

# Not Meeting the Ground **U**

Always make sure you are setting your altimeter properly using the correct QNH, for both IFR and VFR operations.

**Q**NH is a 'Q' code that indicates atmospheric pressure adjusted to mean sea level for a given place and temperature. Like most countries, the QNH unit of measurement used in New Zealand is the international standard hectopascal (hPa).

The abbreviation 'QNH' survives from a time when Morse code was used because voice modulated radio was unsatisfactory. To make Morse code a more efficient means of communication, commonly used transmissions were incorporated into a Q code. For example, QEG meant "can I leave the parking area?" QNH continues to mean "barometric pressure adjusted to sea level". Most of the Q codes are no longer used.

## Your Responsibilities

The most representative QNH must be used by pilots to adjust their aircraft altimeter barometric setting so that the altimeter will correctly read their altitude above mean sea level.

QNH is so safety-critical that it can be provided only by Part 174 certificated organisations – currently MetService and Airways.

Part 91 sets out the altimeter setting requirements for pilots. They are summarised in *AIP New Zealand* ENR 1.7 Altimeter Setting Procedures.

The **aerodrome QNH** altimeter setting is the aerodrome level pressure reduced to mean sea level in accordance with the standard atmosphere.

The **Zone Area QNH** altimeter setting is the QNH setting applicable within the defined Area QNH Zones.

Without the most recent aerodrome QNH, or zone area QNH, your altitude may be dangerously different to nearby aircraft and the ground below – hopefully not the ground in front!

How different? Depending on the aerodrome, when on approach the minimum descent altitude (MDA) or decision altitude (DA) could be as low as 200 feet. In terms of QNH, 200 feet equates to roughly just 7 hPa.

What's more, with New Zealand's unique topography and rapidly changing weather patterns, changes in QNH can be greater than 10 hPa in very little time, and over very little distance.

For these reasons, it's critical that you do not use any pressure setting other than QNH (there's sometimes confusion with QFF, QFE or QNE). There are currently some inconsistencies in the QNH statements on the aerodrome plates in the AIP. These will be reviewed and amended through the normal AIRAC cycle.

## Remote QNH

There are a number of aerodromes that have published instrument approaches, but they do not provide an associated QNH source in the AIP aerodrome chart. In this situation, you need to use a **remote QNH** to calculate the MDA for that aerodrome.

This is done by adding 5 ft to the published MDA for every 1 NM in excess of 5 NM from the remote QNH source (the nearest available aerodrome QNH).

Remote QNH cannot be used for some instrument approaches, or at particular aerodromes. In such cases, the instructions on the aerodrome approach plates will state "Use [name of the aerodrome] QNH only".

Remote QNH also cannot be used when flying RNAV approaches with barometric vertical path guidance (Baro-VNAV) that is to LNAV/VNAV minima. The LNAV/VNAV minima entry on the approach chart will be annotated "Use of remote QNH NA".

## Altitude and Flight Levels

### Cruise Below Transition Altitude

New Zealand has a system of area QNH zones for flights cruising at or below the transition altitude (13,000 feet). These zones ensure all aircraft cruising in a given zone have their altimeters set in sync.

Each zone derives its QNH information from a primary or secondary source, such as an aerodrome QNH, or a well-placed weather station.

Using QNH from these zones also ensures that you maintain a safe distance from terrain when cruising at lower altitudes. Note that zone area QNH should not be used for instrument approaches and landings.

### Transition Layer

The transition layer exists to provide pilots with a vertical buffer for changing altimeter settings. Level flight in the transition layer between 13,000 ft and FL150 (or FL160 if the Zone Area QNH is 980 hPa or lower), is permitted only when authorized by ATC within controlled airspace.

The lowest flight level available for use above the transition altitude is normally FL150. However, where a zone QNH is 980 hPa or less, the minimum usable flight level for that zone increases to FL160.

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## Cruise Above Transition Layer

Area QNH zones only extend up to the transition altitude (13,000 ft) in New Zealand. At or above the transition level (FL150 or FL160 if the Zone Area QNH is 980 hPa or less), all aircraft altimeters are set to the standard atmospheric pressure of 1013.2 hPa. ■

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