



INPUT 1984..3

# the magazine of the EUROCONTROL GUILD of AIR TRAFFIC SERVICES

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Hwalien

# OutputOutputOutput

One year has elapsed since Korean Air Lines 007 was shot down at the cost of 269 lives. No evidence has been brought up with respect to the cause of the incident. Many theories have been developed ever since and for the greater part they refer to coincidence of human error. Some believe that the flight was deliberately flown into restricted Russian airspace, but I personally have the opinion that no one would endanger the lives of so many people intentionally.

This issue contains a reproduced article in which another scenario is proposed: although it is maintained that inertial systems never fail, a recent flight report compels to pay once more attention to possible computer errors.

You may recall the EGATS decision to assist the Brazilian Air Traffic Controllers' Association financially, thus enabling them to rejoin IFATCA. Enclosed you will find a letter from Paulo A. de Menezes, President of the Brazilian Association, explaining that our support was not in vain.

Furthermore it has to be mentioned that this issue does not include so many professional articles. During the holiday period usually not much copy arrives on the editor's desk. But perhaps this is what you have been looking for a long time already.

Rob.

Dear Domogala,

Our Association has already covered Rio, S. Paulo and Brasilia within the D.A.C.T.A. area where we got an average of 80 % of the civil controllers joining the Association. Our great success is that now we seat at

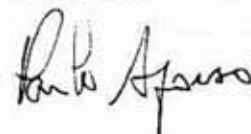
the same table with the authorities (Colonels, Brigadiers) to discuss about our future. Last month me and two other members were in Brasilia for a meeting with our Air Force Minister who was acceptive and solved, up to now, two big problems we faced:

From now on our annual medical check will be more accurate and efficient. Lately it could be done even by telephone!?! - Now it will be the same as the pilot's one. The second problem of no medical assistance to our dependents in the Air Force's hospital is also solved.

Other problems like lack of staff, low salaries, sudden increase of 40 hours-work a month, etc. are in study because they demand so. It looks like the year "1" of the controllers came with the Renaissance of the Association of Rio, doesn't it? Follow to Salazar and O'Doherty letter telling everything.

Wish you and to all colleagues of Eurocontrol happiness and success,

Your friend,



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forget**

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**NOVEMBER 20 TH**



# Korean Airlines 007: was it computer error?

by Anthony Sampson

A startling new theory to explain the cause of the Korean Air Lines disaster has emerged from a confidential "incident report" filed by an American captain of a Boeing 747. The report, apparently suppressed for three months, provides a disturbing answer to the mystery of why flight KAL 007 flew into restricted Russian airspace, where it was shot down by a Soviet fighter near Japan last September at the cost of 269 lives. It also challenges a fundamental tenet of the aviation industry: that navigational computers cannot lie. If that contention is true, dozens of incidents and accidents that have been put down to "pilot error" over the past decade will now have to be reconsidered.

The report was written by the captain of Northwest Orient's flight NW16, which left Osaka in Japan on March 30 this year to fly across the Pacific to Honolulu. The 747 was being flown by the autopilot, coupled to an Inertial Navigation System (INS) which automatically supplies the correct course, when it suddenly entered a left turn.

An immediate investigation by the crew determined that the INS computer had malfunctioned and uncoupled itself from the autopilot. Instead of following the correct course, the plane had therefore veered on to the original heading fed manually into the autopilot by the crew for earlier stages of the flight.

The crew knew what had happened because the turn was so abrupt: luckily for them, the heading was very different from their existing course. But, as the captain says in his report, "in many cases, should such a malfunction occur, there would be no abrupt turn" to alert the crew.

The autopilot's warning light had changed from green to amber, showing that the INS was no longer "captured". But, again as the captain says, the colour change is "very easy to miss".

His report concludes: "If this is combined with fatigued or complacent crew, the aircraft could proceed on heading for an appreciable distance before someone became aware of it. This presented no problem to us, and there are several cross checks that should catch such a situation, but I feel that a combination of relatively common circumstances, combined with a long duty period, could lead someone where they would rather not go."

The significance of this report is that, until now, most investigators of the Korean Air Lines disaster have dismissed any possibility of a computer malfunction. "After 13 years of using the INS we had no real evidence of an electronic fault," said one British aviation official.

The report of the secretary-general of the International Civil Aviation Organisation (ICAO) published last December, concentrated on analysing various possible human errors with the help of simulators at the Boeing headquarters at Seattle. It outlined several scenarios to explain the Korean 747's deviation. The most likely of which was thought to be that the captain had mistakenly left the plane on a "heading mode" forgetting to couple the autopilot to the INS system - which thus carried the airliner steadily towards Russia.

A second report, published by the Air Navigation Commission of ICAO in February this year, was more sceptical of pilot errors and, "found it difficult to validate and endorse" any of the scenarios in the secretary-general's

report. After representations from the pilots' international federation (IFALPA) this second report specifically complained that the civil aviation organisation had not properly investigated a possible malfunction of the INS computers: and recommended that they should be studied. But no investigation was carried out, and the computer manufacturers insisted that malfunctions were impossible.

The account of the Northwest captain thus provides unique evidence of an apparently authentic malfunction. Northwest used INS systems made by Delco - a division of General Motors - instead of the Litton Industries systems used by Korean Air Lines, but they are very similar. The Northwest captain specifically says: "I am submitting this report because I believe it presents another theory for the Korean Air Lines navigational error."

He points out that "if there were no VOR signal" (the high-frequency radio signal from the ground which provides a navigational check to pilots) "there would be no off-course indication." And that was exactly the situation when the Korean airliner left Anchorage for its last flight: the VOR there was temporarily out of service.

"It's a new and important additional scenario," Duane Freer, the chief navigational expert at the International Civil Aviation Organisation in Montreal, said on Friday. "It puts a slightly higher probability on an equipment error. But we still don't know what was done; and whatever happened, there had to be an inattentive crew."

However, the possibility of a computer malfunction, similar to that on the Northwest 747, appears at least as credible as the coincidences of human negligence which were implied in the earlier scenarios. It also counters the conspiracy theorists, who insist that the deviation could only have been caused by a deliberate plot.

So why has this remarkable report taken so long to surface? Apart from its obvious relevance to the Korean disaster, in the words of the captain, "it suggests another pitfall for the rest of us". Yet it has remained unpublished, and a Northwest Orient spokesman in Minneapolis denied any knowledge of it to me.

A spokesman for the Federal Aviation Administration (FAA) in Washington, having checked through the agency's files, also denied any record of a computer malfunction on that Northwest flight. Only when the report belatedly reached the British Civil Aviation Authority earlier this month was it circulated to airlines within the North Atlantic planning system.

"It looks as if there's been some kind of cover-up," said one British official.

Litton Industries, which made the INS system used by Korean Air

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Lines - though not by Northwest - have naturally felt vulnerable to attack. American lawyers have filed multi-million dollar lawsuits on behalf of relatives of victims, with Litton and Boeing as their main targets. Because of the lawsuits, Litton are under a "gag order" and are unable to make any comment.

But the chairman of Litton Industries, Fred O'Green, personally intervened to assure civil aviation investigators that the INS system could not fail. Meanwhile Boeing has stressed the likelihood of human errors - particularly on a third world airline.

The revelations of the Northwest captain will inevitably stir up more demands from pilots for a thorough investigation into computer failures. "It's a very significant report in our view," said Captain Laurie Taylor, executive secretary of the interna-

tional pilots' federation. "We can't accept the tendency to blame all mistakes on pilots."

The long silence about the Northwest incident will also raise questions as to whether other computer malfunctions may have been covered up - and whether some pilots may have been wrongly blamed in the past.

Eight years ago, for instance, a British Airways plane bound for London from Bermuda found itself over Lisbon instead. The captain and co-pilot insisted that the computer had misled them, but they were not believed and were severely reprimanded. In the words of one aviation official: "We may find ourselves with some apologising to do."

Source: The Sunday Times, 22nd July, 1984.

## On Wings of Synthetic Material

Those among us who have planned to travel with comfortable aeroplanes to distant destinations, might discover that flying too has become less expensive in 1984. This is partly because the air carriers have managed to reduce the fuel consumption of their aircraft. Not only the use of more fuel-economic engines has contributed to this decrease, but also the reduction in aircraft weights resulting from the application of venerable synthetic material and composites.

How the application of synthetic material and the reduction of fuel consumption relate to each other can be explained by the American aircraft manufacturer Boeing. So many plastics have been used in the Boeing 757, that the aircraft consumes yearly more than one hundred thousand litres of fuel less compared with aeroplanes of her class. For air travellers this implies a reduced price per seat.

In that respect interesting developments can be expected in the future. Owing to the use of plastics, even wide-body aircraft do not have to carry out

a feat of strength to lift their wheels from the ground, thus leading to cheaper tickets, less



N3416 (CV340) at Miami.  
(Photo: Paul J. Hooper)



engine noise and shorter runways.

The extensive application of plastics is even more advantageous to military air navigation. Fighters are required to perform their tasks at high speeds and low altitudes, without detriment to the steering behaviour. This exacts a high standard of the material. Constructors take the line that future fighter aircraft will be exposed to even greater forces (up to 9G), especially during turns. For that reason the military aviation world also shows more interest in the application of plastics and composites. What benefit is obtained by replacing an aluminium panel by a plastic one, thus reducing the total weight of a wing (12,000 kilograms) by 150 kilograms? With an acceleration of nine times gravity such a reduction in weight implies a

total difference of 1350 kilograms; a difference between life and death in emergency circumstances.

Another pleasant quality of synthetic material is that it is pervious to radar waves. This explains why the Americans and Russians dream of "invisible" bombers.

Plastics have been applied in air navigation since the fifties. In those days 3½ percent of the empty weight of a Convair 340 was composed of synthetic material. The first Fokker F27s were supplied with a plastic nose, plastic wing-parts and a plastic tail-plain. Fokker rapidly discerned that plastics would be excessively appropriate for aircraft manufacturing. The mechanical qualities were absolutely insufficient, but this does not apply to reinforced synthetic material, such as polyesters, epoxy, phenol, silicone and melamine with fibreglass.

In addition it was discovered that reinforced plastics could be moulded into the most comprehensive forms, without the need for expensive and complicated equipment and that, generally speaking, this material is corrosion proof and not affected by chemicals.

Aircraft manufacturers face however another problem: rain-erosion. Raindrops collide at high speeds with the aircraft, and it was not inconceivable that the reinforcement of the plastics would decompose, thus reducing strength and ruining the smooth form of the aircraft component. Therefore manufacturers originally didn't use plastics in critical components, such as fuselage and engine suspension.

It wasn't long before the plastic manufacturers developed several variants, which surpassed the expectations. Carbon fibre for example weighs less, is stronger and has a longer term of life than aluminium, which is still applied widely. Qualities which make the material very attractive for aircraft manu-

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facturing. Fokker has put into use a production industry for structural composites (the general name for carbon fibres and resins). Since then, the tail-planes of the F16 and doors of the main landing gear of the Airbus are produced from carbon fibre.

And so the dream of many manufacturers (and airline companies) - to produce a plastic aircraft - seems to become reality. Strong and light in construction, cheap and durable in practice.

What does such an aeroplane look like? The American aircraft manufacturer Lean Fan is currently testing a 9 seat business aircraft of which fuselage, wings, tail-plain, interior and even propellor are made of plastics and composites. Despite the fact that production has not yet started, already more than 250 aircraft have been ordered.



*Ceiling, wall-panels, chair cover and floor-covering of synthetic material (Photo: DSM).*

Of course, Lean Fan is not the only manufacturer endeavouring to save fuel by reducing the aircraft weight with the help of plastics. Nearly all large factories participate in expensive research programmes, which have led to the production of plastic wings for a McDonnell Douglas fighter with vertical take-off,



*(Photo: DSM)*

nacelles for jet engines of Rolls Royce and tail-planes for passenger aircraft of Boeing. The fore-mentioned plastic wings have stood a test corresponding to sixty years of intensive use.

Plastics also allow non-orthodox composition techniques. We can think here of wings attached at a 45 degree angle pointing forwards. This concept was developed forty years ago, but could not be put into practice: aluminium is not strong enough to withstand the forces that such a construction must bear. Plastics and composites have this quality; proof for this contention is the



*(Photo: DSM)*



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Grunman X-29A. This military aircraft - for the greater part composed of plastic - is lighter, stronger and smaller than equivalent aluminium aircraft and has more stability at very low speeds. In a word: the fighter of the nineties.

Civil aviation on the other hand is merely interested in plastics that contribute to a reduction in the amount of fuel burnt and enhance air traffic safety. Research programmes executed by Boeing have revealed that the weight of a large aircraft can be reduced by at least 20 percent. Still it will take some time before we can embark on a plastic aircraft. Manufacturers take no chances and wish to gain more experience with modest applications of synthetic material before taking part in large scale applications.

And right they are! Blériot only started his flight over the Channel after the Wright brothers had demonstrated that man can escape from the laws of gravity with eccentric constructions of wood, cloth and wire.

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Source: DSM Magazine, February 1984. (Translation: Rob Bootsma).

## An Interview . . . . .

In an interview on August 13 Paul Hooper put the following questions to Mr. Wim Jense, Director of Maastricht Airport.

PH: Just how much money has been spent on developing Maastricht Airport over the last three to four years?

WJ: We have spent about Dfl. 1.65 million in total, shared between the Airport Authorities and the RLD.

PH: Many qualified people have expressed the opinion that the airport, with its facilities and location, has great potential, but clearly something has gone wrong as traffic does not appear to be using the airport.

WJ: Traffic is using the airport. Our main problem is the length of the runway which makes it difficult to encourage the heavier traffic. Investment in the airport was made at a time when world economy was at its lowest level. Nevertheless, the express packages market has developed to the point where today three companies, Express Parcels, DHL and Pandair have selected Maastricht Airport as an attractive hub for their operations in Western Europe. Express air freight is currently passing through the airport at a rate of about 4000 tonnes per year so it would seem a little unfair to suggest that facilities are not being utilized. In addition, the passenger figures for this year are 20% up on last year, cargo is 40% up and commercial aircraft movements also 40% up.

PH: Would it be unfair to say that the Airport's Management is not sufficiently motivated to develop the airport's potential to its fullest?

WJ: Yes, it would be unfair. I feel it is highly motivating to be involved in the management of the airport at this stage.

PH: So there are no outside influences holding you back?

WJ: There are outside influences restricting our activities. Specifically, in the last five years there has been a degree of reluctance from Den Haag to provide support for the airport. But in the last two years there has been a complete change of policy and the mere fact that we have been able to invest Dfl. 1.65 million in the airport's development underlines the interest and support that we now receive from Den Haag. So any problems we had in that respect have now been solved.

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PH: What, in your own view, is Maastricht Airport's rôle in international aviation?

WJ: The rôle of the airport is to serve an area which, despite the presence of international boundaries, is not served by any national airport. It is therefore a regional airport serving some six million people within a 100 kilometre radius. The airport's potential in the cargo market, and specifically the express packages market, is further increased by its geographical location with good road connections to the main industrial areas.

PH: Does the airport have a department whose sole concern is to "sell" the airport and its facilities?

WJ: No. So far we have been unable to afford such a department.

PH: What is your reaction to Virgin Atlantic's proposed operations from the airport?

WJ: We can only encourage those operations. If Virgin Atlantic can achieve all that they are aiming for it will be of great benefit to the airport. For example, it could put the airport's finances back into the black within two years. That is something no other operator has been able to offer us.

PH: How do you intend to challenge the presence of new and improved facilities and enthusiastic management at Eindhoven Airport?

WJ: Eindhoven serves a completely different market. The new facilities are not better than those we have here and I think we have better trained personnel here. What's more, we have good

clients and a good geographical position. We hope that Eindhoven can achieve what they think they can create in the market. I don't think we should compete. We should be thinking about creating and developing new things rather than trying to take away from someone else, which we certainly have not done so far.

PH: Do you not feel that if you don't offer some incentive very quickly you could start losing inclusive tour operations to Eindhoven Airport as from next summer?

WJ: No! Eindhoven could possibly develop its own I.T. market. At the moment only about 5% of the passengers passing through Maastricht Airport are from the Eindhoven area. If anything, Eindhoven will provide competition to Schiphol and Brussels Airports, but not to us.

PH: What future developments can we expect to see at Maastricht Airport?

WJ: A new runway and new clients.

PH: How is the new runway project progressing?

WJ: The developments are very positive at the present time. A report released earlier this year by the Ministry of Transport confirmed the project as being a viable one. I expect a final decision regarding the new runway to be made within the next few weeks. A positive decision will allow us to maintain the good contacts we already have within the cargo market. We are receiving a lot of support from the regional authorities who are attempting to encourage various industries to settle in the local area thereby providing further custom for the airport.

PH: Do you think the new runway will be incentive enough for airlines to use the airport?

WJ: Well, not enough. Selling the airport is more than just advertising the fact that you have a new and longer runway.

PH: If the runway is given the go ahead in the next few weeks, how soon would you expect construction to begin?

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WJ: Actual construction could start within two or three years. This is rather dependent upon the time taken to appoint the appropriate land to airport property. Completion could be effected within five years.

Some figures of Maastricht Airport, extracted from the account of the financial year 1983.

- Commercial air traffic, both passenger and freight, has increased by 13% in respect to 1982.
- The total amount of air traffic movements has decreased by 19%, mainly due to a considerable reduction in non-commercial air traffic and training flights.
- Scheduled domestic air transport: the number of passengers transported increased by 2%.
- Scheduled international air transport: the NLM service to London Gatwick shows an increase in passenger transport by 90%!
- Freight traffic: 22% of the total freight traffic via the airport was realized by XP, Aerolink and Elan. Transport with these express services has increased by 72%!

## The Hong Kong Shaft

by Philippe Domogala

Once upon a time, there was a British cargo airline that used to fly Canadairs CL44s all around the world with the most ill-assorted items on board. The crews operating on those flights were extraordinary people in every meaning of the word. The mixture of unusual operations, ad-hoc maintenance, those extraordinary people and extremes of weather conditions produced some of the best aviation stories.

One of these stories, known as "The Hong Kong Shaft", is illustrative of those airlines and the kind of operations they experienced.

It all began when a merchant ship, fully loaded with valuable cargo, broke its propeller shaft in Hong Kong just before departure. A spare shaft was not available in the Far East and it could only be obtained from the manufacturer, a Liverpool-based firm. The shipping company manager, rapidly calculating the losses incurred by an immobilized ship and having heard of aeroplanes during a party, proceeded to call British Airways who turned down the job when hearing of



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the size of the propeller shaft. They however informed the manager that somewhere in the country an airline existed which .....

Anyway, that very night a special truck delivered a 15 metres long shaft, which was securely fixed to the floor of a swing-tail CL44. That same night the aircraft took off for Hong Kong, via Teheran and Bangkok.

The shipping company, having seen the aircraft depart, cabled its Hong Kong office, whereupon the Chinese, in order to gain time, decided to prepare the ship to receive the new shaft. To that effect the boat was moored as close as possible to the Kai-Tak Airport apron in Kowloon. A four feet square hole was cut in the hull just above the waterline in order to remove the broken shaft and insert the replacement without unloading the ship. The idea was to weld the removed metal plate after the new shaft had been fitted and to sail away directly from the airport dock.

This job was already well under way when our aircraft landed in Teheran for refuelling and crew rest. During that day a sandstorm passed Teheran and of course just before departure, one of its engines would not start. The malfunctioning part was soon identified by the Mechanic Flight Engineer, but was not included in the 200 pounds of nuts and bolts that this particular engineer was always carrying with him.

The part was ordered "rush" from the United Kingdom. Alas, the weather being still bad in Teheran, the aircraft bringing the spare the next day couldn't land and diverted to Kuwait. Finally, two days later the missing part arrived. In the meantime, the shipping company manager had been screaming and sending complaints by telex everywhere.

When our CL44 left Teheran for Bangkok, there were thunderstorms all over India and the aircraft being restricted to FL220 by the heavy load, flew right through most of them. Upon arrival in Bangkok, the VOR antenna had been

struck by lightning and was unserviceable. But it still had twin ADF, LORAN and POPOV.

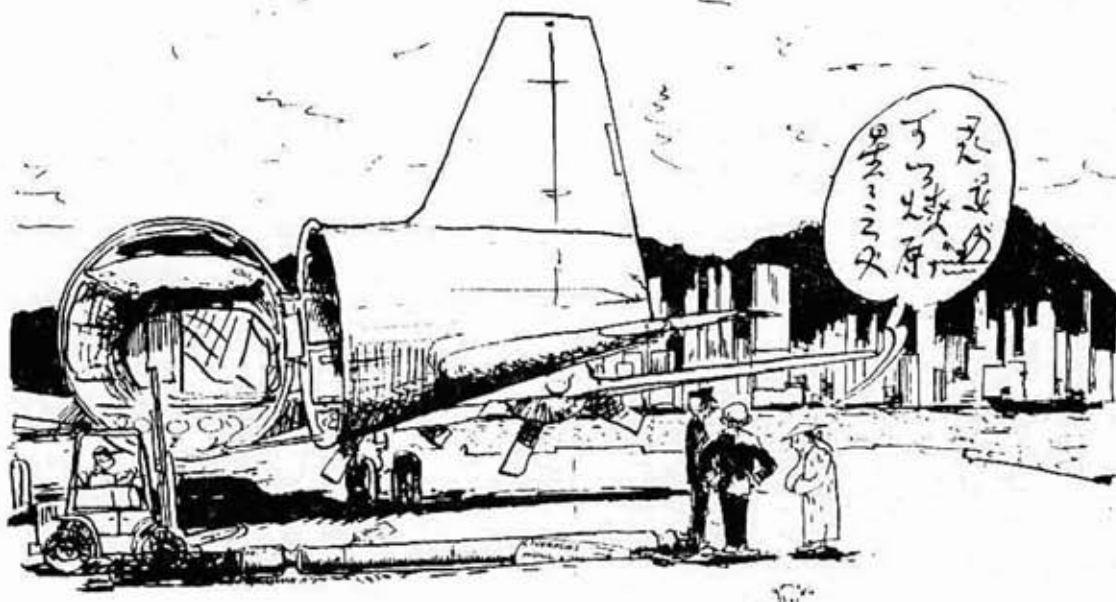
POPOV (his real name was unpronounceable) was an ex-LOT navigator, based in Bangkok, who accompanied aircraft to Hong Kong and back. At this time the Americans were still in Vietnam and bombing most of the places, including Laos and Cambodia. Therefore the only way to reach Hong Kong from Bangkok was to fly south, keeping away from Cambodia and Vietnam territorial waters by at least 50 miles at all times, then to fly north again when reaching the China Sea.

Of course there were neither NDBs nor VORs to pave the road. That's why POPOV and his telescopes were used. POPOV spent his time on the aircraft looking outside, meanwhile sharpening his pencil. When the captain asked "Where are we?", POPOV came up, placed a map full of lines under the nose of the captain and put his sharpened pencil to a point, declaring with his unimitable Polish accent: "at the time you asked, we were here!".

Finally, Kai-Tak mountain was in sight and our CL44 landed safely in the rain. As soon as the aircraft was parked a small Chinese, dressed like a British banker, got out of a car and declared to the captain: "You can take your shaft back to England!". For explanation a finger was pointed at a ship's mast, sticking out of the nearby sea, all by itself.

It turned out that a typhoon had hit Hong Kong the night before. The waves were four metres high and of course our ship, moored in the open channel with its hole just above the waterline, did not make it .....

Despite numerous efforts to block the hole with planks and the use of all the available pumps on board, the ship sank with its valuable cargo still on board. The CL44 crew remained in Hong Kong for another two days and quietly off-loaded the shaft



on the nearby grass between the apron and the taxiway. The shaft is still there today, familiar

only to grass-mower drivers who insult it in Chinese, when by accident they come too close.

## China Story

by Andy Barnby

Did we do it? Now that we are once again back in the Operations Room, it was such a fantastic week, it could well have been a dream. We boarded CI011 in Amsterdam at 1715 on Friday 17th August for a 1700 departure which by then was slightly delayed but we didn't care. When one has so far to fly a few minutes delay doesn't make much difference.

The Boeing 747 Combi finally left the ground at 1745 bound for Taipei in the Republic of China via New York and Anchorage. The only boring part of the trip was at Kennedy where, after a seven hour flight, we were kept, with two other long distance travellers, for five hours locked in a transit lounge without windows or any form of entertainment! Two guards kept us firmly in place, wouldn't let us out for a beer and no amount of bribery would make them go and fetch a beer for us. In fact looking back

it must have been hell but at the time we were looking forwards!

Dynasty 011 was scheduled to depart at 2359 and we actually pushed back from the gate at 2359 and a few minutes later were in the air heading for Anchorage. Arriving at PANC after 6 hours 44 minutes flying we disembarked for 1½ hours in a transit lounge so totally different from KJFK that it was hard to believe we were still in the same country. Leaving PANC we headed for Taipei along the same route that KE007 had taken a year earlier. These things stick in one's mind, especially as we had learned on the ground at Kennedy that one of the three INS boxes was U/S but it wasn't a "no go" item!

So, after two films, much eating, endless drinking and 32 hours travelling from Amsterdam we touched down at Chiang Kai-shek International Airport outside Taipei just after six o'clock on a dull Sunday morning.



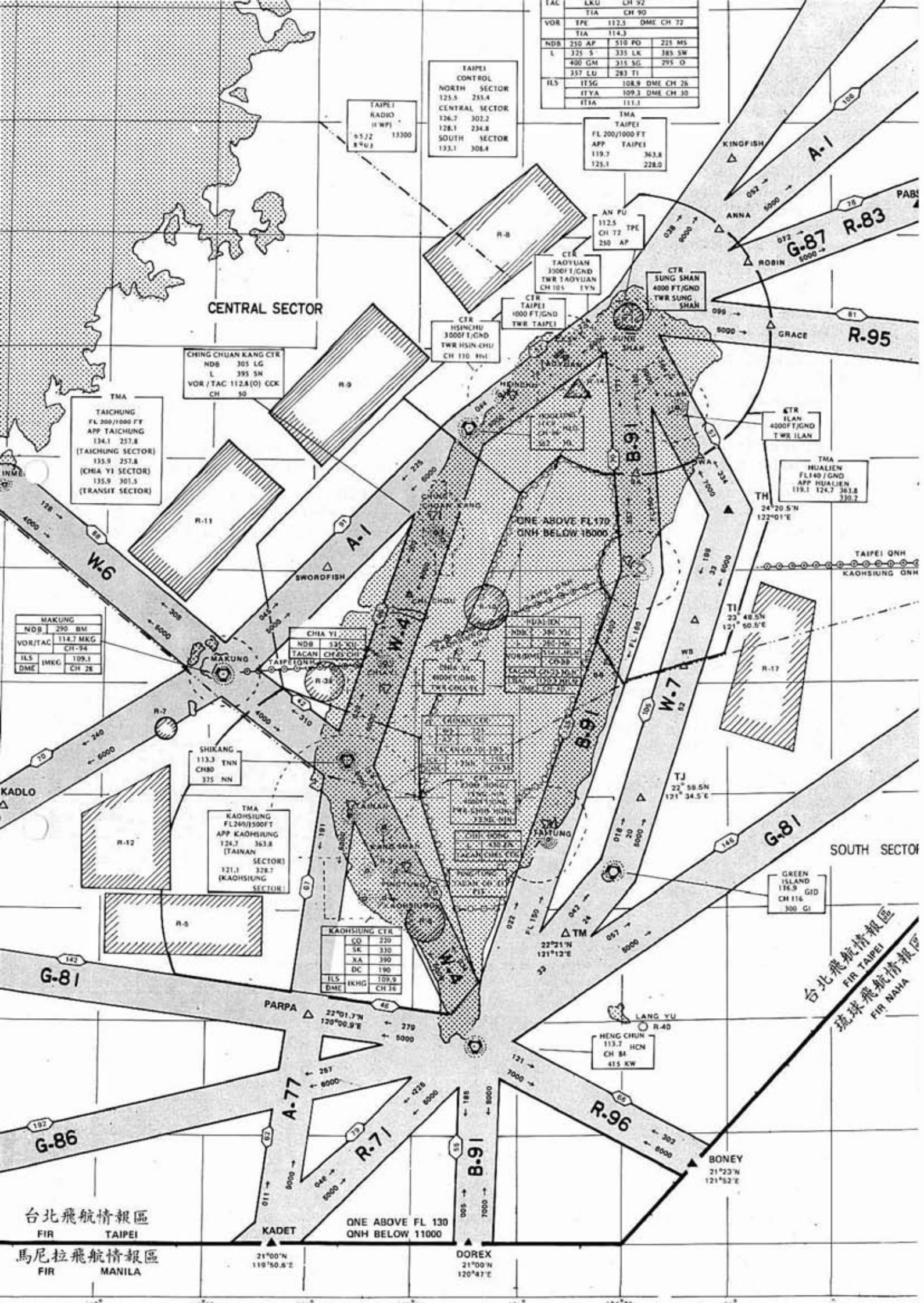


*Chiang Kai-shek Airport.*

We were met off the flight by Frank Lin from ATC at RCTP who told us that Typhoon Holly was just clearing the island to the north, after which it would do much damage in Japan. We were through Immigration and Customs with a minimum of delay and on to a bus for a forty minute ride into Taipei. A hotel had been arranged and as soon as we had dumped our bags and discovered that my suitcase had been rifled at KJFK for the second time in eight weeks, EGATS travellers be warned, we were spirited into a taxi for our first experience of the Taipei traffic. To anyone who thinks that Parisian traffic is bad, a trip to Taipei will convince one that the French, after all, are very civilized drivers! I am still convinced that the Taipei taxi and scooter drivers drive with their eyes closed, crossing at right angles at will, driving on the wrong side, stopping in the most dangerous places and yet it works very well, with two speeds - full ahead and stop!

Having devoured a Chinese breakfast it was still only about 0930 and we were taken back to the "First Hotel" and informed that we would be collected about 1330 for a tour of the Palace Museum. Realizing that this was

turning into a marathon we decided not to sleep as this would make matters worse - even though we were quite tired. Eventually we were collected at 1415 by Edward Tseng and manoeuvred through the traffic again direction Palace Museum. I was by this time coming to the conclusion that my International Driving Licence was not going to be used if I wanted to consider a future on this earth! The National Palace Museum which stands on a hillside about 15 minutes from the centre of Taipei is itself a very impressive building. What we saw inside was even better. Porcelain from the Sung to the Ch'ing dynasties hundreds of years old and looking new!, silk paintings, wood carvings, bronze castings from more than 1,000 years ago and much, much more. With all this being rotated every three months the cellars must have been worth a visit! Eventually at 1700 two very tired but culturally richer people left the museum with aching legs! But, it wasn't over yet! Next stop the Grand Hotel Tea Room for Black Tea and filled dumplings giving us our first experience of using chopsticks. Then at about 1930 we were returned to the "First Hotel" where we crashed out ha-



TAC	LKU	CH 92
VOR	TIA	CH 90
TIA	112.3	DME CH 72
TIA	114.3	
NDB	250 AP	510 PO
L	325 S	335 LK
	400 GM	315 SG
	357 LU	283 TI
ILS	175G	108.9 DME CH 26
	ITVA	109.3 DME CH 30
	ITIA	111.1

TAIPEI CONTROL	
NORTH SECTOR	125.5 255.4
CENTRAL SECTOR	126.7 302.2
SOUTH SECTOR	128.1 234.8
	133.1 308.4

TAIPEI RADIO (HWP)	
55.22	13300
84.03	

TMA TAIPEI	
FL 200/1000 FT	
APP TAIPEI	119.7 363.8
	125.1 228.0

CHING CHUAN KANG CTR	
NDB	305 LG
L	395 SN
VOR/TAC	112.8 (O) CCK
CH	50

TMA TAICHUNG	
FL 200/1000 FT	
APP TAICHUNG	134.1 257.8
(TAICHUNG SECTOR)	135.9 257.8
(CHIA YI SECTOR)	135.9 301.5
(TRANSIT SECTOR)	

MAKUNG	
NDB	290 BM
VOR/TAC	114.7 MKG
CH	94
ILS	109.1
DME	109.1
CH	28

SHIKANG	
113.3	TNN
325	NN

TMA KAOHSIUNG	
FL 240/1500 FT	
APP KAOHSIUNG	124.7 363.8
(TAINAN SECTOR)	121.1 328.7
(KAOHSIUNG SECTOR)	

KAOHSIUNG CTR	
GO	220
SR	330
XA	390
DC	190
ILS	109.9
DME	109.9
CH	36

GREEN ISLAND	
116.9	GID
CH	116
	300 GI

HENG CHUN	
113.7	HCN
CH	84
	415 KW

台北飛航情報區  
FIR TAIPEI  
馬尼拉飛航情報區  
FIR MANILA

台北飛航情報區  
FIR TAIPEI  
馬尼拉飛航情報區  
FIR MANILA

# Win a Flight

One of these days the DC8s around our centre will fly away, as they have been sold to a new airline. To celebrate this sad event, EGATS TRAVEL decided to start a contest with numerous prizes.

1st PRIZE : 1 Fam Flight on "NEW" BURSA AIRLINES DC8

2nd PRIZE : a visit of "NEW" BURSA AIRLINES maintenance department

3rd PRIZE : a beautiful colour picture of "NEW" BURSA AIRLINES complete fleet

Simply answer the questions by using the slip below. Mail your answers

BEFORE NOVEMBER 1ST, 1984

to: EGATS-BURSA Contest  
P.O. Box 47  
6190 AA Beek-L  
The Netherlands

(or return your answers to the EGATS TRAVEL locker).  
Do not forget to indicate your name and address!

Winners will be advised personally by letter. Prizes CAN be exchanged for money at today's value. Best answers will be published in the next edition of INPUT.

QUESTION 1 : How many other aircraft has Bursa Airlines parked around the world?

QUESTION 2 : Which Airline company has the record for longest aircraft parking?

QUESTION 3 : How many birds' nests were found on the jet intakes of DC8 TC-JBY, (a) BEFORE they started the engines last July?

QUESTION 4 : (b) AFTER they started the engines?

QUESTION 5 : How many dollars will the pilot of the first test flight of DC8 TC-JBZ get?

QUESTION 6 : How many spectators are expected for that event?

QUESTION 7 : How many passengers will the first commercial flight of "NEW" BURSA AIRLINES carry?

QUESTION 8 : Describe in 5 words maximum what should be the new logo of "NEW" BURSA AIRLINES.



DC8-52/TC-JBY  
(Photo: Paul J. Hooper)

NAME	:	.....
ADDRESS	:	.....
		.....
MY ANSWERS ARE :		
Q 1 :	.....	Q 2 : .....
		Q 3 : .....
Q 4 :	.....	Q 5 : .....
		Q 6 : .....
Q 7 :	.....	Q 8 : .....
		.....



ving been informed that we would be picked up at 0830 the next morning and taken to the Civil Aviation Administration headquarters at the downtown airport of Sung Shan (RCSS).

Monday 20th August arrived very quickly, especially as we had lost Saturday somewhere along the way, having crossed the International Date Line. 0800 was looming before we knew it. We just had time to down a quick coffee and some pancake-like breakfast before being picked up and mixed with the traffic again.

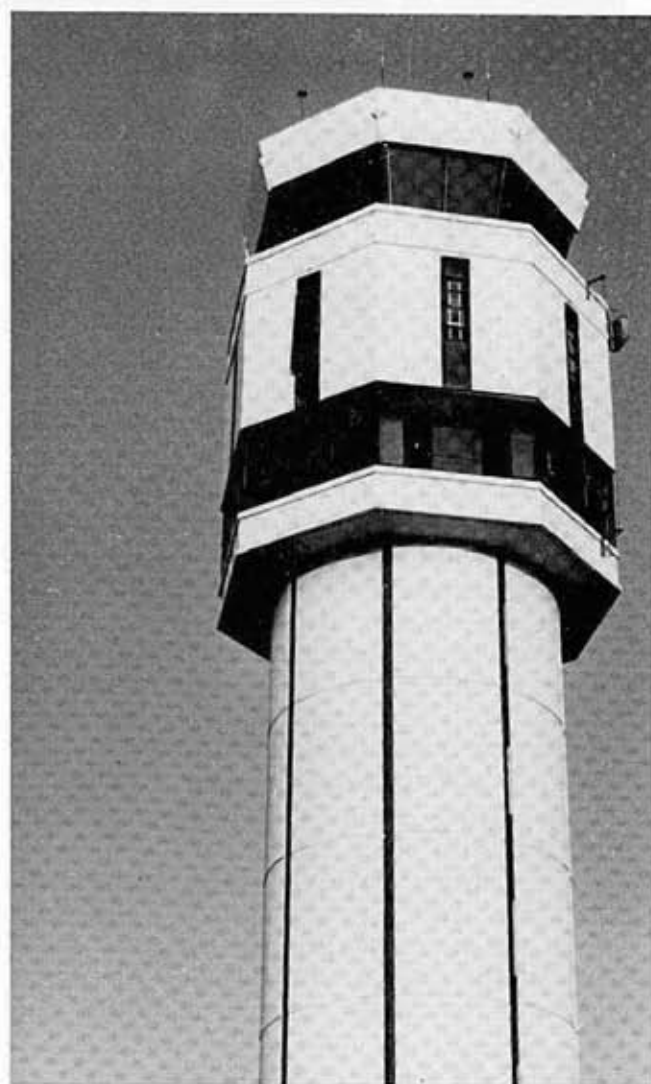


*Chiang Kai-shek Memorial.*

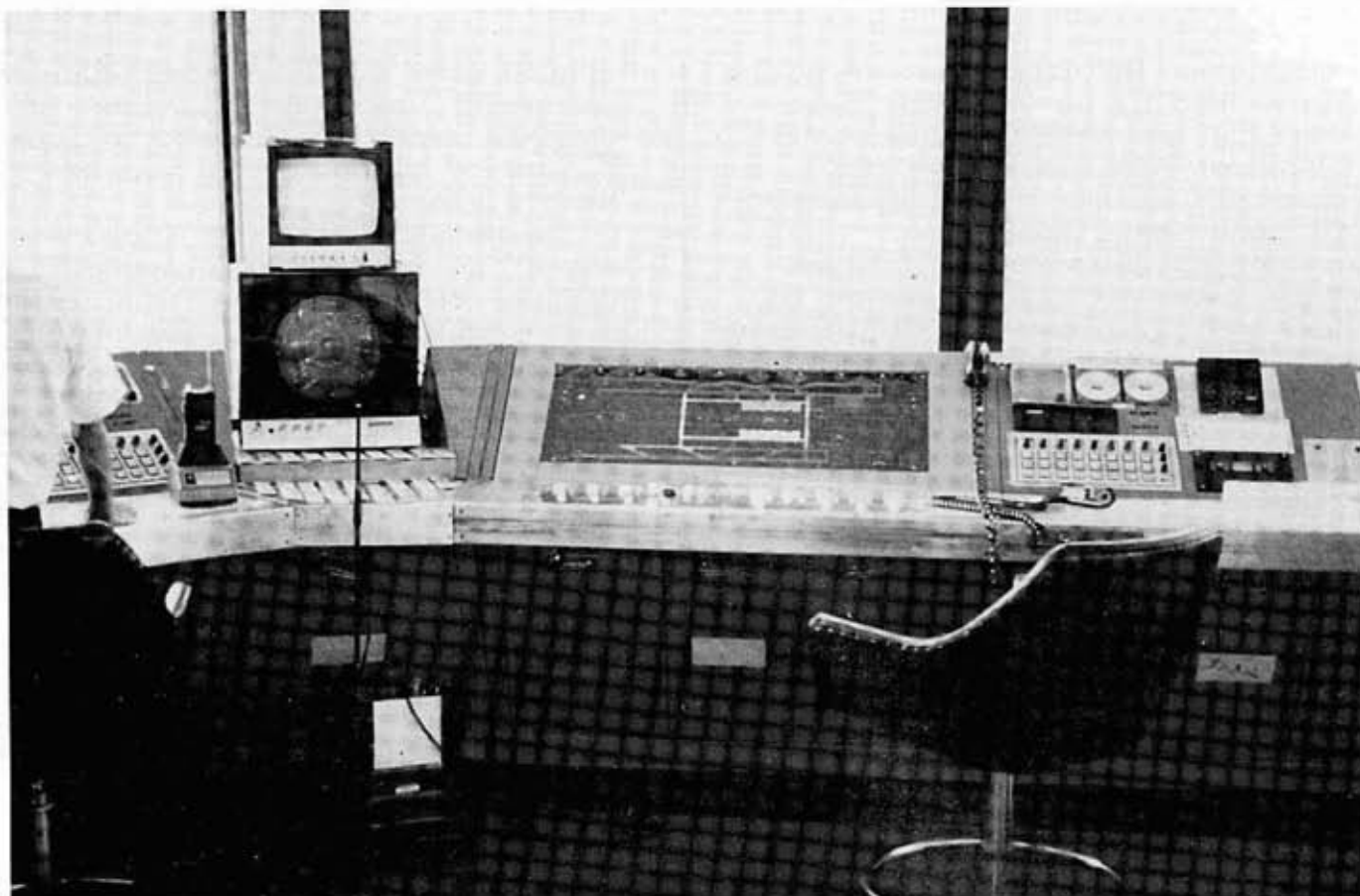
At CAA Headquarters we were introduced to Mr. Harley Liu, Head of ATC in Taiwan. With help from others in the building an itinerary for the week was suggested, shuffled and agreed upon and then we were put in a car with Stephen Chou and a driver to be shown the city of Taipei. After visiting the Sun Yat-sen Memorial Hall, the Chiang Kai-shek Memorial with its beautiful gardens and Yangming Mountain National Park, we found ourselves

around 1530 in the Taipei ACC. It was quiet which gave us time to compare systems and talk to people, some of whom have visited Maastricht UAC.

Taipei ACC has four sectors of which one is acting as Approach Control for Makung Island off the S.W. coast of Taiwan. The other three sectors are North, Central and South. The system is computerized giving printed strips and using a raw radar picture with call sign, height label. An interesting addition is that aircraft type and speed are also selectable on the label. No private aircraft are allowed in Taiwan so there are very few business aircraft flying around, the only VFR traffic being military. The Taipei FIR is surrounded by the Japan ADIZ, Manila FIR, HongKong FIR and to the north, Red Chinese airspace.



*Chiang Kai-shek Tower.*



*Interior Chiang Kai-shek Tower.*

The minimum usable FL around the island is FL150 due to high mountains in the central area. The CAA is at the moment busy planning a new system with Lockheed due for implementation in 1986. We later moved over to RCSS Tower where we spent quite a while wishing Eurocontrol was also responsible for Aerodrome Control - it's nice actually seeing aeroplanes fly! At about 1730 we dragged ourselves away and were taken back to the hotel to await telephoned instructions for the morrow. After being informed that we would be collected from the hotel lobby at 0740 the next morning we repaired to one of the hotel's restaurants where we enjoyed a Teppanyaki meal. After a few beers in the bar we decided to retire for the night.

Tuesday 21st August arrived bright and early so at 0740 prompt we were waiting in the lobby. By 0815 there was still no car so it was thought maybe a good idea to telephone the CAA to find out what had happened. After several attempts at contact and no luck

we decided to take a taxi and get there on our own, although we accepted we had missed the 0920 flight planned for us to Hualien. After a little help from the hotel staff, all instructions for taxi drivers must be written



*Taroko Gorge.*





in Chinese as they don't speak English, we arrived at the CAA building. It seemed, from what we could gather, that our car had been lost and that we would be rebooked on a flight leaving at 1340. Which it did. FE307 was a B737 flight of 23 minutes arriving in Hualien at 1403 and we were met off the flight by Frank Wou, Chief of ATC. He introduced us to Tsi Wen Chin, John to use his Western name, who was a Tower Controller and temporary guide. We had the most marvelous drive down the Taroko Gorge which is a breathtaking 20 kilometers impossible to describe. Four hundred and fifty retired servicemen lost their lives constructing this road which includes a network of tunnels hacked out of the rock along the side of the Gorge. Near the end of the Gorge, at Tien-Hsiang, we swayed across a pedestrian suspension bridge in order to visit a Pagoda



Tsi Wen Chin - Tower controller.

perched high above the Foggy River. Returning to Hualien we waded through another delicious Chinese supper and once again after quaffing a beer or two went to bed early, like good boys! The next morning was ours so we had a late start! We were collected by John after a quick lunch and taken to Hualien Airport where we visited the Civilian Approach and Military Tower. The Military Captain and his colleagues were very hospitable and although we were not permitted to take photographs we were provided with binoculars, through which we could watch the F5s do their "touch and go's", whilst drinking an interesting Asparagus juice drink. At 1620 we were in the air on FE310 back to Taipei, arriving 22 minutes later. Another variation of Chinese supper was eaten in the hotel accompanied by giggling Chinese waitresses who asked if we wanted knives and forks but were disappointed when we declined and used chopsticks without too much fiddle. It was decided over supper, that the best way to see more of the island was by taking an organized tour, so we later booked two places on a three day tour leaving the next morning. Try and do that in Europe at 2100!

There were thirteen of us in the minibus next morning, including driver and guide, as we sped south. At Taichung a family of four from HongKong got out to change bus and we later lost two more who were also going by a different route. This left Michel, myself and two people from Singapore with a child. It transpired that the husband, Sonnie Chiew, was a B747 pilot with SQ who was very laudatious about Maastricht UAC, especially its direct routings - small world! By mid afternoon we were high in the central mountains heading for Mount Ali where from a height of 8,000 feet we were due to see a spectacular sunrise next morning. Unfortunately nature had other ideas. Upon rising at 0400 there was a brilliantly clear heaven full of

stars, however, by the time we had climbed to the mountain top in our bus ready for the promised sunrise at 0520 it was definitely not sunrise weather. A mist had taken over the world or at least our part of it. So, at 0545 we made a descent to the hotel and even though the mist was supposed to give "Chi" (life force or vital energy) the rest of the day felt very long. We later drove back to Taichung and after a short stroll around town reboarded the minibus for a ninety minute ride to Sun Moon Lake in the middle of the island. Here we saw the Wen-Wu Temple dedicated to that well known Chinaman Confucius. An Aboriginal village nearby was also visited.

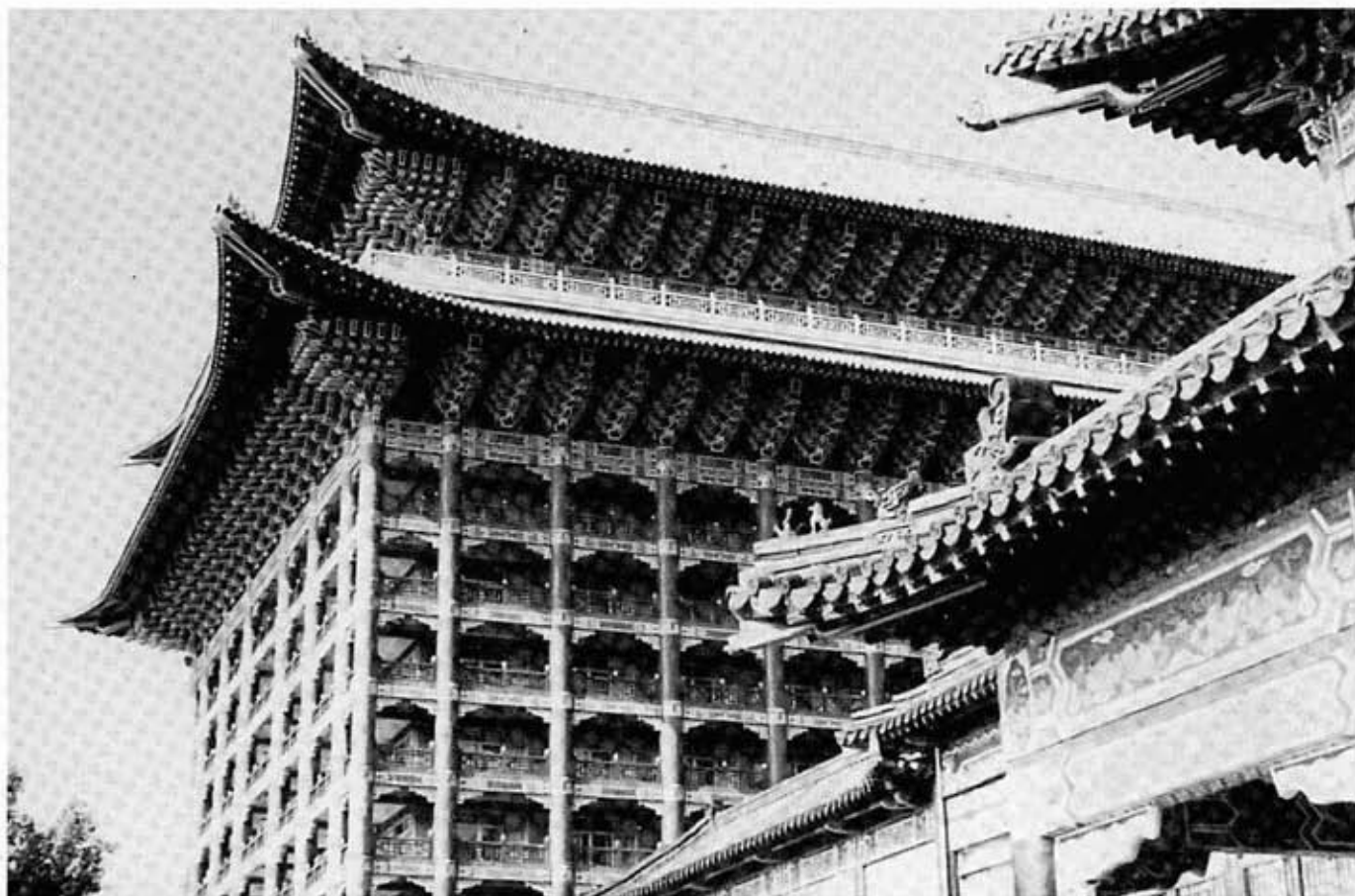
Saturday morning we were again up early and surprise surprise - an English breakfast which was very welcome as Chinese breakfast was the only meal we were not too enamoured with! A boat trip across the lake had been arranged, accompanied by some freshly caught fish still wriggling in



*Sun Moon Lake.*

the net at the bottom of the boat. We were on the move in our minibus again, soon after returning to terra-firma, back on the road to Taichung where after lunch we said goodbye to Sonnie, his wife and child. We arrived back in Taipei around mid afternoon.

Here we booked into the Grand Hotel for the last two nights of our stay. We had been eyeing this impressive and beautiful building whenever we were in Taipei and had decided, come what may, we



*Grand Hotel.*



were going to stay there before we left. It was well worth it. Impeccable service, delicious food and exquisite surroundings is the only way to describe it. We wandered around the shopping arcade beneath the hotel before a wonderful five course evening meal consisting of corn soup, cod with cheese sauce, peppersteak, salad, ice-cream cake and coffee, all for Dfl. 55 each!

Our second free morning of the trip was spent, on Sunday, lazing by the hotel swimming pool. The afternoon being taken up meeting

Myra, one of the stewardesses from the flight over who showed us around a culture centre where members can study Music, Dance, Art and Literature. Another action-packed taxi ride was taken back to the Grand Hotel where we supped and turned-in for an early night, as the next day was to be very long.

We had an appointment on Monday morning for 1100 with the CAA and I was up at 0730 taking some last minute photographs. Lunch was on the thirteenth floor of the Brother Hotel, in the city, hosted by the CAA. Despite all the Chinese food we had eaten in a week, we counted 55 different dishes, I do not think we ate one dish twice. The only disadvantage of this culinary adventure is that Chinese food in Europe will never taste so good again!

We had a last quick look around the shops before being put in a car for Chiang Kai-shek airport. There we were met and shown around the aviation museum and visited Tower and Approach Control before boarding CI061 a Boeing 747SP for the flight to Amsterdam via Dubai. We arrived at Schiphol 23 minutes early at 1003 on Tuesday morning so completing our circle around the world.

It was a most marvellous trip despite being a bit short. Thanks must be given to all we met in Taiwan especially Mr. Harley Liu, Head of ATC, Stephen Chou, Edward Chen, Frank Liu, James Jen, Johnson Chuang, Charlie Chi - all in Taipei and Frank Wu and

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Tsai Wen Chin in Hwallien. To anyone I have forgotten I extend my apologies but we shall never forget the trip! Last but not least Many Thanks to Philippe Domogala and EGATS Travel.

## Summertime Blues

by Eurospéro

What kind of a summer did you have? Such a question provokes a variety of answers, according to how you earn your bread. Farmers, in spite of E.E.C. subsidies, invariably find it too dry or (more frequently) too wet. The weather forecasters struggle to get it right with the aid of a Super Computer, at the World Area Forecast Centre in Bracknell. Too many low pressure areas seem to have a depressive effect on the weather men, nightly called upon to explain away their errors of yesterday, whilst hoping for a winner tomorrow.

There is one exception, however, the famous Armand Pien of Belgian T.V., regrettably about to take his pension. He has succeeded in making the weather a source of entertainment. One sits and gazes in amazement whilst he reveals the latest disasters of wettest and coldest since records began. Surely he could produce the meteorological equivalent of the Guinness Book of Records - "Pien's Book of Incredible Met".

But back to my question; most controllers measure their summers by different criteria. How sweat-making it was when an adjacent A.T.C. Centre could not accept any more traffic and aircraft had to be held in an already busy sector! Of course, for some, this is the kind of challenge from which they derive their professional satisfaction. Get-Your-Kicks-on-Route-Upper-



Amber-Six. But should there be a Government Warning on all air traffic controllers' licences?

"CONTROLLING AIR TRAFFIC CAN SERIOUSLY DAMAGE YOUR HEALTH."

Medical authorities disagree about the effect of stress in A.T.C., but there could be a potential problem if you smoke two packets per day, take your exercise at the wheel of your car and need to wind down after duty with half a bottle. Recently a thirty-five year old co-pilot attempted suicide on board a JAL 747, after resigning from the airline prior to take-off. He was found in the toilet bleeding profusely from slashed neck and wrists but fortunately is expected to recover.

Talking of toilets, (some people said this publication was becoming too serious) a gentleman from Surrey, U.K., wants airlines to provide separate facilities for Ladies and Gentlemen. Strange to think that on the ground we expect to segregate (even the French conform in this respect)

but whilst in the air, we share! It would not be difficult for airlines to change this situation - more convenience for less weight perhaps .....

This summer has not been without its casualties. Air Florida became bankrupt on July 3rd, with the consequence that 1200 employees became redundant and 17 aircraft are for disposal. Airbus Industries confessed that they would probably need to sell six hundred A320 aircraft, to break even on the investment costs. Such a magnificent family of aircraft deserves to succeed but personally, I prefer to fly with at least a third engine in the tail, so I was pleased to read of Airbus Industries' plans for the four-engined TA-11. If they do change the regulations, thereby enabling transatlantic flight on widebody twins, it would not be good for the nerves of either pilot or passenger, in the event of an engine failure, to lose fifty per cent of the push, when half-way across the big pond.

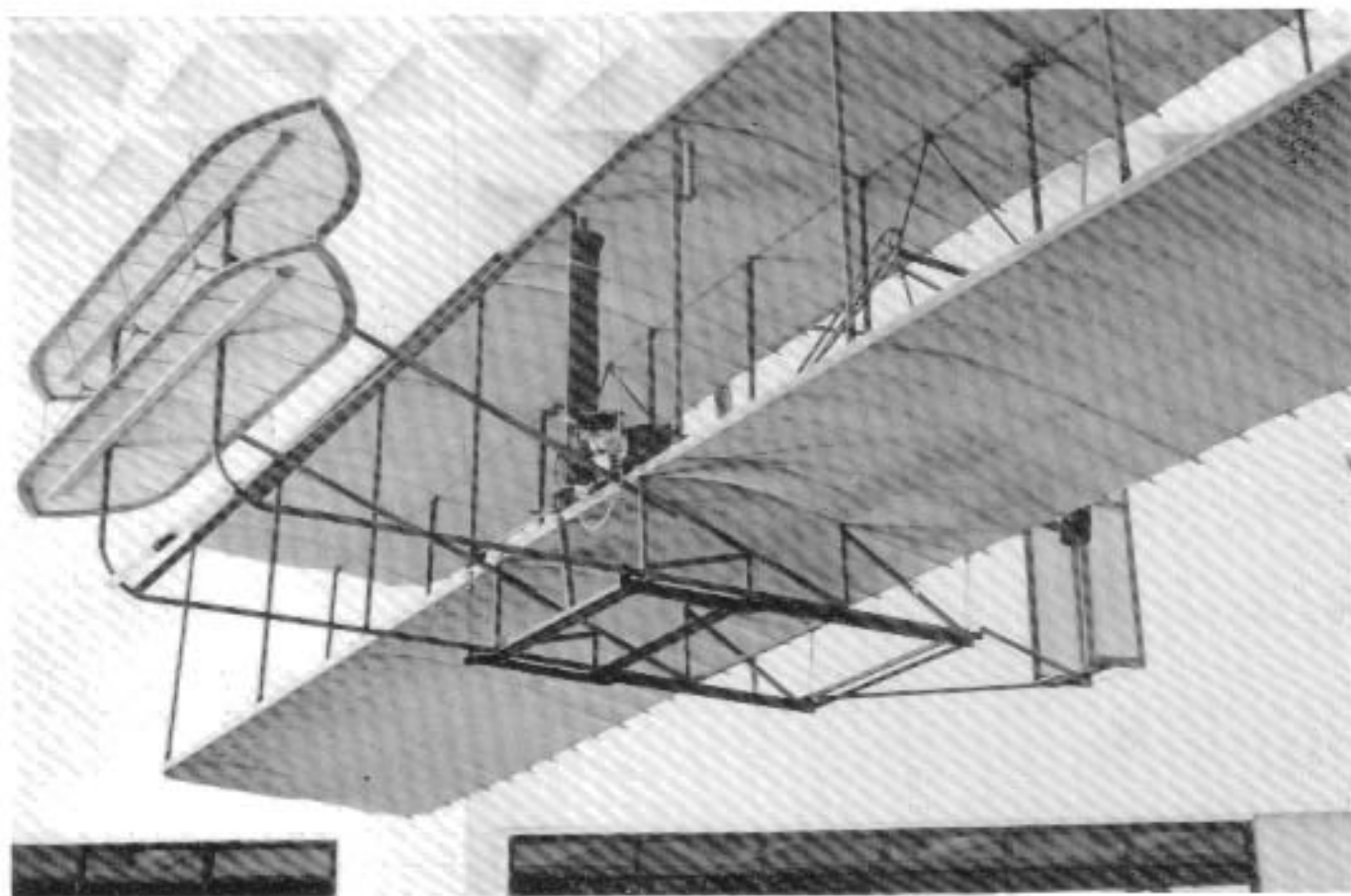
For our pilot customers, the summer season means many additional flying hours, especially for the charter companies. It is good to see that some European Governments are now taking a more encouraging attitude towards the Independents, with good results. The parent company of Dan-Air (the controller-friendly airline) which operates 53 aircraft, made profits of £4.3 million in 1983. Non controller-friendly airlines please note!

To the sound of exploding champagne corks and pop music (heavy metal?), Virgin Atlantic took off into the transatlantic market, with their B747 service attractively priced to the student population. Let us hope that Virgin can remain intacta and reaps riches in the field where even Sir Freddy got raped!

Dare I ask what you were doing on Sunday 15th July? On leave? Relaxing at home with the family? Working perhaps? If you were on A.T.C. duties anywhere in Europe,

you almost certainly helped in some small way, to provide a service for one or more of the 536 flights which crossed the Atlantic on that day. Ten days later, the 75th Anniversary of the first cross-channel flight (M. Louis Blériot, Calais-Dover) was celebrated. On this same day, yet another 'first' took place - a woman walked in space. Cosmonaut Svetlana Savitskaya became the first woman to walk in space, where she used a hand-held tool that cuts, welds, solders and sprays. Just the thing for the wife's birthday present! Things have never been the same since they let them out of the kitchen.

So that was another summer. For sun-worshippers, unless you are among the privileged few who can afford a flight to winter sunshine, that was it for this year. But there is a light on the horizon. The European Space Agency and NASA are collaborating on a project to fly a satellite over the sun's poles. (Readers should not confuse this with the Irish project, which plans a mission to the sun at night time, in order to avoid the heat problem). The E.S.A. /NASA project, code-named "Ulysses", is due for launch next year. Perhaps the scientists could arrange a slight re-positioning of the sun. Our problems with airport fog could be reduced, solar panels could at last become cost-effective and we unfortunates who have to endure the Northern European climate would all be thankful for any improvement. Have a nice winter.



Replica of the Wright brothers'

"FLYER"

as you can find it in the  
aviation museum at the Chiang  
Kai-shek Airport.