicians say gunshot to head but the autopsy cause of death determined by government physicians claim natural causes. Several more men are accused and tried. The defence agreed with the prosecution as to cause of death as gunshot but their clients did not pull the trigger.

And then another brother falls down dead under similar circumstances...first guesses were gunshot to head but later proven wrong.

And then another brother falls down dead under similar circumstances...first guesses were gunshot to head but later proven wrong.

All four brothers share the same exact DNA and the evidence discovered at their deaths is generally the same. Two brothers are conclusively proven to have died of heart attacks and the deaths of the other two remain controversial.

And all the while, the people who know why people fall down dead are saying, not a gunshot to the head but heart attack, probably caused by poor diet.

How does a four time serial killer called faulty wiring get away with it?

1. The deaths happen over a period of years, 1985 through 1996. Memories are short. Personnel change. Documents are thrown away, misplaced, or lost. Witnesses forget.
2. The deaths happen many thousands of miles apart from each other, such as Ireland, New York, Lockerbie, and Hawaii.
3. The deaths involve many agencies; RCMP, Scotland Yard, FBI, CIA, CSIS, TSB, NTSB, CASB, AAIB, Indian Civil Aviation Agency, and all the way to the top political leaders. The agencies do not cooperate or communicate fully, they defend their area of investigation, they are secretive, and they have many administrative senior officials directing them. Each agency looks closely at its lone tree/brother/aircraft in the forest/family of four while ignoring the other three.
4 The deaths involve objects that look different at first glance such as different colors in their livery, different names in their titles, and different nicknames.
5. The deaths involve victims who are not wealthy, important, connected to authority, or famous.
6. The deaths involve different complex legal jurisdictions in faraway places such as India, Canada, UK, and USA.
7. The deaths involve billions of dollars which means people get funny when they get around money.

A. The killer is well loved, well connected, wealthy, powerful, and not a suspect and anybody raising suspicion is scorned.
B. The killer has killed before but is still above suspicion having said to have reformed. C. The killer's freedom is necessary for the financial well being of thousands of workers.
1. The accused are relatively poor, different color skin and language than the accusers, and have in the past expressed violent thoughts.
2. The accused reinforce the prejudices of the accusers.
3. The accused get the suspicion off the real killer.

Part III: **Matchups** to determine a pattern.

There are no conspiracies among the agencies, courts, media, or public to hide or protect the real killer or to convict the innocent. All involved really believe the real killer is not guilty and the accused are guilty based upon the public's own self interest. The well meaning accusers all believe in a vast international conspiracy by the accused to commit mass murder and like all conspiracy zealots, refuse to consider down to earth explanations for such mass grief causing events. The hysteria feeds on itself with the stories gaining myth status with constant repeating, embellishment and modifications.

The real killer is faulty wiring, a small failure which brings down huge machines, early model Boeing 747s, by exploiting the design flaws of non plug cargo doors and no locking sectors on the midspan latches. The dead brothers/machines are Air India Flight 182, Pan Am Flight 103, United Airlines Flight 811, and **TWA** Flight 800.

The deaths are respectively 329, 270, 9, and 230 for a total of eight hundred thirty eight fatalities. That's a mass killing in four events over eleven years and thousands of miles apart involving the governments of four countries.

The four mechanical victims are virtually identical. They are early model Boeing 747s. There are tens of thousand of airliners out there in hundreds of model and **submodels** but there are currently about five hundred Boeing 747-100 and 747-200 aircraft still in service of which only four planes have the below similar evidence after inflight breakups.

The defence counsel for the four accused of bombing two of those aircraft essentially stipulated to the cause of the crashes as bombs and quibbled over a few feet of where it was in the aircraft and challenged the Crown to prove who planted the bombs.

And the defence followed that strategy all the while knowing (assuming they did their homework) that the actual government experts in aviation crash investigations were saying they did not know the cause, or the cause was an explosive decompression and that one UK crash expert even refuted the bomb cause. The defence knew that similar type aircraft had similar type fatal accidents in 1989 and 1996 and the cause was electrical, not a bomb explosion. The defence uncritically believed the police story and that of the Crown prosecutors, the media, the public, and the anguished victim's families, while ignoring the one group who knew what they were talking about, the Canadian Aviation Safety Board investigators, the UK Air Accidents Investigation Board investigators, the National Transportation Safety Board investigators, and the Indian accident investigators.

For Air India Flight 182 the location of the explosion was in the forward cargo compartment for fifteen years. That conclusion is amply supported by hard wreckage evidence and yet on the day of the trial the location switched to the aft bulk cargo compartment, a location conclusively ruled out by earlier investigators. The defence never disputed the move of the explosion from forward to aft compartments.

For Pan Am Flight 103 the **AAIB** investigator of the wreckage observed that the cause of
the soot in the container alleged to have held a powerful, spherical and loud bomb was actually: "Where these panels formed the boundary of the shatter zone, the metal in the immediate locality was ragged, heavily distorted, and the inner surfaces were pitted and sooted - rather as if a very large shotgun had been fired at the inner surface of the fuselage at close range." The defence never objected to the premise of a bomb explosion which was shown by evidence to be mild, directed, and silent, three physical impossibilities for a bomb but natural for a 'very large shotgun' in the luggage which was safe unless a huge explosive decompression were to occur nearby were a cargo door to rupture open in flight.

Emotion trumped science. Wishful revenge thinking ruled the day. Pleasant explanations based on grief salving emotions were believed while unpleasant explanations supported by hard evidence that could be touched, seen, and listened to was rejected without consideration.

Part IV: Best Evidence:

Speaking legally as an amateur, I understand there are several types of evidence; circumstantial, indirect, hearsay, and direct. All can be very persuasive. The best evidence is direct evidence. For Air India Flight 182, Pan Am Flight 103, and TWA Flight 800 there is much circumstantial evidence such as airspeed, altitude and time of day. There is indirect evidence such as wreckage debris pattern and twisted metal. Hearsay is for the conspiracy guys believing quarreling lovers and taped political ramblings.

The one source for the best evidence which is direct and irrefutable is the cockpit voice recorder and the flight data recorder. They were there at event time. Those recorders were put there to do precisely what they did, record for later evaluation events which took place in the cockpit and in the aircraft at large. They tell us directly what went on in the final minutes.

And what does the best and indisputable direct evidence show as to what the cause of Air India Flight 182 and Pan Am Flight 103 and two others?
The sudden loud sound was analyzed very carefully by the government analysts for frequency, duration, limiting, and rise and fall time.

The conclusion reached by all the analysts in the UK, USA, Canada and India is that the sudden loud sound is not a bomb explosion sound, nor a missile exploding sound, but that of an explosive decompression sound. The bomb sound was ruled out because necessary low frequencies were not present and the rise time was too slow. There was no bomb sound in the cockpit at the initial event time for Air India Flight 182, Pan Am Flight 103, United Airlines Flight 811, and TWA Flight 800.

If not a bomb sound, then what was the cause of the sudden loud sound?

Air India Flight 182
"Mr. R.A. Davis, Head, Flight Recorder Section, Accidents Investigation Branch, Farnborough, U.K. 3.4.6.16 In conclusion, Mr. Davis reported as follows :- "It is considered that from the CVR and ATC recordings supplied for analysis, there is no evidence of a high explosive device having detonated on AI 182. There is strong evidence to suggest that a sudden explosive decompression occurred but the cause has not been identified. It must be concluded that without positive evidence of an explosive device from either the wreckage or pathological examinations, some other cause has to be established for the accident".

2.10.2 Analysis by Accidents Investigation Branch (AIB), United Kingdom
The AIB analysis was restricted to the CVR and the Shannon ATC tape. An analysis of the CVR audio found no significant very low frequency content which would be expected from the sound created by the detonation of a high explosive device. A comparison with CVRs recording an explosive decompression* on a DC-10, a bomb in the cargo hold of a B737, and a gun shot on the flight deck of a B737 was made. Considering the different acoustic characteristics between a DC-10 and a B747, the AIB analysis indicates that there were distinct similarities between the sound of the explosive decompression on the DC-10 and the sound recorded on the AI 182 CVR. *Explosive decompression is an aviation term used to mean a sudden and rapid loss of cabin pressurization.

(Please note the DC-10 explosive decompression above referenced in the Air India Flight 182 CVR analysis was probably the Turkish Airlines DC-10 fatal event when the aft cargo door blew open causing an explosive decompression which destroyed the flight controls leading to the crash.)

Pan Am Flight 103
"It is not clear if the sound at the end of the recording is the result of the explosion or is from the break-up of the aircraft structure. The short period between the beginning of the event and the loss of electrical power suggests that the latter is more likely to be the case."

United Airlines Flight 811
"The Safety Board believes that the approximate 1.5 to 2.0 seconds between the first sound (a thump) and the second very loud noise recorded on the CVR at the time of the door separation was probably the time difference between the initial failure of the latches at the bottom of the door, and the subsequent separation of the door, explosive decompression, and destruction of the cabin floor and fuselage structure. The door did not fail and separate instantaneously; rather, it first opened at the bottom and then flew open violently. As the door separated, it tore away the hinge and surrounding structure as the pressure in the cabin forced the floor beams downward in the area of the door to equalize with the loss of pressure in the cargo compartment."

TWA Flight 800
"The TWA flight 800 CVR recorded noise characteristics that were most similar to those recorded by the CVRs on board the United flight 811 and Philippine Airlines airplanes."

The Pan Am Flight 103 sudden loud sound is 'more likely' to be the case for the break-up of the aircraft structure, not a bomb sound.

The United Airlines Flight 811 sudden loud sound is indisputably and irrefutably the explosive decompression sound when the forward cargo door burst open because that aircraft barely landed safely at Honolulu.
The TWA Flight 800 sudden loud sound is most similar to United Airlines Flight 811 as both were early model Boeing 747s.

United Airlines Flight 811 is the model that fits the other three, it is the victim of the killer wiring that was able to make it back to Honolulu to eventually identify the culprit, the electrical system of wiring or a switch. Just as it was only after United Airlines Flight 811 that the cause of the sound on Air India Flight 182 was identified, it was only after Swiss Air Flight 111 and TWA Flight 800 that the true extent of the pervasive and dangerous Poly X wiring in all early model Boeing 747s was made known.

(United Airlines Flight 811 is the case law analogy; it was a similar case that was tried and proven beyond doubt to be a certain cause and that cause may be applied to other similar cases.)

The best evidence for these similar events in similar aircraft is the direct evidence which is the cockpit voice recorder which recorded the sudden loud sound which when analyzed indicated an explosive decompression from a ruptured open forward cargo door and not a bomb explosion sound. That's science, that's real, that's confirmable, and it's corroborated by government sound analysts.

Part V: Human Nature Conjecture:

Why has the shorted wiring/unlatch motor on/ruptured open forward cargo door/explosive decompression/inflight breakup explanation for Air India Flight 182, Pan Am Flight 103, and TWA Flight 800 not been advanced before in the public's mind?

I would hope I would not, but I might very well have reacted as others have if my job, my reputation, my income, and my freedom depended upon the bomb explosion explanation being the accepted one and the wiring/cargo door explanation rejected. There is no conspiracy, just people acting in their own perceived best interests. Who and what are they?

1. The manufacturer wants the blame for the loss of the aircraft and life to be placed upon factors out of its control and not on its design errors of non plug cargo doors and absent locking sectors in the midspan latches. The manufacturer does not want to have to spend millions to correct the manufacturing faults in the wiring or modify the cargo doors.
2. The airline wants the blame placed on others such as airport screening personnel and not on itself for not finding the frayed wires to the cargo door unlatch motor. The aircrews want to believe the event was a rare occurrence and do not want to believe that every minute they fly in early model Boeing 747s the aircraft can come apart in flight in seconds when the cargo door blows open as it did in United Airlines Flight 811.
3. The police, the RCMP, the FBI, Scotland Yard and prosecutors all welcome the inclusion of the high profile catastrophes into their jurisdiction so they can solve the crime and increase their budgets and staff to counter the threats. They would reject the mechanical cause as their general involvement would end.
4. The court system welcomes the chance to establish justice by punishing the criminals asserted by the law enforcement agencies. Vast amounts of bailiffs, new court facilities, numerous attorneys, and much tax money goes into trials while a mechanical cause is relegated to settlement meetings between insurance attorneys.
5. The victims' families have turned their grief to anger to hate and want someone to vent their emotion of revenge against. They would prefer to believe their loved ones died in some vast international conspiracy which is part of a worldwide larger force instead of a
trivial event such as bare wire shorting to metal and turning on a motor which is supposed to remain off while in flight.

6. The media such as TV, radio, and newspapers much prefer an emotional human tragedy interesting story to tell rather than a scientific story which requires education into basic laws of nature such as gravity, lift, thrust, drag, and pressure differential. Emotional stories require feelings which everyone has while science stories require education which is absent in many viewers, listeners, and readers. The media tells people what they want to hear and that is exciting, illogical, conspiracy stories, not boring mechanical proofs.

7. The government oversight agencies want to shift the blame of the crashes to foreign terrorists slipping through lax airport security and not their own failures as regulators and monitors of safety issues. The wiring/cargo door explanation reveals their failure to order the airlines and manufacturer to fix the documented problem of faulty wiring causing cargo doors to open in early model Boeing 747s such as Pan Am Flight 125 in 1987, United airlines preflight in 1991, and United Airlines Flight 811 in 1989.

8. The public demands revenge for a great loss of human life which was preventable. Dying in a bombed airplane crash offends two basic instincts of all humans at birth, a startle reflex shown by arms stretched wide and the falling reflex shown by grasping hands. The public pays money to hear what it wants and rejects that which is unpleasant. The bombing explanation reinforces their prejudices of xenophobia and racism; it implies the event was a one off affair and not likely to reappear if only security were tighter. The bombing story gives an opportunity for revenge; it gives an exciting tale of intrigue, spying, shootouts, and chase scenes. The wiring/cargo door explanation is dry, has lots of charts and statistics, and implies the faulty wiring and dangerous non plug cargo doors are industry wide, not fixed, and the problems could reappear the next time they fly as a passenger.

I say again, there are no conspiracies among the principals, only people acting in their own perceived best interests which is essentially, "It's not my fault, nor my company's fault, nor my government's, nor the police, nor the airline, nor the media, nor the courts' fault; it's the fault of those revenge seeking turbaned terrorists over there."

To support that blame shifting exculpatory bomb explosion explanation, vast illogical and science defying fantasies had to be devised and repeated until the myth of the Lockerbie bombing and the bombing of Air India Flight 182 was implanted into the public psyche. Debunking will be very difficult as myths are generated and believed by a people needing them. Debunking is important because the genuine cause of faulty wiring remains at large, waiting for the right circumstances to strike again.

However......conspiracy zealots defeat their cause eventually. The continued controversies with Air India Flight 182 and Pan Am Flight 103 are evidence that something is not right and thus the trials, the appeals, and the inquiries continue.

Part VI: Photograph evidence:

More logical conclusions supported by photographic evidence:

1. When a bomb is detonated on the port side of pressurized early model Boeing 747s, that port side will be shattered and the starboard opposite side remains smooth, like the Bruntingthorpe staged bombing of a real Boeing 747. (Port side is left side facing forward and starboard side is right side.)

2. When the faulty wiring causes the forward cargo door to blow out on the starboard
side, that starboard side is shattered into characteristic pattern of rectangle and longitudinally split cargo door, as is Air India Flight 182, Pan Am Flight 103, Pan Am Flight 103, and United Airlines Flight 811, while the port side remains relatively smooth.

Which of the above choices fits the Air India Flight 182 and Pan Am Flight 103 actual evidence? Let's look at the photographs and wreckage reconstruction sketches by the authorities.

A Boeing 747 had a real bomb go off in the aft cargo compartment in a real Boeing 747 during a staged event. (Bruntingthrope photos below)

Results:
1. Port side blown to bits
2. Starboard side opposite the blast has the aft cargo door and bulk cargo door latched, intact, and smooth skin all around.
Now to Pan Am Flight 103, (thought by many to be bomb explosion of same type and size as Bruntingthorpe.)

Below is wreckage reconstruction sketch from UK AAIB AAR:
Port side, a small blue rectangle (from alleged bomb explosion) with relatively smooth non exploded skin around. Other bent skin is from aero dynamics not explosion. Starboard side at same initial time is shattered and large area with door split longitudinally, stringers exposed and large rectangle destruction area.
Port side above for Pan Am Flight 103, nose to left.
Starboard side forward cargo door for Pan Am Flight 103, nose to right.

United Airlines Flight 811
Figures 9 and 10.—Exterior [top photo] and interior [bottom photo] views of cargo doors after removal of pull-in hooks, latch cams, lock sectors, and actuators.
Port side is very smooth and undamaged.

Starboard side is shattered with large rectangle destruction area, split longitudinal door, and stringers exposed.

1.3 Damage to the Airplane
The primary damage to the airplane consisted of a hole on the right side in the area of the forward lower lobe cargo door, approximately 10 by 15 feet large.

TWA Flight 800

Port smooth side below opposite cargo door and forward of center fuel tank, nose to left.
Starboard side below, with cargo door shattered area to right. Center fuel tank explosion as initial event would be bilateral, not unilateral.

TWA Flight 800 starboard side, nose to right.
TWA Flight 800 forward cargo door area to right.

Air India Flight 182 below:

Air India Flight 182 wreckage reconstruction from CASB and Kirpal Report. Of the small amount of wreckage recovered, only the pieces of wreckage that showed damage was reported. There is no reports of inflight or other damage to the port side opposite either cargo door so the assumption can be that there was none and thus smooth. The forward cargo door was damaged and split in two
longitudinally which matches Pan Am Flight 103 and United Airlines Flight 811.

CASB report: "All cargo doors were found intact and attached to the fuselage structure except for the forward cargo door which had some fuselage and cargo floor attached. This door, located on the forward right side of the aircraft, was broken horizontally about one-quarter of the distance above the lower frame. The damage to the door and the fuselage skin near the door appeared to have been caused by an outward force. The fractured surface of the cargo door appeared to have been badly frayed. Because the damage appeared to be different than that seen on other wreckage pieces, an attempt to recover the door was made by CCGS John Cabot. Shortly after the wreckage broke clear of the water, the area of the door to which the lift cable was attached broke free from the cargo door, and the wreckage settled back onto the sea bed. An attempt to relocate the door was unsuccessful." "This damage was different from that seen on other wreckage pieces. A failure of this door in flight would explain the impact damage to the right wing areas. The door failing as an initial event would cause an explosive decompression leading to a downward force on the cabin floor as a result of the difference in pressure between the upper and lower portions of the aircraft." 2.11.6.5 Target 47 - Aft Cargo Compartment This portion of the aft cargo compartment roller floor was located between BS 1600 and BS 1760. Based on the direction of cleat rotation on the skin panel (target 7) and the crossbeam displacement on this structure, target 47 moved aft in relation to the lower skin panel when it was detached from the lower skin. No other significant observation was noted. There was no evidence to indicate characteristics of an explosion emanating from the aft cargo compartment. Target 47, which is a portion of the aft cargo compartment roller floor, shows no indications characteristic of an explosion emanating from the aft cargo compartment."

The above quotes from the accident investigators indicate the explosion was not on the port side but on the starboard side and in the forward cargo compartment. The implications are that the in-flight damage was on the starboard side and the port side was undamaged. The rear cargo compartment had no explosion from a bomb or otherwise.

Below is a layout of the staged bombs for the Bruntingthorpe experiment with standard container with bomb inside exploding on port side, shattering it but leaving the starboard side smooth and door intact and latched.
Deductions:

When the port side is smooth and starboard side opposite and near the cargo door is shattered, that means cargo door opened in flight and no bomb. That description fits Air India Flight 182, Pan Am Flight 103, United Airlines Flight 811, and TWA Flight 800. That evidence rules in ruptured open cargo door as initial event.

When port side is shattered and starboard side opposite and near cargo door is smooth, that means bomb and no open cargo door. That description fits none. That evidence rules out bomb explosion.
The conclusions to be made from the above photographs is that for Air India Flight 182, Pan Am Flight 103, Pan Am Flight 103, and United Airlines Flight 811, the damage occurred on the starboard side near the forward cargo door leaving the port side smooth. That actually did happen and rules in the wiring/cargo door explanation. A bomb explosion on the port side, as in the Bruntingthorpe experiment and alleged for Air India Flight 182 and Pan Am Flight 103 would have shattered the port side and left the starboard side smooth. That did not happen, but the reverse did, thus ruling out the bomb explosion explanation and confirming the wiring/cargo door explanation.

Part VII: Layperson Explanation

One excuse I am given by those unwilling to evaluate the hard evidence that supports the shorted wiring/ruptured open/forward cargo door/explosive decompression/inflight breakup explanation for Air India Flight 182 is that it is 'too technical'.

Well, it's not too technical; below is the explanation for laypersons who have a basic education in science. If a person knows why lightning strikes, why balloons pop, the power of wind, and why gravity pulls, then that person can understand what happened to Air India Flight 182.

Lightning Strikes
Balloon Pops
Wind Power
Gravity Pulls

Lightning strikes because of an imbalance between the negative electrically charged particles and the further away positively charged particles. When sufficient negative and positive charges gather, and when the electric field becomes sufficiently strong, an electrical discharge (the bolt of lightning) occurs within clouds or between clouds and the ground. Lightning occurs because the bottom of a thundercloud becomes negatively charged. The ground becomes positively charged. Simple physics says that opposite charges attract, so boom, the lightning takes a one way trip to the closest positively charged item- usually a tree, phone pole, or other high object.

In a Boeing 747 the opening and closing of the cargo doors is done by an electric current through a latching or unlatching motor controlled by a switch. When the switch is open/off, there is no current to turn the motor which would turn the latching cams around the latching pins. When the switch is closed/on the circuit between the negatively charged
particles and the positively charged is closed and current flows through the resistive motor which turns torque tubes which turn cams to surround pins which closes and holds the door tight against the fuselage.

When the aircraft is airborne a switch is opened/off which prevents any current from inadvertently turning on the cargo door unlatch motor. There is no way to turn on the unlatch motor to open the cargo door from inside the cockpit.

However, when faulty wiring such as Poly X type, which was used in Air India Flight 182, chafes and cracks to bare wire to short on the metal fuselage, the voltage has a path to complete the circuit and the lightning strikes; that is, the safety feature of a switch is bypassed and the now flowing current turns on the cargo door unlatch motor. The imbalance between the charged electrons which was held steady by the safety switch is now allowed to discharge/equalize through the shorted wire through the resistive motor which turns on as it is supposed to do when receiving current. The latching cams now turn around the latching pins into the unlock/unlatch direction thus releasing their hold on the closed cargo door. The faulty wire which allowed the motor to turn on when it was supposed to stay off was installed during manufacture of the aircraft. The defective wiring is a manufacturing error.

The bare wire shorted on the cargo door unlatch motor which turned the cams to the unlatch position. Lightning struck and the unlatch motor turned on and started to allow the cargo door to open in flight.

Balloon pops:

Air tends to move in a straight line from a high-pressure area to a low pressure area. As balloons reach maximum expansion they get to a point where the latex runs out of stretch and gets stiff and resists further stretching. This is obvious in a fresh, over inflated balloon. It will become stiffer and get very rigid as all the latex molecules all become oriented in the tensile stress directions. This increase in stiffness will cause balloons, unlike soap bubbles, to increase in internal air pressure just before bursting.

Even small balloons like nine inch rounds can produce a very big bang if they are strong high quality balloons and are blown up to the limit. They can develop fantastically high tensions. Of course a larger balloon blown up to a similar extreme tension all over would make an even bigger bang.

The hull of a Boeing 747 such as Air India Flight 182 can be considered a huge balloon when pressurized. As the aircraft climbs the air molecules outside are further apart and have less pressure than those that were inside the aircraft at takeoff. If the aircraft is not pressurized, the air molecules inside and outside the aircraft are the same and there is no differential. The hull is not inflated and there would be no inside high pressure trying to equalize with the outside lower pressure.

But the hull of the Boeing 747 in flight with crew and passengers aboard can not remain unpressurized as the air would be too thin to sustain life so oxygenated air is pumped into the hull and the balloon/hull inflates. There now exists a distance difference between the air molecules inside the aircraft to those outside of the airplane. There is an imbalance. There is now pressure to equalize the air molecules but the sealed metal fuselage skin prevents the equalization. The hull stays inflated.
As the plane climbs higher, the pressure inside is kept constant at a comfortable level for the passengers while the pressure outside continues to decline the higher the aircraft goes. When the aircraft is about 20000 feet, the pressure on the inside of the fuselage is about 3.5 PSI or pounds per square inch. At cruise altitude of about 31000 feet, the pressure on each square inch on the inside of the inflated balloon called the hull is 8.9 PSI.

The Boeing 747 has two cargo doors 110 by 99 inches in size. The pressure on the cargo doors of Air India Flight 182 when cruising at 31000, when the initial event occurred, was 96921 pounds pressing on each of the nine foot by eight foot doors held in place only by a long hinge, eight rotating lower latching cams around latching pins and two midspan rotating latching cams around latching pins.
An analogy: Imagine a large under inflated balloon with no holes in it. Then cut six small holes in the balloon and two large square holes. Then, if you could, put patches over the six small holes from the inside of the balloon so that when the balloon is inflated, the inside high pressure would press the patch tighter into the balloon and seal the hole tighter. That is called a 'plug type' patch. But...then put patches over the two large square cut holes on the outside of the balloon so that when the balloon is inflated, the high air pressure inside the balloon presses against the outside patch to push it outward. That is called a 'non plug type' patch.

Another analogy for the patch is a band aid wound dressing on an arm. The arm has the cut hole/wound and the patch is the band aid to stop the bleeding wound. A band aid on the inside of the arm would be more effective but impractical so band aids are put on the outside of the arm and often are pulled off inadvertently.

Air India Flight 182 has those several small holes cut into the pressurized hull and then patched from the inside. They are called plug type passenger doors. When airborne and at altitude, those passenger entry and exit doors can not be opened in flight because the inside air pressure presses them tight against the metal fuselage. Only if the pilot depressurizes the inside of the hull can those doors be opened, such as on the ground. The wounds are small and the band aid is sufficient to stop the bleeding since the patch is in the inside and the blood pressure actually prevents bleeding.
However, the two huge cargo doors which were cut from the metal fuselage and then patched back are non-plug type. It's as if they are patched from the outside so that as the inside pressure grows higher and the outside pressure goes lower, the pressure differential increases and about 97000 pounds of air presses on the eight by nine foot door to burst it open. The door does not press on the inside of the fuselage tighter because it is not a plug type. The only things holding the door closed are the hinge and the ten latches around the ten latch pins. The latch cams are not told to unlatch in flight because there is no current to the unlatch motor. The non plug cargo doors are a design error; they should be plug type. The wounds are large and the band aid is not sticky enough to stop the bleeding as the blood pressure pushes outward.

A hull rupture in flight can be a catastrophic event so safety efforts are made to prevent its occurrence. As the cams are turned around the pins, a locking sector is then manually placed against the latch pin to prevent the inadvertent unlatching should electrical current turn the unlatch motor on. The locking sector would stop the cam from turning to the open position and the unlatch motor would burn itself out trying.

However, while the lower eight latches have eight locking sectors as a safety measure, the two midspan latches have no locking sectors at all. That is another design error; the midspan latches need locking sectors similar to the eight lower ones. The band aid over the wound was too small.

(As it turns out, years after Air India Flight 182 crashed, it was shown that the eight locking sectors themselves were too weak to stop the cams from unlatching when the unlatch motor did in fact inadvertently receive power and the door unlatched in flight; United Airlines Flight 811. The eight locking sectors were then strengthened but the midspan latches had no locking sectors to strengthen.)

For Air India Flight 182, the faulty bare wire shorted on the power for the cargo door unlatch motor which turned the cams to the unlatch position after bypassing the safety switch. The eight lower latching cams overrode the weak lower eight locking sectors. Just past dead center of the pins the 97000 pounds of internal pressure finally popped the balloon of a pressurized hull at the forward cargo door. The result was an explosive decompression which occurred in an instant. Explosive decompression is an aviation term used to mean a sudden and rapid loss of cabin pressurization.

The sudden and powerful rushing out of the higher pressure air inside the pressurized hull of Air India Flight 182 mimicked a bomb in sound and fury. The sound of the explosion was so loud it was picked up on the cockpit voice recorder. The forward cargo door split into two parts and burst apart as it tore out and up taking further fuselage skin with it. The contents of the forward cargo hold were blown out and into the nearby starboard engines number three and four causing foreign object damage to the nacelles and turbine blades inside the engines. The ensuing hole in the starboard side of the fuselage forward of the wing centered around the forward cargo door of Air India Flight 182 in the wreckage reconstruction below was now about thirty feet tall and twenty feet wide, target 204 and cross hatch skin above it.
The manufacturing flaw of installing defective wiring had exploited the design flaw of a non plug door coupled with the design flaw of no locking sectors on the mid span latches allowing the door to inadvertently open in flight causing a massive explosive decompression which created a huge hole in the nose of Air India Flight 182.

Lightning struck and the unlatch motor turned on. The balloon popped when the forward cargo door unlatched and ruptured open.

Wind Power:

From the CVR and DFDR, AI 182 was proceeding normally en route from Montreal to London at an altitude of 31,000 feet and an indicated airspeed of 296 knots when the cockpit area microphone detected a sudden loud sound: 296 knots is 341 miles per hour or 549 km/h.

If the newly created huge hole in the nose of Air India Flight 182 had occurred while the aircraft were motionless in the calm air, the nose would have stayed on and the aircraft would not have broken up in flight. However, the wind force on the now compromised formerly streamlined hull was higher than any natural wind on earth.

Category ⁵ Hurricane, Catastrophic>155 mph
Shrubs and trees blown down and uprooted; considerable damage to roofs of all buildings; all signs down. Very severe and extensive damage to windows and doors. Complete failure of roofs on several residences and industrial buildings. Extensive shattering of glass from pressure variation and blown debris. Some complete building failures. Smaller buildings are overturned or destroyed. Complete destruction of mobile homes.

F3 Tornado, Fujita Scale 3 158-206 mph, strongly built schools, homes, and businesses have outside walls blown away; weaker homes completely swept away.

F4 Tornado, Fujita Scale 4 207-260 mph, strongly built homes have all interior and exterior walls blown apart; cars thrown 300 yards or more in the air

F5 Tornado, Fujita Scale 5 261-318 mph, strongly built homes are completely blown
An intact egg is strong when pressed on its small end but after the shell is cracked, the strength is gone and it crumbles. So it was with Air India Flight 182.

The wind force of 341 miles per hour tore the gashed nose off which fell first in the debris pattern on the ocean floor. The wind force tore into the rest of the tubular, now unpressurized hull, and ruptured open the rest of the fuselage and other compartments. The debris was blown aft and hit the starboard wing and stabilizer causing inflight damage. The engines and wings came off and mixed with the rest of the disintegrating aircraft.

Lightning struck and the unlatch motor turned on. The balloon popped when the forward cargo door unlatched and ruptured open. The enormous wind power tore the nose off and disintegrated the rest of the aircraft.

Gravity grabs.

Gravity is one of four known fundamental forces of nature. Gravity is by far the weakest of the four, yet it dominates on the scale of large space objects. Gravity cannot be shielded in any way. Intervening objects, whatever their make-up, have no effect whatsoever on the attraction between two separated objects.

If Air India Flight 182 were in far outer space the thousands of broken parts would just float around but those debris pieces were affected by the gravity of Earth and caused the aircraft parts to flutter down to the sea and further down to the ocean floor 6500 feet under the water surface.

Lightning struck and the unlatch motor turned on. The balloon popped when the forward cargo door unlatched and ruptured open. The enormous wind tore the nose off and disintegrated the rest. Gravity pulled the pieces downward to the bottom of the ocean.

Lightning Struck
Balloon Popped
Wind Powered
Gravity Pulled

Part VIII: Template:

If the DNA can be used as an analogy for specific evidence discovered for one event and that specific evidence is matched in another event, it can be said the DNA matches.

United Airlines Flight 811 below:
"Executive Summary from USA NTSB AAR 92/02 of March 1992:
On February 24, 1989, United Airlines flight 811, a Boeing 747-122, experienced an explosive decompression as it was climbing between 22,000 and 23,000 feet after taking off from Honolulu, Hawaii, en route to Sydney, Australia with 3 flightcrew, 15 flight attendants, and 337 passengers aboard.

The airplane made a successful emergency landing at Honolulu and the occupants evacuated the airplane. Examination of the airplane revealed that the forward lower lobe cargo door had separated in flight and had caused extensive damage to the fuselage and
cabin structure adjacent to the door. Nine of the passengers had been ejected from the airplane and lost at sea.

A year after the accident, the Safety Board was uncertain that the cargo door would be located and recovered from the Pacific Ocean. The Safety Board decided to proceed with a final report based on the available evidence without the benefit of an actual examination of the door mechanism. The original report was adopted by the Safety Board on April 16, 1990, as NTSB/AAR-90/01.

Subsequently, on July 22, 1990, a search and recovery operation was begun by the U.S. Navy with the cost shared by the Safety Board, the Federal Aviation Administration, Boeing Aircraft Company, and United Airlines. The search and recovery effort was supported by Navy radar data on the separated cargo door, underwater sonar equipment, and a manned submersible vehicle. The effort was successful, and the cargo door was recovered in two pieces from the ocean floor at a depth of 14,200 feet on September 26 and October 1, 1990.

Before the recovery of the cargo door, the Safety Board believed that the door locking mechanisms had sustained damage in service prior to the accident flight to the extent that the door could have been closed and appeared to have been locked, when in fact the door was not fully latched. This belief was expressed in the report and was supported by the evidence available at the time. However, upon examination of the door, the damage to the locking mechanism did not support this hypothesis. Rather, the evidence indicated that the latch cams had been backdriven from the closed position into a nearly open position after the door had been closed and locked. The latch cams had been driven into the lock sectors that deformed so that they failed to prevent the back-driving.

Thus, as a result of the recovery and examination of the cargo door, the Safety Board's original analysis and probable cause have been modified. This report incorporates these changes and supersedes NTSB/AAR-90/01.

The issues in this investigation centered around the design and certification of the B-747 cargo doors, the operation and maintenance to assure the continuing airworthiness of the doors, cabin safety, and emergency response.

The National Transportation Safety Board determines that the probable cause of this accident was the sudden opening of the forward lower lobe cargo door in flight and the subsequent explosive decompression. The door opening was attributed to a faulty switch or wiring in the door control system which permitted electrical actuation of the door latches toward the unlatched position after initial door closure and before takeoff. Contributing to the cause of the accident was a deficiency in the design of the cargo door locking mechanisms, which made them susceptible to deformation, allowing the door to become unlatched after being properly latched and locked. Also contributing to the accident was a lack of timely corrective actions by Boeing and the FAA following a 1987 cargo door opening incident on a Pan Am B-747. As a result of this investigation, the Safety Board issued safety recommendations concerning cargo doors and other nonplug doors on pressurized transport category airplanes, cabin safety, and emergency response."

The first probable cause was incorrect so the NTSB issued another AAR based upon new evidence. The same can be done by TSB Air for Air India Flight 182 based upon the subsequent new evidence. I have had the benefit of hindsight to research all Boeing 747 hull losses for matches to the evidence retrieved regarding Air India Flight 182. There
have been five matches, including Air India Flight 182. All are controversial while United Airlines Flight 811 is the only aircraft that was able to land after the shorted switch or wiring/ruptured open/forward cargo door/explosive decompression/inflight breakup occurred. The DNA evidence and probable cause for United Airlines Flight 811 is irrefutable.

In none of the five official investigations for Air India Flight 182 was United Airlines Flight 811 considered. For four of those investigations, United Airlines Flight 811 had not occurred yet; for the fifth, the attorneys and law enforcement agencies chose not to refer to it.

What happened to Air India Flight 182 happened to United Airlines Flight 811 and others. The cause of United Airlines Flight 811 is the same cause for Air India Flight 182. The sequence is the shorted wiring/ruptured open/forward cargo door/explosive decompression/inflight breakup explanation.

The linchpin DNA match to all five Boeing 747 accidents is the sudden loud sound on the Cockpit Voice Recorder followed by the abrupt power cut to the Flight Data Recorder. The CVR and FDR data is the only direct evidence available and it is the best.

NTSB AAR, United Airlines Flight 811: "The CVR revealed normal communication before the decompression. At 0209:09:2 HST, a loud bang could be heard on the CVR. The loud bang was about 1.5 seconds after a "thump" was heard on the CVR for which one of the flightcrew made a comment. The electrical power to the CVR was lost for approximately 21.4 seconds following the loud bang. NTSB Accident Report 92-02 Page 25

CASB AOR, Air India Flight 182: "From the CVR and DFDR, AI 182 was proceeding normally en route from Montreal to London at an altitude of 31,000 feet and an indicated airspeed of 296 knots when the cockpit area microphone detected a sudden loud sound. The sound continued for about 0.6 seconds, and then almost immediately, the line from the cockpit area microphone to the cockpit voice recorder at the rear of the pressure cabin was most probably broken. This was followed by a loss of electrical power to the recorder." Canadian Aviation Safety Board Air India 23 June 1985, page 21

Kirpal Report: "Mr. R.A. Davis, Head, Flight Recorder Section, Accidents Investigation Branch, Farnborough, U.K. 3.4.6.16 In conclusion, Mr. Davis reported as follows :- "It is considered that from the CVR and ATC recordings supplied for analysis, there is no evidence of a high explosive device having detonated on AI 182. There is strong evidence to suggest that a sudden explosive decompression occurred but the cause has not been identified. It must be concluded that without positive evidence of an explosive device from either the wreckage or pathological examinations, some other cause has to be established for the accident"

Premise Explanation for Air India Flight 182: Explosion in the forward cargo compartment caused by explosive decompression caused by structural failure of ruptured open forward cargo door at one or both of the midspan latches caused by faulty electrical wiring:

Analysis: There is close agreement with the opinions of the two aviation authorities (CASB and AAIB), the judicial finding of Judge Kirpal, and this independent aircraft
accident investigator in the specific location in the aircraft and consequences of the explosion with the only difference being the cause of the explosion on the starboard side of the forward cargo compartment of Air India Flight 182:

A. CASB: There was an explosion, which could have been a bomb explosion, on the starboard side of the forward cargo compartment near the forward cargo door which caused the inflight breakup of Air India Flight 182.

B. AAIIB: There was an explosion, cause not identified but not a bomb explosion, which caused the inflight breakup of Air India Flight 182.

C. Justice Kirpal: There was an explosion, a bomb explosion, on the starboard side of the forward cargo compartment near the forward cargo door which caused the inflight breakup of Air India Flight 182.

D. Justice Josephson: There was an explosion, a bomb explosion, on the port side of the aft cargo compartment opposite the aft cargo door which caused the inflight breakup of Air India Flight 182.

E. John Barry Smith: There was an explosion, an explosive decompression when faulty wiring shorted on the forward cargo door unlatch motor which allowed one or both of the midspan latches to rupture open in the forward cargo door on the starboard side of the forward cargo compartment, which caused the inflight breakup of Air India Flight 182.

F. Transportation Safety Board of Canada (Air): Yet to be asked for opinion.

To determine the pattern in early model Boeing 747 accidents that suffered breakups in flight, it was necessary to evaluate carefully all the official accident reports concerning them. A pattern was detected of similar significant evidence among only five of the over forty hull damages or losses, two of which are Air India Flight 182 and United Airlines Flight 811.

Summary of specific matching evidence between Air India Flight 182 and United Airlines Flight 811: (The DNA evidence listed below applies to both aircraft)

A. Boeing 747
B. Early model
C. Polyimide wiring (Poly X type)
D. Sudden airframe breakup in flight
E. Breakup occurs forward of the wing
F. Section 41 retrofit not done
G. At least medium flight time
H. At least medium aged airframe
I. Previous maintenance problems with forward cargo door
J. Initial event at about 300 knots while proceeding normally in all parameters
K. Initial event involves hull rupture in or near forward cargo door area
L. Initial event starts with sudden sound
M. Initial event sound is loud
N. Initial event sound is audible to humans
O. Initial event followed immediately by abrupt power cut to data recorders
P. Initial event sound not matched to explosion of bomb sound
Q. Initial event sound is matched to explosive decompression sound in wide body airliner
R. Torn off skin on fuselage above forward cargo door area
S. Evidence of explosion in forward cargo compartment
T. Foreign object damage to engine or cowling of engine number three
U. Foreign object damage to engine or cowling of engine number four
V. Right wing leading edge damaged in flight
W. Vertical stabilizer damaged in flight
X. Right horizontal stabilizer damaged in flight
Y. More severe inflight damage on starboard side than port side
Z. Port side relatively undamaged by inflight debris
AA. Vertical fuselage tear lines just aft and forward of the forward cargo door
AB. Fracture/tear/rupture at a midspan latch of forward cargo door
AC. Midspan latching status of forward cargo door not reported as latched
AD. Airworthiness Directive 88-12-04 not implemented (stronger lock sectors)
AE. Outwardly peeled skin on upper forward fuselage
AF. Rectangular shape of shattered area around forward cargo door
AG. Forward cargo door fractured in two longitudinally
AH. Status of aft cargo door as latched
AI. Passengers suffered decompression type injuries
AJ. At least nine missing and never recovered passenger bodies
AK. Initial official determination of probable cause as bomb explosion.
AL. Initial official determination modified from bomb explosion
AM. Structural failure considered for probable cause
AN. Inadvertently opened forward cargo door considered for probable cause
AO. Takeoff after sunset on fatal flight
AP. Takeoff after scheduled takeoff time on fatal flight

A few of the above matches may be common, trivial, or irrelevant but most are rare and critical.

The important DNA matches that determine the certainty that both aircraft:

1. Were similar model and type of early model Boeing 747s.
2. Had the same appearance for each longitudinally fractured forward cargo doors
3. Had sudden loud sounds which were an explosive decompression sound and not a bomb explosion sound.
4. Had an abrupt power cut to the flight data recorders after the sudden loud sound.
5. Had the same damaged areas around the forward cargo door.
6. Had relatively smooth fuselage skin on port side opposite the shattered starboard cargo door side.
7. Had similar inflight damage to the starboard engines and flight surfaces.
8. Had at least nine never recovered bodies.
9. Had explosions in the forward cargo compartment which were initially thought to have been bombs but the opinions were later somewhat modified.

There are many reasonable possible explanations for an explosion or explosive decompression near the forward cargo door of an early model Boeing 747, only one of which is a rare bomb explosion:

A. Bomb explosion. (Considered for both, ruled out in one, should be ruled out for both.)
B. Crew or passenger error. (Ruled out for both flights.)
C. Electrical fault in switch or wiring. (Ruled in for one.)
D. Pneumatic overpressure. (Ruled out for both flights.)
E. Cargo shift. (Ruled out for both flights.)
F. Compressed air tank explosion. (Ruled out for both flights.)
G. Fire. (Ruled out for both flights.)
H. Missile strike. (Ruled out for both flights.)
I. Midair collision. (Ruled out for both flights.)
J. Fuel tank explosion. (Ruled out for both flights.)
K. Stowaway. (Ruled out for both flights.)
L. Electromagnetic interference. (Ruled out for both flights.)
M. Comet or meteor. (Ruled out for both flights.)
N. Space debris. (Ruled out for both flights.)
O. Turbulence. (Ruled out for both flights.)
P. Out of rig door. (Ruled out for both flights.)
Q. Lightning. (Ruled out for both flights.)
R. Metal fatigue. (Ruled out for both flights.)
S. Improperly latched. (Initially accepted for one flight, then ruled out for both flights.)
T. Design error. (Accepted for one flight)
U. Repair error. (Ruled out for both flights.)
V. Maintenance error. (Ruled out for both flights.)

General Conclusion: Based upon the indisputable probable cause of electrical fault for United Airlines Flight 811 and the many matches of evidence to Air India Flight 182, the discovered common cause for United Airlines Flight 811 and Air India Flight 182 is the shorted wiring/ruptured open/forward cargo door/explosive decompression/inflight breakup explanation which is a mechanical explanation for an explosion on the starboard side in the forward cargo compartment of explosive decompression when the forward cargo door ruptured open in flight, probably at one or both of the midspan latches and probably caused by faulty wiring inadvertently turning on the door unlatch motor.

Specific Conclusions for Air India Flight 182:

These conclusions are based on evidence available after 1985.
A. While proceeding normally, an inflight breakup of Air India Flight 182 occurred suddenly and catastrophically at 0714Z at 31000 feet at 300 knots TAS about 110 miles west of Cork, Ireland on 23 June, 1985. There were no survivors.
B. The breakup was caused by an explosion in the forward cargo compartment.
C. The explosion was a severe and sudden explosive decompression.
D. The explosive decompression was caused by the suddenly ruptured open forward cargo door probably at one or both of the midspan latches.
E. The ruptured open forward cargo door was probably caused by faulty wiring which turned on the door unlatch motor which unlatched the latching cams from around the latching pins in flight.
F. The wiring fault was probably the Poly X wiring with inferior insulation which easily cracked to bare wire especially in the presence of moisture.
G. There was no bomb explosion in any cargo compartment, crew cabin, passenger cabin, or anywhere else on the aircraft.
H. There was no explosion from any source in the aft cargo compartment.
I. The sudden loud sound on the cockpit voice recorder was the sound of the air rushing out during the explosive decompression in the forward cargo compartment.
J. The abrupt power cut to the recorders was caused by the explosive effects of the decompression affecting the power cables in the adjacent main equipment compartment to the forward cargo compartment.
Contributing causes:

A. Water or moisture in the forward cargo compartment.
B. Weak locking sectors on the bottom eight latches of the cargo doors.
C. Poor design of one midspan latch per each eight foot side of the cargo doors.
D. Poor design of no locking sector for each midspan latch of the cargo doors.
E. Poor design of outward opening, nonplug type, large, square cargo doors in a highly pressurized hull.

There were no bombs on Air India Flight 182. There were no crimes and no criminals and no conspiracies. There was and is a mechanical problem which exists to this day, aging and failing Poly X wiring which exploits design errors of non plug cargo doors and omitted midspan locking sectors allowing an explosive decompression when the forward cargo door ruptures open in flight.

To know the cause of Air India Flight 182 and Pan Am Flight 103, one must know the details of United Airlines Flight 811, the model and irrefutably explained event. All of those official AARs are available at http://ntsb.org.

Part IX: The Unifying Official Version

There is one scenario that unites the five official versions: Bombs in baggage explode.

1. The first official determination is the Narita Event is from the Japanese police point of view.

"At 0541 GMT, 23 June 1985, CP Air Flight 003 arrived at Narita Airport, Tokyo, Japan, from Vancouver. At 0619 GMT a bag from this flight exploded on a baggage cart in the transit area of the airport within an hour of the Air India occurrence. Two persons were killed and four were injured... Baggage cart explodes in transit area... The explosion of a bag from CP 003 at Narita Airport, Tokyo, took place 55 minutes before the AI 182 accident...the site where the blast had taken place was inspected which gave some, though very vague, idea of the detonating power of the blast."

To sum up: "A bag from a Vancouver flight exploded on a baggage cart in a transit area from a vague power of a blast."

The Narita Event is officially determined by the police to be a bomb which caused the blast of vague power in a bag as part of the baggage on a baggage cart in a transit area of a major airport hub. The first official bomb in the baggage explodes.

2. The next official determination of the Air India Flight 182 Event is from an Indian judge's point of view.

Kirpal Report: "4.10 After going through the entire record we find that there is circumstantial as well as direct evidence which directly points to the cause of the accident as being that of an explosion of a bomb in the forward cargo hold of the aircraft."

"All cargo doors were found intact and attached to the fuselage structure, except for the
forward cargo door which had some fuselage and cargo floor attached. This door, located on the forward right side of the aircraft, was broken horizontally about one-quarter of the distance above the lower frame. The damage to the door and the fuselage skin near the door appeared to have been caused by an outward force. The fractured surface of the cargo door appeared to have been badly frayed. Because the damage appeared to be different from that seen on other wreckage pieces,..."

The Air India Flight 182 Event is officially determined by an Indian judge to be caused by a bomb in the baggage in the forward cargo hold possibly on the right side. (No physical connection between the forward and aft cargo holds which are several hundred feet apart.) That is the second official bomb in the baggage to explode.

3. The next official determination of the Air India Flight 182 Event is from a Canadian judge's point of view.

Below from "Reasons for Judgment" by Justice Josephson regarding Malik and Bagri.
I. Overview [1] In the early morning hours of June 23, 1985, Air India Flight 182, carrying 329 people[1], was destroyed mid-flight by a bomb located in its rear cargo hold. H. Conclusion [190] It is agreed amongst the experts that the Kanishka was destroyed by the detonation of an explosive device within its left aft fuselage.

The Air India Flight 182 Event is officially determined by a Canadian judge to be a bomb in the baggage in the rear cargo hold on the left side. That is the third official bomb in the baggage to explode.

4. The next official determination of the Air India Flight 182 Event is from the Canadian aviation accident investigators point of view:

The Canadian Aviation Safety Board respectfully submits as follows:
“4.1 Cause-Related Findings
5. There is considerable circumstantial and other evidence to indicate that the initial event was an explosion occurring in the forward cargo compartment.”

"The forward cargo door which had some fuselage and cargo floor attached was located on the sea bed. The door was broken horizontally about one-quarter of the distance above the lower frame. The damage to the door and the fuselage skin near the door appeared to have been caused by an outward force and the fracture surfaces of the door appeared to be badly frayed. This damage was different from that seen on other wreckage pieces. A failure of this door in flight would explain the impact damage to the right wing areas. The door failing as an initial event would cause an explosive decompression leading to a downward force on the cabin floor as a result of the difference in pressure between the upper and lower portions of the aircraft."

The Air India Flight 182 Event is officially determined by Canadian aviation accident investigators to be an explosion of unknown cause in the forward cargo compartment probably on the right side. An explosion in the forward cargo compartment occurs from undetermined cause.

5. The next official determination for Air India Flight 182 is from the United Kingdom aircraft accident investigator point of view.

"Mr. R.A. Davis, Head, Flight Recorder Section, Accidents Investigation Branch,
Farnborough, U.K. 3.4.6.16 In conclusion, Mr. Davis reported as follows :- "It is considered that from the CVR and ATC recordings supplied for analysis, there is no evidence of a high explosive device having detonated on AI 182. There is strong evidence to suggest that a sudden explosive decompression occurred but the cause has not been identified. It must be concluded that without positive evidence of an explosive device from either the wreckage or pathological examinations, some other cause has to be established for the accident".

The Air India Flight 182 Event is officially determined by a British aviation accident investigator to be something, not a bomb, somewhere, causes an explosive decompression. That is the fifth explanation for an explosion.

Those are the five official determinations of explosions related to Air India Flight 182 by five official investigations in three countries over two decades.

1. A vaguely powerful explosion of a bag on a baggage cart with bags in a major transit area hub airport determined by the Japanese police in 1985.
2. A very powerful explosion of a bomb in a bag in the baggage in the forward cargo hold, possibly on the right side, of Air India Flight 182 determined by the Indian Justice Kirpal in 1986.
3. A very powerful explosion of a bomb in a bag in the baggage in the rear cargo hold on the left side of Air India Flight 182 determined by the Canadian Justice Josephson, in 2005.
4. An explosion of unknown cause in the forward cargo compartment, probably on the right side, of Air India Flight 182 determined by the Canadian aircraft accident investigators of the Canadian Aviation Safety Board, CASB in 1986.

There is no consensus on any significant issue by any officials other than explosive events occurred on a baggage cart and on an airplane thousands of miles apart and within the hour.

There is official disagreement in the determinations of whether it was a bomb or something else, how many bombs were involved, where the bombs were loaded, how powerful the bombs were, what container the bomb was in, which major section of the aircraft the bomb was placed, on what side of the aircraft the bomb was located, or what caused an explosive decompression that was not a bomb. (Not counted are the disagreements of who put the bombs there and why.)

There was no official hard evidence determined for bombs such as three fuses, three bomb casings, three bomb residues, shrapnel wounds, or three timers in any of the three locations stated as having bombs detonated which are the Narita airport, the rear cargo, and the forward cargo compartments of Air India Flight 182. (The rear and forward cargo compartments are hundreds of feet apart with no physical connection.)

There is one official cause to unite them all: Three bombs by assuming that an explosion means only one thing and that is bomb explosion and assuming that official determinations after official investigations are correct.

The one scenario that unites the five official determinations is that bomb, bomb, bomb, in
the baggage, baggage, baggage go boom, boom, boom.

Two of the bombs were surreptitiously placed on two Boeing 747s at Vancouver airport on 22 June 1985, the day before they blew up. The third bomb was placed into one of the Boeing 747s at the Montreal airport later that same day.

The official versions united:

Bomb 1: One bomb was loaded on CP 003 which flew to Tokyo with no detonation of the bomb during the long flight across the Pacific. This bomb was then unloaded in a busy airport, put on a baggage cart which was wheeled through a 'transit' area with many other bags from many other flights, and only then did the vaguely powerful bomb detonate at 0619Z, not from an altimeter fuze but from a timing fuze which went off when it was not supposed to for an aircraft terrorist bombing. No fuze or parts of any bomb or the suitcase were reported to have been discovered. No match of any debris parts of this bomb were made to other bombs by same terrorist group. No claims of responsibility or confessions were obtained. (The Japanese police determined bomb.)

Bomb 2: At the same time the Narita bomb was loaded at Vancouver onto CP 003 on the afternoon of 22 June 1985, another bomb was loaded onto CP 060, also in Vancouver, and successfully slipped past the extensive security of men, dogs, and machines. CP 060 then flew to Toronto without the bomb going off by timer or altimeter fuse. At Toronto, the bomb was then off loaded from CP 060 and sent, along with some passengers, to a different aircraft, a Boeing 747 which was Flight 181 which, after another flight to Montreal, would change to Flight 182. At Toronto, all the baggage from Vancouver on CP 060, including the bomb, was placed in the aft cargo hold of the Boeing 747. This aircraft, called Flight 181, took off and flew to Montreal with the bomb still not detonating by altimeter or timing fuze. The timer was set to go off at 0714Z. (The Judge Josephson determined bomb.)

Bomb 3: After the Boeing 747 called Flight 181 landed in Montreal with the bomb from Vancouver still in the aft cargo hold, the flight number of the same Boeing 747 changed to Air India Flight 182, and more passengers and baggage were put on board. All their baggage was placed into the forward cargo hold. A new aircraft bomb was thus loaded into the forward cargo compartment with the timer set to go off at 0714Z. (The Judge Kirpal determined bomb.)

There were many delays involved with loading parts of a large engine into the aft cargo compartment which did not set off the bomb in that compartment. Finally, the aft and forward cargo compartment bomb laden Boeing 747 now called Air India Flight 182 took off from Montreal for its third flight in many hours, flew for five hours across the Atlantic and then a fuze for the Montreal loaded bomb activated and exploded in the forward cargo compartment, not by an altimeter fuze because the aircraft was level at 31000 feet and had been so for hours, but by a timer fuze. The Vancouver bomb, first loaded in Vancouver and transferred to the aft cargo compartment of the doomed aircraft in Toronto, detonated at exactly the same time, 0714Z. The two bombs blew holes in the pressurized hull causing an explosive decompression.

Thus explains and unites the Japanese police bomb, the Justice Kirpal bomb, the Justice Josephson bomb, the CASB explosion, and the UK AIB explosive decompression events.

The official determinations assume inefficient ticketing agents, dull-witted security forces,
and malfunctioning X-ray machines in four large metropolitan airports in two industrialized nations. It assumes incompetent terrorists who can't set a bomb to go off on time. It assumes quiet bombs in an aircraft that leave no sound when they go off. It assumes three stealthy bombs that managed to slip through sniffing dogs, portable metal detectors, X-Ray machines, private security teams, and yet leave no trace of their fuzes, timers, explosive material, or containers.

Officially the terrorists were of two groups; one group in Vancouver to check the bomb in the baggage which was placed in the aft cargo compartment of Air India Flight 182 to explode according to the Canadian judge. Another terrorist group in Montreal checked their bomb in baggage which was placed in the forward cargo compartment of Air India Flight 182 to explode there according to the Indian judge. The Vancouver terrorist group also checked in another bomb in the baggage of another aircraft to explode later on a baggage cart at Narita airport, according to the Indian judge.

The terrorists were stupid because:
1. The bombs did not go off when a real aircraft bomb usually goes off, shortly after takeoff climb on the initially loaded flight.
2. The fuzes were three timers set to go off at odd times such as 0619, 0714, and 0714 many hours later after being set.
3. They did not claim responsibility to advertise their cause.

The terrorists were smart because:
1. They were able to construct bombs which left no fuse, no casings, no timer evidence and were silent.
2. They were able to smuggle three bombs through tight security at four large airports in two countries.
3. They coordinated two bomb explosions on the same aircraft loaded in different locations at two airports to ensure destruction.

The terrorists were lucky because:
1. The four takeoffs and landings and turbulence did not detonate the amateur improvised bombs.
2. The changing of two planes and movement of baggage from plane to transit area did not detonate the bombs.
3. Their bomb laden baggage was not misplaced or misdirected by the airline.
4. The many unexpected schedule delays and aircraft changes still allowed the bombs to go off to kill innocent people instead of in an unoccupied hangar or baggage storage area.

This is the official unified motive to explain the Narita airport transit area and Air India Flight 182 bombings: Revenge seeking terrorist groups managed to place three stealthy bombs in three aircraft and on one baggage cart through four airports in one day.

Part X: Sequence of Destruction

Below is the scientific explanation for Air India Flight 182 in narrative form based on direct, circumstantial, tangible, deduced, historical, and inferred evidence obtained through government aircraft accident reports and testimony under oath, 1953-2006. All statements of fact can be corroborated as having occurred in Air India Flight 182 or other similar Boeing 747s under similar circumstances.

Pressurized hulls of jet airliners have been blowing up since 1953 with the Comet.
03/03/1953
location: Karachi, Pakistan
carrier: Canadian Pacific     flight:
aircraft: comet registry:
aboard: fatal: 11 ground:
details: First fatal crash of a commercial jet aircraft

05/02/1953
location: near Jagalgori West Bengal, India
carrier: British Overseas Airlines     flight: 783/057
aircraft: De Havilland comet 1 registry: g-alyv
aboard: 43 fatal: 43 ground:
details: broke up in flight during a violent thunderstorm. Metal fatigue due to design flaw.

01/10/1954
location: Elba, Italy
carrier: British Overseas Airlines     flight:
aircraft: De Havilland comet 1 registry:
aboard: fatal: 35 ground:
details: broke up in flight. Metal fatigue due to design flaw.

04/08/1954
location: Stromboli, Italy
carrier: South African Airways     flight:
aircraft: De Havilland comet 1 registry:
aboard: fatal: 21 ground:
details: broke up in flight. Metal fatigue due to design flaw.

The Wiring/Cargo Door Explanation

Hull ruptures in flight leading to sudden explosive decompressions have occurred in over fifty airliners over the years. The causes can be bombs, metal fatigue, cargo shifts, inadvertent door openings from improperly latched to electrical faults, cockpit windows being broken by bird strikes, fuel tank explosion, missile hits, corrosion, faulty repair of damaged bulkhead, midair collisions, thunderstorms, and improperly fitted pressure relief valves.

Air India Flight 182 fits into one of those categories, the shorted wiring/ruptured open/forward cargo door/explosive decompression/inflight breakup one.

There are literally hundreds of pressurization problems that occur in airliners that are not sudden explosions but slow failures. These events rarely lead to fatalities while the sudden loud events usually do.

In an historical and statistical sense Air India Flight 182 was a normal aircraft accident: The cause was mechanical and not unusual. There have been several subsequent explosive decompressions in Boeing 747s similar to Air India Flight 182 that left similar evidence.

The forward cargo door of Air India Flight 182 opened inadvertently in flight for certain, the cause of that opening was probably faulty wiring.
Background:

On 18 July, 1984 a high lift vehicle damaged the fuselage skin near the forward cargo door of a Boeing 747-237B, Air India Flight 182, construction number 330, operated by Air India airlines. The fuselage skin had wiring routed on the inside which became bent from the impact and subsequently cracked to bare wire, a characteristic of the polyimide type insulated Poly X wiring installed in the aircraft. The forward cargo door had non-steel locking sectors to keep the bottom eight latching cams from being back driven which would allow the door to open in flight causing explosive decompression which would be a catastrophic event well known to aircraft designers.

In June of 1986 several passengers changed their flight plans and their baggage routing for various flights through Canada to overseas destinations probably from Vancouver.

On 22 June, 1986, two aircraft had baggage loaded aboard them at the Vancouver B. C. airport; one flight was called CP 003 and the other CP 060. Flight 003 took off and flew uneventfully to the extremely busy Narita airport near Tokyo, Japan. After the baggage was unloaded from the flight, it was put on a baggage cart which was wheeled through a transit area of many other baggage carts containing many other bags from many other flights. An explosion of unspecified cause, unknown fuzing, unknown container, and unknown material occurred on the baggage cart which killed two people and injured others. The airport had high security because of previous terrorist attacks on it resulting in fatalities over the years.

The other flight, CP 060, flew uneventfully to Toronto Airport. The baggage was unloaded from CP 060 and those bags continuing on to London on Air India Flight 181/182 were loaded into the aft cargo compartment of the Boeing 747-237B, construction number 330. The flight, now called Air India Flight 181, then flew uneventfully to Mirabel Airport in Montreal. After landing, some baggage of the departing passengers was unloaded from the aft compartment. Parts of a broken engine were placed in the aft cargo compartment for ferry back to India. New passengers and new baggage from Montreal for the next flight of the same aircraft, construction number 330 and now called Air India Flight 182, were loaded with all the new baggage going into the forward baggage compartment. The baggage from Vancouver on CP 060 and loaded at Toronto remained in the aft cargo compartment of the Boeing 747-237B now called Air India Flight 182.

The forward cargo compartment was filled with summer night air, warm and moist. When flying at altitude the air would be cooled by the air conditioning and the very cold outside air would cool the fuselage skin thus condensing out moisture along the inside of the compartment which would run through the wiring bundles and down into the cargo door bilge.

Air India Flight 182 took off from Montreal for London at 0218 Z on 23 June 1985 and flew uneventfully for about five hours and while at 31000 feet at 296 knots and about 115 miles west of Ireland a tragic sequence of events began at 0714 Z. The pressure differential between outside and inside air was at its maximum design limit, 8.9 pounds per square inch.

Water may have met the cracked insulated wire which may have been previously damaged by the high lift accident to the cargo door area. The now exposed and
bare wire shorted against the metal fuselage. The electricity then flowed around safety cutout switches and powered on the cargo door actuator unlatch electric motor which attempted to rotate all ten cam sectors to unlocked positions around their ten latching pins. The eight lower cam sectors may have been prevented from unlatching around the latching pins because of the bottom eight locking sectors. However, the two midspan latches had no locking sectors to prevent the inadvertent rotation of the midspan latching cams around the midspan latching pins.

The lower eight cams probably overcame the weaker locking sectors to just turn past center and allow the door to unlatch in flight, a defect known years later in two other Boeing 747 flights, Pan Am Flight 125 and United Airlines Flight 811. The midspan cams turned just past center with no locking sectors to prevent the backdriving of the cams, an operation only supposed to be allowed on the ground. Possibly other factors such as an out of rig cargo door, a poor repair job on the door area, the slack in bellcranks, torque tubes, and worn latch pins may have contributed to have allowed the two midspan latches to rotate just past center permitting the almost 100,000 pounds of internal pressure on the 99 inch by 110 inch door to rupture outward inflight relieving the maximum pressure differential on the internal fuselage.

The nine foot by eight foot squarish forward cargo door would have instantly burst open at the midspan and bottom latches sending the latches, door material, and large pieces of fuselage skin spinning away. The forward cargo compartment would have spewed its contents outward onto the starboard side of the fuselage. It was as if a huge mylar balloon had popped. The severe explosion of explosive decompression caused the forward cargo door to be fractured and shattered into a few large pieces and many small pieces which gave a frayed appearance from an outward force. Many small bits of metal from the explosion were embedded into the cargo door area metal fuselage structure.

The top part of the door swung outward and upward on its hinge and then separated taking large vertical pieces of fuselage skin with it, exposing stringers and bulkheads. The very lower part of the door sill with its eight bottom latches may have stuck to fuselage skin. The resulting damage zone appeared as a huge rectangle of shattered door, skin, and stringers. Some pieces of the door and fuselage skin flew directly aft and impacted the leading edge of the right wing, the vertical stabilizer and the right horizontal stabilizer inflight.

This explosion of explosive decompression blew out a large hole about thirty feet wide and forty feet high on the starboard side of the nose forward of the wing. It looked as if a bomb had gone off inside the forward cargo hold. Fuselage skin was peeled outward at various places on the starboard side of the nose.

The forward cargo door had some fuselage and cargo floor attached. This door, located on the forward starboard side of the aircraft, was broken horizontally about one-quarter of the distance above the lower frame. The damage to the door and the fuselage skin near the door appeared to have been caused by an outward force. The fractured surface of the cargo door appeared to have been badly frayed. The cargo door pieces and the adjacent skin had holes, flaps, fractures, inward concavity, tears, deformities, outward bent petals, curls, missing pieces, cracks, separations, curved fragments, spikes, and folds. The fast and powerful explosion of the explosive decompression would have caused a metallurgical effect called ‘twinning’ on a few fragments of pieces of wreckage.
The now uncompressed air molecules rushed out of the huge hole equalizing the high pressure inside the fuselage to the low pressure outside the aircraft while making a sudden very loud audible sound. This sudden rushing outward air was recorded on the Cockpit Voice Recorder as a sudden loud sound. The sound did not accurately match any bomb explosion sounds on other aircraft but did match the explosive decompression sound on another wide body airliner, a DC-10 cargo door open event.

The tremendous explosive force in the forward cargo hold severely disrupted the adjacent main equipment compartment which housed power cables and abruptly shut off power to the Flight Data Recorders. The resulting data tapes showed a sudden loud audible sound followed by an abrupt power cut to the flight data recorder, the cockpit voice recorder and transponder.

The number three engine and cowling, closest to the forward cargo compartment, were damaged by inflight debris from material ejected from the now exposed compartment and cabin above, debris which also damaged the number four engine cowling by a displaced turbine blade from number three engine. The resulting vibration from the internal damage to engine number three caused the nacelle and engine to fall away from the wing, as designed, and land apart from the other three engines.

The floor beams above the forward cargo hold were sucked downward, and were fractured and broken from the sudden decompression. The floor panels were stationary but gave the appearance of separating upward by the suddenly moving downward floor beams.

The flight attitude of the aircraft was askew to the left from reaction of explosive decompression from the right. Air rushed into the large hole and weakened other skin and frames thus peeling skin further outward and rupturing the aft part of the aircraft to include the aft cargo compartment and the aft pressure bulkhead. There was no evidence of an explosion of any source in the aft cargo compartment.

The 296 knots of wind force pressed upon the weakened airframe and broke it in half amidships. This wind force was larger than any wind force the surface of the earth had ever experienced. The nose portion and wings tore off and landed in a dense debris heap apart from the debris field of the aft part.

The rest of the plane without the forward section suddenly decelerated from 296 knots and caused whiplash injuries to passengers. After the breakup, the passengers who were not wearing their seatbelts were scattered to far distances. They suffered explosion type injuries such as pieces of metal embedded in them from flying debris in the cabin. They were not burned because there was no fire nor explosion from a bomb explosion. The passengers had no other bomb explosion evidence. The passengers and crew were ejected from the disintegrating aircraft to tumble to the water and suffer upward impact physical damage to their bodies. Some remained in their seats and were trapped in the fuselage underwater. Some had decompression type injuries of hypoxia from the high altitude aircraft breakup.

The passengers fell to the sea and some floated and some sank. The baggage from Vancouver passengers and loaded into the aft cargo compartment fell to the sea and some floated and some sank. The baggage from Montreal passengers and loaded into the forward cargo compartment fell to the sea and some floated and some sank. The aircraft fell in pieces and some pieces floated and some sank.
The pilots may have been conscious for a few seconds and adjusted the trim controls out of habit. The communications radio may have been activated by the disturbances in the cockpit and transmitted for a few seconds to air traffic control.

The port side forward of the wing was relatively smooth and undamaged from inflight debris while the starboard side forward of the wing was shattered, torn, and frayed at the ruptured cargo door area.

A few local fires appeared on the surface of the ocean from the jet kerosene fuel and singed some seat cushions and floating passengers.

All was quiet as the ground controllers tried to contact Air India Flight 182 as the flight crew did not respond to radio calls. Rescue teams were sent. Authorities became aware of the tragedy of 329 men, women, and children dying in a sudden plane crash.

Aftermath:

Explanations were sought as to what happened. Immediately the suggestion was made by authorities that a bomb explosion had caused the accident because of the sudden and catastrophic nature of the immediate evidence.

The Canadian aviation accident investigation authorities became involved since the aircraft had taken off from Canada and had many Canadian citizens aboard. Indian authorities became involved since the airline, Air India, has government ties. The Indian authorities quickly dismissed their aviation experts and assigned a Judge of the Court to oversee the investigation.

After a period of investigation, much of which was conducted to confirm the bomb explosion explanation and identify the culprits, the Indian judge made a finding in 1986 that a bomb in the forward cargo compartment had caused the inflight breakup of Air India Flight 182 and ruled out any type of explosion in the aft cargo compartment.

After a period of investigation, during which the opinion of the UK Air Accidents Investigation Branch representative of an explosive decompression not caused by a bomb but a cause as yet to be determined was given, the Canadian Aviation Safety Board made a conclusion in 1986 that an explosion of unstated cause in the forward cargo compartment had caused the inflight breakup of Air India Flight 182 while also ruling out any explosion of any type in the aft cargo compartment.

The immediate finding by the Indians of a bomb explosion in the forward cargo compartment was accepted and remained the probable cause for Air India Flight 182 twenty one years later although subsequent accidents of a similar type aircraft in similar circumstances leaving similar evidence now resolutely contradicted that finding although confirming the Indian finding of an explosion on the starboard side of the forward cargo compartment and no explosion in the aft.

The Canadian probable cause of an explosion in the forward cargo compartment of an undetermined cause has been proven to be correct by subsequent accidents of a similar type aircraft in similar circumstances leaving similar evidence which do reveal the cause of the explosion: faulty wiring causing the forward cargo door to
rupture open inflight at the latches leading to a tremendous explosion of explosive decompression causing Air India Flight 182 to totally breakup in flight.

In 2001 three men were arrested for involvement in the unproved bombing. One pled guilty on a bomb making charge and went to prison while denying any involvement with Air India Flight 182.

In 2005 two of the accused were found not guilty by a Canadian judge in British Columbia. The other man remains in prison and charged with perjury in that trial. The Canadian judge determined that an explosion occurred in the rear cargo compartment on the left side and the cause was a bomb. No explanations were offered to rebut the original findings of explosion in the forward cargo compartment on the right side and no explosion of any source in the aft cargo compartment.

In 2006 a Commission of Inquiry into the Investigation of the Bombing of Air India Flight 182 was appointed. The shorted wiring/ruptured open/forward cargo door/explosive decompression/inflight breakup explanation was presented to the Commissioner at an open hearing on 19 July, 2006. Excerpts below:

Application for Standing presented by Mr. Smith: Mr. Smith: Thank you, Commissioner Major, for allowing me to supplement my written application for standing...I have an alternate explanation for Air India 182. It's a mechanical explanation. I'll go into some detail during my presentation and my detail will not be to persuade you that my explanation is correct but to persuade you that my research has depth and is worthy of being granted standing.

The Commissioner: Well, I don't think, Mr. Smith, that you need 15 minutes to persuade me of that. Here's the difficulty...You have an alternate theory. The alternate theory may over time prove to be correct. I don't know...but the Terms of Reference preclude our considering whether or not there was any cause for that explosion other than the bomb that is found by the Supreme Court of British Columbia.

Hindsight:

In 1985, when Air India Flight 182 suffered an inflight breakup from an explosion, it was believed that an explosive decompression in an early model Boeing 747 could not cause an abrupt power cut to the data flight recorders. That belief was cited by the Indian Kirpal Report as a reason to reject the explosive decompression explanation because, in fact, Air India Flight 182 had suffered an abrupt power cut to the data recorders. The Indian Kirpal Reports states: "It was not possible that any rapid decompression caused by a structural failure could have disrupted the entire electrical power supply from the MEC compartment." The later event of United Airlines Flight 811 showed that it was possible, and indeed, did happen, that an explosive decompression caused by a structural failure could and did cause an abrupt electrical cutoff to the recorders.

The reason for the Indians in 1986 to rule out explosive decompression by structural failure was negated by the reality of United Airlines Flight 811 in 1989. If the Indians had the foreknowledge of United Airlines Flight 811 and the explosive decompression which cut off abruptly the power to the recorders, it is most probable they would have sustained the findings of the Canadians and the British who said that a explosion in the forward cargo compartment occurred and all would have then known the solution to the mystery posed by the AAIB investigator: "...but the cause has not been
identified." The cause was identified in 1989 and demonstrated by United Airlines Flight 811 in NTSB AAR 92/02: The National Transportation Safety Board determines that the probable cause of this accident was the sudden opening of the forward lower lobe cargo door in flight and the subsequent explosive decompression.'

The evidence that was unavailable to the Air India Flight 182 CASB, AAIB, and Indian accident investigators in 1985 that became available in the ensuing 16 years that would have been invaluable in assisting them in determining the probable cause was:

A. Evidence that an explosive decompression could cause an abrupt power cut to the data recorders.
B. Evidence that floor panels can appear to separate upwards when in fact the floor beneath were pulled down.
C. Testimony that twinning can occur in explosions other than bombs, such as an aviation fuel explosion, or explosive decompression.
D. Evidence that the type of wiring installed, Poly-X, was defective in that it cracked to bare wire easily, especially in the presence of moisture.
E. Visible ruptures in flight in forward cargo doors of other early model Boeing 747s that suffered the same events in flight.
F. Several Airworthiness Directives for defects in and around the forward cargo doors of Boeing 747s that if uncorrected could lead to inadvertent opening of the cargo door in flight leading to catastrophic explosive decompression.

The evidence that was available to the Air India Flight 182 CASB, AAIB, and Indian accident investigators in 1985 was such to lead them to conclude that an explosion had taken place on the starboard side in the forward cargo compartment which was picked up by the cockpit voice recorder and cut off the electrical power in the adjacent main electrical equipment compartment. The cause of the explosion was given as either unknown, structural failure of explosive decompression, or a bomb explosion. Since the event in 1989 with United Airlines Flight 811 had not happened yet, the understandable decision of the Indians, based on three assumptions later proven unreliable, was to state the cause of the explosion in the forward cargo compartment a bomb whilst the cautious Canadian CASB and the British AAIB left the cause unstated or unidentified.

Part XI: Political Implications

Mr. Brucker, if and when the substantiated mechanical explanation for Air India Flight 182 is confirmed by Crown experts in aircraft crashes (TSB Air investigators), the political consequences are very positive: (Assuming I'm a political amateur optimist)
1. The caution and prudence of the Canadian Aviation Safety Board of 1986 will be revealed; their findings were correct, there was an explosion in the forward cargo compartment of Air India Flight 182 with an electrical cause only apparent four years later with United Airlines Flight 811.
2. The RCMP and CSIS will be exonerated for their failure to catch their men because there were no men to catch. There was no bomb, there were no bombers, there was no conspiracy, there was no crime, there were no criminals; the small cause was faulty Poly-X wiring destroying a large machine, an early model Boeing 747.
3. The security of Canadian airports was intact and not penetrated because there was no bomb placed in a CP aircraft leaving Vancouver, BC, which then passed through Montreal and Toronto airports.
4. The wisdom of the Canadian judicial system will be reaffirmed as represented by Justice Josephson who found the two accused not guilty because they were.
5 The tenacity and bravery of the Prime Minister to order an Inquiry that eventually would reveal the probable cause for the two decade old tragedy whilst knowing that official Inquiries sometimes answer key questions that remain unsolved, can help prevent future aircraft accidents, but can cause turbulent changes in attitude amongst the public.

6. A grand reduction in the amount of fear, suspicion, and hate among Canadian citizens against themselves, a religion, an airline, and law enforcement.

7. Closure for the families.

A pessimist might opine that acceptance of a mechanical explanation and rejection of the bomb conspiracy story would create disturbance in the minds of the citizens and cause unrest among the families and my reply would be, "That's why politicians and high officials get the respect, because they explain clearly and smooth upsets over to maintain the peace and prosperity of the state."

Summation

There were no bombs on Air India Flight 182. There were no crimes and no criminals and no conspiracies. There was and is a mechanical problem which exists to this day, aging and failing Poly X wiring which exploits design errors of non plug cargo doors and omitted midspan locking sectors allowing an explosive decompression when the forward cargo door ruptures open in flight.