C3301
Briefing Guide
(Worksheet)

Planned Route:

- Takeoff: KNSE, Runway 32
- Altitude: VFR to North 5500' MSL
- Route: KNSE, Brewton or Evergreen
- Training Device: OFT

SYLLABUS NOTES:
Practice the following maneuvers utilizing multiple crosswinds to include a range from minimum to maximum limitations: Crosswind takeoffs, touch and go, full-stop landings and wave-off procedures.


No strap-in required for student. Need to have gloves, kneeboard, NATOPS PCL for this event.

Student will use Abbreviated Simulator checklist to expedite becoming airborne. Once airborne all applicable checklist will be conducted from the quad-fold version.

Special Syllabus Requirement
NONE

Discuss

a. Crosswind takeoff / touch-and-go / full-stop landings
   - Crosswind Limits (NATOPS / FTI)
   - Calculate Crosswind Component
   - Precautions for takeoff
   - Overshooting
   - Undershooting
   - Precautions for landing / (Crosswind Landing Video)

b. Aborted takeoff
   - Reasons to conduct an aborted takeoff
   - Critical Action Items
   - How to obtain Maximum Braking Action

   Maximum abort speed - definition
   Calculate Max Abort Speed (wet runway)

c. Aircraft departs prepared surface
   - Procedural Steps
   - Activation of CFS or Ejection considerations

d. Up Front Control Panel (UFCP) Failure
   - Procedural Steps
   - Walkthrough to use radios & primary altimeter through FMS pages
# MANEUVER | MIF | Notes  
--- | --- | ---  
1 | GEN KNOWLEDGE / PROCEDURES | C3301 | Practice following maneuvers utilizing multiple crosswinds to include a range from minimum to maximum limitations: Crosswind takeoffs, Crosswind touch-and-go, Crosswind full-stop landings, Crosswind wave-off procedures. Practice emergency procedures.  
2 | EMERGENCY PROCEDURES | X |  
3 | HEADWORK / SITUATIONAL AWARENESS | X |  
4 | BASIC AIRWORK | X |  
5 | IN-FLIGHT CHECKS / FUEL MANAGEMENT | X |  
6 | IN-FLIGHT PLANNING / AREA ORIENTATION | 3 |  
2 | ABORT TAKEOFF | X |  
2 | AIRCRAFT DEPARTS PREPARED SURFACE | X |  
7 | TASK MANAGEMENT | X |  
8 | COMMUNICATION | X |  
9 | MISSION PLANNING/BRIEFING/DEBRIEFING | X |  
10 | GROUND OPERATIONS | 3 |  
11 | CROSS WIND TAKEOFF | X |  
12 | DEPARTURE | 3 |  
13 | G-AWARENESS / EXERCISE | 3 |  
14 | TURN PATTERN | 3 |  
15 | LEVEL SPEED CHANGE | 3 |  
16 | SLOW FLIGHT | 3 |  
17 | POWER-ON STALLS | 3 |  
18 | LANDING PATTERN STALLS | 3 |  
19 | POWER-OFF STALLS | 3 |  
20 | SPIN | 3 |  
21 | CONTACT UNUSUAL ATTITUDES | 2 |  
30 | SLIP | 3 |  
31 | POWER LOSS | 2 |  
32 | PRECAUTIONARY EMERGENCY LANDING | 2 |  
33 | PEL/P | 2 |  
34 | ELP LANDING | 2 |  
35 | ARRIVAL / COURSE RULES | 3 |  
36 | LANDING PATTERN | X |  
37 | CROSSWIND NO-FLAP LANDING | X |  
37 | CROSSWIND TAKEOFF FLAP LANDING | X |  
37 | CROSSWIND LDG FLAP LANDING | X |  
37 | CROSSWIND FULL-STOP LANDING | X |  
39 | WAVEOFF | X |  

**Notes:** Crosswind takeoffs, Crosswind touch-and-go, Crosswind full-stop landings, Crosswind wave-off procedures. Practice emergency procedures.

**SSR:** None

**Discuss items:**

**C3301:** Crosswind takeoff / touch-and-go / full-stop landings, aborted takeoff, aircraft departs a prepared surface, and Up Front Control Panel (UFCP) failure.
WEIGHT LIMITATIONS
Maximum ramp weight - 6950 pounds
Maximum takeoff weight - 6900 pounds
Maximum landing weight - 6900 pounds
Maximum zero fuel weight - 5850 pounds
Maximum weight in baggage compartment - 80 pounds

TAXI, TAKEOFF, AND LANDING LIMITATIONS

NOSE WHEEL STEERING LIMITATIONS
Do not use nose wheel steering for takeoff or landing.

CANOPY DEFOG LIMITATIONS
Canopy defog must be off for takeoff and landing.

LANDING LIMITATIONS
Maximum rate of descent at touchdown is 600 feet per minute (3.7 Gs) when main tires are serviced to normal landing conditions pressure (185±5 psi).

Maximum rate of descent at touchdown is 780 feet per minute (5.1 Gs) when main tires are serviced to maximum landing conditions pressure (225±5 psi).

WIND LIMITATIONS
Maximum crosswind component for dry runway - 25 knots.
Maximum crosswind component for wet runway - 10 knots.
Maximum crosswind component for icy runway - 5 knots.
Maximum tailwind component for takeoff - 10 knots.

BARRIER LIMITATIONS
The aircraft has limited capability for taxiing over raised arresting cables (such as BAK 9, BAK 12, and/or BAK 13).
4. **Common Errors.**
   
   a. Uncoordinated transition with power reduction and nose attitude, resulting in a rapid or late flare.
   
   b. Landing too short or too long.
   
   c. Floating, ballooning, bouncing and full-stall landings.
   
   d. Excessive sink rate due to excessive power reduction, otherwise known as the "bucket."
   
   e. Not rechecking landing gear after intercepting the final.
   
   f. Not executing a wave-off for any unsafe condition.

608. CROSSWIND APPROACH

1. **Description.** Compensate for crosswinds in the landing pattern to maintain the normal ground track.

2. **General.** All pilots should be able to assess crosswinds and understand how they affect pattern operations. The proper application of crosswind controls is essential to executing landings. Consider using TO Flaps if crosswinds are greater than 10 knots or during gusty wind conditions. Consider using no flaps if crosswinds are greater than 20 knots and landing distance is not a factor.

Prevailing crosswinds are normally broken down into two categories according to how they will affect the aircraft: “overshooting” or “undershooting”.

**Overshooting.** Overshooting crosswinds will cause the aircraft to fly a track outside the normal final ground track. Ground speed in the final turn will be higher than normal. As a result, slightly lower than normal power settings and slightly more angle of bank will be required around the final turn to compensate for a higher required rate of descent.
Example

**Given:** Duty runway 05, winds reported 020 at 10 knots

**Find:** Crosswind component

**Answer from three different resources?**

5 knot crosswind component
NOTE

More efficient climbs may be required for obstacle clearance or other requirements such as noise abatement or cloud avoidance. The T-6B best rate of climb speed is 140 KIAS and 15° nose high (Figure 5-3).

Since power during the initial climb is fixed at maximum, airspeed must be controlled with slight pitch adjustments. However, do not stare at the airspeed indicator when making these slight pitch changes; crosscheck airspeed to confirm the correct pitch picture in relation to the horizon is set.

For takeoff in crosswind conditions, the aircraft will tend to weather-vane into the wind and the upwind wing will begin to rise even in light-to-moderate crosswinds. This tendency can be controlled with rudder and aileron. Maintain positive aileron deflection into the wind once in position for takeoff, and maintain this crosswind control throughout the maneuver. Use up to full aileron deflection into the wind at the beginning of the takeoff roll, and relax aileron input as speed increases to the amount required to keep wings level at liftoff. Use rudder as necessary to maintain centerline. Realize that a left crosswind will add to the aircraft’s left yawing tendency due to engine torque effect, requiring even more right rudder to maintain directional control. Once the aircraft has safely left the runway in controlled flight, level the wings, allow the aircraft to crab into the wind, and check balance ball centered.

3. Procedures.

a. Approaching the hold short line (approximately 200 feet prior) switch to Tower frequency.

b. When appropriate, and in accordance with the SOP, call the tower for takeoff clearance. Prior to making this call, listen carefully to avoid cutting out other transmissions. Instructions to "Lineup and wait" or "Hold short" must be read back. Clearance for takeoff will be acknowledged with, "Call sign, cleared for takeoff." Upon receiving takeoff clearance, taxi into the takeoff position in accordance with local course rules.

c. After acknowledging tower’s “Cleared for takeoff” or “Lineup and wait” call, visually clear final, then begin taxi to the takeoff position and initiate the Lineup Checklist. Verbally note right to left or left to right crosswinds as called out by tower. Verify with windsock, if available.

d. Align the aircraft on runway centerline and come to a stop using the brakes. With the nose wheel centered, disengage the nose wheel steering and complete the Lineup checklist. Once cleared for takeoff, increase torque to ~30% and check engine instruments. Report over the ICS, “Instruments checked.” Confirm instruments checked in the rear cockpit as well.
4. **Common Errors.**

   a. Uncoordinated transition with power reduction and nose attitude, resulting in a rapid or late flare.

   b. Landing too short or too long.

   c. Floating, ballooning, bouncing and full-stall landings.

   d. Excessive sink rate due to excessive power reduction.

   e. Not executing a wave-off for any unsafe condition.

608. **CROSSWIND APPROACH**

1. **Description.** Compensate for crosswinds in the landing pattern to maintain the normal ground track.

2. **General.** All pilots should be able to assess crosswinds and understand how they affect pattern operations. The proper application of crosswind controls is essential to executing landings. Consider using TO Flaps if crosswinds are greater than 10 knots or during gusty wind conditions. Consider using no flaps if crosswinds are greater than 20 knots and landing distance is not a factor.

   **Overshooting.** Overshooting crosswinds will cause the aircraft to fly a track outside the normal final ground track. Ground speed in the final turn will be higher than normal. As a result, slightly lower than normal power settings and slightly more angle of bank will be required around the final turn to compensate for a higher required rate of descent.

![Figure 6-7 Overshooting Crosswind](image-url)
**Undershooting.** Undershooting crosswind will cause the aircraft to fly a track inside the normal final ground track. Ground speed in the final turn will be lower than normal. As a result, slightly higher than normal power settings and slightly less angle of bank will be required around the final turn to compensate for a lower required rate of descent.

![Figure 6-8 Undershooting Crosswind](image)

In order to maintain a particular track or desired path over the ground, it will be necessary to “crab” or turn into the wind slightly. Therefore, when climbing out upwind or flying downwind, to maintain the desired path over the ground, you must crab into the wind slightly (Figures 6-9 and 6-10).

![Figure 6-9 Crabbing](image)
**Final Turn.** The normal Angle of Bank used at the start of the final turn should be approximately 30°. For oversooting winds, increased bank may be required to avoid oversooting final. While 45° of bank is acceptable if required, caution must be exercised as stall speed increases with increasing bank angle. Do not exceed 45° bank during the final turn.

If bank required to complete the final turn is greater than 45°, initiate a waveoff.

For undershooting winds, you may be required to use less bank to avoid angling on final and rolling out too close to the runway. Vary the angle of bank, power setting, or both in order to arrive at the extended runway centerline 1200-1500 feet from the runway threshold, and 150-200 feet of altitude at the proper airspeed.

**NOTE**

It is imperative to roll out at a proper distance from the runway to ensure enough time to assess the crosswinds and apply proper crosswind controls.

During gusty wind conditions, increase final approach airspeed by ½ the gust factor up to a 10 knot increase. For example, with 8 knots of gust, increase final approach airspeed by 4 KIAS.

**Final.** After rolling out on final, utilize aileron inputs to maintain the aircraft on extended runway centerline, and rudder to maintain aircraft alignment with the runway. Additional power will likely be required for the increased drag caused by aileron and rudder inputs.
**Wing-low.** After rolling out on final, transition to the wing-low method by applying:

a. Aileron into the wind as necessary to keep the aircraft from drifting left or right of the runway centerline.

b. Rudder deflection to align the longitudinal axis of the aircraft with the runway.

c. Additional power, as required, to counteract increased drag due to cross controls.

d. Maintain wing-low control inputs throughout flare and landing roll out or touch-and-go.

3. **Procedures**

a. Crab into wind on the downwind to establish proper WTD from runway centerline.

b. Adjust power and bank angle to fly a normal ground track in the final turn.

c. Execute a waveoff if unable to avoid overshooting final without using more than 45° angle of bank.

d. Upon intercepting the extended runway centerline after rolling out on final, observe the magnitude of drift and establish the proper correction.

4. **Common Errors**

a. Not recognizing when a crosswind exists.

b. Utilizing improper crosswind control inputs.

c. Not executing a waveoff when appropriate.

609. **CROSSWIND LANDING**

1. **Description.** Compensate for crosswinds and land smoothly at the intended point of landing on runway centerline.

2. **General.** Throughout the final, flare and touchdown, the aircraft should track in a straight line down the runway. The application of crosswind correction must be continued as necessary during the landing transition and flare to prevent drift. Since airspeed decreases as the flare progresses, the flight controls gradually become less effective; as a result, the crosswind correction being held will become inadequate. When using the wing-low method, it is necessary to gradually increase deflection of aileron into the wind as the aircraft decelerates. As torque decreases, the nose of the aircraft will yaw right. This yaw must also be accounted for on final.
Do not level the wings; keep the upwind wing down throughout the flare. Think of flaring over one wheel. As the forward momentum decreases, the weight of the aircraft will cause the other main wheel to settle onto the runway. If the wings are leveled prior to touchdown, the airplane will begin drifting and the touchdown will occur while drifting.

During gusty or high wind conditions, extreme caution should be used to make certain that the aircraft is not drifting or crabbing. A crab is a condition that occurs when a touchdown is executed while the longitudinal axis of the aircraft is not aligned with the runway. Since the aircraft is actually traveling sideways in relation to the runway, it will impart a tipping moment in the direction that the aircraft is traveling. Touchdown in a crab or drift will also cause the aircraft to turn away from the intended landing path. This turn is called a swerve. Any time a swerve develops, centrifugal force will be created commensurate to the speed of the swerve. It is dangerous to land in a crab or drift and could potentially cause the aircraft to depart the runway. *If unable to apply proper crosswind controls before touchdown, or an uncontrollable drift occurs during the flare, WAVEOFF!* 

**Full Stop.** During the landing roll, special attention must be given to maintaining directional control with rudders while maintaining crosswind aileron inputs. While the airplane is decelerating during the landing roll, *more and more aileron must be applied to keep the upwind wing from rising.* Since the airplane is slowing down, there is less airflow over the ailerons and they become less effective. At the same time, the relative wind is becoming more of a crosswind and exerting a greater lifting force on the upwind wing. Consequently, when the airplane is coming to a stop, the aileron control must be held fully towards the winds. Maintain directional control with rudder and/or differential braking while applying aileron deflection into the wind. *If landing occurred off runway centerline, do not attempt to aggressively correct back toward the center of the runway! If the aircraft becomes uncontrollable after initial touchdown, WAVEOFF.*

**Touch-and-Go.** Hold crosswind inputs on the deck and apply upwind aileron to maintain a wings level attitude. Initiate positive (firm) rotation when flying speed is reached to avoid side-slippering. Initial drift correction is made by turning into the wind with a shallow bank to counteract drift, then rolling wings-level. On the climbout, it will be necessary to “crab” the aircraft into the wind to maintain runway heading.

3. **Procedures.**
   
   a. Maintain crosswind correction through the landing transition using slight adjustments of rudder and aileron as necessary.

   b. Apply rudder as required to align the aircraft with the runway. Increase aileron pressure as necessary to land the aircraft with zero side motion.

   c. Add power as required to maintain proper aimpoint and airspeed due to the increased drag.

   d. Landing will be made on the upwind main mount first.
e. Maintain crosswind corrections to minimize weathervaning and lower the nose to the runway.

f. For full stop landings:
   i. Increase aileron into the wind as the airplane decelerates.
   ii. Use rudder as required to continue straight down the runway.
   iii. Smoothly apply brakes below 80 KIAS. Maintain directional control with rudder and/or brakes while applying aileron deflection into the wind.

g. For touch-and-go landings:
   i. Hold in crosswind controls throughout ground roll.
   ii. Advance PCL to MAX.
   iii. Rotate the aircraft to the takeoff attitude at 90 KIAS (minimum).

h. If unable to apply proper crosswind controls before touchdown, or an uncontrollable drift occurs during the flare, WAVEOFF!

   a. Landing with any side motion.
   b. Landing in a crab.
   c. Not holding in corrections while on the runway.
   d. Not executing a waveoff when necessary.
   e. Overcorrecting back towards runway centerline.
   f. Not increasing aileron deflection into the wind during a full stop.
   g. Not crabbing upwind after a touch-and-go, causing a drift from runway centerline.
   h. Not checking airspeed before applying brakes.
* 2. **FIREWALL SHUTOFF HANDLE - PULL**

* 3. Emergency ground egress - As required

**EMERGENCY GROUND EGRESS**

**NOTE**

In a situation requiring immediate ground egress, the ejection system has the capability for 0/0 ejection.

If emergency egress is required on the ground (Figure 3-1), perform the following steps after the aircraft has come to a complete stop and the engine has been shut down:

* 1. ISS mode selector - SOLO

**WARNING**

Failure to ensure that the ISS mode selector is set to SOLO may result in the inadvertent ejection of one or both seats.

* 2. Seat safety pin - Install (BOTH)

**WARNING**

Failure to insert both ejection seat safety pins (if occupied) before ground egress may result in inadvertent activation of ejection sequence and subsequent injury or death when performing emergency ground egress.

* 3. PARKING BRAKE - As required

* 4. Canopy - Open

**NOTE**

Oxygen hose, emergency oxygen hose, communication leads, and anti-G suit hose will pull free while vacating cockpit and leg restraint lines will pull through leg restraint garter D rings if released with quick-release lever.

* 5. BAT, GEN, and AUX BAT switches - OFF

* 6. Evacuate aircraft

**TAKEOFF EMERGENCIES**

There are several factors which affect the pilot’s decision to takeoff or abort. The decision to takeoff or abort should be based on the following:

- Runway length and condition, terminal weather conditions and area traffic.
- If adequate directional control cannot be maintained or any system emergency affecting safety of flight is experienced prior to Max Abort Speed, the takeoff should be aborted.

**ABORT**

If it becomes necessary to abort the takeoff, concentrate on maintaining aircraft control, specifically directional control, while stopping the aircraft on the remaining runway. To abort a takeoff, accomplish the following:

* 1. **PCL - IDLE**

* 2. **BRAKES - AS REQUIRED**

Refer to Section II for description of maximum braking.
WARNING

After a stop which required maximum effort braking and if overheated brakes are suspected, do not taxi into or park in a congested area until brakes have had sufficient time to cool. Do not set parking brake.

BARRIER ENGAGEMENT

Aircrews will not call for a raised barrier in the event of an aborted takeoff. If a raised barrier is already up, aircrews will steer around it, to include departing the prepared surface if necessary, or ejecting before engagement.

WARNING

- Significant aircraft damage can be anticipated when engaging a raised web barrier and webbing may preclude normal canopy opening.
- If contact with a lowered BAK-15 is imminent, discontinue braking before reaching lowered barrier, then recommence once past barrier. In the unlikely event that webbing catches on aircraft, there may be unexpected directional control problems.

AIRCRAFT DEPARTS PREPARED SURFACE

If it appears likely that the aircraft will depart the prepared surface, execute the Emergency Engine Shutdown On The Ground procedure.

TIRE FAILURE DURING TAKEOFF

IF THE DECISION IS MADE TO STOP:
1. Abort

IF TAKEOFF IS CONTINUED:
2. Gear and flaps position - Do not change
3. Straight-in approach - Execute

CAUTION

Land on side of runway corresponding to the good tire (put drag in the middle). Maintain directional control using rudder, brakes, and nose wheel steering as required.

ENGINE FAILURE IMMEDIATELY AFTER TAKEOFF

A complete engine failure immediately after takeoff is an extremely critical emergency requiring immediate action and decision making by the pilot. Indications are a total loss of power and a fairly rapid reduction in airspeed. A positive nose down pitch change will be needed to maintain a safe flying airspeed. If sufficient runway remains, the best option is to continue straight ahead and land. If that is not possible, careful consideration of the recovery situation must be made. An early decision to eject may be the best option. Anticipate increased brake sensitivity when braking above 80 KIAS. In all cases, control the aircraft energy state through prudent use of altitude, airspeed, and configuration.

AIRSPEED - 110 KNOTS (MINIMUM)

PCL - AS REQUIRED

NOTE
The pilot should select IDLE to use the increased drag of the not yet feathered propeller or select OFF to reduce the sink rate.

EMER LDG GR HANDLE - PULL (AS REQUIRED)

NOTE
With a loss of hydraulic pressure, landing gear and flaps cannot be lowered by normal means.

Flaps - As required

IN-FLIGHT EMERGENCIES

ENGINE FAILURE DURING FLIGHT

In the event of an engine failure, a decision to eject, land, or airstart must be made. The altitude at which the engine fails will determine the time available to perform the following procedures.

Initial indications of engine failure/flameout are: loss of power and airspeed; rapid decay in \( N_1 \), torque, and ITT; and propeller movement towards feather due to loss of oil pres-
ANGLE OF ATTACK (AOA) LANDING

Angle of attack (AOA) landings utilize the normal landing pattern in Figure 2-8 or Figure 2-9 while maintaining optimum AOA throughout the final/approach turn. On downwind, slow to optimum AOA (on-speed amber donut on indexer) prior to the perch/abeam position. After the perch/abeam position, maintain on-speed AOA with pitch and maintain controlled descent rate with power. Maintain an appropriate angle of bank and line up on runway centerline. On final, coordinate stick and power inputs to land at desired touchdown point while continuing to fly on-speed AOA. Round out and touch down normally.

MAXIMUM BRAKING

Maximum braking effectiveness is obtained with a steady application of brakes.

The physical limitations of the tire and brake system make it extremely difficult to consistently achieve maximum braking action, particularly at high speeds where the weight component is reduced due to lift. A smooth, single application, increasing as airspeed decreases, offers the best braking opportunity. Great caution should be used when braking at speeds above 80 KIAS. Locked brakes are difficult to diagnose until well after the fact. Braking should be discontinued at the first sign of directional control problems and then cautiously reapplied. At speeds below 80 KIAS, the chances of approaching maximum braking action are greatly increased.

WARNING

- The aircraft is not equipped with anti-skid or anti-lock protection. Do not apply wheel brakes until the aircraft is firmly on the ground and the weight is fully on the wheels. If a wheel brake locks up before the weight of the aircraft is fully on the wheels, the brake may not release even with the full weight of the aircraft on the wheel. The result may be a blown tire and possible degradation of directional control on the ground.

- After a landing which required maximum effort braking and if overheated brakes are suspected, do not taxi into or park in a congested area until the brakes have had sufficient time to cool. Do not set parking brake.

- If brake pressure appears to fade during application, or brakes are not responding as expected, fully release brakes, then re-apply. Both crewmembers must fully release brakes for this to be effective.

NOTE

All stopping distances computed from Appendix A are based on maximum braking. Maximum braking is very difficult to achieve. Variables such as brake and tire condition, pilot technique, etc., may increase computed landing distances.

AFTER LANDING

1. ISS mode selector - SOLO or CMD FWD (Verify ISS mode selector lever is locked in SOLO or CMD FWD)

WARNING

- Both seats will eject if the ISS is in BOTH and an unpinned ejection handle is pulled, even if the other seat is pinned.

- With the ISS mode selector set to CMD FWD, the crewmember in the rear cockpit initiates ejection of the rear seat only, and the crewmember in the front cockpit initiates ejection for both front and rear seats with the rear seat ejecting first even if the rear seat ejection handle safety pin is installed.

2. Seat safety pin - Install (BOTH)

WARNING

- Ensure ejection seat safety pin is fully inserted to preclude inadvertent seat actuation.

- In the event of a dropped ejection seat safety pin, do not use the CFS handle safety pin to attempt to safe the ejection seat. The ejection seat safety pin and the CFS handle safety pin are not interchangeable. Using the CFS handle safety pin in place of the ejection seat safety pin could result in inadvertent seat actuation.

3. PROBES ANTI-ICE switch - OFF

4. Flaps - UP
CFS and Ejection procedures from the ground

• A little bit of crew coordination will go a long way as far as safety is concerned if faced with using CFS during ground operations. The idea is coordinating the “CFS – Rotate and Pull” if using the internal CFS handles between front and rear cockpits. There a few techniques to accomplish this task and will be briefed between crewman during the NATOPS preflight brief prior to flight.

• If required, right side egress is possible with use of CFS - ensure oxygen mask is on and visor is down prior to actuating the CFS system. Internal CFS handles activate CFS charge for the respective transparency. External CFS handles activate both CFS charges for each cockpit.

• In a situation (e.g., fire or imminent collision) requiring immediate ground egress, the ejection system affords a 0/0 ejection capability.

• You should ensure the canopy is going to open before un-strapping (i.e., ensure that it is not jammed by the incident that has led to your Emergency Ground Egress) so as to still be able to eject, should that option of egress need to be exercised.
AIR FORCE TO 1T-6B-1
NAVY NAVAIR A1-T6BAA-NFM-100

1. Backup flight instrument - Reference as required
2. NORM/REPEAT switch - NORM (both cockpits)
3. IAC1 and IAC2 circuit breakers (left and right front console) - Check, reset if open

If IAC/MFD failures or erratic displays persists:

NOTE
Front cockpit failures/erratic displays indicate IAC1 failure, rear cockpit failures/erratic displays indicate IAC2 failure.

4. Failed IAC circuit breaker(s) (left and right front console) - Pull, reset after 5 seconds

If IAC/MFD failures, erratic displays, or IAC synchronization errors persists:
5. Land as soon as practical

<6>IAC XTALK Failure

1. <6>MFD/UFP REPEAT/NORM switch - NORM

NOTE
<6>An amber IAC XTALK message may result in loss of repeat switch functionality. RPT ERROR will be posted if MFD/UFP REPEAT/NORM switch is in REPEAT position. Baro Set function, heading, altitude and airspeed bug settings, minimums on/off selection, radio altitude set height, mag/true compass setting, bingo fuel setting, clock setting and G reset feature will operate independently in each cockpit.

CAUTION
<6>With IAC XTALK message present, Baro Set function on the UFCP will operate independently in each cockpit. Confirm PFD altimeter settings in each cockpit.

IRS Failure (Loss of Attitude or Heading Display on HUD and MFD)

1. Backup flight instrument - Reference as required
2. IRS circuit breaker (left and right front console) - Check, reset if open
3. Place aircraft in straight and level unaccelerated flight and monitor alignment status
4. Land as soon as practical

MFD Failure or Avionics Bus Failure

FOR MFD FAILURE WITH NO OTHER INDICATIONS:

NOTE
Failure of a single MFD will result in PFD and EICAS display only and loss of ability to manipulate the display to the FMS MENU.

1. NORM/REPEAT switch in failed cockpit - REPEAT
2. MFD circuit breaker (left MFD right console, right and center MFD left console) - Check, reset if open

FOR MFD FAILURE WITH OTHER AVIONICS FAILURES, BUT WITHOUT GEN BUS OR BATT BUS WARNING:

3. FWD/AFT AVI circuit breakers (left and right front console) - Check, reset if open
4. Backup flight instruments - Reference as required

IF FWD AVIONICS GEN BUS REMAINS INOPERATIVE:
5. Land as soon as practical

UFCP Failure (Blank UFCP Entry Windows, Data Entry Knob or System Button Non Functioning)

NOTE
With the UFCP inoperative, the functions not available to the pilot in the cockpit with the failed UFCP are: FMS execute, system Mag/True heading toggle, system GS/CAS/TAS HUD speed toggle, and radio tuning with UFCP.

1. UFCP circuit breaker (left front console or left rear console) - Check, reset if open
2. Land as soon as practical

Backup Flight Instrument Display Failure

1. Place aircraft in straight and level unaccelerated flight
2. STBY INST circuit breaker (left front/left rear console) - Check, reset if open
3. AFT STBY circuit breaker (left front console) - Check, reset if open

If display does not return:
4. Land as soon as practical
OPERATIONS WITH FAILED UFCP

• During solo operations, should the UFCP fail it is still possible to adjust the Barometric Altimeter setting, COM 1, COM 2, NAV and transponder using only the MFD.
OPERATIONS WITH FAILED UFCP

• If the UFCP fails, shortcuts are provided on the NAV display to allow adjustments to the PFD’s barometric altimeter along with changes to the COM, NAV and Transponder frequencies/codes.
• LSK L5 ALT BARO provides a shortcut to change the PFD Barometric altimeter setting.
• LSK R5 ALT CNS provides a shortcut where frequencies and Transponder codes may be changed.
• These options will **NOT** appear on the TSD Display.
OPERATIONS WITH FAILED UFCP

• With an UFCP failure, access the PFD’s Barometric Altimeter setting by selecting LSK L5 (ALT BARO) on the NAV page.
OPERATIONS WITH FAILED UFCP

• Enter the desired four digit altimeter setting (no decimal point required) using the LSKs.
• For our example we have entered 3005.
• Once the desired altimeter setting is entered make it active using LSK R5 (ENT).
OPERATIONS WITH FAILED UFCP

• On the PFD the new altimeter is changed to the new setting (30.05).
OPERATIONS WITH FAILED UFCP

• To change a frequency for COM 1, COM 2, NAV or the Transponder code, select LSK R5 (ALT CNS) on the NAV page.
OPERATIONS WITH FAILED UFCP

• The FREQUENCY ALT CNS page may be used as previously discussed in the section “Changing Frequencies using the MFD”.

• For example, we will change the UHF COM 1 to 291.625 and switch the Transponder to 2255.
OPERATIONS WITH FAILED UFCP

• Use the LSKs to select 291.625 in the scratchpad
• Then use LSK LL or LR to move to the Frequency page 1/1.
OPERATIONS WITH FAILED UFCP

• Upload the frequency from the scratchpad to the UHF COM 1 standby position using LSK R1.
OPERATIONS WITH FAILED UFCP

• Use LSK R1 again to toggle 291.625 from the standby position (right side) to the Active position (left side).
OPERATIONS WITH FAILED UFCP

- 291.625 is now active for UHF COM 1.
- To change the Transponder code use LSK LL or LR to return to the FREQUENCY ALT CNS page.
OPERATIONS WITH FAILED UFCP

• Use the LSKs to enter the desired Transponder code of 2255 into the scratchpad.
• Then use LSK LL or LR to return to the FREQUENCY page 1/1.
OPERATIONS WITH FAILED UFCP

• Upload the new code from the scratchpad to the XPDER standby position (right side) using LSK R5.
OPERATIONS WITH FAILED UFCP

• Toggle the new code from standby to active (left side) using LSK R5 again.
OPERATIONS WITH FAILED UFCP

• The desired code 2255 is now Active but note that our Transponder is in the standby mode (SBY).
• Select LSK L5 to access the Transponder controls.
OPERATIONS WITH FAILED UFCP

• On the XPDR page the status can be toggled between STANDBY and ACTIVE using LSK L4.
• Altitude mode can be toggled between OFF and ON using LSK L3
• Select LSK L4 to place the Transponder in the ACTIVE mode.
OPERATIONS WITH FAILED UFCP

• The transponder is now active.
• To turn Altitude mode on use LSK L3.
OPERATIONS WITH FAILED UFCP

• Now the aircraft's altitude and Code 2255 will be transmitted.
• LSK L6 can be used to return to the FREQUENCY PAGE.
AIR FORCE TO 1T-6B-1
NAVY NAVAIR A1-T6BAA-NFM-100

Runway Available

Runway available is the runway length minus the aircraft lineup distance.

Takeoff Ground Run Distance

Takeoff ground run distance is defined as that runway distance from brake release to lift-off. It is achieved by following the normal takeoff distance associated procedures for a given rotation speed, at the mission-specified weight, ambient temperature, pressure altitude, runway wind and gradient, and appropriate takeoff configuration.

Maximum Braking Speed (V_B)

Maximum braking speed is the maximum speed from which the aircraft can be brought to a stop without exceeding the maximum design energy absorption capability of the brakes (3.96 Million ft-lb).

Maximum Abort Speed

Maximum abort speed is the maximum speed at which an abort may be started and the aircraft stopped within the remaining runway length. Allowances included in the data are based on a 3-second reaction at Maximum Abort Speed to recognize decision to abort and select idle power, during which time acceleration continues. Additional allowance includes a 3-second period to apply the brakes after idle power is selected. Speed may increase up to 20 knots during this 6-second period. When the abort speed is above rotation speed, rotation speed (V_R) becomes the abort speed.

For operation with a tailwind, maximum braking speed limits should be observed (Figure A3-2). If the abort speed is greater than the maximum braking speed less 20 knots, the maximum braking speed (less 20 knots) becomes the abort speed.

Lift-off

Lift-off is the moment during takeoff at which 100% of the aircraft weight is first supported by aerodynamic forces and no tires are in contact with the runway.

Distance to 50-foot Obstacle

Distance to 50-foot obstacle is the sum of the takeoff ground run distance, plus the airborne horizontal distance needed to accelerate and climb to the 50-foot obstacle height at or above the obstacle climbout speed.

Rotation Speed

Rotation speed (V_R) is the speed which permits attaining obstacle speed at the 50-foot obstacle height above the runway.

Obstacle Speed

Obstacle speed (V_OBS) is the target speed at which the aircraft crosses the 50-foot obstacle height while accelerating to 140 KIAS at a 15° pitch attitude.

Stall Speed (V_S)

Stall speed is the higher of:
1. The airspeed at which the aircraft ceases to fly due to the loss of aerodynamic lift with the input of slow smooth control movements; or
2. The minimum controllable steady flight speed.

Climb Gradient

Climb gradient is the measured change of geometric altitude versus horizontal distance, typically feet per nautical mile. Charts which present climb gradient are calculated on actual (gross) climb performance.

FACTORS AFFECTING TAKEOFF

Wind Corrections

Accounting for wind when planning takeoff requires that the wind direction and speed known. The headwind, tailwind, or crosswind component can then be determined using the Takeoff and Landing Crosswind chart in Figure A3-6.

Headwind and Tailwind

The wind grids include factors of 50% for steady state headwinds and 150% for steady state tailwinds. Reported wind components may therefore be applied directly to the chart.

Crosswind

When determining the crosswind component, enter the Takeoff and Landing Crosswind chart with the sum of the steady wind value plus the gust increment. The maximum demonstrated dry runway crosswind for takeoff and landing is 25 knots.

Gusts

The gust increment is obtained from ground meteorological sources. It is the difference between the reported steady wind velocity and the reported peak gust velocity. Increase
Define Maximum Braking Speed:
It is the MAXIMUM speed from which the aircraft can be brought to a stop without exceeding the maximum design energy absorption capability of the brakes.

This speed must be known before Maximum Abort Speed can be finalized. If Maximum Braking Speed is less than Maximum Abort Speed + 20KTS, then the new Maximum Abort Speed must be the Maximum Braking Speed – 20KTS.

Worst Case Scenario (Dry runway) – 6,500LBS, 120° F (50° C), 3000' PA, 10 KT Tailwind
Maximum Braking Speed = 98 KIAS
Maximum Braking Speed – 20 KTS = 78 KIAS
Maximum Abort Speed (same conditions) = 68 KIAS

The Abort Speed need not be revised because there is greater than 20 KTS of difference between Maximum Braking Speed and Maximum Abort Speed for the given conditions.

Why would Max Abort Speed be changed to Max Braking Speed less 20 knots?

> First, when you use the lesser of the Max Abort Speed and Max Braking Speed you are guaranteed:

  - Stopping within the capabilities of your brakes.
  - Stopping within the remaining runway length.

> Second, setting Max Abort Speed to Max Braking Speed less 20 knots gives aircrews the same assumptions for reaction time that aircrews are given for Max Abort Speed:

  - 3-second reaction time at Maximum Abort Speed to recognize the decision to abort and select idle power; during which time acceleration continues.
  - 3-second period to apply the brakes after idle power is selected.

Speed may increase up to 20 knots during this 6-second period.
Given Conditions:
Temp: 20°C/70°F
PA: 200 ft
A/C wt: 6900 lbs
Rwy Avail: 6000 ft
Slope: 0%
HW: 10kts
RCR: 12 (wet)

Find:
Max abort speed = 76 KIAS

Your max abort speed is LESS THAN your rotate speed.

SOMETHING TO CONSIDER!