VT-31

E-2/C-2 On-Wing

Gouge Packet

Created Oct 2014 by LT Sean Anderson

FAM-0 BRIEF OVERVIEW

The E-2/C-2 syllabus is an accelerated program with fewer on-wing events. Show up prepared, ask plenty of questions to your onwing, and be ready to fly!

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 five events of syllabus, FAM 0 (2 events) through FAM 3 (C4201 – 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.

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- 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 E-2/C-2 ONWINGS

Event:	C4201	C4301	C4302
High Work:			
Level Speed Change	X	X	
Turn Pattern	X	X	
Slow Flight	X		X
Approach to Stalls	X		X
SSE @ Altitude		X	
SSE W/O @ Altitude		X	
Dynamic Engine Cut	X	X	X
Power On Ditch	X	X	
SSE Ditch		X	X
Power Off Ditch			X
Starter-Assisted Airstart		X	
Windmilling Airstart		X	
Manual Gear Extension			X
Smoke and Fire			X
Emergency Descent	X	X	X
Pattern Work:			
Overhead	X	X	X
Appr Flap	X	X	X
Full Flap	X		X
No Flap	X		X
Wave-off	X	X	X
Abort	X	X	X
SSE		X	X
SSE Wave-off		X	X
SSE Full Stop		D	X
Right Hand Patterns			

Move introductions right or left as SMA performance dictates.
C4201 is at the discretion of the IP and may be adjusted.

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

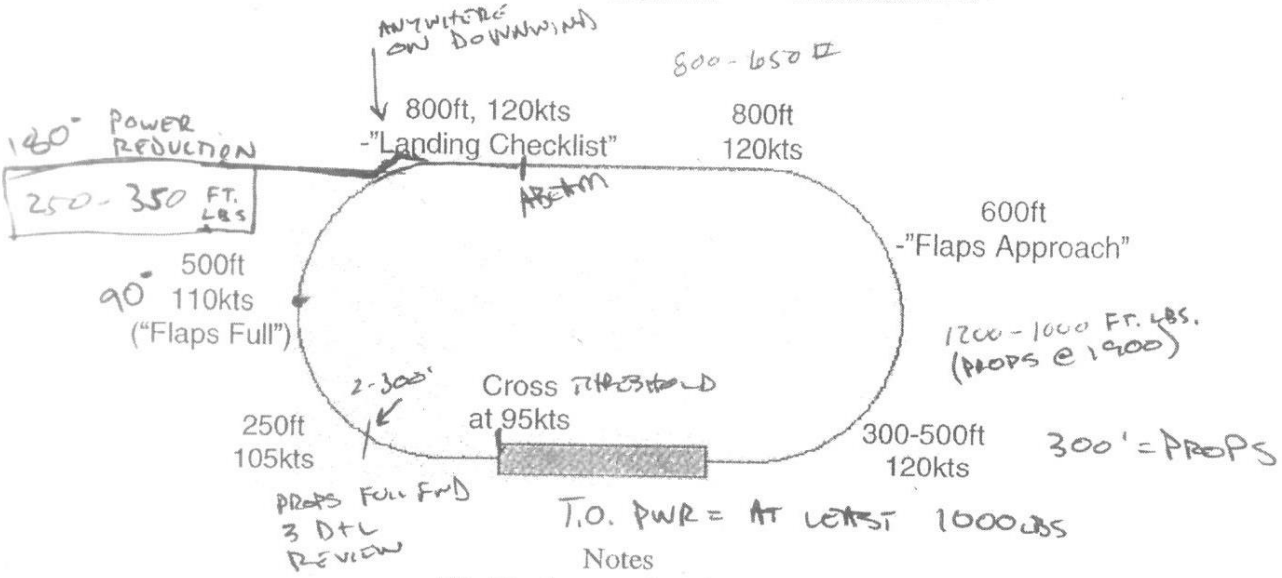
2. Confirm gear down and locked.

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)

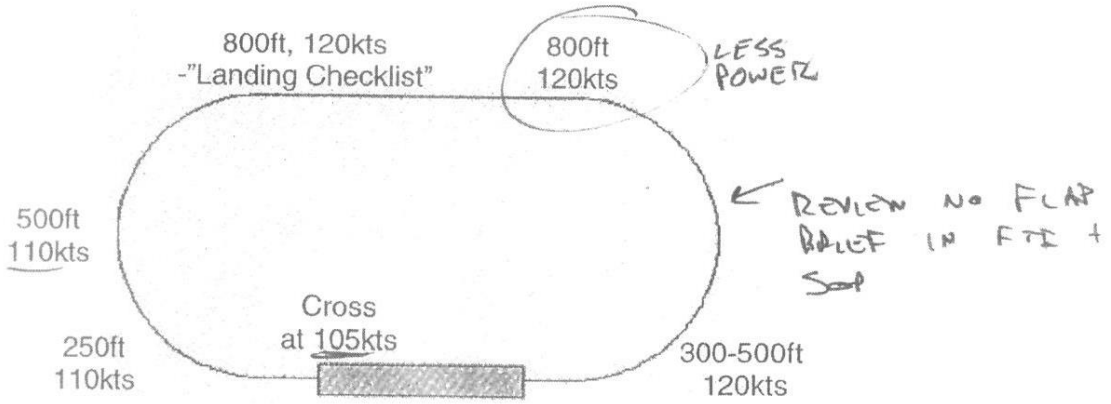


Notes

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

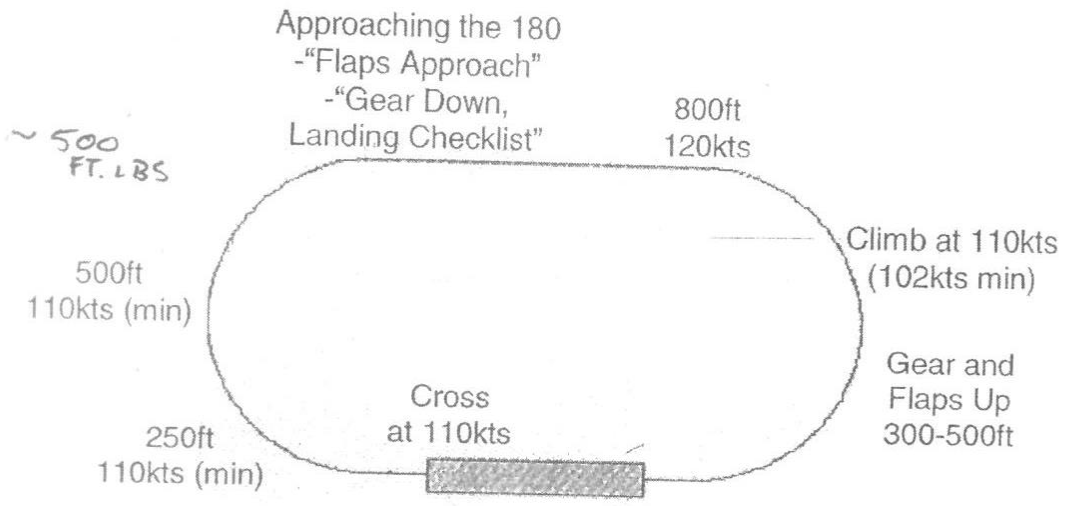


Notes

All altitudes are given in AGL.

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

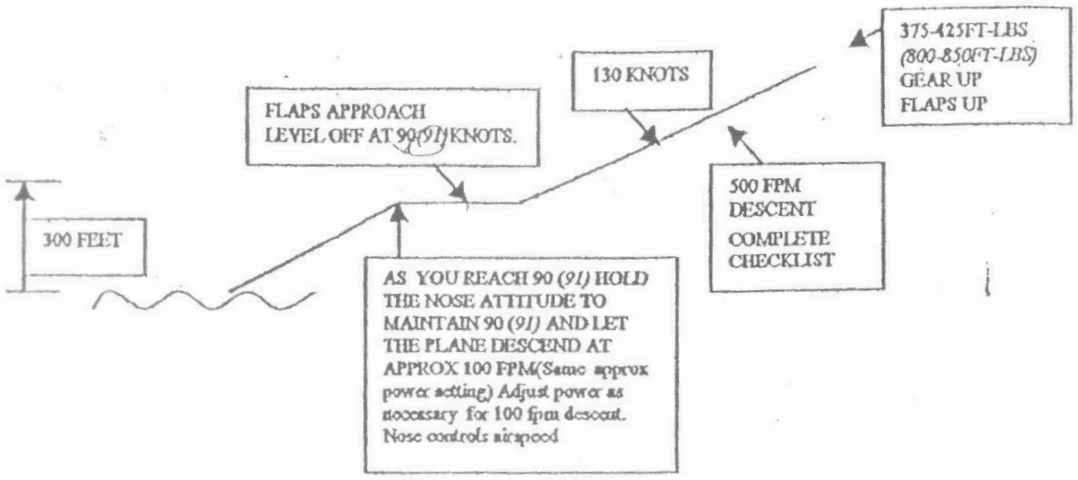
T-44 SSE Landing Pattern

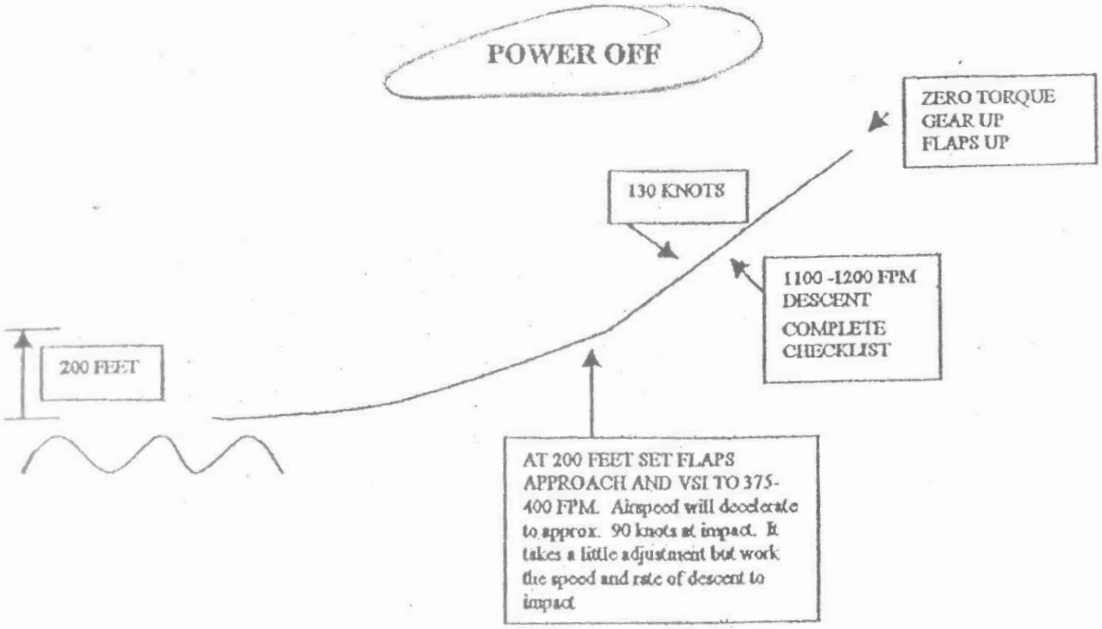


Notes
All altitudes are given in AGL.

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?
8. Discuss the procedure and CRM callouts for a flap malfunction.
9. What is the difference between a no flap landing pattern and a normal pattern?
10. Why do we practice full flap landings? What type of emergency would warrant a full flap landing?
11. When do we set flaps to full in the landing pattern?
12. What are the Dynamic Engine Cut procedures?
13. What is the purpose of the Dynamic Engine Cut maneuver?
14. What are the procedures for power-on ditching?
15. Why would you need to ditch the airplane with power available?
16. What factors determine the direction for ditching the airplane?
17. What makes night ditching tougher than a daytime ditching scenario?
18. What are the procedures for an emergency descent?
19. What speed is allowable in an emergency descent?

FLIGHT PROCEDURES

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

ITT

1. Normal (green arc) operating range is _____.

2. Max ITT for start is _____ degrees limited to _____ seconds.
3. The right engine is limited to _____ degrees during the start procedure for the left engine.
4. Terminate the start if ITT exceeds _____.
5. Max ITT at low idle is _____.
6. Max ITT in reverse is _____.
7. Max ITT for acceleration is _____.
8. Max ITT for cruise climb is _____.
9. Max ITT for cruise is _____.

TORQUE

1. Normal (green arc) operating range is _____.
2. Max torque at 2200 RPM is _____.
3. Max torque at 1900 RPM is _____.
4. Max torque for acceleration is _____.

PROP RPM (N_2)

1. Normal (green arc) operating range is _____.
2. During takeoff, RPM should read _____.
3. Max RPM for acceleration is _____.
4. Max RPM in reverse is _____, limited by the _____ governor.
5. The overspeed governor limits RPM to _____.
6. The fuel topping governor limits RPM to _____.

N_1 LIMITS

1. Normal (green arc) operating range is _____.
2. Low idle range is _____ (depending on maintenance settings).
3. High idle range is _____ (depending on maintenance settings).
4. Max N_1 for acceleration is _____.
5. Max N_1 in reverse is _____.
6. During high altitude operations above _____ feet, N_1 can increase up to ___%.

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 _____.
4. Min oil pressure on the ground is _____ and in the air is _____.
5. Normal oil pressure must be obtained any time the engines are at ___% N_1.

ELECTRICAL SYSTEM

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

FAM 2

MANEUVER ITEMS FOR DISCUSSION

1. What are the procedures for SSE at altitude? SSE waveoff at altitude?
2. What are the weather requirements for Simulated Single Engine (SSE) at altitude?
3. What are the procedures for SSE ditching?
4. Why would you need to ditch the airplane while single engine?
5. What is different about the SSE pattern?
6. What are the procedures for a SSE touch-and-go?
7. When can an SSE full-flap landing be attempted?
8. What is the minimum altitude that an IP can introduce an SSE scenario in the pattern?
9. What are the procedures for an SSE waveoff?
10. What are the three warnings and one note associated with engine failure after takeoff?
11. What is the minimum altitude that an SSE waveoff may be called by the IP?
12. During a Case 2 scenario, if we experience an engine (or thrust) related malfunction, what is the first step?
13. During a Case 3 scenario, do we always need to clean up?
14. During a Case 4 scenario, what portion of the emergency engine shutdown checklist must be completed (with a failure or a fire)?
15. Explain the control inputs required during an SSE full stop.
16. What is the runway width/length required for an SSE full stop?
17. P-factor will produce a yawing moment in which direction?

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?
1. When would you elect to do a windmilling airstart over a starter-assisted airstart?
2. Under what conditions should an airstart not be attempted? (MOVEOFF)
3. What are the windmilling airstart procedures?
4. What factors could affect a windmilling airstart?

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?

FAM 3

MANEUVER ITEMS FOR DISCUSSION

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

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?

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?

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)?

APPENDIX

The following aircraft systems may be discussed at the IP's discretion.

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 ___ knots can cause structural damage to the aircraft.
4. Max aft CG at all gross weights is _____.
5. Max airspeed in the T-44 is _____, up to altitude _____.
6. Max takeoff weight is _____.
7. Max ramp weight is _____.
8. Max landing weight is _____.
9. Navy approved service ceiling is _____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}-	$V_{FE\ 100\%}$-

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?
8. How many fuel drains are there on the aircraft?
9. What type of fuel gauging system is utilized in the T-44?
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?
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?
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?
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?
23. The LH and RH NO FUEL TRANSFER lights are powered by _____. 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.

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?
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?

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?

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 _____feet. If not suspect, immediate descent shall be made to a cabin altitude at or below _____feet.
2. What is the oxygen system capacity (cubic feet and psi)?
3. At what altitude is the diluter demand regulator supplying 100% oxygen in the normal position?
4. What position is the oxygen mask stored in?
5. What is the minimum oxygen requirement for local flights?
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?

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?
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?

ENGINE SYSTEM EMERGENCIES

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.
8. What are the procedures for a chip light?

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 ____ minutes if electrical load is not reduced for certain combinations of generator and/or current limiter failure.