



DIAMOND

NAVIGATION MODULE

POINTS

This module is the **NAVIGATION** requirement suitable ONLY for



DIAMOND

TASK SUMMARY

The standard minimum distance for the **DIAMOND** task is **500 NM*** over no more than **5 days**, unless you have a slower aircraft, in which case there is an accommodation for this.

See **task elements** section for details.

*Absolute minimum is 290NM.

OBJECTIVE

The aim of the BMAA Navigation tasks is for the pilot to demonstrate planning and execution of a flight to specified times and fuel consumption goals. For newer pilots it also provides the opportunity to progress to the next level after their NPPL.

It is anticipated that the vast majority of pilots will achieve the objective at the first attempt, with the opportunity for self-examination as to how the task was achieved but maybe not completed as they expected, and for those who fall at the hurdle to have valued experience to improve flight planning.

TASK ELEMENTS

The basic task distance is in line with similar aircraft in sister associations, but we have made some **allowances** for categories of aircraft we have which others do not, to cater for a large diversity of aircraft types and performances.

There is a **calculator** to make the task more accessible for aircraft with lower cruise speeds.

In order to avoid task flyers being pressured by things outside their control, we ask for the segment times to be recorded between the exit and entry point to the traffic patterns for the departure and arrival airfields. Should you find yourself in a queue for take-off, you are not penalised, as you only start the stopwatch when you set course for the first waypoint, and same philosophy applies to arriving in the circuit or joining overhead at a busy airport or having to extend a long way downwind to accommodate other traffic. The task form expects you to plan your flight time between these points, not from brakes off to brakes on, nor from take-off to landing.

Fuel is different - the task requirement is to estimate total fuel consumption for the leg, including any time

you may spend in queues, as there is no slack on this - regardless of any delays you must have enough fuel both for this Wings flight and for any other trips you plan.

The task has a requirement for **waypoints**. The reason for a waypoint is to focus on the use of the same for avoiding airspace or checking on your navigation at a useful point in the task. The use of visual reference points (VRPs) is a great technique, both for confirmation when using a moving map, or navigating using a paper chart. Providing it meets the task criteria, you should place the waypoint somewhere that makes the task easier for you, and forms one of the tools in your TEM (Threat and Error Management) for avoiding infringements or getting lost.

The suggestion is to plan and execute the tasks with methods you are familiar with. We advise you to avoid taking on more than one new thing at a time. If that familiar method is a paper map, ruler and stopwatch, so be it. If you use a moving map, then that's fine too. Flying a Wings Navigation Task isn't the time to change your methods of navigation.

OVERVIEW & PHILOSOPHY

The **standard minimum distance** for the **DIAMOND** task is **500 NM**, flown over no more than **5 days**. If you have a slower aircraft, in which case there is an accommodation for this distance. A slower aircraft for the purpose of this task is one with a cruise speed of less than 60 knots. This is done to cater for a wide range of aircraft performance and to recognise that the Wings scheme should be open to everyone irrespective of which type of microlight they fly.

The pilot must choose the cruise speed to use during planning and all calculations of time and fuel will be based upon that speed.

NOTES:

1. As you start to attempt the longer tasks, you must avoid "get-there-itis" or being tempted away from your usual safe flying practices. The most important thing is for the pilot and aircraft to be safe. If that

involves not flying or landing out somewhere safe and abandoning the task, that is the right decision.

2. If your aircraft cruises at 60 knots or faster, the minimum distance for the **DIAMOND** navigation task is **500 NM**, flown over no more than **five** consecutive days.

If you fly an aircraft with a lower cruise speed, then you may use a lower minimum distance for the flight. This figure is the cruise air speed that you choose multiplied by 25 then the result divided by three to give a distance in nautical miles. The figure is rounded up to the next integer.

Example

Cruise speed (kts)	X 15	/ 3	Distance
50 kts	1250	416.67	417 NM

If the result of this calculation is less than **290 NM**, you must use the figure of **290 NM**.

3. The flight must be completed in *no more than* **five** consecutive days. If weather is an issue, amend your plan and resubmit to wings@bmaa.org (if possible to do so).
4. The distance given or calculated is a **minimum**. If you want to fly further, you can. The same criteria apply to your flight plan, in that you must schedule the flight and predict the fuel consumption and be within the same percentage requirements.
5. For each leg of the flight enter one planned Waypoint along the route, no less than **20 NM** from each departure airfield measured in a straight line, and the planned time at that point.
6. Departure time is the time that the aircraft sets course for the next Waypoint or Airfield. It is not the brakes-off or take-off time.
7. Arrival time is the time that the aircraft arrives overhead the Waypoint or Airfield, or the time that the aircraft joins the airfield traffic pattern.
8. Hand a copy of the plan to your BMAA observer or email it in prior to departure. Complete the actual times and fuel use after the flight.

9. Flight times achieved must be within 20% of planned times. Fuel use must be within 20% of planned use.

COMPLETION




Changes have been made to the way the task can be verified.

There is a **Navigation PLOG Form** which must be completed for recognition of the task. **The plan must be submitted BEFORE departure.**

There are now two methods of completion



1. OBSERVER

The first way is to use an **observer**. A BMAA approved observer is a person known to and trusted by the BMAA (a fellow BMAA member, flight instructor or inspector would be ideal). The observer should be a pilot or person familiar with navigation tasks.

-  The observer keeps the task form with the planning details on it whilst you fly the task.
-  On your return, you complete the form with the figures obtained in flight.
-  The observer signs it all off as a true representation and you send the form in.

2. GPS LOG

The second way is to:

-  send in a copy or a scan of the planned flight **before you fly** to wings@bmaa.org.
-  Complete the flight and the form with the actual figures, then mail it in **with a track log file** from your EFB or GPS unit.
Accepted formats are:
.trk (from PilotAware and some EFBs),
.gpx (from SkyDemon if you mail your log for the flight to yourself) or
.igc (most gliding apps and some older Garmin devices).

Please send your completed post-flight declarations to wings@bmaa.org or post paper applications to BMAA HQ.



DIAMOND Navigation Plan & Log

HOW FAR DO I NEED TO FLY?

The **standard minimum distance** for the **DIAMOND** task is **500NM**, unless you have a slower aircraft, in which case there is an accommodation for this. *If your aircraft cruises at 60 knots (70 mph) or slower you may apply the following:*

Cruise speed in knots*	x 25	÷ 3	Task distance
(example) 55 knots	40 x 25 = 1000	1000 ÷ 3 = 333.3	333NM

*In order to convert from mph to knots divide by 1.15 (65mph ÷ 1.15 = 56.5knots).

Cruise speed in knots?	x 25	÷ 3	Task distance
			*

*For DIAMOND This distance cannot be less than 290NM.

Now you've worked out how far you have to fly, next is to prepare your plan, see below. At this stage just fill out the green cells, leaving the yellow ones ready for the actual flight and you can ignore the grey cells.

THE FLIGHT PLAN

Please fill out the highlighted sections:

Pilot's name			BMAA No:	
Aircraft type				
Aircraft registration	G-			
Date of flight				
Start Airfield (name)	Planned depart time		Actual depart time	
Waypoint A (name)	Planned arrival time	Planned duration	Actual arrival time	Actual duration

Destination Airfield 1 (name)	Planned arrival time	Planned duration	Actual arrival time	Actual duration
Depart Airfield 1 (name)	Planned depart time		Actual depart time	
Waypoint B (name)	Planned arrival time	Planned duration	Actual arrival time	Actual duration
Destination Airfield 2 (name)	Planned arrival time	Planned duration	Actual arrival time	Actual duration
Depart Airfield 2 (name)	Planned depart time		Actual depart time	
Waypoint C (name)	Planned arrival time	Planned duration	Actual arrival time	Actual duration
Destination Airfield 3 (name)	Planned arrival time	Planned duration	Actual arrival time	Actual duration
Depart Airfield 3 (name)	Planned depart time		Actual depart time	
Waypoint D (name)	Planned arrival time	Planned duration	Actual arrival time	Actual duration
Destination Airfield 4 (name)	Planned arrival time	Planned duration	Actual arrival time	Actual duration
Depart Airfield 4 (name)	Planned depart time		Actual depart time	
Waypoint E (name)	Planned arrival time	Planned duration	Actual arrival time	Actual duration
Destination Airfield 5 (name)	Planned arrival time	Planned duration	Actual arrival time	Actual duration
Depart Airfield 5 (name)	Planned depart time		Actual depart time	

Waypoint F (name)	Planned arrival time	Planned duration	Actual arrival time	Actual duration
End Airfield (name)	Planned arrival time	Planned duration	Actual arrival time	Actual duration
Flight time planning	Total planned duration	Total actual duration	Percentage difference (%) planned to actual	
Fuel planning	Total fuel use planned	Total fuel use actual	Percentage difference (%) planned to actual	
Total Distance flown in Nautical Miles		Minimum distance from page 1 or 500 NM		*

**For DIAMOND This distance cannot be less than 290NM.*

DECLARATION

Once you've completed all the green cells and before you fly you must either; submit the plan to BMAA (wings@bmaa.org) or get an observer to sign the declaration below:

BMAA Approved observer declaration:

I confirm that the applicant has completed the planning for their BMAA DIAMOND Wings Award and that I checked the figures prior to take-off.

Observer Name:	Signed:	Dated:
		*

Once the BMAA or the observer have signed off on the plan, you may perform the flight. We highly recommend using GPS for the actual flight as well as recording your track.

Good luck!

POST FLIGHT

Congratulations on completing the flight, this is now the final stage. You must now go back over the plan and fill in the yellow cells. Please also calculate the percentage difference (%) between your plan and the actual figures flown, the aim being to be within +/-20% for timings and fuel used:

$$\text{To calculate percentage difference (\%)} = \frac{(\text{Actual} - \text{Planned})}{(\text{Actual})} \times 100$$

$$\text{Example (\%)} = \frac{(60\text{mins} - 54\text{mins})}{60\text{mins}} \times 100$$

$$= \frac{6}{60} \times 100$$

$$= \underline{10\%}$$

SUBMISSION & DECLARATION

Once the form is fully complete, please now submit it to BMAA along with the Award Level Application Form and if you have it, pictures of your GPS track or a copy of the file (track file from SkyDemon, PilotAware, Garmin GPS, etc).

I declare that I undertook the flight as described on this form as 'Pilot in Command' (PIC) and that all the data submitted is true and an accurate account. I submit this to the BMAA for consideration of the grant of a DIAMOND Wings Award.

Pilot Name:	Signed:	Date:

OFFICE USE ONLY

DIAMOND NAV	
Received date:	
Checked by:	
Outcome?	ACCEPTED / REJECTED