

MacAir Aviation

Mid-Air Collision Avoidance

Program

1 March, 2017

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Table of Contents

Table of Contents.....	2
1.0 General.....	3
1.1 Known Hazards.....	3
2.0 Local Area Procedures.....	3
2.1 Practice Areas.....	5
2.2 Local Area Ingress and Egress Procedures	5
2.3 Low Level Routes.....	7
3.0 Aircraft Procedures.....	8
3.1 Communication Procedures.....	8
3.2 Aircraft Traffic Advisory System.....	8
4.0 Local Area Coordination.....	8

1.0 General

This document is intended to identify and mitigate the hazards of mid-air collisions during operations conducted for the School of Aerospace Medicine's Aeromedical Aviation Laboratory (AAL) and Residents in Aerospace Medicine (RAM) Aviation Competency Program. In addition, this document applies to the MacAir Aero Club as referenced in the MacAir Aero Club Standard Operating Procedure which can be found at www.macair.org. The responsibility of the safety of any flight remains the responsibility of the pilot in command. These procedures are designed to give the pilot every additional tool available to avoid a potential mid-air collision.

1.1 Known Hazards

MacAir has identified the known hazards to flight operations in the greater Dayton area.

These include, but may not be limited to, the following:

1. Skydiving operations at Skydive Greene Co (a private grass strip)
2. Glider operations around Caesar Creek Gliderport.
3. Skydiving and Glider operations near Stewart Field (40I) just southwest of Waynesville
3. Aircraft not using radios or transponders around Stewart (40I) and Barnhart Memorial
4. Military traffic at Wright Patterson AFB (FFO)
5. Military operations in the Brush Creek and Buckeye MOAs (southeast)

These areas are denoted on the following chart, and are described in greater detail below.

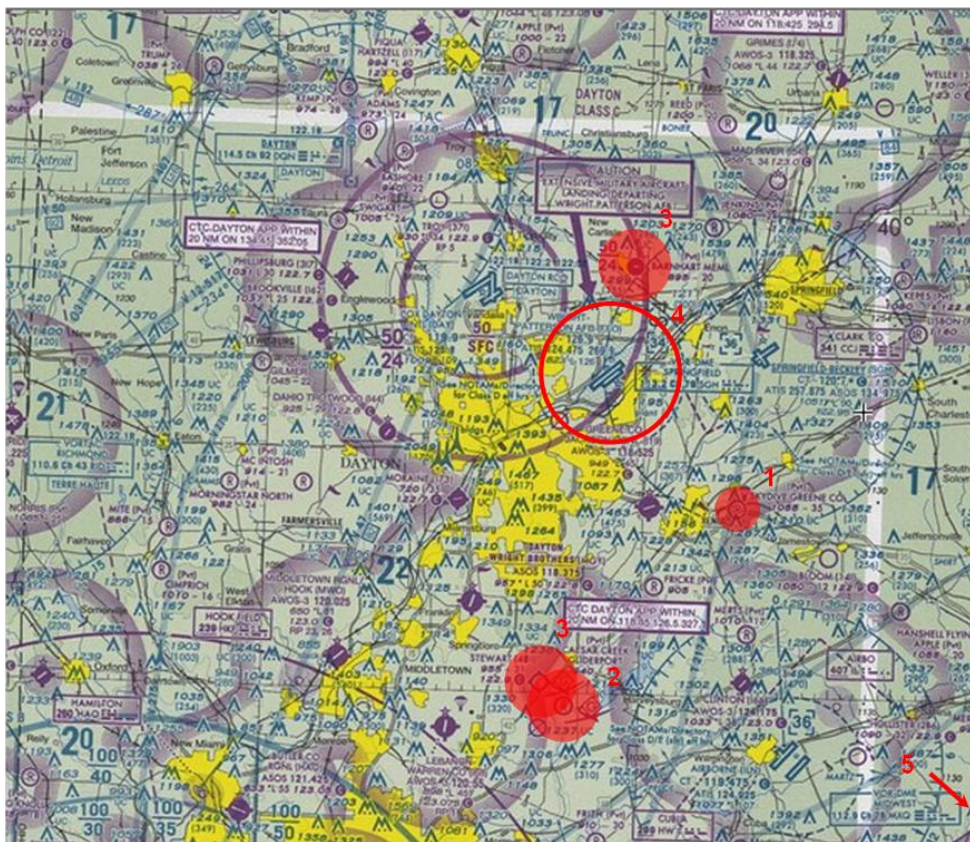


Figure 2: Local Area Sectional Chart with Identified Known Hazards

Skydiving operations are conducted over Skydive Greene County, a grass strip with crossing north/south and east/west runways located three miles directly east of I19. Operations are normally conducted on weekends during daylight hours, but may occur during weekdays. Jumps occur up to 12,500 ft and are conducted from Cessna 182s and a Beech 18 with a turbine conversion. Traffic coordination is accomplished with Columbus approach on 118.85.

Glider operations are conducted out of both Caesar Creek Gliderport and Stewart (40I). Both facilities primarily use Piper Pawnee tow aircraft but may also conduct cable launches. Gliders operating out of Caesar Creek are generally white of modern composite construction, can stay aloft for the entire day, and are very hard to see visually. They may or may not be equipped with a transponder. Glider operations are not limited to the immediate area, and cross county competitions are conducted in the area. Gliders in tow being returned to the home airfield are also common. Operations at Caesar Creek Gliderport are limited to weekends and Wednesdays except during competitions. Stewart may be conducting operations at any time, but are generally limited to weekends.

Vintage aircraft, or light aircraft without electrical systems are common at both Stewart (40I) and Barnhart Memorial airfields. Such aircraft operate without radios or transponders. Flight training in these aircraft is common around Stewart and above Caesar's Creek located directly east. Activity at both fields is heaviest in evenings and on weekends.

Permanent and transient military aircraft operate out of Wright Patterson Air Force Base. Eight C-17s are currently assigned to the Air Force reserve unit on the field and at least one trainer aircraft is airborne throughout the day and sometimes at night. Practice patterns and approaches are common, with Columbus Approach vectoring most repeat approaches to the south.

The Brush Creek and Buckeye Military Operations Areas (MOAs) are located to the southeast of the local area. These areas are used by various aircraft, and are used to simulate air to air combat, formation practice, and even low level navigation and flight.

2.0 Local Area Procedures

To mitigate the danger of mid-air collisions with other AAL and RAM aircraft, MacAir has designated practice area, ingress and egress procedures, helicopter operations area and low level routes to be used as appropriate.

2.1 Practice Areas

Multiple practice areas are defined to separate AAL and RAM traffic from each other and local traffic. These areas are defined below and will be assigned by the SOF prior to launch. When both AAL and RAM programs are operating simultaneously, the SOF will de-conflict practice areas and outlying airport use. When helicopters are operating simultaneously, the SOF will de-conflict launch and recovery times, practice areas and pattern ingress/egress operations.



Figure 2: Designated Practice Areas

2.2 Local Area Ingress and Egress Procedures

The bounds of each practice area are defined by the following coordinates. Each practice area has a low and high area for further de-confliction with the low area defined as surface to 4500MSL and high 5000MSL to 7500MSL. If the aircraft system allows, these coordinates will be entered as flight plans in

the GPS, and will allow the instructor and student an additional layer of awareness during maneuvers. To the extent possible, pilots will navigate between the practice area boundaries while enroute to/from their assigned working area. Helicopters will also utilize low altitude ingress/egress procedures at or below 500' AGL.

Mac 1	Latitude		Longitude	
	39°38'20"	N	83°56'00"	W
	39°38'20"	N	83°36'00"	W
	39°30'00"	N	83°36'00"	W
Mac 2	Latitude		Longitude	
	39°38'20"	N	83°34'00"	W
	39°38'20"	N	83°14'00"	W
	39°30'20"	N	83°14'00"	W
Mac 3	Latitude		Longitude	
	39°48'20"	N	83°44'00"	W
	39°48'20"	N	83°24'00"	W
	39°40'20"	N	83°24'00"	W
Mac 4	Latitude		Longitude	
	39°48'20"	N	83°22'00"	W
	39°48'20"	N	83°02'00"	W
	39°40'00"	N	83°02'00"	W
Mac 5	Latitude		Longitude	
	39°58'20"	N	83°44'00"	W
	39°58'20"	N	83°24'00"	W
	39°50'20"	N	83°24'00"	W
Mac 6	Latitude		Longitude	
	40°08'20"	N	83°56'00"	W
	40°08'20"	N	83°36'00"	W
	40°00'00"	N	83°36'00"	W
Mac 7	Latitude		Longitude	
	40°08'20"	N	83°34'00"	W
	40°08'20"	N	83°14'00"	W
	40°00'00"	N	83°14'00"	W
Mac 8	Latitude		Longitude	
	39°37'28"	N	84°26'13"	W
	39°37'57"	N	84°38'21"	W
	39°50'11"	N	84°41'53"	W
Mac 9	Latitude		Longitude	
	39°17'32"	N	83°59'80"	W
	39°14'34"	N	83°39'56"	W
	39°03'12"	N	83°59'56"	W
Mac 10	Latitude		Longitude	
	39°29'00"	N	83°56'00"	W
	39°29'00"	N	83°35'00"	W
	39°20'00"	N	83°35'00"	W

Table 1: Practice Area Coordinates

2.3 Low Level Routes

Low level routes will be defined for use during the AMP 202 course (AAL long course). Each route will be developed to allow flight at 500 ft AGL while avoiding military low level routes, congested areas, and other hazards. Each route will be flown prior to use to check for unmarked obstacles and to help define aids to navigation. Each route will be flight checked twice a year. A sample route is depicted below.

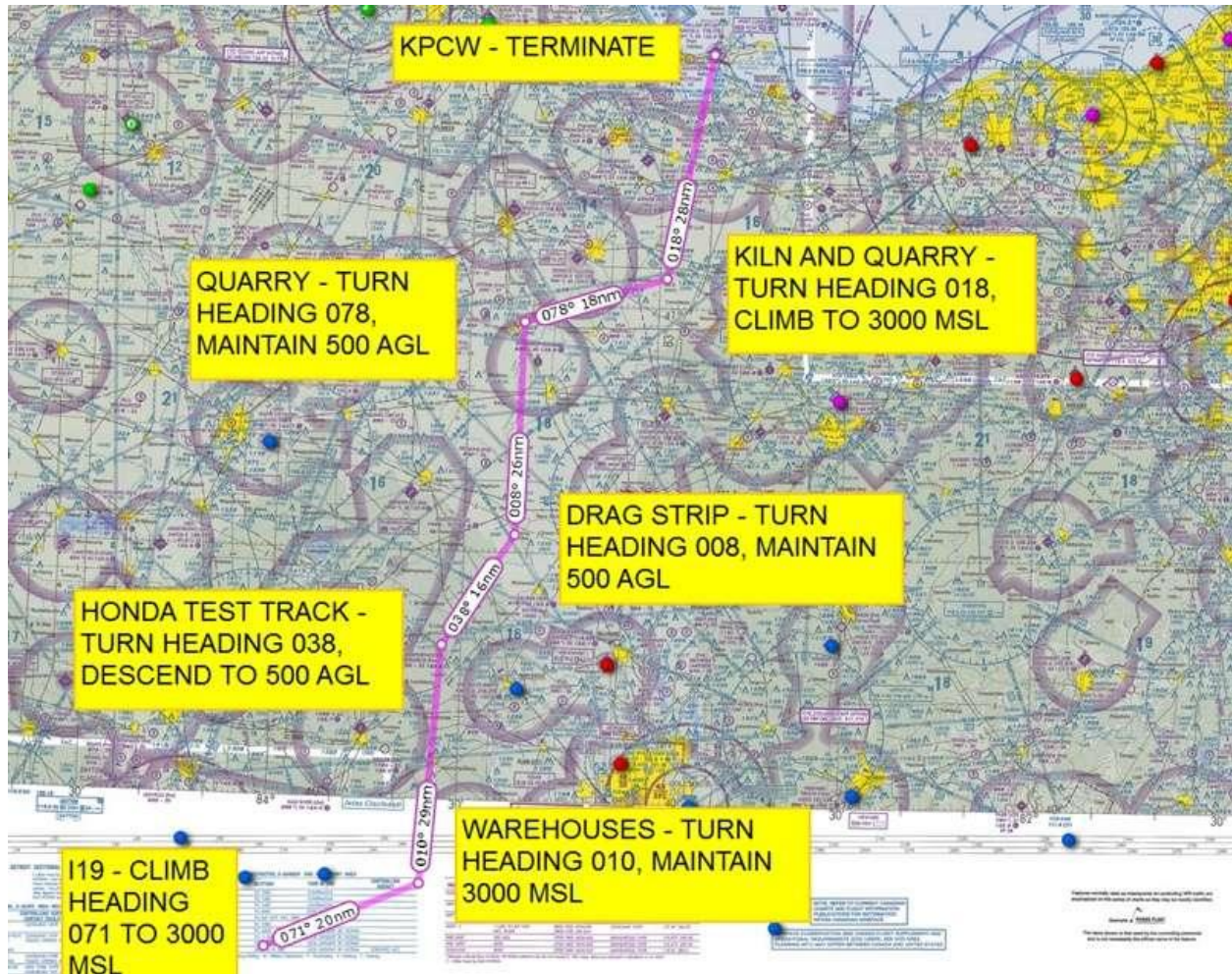


Figure 3: Sample Low Level Route

3.0 Aircraft Procedures

3.1 Communication Procedures

Each aircraft operated by MacAir during AAL and RAM operations, including those on private training flights in the local area, will maintain both air to air and air to ground contact over 123.30. This will allow instructors to coordinate entry and exit from the practice areas, while providing situational awareness to glider operations since Ceasars Creek uses the same frequency. Additionally it helps in coordination, in the event of changing weather conditions or an emergency.

3.2 Aircraft Traffic Advisory System

Each of the AAL glass cockpit aircraft and some RAM aircraft are equipped with a traffic advisory system. This system is to be used during all phases of flight. Formation flight procedures will ensure the system remains useful to the flight. For AAL aircraft system use see section 3, pgs 23 thru 28 of the Avidyne EX5000C Pilot's Guide and AAL Formation Standards. The systems determine a traffic threat by calculating the relative bearing and distance of the intruder aircraft's transponder signal. Aircraft not using transponders will not be detected by the system.

4.0 Local Area Coordination

MacAir will coordinate with local pilots to alert them to our flight operations, and to determine any additional threats to AAL and RAM aircraft. Appropriate information will be posted in the flight planning room at our home airport as well as sent to other local airports potentially affected by our operations.