

## Chapter 8 Safety Procedures & Practices

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**Introduction**

The purpose of Bridgewater State College's Safety Procedures and Practices is to provide guidance for instructors, students, and service personnel during flight operations *and to ensure that safety is the number one priority*. The following Safety Procedures and Practices pertain to the operation of all aircraft used by Bridgewater State College in the conduct of flight operations.

**Weather Minimums: Dual and Solo Flights**

Pilots shall be vigilant to remain within the privileges of their certificate and rating or limitations.

*The ceiling and visibility minimums for any BSC flight event are as follows:*

<u>CONDITIONS</u>	<u>CEILING (AGL)</u>	<u>VISIBILITY (SM)</u>
<b>VFR DAY DUAL</b>		
<i>Pattern Operations</i>	1800 ft.	3 Miles
<i>Local (Within 25 NM)</i>	2500 ft.	5 Miles
<i>Cross Country</i>	3000 ft.	10 Miles
<b>VFR DAY SOLO</b>		
<b>STUDENT PILOT</b>		
<i>Pattern Operations</i>	1800 ft.	5 Miles
<i>Local (Within 25 NM)</i>	2500 ft.	10 Miles
<i>Cross Country</i>	3000 ft.	10 Miles
<b>PVT PILOT CERTIFICATE OR HIGHER</b>		
<i>Pattern Operations</i>	1800 ft.	5 Miles
<i>Local (Within 25 NM)</i>	2500 ft.	7 Miles
<i>Cross Country</i>	3000 ft.	10 Miles

<b><u>CONDITIONS</u></b>	<b><u>CEILING (AGL)</u></b>	<b><u>VISIBILITY (SM)</u></b>
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**VFR NIGHT DUAL**

<i>Pattern Operations</i>	1800 ft.	3 Miles
<i>Local (Within 25 NM)</i>	2500 ft.	7 Miles
<i>Cross Country</i>	3000 ft.	10 Miles

**VFR NIGHT SOLO**

STUDENT PILOT **BSC Student Pilots: SOLO Night Flights NOT AUTHORIZED**

**PVT PILOT CERTIFICATE OR HIGHER**

<i>Pattern Operations</i>	1800 ft.	5 Miles
<i>Local (Within 25 NM)</i>	2500 ft.	7 Miles
<i>Cross Country</i>	3000 ft.	10 Miles

**IFR DAY DUAL**

Reported and forecast ceiling and visibility shall be sufficient for completing an instrument or visual approach at the departure airport. The minimums at takeoff shall be at least the lowest minimums on an *operating* approach for the current weather conditions at the departure airport. A legal destination alternate within one hour flight time (normal cruise) from the departure airport must be available at the time of departure. In addition, the following minimums shall apply:

<b>IFR DAY SOLO</b>	500 ft.	1 Mile
<b>IFR NIGHT DUAL</b>	500 ft.	1 Mile
<b>IFR NIGHT SOLO</b>	1000 ft.	2 Miles

**NOTE**

Any deviation from published Weather Minimums shall be approved by the Chief Flight Instructor prior to departure.

**Circling Approaches**

Circling approaches at night are not authorized when weather conditions are less than 1000' ceiling and/or 3 miles visibility. During daylight operations circling approaches may be conducted to the published minimums. Flight crews shall exercise extreme vigilance when conducting circling approaches at non-controlled airports.

**Wind Restrictions**

The maximum crosswind component for operation of any Bridgewater State College aircraft shall be the manufacturer’s maximum demonstrated crosswind component. Permission to exceed published crosswind limitations must be obtained from the Chief Flight Instructor prior to departure.

**Maximum Demonstrated Crosswind Components**

Cessna 172.....	15 knots
PA-28R-200.....	17 knots

**Maximum Surface Winds (including gusts)**

Cessna 172.....	30 knots
PA-28R-200.....	30 knots

**Additional Wind Restrictions: Solo Operations**

All Flight Instructors shall enter appropriate wind restrictions in Pre-Private student pilot logbooks prior to any solo flight. *The maximum entry for surface winds will be 20 knots and the maximum crosswind component will be 10 knots.* The maximum gust factor allowed will be 10 knots.

All Private or higher solo operations are restricted to a maximum surface wind of 20 knots and a maximum crosswind component of 10 knots unless the pilot has a logbook entry from an authorized flight instructor approving higher limits.

**Other Weather Restrictions**

No flights shall be flown through areas of reported severe turbulence. Dual or solo flights in areas of forecast severe turbulence must be approved by the Chief Flight Instructor.

No flights shall be flown through an area of known icing. When an AIRMET has been issued for icing that covers any portion of the route and/or altitude of the flight, flights must be approved by the Chief Flight Instructor.

No flights shall be flown in the area of a Convective SIGMET without the approval of the Chief Flight Instructor. *All thunderstorms shall be avoided by a margin consistent with safety.* All severe thunderstorms should be avoided by at least 20 nautical miles.

## **Starting And Taxiing Procedures**

### **Engine Starting**

All Bridgewater State College aircraft shall be started in accordance with the established procedures, and the manufacturer's Pilot's Operating Handbook (POH) or Approved Airplane Flight Manual (AFM).

*No pilot may operate a Bridgewater State College aircraft unless it is in an airworthy condition. The Pilot-In-Command of any BSC aircraft is responsible for determining whether that aircraft is in condition for safe flight. Pre-flight actions shall be performed in accordance with 14 CFR 91.7 (a) and (b). All pilots shall be aware of their legal responsibilities with regard to pre-flight actions.*

All pilots are to be in possession of and proficient with all BSC Normal and Emergency procedures checklists provided for the type of aircraft to be flown.

Before the aircraft is started, it shall be positioned safely so that the prop-wash is directed away from personnel, hangars, windows, etc. and the aircraft can be safely and adequately maneuvered under power.

Prior to any engine start, pilots are to ensure a proper outside check is made to ensure that no person is in close proximity to the aircraft.

Just prior to engine start, call out "CLEAR" or "CLEAR PROP" in a loud and clear manner, wait momentarily, checking the immediate vicinity of the airplane, before engaging the starter. Check the area to the left, center, right, and behind the aircraft.

Avoid over-priming the engine before starting as this may cause an induction system fire during engine start.

Aircraft engines shall not be started when the aircraft is inside a hangar or when the prop wash will be directed through open hangar doors.

<b>CAUTION</b>
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*Hand-propping the propeller for engine start in BSC aircraft is PROHIBITED.*

## Taxiing

The primary requirement of safe taxiing is positive control, defined as: The ability to stop or turn the aircraft where and when desired. The taxiing speed should be such that when the throttle is closed, the airplane may be stopped promptly. While taxiing, clearance from all obstructions and other aircraft shall be ensured. Pilots are reminded to consider the possibility of brake failure at any stage.

### CAUTION

*Flight crews shall minimize “head down” time and avoid cockpit distractions during taxi operations.*

When taxiing the aircraft, flight controls shall be positioned relative to the wind direction in accordance with the manufacturer's Pilot Operating Handbook (POH) or Approved Airplane Flight Manual (AFM). Pilots are expected to use their judgment to avoid objects, vehicles, personnel, unmarked hazards or rough areas.

## Fire Precautions and Procedures

In accordance with Federal Aviation Regulations, smoking is not permitted on the ramp, nor within 50' of any aircraft parked or in motion on the ramp. Smoking is not permitted within any aircraft owned or operated by Bridgewater State College.

During cold weather operations, the manufacturer's cold start starting procedure shall be used while starting a Bridgewater State College aircraft. If an engine, electrical, or other type of aircraft fire is suspected during starting, the aircraft manufacturer's procedure shall be used.

Fire extinguishers are located on the ramp fences, and on all fuel service vehicles. A fire extinguisher may be installed in the aircraft.

First Aid Kits are located aboard the aircraft and inside the BSC Flight Operations Center.

## Re-Dispatch Procedures (Unplanned Location)

For re-dispatch, or to report any incident, contact BSC Dispatch by telephone, collect if necessary.

Due to unforecast conditions or other in-flight considerations, flight crews may find it necessary to land at an airport other than originally planned and approved prior to the original departure. If this happens, contact BSC Dispatch after landing to advise of aircraft location and situation. Upon review and evaluation of the situation, the Dispatcher may re-dispatch the flight, as appropriate.

Should a landing occur at an off-airport site, secure the aircraft to prevent fire or damage, and contact BSC Dispatch as soon as practical to advise of the situation and receive further instruction.

## **Overdue Aircraft**

Any Bridgewater State College aircraft more than 30 minutes late to its destination is considered overdue.

### **CAUTION**

*An overdue aircraft shall be considered an emergency situation.*

- ⊕ Dispatch shall monitor flight scheduling to ensure proper on-time arrivals for all flights.
- ⊕ Not later than 15 minutes after an aircraft is scheduled to return and has failed to do so, the Dispatcher will **immediately** initiate the following sequence:
  1. Consult Flight Plan form submitted by the departing flight crew to determine the type of flight operation (i.e. solo, dual, practice area and which one, IFR, cross country, etc.).
  2. Attempt to locate the aircraft:
    - a. Check the ramp and Maintenance area for a possible dispatching error.
    - b. Radio the local practice area for the aircraft.
    - c. Utilize other aircraft in the area to relay a radio call, if necessary.
    - d. Contact the local and surrounding Flight Service Station(s).
    - e. Contact local Air Traffic Control Tower (both KEWB and, as appropriate and if available, the Tower at the destination airport).
    - f. Contact local or destination Approach Control, as appropriate.
    - g. Contact likely Fixed Base Operators at points of intended landing.
  3. If the aircraft remains unaccounted for after 30 minutes from the ETA, or additional concern is warranted, (e.g. call to AvOps regarding a possible BSC aircraft in distress) the Dispatcher shall alert AvOps personnel using the Incident / Accident flowchart.

### **CAUTION**

*The Chief Flight Instructor is to be informed immediately and by any means necessary upon determination that an aircraft is overdue.*

4. AvOps Management will make the decision to acquire and employ additional Search and Rescue (SAR) assets and/or activate the Emergency Response Plan.

### Aircraft Maintenance Discrepancies (“Squawks”)

All Bridgewater State College aircraft maintenance discrepancies shall be entered in a Maintenance Record. This record is located within the aircraft can that shall be issued when the aircraft is dispatched for any event.

Each sheet of the Maintenance Discrepancy Log or “squawk sheet” is a reproduction of the “squawk list” for the aircraft as generated in the electronic recordkeeping system. The record provides a history of squawks on the aircraft, and their resolution.

If the flight crew discovers a discrepancy during the preflight of an aircraft that was not detected/squawked by the previous flight crew, the flight crew shall contact BSC Dispatch for MX response. If the aircraft cannot be flown due to the discrepancy, return the can to BSC Dispatch and complete the Maintenance Record. Minor aircraft maintenance discrepancies may be corrected on the ramp with the assistance of the Maintenance personnel and documented appropriately.

If the discrepancy does not affect the airworthiness of the aircraft, Dispatch shall be responsible for consulting with Maintenance and the flight crew to determine if the flight can continue under a deferred status and be returned to service. If repair is deferred, Maintenance personnel shall enter the appropriate notation in the Maintenance Record.

If a discrepancy occurs away from base, contact BSC Dispatch, collect if necessary, who will forward the call to Maintenance to determine the status of the discrepancy. If Maintenance and the flight crew agree to defer the discrepancy, complete the appropriate Maintenance Record (deferred), and continue the flight as planned or return the aircraft, as appropriate.

*Under no circumstances may a flight be initiated when an OPEN discrepancy exists in the Maintenance Record. Flight crews shall ensure that any placards indicating inoperative equipment are properly secured.*

**NOTE**

Per 14 CFR Part 91.3, the Pilot-In-Command is responsible for the safety of the flight and is the final authority as to the operation of that flight.

When the aircraft can is returned to BSC Dispatch, the Pilot-In-Command shall ensure that the Maintenance Record is clearly visible as the top document on the can, advise Dispatch of any discrepancies, and ensure that the squawk is entered accurately in Flight Schedule Pro.

**NOTE**

The Pilot-In-Command shall NOT leave the Dispatch area without first informing the Dispatcher of any aircraft discrepancy, as necessary.

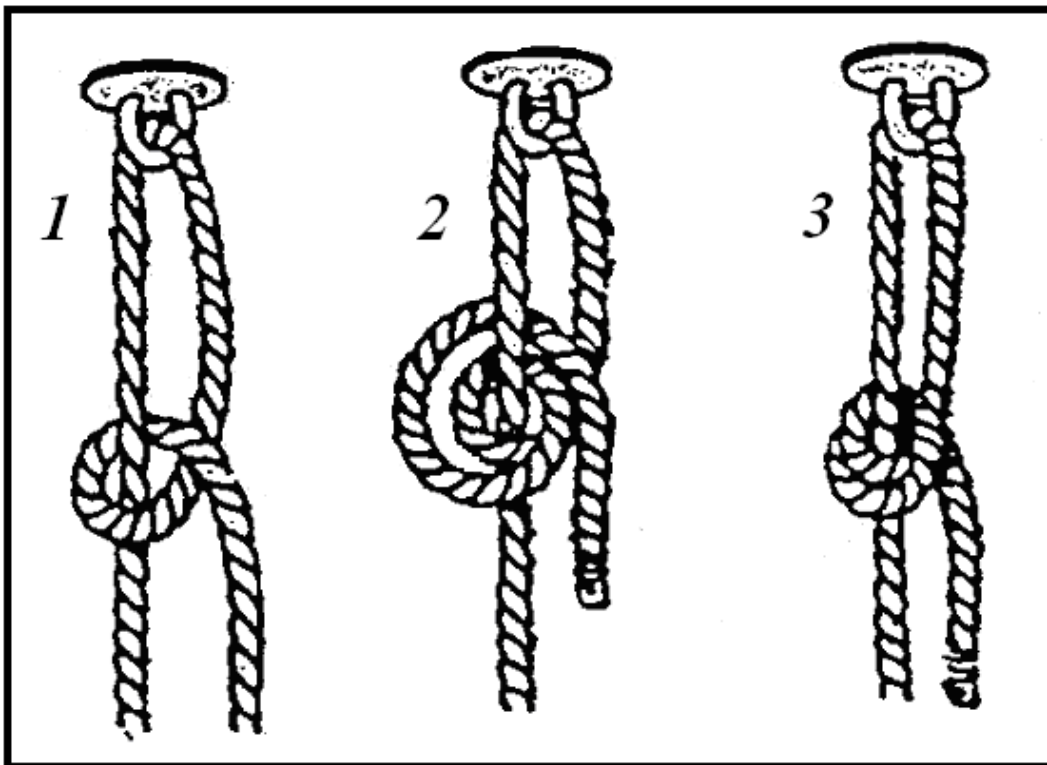
**Securing Aircraft When Not In Use**

*The Pilot-In-Command shall ensure that the aircraft is properly secured at the completion of each flight.*

In accordance with the appropriate Bridgewater State College checklist, install the control lock (C-172), or tie back the control yoke (PA-28R Arrow), and attach tie down straps, as appropriate. Secure the straps tightly, and use a wind-knot to secure the remaining length of strap and keep it off the ground. When making a final check of the cockpit, ensure that the parking brake is released, ignition or magneto switches are in the OFF position, and that the cabin is clean and free of any debris (charts, pens/pencils, flight gear, etc.). Ensure all doors, windows, and vents are closed (and locked if appropriate) to prevent damage from wind, rain, or snow. See diagram below when securing aircraft using tie-down ropes.

**CAUTION**

*Bridgewater State College aircraft shall be secured before being left unattended for any reason. If available, flight crews shall use double tie-downs regardless of weather conditions.*



***Wind knots = Rolling hitch***

## Fueling Procedures

### NOTE

The Pilot-In-Command shall ensure that the airplane has adequate fuel prior to any flight activity.

- ⊕ Fuel tank quantities shall be verified using a dipstick. DO NOT rely on aircraft fuel gauges.
- ⊕ Aircraft fuel requirements shall be determined by the oncoming flight crew.
- ⊕ A pilot shall be in attendance to ensure that the correct type and quantity of fuel is loaded during non-local refueling operations.
- ⊕ Pilots shall check for fuel contamination after refueling.

### CAUTION

*Bridgewater State College aircraft are NEVER to be fueled with personnel aboard.*

Before beginning the fueling operation of the airplane, the fueler shall ensure that the master switch and magnetos are in the OFF position.

## Fuel Reserve Requirements

### ***Fuel requirements for VFR conditions:***

No flight crew may begin a day or night flight in a Bridgewater State College aircraft under VFR unless (considering wind and forecast weather conditions) there is enough fuel to fly to the first point of intended landing, and at normal cruising speed:

- ⊕ Fly after that for at least 1 hour.

### ***Fuel requirements for IFR conditions:***

Except as provided below (\*), no flight crew may operate a Bridgewater State College aircraft in IFR conditions unless it carries enough fuel (considering current weather reports, forecasts, and actual weather conditions) to:

- ⊕ Complete the flight to the first airport of intended landing.
- ⊕ Fly from that airport to the alternate airport; and
- ⊕ Fly after that for 1 hour at normal cruising speed.

\* The above does not apply if:

1. 14 CFR Part 97 prescribes a standard instrument approach procedure for the first airport of intended landing; and,
2. For at least 1 hour before and 1 hour after the estimated time of arrival at the airport, the weather report or forecasts or any combination of them indicate:
  - ⊕ Ceiling will be at least 2000' above the airport elevation; and
  - ⊕ Visibility will be at least 3 miles.

**CAUTION**

*For cross-country flights, aircraft HOBBS time between refueling shall not exceed 3.0 hours for any aircraft model.*

**Collision Avoidance**

All flight crews shall maintain a continuous, vigilant watch for other traffic as the primary means of collision avoidance when conducting ground operations or when flying in visual meteorological conditions (VMC). Flight crews shall consider the following:

**Ground Operations:**

- ⊕ All flight crews shall plan for movement along the airport surface just as they plan for the various phases of flight.
- ⊕ All flight crews shall be in possession of a current airport diagram for the airport(s) of departure and arrival, and reference the appropriate diagram for their taxi briefing prior to aircraft movement. Special attention must be paid to any unique or complex intersections along the taxi route.
- ⊕ *Always* be aware of the situation relative to other aircraft and vehicle operations. The PIC should know the aircraft's precise location on the airport. At an unfamiliar or non-controlled airport, pilots must take extra care during ground operations.
- ⊕ Pilots must be vigilant when instructed to "taxi into position and hold," particularly at night or during periods of reduced visibility. Scan the full length of the runway and scan for aircraft on final approach or landing roll out. Contact ATC at any time there is a concern about a potential conflict.
- ⊕ *All flight crews shall write down and confirm all taxi instructions, regardless of the level of complexity, prior to initiating the taxi.*
- ⊕ All flight crews shall read back all clearances to enter a specific runway, hold short of a runway, taxi into "position and hold," and all takeoff and landing clearances, including the runway designator.

**Flight Operations:**

- ⊕ Keep attention *outside* the aircraft as much as possible. Be alert for and be proactive to minimize distractions that could draw attention away from outside visual scanning. When flying with passengers, instruct and encourage them to assist with collision avoidance.
- ⊕ Visually scan from as far behind as reasonable, sweeping in 10° increments, for a time period of one second, around the front of the aircraft to as far behind as reasonable on the other side. Continuously repeat this pattern.
- ⊕ Be aware of potential blind spots inherent to the type of aircraft flown. *Scan the area that may be blocked out by either wing prior to making any turns.* For high-wing aircraft look first in the direction of the turn, then in the opposite direction. For low-wing aircraft, look first in the opposite direction of the turn, then in the direction of the turn. Make gentle turns left and right as necessary when climbing or descending to see past the aircraft engine cowling. Be prepared to act immediately to avoid a collision hazard by remaining in a normal flying position with hands and feet on the appropriate controls.
- ⊕ *Any aircraft in flight that appears on the horizon to be growing in size and remaining in the same relative position in the windshield is a collision hazard and is on a collision course with your aircraft.* Act immediately to avoid any possible conflicts. Observe right-of-way regulations, but do not create a collision hazard by insisting on right-of-way.
- ⊕ *The anti-collision light(s) (strobe and/or beacon) shall be ON during operations on the runway and in-flight.* Flight crews are expected to exercise common sense and courtesy when operating in close proximity to other aircraft, personnel, or vehicles. Landing lights shall also be ON during takeoff and landing operations and in the vicinity of the landing airport (10nm). Use the landing light(s) in other flight operations as necessary to enhance the "see and avoid" capability.
- ⊕ Flight crews shall be especially alert to the hazards of wake turbulence while conducting operations near larger aircraft, noting the time and location of rotation or touchdown point, and arriving or departing flight path of the preceding aircraft. This will help the crew to visualize the wake location and exercise appropriate avoidance procedures.
- ⊕ Flight crews should be familiar with all obstruction locations in the local area, and with any along the intended route of flight.
- ⊕ Pilots shall use the appropriate traffic pattern entry procedures indicated at the arrival airport.

NTSB statistics show that a high proportion of mid-air collisions occur in VFR conditions close to or in the airport traffic pattern. All BSC pilots shall be especially vigilant for departing, arriving, and pattern traffic. Pilots shall make appropriate radio calls regarding their position including arrival at Visual Reference Points, joining the pattern, downwind entry, base, turning final, or as directed by ATC.

### **Minimum Altitude Limitations**

The minimum altitudes to be flown for all normal operations at BSC are in accordance with 14 CFR 91.119 except as noted (\*). However, if at any time, for any reason, the flight crew operates outside of this regulation, IMMEDIATELY upon landing, the Chief Flight Instructor shall be informed of the deviation and a written report submitted by the flight crew. This report shall be in accordance with BSC internal procedures and the NASA Aviation Safety Reporting System.

Except when necessary for takeoff or landing, no person may operate an aircraft below the following altitudes:

#### Anywhere:

- ✦ An altitude allowing, if a power unit fails, an emergency landing without undue hazard to persons or property on the surface.

#### Over congested areas:

- ✦ Over any congested area of a city, town, or settlement, or over any open air assembly of persons, an altitude of 1,000' above the highest obstacle within a horizontal radius of 2,000' of the aircraft.

#### Over other than congested areas:

- ✦ \*An altitude of 500' above the surface.

Simulated emergency approach and landing operations shall only be conducted during dual instructional flights, and they shall be performed in accordance with the appropriate BSC FSM.

During simulated forced landings at locations other than approved public-use airports, a go-around shall be executed such that the aircraft does not descend below 500' AGL. Flight crews shall exercise good judgment in avoiding populated areas.

Other than in an emergency, no turns are to be made below 400' AGL after takeoff. Turns after takeoff are limited to a maximum of 30<sup>0</sup> of bank, unless safety of the flight is threatened and warrants exceptional pilot action.

<b>NOTE</b>
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Flight crews are reminded not to accept turn-out instructions below 400' AGL from any ATC facility unless an emergency warrants exceptional pilot action.

For training purposes, spins shall only be executed in a BSC aircraft with an instructor aboard. The maneuver shall be recovered by a minimum altitude of 3000' AGL. Additionally, for stall training, flight crews shall select an altitude which allowing recovery not lower than 1,500' AGL. Consult the appropriate FSM, Pilot's Operating Handbook/Airplane Flight Manual, or Practical Test Standards.

The minimum planned altitude for VFR navigation shall ensure compliance with 14 CFR 91.119 & 91.159. Pilots shall consider controlled airspace and special use airspace in their planning.

Pilots shall exercise good judgment and increase minimum safe altitudes for night flights.

For IFR flights, pilots shall comply with 14 CFR 91.177 & 91.179. All flight crews shall be aware of the correct method for calculating minimum altitudes for any flight.

#### U.S. Altitude Definitions:

**Minimum En Route IFR Altitude (MEA)** – The lowest published altitude between radio fixes that meets obstacle clearance requirements between those fixes and in many countries assures acceptable navigational signal coverage. The MEA applies to the entire width of the airway, segment, or route between the radio fixes defining the airway, segment, or route.

**Minimum Obstruction Clearance Altitude (MOCA)** – The lowest published altitude in effect between radio fixes on VOR airways, off-airway routes, or route segments which meets obstacle clearance requirements for the entire route segment and in the US assures acceptable navigational signal coverage only within 22 nautical miles of a VOR.

**Minimum Off-Route Altitude (MORA)** – This is an altitude derived by Jeppesen. The MORA provides known obstruction clearance within 10 nautical miles of the route centerline.

**Minimum Safe Altitude (MSA)** – Altitude depicted on an instrument approach chart and identified as the minimum safe altitude, which provides a 1000-foot obstacle clearance within 25 nautical mile radius from the navigational facility upon which the MSA is predicated. If the radius limit is other than 25 nautical miles, it is stated. This altitude is for EMERGENCY USE ONLY and does not necessarily guarantee NAVAID reception. When the MSA is divided into sectors, with each sector a different altitude, the altitudes in these sectors are referred to as “minimum sector altitudes”.

## Practice Area Communications

All BSC flight crews operating in the designated practice areas shall, using frequency 123.50, broadcast their position to other aircraft when entering, changing position sufficiently during maneuvers in, or when leaving the practice area (including transition to another practice area).

Position reports shall state the practice area in which the aircraft is operating, aircraft type, tail number/call sign, position (cardinal direction and distance in NM) relative to established reporting points/landmarks, altitude, and general type of operation being conducted.

Altitude reports shall include the operating altitude, or if climbing and descending, altitudes between which the flight will operate.

The general type of operation shall be broadcast e.g. general flight maneuvers, ground reference maneuvers, returning to New Bedford, etc.

Aircraft within Class B, C or D airspace or under the control of Approach Control are not expected to provide position reports, or monitor the frequency.

All BSC flight crews are expected to monitor the Emergency Frequency 121.50 when able. Avoid broadcasting on 121.50 unless required by the situation at hand.

## Practice Area Descriptions

Practice Area descriptions required by 14 CFR 141.93 are provided in Chapter 12, Airports, Routes, and Practice Areas, of this manual.

## Monitoring of 121.5 Emergency Frequency

BSC flight crews shall, after departing controlled or the vicinity of uncontrolled airspace, set and monitor 121.5 in the COMM 2 active frequency. BSC flight crews shall monitor the COMM 2 frequency at all times during flight operations, ceasing such monitoring of 121.5 only for reasons directly related to the efficient and safe conduct of the flight.

BSC Instructors are expected to train their students on the proper use and monitoring of 121.5, and on the proper use of the aircraft audio panel to prevent inadvertent transmission on the 121.5 frequency.