

STATEMENT OF JAMES BISPO, ASSOCIATE ADMINISTRATOR FOR AIR TRAFFIC AND AIRWAY FACILITIES, FEDERAL AVIATION ADMINISTRATION, BEFORE THE HOUSE PUBLIC WORKS AND TRANSPORTATION COMMITTEE, SUBCOMMITTEE ON AVIATION, CONCERNING SAFETY IN THE NEW YORK AIRSPACE. AUGUST 8, 1980.

Madam Chairwoman and Members of the Subcommittee:

I am pleased to appear before the Subcommittee today to discuss the important subject of air safety in the New York metropolitan area. In your letter of July 23 to Chairman Anderson concerning today's hearing, you expressed concern with incidents occurring on and since June 30, 1980. You also expressed concern with the adequacy of the existing computer system serving Newark, LaGuardia, and John F. Kennedy Airports. We appreciate the opportunity to discuss these concerns.

I would like to start off by briefly defining the New York metropolitan area from an airspace management point of view. Within a 40-mile radius of LaGuardia Airport, generally from the surface to 17,000 feet, radar arrival, departure, and transit service is provided by controllers in the New York Common IFR Room, referred to as the New York Common I. This facility is located in Hangar 11 at JFK Airport. Close-in and surface operations are controlled by the individual towers at each airport. This 1,600 square mile approach control area

includes Newark, LaGuardia, and JFK as well as 35 satellite airports scattered around the New York/New Jersey area. Among these airports are Teterboro, Republic, Morristown, and Essex County.

Except for the New York Terminal Control Area (TCA), which is smaller than the approach control area, aircraft operating within this 1,600 square mile airspace are not required to be under control of our air traffic personnel. When weather conditions permit, aircraft may operate in this area under VFR rules applying the see and avoid principle. Therefore, unless the requirements for VFR rules cannot be met, this approach control area has a constant mixture of controlled and uncontrolled aircraft.

The major exception to the mix of air traffic is within the New York TCA. This airspace, in which all aircraft are under positive control, is roughly shaped like an upside down wedding cake with layers of graduated diameter centered over each of the three major airports. The surface layer at each airport is about five miles in diameter. Each succeeding layer is wider and higher with the top two layers overlying all three airports and with the top layer reaching out to about 20 miles in all directions from the southern tip of Manhattan.

Within each layer of this terraced 400 square mile area, all aircraft are provided positive control service. Each aircraft is required to be equipped with special airborne devices in addition to radio and navigation equipment. The mode C transponder which is required sends signals to the ground that cause altitude, speed, and identification to be displayed on the controllers' radar display. Controllers provide positive separation to all aircraft in their segment of this airspace. Above the top layer and to the sides and underneath the shelf of each layer, present operating rules permit a mix of controlled and uncontrolled operations.

Basically, all Newark, LaGuardia, and JFK arrivals and departures receive positive separation service until they exit the side or top of the TCA. All aircraft are required to obtain prior approval from the controller before entering the TCA and must maintain radio contact with the controller while within the TCA and proceed in accordance with the controller's instructions.

I would like to turn now to a brief review of activity in this area and a general description of the equipment used to provide air traffic control service.

In 1979, the three metropolitan area airports combined handled more passengers, cargo, and aircraft movements than any other comparable geographic area in the world. There were more than 54 million passengers handled; more than 763,000 metric tons of cargo moved; and almost 849,000 aircraft movements.

The New York Common I, commissioned in September 1968, is the major air traffic control facility for the previously described 1,600 square mile area and the 400 square mile TCA that falls within the approach control area. Two radar systems cover this area: one located at JFK, the other at Newark Airport. Both are remoted to the New York Common I. These two radars present targets (small blips of light) on controllers' radar displays.

The ARTS IA System was commissioned in the New York Common I in June 1969. This is a computer system that processes flight data inputs and correlates this data with radar targets on the controller's display. It produces data tags showing identification, speed, and altitude of all aircraft operating in the TCA and, selectively, other aircraft operating outside the TCA but within the coverage of the two radar systems and under the control of the air traffic control system.

The heart of the ARTS IA System is the alphanumeric generator. The original tube-type generator was replaced in

August 1978 with a new \$600,000 solid state unit which is much more reliable and easier to maintain.

It is significant to note that the ARTS IA System and the two radar systems operate independently. For example, if the ARTS IA fails, the alphanumeric data tags on the controller's display disappear. However, the radar target continues to show the aircraft position while altitude, identification, and flight itinerary are always shown on written flight progress strips for each controlled flight and is continuously available to the controller for cross reference and backup. This is a frequent mode of operation because the ARTS IA System is taken out of service each day from 2 a.m. to 6 a.m. for routine hardware and software maintenance and testing.

Finally, to complete this part of the picture, there are radar displays in each of the three control towers used by the tower controllers to provide service to close-in arrivals and departures.

Before discussing specific system failures, I would like to define two key terms which are frequently misunderstood: near midair collisions and system errors.

Basically, a near midair collision is in the "eye of the beholder" and is, thus, highly subjective. For example, it is not unusual for a pilot to report a near midair collision when suddenly and unexpectedly encountering another aircraft above, below, or to one side. At the same time, it is not at all uncommon for the other pilot to give no special significance to the incident because he had the other aircraft in sight early on and took the necessary action to avoid the other aircraft safely. We have had near midair collisions reported when two aircraft have passed one another with minimum standard safety separation of 500 feet vertical or 1 1/2 miles horizontal. I don't want to belittle the importance or validity of near midair collision reports, but only to emphasize their subjectivity. The fact is we treat each report very seriously and investigate each report thoroughly with the objective of learning how we can prevent a potentially hazardous incident.

An air traffic system error occurs when two or more aircraft receiving air traffic control separation service come closer together than the minimum standard separation criteria permit. Under a variety of circumstances, these separation standards vary from as little as 500 feet vertically or 1 1/2 miles laterally to as much as 2,000 feet vertically or 5 miles laterally. There are special circumstances that require

lateral separation of up to 10 miles. We treat any violation of these standards, no matter how slight, as a serious matter. Each error is thoroughly investigated to determine the direct and contributing causes so that appropriate corrective action may be taken. Human error has proven by far to be the most frequent cause of system errors.

We have had a recent disturbing increase in the number of system errors as well as near midair collision reports in the New York metropolitan area. Investigation of some of these incidents is complete; other investigations are still in progress.

One important point that is clear in our investigations thus far is that equipment failure in the New York Common I was not a factor in any of the reported incidents. All the incidents occurred when the system was operating normally.

For example, two computer outages on July 2 received a lot of attention in connection with a possible system error. We found two faulty printed circuit boards caused the computer outage. That problem has been corrected. We investigated the allegation that, during the outage, a small aircraft unknown to the controllers had crossed the path of seven larger jets. This report, reaching us first through the newspapers,

suggested that a dangerous situation had occurred during the computer outage, yet no system error or near midair collision report had been reported as is required if such a situation had occurred. We interviewed the controller in charge of the appropriate segment of airspace. He told us that he was well aware of the small aircraft's position, course, and altitude and at no time did this aircraft present any danger to other aircraft.

We also investigated the June 30 incident mentioned in your letter to Chairman Anderson. The small aircraft was operating VFR. In an interview by our safety inspectors, the pilot stated that he had sighted the Eastern Airlines A-300 at least 5 miles before they passed and that he did not consider it to be a problem. However, in reconstructing the smaller aircraft's flight profile, it appears that the pilot inadvertently entered TCA airspace without prior approval. Enforcement action against the pilot for this infraction is being taken.

The July 9 incident between a British Airways 707 and an unknown Cessna 310 occurred above the top layer of the TCA at 8,500 feet and the Cessna was not in contact with the controller. Since that incident, we have taken action to readvertise the fact that radar advisory service is available

to aircraft operating under VFR rules and restated the frequencies on which the service is available in the New York metropolitan area.

The other incidents your refer to in your letter are still being investigated. Evidence so far suggests that human error was the primary cause of these incidents.

While we believe our present system is safe, there are additional steps we can take and are taking to improve the safety and reliability. Several efforts are now underway that will bring about both short-term and long-term improvements. I would like to summarize three of these major efforts.

In mid-January, a team of procedures and airspace management experts drawn from government and industry initiated a detailed review of the airspace structure and procedures serving the busy corridor between New York and Boston. Particular attention is focused on how best to handle arriving, departing, and through flights in this busy corridor. Thirty-seven problem areas, classified into eight major categories of how best to use the airspace, are being closely examined. The initial report of this group is scheduled for September 4.

In a separate but coordinated effort, several informal airspace meetings have been held to publicly discuss a proposal to expand the New York TCA airspace. This proposed expansion would extend positive separation service to aircraft out to 42 miles from the southern tip of Manhattan, 22 miles farther than today, and up to 12,500 feet, which is 5,500 feet higher than today's TCA ceiling. This expansion of positive controlled airspace has been proposed as a means of reducing the potential hazards associated with the mix of IFR and VFR traffic outside and above the present New York TCA.

Finally, we are now putting the final touches on a new control facility at Garden City, Long Island. This terminal radar approach control facility, called the New York TRACON, is equipped with the latest state-of-the-art automation and dynamic data display systems, specifically designed to meet air traffic control requirements. The New York TRACON will replace the existing New York Common I. This new facility will provide us with better capability to meet both present and future demands of traffic growth and complexity. While the present ARTS IA has a 250 dynamic track capability, the new ARTS IIIA System in the TRACON has a 1,200 dynamic track capability. This added capacity, along with planned remoting of additional terminal radars into the TRACON, will permit us to

substantially expand the airspace presently controlled by the Common I.

In addition to expanded capacity for receiving, processing, and displaying dynamic data which will help our controllers provide expanded and more efficient service, the new ARTS IIIA System will permit us to introduce several important safety features such as conflict alert and minimum safe altitude warning.

The terminal conflict alert program provides the controller with visual and aural alerts when an existing or pending traffic situation would require immediate attention or action. The controller is alerted in sufficient time, up to 40 seconds, to take action on a predicted close proximity situation. Even though the controller may already be aware of the developing situation and has taken appropriate action to resolve a traffic conflict, Conflict Alert serves as an additional reminder.

The minimum safe altitude warning feature gives the controller advance visual and aural warning indications that an aircraft is descending to or operating at an altitude lower than the safe minimum. With this information, the controller immediately advises the pilot who can take corrective action. This feature is particularly important during the final

approach phase where a pilot may have inadvertently set up an incorrect descent profile.

Unresolved safety problems associated with the operation of the Hempstead Resource Recovery Plant, located adjacent to our TRACON, have delayed our schedule for the TRACON. We are working closely with the various Federal, state, and local agencies trying to resolve these problems. We are most anxious to commission the TRACON in mid-January 1981, and are doing all we can to meet that scheduled date. We would be pleased to discuss further with the Subcommittee the nature of the problems we are experiencing with commissioning the facility and where things stand at the present time.

Madam Chairwoman, that completes my prepared statement. My associates and I would be pleased to respond to any questions you may have at this time.