A-10 IQT Mission 1

Familiarization

Overview

The M1 Sortie is a familiarization sortie designed to expose a pilot to the BMS A-10 Cockpit, and the basic flight characteristics of the BMS A-10 Flight Model. The mission starts with a Ramp Start at Ronchi Dei Legionari in the Balkan Theater of Operations (BTO), followed by a taxi to the runway, departure, simple navigation route, and approach back to the airfield.

The Ramp Start procedures are detailed and deliberate to get the pilot familiar with the locations of switches and controls. It should be noted the actual 1A-10C-1 checklist was used as a reference for the procedures in the provided checklist, however due to the limited functionality of the BMS aircraft implementation, many steps have been modified or omitted.

Background

Is a day Sortie with minimal loadout to minimize the need to trim the aircraft. There are no threats or targets.

Desired Learning Objectives

Gain Familiarization with the A-10 Cockpit layout
Initial exposure to the A-10 Flight Model (FM)
Highlight certain intricacies of the A-10 Flight Computer and Flight Mechanics

Suggested Pre-Requisites

Review the A-10 Cockpit Diagrams in the DOCS folder included with the BMS Installation
Read the Included A-10 Checklist

Success Criteria

Perform an engine start and get the aircraft airborne.

Comments

This is an introduction to the A-10 Aircraft in BMS. The focus should be getting the aircraft started and airborne, and getting a feel for how the aircraft maneuvers. Do not worry if you have trouble landing the aircraft at this stage. Also, do not get overwhelmed if you do not know what certain equipment or acronyms are. Relevant objects will be described throughout the training. Takeoff and Landing Speed Charts are included at the end of the

Checklist. For the purpose of this Mission, Flight Planning is not required, you can assume a Gross Takeoff Weight of 30000 pounds, which results in a Rotation Speed of 109 and a Takeoff Speed of 119.

Getting Started

Load the TE and select the Flight Lead position of the A-10 Sortie. If flying with a human IP, the IP may choose to fly in the Lead Position. Stop the time in the Upper Right Corner of the screen by selecting STOP.

Important for New Players

For new players who do not know what the Data Transfer Cartridge (DTC) is used for, detailed information can be found in the BMS Manuals. For now, you need to know that many Aircraft load much of the specific data required to operate the aircraft into the system using a data transfer device known as a DTC. The DTC stores your flight plan, radio preset information, predetermined target information, Electronic Countermeasure programs, and MFD Configurations. It is important to remember that the BMS A-10 only has 1 MFD, so keep that in mind when setting up the DTC MFD page. At this point, all you need to worry about is the Radio Configuration. Other mechanics of the DTC will be covered later in the training. Open the DTC Page from the Data Transfer Cartridge in the lower right corner. It looks like a box located just above the Button with a Sun on it.

Select the COMMS tab to display Radio Preset information. Standard Operating Procedures (SOPs) dictate use of UHF Preset channel 15 for tower communications, however the Balkans Theater limits most tower communications to VHF. The DTC Window will default to the UHF channels when it opens, select the dropdown and change it to VHF. Select the right arrow until the Preset Window reads 15. Click the SET TOWER button to automatically put LIPQ (Ronchi Dei Legionari) Tower's frequency into Preset 15. Click the box that says DEFAULT if it is not already highlighted. Click the dropdown and change it back to UHF, then use the arrows until 6 is displayed in the Preset Window. Make sure the DEFAULT box is highlighted, this will allow you to communicate with other entities in the theater, including a human wingman on IVC if you are flying in a MP setting. Click the SAVE button and close the DTC Window.

Notable for New and Old players

The A-10 does not have a FLCS like the F-16, it has a Stability Augmentation System (SAS) which performs many of the same functions. However, some things such as flap control are not automatically handed over to the Flight Computer in the A-10. In the F-16, an abundance of thrust allows takeoff to be performed with little or no flap deflection. However, with the A-10's potential for high drag index and takeoff weight due to external stores configurations, you will generally need to use flaps during takeoff. Standard Takeoff configuration of 7 Degree flap deflection will usually suffice. This is important to remember because Flaps must be controlled manually, both prior to and after takeoff. BMS A-10s usually allow 10 or 20 degree flap settings.

The same can be said for approach and landing. The pilot will be responsible for Flap Control during approaches. Standard approach configuration requires 20 Degree Flap deflection during approach.

Fuel Management is slightly different in the A-10 than the F-16. The same concepts apply, however, the A-10 has 2 engines and it doesn't take long for a fuel situation to sneak up on you without proper fuel management techniques.

There is only 1 MFD in the BMS A-10 Cockpit. For experienced players, this may take some time to adjust to. This limitation can be overcome by using external display of the Avionics. This tutorial is based on simulating the A-10C, which does have 2 MFDs, so it would be appropriate to use Cockpit Display Extraction to better simulate the A-10C cockpit. If you are a new player and need assistance setting up Cockpit Display Extraction, reference the BMS Manuals and the Hardware Section of the Settings Application included in the BMS Launcher.

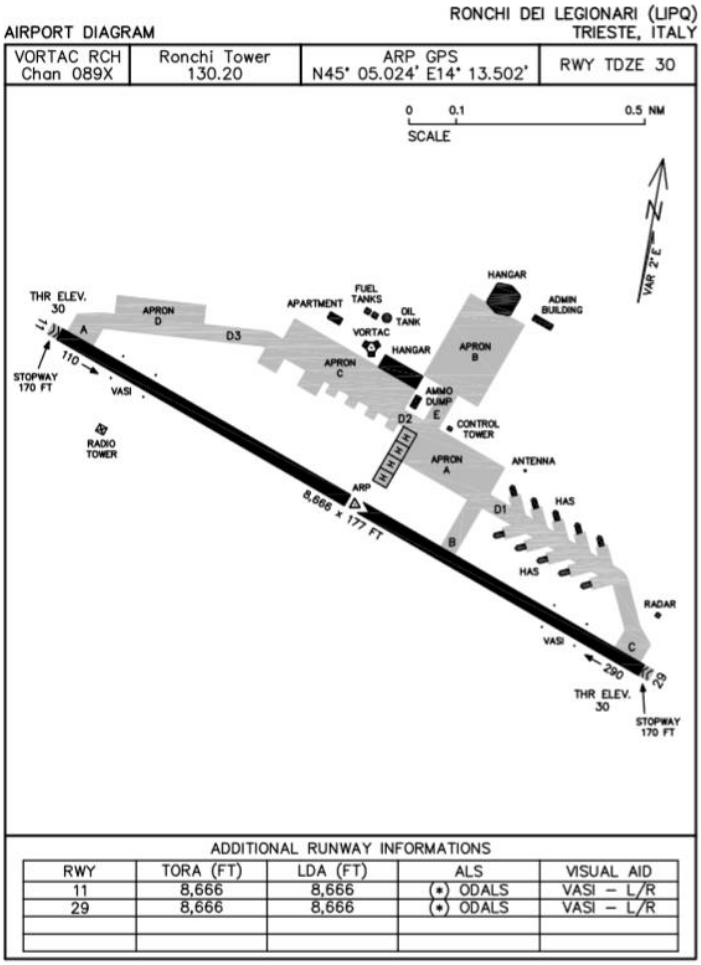
Ramp Start

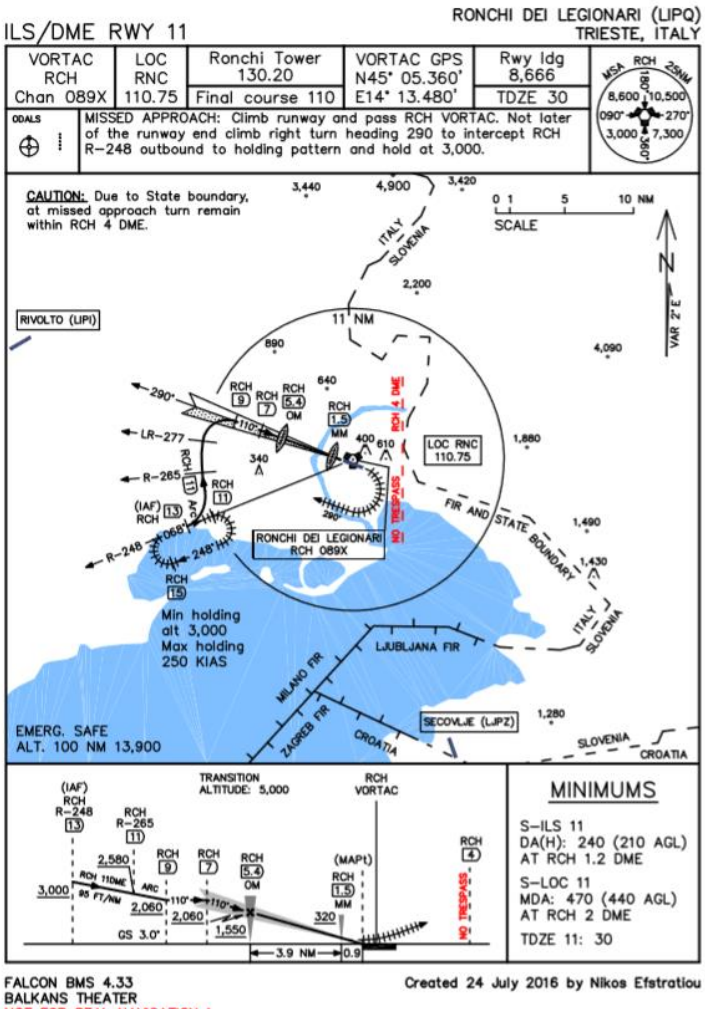
Commit to the Flight and Select **RAMP** from the loading screen.

Follow the Checklist provided with this program to conduct a Ramp Start in the A-10.

Start by ensuring you have everything you need for the flight available. This includes a Checklist and any reference documentation you may want available. This sortie will discuss several items in the Cockpit and try to provide enough information so you do not have to search for descriptions or acronyms in external documentation. For convenience, the Airfield Diagram and Approach Plate have been included in the file, extracted from the included Balkans MAIP.pdf file in the Docs folder under the Balkans Theater Add-On.

At this point the only data on the following charts of interest to a newer player is the TACAN Channel of 89X, the tower frequency of 130.20, and the ILS Localizer frequency of 110.75, all located in the upper left corner of the second image. The first image provides a good layout of the airfield so you know where to Taxi to. For this Mission you will be in the first HAS parking spot, located immediately adjacent to the C Taxiway on the bottom right of the map below. You will be taxiing to Runway 29.





Left Console

CCTVS/DVADR – Off
The DVADR is the A-10 equivalent to the AVTR in the F-16. The Controls are located in the far back of the Left Panel next to a switch with the word RECORD over it.

Radios – Set as Required
The A-10 has 2 Radios. The controls are located on the Left Panel, just forward of the DVDR Controls. Volume Controls are located outboard just aft of the Yellow Outlined area. All 4 knobs which can be interacted with should be turned to FULL. Main Radio Function is a Gray switch with MAN, PRESET, and GRD Labels. Under normal operating procedures this switch should be placed in PRESET. Main Radio Mode is a Gray switch with OFF, MAIN, BOTH, and ADF labels. This switch should be placed in either MAIN or BOTH.

Radio 1 Mode Control is a Gray switch slightly forward of the Radio Function button next to a label that reads Comm 1. Radio 2 Mode Control is actually the Mode Control of a KY-58, aft of the Function switch with OP, LD, and RV labels.

Emergency Flight Controls - SET
The Emergency Flight Controls are located in the area outline with the Yellow Striped Border. These functions are not modeled in BMS, however the Left AP Switch from the F-16 has been simulated with the Aileron, Elevator, and Emer Override switches located in this area.

Throttles – Off

Flaps – UP
The A-10 relies on Manual Flap control, unlike the F-16 where the Flaps are controlled by the FLCS. For the best experience, Flap controls should be assigned in the Setup Menu. However, there is a slider outboard of the throttles which can be used to control the flaps. Verify Flaps are UP.

APU Switch – Off
The APU Switch is the equivalent to the JFS in the F-16 (BMS Only). Visually verify the Switch is in the Off Position—Clicking the switch will attempt to start the JFS and may prevent the aircraft from starting properly later. The switch is located inboard of the Throttles on the Left panel.

Track Gate – Open
The Track Gate is part of the A-10 Fuel System. In BMS, this is used to represent the FUEL FLOW switch. This switch defaults to OFF, it will need to be selected once to emulate placing the switch in the NORM position. The switch is located just forward of the Throttles labeled TK Gate.

Fuel System Controls - SET
The fuel system in the BMS A-10 consists of the following:

- Boost Pumps: Simulates the Master Fuel Knob in the F-16
- Tank Gate: Simulates the Fuel Flow Switch in the F-16
- Cross Feed: Same function as the F-16
- Air Refueling Control: This is the large beige lever inboard of the Throttles

Parking Brake – Set
The Parking Brake is the Yellow Handle just outboard and forward of the Throttles.

TRIM/AP DISC – NORM
This is the button just outboard of the Throttles and slightly forward of the Flap Lever labeled TO Trim.

ROLL, YAW, PITCH TRIM – Centered
Verify the Trim is centered prior to takeoff.

NOTE: Steps 11-16 in the provided checklist cannot be completed in the A-10 Cockpit in BMS. However, they should be completed using Keyboard Shortcuts to ensure the Aircraft is properly configured in the SIM. TACAN and Trim CAN be configured in the Cockpit, however, at this point the visual indications will not be sufficient for the user to verify operation. They are included at this point to keep the Checklist inline with the Actual Checklist.

Instrument Panel

Landing Gear Handle – DOWN
The Gear handle is the large handle on the Left of the Instrument Panel just below the Yellow Caution Area labeled Downlock Override.

Taxi Lights – Off
The taxi lights are controlled by a T-Switch on the Left of the Instrument Panel just above the Flap indicators and Gear Handle.

AHCP – SET
The AHCP is the panel on left side of the instrument panel where the Hard Point buttons and the big red JETT button are located. Verify the switches and knobs are configured as indicated in the checklist.

Laser Mode Knob – OFF
The Laser is Controlled by a Rotary Switch in the Lower Center Console below the Instrument Panel with the Label MODE above it (BMS Only). The OFF position is equivalent to SAFE.

TSL PWR - OFF
This is located just below and to the right of the Laser Knob. This switch controls power to the FCC in BMS.

Right Console

Electrical Power Controls – Set
The electrical power controls are located on the Right Panel, just aft of the Instrument Panel below the Fuel Display. The two switches used are the **Battery** and **AC GEN** switches.

CMSP/EWMU – Set
The CMSP/EWMU is the A-10 equivalent to the CMDS in the F-16. Controls are inboard on the Right Panel, just inside the Power Controls. Master Mode and Program controls are aft and just outboard of the yellow handles on the Right Panel. Verify the two switches inboard of the EWS Panel are in the OFF position.

ILS Controls – OFF
The ILS Controls are not implemented in BMS. If you used the included 3dbuttons.dat file, the ILS Power switch is the inboard knob at the ILS Panel.

AAP
The AAP is the Navigation System consisting of the CDU on the Right Panel. The CDU is used in BMS to simulate the ICP in the F-16. Verify the 2 switches inboard of the CDU are in the OFF position.

Environmental Controls - SET
This area is located midway back on the right pane net to the TACAN displayl. If using the including 3dbuttons.dat file the Probe Heat switch is found here, otherwise the only switch of interest is the MAIN AIR switch, which simulates the F-16 AIR SRC knob. Verify the MAIN AIR switch is in the SUPPLY position. The PITOT HEAT switch does not move when you click it, even with the included button file.

TACAN Controls – OFF/Set
The TACAN Controls can be manipulated by clicking the knobs aft of the display. The left knob controls the left 2 digits with the Left and Right Mouse button respectively. The right knob controls the last digit and the TACAN Band (X/Y). The TACAN Mode knob should be set to T/R. The LED forward of the word BACKUP is the CNI Backup Control equivalent in the F-16. A Green LED indicates UFC and a Red LED indicates Backup Mode. The LED may not be illuminated without power applied.

Before Starting Engines

The Before Starting Engines checklist applies electrical power to the aircraft.

BATT PWR – PWR
This is the outboard switch on the Power Control Panel, located forward on the Right Panel.

Fire Detect / Light Test Button – Depressed
The Test Switch is located on the Left Panel outboard of the front of the Throttle Track.

Gear Lights – Checked
The 3 Gear Lights should show Green when they are locked in position.

AC GEN Switch – MAIN PWR
This is the inboard switch on the Power Control Panel, located forward on the Right Panel.

Fuel Quantity – Check
The Fuel Gauge is located on the right side of the Instrument Panel. Quantity can be checked by rotating the switch to the MAIN Position.

External Lights – Set
Lighting Controls are located aft on the Right Panel, just outboard of the CMSP Main Controls. Standard convention for human players is to leave the STEADY/FLASHING switch in the STEADY position to distinguish human and AI players in MP environments.

NOTE: The Console Lighting Textures in the A-10 Cockpit Model are slightly off and may display double labels

NOTE: The A-10 uses an APU for engine start which is not simulated in BMS. The *Before Starting Engines* checklist has been shortened considerably to adapt it to the BMS A-10.

Starting Engines

Starting Engines checklist performs the Engine Start procedure. In BMS, both engines are started simultaneously.

APU Switch – START
This is the JFS equivalent. Selecting this will start the Engine Spool process. It is recommended to place the Throttles slightly above null for engine start, especially if you are using the IDLE Detent Option in Settings.

IDLE OPER – Set
This is the IDLE Cutoff Detent equivalent. The IDEL OPER switch is located just aft of the APU Switch on the Left Console. If using the IDLE Detent Option in Settings, perform this option by moving the throttles all the way back to the null position.

NOTE: Steps 3-6 are included for immersion effect only. Instrument Gauges can be monitored on the Right side of the Instrument Panel. Throttles set to 70% is the default for the IDLE DETENT operation.

Flight Controls – Check
A test of the flight control surfaces should be performed before proceeding. Verify Ailerons and Stabilizers all move when commanded by either looking out the windows or using an external view.

Before Taxi

This stage of the checklist applies power to the Avionics and Systems and configures the Aircraft for operation.

Radios – As Required
Configure the Radios as Required using the Controls on the aft portion of the Left Panel. If you are new to BMS and unsure of how to configure your radios, set the FUNCTION switch to PRESET, the Mode Switch to BOTH, and the COMM1 and COMM2 switches should be configured so the Squelch (SQ) indicator is present.

Air Refueling Door – Checked
Although A/R is not planned for this mission, it is a good idea to get in the habit of checking out the system during engine start. BMS does not implement random errors during startup, so this step is for immersion only. The A/R handle is located on the Left Panel inboard and forward of the APU Start Switch. The only indication it is working will be the READY light on the right side of the HUD display.

CMSP/EWMU – SET
This is the A-10 version of the CMS/EWS system in the F-16. The controls are located on the Right Panel. The TWS, EWS, JMR, FLR, and CHF buttons all need to be activated. Additionally, the Jammer Power switch has been assigned to the forward switch inboard of the EWS Panel, just in front of the yellow Ejection Handle. This should be set to the ON position.

ILS – On
The ILS System was not initially included in the 3dbuttons.dat file. If using the included 3dbuttons.dat file, clicking the left (inboard) knob on the ILS Panel will turn on the ILS. No indications are visible when this action occurs. If you are not using the included 3dbuttons.dat file, ILS must be turned on using the appropriate keyboard command assigned via the Setup Screen.

TACAN Mode Selector – T/R
Verify the TACAN Mode is set to T/R. If the TACAN channel was not set previously during the Right Panel Inspection checklist, set the required TACAN Channel Now.

Flaps – Cycled
Verify Flap operation by cycling the flaps through their full extension of 20 degrees and back to 0.

Speed Brakes – Checked
Verify the Speed Brakes are operational by opening and closing them. Visual confirmation can be made by viewing the Slats opening and closing on the wings.

INS – Align
Set the INS Knob o the first position to align the EGI/INS system. It takes a minimum of 4 minutes to fully align.

DEST PWR – ON
This switch simulates the Display Power Switch in the F-16. It is located just inboard of the INS Knob.

Datalink PWR – ON
This switch simulates the DL Switch in the F-16. It is located slightly forward of the DEST PWR switch.

Gun Rate – High
This switch is actually assigned to the RIGHT HARDPOINT Power switch in the F-16. Located on the left side of the instrument panel above the big red JETT button.

AIM9 Select – Stage 1
This is assigned to the RDR ALT (Radar Altimeter) switch in the F-16. Located on the left of the front Instrument Panel to the left of the big red JETT button.

Release Mode Rotary – On
This activates the Stores Management System (SMS). The button sweet spot is just slightly above the big red button on the front Instrument Panel.

Mech Fuzing – Selected
This actually activates the Fire Control Radar (FCR) switch equivalent in the F-16. The A-10 has no Radar, so this step is only to make sure the aircraft is configured properly in the Sim.

TISL Mode Knob – Selected
This is the equivalent of the LASER – ARM switch in the F-16 (BMS Only). Click the knob once to set the Laser to ARM.

TISL Power – ON
The Target Identification Set, Laser (TISL) switch is located on the lower center console in the lower right of the TISL Control Area just above the Circuit Breaker panel. This switch is associated with the Flight Control Computer (FCC) switch in the F-16 (BMS Only).

EO Power – ON
On This switch is actually assigned to the LEFT HARDPOINT Power switch in the F-16. Located on the Front panel next to the Master Arm Switch.

CMSP/EWMU – Set
The Countermeasures Set Processor/Electronic Warfare Management Unit (CMSP/EWMU) is the A-10 equivalent to the Countermeasures Delivery System (CMDS) in the F-16. It controls the Electronic Warfare and defensive Countermeasures for the aircraft. CMSP/EWMU controls are located on the Right Panel, just inboard of the Main Power AC Generator switch. The O1 and O2 switches are not present in the A-10 model and must be activated with Keyboard Shortcuts. The PRGM and MODE knobs are located in the aft area of the Right Panel, just behind the TACAN controls.

EAC ARM – On
This switch is equivalent to the GPS Switch in the F-16. It is located on the Left Panel just aft of the Flap Control Lever.

UFP Power – ON
This is the equivalent of the MFD Power switch in the F-16. It is located just inboard of the EAC ARM switch, aft and slightly inboard of the Throttle track.

HUD – Configured
This step configures the HUD in the aircraft. The controls are on the far left of the Instrument Panel near the top. The controls available are the Color, assigned to the Intensity Knob, Day/Night selection assigned to the Center Knob, and HUD Brightness (SYM Knob) assigned to the DEPR Knob. Additionally, the knob just above and left of the DEPR knob can be used to switch between AG and AA Master Modes.

Trim – Checked
Check the Trim by introducing Pitch, Roll, and Yaw Trim into the system and verifying operation. Trim controls are found on the Left Panel outboard of the Throttle and just aft of the LIGHT TEST button. Trim should be returned to Center Prior to Taxi and Takeoff. Visual Trim indicators in the BMS A-10 are lacking, so it is beneficial to assign a Keyboard Shortcut to the TRIM CENTER command in the Settings Menu.

Probe Heat – As Required
Probe Heat should be placed in the OFF position until takeoff. The PITOT HEAT switch is not modeled in the original A-10 Cockpit and must be activated using Keyboard Shortcuts. If using the included 3dbuttons.dat file, the switch may be selected on the right panel in the Environmental Controls section. The switch is functioning, even though the switch position does not actually move.

Avionics – Programmed
Avionics are programmed with the DTC. At this point, the MFD should be powered on and ready for use. It is important to remember that although the BMS A-10 Cockpit only displays 1 MFD, there are actually two present in the SIM Code. For this reason, you may need to use the SWAP button on the MFD to switch between MFD displays to locate the On Screen Button (OSB) labeled DTE. Select the Button to display the DTC interface. To load the DTC into the system, select the OSB labeled LOAD. This will reconfigure your MFDs and set your Radio Presets up for you.

Before continuing, you should clear out any Built-In-Test (BIT) flags and initialization cautions in the system due to aircraft initialization. To do this, you may use the MFD to navigate to the TEST Page. You may need to SWAP MFD displays, or you can click one of the OSBs twice to get to the MFD Page Selection Screen and select TEST from there. Once in the TEST Page, select the CLR OSB to clear any superficial faults. Once completed, return your MFD to the Horizontal Situational Display (HSD) Page by selecting the HSD OSB, or returning to the MFD Page Selection Screen and selecting MFD.

Ejection Seat – Armed
The ejection seat handle is located on the left side of the Pilot Seat.

CNI Switch – UPFRONT
The CNI Switch selects whether the Radios and TACAN are controlled by the Digital Controls on the Instrument Control Panel (ICP) or the backup controls located at the TACAN and Radio Control Heads. The CNI Switch is located just aft of the TACAN Control panel between the two Gray knobs. A Red Light indicates the CNI is in Backup mode. Clicking the LED will change it to Green, indicating the control has passed to the Digital Systems.

ICP COMM Page – SET
Your Radios should be configured via your DTC at this point. Verify the UHF and VHF radios were configured correctly via the ICP COMM1 and COMM2 pages.

Taxi/Landing Light – On
This step indicates to other flight members you have completed your Engine Start checklist to the point where you have communications available and are ready for check-in. If you are the Flight Lead during a MP session, you should wait to call for check-in until all members of the flight have activated their Taxi Lights, indicating they are ready to continue and have reached a point where Communications are available.

Altimeter – Set

Aircraft altimeters use Barometric Pressure as a reference for altitude. To make sure the Altimeter is accurate, you must set the correct outside Barometric Pressure in the system. To acquire the pressure, contact tower using the Tower Communications Menu (T). Switch to the second page by pressing (T) again and request the QNH or QFE to get the local Altimeter Setting.

QNH is used to indicate the field altitude with respect to Sea Level. Setting the QNH in the altimeter will usually result in the altimeter reading something above 0 while on the ground.

QFE is used to indicate the relative height above the field. Setting QFE will result in the altimeter reading 0 while on the ground.

QNE is the universal altimeter setting for Flight Level transition (FL). Normally, requesting QNE from a tower would result in the response of the ALTITUDE your instruments would read if you touched down with an altimeter setting of 29.92. However, in BMS, the response is the altimeter setting of 29.92 instead of the altitude.

The BMS A-10 does not have an Altimeter Readout visible. However, the Altimeter can be set using keyboard commands. The default commands are PgUp and PgDn. Adjust the Altimeter until the analogue Altitude readout shows 0 feet.

ICP – Configured

The ICP allows you configure many of the avionics and instruments in the aircraft. If you are unfamiliar with the ICP and Upfront Controls (UFC), it is recommended to visit the BMS -1 Section 1.3 for a detailed description of the UFC controls and displays.

Of particular note at this point is the TACAN (T-ILS) setting which facilitates Yardstick. Yardstick is a term used by pilots to indicate a range determined by TACAN equipment from another flight member. AA TACAN operates on 63 Channel spacing, meaning you will get range information from another TACAN station in the same band (X or Y), exactly 63 Channels apart. In the Formation Flying world, this can be used to maintain or determine your distance from another Flight Member.

Press the 1 Button on the ICP Input Pad to enter T-ILS Mode. You can enter the desired TACAN channel into the data entry window by using the ICP Keypad numbers. Pressing 0 will cycle between the X and Y bands, and pressing the ICP RIGHT Button will cycle between AG and AA Modes. Make sure to press the ENTR button after you enter information or the changes will be discarded.

The next setting in the ICP to configure is BINGO. BINGO is used to indicate a minimum amount of fuel required to return to base (RTB) with a reserve amount of fuel. For the purposes of this mission, BINGO can be set at 2000. To access the BINGO page, you will need to enter the LIST page of the ICP Menus. This will display a list of several available data entry pages, including the BINGO page (Page 2). Again, make sure to press the ENTR button after data is changed.

The A-LOW setting in the ICP will set the lowest altitude you can descend to before the Terrain and Collision Avoidance System (TCAS), also known as “Bitchin Betty”, will warn you that you have broken a hard deck. To access the A-LOW page, return to the Main ICP CNI page using the RTN button on the ICP Control panel, then select the ALOW page by pressing the 2 Button on the Data Entry Keypad.

CARA ALOW is used as a ground collision warning. Crossing the altitude set here in a configuration other than landing will trigger an Altitude Advisory warning. An appropriate setting would be 500, however if you are a new pilot, 1000 would not be inappropriate.

MSL Floor is used as an advisory for Minimum Safe Level. This is used for high level hard deck notifications. Crossing this altitude will trigger an Altitude Advisory warning. Common practice is to set this to Transition Altitude.

In the US, transition altitude is always 18000 ft. This means when ascending through 18000 feet, you set your altimeter to the common setting of 29.92 and use Flight Level altitude reference. This is where you see terms such as Flight Level 200, or FL200, which indicates 20000 feet Mean Sea Level (MSL).

Descending through transition altitude is when you would reset your altimeter to the appropriate barometric setting for the area you are operating in. This can be acquired from a tower as described before. Altitude below transition altitude is often referred to as ANGELS, or simply the altitude in feet. This is where you would see the term ANGELS 10, which is 10000 feet, or you may just hear it referenced as 10000. Transition altitude in the Korea Theater of Operations is generally 14000 feet, so it would be appropriate to set 14000 in this setting.

TF ADV (MSL) is used during Terrain Following (TF) Operations. This setting can be ignored at this stage of training, but a common setting would be between 200 and 400.

The final piece of configuring your Avionics is the Datalink. At this point, Datalink operations are not required to be configured. Datalink operations are too complex to effectively explain in this document. Reference the BMS Manuals for more details on Data Link operation.

SMS – Configured
This sortie does not have any armament loaded, so this step can be skipped. However, this is normally where you would configure certain armament settings such as CBU Burst altitude, Ripple Settings, verify Target Coordinates for Inertially Aided Munitions (IAMs), or configure Auto-On settings for armament capable of Self Power On.

INS – Set
By now your INS system should be aligned. To verify alignment, check if the HUD is flashing ALIGN on the left side. If it is, you are aligned and ready to proceed. Switch the INS into Normal NAV Mode by selecting the INS Control Switch on the Right Panel. You should see your flight plan appear in the HSD window on the MFD and some navigation information will now populate the HUD.

Takeoff Data – Reviewed
Takeoff speeds should be reviewed prior to taking the runway. Takeoff Speed charts are included at the end of the Checklist. For the purpose of this mission, assume a Gross Weight of 30000 pounds, with 7 Degrees of Flaps, which results in a Rotation Speed of 109 and a Takeoff Speed of 119.

Rotation speed is the speed at which you should start to pull back on the stick. Takeoff Speed is the speed at which you can expect the aircraft to depart the runway.

Taxi

The Taxi stage is initiated when either you or the flight Lead contacts Tower and requests permission to Taxi. You can ask the tower for the current takeoff runway using the Tower Communications Menu, then Request Taxi using the same menu. In BMS, most airports follow one a few layouts, so it is typically not too hard to find your way around the Taxiways. For inexperienced players, it may help you orient yourself by looking at the direction you are facing in the chocks and visualizing the direction you need to go before you start your taxi.

Runways are referenced by the significant digits of the heading the Aircraft will be facing while travelling down the runway. For instance, Runway 23 means when you lineup on the runway you will have a heading of 230 degrees.

Runways with a single digit have headings of less than 100 degrees. For example, Runway 01, often referred to as Runway 1, would have a Heading of 10 degrees.

Once you know the departure Runway you will be using, you can plan your Taxi by heading in the opposite direction (Adding or subtracting 180 degrees) to get to the appropriate end of the runway.

Prior to Taxiing in BMS, you must contact the Tower and request the Chocks be removed. You should verify your external light configuration is correct, the DVDR is on if desired, and your Taxi/Landing Lights are on prior to releasing the Parking Brake. Finally, you should perform a quick visual check to make sure all Caution Lights and Faults are cleared.

To start Taxiing, you will need to activate the Nose Wheel Steering (NWS) System using the NWS/MSL Step Button on the HOTAS Stick. Release the Parking Brake and slightly increase the Throttles to start Taxiing. Taxi speeds should not exceed 20 knots. Ground Speed can be monitored on the INS Page of the ICP by selecting LIST, then pressing the 6 on the ICP Control Keypad.

Before Takeoff

End your Taxi at the edge of the Runway. Many airfields will have Aircraft parking Lines angled at roughly 40 Degrees from the Runway Heading just prior to entering the Runway. It is not required to use these parking spots, but it is recommended for practice. Once established at the edge of the Runway, set the Parking Brake and perform the Before Takeoff Checklist. If you are flying in a Multiplayer Environment, the Flight Lead should take this opportunity to Review and Brief Takeoff and Departure procedures, as well as review Takeoff/Land Data (TOLD)

Flaps – Set
As mentioned previously, Flaps are manually controlled and required for Takeoff in the A-10. Extend the Flaps to the first detent, which will be either 7 or 10 degrees depending on which version of the A-10 you have in your BMS setup. The Alt Flaps Switch should also be configured in the NORM position. This will require you to use a Keyboard Shortcut.

Speed Brake – Closed
Verify the Speed Brakes are closed prior to taking the Runway.

Trim – Centered
Normally the A-10 has a TO Trim button which configures the trim for departure. In BMS, this is not implemented, so the trim must be manually centered prior to takeoff.

RWR – On
Radar Warning Receiver (RWR) control panel is located in the middle of the front Instrument Panel, just below the center FIRE (APU) PULL Handle. It is recommended to activate the HANDOFF button in the center of the control panel to ensure Missile Threats are conveyed to the Pilot and the system does not continually notify the pilot of known threats (Constant Beeping)

External Light Panel – Set
External Lights should be set to STEADY prior to departure.

AIM9 Sel Switch – Stage 2
This is equivalent to the RDR ALT switch in the F-16. Placing this in Stage 2 transitions the Radar Altimeter from Standby to Normal, providing accurate Radar Altimeter returns.

HMCS – Configured
The Helmet Mounted Cueing System (HMCS) is a Helmet Integrated or Mounted System designed to provide the Pilot with HUD-Like information in the Visor while looking outside the aircraft or away from the HUD. The BMS A-10 Cockpit does not have an HMCS Knob, so the HMCS must be activated using Keyboard Shortcuts, which default to] and [. Not all BMs A-10 variants have the HMCS.

Canopy – Closed
The canopy can be closed with the switch on the front of the right side wall, or the lever midway back on the wall.

Lineup Check

The lineup check is completed on the runway just before you depart. The wheel brakes should held during the entire lineup checklist.

Probe Heat – ON
The PITOT HEAT switch is not modeled in the original BMS A-10 Cockpit and must be activated using Keyboard Shortcuts. If using the included 3dbuttons.dat file, the switch may be selected on the right panel in the Environmental Controls section. The switch is functioning, even though the switch position does not actually move.

Throttles – 90%
This step is for immersion only. You may not be able to reach 90% before the aircraft starts to move.

Engine Instruments – Check
This step is for immersion only.

Warning Lights - Extinguished

Takeoff

Once the Lineup checks are complete you may depart. NWS is optional, however, it is recommended for newer players to leave it enabled. Release the brakes and advance the throttles to MAX. Make small adjustments as required with NWS or Rudders to maintain a straight departure roll. Once airborne, expect the aircraft to lurch slightly left, and potentially roll slightly left as well.

After Takeoff

After takeoff, maintain a positive pitch and level flight. Once you have confirmed altitude is increasing, retract the Landing Gear. Once the gear are up, retract the flaps approximately 10 knots after takeoff speed. Make sure to retract the gear and the flaps prior to 200 Knots to prevent damage. It may be necessary to apply Roll Trim to the Aircraft at this point since the A-10 is naturally asymmetrically loaded.

Once you have configured the aircraft in a Clean Configuration (Gear and Flaps UP), you are ready to proceed. Some things to consider at this point are your Airspeed indicators (CAS or IAS), radio configuration (MP environments usually use a “Global” UHF channel), Flight Plan altitude, external light configuration, and changing the altimeter to 29.92 when passing through transition altitude.

Conclusion

Congratulations. You have successfully completed the first mission in the A-10 IQT Syllabus. At this point you should take some time to explore some of the flight mechanics of the A-10. Get a feel for how it turns, responds to input, Energy Management, climb and descent behavior, and the general feeling of the Flight Model.

If you are a new player, this is also a good time to explore some of the ICP Menu Pages and MFD Pages. Before doing so, you should level off and engage the Auto Pilot using the A Key. There are no Air or Surface Threats in this Sortie so feel free to explore the Theater as well. Take the time to try to follow the Steerpoints of your Flight Plan to get an idea of navigating in BMS.

If you are a new player, it may be a good idea to review this document and perform the Ramp Start again prior to continuing with the training. However, this IQT program is designed to provide plenty of practice getting Ramp Starts in the BMS A-10 Cockpit.

Optional – Landing Practice

If you would like to attempt to Land the aircraft, follow the flight path back to the airport. Descend to no higher than 5000 feet prior to STPT 6. Follow the BEFORE LANDING Checklist to properly configure the aircraft for an approach.

Steerpoint 6 will align you roughly 15 Nautical Miles (NM) from the Airfield on a Straight In approach. Approach altitude is 2000 feet outside of 10 NM and 1500 feet from there on. Approach speeds should be 150 KIAS plus 1 knot for every 1000 pounds of fuel remaining. Landing speeds can be found in the back of the Checklist, assume 30000 pounds gross weight and don't forget to extend your flaps to 20 degrees when slowing below 150 knots. Gear should be extended at approximately 5 NM from the airport.

Use the Speed Brakes and a higher amount of Throttle to maintain Approach Speeds. It may feel unnatural, but having more available thrust during a landing is always a plus, so it is recommended to use the Speed Brakes as much as practical to control approach speeds. If you are using a HOTAS axis or the Open/Close Keyboard Shortcuts to control your Speed Brakes, the desired Final setting is 40%. If you are using the Full Open / Full Close Speed Brakes Toggle Command, open the speed brakes at 3 NM from touchdown.

Visual Landings can be accomplished by placing the Flight Path Marker (FPM), which is the circle in the HUD depicting the path of the Aircraft, on the Runway Numbers. Keep the FPM on the Runway Threshold or Numbers and pay attention to your speed. As stated before, Approaches are a combination of Throttle Control, Speed Brakes, and Stick adjustments. All adjustments should be small. Minor altitude adjustments can be made by increasing or decreasing Throttle and Speed Brakes instead of changing Pitch. The A-10 normal approach is a 2 to 3 Degree Glide Slope approach. 7-12 Degree Angle of Attack (AoA) should be sufficient to maintain the appropriate Glide Slope, however, do not allow the Airspeed to drop below computed Final Approach Speed.

When you are approximately 50-100 ft from the runway, flare the aircraft by applying a slight amount of back stick pressure to maneuver the FPM to the opposite end of the runway, and retard the Throttles to null. Upon touching down on the runway, open the speed brakes completely and maintain a very slight nose up attitude to keep the nose gear off the runway which will help slow the aircraft. Stick and Rudder should be used to control the aircraft until you slow to approximately 60 knots. Below 60 knots, you can enable NWS for steering and use the Wheel Brakes to slow the aircraft below 25 knots. Below 25 knots, you can safely turn the aircraft to exit the runway.

It should be noted that this is a condensed explanation of the Landing Procedures. Further details and procedures for Landings are outlined in the M2 Sortie.