The Brain Book - Version 1.0

Nov 05

I can not even begin to take any credit for the contents of this document. My contribution to this project is the assembling of various C-130 gouge that I’ve come across, and the reformattting of it into a product that is uniform and easily accessible. My apologies for my inability to give credit to all who have contributed, for most of the information offered is the result of the dedication, professionalism and hard work of others.

This version of the “Brain Book” is geared towards the C-130 H-2s flown by the Tennessee Air National Guard. Please feel free to edit and adapt the contents of this document to suit the needs of your individual unit’s requirements.

I will continue to maintain and update the Master Document, which with the help of Baseops.net will be made readily available to the C-130 community.

If you come across any mistakes, have information that you’d like to see added, or have any suggestions on how to improve the contents within this Brain Book, please contact me at: john.rojas@tnnash.ang.af.mil.

Pages are in no particular order. Feel free to organize your brain book in a way the suits you. Mine is broken into: Numbers, Mission Planning, Briefings and Guides, TAC, Emergency and Abnormal, and I put the SKE turn guides last.

Safe Skies,
Capt. J. Tucker Rojas
## BLEED AIR

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Diffuser temp/press</td>
<td>600°F / 125 psi</td>
</tr>
<tr>
<td>Eng Min Press</td>
<td>70 psi</td>
</tr>
<tr>
<td>Eng Bleed Leak</td>
<td>65-35 psi in ≥ 16 sec</td>
</tr>
<tr>
<td>Regulated Norm Press</td>
<td>40 – 50 psi</td>
</tr>
<tr>
<td>Regulators w/in</td>
<td>3 psi each of side</td>
</tr>
<tr>
<td>APU Min Press</td>
<td>35 psi</td>
</tr>
<tr>
<td>APU Bleed Leak</td>
<td>30-15 psi in ≥ 16 sec</td>
</tr>
</tbody>
</table>

## AIRSPEEDS / GROUND SPEEDS

- Fire Extinguisher Press: 600 - 640 psi (@ 70°F)
- Cold Wx Ops: ≤22°F or 0°C
- Hot Wx Ops: >−5°C or 35°C
- T/I Weight/EPW: 155,000 / 175,000
- Max Landing Wt: 155,000 @ 350 psi
- Lurch: 74 with 2 attendants or 70 with 6 attendants
- Paratroopers: 64
- Tie downs: 11-sidewalls 33-ramp
- Tie downs: 1000lbs 175-floor & top of rails
- Tie downs: 25000lbs 10 under rails/2@FS 737
- Max Bank Angle: 60°
- Max Bank w/Flaps: 45°
- G's: > 25,000lbs cargo 0 to 2.5 (see fig 5-5)
- <10 or >25,000lbs cargo 0 to 2.5 (see fig 5-5)
- Max Bank: 60° / 2 g
- Max Bank w/Flaps: 45°
- Max Effort Fuel: ≤<6,200; 5,700 in Ext empty, ≥130,000 lbs

## WEATHER

- Class A: N/A IFR Only
- Class B: 35M / Ceiling of Clouds
- Class C: 35M/500 / 1000/1000 – 2000
- Class D: 35M / Ceiling of Clouds
- Class E & G: 1000 / 1000 – 2000 / 5000
- VFR Cylindrical: 1500 / ≤ Destination ≤ 1hr
- IFR Cylindrical: Approach Limits ≤ 1hr
- Take Off WX: 1/2SM or 6000 RVR w/dual RVR
- Destination WX: 3000 / 3 / 2 Appr Vis
- Alternate WX: 1/2SM or 6000 RVR w/dual RVR
- Partial Instruments: 3000 / 3 / 4 min DH/MDA
- Approach Lts Out: Add 1/2sm to vis
- Correct DH when ≤ 5° (FIH)
- Percision Approach: DH must be ≥ 206°/12
MAX AIRSPEEDS
(p 5-15 in -1)

(VH) Speeds are for “AREA A” of Weight Limitation Chart using Primary Fuel Management
:::Under 4k of Cargo will fall in AREA A regardless of fuel load:::

(VD) Speeds are for ALL weight areas except “AREA E” using Primary Fuel Management
:::Under 24k of cargo will not fall in AREA E regardless of fuel load:::

<table>
<thead>
<tr>
<th>ALTITUDE</th>
<th>(VH) RECOMMENDED</th>
<th>(VD) MAX</th>
</tr>
</thead>
<tbody>
<tr>
<td>30,000’</td>
<td>210</td>
<td>238</td>
</tr>
<tr>
<td>29,000’</td>
<td>214</td>
<td>243</td>
</tr>
<tr>
<td>28,000’</td>
<td>217</td>
<td>249</td>
</tr>
<tr>
<td>27,000’</td>
<td>221</td>
<td>254</td>
</tr>
<tr>
<td>26,000’</td>
<td>225</td>
<td>259</td>
</tr>
<tr>
<td>25,000’</td>
<td>228</td>
<td>264</td>
</tr>
<tr>
<td>24,000’</td>
<td>231</td>
<td>270</td>
</tr>
<tr>
<td>23,000’</td>
<td>235</td>
<td>275</td>
</tr>
<tr>
<td>22,000’</td>
<td>239</td>
<td>280</td>
</tr>
<tr>
<td>21,000’</td>
<td>242</td>
<td>286</td>
</tr>
<tr>
<td>20,000’</td>
<td>246</td>
<td>291</td>
</tr>
<tr>
<td>19,000’</td>
<td>249</td>
<td>296</td>
</tr>
<tr>
<td>18,000’</td>
<td>253</td>
<td>302</td>
</tr>
<tr>
<td>17,000’</td>
<td>257</td>
<td>307</td>
</tr>
<tr>
<td>16,000’</td>
<td>260</td>
<td>312</td>
</tr>
<tr>
<td>15,000’</td>
<td>264</td>
<td>318</td>
</tr>
<tr>
<td>14,000’</td>
<td>267</td>
<td>318</td>
</tr>
<tr>
<td>13,000’</td>
<td>271</td>
<td>318</td>
</tr>
<tr>
<td>12,000’ &amp; Below</td>
<td>269</td>
<td>318</td>
</tr>
</tbody>
</table>

TANG Drop Zone
Field Elevation: 1090’
PI: N 35° 22’ 36.1” W 086° 09’ 10.0”
### IFR 3 ENGINE CLIMB

Meets or exceeds highest of 200 Ft/NM or published departure climb gradient on 3 Eng.

- **YES**
- **NO**

3-engine climb remains above Obstacle Intrusion Space -48' every 300' where 4 engine

- **YES**
- **NO**

Compute 4-engine climb gradient

- **YES**
- **CAN'T**

Reduce GW/FUEL, delay for WX, or Coord. Alt DP w/ATC (Radar Vector must meet trouble T. 11-217 9.24)

At discretion of AC, all of the following apply (Guard requires home unit OG/CC Approval before exercising this option):

- Mission requirements dictate
- Day VFR on entire departure and planned emergency return route
- 4 engine climb meets highest of required climb gradient or 200 Ft/NM.
- AC determined through a review of charts that 3 eng Departure and Emer. required return route

Return will allow for obstacle avoidance.

- Emer. return route is briefed to crew.

#### VFR Depart (VFR Flt. Plan)

- 4 engine ensures obstacle clearance along Departure Route. Use 4eng Flt Path Chart -1-1 p.3-88
- 3 engine obstacle clearance on the planned Departure & Emer return. (minimum 300’/min & 152/nm)

---

### Local Trouble T's

**Effective 15 Apr 04**

**Nashville Intl, TN (KBNA)**

Rwy 20L, 20C, 20R, 1500-3*

Rwy 31, 1500-3**

- Or Standard with minimum climb of 240/NM to 2600.

- Or Standard with minimum climb of 250/NM to 2600.

Use TITAN DEPARTURE. TAKE-OFF OBSTACLES Rwy 31: Tower, 1472' from DER, 916' left of centerline, 143' AGL/646' MSL.

**Chattanooga, TN**

LOVELL FIELD (KCHA)

..Rwy 15, 300-1*

..Rwy 33, 500-1

- Or standard with minimum climb of 230/NM to 1700.

Rwys 2, 15, 20, climb rwy hdg to 1700 before turning. Rwy 33, climb right turn to 2300 on hdg 020° before proceeding on course.

**Campbell, AAF (KHOP)**

FORT CAMPBELL, KY

- None.

**Huntsville Intl, Carl T. Jones Fld (KHSV), AL**

Rwys 36L and 36R climb rwy heading to 800 before turning.

**Lexington, KY**

BLUE GRASS (KLEX)

Rwy and 8, climb rwy hdg to 1400 before turning.

**Knoxville, TN**

McGhee Tyson (KTYS)

Comply with SID or RADAR vectors, or climb rwy heading to 4000 before turning on course.

**Jackson, TN**

JACKSON / McKellar-Sipes Regional (MKL)

None.
**FLT PLANNING WX REQUIREMENTS**

**Departure Aircraft**
Is ceiling or visibility below landing minimums for an available approach at departure airport? (200-½min)

- **YES**
  - DEPARTURE ALTERNATE NOT REQUIRED
  - IS DESTINATION AN ISLAND OR REMOTE?

- **NO**
  - DESTINATION APPROACHES
    - Precision approaches may use vis only if fuel permits.
    - ½ SM minimum.
    - All other approaches require both ceiling and visibility.
  - 11-2C-130V3 p98 6.42.1
  - Is a published approach available?

**Departure Alternate Required**
Weather Mins for Takeoff:
- RVR > 1600
- 1/2 mile if no RVR

**YES**

- RVR > 1000
  - If operational mission, runway has dual RVR readouts & centerline lighting is operational.

**NO**

- WX at departure alternates:
  - Within 30 mins flying time:
    - Wx must be ≥ approach mins (in no case < 200-1/2(RVR 24)) for one hour after takeoff.
  - Within 2 hrs flying time:
    - Wx must be ≥ 500-1 above approach mins but not <600-2 for a precision or <800-2 for a non-precision approach (ETA + 1 hour)

File IFR to a point enroute where VMC conditions exist, or to a published approach, descend to VMC then VFR to destination.

**Does Destination Require an Alternate?**
Alternate required if the worst WX (ETA + 1 hr) is forecast to be less than:
- Ceiling: 3000 ft
- Visibility: 3 miles or 2 miles above lowest approach minimums whichever is higher.

**YES**

- Does wind exceed limits corrected for RCR?

**NO**

- Is radar required? GPS only NAVAID? No WX Reporting? NAVAID Unmonitored?

**Does Destination Require Two Alternates?**
Is forecast weather (prevailing or intermittent) below visibility approach minimums?

- **YES**
  - ALTERNATE REQUIRED
  - IS DESTINATION OUTSIDE CONUS?

- **NO**
  - OCONUS flights requires an Alternate.
  - IS DESTINATION OUTSIDE CONUS?

**Alternate Required:**
Worst forecast wx ETA + 1 hr must be: at least 1000ft or 500ft above lowest approach minimums.

- **AND**
  - Visibility of 2 mi or 1 mi above lowest approach minimums.

**REMINDERS:**
Check NOTAMS & TCN for changes.

**C-130 X-wind limits:**
- Dry: 35kts above 100lbs
- Wet: 21kts above 100lbs
- Aslt: 18kts @ 90° 28@30°

**Weather Required For Takeoff:**
- 1/2 mile or >1600 RVR or >1000 w/ dual RVR

<table>
<thead>
<tr>
<th>Destination</th>
<th>3000’ &amp; 3 (or 2 above approach mins)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Alternate</td>
<td>1000’ &amp; 2 (or 500’ &amp; 1 above mins)</td>
</tr>
<tr>
<td>If Approach Lighting Inop</td>
<td>add 1/2mile 2C-130V3 6.42.1.2</td>
</tr>
<tr>
<td>If &lt; Full Flight Instrumentation</td>
<td>add 300 and 3/4 miles 6.42.1.3</td>
</tr>
</tbody>
</table>

**Weather Required For Takeoff:**

- Must have enough O2 to continue mission from ETP (Equal Time Point). 5 liters min. POKs are required for PAX when ALT. exceeds FL250. EPOS are required regardless of ALT. You can’t mix POKs & EPOS. Crewmembers who do not have access to O2 will have either a POK or EEBD within arms reach ↑10,000’. On over water flights the max # of PAX is 80 due to Rafts. LPUs are required when outside gliding distance of land. You must wear LPUs ↓ 2000’ except takeoffs, landings, & approaches. LMs must wear a restraining harness or chute when doors are open. Harness only when ↓ 800’ agl
COCKPIT INSTRUMENT CHECK (AT BNA)

1. GENERAL
   a. Check alignment of attitude indicator
   b. All steering bars/flags out of view
   c. Altimeter setting set ± 70 field elevation

2. FLIGHT SELECTOR PANEL - HDG
   a. Set heading bug to airplane heading, steering bar should center.
   b. Rotate bug left/right, check proper steering bar deflection.

3. MODE SEL switch - TAC (Tune/Ident)
   BNA TACAN Channel 88X:
   a. Set heading bug to airplane heading, steering bar should center.
   b. Rotate bug left/right, check proper steering bar deflection.
   (1) FLT DIR switch - NORMAL
   (2) Ensure bearing pointer (BP) points to station. Check other TAC to be within ± 3°
   (3) Confirm Bearing/distance indications at TACAN checkpoint prior to flight. BP/CDI ± 4°, DME within ± 0.5 mile or 3%. whichever greater (3% only applies when > 16nm DME)
   b. SELF TEST
      (1) Set in 180° course and press TEST button
      (2) 15 sec: Warning flags out of view, BP=180° ±3°, CDI ±½ dot, “TO” indicated, DME 000 (±½ mile)

6. MODE SEL switch - VOR/ILS (Tune/Ident)
   BNA VOR Channel 114.1:
   a. Set 315 course and check for proper VOR identification
   b. Initiate TEST cycle (TUNE 5-5, VOR 1-1, Test “ON”)
   c. HSI BP indicates 315° ±3°, CDI centers, TO-FROM indicator displays “TO”
   d. Applicable bearing pointers indicates 315° ±3°
   e. All three marker beacon lights on pilot instrument panel illuminate steady (#1 VOR only)
   f. Press SCNS TEST button “OFF”

7. TUNE ADF
   Opery NDB Channel 344:
   a. Mode switch to “ADF”.
   b. Take Command switch to “Take Command”.
   c. Frequency Control switch to “MAN” and tune and identify the desired frequency.
   d. Test/Tone switch to “Test” and hold.
   e. ADF pointer advances 90° from original position.
   f. Release Test/Tone switch.
   g. ADF pointer returns to original position.

8. RADAR ALTIMETER
   a. Set altitude reference to 400’
   b. Press & release the SET control knob.
      (1) Height Indicator Test Display
         (a) Alt pointer positioned at 500’
         (b) Digital display shows 88888
         (c) R/T light illuminated
      (2) Receiver-Transmitter Test Display
         (a) Alt pointer positioned at 300’
         (b) Digital display 300’ (±10’)
         (c) R/T light off
         (d) LO light illuminated
         (e) System returns to normal ops after ~3 sec.Digital display shows 0’ (±2’)

DEPARTURE BRIEFING

1. TOLD
   Airspeeds
   Runway required for Takeoff vs Runway Available
   Vref < Vs - acceleration check time
   50 % flap ground roll (E)

2. EMERGENCY PROCEDURES
   Prior to refusal speed -- “reject prop/eng/sys/load (brief description)”
   - Prop - (2 of top 3, prop low oil light, directional control)
   Flight idle / ESP / reverse symmetricals
   - anything else (no rush)
   Gnd idle / reverse all 4 (if necessary) / wait ‘til safe taxi speed
   After refusal speed
   - Treat as an airborne emergency /// option if on long runway
   - Advisory call
   Prop / engine failure -- Gear , FX, Flaps
   Obstacles : gear w/i 3 // fx w/i 6 // 3 eng climb speed to MSA
   (N) keep us clear of obstacles
   No obstacles : try for 150 KTAS -- V_mca
   (E) - clear to go MECH
   Engine fire / overheat -- keep it running
   Anything else we’ll handle after clear from ground
   Fuel dumping / bleeds (> 120k 2 eng min performance) (E)
   Recovery base ? (wx bad -- IAP)
   Copilot & Flight Engineer coordinate Emergency Actions.

3. SIGNALS FOR GEAR AND FLAP RETRACTION

4. DEPARTURE
   SID / RV / Clearance ALT / HDG
   Nav Aids
   SCNS - overview of plan
   Radar Alt - (400’ or HAT)
   Hazardous terrain / obstacles (N)
   Radar Monitoring for WX (N)
   ITO-select heading, pitch sync, rotate speed – MCS or 5 kts prior, pitch 7°,
   two positive rates – gear, climb > 300 fpm, flaps +20,

5. SKE / FORMATION PROCEDURES
   SKE - (CP)
   Abort Calls - (CP - ATC / N - interplane)

6. SCNS PROCEDURES
   Fly in SCNS // Radial/ DME

7. Defensive/ECM Systems

8. Notes/Unit/MAJCOM Items
ARRIVAL BRIEFING

VFR CHART

1. WEATHER -- ATIS // METRO // FSS

2. APPROACH TO BE USED
   Flap setting // type landing // speeds/runway available vs. desired ldg dis.  
   Nav aids // Obstacles // ESA//MSA?  
   Course
   Descent rate
   Precision : drift / gnd speed (N)
   Non-precision : 1500 fpm (CP) backup // Drift (N)
   Altitudes -- FAF / HAT/MDA/DH/Radar Altimeter?
   Timing -- calculate and backup “hack” (N)
   Touchdown point and Landing Distance
   (E) - “speed good” // “props good”

3. BACKUP APPROACH
   Vis // Loc // anything close // missed approach

4. MISSED APPROACH
   Initial hdg / alt // (N) read the rest
   (E) - call 7,8,9 or 15,16,17

FUEL PLANNING

(Explanation of Fuel Items on AF Form 4116, C-130 Flight Plan and Record)

<table>
<thead>
<tr>
<th>Description</th>
<th>Calculation</th>
</tr>
</thead>
<tbody>
<tr>
<td>En Route</td>
<td>Fuel for flight time from departure overhead destination or initial penetration fix at cruise altitude (including time for planned orbit, escort, search, recovery, appropriate climb, weather recon, etc. when applicable).</td>
</tr>
<tr>
<td>En Route Reserve</td>
<td>10% of flight time over a Category I route/segment, not to exceed 0+45 minutes. For orbit/search missions, 10% of flight time for that portion with inadequate NAVIDS from the orbit/search point to destination. Compute at Terminal Fuel Flow (TTF) is the fuel flow rate expected during the last hour at cruise altitude 11-2C-130V3 p.428.</td>
</tr>
<tr>
<td>Alternate and Missed Approach</td>
<td>Alternate: Fuel for flight time from overhead destination or initial penetration fix to alternate, or most distant alternate when two are required. Compute at terminal fuel flow. Add 10% reserve when time to an alternate exceeds 1+30. Required whenever an alternate must be filed. Missed Approach: 2200 lbs. Required if destination is below ceiling minimums but above visibility minimums for planned destination approach.</td>
</tr>
<tr>
<td>Holding</td>
<td>Entry required. Minimum 2000 lbs. If flight time over a Category II route is greater than 3+20, when an alternate is located in Alaska, is not available or located at latitudes greater than 59° N/S, use 3500 lbs. These holding fuel calculations meet or exceed the fuel requirements of AFI 11-202V3 2.2.3. Fuel Reserve.</td>
</tr>
<tr>
<td>Approach/Landing</td>
<td>Approach: 1,000 lbs. (2,000 lbs for high altitude approach). Entry always required. Minimum Landing Fuel: 4,000 lbs. Entry always required.</td>
</tr>
<tr>
<td>Pressurization Loss</td>
<td>Additional fuel for pressure loss at ETP (Equal Time Point) - used when pressurized, carrying passengers, and aircraft oxygen is not available to the passengers. Compute at 1000 lbs/hr for time from ETP to FSAF (First Suitable Airfield) or LSAF (Last Suitable Airfield) or “T” time. If computed fuel reserve for pressurization loss is less than total of items 2, 4, 5, and 12, add the difference in item 7.</td>
</tr>
<tr>
<td>Stored Fuel</td>
<td>Ramp fuel for succeeding legs without refueling.</td>
</tr>
<tr>
<td>Off-Course Maneuvers</td>
<td>Fuel for anticipated off-course maneuvering for terrain clearance, thunderstorm avoidance, ATC requirements. Compute at 100 lbs/min for departure, 50 lbs/min for en route.</td>
</tr>
<tr>
<td>Icing</td>
<td>500 lbs for each hour of anticipated icing.</td>
</tr>
<tr>
<td>Known Holding Delays</td>
<td>Fuel for anticipated/planned excess holding time. Compute at terminal fuel flow.</td>
</tr>
<tr>
<td>Taxi and Takeoff</td>
<td>Normally 1300 lbs. For known taxi delays or additional engine-running ground time in excess of 20 minutes, add 50 lbs/min.</td>
</tr>
<tr>
<td>Unidentified Extra</td>
<td>Difference between ramp and actual ramp fuel. Should not exceed 2200 lbs (for fuel conservation purpose).</td>
</tr>
<tr>
<td>Minimum Diversion</td>
<td>Total of ALTERNATE AND MISSED APPROACH, HOLDING, and APPROACH/LANDING. Will never be less than 7000 lbs.</td>
</tr>
<tr>
<td>Min Fuel</td>
<td>Declare when aircraft will land at the intended destination with less than the required fuel reserve.</td>
</tr>
</tbody>
</table>

Balance: Outboards 500-1,000lbs > inboards; 1,000lbs between symmetricals; 1,500 between wings. Assault Fuel: 6,200 in outboards, 0 in externals, <23,500 total in mains, 130,000lbs max gross weight. Primary Fuel Management: Main tanks are full and in balance (see above) and the external and / or auxiliary tanks contain usable fuel. Main tanks are considered full with > 7,500 lbs in the outboards; > 6,900 lbs in the inboards. This is our chief means of fuel management. Secondary Fuel Management: Any fuel management that fails to meet Primary fuel management. 118AW will not normally operate in Secondary Fuel Management. Usable Fuel in Level Flight (found in tanks):

<table>
<thead>
<tr>
<th>TANK</th>
<th>U.S. GALLONS</th>
<th>JP-8, POUNDS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Outboards</td>
<td>1222</td>
<td>8310</td>
</tr>
<tr>
<td>Inboards</td>
<td>1126</td>
<td>7657</td>
</tr>
<tr>
<td>Auxiliaries</td>
<td>855</td>
<td>5814</td>
</tr>
<tr>
<td>Externals</td>
<td>1309</td>
<td>8901</td>
</tr>
<tr>
<td>TOTALS</td>
<td>9024</td>
<td>61,364</td>
</tr>
</tbody>
</table>
## AIRCRAFT COMMANDER's CREW BRIEFING

1. **Mission purpose (Training?)**
2. **Itinerary/Sequence of events (destination/duration)**
3. **Weather (Nav radar)**
4. **Call sign and formation position (if applicable)**
5. **Times:**
   - Radio check-in
   - Stations time
   - Takeoff (early off authorization required?)
   - TOT (does loadmaster have the times)
6. **Fuel requirements (assault landings?)**
   - Total Fuel
   - Recovery Fuel
   - Type of Landings Planned
7. **Load and drop sequence**
   - What is the Load and Sequence
   - Is the load Jettisonable/hazardous
   - Nav Marks the loads
   - JAI done on load? (DOD form 1748)
8. **Intelligence updates (EPA briefed if required)**
9. **Interphone and radio discipline**
   - Keep Interphone Clear Below 10,000ft
   - Clear/Concise on the Radio
   - Listen for Callsign if Pilots Miss it
10. **Emergency Procedures (Aircraft & Airdrop)**
    - Evacuation of Aircraft (looking for individuals, load O2/Chocks
    - Simulated EP's-"simulated"
    - Airdrop EP's (loadmaster/cockpit duties)
    - Abort Calls (Nav-Interplane, CoPilot-ATC)
11. **Passenger/cargo load (Form F signed?)**
12. **Maintenance status (exceptional release signed?)**
13. **Personal equipment (rings/scarfs/etc.)**
14. **Crew coordination (Co-pilot/Engineer engine shutdown plan)**
    - No Secrets/Crew Concept (Back each other up)
    - 2 challenge rule
    - Time-out (inside the aircraft)/Knock-it-off (formation)
    - Copilot & Engineer Coordination for Shutdown
    - Preslowdown Times/Will doors be open below 800 AGL?
    - Engineer call 7,8,9 on run-ups/No Reject calls on Touch and Go’s
    - Eng; IFF all day
    - Copilot – Stop mode (most conservative response)
15. **Notes/Unit Requirements**
    - AMC/Group/Squadron Special Interest Items
    - Questions and comments from each crew member

## PREFLIGHT GUIDE

### DAY PRIOR TO FLIGHT
1. Orders (Flight/TDY/NATO)
2. Foreign Clearance Guide
3. Diplomatic Clearance
4. Customs/Agriculture/Immigration requirements
5. Airport qualification briefing

### DAY OF FLIGHT
1. FCIF/FCB
2. Mission kit
3. Navigation kit
4. Aircrew equipment:
   - Uniforms
   - ID tags
   - Helmet/mask (HALO?)
   - Required publications (new pubs out?)
   - Tool kits/airdrop kits
   - Field equipment/artic equipment/ration
   - Weapons (required?)
   - Passports/visas
   - Shot records
5. Hazardous cargo briefing (AFR 71-4/AMCR 55-18, Vol 1)
6. Buffer zone/safe passage briefing
7. Intelligence/threat/EW briefing
8. Fleet service/lunches/pax comfort kits
9. Authenticators/IFF/Mode IV/Have Quick/ Secrets

### BASE OPS
1. NOTAMS
2. Weather
3. Flight plan filed
4. Secrets ????

### AT THE AIRCRAFT
1. Fuel/MX status
2. Secure Radios/Have Quick
3. DD Form 365-4 (Form-F)/Manifest
4. Emergency/survival equipment:
   - Parachutes (55-130)
   - LPU’s
   - Life rafts
   - Survival equipment
   - Vests/flak jackets
   - Chemical protective gear
**Airdrop Equipment Info**

<table>
<thead>
<tr>
<th>Drop Airspeeds: For combo, use the higher airspeed</th>
<th>AFI 11-231 p125</th>
</tr>
</thead>
<tbody>
<tr>
<td>Personnel SL</td>
<td>130 CDS/CRS 130/140*</td>
</tr>
<tr>
<td>PJs</td>
<td>125 Door Bundle 130</td>
</tr>
<tr>
<td>Personnel HALO/HAHO 110min-150max</td>
<td>130 CRRC/RAMZ/HVCDS 130/140*</td>
</tr>
<tr>
<td>Heavy Equipment</td>
<td>140 Recovery Kit 130</td>
</tr>
</tbody>
</table>

*Used when GW > 120k

**Must be operational:**

**Personnel Airdrop**
- Air Deflector & Paratroop Doors (if using paratroop doors)
- Anchor cables
- Anchor cable supports
- Static line retrievers
- Jump platforms
- Jump lights
- Seats (64)
- Towed Paratroop Retrieval System

**Container Delivery System (CDS)**
- Static line retriever
- CDS switch
- Arming jump lights
- Ramp & door w/ADS arms
- Main DC power through TD relay for ADS
- Operational Aux pump & system
- Dual rails
- Chain gate
- Buffer stop assembly
- Centerline vertical restraint (CVR)

**Heavy Equipment**
- Dual rails and locks
- Extraction parachute ejector (bomb rack)
- Ramp & door w/ADS arms
- Operational ADS panel
- Operational Aux pump & system
- Jump lights

**Engine Out Information**

- **Engine Shutdown Procedures**
  - Squak / Systems / Si multaneous Radios
    - set TA only on transponder
    - state fuel in WT (for fire crew) and Time (SAR)
  - Trim - Rudder Neutral on Final (FE backup)
  - Airspeeds - \( V_{mca} \), Obst clnc, 3 Eng climb
  - Reversing Symmetricals (FE backup)
    - Pull towards the goods
    - Put dead engine upwind

- **GO Around Procedures** - Inform Crew
  - Max Power/5° Bank & Rudder
  - 50% Flaps/Gear Up/2 Eng \( V_{mca} \)
  - Flaps Up/3 Eng Climb

- **Decent and/or Before Landing**

**The Patterns**

- **3/4 ENGINES**
  - Downwind 150/170
  - Base 150 or Approach Speed (140 VFR)
  - Final Approach Speed

- **2 ENGINES**
  - Downwind 160 (w/ gear)
  - Base 160 or Approach Speed
  - Dogleg 150 or Approach Speed
  - Final 150 or Approach Speed
  - Short Final Flaps when landing assured

**WINDS**
- Dead Engine away from the wind for easier approach
- Dead Engine into wind for easier landing / rollout

**2 Engine Out Information**

- **Configuration**:
  - #1 & #2 Out: Flaps up, Gear down

- **Circuit Breaker**:
  - Wing Flap Control CB, Flap Lever 50%

- **Hydraulics (#1 & #2 Out only)**:
  - Cover NW Steering, Emerg Brakes

- **Electrics**:
  - Reduce/Monitor Load on Generators

- **Weight**:
  - Dump Fuel / Salvo Load < 120k

- **Bleeds Closed**

- **Airspeeds**:
  - Review Pattern and Approach Speeds

- **Ground Idle**:
  - Inboard First

- **Pumps / Brakes**
PREPARATION:
In a hostile environment, the crew briefing may be performed before the combat entry point. (The main purpose is minimal time on the ground)

LOADMASTER: » Get a communication check of PA system » Let LM know when cleared to open ramp/door » Taxi route will not cross a runway » Pressurization off » Tell Pilot when preparation checks are complete.

ENGINEER: » Runs the Annex A checklist » Have new TOLD completed

COPilot: » Clear right side

NAVIGATOR: » Turn PA on and speaker selector switch to all usually positioned at bottom of flightdeck » Safety observer: clearing aft

PILOT: » Can I do it? (ATO/SPINS) exception on 2.18.1.1 » Where will I do it? min of 500'/1000' desired » Which method? (A or B) » A for single, multiple, ramp or married pallets; airdrop platforms; and CDS » B for all else (remember 55 gal drums required) » Consider ACMs (crew chief) as lookout for left side » Select INT/PA on pilot side for PA check (must check with INT not HOT MIKE) » Brief execution duties

EXECUTION:
LOADMASTER: » Notify P when clear to taxi » Let P know of any malfunction » Tell P when load is clear

ENGINEER: » Runs the checklist » Back P up on torques » Monitor engine performance

COPilot: » Clear right side » Back up P on power/brakes

NAVIGATOR: » PA on » Notify P when in position (bottom of flight deck)

PILOT: » Coordinate with crew of intentions for malfunctions/ran out of space » Select INT/PA on pilot side » Tech: P on INT and CP with ATC; both on HOT MIC » Notify LM when parking brake set » Set 5,000/ torque (conditions permitting) » Release brakes and listen for LOAD CLEAR » Apply brakes (reverse if space is limited) » PA switch to interphone » Wait for offload checks complete call » Resume mission

LIMITS:
» No explosives without MAJCOM/DO approval » 500’ min 1000’ desired » If fragile you may lower ramp to 18” » Single airdropped rigged platforms (< 24”) ok if < 12,000lbs » Double or triple pallets ok if < 12,000lbs and height is good » If > 12,000lbs the front of the aircraft will require ballast (note: a 17,000lbs will require 5,000lbs ballast. 17-12=5) » CDS if >12,000lbs & CVR then do 1 side at a time, 1f >12,000lbs & no CVR do <4 bundles at a time.

ENGINE SHUTDOWN CONDITIONS

Turbine Overheat
Throttle Control Cable Failure
TIT (uncontrollable rise)
Oil Pressure (uncontrollable drop)
Oil Temperature (uncontrollable rise)
Power (uncontrollable)
Prop Malfunctions (some)

Nacelle Overheat
Engine Fire
Visible Fluid Leak
Unusual Vibrations/Roughness
Start Valve Open (light illuminated)

Hydraulic pressure >3900 (cruise engine shutdown)

ENGINE FIRE HANDLE

Engine Fuel Control Shutoff Valve Closed
Engine Oil Shutoff Valve Closed
Firewall Fuel Shutoff Valve Closed
Firewall Hydraulic Shutoff Valves Closed
Engine Bleed Air Shut Off
Engine Starting Control Circuits Deenergized
Prop Feathered
Fire Extinguishers Positioned
Agent Discharge Switch Armed

APU/GTC FIRE HANDLE

Fuel Shutoff Valve Closed
Oil Shutoff Valve Closed (GTC)
Bleed Air Valve Closed
Fire Extinguishers Positioned
Agent Discharge Switch Armed
Door Closed (APU)/Disarmed (GTC)
REVERSE TAXI

1. RESTRICTIONS
   a. 25 feet from all Obstacles
   b. Cargo secured and Passengers seated
   c. Ramp 12 inches above horizontal
   d. Clear area in front of aircraft

2. PREPARATION/BRIEFING
   a. Complete After Landing Checklist or Before Taxi Checklist (as appropriate)
   b. Brief Crewmembers/Loadmaster on Reverse Taxi
      - “Clear all obstacles for 25 feet/reverse taxi path”
      - “Turn towards number 1 or 4 engine”
      - “Use more turn and less turn terminology”
      - “Countdown to stop 5,4,3,2,1”
      - “Talk continuously, if stop talking, stop backing”
      - “For Emergency Stop use STOP, STOP, STOP”
      - Try to put aircraft on taxi line if able
      - If night, ensure proper illumination

3. EXECUTION
   a. Brief crew on direction of turn out
   b. Ensure all four engines are on-speed
   c. Confirm all engine oil temperatures 60-85 degrees
   d. Release brakes and announce “off brakes” (do not let the aircraft roll forward)
   e. Pilot and Co-Pilot feet on floor
   f. Do not use brakes
   g. LM keep talking, if stop talking, stop backing
   h. Put all throttles in reverse symmetrically
   i. Taxi no faster than a brisk walk
   j. Slow aircraft with forward thrust
   k. Taxi 5 feet forward to align gear prior to stopping
   l. Questions

NOTE:
1. If any engine oil temperature exceeds 100 degrees, abort the reverse taxi by taxiing forward to center the nosewheel and then stop to cool the engines.
2. Although the LM is primary for directing reverse taxi, anyone can call to stop the aircraft for safety, including the marshaller.

Quick-Don Preflight
(ref -1 p 1-223)

Static pressure: 270–455 psi, Continuous breathing: 270–340 psi
1. Supply Lever – OFF
2. Diluter Lever – 100%
3. Attempt to Breath (If you can you have a faulty regulator)
4. Supply Lever – ON
5. Emergency Toggle Lever – EMERGENCY
6. Don the goggles and adjust for proper fit. Ensure the eyewash pin is IN
7. 3 Breathing Cycles – White in, Black out
8. Hold breath and open the eyewash purge valve. The blinker should go from black to white indicating the ports to the goggles are clear
10. 3 Breathing Cycles – White in, Black out
11. Eyewash Pin – OUT for flight
12. Leave in NORMAL, 100%, ON, Oxygen Hose – Connected

Note: For stowage purposes after flight the eyewash pin should be pushed in.
**ENGINE RUNNING ON/OFFLOAD BRIEFING GUIDE**

1. Applicable items of **After Landing Checklist**
2. Engines - Low Speed Ground Idle (check SKE & RADAR)
3. Flaps & Air Deflector Doors - as req’d (Up for Dirt Ops)
4. Face into Wind (Dirt Ops)
5. More than 10 PAX - Ramp & Door (less - crew door)
6. Vehicles/Cargo - 300’ straight, 50’ prior to turn
7. Night Operations:
   - **Landing Lights** - as req’d
   - **Wing Tip Taxi Lights** - On
8. Safety Obs (FS 245):
   - **PA** - On
   - Heads up on Cargo/PAX moving
   - Crew use HOT MIC
9. Start with **Before Takeoff Checklist**
**General TOLD Definitions**

### Normal Takeoff Configuration
- 4 Engines at take-off power
- Blends on: Air con and Press
- Flaps 50%
- Rotation speed = TO & V_{max}
- Take off speed = 1.1V_{s} (power off)
- Obstacle clnc speed = 1.2V_{s} (power off)
- Min flap retraction = obst clnc speed
- Normal flap retraction = TO + 20

### All rejects assume
- 3 seconds to recognize
- Max anti-ski braking
- In reverse, 2 in GI within 3 sec
- No pause at flight idle for ESP, or at Gnd Idle
- V_{1} windshielding on NTS

#### 3 Engine TO Assumptions (& Climb Config)
- 50% flaps, no nosewheel steering
- V_{1} windshielding on NTS
- Take off power on 3 engines
- Gear up 3 sec after lift off (18 sec)
- 1 engine feathered 6 sec after lift off
- Normal obstacle clearance speed
- Out of ground effect

#### Air Min Control Speeds
- Minimum speed at which the airplane may lose an outboard engine during ground run and still maintain directional control. (add 15 kts to chart)
- #1 engine windmilling on NTS, max pwr on 3 engines
- Normal bleed
- Flaps 50% with max rudder boost
- Max rudder deflection
- Max centerline deviation of 25'

#### One engine Inop
- In or out of ground effect
- Normal bleed
- #1 engine windshielding on NTS, max pwr on 3 engines
- Max rudder deflection
- 5° bank away from inop engine
- Gear down
- Flaps 50%, high rudder boost

Note: Wings level incl V_{max} +9 KIAS (+13 KIAS HGW) 5° toward dead, +20 KIAS (+37 KIAS HGW) 5° away & inop eng feathered, V_{max} dec 2 to 4 KIAS

#### Two Engines Inop
- Out of ground effect
- Bleed Off
- Max power on 2 engines
- #1 engine windshielding on NTS
- #2 engine feathered
- Utility hydraulic system inop
- Max rudder deflection
- 5° bank away from inop engine
- Gear down
- Flaps 50%, high rudder boost, booster system

#### MFLMETO
- Below 10,000' IAS should be ≤210

### Runway/Taxiway Requirements
- Rwy Normal Ops = 80' / 25m
- Rwy Assault Ops = 60' / 19m
- Taxi = 30' / 9m

### General TOLD Definitions

#### Ryw Condition Reading/Rwr Surface Covering
- RCR: Dry/Good
- Wet/Medium
- Icy/Poor
- Asphalt: 23
- Clay: 16
- Crushed Rock: 16
- Alum Mat: 20
- MSF w/PSP: 10
- Clay: 16
- Crushed Rock: 16

#### Wind Application
- All winds will be in the "recommended" area
- Apply gusts to: rotation, TO, appr, TH & TD speeds (5)
- Distances adjusted only w/tailwind
- Headwind used only for "mission accomplishment" (50%)
- Tailwind always applied (150%)
- All winds used for Ace time check (100%)
- @ Cruise, for large headwinds (> 70 kts), incr TAS by 4 kts for ever 10kts of wind over 70kts up to 923 TTS

#### Min Field Length for normal TO
- Charted Critical Field Length + screen height correction
- @ cruise for every '1 of alt req @ DER
- Add 1750' at Army, civil or joint use fld in US (35' DER)
- Add 800' at ICAO... ft/nm (2.5 %)
- Climb gradient req 4 eng: 200 ft/nm
- If > 200 ft/nm grad req, subtract 48 ft/nm to get req 3 eng grad

#### Correction for Obst Height based on Slope
- Height of Obst - all of obst - all of closest end of rwy
- Corr = 50' for every 1' of alt req @ DER
- Add 1750' at Army, civil or joint use fld in US (35' DER)
- Add 800' at ICAO... ft/nm (2.5 %)
- Climb gradient req 4 eng: 200 ft/nm
- If > 200 ft/nm grad req, subtract 48 ft/nm to get req 3 eng grad

#### Take Off Distance
- Total distance required to accelerate to take-off speed, lift off and climb to a 50-foot height. Broken into 2 distances: take-off ground run + distance from lift-off to 50’ obstacle.

#### Acceleration Time Check
- Use V_{1} - 10 kts rounded down to nearest 10.
- 3 kt tolerance
- Required when V_{1} < TO

#### Cruise
- Service Ceiling: alt @ VVI = 100 ft/min (1993 TTS)
- Cruise Ceiling: alt @ VVI = 300 ft/min (1932 TTS)
- Airspeeds:
  - Leg < 2 hrs, cruise @ 280 KTAS
  - Leg > 2 hrs, cruise @ 260 or 270 KTAS
- Below 10,000', IAS should be ≤210
**Range Definitions** 5-8
Specific Range: NM per pound of fuel (TAS/FF)
Long Range Cruise: Aircraft velocity ~1% less than the max specific range for a given weight & altitude
All bleed: Normal bleed + engine anti-ice & LE anti-ice

**Driftdown** 5-12
Maintain recommended speed until VVI=100 fpm then maintain 100 fpm until service ceiling (if terrain a problem) or cruise ceiling (recommended)
Assumes: 1 eng feathered, other 3 at max cont.

**Endurance** 6-1
Max endurance is V at which minimum fuel flow for a given configuration, altitude, temp & gross weight
Allowed: ±10kts, ±1000ft
Can shut down one eng to save gas @ low altitudes
-engines more efficient @ high pwr settings

**Decent** 7-2
Penetration: dwn to FL200, FI, gear up, flaps up @ L/D_{max}
FL200 to SL, 250KIAS, gear up, flaps up
Rapid: gear dwn, flaps 100%, FI, 145KIAS
Max Range: FI, gear & flaps up, @ L/D_{max}

**Min Runway Length for Landing** V3 5.15.4.1
Landing distance + RVR correction
- < (3/4 nm) +1000’
- ≥ 40 + 500’
Max effort: gnd roll + 500’
Peacetime: 3000’ mim (MAJCOM/DO wavier for less)

**Landing Distance Assumptions** 8-2
-50’ over threshold
-3° glideslope (rwy intercept approx 1000’)
-Normal roundout/flare
-Stop action achieved within 1 sec
-Nosewheel down
-max anti-skid with cold brakes
-2 in reverse, 2 in ground idle
-Normal threshold speed = 1.35 V_{e} (power off)
-Normal landing speed = 1.2 V_{e} (power off)
-Max effort threshold = 1.28 V_{e} (power off)

Note: min speeds exist because at lower speeds, the engines will produce more thrust increasing landing distance
- Min threshold speed = 106.5 KIAS
- Min TD = 97 KIAS (98.5 for 0% flap)
Equipment Emergency Procedures.

When notified of a malfunction, the pilot will maintain drop airspeed and AGL altitude (if possible) and avoid flying over or upwind of water or built up areas to the maximum extent possible. The loadmaster will accomplish the malfunction checklist and notify the pilot when complete. The crew will then run the completion of drop checklist.

WARNING: The combined effects of aircraft gross weight, drop altitude, and temperature may prevent level flight at drop speed when towing deployed extraction parachutes as small as 22 feet. Total drag on the aircraft may be more than the thrust available to overcome it. The situation could require an immediate forced landing near the DZ.

Multiple 28 foot extraction parachutes fail to release mechanically on the ramp. The loadmaster will:
- Notify the pilot by stating “Malfunction” with a brief description of the problem.
- Alert parachutists (if required) to remain forward/clear of the load.
- Raise aft anchor cable supports, if required.
- Clear the ramp and door to close.
- Relock the platforms.
- Secure the platform(s) with aircraft tiedown equipment if unable to engage the locks.
- After completing the malfunction checklist, perform the completion of airdrop check-list.

Load fails to extract with multiple 28-foot extraction parachutes outside the aircraft. The loadmaster will:
- Ensure the right rail control handle is in the emergency position.
- Notify the pilot by stating “Malfunction, load failed to extract” (if the load still fails to extract).
- Alert parachutists (if required) to remain forward/clear of the load.
- Pull the simul open control handle full forward.

WARNING: The loadmaster must apply a sustained steady pull (10-20 seconds) on the simul open con-trol handle to compensate for lock loading and binding caused by the towed parachutes.
- Report the condition to the AC if the load still fails to extract. If the load cannot be jettisoned and flight conditions permit, proceed to a suitable airfield, avoid flying over built up areas and land in a flat attitude with ramp and door open.
- WARNING: With multiple 28-foot extraction parachutes deployed outside the aircraft, maximum thrust will be needed to stay aloft or to control the descent. The drag produced by the extraction parachutes should decrease if airspeed is allowed to bleed off. This reduction in drag could permit level flight or reduce the rate of descent should level flight not be possible. Do not reduce power to achieve this air-speed change and do not slow below max effort takeoff speed. Max effort takeoff speed is 1.2 X power on stall speed and provides an acceptable airspeed margin for zero bank angle. If the aircraft must be turned to get to a suitable landing area, this airspeed may not be sufficient to prevent a stall while in banked flight. If a turn is required, pilots should be sensitive to the first indication of a stall and reduce bank and or lower nose to decrease angle of attack and eliminate the stall indication. Any power reduction will increase the stall speed. The tradeoff in selecting a landing site, straight ahead or one requiring a turn is a function of the rate of descent the required airspeed will produce. The higher the airspeed, the faster the aircraft will likely descend. A forced landing straight ahead will produce the lowest allowable airspeed, least rate of descent and most desirable impact forces. Any turns will decrease the time before impact. However, the risks associated with turning may be mitigated by the terrain the aircraft will impact such as forest or built up areas.
**Personnel Emergency Procedures**

**Emergency Parachutist Bail Out Procedures.**
- Under satisfactory conditions (static-line exit), the minimum acceptable emergency bailout altitude is 400 feet above the terrain. When an aircraft emergency occurs during static-line airdrops, the pilot maintains an acceptable altitude and altitude for the parachutists to evacuate the aircraft. If the jump must be made at an airspeed in excess of 150 KIAS, advise the parachutists of the airspeed and altitude. Order evacuation by turning on the green light and giving the briefed alarm bell signals.

**Towed Parachutist.**
- The jumpmaster will stop the remaining parachutists; the loadmaster will notify the pilot; and the copilot will turn on the red light. The pilot will maintain drop airspeed, at least the minimum drop altitude (AGL) for the type parachute being used, and avoid flying over or up wind of water or built up areas.
- Crews should suspect they have a towed parachutist if static lines are not fully tucked into the upper corner of the paratroop door or if a D-bag appears to be stuck outside the door. It is unlikely for a D-bag to become caught on the outside of the aircraft and is probable that a indicator a parachutist is being towed. In any case, crews should follow emergency procedures until they have confirmed no parachutist is being towed. Crews should take special effort to confirm towed jumper status at night with limited rearward visibility. They should consider using an additional source of illumination to view the rear of the aircraft.
- The jumpmaster or safety observer is responsible for identifying how the parachutist is towed. If being towed by anything other than the static line, the jumpmaster or safety will attempt to free the parachutist. If being towed by the static line, the jumpmaster or safety will make a recommendation to the AC, through the loadmaster, whether to retrieve the parachutist or cut him or her free. If all parachutists have exited and there is no safety person onboard, this responsibility rests with the loadmaster.
- The AC will make the final decision whether or not to cut the towed parachutist free. If the decision is to cut the parachutist free, the loadmaster will cut the static line on the AC’s command. **NOTE:** Towed parachutists indicate consciousness and that reserve parachute is ready by maintaining a tight-body position with both hands on reserve parachute. This indicates the jumper is prepared to be cut away.

**Gate fails to cut/load fails to exit.**
- Dearm the CDS switch (if installed).
- Notify the pilot by stating “Malfunction” with a brief description of the problem.
- Alert parachutists (if required) to remain forward/clear of the load.
- Raise the aft anchor cable supports (if required).
- Clear the ramp and door to close. **WARNING:** When notified of a malfunction, extend additional flaps and lower the nose to maintain as light nose down attitude until the ramp and door are closed and the load is secured. Maintain drop airspeed and AGL altitude (if possible) and avoid flying over or upwind of water or built up areas.
- When dropping double stick using the CVR and one gate fails to cut, the loadmaster will delay notifying the pilot of a malfunction until the containers of the released stick have exited the aircraft. If the containers of both sticks fail to exit, notify the pilot immediately and continue with emergency procedures.
- **WARNING:** When the cargo ramp and door cannot be closed from the cockpit, the loadmaster secures the load for aft movement. Ensure the lifeline is locked to a tiedown ring no further aft than FS 677 prior to proceeding aft to operate the cargo ramp and door controls. **CAUTION:** If the load is jammed in the ramp area, notify the engineer to stop closing action when the cargo door releases from the uplock. If this is necessary, the loadmaster will secure the load and close the ramp using the aft controls.
- Secure the load for landing and install high altitude CDS safety pins (if required).
- After completing the malfunction checklist, perform the completion of airdrop check-list. **NOTE:** If the malfunction was due to a failure of the static-line retriever or CDS remote timer system, the mission may be continued using the opposite static line retriever and manually activating the retriever switch at FS.

**CDS, SATB Emergency Procedures**

**Gate fails to cut/load fails to exit.**
- Dearm the CDS switch (if installed).
- Notify the pilot by stating “Malfunction” with a brief description of the problem.
- Alert parachutists (if required) to remain forward/clear of the load.
- Raise the aft anchor cable supports (if required).
- Clear the ramp and door to close. **WARNING:** When notified of a malfunction, extend additional flaps and lower the nose to maintain as light nose down attitude until the ramp and door are closed and the load is secured. Maintain drop airspeed and AGL altitude (if possible) and avoid flying over or upwind of water or built up areas.
- When dropping double stick using the CVR and one gate fails to cut, the loadmaster will delay notifying the pilot of a malfunction until the containers of the released stick have exited the aircraft. If the containers of both sticks fail to exit, notify the pilot immediately and continue with emergency procedures.
- **WARNING:** When the cargo ramp and door cannot be closed from the cockpit, the loadmaster secures the load for aft movement. Ensure the lifeline is locked to a tiedown ring no further aft than FS 677 prior to proceeding aft to operate the cargo ramp and door controls. **CAUTION:** If the load is jammed in the ramp area, notify the engineer to stop closing action when the cargo door releases from the uplock. If this is necessary, the loadmaster will secure the load and close the ramp using the aft controls.
- Secure the load for landing and install high altitude CDS safety pins (if required).
- After completing the malfunction checklist, perform the completion of airdrop check-list. **NOTE:** If the malfunction was due to a failure of the static-line retriever or CDS remote timer system, the mission may be continued using the opposite static line retriever and manually activating the retriever switch at FS.

**Combat Rubber Raiding Craft Emergency Procedures.**
- Follow either CDS or towed parachutist emergency procedures as required.

**Container Ramp Bundle Emergency Procedures.**
- Follow either CDS or towed parachutist emergency procedures as required.

**SATB fails to release mechanically/fails on the ramp. The loadmaster will:**
- Notify the pilot by stating “Malfunction” with a brief description of the problem.
- Clear the ramp and door to close.
- After completing the malfunction checklist, perform the completion of airdrop check-list. **NOTE:** Make no attempt to remove the bundle from the ramp prior to closing the ramp and door. Do not attempt further SATB airdrops utilizing the bomb rack.

**SATB outside the aircraft and fails to separate. The loadmaster will:**
- Notify the pilot by stating “Malfunction” with a brief description of the problem.
- Cut the static line on the pilot’s command over the DZ. **WARNING:** When simulating an airdrop using the cargo ramp and door, a hung bundle could become wedged in the aircraft elevator during turns. Do not attempt to retrieve the SATB. If possible, cut the static line prior to making a turn.
- Notify the pilot the bundle has been cut away.
- After completing the malfunction checklist, perform the completion of airdrop check-list.
1. Sanitize flight suit and personal possessions

2. Intelligence
   a. Overall picture
   b. Threats (type and location)
   c. Friendly/Enemy positions

3. SAR procedures
   a. Assign SAR call sign (Tac call sign plus letter; i.e. “Music 11 Alpha” for the AC, “Music 11 Bravo” for the CP, etc….)
   b. Review SAR Card
   c. SAR forces (frequencies and locations/ 243.0)
   d. SAR letter (primary and secondary)
   e. Safe areas and contact procedures
   f. Re-group procedures and locations
   g. Evasion techniques
   h. Survival radio discipline
   i. Review Isopreps
   j. Survival/Evasion kits, GPS, etc.

4. Interphone and Radio discipline
   a. Divide radios among crew positions
   b. Use chattermark procedures (do not compromise code)
   c. Minimize transmissions

5. Wounded crewmember procedures

6. Low-level emergencies

7. Battle damage reporting and procedures

8. Use of lights (interior and exterior)

9. Emergency load jettison procedures

10. Bailout procedures
    a. Controlled vs. uncontrolled
    b. Bells (3 short/1 long) and Mayday call

11. Crash landing/ditching procedures and egress
    a. Bells (6 short/1 long) and Mayday call

12. Ground evacuation (accountability and passengers)

13. Use of equipment: parachutes, LPU’s, survival vests, body armor


15. Chemical environment

16. Clearing responsibilities…
    Pilot: 9 to 12
    Load: 6 to 9/6 to 3
    Copilot: 12 to 3
    Bubble: 3 to 9 Aft
    Nav: 3 to 9
    Eng: Primarily inside

17. Passing of the threat – Person “padlocked” stays on the threat until the next person acquires the threat and acknowledges with a “padlocked” call. Example of a bogey passing along the right side high to low:
   “Pilot, load, bogey passing through 4 o’clock high, bubble/copilot your way.” The bubbleer or copilot at that time will acknowledge they have a visual with a “padlock” call.

18. When making threat calls…
   a. Attempt to make calls in a monotone manner
   b. Make all calls as concise and clear as possible
   c. Make sure you are clear of terrain when directing
   d. “Lose sight, lose the fight”

19. Threat calls:
   a. Immediate Threat (Directive):
      “Break left/right, Bogey/AAA/SAM, direction or clock position, range, status”
   b. Non-Immediate Threat (Informative):
      “Pilot, Load, Bogey 3 o’clock high, going away”

20. AAA calls and defensive tactics

21. SAM calls and defensive tactics

22. Bandit calls and defensive tactics
    a. Bubble techniques and direction calls
    b. Bandit vs. Bogie

23. Terminology:
   Altitude – high/low, referencing horizon
   Bandit – hostile aircraft
   Bogey – unidentified aircraft
   Break Turn – 45° to 60° of bank
   Engaged – threat is attacking
   Friendly – identified as friendly force
   Going away – cold aspect
   Hard turn – 30° to 45° of bank
   Head on – threat is directly ahead
   Mud – RWR shows ground threat
   Nails – RWR shows AI in search
   No joy – lost sight or don’t see it
   Padlocked – dedicated visually
   Reverse – opposite turn, equal bank
   Rolling in – hot aspect
   Spike – RWR shows AI in TTR
   Tally ho – visual contact with threat
   Turn – up to 30° of bank
   Visual – visual contact with friendly
### General Formation Info

**Ground Ops:**
- Min taxi interval: 4 eng = 1 aircraft length (99’ 6”), 2 eng = 2 aircraft length
- If SKE will be used/backup - accomplish FCI check, inform lead of any SKE malfunctions ASAP
- On runway, lead on left, wing alternate sides, nose to tail clearance
- Feed-on as briefed. Technique: time 15 seconds when lead crosses hold short, 2 crosses hold short on time, accelerate through turn, maintains runway centerline on takeoff roll.

**Takeoff:**
- Min interval = 15 sec, TECH: FI - at -5 sec, don’t advance power until rolling
- Abort: (last element lead): 4,000 ft, 12,000 ft,为核心的, 15,000 ft, 3250’ ABS

**Airspeeds & As/Des Rates:**
- Fly ↓ table or “As Briefed”, ↑ 15,000’ consider aircraft capabilities.

<table>
<thead>
<tr>
<th>Lead Should Fly:</th>
<th>Below 10,000’</th>
<th>10,000’ to 15,000’, Above 15,000’</th>
</tr>
</thead>
<tbody>
<tr>
<td>Climb</td>
<td>180 KIAS 1,500 fpm</td>
<td>170 KIAS 1,500 fpm, 160 KIAS 1,500 fpm</td>
</tr>
<tr>
<td>Assembly</td>
<td>180 KIAS</td>
<td>170 KIAS, 160 KIAS</td>
</tr>
<tr>
<td>Cruise</td>
<td>Normally 210 KIAS</td>
<td>Normally 210 KIAS, Normally 210 KIAS</td>
</tr>
<tr>
<td>Enroute Altitude Change</td>
<td>Enroute airspeed, or as briefed 1,000 fpm as briefed</td>
<td></td>
</tr>
<tr>
<td>Descending Slowdown</td>
<td>140 KIAS 1,000 fpm</td>
<td>As Briefed, As Briefed</td>
</tr>
<tr>
<td>DZ Escape</td>
<td>140 KIAS 1,000 fpm</td>
<td>As Briefed, As Briefed</td>
</tr>
</tbody>
</table>

**Airborne Aborts:** Notify lead, turn away in safe direction, other aircraft in element move up.

**No-Drop:** Lead notifies using FCI/interplane. Don’t radio individual no-drops to formation.

**Altitudes:**
- Day VMC: 500’ AGL minimum. **Exception:** 300’ AGL on approved routes and one time use routes (as per 16.3.9.8.2) Modified Contour, use Visual references and Radar Altimeter
- MSA/Night VMC/NVG: 5nm (3nm NVG) of centerline, ↑ of 500’ +obst/spot ele, or 400’ +1 contour
- Night VMC run-in: SD to Escape 3nm of CL; highest of: 500’ + obst/spot ele, or 400’ +1 contour
- After SD: DZ in sight & remain so or + position known & terrain cinc assured may ↓ to drop altitude

**PaceLine Time Restrictions:**
- Within 1 nm radius below 2000’ agl from sensitive areas: hospitals, fish hat, ochtr, poultry, etc.
- Within 3 nm from Prohbitied space & nuclear plants
- Through Restricted airspace (unless you have permission) or live fire/impact areas
- Below 1000’ AG, within 2000’ radius of city/town atmgrs, TPC (1,500,000)
- Below 500’ unless host nation allows or route has been environmentally surveyyed for 300’ ops
- SKE airdrop in uncontrolled space req NOTAM 48 hrs in advance- see V3 p203

**Chart Requirements:**
- CHUM out to 22nm, may trim to 10nm after ESA established
- Individual charts must have: TPs, IP, DZ, course line, course data, CHUM data, ESA
- Additional Weather Penetration with SKE

**Inadvertent Weather Penetration with SKE:**
- Lead will give base alt (min ESA), heading, and airspeed (at min)
- Establish base speed & 1,000 fpm then turn 45° R/L for 2 min. Elem leads cont. straight
- Last element level & alt, #3’s aborting, #3’s aborting +500’ higher than preceding

**Recovery:**
- Complete Decent Checks prior to pattern entry or initial.
- Landing: 50% flap, GI and reverse/brakes as briefed desired interval Vis = 20 sec, 15 sec minimum, SKE 6000’, 5000’ minimum. Thy shall not perform touch-and-go landings during formation recoveries.

### Vis Formation Info

**Reasons for Formations:**
- Size will be determined by user
- Mass on DZ
- Mutual Support
- Tac & Log support for Army
- Time efficient
- Easier to escort

**Types of Formations:**
- will be determined by the nature of the threat

**Visual in-trail:** 3 aircraft per element
- #2: 2,000’ back, right side, wing tip overlap out of wake turbulence
- #3: 4,000’ back, left side, wing tip overlap out of wake turbulence
- #4 (2nd element lead): 12,000’ on ATC, “Music Flight, #3s aborting, #4s aborting

**Fluid trail:** allows for freedom to evade, most flexibility, optimizes terrain masking, etc...
- 3 aircraft per element. Spacing will be pre-briefed (ie 2’000’ to 6000’, 3’000’ to 12000’)
- #2 & #3 move in arc from 3-9 o’clock position

**Line abreast:**
- Coastal/app terrain penetration or x-ing lines of communication - allows little flexibility
- 2 aircraft per element, wingmen (or lead leads) 4,000’-24,000’ abeam

**Box:**
- advantages of line abreast plus has mutual support. Two, 2-ship elements. Element leads fly 4,000’-24,000’ (8 abreast) with wingmen in trail 2,000-24,000’.

**Extended Trail:**
- Modified fluid trail- separation increased as briefed. Followers may have to use own navigation. Used when low visibility or terrain will not permit normal formation.

**Aircraft Loading:** Each aircraft navigates own way to join-up point/run-ins

**VFR:**
- Day VMC:
  - Each aircraft navigates own way to join-up point/run-ins
- Use routes (as per 16.3.9.8.2) Modified Contour, use Visual references and Radar Altimeter.
- MSA/Night VMC/NVG:
  - 5nm (3nm NVG) of centerline, ↑ of 500’ + obst/spot ele, or 400’ + 1 contour

**IFR enroute:**
- 5nm (10nm out-us) of centerline: highest obstacle/spot elevation +1000’ (2000 mts)

**Orbit:**
- 1000’ above orbit alt- must be VFR before orbit pt
- Millennium: 3nm of CL: higher of 500’ +obst/spot ele, or 400’ + 1 contour from DZ entry point to exit point. If AFI 11-231 requires higher alt than above, use highest.

**Flying:**
- ESA: 22nm of centerline: 1000’ +obst/spot ele (2000 mts)
- Can trim chart to 10 NM of route CL
- ESA: 200KIAS 1,500' AGL or pattern alt (highest)

**Emergency Procedure…** May get violated so (if possible) stay VFR… Lead will give base alt, 12-14 sec for 20 sec interval

**Landing:**
- Stack lead, 15’ to 20 sec out
- Lead break app end w/45° bank FI, ~10 sec after dep end
- Final turn 12-14 sec for 20 sec interval, 140KIAS until final

**Recovery:**
- Complete Decent Checks prior to pattern entry or initial.
- Wind fly same track as lead, stack slightly, put leads horiz stab ½ up vert stab
- Lead break ~3nm past app end w/45’ bank FI, ~10 sec after dep end
- Final turn 12-14 sec for 20 sec interval, 140KIAS until final
- Roll out >300’ & >1/4 mile from runway

**Overhead:**
- 200KIAS 1,000’ AGL or pattern alt (highest)
- Wing fly same track as lead, stack slightly, break 3-5 sec after lead
- Lead break app end, wing break no earlier than lead, 45° bank, FI, maintain 150KIAS
- Recovery: Complete Decent Checks prior to pattern entry or initial.
SKE Formation Info

Weather Minimums:

Forms must adhere to both ceiling & visibility approach minimums but no lower than 200-1 (RVR 50). If WX worse than FLIP min but 200-1 or better, may use departure alternates. To drop actual unilateral personnel/equipment: 300-1, WA/WADS. Joint operations: weather requirements are at the discretion of user. To drop w/o AWADS, formation must be VMC.

Tactical Airlift Formation Lead Requirements:

Unilateral Training VMC - no special requirements.

Unilateral Training IMC:

Single-element formations. A lead crew or instructor AC is required in the formation (any position). If this crew aborts and no other instructor AC or lead crew remains, the other aircraft must abort the mission or continue single-ship, as determined by the mission commander.

Multi-element formation. A lead crew or instructor AC is required in the lead and deputy lead position. Element lead positions require an instructor AC, lead crew, or an AWADS crew. If deputy lead or an element lead abort after station time, any crew can assume their position with the concurrence of the mission commander. Any crew can fly the last ship of a formation even if it is an element lead position.

NOTE: For AWADS, deputy lead may fly as second element lead provided no aircraft occupy the number two and three positions in the first element.

Element Leads (IMC and VMC).

A lead crew is required in the lead and deputy lead positions. Element lead positions require a lead or an AWADS crew. If deputy lead or an element lead aborts after station time, a new lead or AWADS crew will assume this position. Any crew can fly the last ship of a formation even if it is a deputy or element lead position.

ESKE:

Turns/climbs/desc desc may momentary loss of SKE. Turns >80° can be destabilizing to the formation, in addition, they can cause blanking of the SKE and should be avoided. With 2 formations on same freq within 80nm, use slot enablers. SKE provides: for 36 aircraft total, 34 w/2ZM, Slot 01/02 are used for ZMs, max ZM reception 20nm w/LOS. All form ac must be within 10nm of master & 4 nm of leader. Note: 36 aircraft @ 4000' = a 23nm formation. In big formations consider assembly, masters, recoveries, etc.

Use of FCI:

Signal prep +30, +5 sec prep, then execute, ATC direction may act as 30 sec prep. Element lead relays all except: Turn prep/E. Drop signals, DZ escape. Priority of signals: Altitude, Heading, Airspeed. Lead will signal airspeed changes >10 kts heading changes >10° (drift correction not signaled)

Computer turns: TAS, PH, NH, →→→→→, Computer will dump info if E isn’t sent within 1 min of 5 sec prep. You will receive a time countdown to turn, follow TWS & range marker. PPI is primary, TWS secondary .

Departure & Assembly:

kept as low as possible for fat aircraft but no lower than MOCA/MEA. Wingmen climb at 190KIAS, once at assembly alt may accelerate to 210KIAS to rejoin. TECHNique: During assembly use 500' for every 10kts of overtake. Example if base airspeed is 180 at 500' be at 190 max, 1000' be at 200max, etc...

Lead is limited to 20° in turns. During climb, lead will calls passing every 2,000' and he will call upon reaching level. Also unlimited upon, Wing call reaching altitude in sequence. “leads at level at 4,000’, 2, 3, 4, etc...”

Enroute:

Spacing: #2 4,000' back/500R, #3 8,000' back/500L, #4 12,000 back

Lead accelerates w/900° TIT (or as briefed) and decelerates w/600° TIT

Abort: establish safe heading away from form, others move up in element, FCI check A/R

Loss of SKE (VMC): if only PPI avail., U can continue, if all, go SS or break out & rejoin VFR at end lead.

Set up SKE w/ form info to join @ end of formation

Set 16/64 on PPI range, hold 1000’ above/below formation alt

Rest radio contact, confirm SKE freq & lead #, check master lost indication goes away

Must be established in position by IP (IMC), if all, breakout climb 500’, 30 turn for 30 sec. If in turn, climb & roll out

Rejoins:

Must be established at end before requesting descent

Enroute:

used to adjust course alignment: called on interplane by formation/element

Prior to SD, lead restricted to 20° bank; After Slow Down, Element Lead restricted to 10° bank

Overrun:

Wing set additional 300 in XTRC, and announce overrun. Element overrun: turns in safest direction, set additional 1300 XTRC, and announces overrun w/base heading, airspeed. If all aircraft in formation do not set run-in cross track at the same time, the above overrun procedure might not provide adequate aircraft separation.

Overrunning elements/wingmen must be in position my 1 min prior to TOT or NO Drop

Lead Change:

Current lead initiates, new lead acknowledges - will need to do FCI check Relinquishing Lead turns 45° in safest direction until 1nm from form, resets SKE, drift back and rejoin end at formation. If VMC, you may rejoin at pre-coordinated location within formation. Wingmen reset LDR #s and move up to maintain 1-2 relationship.

TECH: New lead acc to help old lead move to back

SKE Form Info (con’t)

Slowdown/Run-In:

Do not SKE airdrop in thunder storms, heavy rain or icing. Forms uses lead’s drift for SKE XTRK. Element Leads follow lead until drop altitude. Entire formation Slows Down w/Lead, after SD Element Leads are coordinated to 10° bank. To Slow Down: throttles set 1,000 in#, flaps 50%, and climb/descend @ 140KIAS. Lead can not descend until: Lead + position, entire form within 3nm of CL, entire form past DZ entry point. Each element stacks +50°, use Pressure Altimeter as primary altitude reference. Once level at drop airspeed/altitude, lead rechecks drift. Element leads fly independent run-ins to own CARP through escape.

IFR Drop Corridor:

Where aircraft can operate below IFR enroute alt. This corridor can be segmented to allow stepdown altitudes. IFR Drop Corridor starts at the IP and ends at the DZ Exit Pt. Max length: 40 nm. DZ Entry Pt: Once last aircraft is past, Entire formation can safely descend to IMC Drop Alt. Earlier Descent Pt (EDP): Where lead can safely descend entire form to IMC Drop Alt and assure terrain clearance. Provides at a minimum a 6nm IMC stabilization point.

IMC Stabilization Pt:

After DZ entry pt where lead will plan to be stabilized on IMC drop alt & airspeed. Latest Descent Pt: Latest point where lead can start descent to drop alt & have formation stabilized for drop.

NOTE: The LDP does not provide 6nm of stabilization.

DZ Exit Pt:

Where all aircraft will be at minimum IFR enroute altitude. It is a minimum of 4nm from trailing edge of the Drop Zone, calculate using 3-eng perform at airdrop gross weight.

Drop:

CDS spacing in IMC=12,000’ VMC=6,000’, each aircraft flying own run-in/CARP. must all be AWADS. Confirm drop clearance min 2 min prior to TOT - call ND on interplane & FCI. Each lead signals their green light with “E”, wing time for their green light. Once time begin, maintain constant airspeed for ace time.

Multiple Points of Impact (MPI):

Used to disperse loads laterally & longitudinally on DZ. Each element has different PI, spaced further down the DZ. Using PI wing offsets charts in Annex A- puts wing 200yds L/R. Each element does separate useable DZ.

DZ Escape:

Element L maintains drop hdg/alt/airspeed for red light +1 min then escapes as element.

SD: 140KIAS, 1,000 ftm & turn to escape heading. Lead signals acc when all off DZ. Aircraft w/drop malfunctions must notify lead, form will stay at 140KIAS until cured. If VFR, aircraft w/mfs proceed SS to: if IMC, entire form proceeds to salvo.

SKE Signals from SD to Escape:

Slowdown: SD - E - Lead’s Drop: Escape (Climb, Acc, Time/Turn):

LRL+1m LRL+30s LRL+55s

30s 5s 1min 5sec

Recoveries:

If 3 or more, request extended holding legs. In general limit approaches to no more than 8 A/C. Echelon TACAN Arc Must be established in position by IP (IMC), 1 min prior to TOT (VMC), Green Light (VIS Formations)

Overrun:

If all aircraft in formation do not set run-in cross track at the same time, the above overrun procedure might not provide adequate aircraft separation.

Overrunning elements/wingmen must be in position my 1 min prior to TOT or NO Drop

Procedure Turn/Holding:

No more than 9 aircraft. Entry: within 70° (non-maneuvering) or 20° (maneuvering) of inbound crs; teardrop okay. 1000’ above PT altitude, within 3 min of IAF slow to 150 & configure or 170/180. Lead will pass drift killed outbound heading, wing will time for turn over IAF. Outbound, abeam each element descends to PT altitude @150 KIAS. Turn inbound delayed to create spacing, #2 18 sec, #3 36 sec, #4 54 sec. If not at 4000’ when turn, +2 sec for 1000’ long, -2 sec for 1000’ short. Lead @ FAF signals slow to 140KIAS or App speed (highest) and maintain until MAP. Min interval 5,000’, desired interval 6,000’

Straight-In: 180KIAS: Lead directs app separation (#999, - E) Wing reduce -30kts >150KIAS, ITRK #6 Lead will signal slow to 150KIAS for config & 140KIAS @ FAF. Allows 9 aircraft to receive in 12 mins. TACAN Alt: If holding is required, max 6 aircraft. Slow to 170 prior; inbound & cleared slow 150 & configure. Holding not required, slow to 150 & configure prior to IAF. Lead signals each turn; wing flies own app; lead signals +150° & E. Missed Approach: Maintain app sep. 150KIAS & fly published missed app procedures. Consider coordinate altitude for KIPS app instr. for lead approach instructions

Coord Altitude 1000’ (2000’) 5 nm

1000’ (2000’) w/in 5 nm

500’ + 400’ + 1 Contour

Interval w/in 3 nm

5 nm
**MICROWAVE LANDING SYSTEM**

### MLS Self-Test

(Automatic if power interrupted 3 seconds)

1. Autopilot - Disengaged
2. Flight Director Switch - NORMAL
3. Nav Selectors - MLS
4. HSI Course Window - Airplane Heading
5. Self Test - Activated

### MLS Approach Guide

1. MLS and TAC – ON
2. Tune both MLS’s – Desired Channel
3. TACANs - Tune Required Frequency. Tune TACANs manually, don’t use the reference library as per -1 Warning p 4-68
4. MLS 1-2 Page – AUTO Mode Selected (default)
5. MLS 1-2 Page – NON-COMP/COMP Mode (as require)
   a. Select COMP for COMPUTED MLS Approach
   b. Select NON-COMP for MLS Approach (default)
6. MLS 2-2 Page - Verify 4 Letter Identifier (Mxxx)
7. MLS 2-2 Page - Verify OVRD Not Selected
8. Nav Selectors – MLS
   (ensure TAC not selected on either Nav Selector)
9. HSI Course Window – Approach Course
10. MLS 2-2 Page – Confirm TAC on MLS frequency
11. Flight Director Switch – NORMAL
12. Fly the Approach
   a. MLS Course - Intercept
   b. Ident on MLS 2-2 page - Monitor
13. Missed Approach – Retune TACAN as required

### ELECTRICAL SYSTEM

<table>
<thead>
<tr>
<th>PILOTS “LRAFBI”</th>
<th>COPILOT “MRSEAL”</th>
</tr>
</thead>
<tbody>
<tr>
<td>LH AC</td>
<td>Ess AC</td>
</tr>
<tr>
<td>RH AC</td>
<td>Ess AC</td>
</tr>
<tr>
<td>Upper Main AC Dist Panel Curr Limiters for Main, RH, LH AC &amp; AC, 9 Combat wired CB for Ess AC</td>
<td></td>
</tr>
<tr>
<td>Main AC</td>
<td>Main DC Lights SKE &amp; Flaps</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>LH AC</th>
</tr>
</thead>
<tbody>
<tr>
<td>#1 Main FBP</td>
</tr>
<tr>
<td>Fwd LH Ext FBP</td>
</tr>
<tr>
<td>Galley</td>
</tr>
<tr>
<td>NESA Heat</td>
</tr>
<tr>
<td>Underfloor Heat</td>
</tr>
<tr>
<td>“Crew Comfort”</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>RH AC</th>
</tr>
</thead>
<tbody>
<tr>
<td>#4 Main FBP</td>
</tr>
<tr>
<td>Fwd RH Ext FBP</td>
</tr>
<tr>
<td>Anti-Ice</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>ESS AC</th>
</tr>
</thead>
<tbody>
<tr>
<td>#2 Main FBP</td>
</tr>
<tr>
<td>Aux Hyd Pmp</td>
</tr>
<tr>
<td>Aux Feath Mtr</td>
</tr>
<tr>
<td>Suct Bst Pmp</td>
</tr>
<tr>
<td>Trim</td>
</tr>
<tr>
<td>Compas/HDG Indications</td>
</tr>
<tr>
<td>SCNS, Antiskid, GCAS</td>
</tr>
<tr>
<td>Autopilot, Syncrophaser</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>MAIN AC</th>
</tr>
</thead>
<tbody>
<tr>
<td>#3 Main FBP</td>
</tr>
<tr>
<td>Aux FBP</td>
</tr>
<tr>
<td>Aft Ext FBP</td>
</tr>
<tr>
<td>Radar</td>
</tr>
<tr>
<td>SKE</td>
</tr>
<tr>
<td>“Dump Bus”</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>RADIO</th>
<th>AC Instruments and Engine Fuel Control</th>
</tr>
</thead>
<tbody>
<tr>
<td>LH AC</td>
<td>Torquemeter</td>
</tr>
<tr>
<td>RH AC</td>
<td>Powered by: Inverter from ESS</td>
</tr>
<tr>
<td></td>
<td>DC &amp; also ESS AC</td>
</tr>
<tr>
<td></td>
<td>Fuel Flow</td>
</tr>
<tr>
<td></td>
<td>Has auto-switching from</td>
</tr>
<tr>
<td></td>
<td>Inverter from Isol DC &amp; Txfrmr from Ess AC</td>
</tr>
<tr>
<td></td>
<td>Fuel Qty</td>
</tr>
<tr>
<td></td>
<td>115 V / 400 cycle / single phase</td>
</tr>
<tr>
<td></td>
<td>#1 Txfrmr</td>
</tr>
<tr>
<td></td>
<td>#2 Txfrmr</td>
</tr>
<tr>
<td></td>
<td>“1 FEB 34”</td>
</tr>
<tr>
<td></td>
<td>Anti-Skid Test</td>
</tr>
<tr>
<td></td>
<td>Fuel Press</td>
</tr>
<tr>
<td></td>
<td>1 &amp; 2 Oil Press</td>
</tr>
<tr>
<td></td>
<td>Emer Brake Press</td>
</tr>
<tr>
<td></td>
<td>Boost Hyd Press</td>
</tr>
<tr>
<td></td>
<td>3 &amp; 4 Oil Press</td>
</tr>
<tr>
<td></td>
<td>BOTH are 26V</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Battery</th>
</tr>
</thead>
<tbody>
<tr>
<td>“FAAJIVEES”</td>
</tr>
<tr>
<td>Fire Ext.</td>
</tr>
<tr>
<td>Alarm Bell</td>
</tr>
<tr>
<td>AC Ext Pwr</td>
</tr>
<tr>
<td>Jump Lights</td>
</tr>
<tr>
<td>Isol DC Bus</td>
</tr>
<tr>
<td>on Bat Light</td>
</tr>
<tr>
<td>Voltmeter (Bat)</td>
</tr>
<tr>
<td>Emer Depress</td>
</tr>
<tr>
<td>Emer Lt Ext</td>
</tr>
<tr>
<td>ELT</td>
</tr>
<tr>
<td>SKE Batt</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Isolated</th>
</tr>
</thead>
<tbody>
<tr>
<td>GTC Start/Cont</td>
</tr>
<tr>
<td>ATM Control</td>
</tr>
<tr>
<td>Interphone</td>
</tr>
<tr>
<td>UHF (Man)</td>
</tr>
<tr>
<td>Gen Control</td>
</tr>
<tr>
<td>Bus Off Ind</td>
</tr>
<tr>
<td>CP Pitot Ht</td>
</tr>
<tr>
<td>CP Flood Lts</td>
</tr>
<tr>
<td>Bus Tie</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Essential DC</th>
</tr>
</thead>
<tbody>
<tr>
<td>Valves</td>
</tr>
<tr>
<td>Oil Temp</td>
</tr>
<tr>
<td>Oil Qty</td>
</tr>
<tr>
<td>Oil Cool Flaps</td>
</tr>
<tr>
<td>Oil Low Qty Lts</td>
</tr>
<tr>
<td>SCNS</td>
</tr>
<tr>
<td>Fire Detect</td>
</tr>
<tr>
<td>Ignition Control</td>
</tr>
<tr>
<td>Control for:</td>
</tr>
<tr>
<td>Aux Hyd Pump</td>
</tr>
<tr>
<td>Suct Bst Pump</td>
</tr>
<tr>
<td>Aux Feather Moto</td>
</tr>
<tr>
<td>Emer Elev Trim</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Main DC</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lights</td>
</tr>
<tr>
<td>Flap Ctrl Valve</td>
</tr>
<tr>
<td>Non Brakes</td>
</tr>
<tr>
<td>SKE</td>
</tr>
<tr>
<td>Static Line Ret</td>
</tr>
<tr>
<td>Winch</td>
</tr>
<tr>
<td>Anchor Cable</td>
</tr>
<tr>
<td>Air Def Doors</td>
</tr>
<tr>
<td>Aft Fues Jet Box</td>
</tr>
<tr>
<td>Ramp &amp; ADS</td>
</tr>
<tr>
<td>Tab &amp; Flap Ind</td>
</tr>
<tr>
<td>More Lights</td>
</tr>
</tbody>
</table>
Before Starting Engines Checklist:

3. SCNS (if navigator is not aboard) - Set
   a. Present position - Entered, verified
   b. System Configuration - Checked
      TST 2-2/MAINT TST 1-3/CONFIG
      Check all 3 CONFIG pages
   c. INS mode - ALIGN
      NAV 1-2/INIT/INS ALIGN
   d. GPS mode - INIT or NAV
      NAV 1-2/INIT/GPS MODE
   e. Flight parameters - Checked, set
      NAV 1-2/INIT/FLT PRMTR
   f. Clear Flight Plan - As required
      NAV 1-2/INIT/FLT PRMTR/CLEAR PLAN/VERIFY
   g. Reference points - Entered, verified
      PLAN/REF POINT/VERIFY
   h. Waypoints - Entered, verified
      Enter data into both WAYPOINT pages
      (1) DZ parameters - As required
      (2) LZ parameters - As required
   i. Flight plan - Checked
   j. Mode control - Set, verified

Before Taxi Checklist:

9. SCNS - Checked
   a. System status - Checked
   b. INS align - Checked
   c. GPS mode - NAV

Flight Plan Management:

Check Flight Plan
   PLAN/CHECK PLN
Flight Plan History
   PLAN/FLT HIST
Create Waypoint
   PLAN/WAYPOINT/WP number/enter data/VERIFY
Insert Waypoint
   PLAN/MOD SEQ/INSERT ## ## INSERT/VERIFY
Direct to Waypoint
   NAV/MODE CTRL/# FLT MODE to IMM/VERIFY
Direct to other than Waypoint
   NAV/IMMEDIATE (enter data)/VERIFY
Convert WP to TOA WP
   PLAN/WAYPOINT/WP## (enter hhmmss)/VERIFY
Mode Control
   NAV/MODE CTRL/FLT MODE to FP?/VERIFY
Mag/True Heading
   NAV/INIT FLT PARAM 3-3/ICDU HDG
Display Nav Solutions
   NAV/MODE CTRL/ICDU NAV SLN MK/STORE
Mark Position
   NAV/SAR/VERIFY

To load GPS codes:

1. NAV 1-2/INIT/GPS INIT 2-2
   Observe MSN DURATION. If 1 is displayed, zeroize before loading.
2. Observe DAILY KEY display to monitor
3. Connect KYK-13 or DTD (black box) to interface panel
4. Set KYK-13 to proper channel or configure the DTD
5. Turn KYK-13 ON
6. Pull out LOAD INITIALIZE switch on panel for 1-4 sec then push back in
7. Within 5 sec the LOAD STATUS on the panel should flash
8. If additional loads are required, wait at least 5 sec, set up the KYK/DTD and repeat 6 & 7.
9. Turn KYK-13 OFF
10. Disconnect KYK/DTD from interface panel

Determining Distance and Bearing:

NAV(1-2): RENDEZVOUS
Provides steering to moving target
Enter Lat/Long, CRS/GS = 0.0M/0
Verify
Course and Distance will be at bottom
Will update continuously

UPDATE: VISUAL
Shows the difference between current aircraft position and a reference point.
Enter the object as a reference point
Enter ref point id (Type = PREPLN)
Course & Dis will show for each sol
Will update continuously
Note: DO NOT ACCEPT SOLUTION

NAV: AIRDROP (2-3 & 3-3)
Shows the difference between current aircraft position and a reference point.
Enter the object as a reference point
Enter ref point id on 2-3 page
Page 3-3:
   Course & Dis will show for each sol
Will update continuously
Cargo Compartment Info

Cargo Area
- Cargo floor (from 245 to 737): 41' x 10' 3"
- Ramp: 10' x 10'
- Overhead length: 50'
- Height: 9' (can +1" by removing litter mounting brackets in wheel well)
- 74 litters with 2 attendants or 70 with 6
- 92 ground troops (90 w/2 LM) / 64 paratroopers w/equipment
- Overwater limited to 80 people total
- Ramp slope: open=11.5° closed=159°

Tie Down Fittings
- 5,000#: Ramp floor and cargo comp sidewalls
- Ramp: 33 fittings
- Sidewalls: 11 on each wall
- 10,000#: Cargo floor & rings on dual rails
- 7 columns- 25 per column, 175 total
- 25,000#: Cargo floor: 5 each side under dual rails, 2 at FS 737
- 12 sockets- only 2 usable w/dual rails, plugged when not in use

Strength Areas
- Heaviest load normally placed in center of aircraft
- Floor load: max 50 psi (Exception: internal tire pressure <100 psi)
- Treadways (x2)- 35" wide, 15" from centerline
  - Max inflight weight: 13000# per axle
  - Max weight C,D & K: 6,000# per axle
  - Ramp (L&M comp) max: 2,500# per axle
- Exception: if single axle is only thing on ramp, max=3,500#
- Max inflight weight off treadways: 5,000# per axle, ramp: 1,200# per axle
- Ramp weight max 5,000# including dual rails
  - w/Dual rails, max load=4,664# w/out rollers, max load=4,824#
- Max tongue loads: floor=2,000# ramp=450#

Truck Loading Ramps
- 3' long x 26" wide
- Max 25,000# per pair
- Attached to ramp whooks & latches

Auxiliary Ground Loading Ramps
- 66" long x 21" wide
- Max 13,000# per axle
- Hook onto ramp but don’t lock

Bridge Plates
- Used between ramp & truck bed, K loader or flat bed
- Max 7,500# per plate, ramp must be supported

Ramp Support (Milk stool)- May not use chocks...
- Supports aft end of ramp when horizontal
- Required when more than 2,000# moved across the ramp
- Ramp must exert positive pressure against support
  - ADS arms may have to be disconnected
- May use layers of plywood (18" square) to raise ramp level

Tiedown Equipment
- 5,000# (GGU-1B)- 20’ nylon webbing
- 10,000# (MB-1, CGU-3/E)- 34 chains & devices carried
- 25,000# (MB-2, CGU-4/E)- 6 chains/devices carried for gear tiedown

Wheeled Pry Bar
- "J" Bar or MA-1 - must have hard rubber/polyurethane wheels
- Outside =5,000# per bar, In cargo comp =2,000 per bar

Snatch Blocks
- two ¾” cable blocks per aircraft
- Cannot be used with any aircraft cargo winch
Cargo Compartment Info (cont)

**Dual Rail System** - Max 6 463L pallets
Max single pallet weight w/nets height ≤96” = 10,355#
Max pallet w/nets height ≥96” = 8,000#
#5 position max weight = 8,500#
#6 position (ramp) max weight = 4,664# (w/rails)
With entire system installed, cannot use center row of troop seats

**Roller conveyers** - 4 columns of rollers entire length of cargo comp
Max loads are per 4 side-by-side rollers running laterally
Roller max 2,667# per lateral rollers, C,D,&K 2,333# per lateral rollers
Roller max on ramp 833# per lateral rollers

**Right Hand Detent Latches** - 11 variable detent latches, 40” apart
- Numbered fwd to aft
- Fwd restraint = 20,000#
- Aft restraint = variable from 250# to 4,000#
  - Adjusting bolt & indicator mark to show desired spring tension
  - Detent will disengage & remain disengaged when preset force overcome

**Right Hand Master Control** - 4 position, controls right detent latches
- Checked: Full down position. Ensures detents properly engaged.
- Normal: Locked position. Locks the detents to provide fwd & aft restraint
- Emergency: Eliminates aft restraint
- Load: Completely retracts all detents

**Left Hand Detent Latches** (2 control handles) - 11 detent latches, 40” apart
- Fwd restraint = 20,000#
- Aft restraint = 10,000#

**Lock/Unlock Sequence Control Handle**
- Locks/unlocks latches sequentially: Locks fwd latch first, unlocks aft latch first
- Simul Open Control Handle
  - Stowed: Full down & locked, locks all latches simultaneously
  - Operational: Attained by removing quick release pin on housing assembly
  - Aft Restrain Removed: Aft restraint removed
  - Simultaneous: All restraint remove

**Ramp Latches** - 2 latches, one each side
- Manually engaged, mechanically disengaged
- Restrain 5,000# for 8 Gs

**Winches**
- Bulldog & Hoover
  - Main 28V DC- CB on CP lower panel, plug located left aft side of 245
  - Due to lack of internal circuit protection, never plug directly to pwr unit
  - ¼” cable, ~100’ useable cable, must keep 3 wraps on cable drum
  - No more that 3 broken wires per inch per strand
  - No more that 6 broken wires in 1’ of running length of cable
  - Cannot have max number of broken wires in any 2’ of cable
  - Single line pull =4,000#
  - HCU-9/A rarely used on 130s, common on 141s
  - Main AC- Plug located next to DC plug on 245
  - Pendulum chord control switch to allow LM to be closer to load
  - Single line pull =6,500#, ½” cable

**Crew Entrance Door** - Max weight 1,200#
WINDMILL TAXI START BRIEFING GUIDE

1. PREPARATION
   a. After Landing Checklist (if Req’d)
   b. Ground Stop Downwind Engine (simulated)
   c. Review Dash-1 (Notes, Warnings, Cautions)

2. BRIEFING
   a. Pilot/Co-Pilot Call: “Off Nosewheel Steering”
      “90 kts”
      “100 kts”
      “4000’ Remaining”
   b. Engineer Call:
      “Rotation”
      “Light Off”
      “40 %”
      “On Speed”
   c. Any Crewmember “Reject” (as Req’d)
      (1) Less than 40% - Feather Starting Engine First
      (2) Greater Than 40% - Allow Starting Engine to Run
      (3) Starting Engine Malfunction - Feather

3. EXECUTION
   a. Before Takeoff Checklist
   b. Lineup Checklist
   c. Windmilling Engine Throttle - Flight Idle
   d. Assymetrical Throttle - Start of Torque Curve
   e. Symmetrical Throttles - Max Power
   f. Rudder - Toward Good Engine - Release Brakes
   g. Rudder Effectiveness - Off Nosewheel Steering
   h. Throttle on Assymetric Engine - Advance as Req’d
   i. 90 kts - Retard Throttles to Maintain 100 kts
   j. 40% or 4,000’ Remaining - Throttles Gnd Idle
   k. Reverse Assymetrical On-Speed Engines as Req’d
   l. Starting Engines Checklist

Max Effort Takeoff Guide
Reasons: Rwy < MFL normal or CFL, whichever is longer; Rwy width < 80’(must be > 60’); or V_{mcg} > Charted refusal speed that is less than Take Off speed

A. Review TOLD
   1. Takeoff speed: \( V_{mca} \) vs \( V_{meto} \)
      Based on: WX, rwy length, TOLD, \( V_{mca} \), \( V_{meto} \), \( V_{mcg} \), airfield survey
      Review of hazards, obstructions, terrain both laterally and along climb path
   2. Decision speed: refusal, \( V_{fo} \)
   3. Obstacle Clearance: \( V_{mca} + 10 \) vs Max Effort Obst Clnc
   4. Flap retraction: Obstacle clearance speed + 10
   5. Ground run(Stop and go distance)
   6. Min runway: Peacetime 3000’, Contingency MFLMETO
   7. Winds in recommended zone
   8. Gross Weight/Bleed air valves

B. Crew Coordination
   1. Acc time check required if \( V_{fo} > V_t \)
   2. As brakes released: Pilot states “HACK”, Nav states “TIMING”
   3. At acceleration time: Nav: states “TIME”, Co: if check failed (-3Kts) “REJECT TIME”
   4. At decision speed: Copilot states “GO” (Guard the yoke)
   5. At takeoff speed: Copilot states “ROTATE”
   6. Signals for Gear/Flap retraction

C. Emergency Actions During Takeoff
   1. Aborted Takeoff
      a. Prop malfunctions
      b. Engine malfunctions: Reject for negative torque (power loss) only
      c. System malfunctions: Continue takeoff
      d. Malfunctions between \( V_r \) and \( V_{to} \)
      e. Hot brakes if high speed abort/Loss of normal brakes
   2. Fuel Dumping/service ceilings
   3. Emergency Return

D. Departure Procedure
   1. Nav aids
   2. Radar Altimeter: 50’ vs emergency return
   3. Flight director, SID
   4. Hazardous terrain/obstacles laterally and in climb path
   5. Weather
   6. Threats
Max Effort Landing Guide

A. Restrictions
1. Max Gross Weight = 130,000#, 540 fpm
2. Externals empty
3. Outboard main fuel tanks (P model)  Outboard main fuel tanks (E model)
   215 psi, 450 psi struts:  5,200#
   250 psi:  4,800#
   285 psi:  4,000#
   0-500# less in the outboards  500-1000# more in outboards
4. Runway length: Peacetime - 3000’, Contingency - Ground Roll + 500’
5. Ensure 3 engine climb capability

B. TOLD Review/Weather
1. Speeds, winds, gust factor
2. Landing distance, ground roll, stop & go distance

C. Approach, Landing Runway and Environment
1. WX, PA, Temp
2. Approach/VFR entry
3. Obstructions/Threats on approach/in environment
4. Length, width and surface
5. Touchdown zone markings: 100-500’
   Day: orange/cerise panels, Night: green, red, white, and blue lights
6. ESA/MSA/Radar Altimeter
7. Comm/Nav aids (CCT available), Security/Crash Rescue available

D. Copilots Duties
1. Airspeed deviations: 3 slow, 5 hot, backup on centerline
2. Control of ailerons, be prepared to take yoke early
3. Land short: stay on ground, Land long: “GO AROUND”
4. Flaps 50% on go around - slowly looking for 50% threshold speed
5. Normal Brake failure procedures - Emergency brakes (I’m off)

E. Flight Engineer Duties
1. Call prop/engine malfunction if detected by Engine number
   Anti-skid failure - landing not permitted, anti-skid off
   Back up config: 100% flaps, bleeds closed (confirm bleeds w/flaps rolling 100)

F. Miscellaneous
Stow loose items (clear top bunk in E), Pax secure
Brake cooling time: Full anti-skid stop&go 15 min, if >130k 65 min
Partial braking: 3 sec @ 90 kts

SPECIAL INTEREST ITEMS
1. Traffic Conflict/Near-Misses
   a. Visual Avoidance
      i. Ref. Far 91.113 / afi 11-202 vol 3
      ii. “See and Avoid”
      iii. No distinction between IFR and VFR traffic with regard to maintaining Safe Flight Conditions
   b. Radio Avoidance
      i. Report all unadvised traffic to ATC
      ii. Exercise caution near and around non-participating VFR traffic. (If necessary request “Avoidance Vectors”)
      iii. Notify ATC of all evasive actions taken
      iv. If able: Contact non-participating aircraft on UNICOM or CTAF
   c. TCAS
      i. Monitor TCAS to ensure proactive response to traffic alerts
      ii. Resolution Advisories (RA) vs Aircraft operating Limits
         1. a 5 sec response time should only require +/- .25G’s MAX
         2. reversals / additional maneuvers should only require +/- .35G’s MAX

2. TOLD Definitions, Calculations, Proficiency
   a. Specific areas of attention
      i. Departure procedures
      ii. 3 Engine performance
      iii. Dash –1 effect on performance calculations

3. Aircraft / Galley / Latrine Cleanliness
   a. AMC mission towards customer service
   b. Cargo / passenger compartments
   c. Individual crewmember responsibility

4. Additional Items of Attention
   a. AES integration: AES Transition to AMC OPS
   b. BOLDFACE concepts: Verbatim knowledge
   c. C-130 Specific
      i. Adherence to current directives on maintenance and storage of PTLOX and walk-around bottles
TRAINDING RESTRICTIONS

No-PAX • Air drops • During simulated emergencies • Touch-and-go landings • Stop-and-go landings • Buddy and windmill taxi starts • Refueling/Concurrent ground ops • During winching • During initial crew qualification training • SAAM missions requires users permission for Space-As • Crew chiefs ok for JA/ATTs.

Simulated Engine Failure • Certified 500 PAA hour copilot or above with direct IP supervision • Prohibited during tactical operations • Retard one throttle to flight idle at not less than VMCA (one-engine inoperative, out of ground effect) nor less than 300 feet AGL • Authorized day IMC if WX at or above circling minimums or night if weather is at or above 1,000 foot ceiling and 2 SM visibility • Crosswind component must be in the recommended zone • Engine out no flap landings are restricted to ACs and above, and planned go-around are not authorized • Engine out circling approaches will not be compounded with any other simulated malfunctions.

No-Flap Landing • Authorized for certified copilots with 500 PAA hours, AC candidates, ACs and above • Simulated engine-out no-flap approaches authorized for ACs and above • No-flap circling approaches will not be combined with any other simulated emergencies • Max gross weight is 120,000 lbs. and crosswind component must be within the recommended range • Authorized in day IMC if WX is at or above circling minimums, and at night with WX of 1,000 foot ceilings and 2 SM visibility or circling minimum, whichever is higher.

Touch-and-Go Landings • Requires flight evaluation, certification and minimum 100 hours as pilot-in-command • ACs restricted to flight idle touch and go landings • Ground and idle performed by any pilot from any seat when a flight evaluator, IP, or IP candidate during upgrade/evaluation occupies a pilot’s seat • No-flap ground idle touch and go landings not authorized • Minimum runway length: 50 percent, 5,000 feet - for all other, 6,000 feet • Crosswind component corrected for RCR is within recommended zone • Minimum ceiling of 1,000 ft and minimum visibility of 2SM (300-ft and RVR 40 (3/4 SM visibility) if an IP is in either seat)

Stop-and-Go Landings • Authorized only on designated training, evaluation, or currency missions • Authorized to be performed by any C-130 qualified pilot • Runway remaining for takeoff must be sufficient to allow takeoff and refusal speeds to be equal • Crosswind component corrected for RCR must be in the recommended zone of the landing crosswind chart • Ceiling and visibility must be at least 300-feet and 3/4 mile (RVR 40).

Go-around, Missed Approaches • Minimum altitude is 500-feet AGL when aircraft, equipment, or personnel are on the runway • VFR - No lower than 200-feet AGL when practicing simulated emergencies • Practice instrument approaches - no lower than minimum altitude for the approach.

Slow Flight Demonstration • At or above 5,000 feet AGL • Fly at approach, threshold, and 1.2 times stall speed with gear down and flaps 0, 50, or 100 per-cent • Do not exceed 15-degrees of bank

Approach to Stalls • Authorized during formal upgrade training • Requires day VMC at a minimum of 5,000 feet AGL or above cloud deck.

Steep Turns (not applicable to tactical maneuvers) • Authorized during day VMC with up to 60-degrees bank • Restricted to at or above 5,000 feet for bank angles in excess of 45-degrees • Review stall speeds before performing turns.

No-Flap Landing Limitations • Direct IP supervision required • Authorized for certified copilots with 500 PAA hours, AC candidates, ACs and above • No-flap circling approaches authorized for AC upgrades and above • Engine out no-flap approaches authorized for ACs and above • Do not combine no-flap circling approaches with any other simulated emergencies • Maximum gross weight is 120,000 lbs • Crosswind component must be within the recommended range on the crosswind chart • Authorized in daylight IMC if the weather is at or above circling minimums and at night with weather at or above 1,000 foot ceiling and 2 SM visibility or circling minimums whichever is higher • Use 50% flaps for a go-around • Check no-flap landing distance with runway available.

Windmill Taxi Start • Direct IP supervision required • Authorized during daylight • Crosswind component must be within the recommended zone of the flight manual takeoff crosswind chart • Runway must be dry, hard-surfaced, and at least 147 feet wide • Dash one recommendations are mandatory • Requires OG/CC approval when performed at units other than the Formal Training Unit (FTU).

Maximum Effort Takeoff • ACs may accomplish maximum effort takeoffs • Maximum effort takeoffs should be performed from the main runway when it is available (i.e., safe and practical to taxi from an assault landing zone) • Takeoffs from the assault zone are authorized during formal mission qualification training or when approved by the OG/CC for currency or proficiency.

ICAO
- **Prop Safety Features**
  - Pitchlock
  - Low Pitch Stop
  - Feather

- **Gearbox Safety Features**
  - NTS
  - Decouple
  - Prop Brake

- **Fire Handle**
  - (ESS DC BUS) 9 items
    - Engine Fuel Control
    - Engine Oil Control
    - Firewall Fuel
    - Firewall Hydraulics
    - Engine Bleed Air
    - Eng Start Control Circui
    - Prop Feathered
    - Positions Fire
    - Extinguish Valve
    - Arms Agent Discharge

- **CB Panel - Pilot’s Side**
  - (Little Rock AFB I)
    - LH AC
    - RH AC
    - AC Inst&Eng Fuel Cont
    - Fuses
    - Battery Bus
    - Isolated DC/ESS AC

- **CB Panel – Copilot’s Side**
  - (MR. SEAL)
    - Main
    - Radio
    - Start (ESS DC)
    - Engine (ESS DC)
    - Airframe (ESS DC)
    - Lights (Main DC)

- **Engine Accessory Drive**
  - (OFF Speeds)
    - Oil Pump
    - Fuel Pump
    - Fuel Control
    - Speed Sensitive Control
    - Speed Sensitive Valve

- **Gearbox Accessory Drive**
  - (GHOST)
    - Generator
    - Hydraulic Pump
    - Oil Pump
    - Starter
    - Tach Generator

- **Stepdown Transformers off AC Inst & EC Bus**
  - (1FEB34 the score was 1222122)
    - #1 Stepdown Transform (26v AC, Single Phase)
    - Fuel Pressure Indicator
    - Emer Hyd Press Gauge
    - Booster Hyd Press Guage
    - #3 Eng/Gearbox Oil Press (2 Separate Fuses)
    - #4 Eng/Gearbox Oil Press (2 Separate Fuses)
    - 122 2(to) 122 (equates to Hydraulic Pressure Gauges)

- **Battery Bus**
  - (FAA JEVEE)
    - Fire Extinguisher
    - AC External Power
    - Alarm Bell
    - Jump Lights
    - ELT
    - Voltmeter
    - Emer Exit Light Exting.
    - Emer Depressurization

- **No Procedure Turn Required**
  - (SNERT)
    - Strait-In
    - No PT
    - Estab in Hold
    - Radar Vectors
    - Timed Appro.

- **Lost Communications**
  - Route AVE–F
  - Altitude MEA

---

### Basic VFR Weather Minimums

<table>
<thead>
<tr>
<th>Airspace</th>
<th>Flight Visibility</th>
<th>Distance from Clouds</th>
</tr>
</thead>
<tbody>
<tr>
<td>Class A</td>
<td>Not Applicable</td>
<td>Not Applicable</td>
</tr>
<tr>
<td>Class B</td>
<td>3 statute miles</td>
<td>Clear of Clouds</td>
</tr>
<tr>
<td>Class C</td>
<td>3 statute miles</td>
<td>500 feet below 1,000 feet above 2,000 feet horizontal</td>
</tr>
<tr>
<td>Class D</td>
<td>3 statute miles</td>
<td>500 feet below 1,000 feet above 2,000 feet horizontal</td>
</tr>
<tr>
<td>Class E</td>
<td>3 statute miles</td>
<td>500 feet below 1,000 feet above 2,000 feet horizontal</td>
</tr>
<tr>
<td>At or above 10,000 feet MSL</td>
<td>5 statute miles</td>
<td>1,000 feet below 1,000 feet above 1 statute mile horizontal</td>
</tr>
<tr>
<td>Class G</td>
<td>1 statute mile</td>
<td>Clear of clouds</td>
</tr>
<tr>
<td>Day</td>
<td>1 statute mile</td>
<td>500 feet below 1,000 feet above 2,000 feet horizontal</td>
</tr>
<tr>
<td>Night</td>
<td>3 statute miles</td>
<td>500 feet below 1,000 feet above 2,000 feet horizontal</td>
</tr>
<tr>
<td>More than 1,200 feet above the surface but less than 10,000 feet MSL.</td>
<td>5 statute miles</td>
<td>1,000 feet below 1,000 feet above 1 statute mile horizontal</td>
</tr>
<tr>
<td>Day</td>
<td>1 statute mile</td>
<td>500 feet below 1,000 feet above 2,000 feet horizontal</td>
</tr>
<tr>
<td>Night</td>
<td>3 statute miles</td>
<td>500 feet below 1,000 feet above 2,000 feet horizontal</td>
</tr>
<tr>
<td>More than 1,200 feet above the surface and at or above 10,000 feet MSL.</td>
<td>5 statute miles</td>
<td>1,000 feet below 1,000 feet above 1 statute mile horizontal</td>
</tr>
</tbody>
</table>
IFR Clearance from ATC, Instrument Rating, MODE C

18,000' MSL, Continental U.S.

MODE C VEIL

VOR Airways
"Victor" 1,200' AGL - 17,999' MSL
4NM (8NM total)

Aircraft Speed Limited to 200KIAS.
• Within 4NM & ‘12500’ agl of Class D&C primary airport
• Below Class B Veil

2 way communications must be established prior to entry & maintained always. 2 way communications established when ATC responds with the aircraft’s specific call sign. “Standby” – cannot legally enter