TRANSPORT AIRCRAFT TECHNICAL SERVICES COMPANY, INC.

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***** NEWSLETTER *****
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"The world is a dangerous place, not because of those who do evil, but because of those who look on and do nothing."

Albert Einstein[1]

THE 777 LANDED SHORT AT HEATHROW – PROBABLE CAUSE HASN'T BEEN NOTED (IF YET KNOWN). THRU SEPTEMBER 2007 THE 777 FLEET (662 AIRCRAFT) HAS FLOWN 15,272,778 HOURS and 3,471,069 FLIGHTS WITH AN AUGUST 2007 UTILIZATION OF 11.61 HOURS PER DAY.

LATE BREAKING NEWS . . . BOEING MAY CANCEL OR DELAY[2] THE SMALLEST VERSION OF THE 787 SERIES – THE 787-3 (so much for being a *launch customer)!*

SOME FOLKS AT THE BIG AIRPLANE COMPANY ARE CONCERNED ABOUT THE EMPTY WEIGHT OF THE FIRST 787 AIRPLANE! But they shouldn't be SURPRISED – the first 777 delivered to United Airlines in 1995 was 17,595 pounds higher[3] than the *advertised weight!* UAL reported at the time that this would reduce the max range passenger count by 40.

WE HAD SOME INTERESTING RESPONSES TO OUR LAST NEWSLETTER — THEY PROVIDE AN ENTRY INTO THIS ISSUE — *COMPOSITES -- PART II.* Each contributor (3) is UK based with 20 to 40 years working in Quality Control. Only 1 (a young person) is employed. One keeps busy working in his former employer's Museum (Rolls Royce) and the other is a very active member of the International Federation of Airworthiness (I'm also a member — but my principal contribution is paying my dues and *harassing some of my colleagues*).

Our Rolls Royce *guy*, John, the retiree cum Merlin engine rebuild specialist, ... *after a few turns with starter, followed by a couple of puffs of smoke* (more on smoke later) *it settled down into a mild purr!*

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[1] Found at the web site of a *Whistle Blower – "The Last Inspector"*.
[2] Boeing is re-evaluating its schedule for the three versions of the 787 that are being developed. The plane is now about eight months behind schedule because of problems with unfinished parts from suppliers, with the first delivery due in early 2009. Gunter said the company remains "absolutely committed" to producing the 787-3 for Japanese airlines wanting it for shorter trips (Seattle PI)
[3] Aircraft Value News, 10 July, 1995

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Rolls-Royce went bankrupt in Feb. 1971 trying to stop composite fan blades from delaminating (there were other financial issues but that was the big one). The company could not see their way to putting them into service let alone any point of view from the authorities. The light bulb company seem to have overcome the problems (so far) on the GE 90 but the costs to them are not in the public domain. 2 cents on a light bulb should cover it. You can *google* "Rolls Royce bankruptcy 1971" for this story, or you can read **THE SPORTY GAME[4]— The high-risk competitive business of making and selling commercial airliners** by John Newhouse (published in 1982). Rolls was on the way down and Lockheed was thirty seconds behind them (because the new L-1011 was going to use the RR RB211 engine)

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Our youngest contributor was Nigel, a relative teenager. He wrote . . . *delamination of composites..... Our Concorde operation suffered several partial rudder losses as the airframes aged. This was put down to water ingress and subsequent delamination. The added stresses of supersonic flight must also have had an effect. The rudders were eventually changed (at vast expense - the original jigs having long since been destroyed).* Again, by a simple *google* search — **concorde rudder —** voila! the whole story.
NOTE: **Delamination** -- The separation of the layers of material in a laminate. This may be local or may cover a large area of the laminate. It may occur <u>at any time</u> in the cure or subsequent life of the laminate and may arise from a wide variety of causes

The *third* contributor . . . . We first met Phil when he was a QC Guy at Lasham Airfield in the late 1970s—we had some 707 and 727 projects there. He retired a few years ago, but continues consulting on airworthiness matters. He offered . . . . *Composites? Not to forget the DH 106 Comet. The skin was two sheets of duralumin bonded together with a sheet of early glass fibre in the middle. Light and strong. I did see one or two burn but I'll wait for your next newsletter.*

To get the Comet accident report *google* "**g-alyp",** the registration number of the first reported in-flight breakup aircraft (actually, by the time they finished investigating "yp" they were changing their probable cause on the first crash from due to turbulence to *fatigue — the reason "yp" <u>crashed after only 3,681 hours and approximately 1,000 flights</u>).* So much for less than *full scale fatigue or structural load testing.*

I'd like to add another experience to those noted by my colleagues. . . The Beechcraft Starship, designed by the renowned composite aircraft builder — Burt Rutan, of Scaled Composites. After spending $300 million for Research & Development, production ceased after 53 of the 10 to 12 place aircraft were produced (it was heavier than expected). *Google* "Beechcraft Starship" — it is an interesting story.

NOW — THE REGULATIONS *re* COMPOSITES. Part 25 — Airworthiness Standards: Transport Category Airplanes does not CONTAIN the word COMPOSITE[5] so I searched for Boeing 787 Special Conditions [6]. I found two Special Conditions[7] for the 787. Two unrelated

[4] You will find it *on the web!*
[5] Part 25 does not include the word *toxicity* either.
[6] The Administrator is allowed to issue Special Conditions to most *certificates* (or the requirements to obtain one) when new or unusual features are proposed for a new product.
[7] A new one re *wing composite* structure has been issued. We will comment on it in the next issue of the *NEWSLETTER.*

persons, one a former Boeing employee living in the Seattle area, and one a former Lockheed employee – now a *composites consultant* living in Southern California - responded to the Notice of Proposed Rulemaking. To make a long story shorter -- *FAA Response: We agree that fuselage post-crash fire survivability of the 787, including FST* (FIRE – SMOKE & TOXICITY) *hazards that may be associated with use of carbon fiber epoxy structure, is an important issue. This issue is outside the scope of these special conditions, however. It is being addressed in conjunction with the requirements for Sec. 25.856(b) relating to fuselage fire penetration protection* (which does not pertain to toxic fumes – smoke – entering thru impact damaged structure[8]).

NOW . . . BACK TO THE *COMET!* While browsing the web I found a site – The Last Inspector – hosted by a former Boeing Quality Assurance guy (18 years with the company).

His "home page" opens with a letter (25 February 2008) to the USAF TANKER SELECTION TEAM re integrity of both the company and the FAA's Transport Aircraft Directorate in Renton, Washington. Read the opening article, The Letter, and even if you discount 50% of what he says you will be amazed! We, in our almost 35 years of working with Boeing Commercial Jet Transports, can cite examples that concur or are – *in harmony* – with his allegations.

One of his other articles is – **Will the 787 ever fly?** The third paragraph — The 787 may prove to be the "Comet" of the 21st Century, especially considering the pressure to meet schedule, cost, and weight goals. Ironically, Boeing (per the press) is keen on reducing window frame weight on the 787 to a minimum. (See our earlier reference to the Comet web site.) The reference to "Comet window" is the radio antenna cutout — which is reinforced as if it was a "window"

HUBRIS . . . We finally looked up this word while going thru historical events that were related to the *come hell or high water we will* . . . attitude we have sensed since the 7-8-7 rollout ceremony — *let's have a party*. For some reason we recalled our 1986 trip to Stockholm to attend our first FAA – JAA Harmonization Conference[9]. In our idle time we visited a Maritime Museum which contains a very old warship — the VASA. A very interesting exhibit!

> *Vasa* was built top-heavy with insufficient ballast; despite an obvious lack of stability in port, she was allowed to set sail and foundered a few minutes later (after sailing 2km) when she first encountered a wind stronger than a breeze. The impulsive move to set sail resulted from a combination of factors. King Gustavus Adolphus, who was abroad on the date (August 10, 1628) of her maiden voyage, was impatient to see *Vasa* join the Baltic fleet in the Thirty Years' War. At the same time, the king's subordinates lacked the political courage to discuss the ship's structural problems frankly or to have the maiden voyage postponed. An inquiry was organized by the privy council to find someone responsible for the disaster, but no sentences were handed out (The object of the inquest was as much or more to find a scapegoat as to find out why the ship had sunk. Whomever the committee might find guilty for the huge fiasco would face a severe penalty). . . .

[8] For an *update on death by smoke inhalation* we suggest James Patterson's latest novel – 7th Heaven.
[9] Tom McSweeny — Deputy Director, Aircraft Certification Service, AIR-2 was the senior FAA Representative. He has since retired and is now a Boeing Lobbyist in Washington. (Sounds like one of the allegations at *the last inspector* web site).

> While the ship was being equipped, Admiral Fleming ordered a test of *Vasa*'s stability. The standard stability test of the day was to have 30 sailors run from one side of the ship to the other to assess the tendency of the ship to rock. When this was attempted on *Vasa*, the ship began to roll significantly after only three runs, and the test was aborted. Fleming allegedly said, "Had they run more times, she would have keeled over". Surprisingly enough, neither Hein Jacobsson nor Johan Isbrandsson, the two shipbuilders in charge, were present for the test. In response to the test, boatswain Matsson is said to have uttered, "God hope it will stay on its keel", to which the admiral replied, "The master shipbuilder surely has built ships before, so Matsson need have no worries of that kind". The ship was dangerously unstable, as Captain Hansson, the admiral and at least parts of the crew knew after the stability test. Fleming no doubt wished the king were present during the launch, but he was occupied in Poland, and was sending a steady stream of dispatches instructing that the ship be launched immediately.

This issue is shorter (and later) then we planned. The factors behind many of the items we either discovered, or had refreshed in our minds, are covered in the allegations made at *the last inspector* web site articles. That *webmaster* has only addressed *his observations in Seattle.* He doesn't mention that most aircraft fires occur in low velocity aircraft accidents[10] . . . . he doesn't mention the two A300-600 composite vertical stabilizer failures that, in one case resulted in almost 300 deaths[11]. He doesn't mention the various D-10 accidents — resulting in more than 500 fatalities — that have been attributed to lack of certification oversight and fraudulent quality control records at Long Beach. Maybe we will cover them in the next issue — then maybe we won't since not many folks give a *rat's behind* and reading and writing about it is very depressing. **<u>What we have learned scares us . . . . and we are known to be fearless!</u>**

Jim Helms, President

[10] We suggest you review the B737-200 accident at Manchester airport — the aircraft burst into flames as it was turning onto the taxiway after an aborted take-off.

[11] I expected the "Special Conditions" to address the Airbus fin failures — they didn't even though it was a composite failure.