Last revised: 28 Jan 26 (version 2.1)

For all enquiries regarding FPV racing at the event, please contact -

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For urgent matters, contact event directors (+61 prefix) -

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# *Pilot Handbook*

# Contents

# Introduction

This is the pilot handbook for MIDRT_AS26 in Sydney, Australia. This handbook provides pilots with all information needed to compete at MIDRT and allows teams to plan accordingly.

# Eligibility

Current serving member of their nations regular or reserve armed forces.

A junior 'Cadet' Category for those involved in national military aligned youth movements for those under 18 years of age will run in parallel, which will grow over time as more cadets become involved in Drone Sports.

Veterans and Industry will form into an Open Category to race if there is enough space capacity (due to accommodation, feeding and pilot slot limits).

# Team Composition

MIDRT teams consist of four drone racers. Fewer than four can compete, but a team of four that is required for the team score. Nations can elect to have the team as a combined service of soldiers, sailors and aviators in any combination, or have single service teams from Army, Navy or Air Force.

Personnel are not allowed to be added, moved between or removed from teams, once the team roster is confirmed and competition starts (with the exemption of illness or any other significant reason).

# Detailed Event Schedule

## Wednesday 11 March 2026 – All

| Time | Activity | Lead |
|---|---|---|
| 0830 | Welcome brief | ADF DRA President |
| From 0930 | Track setup | UAS Events – LTCOL James McRae |
| 1230 - 1330 | Lunch break | |
| From 1300 | Test flights / MAAA membership / Scrutineering / Race registration | Tim Crofts |
| 1745 | National leads synch | UAS Events |

| | | |
|---|---|---|
| 1900 | Social event – Get to know you; last chance for pilot profile photos | UAS Events – MAJ Andrew Tod |

### Thursday 12 March 2026 – Group 1

| Time | Activity | Lead |
|---|---|---|
| 0700 | Safety brief / Pilot brief | Safety – Chris Payne<br>Pilot brief – Tim Crofts |
| 0730 – 1130 | Qualifying | Racing – Tim Crofts |
| 1130 – 1215 | Lunch break | |
| 1215 | Coach depart for RAAFMAC | TBC |
| 1330 | Safety brief / Pilot brief | Tactical – Tom Gash |
| 1345 – 1745 | Tactical practice | Tactical – Tom Gash |
| 1800 | Coach depart for RWB | UAS Events |

### Thursday 12 March 2026 – Group 2

| Time | Activity | Lead |
|---|---|---|
| 0630 | Coach depart for RAAFMAC | TBC |
| 0745 | Safety brief / Pilot brief | Tactical – Tom Gash |
| 0800 – 1200 | Tactical practice | Tactical – Tom Gash |
| 1200 – 1245 | Lunch break | Tactical – Tom Gash |
| 1245 | Coach depart for RWB | Tactical – Tom Gash |
| 1400 | Safety brief / Pilot brief | Racing – Tim Crofts |
| 1430 – 1830 | Qualifying | UAS Events |

### Friday 13 March 2026 – Group 1

| Time | Activity | Lead |
|---|---|---|
| 0630 | Coach depart for RAAFMAC | TBC |
| 0745 | Safety brief / Pilot brief | Tactical – Tom Gash |
| 0800 – 1200 | Tactical competition | Tactical – Tom Gash |
| 1200 – 1245 | Lunch break | Tactical – Tom Gash |
| 1245 | Coach depart for RWB | Tactical – Tom Gash |
| 1400 | Safety brief / Pilot brief | Racing – Tim Crofts |
| 1430 – 1830 | Qualifying | UAS Events |

### Friday 13 March 2026 – Group 2

| Time | Activity | Lead |
|---|---|---|
| 0700 | Safety brief / Pilot brief | Safety – Chris Payne<br>Pilot brief – Tim Crofts |
| 0730 – 1130 | Qualifying | Racing – Tim Crofts |
| 1130 – 1215 | Lunch break | TBC |
| 1215 | Coach depart for RAAFMAC | TBC |
| 1330 | Safety brief / Pilot brief | Tactical – Tom Gash |
| 1345 – 1745 | Tactical competition | Tactical – Tom Gash |
| 1800 | Coach depart for RWB | UAS Events |

### Saturday 14 March 2026 – All

| Time | Activity<br>(Subject to change based on pilot numbers) | Lead |
|---|---|---|
| 0800 | Safety brief / Pilot brief | Safety – CAPT Chris Payne<br>Pilot brief – Tim Crofts |
| 0830 - 0930 | Last Chance Qualifying – Group 1 – 2 Packs | Racing – Tim Crofts |
| 0930 - 1000 | Last Chance Qualifying – Group 2 – 2 Packs | Racing – Tim Crofts |
| 1000 - 1230 | Heats, team endurance race | Racing – Tim Crofts<br>Tactical – CAPT Tom Gash |
| 1230 - 1330 | Lunch break | |
| 1330 - 1545 | Finals – Top 16 or 32 double elimination, 4 up (depending on pilot numbers) | Racing – Tim Crofts |
| 1545 - 1600 | Payload Delivery demo | Tactical – CAPT Tom Gash |
| 1600 - 1630 | Presentations | UAS Events |
| 1630 - 1730 | Pack Down | |
| 1900 | Social function | UAS Events – MAJ Andrew Tod |

## Event Location

### Randwick Barracks (RWB)

RWB is the primary event location for accommodation and racing. RWB is located in the suburb of Randwick in Sydney, and used primarily for Army Reserve activities. The base has limited amenities and there is no on-base café or shop, however multiple shopping areas are located within a 5-minute drive.

Address (Main gate): 373a Avoca St, Kingsford NSW 2032

what3words: fortunate/certified/memory

### Event Map - RWB

A map of RWB is located in Annex A. Racing will be on the oval at E-14.

### Link for RWB

https://www.defence.gov.au/about/locations-property/base-induction/randwick-barracks

### Royal Australian Air Force Model Aircraft Club (RAAFMAC)

RAAFMAC is a model aircraft club adjacent to RAAF Base Richmond in North West Sydney. RAAFMAC is the location for the tactical activities. A coach service will provide transport between RWB and RAAFMAC.

Address: Percival Street, Clarendon NSW 2756

### Event Map - RAAFMAC

The flying areas will be marked and briefed at the event.

### Link for RAAFMAC

https://maps.app.goo.gl/2naNjGAu4kWgzYWa8

## Accommodation, Base Access and Parking

Pilot Teams will be staying at RWB for the duration of the event. UAS Event staff will manage transit accommodation bookings for the event.

Pilot Teams base access, travel and car-parking information will be in a separate administrative instruction provided by UAS events.

## Race Track

### Track Layout

The release of the track layout will be available on the approved pilot group chat closer to the event.

### Tracks on Velocidrone

The release of the Velocidrone track details will be available on the approved pilot group chat.

### Track Fly Through

Links for the track fly through video will also be available via the pilots group chat.

# Drone Specifications and Limits

Class: 5-inch quadcopter, frame size 330mm between motor posts

Lithium Polymer Battery Voltage: Max 4.20 V per cell, 4.35 V per cell if Li-HV

Weight: Max 1 kg

Propeller Size: Max 5.1 inch (No metal or fibreglass props)

Video Link Frequency: 5.8 GHz

VTX Power setting: Max 25 mW

RF Link Frequency: 2.4 GHz and 915 MHz (915 AU mode on Crossfire)

RF Link Power Setting: 100 mW

Supplied for the tactical activities will be drones, controllers, radios (walkie-talkies), screens and goggles. Both Mode 1 and Mode 2 controllers will be available. Any teams requiring Mode 3 or Mode 4 controllers are to contact Thomas Gash to ensure they are available.

# Prohibited Systems

The Australian Defence Force (ADF) has a blanket ban on all DJI-branded equipment. Do not use DJI equipment at any ADF base, training area, activity or event. This includes, but is not limited to, all drones, FPV components, cameras, gimbals, microphones. This is non-negotiable.

# Race Format – MIDRT

## Qualifying

Top 2 consecutive laps.

Qualifying rounds will have a set duration of 120 seconds (2 minutes). Pilots fly as many laps as possible within this duration, when the timer expires an air horn sound will play where pilots must finish the current lap they are on and then proceed to the landing zone and disarm.

Pilots are ranked on their best 2 consecutive (back-to-back) laps, recorded in any of their qualifying rounds. The qualifying rankings will determine the seeding order for elimination heads.

## VTX Channels

Race Band Channels will be used - most likely 1, 2, 7 and 8 (Subject to changes required following an RF site survey)

## Brackets

Top 16 or 32, Double Elimination, 4 Up (16 if less than 32 pilots competing).

See below for seeding pattern of Top 32.

Pilots will be grouped into heats of 4 and race to complete 3 or 4 laps of the track.

First and second placeholders will continue through to a winner's bracket and continue racing against winners from other heats Third and fourth placings will move down to a redemption bracket. Pilots in the redemption bracket must continue to place 1st and 2nd in order to continue in the competition. A 3rd of 4th placing in the redemption brackets will eliminate those pilots from the competition.

## Finals

Triple Final, Chase the Ace. First to take two places wins, other 2nd, 3rd and 4th determined by placings.

## Seeding Pattern

| ROUND 1 RACE 1 | | | ROUND 1 RACE 2 | | |
|---|---|---|---|---|---|
| Seed | Pilot | Result | Seed | Pilot | Result |
| 32 | | | 25 | | |
| 1 | | | 8 | | |
| 16 | | | 9 | | |
| 24 | | | 17 | | |
| **ROUND 1 RACE 3** | | | **ROUND 1 RACE 4** | | |
| Seed | Pilot | Result | Seed | Pilot | Result |
| 27 | | | 29 | | |
| 6 | | | 4 | | |
| 11 | | | 13 | | |
| 19 | | | 21 | | |
| **ROUND 1 RACE 5** | | | **ROUND 1 RACE 6** | | |
| Seed | Pilot | Result | Seed | Pilot | Result |
| 30 | | | 28 | | |
| 3 | | | 5 | | |
| 14 | | | 12 | | |
| 22 | | | 20 | | |
| **ROUND 1 RACE 7** | | | **ROUND 1 RACE 8** | | |
| Seed | Pilot | Result | Seed | Pilot | Result |
| 26 | | | 31 | | |
| 7 | | | 2 | | |
| 10 | | | 15 | | |
| 18 | | | 23 | | |

# Tactical Activity 1 – 10” FPV Payload Delivery

## Outline

The first tactical activity is a payload delivery from a 10” FPV drone. Competitors will be required to fly out a set distance to a cone, turn around and deploy a payload into a target area on the way back. Scoring involves the time from take-off to impact, accuracy of the delivery, and payload activation status. The exact scoring weighting will be briefed closer to the event.

## Payload

The payload is a custom training aid developed by an Australian Army member with a number of safety interlocks. There are four interlocks used during the competition and all four must be disengaged for the payload status indicator to display a successful activation. The interlock states and overall payload state indicator are visible on the side of the payload and can provide immediate feedback on successful or unsuccessful payload activation. The payload contains a chalk marker in the nose to mark the point of impact.

Interlock 1 – A pin that is pulled on launch. The pin is attached to the launch pad.

Interlock 2 – A 10-second timer that initiates once the pin is pulled. This mimics a minimum time-to-arm.

Interlock 3 – Arming signal from the FC to the payload, activated by a switch. The FC and payload are connected by a magnetic quick disconnect that facilitates the arming signal from the FC.

Interlock 4 – Accelerometer that requires sufficient impact to activate the payload. This will require competitors to drop it from a sufficient height to register the impact. The height will be briefed to competitors at the event.

## Target

The target will be a 5 m diameter bullseye that will be marked with paint and a flag in the middle. The distance between the point of impact and the flag will be used to score accuracy.

## Participation

All teams can participate in the payload delivery activity. Each team will select one person to be the pilot and one person to act as the launch crew. Each team will get a practice run on Thursday and a recorded run on Friday.

# Tactical Activity 2 – Aerial Jousting

## Outline

The second tactical activity is the jousting or ramming of a fixed-wing platform with a 7” FPV drone. A fixed-wing platform will be flown between 200 ft AGL and 1200 ft AGL (Pending ceiling increase approval). Competitors will be required to detect the fixed-wing platform and radio the location to the other members of the team. The pilot will then need to joust the fixed-wing and destabilise it using the pole on the front of the 7” FPV drone. Scoring based on the time-to-intercept from the first radio call, with points deducted if the 7” FPV drone is destroyed (falls out of the sky). The exact scoring weighting will be briefed closer to the event.

## Fixed-Wing Platform

The fixed-wing platform will fly a preprogrammed mission. The mission will involve constant changes in altitude, heading, and speed. All teams will get the same mission to provide a consistent experience. The mission used on the practice day will be different to the mission on the competition day. The fixed-wing will have a wingspan between 1 m and 2 m. It will be painted in a manner that makes it harder to see. An experienced fixed-wing pilot will be ready to take manual control under visual line of sight in the event of an emergency.

## Participation

All teams can participate in the aerial jousting activity. All four team members will be required for the activity.

Pilot – This person does the flying. This person is in a tent and cannot see outside.

Navigator –This person sits next to the pilot with a screen and a radio. They assist the pilot with locating the fixed-wing platform and use the radio to talk to the spotter. This person is in a tent and cannot see outside.

Launch crew – This person places the drone outside for launch and provides help to the Navigator and Pilot. An Australian staff member can fill the role if teams only have three members.

Spotter – This person is located with the fixed-wing pilot. They have a pair of binoculars and a radio. This person talks to the Navigator to relay the position, altitude and heading of the fixed-wing drone.

## Awards and Prizes

Tactical

Payload Delivery prize

Aerial Jousting prize

Overall tactical prize

Racing

Best Military Team

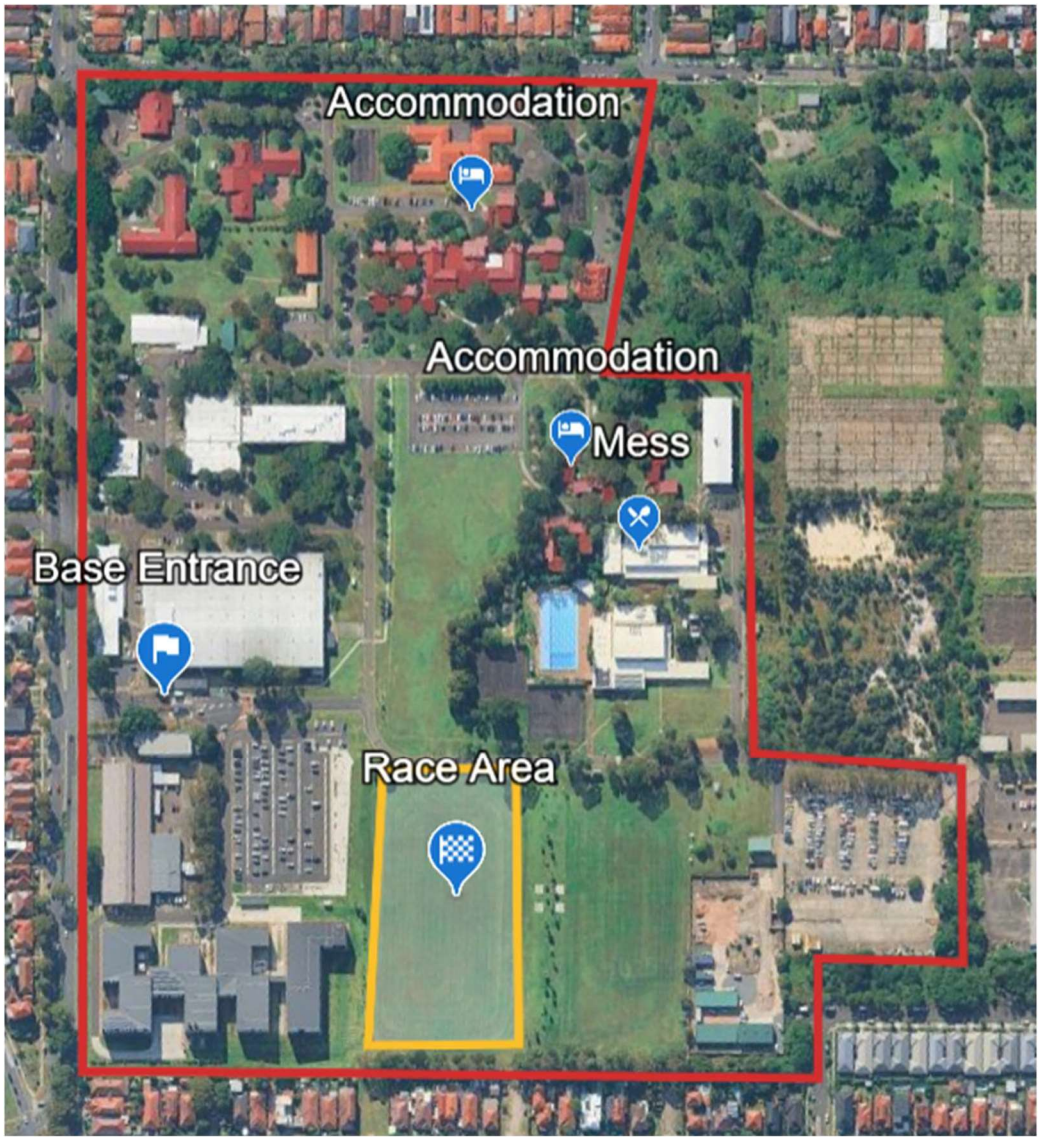
Best Open Pilots (1st to 4th)

Best Youth Team

Best Open (includes Military, Youth, Veteran and Industry) Team

## Key Contacts and Further info

Key contacts are located on the front page of this handbook, with amendments made in future handbook updates.




**Randwick Barracks Map**