



MARTIN
STATE AIRPORT



Airfield Drivers Training Program

Study Guide

Rev 9-21-18

Introduction

Recognizing the need to provide familiarization and testing for non flight-crew personnel, the Maryland Aviation Administration (MAA), Martin State Airport (MTN) has established the Airfield Drivers Training Program. This program presents guidelines and procedures designed to enhance the safety and efficiency while driving on the airfield.

In addition, the implementation of this program is intended to assist in the elimination of runway incursions.

A runway incursion is defined as “any occurrence at an airport involving an aircraft, vehicle, person or object on the ground, that creates a collision hazard or results in loss of separation with an aircraft taking off or intending to takeoff, landing or intending to land.”

Runway incursions can result in aircraft collision. Such aircraft collisions, when occurring in the runway environment, are often catastrophic. An example of this collision hazard is the accident which involved two Boeing 747 aircraft which collided on a runway in the Canary Islands, resulting in the worst accident in the history of commercial aviation, in terms of lives lost in a single accident.

The most frequent causes for runway incursions are: communications error between the different parties (vehicles, pilots, ATC), lack of familiarity with the airfield and loss of situational awareness.

In order to minimize the risk of a runway incursion, it is extremely important that all persons who conduct operations within or near the air movement area have a thorough understanding of the runway and airfield layout at Martin State Airport (MTN) as well as familiarity with applicable Air Traffic Control Tower (ATCT) procedures.

The objectives of this program are:

- To identify proper methods and procedures for operating safely at MTN.
- To disseminate information that provides aircraft movement area operators with familiarization and knowledge of acceptable operating practices.
- To test for knowledge to ensure that all personnel who operate on or near the movement areas at MTN have a basic understanding of acceptable procedures.

Participation in this program and successful completion of a mandatory test is required for all non flight-crew persons operating on or near the aircraft movement area at MTN. Following program implementation, only individuals who have successfully completed the Airfield Drivers Training Program will be permitted to operate on or near the MTN aircraft movement area. Any violation of the MTN Rules & Regulations, especially pertaining to movement area operations may result in the loss of driving privileges or airport access, written reprimand and/or retraining and testing, a fine of \$500 and up to 90 days in jail.

This study guide contains basic information, which should be thoroughly understood by all persons who intend to operate on or near the Air Movement Area. This guide is divided into three sections:

- Section 1 contains information regarding movement/non-movement areas.
- Section 2 contains information specific to MTN, including the designations of movement areas, surface markings, airfield signage and lighting.
- Section 3 contains information regarding proper aviation terminology, phraseology and communications on aviation VHF radio equipment.

Section 1

Movement/Non-Movement Areas

Movement areas are defined as the runways, taxiways, and other areas of the airport which are utilized for the taxiing, takeoff, and landing of aircraft, exclusive of loading ramps and parking areas. Here at MTN, specific approval for entry onto the movement area must be obtained from ATCT.

Identified below are the types of movement areas found on the airfield at MTN.

- Runway – A defined rectangular surface on an airport prepared or suitable for the landing or takeoff of airplanes. □
- Taxiway – A defined path established for the taxiing of aircraft from one part of an airport to another. Movement areas at MTN are shown on the map on the next page.
- Helipad - Landing area for helicopters. A fabricated helipad provides a clearly marked hard surface away from obstacles where a helicopter can land. Helipads are usually constructed out of concrete and are marked with a circle and/or a letter "H", so as to be visible from the air.

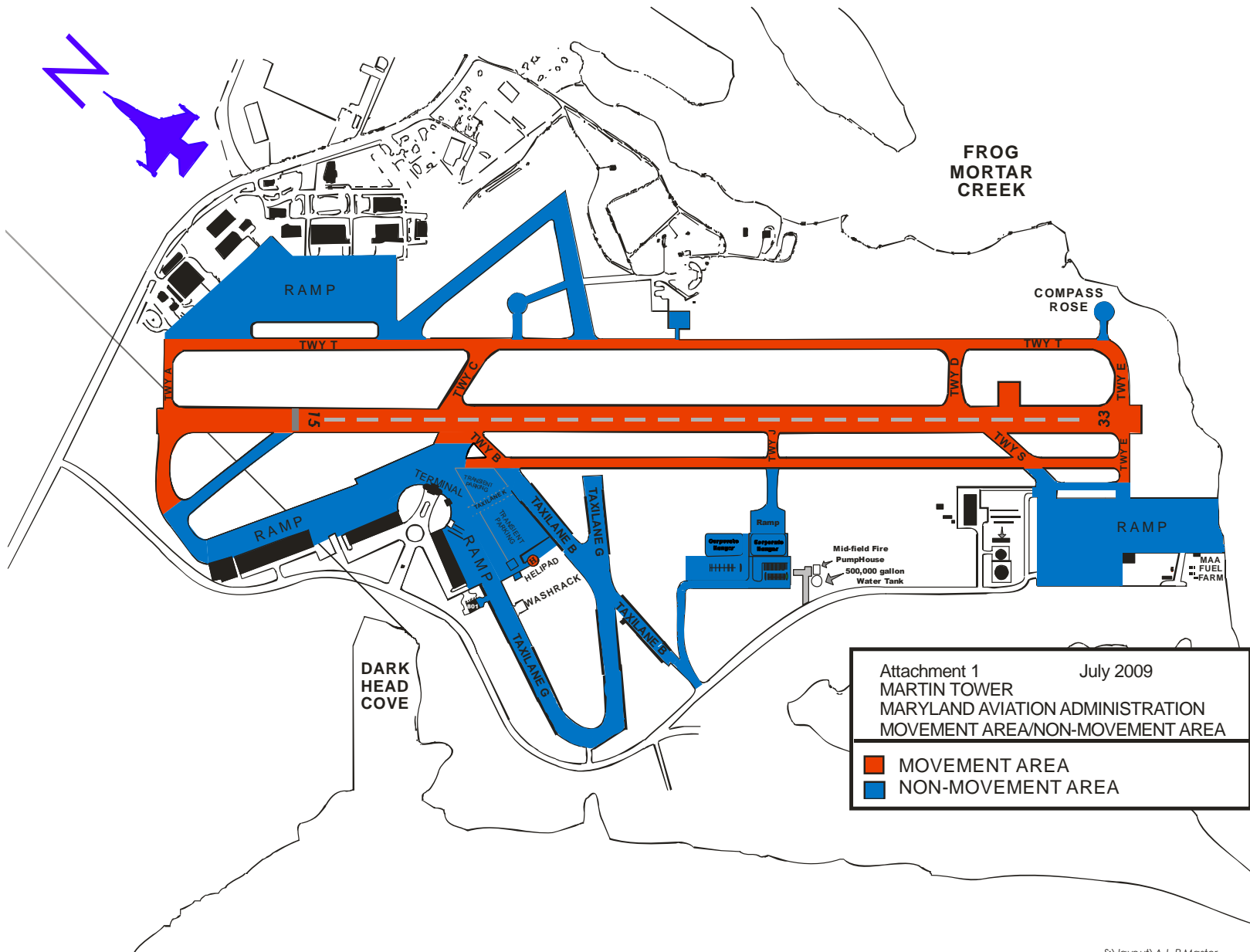
Non-Movement Areas

Non-movement areas are defined as the taxi-lanes and apron/ramp areas not under the control of ATCT.

Identified below are the types of non-movement areas found on the airfield at MTN.

- Taxilane – The portion of the aircraft parking area used for access between taxiways and aircraft parking positions.
- Apron/Ramp – A defined area on an airport intended to accommodate aircraft for purposes of loading or unloading passengers, mail or cargo, refueling, parking or maintenance (generally a non-movement area).

Movement and Non-movement areas at MTN are shown on the map on the next page.



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Section 2

Runways

Runway designations are based on a runway's magnetic heading, using the 360-degree compass system. Runways may be used in two (opposite) directions, resulting in two runway designations, which are 180 degrees different from one another.

Therefore, a runway which is designated as runway 15/33 would be oriented in the north/south direction. If aircraft were conducting take-off or landing operations to the north, the runway in use would be designated as runway 33. If the same runway were being used by aircraft conducting take-off or landing operations to the south, then the same runway would be designated as runway 15.

At MTN, the runway orientation is a north/south direction with designations of 15/33.



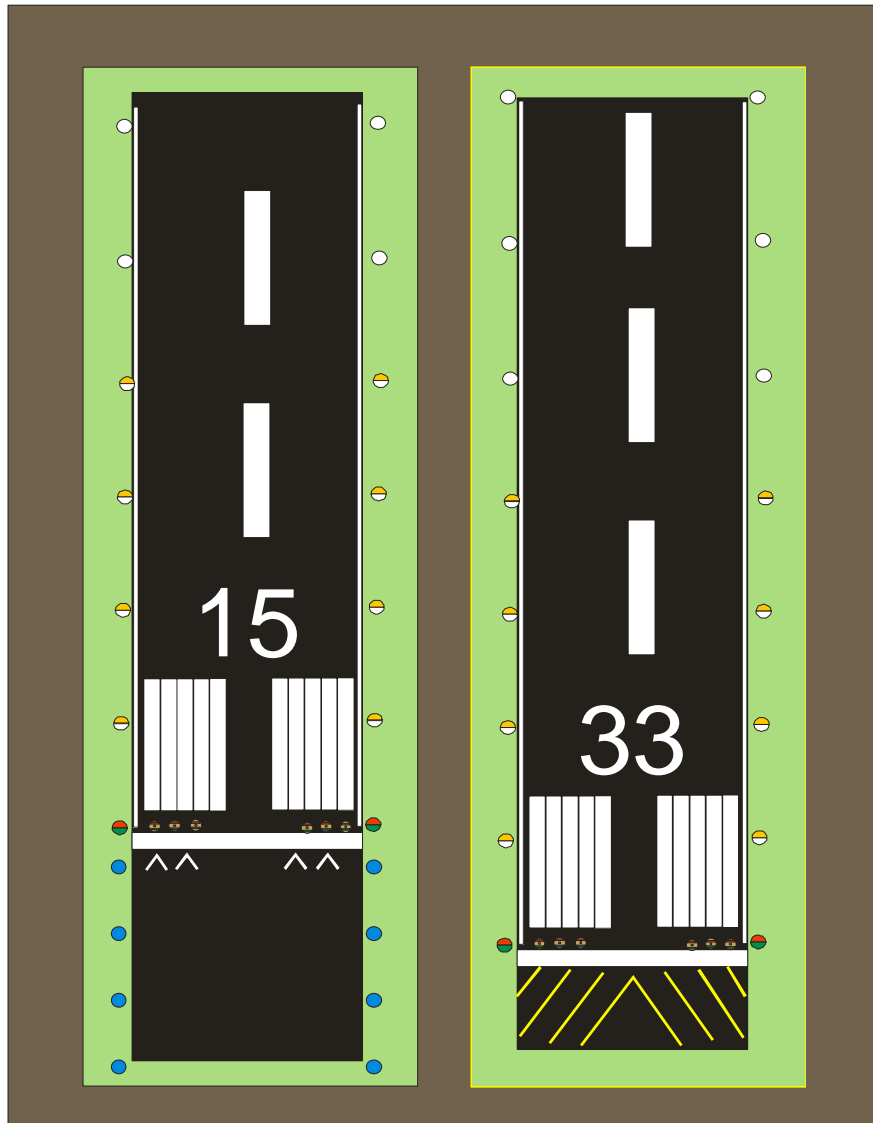
Runway Markings

Runway painted surface markings are white with a black background.

Runway painted surface markings include centerline stripes, edge stripes, threshold/touchdown bars, and runway designation markings.

Runway Lighting

Runway edge lighting is white, then changes to amber at 2000 feet from runway end.
Runway touchdown zone lighting is white.



Runway Safety Area

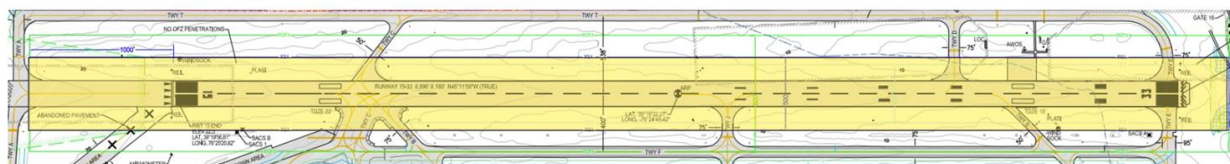
Safety Areas, Runways, and Taxiways, are surrounded by safety areas that are designed to provide an increased level of safety for aircraft landing and taking off. The dimensions of the safety areas vary according to the runways (RWY 15-33 - 250' each side of centerline – image above). These safety areas are intended to minimize damage to an aircraft during emergency situations, such as an aircraft overshooting or veering off the runway.

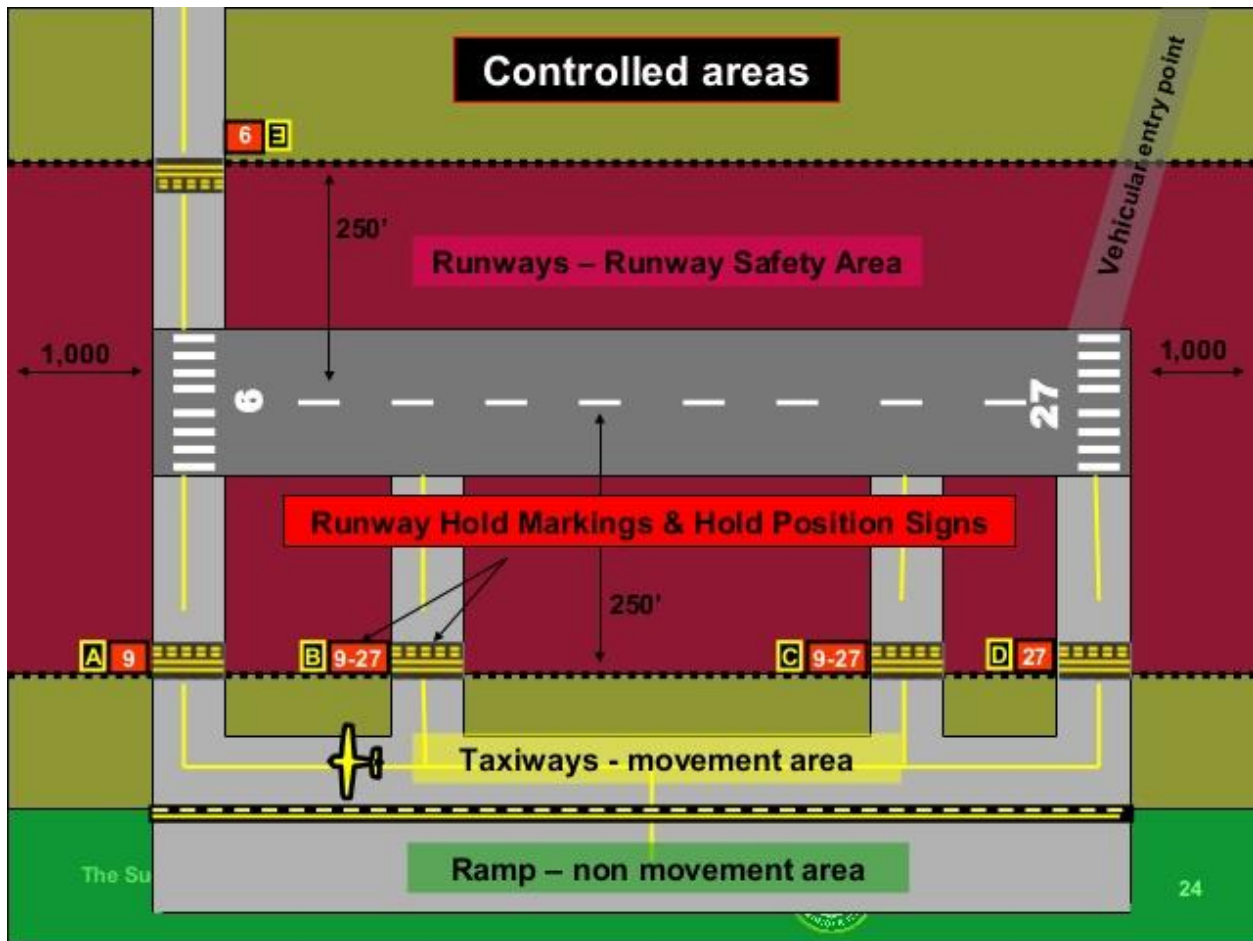
If conditions do not justify closure of the runway and personnel or vehicles need to enter the Runway Safety Area (RSA), they shall obtain a clearance from the ATCT for “access to the runway” even if their position will not place them on the actual runway pavement. The term “Runway Safety Area” shall not be used when coordinating with the ATCT.

Note: Air Traffic Control personnel will not make any distinction between the Runway and the RSA. Once clearance is granted, no arrivals or departures will be authorized on that runway.

Personnel and vehicles shall report “clear of the runway” when exiting the runway or the Runway Safety Area. The term “clear of the runway” shall indicate to ATCT personnel that protection is not required and that operations on the runway may continue. For example, “Martin 1” needed to pick up FOD between the runway and taxiway but is not in the safety area of runway 15-33, Martin 1 would advise Ground Control that he/she was “in the grass east of the runway to remove FOD and will remain “clear of the runway”.

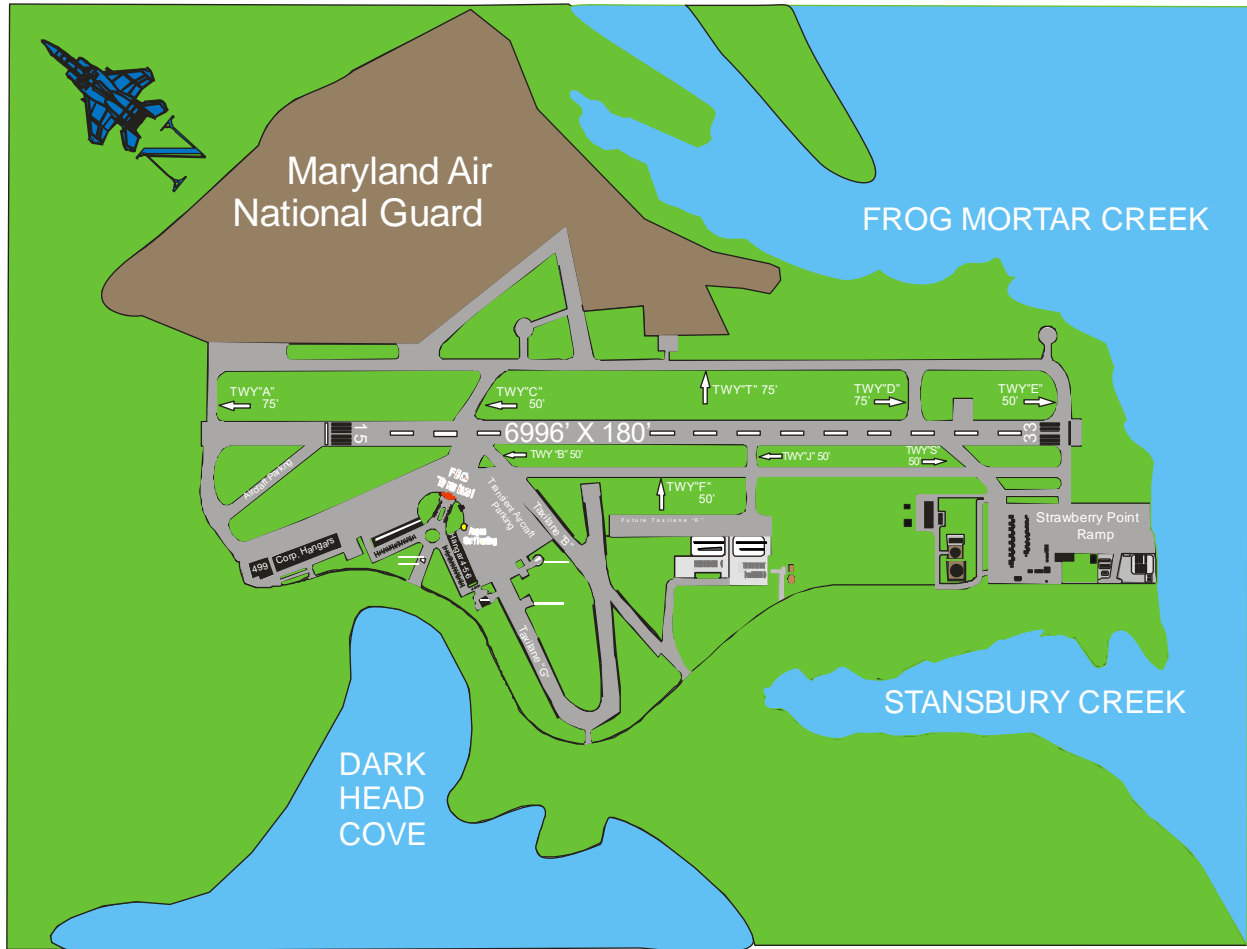
With respect to operations on the movement area, there are no changes in procedures. Vehicles must hold short at the mandatory hold short line and request permission from Air Traffic Control for access to and/or cross runways.





Taxiways

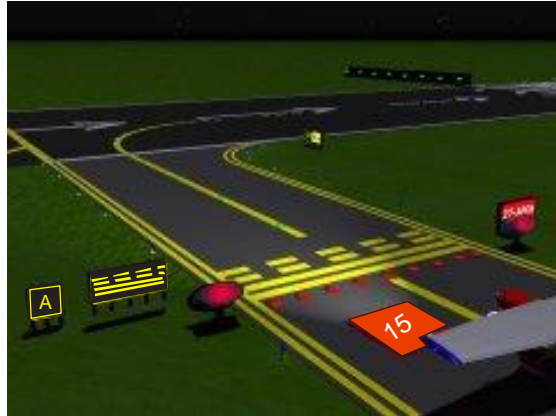
MTN has two north-south oriented parallel taxiways to Runway 15-33. These are Foxtrot (F) and Tango (T). Remember, specific permission is required to cross any runway even though you may already have permission to be on a taxiway.



MTN also has many inter-connecting taxiways. These are Charlie (C), Delta (D), Echo (E), Juliet (J) and Sierra (S). These taxiways are sequenced alphabetically from the north, and access the runway. Most of these taxiways connect the west side of the airfield to the east.

Taxiway Markings

Taxiways painted surface markings are yellow with a black background. Taxiways painted surface markings include a centerline and double edge lines.



Taxiway Lighting

Taxiways have blue edge lights or reflectors.



Taxilanes

Taxi-lanes, also referred to as alleys or alleyways, are situated at various locations at MTN, and have yellow centerlines with black backgrounds. Taxi-lanes are in the Terminal building area, Community hangars and T-hangar areas. Taxi-lanes at MTN are

Non-movement areas.

Ramp/Apron Areas

Ramp/Apron areas are maintained by the Fixed Based Operator and the MAA. Surface markings and lighting, when present, will be similar to that of a taxi-lane. Ramps/Aprons at MTN are also Non-movement areas.



The driver shall pay extra attention when driving in difficult conditions such as: snow, ice, rain, fog, congested areas and times with low visibility.

It is the driver's responsibility to ensure the vehicle is parked within the designated areas, clear of roadway, taxiways and 15 feet of a fire hydrant at all times.

Airfield Signs and Surface Markings

Airfield signs, surface markings and lighting are visual aids designed to guide operations on movement areas. The colors and sizes of signs and painted surface markings are significant. Mandatory instruction signs have a red background with white lettering. These signs denote the entrance to a runway, approach area or critical area.



Location signs have a black background with yellow lettering and a yellow border. Location signs identify movement areas and are installed so as to be highly visible, usually on the left side of the movement areas. Location signs are often combined with other types of signs.



Direction signs have a yellow background with black lettering and arrows. Direction signs are placed before an intersection to identify the intersecting taxiways. The arrows indicate the directions of the taxiways that lead out from the intersection.



Information signs have a yellow background with black lettering. Information Signs provide various types of advisories.

Surface Markings

At the intersection where a taxiway meets a runway, painted surface markings called hold lines (holding position markings) are installed. Hold lines consist of two solid yellow lines followed by

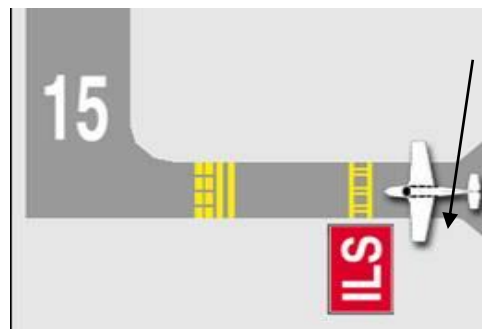
two segmented yellow lines. Operators must hold on the “solid” side of the hold line. This is also the location at the intersection where the mandatory instruction sign identifying the runway is placed. ATCT authorization is required to proceed beyond the hold lines.



Movement/Non-Movement Area Boundary defines the boundary of the movement area and non-movement area. You must have permission from ATC to enter movement area. Hold on the solid line side until approval is granted to proceed.



Instrument landing system (ILS) hold lines (ILS holding position markings) are painted onto the surface at locations where it is necessary to keep aircraft and vehicles on the ground from interfering with the signals transmitted from the ILS antennas. When ILS approaches are in progress, during periods of low-visibility, operators may be instructed by ATCT to “hold short of the ILS critical area”.



It is of paramount importance that any debris (or FOD Foreign Object Debris) is picked up and properly disposed as it can cause damage to the aircraft. If FOD is ingested by an intake, it can not only damage a jet engine, but turn into a projectile and cause serious harm.

Section 3

Air Traffic Control Procedures and Radio Phraseology

It is essential to safety that personnel responsible for aircraft movements at MTN be thoroughly familiar with ATCT procedures and radio phraseology. Correct phraseology and radio technique should be used in all communications with ATC. Use of correct radio techniques will reduce frequency congestion, allow a more expeditious flow of aircraft movements and reduce miscommunications.

Transmitting on Aviation VHF Frequencies

When using an aviation VHF radio, it is important to communicate in a clear and concise manner so that ATCT understands your transmission. Use of slang, CB or police jargon should be avoided. Transmissions should be brief yet complete enough to adequately convey the message to ATCT.

There are a few simple measures, which should be taken before transmitting on the VHF radio:

- Prior to transmitting, the radio should first be checked by verifying that the correct frequency has been selected.
- Next, the frequency should be briefly monitored to determine that no one else is transmitting or waiting for a read-back. Monitoring the frequency prior to transmitting helps in establishing a mental picture of the current situation, commonly called situational awareness. This procedure will also eliminate instances of transmitting at the same time as someone else.
- Then, verify that the microphone selector switch is set to the proper radio. This will help reduce the number of instances where one frequency is being monitored and another is being inadvertently transmitted on.
- Prior to transmitting, consider what you are going to say, and use the following:
 1. WHO you are calling
 2. WHO you are
 3. WHERE you are on the airport
 4. WHAT you are requesting, or intending to do

To minimize confusion between similar sounding letters, a standardized aviation phonetic alphabet has been adopted for use by the International Civil Aviation Organization. ATCT will use this alphabet during all transmissions to identify taxiways. The phonetic alphabet is shown below, and must be memorized:

ICAO Phonetic Alphabet

A	Alfa	N	November
B	Bravo	O	Oscar
C	Charlie	P	Papa
D	Delta	Q	Quebec
E	Echo	R	Romeo
F	Foxtrot	S	Sierra
G	Golf	T	Tango
H	Hotel	U	Uniform
I	India	V	Victor
J	Juliect	W	Whiskey
K	Kilo	X	X-Ray
L	Lima	Y	Yankee
M	Mike	Z	Zulu

MTN Air Traffic Control Frequencies

Automatic Terminal Information Service (ATIS) -124.925

Ground Control - 121.8 / 253.4

Tower (Local Control) - 121.3 / 297.2

Unicom - 122.95

General Rules to Follow

Ensure that all available pertinent information regarding airport construction, movement area closures and applicable VHF frequencies has been reviewed. Know where you are, where you are going, and how to get there.

- Is operation on the movement area absolutely necessary?
- Can the operation be delayed until a less busy time?
- 15 MPH speed limit on the airfield.
- All aircraft, emergency vehicles, and passengers on the ramp have the right of way.
- Listen before you transmit. When you are ready to transmit, pause, listen, and make sure the frequency is clear.
- Use correct radio technique and phraseology. Read back ATCT instructions before proceeding and read back all hold short and runway crossing instructions verbatim.
- Do not become absorbed in unrelated tasks or non-essential conversations while on movement areas.
- Look in all directions before proceeding onto the movement area and then move in an expeditious manner.
- Report when off the movement area.
- Be alert to the sounds or the lack of sounds in your receiver. Check your volume, recheck your frequency, and make sure that your microphone is not stuck in the transmit position.
- If you are unsure of your position on the airfield, stop and ask for assistance.
- Continuously monitor the appropriate ATCT frequency and acknowledge all transmissions.
- Ensure that you fully understand your instructions. If you are unsure, ask for clarification and do not move until you completely understand your instructions.
- Report any deteriorating/confusing airfield signs, surface markings or lighting, accidents, concentrated bird activity, FOD to MTN Airport Operations at (410) 682-8831.

Phraseology

Use of correct radio phraseology enhances safety and saves time. Listed below are examples of some of the most common terms:

ACKNOWLEDGE - Let me know that you have received my message.

ADVISE INTENTIONS - Tell me what you plan to do.

AFFIRMATIVE - Yes.

CONFIRM - My version is...is that correct?

CORRECTION - An error has been made in the transmission and the correct version follows.

GO AHEAD - Proceed with your message. Not to be used for any other purpose.

HOLD - Stop where you are.

HOLD SHORT OF... - Proceed to, but stop before reaching a specific point.

NEGATIVE - No, or permission not granted, or that is not correct.

PROCEED - You are authorized to begin or continue moving.

READ BACK - Repeat my message back to me.

ROGER - I have received all of your last transmission. It should not be used to answer a question requiring a yes or a no answer.

SAY AGAIN - Used to request a repeat of the last transmission. Usually specifies transmission or portion thereof not understood or received.

STAND BY - Means the controller or pilot must pause for a few seconds, usually to attend to other duties of a higher priority. Also means to wait as in "stand by for clearance." If the delay is lengthy, the caller should reestablish contact.

UNABLE - Indicates inability to comply with a specific instruction, request, or clearance.

VERIFY - Request confirmation of information; e.g. "verify cleared to cross runway one six left."

WILCO - I have received your message, understand it, and will comply with it.

Loss of Radio Contact/ATCT Light Gun Signals

In the event that communications are lost with ATCT, the controllers have light guns to signal aircraft and vehicles.

Aircraft/Vehicle on the ground

Color and type of signal

STEADY GREEN	Cleared to cross, proceed or go
FLASHING GREEN.....	Cleared for taxi
STEADY RED STOP FLASHING RED.	Clear the taxiway/runway
FLASHING WHITE.....	Return to starting point on airport
ALTERNATING RED/GREEN.....	Exercise extreme caution

- If not on a movement area, DO NOT ENTER.
- If on a runway, continue across but DO NOT CROSS ANOTHER RUNWAY.
- Watch for light gun signals or wait for an escort.