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BARNZ

BOARD OF AIRLINE REPRESENTATIVES NEW ZEALAND INC

Managing Noise

Aircraft Noise Community Consultative Group

Meeting

6 December 2017

Purpose of Pack

- Cover the roles and responsibilities between Airways, Airlines and Airports in noise management
- Overview of the legislative and regulatory environment for aviation in New Zealand
- How the aviation industry contributes to noise abatement
- Specific initiatives for noise abatement at Auckland Airport
- Future opportunities

International Civil Aviation Organisation (ICAO)

- Specialist agency of the United Nations responsible for the safe and orderly development of the world's aviation industry.
- Sets standards and international aviation regulations necessary for aviation safety, efficiency and regularity.

Ministry of Transport

- New Zealand Government's principal transport advisor.

Civil Aviation Authority of New Zealand

- Regulates civil aviation in New Zealand and incorporates/enforces ICAO's standards and regulations into NZ Civil Rules
- Develops Civil Aviation Rules (CARs) under the Civil Aviation Act 1990. Rules govern all aspects of aviation including certification of NZ airlines, airports and Airways NZ plus how all aircraft (including international carriers) manoeuvre in New Zealand.

Auckland International Airport Limited

- Airports provide the infrastructure for aircraft to land and take off and facilities for processing passengers as they arrive and leave.
- An airport's main influence in respect of noise relates to its role in monitoring compliance to and reporting on the airport noise overlay areas, and the management of airline schedules.
- Auckland airport also provides noise mitigation packages to homes that qualify within the airport noise contours.

Airways Corporation of New Zealand

- Airways Corporation of New Zealand (Airways) manages 30 million square kilometres of airspace, of which 7 million sq/km are within domestic skies, providing air traffic control, surveillance, communication, flight inspections, charting and airspace design services.
- Airways operate and manage the designated airspace under the Civil Aviation Rules, which are developed under the Civil Aviation Act, and monitors the compliance of airlines to these. This includes approaches, arrivals and departures at NZ airports.
- Airways holds a CAR Part173 procedure design certificate and ensures the conformance of airlines to all instrument flight procedures at NZ Airports

Board of Airline Representatives New Zealand Inc (BARNZ)

- BARNZ is an incorporated society comprising of 28 member airlines.
- BARNZ represents airlines in community consultations relating to aircraft noise, and works to enable aviation growth in a socially responsible and environmentally sustainable way.

Airlines

- Each Airline uses navigation and procedure databases derived from information supplied by Airways NZ designers. These departure, arrival and approach procedures determine the paths over the ground and minimum altitudes to be flown.
- Each Airline sets Standard Operating Procedures (and train their pilots to use these SOPs) on how they want pilots to operate the aircraft: these may, and do, differ for each airline

Pilots

- Ultimate responsibility for safe operation of aircraft.
- Follow airline procedures and recommended best practice, but retain operational authority and discretion to make final decisions regarding safe operation of their aircraft based on the specific operating conditions at the time.
- Pilots are expected and encouraged to adhere to standard operating procedures for arrival and departures, (unless maintaining safety dictates otherwise).

The legal framework for aviation in New Zealand includes the following pieces of aviation regulation and rules:

- Civil Aviation Act 1990
- Civil Aviation Rules (CARs)
- Resource Management Act 1991
- Auckland Unitary Plan

Civil Aviation Act 1990

Promotes aviation safety for New Zealand's aviation system

Civil Aviation Rules (CARs)

Application of rules under the Civil Aviation Act. Provides the rules relating to airport and aircraft operations, including personnel, airspace, general operating and flight procedures, and noise abatement procedures.

Resource Management Act 1991

- Key planning and resource management statute
- Under the RMA aircraft noise is generally regulated through district plan controls on the emission of aircraft noise resulting from the take-off and landing of aircraft at airports
- Noise generated by over-flying aircraft is not covered by the RMA

Auckland Unitary Plan

- Auckland Airport is a requiring authority for 3 designations under the Unitary Plan
 - Designation 1100 - imposes conditions on the level of aircraft noise that can be generated at the airport
 - Also imposes obligations on the airport to monitor and mitigate that noise
- Auckland Unitary Plan establishes an Airport Noise Overlay that imposes controls on the establishment of activities sensitive to noise within the vicinity of the airport, to manage appropriate land uses within these areas, and protect the airport from reverse sensitivity effects

How each contribute to noise abatement

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Auckland International Airport Limited

- Monitor compliance of the noise contours
- Work with airlines and Airways on arrival and departure schedules
- Community consultation to engage with the public, such as ANCCG
- Provide noise mitigation packages to qualifying homes within the noise contours

Airways Corporation of New Zealand

- Work with airport and airlines to develop instrument flight procedures to support noise reduction benefits
- Implementing Performance-Based Navigation instrument flight procedures, including departures, arrivals, approaches that support noise reduction and environmental benefits
- Monitor compliance with noise abatement procedures (Civil Aviation Rules)

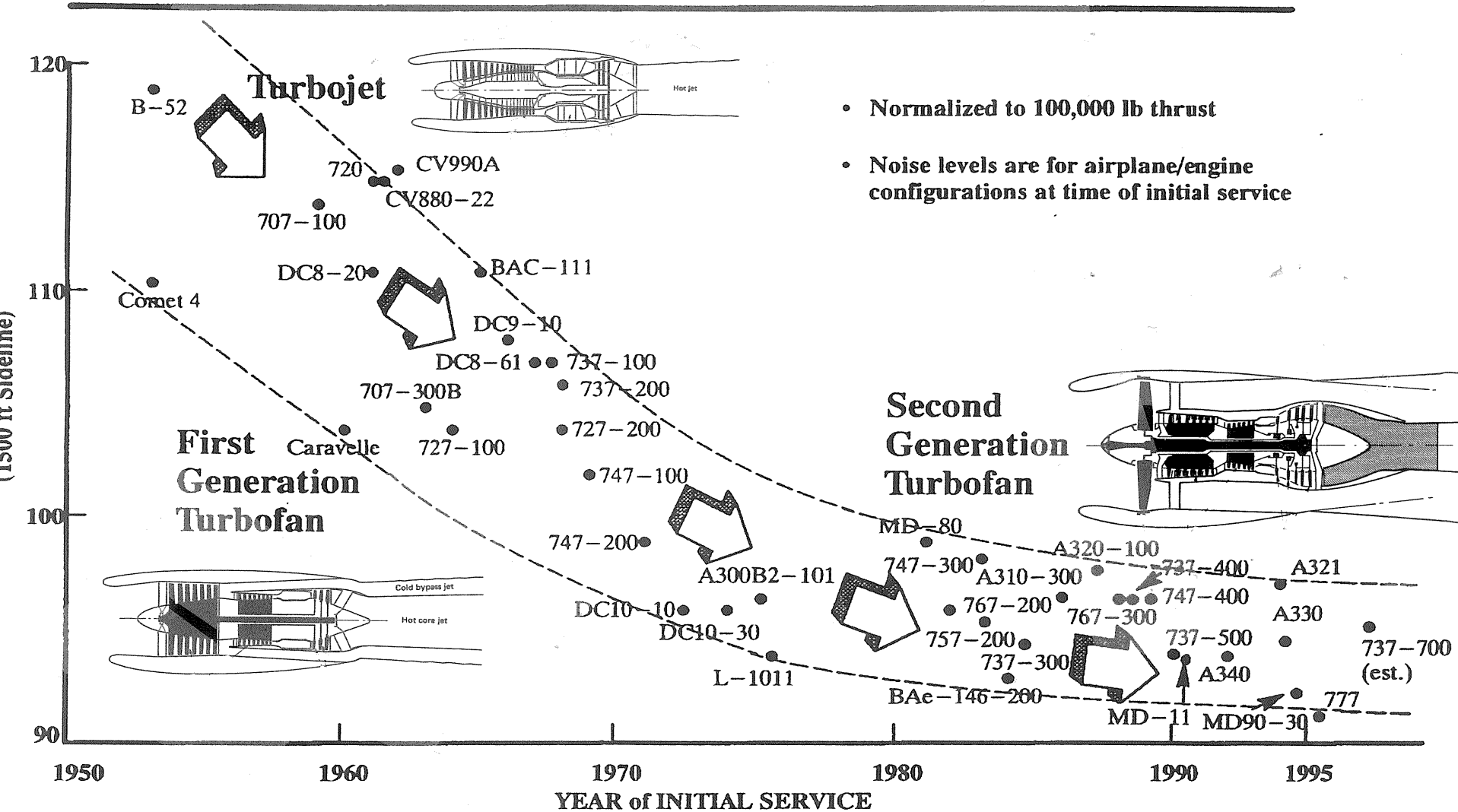
How each contribute to noise abatement

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Airlines

- Set approach, arrival and departure procedures for air crew (Designed by Airways NZ in compliance with CARs)
- Train air crew for noise abatement procedures, such as thrust reduction and flap retraction on takeoff, minimum altitude to lower undercarriage and guidelines for use of noise generating activity such as air brakes
- Examples – below 10,000ft aircraft speed must be below 250kt Indicated Airspeed unless otherwise directed by Air Traffic Controller. Aircraft must have undercarriage down no later than 2000ft and landing flap down by 1000ft.
- Best practice intent to manage aircraft speed without applying air brake. However high tailwind during approach may make this difficult to achieve.
- Fleet Investment– airlines continually invest in new aircraft models that have delivered quieter performance over the last 40 years (the following diagram is an example of this).
- Use of Noise Abatement Departure procedures – climb at fixed speed, reduce engine thrust and retract flaps at prescribed altitudes.

Figure 6 - Progress in Aircraft Noise Reduction



Pilots

- Operational discretion allowed by pilots (altitude, speed etc) and often reflects airline standard operating procedures (SOPs).
- Managing the aircraft energy (speed/ altitude) to deliver a stable approach and safe landing is the prime objective. Operating techniques that deliver a quieter approach are typically more challenging for management of the aircraft energy for a pilot.
- Pilot performance monitored by airline using recorders of all aircraft parameters. The sole purpose is to enhance safety and recorded data is confidential (ICAO requirement). Airline looking for unstable approaches, exceedance of bank angle, adherence to company SOPs etc.
- If pilot breaches ATC instructions or some unusual event (called an occurrence) occurs then a report is filed to the CAA. All incidences must be reported to CAA of NZ. Serious occurrences can result in an investigation and in exceptional breaches of safety rules the airline or pilot can be prosecuted.

Night-time arrival procedure change examples

- In late 1990's airlines implemented a night procedure between 2200-0600 requiring a longer final approach to the runway. Increased track miles and cost to airlines but resulted in a higher aircraft altitude over the central city suburbs.
- Draft proposal for arrivals from North West (Asia/ Brisbane) to use new arrival procedure and descent across Stillwell area into Hauraki Gulf as opposed to the majority tracking to LOSGA and overflying central city suburbs.

Night-time departure procedure change examples

- Air traffic permitted, night time North America departures off RWY 23L turn left to track over Manukau Harbour/ Takanini as opposed to turning right and climb over central city suburbs.
- Previous live trials of amended departure profiles off RWY 05R for flights with a destination to West or North West. (North Asia/ Australia).
- Early turn jet departure procedures implemented for domestic jets overnight.

Part 93 rule

- Original rule instated in the 1960s for arrivals and departures to come into Auckland Airport over the Manukau Harbour between the hours of 2300-0700 for conditions when the windspeed was less than 5 knots.
- Overnight traffic movements have grown organically since the airport opened in the 1960's, making it more difficult to apply this practice today.
- The mix of arrival and departure schedules at this time of night makes it extremely difficult to fully execute the “Preferential Runway” process as the waiting delays to aircraft can quickly become greater than 30 minutes.
- Consequently ATC will often elect to use “one direction” for Runway operations.
- Airways has enacted early turn departure procedures for night time jet operations off both runways in order to avoid overflying the city, but they are not useable by all jet types or for all occasions.
- Airways has also trialled turning jets heading north of the airport when above 5000ft vs. 3000ft, but the anecdotal evidence suggests that any noise at night after 10pm is noticed by parts of the community away from the airport environs who feel impacted.

Use of LOSGA

- Why LOSGA is used
- Improvements made to LOSGA overflights to date – removal of jet visual approaches
- Future changes (new STARS may reduce traffic over LOSGA)

STAR approaches

- The Airport Industry Working Group (Airways, BARNZ, AIAL) are working on night time reduction of flights across the city part of the Auckland Isthmus (Night STARS).

Performance-based navigation future SMART tracks

- Draft recommendation in Yellow U23 SMART Draft Report for a new SMART approach to be trialled from the south to RWY 23L from mid-2018.

Four SMART Approach flight paths currently operate at Auckland Airport, two from the north and two from the south.

