
Schedule of Aircraft Disinsection Procedures



Australian Government

Australian Quarantine and Inspection Service

**Australian Quarantine and
Inspection Service**

and



**Ministry of Agriculture and Forestry
Biosecurity New Zealand**

Version 2.0

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Disclaimer

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- Special arrangements permitting additional or alternative disinsection methods may override these procedures when directed by the Australian Director of Human Quarantine or the Director-General of Agriculture or Health in New Zealand (or their representatives).
- In addition please refer to Department of Agriculture, Fisheries and Forestry's general [Disclaimer](#) and the MAF Biosecurity New Zealand [Disclaimer](#).

Version Control

Updates will occur automatically on the AQIS and MAFBNZ websites and this page will summarise the amendments as they occur. The specific sections updated are described in the revision table below:

Version	Date	Author	Description of Change	Sections
1.0	1998	AQIS/MAFBNZ	First issue	All
2.0	October 2009	Aimie Wilkinson and Doug Farr	Review	All

1 Introduction

This document has been prepared in cooperation between the Australian Quarantine and Inspection Service (AQIS) and the Ministry of Agriculture and Forestry Biosecurity New Zealand (MAFBNZ) for the regulation of disinsection arrangements of aircraft flying into Australia and New Zealand.

International aircraft are disinsected to help protect Australia and New Zealand from potential disease vectors and harmful pests. This schedule has been jointly developed by AQIS and MAFBNZ incorporating the latest recommendations and practices from the World Health Organization (WHO).

WHO defines 'disinsection' as: the procedure whereby health measures are taken to control or kill the insect vectors of human diseases present in baggage, cargo, containers, conveyances, goods and postal parcels.

WHO recommends that aircraft disinsection helps to minimise the spread of mosquito-borne diseases. Mosquitoes act as vectors of pathogens and parasites that cause a number of serious diseases, such as: Dengue Fever, Yellow Fever and Malaria.

The International Health Regulations 2005 (IHRs) took effect on 15 June 2007. The IHRs establish global benchmark standards to prevent, protect against, control and provide a public health response to the international spread of disease in ways that are commensurate with and restricted to public health risks and which avoid unnecessary interference with international traffic and trade. The position of the IHRs is that the disinsection of aircraft is a necessary measure to help prevent the spread of vector borne diseases.

AQIS and MAFBNZ are working in partnership and will authorise on behalf of each other all disinsection agreements and any other undertakings as required.

1.1 The Australian Quarantine and Inspection Service (AQIS)

AQIS is part of the Australian Government [Department of Agriculture, Fisheries and Forestry](#) and plays an essential role in maintaining Australia's animal, plant and human health status. AQIS is Australia's first line of defence, reducing the risk to our agriculture industries and environment against exotic pests and diseases.

Quarantine controls at Australia's borders are governed by the *Quarantine Act 1908*. These controls aim to minimise the risk of exotic pests and diseases entering Australia and help protect our agriculture export industries as well as our environment, tourism industries and lifestyle.

AQIS administers human quarantine functions on behalf of the [Department of Health and Ageing](#) including the screening of arriving passengers for human quarantinable diseases, surveillance activities relating to aircraft disinsection and vector monitoring.

Under Regulation 23 of the Australian *Quarantine Regulations 2000*: The commander of an overseas aircraft (or, if the commander is not the operator of the aircraft, the operator of the aircraft) must make arrangements for the disinsection of the aircraft in a manner, and within a time, approved by a Director of Quarantine.

1.2 MAF Biosecurity New Zealand (MAFBNZ)

MAFBNZ is the division of the Ministry of Agriculture and Forestry charged with the leadership of New Zealand's biosecurity system. It encompasses facilitating international trade, protecting the health of New Zealanders and ensuring the welfare of our environment, flora and fauna, marine life and Maori resources. MAFBNZ incorporates New Zealand's quarantine services which are the first line of defence for reducing risk to New Zealand's natural resources, plants, animals and people from exotic pests and diseases.

The various quarantine controls in place across New Zealand's borders are mandated by the *New Zealand Biosecurity Act 1993*, the *New Zealand Health Act 1956* and the *Health (quarantine) Regulations 1983*. These controls are administered by MAFBNZ and the New Zealand Ministry of Health.

The disinsection programme (also administered by MAFBNZ) is a measure undertaken to prevent the introduction and spread of unwanted insect pests (many of which are also vectors of human, animal and plant diseases). The disinsection of aircraft to specifically control vectors of human diseases (such as mosquitoes) is carried out on behalf of New Zealand's Ministry of Health.

1.3 Disinsection Treatment Options

The following options are available to airline operators to meet Australian and New Zealand cabin and hold disinsection requirements:

Cabin	Section	Hold	Section
Residual	2	Residual	2
Pre-embarkation	3	Pre-flight	5
Pre-flight and Top of Descent	4	On-arrival	6
On-arrival	6		

1.4 Disinsection Aerosols

Preparations of chemicals currently used in aircraft disinsection are based on two active ingredients, permethrin and *d*-phenothrin, currently recommended by WHO. The difference between permethrin and *d*-phenothrin is principally one of residual effect; permethrin is a residual pyrethroid and *d*-phenothrin a non-residual pyrethroid.

d-phenothrin works by treating the airspace within the cabin, and quickly kills small soft bodied insects which may be present.

Permethrin (although slower acting) not only treats this same space, but also provides a fine residual coating to many of the internal surfaces. When insects come in contact with these treated surfaces they will be knocked down to the floor where they will receive a lethal dose.

It is the airlines responsibility to ensure the aerosol products used meet all aviation and aircraft manufacturers technical and safety requirements, in addition to meeting AQIS and MAFBNZ requirements.

The following websites contain information on aircraft disinsection products currently accepted by AQIS and MAFBNZ. Please liaise directly with one of these companies to acquire spray cans for your flight into Australia or New Zealand:

- Arandee Industries – www.arandee.co.nz
- Callington Haven – www.callingtonhaven.com
- PSA – www.psa-paris.com

Spray cans must contain the following active ingredients for each treatment type:

Treatment	Active Ingredients
Pre-embarkation	2% permethrin
Pre-flight	
Top of Descent	2% <i>d</i> -phenothrin
On-arrival	
Holds	2% <i>d</i> -phenothrin and 2% permethrin
Touch Ups	2% permethrin

Please refer to the [Spray Rates Listing](#) for the amount of spray required for each aircraft type. The [Spray Rates Listing](#) is available on the AQIS website: <http://www.daff.gov.au/aqis/avm/aircraft/disinsection/procedures>.

1.5 Certification

The airline operator is responsible for ensuring that a certificate detailing the cabin and hold treatment is completed by an airline nominated applicator and that the exhausted cans remain onboard until the intended destination is reached. All sections of the certificate need to be accurately completed and any amendments to the original copy need to be crossed out and initialled; the use of correction fluid is not acceptable.

A copy of the onboard certificate and the exhausted cans must be made available by cabin staff on request. Hold cans are permitted to remain in the hold for collection by ground crew.

Please note: failure to comply with AQIS/MAFBNZ disinsection requirements will result in the aircraft being sprayed on-arrival prior to passenger disembarkation and cargo being unloaded. This may incur a Fee for Service charge to the airline operator.

The minimum requirements for certification are attached in the Appendices. Multiple certificates will be required when an aircrafts cabin and hold have been treated differently.

1.6 Approval Process

Approval to perform disinsection may be dependant on airlines entering into an agreement with either AQIS or MAFBNZ. The agreement outlines the application of a particular set of procedures; and the supervision, monitoring and testing of the airlines compliance with those procedures. Airlines must contact either [AQIS](#) or [MAFBNZ](#) for further details on these agreements.

2 Residual Cabin and Hold Disinsection

Airlines may only undertake residual disinsection of their aircraft after they have entered into an agreement with either AQIS or MAFBNZ, see [section 1.6](#) for more information.

In this method, internal surfaces of the aircraft are regularly sprayed with a residual insecticide. This treatment is designed to kill any invertebrates which may land or walk over the treated surfaces.

Residual cabin disinsection needs to be performed in conjunction with a hold disinsection treatment option as specified in [section 1.3](#). Similarly residual hold disinsection needs to be performed in conjunction with a cabin disinsection treatment option.

2.1 Residual Disinsection Procedures

Step	Action
1	Treatment must be at intervals not greater than eight weeks.
2	The formulation used for residual spraying is an emulsion containing 2% permethrin.
3	Residual spraying must be undertaken using either a compressed air spray gun, pressure retaining sprayer or fogging apparatus capable of applying a rate of approximately 0.2g of permethrin per square metre.
4	An aerosol insecticide containing 2% permethrin is to be used for the cockpit and any other areas where the emulsion may cause damage or be a safety concern.
5	It is the airlines responsibility to ensure the permethrin products used meet all aviation and manufacturers technical and safety requirements, in addition to meeting AQIS and MAFBNZ requirements.

2.2 Residual Cabin Procedures

Step	Action
1	The required dosage rate is 0.2g of permethrin per square metre on the interior surfaces and 0.5g of permethrin per square metre on the floors; to achieve this, the floor needs to be sprayed twice. The aim is to achieve an even pattern of close droplets on all surfaces, not necessarily to achieve total cover, and certainly not to produce run off.
2	Prepare the aircraft by opening, clearing and cleaning all lockers, cupboards, storage units and closing all curtains and window blinds. Remove carpet covers if present.
3	Turn off the air conditioning system including any pre-conditioned air from a ground support unit. Recirculation fans may be left on if essential to the operation of the aircraft, but set to the lowest rate.

Residual Cabin Procedures...continued

Step	Action
4	Spray all surfaces including floors, ceilings, walls, lockers, curtains, toilets, galleys, and wall areas behind curtains. All doors and locker lids must be sprayed both sides. Then respray the floor areas only, for a second time.
5	Spray carefully around permanently stored items such as loud hailers, first aid kits, oxygen bottles or fire extinguishers.
6	Do not spray food preparation areas, bench tops, mirrors, windows, instrument panels, video monitors, medical equipment, overhead control panels, separate crew rest modules, bassinets, circuit breaker panels or removable galley components, such as food trolleys. Any spray spilling on to these areas must be immediately wiped clean to remove any chemical deposits.
7	After spraying is completed, the air conditioning system and recirculation fans can be reactivated and run for at least one hour to clear the air of the volatile components of the spray.

2.3 Residual Hold Procedures

Step	Action
1	The required dosage rate is 0.2g of permethrin per square metre for the interior hold surfaces and 0.5g of permethrin per square metre on the hold floors. To achieve the 0.5g of permethrin, the floor must be sprayed twice.
2	The areas must be free of pallets, containers and any rubbish.
3	Spray compartment walls (including the inside of the door/s), ceilings, floors and both sides of dividing curtains. Pay particular attention to sidewall and floor cavities.

2.4 Certification for Residual Cabin and Hold Treatments

- The applicator is responsible for ensuring that a certificate detailing the treatment is completed.
- The certificate for the cabin and hold residual disinsection must be carried onboard the aircraft and made available to a Quarantine inspector on request.
- The minimum requirements for certification are detailed in [Appendix 1](#).
- Multiple certificates will be required when an aircrafts cabin and hold have been treated differently.

2.5 Aircraft Disinsection Information Database

- Airline operators are responsible for updating the Aircraft Disinsection Information database ([ADI](#)), which lists the treated aircraft and treatment expiry dates to facilitate quarantine clearance on-arrival.
- Access to ADI will be given to airlines after they have entered into an agreement with either AQIS or MAFBNZ.

2.6 Residual Top-up and Fixture Replacement Procedures

When areas receive wet cleaning or sections of wall linings, carpet or other areas receive substantial cleaning after the residual spraying has been conducted, they will require supplementary 'touch up' spraying with an aerosol spray containing permethrin. See [section 1.4](#) for more information on aerosol cans.

Step	Action
1	The aerosol can must be directed at the cleaned surface and discharged approximately 30 cm away in a method that ensures that the droplets of the spray cover all cleaned surfaces.
2	Interior cleaning and soiled item replacement of a relatively minor nature at stations other than the treatment station are considered negligible in the overall context of the program, and will not require re-spraying.
3	It will be necessary for the residual spray to be reapplied when fixtures such as entire walls or large sections of carpet are replaced or have undergone a deep clean.
4	Fixtures used for replacement purposes may be treated off aircraft, but these items must be treated either on the same day or on a date after the aircraft disinsection is carried out in order for the certificate to comply.
5	Any non-conformance in procedures should be reported to the Quarantine authorities at the airport of destination as soon as possible.

3 Pre-embarkation Cabin Disinsection

Airlines may only undertake pre-embarkation disinsection of their aircraft after they have entered into an agreement with either AQIS or MAFBNZ. See [section 1.6](#) for more information on agreements.

Pre-embarkation cabin disinsection provides for the spraying of aircraft cabins, in the absence of passengers before embarkation. The treatment lasts for the duration of the single flight sector. This method not only kills invertebrates that may be present in the cabin at the time of disinsection, but also leaves a minimal but effective amount of residue which is likely to kill invertebrates that may board between the time of disinsection and departure.

Pre-embarkation cabin disinsection needs to be performed in conjunction with a hold disinsection treatment option as specified in [section 1.3](#).

Please refer to the [Spray Rates Listing](#) for the amount of spray required for each aircraft type.

3.1 Pre-embarkation Cabin Treatment Procedure

Step	Action
1	The treatment is to be carried out at the last overseas airport before departure to Australia or New Zealand.
2	The treatment must take place after catering has been loaded and prior to the commencement of passengers boarding. Spraying must be conducted in the absence of passengers.
3	Spraying must be completed using a multi-shot can with 2% permethrin as the active ingredient. See section 1.4 for more information on aerosol cans.
4	The aircraft must be fully catered and the service doors closed. One main entry door per level may remain open to facilitate operational requirements.
5	During disinsection and for a period of five minutes after the completion of the spray, the aircraft's air-conditioning must be switched off. Recirculation fans may be left on if essential to the operation of the aircraft but set at the lowest flow rate.
6	Overhead and sidewall lockers are to be open during the spraying.
7	Spraying is to be directed towards the open overhead lockers and ceiling whilst walking along the aisle at a rate of not more than one step or one row of seats per second.
8	Spray all galleys, including those on lower levels and lift access.
9	Spray all toilets and lockers for two seconds each.
10	Spray all crew rest areas and the flight deck for three seconds each.
11	Any non-conformance in procedures should be reported to the Quarantine authorities at the airport of destination as soon as possible.

3.2 Certification for Pre-embarkation Cabin Treatments

- The applicator is responsible for ensuring that a certificate detailing the treatment is completed.
- The certificate for the pre-embarkation cabin disinsection and the exhausted cans must be carried onboard the aircraft and made available to a Quarantine inspector on request upon arrival.
- The minimum requirements for certification are detailed in [Appendix 2](#).

3.3 Aircraft Disinsection Information Database

- Airline operators are responsible for updating the Aircraft Disinsection Information database (ADI), which lists the treated aircraft to facilitate quarantine clearance on-arrival.
- Access to ADI will be given to airlines after they have entered into an agreement with either AQIS or MAFBNZ.

Examples of Pre-embarkation Cabin Treatment Procedures

3.4 Boeing 747

Step	Action
1	A B747 requires four x 100g multi-shot cans containing 2% permethrin as the active ingredient.
2	Carry out all procedures as outlined in section 3.1 .
3	Downstairs: two operators each with two cans starting at the rear of the aircraft and moving forward at a rate of not more than one step or one row of seats per second, with the spray being directed towards the open overhead lockers.
4	Upstairs: one operator using the remaining spray from all four cans with all lockers opened and moving at one step per second with two cans at a time.
5	A B747 Combi has the rear portion of the main cabin as a cargo area. This can be accessed via a door at the end of the main cabin and sprayed using one x 150g one-shot can that contains 2% <i>d</i> -phenothrin and 2% permethrin as the active ingredients. Refer to pre-flight hold disinsection procedures in section 5 .

3.5 Boeing 777

Step	Action
1	A B777 requires three x 100g multi-shot cans containing 2% permethrin as the active ingredient.
2	Carry out all procedures as outlined in section 3.1 .
3	One operator with two cans starts at the rear of the aircraft and moves up one aisle and down the other, at a rate of not more than one step or one row of seats per second. When the two cans are empty the remaining aisle is sprayed up and back using the third can.

3.6 Boeing 737

Step	Action
1	A B737 requires up to one x 100g multi-shot can containing 2% permethrin as the active ingredient.
2	Carry out all procedures as outlined in section 3.1 .
3	One operator with one can starts at the front the aircraft and moves down the aisle at a rate of not more than one step or one row of seats per second, with the spray being directed towards the open overhead lockers on one side only. The other side being sprayed in the same manner while walking back.

3.7 Small Aircraft (corporate jets and other small aircraft)

Step	Action
1	Open all cupboards and lockers.
2	Close any window shades that slide over the windows.
3	Minimise cabin air make-up and exhaust.
4	Close all doors.
5	Spray after catering is loaded and prior to passengers boarding.
6	All toilets and lockers are sprayed for two seconds each.
7	Spray cockpit area for a period of two seconds.
8	Spray internally accessed baggage area for four seconds.
9	One operator with one can sprays up one side of the aisle and back down the other side at a pace of not more than one step per second, continuously spraying towards walls and ceiling.
10	Allow the spray to settle for five minutes before resuming air conditioning and normal flight preparations.
11	The external door to the internally accessed baggage area shall only be opened after spraying is completed for a short period whilst the bags are loaded.
12	If there are any separate external holds, then these are to be sprayed after all cargo and luggage has been loaded with the amount specified in the Spray Rates Listing .
13	The same can used to carry out the cabin disinsection may be used for the hold treatment.
14	During the spraying of holds, ensure the hold doors are opened only just enough to prevent spray escaping to the exterior.
15	The hold door should be closed immediately after spraying.
16	The minimum requirements for certification are detailed in Appendix 2 .

3.8 Freighter

- Any area within a freighter that carries cargo is classified as a hold and should meet the hold disinsection requirements as specified in [section 5](#); this includes the main cargo deck.
- The amount of spray required for each aircraft type is listed in the [Spray Rates Listing](#).

Passenger Cabin/Flight Deck

Step	Action
1	Spraying must be completed using a multi-shot can with 2% permethrin as the active ingredient.
2	Carry out all procedures as outlined in section 3.1 .
3	One operator with one can sprays up one side of the aisle and back down the other side at a pace of not more than one step per second, continuously spraying towards open overhead lockers, walls and ceiling.
4	Spray any internally accessed baggage area for a period of four seconds.

Cargo Holds

Step	Action
5	Any area within a freighter that carries cargo is classified as a hold and should meet the hold disinsection requirements as specified in section 5 ; this includes the main cargo deck.
6	The exhausted cans used on the main deck should be collected and placed in the pouch ready for the Quarantine inspector to view if requested.

4 Pre-flight and Top of Descent Cabin Disinsection

Airlines may undertake the pre-flight and top of descent disinsection method of their aircraft without entering into an agreement with either AQIS or MAFBNZ. Airlines are however recommended to make contact with AQIS or MAFBNZ to ensure compliance.

This method refers to a two-part process consisting of pre-flight and top of descent spraying. The timing of the pre-flight spray allows overhead and coat lockers and toilets to be opened and properly sprayed with minimum inconvenience to passengers. Pre-flight spraying is followed by a further in-flight spray of a non-residual insecticide, carried out at top of descent as the aircraft starts its descent into either Australia or New Zealand. The treatment lasts for the duration of the single flight sector.

Pre-flight cabin disinsection needs to be performed in conjunction with a hold disinsection treatment option as specified in [section 1.3](#).

Please refer to the [Spray Rates Listing](#) for the amount of spray required for each aircraft type.

4.1 Pre-flight Cabin Treatment Procedure (first part)

Step	Action
1	The treatment is to be carried out at the last overseas airport before departure to Australia or New Zealand.
2	The treatment must take place after catering has been loaded and prior to the commencement of passengers boarding. Spraying must be conducted in the absence of passengers.
3	Spraying must be completed using a multi-shot can with 2% permethrin as the active ingredient. See section 1.4 for more information on aerosol cans.
4	The aircraft must be fully catered and the service doors closed. One main entry door per level may remain open to facilitate operational requirements.
5	During disinsection and for a period of five minutes after the completion of the spray, the aircraft's air-conditioning must be switched off. Recirculation fans may be left on if essential to the operation of the aircraft but set at the lowest flow rate.
6	Overhead and sidewall lockers are to be open during the spraying.
7	Spraying is to be directed towards the open overhead lockers and ceiling whilst walking along the aisle at a rate of not more than one step or one row of seats per second.
8	Spray all galleys, including those on lower levels and lift access.
9	Spray all toilets and lockers for two seconds each.
10	Spray all crew rest areas and the flight deck for three seconds each.
11	Any non-conformance in procedures should be reported to the Quarantine authorities at the airport of destination as soon as possible.

4.2 Top of Descent Cabin Treatment Procedure (second part)

Step	Action
1	The treatment must be applied immediately prior to the aircraft commencing its descent to the airport of arrival in Australia or New Zealand.
2	An in-flight announcement must be made on all flights into Australia and New Zealand to inform passengers of the upcoming disinsection.
3 Aust Only	<p>Below is the script to be announced on all flights into Australia:</p> <p>“Ladies and gentlemen, to conform with agricultural and health requirements, the aircraft cabin will now be sprayed. This procedure, recommended for this purpose by the World Health Organization, is necessary to avoid the introduction of harmful insects into Australia. Please remain seated and keep the aisles clear while the aircraft is being sprayed. Thank you.”</p>
4 NZ Only	<p>Below is the script to be announced on all flights to New Zealand:</p> <p>“Ladies and gentlemen, to conform to biosecurity and health requirements, the aircraft cabin will now be treated with an aerosol insecticide. This procedure and product is recommended by the World Health Organization. The treatment is necessary to avoid the introduction of insects which can also be carriers of serious human and agricultural diseases. Please remain seated and keep the aisles clear while this process is taking place. If you have a serious medical condition which could be affected by aerosols, please press your call button to discuss this with your cabin crew. Thank you”</p> <p>If a passenger has identified themselves as having a serious medical condition which may be affected by the spray, then arrangements should be made to isolate the passenger from the spray by placing them in an untreated part of the aircraft such as a bathroom/toilet. After the spray has settled, the passenger can vacate that area and the untreated area can then be disinsected. Please contact MAFBNZ for more information on aerosols.</p>
5	Spraying must be completed using a multi-shot can with 2% <i>d</i> -phenothrin as the active ingredient. See section 1.4 for more information on aerosol cans.
6	Inform the crew to turn off the aircraft’s air-conditioning system. Recirculation fans may be left on if essential to the operation of the aircraft but set at the lowest flow rate.
7	Spraying is to be applied towards the walls and ceiling, along the aisle at a rate of not more than one step or one row of seats per second.
8	Overhead and sidewall lockers are to remain closed during the spraying.
9	On completion of the spraying wait five minutes before resuming the air conditioning and maximising the airflow, this is required to ensure the spray has the proper saturation.
10	Any non-conformance in procedures should be reported to the Quarantine authorities at the airport of destination as soon as possible.

4.3 Certification for Pre-flight and Top of Descent Cabin Treatments

- The applicator is responsible for ensuring that a certificate detailing the treatment is completed.
- The certificate for the pre-flight and top of descent cabin disinsection and the exhausted cans must be carried onboard the aircraft and made available for collection by a Quarantine inspector upon arrival.
- The minimum requirements for certification are detailed in [Appendix 3](#).
- On arrival, all exterior doors and windows, including hold doors must remain closed and only be opened in accordance with directions from a Quarantine inspector.

Examples of Pre-flight and Top of Descent Cabin Treatment Procedures

4.4 Boeing 747 Pre-flight Spray

Step	Action
1	A B747 requires four x 100g multi-shot cans containing 2% permethrin as the active ingredient.
2	Carry out all procedures as outlined in section 4.1 .
3	Downstairs: two operators each with two cans starting at the rear of the aircraft and moving forward at a rate of not more than one step or one row of seats per second, with the spray being directed towards the open overhead lockers.
4	Upstairs: one operator using the remaining spray from all four cans with all lockers opened and moving at one step per second with two cans at a time.
5	A B747 Combi has the rear portion of the main cabin as a cargo area. This can be accessed via a door at the end of the main cabin and sprayed using one x 150g one-shot can that contains 2% <i>d</i> -phenothrin and 2% permethrin as the active ingredients. Refer to pre-flight hold disinsection procedures in section 5 .

Top of Descent Spray

Step	Action
6	A B747 requires four x 100g multi-shot cans containing 2% <i>d</i> -phenothrin as the active ingredient.
7	Carry out all procedures as outlined in section 4.2 .
8	Downstairs: Two operators each with two cans starting at the rear of the aircraft and moving forward at a rate of not more than one step or one row of seats per second with the cans directed towards the walls and ceiling.
9	Upstairs: One operator using the remaining spray from all four cans moving at one step per second with two cans at a time.

4.5 Boeing 777 Pre-flight Spray

Step	Action
1	A B777 requires three x 100g multi-shot cans containing 2% permethrin as the active ingredient.
2	Carry out all procedures as outlined in section 4.1 .
3	One operator with two cans starts at the rear of the aircraft and moves up one aisle and down the other, at a rate of one step or one row of seats per second, with the spray being directed towards the open overhead lockers. When the two cans are empty the remaining aisle is sprayed up and back using the third can.

Top of Descent Spray

Step	Action
4	A B777 requires three x 100g multi-shot cans containing 2% d-Phenothrin as the active ingredient.
5	Carry out all procedures as outlined in section 4.2 .
6	One operator with two cans starts at the rear of the aircraft and moves up one aisle and down the other, at a rate of not more than one row of seats per second with the spray being directed towards the walls and ceiling.
7	When the two cans are empty the remaining aisle is sprayed up and back using the third can.

4.6 Boeing 737 Pre-flight Spray

Step	Action
1	A B737 requires up to one x 100g multi-shot can containing 2% permethrin as the active ingredient.
2	Carry out all procedures as outlined in section 4.1 .
3	One operator with one can starts at the front the aircraft and moves down the aisle at a rate of not more than one step or one row of seats per second, with the spray being directed towards the open overhead lockers on one side only. The other side being sprayed in the same manner while walking back.

Top of Descent Spray

Step	Action
4	A B737 requires up to one x 100g multi-shot can containing 2% <i>d</i> -phenothrin as the active ingredient.
5	Carry out all procedures as outlined in section 4.2 .
6	One operator with one can starts at the rear of the aircraft and moving forward at a rate of not more than one step or one row of seats per second, with the spray being directed towards the walls and ceiling.

4.7 Small Aircraft (corporate jets and other small aircraft)**Pre-flight Spray**

Step	Action
1	Open all cupboards and lockers.
2	Close any window shades that slide over the windows.
3	Minimise cabin air make-up and exhaust.
4	Close all doors.
5	Spray after catering is loaded and prior to passengers boarding.
6	All toilets and lockers are sprayed for two seconds each.
7	Spray cockpit area for a period of two seconds.
8	Spray internally accessed baggage area for four seconds.
9	One operator with one can sprays up one side of the aisle and back down the other side at a pace of not more than one step per second, continuously spraying towards walls and ceiling.
10	Allow the spray to settle for five minutes before resuming air conditioning and normal flight preparations.
11	The external door to the internally accessed baggage area shall only be opened after spraying is completed for a short period whilst the bags are loaded.
12	If there are any separate external holds, then these are to be sprayed after all cargo and luggage has been loaded with the amount specified in the Spray Rates Listing . The same can used to carry out the cabin disinsection may be used for the hold treatment.
13	During the spraying of holds, ensure the hold doors are opened only just enough to prevent spray escaping to the exterior.
14	The hold door should be closed immediately after spraying.

Top of Descent

Step	Action
15	Small aircraft require less than one x 100g multi-shot can containing 2% <i>d</i> -Phenothrin as the active ingredient.
16	Carry out all procedures as outlined in section 4.2 .
17	One operator with one can sprays up one side of the aisle and back down the other side continuously spraying towards walls and ceiling.

**4.8 Freighter
Passenger Cabin/Flight Deck
Pre-flight**

Step	Action
1	Spraying must be completed using a multi-shot can with 2% permethrin as the active ingredient.
2	Carry out all procedures as outlined in section 4.1 .
3	When passenger accommodation is provided, one operator with one can sprays up one side of the aisle and back down the other side at a pace of not more than one step per second, continuously spraying towards open overhead lockers, walls and ceiling.
4	Spray any internally accessed baggage area for a period of four seconds.

Top of Descent

Step	Action
5	Only required for aircraft with a passenger cabin.
6	Spraying of the passenger cabin area is to be carried out using a 100g multi-shot can containing 2% <i>d</i> -Phenothrin as the active ingredient.
7	Carry out all procedures as outlined in section 4.2 .
8	One operator with one can sprays up one side of the aisle and back down the other side continuously spraying towards walls and ceiling at a pace of not more than one step per second.

Cargo Hold

Step	Action
9	Any area within a freighter that carries cargo is classified as a hold and should meet the hold disinsection requirements as specified in section 5 ; this includes the main cargo deck.
10	The exhausted cans used on the main deck should be collected and placed in the pouch ready for the Quarantine inspector to view if requested.
11	No top of descent treatment is required for areas treated as cargo holds, even when on the main deck.

5 Pre-flight Hold Disinsection

All aircraft, except those that are residually treated, are required to have their holds disinsected prior to departure at the last overseas port before entering Australia or New Zealand. Any aircraft arriving in Australia or New Zealand that has not had the hold disinsected or not disinsected the hold in accordance with the approved agreements with either AQIS or MAFBNZ must be disinsected on-arrival, prior to any cargo being unloaded, by/or under the supervision of a Quarantine inspector.

Pre-flight hold disinsection needs to be performed in conjunction with a cabin disinsection treatment option as specified in [section 1.3](#).

Please refer to the [Spray Rates Listing](#) for the amount of spray required for each aircraft type.

5.1 Pre-flight Hold Procedures

Step	Action
1	Spraying must be carried out manually at the last overseas airport after all cargo has been loaded and just prior to hold door closure.
2	Aerosol cans must be discharged into each hold in such a manner as to ensure that all parts of the holds have been disinsected.
3	Spraying must be completed using a one-shot can with 2% permethrin and 2% <i>d</i> -phenothrin as the active ingredients. See section 1.4 for more information on aerosol cans.
4	Advise the crew that hold spraying is about to commence. Aerosols can set off the smoke alarms, so it is vital that the crew are fully aware prior to any disinsection taking place.
5	During disinsection and for a period of five minutes after completion of the spray, the aircraft's air-conditioning must remain off. Recirculation fans may be left on if essential to the operation of the aircraft, but set to the lowest rate.
6	Raise lower cargo door until nearly closed. Leave only just enough opening to be able to place cans in a secure upright position and activate.
7	Position cans and activate the lock down nozzle.
8	Close hold door immediately after activating the can to complete the disinsection process.
9	Should either hold require re-opening, (except for the purpose of loading animals) or a can malfunctions, the above steps must be repeated.
10	Exhausted cans should remain in the lower holds, and will be retrieved by the ground handlers at airport of destination.
11	When small animals are carried in the lower hold, disinsection must be carried out prior to the loading of animals, but after all other cargo has been loaded. Allow seven minutes from activating cans before loading animals.

Pre-flight Hold Procedures...continued

Step	Action
12	If an airline chooses to remove the cans prior to departure, the cans must be carried onboard with the disinsection certificate. Allow seven minutes from activation before opening the hold to retrieve exhausted cans. The door of the disinsected hold must only be opened to the minimum opening to allow retrieval of the exhausted cans, then immediately closed to avoid recontamination.
13	If storing the exhausted cans in the cabin and small animals are also being shipped, this activity is to be undertaken at the same time as the animals are loaded.
14	When there is also a cargo hold on the main deck (freighter aircraft), access to spray this area is via the passenger door only. When cargo restricts access, position the aerosol cans evenly though out the aircraft, on top of cargo in order to get better coverage.
15	Any non-conformance in procedures should be reported to Quarantine authorities at the airport of destination as soon as possible.

5.2 Certification for Pre-flight Hold Treatments

- The applicator is responsible for ensuring that a certificate detailing the treatment is completed.
- The certificate for the hold disinsection and the exhausted cans must be carried onboard the aircraft and made available to a Quarantine inspector on request upon arrival.
- The minimum requirements for certification are detailed in the Appendices.

6 On-Arrival Cabin and Hold Disinsection

Any aircraft arriving in Australia or New Zealand that has not been disinsected in accordance with any agreements required with either AQIS or MAFBNZ must be disinsected on its arrival by or under the supervision of a Quarantine inspector. This may incur a Fee for Service charge to the airline operator.

The on-arrival disinsection method will take place if:

- An airline has not satisfactorily negotiated the appropriate agreement with either AQIS or MAFBNZ.
- When there is evidence to suggest that the method of disinsection has not been performed correctly.

Under legislation it is the responsibility of the commander of an aircraft to notify Quarantine authorities if disinsection has not been undertaken. This notification must be given prior to arrival to enable Quarantine inspectors to meet the aircraft and supervise/perform the on-arrival disinsection treatment.

Please refer to the [Spray Rates Listing](#) for the amount of spray required for each aircraft type.

6.1 On-Arrival Cabin Procedures

Step	Action
1	All exterior doors and windows must remain closed and may only be opened in accordance with directions from a Quarantine inspector.
2	In preparation for the on-arrival disinsection, an in-flight announcement must be made by the crew to inform passengers of the upcoming disinsection.
3 Aust Only	Below is the script to be announced on all flights in Australia: “Ladies and gentlemen, to conform with agricultural and health requirements, the aircraft cabin will now be sprayed. This procedure, recommended for this purpose by the World Health Organization, is necessary to avoid the introduction of harmful insects into Australia. Please remain seated and keep the aisles clear while the aircraft is being sprayed. Thank you.”

On-Arrival Cabin Procedures...continued

4 NZ Only	<p>Below is the script to be announced on all flights in New Zealand:</p> <p>“Ladies and gentlemen, to conform to biosecurity and health requirements, the aircraft cabin will now be treated with an aerosol insecticide. This procedure and product is recommended by the World Health Organization. The treatment is necessary to avoid the introduction of insects which can also be carriers of serious human and agricultural diseases. Please remain seated and keep the aisles clear while this process is taking place. If you have a serious medical condition which could be affected by aerosols, please press your call button to discuss this with your cabin crew. Thank you”</p> <p>If a passenger has identified themselves as having a serious medical condition which may be affected by the spray, then discuss this matter with Quarantine inspector’s on-arrival. Please contact MAFBNZ for more information on aerosols.</p>
5	Spraying must be completed using a multi-shot can with 2% <i>d</i> -phenothrin as the active ingredient. See section 1.4 for more information on aerosol cans.
6	A directive will be given to the Captain advising that cabin disinsection is required.
7	Cabin crew are to prepare the cabin for disinsection by opening all overhead lockers and by requesting all passengers to remain seated.
8	During disinsection and for a period of five minutes after completion of the spray, the aircraft’s air-conditioning must be switched off. Recirculation fans may be left on if essential to the operation of the aircraft but set at the lowest flow rate.
9	Spraying is to be directed towards the open overhead lockers and ceiling whilst walking along the aisle at a rate of not more than one step or one row of seats per second.
10	Spray all galleys, including those on lower levels and lift access.
11	Spray all toilets and lockers for two seconds each.
12	Spray all crew rest areas and the flight deck for three seconds each.
13	On completion of the spraying, a five minute saturation period must be observed prior to resuming the air conditioning and maximising the airflow. Passengers are to remain seated for this period, until clearance is given by the Quarantine inspector allowing passengers to disembark.
14	For freighters whilst the saturation period of the main deck hold takes place vacate the area on completion of spraying and allow at least five minutes for the spray to settle before re-entering.

On-Arrival Hold Procedures

Step	Action
1	Under no circumstances should a hold door be opened without the presence or approval of a Quarantine inspector.
2	Aerosol cans must be discharged into each hold in such a manner as to ensure that all parts of the holds have been disinsected.
3	Spraying must be completed using a one-shot can with 2% permethrin and 2% <i>d</i> -phenothrin as the active ingredient. See section 1.4 for more information on aerosol cans.
4	Prior to carrying out the hold disinsection, a directive will be given to the Captain advising that hold disinsection is required. It is not uncommon for the aerosol spray to activate the smoke detectors.
5	During disinsection and for a period of five minutes after completion of the spray, the aircraft's air-conditioning must be switched off. Recirculation fans may be left on if essential to the operation of the aircraft but set at the lowest flow rate.
6	Disinsection may be carried out manually by directing the spray into the small pressure hatches or by placing the cans inside the hold.
7	To place the cans inside the hold, the door maybe opened no more than 30 cm.
8	Cans are to be placed in an upright position and discharged.
9	Activate the lock down nozzle on the can.
10	The doors must be closed immediately after the cans commence discharging.
11	Allow two minutes for the cans to fully discharge and then wait a further five minutes for the saturation period before the holds can be opened.
12	Remove the exhausted cans.
13	When there is also a cargo hold on the main deck (freighter aircraft), access to spray this area is via the passenger door only. When cargo restricts access, position the aerosol cans evenly though out the aircraft, on top of cargo in order to get better coverage.
14	When satisfied that the procedure has been carried out, the Quarantine inspector will permit the unloading of cargo.

Appendix 1: Residual Disinsection Certificate

Residual Disinsection Certificate

Aircraft Registration	
Date Sprayed	
Expiry Date	

8 calendar weeks from date of treatment

This is to certify that the above aircraft has on this day been disinsected in accordance with the AQIS and MAFBNZ requirements.

Cabin

Treatment undertaken by:

Signature	
Full Name (Please Print)	
Position	
Name of Organisation	

Hold

Hold treatment undertaken by: Tick if same as above

Signature	
Full Name (Please Print)	
Position	
Name of Organisation	

The aircraft must be retreated if cleaning or other operations remove a significant amount of the permethrin residue.

Appendix 2: Pre-embarkation Disinsection Certificate

Pre-embarkation Disinsection Certificate

Aircraft Registration		Flight Number	
Port of Departure		Date of Departure	
Aircraft Type		Series	

This is to certify that the above aircraft has on this day been disinsected in accordance with AQIS and MAFBNZ requirements.

Cabin

Size of cans used (grams)	
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Serial numbers of aerosol cans used:

Cabin disinsection undertaken by:

Signature	
Full Name (Please Print)	
Position	
Name of Organisation	

Hold

Size of cans used (grams)	
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Serial Numbers of aerosol cans used:

Hold disinsection undertaken by: Tick if same as above

Signature	
Full Name (Please Print)	
Position	
Name of Organisation	

Appendix 3: Pre-flight and Top of Descent Disinsection Certificate

Pre-flight and Top of Descent Disinsection Certificate

Aircraft Registration		Flight Number	
Port of Departure		Date of Departure	
Aircraft Type		Series	

This is to certify that the above aircraft has on this day been disinsected in accordance with AQIS and MAFBNZ requirements.

Pre-flight Cabin

Size of cans used (grams)	
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Serial numbers of aerosol cans used:

Pre-flight cabin treatment undertaken by:

Signature	
Full Name (Please Print)	
Position	
Name of Organisation	

Top of Descent Cabin

Size of cans used (grams)	
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Serial numbers of aerosol cans used:

Top of descent cabin treatment undertaken by: Tick if same as above

Signature	
Full Name (Please Print)	
Position	
Name of Organisation	

Hold - all cargo areas in freighters are classified as holds

Size of cans used (grams)	
---------------------------	--

Serial Numbers of aerosol cans used:

Pre-flight treatment undertaken by: Tick if same as above

Signature	
Full Name (Please Print)	
Position	
Name of Organisation	