Q3102
Briefing Guide
(Worksheet)

Planned Route:

Takeoff: KNSE, Rwy 32
Altitude: MOA Limits
Route: South MOA or North MOA
Training Device: OFT

SYLLABUS NOTES:
Emphasis is on procedural knowledge and execution of procedures in accordance with the NATOPS Flight Manual.

Utilize the Abbreviated Simulator Checklist.

Special Syllabus Requirement
None

Discuss

a. Emergency Landing Pattern
   - General Purpose
   - Pattern Checkpoints

b. Precautionary Emergency Landing (PEL)
   - Critical Action Items
   - Energy Management Techniques used to get to the ELP
   - Contact FTI Slip Procedures

c. Precautionary Emergency Landing from the pattern (P/PEL)
   - Guidance from Contact FTI

d. Engine Failure
   - Indications (EICAS Video for Flameout / Seizure)
   - Critical Action Items

e. Landing Pattern
   - Pattern Checkpoints
   - Procedures
   - No-Flap, Takeoff Flap, Land Flap Landings
   - Waveoff (Contact FTI)
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**Notes:**
- For the Power-Off Stall, IUTs may reference the Power-Off (ELP) Stall in the T-6B Contact FTI.
- For ATS, IUTs may reference the Approach Turn Stall in the T-6B Contact FTI.
- For Power-Off stall and ATS, IUTs shall demonstrate proficiency in stall recovery at both first indication of impending stall and onset of stall.
AIR FORCE TO 1T-6B-1
NAVY NAVAIR A1-T6BAA-NFM-100

**WARNING**

Under no circumstances should survivors attempt to assist their entrance into the helicopter or move from rescue device until helicopter aircrewman assists them to a seat in aircraft.

Use the following procedures for use of the rescue strop (horse collar):
1. Grasp free end of rescue strop.
2. Encircle body with rescue strop and roll into rescue strop.
3. Attach free end of rescue strop to large hook.
4. Make sure rescue strop is above waist and high on back.
5. Wrap arms around rescue strop.
6. Keep head down and to left; give thumbs up signal to helo-hoist operator.
7. Cross feet after clear of water.

**LANDING EMERGENCIES**

**EMERGENCY LANDING PATTERN**

Figure 3-10 shows a typical emergency landing pattern (ELP). Anytime system/engine malfunctions jeopardize continued operation of the engine, use Precautionary Emergency Landing or Forced Landing procedures to recover the aircraft using the ELP profile. Adjust the presented pattern for existing altitude, airspeed, and configuration as well as surface winds. This pattern should only be performed to a suitable landing area (hard surface runway, taxiway, or under/overrun).

**CAUTION**

At higher temperature and pressure altitudes, power response will be delayed. Airspeeds below 110 KIAS on ELP final, in combination with transitioning to a high flare, may lead to a hard landing resulting in landing gear component failure.

**FORCED LANDING**

Forced Landing procedures should be executed while intercepting or maintaining the ELP profile to recover the aircraft when the engine is not available, and an airstart is not attempted or unsuccessful.

**WARNING**

- Aircraft may float while approaching touchdown with the propeller feathered more than observed while conducting practice forced landing at 4-6% torque. Energy management is critical to achieving targeted touchdown position. Landing ground roll distance will increase with the propeller feathered.
- Landing on an unprepared surface may cause structural damage making it impossible to open the canopy or fracture it using the CFS.
- Engine failure or shutdown will completely disable the bleed air system. Depending on environmental conditions, this may cause significant canopy icing and/or fogging, and severely hamper visibility, especially from the rear cockpit.

**CAUTION**

- Induction of yaw (side slipping) with a known engine/oil malfunction could result in impaired windshield visibility due to oil leakage spraying onto the windshield.
- Ejection is recommended if a suitable landing area is not available. If circumstances dictate an emergency landing and ejection is not possible or the ejection system malfunctions, the pilot may perform an ELP to an unprepared surface or ditch the aircraft. The aircraft structure can survive either type of forced landing; however, the risk of injury increases significantly due to crash loads and the complexity of ground or water egress.

* 1. Airspeed - 125 KIAS prior to extending landing gear
* 2. EMER LDG GR handle - Pull (as required)

**WARNING**

If landing on an unprepared surface or ditching, do not extend the landing gear. Flaps will not be available without emergency gear extension.
Figure 3-10. Typical Emergency Landing Pattern (Sheet 2 of 2)

High Key
2500-3000 Feet AGL (Recommended)
Approximately one-third point on runway

Extend landing gear at high key

Enter 125 KIAS

Note
Set 4-6% torque for practice forced landings or PEL, or to simulate zero thrust.

Warning
Do not lower flaps LDG until landing is assured. Drag will increase dramatically once landing flaps are lowered.
EMERGENCY LANDING PATTERN

NOTE
THESE PROCEDURES ARE NOT INTENDED TO
LIMIT THE PILOT'S PREROGATIVE TO ALTER
AIRSPEEDS, GROUND TRACK AND CONFIGURATIONS TO MEET
EXISTING CONDITIONS.

NOTE
LEFT HAND PATTERN SHOWN,
RIGHT HAND PATTERN MAY BE USED.

NOTE
WITHOUT HYDRAULIC POWER USE
EMERGENCY GEAR AND FLAP
EXTENSION.

LANDING GEAR CHECK (3 GREEN LIGHTS)
BEFORE LANDING CHECK COMPLETE
120 KIAS MINIMUM IN THE DESCENT

LOW KEY
1500 FEET AGL
ABEAM TOUCHDOWN POINT
FLAPS AS REQUIRED

BASE KEY
600-800 FEET AGL
120 KIAS MINIMUM
FLAPS AS REQUIRED

FINAL APPROACH 110 KIAS MINIMUM
FLAPS AS REQUIRED
AIM (PLAN) TO TOUCHDOWN WITHIN
FIRST ONE-THIRD OF RUNWAY

NOTE
LEFT HAND PATTERN SHOWN,
RIGHT HAND PATTERN MAY BE USED.

Figure 3-10. Typical Emergency Landing Pattern (Sheet 1 of 2)
NOTE

Normal safe indications with electrical power, when the emergency extension system has been used to lower the gear, are two green main gear lights, two red main door lights, green nose gear light, and red light in handle.

* 3. Airspeed - 120 KIAS minimum until intercepting final; 110 KIAS minimum on final
* 4. Flaps - As required

WARNING

Do not lower flaps LDG until landing is assured. Drag will increase dramatically once landing flaps are lowered.

NOTE

• Selecting either TO or LDG flaps will extend the flaps to the commanded position if the landing gear has been extended using the emergency extension system and if battery power is available.
• Landing gear/flap retraction is not possible when the emergency extension system has been used.
• Nose wheel steering is unavailable with an inoperative engine. Maintain directional control with rudder and differential braking.

ACCOMPLISH THE FOLLOWING AS CONDITIONS PERMIT:

5. Distress call - Transmit
6. ELT switch - As required

NOTE

Activating the ELT at a higher altitude will transmit emergency signal for a longer distance and could aid in rescue/recovery.

7. Transponder - 7700 (as required)
8. Harness - Locked (BOTH)
9. Emergency Ground Egress procedure - Execute (as required)

LANDING ON UNPREPARED SURFACE

This procedure is used if ejection is not possible or if the ejection system malfunctions. A circular pattern will provide the best observation of surface condition, wind speed and direction. Select a landing area, preferably free of obstacles, of adequate size to accommodate the aircraft. Smooth, cultivated fields are best; swamps, boggy ground, shallow lakes and forested areas should be avoided if possible. Once the condition of the terrain has been observed and a landing area selected, follow the Emergency Landing Pattern.

WARNING

• Landing on an unprepared surface is not recommended.
• To avoid causing the aircraft to tumble or cartwheel on touchdown, do not extend landing gear or flaps if landing on an unprepared surface.
• Transit on an unprepared surface may cause structural damage rendering the CFS system inoperative and/or make the canopy difficult or impossible to open.

DITCHING

This procedure is used if ejection is not possible or the ejection system malfunctions. Plan to ditch into the wind if the seas are calm. In the event of moderate swells and minimum winds, ditch parallel to the swells. With moderate to high swells and 25 knots wind or more, ditch into the wind and attempt to land on the upwind or back side of the swell (avoid the face of the swell). Figure 3-11 shows recommended ditching procedure. Follow the Emergency Landing Pattern.

WARNING

• Ditching is not recommended.
• To avoid causing the aircraft to tumble or cartwheel on touchdown, do not extend landing gear or flaps if ditching.

PRECAUTIONARY EMERGENCY LANDING (PEL)

The PEL procedure should be executed whenever indications of a possible engine failure exist and/or when directed by the checklist. Use power, airspeed, altitude, and configuration to intercept and maintain the emergency landing pattern profile. The PEL emphasizes energy management through prudent use of existing power, reducing drag, and gaining altitude as necessary. Crews should not delay configuration to correct low energy. Use power as soon as a low energy state is recognized.

Change 1 3-47
If the engine should fail while flying the PEL, refer to the Engine Failure During Flight checklist, and transition to the Forced Landing procedure.

If rate of descent (indicated on the VSI while stabilized at 125 KIAS with gear, flaps, and speed brake retracted and 4 to 6% torque) is greater than 1500 ft/min, increase torque as necessary (up to 131%) to achieve approximately 1350 to 1500 ft/min rate of descent. If engine power is insufficient to produce a rate of descent less than 1500 ft/min, set PCL to OFF.

Once on profile, if engine is vibrating excessively, or if indications of failure are imminent, set PCL to OFF.

Engine failure or shutdown will completely disable the bleed air system. Depending on environmental conditions, this may cause significant canopy icing and/or fogging, severely hampering visibility, especially from the rear cockpit.

Inducing yaw (side slipping) with a known engine/oil malfunction could result in impaired windshield visibility due to oil leakage spraying onto the windshield.

At higher temperature and pressure altitudes, power response will be delayed. Airspeeds below 110 KIAS on ELP final, in combination with transitioning to a high flare, may lead to a hard landing resulting in landing gear component failure.

1. Turn to nearest suitable field
2. Climb or accelerate to intercept ELP
3. Gear, flaps, speed brake - UP
4. Conduct a systematic check of aircraft and instruments for additional signs of impending engine failure.

Evaluate status of engine as time and conditions permit. Look especially for signs of impending engine failure such as fluctuating oil pressure, excessive noise or vibration. Check engine instruments.
NOTE
Do not set the boost pump and ignition to ON for engine malfunctions, such as oil system, chip light, fire, or FOD. In these cases, turning the boost pump ON may provide an undesirable immediate relight.

5. BOOST PUMP switch - As required
6. IGNITION switch - As required
7. Plan to intercept emergency landing pattern at or below high key in appropriate configuration and a minimum airspeed of 120 KIAS

NOTE
With uncontrollable high power, the pilot must shut down the engine once landing is assured.

WING FLAP FAILURE

Asymmetric Flaps (Split-Flap Condition)

If uncommanded lateral rolling or yawing is experienced during operation of the wing flaps, an asymmetric (split-flap) condition likely exists. Flap asymmetry may occur from physical binding of one or more of the four flap segments or from a failure of the torque link between the inner and outer flap segments. Sufficient control authority exists to counteract yaw and roll at pattern airspeeds.

NOTE
Do not attempt to extend speed brake when experiencing asymmetric flaps
1. Airspeed - As required to maintain control and minimize control effort
2. Flap control handle - Actuate to minimize or eliminate flap asymmetry

WARNING
Once asymmetry is minimized or eliminated, do not reposition flap control handle.

NOTE
If necessary, confirm flap position with tower flyby and/or visual inspection by another aircraft.
3. Controllability check - As required
4. Land via straight-in approach

LANDING GEAR MALFUNCTION

NOTE
• Execute this checklist anytime the landing gear does not indicate fully up with the gear handle up, or fully down with the gear handle down.
• A visual inspection by another aircraft is the preferred method of determining abnormal landing gear and inboard gear door positions. Time and conditions permitting, do not delay coordination for an aircraft visual inspection.
• If available, have another aircraft or RDO/tower flyby report gear position visually prior to configuration change.

If any safe gear-down indications are obtained at any point, discontinue this checklist and land as soon as practical. Safe gear-down indications are:
• Gear indications in both cockpits combine to show three green position lights regardless of gear warning tone or any combination of red position lights
• Either AOA indexer is illuminated
• Landing and/or taxi lights are switched on and illuminated
• If the main gear indicate down and locked and the inboard gear doors are fully closed (no red lights), the nose gear can be assumed to be down and locked

NOTE
If only the nose gear indicates unsafe with the main gear down and locked and the inboard gear doors are closed (no red lights), the nose gear down lock microswitch may be faulty. Pulling and resetting the LDGGR CONT circuit breaker (left front console) may allow the hydraulic selector valve to center causing the nose gear down lock microswitch to finish the sequence and provide a safe cockpit gear indication.
1. Airspeed - Remain below 150 KIAS
2. Gear handle - DOWN (Press down firmly. If unable to lower the gear handle, execute the Landing Gear Emergency Extension checklist) (BOTH)
3. LAMP test switch - Check
2. General. A **slip** occurs when the aircraft slides sideways towards the center of the turn. It is caused by an insufficient amount of rudder in relation to the amount of aileron and the angle of bank used. If you roll into a turn without using coordinated rudder and aileron, or if you hold rudder against the turn after it has been established, the aircraft will slide sideways towards the center of the turn. A slip may also occur in straight-and-level flight if one wing is allowed to drag; that is, flying with one wing low, and holding the nose of the aircraft straight by the use of rudder pressure. In this case, the aircraft slips downward towards the earth’s surface and loses altitude. In a full slip, the rate of descent may be in excess of 2000 feet per minute.

3. Procedures.

   a. Although the slip can be flown at any airspeed or configuration, it will normally be demonstrated and introduced at altitude simulating the slip to high key at 125 KIAS, clean configuration. Slips may also be demonstrated at 120 KIAS with gear down/flaps as required.

      **NOTE**

      Caution must be exercised, since stall speed is increased in this out-of-balance flight condition.

   b. To initiate a slip from wings level, lower one wing while applying opposite (top) rudder pressure. Select a reference point on the horizon and adjust rudder pressure and/or angle of bank to maintain the desired ground track. Full rudder deflection is not required during a slip. Use caution if electing to slip with gear down, especially low to the ground.

   c. To initiate a slip while in a turn, lower the inboard wing while increasing opposite (top) rudder pressure. It will be necessary to vary the angle of bank and rudder pressure to maintain the desired track over the ground.

   d. Monitor airspeed closely, adjust nose attitude as necessary to maintain 125 KIAS. Monitor the VSI and note increased rate of descent.

      **NOTE**

      The low-fuel warning light for the low-wing tank may illuminate regardless of fuel state.

   e. To recover from the slip, smoothly roll the wings towards level while reducing rudder pressure. Remember, the slip must be taken out with enough altitude remaining to slow the rate of descent and ensure positive control of the aircraft during the final moments of any maneuver in which it is used.
h. Failure to compare actual and desired position and energy.

i. Failure to anticipate or correct for wind.

j. Failure to refer to Pilot’s Abbreviated Flight Crew Checklist (Pocket Checklist) with time permitting.

k. Failure to reduce power to idle during landing phase of PEL.

704. PRECAUTIONARY EMERGENCY LANDING FROM THE PATTERN

1. **Description.** Use PEL procedures if indications of an impending engine failure occur while in the landing pattern.

2. **General.** The same indications of an impending engine failure as discussed in the PEL may occur in the landing pattern. This maneuver affords the opportunity for the student to practice intercepting the ELP at low key while already established in the landing pattern.

The PEL in the pattern will be initiated at or above 400 feet AGL by the instructor informing the student that he or she has a simulated malfunction requiring that a PEL in the pattern be performed.

**NOTE**

This simulated PEL in the pattern should not be initiated until proper interval with both PEL and touch-and-go traffic is obtained.

3. **Procedures.**

   a. **TURN** towards the nearest suitable runway. Consider the use of an off-duty runway. If the pattern is extended and/or the winds are calm, the nearest suitable runway may be the reciprocal of the runway the aircraft just departed. The instructor will then direct which runway will be used. Practice PELs in the pattern must conform with local course rules. The instructor will make the appropriate call to the Tower/RDO/crash crew.

   b. **CLIMB** at 125 KIAS, utilizing power setting as appropriate for the simulated emergency.

   **NOTE**

   Anticipate immediate forward stick to maintain 125 KIAS should total engine power be lost.

   c. **CLEAN** up the aircraft, gear, flaps, and Speed brake – UP. Report "aircraft clean" to your instructor.
d. **CHECK** Aircraft and engine instruments. Conduct a systematic check of the aircraft for secondary indications.

e. **Boost Pump Switch** – As required.

f. **Ignition Switch** – As required.

**NOTE**

Turn boost pump and ignition switches ON unless an Airstart would not be warranted should the engine fail (oil system malfunction, chip light, fire light or FOD)

g. **Plan** – to intercept ELP at or above low key position.

h. **Determine** or verify the intended runway with the instructor.

i. **Deliver** the appropriate simulated emergency voice report using the ISPI format over ICS to your instructor. For an actual emergency, notify the tower/RDO of your situation/intentions on the radio.

j. **Reduce** power to 4-6% torque once within dead engine gliding distance of a low key position. (Lower the nose to the 125 KIAS glide attitude and re-trim.)

k. **Lower** the landing gear.

l. **Report** over ICS the Before Landing Checklist and re-trim for 120 KIAS.

m. Arrive at pattern low key with proper configuration (*lower flaps no sooner than low key*), altitude, and ½ wingtip distance.

n. Make the appropriate radio call at pattern low key IAW local SOP.

o. Complete the maneuver as in the last half of the PEL.

**NOTE**

Any time the aircraft is below profile, add power as required to regain proper altitude/airspeed. After the base key position, use momentary power as required to regain profile.

4. **Common Errors.**

a. Not maintaining 125 KIAS in the climb.

b. Failure to use power when low throughout the pattern.
**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 (SUFFICIENT RUNWAY REMAINING STRAIGHT AHEAD)**

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.

**WARNING**

- If insufficient runway remains to land straight ahead, consider immediate ejection.
- Do not sacrifice aircraft control while troubleshooting or lowering gear with emergency system.

* 1. **AIRSPEED** - 110 KNOTS (MINIMUM)
* 2. **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.

* 3. **EMER LDG GR HANDLE** - PULL (AS REQUIRED)

**NOTE**

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

* 4. 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 press-
sure. Depending on airspeed, $N_1$ will indicate 0% within approximately 5 seconds, even though the gas generator core may not have seized. $N_1$ does not indicate speeds below 8%. Torque will be indicating 0%. As the propeller moves towards feather, it may still be turning (windmilling), but at a reduced RPM. Secondary indications include rapidly decreasing ITT and lower-than-normal oil pressure.

The GEN, FUEL PX, and OIL PX warning will illuminate, followed by the OBOGS FAIL warning. The PMU FAIL and CKPT PX warning may illuminate.

Sufficient hydraulic pressure may not be available to operate the gear and flaps as the engine spools down. Gear and flaps will remain in the last selected position at the time of engine failure. Gear may indicate unsafe or in transit if operation is attempted at time of engine failure.

Initial reaction to any malfunction at low altitude should be to trade excess airspeed for altitude. Higher altitude translates directly to additional terrain clearance for ejection, additional glide range to reach a suitable landing, or additional time to achieve an airstart.

The pilot should zoom to eject if the engine has failed and there are no suitable landing options and a restart is not warranted (insufficient altitude or type of failure precludes restart). The zoom to eject is accomplished by pulling up to a 20° climb angle (if able) and ejecting before a sink rate develops. Zoom to eject allows the pilot to add 200 feet of altitude increase above the altitude gain noted in the zoom chart due to not pushing over. If the decision to eject is not immediately obvious, follow the zoom to climb procedure.

If attempting an airstart or positioning to land, the following procedures should be followed. Above 150 KIAS, initiate a zoom climb using a 2 G pull up to a 20° climb angle until approaching the desired glide airspeed (use approximately 20 KIAS lead point) and then initiating a 0 to +0.5 G pushover to capture desired glide airspeed. Below 150 KIAS, the benefits of a zoom climb are negligible. The recommended procedure is to perform a constant altitude deceleration to desired glide airspeed. Figure 3-2 shows low altitude zoom capability at 200 KIAS and Figure 3-3 shows low altitude zoom capability at 250 KIAS.

Zoom capability at 200 knots will vary from 603 to 915 feet of altitude gained. Zoom capability at 250 knots will vary from 1180 to 1576 feet of altitude gained. The lower numbers are for light aircraft at low pressure altitudes and the higher numbers are for heavier aircraft at higher pressure altitudes. The zoom to eject procedure will gain an additional 200 feet of altitude.

**NOTE**

- Zoom results with an engine still producing a usable torque (>6%) will be several hundred to several thousand feet higher in altitude gained.
- Each low altitude zoom capability chart depicted in Figure 3-2, Figure 3-3, and Figure 3-4 represents a no engine condition. Each chart assumes the pilot will not perform any action prior to actual engine failure.

To use the low altitude zoom charts, proceed as follows:

**EXAMPLE 1 (airspeed 200 KIAS, Figure 3-2):** Enter chart with initial conditions of weight, altitude, and airspeed (6000 lbs, 6000 feet, and 200 KIAS in the example). Trace vertically up from weight (A) and interpolate between the pressure altitude guidelines, as required, to determine the intersection of these values (B). Trace back to the left hand margin to determine the altitude gain (C) (843 feet). Therefore, a 2 G zoom from 200 KIAS and 6000 feet with a 0 to +0.5 G pushover to capture 125 KIAS glide airspeed should result in a final altitude of 6843 feet.

**EXAMPLE 2 (airspeed 250 KIAS, Figure 3-3):** Enter chart with initial conditions of weight, altitude, and airspeed (6000 lbs, 6000 feet, and 250 KIAS in the example). Trace vertically up from weight (A) and interpolate between the pressure altitude guidelines, as required, to determine the intersection of these values (B). Trace back to the left hand margin to determine the altitude gain (C) (1522 feet). Therefore, a 2 G zoom from 250 KIAS and 6000 feet with a 0 to +0.5 G pushover to capture 125 KIAS glide airspeed should result in a final altitude of 7522 feet.

Figure 3-4 provides a tabular listing of altitude gains based on a variety of conditions at 200 and 250 KIAS.

If a decision is made to land, enter the emergency landing pattern at high key, if possible. If high key entry is not possible, it may be possible to intercept the pattern at a lower altitude. Glide performance will be considerably reduced until the propeller is feathered. Figure 3-5 shows maximum glide information.
NOTE

If experiencing uncommanded power changes/loss of power/uncommanded propeller feather or compressor stalls, refer to appropriate procedure.

* 1. ZOOM/GLIDE - 125 KNOTS (MINIMUM)
* 2. PCL - OFF

NOTE

Propeller will not feather unless the PCL is fully in OFF.

* 3. INTERCEPT ELP

WARNING

- If a suitable landing surface is available, turn immediately to intercept the nearest suitable point on the ELP. Any delay could result in insufficient gliding distance to reach a landing surface.
- Do not delay decision to eject below 2000 feet AGL.

* 4. Airstart - Attempt if warranted

WARNING

Airstart procedure is not recommended below 2000 feet AGL, as primary attention should be to eject or safely recover the aircraft.

NOTE

Crosscheck N₁ against other engine indications to assess condition of engine and determine if an airstart is warranted. At 125 KIAS, an engine which has flamed out will rotate below 8% N₁ and indicate 0% N₁. The engine oil pressure indicator may display oil pressures up to 4 psi with or without the engine seized.

IF CONDITIONS DO NOT WARRANT AN AIRSTART:

* 5. FIREWALL SHUTOFF handle - Pull
* 6. Execute Forced Landing or Eject

AIRSTART

Three airstart procedures are approved for this aircraft: PMU NORM; PMU OFF; and Immediate Airstart (PMU NORM). The status of the PMU dictates the type of airstart attempted. All airstarts are starter assisted.

Use this procedure if engine failure was not due to fire or mechanical failure. Airstarts may be attempted at any altitude and airspeed, although airstarts have only been demonstrated at 20,000 feet MSL and below, as depicted in Figure 3-6.

If the engine fails during flight at low altitude, an immediate ejection should be considered if sufficient altitude and airspeed are not available for a successful restart. If excess airspeed is available, exchange airspeed for altitude to allow more time to accomplish the AIRSTART procedures. Restart should be attempted immediately. The first action, PCL OFF, is critical. This will feather the propeller, reduce the aircraft drag and increase glide distance. Attempt a PMU NORM airstart if PMU FAIL warning is not illuminated. The PMU OFF (Manual) airstart is recommended only for PMU malfunctions, since pilot workload is increased with manually metering fuel with the PCL during the start. If the airstart is successful, useful power will be available after 40 seconds from starter engagement.

In general, trim the aircraft to the desired airspeed and ensure sufficient altitude is available prior to the airstart. The extra drag during airstart attempts will cause a greater descent rate than 1350 to 1500 feet/minute. Approximately 1200 feet of altitude will be lost during an airstart attempt performed at the best glide speed of 125 KIAS. Approximately 40 seconds will be required to complete the starting sequence. The higher the altitude, and the slower the airspeed, the warmer the starting ITT peak temperature. As the start progresses, the pilot’s attention must be focused on fuel flow, ITT and N₁ throughout the starting sequence. After the start is complete, the critical step is setting the starter switch to NORM to allow the generator to come online.

WARNING

Consideration should be given to not attempting an airstart if on a minimum glide profile to an airfield, since repeated airstart attempts will result in excessive altitude loss.

The PMU NORM airstart is considered the primary method since it is less sensitive to the rate of PCL movement, and cooler starts can be expected at lower airspeeds. This procedure depends upon pilot action to correctly position the PCL and critical switches.

If the PMU FAIL warning is illuminated, a PMU OFF airstart is required. Critical steps during this starting procedure include setting the PMU switch to OFF and turning the ignition switch ON. The most critical pilot action during the start is PCL movement while monitoring fuel flow, ITT and N₁.
MAXIMUM GLIDE DISTANCE

<table>
<thead>
<tr>
<th>CONFIGURATION</th>
<th>DRAG INDEX</th>
<th>PROPELLER</th>
<th>GLIDE SPEED ~ KIAS</th>
<th>SINK RATE ~ FT/MIN</th>
<th>GLIDE RATIO ~ NN/1000 FT</th>
</tr>
</thead>
<tbody>
<tr>
<td>CLEAN</td>
<td>0</td>
<td>FEATHERED</td>
<td>125</td>
<td>1350</td>
<td>2.0</td>
</tr>
<tr>
<td>GEAR DOWN</td>
<td>20</td>
<td>FEATHERED</td>
<td>105</td>
<td>1500</td>
<td>1.6</td>
</tr>
<tr>
<td>FLAPS LANDING</td>
<td>80</td>
<td>FEATHERED</td>
<td>95</td>
<td>1800</td>
<td>1.1</td>
</tr>
<tr>
<td>GEAR DOWN</td>
<td>0</td>
<td>WINDMILLING</td>
<td>110</td>
<td>2350</td>
<td>1.0</td>
</tr>
</tbody>
</table>

NOTES:
1. PCL-OFF WILL FEATHER PROPELLER
2. SINK RATES ARE APPROXIMATE AND WILL INCREASE WITH ALTITUDE
3. GLIDE DIST = DIST AT INITIAL ALT + DIST AT FINAL ALT

Figure 3-5. Maximum Glide
Excessive pitch near the ground can result in scraping the tail on the runway.

NORMAL LANDING

Figure 2-8 and Figure 2-9 show typical landing patterns for Air Force and Navy operations. Prior to entering the traffic area, slow the aircraft to 200-250 KIAS in a clean configuration.

NOTE

For heavy weight conditions, approach speed will be greater than those indicated in Figure 2-8 and Figure 2-9. Fly base and final with no less than an “on speed” AOA indication.

Cross the threshold with final flap setting and control forces trimmed. Coordinate PCL and pitch attitude to maintain proper airspeed and rate of descent. Retard the PCL to IDLE once landing is assured. Momentary actuation of the stick shaker may occur just prior to touchdown. Airspeed will be dissipated in the flare, and touchdown will normally occur approximately 7 knots below the landing approach speed.

Upon touchdown, smoothly lower the nose gear to the runway once airspeed is below 80 knots unless needed to affect stopping distance.

CAUTION

To avoid possible contact of ventral fin with runway, do not allow the aircraft to develop excessive sink rates or allow excessive nose-high pitch attitudes during landing. No-flap landings with excessive sink rates greatly increase the likelihood of tail strikes.

If nose wheel shimmy occurs after the nose wheel contacts the runway, apply back stick pressure to relieve the weight on the nose wheel, then gently release pressure to reestablish nose wheel contact with the runway. Notify maintenance after the mission.

Use rudder and ailerons to maintain directional control. Continue to apply brakes as required, but avoid differential braking during high speed portion of landing rollout. N1 will automatically reduce from flight idle (67%) to ground idle (60-61%), approximately 4 seconds after touchdown.

Touch and Go Landing

Upon touchdown, smoothly advance the PCL to MAX. Anticipate a slight amount of right rudder as torque increases. Rotate at rotation speed.

The landing gear may be left down when remaining in the pattern, but the pilot must observe the maximum gear extended speed in Section V. After liftoff, proceed with the After Takeoff checklist.

CROSSWIND LANDING

Crosswind landings require only a slight adjustment of landing technique. Crab as necessary while in the pattern to accommodate crosswind component. Once transitioned to final, establish a wing low attitude into the wind to counter drift, and maintain runway alignment with rudder. Maintain the wing low attitude and rudder input throughout the flare.

GUSTY WIND LANDING

During gusty wind conditions, increase landing threshold and touchdown speeds by 50% of the gust increment up to a maximum increase of 10 knots. LDG flaps are not recommended during gusty wind conditions.
Figure 2-9. Normal Landing Pattern (USN)
610. WAVEOFF (GO-AROUND)

1. **Description.** The waveoff is a set of standard procedures used to effect the safe discontinuation of an approach.

2. **General.** Occasionally, during your landing practice, you will have to discontinue an approach and execute a waveoff. A waveoff may be initiated by the pilot, or may be directed by an external source (RDO, wheels watch, waveoff lights, IP, tower, another aircraft, etc.). The reason for an externally directed waveoff may not be apparent to the pilot, but the waveoff is mandatory unless a greater emergency exists. Do not confuse a waveoff with a stall recovery. If a stall indication occurs in the landing pattern, disregard ground track and execute the stall recovery procedures. After safely climbing away from the ground, reestablish the proper ground track and execute a waveoff.

Although a landing approach may be aborted at any point in the pattern, a waveoff will usually be executed during the approach turn, in the straightaway, or during the landing transition. Of course, the sooner a poor landing condition is recognized and the waveoff executed, the safer it will be. Do not delay the decision to waveoff and do not try to salvage a bad approach. If at any time your approach does not feel comfortable or you are too close to the aircraft in front of you, "take it around." You should not wait until the last second to make a decision. Keep in mind that a waveoff is not an emergency procedure unless it is executed too late. A pilot who recognizes a poor approach situation and executes a proper waveoff well before getting into a dangerous situation is demonstrating maturity and good judgment. Be alert for a waveoff given by wheels watch (radio call or waveoff lights). Once you have initiated a waveoff, do not change your mind and attempt to land.

Examples of an unsafe approach are unsafe altitude, unsafe airspeed, overshooting approach, drifting or crabbing prior to touchdown, and high transitions that will lead to a bounced landing. The sooner a poor landing condition is recognized and the waveoff executed, the safer it will be. Prior to the flare and touchdown, stick shaker activation inside the 90 position of the normal landing pattern or inside Base Key of the ELP requires immediate initiation of a waveoff.

Conflicts in the traffic pattern and insufficient separation during the landing approach are usually solved by establishing proper interval in the break or upwind prior to the crosswind turn; however, the following guidelines should be followed.

If you roll out in the straightaway before the aircraft has landed, an immediate waveoff shall be initiated. Do not delay your waveoff in hopes that the situation will correct itself. During operations at outlying fields where Practice Precautionary Emergency Landing (PPEL), PPEL in the pattern, and touch-and-go are in progress simultaneously, pilots must be constantly alert for traffic conflicts. ELP traffic has the right-of-way over normal touch-and-go traffic.

3. **Procedures.**

   a. Advance PCL; MAX power may not always be required. Aircraft deconfliction, maneuvering requirements, and traffic pattern may warrant the use of something other than MAX power.
b. Simultaneously level the wings (if conditions permit), and center the ball.

c. Raise the nose to climbing attitude and climb at 120 KIAS. Re-trim.

NOTE

When the aircraft is under control, make a radio transmission that you are waving off.

d. If flaps were lowered, when safely airborne at or above 110 KIAS and a positive rate of climb, raise the flaps and then accelerate to 120 KIAS. Reduce power to 60-70%, re-trim.

e. Adjust your flight path, moving to either side of the runway if necessary, to avoid conflicting traffic and to keep aircraft on the runway in sight. Comply with any instructions given to you from the tower/RDO. If the wave-off was performed on final or during the landing transition with no other aircraft on the runway, the wave-off may be performed directly over the runway (unless prohibited by SOP).

NOTE

Wave-off shall continue to follow ground track to avoid traffic and comply with local course rules.

f. With interval, call crosswind to re-enter downwind or depart the pattern.


a. Failure to initiate waveoff early enough.

b. Failure to advance PCL as required.

c. Failure to establish aircraft in a positive rate of climb.

d. Failure to maintain 120 KIAS.

e. Forgetting to raise the flaps.

f. Forgetting to transmit waveoff call.

g. Failure to maintain solid lookout doctrine and keep other aircraft in sight.

611. LANDING ERRORS

1. Description. A deviation from a normal landing which could cause a dangerous situation to quickly develop.