TWENTY DAYS TO ACE YOUR KC-135 CHECKRIDE

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FOUNDATIONAL PHILOSOPHY

This workbook is only a study aid and is not an official training product. Always refer to the appropriate reference.

Two years ago, after mounting frustration from debriefing the same things repeatedly and students not picking up the key philosophical nuggets, this guide came to fruition. With fewer instructors across the fleet, the time to brief and debrief just are not there anymore. At the same time, FTU syllabi are contracting and high ops tempo means less one-on-on time with instructors. PIQs will not return to Altus to upgrade so take advantage of your time here! To make your time at Altus easier, here are some things to remember which should guide you're training and help you in the future.

The "70/20/10" rule – In the UPT or fighter/bomber world, if you don't know it off the top of your head, you don't get credit. In those worlds, you don't fly around with a set of flight manuals and associated directives. For the variety of missions and situations in the mobility world, you do have time to look at the reference. Some exceptions: boldface items or tactical maneuvers. Overall, most of being a pilot happens at zero knots and is bookwork intensive.

70% of flying is book knowledge. Not spitting things out from memory but researching the answer is critical. Why? There are more pubs out there that apply to you than you think and if you and bend an airplane, get violated, or injure someone the regulations will be used against you. Tough decisions are based on knowledge of the basics, soon you will be the briefing your ops supervision or the commander on what actions you will take to keep the mission going forward in a legal and safe manner. AMC tracks 400 missions per day and doesn't have time to do your homework. On countless occasions, crews (both student and fully qualified) have been burned by "shooting from the hip" versus looking up an answer. The general knowledge you gain by constantly going to the reference will pay dividends in the future.

20% of flying is decision making. As a crewmember, you make aircraft control decisions continuously and a mission-impacting decision not nearly as frequently. Whether you replan your route, take a jet with a known maintenance problem, slip an ARCT, abort a takeoff, or initiate a breakaway, you can't make a proper decision without a solid foundation of book knowledge. Do you feel overwhelmed at how much you have to know? Don't be… that's why we highly encourage you to look stuff up! Senior leaders can often tell the difference between a pilot's bad decisions from lack of experience or not knowing the big picture versus a failure had adequate knowledge of the regulations/tech order.

10% is hand flying. We are quick to couple to the autopilot while we figure everything else out or simply eat our lunch. On a ten-hour flight, you may actively fly the airplane for less than 60 minutes total. Now there are some exceptions (e.g. transition) but this holds true for most of the missions we do.

The most potentially dangerous phrase for a pilot – "Well 'so-and-so' told me that…" In nearly all cases, this phrase will not get you out of a Q3 or a mishap investigation. Why is it so dangerous? Most of us will instinctively take an AC, IP, or EP at their word. We prefer to ask someone versus look it up for ourselves. I have lost count of the number of times I have heard a student tell me they heard something somewhere that was against established procedure or made absolutely no sense (or it at least sounded good). Often times, a student hears what they want to hear and then take it out of context. As an evaluator, it is frustrating to have the student blame Flight Safety or their IP for something they messed up. Therefore, throughout your training don't be afraid to ask 'why' or get a reference. Evaluators will not hesitate to pull out the reference during the debriefing.

CRITICAL PHILISOPHICAL NUGGETS FOR RECENT UPT GRADUATES

1. **BE A PILOT… NOT A STUDENT PILOT**. Many students assume they will be treated the same as they were in UPT. As a rated pilot, you are expected to be semi-self sufficient and not required to be led around by instructors (with the exception of localisms). You are expected to retain the information you acquired at pilot training and apply it to your new aircraft. You are expected to analyze trends and fix them! Remember some of your peers may be T-6 or T-1 instructors by the time you complete your training at Altus. Just because you may end up as a copilot doesn't mean you slack off.

2. **OWN YOUR TRAINING**. As a pilot, you are responsible for your own training requirements. They are published and accessible. When you reach the fleet, you will have to get your events done without the DO harassing you to get them done. On every sortie, you need to show up with a game plan for your training requirements. Each profile should push you out of your comfort zone. You will have enough sims under your belt to be comfortable but you need to see as many different situations (e.g. transition bases, mission profiles, receiver types) as possible.

3. **YOU HAVE TO HELP EACH OTHER OUT.** There is no 'glass wall' between the jump seat, the pilots flying, and the boom operators. You can be downgraded for not helping your partner out whether during the crew brief or when flying an approach. If you don't, you are telling the evaluator that out in the fleet, you will allow other crewmembers to do something that could lead to a violation or a mishap. Also, an evaluator from another crew position can take you out too.

4. **THE AMOUNT OF REGS YOU NEED TO KNOW JUST EXPLODED.** As your flying career progresses, the list of regulations you will be responsible for grows. As an officer, you are always responsible for AFMAN 36-2903. If you do not know what that is, you had better look it up. Be wary of accepting every technique in that not every technique's roots can be found in procedure. You have probably been issued electronic pubs on a thumb drive. Open them up and look; they are on there for a reason. Also, just because a reference is not on there does not mean you can ignore it. Most importantly, we fly with paper pubs not e-pubs so you need to know where information is roughly located.

5. **DON'T SHOOT FROM THE HIP.** You are allowed to look up the answer! There is nothing worse than being schooled on your own Dash 1 by an OG that is an F-15 driver. With the vast amount of info you are responsible for, there is no way you can remember everything at this stage. You need to know where to find it, especially when you fly unfamiliar missions (e.g. aeromedical evacuation). Every answer should start with, "Hmm, I think the answer is *blank* but that's in *insert pub*, let's look it up." <u>You must engrain that habit pattern into your psyche</u>.

6. **PARANOIA IS HEALTHY.** "Trust but verify" is one of the basic tenants of flying a crew airplane. Just because you are a student, does not mean you get a free pass. The big things you need to verify: clearances, flight plans, schedule changes, etc. Enroute navigation is the biggest gotcha. Never trust someone to run the TOLD or set up navaids for you… be proactive… be paranoid… be directive… you never know when the evaluator is watching to see if you will catch it.

7. **GET ORGANIZED!** A student pilot who shows up with the paperwork in a mess creates a less than favorable first impression. The paperwork is not bad now but in the operational world, you will have to manage 5 days or more of paperwork plus mission and TDY-related paperwork. See page 36 for a tips on paperwork management.

8. **JUST BECAUSE THEY DIDN'T MENTION IT**… Most students think that since they went through the whole program without someone calling them on something is tantamount to a seal of approval. Wrong. Supposedly, there was a student who went through Altus raising the gear with override trigger… every time! I do not know how many times I have heard "My IP never said anything about it." Be prepared to accept that just because it was not debriefed does not mean it is OK.

SO WHAT HAPPENS WHEN YOU LEAVE THE SCHOOLHOUSE?

AFI 11-2KC125 Vol. 1 is the reference. In a nutshell, as a PIQ, you will fly in the right seat with an IP until you finish mission qualification training. After that, you stay in the right seat until you get some experience and hours under your belt. You will most likely have land in the left seat for currency. About 12-18 months after completing mission qualification, your commander will decide to start flying you in the left seat. A few more hours and training events later you will be an aircraft commander. That being said, you are own your own for your training. Continuation training sends you to the books but the onus is on you stay in the books. The difference between you and your peers upgrading first is how mature your commander thinks you are. If you keep acting like a copilot, you will find yourself in the right seat longer than you had hoped.

CRITICAL PHILISOPHICAL NUGGETS FOR INITIAL QUAL/REQUAL STUDENTS

1. **'IT'S JUST AETC' IS NOT THE RIGHT ATTITUDE**. Whether you coming from the staff or another airframe, many initial qual AC's are surprised when FTU IPs harp on them for a lack of basic UPT-level knowledge or not wearing a flight suit properly. Either way, as a more senior pilot, a little more is expected of you. The question to ask yourself before you think it is just AETC is 'are you just being lazy?' EPs will be grading you on how you set the example.

2. **[REQUAL] YOU'VE GOT TO KNOW WHAT'S CHANGED.** Some of the most dramatic procedural changes to the Tech Orders have occurred in the past three years. Some examples: flaps up in the pattern, boldface for Boom Operators, the long-awaited SID compliance charts, no more Dash 3. While asking you to read every pub is a little much to ask, it's not too much to remind you to be careful when you start to defend yourself during the debrief.

3. **[INITIAL QUAL] YOU NEED TO KNOW THE NEGATIVE TRANSFER ITEMS.** When many of the BRAC'd units began to hit Altus, many C-130 pilots hit the flight line and they all tended to fly patterns with too much rudder like the C-130 for example. Take the time to sit with an instructor and get the skinny on what habits are biting folks.

4. **A RIGORUOS TRAINING PLAN IS VITAL**. If you are in requal, things should come back quickly. Once you have processed all the things that changed, you will need to push up your training. The PIQs you will fly with had to drink from a fire hose and saw the minimum before they leave the FTU. You're ultimately responsible, so make sure you see as much as you can before you leave here.

5. **DON'T SHOOT FROM THE HIP.** If you survived CFIC, you know what I am talking about. "Well it used to say" or citing your old airplane's guidance does not really help you out on a checkride. With electronic pubs, studying is a little bit different but you do have more information at your disposal. Just remember, every answer should start of with, "Hmm, I think the answer is *blank* but that's in *insert pub*, let's look it up."

6. **JUST BECAUSE THEY DIDN'T MENTION IT**… Most students think that since they went through the whole program without someone calling them on something is tantamount to a seal of approval. Wrong. There was a student who went through Altus raising the gear with override trigger… every time! I do not know how many times I have heard "My IP never said anything about it." Be prepared to accept that just because it was not debriefed does not mean it is OK.

WHAT YOU NEED TO KNOW ABOUT THE PIQs YOU'RE GOING TO FLY WITH

The copilots of yesterday are history, most of them have upgraded and soon Altus will cease to teach the PUP course. The students coming from UPT will only come back to Altus if they assigned to the schoolhouse. In addition, 'deployment fatigue' has led to complacency and an drop in general knowledge and too much desert doesn't give them exposure to other missions.

1. **E-pubs have changed how PIQs maintain their general knowledge**. Most units do not issue individual pubs to their crews and e-pubs are in full use at the FTU. The disconnect: we fly with paper pubs but use e-pubs everywhere else. Sometimes is not convenient to get to a computer so it is often times easier to rely on word of mouth.
2. **TOLD and CFPS skills does not equal knowledge.** Most units will dispatch or TACC will provide flight plans for crews. That being said, mission-planning skills tend to go south and some will not know when there is an error in the product. With regards to TOLD, with e-pubs and changes in training, the emphasis is on numbers not how to chase charts. The issue here is that we fly with paper pubs and most copilots have difficulty using or discussing the charts.
3. **PIQs are over reliant on the FMS.** The art of the "fix to fix" is no longer emphasized at UPT since most aircraft they will go to have an FMS. This means that your copilots are far more likely to fly somewhere they should not than they were before since they have been conditioned to go to the box and couple. A copilot's SA tends to fall apart when forced into a situation in which the FMS cannot or will not help. You will need to make sure they do not drag your SA down too.
4. **You may be seen as the bad person if you enforce the standards.** Increasingly, the mindset in the fleet is if no one called them on something, it is tantamount to an official endorsement. They may also think that if a rule is not necessarily being enforced it's not a big deal and can be ignored. Examples: Wearing morale patch on their flight suit. Most seem to push back when they are challenged (e.g. shooting a hi-pen or something besides the ILS).
5. **Not all hours are created equal.** Many units have copilots with 1200 hours. Ninety-percent of these hours involve flying to, over, or back from the AOR. Most of those pilots have flown into fewer than ten different airfields (including Altus). The gotcha here is that if you have to fly a non-standard airfield you will have to do more pre-mission discussion.

WARNING

This is not just a piece of gouge but a self-guided study course

HOW TO USE THIS GUIDE – Simulator profiles give you some place to start and you know what your classes will cover but do you really have a plan on what to study before your eval? Your instructors give you time to study, so make the most of it. If you tackle one of these concepts a day and completely understand them, your checkride will be a cakewalk. Some of these will no doubt be covered on your ground eval. Now you do not have to do it 20 days in row and it may take more than 20 days but the point is to get and stay in the books. Your goal should be to finish this workbook before your rec ride.

PERSPECTIVE – Evaluators tend to look at the big picture and general airmanship. Each has their own pet peeves based on experiences and background. One might hit instrument procedures hard because they are an Advanced Instrument School graduate while another might concentrate on the AFTTP 3-3.22B because they are a Weapons School graduate. Knowing your check pilot's pet peeves is pure gamesmanship and that being said, you need to know what they are looking for besides what is spelled out in the AFI 11-2KC135 Volume 2.

WHAT ISN'T NECESSARILY SPELLED OUT IN THE AFI

GENERAL KNOWLEDGE – This goes beyond knowing the gouge that is out there or knowing what a certain ops limit is or the limits on your flight duty period. An evaluator will gauge "should I sign a piece of paper that says this person can take a crew and a $53 million airplane out somewhere and not get violated, killed, or bend the airplane?" They are also gauging your situational awareness of the associated directives and flight manuals. Do they care if you know the hydraulic warm-up procedure verbatim? No, but they do want to know that if they mentioned cold weather, a number of things would pop into your head (e.g. Chapter 7 flight manual procedures, AFMAN 11-217 cold weather altimetry, how to heat the aircraft correctly, etc.)

JUDGMENT – Without a solid foundation of general knowledge, your ability to make the proper decision is severely hampered. Examiners are looking for you to make a decision that you can stand behind. Here is a quick logical way to think any decision. First, am I doing what the regulations or flight manual say is procedure? If not, could I stand in front of the wing commander and justify my decision? If a mishap were to occur, because of the decision I made, how would it read in the mishap report?

ATTENTION TO DETAIL – What is the best way for a flight examiner to gauge your attention to detail? Checklist discipline… but more important are the little things often neglected in the expanded checklist. For example, when you check the radios, the checklist says to announce the altimeter setting to the crew. If you do not, then the checkpilot will make a note to ask you about it later. The devil is in the details so you need to know the expanded portion of the checklist. If on the other hand, you hit all the minor things than you are building a better big picture for your checkpilot. Usually, the tie goes to the runner so give the evaluator every chance to see you as a sound, safe, and knowledgeable pilot.

IMPORTANT AND NON-IMPORTANT EYEWASH – Odds are you are out to dazzle your checkpilot with fancy PowerPoint presentations and pretty charts. You might type out your DD175 so it looks pretty, only to have the checkpilot find an error. Did you spend more time prettying up the chart only to possibly have the checkpilot point out you filed through a Temporary Flight Restriction (TFR)? Nowhere in the AFI's are you graded on your computer skills or Falconview artistry. FYI, a pretty chart or piece of paperwork never earned anyone an EQ on a checkride.

STUFF YOU NEVER THOUGHT YOU WERE GRADED ON – Appearances are important. What do I mean by that? Uniform standards are also important. You may not hook for it but it is all about that first impression. You may know AFI 11-202 volume 3 verbatim cover-to-cover but how would you answer this question from an evaluator, "Lt Jones… I'm curious… where in AFMAN 36-2903 does it say you can wear that patch that says 'Semper Per Diem'?" When you are on the road, remember, you represent your commander and who never know what DV you may run into at Base Ops.

CHECKRIDE STUDY PLAN

DAY 1 – WHERE DOES IT SAY THAT?

DAY 2 – THE FIVE-MINUTE SYSTEMS BRIEF

DAY 3 – TACKLING THE CREW BRIEF

DAY 4 - ABORT CRITERIA

DAY 5- HOW FAST ARE YOU WITH THE FMS?

DAY 6 - MINIMUM BRIEFING ITEMS

DAY 7 – FLIGHT PLANS

DAY 8 - THE FORM 200

DAY 9 – TOLD

DAY 10 - PITCH AND POWER SETTINGS

DAY 11 - SPEED IS LIFE!

DAY 12 - AIR REFUELING RULES OF THE ROAD

DAY 13 - ENGINE-OUT TRAINING

DAY 14 – SLAYING THE PAPERWORK DRAGON

DAY 15 - RULES FOR YOUR TRAINING BEANS

DAY 16 – SEC 3, Ch 15, the DASH 1 & AR HICCUPS

DAY 17 – OPTIMAL CRUISE AND FUEL ECONOMY

DAY 18 – LAST MINUTE REC RIDES DISCUSSIONS

DAY 19 – TECH ORDERS & AIRCRAFT FORMS

DAY 20 – CHECKRIDE PREP

ADDITIONAL INFORMATION/EXERCISES

ACRONYMS TO MAKE LIFE EASIER

AIRFIELD SUITABILITY REPORT USAGE

UNDERSTANDING THE FORM F

THE 60:1 RULE

FAA 7610

FORMATION FOR DUMMIES

WELCOME TO MISSION QUAL TRAINING!

DAY 1 – WHERE DOES IT SAY THAT? (ASSOCIATED DIRECTIVES OVERVIEW)

Much of what you are graded on happens at zero knots, in other words, can you give a proper crew brief or execute the preflight per the technical order? Most importantly, can you make a proper decision using what you have at your disposal.

The further along you go in your career, the number of publications you are responsible for knowing increases. Flying AFI's are structured with an AF-wide instruction, MAJCOM Supplement and/or aircraft-specific volumes, and local supplements.

In the late 1990's, the Air Force reorganized regulations into instructions and then organized them by AFSC. You are going to be an 11M2F or 11M3F if you did not know it. The 11-series refers to all flying operations. Some others you should be familiar with are the 10- and 13-series. Thirteen happens to be Air Traffic Management with the 10- series being Operations.

AFI 11-202 encompasses Air Force flying operations, for the most part, and is subdivided into three volumes that are mirrored in the aircraft-specific volumes.

- AFI 11-202 VOLUME 1, *Training* – Covers all-encompassing things like life support, chamber training, etc
- AFI 11-202 VOLUME 2, *Standardization and Evaluation* – AF-wide checkride and standardization guidance
- AFI 11-202 VOLUME 3, *General Flight Rules* – Our version of the FARs, applicable to all AF aircraft

Each of the above AFI's will refer to "11-2MDS"-specific or MAJCOM guidance. This means everything from the A-10, to the KC-135, to the VC-25 has aircraft-specific additional guidance. Take-off mins are a perfect example. A-10 minima are different from ours, but the AF will make a blanket statement with a caveat. 202 Volume 3 may give broad guidance for simulated emergencies but 11-2KC135 Volume 3 will specifically address Jammed Stabilizer demonstrations. Your MAJCOM or wing may further explain or restrict guidance. So when looking for an answer, start in 202 and work down.

AFTTPs (Air Force Tactics, Techniques, and Procedures) are a series of MDS-specific pubs that are more "how" to fly the mission versus "rules of road." AFTTP 3-3.22B happens corresponds to the KC-135. There are classified volumes and an overarching AFTTP 3-1 that address force-wide doctrine and applications.

Aviation Resource Management is addressed in AFI 11-401, an instruction with which you will need to be familiar. Why? It contains myriads of guidance for squadron supervision of day-to-day ops along with how to fill out the 781 or how you get recurrent. Information on flight orders can be found here as well.

Each base will have its own local airfield operations instruction which is typically referred to as '13-201' but may vary by base. This often required reading for newly arrived crewmembers and is the source document for most items in your in-flight guide.

Let us look at formation as an example of one topic and where you can find information about it.

AFI 11-202V1	Requirement for formation training as part of UPT
AFI 11-202V2	Nothing
AFI 11-202V3	Numerous references on formation flight
AFI 11-2KC135V1	Number of flights required per semester or what is required to get credit
AFI 11-2KC135V2	Checkride tolerances in case you are no-noticed on a formation flight
AFI 11-2KC135V3	Rules for KC-135 formation operations
AFI 11-401	Guidance for formation flights on the flight orders
Local Instruction 13-201	Formation taxi routing for a particular airfield
AFTTP 3-3.22B	Techniques for flying a formation departure
GP	How to file a flight plan for a formation

Knowing where things can be found is often times more important then regurgitating them on command. Going into your checkride, you need to know where to look for information and your checkpilot is looking for this level of knowledge. "I'm not 100% sure but I think it's in *yada yada yada* let's look it up" is an extremely powerful phrase… ask your IP. ☺

I cannot stress enough how shooting from the hip makes you look like T-6 student on your KC-135 checkride. YOU MUST KNOW HOW AND WHERE TO LOOK THINGS UP!

HOMEWORK – Log on to the AF e-Publishing website and determine where you can find the info or what specific pub is.

- 2KC Volume 3 – KNOW WHAT THE APPLICABLE CHAPTERS ARE (3, 4, 5, 6, 9, 10, 12, 15)!
- AFI 11-221
- AFI 11-401
- AFTTP 3-1
- AFTTP 3-3.22b
- AIRFL is an approved contraction on a flight plan
- Bird strike forecast
- Checkride tolerances
- Decode a METAR
- Definition of refueling track airspace
- Descriptions of your local base's VFR pattern
- Difference between a Red X, Red / and Red -
- Effect on landing distance for crossing the threshold 5 knots fast
- Guidance on use of e-pubs
- How long is a MX preflight good for and who decides
- How to add someone to or make changes to the flight orders
- How to document your training in a training folder
- How to fill out the Tanker Activity Report (AF FORM 3578) (Hint: look for the AFI)
- How to post a change to your associated directives
- How to post a change to your tech orders.
- How to service the aircraft if diverting to an airfield without KC-135 support
- ICAO instrument procedures
- Immunity from search and seizure by foreign customs officials
- Information on how to log flight time on the AFTO 781
- Items that may be creditable in the simulator towards annual or semi-annual training events
- Number of available HAVE QUICK Combat Nets
- Occurrences that must be written up in the 781 after the flight
- Procedures for a hydraulic failure during refueling
- Procedures for disinfecting the airplane before landing in Australia
- Prohibition on morale patches
- Recommending a change to a publication
- Reference for when you are required to run the SID compliance chart
- Requirement to check the forms before applying power to the aircraft
- Requirement to monitor ground with engines running
- Rules of marshalling an aircraft
- Standard Fuel Load tables
- Table showing corrections to takeoff data
- Techniques on how to accomplish a landing attitude demo
- What "FDC NOTAM xxx CANCELED" means?
- What are the requirements to upgrade to IP?
- What constitutes a M010 (Proficiency Sortie)?
- What items are required to be on your chart?
- What taxi routes are you allowed to use off-station
- What the ACN of your aircraft is?
- What the symbol "F-34" next to some of the fuel valves on the exterior of the airplane mean
- Whether a crew would need a visa to enter a country
- Whether the Boom must sign a computer-generated Form F
- Whether you can carry hazardous cargo type 1.4S (Small Arms Ammo) & 2.1 (Aerosol cans)
- Who has the authority to downgrade a Red X
- Your squadron's "Go/No Go" requirements
- [BLOCK40] How many IHCs must be operational?
- [BLOCK40] Policy on use of SATCOM
- [BLOCK40] When 'DL:OFF' is required for operations

DAY 2 – THE FIVE-MINUTE SYSTEMS BRIEF

One of the best ways for a checkpilot to evaluate your general knowledge is for them to ask you to give them a synopsis of a given system in under five minutes. Since you just recently arrived from academics this should be fresh in your brain. If you want to draw out the system to help you out, that is fine too. Use the following guidelines when briefing your checkpilot. You goal is to be to explain this someone who hopped on for an orientation flight. Allot about one minute per part when briefing.

1. START WITH THE BASICS FIRST – Discuss generically how a system works. The phrase "In most turbofan aircraft…" is a great way to start your briefing. If referring to the hydraulics, begin by discussing the underlying concept of hydraulics (i.e. hydraulic fluid is not compressible). Incompressible fluid moves hydraulic actuators that move flight controls, etc.

2. BIG COMPONENTS - Discuss big components of the system such as the bus that allows the generators to parallel. If describing the hydraulics this is a good time to talk about FLIP or COCANBARF. Do not get into the weeds on details… you do not have to mention everything.

3. NORMAL OPERATION – Now tell them about how you use the system in the airplane and sources. If discussing pneumatics, you would tell them how compressed air from the engines or APU is used for pressurization or engine starting via a serious of ductwork, sensors, and check valves.

4. BASIC TROUBLESHOOTING – If something went wrong, describe into what categories the problems may fall. For pneumatics, it is either an inflow or an outflow problem. For hydraulics, lose of quantity; lose of pressure, or a component failure.

5. CONSIDERATIONS – Discuss some things you would need to be aware of if you lost a given system. If briefing hydraulics, what are some considerations listed in section 3 regarding engine-out landings. If discussing pneumatics, what would you do if you were over the ocean and could not pressurize?

HOMEWORK

Develop an outline you can memorize. A good mnemonic to remember what you are briefing would be "Start Big NBC." **Make sure you cover each system at least once prior to your rec-ride.**

- ELECTRICS
- HYDRAULICS
- PNEUMATICS
- FLIGHT CONTROLS
- AIR REFUELING SYSTEM
- WINDSHEAR AVOIDANCE
- ENGINES
- FUELS
- APU
- NAVIGATION SYSTEM
- CONCEPTS UNDERLYING THE TRIM DEMO
- CONCEPTS UNDERLYING THE LATERAL CONTROL DEMO

DAY 3 - TACKLING THE CREW BRIEF

THEORY BEHIND THE BRIEF – The brief should not be 30 minutes of regurgitating what you have heard from other IP's and aircraft commanders. The idea is to tell the crew how you want to run the mission and discuss non-standard items.

GENERAL - Our associated directives and flight publications give specific items and briefings that must be given prior to flight but do not tell you necessarily how to brief it. As a future AC, your first big hurdle is giving a good crew briefing. Every AC, IP, and EP has his or her two cents on how something is briefed. How many different ways have other people briefed the abort? Additionally, a new AC can become reliant on the same briefing guide but remains unfamiliar with what is required or where it came from. Do not read off a ten-page script!

COMMENSURATE WITH EXPERIENCE – Not every sortie requires you to go into complete detail on how to execute every maneuver and emergency procedure. If you have flown the same people consistently, going over the SID with a fine toothcomb is not common sense… your checkride is an exception. You have to balance detail with succinctness.

WHAT THE CREW NEEDS TO KNOW -

- You're confident and letting them know you're in charge and you've already thought through the sortie
- What are the mission objectives up front? Show you have everyone's training, including the Boom's, in mind
- What does the timeline look like? What do you expect if you split up and where will you meet?
- Not if and when you do an emergency procedure but how, from a CRM point of view, will you deal with the it
- What is your big plan for an EP? Straight ahead, fly the line, pull closed? Give them you initial reaction
- What is the CRM situation? What will be different from 11-2KCV3 Chapter 6? Will the Jump run the checklist?
- Are you legal? Do you have the TOLD? Did we file somewhere we should not have?

THE BRIEFING GUIDE – These are unit-specific or from the 3-3. For your checkride feel free to use whatever you are comfortable with but remember the EP will most likely use the Altus Notetaker. If the guides are different, they spend most of the time making sure hit the points correctly. If you use the same, they can easily follow along. NOTE – you can use the Notetaker but make a photocopy of the brief since students usually do not use the rest and we, as IP's, need them.

Before giving your first crew brief, answer the questions below and include your references.

- According to the Dash 1, "The crew shall review…"

  _____

  _____

- When does that review have to be accomplished by? _____
- Crewmembers not present must be briefed by the AC prior to _____
- List the 14 minimum briefing items

  _____ _____

  _____ _____

  _____ _____

  _____ _____

  _____ _____

  _____ _____

  _____ _____

- List four specialized briefings according to 11-2KC135 Vol 3

  _____ _____

  _____ _____

- Preflight weather briefings should include a discussion of _____to determine if the potential for wind shear exists.
- Before leaving home station on missions departing the CONUS, crews will receive a (an) _____ briefing that will emphasize terrorist, enemy, and friendly political and military development in the area in which they will be flying.
- The AC must be aware and thoroughly brief the crew on _____ along the departure flight path.
- The AC must re-brief the mission when the time interval from initial aircrew briefing to mission takeoff exceeds _____.
- The pilot will brief the crew on _____ during landing
- What five items must be briefed IAW 11-202 Vol 3?

  _____ _____

  _____ _____

  _____

- What two items must IP's or EP's brief? _____
- Where is the requirement for a trim monitor found? _____
- When ditching, what are extra crewmembers required to do? _____

Write down your thoughts on how you would brief the following EP's and then discuss them with your IP. Research what is required and what might be technique.

ABORT	WINDSHEAR
ENGINE FIRE ON THE GROUND	ENGINE FIRE/FAILURE IN FLIGHT
APU FIRE	UNSCHEDULED RUDDER DEFLECTION
CRASH LANDING OR DITCHING	RUNAWAY STAB TRIM

OH REALLY? A.K.A. OVERHEARD CREW BRIEFING STATEMENTS AND EVALUATOR RESPONSES

"TIME HACK… WE'LL GET AT THE JET OFF THE GPS"

- Just curious, how does that help you before you get to the jet?
- How are you going to authenticate C2 if your watch is 4 minutes slow and you do not have power on the jet?
- Hmm… according to the MEL, GPS is not required for Block 30. Where does the time come from?
- Have you considered that the crews' watches need to be in the same time zone if you all split up off-station?

"FOR ENGINE START, IF WE GET ANYTHING BELOW THE GLARESHIELD WE'LL CUT OFF AND MOTOR…"

- I did not think we motor an engine for frozen N1.
- How do you motor if the starter cuts out and ruins you engine start?

"IF YOU GUYS SEE ANYTHING FOR THE ABORT… CALL IT OUT AND LET ME KNOW"

- Does your Boom Operator understand the Dash 1 conditions for an abort situation? Make it simple, "if you see…"
- OK, tell me what the Dash 1 says you will abort for.

"IF WE LOSE AN ENGINE RIGHT AWAY, WE'LL STARTING DUMPING FUEL"

- I thought there was a warning that said not to have the AR pumps running while actuating gear or flaps.
- So how much gas are you going to be able to dump in a minute with only two or three engines operating and if you did dump? How much would that increase your climb performance?

"TRIM TRIM TRIM" or "RUDDER RUDDER RUDDER"

- That is not directive in nature… why not just say the boldface? Tell them what you want them to do.
- How is the 'runway trim' situation different with a CCAB-equipped airplane?

"FOR THE CRASH LANDING OR DITCH, WE'RE COMMITTED WHEN OUR ALTITUDE MATCHES OUR VVI"

- During this scenario, the aircraft is very pitch sensitive which means constant VVI changes, aren't you setting an unrealistic criteria? Just curious, what does the book say is the VVI you should aim for when landing?
- I thought you were committed when, aerodynamically, you cannot maintain altitude without sacrificing speed with maximum power set in the ideal configuration.
- Aren't you committed when you the number of engines lost yields a negative climb rate?
- How would fly it differently one-engine?

"WE'LL FLY IN GROUND EFFECT"

- So how does undulating terrain or power lines affect this plan? Isn't this only an option over the water?
- Just curious, when do you get into ground effect in this airplane?

TOLD BRIEFING or "WE'LL RUN TOLD AT THE JET"

- If you do not run it now, how do you explain to TACC that you uploaded too much gas for the conditions without a means to download on a high-vis mission?
- So you read the numbers… couldn't you have just handed it to me? What are we supposed to get out of it?
- So are we legal per 202 Vol 3? When are the SID compliance charts required?
- So why did you pick that configuration?
- Does the Boom even know what you are talking about?

NOT BRIEFING YOUR INTENTIONS FOR A EP

- So during an EP what is your big picture plan? Runway heading? Fly the SID?

TRIM MONITOR?

- According the Dash 1, we have to appoint a stab trim monitor… who is it?

DAY 4 – ABORT CRITERIA

Part of what you are being graded on during the checkride is, as an aircraft commander, do you have the right abort criteria in mind? A year from now, if you abort for something you are not supposed to and burn up a set of $125,000 brakes for a bad reason, you are in doghouse. There is an easy way to remember them…: THE WORST DUET. YOUR GOAL - Be able to list what you should or will abort for when asked by your instructor or check pilot.

THRUST LOSS - If, prior to reaching S_1, a definite loss of thrust occurs or if directional control becomes a problem, the pilot flying the airplane will abort the takeoff.

HIGH OIL PRESSURE – Should not be attempted if PSI is over 92

EFAS - The takeoff should be aborted if the EFAS fails below S_1 speed.

WINDSHEAR AHEAD- If at anytime below S_1 an aural "Windshear Ahead, Windshear Ahead" is sounded, or the red windshear icon is displayed at the top of the MFD, the pilot should consider aborting the takeoff.

OBTAIN CHARTED N1 before 80 knots - If any engine does not reach the charted N_1 setting between 40 and 80 knots, the engine is not providing the required rated thrust, and the takeoff shall be aborted.

RUDDER HUNTING – Regardless of the cause, if rudder hunting occurs on takeoff, prior to S_1, the takeoff shall be aborted.

SPEED BRAKE WARNING HORN – If this comes on, the flaps our speed brakes are not in the right position

TIRES - If either nose wheel tire fails during the takeoff run, be aware that the remaining tire may also fail. If failure occurs prior to S_1 speed, abort the takeoff.

DIRECTIONAL CONTROL - If directional control problems occur after V_{MCG}, it may be necessary to return the control column to full forward until initiating rotation or completing the abort.

UNSCHEDULED RUDDER DEFLECTION - If an unscheduled rudder displacement (abrupt, sustained deflection of the rudder), occurs prior to S_1, abort the takeoff.

EGT LIGHTS – Do not continue the takeoff if you exceed the limits prior to hitting your charted setting

TRIM - If a stabilizer trim runaway occurs at or below S_1, the pilot flying will abort the takeoff

Why might initiating an abort when the EGT lights come on be inappropriate? _____

_____

Are we a 'go-oriented' or 'stop-oriented' airplane? Why or Why not? _____

_____

How will your abort change if you are lead of a formation? #2 of the formation?

_____

Per the 3-3, what should you do if aborting at an airfield with multiple runways?

_____

What will you do if you get "Monitor radar display" prior to S1? _____

_____

What other items would you consider abort worthy?

_____

DAY 5 - HOW FAST ARE YOU WITH THE FMS?

The benefit of a partial glass cockpit is the added situational awareness; the downside is the FMS can often times be difficult to navigate through. If you want to impress your checkpilot, you need to be able to whiz through the pages to get what you need quickly and can show them how to use just about every page. Saying aloud, "now where was that?" isn't going to get you an EQ. You will be in situations where you'll have to get information or manipulate it quickly. YOUR GOAL - You should be able to navigate to any item in the FMS within about 5 seconds. Try to work through a column in 60 seconds or less.

EXERCISES – in either the aircraft or bench-top trainer attempt to access or accomplish the following actions as quickly as possible in this order.

NO PROB	UH… WHERE WAS THAT?	OH CRAP!
Current position (Lat/Long)	Timing for Oceanic Position Report	ETA to a point via Flight Plan
Wind Drift on the approach	Distance between two NAVAIDS	Factor the drogue into the wt & balance
FSAS Takeoff Page	ETA from present position	Load a variable runway grade in the TOLD
Check DAFIF dates	Rename a waypoint "ARCP"	Get BRC data from the Cruise Calculator
Choose cruise profile (RNG/END/IAS)	Frequency/DME pair for a NAVAID	Account for no leading edge flaps in TOLD
Load obstacle in TOLD	Load a runway grade in the TOLD	INU heading Maintenance page
Load flight plan from PCIMIA card	Change ADI data from N1 to Speeds	Find lat/long for point 326/56 from another
Check BOD fuel	Load two engines out on one-side TOLD	Find VNAV "Top of Descent" point
Check INU2 alignment status	Get BIT code for failed TCAS	Get Zulu time when TCAS failed
Get commanded TAS for ARCT	Get exact ETA with seconds	Hold M4 code before power off
Load TCAS squawk tags	Set TCAS squawk for cell wingman	Choose appropriate source data loader
Get 30 Flap Rudder Power Off TOLD	Determine location from a bulls-eye point	Cross check GPS with ground NAVAID
Switch from TERM to ENROUTE mode	Build an anchor pattern	Turn racetrack into Figure-8 pattern
Build a racetrack	Load a closed random pattern	Save flight plan to data card
Change Copilot Steering solution	Append card route to flight plan	Lock FMS control head

DAY 6 – MINIMUM BRIEFING ITEMS

We pay so much attention to the crew briefing on mission planning day but are lax on the other required briefings. For the most part these areas require briefings:

- Pre-mission crew briefing (done during mission planning day or day of flight)
- Crew briefing at the airplane / Exterior Inspection / Forms review
- Review of emergencies prior to engine start
- Departure briefing
- Descent briefing
- Approach and landing briefing
- Passenger briefing
- Cargo load briefing

You only need to worry about the first six (at least for your checkride). What is specifically required can be found in the associated directives and the Flight Manual. It is hard to remember them all, so use paper brains or right them in your checklist. YOUR GOAL – Give the specific briefing without having someone critiquing you for omitting something.

HOMEWORK –

Develop your own "paper brain" in the form of a laminated card you can throw in your pocket. On one side, list all the information you need to review the forms (i.e. any question an EP could ask). On the other side, list all the items required and references for the briefing at the airplane. There are some things to add as a technique (e.g. formation stuff). Have your IP look at it and then laminate it.

DAY 7 – THE FORM 200

The flight plan is something you can spend hours finessing only to have your evaluator pick it apart or find a small problem that will send you to the computer lab right before your bus time. There are two big things evaluators are looking for: accuracy (relating to the schedule) and standardization (with GP/FAA/ICAO rules).

YOUR GOAL – Have a concept of the nit-noid details that could make your 200 not so accurate. There are also rules in GP, Performance Manual, and 11-2KC Vol 3 on what to look for.

WHAT YOUR CHECKPILOT IS GOING TO SCRUB IT FOR –

- Do the takeoff and land times match the schedule?
- Did the crew use the right amount of fuel for SETTOAC? _____
- Does the level off line make sense?
- Does the gross weight match the schedule?
- Did the crew have the appropriate distance between RNAV points? _____
- Is the crew arriving ____ minutes prior to the ARCT
- Does the Orbit line make sense?
- Is the RZCT local, Zulu, or even correct?
- Do the points match those listed in AP1/B?
- Is the AR speed correct?
- Is the Offload line correct?
- For fuel conservation, did the crew file _____ altitude and _____ airspeed?
- Did they use proper hemispheric Altitudes or RVSM altitudes?
- Fix fuel IAW with associated directives? _____
- Landing fuel IAW associated directives? _____
- Did the crew consider boom/drogue drag?
- Transition fix time and delay correct?
- Is the flight plan winded?
- Fuel used on one approach?
- Fuel used during delay (12K/hr or 7.5% of GW)?
- Was ‘fuel on board’ calculated at 10K and endurance?

DAY 8 - FLIGHT PLANS

Do you have gouge from your friends on how to fill out the DD175 or DD1801 (International Flight Plan)? If so, **throw it away!** Network computing is great for sharing documents but can cause your mission planning skills to go downhill. Flight plan ponies are often out of date. How often is GP released and how often is your gouge updated? One bad flight plan can be copied and copied repeatedly until everyone uses it and assumes it is correct since nobody has been violated. That is of course until you are burned by an evaluator during your wing's ASEV. Another problem is dispatched flight plans, while this works great for the airlines and TACC; sometimes it lulls you into a false sense of security. If I give you a flight plan today, you can fly that day. If I teach you to flight plan, then you can go anywhere and do not need a pony or your squadron's LAN. When it comes to first impressions on your checkride, a bad flight plan cancels out any cool points you would have accumulated. Pulling out GP during your checkride debrief is not a good sign. YOUR GOAL – Fill out the form correctly without using GP or a pony.

CHECKPILOT DD175 HIT LIST

- Did they use local or Zulu day?
- What is supposed to go in the type and equipment block?
- Are all the times in local or Zulu?
- **Does the route match the CPFS product?**
- Do the speeds match the CFPS product?
- Is the refueling track annotated properly?
- Is the refueling delay annotated properly?
- Do the points match AP1/B?
- Do subsequent times take ETE and delays into account?
- Is the transition delay annotated properly?
- Did they use FAA-approved contractions? Where is the list found?
- Does "fuel on board" match the CFPS product?
- When is an alternate required per 202 Vol. 3?

THE CONCEPT OF THE MASTER DOCUMENT –

Nearly 90% or more crewmembers tend to write their ATC clearances down on their kneeboard or scratchpad that is not a bad technique. However, consider this: ATC violations can sometimes take up to 6 months to filter down to the unit level. They filter through HQ AFFSA (AF Flight Standards Agency) to your MAJCOM and eventually down to your OG. Hence, a reason we keep our paperwork for that long. However, did you ever think if there was a problem with a clearance given to you by ATC, what proof would you have of what they gave you? You would not have any since you threw the kneeboard or scrap paper away within 48 hours of landings. Especially in international flying, write your clearance on your DD175 or DD1801 to ensure you have a record of what you were cleared. Keep in mind--this is technique only.

NOT SURE WHAT TO PUT IN THE REMARKS SECTION OR CAN'T DECODE THAT NOTAM –

Ask for the book from the Base Ops folks or head to the internet:

http://www.faa.gov/regulations_policies/orders_notices/air_traffic_orders/media/7340.1Y.pdf

DAY 9 - TOLD

During every briefing, you must review the TOLD. Do you really understand it? Just reading the numbers is not the intent since the pilots could have read it themselves. Evaluators can easily notice that. You need able to discuss what you got in a sensible manner. There are a number of reasons why both pilots must check the data. Keep in mind you also need to discuss TOLD for an out-base you are going TDY to as well.

TECHNIQUE FOR PRESENTING YOUR TOLD BRIEF -

- Configuration and why you picked it
- S1 and what is it based on
- Gotcha's or showstoppers (e.g. naked NEFS, diminished crosswind capability, etc).
- Are you legal per 202 Vol 3 and how do you know? When are the SID compliance charts required?
- Max performance with regard to when are you committed to crash landing or ditching

WHAT AN EVALUTOR IS THINKING –

- Why did you pick that flap and climb profile? What do the different combinations yield?
- Why did you pick an 8%? MCL? Reduced? Min? TRT?
- How did you figure out what S1 is based on?
- What effects will gusts have on your data?
- What reference would you use to update your TOLD?
- When is TOLD critical and when must you rerun it?
- What is wrong with "we'll run TOLD out at the jet"?
- What is "Naked NEFS"?
- What would your two-engine climb rate be?
- What affect does thrust setting have on Vmcg?
- What is the main difference between an ACCL and MAX mode departure?
- Is this student just reading numbers to me or do they actually briefing me on the TOLD?
- Does this student understand why our data is run for three-engine?
- What is the effect of gust on the stabilizer trim setting?
- Would you hold on the runway if you had a gust?

DAY 10 – PITCH AND POWER SETTINGS

This will no doubt make your life easier in that you do not have to "hope" you have a good aircraft control day. Evaluators are looking to see if you are flying the jet or letting it fly you. If your airspeed is all over the place then it is obvious. However, if the evaluator knows what your pitch and power should be, set it and you are golden. Pitch is easier than remembering specific numbers, if look at your AOA gauge you get an approximation for level flight. For pitch changes, look at your ground speed. 180 Knots is about 3 miles per minute. Using the 60:1 rule, one degree of pitch change is 300 feet per minute. Throttle reductions yield the same results. Note, these aren't big changes which means an auto-throttle system would not make big changes so why would you?

The AFTTP 3-3.22B discusses pattern power settings in-depth in that there are numerous ways to skin a cat.

What are the two primary techniques and how are they applied? _____

_____

_____

_____

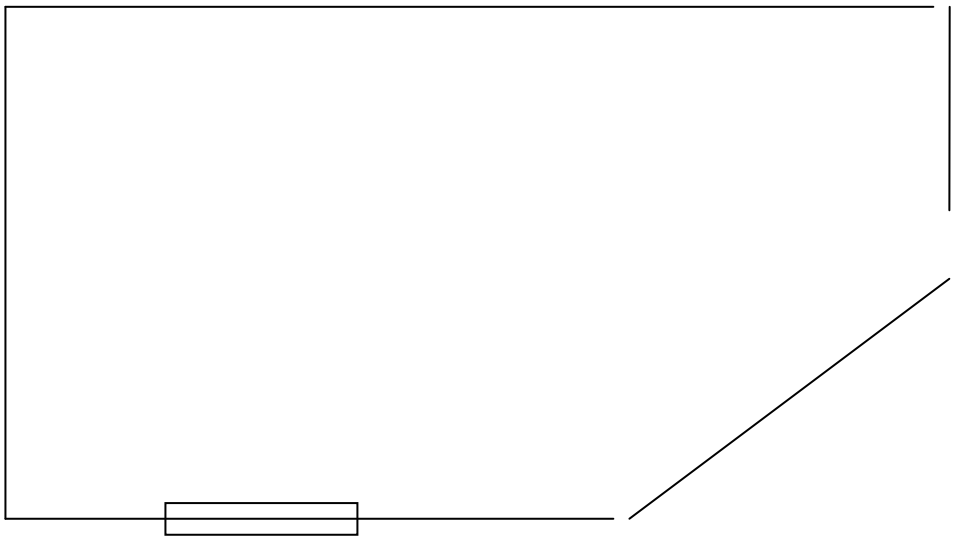
When should you begin configuring the aircraft? _____

How do you convert between N1, fuel flow, and knob widths? _____

	…requires	… or	…. or
1 degree pitch change	2.5% N1		
Lower flaps to _____		¼ knob width	
Additional 10 deg. of flaps			

YOUR GOAL: During your pattern work, verbalize your power settings to your IP.

HOMEWORK: Assume you are going to takeoff and go right into the pattern with the following: 65K fuel load/190K GW, 45K fuel load with 200K GW, and 25K fuel load/155 GW. On each leg and configuration change, calculate your power setting for 4 and 3-engine scenarios. Use the GW/3 technique for N1 as well as the 2+ total fuels. Remember, the 2+ technique does not take cargo into account.



DAY 11 – SPEED IS LIFE!

Now that you know what power settings to fly, what speeds do you need to know to survive? On your checkride, do not give your check pilot the inkling that you have no idea what your maneuver speed is or you are toast. There are two things you need to know… the definition of given speeds (e.g. Vmca), effects of winds, and how to calculate them if required. YOUR GOALS: During your pattern work, verbalize your maneuver speeds prior to banking up the aircraft. Sound intelligent when discussing performance with your checkpilot.

HOMEWORK:

First, know the basic definition of every speed in the performance manual (this will get you started):

S1 –

Vmca –

Vref –

Vmcg –

Vth –

Vb –

Vco –

DBF -

Vcb –

How do you calculate your maneuvering speed for takeoffs and approaches?

Why we are limited to 15 degrees of bank below our maneuvering speed?

Under different flap settings, what is the difference between initial buffet, approach and maneuver speed?

What would your two-engine climb speed be?

Using standard conditions and a 10-knot headwind, draw a picture of the typical IFR pattern. With the following configurations, 190K GW/50 Flap and 165 GW/30 Flap, calculate your power setting for 4 and 3-engine scenarios along with the following speeds: V50, V30, Vref, Vmanuever, and Threshold. **Don't use the FSAS calculator!!!!**

EXTRA CREDIT: What are your flap retract speeds for a go-around and why do we go from 50 to 30 immediately?

DAY 12 – AIR REFUELING RULES OF THE ROAD

Concerning air refueling, there are four publications you need to study: *ATP-56, the In-flight Manual, AFI 11-2KC135 Vol 3 Ch 15, and FAA 7610.4J*. You can pretty much guarantee that you will be asked about these publications during your Checkride. The types of questions you'll be asked fall into five categories: When you can/cannot AR, when you have to do a breakaway, rules for the airspace, AR systems knowledge and expanded checklist knowledge. YOUR GOAL – Answer any AR question thrown at you and not get tripped up by a strange situation during your checkride.

WHEN YOU CAN/CANNOT REFUEL –

Your actions depend on whether you are on an **operational/over-water deployment** or on a **training mission;** some make sure you understand the scenario given by your evaluator.

There are four scenarios where you can't refueling on a training mission: _____, _____, _____, _____

Why is not ensuring disconnect capability on the first contact grounds for a checkride bust?

_____

What items in the MEL are needed for refueling you wouldn't need on a pattern sortie?

_____

_____

WHEN YOU HAVE TO DO A BREAKAWAY –

List some reasons why you would have to initiate a breakaway:

_____ _____

_____ _____

_____ _____

RULES FOR THE AIRSPACE –

Describe why it is not appropriate to hit "DIRECT TO" an AR track point after making a turn to reverse track

_____

[FAA RULES] Do you have to request an AR clearance if entering an ALTRV established for refueling? _____

What happens if you have MARSA with the receiver and ATC vectors them around traffic? _____

_____

SYSTEMS KNOWLEDGE / FLIGHT MANUAL KNOWLEDGE -

You should be able to explain in five minutes or so how the AR system works.

What is the difference between the signal coil and signal amp and which is required? _____

_____

When do we go TA on the TCAS? _____

The A/A TACAN is "As required," what does that mean? _____

Using the "not approved for flight" Turn Range-Offset Calculator on a checkride could raise suspicion with your evaluator

DAY 13 – ENGINE-OUT TRAINING

Before your IP will trust you to do three-engine work, you need to demonstrate an understanding of the underlying concepts. A number of crews have been killed because they did not understand the underlying concepts. A wrong rudder input rolled a jet on to the ground at Castle AFB. Pulling closed with an engine fire below maneuvering speed lead to a stall and crash at Beale. YOUR GOAL: Talk through an engine failure after S1 to your IP from start to finish.

HOMEWORK -

What is the relationship between Vmcg and an operable EFAS?

Why do we have an EFAS system?

For three-engine work, we maintain directional control on the runway….
How?

Delay rotation… why?

Climb out at Vco… why?

Get the gear up right away…. Why?

What is your initial bank limit and why?

When can you exceed 15 degrees of bank?

Do you need to apply the boldface right away… why or why not?

What will you do with the flaps…. 30, 20, or up and why?

What do you lose after flap retraction?

Upon accelerating to 250?

When is flying symmetric appropriate and why?

How do three-engine and four-engine approach power settings differ?

What is the relationship between touchdown speed and Vmca with the asymmetric throttle above and below the posted setting on a three-engine go-around?

EXTRA CREDIT: What are the big differences between flying an engine failure in the pattern versus on initial takeoff?

TO CUT-OFF OR NOT TO CUT-OFF THAT IS THE QUESTION….

During your engine out training, your instructor will present you with different set-ups for a three-engine scenario. Poor execution could mean a redo and on a checkride, there are few mulligans.

	Throttle – Idle	Throttle – Cutoff	Fire Switch	Extinguisher Switch
Fire light flickers				
Starter light comes on in-flight				
Starter fails to cut-out				
COMP HOT light				
Fire light on				
Low Oil Pressure light				
Fluctuation Oil Pressure > 10 psi				
EGT of 910 on takeoff				
EGT of 800 on start				
Bird Strike into engine				
Frozen N1				
IDG Fail light comes on				
Fluctuating fuel flow in cold WX				
Torch / Tailpipe fire				
Flame out due to fuel starvation				

DAY 14 – SLAYING THE PAPERWORK DRAGON

Improperly filled out paperwork may result in coming in on your day off

Paperwork… the most hazardous part of the mission. You may or may not be surprised to know that there is no formal training on how to fill out the paperwork correctly. With the evolution of TIMS and other electronic systems, most pilots have no idea how to fill out the paperwork unless someone tells them and often without citing a reference. Everyone has problems with the 3578 (*Tanker Activity Report*), AFTO 781, and Flight Authorizations. Get a copy of the following pubs: AFI 11-401, *Aviation Management* and AFI 11-222, *Tanker Activity Report.*

ORGANIZING THE CAN

Pre-mission, you will start any mission by accumulating blank paperwork and building the flight plans. However, the further you go in your flying career the more paperwork you will be carrying. Once you graduate, buy an accordion folder so you can organize more than one mission leg on a multi-stop TDY. However, I digress. As a copilot, you will be graded upon how you land, run the checklist and how you handle the paperwork. Divide your paperwork into piles and use the stapler:

PILE 1 – STEP PAPERWORK (Initialed flight orders w/full SSANs, photocopy of ORM sheet, Go/No-go sheet)

PILE 2 – BASE OPS (DD175, 200, Form F)

PILE 3 – REFERENCE (ATO sheet on top, schedule, chart, AP1B extract, NOTAMS, WX, BASH, TFR, TOLD)

PILE 4 – PREFLIGHT (Form F on top, DD175 copy, 200)

PILE 5 – POST MISSION (781,791 for offloads, 3578, Blue Dots, Post Mission Recap)

WORKING WITH THE FLIGHT ORDERS

What is the purpose of the flight authorization? _____

What are the following crew position identifiers: EP, UB, XP, IL, MP, and FN?

_____

_____

How do you change the flight orders if your IP went DNIF and another one takes their place?

_____

How do you annotate passengers on the flight orders? _____

Prior to stepping, you notice a C-17 FTU instructor is on your mission on instructor enrichment sortie. What crew position should they be flying under? _____

Another aircraft had to make an emergency landing at Amarillo and your crew is going to drop some maintenance personnel off so they can fix the jet. Under what conditions can they be added to the flight orders and what crew position are they assigned to? _____

_____

Do you file the Flight Authorization with the full or partial Social Security numbers? _____

FILLING OUT THE 781

Reference

Is the date used local or Zulu? _____ _____

When are you able to log primary time? _____

_____

Night? _____ _____

Other? _____ _____

What is the difference between primary and other time? _____

_____ _____

Do instructors log primary time? Why or why not?

_____

You notice that the OG you are flying with is logging 'OP' time? Why? _____

_____

_____

How do you account for time when you have two UP students and one IP? _____

_____

_____

Why must you log secondary time when your IP logged a landing? _____

_____

_____

FILLING OUT THE TANKER ACTIVITY REPORT

What is the purpose of filling out the form?

_____

_____

_____

How many hours do you typically charge the receiver?

_____

What is the difference between CCTS and Crew Training for logging the hours?

_____

If you were tasked to support an off-station air show, how would you annotate that?

_____

DAY 15 – RULES FOR YOUR TRAINING BEANS

If you are headed out to fly, you need to know the rules regarding the simulated EP's you will be flying. There are three primary source documents: 202 Vol 3, 11-2KC Vol 1, and 11-2KC Vol 3. YOUR GOAL – Know the rules COLD! Recently, practice emergencies moved to the simulator and are not permitted to be done in the aircraft.

HOMEWORK – Fill out the following table. In the far right columns put the paragraph reference:

EVENT	LIMITATIONS	202 Vol 3?	11-2KC Vol 1?	11-2KC Vol 3?
Jammed Stab Demo				
3-Eng Rud Power Off				
Trim Demo				
Lateral Control Demo				
Manual Gear Exercise				
Manual Flaps Exercise				
AC Touch-and-Go				
IP Touch-and-Go				
EFTOC				
VFR Overhead				
High Speed buffet				
30 Flap Landing				
No airspeed approach				

DAY 16 – SECTION 3, CH 15, DASH 1 & AR HICCUPS

As a tanker driver, you really need to know the business end of your airplane. Just because you are not qualified to make a contact does not mean you can blow off what happens in the Boom Pod. Delayed disconnects and other issues have come up on checkrides and evaluators will no doubt ask you about what just happened on your checkride.

Under what conditions are you required to initiate a breakaway? _____

With the autopilot coupled, your C-130 receiver cannot keep up and requests to 'toboggan'? When can you disconnect the altitude hold function?_____

Your receiver is about 500 feet when you get a "VG No Go" message and the autopilot clicks off. What are your options?

_____

Your Boom goes back prior to the rendezvous and reports that the signal coil is tests bad. How will this affect your mission?

_____

Half way through the AR, your Booms sees a spark and notices the Boom Azimuth gauge died. How will this affect the AR?

_____

Your Boom informs you that they are going to TMO. What does this mean to you?

_____

Your receiver, after making contact, reports that they cannot see the direction indicator lights. Will you continue?

_____

What are the two types of brute force disconnects and what is the difference between the two?

_____

Crossing the ocean, you have two fighters with you and your Boom reports that they can maintain a contact with applying positive pressure. Can you continue? On what other missions is this authorized?

_____

Which fuel valve can the Boom actuate manually from the Boom pod?

_____

In the 'Prep for Contact' check, when do you switch the A/A Tacan out of A/A mode?

_____

Which aircraft is allowed to AR with an engine shutdown?

_____

Your receiver requests a 'Limits demo' on the first contact to expedite a senior officer checkride what will you tell the Boom?

_____

You are on AR312L finishing up with a C-17 when ATC calls and says an E-3 that lost its tanker and is holding at the AR312H IP. Center passes on a request for you to help them complete a checkride. You cannot find them anywhere on the flying schedule. Will you AR with them?

_____

After off-loading 4K during the first AR of the day, the Boom notices the receiver hit the left limit but is still in contact. After hitting the manual disconnect switch nothing happens. The Boom instructs the receiver to disconnect and they do. Now what?

_____

DAY 17 - OPTIMAL CRUISE, FUEL ECONOMY, OXYGEN RULES, & HIGH ALTITUDE OPERATIONS

BEFORE THE HEFOE CHECK COME TWO THINGS: What speed should we be flying and how is my timing looking? With the increase in fuel costs, commanders are being pressed to ensure they are saving fuel whenever possible and airborne mission commanders try to squeeze every drop of JP-8 they can out of every tanker. The fuel you wasted flying home low and at morale speed was fuel a receiver could have used to drop bombs on the bad guys. While the leadership can mandate lower standard ramp loads, the crew is ultimately responsible for the rest. Mission requirements can dictate lower altitudes (e.g. Coronet mission, proximity to the AR track, or timing for an enroute rendezvous) but many missions do lend themselves to cruising home per the AFI. Winds may also either hinder or hamper fuel economy so check the weather forecast.

According to AFI, what is the maximum amount of extra fuel authorized? _____

The penalty for carrying extra fuel is you burn approximately 3% of the extra fuel per hour. Assuming a 10-hour sortie with 20K extra, how much will you burn just to carry that extra 20K? _____.

Assuming your flight plan requires 130K of fuel but you opt to carry 150K how does this affect your three-engine climb performance? _____ is there any change to your cruise altitude? _____

_____

What chart in the performance manual helps you determine the correct altitude? _____

How do you determine if climbing to the optimal altitude is worth it?

_____

_____

According to 11-2KC Vol 3, what is the planning guidance for the following missions:

Airlift	
Tanker (standard AR)	
Fighter Escort (Coronet)	

What are the six other means 11-2KC Vol 3 gives us about saving fuel?

What are the oxygen rules and what pub would you find them in? _____

	PILOT	BOOM/NAV	PAX
10,000 ft through FL250			
Above FL250 through FL350			
Above FL350 through FL410 (both pilots in seat)			
Above FL350 through FL410 (only one pilot in seat)			
Above FL410 through FL450			

Typically at Altus, we do not usually do not climb above FL350 but *Murphy's Law* says it will happen during your checkride. There are few things you need to make sure you can discuss off the top of your head without having to look it up. On ferry missions or after a contingency sortie you might need to climb to save fuel or get a bigger tailwind.

What is the relationship between true airspeed and increase in altitude? _____

For the most part, winds _____ as we climb.

According to the Dash 1, we do not always climb out at 285 knots. At _____, we changeover to _____.

When is the Mach hold feature of the autopilot helpful? _____

Where in the FSAS would you find data for your optimum cruise altitude? _____

DAY 18 – LAST MINUTE DISCUSSIONS FOR THE REC RIDE

Below is a list of topics you or your IP should discuss before you go to your checkride. This list is by no means all-inclusive.

Go-No Go / Step Drill	
Crew Briefing Discussion	
High Altitude Cruise Considerations	
Optimal Cruise Determination	
System Brief / Discussion	
Hydraulics	
Flight Controls	
Electrics	
Pneumatics	
AR System	
Fuel System	
Engines	
Windshear	
Flap Exercise	
Gear Exercise	
Exterior Inspection Discussion	
Filling out the DD175 correctly	
Overview of the DD1801	
Rendezvous Geometry	
Proper way to post pubs	
Pattern Pacing and power settings	
TOLD / N1 and Takeoff Configuration	
Form F Discussion	
A10/C130 Rendezvous Discussion	
Vmgs Application Discussion	
Associated Directives Overview	
Use of the Intercept Function	
FSAS techniques discussion	
PIQ Upgrade Process	

DAY 19 – TECH ORDERS & AIRCRAFT FORMS

References: AFI 11-215, *USAF Flight Manuals Program*
AFTO 00-5-1, *AF Technical Order System*
AFTO 00-20-1, *Aerospace Equipment Maintenance Inspection, Documentation, Policies, and Procedures*

Always cross-check your pubs with Stan/Eval not just your IP's or Flight Safety's

When must changes to flight manuals be posted by? _____

What is the purpose of the LEP check, when must it be accomplished, and how is it annotated? _____

_____

How long is a preflight good for and who determines it? _____

Only a Quick Turn inspection, annotated by ____, is required when the aircraft ground time does not exceed _____

What kind of an inspection does the annotation "PR/TH" mean? _____

What are the minimum requirements for the aircrew signature? _____

What can you give Transient Alert in lieu of a missing Fuel Identiplate? _____

A Red X indicates that an aircraft is_____

A Red Diagonal indicates that an aircraft is_____

A Red Dash indicates that an aircraft _____

Who can sign an Exceptional Release? _____

Who can downgrade a Red X for a one-time flight? _____

What goes in the APU OPERATIONS and OVERHEAT blocks? _____

The box used to load the Secure Voice is replaced by MX. What part of the 781 must be annotated? _____

What does 11-2KC say about reviewing the forms? _____

DAY 20 – CHECKRIDE PREP

PART 1 – CONTINGENCY SCENARIOS

Fifty percent of the stress associated the checkrides comes from the unknown. More specifically, you had all boring flights then something total non-standard happens on your check. Guess what? Most EQs are given from ordinary students acting like ducks on the water during extraordinary circumstances, meaning cool on the surface and paddling like nobody's business underwater. If you freak out on a CCTS checkride… what will you do when you are being shot at?

These scenarios require firm knowledge of the fundamentals and great CRM. With your partner and instructor, talk through the following scenarios that tend to creep up on checkrides...

PUBS CHANGE DAY BEFORE
- How will you get the change?
- How will you check if you did it right?
- When must you have it posted by?
- Is your pubs bag good?

BAD WEATHER DURING BASE OPS TRIP
- Did you check it before you showed up?
- Where can you do transition?
- What are the rules for your pattern work?
- Alternate requirements?
- What is your receiver's take-off weather?

CREW BUS FAILS TO SHOW UP
- Where are you parked?
- Are you going to document it?
- Can you walk?

EVALUATOR / INSTRUCTOR GOES DNIF
- How will you get them up to speed?
- What can you do for them?
- What if they show up late?

RUNWAY AND/OR TAXIWAY CLOSURE
- What is your game plan?
- Is it worth it to go somewhere else?

NAVIGATIONAL AID GOES OUT OF SERVICE
- How will you fly the SID? Approaches?
- Is an alternate required?

UNFAMILIAR TCTO
- How do you preflight the CCAB?
- How do you preflight the new latrine?

LIGHTING WARNING / WATCH
- What do you do if you hear lighting within 5 miles during any phase of flight?

TAIL SWAP
- How do you prepare for the tail swap?
- Do you call the tail number change to Base Ops?
- Who does what? Bags, etc

SOMETHING BREAKS DURING THE PREFLIGHT
- Did you talk to MX?
- Did you grab the MEL right away?
- How will it affect your mission?

SOMETHING BREAKS BUT NOT AN IFE
- Will you grab the MEL right away?
- Will it affect your mission?
- Is there time to land and get it inspected?

RECIEVER SLIPS
- Can you do pre-mission transition?
- How do you get a local clearance to delay?
- When do you have to leave by?

RECIEVER CANCELS
- Where do you look to find another receiver?
- Who can help you coordinate?
- Can you take off and do transition?

RECIEVER ASKS FOR RANDOM AR
- Where to?
- How does it affect your mission?

GUSTY / HIGH WINDS DURING TRANSITION
- Do you have to fly Vmgs on every approach?
- What are your known pitch and power settings?
- Is the Boom/Jump backing you up on crosswinds?
- Do you have windshear conditions?
- Are you gradually slowing to Vmgs?

ITS CAUTION/DANGER – COLD WX LIMITS
- How is your preflight limited?
- What is the timing limit on the APU?

PART 2 – PREP FOR CHECKRIDE CHECKLIST

Keep in mind, there are thousands of things an EP can hook you for if they feel like it. However, they think big picture but just remember the devil lies in the details! You know what you are supposed to accomplish on your check so make sure you can speak intelligently about them all. If you have to do a three-engine low-approach… you better know the how and why of that maneuver. Here are some things to keep in mind when prepping for the big day (which starts on mission planning day).

SORTIES LEADING UP TO CHECKRIDE

□ See multiple transition bases! (For Altus: Amarillo, Clinton-Sherman, Tinker)
□ Various three-engine set-ups (e.g. COMP HOT, Uncommanded Starter Light, etc)

DAY BEFORE/MISSION PLANNING DAY

□ PUBS CHECK!!!
□ Check your FCIF card/PEX Go-No Go
□ Check the FLIP bag and make a note of upcoming TCNs. Put a close hold on the bag when finished
□ Check weather forecast and build alternate plans
□ Ops check flight suit and shine boots (patches on straight, no wrinkles, long strings cutoff, NO MORALE PATCHES)
□ Figure out profile (seat swaps, transition, when you plan to do gear and flap exercises)
□ Check your evaluator's schedule to get the best time to brief
□ Find out your evaluator's pet peeves (i.e. they're an instrument geek or Weapons School grad)
□ Review student checkride trend data so you can see where your buds goofed
□ Review this entire guidebook to refresh your general knowledge

MISSION PLANNING DAY

□ Be proactive and give evaluator the brief time and location
□ Pick up *Notetaker* for the evaluator and **fill out** during mission planning (easier for them to follow along). If you use a briefing guide from your home unit, give a filled out copy to the check pilot. Evaluators will most likely use the *Notetaker* so make sure they have one filled out. They hate getting lost during the crew briefing!
□ Do not get wound up around the axle putting everything on a kneeboard… get it in your brain instead!
□ Ensure briefing board is correct but isn't too much eyewash
□ Make sure your paperwork is perfect!
□ Thoroughly scrub the NOTAMS, TFRs, NTAP, BASH, etc.
□ Develop back-up plans and put them in a manila envelope, if you need them the next day… break 'em open
□ USE THE 'CHECKRIDE' WORD with the receiver!
□ Have Pubs ready to be checked
□ When giving the brief, be short and sweet, exude confidence.
□ ***PRACTICE FILLING OUT THE BOLDFACE/OPS LIMITS SHEET!***

GROUND EVAL

□ Accept you won't answer every question correctly
□ NEVER EVER, SHOOT FROM THE HIP!!! This tells the evaluator you'll act without looking up the answer
□ Phrase most answers with "I believe it's ***** but let me look it up in ***** chapter *****"
□ Often times, questions will revolve around your mission. If refueling a C-130, they may ask about the restrictions
□ If something recently was changed/removed/added, odds are you will get asked about it
□ Topics in recent FCIF's are fair game

DAY OF

□ Remember… check pilots are not out to hook you! They want to see you pass!
□ Put on a show for the check pilot. This is different from eyewash. An example would be going out of your way to show the evaluator that you are checking the 200 vs. the 175 at Base Ops prior to filing.
□ Do not concentrate on something you screwed up. Easier said than done. You are always tougher on yourself!
□ Describing techniques or procedures while doing them will show the evaluator you know what you're doing
□ If you do not like an approach, take it around. As opposed to landing and hoping you don't get hooked.

PART 3 - MOST COMMONLY CRITIQUED (NOT NECESSARILY DOWNGRADED) ITEMS ON A CHECKRIDE

GENERAL

- Uniform not IAW with AFI (e.g. "morale patches", wrinkled flight suit, soiled boots, hair out regs, 'duck tail' flight cap)
- Referred to enlisted crewmembers by first name

PUBLICATIONS (Note: you may be liable for a pubs Q3 even for Stan/Eval-issued pubs)

- ☐ Supplements not posted properly – Under the title in the upper right corner simply write the supp's short name (e.g. 3S-139). Do not write your name, initials, or date. Each item changed should to have an action with it (e.g. deleted, replaced, added, etc.), not just a lineout, and a supp name. Try to get the actions in the same margin.
- ☐ LEP Checks not accomplished – Under where it says 'list of effective pages' you need two: annual and one from the current change. This certifies you have done with the page counts. Evaluators will often look for deleted pages still left in. Simply write the type (e.g. "Annual LEP"), date, and your initials after you check the pubs.
- ☐ Extra Z-outs – Many students seem to z-out items they think do not apply to them at Altus. Remember this checklist is supposed to work across numerous variants… not just Altus. Most evaluators will ask if you intended to delete something from the checklist and what supp directs it. Only z-out what is required by supp or FCIF.
- ☐ Unauthorized inserts – Verify which ones you can have and not have. Paper brains are fine but do not mix them in with the authorized inserts (e.g. KY-58 insert). Fanfolds in a plastic sleeve are not authorized inserts. Your safest bet is to put paper brains and the fanfold on the outside of the blue cover.
- ☐ Pen write-ins – These are a big no-no. If you have this, get a new checklist. Write-in changes must be written in pencil. Stan/Eval may, on occasion, authorize approved stickers but do not insert your own.

CREW BRIEFING

- ☐ Briefing guide - legal but omits certain items or omitted AFI-mandated briefing requirements
- ☐ Time hack - not given. This is required for numerous reasons
- ☐ Classification – not given. Required because some tanker missions are highly classified
- ☐ TOLD Brief – Lacks useful information. A good TOLD review enables you to use the 'doghouse' technique.
- ☐ EPs
  - Rehashed the boldface but tell the crew how you'll run the EP from a CRM point of view
  - Briefed actions were either not realistic, not procedural, or unsafe
- ☐ PC3/4 Person Ops – For Altus, it is typical to have the jump seat pilot run the checklist. Don't run through everything in Ch 6 of 11-2KCV3… it says "responsibility which differ"
- ☐ AR
  - Turn Range/Offset – Obviously used gouge/unauthorized flight-planning product or did not reference appropriate table in ATP-56(B). Did not apply the drift from the computer flight plan
  - Did not check with the receiver to get their requirements
- ☐ Fuel Reserve – Did not brief a BINGO, JOKER, and/or max offload available to the receiver

GROUND EVAL

- ☐ Student kept 'shooting from the hip' or unable to the locate reference
- ☐ Student cited source as "someone told me" vs. actual reference
- ☐ Errors on the Ops Limits/Boldface sheet
- ☐ Unable to recall UPT-level knowledge
- ☐ Systems brief not coherent or completely disorganized
- ☐ Difficulty using TOLD charts to discuss concepts performance concepts

SHOW/BASE OPS DRILL/STEP

- ☐ Students weren't prepared when the evaluator showed
- ☐ Paperwork was completely unorganized or missing
- ☐ Students were extremely passive in getting the crew planed and stepped
- ☐ Failed to identify the requirement for Cold WX ops, WX alternate, or affect on profile
- ☐ Did not notice tail number was different from schedule on Form F and DD175
- ☐ Multiple errors on the DD175 and/or reluctant to refer to GP for the correct way
- ☐ Didn't compare DD175 with 200
- ☐ Failed to point out important airfield notices or flight crew filing procedures
- ☐ Failed to check pubs bags for TCN or proper amount of FLIP
- ☐ Failed to check pubs bag's FCIF cards
- ☐ Unaware of how to make a change to the flight orders

- ☐ Forgot to cancel the bus or change the time
- ☐ Forgot to grab seat cushion

PREFLIGHT
- ☐ Failed to mention/review the required items during the forms review and brief
- ☐ Accomplished exterior inspection referencing paper brain not checklist
- ☐ Unable to discuss operation of the flight controls to the evaluator
- ☐ Unable to tell the consequences of not performing a certain step to the evaluator
- ☐ Created a tripping hazard by leaving down locks and pins in the aisle
- ☐ Deviated from the expanded checklist
- ☐ Did not take steps to get ahead of the jet/mission
- ☐ Unable to determine correct mission pacing/timing

TAXI, TAKEOFF, SID
- ☐ Should transfer aircraft control to copilot when checking trim, flaps, etc
- ☐ Was not smooth turning the aircraft
- ☐ Ran checklist in congested area
- ☐ Slow to swap seats and did not help evaluator get setup in the seat
- ☐ Set instruments wrong for the SID
- ☐ Did not take trim into account when adjusting for gust
- ☐ Was unable to make quick application of gusts to TOLD
- ☐ Did not set power between 40-45 N1
- ☐ Failed to follow the command bars
- ☐ Attempted to retract the flaps early
- ☐ Missed initial turn on the SID
- ☐ Unaware of how to obtain climb N1 and fly departure at full climb N1
- ☐ Overflew the navaid versus leading the turn
- ☐ Did not back up FMS/Over reliant on the FMS
- ☐ Used 10% VVI technique to level-off with excessive VVI (> 2000 fpm) and coupled to autopilot (> 1500 fpm)

ENROUTE
- ☐ Did not immediately determine target airspeed and mission timing
- ☐ Student unaware of how to determine best range speed and altitude data
- ☐ Flew to CP at excessive speed to make 15 minutes prior time
- ☐ Failed to do consistent NFL checks
- ☐ Compelled to always go direct in FMS when not required

AIR REFUELING
- ☐ Unable to determine where they will be in the orbit when the receiver gives different CT
- ☐ Unaware of how to change RTA at CP to get a fuel efficient airspeed
- ☐ Activated orbit early without knowing what jet will do when it hits green box
- ☐ Did not adjust receiver TAS by looking at difference between theirs and planned TAS
- ☐ Student unaware of what ATC requires before issuing an AR clearance
- ☐ Not proactive enough to tell the Boom where the receiver is
- ☐ Did not discuss overrun point
- ☐ Reset A/A TACAN not IAW with Tech Order
- ☐ Unaware of how to use 60:1 technique to maintain track
- ☐ Poor receiver consideration with regards to turns and power settings
- ☐ PF had wrong radio dialed up for ‘breakaway’ call

GEAR AND FLAPS EXERCISE
- ☐ Both students had the IFG exercise and checklist open at the same time
- ☐ Did not pay attention to movement of the flaps
- ☐ Checked lat/longs over interphone while Boom was trying to count flaps
- ☐ Did not realize that Boom must come up front to recheck the indicators

POST-MISSION
- ☐ Student unaware of how to fill out 781 and 3578 correctly and unaware of references
- ☐ Failed to grab the data card

ACRONYMS TO MAKE LIFE EASIER

Medical students often use pneumonics to aid in remember the vast amount of information about a variety of procedures or physiology. The same applies here but you can use it to avoid forget to do something or to make some things go faster. Let's start with the two most famous ones…

WANTS

- Weather – Need an alternate? How is your receiver's weather? Min temp in last 24 hrs? Hot Wx and APU limits?
- Walls – Are there airfield construction/notices? Customs clearance info? Preferred routing or departure procedure?
- Activate – Did you file/call Flight Service to activate flight plan
- NOTAMS – Did you also check the FDC or Notice to Airman Publication (NTAP)?
- TFRs – Are there any near your route of flight?
- TOLD – Last chance to catch any embarrassing showstoppers
- SID –If there is a SID file it or just file a diverse departure. Is there a special departure procedure to follow?
- STAR – Do you have a STAR book?
- Self – Snacks and bathroom stop
- Spouse – Phone call if required
- Secrets – Did you pick the COMSEC up? Have you accounted for all the secret mission-planning items?
- Seat Cushion – Makes life in the jump seat much easier

LIDS

- Localizer – Correct frequency
- Inbound course – Some approaches change course at the FAF
- DME – Some approaches change within 10 miles of the runway
- Speeds – Are you slowing on schedule?

DBAMME-T

- Delay – Pass point and time you'll mostly like get the receiver
- Block – Might not get it until you accept MARSA
- MARSA – Accept when you know you are deconflicted
- MCT – Target power setting for the breakaway
- End AR clearance – Get it if you can but you can wait
- TAS correction – Does your true match the checklist conversion? What is the receiver's TAS?
- TCAS Squawk – This is required under EMCON 1 as part of initial radio call

POGO

- PEX Sign-offs – Completed
- ORM Sheet – Photocopy made and you keep the one with the decision matrix
- Go/No-Go Checklist – Completed and signed
- Orders – Is everything correct and did the IP initial where required on the flight authorization?

FLORA (Second portion of After Takeoff/Climb Check)

- Fuel Panel
- Landing Light
- Oxygen
- RGA
- Altimeter

HALF (Prior to Descent Check)

- Heading and attitude systems – checked (AFMAN 11-217V1, 11.2.2.)
- Altimeters – Check forecast versus reported altimeter setting (Descent Check step 2)
- Landing Distance – Do you have enough? Are you able to lower the DBF to get a lower braking speed?
- Field above mins – Must be above lowest compatible approach mins (AFI 11-2KCV3, 6.42.1.1.)

AIRFIELD SUITABILITY REPORT USAGE

You are required to check the ASRR report prior to going to any airfield not regularly used. However, what is contained in the report you can't get out of GP or the FIR Supplement. First, you need to know where to find it. You will have to be on a military computer to get the site to come up. The report is generated by a number of agencies working together to ensure crews can use a given airfield on a moment's notice. Regularly, sites are visited by teams comprising pilots, air traffic controllers, security forces, civil engineers, comm., etc who get the info that isn't necessarily found in FLIP. The teams will certify the airfield for operations by certain aircraft. YOUR GOAL – Be able bring up and review any ASRR product to determine its suitability and develop an operations plan.

According to the IFR Supp and Ch 11 of the Performance Manual what is?

ACN - _____

PCN - _____

Which must be larger for you to operate on that surface? _____

DECODING THE REPORT – The toughest thing is knowing what you're looking at. For example:

TOP **Runways** Help

	ID	Pri	Len	LDA	Wid	Surface	Condition	Raw WBC	PCN	S	T	ST	TT	SBTT	TDT	TRT
Rwy: Recip:	01 19	*	11680	11483 11680	148	ASP	GOOD	PCN 108FDWU	108FDWU	XXX	111	175	345	593	840	585
Rwy: Recip:	14		5577	5380	98	ASP	GOOD	PCN 15FAYT	15FAYT	XXX	72	117	139	211	378	239

Is runway 1/19 wide enough?

Could you taxi on runway 14 if you had a 140K fuel load? What is your max?

TOP **Parking Aprons** Help

Apron Id	Length	Width	Surface	Condition	WBC	PCN	Has Lighting
FBO	2400	350	ASP	GOOD	PCN 14FC	14FC	N
HANGAR 2	2400	350	CON	POOR	PCN 14FC	14FC	N

Are we able to park on any of these parking spots?

HOMEWORK –

Using the charts in the *Performance Manual*, determine if you are legal to operate on a runway if a NOTAM is published stating "PCN changed to 34/R/B/X" and your takeoff weight after you RON there is 315K. What is your max?

UNDERSTANDING THE FORM F

Though not required for your checkride, if you haven't ever calculated a Form F for the airplane you should at least do it once for two reasons: 'Know your airplane' and understand what the Boom is doing. There are a number of ways to generate a Form F: computer, manual, and PDA (e.g. Palm Pilot). The most common is the computer-generated Form F.

According to GP, " When filing a flight plan, the pilot shall either file a DD Form 365-4 with the flight plan or certify on the flight plan that the loading for the proposed flight does not exceed the loading limits." If you review the first page of the Boom Operator's expanded preflight you'll notice that the Boom must calculate weight and balance using DD 365-4.

The Dash 5. On the aircraft, you will find the T.O. 1C-135-5-1 a.k.a. "Dash 5" in the T.O. cabinet behind the latrine. In addition, you'll find the aircraft-specific weight and balance which is only accomplished by certified personnel and yields the aircraft basic weight. The Dash 5 also includes all the standard fuel loads you'll find in most in-flight guides.

How to do your own Form F using an example. Assume we a jet with an 80K standard fuel load with a 120779 BW & 106137 MOM:

1) Aircraft Basic Weight – This is located in the jet-specific weight and balance

2) Load Standard Fuel Load - Refer to Standard fuel load chart for 6.7 fuel density in the Dash 5 loaded on the jet. These go in the left side of the REMARKS block. Create two columns: Planned and Actual. Create rows for each fuel tank and total.

T.O. 1C-135-5-1

STANDARD FUEL LOAD TABLE *[KR][Less MPRS]; [KT]*

LOAD NO.	FUEL DENSITY 6.4 POUNDS PER GALLON											
	TOTAL USABLE FUEL (LBS)	NO.1 RESERVE	NO. 1 MAIN	NO. 2 MAIN	NO. 3 MAIN	NO. 4 MAIN	NO. 4 RESERVE	FWD BODY	CTR WING	AFT BODY	UPPER DECK	MOM/ 1000
1	30000	0	5000	5000	5000	5000	0	9800	0	0	200	22020
2	35000	0	6250	6250	6250	6250	0	9800	0	0	200	26242
3	40000	0	7500	7500	7500	7500	0	9800	0	0	200	30471
4	45000	0	8750	8750	8750	8750	0	9800	0	0	200	34710
5	50000	1500	9250	9250	9250	9250	1500	9800	0	0	200	39614

3) Crew is always in COMP B and is 215/person and goes in block 3

FLIGHT CREW MOMENT TABLE
[KD][KE][KR][KT][NB][WC]

BASED ON 215 POUNDS PER PERSON

CREW WEIGHT POUNDS	PILOT	COPILOT	INST	NAVIG	BOOM OPERATOR		TOTALS	
					NORMAL POSITION	REFUEL POSITION		
	ARM 230	ARM 230	ARM 263	ARM 285	ARM 326	ARM 1300	4 CREW WT/MOM ❶	5 CREW WT/MOM ❶
	MOMENT/1000							
215	49	49	57	61	70	280	860/229	1075/286

❶ Total WT and MOM is computed with boom operator in the normal position.

4) Assume we have five passengers at COMP F. Load the information in block 3.

TROOP LOADING TABLE
[KR][KT]

BASED ON 180 POUNDS PER PERSON

TROOP NO.	COMPT	D	E	F	G	H	I	J	K	L	M	N
	CENTROID	ARM 450	ARM 510	ARM 580	ARM 650	ARM 710	ARM 780	ARM 860	ARM 930	ARM 990	ARM 1050	ARM 1110
	WT (LB)	MOMENT / 1000										
1	180	81	92	104	117	128	140	155	167	178	189	200
2	360	162	184	209	234		281	310	335	356	378	400
3	540		275	313	351		421	464	502	535	567	599
4	720			418	468		562	619	670	713	756	799
5	900			522	585		702	774	837	891	945	999
6	1080			626			842	929	1004	1069	1134	
7	1260			731			983	1084				
8	1440						1123	1238				

5) Total up the operating weight

6) Write down real fuel-panel readings at the airplane, they often vary due to APU usage for example.

7) Load the weight and moments for the fuel tanks for standard and actual fuel readings

FUEL MOMENT TABLE

RESERVE TANKS 1 AND 4		MAIN TANKS 1 AND 4							
FUEL WT – LBS	MOM/ 1000	FUEL WT – LBS	MOM/ 1000	FUEL WT – LBS	MOM/ 1000	FUEL WT – LBS	MOM/ 1000	FUEL WT – LBS	MOM/ 1000
100	104	100	88	4600	4056	9100	8092	13600	12245
200	210	200	176	4700	4145	9200	8182	13700	12340
300	317	300	264	4800	4233	9300	8273	13800	12435
400	423	400	351	4900	4322	9400	8364	13900	12530
500	530	500	439	5000	4411	9500	8454	14000	12626
600	637	600	527	5100	4500	9600	8545	14100	12721
700	743	700	615	5200	4589	9700	8636	14200	12817

8) Fuel totals. Add up quantities and moments and load into block 7.

9) Add the numbers to get your "Takeoff Condition" in Block 9

10) Corrections. Load the weight and moment difference in Block 11. Add to get takeoff condition in block 12.

11) Calculate the CG for planned and actual
    a. Moment x 1000 / weight = CGA
    b. CG% = CGA-786.2/241.9 x 100

CHECK YOUR WORK:

TOT: 80.0 65330 80.8 65694		9	TAKEOFF CONDITION *(Uncorrected)*	2	0	2	5	3	9	1	7	2	2	1	9
		10	TAKEOFF C.G. IN % M.A.C. OR IN						850		26.4%				
LIMITATIONS		11	CORRECTIONS *(If required)*			+	8	0	0			+	3	6	4
GROSS WEIGHT TAKEOFF *(lb.)*	GROSS WEIGHT LANDING *(lb.)*	12	TAKEOFF CONDITION *(Corrected)*	2	0	3	3	3	9	1	7	2	5	8	3
		13	TAKEOFF C.G. IN % M.A.C. OR IN						848		25.8%				

Note that the Boom Operator is required to recheck the weight and balance prior to takeoff so make sure you hand it back.

THE 60:1 RULE

Let's take a break from KC-135-specific topics to discuss a general pilot topic. The 60:1 Rule is the pilot's friend when it comes to cracking instrument problems in the jet and on the ground. As a pilot, you obviously know how to use but do you know how it works and when to apply it? YOUR GOAL – Be able to tell your instructor how the 60:1 rule is derived, use it in a mission planning situation to plan an instrument procedure, and use it in the jet to make you look like a pro.

How it works? The idea is at 60 nm, 1degree is about 1 nm on the arc of the circle. A nautical mile is approximately 6076 feet. Remember from high school geometry that the circumference of a circle is 2 x π x radius. The total circumference of the circle with a radius of 60 nautical miles… 2 x π x (60x6076) = 2209598 feet. There are 360 degrees in a circle and if you divide the circumference by 360 degrees you get about 6320 feet per degree. These are a good estimate for a pilot and close enough for government work. What if you want feet per nautical mile? Do the same except use one mile versus 60. You'll find a one-degree pitch change yields 100 ft/nm. Multiply that times your Mach or ground speed/3 to get a target VVI.

THE 60:1 RULE CAN HELP YOU SHACK YOUR LEVEL-OFF. The idea of 10% of your VVI works for small climb rates or in the T-1. If you have a 5,000 fpm climb rate, will starting 500 feet prior result in a smooth level off? I doubt it. Instead of memorizing your pitch settings or using the TLAR-method, do some simple math to look like a pro. According to the 60:1 rule, a 1-degree pitch change yields a corresponding change in your VVI proportional to your Mach or ground speed. Assume a 3,000 fpm climb at 0.77 Mach. A three-degree pitch change will change your VVI by 2300 fpm. Couple this with a smooth power reduction and you're ready to fly a general and entourage around the world. Approximately 1,000 feet prior to level-off; cut your power to about 3,000 pph. Now start slowly nosing over by the number degrees of pitch to get about 500 fpm. Small movements of the autopilot pitch wheel! Approaching a few hundred feet to go, you can bring the power back to the power setting you figured out on CFPS. YOUR GOAL – 60:1 any procedure out there during mission planning and use it in the jet to shack the approach!

HOMEWORK –

Go to the web and find the EEGLE1 SID at Elmendorf AFB, AK. You are cleared the EEGL1 (you're on runway 34). Under standard conditions, can you meet the climb gradient with a 150K fuel load?

Go to the web (https://164.214.2.62/products/digitalaero/index.cfm#term2) and find the HI-VOR 17R at Clinton-Sherman. You are at FL240 and ATC has given you a pilot's discretion descent to 5,000 and you are cleared the approach. Calculate all the descent gradients/rates, lead points, etc for this approach. Assume you'll hit the IAF at 250 knots IAS.

FAA 7610

You've studied the FAR/AIM, 11-202, 11-217 but there is another regulation you need to know about to employ your airplane without being violated. It's called FAA 7610.4K *Special Military Operations.*

The document provides:

- Procedures for air traffic control planning, coordination and services during special military operations.
- A planning guide for Department of Defense personnel for airspace operations in all areas.
- Guidance for all ATC facility personnel in order to be familiar with their operational responsibilities as is relates to military flying in the FAA's airspace.

The section you need to be familiar with is Chapter 10, *Aerial Refueling.* YOUR GOAL – Understand where our rules for air refueling come from and be able to speak intelligently regarding this source document.

HOMEWORK –
Under Section 5, *Operations.* There are twelve sub areas. For each section, list two questions your checkpilot might ask you.

1) Provisions for Conducting Aerial Refueling

2) User Requirements

3) MARSA Applicability for Aerial Refueling

4) Criteria for Scheduling

5) Scheduling Responsibilities

6) Flight Plan Requirements

7) Tanker Aircraft/Formation Commander Responsibilities

8) Receiver Aircraft Responsibilities

9) ATC Clearance

10) Radar Vector Assistance

11) ATC Facility Responsibilities

12) Communications Failure

FORMATION FOR DUMMIES

Although formation flight is not part of your checkride profile, this day is included because you will have at least two formation rides during your flightline training. Flying formation is easy in that it is mostly autopilot-on anyway, the hard part is "collaring the box of kittens." Get into the books, **particularly the 3-3**, to get the answers. Some helpful hints are also included… make sure you have your IP discuss any additional techniques they have.

What is the difference between a standard formation vs. a non-standard formation?

_____

How do you take your formation partners into account during the turn range and offset calculation?

_____

As lead, when will you clear the cell members to echelon for the refueling?

_____

Can you fly formation without TCAS? _____

How will TA/RA be configured throughout the flight? _____

As lead, how do your radio calls differ in cell versus single-ship? _____

_____

What are considerations for mixed formations (e.g. spacing, altitudes, etc)?

R-model with E-model: _____

R-model with KC-10: _____

GOTCHAs…. Here are some things that typically debriefed after a sortie

- **BRIEFING GUIDE –** Make sure you fill one out for everyone.
- **TRAINING REQUIREMENTS –** Pre-coordinate this with your cell mates before the briefing
- **WEATHER** – Always call before show time, too many formations 'go south' because there was no head's up on weather. Everyone is waiting on you so they can replan. Have a tentative plan before you show.
- **DIVISION OF LABOR** – Who does what? If running the cell, take charge and delegate as required. Have someone get NOTAMS for the cell as well as running TOLD. Make sure you can concentrate on the big picture
- **FUEL WEIGHT VS ALTITUDE** – Not everyone has the same AR as you, for beans, you might be added. Thinking about basing your mission planning numbers on the heaviest aircraft. Endurance for you might be close to initial buffet for the folks at the top of the block
- **MATCHING FLIGHT PLANS (DD175/DD1801) –** Always check everyone else is before you file. Numerous crews have gotten in trouble with ATC over different routings. Give your cell mates a template of your route to work from
- **BUS PLANNING** – Three crews on one bus is a bigger pain than you think. Tell everyone who sits where and who is dropped off first. Lead typically is dropped off last. Plan the bus to get to your jet 2 hours prior.
- **RADIO CALLS –** Always wait for the acknowledgement and make sure everyone is on frequency when asking for something like clearances. DO NOT FORGET TO CHECK THEM IN!!!
- **TIMING & CHECK-IN –** Always check-in at the set time, chair fly the check-in, it's the most botched area
- **DELAYS ON THE GROUND** – When will you proceed without cellmates? Can you join up mid-mission?
- **TAXI FLOW –** At Base Ops, take some time to discuss flow especially if folks are parked far away
- **POWER SETTINGS / TAKEOFF CONFIG –** The goal is to get everyone departing in the same envelope. Using something like 8-10% allows normalization between different weights. See the 3-3 for more discussion
- **WAKE TURBULENCE MITIGATION STRATEGY**- Discuss your options: delay rotation, offset, etc. If lead delays rotation then cellmates can climb above your wake.
- **BRIEF AT THE JET –** Make sure MX knows where everyone is parked so the taxi goes smoothly.

MASTERING THE CHECK-IN

The three toughest things when it comes to formation flying in the tanker are: flying the departure, the formation brief, the initial flight check-in.

- Make sure you start on the exact time
- Don't forget to send your wingman to the next radio
- Don't forget to check all the radios (e.g. HF)
- If HQ/SV checks fail use interplane as "get-well" frequency

PILOT	COPILOT
Gassr XX flight check Comm 1	
	Gold flight check Comm 2
	Gassr XX flight check Comm. 3
	Gassr XX flight check HF 6761
Gassr XX flight go 300.1 Comm 1	
Gassr XX flight check Comm 1	
Gassr flight, Mickey in 5 sec (send TOD per checklist)	
Gassr flight go A00.1	
Gassr flight check HAVE QUICK Comm 1	
Gassr XX flight go 300.1 Comm 1	
Gassr XX flight check Comm 1	
Gassr XX go green/secure Comm 1	
Gassr XX check secure Comm 1	
Gassr XX go plain, Ch 11, Comm 1	
Gassr XX flight check Comm 1	
	Gassr XX flight of 2/3 in spots X/Y/Z request engine start for the formation with information X.
	[25 min prior] Gassr XX go Ch 19 for clearance Comm 2
	Gassr XX flight check Comm 3
	Gassr XX IFR to Altus clearance on request
	Gassr XX go interplane Comm 2

WELCOME TO MISSION QUAL TRAINING –a.k.a. How not to show up to your unit looking like a chucklehead

WARNING

Failure to complete mission qual events within the allotted time will put you in the doghouse with your new commander

CAUTION

Your reputation as a pilot starts the day you sign in!

As the new person, you are worthless to the schedulers until qualified; not to mention that you tie up scarce instructor pilots. First impressions are everything! Your goal in life is to get finished as soon as you can and make it easy for everyone. If you are Training Flight's problem child, everyone in the leadership will know. Being a problem child means late upgrade, "getting screwed" out of good deal trips, and working the not-so-fun jobs around the squadron. Attitude is everything!

NEWBIE PLAN OF ACTION

PRE-ARRIVAL

1. Call ahead to squadron or sponsor and give them your initial game plan (house hunting, in-processing, etc). Expect minimal time off before coming to work. Tell them the days you want to start knocking out MQT events so they can schedule you ahead of time. Ask if they need training event dates so they can put them in your folder ahead of time.
2. Have your sponsor email you or download from e-Pubs, the local supp to AFI 11-2KC135 Vol. 3 and start reading it
3. Peruse AFI 11-2KC135 Vol. 1 to see your required mission qualification items.

ARRIVAL AT THE SQUADRON

1. Ensure you have all the required documents to hand into Stan/Eval, Training Flight, and Flight Records on Day 1.
2. See the Flight Doc ASAP to get cleared to fly
3. Talk with Training Flight and look at your training folder. It looks like the one you had at Altus. Find out what items you can knock out on your own (e.g. Alert Start CBT).
4. Depending on your unit, you may not be qualified to fly your unit's configuration (e.g. MPRS) so get cracking on CBTs!

DURING MISSION QUAL

1. Check in with Training Flight NLT 0800 every workday. Review your training folder and sign off any TAPRs. Show them you're motivated to be done fast. Knock out every item you have control over.
2. Continue to study your pubs and AD's. Items that did not come up at Altus come up during mission qualification.
3. Talk to the schedulers and volunteer to take any "bad deals" they have. You need to earn some "good deal" credits.
4. Ask to hop on as just an observer so you can watch how your squadron does things
5. Try to fly a sortie shadowing the Boom… this is a huge eye-opener for new copilots
6. Fight for government sim time!

PIQ EXPECTATIONS

If no one at Altus explained how you're supposed to get from here to aircraft commander and what to expect, then keep reading:

- Your training isn't over yet so you don't get to slack off just yet… MQT will come fast and furious…. STUDY!!! You'll be expected to digest: Block 40/40.2/40.3 difference, MPRS, Overseas, T-Model Difference, OPlan 8010 Cert, plus more!
- Although you can land the plane from both seats & do the walk-around and crew brief… no one trusts you in the airplane!
- You're expected to know how to fly the airplane and still do pilot-things like a fix-to-fix versus acting like a passenger
- Ninety percent of your flights in the first six months will be in the right seat. You have to learn to function as a copilot and earn the right to get to sit in the other seat. Any left seat landings will be for currency only.

Approximately 18 months from now, your commander will review your progress and look at upgrading you, after that you fly mostly left seat.

That's it. You're done! If you have any feedback, look me up on the global and shoot me an email.