VT-31

On-Wing

Gouge Packet

Updated Oct 2014 by LT Sean Anderson

FAM-0 BRIEF OVERVIEW

1. Introductions.

2. Flight Schedule:

- How to read VT-31 flight schedule (www.vt31.net).

- Schedule is printed and posted by 1700 daily; Saturday, Sunday and Monday comes out by 1700 Friday.

- Once students are completed with ground school they WILL appear on flight schedule for flights, SDO watch, briefs, or ground duty.

- The flight schedule is a direct order of the Commanding Officer.

- Students should call the VT-31 CDO after working hours to inquire about problems with their schedule for the next day. Phone number is (361)961-3350.

3. Advanced Curriculum Outline:

- The first eight events of syllabus, FAM 0 through FAM 7 (C0101 – C4302), will be completed with the same instructor, your onwing.

- Overview of required knowledge prior to flight. General discussion flow:
    - Brief
    - Introduction
    - Practice
    - Demonstrate
    - Review

- Know your preflight prior to FAM1! Students have already practiced the preflight in CBTs. If not, you are behind the power curve. Aircraft for practice preflight may be available through maintenance control. You must be in flight suit to do a practice preflight.

- Know your checklist responses! These are all found in Chapter 7.

- An Ops Limits quiz can be given to you at any point in time in syllabus. Know your Chapter 4.

- Be ready in the student briefing spaces prior to your brief. Good gouge is to come into the squadron 60 minutes prior to brief to get an update on weather, print -1 and NOTAMS, set up a briefing room, and be waiting for your instructor.

- It is recommended you use the day of your FAM0 to login to a couple of computers in the briefing spaces and load printers so you aren't delayed for FAM1.

- Crew rest policy is in the Master Curriculum Guide. Do not break it.

3. Preflight Actions:

- Computed takeoff and landing data is required prior to each flight. If aircraft is available prior to brief, complete the takeoff and landing data card and review the ADB (aircraft discrepancy book).

- Sample takeoff and landing data card; review gross weight limits and importance of these performance numbers.

- An ORM assessment SHALL be conducted prior to every flight (Wing SOP).

4. Squadron Tour:

- Students shall be given a squadron tour to include:

    - Training - Pick up Wing and Squadron SOP; check pubs; turn in NATOPS jacket.
    - MJC - Tour maintenance control; ADBs; weight and balance book and performance charts; review ASAP requirements and login procedures.
    - Logbooks – Drop off logbook; required to be accurately signed each month.
    - Duty Office - CDO and SDO duty desk; green SNIV logbook.
    - The Nest – Instructor mailboxes.
    - Admin – PAO, if required for patches and dues.
    - Student Lounge – Brief on cleanliness and tidiness.
    - Student Control – Ensure training jackets are ready; review jacket review requirements with flight leader.
    - First Lieutenant - Head set and flight equipment checkout (see Victor Delgado).

- Students should be given a tour of Base Operations prior to FAM1.

5. Conclusion:

- This training IS FOR YOU. The chain of command works through your flight leader but your onwing is always available for assistance. Stay in the books. GOOD LUCK!

C0101 Brief Items

	Introductions / Backgrounds
	Recall Numbers
	Chain of Command
	Dress & Appearance
	Syllabus Overview / Master Curriculum Guide
	NATOPS Blue Card
	Training Time Out Policy
	ORM Review
	CRM Discussion and Callouts, PIC
	Hand out T-44 Ops Limits / Memory Items
	Discuss Squadron STAN Notes
	Verify Squadron & TW-4 SOPs are current
	Pubs check - verify current NATOPS, FTI, and STAN Notes
	Preparing for Brief Items / Fam 1 Expectations
	Airsickness Policy
	SNIV Policy
	Med Down Policy
	Water Bottles / Hydration
	Safety/ASAP/Standardization/Anymouse Programs
	Technique vs. Procedure
	Home Field Operations
	Observer Duties
	Course Rules Review
	VFR Pattern Review - May be covered during FAM1
	High Work Review - May be covered during FAM1
	Ditching and Forced Landing
	Dog Tags
	Flight Line Access Badge
	Weather -1 / NOTAMS / TAFS / METARS
	Squadron Tour
	NATOPS - Blue Card and SOP's
	Training - STAN Notes
	Flight Gear Issue - Headset, Blue Brains, Clips
	Duty Office - CDO, SDO indoc, Reference pubs, Ear Plugs
	STUCON - ATJ review
	Logbooks
	Aircraft Issue - ADB review, Weight and Balance, TOLD Card, Pubs Bag
	Base Ops / Wx shop
	Aircraft Preflight
	Walkaround
	Oxygen usage / Emergency Equipment
	Egress / Emergency Escape Hatch Operation
	Relief Tube usage

POSSIBLE MANEUVER INTRODUCTION FOR ONWINGS

Event:	C4101	C4102	C4103	C4104	C4105	C4301	C4302
High Work:							
Level Speed Change	X	X				X	
Turn Pattern	X	X	X	X	X	X	X
Slow Flight	X	X	X	X	X	X	X
Approach to Stalls	X	X	X	X	X	X	X
SSE @ Altitude			X	X			
SSE W/O @ Altitude			X	X	X		
Dynamic Engine Cut			X	X	X	X	X
Power On Ditch			X	X	X	X	X
SSE Ditch				X	X	X	X
Power Off Ditch					D	X	X
Starter-Assisted Airstart						X	
Windmilling Airstart							X
Manual Gear Extension						X	
Smoke and Fire			X				
Emergency Descent			X	X	X	X	X
Pattern Work:							
Overhead	X	X	X	X	X	X	X
Appr Flap	X	X	X	X	X	X	X
Full Flap		X	X	X	X	X	X
No Flap		X	X	X	X	X	X
Wave-off	X	X	X	X	X	X	X
Abort	X	X	X	X	X	X	X
SSE				X	X	X	X
SSE Wave-off					X	X	X
SSE Full Stop						D	X
Right Hand Patterns			X				

Move introductions right or left as SMA performance dictates.

VT-31 Flight Briefing Guide
(Updated March 2014)

Communications:

1. Radio Procedures and Identification: "Our identification will be (Montana 4XX / VV1G4XX). The PM will handle all comms, and the PF will monitor and read back clearances when received."

2. Frequencies: "We will be using the 20 preset UHF frequencies as well as monitoring Montana base and backing ourselves up with the VHF radio which is primary at all civilian airfields."

3. CRM: "Crew coordination will be in accordance with NATOPS including two challenge rule, sterile cockpit, and mandatory callouts. A training time-out requires a verbal request only.

Weather:

1. Local Observation: Review local METAR and any PIREPS

2. Enroute and Destination Forecast: Review DD175-1

3. Alternate Forecast: Identify appropriate alternate given forecasted weather.

Flight Planning:

1. Departure: "We will plan to depart via course rules or ARROW4/ QUICK3."

2. Mission / Fuel Planning: "We will be flying (C410l, 14202, etc) mission(s) and will plan the training accordingly. We will consider 265 lbs per side "minimum fuel" and 200 lbs per side "emergency fuel" criteria. A fuel packet (will/will not) be required for today's profile."

3. Recovery: "We are planning a (course rules/ instrument approach) recovery at our planned destination. Our planned ETA will be_____ ."

Emergencies:

1. Aborting Takeoff: "If anyone sees the need to abort, call out 'abort, abort, abort', the pilot at the controls will pull the power to idle, reverse and brakes as required and discuss/troubleshoot the malfunction once clear of the runway."

2. Divert Fields: Brief viable divert options based on planned profile.

3. Radio Failure: "In the event of a radio failure, we will trouble shoot for stuck mic and try multiple frequencies including Guard. Lost comm recovery procedures will be in accordance

with the local Letter of Agreement and FAR/AIM as appropriate.

4. Downed Pilot: "If we are the first on-scene, we will assume an orbit around the crash site, with the student flying while the IP starts the on scene commander checklist. We will remain on station as long as possible until the situation has resolved itself."

5. System Failures: "We (are/are not) planning simulated system failures on the mission. The IP will preface any simulated failure by stating 'SIMULATED'. If we have an actual failure, the IP will clean up any simulated failures and the actual emergency will be handled as a crew."

6. Spin/Windshear/Forced Landing/Ditch: "In the event of a spin, windshear condition, forced landing, or ditch, the IP will take controls and execute NATOPS directed procedures." The pilot not at controls will back up the control inputs to ensure proper execution."

"The memory items for spin/ out of control flight are…"
"The memory items for windshear escape are…"

7. Emergency Egress: "The observer will be the first member to exit the aircraft. The air stair is considered the primary exit. Utilization of the emergency exit hatch is at the discretion of the aircraft commander. If required, the observer will remove liferaft and deploy it in accordance with NATOPS outside of the aircraft. The second student is responsible for the first aid kit. The aircraft commander will be the last out of the aircraft."

Observer Duties:

"The observer will…

1. Scan for Traffic

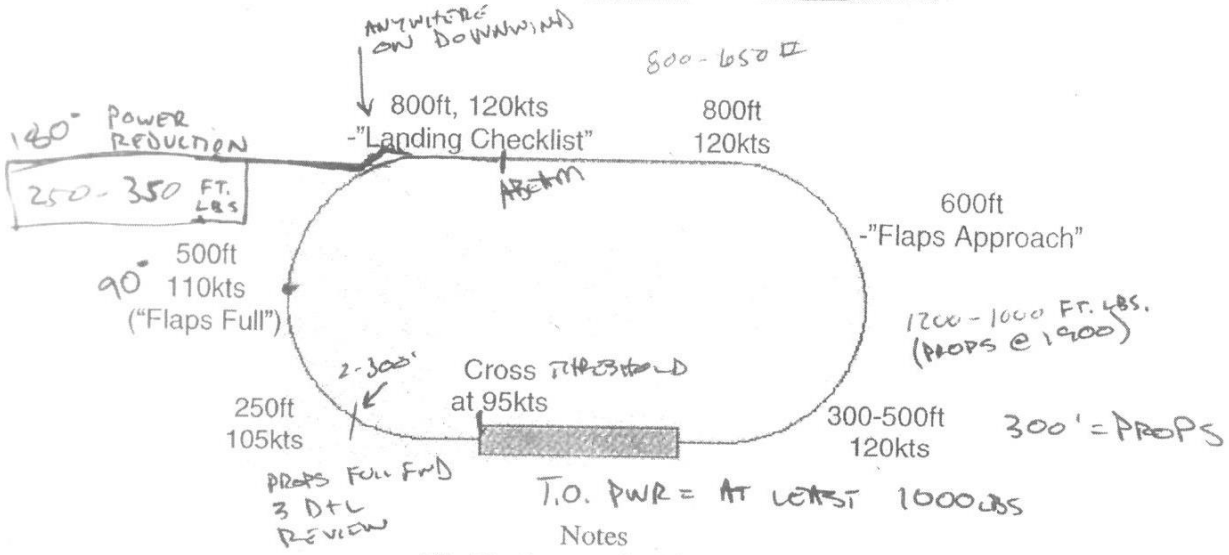
2. Confirm gear down and locked.

3. Monitor radios

4. Count landings"

5. "Transport of any passengers will be in accordance with TW-4 SOP's. A safety brief will be provided by the aircraft commander as required."

T-44 Normal Landing Pattern (Approach and Full Flap)

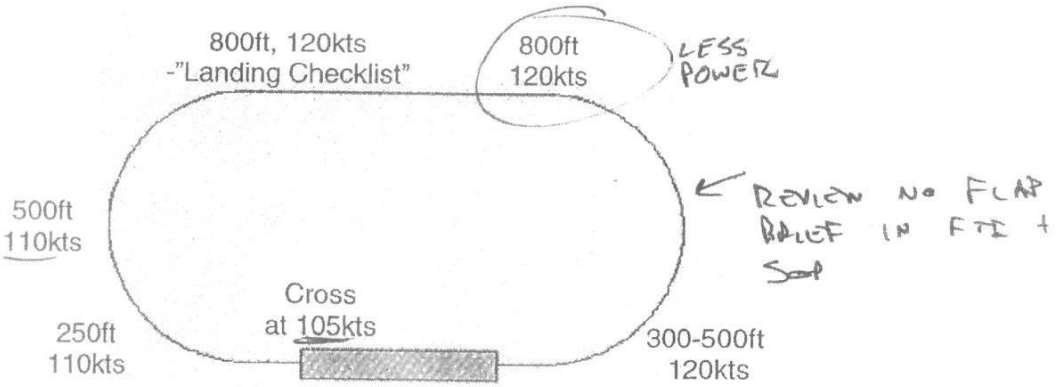


Notes

All altitudes are given in AGL.

It is assumed that the landing is already down during the entire pattern.

T-44 No Flap Landing Pattern

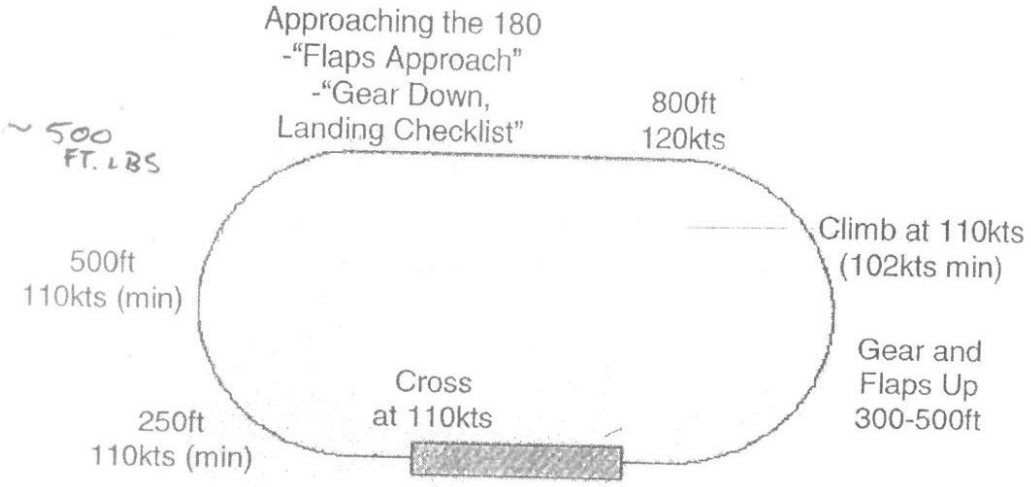


Notes

All altitudes are given in AGL.

It is assumed that the landing gear is already down during the entire pattern.

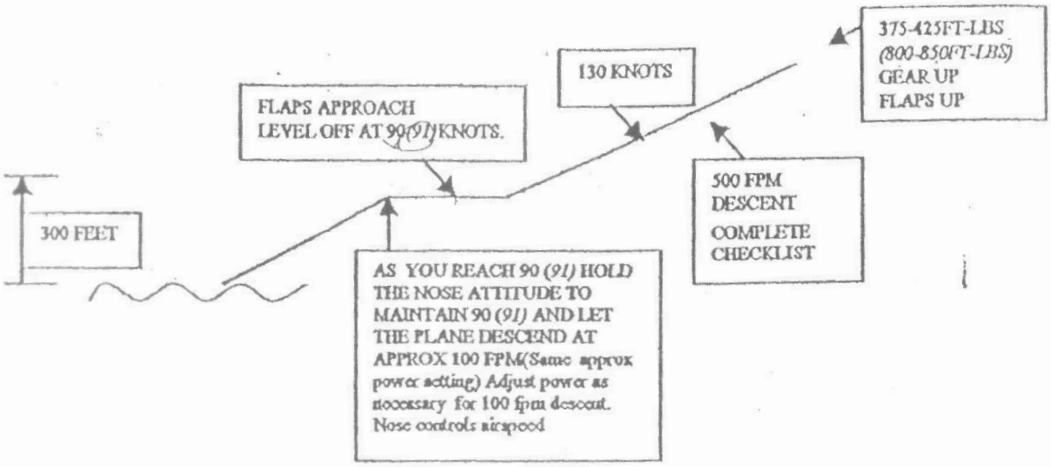
T-44 SSE Landing Pattern

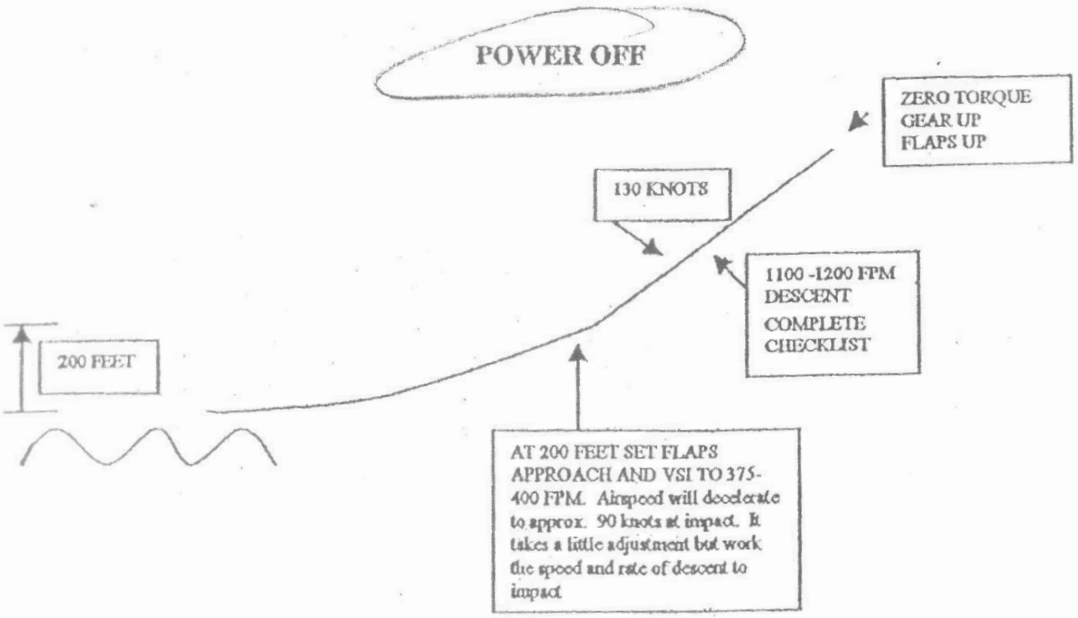


Notes
All altitudes are given in AGL.

Ditching Technique

POWER ON DUAL ENGINE
(POWER ON SSE)





T-44 Emergency Phrases

Getting through emergency procedures requires fluency in the speech portion, which directs the appropriate actions. Something typed in *italics* indicates something that is *happening*, or that you should be *doing*. The phrases in quotes are to be spoken… say all of it, and say it accurately.

** NOTE: The following procedures are for engine flame-outs and fires. If it's a fuel leak or jammed power lever, start with condition lever. Prop malfunctions are different, and are detailed at the end of this document. **

Dynamic Engine Cut or Case 1

After rotate, when the engine fails……
PF: "Power max allowable, Gear up, Airspeed 102/110."

PF: "This will be an emergency engine shutdown of the left/right engine."

PF: "Left/Right power lever idle, concur?"
PM: "Concur."

PF: "Left/Right prop feather, concur?"
PM: "Concur/Simulate."

PF: "Left/Right condition lever fuel cut off, concur?"
PM: "Concur/Simulate."

While pulling props to 1900, resetting max power, and adjusting rudder
PF: "Is it fire or fuel related?"

If YES:
PF: "Left/Right firewall valve close, concur?"
PM: "Concur/Simulate."

PF: "Left fire extinguisher discharge, concur?"
PM: "Concur/Simulate."
or
LS: "Discharge the right fire extinguisher."
RS: "Right fire extinguisher discharge, concur?"
LS: "Concur."
or
PF: "Fire extinguisher not required. Concur?"
PM: "Concur."

LS: "Close the left/right bleed air valve."
RS: "Left/Right bleed air valve close, concur?"
LS: "Concur."

PF: "Did the fire go out?"
PM: "Yes."

PF: "Declare an emergency; this will be a full-stop landing. Continue/Hold the checklist." (*as time permits*). *Continue climb at 102/110 KIAS.*

If NO:
PF: "Declare an emergency; this will be a full-stop landing. Continue/Hold the checklist." (*as time permits*). *Continue climb at 102/110 KIAS.*

Case 2

Roll out of turn, Set Max Power on Operating Engine, Apply proper rudder

[Recommend the PF verbalizes "Power Up, Rudder Up, Gear Up" in coordination with making the proper inputs, but is not required.]

PF: "Gear up, flaps up."

Roll back into turn

PF: "This will be an emergency engine shutdown of the left/right engine."

PF: "Left/Right power lever idle, concur?"
PM: "Concur."

PF: "Left/Right prop feather, concur?"
PM: "Concur/Simulate."

PF: "Left/Right condition lever fuel cut off, concur?"
PM: "Concur/Simulate."

If YES:

PF: "Left/Right firewall valve close, concur?"
PM: "Concur/Simulate."

PF: "Left fire extinguisher discharge, concur?"
PM: "Concur/Simulate."
or
LS: "Discharge the right fire extinguisher."
RS: "Right fire extinguisher discharge, concur?"
LS: "Concur."
or
PF: "Fire extinguisher not required. Concur?"
PM: "Concur."

LS: "Close the left/right bleed air valve."
RS: "Left/Right bleed air valve close, concur?"
LS: "Concur."

PF: "Did the fire go out?"
PM: "Yes."

PF: "Declare an emergency; this will be a full-stop landing. Continue/Hold the checklist." (*as time permits*).

If NO:

PF: "Declare an emergency; this will be a full-stop landing. Continue/Hold the checklist." (*as time permits*).

Approaching mid-field downwind

PF: "Airspeed checks, flaps approach."
PM: "Airspeed checks, flaps approach."

PF: "Airspeed checks, gear down, landing checklist."
PM: "Airspeed checks, gear down, landing checklist."

Case 3

Set Max Power on Operating Engine, Apply proper rudder, Clean Up (if necessary)
[Recommend the PF verbalizes "Power Up, Rudder Up, Gear Up" in coordination with making the proper inputs, but is not required.]

PF: "Gear up, flaps up." (*If unable to maintain altitude and airspeed, or in accordance with FTI*)

PF: "This will be an emergency engine shutdown of the left/right engine."

Everything else is the same. If you can get to the 180 at 800 feet and 120 KIAS with the gear down and flaps at approach, you don't have to raise them. From midfield downwind it generally works, but usually requires that you immediately go to max power on the operable engine. Chances are, you won't be able to hold parameters in the case of a deep downwind power loss (i.e. you were extended upwind). In which case, it's a safer bet to just clean up to avoid dropping below 120KIAS, but should be dictated by your ability to hold 800' and 120KIAS.

Approaching mid-field downwind
PF: "Airspeed checks, flaps approach."
PM: "Airspeed checks, flaps approach."

PF: "Airspeed checks, gear down, landing checklist."
PM: "Airspeed checks, gear down, landing checklist."

Case 4

Increase power as required (about 600-800 ft-lbs), Apply proper rudder, Do not clean up
[Recommend the PF verbalizes "Power Up, Rudder Up, Not going to clean up" in coordination with making the proper inputs, but is not required.]

PF: "This will be an emergency engine shutdown of the left/right engine."

The FTI requires that you only complete the first three steps of the shutdown. If you go to firewall valve, fire extinguisher, and bleed air valve, you risk getting off pattern profile. If you have good control of the A/C, and feel comfortable completing steps 4-6 go ahead, but DO NOT complete steps 4-6 at the expense of airwork and normal procedures (i.e. Props - Full Forward). If you elect to only complete the first three steps of the EES, and then have to waveoff, do not forget to complete the remaining steps after the waveoff.

Case 5

Increase power as required to maintain at least 110KIAS, Apply proper rudder, Do not clean up
[Recommend the PF verbalizes "Power Up, Rudder Up, Not going to clean up" in coordination with making the proper inputs, but is not required.]

PF: "Declare an emergency, we'll handle the EP on the deck."

The FTI does not require you to complete any of the steps of the shutdown. If you waveoff, do not forget the shutdown after the waveoff. Do not attempt to complete any steps of the shutdown at the expense of airwork and normal procedures. (i.e. Props - Full Forward).

Prop Malfunctions

Prop malfunctions are usually simulated by the IP pushing a prop lever forward to 2200, but may be announced verbally, or presented otherwise. *NATOPS strongly discourages that you not land with an over speeding propeller. In the contact phase it will be expected that you comply with this advice, meaning wave off if necessary, and then feather the prop.*

PF: "What is it reading and can I adjust it?"

The prop is reading anything over 2200 RPM, and cannot be adjusted. An OVERSPEED condition:

You are about to lose thrust on an operable engine. Anticipate this by increasing power on the good engine, applying rudder as necessary, and cleaning-up based on normal Case 1-5 guidelines.

PF: Left/Right power lever idle concur?
PM: Concur.

PF: Left/Right prop lever feather concur?
PM: Concur/Simulate.

PF: "Did the prop feather?"

If YES:
PF: "Declare an emergency; this will be a full-stop landing. Continue/Hold the checklist." (*as time permits*).

If NO:
PF: "Alternate feathering checklist."

When complete
PF: "Declare an emergency; this will be a full-stop landing. Continue/Hold the checklist." (*as time permits*).

The prop is reading 1900 or 2200 RPM, and cannot be adjusted. Prop Linkage Malfunction:

If 1900:

Match the prop levers.
PF: "This will be a full-stop landing. We will not use reverse"

If 2200:

Match the prop levers.
PF: "This will be a full-stop landing."

FAM 1

MANEUVER ITEMS FOR DISCUSSION

1. Level speed change.
2. Turn pattern.
3. Slow flight.
4. Approach to stalls. Discuss the pre-stall checklist and each type of stall scenario.
5. What are the procedures for an aborted takeoff?
6. What are the procedures for a waveoff?
7. What are the procedures for a touch and go?

FLIGHT PROCEDURES

1. How far away from the aircraft must the tie downs and chocks be placed before engine starts?
2. What are the limitations for the starter?
3. What are the procedures for start malfunctions?
4. What is the maximum taxi speed in the line area?
5. What are the procedures for engine shutdown on deck?
6. What will you abort for? What type of lights on the annunciator panel will warrant an abort?
7. When are you allowed to bring the prop levers back to 1900 RPM on departure?
8. What is the minimum altitude for a seat change? 800', wagon wheel works good though
9. What indications warrant a stall recovery?
10. What are the procedures for a stall recovery?
11. What are the procedures for a spin recovery?
12. When must we be configured in the overhead pattern before attempting a landing?
13. What conditions warrant a waveoff in the landing pattern?
14. What is the minimum altitude that a waveoff may be called by the IP?
15. What is the maximum runway width and length required for landing? A touch and go?
16. P-factor will produce a yawing moment in which direction?
17. Discuss the procedures for embarking (hot-seating) a crewmember with engines running on the ground.
18. When can the after landing checklist be initiated?
19. Course rules are to be discussed at the discretion of the IP.

ITT

1. Normal (green arc) operating range is 400-790.
2. Max ITT for start is _____ degrees limited to _____ seconds. 1090 / 2 Sec
3. The right engine is limited to 790 degrees during the start procedure for the left engine.
4. Terminate the start if ITT exceeds 925.
5. Max ITT at low idle is 685.
6. Max ITT in reverse is 790.
7. Max ITT for acceleration is 850.
8. Max ITT for cruise climb is 765.

9. Max ITT for cruise is 740.

TORQUE

1. Normal (green arc) operating range is 400-1315.
2. Max torque at 2200 RPM is 1315.
3. Max torque at 1900 RPM is 1520.
4. Max torque for acceleration is 2100.

PROP RPM (N_2)

1. Normal (green arc) operating range is 18-2200.
2. During takeoff, RPM should read 2200 /. 2000 on a T&G before calling "go"
3. Max RPM for acceleration is _____.
4. Max RPM in reverse is 2100, limited by the Primary gov, pneumatic section governor.
5. The overspeed governor limits RPM to _____. 2288 +\-40
6. The fuel topping governor limits RPM to 2332.

N_1 LIMITS

1. Normal (green arc) operating range is 51-101.5
2. Low idle range is _____ (depending on maintenance settings). 51-54
3. High idle range is _____ (depending on maintenance settings). 70-73
4. Max N_1 for acceleration is _____.
5. Max N_1 in reverse is _____. 86, Does that get regulated by the Pri gov pneumatic section?
6. During high altitude operations above _____ feet, N_1 can increase up to ___%. 3,500' / 83%

OIL PRESSURE AND TEMPERATURE

1. Normal (green arc) operating range for oil pressure is _____.
2. Normal (green arc) operating range for oil temperature is _____.
3. Min oil temperature for engine start is -40.
4. Min oil pressure on the ground is _____ and in the air is 40/85.
5. Normal oil pressure must be obtained any time the engines are at 72 % N_1.

ELECTRICAL SYSTEM

1. The battery is rated at _____ volts and _____ amp-hours. 24 / 42
2. Min voltage for a battery start is 22.
3. Min voltage for an APU start is 20.
4. Min voltage for an APU charge is 18.
5. What items are powered only by the hot battery bus?
6. What items are dual powered?

16-1

BRAKE EMERGENCIES

1. What are the procedures for a brake fire?
2. What are the procedures for hot brakes?
3. What are the procedures for loss of brakes?

16-2

17-1

FAM 2

MANEUVER ITEMS FOR DISCUSSION

1. Discuss the procedure and CRM callouts for a flap malfunction.
2. What is the difference between a no flap landing pattern and a normal pattern?
3. Why do we practice full flap landings? What type of emergency would warrant a full flap landing?
4. When do we set flaps to full in the landing pattern?

17-2

FLIGHT PROCEDURES

1. What are the procedures for an engine fire on deck?
2. Discuss porpoised landings and how to recover.
3. Do we have weather radar capability on our MFD?
4. What indications should we receive on a TAS ground check?
5. What indications should we receive on an EGPWS ground check?

AIRFRAMES

1. Main tires should be inflated between ___ and ___ psi. The nose tire should be inflated between ___ and ___ psi.
2. For soft field takeoffs, NATOPS recommended tire pressure is ___ psi.
3. Winds above 75 knots can cause structural damage to the aircraft.
4. Max aft CG at all gross weights is 160.
5. Max airspeed in the T-44 is _____, up to altitude _____. 227/15.5
6. Max takeoff weight is _____.
7. Max ramp weight is _____.
8. Max landing weight is 9168.
9. Navy approved service ceiling is 31,000' feet.
10. List the prohibited maneuvers in the T-44.
11. What are the g limits for the T-44 clean?
12. What are the g limits for the T-44 with the flaps down?
13. What are the landing limitations for the T-44?
14. Identify the following airspeeds:

V_X-	V_{NE} or V_{MO}-
V_Y-	V_A-
V_{XSE}-	V_{LE}-
V_{YSE}-	$V_{FE\ 35\%}$-
V_{SSE}-	$V_{FE\ 100\%}$-

17-3

17-4

17-5

17-6

FUEL SYSTEM

1. Total fuel system capacity is _____ with _____ usable fuel.
2. How is fuel transferred from the wing tanks to the center section tank?
3. How is fuel transferred to the nacelle tank?
4. Explain the operation of the nacelle float switches.
5. Explain the operation of the transfer pump in the override position.
6. With a failed transfer pump, how does fuel get to the nacelle tank?
7. With a transfer pump failure, how is our usable fuel quantity affected?

17-7

8. How many fuel drains are there on the aircraft?
9. What type of fuel gauging system is utilized in the T-44? capacitance
10. What is the difference between the left and the right fuel system?
11. What is the minimum amount of fuel required in the nacelle tank to obtain a good test of the transfer pump? 42
12. How much pressure does it take to activate the FUEL PRESSURE light?
13. What is the rated pressure of the transfer pumps?
14. What are the indications of a boost pump failure? 30
15. What is the time limit for an engine driven fuel pump operating on suction lift?
16. What is the time limit for an engine running on AVGAS? 150 TBO
17. Why is the crossfeed valve not left open with both boost pumps operating?
18. If the crossfeed valve loses electrical power, will it remain open?
19. Why is the firewall valve not used to secure an engine?
20. Max fuel split in total is ____ lbs and in nacelle is ____ lbs.
21. What is the purpose of the fuel vents?
22. With a failure of either fuel bus, will the boost pump still work for that respective side? How? Yes it is dual powered, the hot batt buss would take over.
23. The LH and RH NO FUEL TRANSFER lights are powered by TSFR PMP CB. If this fails, the respective transfer pump will cease to operate and the associated annunciator light will not illuminate.
24. Explain how fuel travels from the outboard tank to the engine.

18-11
18-1
18-2
18-3
18-4
18-5
18-7

FUEL SYSTEM EMERGENCIES

1. What are the procedures for a NO FUEL TRANSFER light?
2. What indications will you receive for a failed boost pump? X-Feed light
3. How will our performance be affected by a failed boost pump?
4. When should suction lifting be discontinued in favor of crossfeed during flight?
5. What are the procedures for an engine driven fuel pump failure?
6. What are the procedures for a fuel leak?
7. What are the procedures for fuel siphoning?
8. What is the difference between a fuel leak and fuel siphoning?

18-6
18-8
18-9
18-10

FAM 3

MANEUVER ITEMS FOR DISCUSSION

1. What are the Dynamic Engine Cut procedures?
2. What is the purpose of the Dynamic Engine Cut maneuver?
3. What are the procedures for SSE at altitude? SSE waveoff at altitude?
4. What are the weather requirements for Simulated Single Engine (SSE) at altitude? VMC
5. What are the procedures for power-on ditching?
6. Why would you need to ditch the airplane with power available?
7. What factors determine the direction for ditching the airplane?
8. What makes night ditching tougher than a daytime ditching scenario?
9. What are the considerations for a right hand pattern?

19-1

19-2

FLIGHT PROCEDURES

1. What are the lost communications procedures (VFR) per the local procedures?
2. What are the lost communications procedures per the Flight Information Handbook (VFR and IFR)?
3. What is the primary method of communicating with tower in a lost communications situation? Cell phone, 2505 or CRP App

19-3

ENVIRONMENTAL SYSTEM

1. What is the primary purpose of the environmental system?
2. What switch(s) control(s) the safety valve in flight?
3. What switch(s) control(s) the outflow valve in flight?
4. What prevents an excessive pressure bump during takeoff?
5. What is the max PSID for the outflow valve?
6. What is the max PSID for the safety valve?
7. What actually controls the PSID in safety valve operation?
8. Describe the electric heater lockout system.
9. How is maximum cooling of the T-44 accomplished?
10. How is maximum heating of the T-44 accomplished?
11. Will the electric heater work with the cabin temp mode switch off?
12. With the vent blower in AUTO, at what speed is the fan operating?
13. What pressurization systems work in conjunction with the right squat switch?
14. What N_1 setting is required to maintain pressurization during descent?

19-4

19-5

OXYGEN SYSTEM

1. Per 3710, if loss of cabin pressurization occurs and oxygen systems are suspect, an immediate descent shall be made as soon as possible to a cabin altitude at or below _10K__feet. If not suspect, immediate descent shall be made to a cabin altitude at or below _18K__feet.
2. What is the oxygen system capacity (cubic feet and psi)? 49/1850
3. At what altitude is the diluter demand regulator supplying 100% oxygen in the normal position? 17-20K / you must select 100%above 20K
4. What position is the oxygen mask stored in? 100%
5. What is the minimum oxygen requirement for local flights? 1000 / 1500 for CCX

6. What is the minimum oxygen requirement for cross country flights?

ENVIRONMENTAL SYSTEM EMERGENCIES

1. What are the procedures for an altitude warning light?
2. What are the procedures for a loss of cabin pressurization?
3. What are the procedures for a rapid decompression?
4. What are the procedures for smoke and fire of an unknown origin?
5. What are the procedures for smoke and fume elimination?
6. Why would you not want to immediately descend if a fuselage fire is encountered?
7. What are the procedures for an emergency descent?
8. What speed is allowable in an emergency descent?
9. Before depressurizing an aircraft for any reason, what considerations must be given to crew or passengers?
10. One large source of smoke and fumes that may enter the cockpit from the engine is the _____.
11. What actions should you take in the event of a CABIN DOOR OPEN light?
12. With a total loss of electrical power will the T-44 still maintain pressurization?

FAM 4

21-2

MANEUVER ITEMS FOR DISCUSSION

1. What are the procedures for SSE ditching?
2. Why would you need to ditch the airplane while single engine?
3. What is different about the SSE pattern?
4. What are the procedures for a SSE touch-and-go?
5. When can an SSE full-flap landing be attempted?

21-1

21-3

21-4

FLIGHT PROCEDURES

1. What are the procedures for an engine failure during takeoff?
2. What is the minimum altitude that an IP can introduce an SSE scenario in the pattern?
3. During a Case 2 scenario, if we experience an engine (or thrust) related malfunction, what is the first step?
4. During a Case 3 scenario, do we always need to clean up?
5. During a Case 4 scenario, what portion of the emergency engine shutdown checklist must be completed (with a failure or a fire)?

ENGINE SYSTEM

1. Each engine is rated at _____ SHP.
2. There are ___ igniter plugs per engine.
3. The reduction gear box provides a reduction ratio of ___ to ___.
4. Which systems operate off the N_1 turbine?
5. Which systems operate off the N_2 turbine or power section?
6. How do we send inputs to the fuel control unit?
7. How do we send inputs to the start control unit?
8. What is the purpose of the compressor progressive bleed valve?
9. When is the compressor progressive bleed valve in transit?
10. What is the purpose of the fuel drain collector system and when is it functioning?
11. What functions occur when selecting Ign & Engine Start with the starter switch?
12. Where is torque measured?
13. With a failed torque meter transmitter, are autoignition and autofeather still available? Yes
14. How is autofeathering accomplished?
15. What is the capacity of the oil system?
16. How much oil is measurable in the tank?
17. What is the capacity of the oil tank?
18. How many oil scavenge pumps per engine are there?
19. How is oil temperature maintained?
20. Explain the operation of the oil to fuel heat exchanger.
21. What types of oil are approved for the T-44?
22. What is the purpose of the chip detector and where is it located?
23. What are the fire bottles normally pressurized to?
24. What is the minimum N_1 required on deck for generator loads that exceed .5? How about .75? 0.9?

21-5

21-6

21-8

21-7

ENGINE SYSTEM EMERGENCIES

22-1

1. What is the first consideration that must be given before potentially shutting down an engine for a fire light?
2. How do you confirm an engine fire?
3. What is the best course of action when facing a wing fire?
4. In some cases, wing fires have been known to destroy wing spar integrity in as little as ___ seconds.
5. What are the procedures for a jammed power lever?
6. Do you need to shut down an engine for a jammed power lever immediately?
7. Oil pressure below _____ psi or oil temperature above _____ degrees Celsius require either engine shutdown or a reduced power setting on the engine until landing.

22-2

8. What are the procedures for a chip light?

FAM 5

MANEUVER ITEMS FOR DISCUSSION

1. What are the procedures for an SSE waveoff?
2. What are the procedures for power off ditching?
3. What airspeed provides the best power-off glide distance? What about the airspeed that provides maximum endurance?

FLIGHT PROCEDURES

1. What are the procedures for engine failure after takeoff?
2. What are the three warnings and one note associated with engine failure after takeoff?
3. What is the minimum altitude that an SSE waveoff may be called by the IP?

ELECTRICAL SYSTEM

1. What are the sources of DC power for the T-44?
2. What are the sources of AC power for the T-44?
3. What is the function of the generator control unit?
4. If a generator fails to reset, yet registers normal volts while in the reset position, what is the problem?
5. What functions do the current limiters provide?
6. What are the limitations on the generators?
7. What are the limitations on the inverters?
8. For an APU start, the APU must be able to provide a continuous charge of ____ amps and at least ____ amps for ____ seconds.
9. What is lost with the illumination of the INST INV OUT light?
10. What items are still available with a complete electrical failure?
11. What are the procedures for an excessive load indication?

ELECTRICAL SYSTEM EMERGENCIES

1. What are the procedures for a generator failure?
2. What are the notes, warnings and cautions associated with generator failure?
3. With these systems activated, an excessive loadmeter indication for the left generator may be indicative of a current limiter failure.
4. What are the procedures for an inverter failure?
5. Battery power may be available for as little as 10 minutes if electrical load is not reduced for certain combinations of generator and/or current limiter failure.

FAM 6

MANEUVER ITEMS FOR DISCUSSION

1. Explain the control inputs required during an SSE full stop.
2. What is the runway width/length required for an SSE full stop?

FLIGHT PROCEDURES

1. What is V_{MCA}/V_{MCG}? And under what conditions is this true?
2. Why is the firewall shutoff valve not used to secure an engine except in an emergency?
3. When would you elect to do a windmilling airstart over a starter-assisted airstart?
4. Under what conditions should an airstart not be attempted? (MOVEOFF)
5. What are the windmilling airstart procedures?
6. What factors could affect a windmilling airstart?

LANDING GEAR SYSTEM

1. Nose wheel steering actuates the nose gear ___ degrees right, ___ degrees left, and up to ___ degrees with brakes.
2. What does the up limit switch activate?
3. What does the down limit switch activate?
4. What is the function that all three up locks have in common?
5. What does the right up lock activate?
6. What does the left up lock activate?
7. What does the nose gear up lock activate?
8. What systems work in conjunction with the right squat switch?
9. What systems work in conjunction with the left squat switch?
10. What are the three functions of the three down locks?
11. What causes the red light in the gear handle to illuminate?
12. When will the warning horn silence button work?
13. Who is the only person allowed to direct the silencing of the gear warning horn?
14. Which green down lock indicator would illuminate first during manual gear extension?
15. What is the retraction and extension time of the landing gear?
16. When will you get the PROP REVERSE NOT READY light?
17. Is it possible to have all safe indications on the gear system and still have an unsafe gear?
18. What holds the gear down and locked?
19. What holds the gear up?
20. How can you tell the difference between an electrical and a mechanical malfunction on an unsafe gear? Which one permits an emergency gear extension?

LANDING GEAR EMERGENCIES

1. What are the procedures for landing gear manual extension?
2. What are some considerations when manually pumping the gear down?
3. What should you do when faced with any gear malfunction?

FAM 7

PROPELLER SYSTEM

1. What are the characteristics of the propeller in the T-44?
2. How is propeller feathering accomplished?
3. Feather position is equivalent to _____ degrees blade angle.
4. Zero thrust is equivalent to _____ degrees blade angle.
5. Max reverse is equivalent to _____ degrees blade angle.
6. Blade angle at the forward range of reverse is _____.
7. Max N_1 while taxiing in the beta range with the condition levers in low idle is __.
8. The normal operating range for the primary governor is _____.
9. Should a prop RPM exceed 2200 RPM by more than ___% the _____ cuts in to prevent RPM from further overspeed. The last resort is the _____ which reduces fuel to the engine at prop speeds above ____ RPM.
10. How does the fuel topping governor work?
11. Which governor allows the maximum RPM in the reverse range?
12. At what limit will gearbox and/or prop damage occur?
13. What does the PROP REVERSE NOT READY light mean?
14. What is the purpose of the autofeather system and how does it feather the associated prop?
15. What are the parameters for autofeather?
16. What is the purpose of the autofeather test switch?
17. Will the test position work in flight?
18. Which engine is designated as the master in relation to the synchrophaser system?
19. What is the RPM limited to with respect to the synchrophaser control box?
20. Which engine may not fully feather with the prop sync switch on and why?
21. How long does the recentering process take?
22. What does power lever movement in the beta range control?
23. What does power lever movement in the reverse range control?
24. What will cause a prop to feather in flight?

PROPELLER SYSTEM EMERGENCIES

1. When experiencing an overspeeding prop, simulated or actual, what considerations must be given?
2. What will happen to the prop RPM with a primary governor failure?
3. What are the procedures for a primary governor failure (feathered)?
4. What will happen to the prop RPM with a prop linkage failure?
5. What are the procedures for a prop linkage failure?
6. Is there any way to feather a prop without shutting down the engine that has experienced a linkage failure?
7. What warning is in the NATOPS regarding the autofeather system and engine failure after takeoff?
8. Can you land with an overspeeding prop? Why or why not?
9. What climb rate is obtainable with an inoperative engine that fails to feather (windmilling prop)?

15-1 Feb 9, 2015, 12:40

Slow Flight. Slow flight familiarizes pilots with low speed trim requirements and flight characteristics in the landing configuration.

Begin on an assigned altitude and heading with props at 1900 RPM and 150 KIAS. Maintain a constant altitude throughout the maneuver. Procedures are as follows:

a. Power – 400 ft-lbs. (initially, then as required).

b. Flaps – Approach, anticipate the ballooning effect when lowering flaps by pushing forward on the yoke forward and trimming accordingly.

c. Gear – Down, Landing Checklist complete.

d. Airspeed – Stabilized at 100 KIAS. Power must be added as the aircraft nears its target airspeed.

f. Turn – In either direction for 90° at 30° AOB. Lead rollout by 1/3 the AOB. Stabilize momentarily, then turn back to the original heading. At slow airspeeds, the aircraft will reach 90° of turn very quickly.

g. Flaps – Full (IAW flap limiting speeds). Anticipate ballooning and counter with trim.

h. Airspeed – Slow to 90 KIAS. Power must be added as the aircraft nears its target airspeed.

i. Turn – Complete another 90° turn and reversal as before. Rate of turn will be faster at slower airspeeds.

j. Recover – Make a level recovery as follows:

i. Power – Maximum allowable.

ii. Flaps – Approach.

iii. Gear – Up.

iv. Flaps – Up.

v. Airspeed – 150 KIAS. Adjust power as the aircraft nears 150 KIAS.

NOTES

1. Retracting flaps at low airspeed causes the aircraft to initially settle unless you make a substantial attitude change (pitch up approximately 7-10 degrees). After acceleration, the nose will pitch up and require forward yoke pressure until the elevator can be re-trimmed. Use of manual trim may be helpful and faster. At lower airspeeds, increasing power requires right rudder. As airspeed increases, less rudder will be necessary to sustain balanced flight.

2. If any indication of stall is evident during the maneuver (e.g., stall warning horn), add power, decrease Angle of Attack (AOA), and commence stall recovery procedures. Continuation of the maneuver is at the IP's discretion.

3. On all maneuvers, gear and flaps may be cycled simultaneously, electrical loads permitting. Do not select flaps full down or full up without stopping at approach flaps first. Do not cycle the gear or flaps while in transit.

15-2 Feb 9, 2015, 12:40

14.1 ABORTING TAKEOFF

The decision to abort or continue the takeoff is dependent on length of remaining runway, airspeed, gross weight, and density altitude. When aborting a takeoff, proceed as follows:

*1. Announce “Abort.”

*2. Power levers — IDLE.

*3. Reverse — As Required.

 Mechanical stops incorporated in the throttle quadrant prevent rapid movement of the power levers from the beta range to the flight range. Downward pressure must be applied to the power levers to permit movement into the flight range and allow power to be added.

 A misrigged linkage between a power lever and corresponding propeller could cause directional control problems while reversing during an aborted takeoff or landing rollout. If directional control problems are encountered while reversing, advance both power levers toward FLIGHT IDLE to minimize the effects or asymmetric propeller reversal. Maintain directional control with rudder, nosewheel steering, and brakes.

*4. Brakes — As Required.

 Single-engine reversing may be applied if required. Use extreme caution if takeoff surface is not hard and dry.

 Part XI accelerate-stop distances are increased by approximately 900 feet with the condition levers at HIGH IDLE and no reverse is utilized.

Immediately prior to departing the prepared surface:

*5. Condition levers — FUEL CUTOFF.

As soon as practicable:

*6. Firewall valves — CLOSED.

*7. Boost pumps — OFF.

*8. Fire extinguishers(s) — As Required.

*9. AUX BATT switch — OFF.

*10. Gang bar — OFF.

*11. Evacuate aircraft.

15-3 Feb 9, 2015, 12:43

*1. Power — As Required, Establish Positive Rate of Climb (VX minimum).

CAUTION

Rapid advancement of the power levers may result in prop surging and asymmetric power application that could result in directional control problems.

*2. Flaps — APPROACH (unless already UP).

*3. Gear — UP.

The landing gear is raised when the rate of descent has been stopped or there is no possibility of a touchdown.

*4. Flaps — UP.

*5. Props — 1,900 rpm.

Note Reducing prop rpm to 1,900 reduces drag, enhancing climb performance.

15-4 Feb 9, 2015, 12:58

Outside of the safety diamond wing tip to tail to wingtip to nose.

15-5 Feb 9, 2015, 13:01

40 seconds on, then 60 seconds, off, for two cycles. On the third cycle, the starter shall be operated for 40 seconds on, then 30 minutes off.

15-6 Feb 9, 2015, 13:07

13.1 ABNORMAL START

Monitor interstage turbine temperature (ITT) during normal start. If ITT rate of increase appears likely to exceed 925 C or no rise in ITT is evident within 10 seconds after selecting LOW IDLE with the condition lever, proceed as follows:

*1. Condition lever — FUEL CUTOFF (note ITT decrease to below 790 C).

*2. Starter — OFF.

CAUTION

Starter use is time limited to 40 seconds on, 60 seconds off, 40 seconds on, 60 seconds off, 40 seconds on, then 30 minutes off.

Note If starting attempt is discontinued and another start is to be attempted, allow 60 seconds delay to drain fuel and cool starter, then motor the starter for 15 seconds minimum. Allow the engine to come to a complete stop before another start is attempted.

15-7 Feb 9, 2015, 13:21

Line = walk
Taxi = jog

Not sure where this is written

15-8 Feb 9, 2015, 13:23

13.2 EMERGENCY SHUTDOWN ON DECK

If an emergency situation dictates immediate discontinuation of engine operation such as fire, fire warning light, etc., stop aircraft and set the parking brake, request assistance as necessary and proceed as follows:

Note Confirm, if possible, that fire actually exists by checking engine instruments and nacelles.

*1. Condition levers — FUEL CUTOFF.

*2. Firewall valves — CLOSED.

*3. Boost pumps — OFF.

*4. Fire extinguisher — As Required.

Note The engine fire extinguisher is a single-shot system with one cylinder for each engine. Do not attempt engine restart until the cause of the fire is determined and corrected.

*5. AUX BATT Switch — OFF.

*6. Gang Bar — OFF.

*7. Evacuate aircraft.

15-9 Feb 9, 2015, 13:29

The maneuver may be initiated by activation of the Master Caution/Warning lights, verbal calls of “abort,” or “simulated low oil pressure,” etc. Crew coordination is a necessity in emergencies and all crewmembers must know exactly what the PF intentions are. The IP is responsible for determining if sufficient runway remains before inducing an abort situation and informing Tower of the intention to abort. Initiate the abort prior to rotate utilizing the memory items in NATOPS. Use caution when using reverse if aborting for a power loss as you will not have symmetrical reverse thrust.

NOTES

1. Reverse is more effective at higher speeds, while brakes are more effective at lower speeds; however, this does not preclude the use of both simultaneously if required.

2. Solos shall not practice aborted takeoffs of any kind.

3. If power has been advanced and you are past the two thousand feet remaining marker on a touch and go, you should continue the takeoff and handle any malfunctions once airborne.

15-10 Feb 9, 2015, 13:45

Contacts we use 300', I'm not sure where that is written. In RIs we use after gear is up.

15-11 Feb 9, 2015, 14:08

Stall Indications

Initiate recovery at the first indication of any of the following:

i. Stall warning horn.

ii. Calculated stall speed.

iii. Airframe buffet.

iv. Uncontrollable loss of altitude.

v. Inability to maintain wings level/selected roll attitude.

NOTES

1. Solos shall not practice stalls.

2. If no stall indications are received by the calculated stall speed, the maneuver shall be terminated and the aircraft returned to maintenance.

g. Stall Recovery. Immediately regain flying speed with minimal altitude loss when recovering from a stalled condition. The T-44 climb performance will provide zero altitude loss for any stall under most conditions. Avoid large attitude and rapid configuration changes. Utilize the following procedures when recovering from a stalled condition:

i. Simultaneously:

(a). Power – Maximum allowable.

(b). Nose attitude – Adjust to break stall (relax back pressure to slightly lower the nose).

(c). Level wings.

(d). Center the ball.

ii. Flaps – Approach (unless already up). Ensure the aircraft is level or climbing with 85 KIAS or greater prior to raising the flaps to approach.

iii. Gear – Up (once a positive rate of climb is established).

iv. Flaps – Up.

v. Airspeed – VY.

NOTES

1. The maneuver is complete when established in a climb on assigned heading and trimmed for VY.

2. There is no assigned heading for approach turn stall recovery.

15-12 Feb 9, 2015, 14:24

Waveoff. Waveoffs shall be accomplished in accordance with NATOPS. Waveoffs allow safe transition from low-powered, descending flight, to high-powered, climbing flight. The maneuver is designed to stop altitude loss as soon as possible while transitioning to a climb at the desired climb speed. Minimum altitude for an IP initiated practice waveoff is 100 feet. The IP may take the controls and execute any waveoff required below 100 feet. A waveoff shall be executed under the following conditions:

a. Excessive overshoot of the runway/greater than 30º AOB required during the approach turn.

b. Landing clearance has not been received by short final.

c. The IP, wheels watch, Tower, or the RDO issues any verbal or visual waveoff signal.

d. Any time three green lights are not visible after rolling onto final.

e. Any time the PF feels an unsafe condition exists.

f. Give consideration to waving off if touchdown cannot be accomplished on the first one-third of the runway.

Be alert to reducing power and leveling at 500 feet, unless cleared downwind. Do not exceed pattern airspeeds or overtake other aircraft. Initiate the waveoff by adding power as required and establishing a positive rate of climb. Then, offset slightly from the runway (on the pattern side) to allow a better view of traffic over or on the runway. When you're cleared for the option, you're cleared for a touch and go, low approach, missed approach, stop-and-go, or a full stop landing. Common errors include beginning the offset too early or communicating with Tower before flying the airplane.

15-13 Jun 3, 2015, 07:55

Do we only do 500' NGW and NGP, What about NQI?

Is 500 also only for VMC at Navy fields?

15-14 Feb 9, 2015, 14:44

Left on climb out

P Factor = the down going blade creates more lift.

15-15 Feb 9, 2015, 14:55

After you are off the active and at a complete stop.

NATOPS: The After Landing Checklist must be completed after each full-stop landing except during a stop-and-go situation in which the aircraft remains on the runway in use.

16-1 Feb 9, 2015, 15:33

X-feed
2 x BP
2 x Firewall Valve

16-2 Feb 9, 2015, 15:35

13.3 LOSS OF BRAKES

In the event of wheelbrake failure, maintain directional control with rudder, nosewheel steering, or differential power or a combination of all three. Use propeller reversing or beta range as required to assist in deceleration. If possible, maneuver into an open area and allow the aircraft to stop. Do not attempt to taxi the aircraft. A brake shuttle valve sticks occasionally which results in a loss of brakes for either the pilot or copilot or both. After the aircraft is stopped, the shuttle valve can sometimes be reseated and brakes restored by pulling aft on the top of the brake pedals.

13.4 HOT BRAKES

Hot brakes usually are caused by excessive or heavy braking action. If hot brakes are suspected, stop the aircraft utilizing reverse thrust and minimum braking, request assistance if necessary, and allow the brakes to cool utilizing propwash. Allow the brakes to cool and ensure the brakes are inspected prior to further operation.

CAUTION

The high energy absorbing capacity of the wheelbrakes is capable of locking the wheels during maximum braking which may result in blown tires.

13.5 BRAKE FIRE

*1. Stop aircraft.

*2. Firefighting assistance — Request.

*3. Emergency Shutdown on Deck Checklist — Execute.

All crewmembers are to stay a safe distance away from the aircraft. It is preferable to stay well behind the aircraft. If a wheel explodes because of rapid cooling, the fragments tend to fly out sideways from the wheel. A tire may also explode from the heat of the fire. Do not attempt to fight the fire.

17-1 Feb 10, 2015, 17:17

What do we use for a touchdown speed? the Herc was threshold (Vs x 1.3) -6.

I would think 91 would be our speed just for SSE.

It seems like threshold speed = 1.2 Vs so 95 for flaps app and 105 for no flaps. TD speed = 1.1 to 1.15 vs so around 86 for flaps app and 95 for no flaps.

For Single Engine:

It seems like the idea is you loose around 10 KIAS from threshold to touchdown, so if you came in SSE at 110 and lost 10 KIAS you would be well above Vsse. Where as if you just came in at 95 over the threshold you would most likely bleed down to well below Vsse and Vmca (if you added power), which would make a go around (not a good idea that low) very tough.

17-2 Feb 10, 2015, 17:28

Full flaps dramatically decrease landing roll / distance.

FTI says to roll flaps right after the 90, I do it right before IOT to trim the plane out better.

17-3 Feb 10, 2015, 18:05

main tires should be inflated between 51 and 57 psi and the nose tire between 50 and 55

17-4 Feb 10, 2015, 18:20
4.6 PROHIBITED MANEUVERS

1. Intentional spins

2. Aerobatic maneuvers.

17-5 Feb 10, 2015, 18:21
clean 3/ -1
Flaps Full 2 / 0

17-6 Feb 10, 2015, 18:21
4.4.6 Landing Limitations

1. Flared landings only.

2. Maximum sink rate at ground contact — 600 FPM.

3. Maximum cross wind component — 20 Knots.

CAUTION

The following actions may result in aircraft damage and shall be avoided:

— Landing on arresting gear cable

— Nosewheel contact with cable risers above taxi speed — Braking during cable rollover — Operation above taxi speed over arresting gear rigged with boots (tire segments).

17-7 Feb 10, 2015, 18:23
387.6 / 384

18-1 Feb 10, 2015, 18:43
30 Psi to less than 5 psi

18-2 Feb 11, 2015, 08:33
The crossfeed valve is spring loaded closed and electrically opened

18-3 Feb 11, 2015, 08:36
Do not use the fuel firewall shutoff valve to shut down an engine except in an emergency. The engine-driven high pressure fuel pump obtains essential lubrication from fuel flow. When an engine is operating, this pump may be severely damaged (while cavitating) if the firewall valve is closed before the condition lever is moved to the FUEL CUTOFF position.

18-4 Mar 10, 2015, 04:24
The fuel vent allows ram air to enter the fuel bladders to keep them from collapsing as well as provide positive pressure in the tanks. the siphon break valve either allows air into the tanks when it senses negative air pressure OR allows fuel to vent out the extended heated vent when fuel expands (generally due to heat).

18-5 Mar 10, 2015, 05:03

387.6 gal
384 gal useable

40 gal
25 gal
23 gal
44 gal Cntr
TP = single powered 3/30 sec, 28 Gal approx 190 lbs
61 gal Nac
42 FLOAT
51 FLOAT
59 FLOAT
BP 30 PSI Switch at 5 PSI, Dual Powered
X-Feed Left side Dual Powered
Firewall S/O Valve Dual Powered
Fuel Filter
Fuel TXMTR
Fuel Heater
EDP PSI? Needs fuel for lubrication
FCU - Purge Valve (open anytime igniters are on)
SCU - Drain line to collector tank and pump (batt needs to be on for pump to operate).

18-6 Mar 10, 2015, 05:10

Should be on X-Feed in climbs especially around 13K and above, and on descents for landing. It is possible to flameout both engines if on X-Feed

18-7 Mar 10, 2015, 05:10

15.10.2 Transfer Pump Failure

Illumination of the LH or RH NO FUEL TRANSFER light indicates a possible failure of the corresponding transfer pump.

1. Check total and nacelle fuel quantity.

If no fuel remains in the wing tanks:

2. Transfer pump — OFF.

If fuel remains in the wing tanks and it is deemed necessary to utilize the 28 gallons of fuel that would otherwise remain trapped:

3. Transfer pump — OVERRIDE.

If light remains on:

4. Transfer pump — OFF.

Note

• Consider alteration of the flight plan because of unavailable fuel trapped in the wing (approximately 28 gallons).

• If the wing tank is gravity feeding to the nacelle tank, then the nacelle tank will have approximately 150 lbs of fuel (below the yellow arcs).

5. Land as soon as practicable.

18-8 Mar 10, 2015, 05:10

Climbs above 13K, descents / approach to landing.

When you need the 28 Gal of fuel, or the feeding tank is starting to get low.

18-9 Mar 10, 2015, 05:11

15.10.1 Engine-Driven Fuel Pump Failure

The engine-driven fuel pump will sustain engine operation after failure of the electric boost pump; however, failure of the engine-driven fuel pump will result in flameout. Perform the EMERGENCY SHUTDOWN CHECKLIST in paragraph 15.2.

18-10 Mar 10, 2015, 05:13

15.11 FUEL LEAKS

A fuel leak may be evidenced by the smell of fuel in the cockpit, a rapid drop in fuel quantity, or sighted visually. The first concern of the crew must be to guard against the outbreak of an engine fire. Consideration should be given to securing electrical systems that may contribute to the outbreak of a wing fire. Outboard wing electrical items in each wing that may be individually secured from the cockpit are the navigation and strobe lights and the fuel vent heaters. In addition, the left wing contains the lift detector and the detector heater circuits. Inboard wing systems may be secured using the gang bar. If a wing or nacelle fuel leak is evidenced and power is not necessary to sustain flight or reach a safe destination, consideration should be given to securing the engine as follows:

*1. Condition lever — FUEL CUTOFF.

*2. Emergency Shutdown Checklist — Execute.

15.12 FUEL SIPHONING

If fuel filler cap siphoning occurs, proceed as follows:

1. Airspeed — 140 KIAS.

2. Land as soon as practicable.

18-11 Aug 3, 2015, 06:20

42 is needed but not sure why? but NATOPS clearly states that in chapter 2

19-1 Mar 10, 2015, 05:29

Level off on a 1000 feet altitude plus 800 (i.e., 4800, 5800, etc.), 120 KIAS, on a numbered heading. This simulates 800 feet on the downwind leg of the traffic pattern. The IP will simulate a single-engine scenario by reducing one power lever to idle or simulating a situation requiring an engine to be secured. “Power up, rudder up, clean up” and complete the Emergency Shutdown Checklist without delay. The IP will call “Approaching the 180.” Lower the flaps and gear and complete the Landing Checklist. Immediately start a descending left turn to arrive at the “90” at 500 feet and a minimum of 110 KIAS. Continue the turn to “final,” rolling out at 250 feet with a minimum of 110 KIAS and maximum of 120 KIAS.

Smoothly place the props full forward. When IP calls “Waveoff,” execute the memory items for the Single-Engine Waveoff Procedure IAW NATOPS Chapter 16.

Transition to a climb attitude while adding power to the operative engine. Anticipate the need for simultaneous application of rudder. Keep the ball nearly centered (¼ to ½ out towards the operating engine) while using up to 5° AOB into the operating engine. Maintain a minimum of VXSE and a maximum of VYSE. Level off or descend if required to maintain flying speed. Under no circumstances allow speed to approach VSSE.

The maneuver is complete when established in a clean climb, minimum of VXSE (preferably VYSE), with the aircraft trimmed and in balanced flight.

19-2 Mar 10, 2015, 05:33

Ditch parallel to and near the crest of the swell unless there is a strong crosswind of 20 knots or more. In strong winds, ditch heading should be more into the wind and slightly across the swell, planning to touch down on the upslope of the swell near the top. Refer to Figure 16-6.

19-3 Mar 10, 2015, 05:43

VFR LOST COMM LOA

A. Squawk lost communications transponder code (7600).

B. Attempt communications with PRC-90 (T-34/TC-12).

C. Attempt to obtain current ATIS

NOTE: TRUAX VOR BROADCASTS ATIS INFORMATION). ADDITIONALLY, ATC MAY ATTEMPT COMMUNICATIONS ON NGP VOR FREQUENCY DURING LOST COMMUNICATION SITUATIONS. IF UNABLE TO OBTAIN ATIS INFORMATION AND WEATHER PERMITS, OVERFLY NAS CORPUS CHRISTI AT OR ABOVE 3500' MSL TO DETERMINE DUTY RUNWAY.

D. Intercept course rules via the appropriate VFR arrival route.

Continue to make all radio calls in the blind. Rock wings when inbound for

the break and check for interval prior to performing break maneuver.

E. On short final, if no ALDIS lamp signal is observed, perform a

wave-off. On the second pass, if no lamp signal is observed and the runway

is clear, land.

IMC LOST COMM LOA

LOST COMMUNICATION PROCEDURES

Departure and Radar Lost Communication Procedures. If communications are lost with CRP Approach Control, attempt to contact NGP Tower on 340.2, proceed VFR and land. If unable to proceed in VFR conditions and land:

1. After takeoff. Aircraft experiencing radio failure immediately after takeoff:

a. Climb on last heading on route assigned by ATC, maintain 1,600'.

b. If communications cannot be established with Corpus Christi Departure Control within three (3) minutes after departure, climb and maintain 2,600'.

c. After reaching 2,600', proceed direct to an approach aid/fix serving NAS Corpus Christi and execute an approach.

2. Prior to reaching VFR conditions on Coded Flight Plans, Attachment 1, aircraft experiencing radio failure after establishing radio communications with Corpus Christi Departure Control and cleared to 2,600 and above:

a. Climb on last heading and route assigned by ATC until reaching assigned altitude.

b. After reaching the assigned altitude, proceed direct to an approach aid/fix serving NAS Corpus Christi and execute an approach.

3. In the GCA Pattern. If no transmissions are received for one (1) minute in the GCA pattern, proceed direct to an approach aid/fix serving NAS Corpus Christi and execute an approach.

4. On Final Approach: If no transmissions are received for five (5) seconds (PAR) or fifteen (15)

seconds (ASR), attempt to contact NGP Tower on 340.2 and proceed VFR and land. If unable, alter course to intercept an instrument approach course for the runway in use, if practical, and execute an approach; otherwise climb an maintain 1,600', proceed direct to an approach aid/fix serving NAS Corpus Christi and execute and approach.

19-4 Mar 10, 2015, 05:45

The pressurization control system of the T-44C aircraft is strictly to allow high altitude flying without use of an oxygen mask.

19-5 Mar 10, 2015, 07:43

Approximately 75-percent N1 (single engine 85-percent N1) is required to maintain the pressurization schedule during descent.

21-1 Jun 2, 2015, 08:24

Power Available (Single-Engine). This situation may be caused by an uncontrollable fire or other catastrophic engine failure. Time may be more critical since the fire may damage flight controls and/or structural integrity. Make an emergency descent as appropriate (if you are already close to the water a full blown emergency descent might increase your workload unnecessarily, but do make an effort to get down quickly). Select a ditch heading and complete the Ditching Checklist. Follow the NATOPS ditching technique. The single-engine ditch is essentially the same as the two-engine ditch. Power still controls rate of descent and nose attitude still controls airspeed. Keep the ball centered throughout the maneuver.

NOTE

If power is available, there is no reason to hit the water out of the parameters. If your ditch is not looking good, add power, climb up a couple hundred feet, and start over.

21-2 Jun 2, 2015, 08:30

a. Stabilize the aircraft 300 ft. over the hard deck at 130 kts.
i. Ensure windmilling and shutdown checklists are complete.
ii. 130 kts clean SSE requires approximately 1000 lbs of torque.
iii. Execute the ditching checklist down to “FLAPS”.
b. Pull power (600 lbs.) and prepare to stabilize at 100 kts.
i. As the aircraft reaches 110 pull up to 7.5^0 nose high.
ii. Start trimming the rudder. By 100 kts you should have every last bit of rudder trim in.
iii. Start trimming the ailerons as well, as required. It should take about 1.5 units of aileron trim.
c. Once stable, call for flaps and allow their drag to slow aircraft.
i. Slow to 95 kts, 5^0 nose high.
ii. Set approximately 800 lbs of torque with small corrections.
iii. TRIM, TRIM and MORE TRIM along with one big toe of rudder.
d. The object is to bore your IP to death and let the aircraft fly the maneuver, fully trimmed, hands off with a “big toe” worth of rudder for the last
300 ft at 100 ft/min.

21-3 Jun 2, 2015, 08:32

Simulated Single-Engine (SSE) Landing Pattern. The SSE landing pattern acquaints the student with procedures required to land safely following the loss of an engine. The SSE pattern is very similar to a normal pattern except considerations are made for decreased performance and reduced directional control. Maintain higher than normal speeds from the 180 to touchdown to ensure directional control margins are maintained. Rudder trim is not recommended in the SSE landing pattern; however, if rudder trim is used it should be centered by the 180 position and must be centered prior to the final turn. You may use the PM to check the position, but not to center it for you. Never sacrifice control of aircraft to complete a checklist. The PF should appropriately direct the PM to “hold the checklist” or “continue the checklist” as time permits. The “power up, rudder up, clean up” method is a good technique to remember whenever experiencing power loss. When performing the Emergency Shutdown Checklist, do not configure or call for the landing checklist until the required memory items have been completed.

21-4 Jun 2, 2015, 08:42

16.1 SINGLE-ENGINE LANDING

Fly a normal pattern and perform Landing Checklist as appropriate. Extend full flaps only if required, and then only after there is no possibility of a waveoff. If altitude cannot be maintained while maneuvering for landing, the landing gear and flaps should be retracted, then lowered and checked down when landing is assured. Do not extend full flaps until gear is down and locked. Make a normal touchdown, reducing power during flare. Avoid excessive or abrupt changes in power. A feathered propeller will result in less drag and may cause the aircraft to “float” during landing. After touchdown, apply brakes and reversing as required.

WARNING

A single-engine full-flap waveoff is left to the discretion of the pilot, but is not recommended because of the poor waveoff capability of the aircraft in this configuration. 200' may be lost before positive rate of climb.

21-5 Jun 2, 2015, 08:50

Oil tank capacity is 2.3 U.S. gallons with 5 quarts measured on the dipstick for adding purposes. When a dry engine is first serviced it will require 5 quarts in addition to tank capacity to fill the lines and cooler, giving a total system capacity of 14 quarts.

21-6 Jun 2, 2015, 08:52

4 Scav Pumps, both turbines, Accessory section, RGB

21-7 Jun 2, 2015, 08:54

57, 60, 63 respectively

21-8 Jun 2, 2015, 08:55

3.6.1 Cylinder Pressure

Each cylinder is charged with 2-1/2 pounds of bromotrifluoromethane and pressurized with .08 pound of dry nitrogen to 450 psi at 70° F. Check the pressure gauge on each cylinder prior to flight to ascertain that the cylinders are charged to within the pressure limits for the ambient temperatures as noted in the chart below.

FIRE EXTINGUISHER CYLINDER PRESSURE LIMITS

TEMP. ° F INDICATED PRESSURE IN PSI

–40 190 to 240

–20 220 to 275

0 250 to 315

20 290 to 365

40 340 to 420

60 390 to 480

80 455 to 550

100 525 to 635

120 605 to 730

140 700 to 840

22-1 Jun 2, 2015, 08:57

15.6.1 Engine Fire

Illumination of the FIRE warning light is usually the first indication of engine compartment fire. Confirm if possible that fire actually exists by checking engine instruments and nacelles. Sunlight can cause illumination of a warning light. Even if no secondary indications are observed, consideration should be given to shutdown of the affected engine. If fire is confirmed or secondary indications are noted, perform EMERGENCY SHUTDOWN CHECKLIST in paragraph 15.2.

22-2 Jun 2, 2015, 09:01

Normal oil pressure is 85-100 PSIG at power settings above 27,000 RPM (72%) N1, oil pressure below 85 PSIG is undesirable, and may be used only for completion of a flight, and then at a reduced power setting. Low oil pressure should be corrected prior to next light. During ground operations, oil pressures below 40 PSIG require engine shutdown; during flight, oil pressure below 40 PSIG is unsafe and requires either engine shutdown or use of minimum power until a landing can be made.

In the emergency section of NATOPS

Oil pressure below 40 psi and/or temperature that exceeds 99 ° C is unsafe and requires that either the engine be shut down or a landing be made as soon as possible using minimum power to sustain flight. In either case, the discrepancy must be noted on the appropriate maintenance form for correction prior to the next flight.

23-1 Jun 3, 2015, 08:00

SSE Waveoff. SSE waveoffs allow safe transition from SSE descending flight to maximum power SSE climbing flight. The maneuver is designed to stop altitude loss as soon as possible, while transitioning to a climb at the desired climb speed. Minimum altitude for the IP to initiate a practice SSE waveoff is 200'. The IP shall take the controls, utilize both engines, and execute any waveoff required below 200'.

The SSE waveoff is a demanding maneuver requiring precise aircraft control and expedient procedures. Climb performance is directly proportional to how well the maneuver is executed. Limited power margins dictate exact execution. Utilize T-44A/C NATOPS Single Engine Waveoff procedures.

If possible, wave off slightly offset to the pattern side of the runway to allow a better view of the traffic.

To standardize all waveoffs, the copilot shall report “gear up” before the props are retarded to 1900. The intent of this requirement is to ensure that instructors can maintain proper defensive positioning throughout the waveoff. Students must ensure that they understand the aerodynamic concepts behind getting the gear up, props back, and proper power set for the best performance.

During a single engine waveoff, airspeeds between 102-110 KIAS are acceptable; however, the pilot should strive to climb out at best angle or best rate of climb

23-2 Jun 3, 2015, 08:14

FTI

The maneuver may be initiated in any configuration above SSE by the IP reducing both power levers to idle. It may be commenced following a simulated engine shutdown by reducing the remaining power lever to idle. You will select an appropriate ditch heading unless instructed otherwise.

The size of the working blocks (i.e., 2000 feet) generally do not allow sufficient time to complete a successful Starter-Assisted Airstart. Unless NATOPS recommends not attempting a restart (fire, etc.), or insufficient battery voltage exists, a simulated restart attempt should be made on both engines simultaneously. The following procedures should be utilized:

i. Clean up if required and commence a turn toward the coastline, a desired heading, or IP assigned heading while transitioning to max range airspeed. Max endurance airspeed will allow you more time for restart if altitude is minimal.

ii. Simultaneously commence the Windmilling Airstart Checklist. Simulate both condition levers at fuel cutoff by pointing at both levers. The autoignition may be armed, or the starters may be simulated on, at the student's discretion. The IP will state “no lightoff” or “lightoff on the left/right/both.” If a restart is successful, add power and complete the checklist. If the restart fails, complete the Emergency Engine Shutdown Checklist (appropriate items as time permits) and follow ditching procedures.

iii. Stop engine restart attempts at some point during the engine out ditch. The engines should be secured by doing at least the first three items of the Emergency Shutdown Checklist. Place emphasis on flying a proper ditch. Attempting engine relights all the way to the water is likely to deplete all battery power if using the starters. This would eliminate the possibility of a successful IFR ditch.

WILSON:

a. Descend at 130 kts. The goal is to be 300 ft above the hard deck at 130kts descending at 1000 ft/min. Your pitch will be approximately line on line (0^{0}) If you are fast it’s ok. Pocket the speed we’ll use it later.
b. The desired profiles are either:
i. 130 kts or greater and 300 ft
ii. 120 kts and 200 ft
iii. 100 - 110 kts and 100 ft

c. Once on a profile, call for your flaps. Do not allow the flaps to pitch your nose up. Keep the 0^0 pitch profile. This should break the rate of descent to 500 ft/min and slow the aircraft 10 kts for every 100 ft.
d. At 70 ft above the hard deck you should be between 100 and 110 kts. Start to round out and flare there by setting about 4^0 nose high. For higher airspeeds, start the flare earlier using 20 ft for every 10 knots fast.

NATOPS

Ditch parallel to and near the crest of the swell unless there is a strong crosswind of 20 knots or more. In strong winds, ditch heading should be more into the wind and slightly across the swell, planning to touch down on the upslope of the swell near the top. Refer to Figure 16-6.

16.10 DITCHING CHECKLIST

1. Announce intention to ditch and time to impact — Completed (PF).

2. Mayday report — Completed (PM).

3. Transponder — As Required (PM).

4. Pressurization — DUMP (PM).

5. Life vests — On and Adjusted (PF, OBS, PM).

6. Seatbelts — Fastened (PF, OBS, PM).

7. Gear — UP (PM).

8. Flaps — As Required (PM).

9. Passengers assume braced position.

23-3 Jun 3, 2015, 08:16
There are only two warnings, and no notes

If the autofeather system is being used, retarding either power lever before the feathering sequence is completed will deactivate the autofeather circuit and prevent automatic

A positive single-engine rate of climb will not be obtained in any configuration with the inoperative engine propeller windmilling.

23-4 Jun 3, 2015, 08:17
The four sources of dc power consist of one 24-volt 42-amp-hour battery, one 24-volt 5-amp-hour AUX BATT and two 250-amp starter-generators.

23-5 Jun 3, 2015, 08:21
Ac Power Supply (Aircraft Incorporating AFC 20 with Change 1)

Aircraft ac electrical power (Figure 2-9) is supplied by two 400 volt-ampere, single-phase inverters that receive operating current from the dc power system, both supply singlephase 26-volt alternating current (Vac)

23-6 Jun 3, 2015, 08:23
The generator control panel is located under the cabin center aisle aft of the main spar and provides overvoltage, undervoltage, reverse current protection, and automatic paralleling.

23-7 Jun 3, 2015, 08:27
Normal voltage in the reset position indicates a failure of the generator control rather than the generator.

23-8 Jun 3, 2015, 08:40
15.13.1 Generator Failure

If a generator fails (indicated by illumination of the respective RH or LH GEN OUT annunciator), all nonessential electrical equipment should be used with caution to avoid overloading the remaining generator. Loads in excess of single-generator output will drain the battery. If a generator fails and will not reset, current limiter status information is necessary because it relates to battery condition/duration. Three basic possibilities exist: (1) If the battery volt ammeter is not showing a discharge and no other equipment failures are noted, the current limiters are intact and the operating generator is providing all the DC power requirements. If the load is 1.0, turn off unnecessary equipment. (2) If the battery is showing a discharge and no other equipment failures are noted, the current limiter opposite the inoperative generator has failed. The battery is powering the equipment/busses on the inoperative generator's main bus. Consideration should be given to securing the aircraft battery and activating the AUX BATT. This will enable the flight crew to continue to operate the aircraft in a safe manner, have access to both communication and navigation equipment and still be able to conserve the aircraft battery for later use in the terminal area (lowering gear and flaps, etc.). If the battery is secured, the singly powered items on the inoperative generator's main bus will be lost. The boost pump on that side will still be operating, since it is dual powered, and the battery will still show a discharge. For maximum battery conservation, consider securing that boost pump. If the boost pump is secured, the pressure light on that side will not illuminate since it is singly powered. The crossfeed valve will still operate manually. (3) If the battery is not showing a discharge and other equipment failures are noted, (a fuel quantity gauge, a PFD, etc.) the current limiter has failed on the same side as the inoperative generator and this equipment will remain inoperative. The battery is not being discharged. Therefore, the operating generator is powering the hot battery bus. Monitor the operating generator's load

When generator failure is indicated, proceed as follows:

Note Ensure starter switch is off.

*1. Generator — OFF, Reset Momentarily, Then ON.
Note

• Release the generator switch slowly from the spring-loaded reset position to the ON position to prevent tripping the opposite generator off.

• Normal voltage in the reset position indicates a failure of the generator control rather than the generator.

If generator will not reset:

*2. Generator — OFF.

*3. Current limiter (Battery Ammeter) — Checked.

The combination of a failed generator, failed opposite side current limiter and a drained battery results in no power available to the hot battery bus. In this situation no fire extinguishing capability exists.

Note

If the battery is supplying power to busses due to either a failed generator and opposite side current limiter or due to a failed generator and excessive load on the operating generator, battery power may be available for as little as 10 minutes if electrical load is not reduced.

4. Operating generator — Do Not Exceed 1.0 Load.

5. Land as soon as practicable.

Should smoke and/or fumes be detected immediately following a generator failure, the origin could be in the generator control or an internal generator malfunction. Intermittent utilization of the corresponding engine bleed air valve may help confirm an internal malfunction. If smoke and fumes persist for an internal malfunction, consideration should be given to securing the corresponding engine to stop generator rotation and eliminate the fire hazard.

23-9 Jun 3, 2015, 08:30

Two 325-amp, slow-blow fuses, referred to as current limiters, are used to tie the main buses and provide fault protection. A battery bus between the current limiters supplies dc power to the starters. The integrity of each current limiter can be checked by turning on the battery switch and noting operation of the corresponding fuel quantity gauge.

23-10 Jun 3, 2015, 08:36

The auxiliary power source (three prong) used for aircraft ground checks, battery charging, or engine starting must not exceed 28 Vdc and have the capability of delivering a continuous output of 300 amp maximum with a peak output of up to 1,000 amp for 0.1 second if required. Refer to paragraph 3.9, EXTERNAL POWER APPLICATION, for additional precautions.

23-11 Jun 3, 2015, 08:45

15.13.3 Excessive Loadmeter Indications (Over 1.0)

Excessive loadmeter indications are generally caused by an excessive battery charge rate or an electrical system ground fault.

1. Battery/ammeter — Check.

If a charge rate in excess of 30 amps is indicated:

2. Battery — OFF.

3. Battery/ammeter — Check.

If battery charge rate is still in excess of 30 amps the battery relay has failed, land as soon as possible. If battery charge rate drops after securing the battery switch, proceed as follows:

4. Recheck loadmeters.

If loadmeters are normal, the problem was excessive battery charge rate. Land as soon as practicable. If loadmeter indications are still excessive, an electrical ground fault exists. Be alert for electrical fire, secure malfunctioning electrical equipment and land as soon as possible.

Note Loadmeter splits of greater than 0.1 are indicative of abnormal generator paralleling. With the air-conditioner or electric heater activated, an excessive loadmeter indication for the left generator may be indicative of a current limiter failure.