



# AS350 BIKE RACK INSTALLATION

## CAA APPROVED FLIGHT MANUAL SUPPLEMENT (FMS)

OCEANIA AVIATION STC.OAL.010

EUROCOPTER AS350B, BA, B1, B2, B3 & D  
WITH  
HIGH SKID LANDING GEAR,



FOR DIRECTOR  
NEW ZEALAND  
21 JUL 2014

The information contained herein supplements or supersedes the basic flight manual only in those areas described. For Limitations, Procedures and Performance Data not contained in this supplement consult the rotorcraft flight manual.

## **CONTENTS LIST**

RECORD OF ISSUES .....	3
LIST OF EFFECTIVE PAGES .....	3
1    GENERAL .....	4
2    LIMITATIONS .....	4
2.1    VNE Limitation .....	4
2.2    Types of Operation.....	4
2.3    Bike weight.....	4
2.4    Bike loading.....	4
2.5    Approved Configurations.....	4
2.6    Placards .....	4
3    EMERGENCY PROCEDURES .....	5
3.1    Unsecured Bike During Flight.....	5
4    NORMAL PROCEDURES .....	6
4.1    Before Flight Check .....	6
4.2    Bike Loading .....	7
4.3    Passenger seating.....	9
4.4    Bike Unloading .....	9
4.5    After Flight Check .....	10
5    PERFORMANCE .....	10
6    WEIGHT AND BALANCE.....	10
7    SYSTEMS DESCRIPTION.....	11
8    SYSTEM INSTALLATION AND REMOVAL .....	12
8.1    Attachment of rack to rotorcraft.....	12
8.2    Removal.....	12

## RECORD OF ISSUES

Issue	Date	Reason for re-issue
1	16-Jun-14	Initial Issue
2	17-Jul-14	Document updated with CAA Comments

## LIST OF EFFECTIVE PAGES

Pages	Issue	Date
1 to 12	2	17-Jul-14

Certified Master Copy



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## **1 GENERAL**

The referenced modification installs a bike rack assembly onto the rotorcraft. The assembly attaches to the rotorcraft skid tubes and can accommodate up to three bikes. Racks may be attached either or both sides.

## **2 LIMITATIONS**

### 2.1 VNE Limitation

VNE with bike rack(s) installed                      100 kts

### 2.2 Types of Operation

Rotorcraft limited to DAY VFR only

### 2.3 Bike weight

Maximum weight per bike                                      18 kg

### 2.4 Bike loading

Bikes must be loaded facing aft

### 2.5 Approved Configurations

- 1) Rack secured to LHS of rotorcraft.
- 2) Rack secured to RHS of rotorcraft.
- 3) Racks secured to both sides of rotorcraft.

**NOTE:** Racks may be flown unloaded, partially loaded or fully loaded

### 2.6 Placards

The following placards are installed:

On the instrument panel in clear view of the pilot:

VNE 100kts When rack(s) installed
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DAY VFR Operation only  
when rack(s) installed

On each bike Rack

Max weight per bike  
18kg.  
Bikes must be loaded  
facing aft

### **3 EMERGENCY PROCEDURES**

The procedures in the Rotorcraft flight manual remain valid and are supplemented only as detailed below.

#### **3.1 Unsecured Bike During Flight**

- 1) As smoothly as possible reduce forward speed to minimum for continued safe flight.
- 2) Avoid abrupt control inputs and direction changes
- 3) Land immediately, using a minimum forward speed and rate of descent.
- 4) Check rotorcraft and assembly for damage.
- 5) If the bike rack assembly is suspected of having a securing mechanism malfunction, remove from rotorcraft.

## 4 NORMAL PROCEDURES

The procedures in the Rotorcraft flight manual remain valid and are supplemented only as detailed below.

### 4.1 Before Flight Check

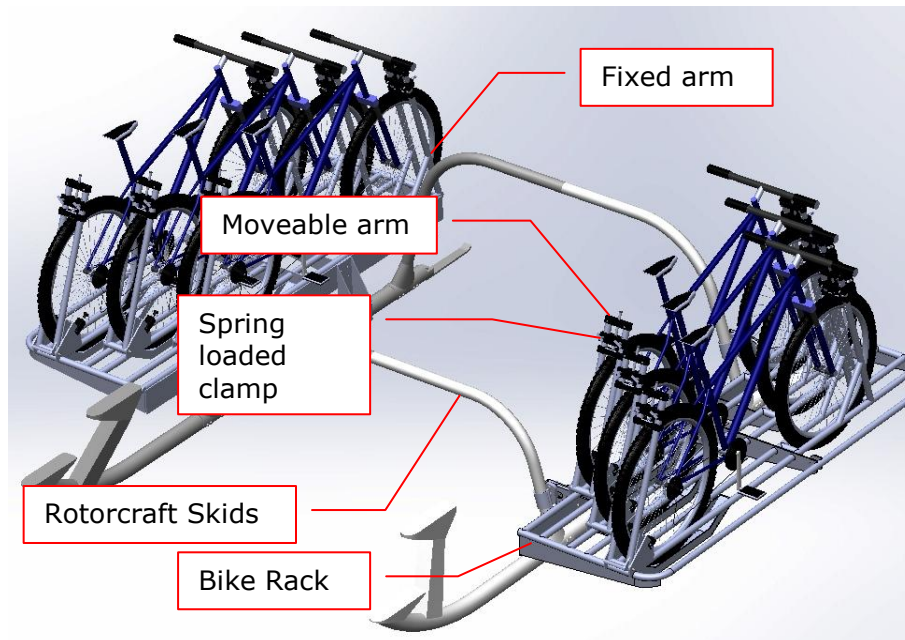


Figure 1 Complete system

- 1) Examine bike rack assembly for general condition. Ensure no corrosion, dents, deformation or deep gouges.
- 2) Ensure no fasteners are loose. Tighten as necessary.
- 3) Examine ground handling wheel studs for deformation and cracking. If any found remove bike rack assembly and inform an authorised aircraft maintenance provider.
- 4) Check locking pins. Ensure smooth operation of release. Ensure balls lock in secured position.
- 5) If pin fails check, replace with identical part numbered item.
- 6) Ensure locking mechanism for securing bikes is functional.
- 7) Release lock by pulling spring loaded pin. Ensure locking arm rotates freely.
- 8) Release spring loaded pin.

- 9) Rotate locking arm. Ensure lock pin drops into locked position when arm passes over cut out and arm becomes fixed.
- 10) Check wheel clamps. Check spring is sufficiently stiff.
- 11) Ensure securing strap is not frayed and is secured to the bike rack.

#### 4.2 Bike Loading

- 1) Release locking arm and rotate to fully open position.



Figure 2 Open Arms

- 2) Ensure there are no items that come loose from the bike (drinks bottles, lights, panniers etc.). If necessary, remove and carry in cargo hold.
- 3) Place bike in rack facing aft, ensuring tyres locate in wheel guides.



Figure 3 Bike in Place



- 4) Lock bike into rack using the following instructions.
- 5) Rotate movable arm into position and ensure lock pin engages.



Figure 4 Movable Arm Locked In Place

- 6) Remove the two pip pins from the fixed arm spring loaded wheel clamp.
- 7) Place clamp against tyre.
- 8) Compress spring and line up pip pin holes.
- 9) Re-install two pip pins.

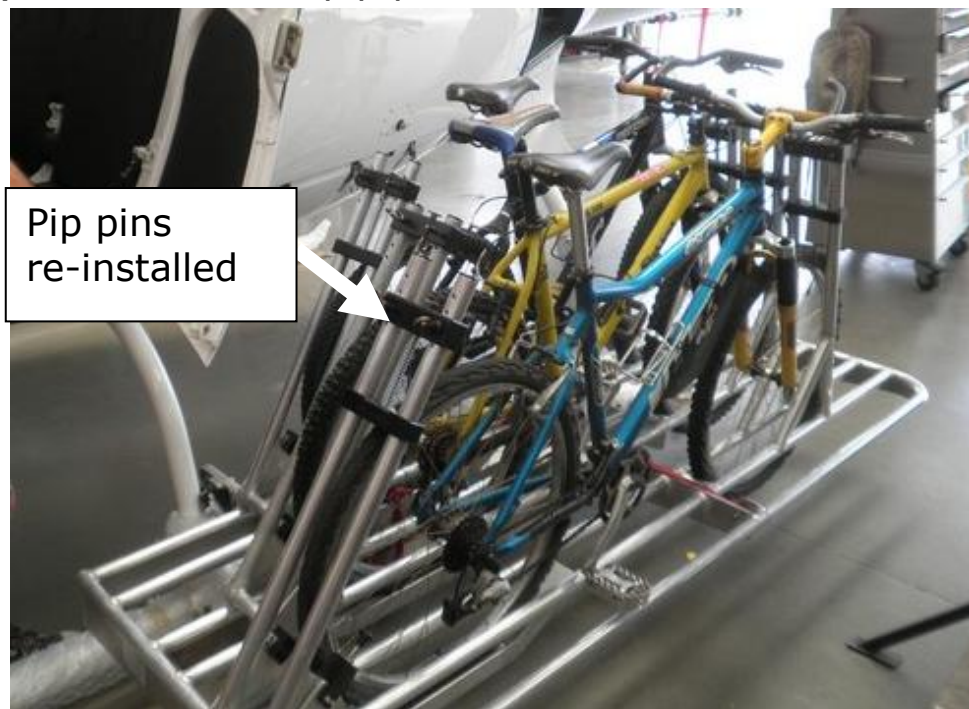


Figure 5 Adjusted Tyre Lock



- 10) Remove the two pip pins from the movable arm spring loaded wheel clamp.
- 11) Place clamp against tyre.
- 12) Compress spring and line up pip pin holes.
- 13) Re-install two pip pins.
- 14) Load other bikes as required.
- 15) Strap bike down to rack using securing strap.



Figure 6 Bike Restrained With Securing Strap

- 16) Shake bike vigorously to ensure it is fully secured.
- 17) If no bike is installed at any position, ensure that the swinging arm is locked in the fully down position.

#### 4.3 Passenger seating

If only one rack is attached, ensure that passengers are seated on the opposite side of the rotorcraft to the rack.

#### 4.4 Bike Unloading

- 1) Release securing strap.
- 2) Release wheel clamps by removing pip pins.
- 3) Rotate movable arm out of the way.

- 4) Remove bike from rack.
- 5) Ensure movable arm is returned to locked position before flight.

#### 4.5 After Flight Check

- 1) Wipe down bike rack to remove any dirt and moisture.
- 2) Lightly lubricate locking pins.
- 3) Lightly lubricate all moving parts.

## 5 PERFORMANCE

Each installed rack assembly reduces the climb rate by approximately 100 fpm.

Installation of bikes onto the rack(s) has a negligible effect on climb rate.

## 6 WEIGHT AND BALANCE

The installation affects the weight and balance of the Rotorcraft as follows:

Item	Weight (kg)	Arm Long(m)	Long Mom (kg-m)	Arm Lat (m)	Lat Mom
Bike Rack Assembly LH	58	3.26	194.88	-1.38	-80.04
Bike Rack Assembly RH	58	3.26	194.88	1.38	80.04

Bike weight is added as follows

Item	Arm Long (m)	Arm Lat (m)
Inner bike	3.06	1.12 (- for LH)
Middle bike	3.26	1.32 (- for LH)
Outer bike	3.46	1.52 (- for LH)

### **CAUTION**

Ensure that the MAUW of the rotorcraft is not exceeded, especially when several bikes and passengers are carried.

### **CAUTION**

If only one rack is installed, ensure that the lateral cg remains within limits.

## **7 SYSTEMS DESCRIPTION**

The bike rack system consists of two rack assemblies. They are mirror images of each other therefore the following description of a single unit is applicable to both. Each assembly mounts to a rotorcraft skid using the ground handling wheel attachment lugs and clamps that secure to the front and rear skid downtubes. Each rack has an integrated securing system for up to 3 bikes. The securing system has one fixed and one moveable arm. The movable arm has several locked positions to cater for different sizes of bike. The arm is locked using a spring loaded pin. Each arm has a locking bar that contacts the bike tyres. This secures the bike by using a spring on the rear of the lock bar. The spring connects to an upper bar. The upper bar can be adjusted by sliding up and down the arm; it is locked by using two pin pins. Finally the bikes are restrained by a secondary method of attachment. This is a strap with a cam style lock that is looped over the bikes then secured to itself.

## **8 SYSTEM INSTALLATION AND REMOVAL**

### **8.1 Attachment of rack to rotorcraft**

NOTE: instructions apply to either rack.

- 1) Lift rack over rotorcraft skid.
- 2) Slide rack forward so slots engage with ground handling wheel lugs.



Figure 7 Slot Engagement with Lugs

- 3) Secure clamps to skid front and rear skid down tubes.
- 4) Lock clamps with pip pins.
- 5) Connect the knife joint of the rack's bonding strap



Figure 8 Clamp with Pip Pin Installed

### **8.2 Removal**

Removal is the reverse of installation.