Australian Government
Department of Agriculture and Water Resources

Ministry for Primary Industries
Manatū Ahu Matua

Schedule of aircraft disinsection procedures for flights into Australia and New Zealand

Version 4.1

Cataloguing data
This publication (and any material sourced from it) should be attributed as: Department of Agriculture and Water Resources 2017, *Schedule of aircraft disinsection procedures for flights into Australia and New Zealand,* Canberra, CC BY 3.0.

This publication is available at agriculture.gov.au/biosecurity/avm/aircraft/disinsection/procedures/schedule-aircraft-disinsection.

Pathway Compliance Branch
Department of Agriculture and Water Resources
Postal address GPO Box 858 Canberra ACT 2601
Telephone +61 2 6272 4143
Email arrivals@agriculture.gov.au Web agriculture.gov.au

Border Clearance, Detection Technology, Aircraft Disinsection
Ministry for Primary Industries
Postal address PO Box 53066 Auckland 2150
Telephone +64 9 909 8609
Email disinsectionmatters@mpi.govt.nz Web mpi.govt.nz

The requirements in this document are subject to change and it is the responsibility of the user to check they have the latest version. See agriculture.gov.au/biosecurity/avm/aircraft/disinsection/procedures to access the latest version.

- Links to other websites are provided for the user's convenience and do not constitute endorsement of all material at those sites, or any associated organisation, product or service.
- If you use automatic language translation services in connection with this document, the Department is not responsible for any incorrect translations or meanings.
- The Department of Agriculture and Water Resources and the Ministry for Primary Industries New Zealand may revise this Disclaimer at any time by updating this posting.
- Special arrangements permitting additional or alternative disinsection methods may override these procedures when directed by the Australian Director of Human Biosecurity or the Director-General of Agriculture or Health in New Zealand (or their representatives).

Contents

Tables

Version control

Updates will occur automatically on the Department of Agriculture and Water Resources and the Ministry for Primary Industries websites and this page will summarise the amendments as they occur.

Version	Date	Author	Description of change	Sections
1.0	1998	AQIS/MAFBNZ	First issue	all
2.0	October 2009	DAFF	Review	all
2.1	December 2010	AQIS/MAFBNZ	Review	all
2.2	September 2012	DAFF/MPI	Review	all
3.0	May 2013	DAFF	Update of links	all
3.1	December 2013	Department of Agriculture	Branding update Inclusion of $40 fee Timing requirements to update ADI	all 2.1, 3.1 2.1, 3.1
3.2	March 2014	Department of Agriculture/MPI	Inclusion of how to appropriately treat the flight deck Inclusion of Supervision/conducting of treatment by officer/inspector	3.1–10 4.1–10 6.1–11 1.5, 6
4.0	June 2016	Department of Agriculture and Water Resources	Branding update Review of contents for accuracy and consistency under the *Biosecurity Act 2015*	all
4.1	February 2017	Department of Agriculture and Water Resources	Aligned residual and pre-embarkation ADI update timeframe to 1 hour Inclusion of Airbus 380 Removal of exemption Changes to the retention request for top of descent certificates Passenger exemption Review of full document to adhere to accessibility requirements	1.1, 1.3, 1.4, 2.1, 2.2 2.4 3 3.1 5 all

Introduction

This schedule has been prepared in cooperation between the Australian Department of Agriculture and Water Resources (the department) and the New Zealand Ministry for Primary Industries (MPI) 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 also incorporates the latest recommendations and practices from the World Health Organization (WHO).

The 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 (IHRs) 2005 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.

The IHRs define '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.

The department and MPI work in partnership and regulate each other's disinsection arrangements (Australia) agreements (New Zealand) and any other undertakings as required. The term 'officer' refers to departmental officer and the term 'inspector' refers to a MPI inspector.

Australian Government Department of Agriculture and Water Resources

The Department of Agriculture and Water Resources is part of the Australian Government and plays an essential role in maintaining Australia's animal, plant and human health status. The department is responsible for reducing the risk to our agriculture industries and environment against exotic pests and diseases.

The department administers human biosecurity functions on behalf of the Department of Health including the screening of arriving passengers for Listed Human Diseases (LHD), surveillance activities relating to aircraft disinsection and vector monitoring.

Biosecurity controls at Australia's borders are governed by the *Biosecurity Act 2015*. 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.

Under Section 53 of the *Biosecurity Act 2015*, the operator of an incoming aircraft must take measures to control or destroy insect vectors of human diseases that have a potential to cause, directly or indirectly, an LHD, and may exist in or on the aircraft or goods in or on the aircraft.

These measures must be carried out in a manner and at a time or within a period, approved by the Director of Human Biosecurity.

New Zealand Ministry for Primary Industries

The Ministry for Primary Industries (MPI) is 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 its environment, flora and fauna, marine life and Maori resources.

MPI incorporates New Zealand's Border Clearance Services which is 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 biosecurity 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 MPI and the New Zealand Ministry of Health.

Disinsection is 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.

Disinsection treatment options

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

Cabin	
Residual	Section 1
Pre-embarkation	Section 2
Pre-flight and top of descent	Section 3
On-arrival	Section 5
Hold	
Residual	Section 1
Pre-flight	Section 4
On-arrival	Section 5

Disinsection aerosols

Preparations of chemicals currently used in aircraft disinsection are based on two active ingredients, permethrin and d-phenothrin, currently recommended by the World Health Organisation (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 airline's responsibility to ensure the aerosol products used meet all aviation and aircraft manufacturers technical and safety requirements, the WHO and International Civil Aviation Organization (ICAO) guidelines, as well as meeting the department's and MPI requirements.

Airlines will need to contact MPI to ensure product acceptance in New Zealand. Disinsection products used within New Zealand must also be registered with the Environmental Risk Management Authority (ERMA) New Zealand.

Airlines will need to ensure that products used in Australia are registered by the Australian Pesticide and Veterinary Medicine Authority (APVMA). This may affect spray on arrival aircraft or aircraft that have not met Australia's disinsection requirements and are required to perform spray on arrival under supervision of departmental officers.

Table 1 shows aerosol products used for entry into Australia and New Zealand. Products must be fit for purpose and contain the corresponding active ingredient for each treatment type.

Table 1 Aerosol products for entry into Australia and New Zealand, active ingredients

Treatment	Active ingredients
Pre-embarkation	2% permethrin
Pre-flight	2% permethrin
Top of descent	2% d-phenothrin
On-arrival	2% d-phenothrin
Holds	2% d-phenothrin and 2% permethrin
Touch ups	2% permethrin

As a minimum requirement all aerosol cans must be clearly labelled in English with a list of all active ingredients used. Alternatively, they must be accompanied with an English version of the MSDS (material safety data sheet) for each product used.

Refer to the Spray rates listing for the amount of spray required for each aircraft type.

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 fully or partly used 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 or partly used cans must be made available by cabin staff on request. Hold cans are permitted to remain in the hold for collection by ground crew, once pratique has been granted by an officer/inspector.

Failure to comply with the department or MPI disinsection requirements will result in the aircraft being sprayed on-arrival prior to passenger disembarkation and cargo being unloaded. This will incur a Fee for Service charge to the airline operator for flights arriving into Australia. Officers in Australia must remain on board the aircraft to supervise the spray on arrival while in

New Zealand Inspectors may remain on board to conduct the spray on arrival (re-spray) disinsection treatment.

For minimum requirements for certification, see Appendix A. Multiple certificates will be required when an aircraft's cabin and hold have been treated differently.

Approval process

Approval to perform disinsection may be dependent on airlines entering into an agreement with MPI or an arrangement with the department. These agreements and arrangements outline the application of a particular set of procedures; and the supervision, monitoring and testing of the airline's compliance with those procedures. Airlines must contact either the department or MPI for further details.

1 Residual cabin and hold disinsection

Airlines may only undertake residual disinsection of their aircraft after they have entered into an agreement or arrangement with either the department or MPI, see Approval process 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 Disinsection treatment options. Similarly residual hold disinsection needs to be performed in conjunction with a cabin disinsection treatment option.

1.1 Aircraft Disinsection Information Database

Airline operators are responsible for updating the Aircraft Disinsection Information (ADI) database, which lists the treated aircraft to facilitate biosecurity clearance on-arrival.

Access to ADI will be given to airlines after they have entered into an arrangement with the department or an agreement with MPI.

The airline must ensure that ADI is updated at least one hour prior to the scheduled aircraft arrival at its first port of landing in Australia or New Zealand.

Airlines on an agreement with MPI or an arrangement with the department that fly into Australia will incur a fee for service charge for failing to update ADI.

1.2 Residual disinsection procedures

Table 2 shows the procedure for the residual disinsection method.

Table 2 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 the department's/MPI requirements.

1.3 Residual cabin procedures

Table 3 shows the procedure for the residual disinsection method performed in cabins.

Table 3 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

Step	Action
	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.
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.

1.4 Residual hold procedures

Table 4 shows the procedure for the residual disinsection method performed in holds.

Table 4 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.
4	Update ADI with the new treatment expiry date once spraying is complete. ADI must be updated at least one hour prior to arrival. Failure to do so may result in officers/inspectors meeting the aircraft to verify disinsection treatment. This will incur a fee for service charge for arrivals into Australia.

1.5 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 an officer/inspector on request.

The minimum requirements for certification are detailed in Appendix A.

Multiple certificates will be required when an aircraft's cabin and hold have been treated differently.

1.6 Residual top-up and fixture replacement procedures

Following a residual spray application and where internal areas of aircraft receive additional or substantial cleaning to sections such as wall linings, carpets etc., then these areas are to undergo a supplementary 'touch-up'. The touch-up may be from an aerosol spray containing permethrin see Disinsection aerosols for more information on the use of aerosol cans.

Table 5 shows the procedure for residual disinsection top up and fixture replacement.

Table 5 Residual top-up and fixture replacement procedures

Step	Action
1	The aerosol can must be directed at the cleaned surface and discharged approximately 30cm 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 are considered negligible in the overall context of the program, and will not require re-spraying during turn around, but should be treated at the first available opportunity to ensure compliance.
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-compliance in procedures should be reported to the intended first port of arrival as soon as possible.

2 Pre-embarkation cabin disinsection

Airlines may only undertake pre-embarkation disinsection of their aircraft after they have entered into an arrangement with the department or agreement with MPI. See Approval Process for more information on this process.

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 Disinsection treatment options.

Please refer to the Spray rates listing for the amount of spray required for each aircraft type.

2.1 Aircraft Disinsection Information Database

Airline operators are responsible for updating the ADI, which lists the treated aircraft to facilitate biosecurity clearance on-arrival.

Access to ADI will be given to airlines after they have entered into an arrangement with the department or an agreement with MPI.

The airline must ensure that ADI is updated at least one hour prior to the scheduled aircraft arrival at its first port of landing in Australia or New Zealand.

Airlines on an agreement with MPI or an arrangement with the department that fly into Australia will incur a fee for service charge for failing to update ADI.

2.2 Pre-embarkation cabin treatment procedure

Table 6 shows the procedure for the pre-embarkation treatment in cabins.

Table 6 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 can with 2% permethrin as the active ingredient. See Disinsection aerosols 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.

Step	Action
9	Spray all toilets and coat lockers for two seconds each.
10	Spray all crew rest areas and the flight deck for three seconds each. Crew must ensure to direct their spray away from aircraft equipment, officers/inspectors and crew.
11	Update ADI with the new treatment expiry date once spraying is complete. ADI must be updated at least one hour prior to arrival. Failure to do so may result in Officers/Inspectors meeting the aircraft to verify disinsection treatment. This will incur a fee for service charge for arrivals into Australia.
12	Any non-compliance in procedures should be reported to the intended first port of arrival as soon as possible.

2.3 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 or partly exhausted cans must be carried onboard the aircraft and made available to an officer/inspector on request upon arrival.

The minimum requirements for certification are detailed in Appendix B.

2.4 Guidance on Pre-embarkation Cabin Treatment Procedures

The following tables provide guidance on procedures of pre-embarkation cabin treatment by aircraft type.

Table 7 Boeing 747

Step	Action
1	A B747 requires four x 100g cans containing 2% permethrin as the active ingredient.
2	Carry out all procedures as outlined in Section 2.2.
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 or one row of seats 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% d-phenothrin and 2% permethrin as the active ingredients. Refer to pre-flight hold disinsection procedures in Pre-flight hold disinsection.

Table 8 Boeing 777

Step	Action
1	A B777 requires up to three x 100g can containing 2% permethrin as the active ingredient.
2	Carry out all procedures as outlined in Section 2.2.
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 directing the aerosols towards the open overhead lockers. When the two cans are empty the remaining unsprayed aisle is sprayed up and back using the third can directing the aerosol towards the open overhead lockers.

Table 9 Boeing 737

Step	Action
1	A B737 requires up to one x 100g can containing 2% permethrin as the active ingredient.
2	Carry out all procedures as outlined in Section 2.2.
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.

Table 10 Airbus A380

Step	Action
1	An A380 requires 300g in the main deck and 200g on the upper deck containing 2% permethrin as the active ingredient.
2	Main deck—300g: 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 directing the aerosols towards the open overhead lockers. When the two cans are empty the remaining unsprayed aisle is sprayed up and back using the third can directing the aerosol towards the open overhead lockers.
3	Upper deck—200g, with no rooms: Repeat step 2.
4	Upper deck—200g, with rooms: One operator starts from 'The Residence' and takes 2 to 3 steps in and out of the bedroom while using the spray at one step per second then proceed to spraying the shower room and the living room ensuring any stowage compartments are open at the time of spraying. The operator will then move to the 'Apartments' with 1 or 2 steps in from the aisle for each Apartment to get adequate coverage using the one step per second method and ensuring all stowage compartments are open during the treatment. The operator will spray the rest of the upper deck moving down the left hand side aisle and up the other, at a rate of not more than one step or one row of seats per second directing the aerosols towards the open overhead stowage compartments.

Table 11 Small aircraft (corporate jets and other small aircraft)

Step	Action
1	Small aircraft require less than one x 100g can containing 2% permethrin as the active ingredient.
2	Carry out procedures in 2.2 excepting for the cockpit which is to be sprayed for 2 seconds and baggage storage area for 4 seconds. The access door is also to be closed during treatment.
3	One operator with one can sprays the cockpit, internal baggage storage areas and toilet(s) and commences spraying the cabin moving from the rear of the aircraft while directing the spray high in the air toward the ceiling and wall areas at a rate of not more than one step or row of seats per second.
4	On completion of spraying, the operator should apply a short burst of spray whilst exiting the aircraft. The aircraft should remain closed for a full five minutes before re-entering and resuming air conditioning and normal flight preparations.
5	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.
6	If there are any separate holds with external access only, then these are to be sprayed after all cargo and luggage has been loaded with the amount specified in the Spray rates listing.
7	During the spraying of holds, ensure the hold doors are opened only just enough to prevent spray escaping to the exterior.
8	The hold door should be closed immediately after spraying.
9	The minimum requirements for certification are detailed in Appendix B.

2.4.1 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 4; this includes the main cargo deck.

The amount of spray required for each aircraft type is listed in the Spray rates listing.

2.4.2 Passenger cabin/flight deck

Table 12 shows the procedure of pre-embarkation procedure for the passenger cabin or flight deck.

Table 12 Passenger cabin/flight deck

Step	Action
1	Spraying must be completed using a can with 2% permethrin as the active ingredient.
2	Carry out all procedures as outlined in Section 2.2.
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 or row of seats per second, continuously spraying towards open overhead lockers, walls and ceiling.
4	Spray any internally accessed baggage area for a period of four seconds.

2.4.3 Cargo holds

Table 13 shows the procedure for pre-embarkation procedure for the cargo holds.

Table 13 Cargo holds

Step	Action
1	Any area within a freighter that carries cargo is classified as a hold and should meet the hold disinsection requirements as specified in Pre-flight hold disinsection; this includes the main cargo deck.
2	The exhausted or partly used cans used on the main deck should be collected and placed in the pouch ready for the officer/inspector to view if requested.

3 Pre-flight and top of descent cabin disinsection

Airlines may undertake the pre-flight and top of descent disinsection method of the aircraft without entering into an arrangement with the department or an agreement with MPI. Airlines are however recommended to make contact with the department or MPI 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 Disinsection treatment options.

Please refer to the Spray rates listing for the amount of spray required for each aircraft type.

Table 14 and Table 15 show the procedures for the pre-flight cabin treatment (part one) and top of descent cabin treatment (part two).

Table 14 Pre-flight cabin treatment procedure (part one)

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 can with 2% permethrin as the active ingredient. See Disinsection aerosols 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 coat lockers for two seconds each.
10	Spray all crew rest areas and the flight deck for three seconds each. Crew must ensure to direct their spray away from aircraft equipment, officers/inspectors and crew.
11	Any non-compliance in procedures should be reported to the department or MPI at the airport of destination as soon as possible.

Table 15 top of descent cabin treatment procedure (part two)

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. **Script for 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.' **Script for New Zealand:** '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.'
3	Spraying must be completed using a can with 2% d-phenothrin as the active ingredient. See Disinsection Aerosols for more information on aerosol cans.
4	Air conditioning packs should remain set to normal flow (not high flow) and the recirculation fans on for this procedure.
5	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.
6	Overhead and sidewall lockers are to remain closed during the spraying.
7	Any non-compliance in procedures should be reported to the biosecurity agencies at the airport of destination as soon as possible.

3.1 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 pre-flight and top of descent cabin disinsection must be carried onboard the aircraft and made available to be sighted by an officer/inspector upon arrival.

Australia only: After the certificate has been sighted by an officer, the airline must keep the certificate for a period of 12 months.

New Zealand only: The certificates are to be made available for collection by an Inspector upon arrival.

The exhausted partly used cans must be carried onboard the aircraft and made available for collection by an officer/inspector upon arrival. The minimum requirements for certification are detailed in Appendix C.

On arrival, all exterior doors and windows, including hold doors must remain closed and only be opened once pratique has been granted by an officer/inspector.

3.2 Guidance on pre-flight and top of descent cabin treatment procedures

The following table provide guidance on procedures of pre-flight and top of descent cabin treatment for different types of aircraft.

Table 16 Boeing 747, pre-flight spray

Step	Action
1	A B747 requires four x 100g cans containing 2% permethrin as the active ingredient.
2	Carry out all procedures as outlined in Table 14.
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 or row of seats 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% d-phenothrin and 2% permethrin as the active ingredients. Refer to pre-flight hold disinsection procedures in Pre-flight hold disinsection.

Table 17 Boeing 747, top of descent spray

Step	Action
1	A B747 requires four x 100g cans containing 2% d-phenothrin as the active ingredient.
2	Carry out all procedures as outlined in Table 15.
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 row of seats per second with the cans directed towards the walls and ceiling.
4	Upstairs: One operator using the remaining spray from all four cans moving at one step per second with two cans at a time.

Table 18 Boeing 777, pre-flight spray

Step	Action
1	A B777 requires three x 100g cans containing 2% permethrin as the active ingredient.
2	Carry out all procedures as outlined in Table 15.
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.

Table 19 Boeing 777, top of descent spray

Step	Action
1	A B777 requires three x 100g cans containing 2% d-phenothrin as the active ingredient.
2	Carry out all procedures as outlined in Table 15.
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 row of seats per second with the spray being directed towards the walls and ceiling.
4	When the two cans are empty the remaining aisle is sprayed up and back using the third can.

Table 20 Boeing 737, pre-flight spray

Step	Action
1	A B737 requires up to one x 100g can containing 2% permethrin as the active ingredient.
2	Carry out all procedures as outlined in Table 15.
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.

Table 21 Boeing 737, top of descent spray

Step	Action
1	A B737 requires up to one x 100g can containing 2% d-phenothrin as the active ingredient.
2	Carry out all procedures as outlined in Table 15.
3	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.

Table 22 Small aircraft (corporate jets and other small aircraft), pre-flight spray

Step	Action
1	Small aircraft require less than one x 100g can containing 2% permethrin as the active ingredient.
2	Carry out procedures in Table 6 excepting for the cockpit which is to be sprayed for 2 seconds and baggage storage area for 4 seconds. The access door is also to be closed during treatment.
3	One operator with one can sprays the cockpit, internal baggage storage areas and toilet(s) and commences spraying the cabin moving from the rear of the aircraft while directing the spray high in the air toward the ceiling and wall areas at a rate of not more than one step or row of seats per second.
4	On completion of spraying, the operator should apply a short burst of spray whilst exiting the aircraft. The aircraft should remain closed for a full five minutes before re-entering and resuming air conditioning and normal flight preparations.
5	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.
6	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.
7	During the spraying of holds, ensure the hold doors are opened only just enough to prevent spray escaping to the exterior.
8	The hold door should be closed immediately after spraying.

Table 23 Small aircraft (corporate jets and other small aircraft), top of descent spray

Step	Action
1	Small aircraft require less than one x 100g can containing 2% d-phenothrin as the active ingredient.
2	Carry out all procedures as outlined in Table 15.
3	One operator with one can sprays up one side of the aisle and back down the other side continuously spraying towards walls and ceiling.

Table 24 Freighter, passenger cabin/flight deck pre-flight spray

Step	Action
1	Spraying must be completed using a can with 2% permethrin as the active ingredient.
2	Carry out all procedures as outlined in Table 14.

Step	Action
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 or row of seats per second continuously spraying towards open overhead lockers, walls and ceiling.
4	Spray any internally accessed baggage area for a period of four seconds.

Table 25 Freighter, top of descent spray

Step	Action
1	Only required for aircraft with a passenger cabin.
2	Spraying of the passenger cabin area is to be carried out using a 100g can containing 2% d-phenothrin as the active ingredient.
3	Carry out all procedures as outlined in Table 15.
4	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 or row of seats per second.

Table 26 Freighter, cargo hold

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

4 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 either the department or MPI requirements must be disinsected on-arrival, prior to any cargo being unloaded, by/or under the supervision of an officer/inspector.

Pre-flight hold disinsection needs to be performed in conjunction with a cabin disinsection treatment option as specified in Disinsection treatment options.

Please refer to the Spray rates listing for the amount of spray required for each aircraft type.

Table 27 shows the pre-flight hold procedure.

Table 27 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(s) with 2% permethrin and 2% d-phenothrin as the active ingredients. See Disinsection aerosols 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	As the lower cargo door(s) are being closed, leave only just enough opening to be able to place can(s) in a secure upright position and activate the lock down nozzle(s).
7	After observing the spray can(s) appear to be functioning correctly, immediately continue to close the hold door to complete the disinsection process. Should either hold require re-opening, (except for the purpose of loading animals) or a can malfunctions, the above steps must be repeated.
8	Exhausted cans should remain in the lower holds, and will be retrieved by the ground handlers at airport of destination. **Cans must be accessible by ground handlers. Failure to ensure that ground handlers are able to verify cans will result in a re-spray and a fee for service will be charged.** If an airline chooses to remove cans prior to departure the cans must be carried on board with the Disinsection Certificate. Allow seven minutes from activating before retrieval. The door of the disinsected hold must only be opened to the minimum opening to allow retrieval of the exhausted cans and then immediately closed to avoid recontamination.
9	Any non-compliance in procedures should be reported to the intended first port of arrival as soon as possible.

Table 28 shows the pre-flight hold procedure where small animals are to be loaded in the lower hold.

Table 28 Pre-flight hold procedures—when loading small animals in lower hold

Step	Action
1	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.
2	Follow steps in Table 27 above
3	Allow seven minutes from activating cans before loading animals.
4	Open hold only for loading animals and close immediately after loading animals to avoid recontamination.

Table 29 shows the pre-flight hold procedure for freighter aircrafts.

Table 29 Pre-flight hold procedures—freighter aircraft

Step	Action
1	When there is also a cargo hold on the main deck (freighter aircraft), carry out spraying for the lower cargo holds as previously stated (Table 27 and Table 28).
2	For the cargo hold on the Main Deck, Follow steps 1-5 in section Table 27.
3	Ensure all cargo doors for the affected deck are closed and other personnel have vacated the area prior to commencing disinsection.
4	Access to spray the Main Deck area is via the passenger door only.
5	Discharge the aerosols by walking away from spray and vacate the area on completion of spraying.
6	When cargo restricts access, position the aerosol cans evenly though out the aircraft, on top of cargo in order to get better coverage.
7	On completion of spraying, allow at least five minutes for the spray to settle prior to re-entering for final departure preparations.

4.1 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 or partly exhausted cans must be carried onboard the aircraft and made available to an officer/inspector on request upon arrival.

The minimum requirements for certification are detailed in Appendix A.

5 On-arrival cabin and hold disinsection

Any aircraft arriving in Australia or New Zealand that has not been disinsected in accordance with the previous methods outlined in this schedule must be disinsected on its arrival by an Inspector in New Zealand and under supervision by an officer in Australia. This will incur a Fee for Service charge to the airline operator for flights arriving into Australia.

The on-arrival disinsection method will take place if:

- An airline is not on an arrangement with the department or an agreement with MPI and has not performed Top of Decent method or not performed it correctly.
- Where an airline is on an arrangement or agreement and has not performed their agreed method of disinsection (Pre Embarkation or Residual) correctly.

Under legislation it is the responsibility of the operator of an aircraft to notify the respective Government biosecurity agencies if disinsection has not been undertaken. This notification must be given prior to arrival to enable Officers/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.

5.1 Passenger exemption

If a passenger has identified themselves as having a serious medical condition which may be affected by the on arrival treatment (which can be verbal or written), they may be permitted to disembark from the aircraft. However, all their personal belongings must remain on board the aircraft. Once the aircraft has undergone 'on arrival disinsection' treatment and all other passengers have disembarked, the exempted passenger may then retrieve their belongings from the aircraft.

Exemption can only be given for on-arrival disinsection.

Table 30 and Table 31 show the on-arrival cabin and hold procedures including passenger exemption.

Table 30 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 an officer/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. **Script for 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.'

Step	Action
	Script for New Zealand: '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.'
3	If a passenger has identified themselves as having a serious medical condition which may be affected by the spray, then discuss this matter with an officer in Australia or an inspector in New Zealand immediately on-arrival.
4	Spraying must be completed using a can with 2% d-phenothrin as the active ingredient. See Disinsection Aeresols for more information on aerosol cans.
5	A directive will be given to the operator of the aircraft that cabin disinsection is required.
6	Cabin crew are to prepare the cabin for disinsection by opening all overhead lockers and by requesting all passengers to remain seated.
7	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.
8	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.
9	Spray all galleys, including those on lower levels and lift access.
10	Spray all toilets and lockers for two seconds each.
11	Spray all crew rest areas and the flight deck for three seconds each. Crew must ensure to direct their spray away from aircraft equipment, officers/inspectors and crew.
12	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 officer/inspector allowing passengers to disembark.
13	For freighters (aircraft which have a cargo hold on the main deck) see Table 31 – step 13.

Table 31 Hold procedures

Step	Action
1	Under no circumstances should a hold door be opened without the presence or approval of an officer/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% d-phenothrin as the active ingredient. See Disinsection aerosols for more information on aerosol cans.
4	Prior to carrying out the hold disinsection, a directive will be given to the operator of the aircraft 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.

Step	Action
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. Discharge the aerosols by walking away from spray and vacate the area on completion of spraying. Allow at least five minutes for the spray to settle before re-entering hold.
14	When satisfied that the procedure has been carried out, the officer/inspector will permit the unloading of cargo.

Appendix A: Residual disinsection certificate

Residual disinsection certificate

This is to certify that the aircraft named in this certificate has on this day been disinsected in accordance with the requirements of the Australian Government Department of Agriculture and Water Resources and the New Zealand Ministry for Primary Industries.

Aircraft and disinsection details

Aircraft registration _____

Date sprayed (dd/mm/yyyy) _____

Expiry date (dd/mm/yyyy)—8 calendar weeks from treatment _____

Cabin

Treatment undertaken by:

Signature _____

Full name (block letters) _____

Position _____Organisation_____

Hold

Treatment undertaken by (if same as the above, write 'As above'):

Signature _____

Full name (block letters) _____

Position _____Organisation_____

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

Appendix B: Pre-embarkation disinsection certificate

Pre-embarkation disinsection certificate

This is to certify that the aircraft named in this certificate has on this day been disinsected in accordance with the requirements of the Australian Government Department of Agriculture and Water Resources and the New Zealand Ministry for Primary Industries.

Aircraft and disinsection details

Aircraft registration _____ Aircraft series _____

Flight number _____ Port of departure _____

Aircraft type _____ Date sprayed (dd/mm/yyyy) _____

Cabin

Size of aerosol cans used (grams) _____

Serial numbers of cans used _____

Treatment undertaken by:

Signature _____

Full name (block letters) _____

Position _____ Organisation _____

Hold (all cargo areas in freighters)

Size of aerosol cans used (grams) _____

Serial numbers of cans used _____

_____

Treatment undertaken by (*if same as the above, write 'As above'*):

Signature _____

Full name (block letters) _____

Position _____ Organisation _____

Appendix C: Pre-flight and top of descent disinsection certificate

Pre-flight and top of descent disinsection certificate

This is to certify that the aircraft named in this certificate has on this day been disinsected in accordance with the requirements of the Australian Government Department of Agriculture and Water Resources and the New Zealand Ministry of Primary Industries.

Aircraft and disinsection details

Aircraft registration _____ Aircraft series _____

Flight number _____ Port of departure _____

Aircraft type _____ Date sprayed (dd/mm/yyyy) _____

Pre-flight cabin

Size of aerosol cans used (grams) _____

Serial numbers of cans used _____

Treatment undertaken by:

Signature _____

Full name (block letters) _____

Position _____ Organisation _____

Top of Descent cabin

Size of aerosol cans used (grams) _____

Serial numbers of cans used _____

Treatment undertaken by:

Signature _____

Full name (block letters) _____

Position _____ Organisation _____

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

Hold (all cargo areas in freighters)

Size of aerosol cans used (grams) _____

Serial numbers of cans used _____

_____

Treatment undertaken by (*if same as the above, write 'As above'*):

Signature _____

Full name (block letters) _____

Position _____ Organisation _____