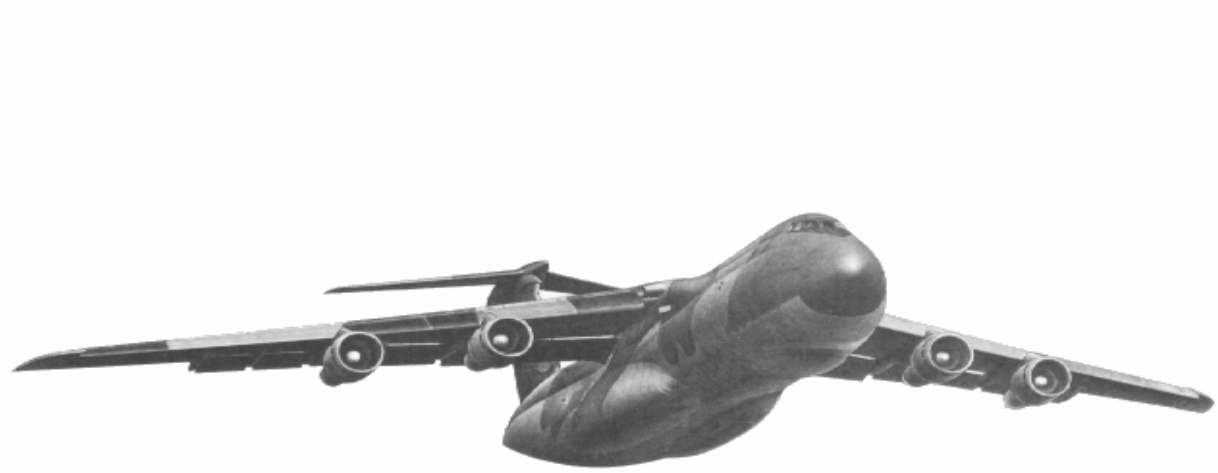
FOR TRAINING ONLY

C-5
GALAXY
PILOT GUIDE



Jul 2005

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Quick reference information is presented first with the rest organized by a typical mission's order of events where possible. Source references are posted whenever possible. It is the crew member's responsibility to comply with all current regulations. Guide contains both techniques and procedures. Use at your own risk and verify all info with source document. Changes to this guide will be issued periodically in order to keep the information as up to date as possible. Originally published by 436 OSS/OST. Travis AFB information by Capt DomPaul.

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Day	**Jan**	Feb	**Mar**	Apr	**May**	Jun	**Jul**	Aug	**Sep**	Oct	**Nov**	Dec
1	**1**	32	**60**	91	**121**	152	**182**	213	**244**	274	**305**	335
2	**2**	33	**61**	92	**122**	153	**183**	214	**245**	275	**306**	336
3	**3**	34	**62**	93	**123**	154	**184**	215	**246**	276	**307**	337
4	**4**	35	**63**	94	**124**	155	**185**	216	**247**	277	**308**	338
5	**5**	36	**64**	95	**125**	156	**186**	217	**248**	278	**309**	339
6	**6**	37	**65**	96	**126**	157	**187**	218	**249**	279	**310**	340
7	**7**	38	**66**	97	**127**	158	**188**	219	**250**	280	**311**	341
8	**8**	39	**67**	98	**128**	159	**189**	220	**251**	281	**312**	342
9	**9**	40	**68**	99	**129**	160	**190**	221	**252**	282	**313**	343
10	**10**	41	**69**	100	**130**	161	**191**	222	**253**	283	**314**	344
11	**11**	42	**70**	101	**131**	162	**192**	223	**254**	284	**315**	345
12	**12**	43	**71**	102	**132**	163	**193**	224	**255**	285	**316**	346
13	**13**	44	**72**	103	**133**	164	**194**	225	**256**	286	**317**	347
14	**14**	45	**73**	104	**134**	165	**195**	226	**257**	287	**318**	348
15	**15**	46	**74**	105	**135**	166	**196**	227	**258**	288	**319**	349
16	**16**	47	**75**	106	**136**	167	**197**	228	**259**	289	**320**	350
17	**17**	48	**76**	107	**137**	168	**198**	229	**260**	290	**321**	351
18	**18**	49	**77**	108	**138**	169	**199**	230	**261**	291	**322**	352
19	**19**	50	**78**	109	**139**	170	**200**	231	**262**	292	**323**	353
20	**20**	51	**79**	110	**140**	171	**201**	232	**263**	293	**324**	354
21	**21**	52	**80**	111	**141**	172	**202**	233	**264**	294	**325**	355
22	**22**	53	**81**	112	**142**	173	**203**	234	**265**	295	**326**	356
23	**23**	54	**82**	113	**143**	174	**204**	235	**266**	296	**327**	357
24	**24**	55	**83**	114	**144**	175	**205**	236	**267**	297	**328**	358
25	**25**	56	**84**	115	**145**	176	**206**	237	**268**	298	**329**	359
26	**26**	57	**85**	116	**146**	177	**207**	238	**269**	299	**330**	360
27	**27**	58	**86**	117	**147**	178	**208**	239	**270**	300	**331**	361
28	**28**	59	**87**	118	**148**	179	**209**	240	**271**	301	**332**	362
29	**29**		**88**	119	**149**	180	**210**	241	**272**	302	**333**	363
30	**30**		**89**	120	**150**	181	**211**	242	**273**	303	**334**	364
31	**31**		**90**		**151**		**212**	243		304		365
Non-Leap Year												

Quick Reference Phone Numbers

Travis AFB OPER	DSN 837-1110	INTEL	
COMMERCIAL	(707) – 409-4213	Crew Comm	0146
TOLL FREE	(800) -	LAW ENFORCE	2000
60 AMW CUR OPS	2381/1072	LIFE SUPPORT	3676
ATOC	3705	PAX TERMINAL	1854
BASE OPS	2836	SAFETY	5437
BILLETING / FAX	8000/	60 OGV STAN EVAL	3647
CMD POST / FAX	5517/5950	TIME HACK	DSN 762-1401
CREW BUS	3405	TOWER	3229
FLIGHT SURGEON	423-5445	WEATHER	3003
INFLT KITCH	5675	TACTICS	1198

21AS:		22AS:	
MCC	3451	MCC	2248
TRAINING	0228	TRAINING	1319
STAN/EVAL	5595	STAN/EVAL	0675
DO	5515	DO	0682
CC	3666	CC	2245

TACC Phone Numbers

COMMERCIAL

(618) 229-XXXX (call collect) 1-800-247-6625 (1-800-AIR MOBL)

DSN 779-XXXX	PRIMARY/ALTERNATE
CONTINGENCY & AR MISSION	DSN 779-0320
CHANNEL MISSIONS	DSN 779-0321
JAAT, C-9/C-21 MISSIONS	DSN 779-0322
SAAM & EXERCISE MISSIONS	DSN 779-0323
OTHER MSNs & NON-MSN SPECIFIC INFO	DSN 779-0324
FLIGHT MANAGERS	DSN 779-0301
INTERNATIONAL CLEARANCE	DSN 779-3008
FLIGHT PLANS	DSN 779-3490
EMERGENCY ACTION CELL	DSN 779-1706
MISSION SUPPORT (TALCE)	DSN 779-3911
WEATHER	15th OWS
GLOBAL MOBILITY WEATHER FLIGHT	DSN 779-3196
EAST/WEST	DSN 779-0308/4795
LOGISTICS	DSN 779-2412
AERIAL PORT **EAST**	DSN 779-1755/1756/1757
WEST	DSN 779-1758/1759/1760
INTELLIGENCE	DSN 779-4773
COMMUNICATIONS CONTROLLER	DSN 779-2227/2228
SECURE FAX	(618)-744-1892 (STU III)
NON-SECURE FAX	DSN 779-6230
SCOTT OPERATOR	1-800-851-7542
OPERATIONAL SUPPORT AIRLIFT OFFICER	DSN 779-5851

Travis AFB https://w3.travis.af.mil
NOTAMS ..... http://www.notams.jcs.mil
SDP ..... http://www.jeppesen.com (afopsdata/jeppesen)
Aircrew Portal https://amc.af.mil/a3/aircrewportal
IMT ..... https://dispatch.scott.af.mil

FOR TRAINING ONLY

BASE OPS (I WANT LESS PACS)

W	WEATHER / WEAPONS	**L**	LUNCHES	**P**	PAX / POSITIVE LAUNCH
A	ACT FLT PLAN	**E**	EXACT FUEL / AR CFP	**A**	AGRICULTURE
N	NOTAMS / NAV KIT / PCMCIA	**S**	SID/ SDP	**C**	CUSTOMS / CARGO (HAZ)
T	TOLD / DIW / COMPUTER	**S**	SECRETS	**S**	SLOT TIME / ARCT

- INTEL BRIEF: IRIDIUM PHONE / TACTICS BRIEF & FOLDER / COMM CARD / STICKS
- WEATHER: FLT LVL / DESTINATION / ALTERNATES / WINDS / AIREP / DE-ICING
- ACT FLIGHT PLAN: ROUTE BRIEF / EETs & MDCN (VALID TIMES) / PPR / SID / STAR / CHECK POINTS ON CFP / CHECK WINDS / ALT ROUTE & DIVERT OPTIONS / SLOT TIMES / OPC (AC Name, Date Prepared By, MSN #, ARIP, ARCP, TP, AREX)
- NOTAMS: IFR SUPPLEMENT / JEPPS / QUIET HOURS / NOISE ABATEMENT / TCN / FIH / AP / FCB (KADW, KACY, LIPA, CIS, GOOY, KDOV, PSAB, ETAR, TJNR, MHSC, KMDT, LTAG, KNGU, KPOB) / FCIF / ASRR
- NAV KIT: ENSURE PUBS GOOD FOR DURATION OF TRIP / PCMCIA CARD / CHARTS / IMAGERY / AIRFIELD DIAGRAM
- TOLD: DIW / COMPUTER
- FUEL PLAN: CALL FOR EXACT FUEL (2+00) / AR FUEL CARD / MISSED AR / ALTERNATE / LOWEST FLT LEVEL / ETP
- AGRICULTURE & CUSTOMS: CALL NEXT STOP FOR INSPECTION REQUIREMENTS
- CARGO: CALL CP FOR HAZARDOUS / NEW / FLARES / LOAD STATUS
- SLOT TIMES**:** NAT MSG (CHECK 30W TIME AGAINST MESSAGE) / Track Message ID / ARCT / TANKER STATUS / BASH (DOVER = ½ TO 1 ½; AMC = 1 TO 1)
- COMMAND POST: UPDATE ON JET / FUEL / CARGO / PAX / FAX ORDERS TO NEXT STATION
- CREW BUS: SHOW 1+30 AT JET

AT AIRCRAFT

- FORMS
  - N2 – 650X2 OR 12#/1K + 250#
  - O2 – 16L/HR @ FL180
  - SELCAL, TCAS, HT90
  - TORQUE LIMIT, TIE BOX
- FUEL
- FLEET
- FOLKS
- FSAS / FMS
- FIGURES
- FORM F

BEFORE CREW REST

- JET
  - 781 (ME/MC, FAULT CODE)
  - COPY OF 781
  - DIW INFORMATION
- BASE OPS
  - TURN IN SECRETS, GUNs, COMPUTER/PCMCIA
- STAGE OR TACC (AMC CP, TALCE, EMBASSY)
  - LFA / LFB
  - BUS
  - MEAL PLAN
  - FUEL
  - FILE AND IMT PACKAGE / MDCN & PPRs
  - CALL BACK TO SQUADRON MCC
  - CONTACT STAGE / TACC / AMC CP WITH ROOM NUMBERS AND TELEPHONE #

DELAY

- WX, Flt Plan, Fuel, CDD/FDP, Pax
- Times (Slot, NATs, AR, MDCN, PPR, Ops hrs, Quiet hrs)

Flight Planning

Pre-Mission Checklist (11-2C-5V3 & 3-3)

The following material contains suggestions, reminders and checks for aircraft commanders to use in mission preparation.

Squadron

- Review tasking, itinerary, ALTRV, AR, Arming, ABCE bags, Ravens, FCC
- Check crew list; NCOIC, currency, checkrides, student folders, bas/aug/AR/Tactical/NVG crew
- Review anti-hijacking procedures (AFI 13-207), Phoenix Banner (AFI 11-289)
- Ensure physiological training, annual physical, immunizations, and standardization checks will remain current throughout the TDY period
- Check V-file, Review FCB and FCIF (even previously signed)
- Obtain required customs forms (Japan, Korea, etc) and spraying requirements (Australia)

Current Ops

- (Channels) Get Mission Briefing/Load Briefing and pick up Mission Folder

Intel and Tactics Brief (Preview ATO/SPINS)

Base Ops

- Review applicable operations orders (OPORD) and Aircrew Brochures (OIF/OEF)
- Flight information publications: IFR SUPP, FIH, GP, ASSR, AP, SIDS, STARS, APP Plates to include TCNs (also check alternates)
- Check on advance copy of CFP for AR Planning
- Check PPR requirements and Quiet Hours
- Check FIR/UIR/ADIZ procedures
- Review airfield videos if applicable
- Review AOR instrument procedures / Organized Track Requirements (BRNAV, NAT, Pacific)
- Preliminary check of NOTAMs and Giant Reports
- Obtain terrain charts for unfamiliar destinations, if available (TCN, Jeppesen, Falconview)
- Review the FCG (SECRET/NON-SECRET) for areas of operation.
    - Review Customs, Passport / Visa, Shots, Local Customs, Insect/pest control, agriculture
    - Check necessary diplomatic clearances (MDCN valid times) where required

B-Blanket	**D**-Denied
N-Not Required	**R**-Required but not requested
M-Requested by Message	**Z**-Approved by message
Y-Requested Verbally	**V**-Verbally approved
E-Requested by e-mail	**L**-Approved by e-mail
X-Approved by Fax	**P**-Pending

- Have Command Post Fax orders to Billeting (Prime Knight)
- Review duration required for sufficient communications security (COMSEC) materials

TR/Deadhead

- Trip Kit
- Secrets
- L-Band & PCMCIA

Mission Planning Websites

		Username	Password
Travis AFB	https://w3.travis.af.mil	NA	NA
Aircrew Portal	https://amc.af.mil/a3/aircrewportal	NA	NA
IMT/IMF	https://dispatch.scott.af.mil		
NOTAMS	https://www.notams.jcs.mil	NA	NA
GIANT REPORT	https://www.afd.scott.af.mil	NA	NA
SDP	http://www.usafopsdata.com/secure_index.phtml	afopsdata	jeppesen
Bird Avoid Models	http://www.usahas.com/bam	NA	NA
FCG	http://www.fcg.pentagon.mil	NA	NA
NIMA Products	http://164.214.2.62/products/digitalaero/index.html	NA	NA
Time Hack	http://www.time.gov	NA	NA
Sunrise/Sunset	http://aa.usno.navy.mil/data/	NA	NA
GDSS	https://gdss.scott.af.mil		
SMS	https://sms.transcom.mil/		
AMC Email	https://mail.amc.af.mil/		
GI Mail	https://www.gimail.af.mil/login.asp		
Per Diem	http://www.dtic.mil/perdiem/rateinfo.html	NA	NA
CIA Factbook	http://www.cia.gov/cia/publications/factbook/index.html	NA	NA
State Department	http://www.state.gov/travel	NA	NA
Early Bird	http://ebird.afis.osd.mil/	NA	NA
AFPC	http://www.afpc.randolph.af.mil	NA	NA
Virtual MPF	https://www.afpc.randolph.af.mil/AFPCSecure/default.asp		
AMSS	https://afas.afpc.randolph.af.mil/amsweb/master.cfm		
MyPay	https://mypay.dfas.mil/mypay.asp		
Thrift Savings Plan	http://www.tsp.gov		
AMC	https://private.amc.af.mil/index.cfm		
TACC	https://tacc.scott.af.mil	NA	NA
XOP Tools	https://xop-web.scott.af.mil/tools	NA	NA
AFPUBS	http://www.e-publishing.af.mil	NA	NA
All PME	http://allpme.com		
Travis Leave	https://leave.travis.af.mil/leaveweb/home.asp		
Base Ops	http://www.baseops.net	NA	NA
Dash-2	http://www.dash-2.com	NA	NA
Map Collection	http://www.lib.utexas.edu/maps/index.html	NA	NA

NOTE: ALL SITES SUBJECT TO CHANGE WITHOUT NOTICE!!!

AC Mission Checklist (11-2C-5V3 & 3-3)

SQUADRON:

- You need to collect: Trip kit (inventory it), Set-up sheet, Training folders
- COMMAND POST: Msn number / Destination / Tail Number / Fuel / Cargo Weight / Park spot / Takeoff time / Haz Cargo / ACM's / PAX / DVs / Basic or Aug
- Check departure weather
- Make sure all have passports (if required), shot records, driver's license, ID Tags, and required ABCD bags
- Assign crewmember to: Secrets, Trip Kit, Meal Order, Nav Bag, Computer, PCMCIA

BASE OPS: (SEE BACK PAGE)

FINAL LEG

- CUSTOMS AND AGRICULTURE
- INDIVIDUAL AND GENERAL DECLARATIONS
- GROUP VOUCHER
- FORMS (ENSURE 781, 306 AND FORM 33's ALL MATCH, AVPOL RECEIPTS)
- FORM 306
- FCC ORDERS AND WRITE-UP
- TRIP KIT - COMPLETED FORMS (FLIGHT & FUEL PLANS, OPC)
- TRAINING FOLDERS & CHECKRIDES
- TRIP REPORT

BACK AT SQUADRON

- TRIP KIT (COMP FORMS)
- COPY FORM 306 FOR EVERYONE
- GROUP VOUCHER / TAX FREE / HOSTILE FIRE
- ESTABLISH POST MISSION CREW REST

Overseas Billeting Contacts

BASE	DSN	FAX	Command Post
Anderson AFB	(315) 366-8144	(315) 366-6264	(315) 366-2961
Aviano AB	(314) 632-7262/2262	(314) 632-7097	(314) 632-7222
Eilson AFB	(317) 377-1844	(317) 377-2559	
Elmendorf AFB	(317) 552-2454	(317) 552-8276	
Hickam AFB HI	(315) 449-2603	(315) 449-3572	(315) 448-6900
Incirlik AB	(314) 676-6786/9353	(314) 253-6655	(314) 676-6156
Kadena AB	(315) 632-1000	(315)632-2740	(315) 634-3535
Lajes Field	725-1410 x7283	725-1410 x5178	535-4238
Misawa AB	(315) 226-3526	(315) 226-2165	(315) 226-3110
Moron AB	(314) 722-8155	(314) 722-8344	(314) 722-8418
RAF Mildenhall	(314) 238-2407	(314) 238-3688	(314) 238-2247
Ramstein AB	(314) 480-6080	496 371 42 559	(314) 480-2367
Rhein-Main AB	(314) 330-7267	(314) 330-6980	(314) 330-8742
Rota NS	(314) 727-1750	(314) 727-1754	(314) 727-2407
Sigonella NAS	(314) 624-5368	N/A	(314) 624-5417
Yokota AB	(315) 225-9270 x7712	(315) 225-3499	(315) 225-7006

Toll free stateside billeting number: 1-888-235-6343, Dial the first 3 letters of the Air Force Base connects to any stateside billeting front desk.

Departure Sequence of Events

EVENT	Time	Reported by	Reported to
Load Plan	9+00	ATOC	TCP
Aircraft Fueled / Refueled	7+10	MX	TCP/ATOC
Acft Msn Ready	7+10	MX	TCP
Released for Load	7+10	MX	TCP
Seat Release	7+00	ATOC	TCP
Cargo Loading Start	4+45	RAMP/ATOC	TCP
Crew Alerted	4+15	Msn control	TCP
Fleet Cleanup Completed	3+30	ATOC	TCP
Crew Meals Ordered	2+55	Crew	Flight Kitchen
Crew Show at Aircraft	2+45	MX	TCP
Cargo Loading Complete	2+30	RAMP/ATOC	TCP
Fuel Change Notification (1)	2+05	MX/Crew	TCP
PAX Meals Ordered	1+40	PAX SVC	Flight Kitchen
AC/Pilot Show at Aircraft	1+30	MX/Crew	TCP
PAX Baggage Loaded	1+30	ATOC/Crew	TCP
Final Fleet Completed	1+10	ATOC/Crew	TCP
PAX Show at Aircraft	1+10	PAX/Crew	TCP
MX Dash-1 Preflt Complete	0+55	MX	TCP
PAX Loaded	0+55	PAX/Crew	TCP
Exceptional Release	0+50	MX	TCP
Engine Start Initiated (1,2)	0+40	MX/Crew	TCP
Block Out (1,2)	0+30	MX/Crew	TCP
Takeoff (1,2, 4)	0+00	MX/Crew	TCP

NOTES:

1. ENROUTE STATIONS MAY HAVE LOCAL SOE.
2. On local A/R missions: Early takeoffs for transition training are approved, provided the aircraft departs the pattern in time to make the scheduled CT.
3. For all A/R missions: Aircraft Commanders may adjust scheduled engine start and block out times to make the scheduled CT.

Deviations: 20 min early or 14 min late

ERO suggested SOE: Adapted from DAFBI 10-203

1+45	Officer show
1+30	ERO Stations/Dash 1 Complete
1+10	ERO Start Engines
1+05	Simulated Block Out
1+00	Simulated Block In / ERO Checklist
0+40	ERO Completed
0+30	Taxi for departure

How to retrieve IMT Package

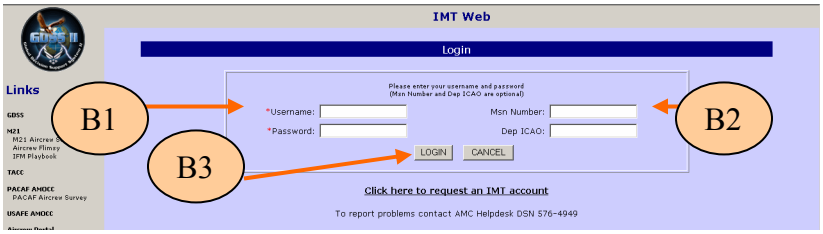
Downloading IMT Crew Papers & Electronic Flight Plan (.rte file)

A. Go to the AMC dispatch website at https://dispatch.scott.af.mil.

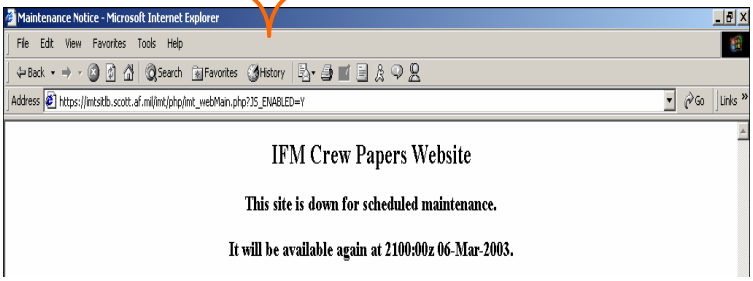
B. Login to the IMT website.

If the mission number is available complete steps 1 thru 3 then proceed to Step "C 12 " , otherwise proceed to Step "C 1".

1. **Enter IMT username and password.**
   This is not the same user name and password used to access ACFP
2. **Enter "Mission Number" and "ICAO"**
   Mission number and ICAO are optional fields available at login. If available, Input the mission number (or portions thereof) if known. If the ICAO field is used a mission number must also be used.
3. **Select the** LOGIN **icon.**



- Periodically the IMT server is brought down for maintenance, if so; the following web page will be displayed.



C. Search for the desired mission using the "Find Using Filters" option or the "Find Selected Mission" option.

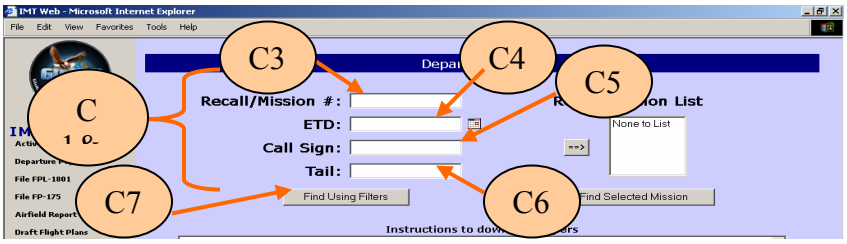
Using the Find Using Filters ***search option:***

1. **Complete at least one of the search criteria fields**
2. **The more fields completed the narrower the search results.**
   - Use the following special characters as wildcards:

?= a single character

*= a group of characters

3. **Recall/Mission #:** Enter a complete or partial mission number using the wildcard characters.



4. **ETD:** Enter the date using the format; mm/dd/yyyy, mm/dd/yyyy hh:mm or select from the calendar. Wildcards are not allowed.

5. **Call Sign:** Enter a complete or partial call sign. Wildcards are allowed.

6. **Tail:** Enter a complete or partial tail number. Wildcards are allowed.

7. **Select the** Find Using Filters **icon.**

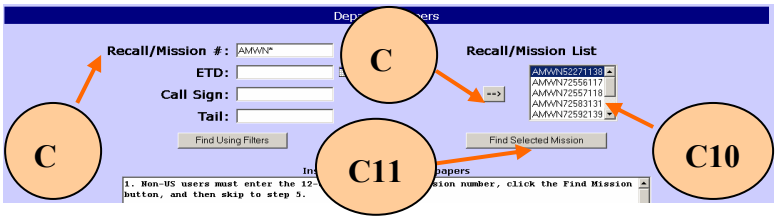
Using the Find Selected Mission ***search option:***

8. **Enter a partial mission number in the Recall/Mission # field, using the wildcard characters.**

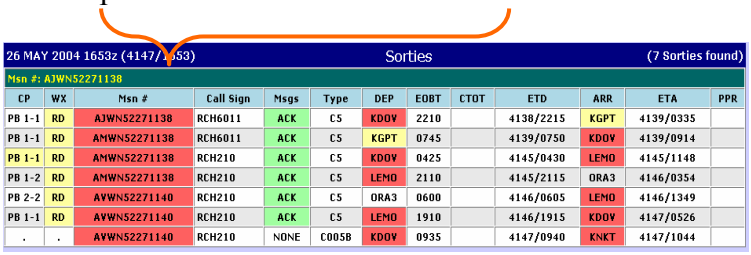
9. **Select the** ==> **icon.**
   A list of mission ID's, matching the criteria provided, will be displayed in the "Recall/Mission List."

10. **Select the desired flight plan in the "Recall/Mission List".**

11. Select the Find Selected Mission icon



12. Select the desired mission from the list of the mission IDs matching the criteria provided.



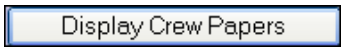
CP	WX	Msn #	Call Sign	Msgs	Type	DEP	EOBT	CTOT	ETD	ARR	ETA	PPR
PB 1-1	RD	AJWN52271138	RCH6011	ACK	C5	KDOV	2210		4138/2215	KGPT	4139/0335	
PB 1-1	RD	AMWN52271138	RCH6011	ACK	C5	KGPT	0745		4139/0750	KDOV	4139/0914	
PB 1-1	RD	AMWN52271138	RCH210	ACK	C5	KDOV	0425		4145/0430	LEMO	4145/1148	
PB 1-2	RD	AMWN52271138	RCH210	ACK	C5	LEMO	2110		4145/2115	ORA3	4146/0354	
PB 2-2	RD	AVWN52271140	RCH210	ACK	C5	ORA3	0600		4146/0605	LEMO	4146/1349	
PB 1-1	RD	AVWN52271140	RCH210	ACK	C5	LEMO	1910		4146/1915	KDOV	4147/0526	
.	.	AVWN52271140	RCH210	NONE	C005B	KDOV	0935		4147/0940	KNKT	4147/1044	

D. Use the check boxes in the Published Departure Papers Section to select/deselect specific sections.

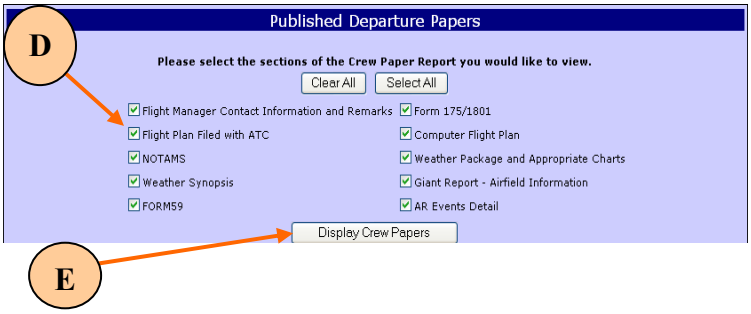
a. By default all checkboxes are checked

b. Always ensure the "Flight Manager Contact Information and Remarks" block is checked.

The Flight Manager Contact Information and Remarks contains the link to the electronic flight plan.

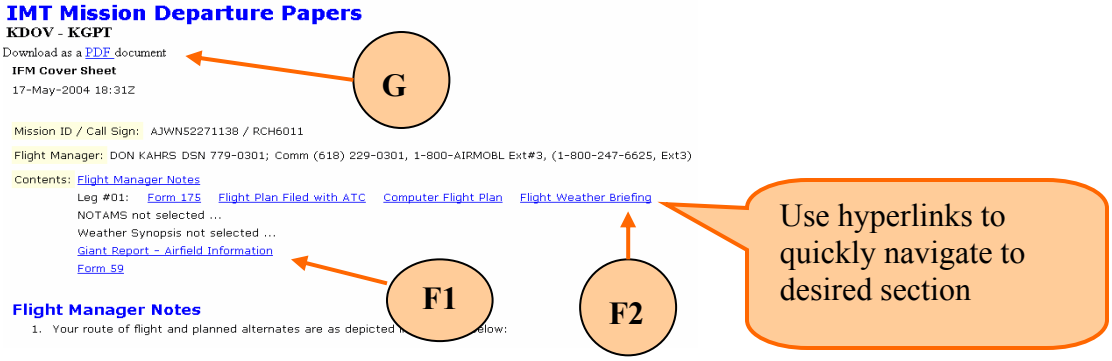
E. After checking the desired boxes select the 

icon.



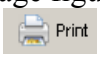
F. Selected departure papers will be displayed along with the IFM Cover Sheet.

1. The Cover Sheet Contents will reflect those sections not selected.
2. Use hyperlinks to quickly navigate to desired sections.



G. Download and Print Crew Papers and Electronic Flight Plan.

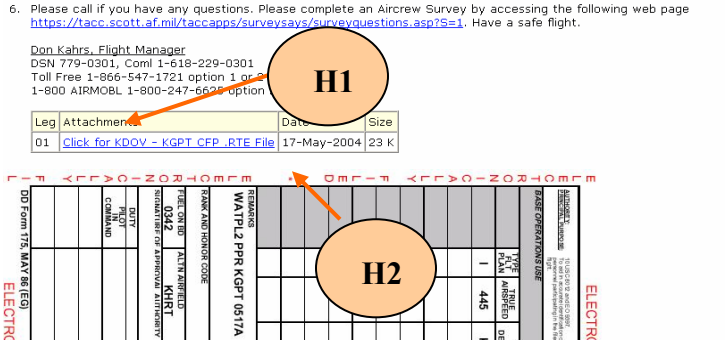
Downloading and printing papers in PDF format is recommended to ensure the page breaks and other formatting is accurate.

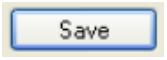
1. Select the "Download as a PDF document" link on the Departure Page Cover Sheet. (step "I 1" shown on the previous page figure)
2. Print the departure papers by selecting the 

icon.

H. Download the Electronic Flight Plan (.rte file)

1. Locate the electronic flight plan hyperlink table in part 6 of the Flight Manager Notes.
   a. The actual verbiage of the electronic route file may change depending on the flight dispatcher but the location will not. It is located just prior to the DD Form 175.
2. Select the link for the route segment you want to download.



3. **Select** 

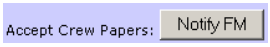
when asked "Would you like to open the file or save to your computer?"

4. **Save the .rte file to a removable media**, such as a jump drive or floppy disk in order to transfer the file to an authorized card cutting computer (Panasonic CF-27, Dell c800 Latitude, Dell Precision 340).

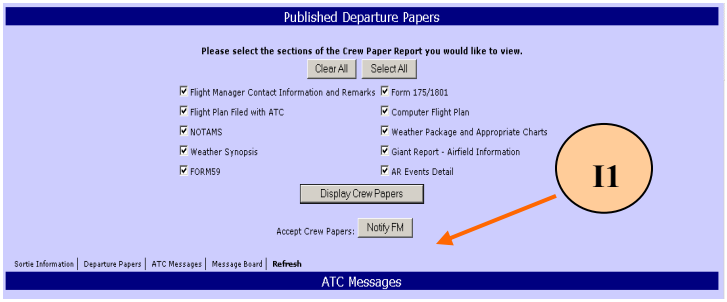
5. **Name the file using eight or less characters** so that it is in compliance with the AWE\MDL naming convention.

I. **After the Published Departure Papers and CFP are reviewed, downloaded and accepted, notify the Flight Manager.**

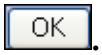
Selecting the "Notify FM" icon, notifies the Flight Managers that you are mission planning and that they are to call you with any changes, instead of just posting a modified package.

1. **Select the** 

icon.



An acknowledgement indicating "FM notification of retrieved papers has been sent" will be displayed.

2. **Select** 

.

3. **The CP column (thin client) and Crew Paper column (thick client) will now display "ACP" indicating aircrew acceptance.**

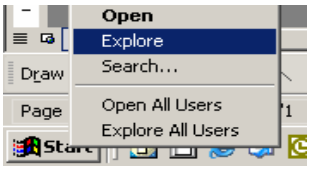
Transfer Route(s) to the PCMCIA Data Card Using the "Transferring a Route (.rte) File to the PCMCIA Data Card"

How to put CFP and DAFIF on PCMCIA Card

Transferring DAFIF and Route (.rte) File to the PCMCIA Data Card

A. Carefully Insert PCMCIA Data Card into the Laptop.

Use caution when installing or removing the data card. DO NOT force the card into the slot; it should slide easily until fully seated.

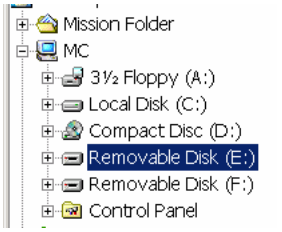


B. Open Windows Explorer.

Open Windows Explorer by right clicking the 'START" button.

C. Check Drive Letter Assigned to PCMCIA Card.

If drive letter assigned to the PCMCIA Card (Removable Disk) is other than "E", make note of the drive letter assigned.



D. Insert the Media Device With the Flight Plan into the Computer.

If you are using a USB Jump drive, be sure the PCMCIA card is loaded prior to inserting the Jump drive. Failure to do so will add extra steps in the route transfer procedures.

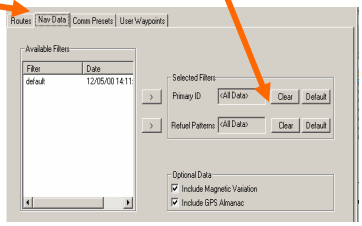
E. Copy the Desired Route(s) from the Media Device to the C:\PFPS\Data\Routes Folder.

F. Start AweMDL  **,Start \ Programs \ Sanders \ AweMDL.**

G. Select  **icon, Ctrl + N, or File \ New**

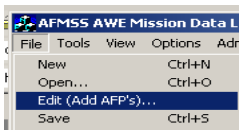
H. Select the "Nav Data" Tab and Then the Two "Default" Tabs.

When selecting the the Refuel Patterns "All Data"

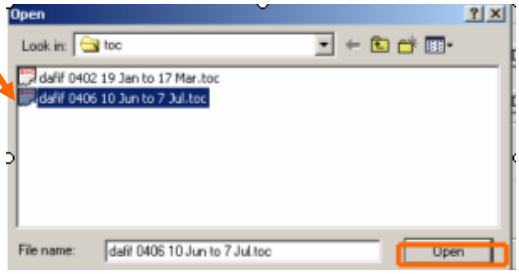


Default tabs the Primary ID and display windows will display

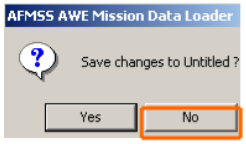
I. Select "File \ Edit (Add AFP's)



J. Select the Current DAFIF Navigation Image, and then the "Open" button.



K. Select "No" to the "Save changes to Untitled?" message (if prompted)
Selecting Yes may corrupt your DAFIF and negatively affect future card cutting operations.

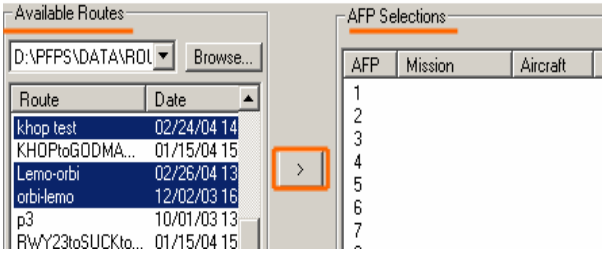


L. Ensure the Navigation Image Selected in Step J. is Displayed in the Tile Bar

M. Select Desired Flight Plan(s) From the "Routes" Tab.

1. **Select Up to 40 Flight Plans From the 'Available Routes" Field**

2. **Select the Transfer Button to Copy Your Route to the "AFP Selections" Field.**

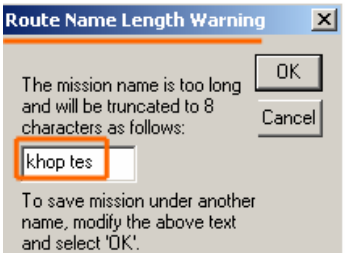


N. If the Route Name is More Than 8 Characters, a "Route Name Length Warning" Message will appear

1. Accept the Truncated Name

OR

2. Rename the file using eight or less characters so that it is in compliance with the AWE\MDL naming convention

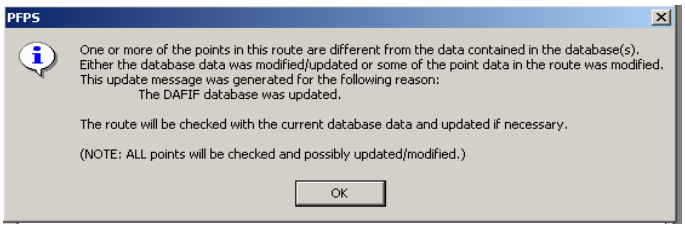


O. Select "OK" to Warning that Route was Created With Newer DAFIF Than the Current DAFIF on the System.

If this warning is generated and the DAFIF image you selected is current select "OK" and disregard. What has occurred is a fallacy in the program that uses the date the route was created as the Current DAFIF date, not the actual DAFIF dates.

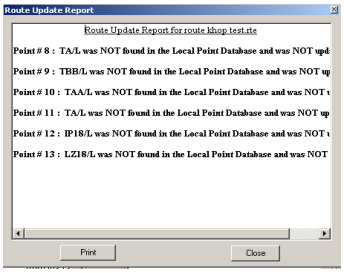
P. Select "OK" to the Following Information Window (if prompted):

If the route was created with data different from that contained in the database(s) the data will be modified with the most current DAFIF database.



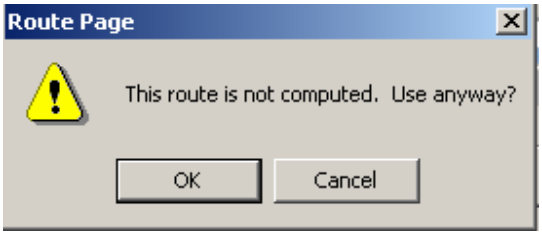
Q. If Route Points Were Updated a "Route Update Report" displays.

Updates made to the route will be displayed in the Route Update Report. Print the report if desired, then select "OK".



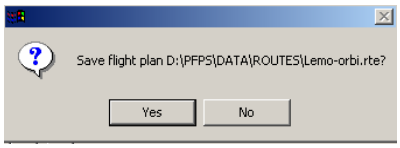
R. Select "OK" to the "Route Page" Message (if prompted).

The route is not required to be computed to create an image.

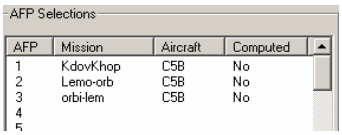


S. Select Yes or No to Save the Updates Made to the Flight Plan Located at Source, When Asked to "Save flight plan ……."

Selecting "Yes" will save the updates displayed in the Route Update Report to the flight plan that is located on the drive letter it was selected from in step "M". Selecting "No" will only save updates to the copied flight plan in the AFP Selections



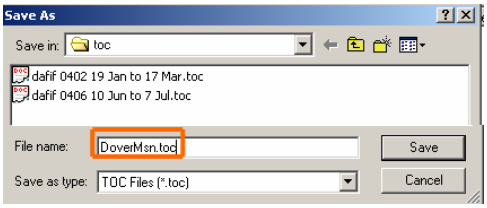
T. Verify Desired Route(s) are Displayed in the "AFP Selections" Window.



U. Select the Create Image icon.

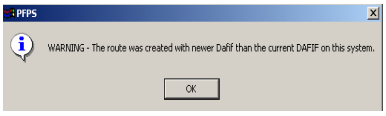
V. Enter a Desired Name for the Image Being Created.

The name given to the image can be more than 8 characters. The image name is for local reference only and will not appear on the aircraft FMS800



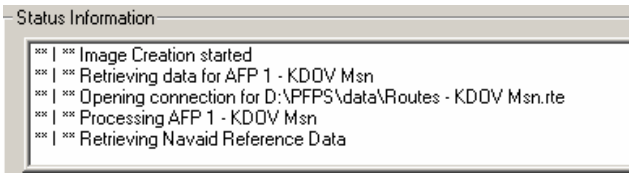
is

W. Select "OK" to Warning that Route was Created With Newer DAFIF Than the Current DAFIF on the System.



X. Status Information Window will Show Image Creation Process.

The creation of the image should take no more than 30 seconds. If the process takes longer than this and you see numerous entries being generated in the Status Information window, steps G and H were not completed properly. Return to Step G and start the process over again.

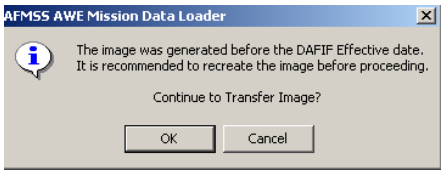


Y. Select "OK" to the Message "AFP update is Complete. New Image 'x\xxxxx\xxxx\xxxx\ has been generated."

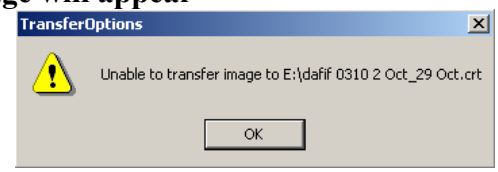
Z. Select the "Transfer Image icon, to Transfer the Flight Plan(s) Image to the PCMCIA Data Card.

AA. Select "OK" when asked to "Continue to Transfer Image?"

The DAFIF is created early so that crews will have access to data when leaving on trips that will be out over the DAFIF change over period. It does not affect the image being created.

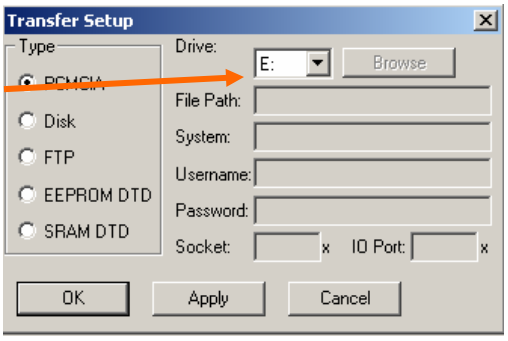


1. **The Default Transfer Device Drive is the "E" Drive. If the PCMCIA data card is assigned any other drive letter the following "Transfer Options" message will appear**



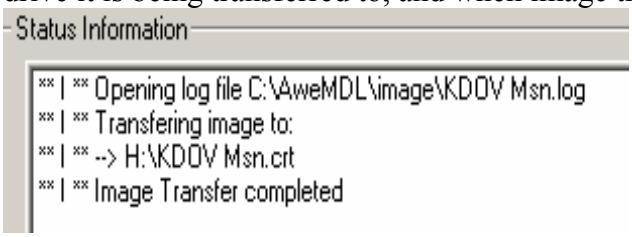
2. **To change to the drive letter assigned the PCMCIA data card; select ADMIN / set transfer device.**

3. **Select the correct drive letter and then select "OK".**



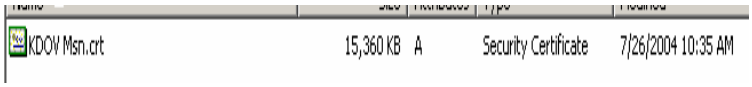
BB. Status information window will display when the image transfer is completed.

The status information window will display what image is being transferred, what drive it is being transferred to, and when image transfer is complete.



CC. Using windows explorer, verify image name and file size of 15,360 KB.

File size may be larger than 15,360 KB if numerous flight plans were incorporated into the image.



NOTE

Removing the PCMCIA data card without first stopping the connection thru the MS program may corrupt the data on the PCMCIA card, or the computer TOC file.

DD. Using the "Unplug or Eject Hardware"  **icon stop the connection to the PCMCIA data card.**

Left click the "Unplug or Eject Hardware" icon, located in the system tray on the right hand corner of the taskbar, one time only. Then select "Stop PCMCIA IDE / ATAPI controller"

EE. Select "OK" and remove the PCMCIA data card when the "Safe to Remove Hardware" Appears

How to retrieve LUI CFP

Downloading a Computerized Flight Plan (CFP) From the ACFP Bulletin Board

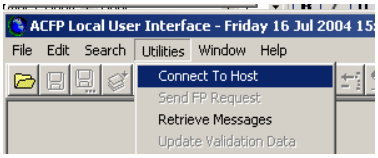
NOTE

To create an AR Flight Plan, or modify a CFP in ACFP you must use the EXPERT Mode. Refer to "**Using ACFP Expert Mode (FREE TEXT) to Request or Modify CFPs**" located in this guide.

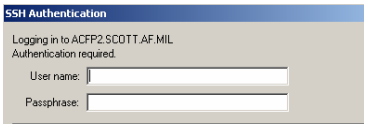
NOTE

A CFP is computed using GB (Global Wx Database) if the departure time is within 72 hours of the request.
Wx updated every 6 hours.
If the requested departure time is over 72 hours away, ACFP will use CL (Climatical Database), which was last updated in 1992.

A. **Open LUI "Start \ Programs \ LUI \ LUI Main."**
B. **Select "Utilities \ Connect To Host.**



C. **Logon to Bulletin Board.**



D. **Type in "A" for the** ACFP Menu **then select "Enter".**

E. **Select C** C FLIGHT PLAN RECALL MENU* **then select "Enter".**
Using the keyboard arrows select "C Flight Plan Recall Menu" the select "ENTER."

F. **Select A** A DATABASE INQUIRY MENU* **then select "Enter".**
Using the keyboard arrows select "C Flight Plan Recall Menu" the select "ENTER."

NOTE

Leaving the POD, POA, or ACFT Type fields blank, will act as a wild card.

G. **Input Point of Departure** Enter POD : KDOV **then select "Enter."**

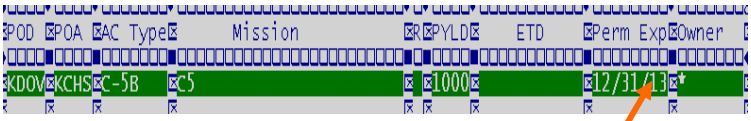
H. **Input Point of Arrival** Enter POA : LEMO **then select "Enter."**

I. **Input Aircraft Type** Enter Aircraft Type : C-5B**, then select "Enter."**

Leaving aircraft type blank will return all flight plans for all aircraft types fulfilling the POD and POA criteria.

J. A list of all flight plans currently posted to the bulletin board from POD to POA and aircraft type will then be displayed.

K. Highlight the desired flight plan using the keyboard arrow keys.



NOTE

If the flight plan is a generic (canned) flight plan the expiration date located in the "Perm EXP" column will be sometime in the distant future.

L. Send the flight plan to the LUI.

1. **Select and hold the "Shift" key then the "F1" key.**
   a. If the CFP is a mission specific flight plan, the CFP will be sent directly to the LUI. Go to Step **M**.
   b. If the CFP is a generic (canned) flight plan enter the:
      1) Estimated Time of Departure ETD TIME : 19:55 then select "Enter."
      2) Departure date, DAY : 12 then select "Enter."
      3) Payload PYLD: 1000 then select "Enter."
      4) Select the "**F10**" Key.

M. Logout of the bulletin board.

1. **Select the "F3" key three times to return to the root menu.**
2. **Select the "L" key and then "Enter" to log out of the bulletin board.**

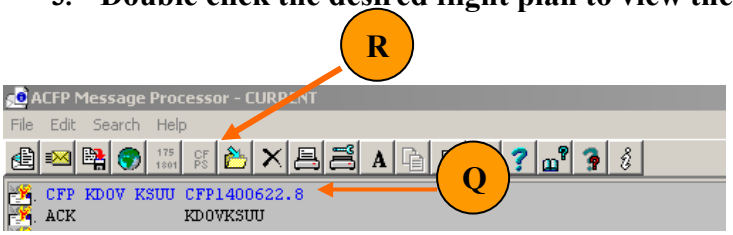
N. Using the LUI, download the CFP to the message processor.

1. **Select the retrieve messages**  **icon.**
   If prompted, Login to the LUI
2. **Select the message processor**  **icon**

NOTE

If the CFP does not appear on the message processor, re-accomplish steps "**N1**" and "**N2**", then select the refresh  icon on the message processor toolbar.

3. **Double click the desired flight plan to view the CFP.**



4. **Select the CFPS icon to save the electronic flight plan to a floppy disk or jump drive.**

Name the file using the AweMDL naming convention of eight or less characters. This will prevent from having to change the file name prior to transferring it to the PCMCIA Date Card.

Recommend naming the file using the departure and arrival ICAOs, i.e. KDOV to KSUU would be named KDOVKSUU.rte).

Transfer Route(s) to the PCMCIA data card using the "Transferring DAFIF and Route (.rte) file to the PCMCIA data card" located in this guide.

METAR Code (NOAA)

Note: When METAR data is missing (e.g. dew point), it is simply omitted and the user must know the sequence to recognize this. Some exceptions apply in remarks such as RVRNO, or SLPNO when RVR or SLP are normally reported but not currently available

METAR KPIT 201955Z 22015G25KT 3/4SM R28R/2600FT TSRA OVC010CB 18/16 A2992 RMK SLP013 TO1760158

Where: **KPIT**
When: **201955Z** 20th day of month at 1955Z
Wind: **22015G25KT** 220 degrees at 15 gusting to 25 knots
V: Variable direction e.g. 20015KT 220V280
Visibility: **3/4SM** 3/4 Statue miles, typical: 2 3/4SM, 1SM
RVR: **R28R/2600FT** Runway 28 Right visibility 2600 feet
Significant Weather: **TSRA** thunderstorms/moderate rain (See Abbreviations)
Sky Condition: **OVC010CB** overcast clouds at 1000 feet consisting of cumulonimbus
Typical: **SKC**, **FEW**, **SCT**, **BKN**, **VV004** indefinite ceiling (Vertical Visibility) 400 feet
Temperature/Dew Point: **18/16** 18 degrees Celsius/dew point 16 degrees Celsius
M = Minus (below zero)
Altimeter: **A2992** inches of mercury and preceded by a "A"

RMK SLP013 TO1760158 10142 20012 401120084 At selected stations, Sea Level Pressure is reported as the last three digits in hectoPascals (milibars) (e.g. 1001.3 is reported as **SLP013**). Codes such as TO1760158 10142 20012 and 401120084 are climate temperature information.

TAF (TAF AMD is Amended Forecast when included)

KPIT 091730Z 091818Z 22020KT 3SM -SHRA BKN020 WS015/30045KT FM2030 30015G25KT 3SM SHRA OVC015 TEMPO 2022 1/2 TSRA OVC008CB FM2300 27008KT 5 SM -SHRA BKN020 OVC040 PROB40 0407 00000KT 1 SM -RA BR FM1000 22010KT 5 SM -SHRA OVC020 BECMG 1315 20010KT P6SM NSW SKC

Where: **KPIT**
When: **091730Z** issuance day and time: 9th day at 1730Z
091818Z valid period: 9 th day at 1800Z to next day (10 th) at 1800Z
Wind: **22020KT** 220 degrees at 20 knots
Vis: **3SM** 3 Statue miles, typical - 2 3/4SM, 1SM, P6SM (greater than 6 Statue miles)
Significant WX: **-SHRA** light rain showers (See Abbreviations)
Sky Condition: **BKN020** broken clouds at 2000 feet
Typical: **FEW**, **SCT**, **BKN**, **OVC**
Wind Shear: **WS015/30045KT** low level wind shear at 1500 feet forecast to be 300 degrees at 45 knots (only nonconvective, low level, wind shear is forecast)
Sequence of Wind, Visibility, Significant Weather and Sky Condition repeats preceded by:
FM2030: From 2030Z
TEMPO 2022: Temporarily between 2000Z and 2200Z
FM2300: From 2300Z
PROB40 0407: There is a 40 percent probability between 0400Z and 0700Z
FM1000: From 1000Z
BECMG 1315: Becoming between 1300Z and 1500Z
Note: Weather conditions such as wind and sky condition may be omitted after **PROB40**, **TEMPO**, and **BECMG** if no change is expected from those same conditions given in the previous time block.

Abbreviations

AO1	Automated Observation w/o precipitation discriminator (rain/snow)
AO2	Automated Observation w/ precipitation discriminator (rain/snow)
AMD	Amended Forecast (TAF)
BECMG	Becoming (expected between 2 digit beginning hour and 2 digit ending hour)
BKN	Broken 5-7 octas (eighths) cloud coverage
CLR	Clear at or below 12,000 ft (ASOS/AWOS report)
COR	Correction to the observation
FEW	> 0-2 octas (eighths) cloud coverage
FM	From (4 digit beginning time in hours and minutes)
LDG	Landing
M	In temperature field means "minus" or below zero
M	In RVR listing indicates vis less than lowest reportable sensor value (e.g. M0600 feet)
NO	Not available (e.g. SLPNO, RVRNO)
NSW	No Significant Weather. Low ceilings, wind shear, and other weather conditions may still exist.
OVC	Overcast 8 octas (eighths) cloud coverage
P	In RVR indicates vis greater than highest reportable sensor value (e.g. P6000 feet)
P6SM	Visibility greater than 6 SM (TAF only)
PK WND	Peak Wind
PROB40	Probability 40 percent
R	Runway (used in RVR measurements)
RMK	Remark
RY/RWY	Runway
SCT	Scattered 3-4 octas (eighths) cloud coverage
SKC	Sky Clear
SLP	Sea Level Pressure (e.g. 1001.3 reported as 013)
SM	Statue Mile(s)
SPECI	Special Report
TEMPO	Temporary changes expected (between 2 digit beginning hour and 2 digit ending hour)
TKOF	Takeoff
V	Varies (wind direction and RVR)
VC	Vicinity
VRB	Variable wind direction when speed is less than or equal to 6 knots
VV	Vertical Visibility (indefinite ceiling)
WS	Wind Shear (in TAFs, low level and not associated with convective activity)

Descriptors /Weather Phenomena

BC	Patches	FU	Smoke	PY	Spray
BL	Blowing	FZ	Supercooled/freezing	RA	Rain
BR	Mist (>= 5/8 SM)	GR	Hail	SA	Sand
DR	Drifting	GS	Small Hail/Snow Pellets	SG	Snow Grains
DS	Dust Storm	HZ	Haze	SH	Showers
DU	Dust Storm	IC	Ice Crystals	SN	Snow
DZ	Drizzle	MI	Shallow	SQ	Squall
FC	Funnel Cloud	PL	Ice Pellets	SS	Sandstorm
+FC	Tornado/Water Spout	PO	Dust/Sand Whirls	TS	Thunderstorm
FG	Fog (< 5/8 SM)	PR	Partial	UP	Unknown Precip
				VA	Volcanic Ash

Cloud Types

CB	Cumulonimbus
TCU	Towering Cumulus

Intensity Values

-	Light
no sign	Moderate
+	Heavy

Hazardous Cargo (11-2C-5V3)

- Class 1 (Explosives)
- Class 2 (Compressed gas)
- Class 3 (Flammable liquid)
- Class 4 (Flammable solid)
- Class 5 (Oxidizer and organic peroxide)
- Class6 (Poison/infectious substances)
- Class 7 (Radioactive material)
- Class 8 (Corrosive material)
- Class 9 (Miscellaneous dangerous goods)

The following procedures apply when carrying any quantity of:

- DOD Class/Division 1.1, 1.2, 1.3
- Class/Division 2.3 or 6.1, zone A materials
- Radioactive materials (yellow III label)
- Nuclear weapons, nuclear components, inert devices
- DOD Class / Division 1.4 explosives (regardless of weight) that transit the UK, Italy, or Hawaii
- When any single material or any combination of such materials exceeds 1,000 pounds (NEW)

PREFLIGHT

- The aircraft commander will be briefed when any of the above materials are involved.

FLIGHT PLANNING

- **"Hazardous cargo" or "inert devices" and the mission number must be noted on the flight plan.**
- Where C2 is not available, aircraft commanders will prepare a departure message and phone it to the "Aerial Port Representatives" at TACC. Include:
    - Class of hazardous material aboard and the DOD Class/Division for explosives. Include the Gross Weight and Net Explosive Weight for the materials.
    - Request for special handling, isolated parking, security, technical escort teams, if required.
- Ensure you have diplomatic clearance for hazardous cargo

BEFORE ENGINE START

- Give C2 your parking location, approximate engine start time and verify that the fire fighting agency has the hazardous materials information, including: DOT Class/division for explosives; N.E.W. for DOD class/division 1.1 through 1.3 explosives; Estimated time of departure

ENROUTE

- If ETE is less than one hour or if other circumstances preclude timely message receipt at destination, notify the base of first intended landing by priority telephone of the ETA and hazardous cargo information.

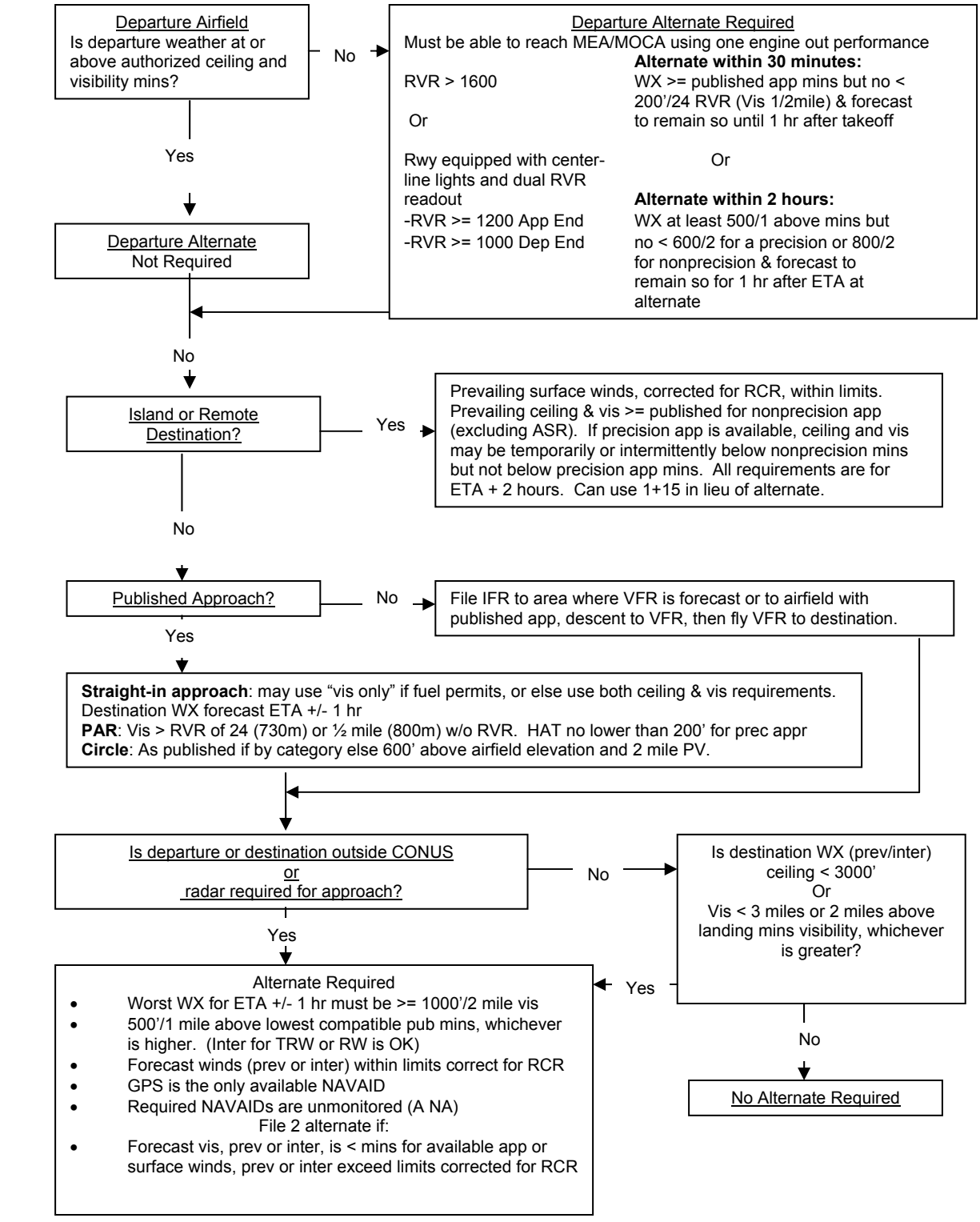
BEFORE LANDING

- Accomplish the following unless specifically prohibited by the theater CC or FLIP planning:
    - Contact the agency specified in FLIP, base operations dispatcher, control tower or approach control at least 30 minutes (or as soon as practical) before ETA to announce that "hazardous materials" are aboard and to verify that the appropriate agencies are aware of this fact.
    - Transmit the mission number, ETA, and the same information given in the departure message.
    - Coordinate any special handling or parking required.

AFTER LANDING

- **Parking**: DOD requires aircraft carrying DOD Class/Division 1.1, 1.2, and 1.3 explosives, hazardous class/division 2.3 or 6.1 zone A materials, and munitions to be parked in areas isolated from non-associated personnel and facilities. When such cargo is aboard, aircraft commanders are responsible for ensuring cargo is correctly identified to the tower or ground control. When aircraft are not directed to isolated parking, identify the hazardous cargo again to tower or ground control. When identification is acknowledged, the host is then solely responsible for selecting the parking.

AMC Weather Decision Guidance (11-202 & 11-2C-5V3)



This chart covers most WX requirements. However, double check AFI 11-2C-5V3 Ch 6 and 11-202 V3 Ch 8 when in doubt.

Example DD Form 1801 (GP)

3. MESSAGE TYPE — <≡(FPL

7. AIRCRAFT IDENTIFICATION — RCH501

8. FLIGHT RULES — I

TYPE OF FLIGHT — M <≡

9. NUMBER —

TYPE OF AIRCRAFT — C5

WAKE TURBULENCE CAT. — / H

10. EQUIPMENT — SWXYR/S <≡

13. DEPARTURE AERODROME — KDOV

TIME — 0040

15. CRUISING SPEED — N0450

LEVEL — F290

ROUTE → SID + Transition & Route of Flight

SIE5.HTO DCT LOACH /M077 F330 NAT B BURAK /N0450 F370 UN535 SHA UG1 KOK /OAT TG1 NTM

Note: Annotate in route of flight when switching from OAT to GAT or vice versa (AP/2)

Note: On random route center geographic coordinates as 50N 050W (7 or 11 digits for coordinates)

Note: Use DCT between successive pts unless both pts are defined by geo coordinate or radial/DME

Note: N+4 digit for TAS; M+3 digit for Mach; F+3 digit for FL; A+3 digit for Altitude

Note: Navaid + 2 or 3 ID and 6 digit radial/DME (TZ339014) <≡

16. DESTINATION AERODROME — ETAR

TOTAL EET HR/MIN — 0803

ALTN AERODROME → EGUN

2ND ALTN AERODROME → EGVN <≡

18. OTHER INFORMATION

— EET/ 040W 0300, EGGP 0400 from CFP; if on random track every 10 deg longitude or 1 hour

REG/60013 (may omit if same as block 7) RVR (Min RVR in meters for flight in EUR region

OPR/DOD SEL/Selcal address STS/PROTECTED (see item 18/GP ch4) DOF/Flt plan date

RMK/HAZARDOUS CARGO MSN# RMK/OAT over Germany (AP/2) RMK/Request OAT in Spain (FCG)

MDCN/ LF: USA5 LE: SU001 (See OEF/OIF notes on next page & ref FCG for current dips

RMK/ Change call sign to XXXXXXX at position XXXX RMK/Pass DEP ARR to EHXXUSAF

RMK/ Approved ALTRV ALONG ROUTE FROM (ALTRV start pt) UNTIL (ALTRV end pt)

RMK/ END AR ENDURANCE XXXX (Enter total endurance after AR)

NOT FOR TRANSMISSION

19. SUPPLEMENTARY INFORMATION

ENDURANCE — FUEL → PERSONS ON BOARD — POB XX+PAX → RDO / EMERGENCY AND SURVIVAL EQUIPMENT — ~~121.5~~ → 243 → ~~500~~ → ~~8364~~ <≡

TYPE OF EQUIPMENT	LIFE JACKETS	RADIO FREQ
~~POLAR~~ → ~~DESERT~~ → MARITIME → ~~JUNGLE~~ → ~~GLOBAL~~ →	JACKETS → LIGHT → FLFLUORESCENT	282.8 <≡

DINGHIES — COLOR — NUMBER — TOTAL CAPACITY — OTHER EQUIPMENT

DINGHIES → Yellow 4/100 → RMK ELT & FLARES) <≡

REMARKS WX Briefed by _____ @ _____
NOTAMS CHECKED_____

AIRCRAFT SERIAL NUMBERS AND TYPE OF AIRCRAFT IN FLIGHT

Only required for Formations

CREW LIST ☐ ATTACHED ☒ LOCATED AT: KDOV Command

PASSENGER MANIFEST ☐ ATTACHED ☒ LOCATED AT: ICAO of Pax Manifest

NAME OF PILOT IN COMMAND	SIGN OF APPROVING AUTHORITY	A/C HOME STATION OR ORGANIZATION
LAST NAME OF PIC	Signature of PIC	KDOV

Consult GP Section 4 if you have any questions

[Block 7] **Call Sign:** Use Dip Clearance callsign, tactical callsign, or A=Air Force, RCH=AMC ("Reach") followed by the last digit of year and last 3 digits of tail number 86-0013 = 6013

[Block 9] **Type of Aircraft:** "**C5**".

[Block 10] **Equipment:**

S = Standard equipment for route flown is carried and serviceable
W = RVSM approved
X = When prescribed by ATC – Shanwick still requires an X for MNPS
R = A/C meets required Reduced Nav Performance (RNP) type prescribed for route flown
I = Inertial navigation equipped
Y = 8.33 VHF radio equipped (AP/2)
G = GNSS (Global Navigation Satellite System). GPS approach capability
/C = Mode A and Mode C equipped (Does not indicate TCAS)
/S = Mode C & TCAS equipped. The "S" = "TCAS equipped and A/C ID is transmitted."
Crossing North Atlantic use: SWXYR/S
Within other RVSM airspace use: SWYR/S
Within NON-RVSM airspace use: SRY/S

[Block 13] **Time:** Use block out time, usually 30 min prior to takeoff. Euro Control Slot Time - 5/+10 minutes)

[Block 15] Enter each point at which a change of speed, level, or flight rules are planned:

- **DINTY/N0450F290 50N30W/M082F330**
- Must make an entry when changing TAS by 5% or 0.01 mach.

[Block 18]

STS/ Special handling required by ATS, one engine inoperative (**STS/ One eng inop**)
STS/ NONRVSM (if unable RVSM)
STS/ PROTECTED for all flights to/from/within the European region
RMK/ Any plain language remark required by ATC or deemed necessary.

- Dip Clearances: MDCN first two letters of ICAO country code then dip numbers.
- Dip Clearances only required when flying within 12 NM of country's land mass
- UK, Italy, and Hawai: you are required to annotate flight plan when transporting any amount of division 1.4 explosives or higher
- Flight Plan VIP codes for military bases only

OEF/OIF
Note 1: Add ENDURING FREEDOM after dip clnc # when flying OEF msns (Aug 04 OPORD)
Note 2: Italian blanket dip clnc for OEF msn is US-EF-12/05 (FCG)
Note 3: Italian blanket dip clnc for OIF msn is US-IF-12/05 (Non Haz Cargo - FCG)
Note 4: Italian blanket dip clnc for OIF msn is US-IQF-12/05 (Haz Cargo - FCG)
Note 5: French blanket dip clnc for OEF missions is USA 950 (FCG)
Note 6: Do not put DV/VIP info on flight plan
Note 7: Temporary blanket Spanish dip clnc is SPAIN 01. To use this blanket clearance, the aircraft tail number, "SPAIN 01" and "Request OAT in Spain" must be written in block 18 of the DD1801 flight plan (FCG).

DD-175: Use H/C-5/Q for RVSM and RNAV equipped for US airspace

Example DD Form 175 (GP)

PRIVACY ACT STATEMENT

AUTHORITY: 10 USC 8012 and EO 9397.
PRINCIPAL PURPOSE: To aid in accurate identification of personnel participating in the filed flight.
ROUTINE USES: To provide data required to process flight plans with appropriate air traffic service authorities. A file is retained by the agency processing the flight plan.
DISCLOSURE: Voluntary; however, failure to provide the SSN could result in denial of flight plan processing.

DATE	AIRCRAFT CALL SIGN	AIRCRAFT DESG AND TD CODE
Local Date of Flt	RCH 5001	H/C5/Q

BASE OPERATIONS USE

	TYPE FLT PLAN	TRUE AIRSPEED	POINT OF DEPARTURE	PROPOSED DEPARTURE TIME (Z)	ALTITUDE	ROUTE OF FLIGHT	TO	ETE
	I	270	DOV	1300	50	ENO V16 VCN V184 ACT		0+30
						® D 3+00 ACY DOV		
	I	275	ACY	1630	60	VCN V16 ENO	DOV	0+30
	I	450	DOV	2030	350	PXT HUBBS J193 ILM J40 CHS	CHS	1+00
		TAS=	FL/2+IAS			(2+00 SCC 0+35) "FUEL ENDURANCE / ALTERNATE / TIME TO ALT"		
	I	440	DOV	0100	240	ARIP ARXX AREX	DOV	4+00
						(3+00 [2+30]) "FUEL ENDURANCE [FUEL ENDURANCE AFTER AR]"		

REMARKS

"REQUEST RADAR DEPATURE" (IF NOT FLYING A SID)
"REQUEST RADAR MONITORED DEPARTURE" (IF AT NIGHT OR IFR)
"HAZARDOUS CARGO" OR "INERT DEVICES" (+ MISSION NUMBER)
"WATPL 2" (ONE/OEF/OIF AIRCREW BROCHURE)
FIELD - S (SERVICE REQUIRED), R(REMAIN OVER NIGHT), PPR

RANK AND HONOR CODE
AS REQUIRED (GP CH4)

FUEL ON BD	ALTN AIRFIELD	ETE TO ALTN	NOTAMS	WEATHER	WT AND BALANCE	AIRCRAFT SERIAL NUMBER, UNIT, AND HOME STATION
4+30	FOR FIRST STOP	0+25	CHECK	-1 BY INITIAL	XXX ATOC	50001 (TAIL NUMBER) / 436 AW/ DOV

SIGNATURE OF APPROVAL AUTHORITY	CREW/PASSENGER LIST		ACTUAL DEP TIME (Z)	BASE OPERATIONS USE
	ATTACHED	SEE PSGR		

DUTY	NAME AND INITIALS	RANK	SSN	ORGANIZATION AND LOCATION
PILOT IN COMMAND	AC LAST NAME, FI, MI	LT COL	ON FILE	9AS / DOV

Chart Preparation (11-2C-5V3)

- Draw the oceanic portion of flight on the Oceanic Planning Chart (OPC) for the Atlantic area or on the global navigation chart (GNC). Annotate the chart with the mission number, AC & preparer's name, date, plan course depicting reporting points, as well as ARIP, ARCP, AREX and turn points. Use both sides of the OPC.

Country Codes (FLIP)

BI – Iceland
CY – Canada
DI – Ivory Coast
DN – Nigeria
DR – Niger
EB – Belgium
ED – Germany
EE – Estonia
EF – Finland
EG – UK
EH – Netherlands
EI – Ireland
EK – Denmark
EN – Norway
EP – Poland
ES – Sweden
EV – Latvia
EY – Lithuania
FA – South Africa
FB – Botswana
FH – Ascension
FJ – BIOT (Diego)
FQ – Mozambique
FV – Zimbabwe
FW – Malawi
FY – Namibia
FZ – Zaire
GA – Mali
GF – Sierra Leone
GL – Liberia
HE – Egypt
HF – Djibouti
HH – Eritrea
HK – Kenya
HL – Libya
HR – Rwanda
LE – Spain
LF – France
LG – Greece
LI – Italy
LM – Malta
LO – Austria
LP – Portugal
LZ – Czech
LR - Romania
LQ – Bosnia Herzegovina
LS – Switzerland
LT – Turkey
MH – Honduras
MM – Mexico
MP – Panama
MT – Haiti
MU – Cuba
MW – Cayman Is.
NZ – New Zealnd
OA – Afghanistan
OB – Bahrain
OE – Saudi Arabia
OI – Iran
OJ – Jordan
OK – Kuwait
OM – UAE
OO – Oman
OP – Pakistan
OR – Iraq
OT – Qatar
OY – Yemen
PG – Guam
RJ – Japan
RK – Korea
RP – Philippines
SA – Argentina
SB – Brazil
SC – Chile
SE – Ecuador
SK – Columbia
TJ – Puerto Rico
U* - Russia
VA – India
VT – Thailand
VV – Vietnam
WA – Indonesia
WS – Singapore
Y* - Australia
Z* - China
ZB – China
ZK - Korea
ZM - Mongolia

RVSM Requirements/Procedures (GP)

ICAO NAV Requirements for Entry:

1. Two Independent Altitude Measurement Systems
2. Operative IFF with CADC switch
3. One Altitude Alert/Warning System (Working FSAS)
4. Autopilot – (Pitch system operative)

Procedures:

1. Cross check altimeters when passing transition altitude
2. Report level when reaching flight level
3. Flights should climb/descend continuously through the RVSM levels without stopping at any intermediate level and should "Report leaving" current level and "Report reaching" cleared level.
4. During cleared transition between levels, the aircraft should not be allowed to overshoot or undershoot the cleared flight level by more than 150 ft (45 m). When changing flight levels within RVSM airspace, all vertical speeds should be within 500-1000 fpm. This can reduce the likelihood of TCAS RAs occurring and should also help to ensure neither aircraft undershoot or overshoot the CFL by more than 150 feet.

5. On initial call to new controller, include time or point when you'll be able to climb to the next three flight levels. (Shanwick, Reach 123, position 56N 10W at 1235, FL 340, estimating 56N 20 W at 1310, 56N 30W next; able to climb to FL 350 after 10W, FL 360 at 1500, FL 370 at 1715)
6. Crosscheck altimeters approximately every hour (should be within 200')
7. Log altimeter readings at coast out fix

- NOTE: It is recommended that the level off be accomplished using the altitude capture feature of the automatic altitude control system, if installed.

North Atlantic Track (NAT) Oceanic Procedures (AP/2 Ch5)

MNPS Airspace (Minimum Navigation Performance Specifications)

1. General: The NATS were designed to provide an orderly flow of traffic across the North Atlantic while taking advantage of prevailing wind conditions. Therefore, tracks change and are published daily. When flying a NAT, it is *imperative* that you have a current copy of the NAT track being flown and your NAT authorization number for clearance readback. NAT messages can be obtained through TACC; Base Ops, or JCS NOTAMs webpage. Due to increased performance specifications, co-altitude lateral separation is reduced to 60 NM between organized tracks.
2. Applicability: Separation and route clearance are based on your **30W crossing time**. The NAT message will contain a time range of when the NAT applies. **Day tracks (normally 1130 -1900Z) are for westerly flow**, under control of Shanwick (tracks A, B, C. . .). **Night tracks (normally 0100 - 0800Z) are for easterly flow** under the control of Gander (tracks . . . X, Y, Z). In addition to time restriction, boundary applicability -- vertical and horizontal -- is:
    A. Between FL 285 - FL 420 and latitudes 27N and 90N.
    B. Eastern boundaries Santa Maria, Shanwick, and Reykjavik.
    C. Western boundaries Reykjavik, Gander, and New York excluding 60W and south of 38.5N
3. **RVSM APPLIES THROUGHOUT MNPS AIRSPACE.**

ICAO NAV Requirements for NAT Entry:

1. Dual INSs
2. If notified of navigation error exceeding **24 NM** from track centerline, file an OPREP-3.
3. Position Reporting - revise time if estimate changes **+ 3 minutes**
4. Weather observations are required only when directed to "Send MET Reports," or when flying a random track.

Contingencies

See Flight Section for inflight contingencies

North American Routes (NARS):

The objective of the NARS is to provide an organized air traffic interface between the North Atlantic (NAT) oceanic and domestic airspace. (Canadian Supplement, Section C) Always check the Class II NOTAMs book for changes to routings that may be applicable.

Common portion - that portion between a specified coastal fix and a specified inland navigation fix (INF). Some routes have a common portion only.

Non-common portion - that portion between a specified INF and a system airport.

Pacific Route Procedures (AP/3, Pacific & AK Supp)

The important thing to remember is that we don't fly in the Pacific that often. Currently RVSM has been implemented in the Pacific with many of the same rules as the NATS. The good thing is that many of the routes usually don't change, which makes filing and flying much easier.

Contingencies

Many of the routes are only 50 nm apart, so during emergencies a 25 nm displacement and/or altitude change of 500' may be required. As always, review AP/3 before departing.

General (see AP/3, Ch 4)

When flying in the Pacific, critical information must be reviewed. Unfortunately, this information is in numerous locations. Guidance here is strictly to help you find the information for your flight. Prior to departure ensure you've reviewed the applicable center NOTAMs. Oakland Center's ICAO identifier is KZOA; Anchorage is PAZA, as listed in the respective Enroute Supplement under Airport/Facility Directory.

Composite Route System (Hawaii - Mainland USA)

1. See DOD Enroute Supplement, Pacific, Australia and Antarctica, Sec C.
2. Additional information concerning Hawaiian Flight Hazards, Route and Area Restrictions -- to include Honolulu noise abatement procedures -- and Hickam customs procedures are found in AP/3, Ch 4, Oakland FIR.

Pacific Organized Track System (PACOTS)

(*Hawaii - Japan, Pacific Northwest - Japan, California -Japan,)*

1. See AP/3, Ch 3, Japan FIR, or Oakland FIR, Ch 4.
2. For preferred arrival and departure routes, see Pacific Enroute Supplement, Section E.

NORTH PACIFIC (NOPAC) Procedures*(Alaska - Japan)*

1. See AK Supp and AP/3, Japan FIR.
2. General: The NOPAC Composite Route System consists of five fixed-point Air Traffic Service (ATS) routes which transit the North Pacific between Alaska and Japan. See AP/3 Japan for routes, flight levels and track times. Remember the **weather radar is a mission essential** item for these routes.
3. Lateral (in-trail) separation is decreased from 15 to 10 minutes when participants use the MACH Number Technique.

Fuel Tankering

1. Complete a standard fuel card for the last leg.
2. Block 10 of this fuel card tells you how much gas you must have after you land (Required Ramp). This figure is the amount tankered.
3. Complete a fuel card for the first leg.
4. Place parenthesis around the fuel figures in Blocks 4 and 5, Alternate/Missed Approach Air Distance _____ and Holding At____.
5. Enter the tankered fuel in Block 7B, Stored Fuel
6. When adding all the fuel together (Block 8), do not include Blocks 4 and 5 in the addition. Blocks 4 and 5 are not added in because if you divert on the first leg, you will use the fuel you have tankered as the divert and holding fuel. In other words, on the first leg you don't have to add divert and holding fuel in addition to the extra fuel you already have that is being tankered. If you can't reach your destination, all bets are off for the tankered fuel and you'll have to refuel (and re-fuel plan) after landing at the divert base.

NOTE: Although Blocks 4 and 5 aren't included in the addition for Block 8, you still must determine the requirements. (I.e. can't just enter "0" or "N/A" for divert and holding so you can give an accurate figure to the engineer for Block 13, Required Over Dest/BDP, and to determine a BINGO fuel load if you encounter difficulties at your destination.

7. Crosscheck that Blocks 4 and 5 added together do not exceed the amount tankered. Ninety-nine times out of one hundred it won't, but you must check regardless. If they do, and you divert on the first leg and plan to use your tankered fuel as the divert fuel, you won't have enough.

Fuel Planning (11-2C-5V3)

If **DECOMPRESSION** would cause descent to an altitude resulting in fuel consumption exceeding planned fuel, add fuel to recover to a suitable airfield from ETP. Not required if you can recover to a suitable airfield at FL 250 at LRC from ETP.

Fuel Planning Estimates (T) Gross weight=Op wgt (380)+fuel+cargo+pax (225lb per pax)

Light weight 25K for first hour, 20K for each add hour, 15K for hold / 0+45 or 22K for hold / 1+15, 7K for appr/land, 3K for taxi/Takeoff, Climb Time = 1000FPM, Climb Dist = 360 GS, Alternate 1000#/20 miles

Heavy weight (>600K) 30K for first hour, 25K for each additional hour

Example: 550K airplane, 3 hrs T/O to BDP => 25M + 20M + 20M + 25M = 90M approximate ramp fuel. Add fuel to the alternate if required.

Fill in fuel card blocks 1 & 2 for Cat 1 routes. Explain relevance of "reserve fuel" to engineers as they maintain the fuel log.

Start, Taxi, Takeoff	3000	1800 for taxi (15 minutes), 1200 for takeoff
Additional Taxi	120/min	Not to exceed 5000 total STTO
Enroute		Total time to begin descent point (note: for manual fuel planning use time to overhead)
En Route Reserves		10% of flight time over a Cat I route, not to exceed 1+00 at normal cruise
Alternate		Fuel from OH destination, to alternate, or to most distant alternate if required, at the speed and altitude shown on the alternate fuel chart. Compute using OH destination GW.
Missed Approach	8000	Required if ceiling below mins but at or above vis mins (vis only approach) (block 4)
Holding		+45 fuel using 20 deg bank, +15 Temp dev. If alternate unavailable, located in Alaska, or at latitudes greater than 59 deg, use 1+15. Compute using OH alternate GW
Des, App, Land	7000	2000 for descent, 5000 for approach (note: for manual fuel plan, use 5000)
Identified Extra	600/min	Departure maneuvering: WX, terrain, ATC
	400/min	Cruise maneuvering: WX, ATC
	5000	Insufficient/unreliable navaids at destination
	100/min	Engines running on/offload
Stored Fuel		Hydraulic cooling fuel - plan to land with a minimum of 18,000. If block 13 < 25,000, add stored fuel equal to the difference between block 13 and 25,000. Subsequent mission segments require approval in mission directive or TACC wavier
Unidentified Extra	5K/max	If over 5000, request defueling or a waiver. Not required if fuel load is 60,000 or less. If defueling is not practical due to time constraints or lack of support equipment and personnel the aircraft commander may elect to depart with the extra fuel.

ETP Calculations (AMCPAM 11-2)

1. Equal Time Point (ETP) calculations are not required for the North Atlantic Region, but pilots must have weather and NOTAMS for suitable diverts. (11-2C-5V3 Ch 10)
2. Find total distance (TD) between suitable landing fields. **Make sure to have NOTAMS and weather for these fields.**
3. During flight planning use the winds listed on the Wx brief, or if in flight use the INS, to determine ground speed forward (GSfwd) to your first alternate and the ground speed to your second alternate if you reverse course (GSrev).
4. Use the following formula:

$$\frac{(TD)\,(GS_{REV})}{2\,(TAS)\,(GS_{FWD})} = ETP$$

4. Example: You're flying to Hickam from Pt Mugu
   Alternates: Pt Mugu and Kaneohe Bay
   Total Distance = 2500 (be as accurate as possible).
   Current ground speed = 450 (Gsfwd). TAS = 500
   Wind component = -50 (50 kt headwind).
   Ground speed reverse = 550.

(2500)(550)/(2)(500)(450) = 3.06 hrs

GSfwd x ETP

450 X 3.06 = 1377 NM from Pt Mugu

or

2500 - 1377 = 1123 NM from Kaneohe Bay

5. If decompression would cause descent to an altitude resulting in fuel consumption exceeding planned fuel, add fuel to recover at a suitable airfield from ETP at the appropriate altitude using guidance in AMCPAM 11-2.

Note: ETP calculation is not complete unless the fuel and oxygen are checked as well.

Critical Wind Factor Calculation

1. Determine the reserve fuel, the amount above your required fuel at the IAF. (ex 30.0 req. at fix, 50.0 available = 20.0 res).
2. Divide the reserve fuel by the per hour burn rate at cruise. (ex. 20.0 divided by 18.0 = 1.1 hours).
3. Add the additional flt time to the current flt plan's enroute time. (Ex. 7.0 hrs + 1.1 hrs= 8.1 hrs).
4. Divide the flt plan's total distance by flt time available (Ex 3,360 nm flt divided by 8.1 hrs = 414 KTS minimum acceptable ground speed.
5. Subtract the minimum acceptable ground speed from the flt plan TAS.(ex. 480 TAS - 414 kts = 66 kts).
6. The critical wind factor is 66 kts (This means you could have 66 kt headwind and still arrive at your destination with the required 30.0 fuel).
7. Example: Res Fuel / Burn rate = Additional flight time

20.0 / 18.0 = 1.1 hrs

Total distance / (ETE + Add flt time) = min accept GS

3360 nm / (7.0 + 1.1) = 414 kts

TAS - GSmin = Critical Wind Factor

480 - 414 = 66 kts headwind

Fuel Planning Card (Blank)

FUEL PLANNING					
	OPERATING WEIGHT	AIRCRAFT NUMBER	MISSION NUMBER	DATE	
	CARGO/PAX WEIGHT	HIGHEST ACC FL	LO TEMP DEV	CFP NUMBER	REMARKS
	RAMP FUEL	TAKEOFF WGT	ENROUTE TEMP DEV	WINDS VALID	
	RAMP WEIGHT	PAGE	TIME	FUEL	
1	EN ROUTE TO BDP				
2	RESERVE				
3	ENROUTE PLUS RESERVE				
4	ALTERNATE/MISSED APPROACH AIR DISTANCE _____				
5	HOLDING AT _____				
6	DESCENT/APP AND LANDING				
7A	IDENTIFIED EXTRA				
7B	STORED FUEL				
8	TOTAL (3+4+5+6+7A+7B) TAKEOFF/FLAPS UP				
9	TAXI AND ACCELERATION				
10	REQUIRED RAMP				
11	ACTUAL RAMP				
13	UNIDENTIFED EXTRA				
13	REQUIRED OVER BDP (4+5+6)				
	LOWEST ACC CONSTANT FL		ENDURANCE (11-9)	BURNOFF (3+6+7A)	
	TOTAL WIND FACTOR	1ST HALF	2ND HALF	LANDING FUEL	
	TOTAL DISTANCE ( ) / (WF2-WF1) + 2 (TAS) = T( )MIN / ( ) 60				
	TOTAL TIME – T = TIME TO ETP		SIGNITURE		
	Blocks where information can be pulled directly from Comp Flt Plan				

Performance (TO 1C-5A-1-1)

Refusal Speed: Maximum speed the airplane can attain under normal acceleration, experience a malfunction, be recognized, and then stop in the available runway (assumes 2 sec recognition time and 1 sec reaction time)
Ground Minimum Control Speed: Minimum airspeed during takeoff at which the airplane can lose an outboard engine and maintain directional control within 25 feet of runway centerline
Rotation Speed: Speed at which rotation from three point to takeoff attitude is initiated (3 seconds light weight, 5 seconds heavy weight)
Maximum Braking Speed: Max speed from which the airplane can be brought to a stop without exceeding the maximum design energy absorption capability of the brakes (33.1 million foot pounds)
Tire Placard Speed: Maximum *ground* speed that a tire can withstand during takeoff or landing. Mil spec tire placard speed is 174 kts
Tire Limit Speed: Tire placard speed converted to KCAS for conditions other than sea level, standard day, with no wind
Acceleration Check Speed: The highest of 80, 90, 100, 110, 120 knots which will not exceed Go minus 10 knots. 3 knot tolerance. Not required for rolling takeoffs. Not valid when a RSC exists.
Air Minimum Control Speed: Minimum speed at which directional control can be maintained using full rudder deflection and not more than 5 degrees of bank away from inoperative engine
Go Speed: Speed at which the pilot normally becomes committed to continue the takeoff. Will be the lowest of rotation speed (Vrot), refusal speed (Vr), or maximum braking speed (Vbmax).
1. if GO is Vr, then Vr must be equal to or greater than Vmcg.
2. if GO is Vbmax, then Vbmax must be equal to or greater than Vmcg and Vcef
3. if GO is Vrot, a gust increase in Vrot will increase GO an equal amount no to exceed Vr or Vbmax

NOTE: Add gust factor, up to 10 knots, to Vrot, Vmco, and Vapp. If speeds have been increased above 10 knot for 3 engine climb (15 knot max), gust factor is included.
NOTE: FE adds full gust and TW component to CFL, takeoff ground run, flare, and landing ground roll.

Checking TOLD Data: By looking at the TOLD card, you should be able to tell if the numbers are in the "ball park" or not (technique only - good to within a couple knots)

a. Vapp = 10% of GW + 75 kts (550,000lbs = 55 + 75 = 130kts)
b. Vrot = Vapp - 10 kts (130 - 10 = 120kts)
c. Vga = 110% of Vapp (130 + 13 = 143kts) (or add 15kts to Vapp)
d. Vmfr = 110% of Vga (143 + 14 = 157kts)
e. Vmco = Vga - 10 kts (143 - 10 = 133kts)
f. Vapp (0 flap) = 110% of Vmfr = 157 + 16 = 173kts (or add 43 kts to Vapp)

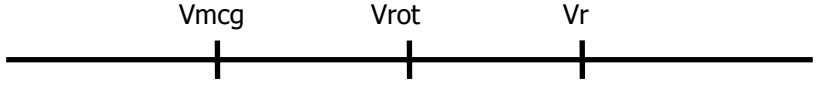
TRT TAKEOFF REQUIRED
- T/O on icy runway or RSC is present
- GW limited by CFL
- GW limited by 3 engine climb-out performance
- Tailwind sheer is anticipated

STANDING TAKEOFF REQUIRED
- When CFL = runway available
- When obstacle is a factor

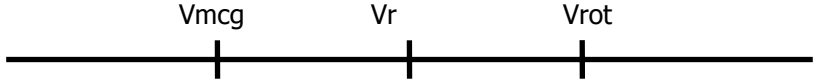
ACCELERATION CHECK
- Required for standing takeoffs
- Accel check is not valid when a measurable depth of RSC exists
- Check speed is made between brake release and 120, 110, 100, 90, or 80 kts
    - Use highest of those speeds which will not exceed GO minus 10

GO/NO-GO DEPICTIONS

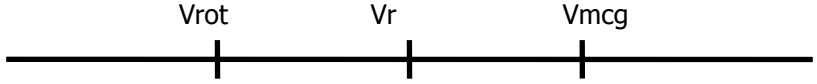
1. "GO" (A TYPICAL SITUATION, with Vmcg low):



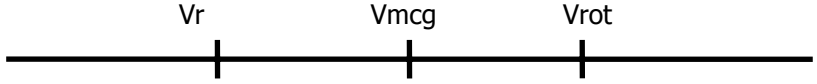
2. "GO (SPLIT MARKERS):



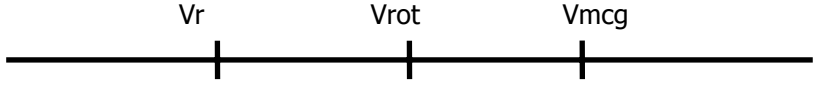
3. "GO" (NOT TYPICAL, BUT POSSIBLE: COMPARE WITH #1)
   As long as Vrot is before Vr, it doesn't matter where Vmcg is.



4. "NO-GO":



5. "NO-GO":



STOPPING DISTANCES based on: Spoilers, Max antiskid braking on dry runway, and 3 engine in fwd idle and one engine inoperative

WINDS

- Headwinds (generally use HW as a safety factor)
  - Use 50% HW for Takeoff and Landing Distance
  - Do not apply to Obstacle clearance
  - Always use 100% steady state HW for: Accel Check, Vbmax, Tire Limit Speed or brake limits
- Tailwinds
  - Always use 150% TW component for Takeoff and Landing distances
  - Always use 150% TW component for Obstacle Clearance
  - Always use 100% TW for: Accel Check, Vbmax, Tire Limit Speed or brake limits
- Gust
  - Always increase Vrot, Vmco, and Vapp by full gust up to 10 knots
  - Gusts are included in CFL, Ground Run, and Landing Ground Roll
  - Increase in Vrot or Vmcg will be included in total gust
    - Gust of 22 kts and already used 5 kts for increase rotate, then add 5 more (10 total)

LANDING GEAR DOWN WILL REDUCE CLIMB GRADIENT BY 1.3%

MINIMUM FLAP RETRACT AIRSPEED IS 1.16Vs

CLIMB PROFILE Based On

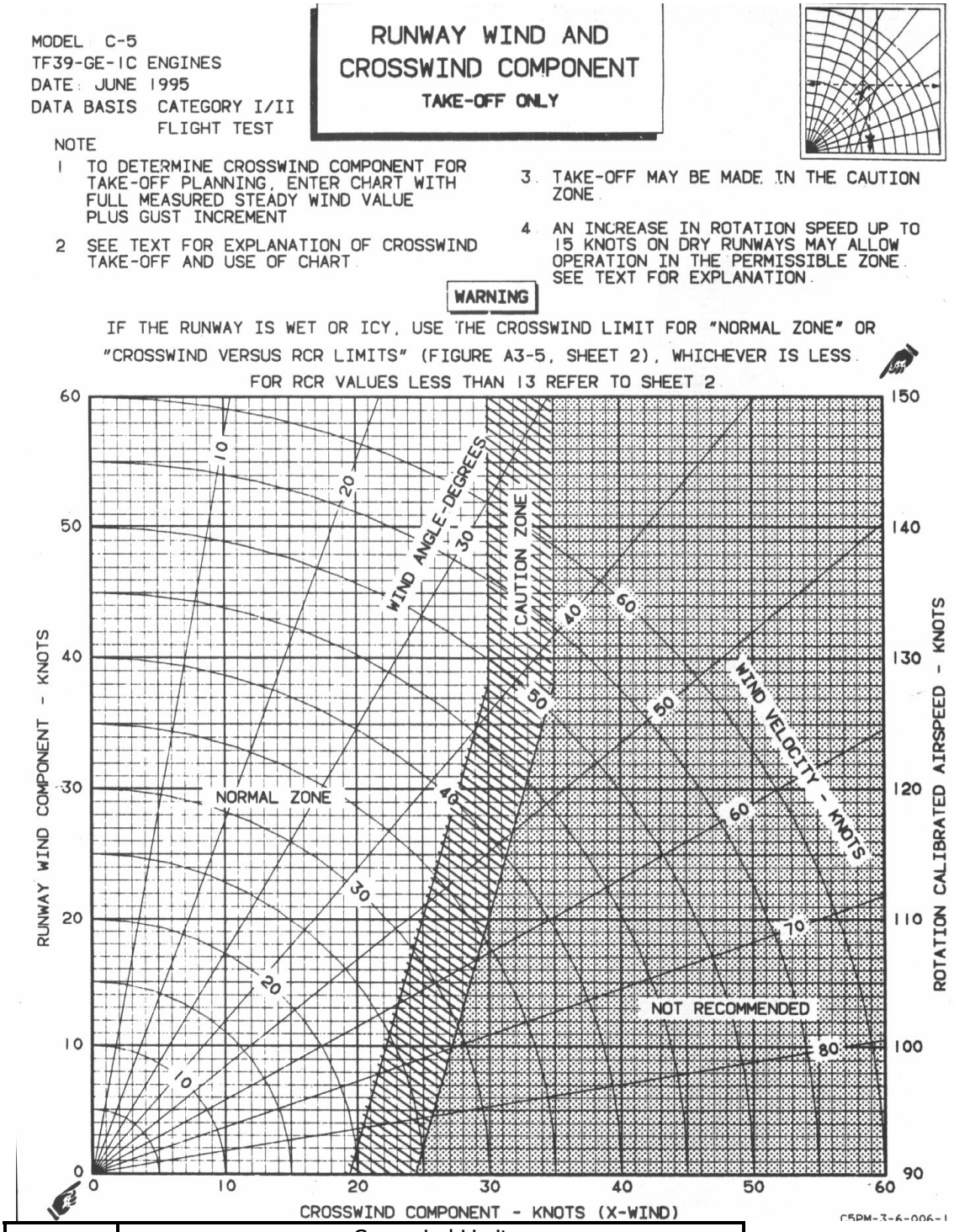
- Gear retraction initiated 3 sec after lift-off
- Gear assumed fully retracted 28 sec after lift-off

NRT CLIMB RESET SCHEDULE

- Below FL250 N1 may be allowed to increase by 1.5% above charted value
- Above FL250 N1 may not exceed charted value because no reset tolerance provided

CRUISE CEILING 300 FPM CLIMB AT NRT
SERVICE CEILING 100 FPM CLIMB AT NRT
ABSOLUTE CEILING NO CLIMB AT NRT

Takeoff Wind Chart (TO 1C-5A-1-1)



	Crosswind Limit									
RCR	**12**	**11**	**10**	**9**	**8**	**7**	**6**	**5**	**4**	**3**
Vgo<Vrot	23	18	14	11	8	6	3	1	0	0
Vgo=Vrot	23	23	23	21	19	18	15	12	10	8

Obstacles/Departure Planning (11-2C-5V3, 11-217, 11-202V3)

There are five authorized methods of departing IFR (11-202V3):

- **IFR DPs**
- **Standard Instrument Departure (SIDs) Procedures**
- **Specific ATC Departure Instructions (includes radar vectors)**
- **Diverse Departures**
- **Special Departure Procedures (SDPs) (for emergency use only)**

NOTE: Regardless of the type of departure flown (SID, IFR Departure Procedure, Specific ATC Departure Instructions, Diverse Departure, or VFR), the aircraft must be able to achieve the published climb gradient (for the runway to be used) with all engines operating, and be able to vertically clear all obstacles within the climbout flight path with one engine inoperative. If no minimum climb gradient is published, use 200 ft/NM minimum with all engines operating and 152 ft/NM minimum with one engine inoperative. If a higher required climb gradient is published or required for radar vectors, use that climb gradient as the minimum with all engines operating, and use that climb gradient minus 48 ft/NM as the minimum with one engine inoperative. This only works at airfields having an instrument approach. If the field does not have an instrument approach, then no obstacle survey has been conducted and you cannot determine the minimum required climb gradient. An IFR departure is not authorized from fields with no instrument approach. (11-2C-5V3)

IFR Departure Procedures (DPs).

- Airports having penetrations to the 40:1 OIS will normally have non-standard takeoff weather minimums as well as an IFR Departure Procedure. This information is located in the front of DoD approach plates in the section titled, "IFR Takeoff Minimums and (Obstacle) Departure Procedures."
- **Watch Out for the "Trouble T."** The use of this symbol indicates that the separate listing in the front of the approach book should be consulted. ***The non-standard weather minimums and minimum climb gradients found in the front of the approach book also apply to SIDs/DPs and radar vector departures unless different minimums are specified on the SID.***

SIDs. Preplanned IFR departure procedures printed for pilot use in graphic and/or textual form.

- **Military**. Generally speaking, military SIDs provide you with more information than civil SIDs. (The phrase "military SIDs" applies mainly to USAF/USN SIDs in the CONUS. Army SIDs are produced by the FAA in the CONUS and should be treated as civil SIDs.)
- **Civilian.** Although civil SIDs (FAA and CONUS Army procedures) in the United States are constructed using the same TERPs criteria as military SIDs, the information presented is significantly different. It is important to be aware of the differences.

Specific ATC Departure Instructions

- "Radar Contact" means the controller sees your aircraft's radar return on his scope and he has positively identified you – it does not mean the controller now has responsibility for your terrain/obstacle clearance. Terrain/obstruction clearance is not provided by ATC until the controller begins to provide navigational guidance in the form of radar vectors. A better way to describe this relationship would be to say, "ATC does not begin to share responsibility for terrain/obstacle clearance until the controller begins to provide navigational guidance."
- **CAUTION:** All ATC systems are not created equal (examples are South America or Africa). The pilot is always ultimately responsible for terrain/obstacle clearance.

Diverse Departures.

- If the airport has at least one instrument approach procedure (IAP), and there are no published IFR departure procedures (because there were no penetrations to the 40:1 OIS), then an aircraft departing can ensure obstacle clearance by executing a "diverse departure." ***In order to fly a diverse departure, fly runway heading until 400 feet above the field elevation before executing any turns while maintaining a minimum climb gradient of 200 feet per nautical mile (unless a higher gradient is published) until reaching a minimum IFR altitude.***

Special Departure Procedures (11-202V3).

- Where available, SDPs should be used for One Engine Inoperative (OEI) departure planning.
- All engine climb gradient must still be calculated to ensure compliance with at least 200 ft/NM or as posted
- SDP routings that differ from SID/DP routings shall only be flown in emergency situations.

Departure Information Worksheet (436 OGV)

Location _____ Mission# _____ Date: _____

1. Collect Departure Information.

a. Determine DER.

Departure	If flying SID	If flying Radar vectors, published IFR departure, or VFR
USAF, USN,USMC	0 ft	0 ft
US ARMY FAA	35 ft	35 ft
Joint use in US	N/A	35 ft
Foreign Military NATO ICAO	35 ft	35 ft
Foreign Civil ICAO	16 ft	16 ft
Foreign military non-NATO ICAO	16 ft	16 ft

Note: Published DERs may be higher than the standard listed above

b. Determine published climb gradients. Sources: SID, instrument departure procedures (trouble T), NOTAM

c. Find all obstacles and terrain.

Sources: ASRR, SID, IAP, DP, Base Operations, NOTAMs, CHUMed Terrain Charts

Note 1: Obstacles not published on SID if < 152 ft/NM to clear it (122 ft/NM USAF).

Note 2: Normally no instrument departure procedure published if no obstacles penetrate 152 ft/NM

Note 3: Civil SIDs are not normally for obstacle avoidance.

Runway heading/Departure End of Runway Elevation/Runway Length. Example: Runway 32/30ft/10070ft.	RWY	DER Elev	Length	RWY	DER Elev	Length
Departure Procedure or SID Name, if Applicable/ DER Height **(a)**			DER			DER
ATC Climb Gradient **(b)** Note: Mandatory for Case 1, 2 or 3 Departures	____FT/NM to FT MSL or NM			____FT/NM to FT MSL or NM		
Min Climb Gradient **(b)** Note: Mandatory for Case 1, 2 or 3 Departures	____FT/NM to FT MSL or NM			____FT/NM to FT MSL or NM		
Obstacles affecting departure or Emergency Return **(c)** Mandatory for Case 1, 2 or 3 Departures	Height (MSL)	Distance(ft or NM)		Height (MSL)	Distance(ft or NM)	
Emergency Return Missed Approach Climb Gradient	_____ft/NM at ____ft MSL or MN (Missed App HAT:_____ ft MSL)			_____ft/NM at ____ft MSL or MN (Missed App HAT:_____ ft MSL)		

2. Determine Type of departure required.

Do you have all the obstacle information affecting your flight path? **(Yes/ NO)** If no you are case 3.
Do you know your required climb rate **(YES/NO)** If yes you are Case 1 or 3.
Is takeoff over flat terrain **(YES/NO)** If Yes, the 152ft/NM restriction does not apply.
Is a Special Departure Procedure (SDP) Available **(YES/N0)** If yes, then the 152ft/NM restriction does not apply.
Can you use rotate increase guidance**? (YES/NO)** Is RCR 12 or greater? Is limiting obstacle greater than 2 miles from runway? **Takeoff Case (CIRCLE ONE) 1. 2. 3.**

Case 1: Both climb gradient and obstacle data are known.
Must meet published climb gradient with 4 engines and must clear all obstacles with an engine inoperative.

Case 2: Only obstacle information available.
Must meet 200ft/NM climb gradient with 4 engines and must clear all obstacles with an engine inoperative.

Case 3: Only climb gradient information is available
Must meet published climb gradient with 4 engines and meet published climb gradient minus 48 feet per nautical mile with an engine inoperative. See FCIF for guidance. 200 ft/NM use COF 75 (40%) or 62.5% flap. For greater than 200 ft/nm see FCIF.

3. If you are still unable to depart, use guidance IAW AFI 11-2C-5, 6.17.5.1 through 6.17.6

FOR TRAINING ONLY

SPECIAL DEPARTURE INFORMATION WORKSHEET

NOTE: Do not use a Jeppesen SDP that has not been validated during the last 24 hour period. Log on to https://www.usafopsdata.com or http://www.jeppesen.com/afopsdata for the latest information or call back to confirm the SDP is still valid.

Pilot Procedures

Obtain current Jeppesen SDP for the planned departure runway! Complete steps 1 thru 7.

1. Fill in the correction table header information.
2. Enter the SDP chart at the forecasted temperature and transfer the CFL GW/CFL, 3 Eng GW/COF, OBST GW/CFL and OBST MAX COF in the initial row /columns 2 thru 5 below.

RWY:	**TEMP:**	**4 Eng Climb Rate ATC:**		
SDP CORRECTION TABLE				
1	2	3	4	5
	CFL GW/CFL	**3 ENG GW/COF**	**OBST GW/CFL**	**OBST MAX COF**
Initial	/	/	/	
Per Knot TW Component				
Per.10" HG				
RCR				
Rotation Speed Inc.				
Air conditioning OFF				
Anti-Ice On				
Target GW				

3. Compare the CFL from columns 2 and 4 and enter the lowest in block A. **A** ____

4. Compare the COF from columns 3 and 5 and enter the limiting COF in block B. **B** ____

5. Transfer the applicable GW corrections to the SDP correction table columns 2, 3 and 4.
6. Compute GW corrections to each column
7. Compare the result and use the **lowest GW from Columns 2, 3 and 4. This is the limiting Target GW.**

FE Procedures

Note 1: Reduced power takeoffs are authorized using the SDP however you are required to meet the limitations box **A** and **B** to ensure obstacle clearance and 3 eng climb limitations.
Note 2: All Departures must still comply with 4 engine requirements.

1. Compute data .
2. Compare computed CFL from the computerized told program or 1C-5A-1-1. The computed CFL **must not exceed limiting CFL from block A.**
3. Compare computed COF from the computerized told program or 1C-5A-1-1. **COF must be equal to or less than the limiting COF from block B** to ensure obstacle clearance.

Jeppesen Special Departure Procedures (SDP)

www.usafopsdata.com; User Name: afopsdata; Password: jeppesen

-- Reminders of some guidelines for use of the SDP

- Do Not Fly the SDP unless the AC and a Flight Engineer have been trained on the procedures.
- SDP Data Assumptions:
    - TRT Standing[1] (250 Lineup Distance)
    - Bleed Air On
    - Anti Skid Operative & All Brakes Operative
    - 40% Flaps
    - Flap Retract Height 1000' unless driven by obstacles (noted on table)
    - No Wind
    - Screen Height as required
    - Standard Day Barometric Pressure
    - RCR 23

[1]Note—It is OK to use a rolling takeoff if you meet your required CFL. Subtract 750' from the SDP CFL for rolling takeoffs. TRT or reduced power are acceptable as long as the limiting COF is met.

- Remember some of the above data assumptions have corrections on the chart and some do not.
- Each day you are planning to fly the SDP the aircrew **MUST** look up the SDP for that particular field on the website as they may change without notice. Think of the SDPs like NOTAMS, they are only valid on the day that you check the data.
- Use the SDP table as a planning tool. The flight engineer is still going to have to accomplish the TOLD to validate what you expect from the numbers on the SDP. In most cases the SDP will give you a COF that is higher than 75; be sure to use the number from the SDP table in your TOLD calculations as your limiting COF.
- The takeoff data should ensure you meet the Critical Field Length AND associated climb-out factor with the weight, temperature, runway conditions, etc. you are planning to takeoff with. <u>This is one of the most critical steps.</u>
- Be sure to brief both the expected departure procedure and the SDP. Pick a point of transition from the expected departure procedure and the SDP.
- Understand the ramifications of planning to use the SDP with very low ceilings/visibility and not being able to make it back into the airfield you just departed. Have a plan of escape if one exists or don't use the SDP for departure planning.
- The SDP does not relieve you of the responsibility to meet all of the restrictions of your expected departure with all engines operating.

Travis AFB BASH Program (Ref 60 AMW OPLAN 91-212 and AFI 11-2C-5V3 Ch 5)

BASH Phase I: Bird / Wildlife control procedures that discourage the presence of birds and warn of bird conditions that will be implemented year round.

BASH Phase II: Procedures used in conjunction with Phase I to reduce potential for wildlife strikes during migratory waterfowl season. Normally begins 1 October and ends 30 April. This period can be shifted when significant migratory wildlife activity occurs earlier / later than the listed dates. For the period of one hour before to one hour after sunrise during BASH Phase II, follow the restrictions for Bird Condition Moderate.

Low: Sparse Bird Activity within 15 NM of the airport.
Crew Actions: No operating restrictions

Moderate: Increased wildlife population in locations that represent an increased potential strike.
Crew Actions:

- Initial takeoffs and final landings are allowed only when departure and arrival routes avoid identified bird activity.
- All local IFR/VFR traffic pattern activity will cease.
- All takeoffs require 60 OC/CC approval.
- Airborne aircraft will divert, hold, or land.

Severe: High wildlife population on or immediately above the active runway, taxiways, in-field areas, and departure or arrival routes that represent a high potential for a strike.
Crew Actions:

- All flight operations (takeoffs, landings, and approaches) are prohibited.
- Any deviations require 60 OG/CC (or higher) approval.
- Airborne aircraft will divert or hold.

Local Pattern Restrictions (11-2C-5V3)

- Any pilot from any seat may perform touch-&-go landings if an IP, IP candidate on instr eval, or EP is in one of the seats.
- Min runway length = 8000'
- Min wx = 300 & ¾ (RVR 40)
- Min RCR = 12
- Not authorized on slush covered runways
- Max crosswind corrected for RCR must be within limits. Do not exceed normal zone.
- Not authorized with Pax on board. MAJCOM approved maintenance personnel are OK.

Runway & Taxi Requirements (11-2C-5V3 & TO 1C-5A-1)

Engine Danger Areas	Radar Radiation Hazard Area	
@ Takeoff Power = 800'	Fueling Operations	46'
@ Taxi Power = 300'	Personnel and Electro Explosives	34'
@ Idle Power = 50'		

Runway Length	Runway Width	Taxiway Width
6000' (1830m)*	147' (45m) **	75' (23m)

* Waiverable to 5000' (1525m)

** Min width is 150' (46m) to do a 180 deg turn

Taxi Clearance	Distance	W/O Wing Walker	W/Wing Walker
Main Gear Pod	< 3 ft	25 ft	10 ft
Outboard Nacelle	> 3 ft, < 6 ft	25 ft	10 ft
Wing Tip	> 6 ft	25 ft	10 ft

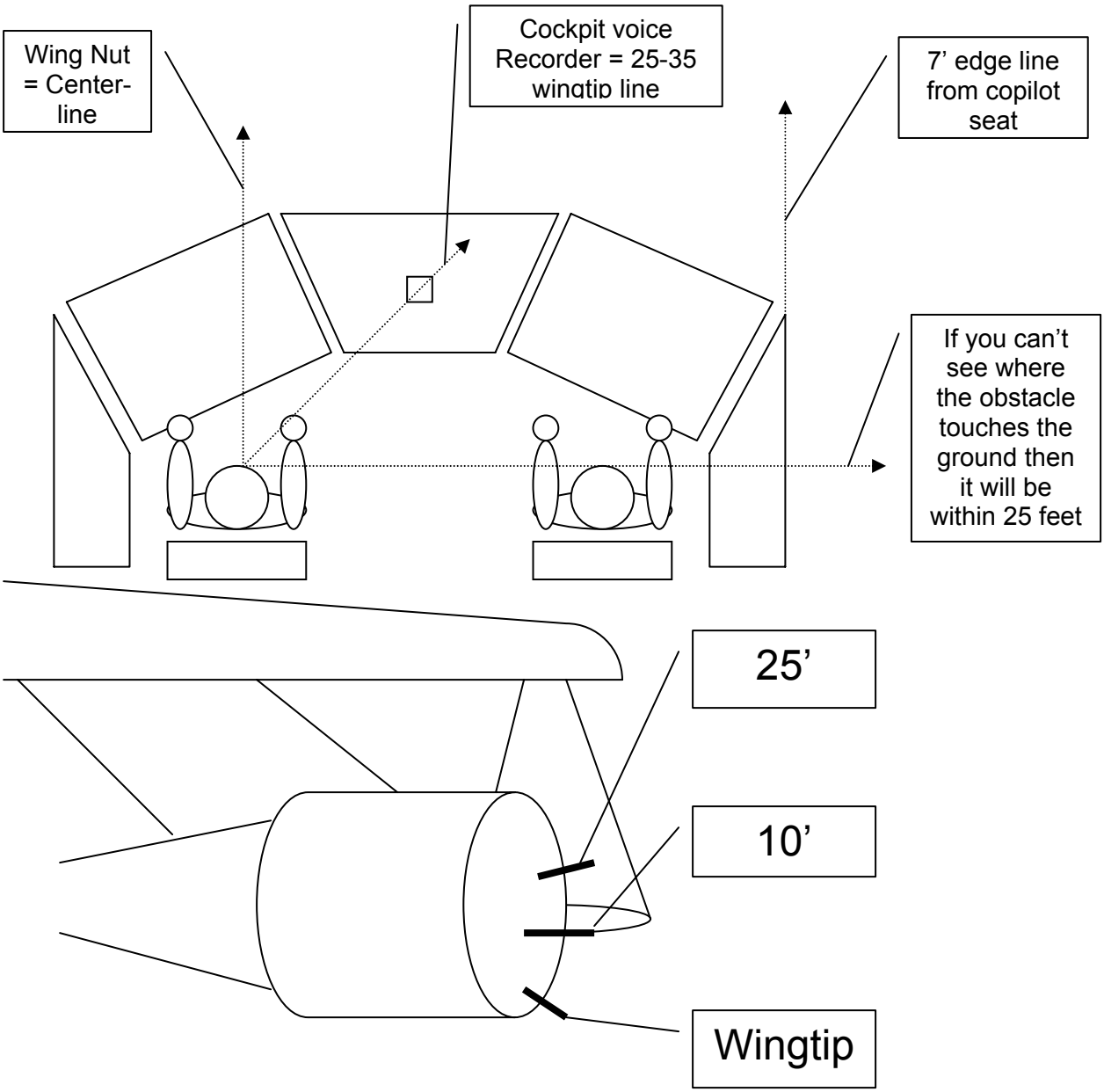
Ground Handling Chart above 732,500 lbs

Thrust	Braking	Fixed	Castered
Symmetric	Symmetric	60	60
Asymmetric	Symmetric	45	60
Symmetric	Mod Asymmetric	45	60
Asymmetric	Mod Asymmetric	30	45

- Turning radius charts assume 180 deg turns are started 4' from taxiway edge and are completed 6' from edge (castered). For min radius turns, taxi to within 4 feet of edge and caster. With airplane moving, increase nose wheel steering smoothly to 60 degrees, and apply asymmetrical thrust and maintain a maximum of 4 knots.
- Fixed aft gear need 228 feet and start 4 feet from edge, then use procedure above except for castering. You will end 3 feet from the edge.
- If any main gear is more than 4 deg from another, do not taxi
- If during taxi, any MLG becomes locked (as a result of a malfunction) at any angle greater than 4 deg, limit nose gear steering to ± 30 deg.
- Below 20 kts, the anti-skid should be turned off to preclude loss of braking
- Alt caster - use "beeper" switches opp turn direction not to exceed 15 deg
- Use extreme caution while taxiing with loadings aft of 32% CG; easy to skid nose gear
- Castering not normally required for turns of less than approximately 60 deg
- Turn point is midpoint between outboard engines parallel with fwd edge of outboard engine; therefore, use the 3 outboard engines for turning.
- Avoid braking to a stop in turns at any taxi speed. If stopped in turn w/aft MLG castered, NLG must not be turned more than 30 deg from stopped position
- Taxi 5 kts (recommended) on slippery surfaces, skidding if NWS > 20 deg
  - Maintain 5 kts upon entry into turn
  - Select "CASTER" prior to entering the turn
  - Select "CENTER" approximately 45 deg prior to completing the turn

Taxi References

- Tail will grow 18'
- Use 150' rope for turns > 90 degrees
- Ropes:
  - Up to 90 - Outline 150' line, if nosewheel does not enter line, you're OK
  - 90 to 180 - Outline 215' line, start turn NLT 215' line and you will be OK
- 150' gives you 107' from edge of nosewheel to wingtip +25', +18' tail growth



Alpha Alert

ALFA Standby Force. An aircraft and aircrew capable of launching in 1 hour and 30 minutes. Crewmembers are given 12 hours of pre-standby crew rest before or after aircraft pre-flight. Aircrews must complete all pre-flight duties within 6 hours of crew show time. An additional 12-hour pre-standby crew rest is required when pre-flight time exceeds 6 hours. Once an ALFA force is formed, additional pre-flights may be necessary to maintain the ALFA aircraft. Additional pre-flights done during normal waking hours do not interrupt crew rest. A crew will not stay on ALFA standby duty for more than 48 hours. After 48 hours, the crew must be launched, released, or entered into pre-departure crew rest. CDT begins when the crew is told to launch.

Sequence for Seal then Sleep

- Showtime/Brief
- Preflight the aircraft
- Check-in to Billeting and start Pre-alert Crew rest.
- Begin 48hr Alpha.
- Pre-alert crew rest - You have 12hrs from the time the aircraft is sealed to your LFA. OG/CC policy requires all crewmembers perform their pre-alert crew rest in billeting. All crewmembers will be in billeting at LFA time.

Sequence for Sleep then Seal (Used when aircraft isn't available for early preflight)

- Enter Pre-alert Crew rest. Upon notification from the squadron, crew will enter 12hrs of pre-alert crew rest.
- Showtime/Brief
- Preflight the Aircraft. You have 6 hours to accomplish the preflight. If unable, then you get 12 hours crew rest after preflight prior to your LFA.
- Check-in to Billeting
- Begin 48hr Alpha.

Both Methods:

- Show time - Brief crew. Ensure mission kit contains 10 boxcar seals and roll of masking tape. Send one vehicle (with at least 2 people) to armory for anti-hijack arming. 2nd vehicle takes pilots to Base Ops and remaining crew to airplane.

Base Ops - Pilots get Nav kits, secrets (seal and leave at Base Ops). Check NOTAMs and get general stateside and overwater wx brief for next 48 hours. Obtain takeoff data for worst predicted wx for next 48 hours. Get Intel brief, and fill out flight plan to Andrews AFB (if destination unknown). Include in Remarks section: "This is an AMC ALFA Standby aircraft with AMC priority. Departure is anticipated within 15 minutes." Base Ops will not file flight plan until you are alerted.

Airplane - Put guns in locked gun box. Configure, fully service (165k fuel), and preflight up to "Before Starting Engines Checklist." Tell CP you are about to seal aircraft. Do so and record the time and boxcar seal number.

Billeting - Call CP with all crewmember's room numbers.

Launch – Leave keys in room. E's to aircraft (get INSs aligning). Pilots to Ops to get secrets, CFP and Intel update. Check wx and notams then file. If pre-filed to Andrews AFB and have different destination, re-file once airborne. At aircraft, turn vehicles over to maintenance launch crew. You must be airborne within 1½ hrs of alert time.

DV Checklist

This checklist should be referenced when flying with any Distinguished Visitor (O-6/ equivalent or higher) or civilian Distinguished Visitor (DV).

Before the flight:

- Attempt to schedule the DV to attend the crew brief and FCIF review if leaving home station.
- Prepare a crew list for the DV.
- If the DV is unable to attend the crew briefing in the squadron, the AC should make an appointment to brief the DV the day prior or have a brief prepared when the DV shows for the mission.
- Ensure that someone has taken the DV's meal order.
- Offer/arrange to pick up DV's flight gear, luggage, etc.
- Invite the DV to follow the preflight of the specialty of his/her choice if they are available.
- Set aside the following areas for DV use: Courier Compartment; Aft Bunk Area. The bunk will be made up with sheets and blankets (request fleet service assistance).
- The forward bunk area should normally be used by aircrew personnel only.
- Know the number of personnel accompanying the DV.
- Have a squadron patch or scarf for the DV.
- Brief the DV IAW AFI 11-2C-5 Vol 3.
- The AC may invite the senior DV to occupy the observer seat during all phases of flight if the seat is not required for training or evaluation purposes.

Coordinate/Review:

- AFI 26-2903, Air Ops/ General Officer flying
- VIP Security and clearance needs
- Reference VIP/Honor Codes in Flip GP
- If DV's meet you at the aircraft, make sure they know the parking spot and departure schedule.
- Destination air-stairs and aircraft security availability
- Taxi plan for pick-up or drop-off of the DV party

The bottom line is simple: include them, make them feel comfortable and show them a sharp, professional aircrew.

HR Checklist (436 AW/CP)

Dover AFB will be conducting a dignified transfer service upon your arrival. Your crew and passengers are an important part of this. Communication between your crew and Dover AFB Command Post (CP) is vital to ensure each and every transfer service is flawless upon your arrival.

<u>Before leaving Ramstein:</u>

Call the Dover CP Duty Officer at 312-445-4211 and pass CFP enroute time and any mission delay information. Do everything possible to adhere to your ETA. If arrival time will differ from scheduled by more than 15 minutes inform Dover Command Post on the 3-hour radio call so that they can make the proper notifications.

<u>C-5 Procedures:</u>

Make every attempt to load transfer cases on the cargo floor, side by side, in the forward portion of the airplane. Preferred offload configuration is forward kneel, drive-in. Ensure all baggage/equipment is aft of the transfer cases. This allows the honor guard full access for movement. Once transfer cases are loaded the flags are folded and placed in a location to prevent soiling or damage. Prior to opening doors at Dover AFB replace the flags and ensure they are secured so they do not undrape during the ceremony.

<u>All T-Tail Aircraft</u>

Deplane essential personnel to secure your aircraft. Meet Customs/Agriculture as required. Once cleared, representatives from Services, Port Mortuary, and Honor Guard will board the aircraft and prepare the transfer cases for offload. The crew and passengers should remain in place unless asked to deplane. A senior Dover AFB representative will be directive and answer any other questions upon your arrival.

Many of the dignified transfer services are met by senior service representatives (General officers) coming from off-station to meet your aircraft. Adhering to your ETA and keeping Dover Command Post informed of any changes cannot be overemphasized.

Preflight

FMS/FSAS/NAVAIDS (TO 1C-5A-1)

- **FMS TURN ON (N-24)**
- **INS INTERFACE CHECK (N-26)**
- **NAV CONFIG (**IDX►NAV CONFIG**)**
  - LEG ALERT – 120; GPS1; 25 DEG BANK ANGLE
- **OXYGEN** (PRICE)
  - **PRESSURE** (275-400 FLOW; 275-450 STATIC)
  - **REGULATOR**
    - SUPPLY - ON
    - DILUTER - 100% - (NO FLOW)
  - **INDICATIONS**
    - BREATH 3 TIMES - BLINKER
    - EMERGENCY LEVER - EMERGENCY
      - ONE BREATH AND HOLD - NO FLOW
    - DILUTER - NORMAL
      - ONE BREATH AND HOLD - NO FLOW
      - BREATH 3 TIMES - BLINKER
    - EMERGENCY LEVER - NORMAL
    - DILUTER - 100%
  - **CONNECTIONS**
    - INTERCOMM
  - **ENROUTE** - LOX - 25 & 75 LITER TANKS
- **VOR**
  - SET VALID VOR FREQ (ENO 111.4)
  - VOR1 & VOR2 (BDHI)
  - TEST (IDX►TEST►↓►↓►VOR1 [VOR2])
    - BEARING POINTER - 315 ± 5 DEG
    - COURSE WARN FLAG - OUT OF VIEW
    - MARKER BEACON LIGHTS (IF VHF1)
- **TACAN** - (90 SEC WARM-UP)
  - TAC 1 (NSP) / TAC 2 (BDHI)
  - HSI COURSE SET - 180
  - TEST (IDX►TEST►↓►↓►TCN1 [TCN2])
    - 7 SEC
      - DME, NAV FLAGS - IN VIEW
      - BEARING POINTER – 270 DEG
    - 15 SEC
      - FLAGS OUT OF VIEW
      - DME - 000.0 ± 0.5
      - BEARING POINTER - 180 ± 3 DEG
      - CDI - CENTERED ± 1/2 DOT
      - TO/FROM – TO

NOTE:
TESTING TCN1 WILL ONLY MOVE PILOT'S HSI
TESTING TCN2 WILL ONLY MOVE CP'S HSI

- **RADAR ALT**
  - SET KNOB - ON (CLOCKWISE)
    - WARM UP - 1 MINUTE
    - DIGITAL DISPLAY - MINUS 4 FT
    - LO LIGHT - ON
  - VALI - SET 200 FT
  - SET KNOB - PRESS
    - POINTER - 500 ± 10 FT
    - DIGITAL DISPLAY - 88888
    - R/T STATUS LIGHT - ON
    - LO LIGHT - OFF
  - AFTER APPROX. 1 SEC
    - POINTER - 300 ± 10 FT
    - DIGITAL DISPLAY - 300 ± 10 FT
    - R/T STATUS LIGHT - OFF
    - LO LIGHT - ON
    - DIGITAL DISPLAY - PRE-TEST ALTITUDE
  - FAILURE INDICATIONS
    - DIGITAL DISPLAY - FAIL
    - POINTER - MASKED
    - R/T STATUS LIGHT - ON
- **IFF/TCAS**
  - 3 MINUTE WARM UP
  - IFF ► IFF-STBY ► M1 THROUGH M4 – OUT► IFF-NORM
  - IDX► TEST ►↓ ►↓ ► IFF ► M1 THROUGH M4
    - GO = SUCCESSFUL TEST; NGO = FAILED TEST
  - IDX ► IFF-STBY M1 THROUGH M4 – IN
  - MODE S ON (IFF ► LS7 MODE S ► LS1 MS:ON)
    - HAS CODE INSTALLED, IF NOT LOAD # FROM 781
  - MODE S NOT IN STBY (IFF► LS1 SENS:TA/RA)
  - WHILE ON THIS PAGE SET DISP
    - RECOMMEND ABOVE FOR DEPT AND RNG TO 10 NM OR GREATER
  - INITIATE TEST (IDX ►TEST ► LS7 ►↓ ►↓ ► LS7
  - ON TCAS SCOPE
    - TEST AT 3 O'CLOCK POSITION DESCENT VVI RED
    - 0 TO 250' CLIMB GREEN
    - FOUR TRAFFIC SYMBOLS
      - RED SQUARE, YELLOW CIRCLE, SOLID BLUE, BLUE DIAMOND
    - "TCAS TEST" FOLLOWED BY "TCAS TEST PASSED" OVER SPEAKER
  - IDX ► IFF-STBY
- **ADF**
  - PULL UP ADF2 ON THE MONITOR PANEL
  - BDHI SELECTOR – ADF2
  - ADF FUNCTION SELECTOR - TEST
    - MONITOR TONE
    - BEARING POINTER 45±5 DEG RIGHT OF LUBBER LINE

- **FDS**
  - NSP - I-NAV
  - FDS TEST - TEST (APPROX 40 SECS)
    - LIGHT W/I 4 SEC, ON FOR 3 SEC
    - ADI
      - ILS APPR BULLSEYE - CENTERED
        - OUTER RING - AMBER
        - INNER RING - GREEN
      - PITCH AND BANK
        - 1/2 UP, 1/2 RIGHT
      - 3 CENTERS
        - VERT DEV, SPEED DEV, CRAB ANGLE
      - 3 FLAGS
        - FD, GS, DEV
      - 2 LIGHTS
        - HDG, GA
    - HSI
      - CDI - CENTERED
      - COURSE FLAG - IN VIEW
- **RADAR**
    - NUMBER 1, 2, 3 INS - ON
    - WX RADAR CONTROL SWITCH – SET TO PILOT CONTROLLING THE WX RADAR
    - RADAR CONTROL PANEL - SET
      - FUNCTION SELECTOR – TEST (SELECTED INS MUST BE IN STATE 8 OR LESS)
      - ANT TILT CONTROL - 0
      - ANT STAB SWITCH - ON
      - GAIN CONTROL - AUTO
    - RADAR INDICATOR - SET
      - RANGE SELECTOR - 150
      - TGT CLAR CONTROL - MID RANGE
      - INT CONTROL - MID RANGE
      - NOR-MKR-DLY SWITCH - NOR
  - INT CONTROL - ADJUSTED
  - TEST PATTERN – CHECKED (G, Y, R, Y, G, NOISE BAND AT 80-100NM)
  - FUNCTION SELECTOR - STBY
- **DISPLAY TIME** (IDX ► START► LS6)
- **ERASE OLD FLT PLAN** (IDX ► START ►↑)
- **LOAD NEW FLT PLAN** (PCMICA – N-32 / MANUAL – N-38)
- **CHECK DISTANCES** (FPLAN ► DATA FOR ► LS3 ► :BRG/DX ► ↓)
- **UPDATE FSAS FPLAN** (N-41 / MSN ► LS8 ► LS8)
- **LOAD FSAS DATA (N-46)**
  - SET DISPLAY TAC DATA (MSN ► FSAS ► LOAD ► RDR SELECT)
  - TAKEOFF; CLIMB; CRUISE; LANDING (MSN ► FSAS ► LOAD)
  - SET UP FLT MODE (MSN ► FSAS ► FLT)
  - ENGAGE DESIRED FSAS FLIGHT MODE
- **LOAD ALTIMETER** (STR ► ↓)
- **FMS INSTRUMENT/ALERT CHECK (N-27)**
- **INS COMPASS HEADING CHECK (N-31)**
- **SELECT STR/POS/NAV SOURCES FOR P & CP DISPLAY** (STR ► ↔ ► :)

Aircraft Inspections (T.O. 00 20-1 & AMC Supp / 1C-5A-1)

RED X – Indicates A/C or equipment is considered unsafe or unserviceable and will not be flown until unsafe condition is corrected

- TCTO compliance period expires
- ALS or MX inspection on escape slides
- LSE (Life Support Equipment) inspection is passed due
- Work/Inspection around air intake
- Major scheduled inspection due
- MX performed on fuel systems
- When pitot static system inoperative or unplugged
- Flight control / throttle linkage adjusted
- Lost object

RED Dash – Indicates condition of the equipment is unknown

RED Diagonal – Indicates a discrepancy exists on equipment, but is not sufficiently urgent or dangerous to warrant its grounding

PREFLIGHT INSPECTION [PR] (DASH 6):

- Performed by maintenance
- Required prior to the first flight of a specified flying period
- Good for 72 hours
- Preflights of aircraft on alert status are good until aircraft is returned to maintenance
- Does not need to be performed under the following conditions:
  - No major MX
  - Normal servicing performed
  - Msn resumed immediately with aircrew members aware of MX status of jet
  - Scheduled gnd time not greater than 5 hours

THRUFLIGHT INSPECTION [TH] (DASH 6):

- Performed by maintenance (crew chief)

POSTFLIGHT/PREFLIGHT INSPECTIONS [BPO/PR] (DASH 6):

- Performed by maintenance
- Accomplished after the last flight of a specified flying period (when released by operations)
- A BPO is required when the preflight inspection expires (as described above)
- Counts for a preflight

MX RULES

- Accomplish Thru Flight each time an aircraft flies within the preflight valid period
- If A/C has not flown within the PR, a new PR is required
- If A/C has flown and the PR will expire prior to next flight, accomplish a BPO/PR prior to next flight
- For enroute locations, if A/C departure time or follow-on msn does not permit, then MX will enter a write up (-) and "BPO and Pre-Flight overdue inspection." Msn will not be delayed for an overdue BPO/PR. BPO/PR will be accomplished at the first available opportunity. Carry forward (**CF**)

FLIGHT ENGINEER PREFLIGHT (DASH 1 Sect 2A):

- Must be accomplished prior to the first flight of a specified flying period
- Must be reaccomplished when the aircraft ground time exceeds 24 hours
- Not required if aircraft has flown in the previous 24 hours (off-station)

FLIGHT ENGINEER THRUFLIGHT (DASH 1 Sect 2A "* items):

- Can be accomplished when aircraft ground time is less than 24 hours
- Required on quick turns when normal Engine Shutdown and Before Leaving Airplane checklist are run
- Not required when Operational Stop checklists are run

Form F Checker

Check Op Wt, Max GW, ZFW Limits (665 - 2.0G / 635 - 2.25G / 590 - 2.5G),
ACTUAL fuel load is accurate, matches Flight Engineer's TOLD (1800 lb more based on takeoff roll weight), and matches the fuel card.
Takeoff and Landing CG within limits (19-41% depending on GW)
Takeoff CG should be within 1% of Landing CG
Zero Fuel CG should be within 3% of other CGs
Ensure weights are less than or equal to:

1. Allowable Takeoff GW - 769,000lb**.** or GW 3-eng, GW obstacle, or GW CFL
2. Maximum Fuel Load - 332,500lb
3. Allowable Landing Load (not a limit, but need a reason > 635,850 lb)

Ensure each 'weight' has a 'moment'
Add column weights (three) in Block 13 - should equal total cargo weight
Ensure cargo/pax weight (Block 15) doesn't exceed any Allowable Load
CRM ALERT: Ensure all crew positions are aware of the final fuel and cargo weight to head off any delays due to TOLD/FORM-F recalculations

Flight

Rapid Decompression Drill (TO 1C-5A-1 & 11-202V3)

"After this brief I will conduct a rapid decompression drill. Everyone but the troop compartment will don masks and check-in on interphone." As per section 3 of the Dash 1 in the event of a rapid decompression:

- Pilot will immediately direct the use of oxygen by all crewmembers / pax
- Primary crewmembers report in on interphone.
- Descend ASAP. (If required)
  - Descend to lowest practical altitude, preferably below 18,000 ft, but in no case allow the cabin altitude to remain above 25,000 ft.
  - However, beware of high terrain in certain parts of the world, and adhere to oceanic offset procedures if over water.
  - If structural damage is not suspected and a Rapid Descent is done: 350 KCAS/Mach 0.825 maximum, throttles idle, inbd TRs ext, 15 degrees nose-down pitch maximum.
- Turn the Seat Belt/No Smoking light on.
- Scan the aircraft for damage (If required, see Structural Damage/Failure checklist.)
- Re-pressurize if able. If not refer to:
  - ETP/FSAS
  - Oxygen Duration Chart
  - Emergency Depressurization Fuel Charts
- If physiological incident occurs, have Flt Surgeon meet the aircraft upon landing.
- Notify Flight Safety Office, and write up problem in 781.
- Reference procedures in AFI 11-202V3

Good to Know

- When cabin altitude exceeds 10,000 ft each crewmember must use supplemental oxygen.
- If unpressurized and occupants do not have oxygen, do not fly between 10,000 and 13,000 ft MSL for longer than 3 hrs.
- The airplane gets a lot of its structural integrity from being pressurized. Be cautious and easy on the controls if unpressurized.
- Operating the WX Radar at cabin pressure altitudes above 20,000 ft could cause damage to the radar components.

Mode IV Procedures (11-2C-5V3)

- Conduct an in-flight check of the mode 4 on all missions departing the CONUS for overseas locations as follows.
- Request the mode 4 interrogation check through NORAD on UHF frequency 364.2. Request interrogation test through the appropriate Sector Operations Control Center (SOCC):
  CONUS Sector--- Location -----Call Sign
  Northeast-------- Griffiss Airport ---Huntress
  Southeast-------- Tyndall AFB---- Oak Grove
  Southwest-------- March Field---- Sierra Pete
  Northwest--------- McChord AFB---- Big Foot
- Aircraft with inoperable mode 4 will continue to their intended destinations. Repairs will be accomplished at the first destination where equipment, parts, and maintenance technicians are available. In theaters where safe passage is implemented, aircraft will follow procedures for inoperable mode 4 as directed in the applicable airspace control order or ATO.
- Attempt to fix an inoperable mode 4 prior to takeoff. Do not delay takeoff nor cancel a mission for an inoperable mode 4, except when the aircraft will transit an area where safe passage procedures are implemented

Quick Reference Frequencies (FIH)

NAT Clearance Frequencies

Shanwick	Clearance	123.95	Eur IFR Supplement
New York	Nantucket	121.125	USA IFR Supplement
	Barnstable	135.8 / 125.925	New York
Gander	ACC Freqs	134.9 / 135.05	AP2 Ch 5
	Allens Island (Clearance)	128.45	Canadian Supp
	Churchill Falls (Clearance)	128.7	Canadian Supp
	Stephenville	135.05	AP2 Ch 5
Santa Maria	Clearance	132.075	Eur IFR Supplement

Common NAT ATC Frequencies: 3016, 5598, 8906, 13306

Oceanic Common Frequencies (Monitor)

NORTH ATLANTIC	123.45
CARRIBBEAN	123.45
PACIFIC	123.45
AFRICAN/INDIAN OCEAN	123.45
AMC COMMON	**319.4**
TRAVIS COMMAND POST	**349.4**

Mainsail (HF) Frequencies (See FIH Section B for specifics)

	4724, 6712, 6739, **8992**, **11175**, 13200, 15016
ARMED FORCES RADIO	6033, 9700
AUSTRALIA	9670, 11740
BBC	5975, 6195, 7325, 9410, 12095, 15420
CB (Listen Only)	CH 9-27065, CH 10-27075, CH 19-27185
CANADA	11720, 15280
Cams Land Chesapeake	5696
Time Hack	5000, 10000
MARS Stations	**13927, 14606**
RADIO FREE AMERICA	17758, 17795
RADIO MOSCOW	5925, 7140, 9620, 13635, 15525, 17680
UNITED NATIONS	Latin America - 7375, 13630, 15030, 21465; Europe – 7125; Africa - 3316
VOICE OF AMERICA	Europe/Middle East-6140/7170/9700/11855 Pacific - 6110, 9760, 11715, 15155
Airline Common	128.95, 130.5, 123.45
AMC Common Cmd Post	349.4
Emergency (Guard)	243.0, 121.5, 8364 HF
Navy Fleet Common	277.8
TANKER A/R COMMON	6761
NORAD Mode IV Check	364.2
FOR MODE 01 AND 02	REFERENCE CINCNORAD MASTER SPINS DATED 10 DEC 01 (LOCATED AT BASE OPS)

HF ALE Operation (TO 1C-5A-1)

Sounding Enable (you must do this to enable ALE)
1. Move cursor to FN field and select AUT.
2. Move cursor to OP field and select OPR. (Ensure SIL is OFF)

Automatic (AUT) Operation
1. Set FN field to AUT and OP field to OPR.
2. Squelch – Recommended position is 1 click. "All the way to the left + 1"
3. Move cursor to ADRS field so all three cursors are lighted.
4. Use VAL Selector to select station address or select GBL for global address net. If desired address is not stored, see Man Selection below.
5. Depress INIT switch. (System will search for a link)
6. When the CALL indicator illuminates, begin communications or continue to step 7 for automatic phone patch to TACC.
7. To call TACC, rotate VAL selector to M-3 (East Cell) or M-4 (West Cell) in ADRS field. Depress INIT switch. Begin communications after radio rings through.
8. When communications are complete, the link is automatically terminated and the system returns to scan.
9. To terminate a calling sequence or terminate a link prior to timeout, select CHN or MAN then return to AUT.

NOTE: ALE can be used in MAN or CHN, however there is no positive muting. If you are operating in an area where emission control is in effect, you can operate in SIL mode. When you hit INIT, the call is made only once instead of continually searching for the best frequency.

Channel (CHN) Operation
1. Use FLD & VAL Selector to select CHN and desired preset freq.
2. Squelch – Recommended position is 2 clicks initially.
3. Key Mic normally to tune then communicate.
4. ALE desired – See AUT communications.

Manual (MAN) Operation
1. Use FLD & VAL Selector to select mode and frequency as normal.
2. Squelch – Recommended position is 2 clicks initially.
3. Key Mic normally to tune then communicate.

Manual address selection in AUT
1. Rotate VAL so that S-D or *AL are not displayed in ADRS.
2. Rotate FLD so a single cursor is under the left ADRS pos.
3. Select the desired characters in the address.

Calling Options
NET CALLS – Used to place a call to a preplanned group of stations.
1. Move cursor to ADRS so there is three cursors.
2. Select desired net address. In the AUT mode, the corresponding index numbers (201-220) are displayed left of the ADRS field.
3. Depress and release INIT switch and follow normal calling procedures.

ALL CALLS – Used in **EMERGENCY** to broadcast call to all comparably equipped ALE stations.
1. Move cursor to ADRS so there is three cursors.
2. Select *AL (index # 299). Standard for military aircraft.
3. Depress and release INIT switch and follow normal calling procedures.

SELCAL Operation

1. Set radio to MAN or CHN. Selcal does not work in ALE mode.
2. Set VOL to desired level and set SQL to 1 (Pos Mute)
3. Set radio frequency as given by ATC.
4. Move cursor to ADRS and select "_SL"
5. Depress and release INIT switch. ADRS switches to "*SL" showing SELCAL is working and positive muting is enabled.
6. When the Mic button is depressed the "Call" is illuminated and you may establish communications with ATC and give your SELCAL address.
7. After giving the address press the INIT button to extinguish the Call annunciation.
8. ATC will test your address. The test works if the "Call" annunciation illuminates again on the radio, an audible tone, and a "HF No.1(2) Call" light on your SELCAL control head. Tell ATC "SELCAL checks OK"
9. If the test fails tell ATC "Negative Selcal; will maintain listening watch" and then ensure positive muting is disabled.
10. If the test is successful, depress the INIT switch to reset positive muting.
11. To disable positive muting and make a call, simply depress the mic switch on your radio and make your call.
12. To disable SELCAL, select a different address.

HF Position Report (FIH)

ICAO Oceanic Position Report

1. Aircraft identification
2. Position
3. Time
4. Flight level or altitude
5. Next position and time over
6. Ensuing significant points

1. "_____(Station), _____(Station), _____(Call Sign) on _____(Freq), Position."
2. "_____(Call Sign) Checks Position _____N/S _____W/E at _____Z FL _____"
   "Estimate _____N/S _____W/E at _____Z
   _____N/S _____ W/E Next. SELCAL _____, Over"

- Make the position report passing the reporting point.
- Unless otherwise directed by ATC, position reports are generally made at significant points along the route of flight including every 10 deg of longitude if your ground speed is enough to cover the 10 deg in approximately 1 hour. If slower than that, report every 5 deg (above 70 deg N, report every 20 deg longitude).
- Notify ATC if your original estimated time to the next reporting point changes by more than 3 minutes (2 Minutes in the NAT Region).
- If your position is a boundary between two agencies (i.e. 30W for Gander and Shanwick, 40W for Santa Maria and New York) address your position report to both. ("Gander copy Shanwick.")
- Give your position in the two-digit North then the West format, as this is how the controller copies it down. Be prepared to give a forward estimate for your next FIR or Oceanic Control Boundary.
- M2K Procedures for FIRS
  - North Atlantic (Bodo, Gander, Iceland, New York, Picaro, Santa Maria, Shanwick)
  - South Atlantic (Atlantico, Lisboa, Rochambeau)
  - Pacific (Auckland, Brisbane, Honiara, Ujang Pandang, Manila, Nadi, Naha, Nauru, Oakland, Port Moresby, Tahiti, Tokyo
- Add "Fuel Remaining (in thousands of #s)"
- Add "Pass to Hilda"

Oceanic Procedures (GP and 11-2C-5 ch 11)

- NAT tolerances: **ETAs ± 2 min, MACH ± 0.00**, if unable, notify ATC ASAP
- Gander - if you have a current NAT message # (the Julian date printed on the message), include it in the read back and omit track coordinates.
- **Eastbound flights**, which overfly Gander Domestic FIR between 2300-0800Z, are required to call Gander Clearance Delivery when within 200 NM of Gander. Gander ACC frequency will be utilized from 2330-0530Z for CLNC DEL. At other times Gander Center can give oceanic clearance. If oceanic clearance is requested but not received from New York, you may continue on filed routing.
- **Westbound** clearances shall include:
- Call sign
- OCA entry point and ETA
- Requested Mach and flight level
- Shanwick - If cleared filed track, do not read back track coordinates. All other times and when in doubt, read back track coordinates.
- A clearance by Shanwick is only effective at the oceanic boundary. You must coordinate with domestic ATC for clearance to the oceanic boundary.
- Attempt contact with Shanwick Oceanic on VHF when within the area defined in AP/2 (E of 002W or 30 minutes before the ETA for the oceanic entry point on VHF). If unable on VHF, request via HF or domestic ATC relay at least 40 min prior to oceanic boundary.
- Request oceanic clearance 20 min prior to entering Santa Maria OCA
- Distance between significant points shall, as far as possible, not exceed 1 hr flight time.
- When approaching each waypoint recheck the coordinates for the next two waypoints.
- Ten (10) minutes after passing each oceanic waypoint or every 500 miles, record and plot the configured steering solution position(s) and time on the chart, and ensure compliance with course and ETA tolerances.
- If a revised clearance is received, record and plot the new course on the chart.
- Monitor 121.5 and Oceanic common (123.45) and AMC Common (319.4)
- Strategic Lateral Offset in the NAT region: aircraft may fly centerline, 1NM right or 2NM right of track or route

FMS/GPS Configured Steering Solution Triple-Mix Configured Steering Solution
Primary Coast-Out Fix Plotting Method:

1. Select the **UPDATE** page on each CDU.
2. Display **MANUAL.**
3. When at desired coast-out point, simultaneously press **FREEZE** on all 3 CDUs and press the **MARK** key on any one CDU.
4. Record the INU pure inertial position. (Data Line 1 on each CDU)
5. Record the integrated position (found on the CDU scratch pad where **MARK** was selected).
6. Plot the coast-out fix.
7. Compare all positions selected to the coast-out point.
8. To terminate coast-out plotting, select **REJECT** on each CDU.

Note: The coast-out fix could also be entered into the "PT" position after entering it into the scratch pad by pressing LS3. Then when **FREEZE** is selected on each CDU the mileage variation between the coast out fix and the pure inertials could be read directly from Data Line 3.

Alternate Coast-Out Fix Plotting Method:

1. Validate accuracy of GPS/INU steering solution.
2. Display Pure Inertial position on all three CDUs:
- Select INAV
- Lateral Scroll each FMS head to **INU CONTROL** page.
3. Read the **UPDATE DIFF** in nautical miles directly from data line 3 and record for each INU to determine most accurate unit for subsequent INS only operations.

Note: No "Updating" or "Freezing" necessary.

4. Record time and most accurate INU on the chart.

RVSM: Altimeter Procedures (GP and 11-2C-5V3)

- Crosscheck the altimeters prior to or immediately upon coast out. Record readings of both altimeters (P & CP)
- At intervals of approximately one hour, crosscheck between primary and standby so they agree within 200 feet

Triple Mix Config Steering Solution:

Note: The triple-mix solution is not selected unless the FMS is degraded (e.g. GPS not available). RNP criteria may be affected.

1. Record aircraft position in relation to NAVAIDs and simultaneously press **FREEZE** on all INSs. Select **MARK** on one CDU for the triple mix position.
2. Record the INS triple mix position and all 3 INS pure inertial positions on the chart.
3. Plot the coast-out fix.
4. Compare the coast-out fix to the INS triple mix or GPS position.
5. To terminate coast-out plotting, select **REJECT** on each CDU.

Inflight Contingencies – RVSM/NATs (GP ch5)

RVSM Basic Concept for Contingencies

a. The in flight contingency procedures for the North Atlantic Track Minimum Navigation Performance (NAT MNPS), published in Doc 7030, were revised to provide for Reduced Vertical Separation Minimum (RVSM) implementation in NAT MNPS airspace.

b. The basic concepts for contingencies are:

(1) Guidance for contingency procedures should not be interpreted in any way which prejudices the final authority and responsibility of the pilot in command for the safe operation of the aircraft.

(2) If the pilot is unsure of the vertical or lateral position of the aircraft or the aircraft deviates from its assigned altitude or track for cause without prior ATC clearance, then the pilot must take action to mitigate the potential for collision with aircraft on adjacent routes or flight levels. In this situation, the pilot should alert adjacent aircraft by making maximum use of aircraft lighting and broadcasting position, flight level, and intentions on 121.5 MHz.

(3) Unless the nature of the contingency dictates otherwise, the pilot should advise ATC as soon as possible of a contingency situation and if possible, request an ATC clearance before deviating from the assigned route or flight level.

(4) If a revised ATC clearance cannot be obtained in a timely manner and action is required to avoid potential conflict with other aircraft, then the aircraft should be flown at an altitude and/or on a track where other aircraft are least likely to be encountered:

(a) The pilot may offset half the lateral distance between routes or tracks.
(b) The pilot may offset half the vertical distance between altitudes normally flown.
(c) The pilot may also consider descending below FL 285 or climbing above FL 410.
(Flight above FL 410 or below FL 285 may limit exposure to conflict with other aircraft).

(5) When executing a contingency maneuver the pilot should:

(a) Watch for conflicting traffic both visually and by reference to TCAS, if equipped.
(b) Continue to alert other aircraft broadcasting on 121.5 MHz and using aircraft lights.
(c) Continue to fly offset tracks or altitudes until an ATC clearance is obtained.
(d) Obtain an ATC clearance as soon as possible.

If an aircraft is required to deviate from track to avoid weather and prior clearance cannot be obtained, an ATC clearance shall be obtained at the earliest possible time. If a revised ATC clearance cannot be obtained and deviation from track is required to avoid weather, the pilot shall take the following actions:

1. If possible, deviate away from an organized track or route system
2. Establish communications with an alert nearby aircraft broadcasting, at suitable intervals: Flight identification, flight level, aircraft position (including the ATS route designator or the track code) and intentions on the frequency in use, and on frequency 121.5 MHz (or backup on VHF inter-pilot air-to-air frequency 123.45 MHz)

3. Watch for conflicting traffic both visually and by reference to TCAS (if equipped);
4. Turn on all exterior lights (commensurate with appropriate limitations);
5. For deviations of less than 19 km (10 NM), the aircraft should remain at the level assigned by ATC;
6. For deviations of greater than 19 km (10 NM), when the aircraft is approximately 19 km (10 NM) from track, initiate a level change based on the following criteria:
    a. East (000-179 Mag) Left Descend 300 ft (91m), Right Climb 300 ft (91m)
    b. West (180-359 Mag) Left Climb 300 ft (91m), Right Descend 300 ft (91m)
7. When returning to track, be at its assigned level, when the aircraft is within approximately 19 km (10 NM) of centerline

Thunderstorm Avoidance (11-202V3 & 11-2C-5V3)

- PICs shall not take off, land, or fly an approach at an airport if a thunderstorm is producing hail, strong winds, gust fronts, heavy rain, lightning, windshear, or microbursts.
- Approaches or departures may be accomplished when thunderstorms are within 10NMs. Thunderstorms must not be producing any hazardous conditions at the airport or in the take off or landing corridor **and** must not be forecast or moving in that direction.
- Minimize thunderstorm exposure by:
    - Try to maintain VMC
    - Maintain at least 5NM separation from heavy rain showers
    - Avoid lightning potential; clouds within $\pm$ 5000 ft of the freezing level
- When observed or reported thunderstorm activity adversely affects the flight plan route, pilots will delay the mission, alter the route of flight to avoid the thunderstorm, or proceed to a suitable alternate.
- Avoid thunderstorms by at least:
    - 20 NMs at or above FL 230
    - 10NMs below FL 230
    - 5NMs during low level tactical operations
    - 2000 feet vertically, avoid them by using the above criteria

Weather Radar Calibration (Bendix Radar Pilot's Manual)

Departure techniques:

- During the Before Takeoff checklist the best ground returns can be seen by selecting the shortest ranges on the display (5 or 25 miles) and look for returns along the outside of the display.
- After lineup select the 25 or 50 mile range and rotate the tilt from +15 degrees to 0 and back to +5 degrees to check for weather returns if storms will be of concern on departure.
- On departure lower the tilt from +5 degrees one-degree as the aircraft climbs through each 5,000-foot increment of altitude.

WARNING: Antenna radiation hazard area must be clear of all personnel, electro-explosive and fueling/defueling ops during WX radar ops in WX, MAP 1, MAP 2 or BCN modes.

Personnel and electro-explosives: **34** ft Fueling operations: **46** ft

CAUTION: With Ant Stab switch ON, WX radar shall not be operated in any mode other than STBY unless selected INS is in state 8 or less

CAUTION: Operating at a cabin pressure altitude above FL200 could damage radar.

NOTE: Up to a 10-second blackout period when switching controls between pilots

- Warm-up time is 3 minutes
- Antenna stabilization comes from the INS the controlling pilot has selected
- HOLD will freeze display on screen but antenna will continue to scan
- Tilt, gain and mode selection is controlled by selecting pilot.
- Most ominous returns have a steep gradient or hooks (tornadoes)
- Adjust the antenna tilt downward until ground returns begin to appear at the top of the display (the radar horizon).
- If scope attenuates (goes red), reduce gain to find safe exit
    - Optimum range: Shortest that will display the desired target
    - Optimum tilt: Obtained by adjusting until ground returns appear at top of scope

- Tilt adjustments of 1/4 deg can cause significant changes in presentation
- Maximum of 1/2 deg tilt change should be used between sweeps

CALIBRATION OF WEATHER RADAR (RADAR BEAM IS 3 (2.8) DEGREES HEIGHT

Technique No 1:

- Set tilt 8.5 degrees down and adjust so the front of red return equals aircraft altitude in AGL.
- Move tilt up 8.5 degrees.
- Bottom of beam is now level with the aircraft.
- Move tilt up 8.5 degrees for level beam, 1.5 degrees above, 1.5 degrees below.
- i.e.: FL250, terrain 1000 ft, move tilt down until nearest edge of red ground return is at 24 NM.

Technique 2:

- Adjust the tilt control so that ground returns begin at the 40 NM arc.
- Divide the aircraft altitude AGL by 4.
- Raise the tilt by the number of degrees equal to this calculation.
- If you prefer to divide by 2, 3, 5 or 8 adjust the tilt so as to generate ground returns on the 20, 30, 50 or 80 NM arcs respectively.
- The bottom of the radar beam will scan your flight level.

Thunderstorm Height Evaluation

- *Note: This technique is only useful out to approximately 60 NM.*
- Set the bottom of the beam parallel to the aircraft flight path (note the tilt)
- Adjust the tilt from level until returns from the thunderstorm in question disappear (If above your altitude) or begin to show (If below your altitude).
- Now, take (Degrees of pitch change) X (NM to return) X (100) = Altitude difference from your altitude.
  - EX: (2° Pitch Change Up) X (40 NM to the Return) X (100) = 8,000 feet above your flight level. If your current altitude is 25,000 feet, the thunderstorm tops are at 8,000+25,000 = 33,000 feet.
- Technique: Add 20% to the top of painted returns to estimate top of thunderstorm.

HF Three Hour Out Call (11-2C-5V3)

Aircrews will transmit or relay an HF arrival advisory message to the destination CCC, or if no CCC is available, to TACC or AME when approximately two to three hours from destination.

1. Aircraft Call Sign
2. Mission Number
3. ETB
4. MX Status

   A1-No MX

   A2 (PLUS NOUN) – Minor maintenance required but not serious enough to cause delay. Add the noun(s) that identifies the affected unit(s) or system(s); i.e., hydraulic, UHF radio, followed by the Fault Reporting Manual (FRM) process code. Further elaboration is discouraged.

   A3 (+ NOUN + FRM) – Delay Anticipated

   A4 – Aircraft has Biological / Chemical / Radioactive Contamination

   A5 – Aircraft has sustained Battle Damage
5. DV Status and Honor Codes (DV Code is A for Air Force - Number is 7 minus the number of stars)

UHF/VHF Arrival Advisory Message (11-2C-5V3)

Aircrews will transmit an arrival advisory as soon as UHF/VHF contact can be established with the destination CC.

- Aircraft Call Sign
- Mission Number
- ETB
- MX Status
- DV Code and requirements, if applicable
- Number of passengers
- Hazardous cargo and remote parking requirements, if applicable
- Additional service required, if applicable
- Number of pallets to be downloaded and number that are through manifested
- Pax, pallet space, and weight available for the next mission segment

Fuel Requirements

Landing

Instrument Flight Techniques (11-217)

- TAS = (FL/2) + IAS
- VDP in NM from end of runway = (HAT/GRADIENT) usually 300
- VVI 3 Degree Glideslope = (GROUND SPEED x 10)/2
- TURN RADIUS = NM/MIN-2 or (IMN x10) - 2
- RADIALS PER NM = 60/ARC DME
- LEAD POINT IN DME = TR $\pm$ DESIRED ARC
- LEAD RADIALS = TR x RADIALS/NM
- 45/180 MANEUVER DISTANCE = (3 x TR) + 2
- 80/260 MANEUVER DISTANCE = (3 x TR)
- 1 DEGREE = 1 NM at 60 NM or 1 DEGREE = 100 FEET at 1NM
- LEAD POINTS:

Degrees to turn	Fraction of 90 degree turn
180	2
120	1 1/2
90	1
60	½

Determine required descent

1. Descent Gradient / Pitch
   * Pitch down = $\frac{\text{(100s of feet to loose)}}{\text{Distance in NM}}$
   * For example: Must lose 15,000 feet in 25 miles. 150/25 = 6° nose down
2. VVI
   - ASSUME: 1° pitch change = 100 feet per NM
   - ASSUME: NM/Minute = MACH x 10
     - SO: 6° pitch change = 600 feet per NM
     - IF: You're going 5 miles a minute (MACHx10) then you have 3000 VVI
   - VVI for 1° pitch change = NM/Minute x pitch change
     - Using example above: 6° nose down at .70 MACH = 4200 VVI
     - REMEMBER: TAS & NM/Minute decrease as you descend so VVI will decrease also

Divert Checklist

- Approaches Available / Runway Length / Runway Width / Taxi Width
- ASRR / Wing Tip clearance
- IFR Supp
- Notams
- Giant Report
- Ramp Space
- Security requirements
- Fuel
- Command and Control / TALCE / US presence / US Embassy

QFE Altimeter Settings (11-217 & FCB)

Altimeter Setting Review

QNH is used by the Western world when operating below the published transition level. Altimeter set on QNH would read the aircraft's elevation above sea level, and on the ground, it will normally read the published airfield elevation.

QNE is used by the world when operating at or above the published transition altitude. Its setting is always 29.92 inches of mercury and indicates the altitude above the standard datum plane (pressure altitude).

QFE is used by some Eastern block countries when operating below the published transition level. Altimeters set on QNE would read the aircraft's absolute elevation above an airport's elevation. On the ground, it would read zero.

Methods flying in a QFE environment

- These methods are used when flying below the transition level. Altitudes above the transition level are flown using QNE (29.92) just like normal.
- If the aircraft's altimeter can display the current QFE altimeter, set QFE and fly QFE altitudes normally.
- If the altimeter cannot display the current QFE altimeter, you have two choices:
    - **Method A** – Convert all altimeter settings *and* altitudes to QNH based on the field elevation of the airport at which you intend to land.
    - **Method B** – Set the lowest altimeter setting possible (usually 28.10) and fly at an adjusted altitude.

Converting from meters to feet

- Most likely, you will be cleared to altitudes in meters. You must convert this to feet, use the conversion in the FIH

Converting from hectopascals / millibars of mercury to inches of mercury

- If given an altimeter setting in millibars or hectopascals, use the chart on page D-4 in the FIH to convert to inches of mercury. Alternately, you can use the FMS to convert for you. The stand-by altimeter is not recommended for the conversion, as it is not as accurate as the other two methods.

Method A–Converting QFE to QNH

The basis for this conversion is the fact that *on a standard day*, an altimeter set on either QNH or QFE (29.92) at a airfield located at sea level would both be valid because they both would read the same (Zero feet). However, at a given field elevation (say at Manas where the elevation is 2091'), QNH still set at standard day conditions (29.92) would read that field's elevation (2091') while QFE would have to be adjusted in order to still be valid. Unlike QNH where standard day is valid for any given airport, QFE standard day must be computed for each airfield elevation. We use the difference between the current QFE standard day and the currently reported QFE altimeter setting to adjust from QNH standard day to arrive at a QNH altimeter setting. For this example, we will use assume that they cleared us down to 2000' on a QFE altimeter of 27.71 on your way to Manas whose field elevation is 2091':

1. Determine your landing field's elevation and its standard day QFE altimeter setting
    a. Manas field elevation per the IAP is 2091'
    b. We use figure A1-9 in 1C-5A-1-1 to determine QFE standard day for Manas. Enter in with the field elevation and read the altimeter setting:
    You get an altimeter setting of **27.77**. This is QFE standard day for Manas.
2. Determine difference between reported altimeter setting and the computed standard
    a. Assume 27.71 is the reported QFE altimeter setting. So we simply use the formula
    <Standard Day QFE> - <Reported QFE> = deviation
    27.77 – 27.71 = **.06**
    Note: This deviation can be negative, so keep that in mind for the next step.

3. Determine QNH altimeter setting
   a. Use formula 29.92 - <Deviation> = QNH altimeter
      In this case 29.92 - .06 = **29.86**
      Note: If the deviation computed in step 2 was negative, then you would be basically adding the deviation to 29.92 using the above formula (subtracting a negative is the same as adding, right?)
4. Convert assigned QFE altitude to a QNH altitude
   a. Add field elevation to the assigned altitude. We are descending to 2000', so we would add 2000'+2091' to get 4091 feet.
      Note: If you forget this step, YOU WILL DIE! Descending to 2000' (QFE altitude, remember), on a QNH altimeter setting will drive you approximately 91 feet into the ground.

Note: Once you do this conversion a few times, it is not that difficult; however, you must use caution using this method if you are far from the field as you can never be certain that they are using the QFE altimeter setting for the field you are going to. Just as we change QNH altimeter settings along our descent, QFE will change as well. If in mountainous terrain, the differences between two field's elevations may be large. However, this method is helpful when using DoD approach plates because they always use QNH altitudes on the plates, and never publish QFE altitudes.

Method B – Fly at an adjusted Altitude (per the FCBs)

Assume, again, that you are descending to 2000' on a QFE altimeter of 27.71 on your way to Manas whose field elevation is 2091'. Using this method, we would set 28.10 on our altimeters (the lowest we can set) and use Figure 8.3 in AFMAN 11-217V1 to convert our assigned altitude to what the altitude would be on a 28.10 altimeter setting. Note that each .01 difference in altimeter setting results in a 10 foot correction.

1. Set 28.10 on the altimeter
2. Using Figure 8.3 in AFMAN 11-217V1, find our assigned altimeter setting of 27.71. In this case, we see that a 27.70 altimeter setting would require a 400-foot correction. Also, note as the altimeter setting goes up, the correction required goes down (makes logical sense). Thus 27.71 would require a 390' correction.
3. Add the correction to your assigned altitude.
   a. In this case, we would fly a QFE altitude of 2000 + 390 or 2390'

Note: This case requires fewer calculations; however, using DoD approach plates that only have QNH altitudes on them require you to convert those QNH altitudes into QFE altitudes. Again, if you forget to convert these altitudes on the approach plates, you may very well crash into the ground.

Descent Profiles (1C-5A-1)

DESCENT PROFILES

FSAS Enroute Descent profile - M.77 / 300 (250 below 10,000 ft). Use 3 to 1 rule (Technique)
For level flight (250K at 10,000') out of the vibration range - use 2 in idle, 2 at 90% N1 (Technique)

RAPID DESCENT

350K /M.825 with reverse thrust (2 Inboard engines). 15 deg nose down max
NOTE: TR's must be scanned following use

Penetrations (1C-5A-1)

Configured penetrations will not be initiated above FL200 or at Gross Weights over 600K

Flaps:	- 40% (use 62.5% flaps to increase descent rate)
Gear:	- Down
Airspeed:	- Vapp + 30 minimum
1000' above penetration altitude	- Reset flaps to 40%
Established inbound to FAF	- Vapp + 20 minimum
	- Follow normal low altitude procedures

NOTE: Penetrations may be made with flaps up and thrust reverses 2 & 3 extended. Configure prior to the final approach fix. If icing conditions will be encountered during descent, make a configured penetration approach (no TRs due to cascade icing).
NOTE: Scan thrust reversers following use.

Approach Airspeeds (1C-5A-1)

4 and 3 Eng (VFR/Radar Pattern)

Downwind:	Vapp + 60	minimum clean	Fuel Flow = GW - 1
OR	Vapp + 30	flaps 40%, gear as required	
Base:	Vapp + 20	flaps 40%, gear down	Fuel Flow = GW + 1
Final:	Vapp	flaps Landing, gear down	Fuel Flow = GW
Touchdown:	Vapp - 10	minimum	

- Vapp (3-Eng) = Vapp (4-Eng) but not below Vmca (2-Eng)
- With one engine inoperative consider using 40% flaps when heavy weight or on a non-precision approach; runway conditions permitting.
- Technique: Heavy weight = 2 Engine ceiling below terrain due to GW, temp, or PA
- Technique: 3 Engine fuel flow = Total 4 Engine fuel flow divided by 3
- Technique: Trim = fuel flow; in addition dial in a little aileron trim into the good engines

2 Engine Low Altitude Approach

Downwind:	Vapp + 40K	Clean
Base:	Vapp + 40K	gear down
Final:	Vapp	flaps 40%, gear down
Landing assuured:		flaps landing (if desired)

NOTE: Vapp (2-Eng) = Vapp (40% flap) but not below Vmca (2-Eng)

Low Altitude Approach

Inbound to FAF:	Vapp + 20K	flaps 40%, gear down	
Final Approach:	Vapp	flaps landing, gear down	
Vertical Velocity:	PAR/ILS	3 deg glide slope	VVI = GS x .5
		2.5 deg glide slope	VVI = GS x .5 -100

Circling (1C-5A-1)

Circling Approach

Circling isn't compatible with precision approaches

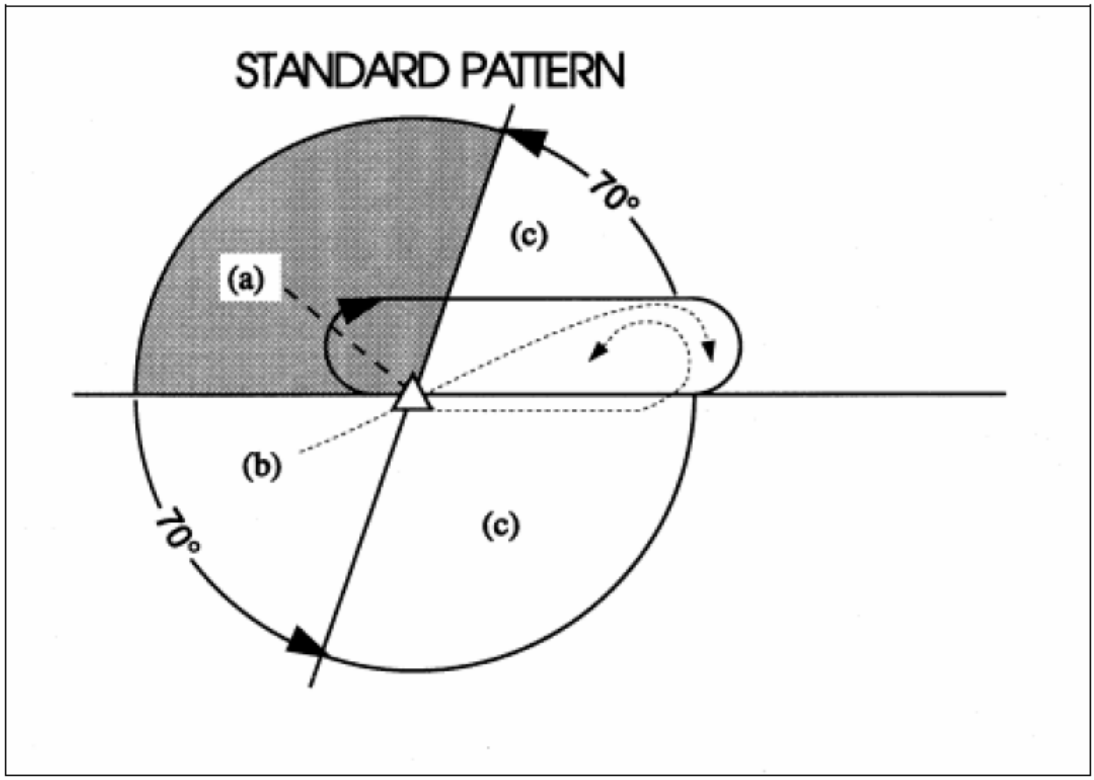
Maneuvering:	Vapp + 20K	flaps 40% until turn to final
During turn to final:	Vapp	flaps landing

Ensure appropriate category minimums are used for airspeed flown. Use Cat D for all approaches unless maneuvering airspeeds exceed 165K
Obstacle Clearance radius: A= 1.3; B= 1.5; C= 1.7; **D= 2.3**; E= 4.5

Holding (11-217)

HOLDING

- Initially - Use 210 Lightweight, 230 Heavyweight
- Triple the drift correction on the outbound leg



AIM & ICAO

- Sector A = Parallel Entry
- Sector B = Tear drop to 30 deg offset
- Sector C = Direct Entry

FAA Only (70 Deg Method)

- Within 70 – Turn outbound to holding side
- No within 70 – Turn outbound in shorter direction to parallel holding course
- Tear drop – Consider yourself conveniently aligned when A/C heading within 45 deg of selected TD course. Make TD course within 45 deg of outbound track

FAA

- Make inbound track timing good
- 0 - 6,000' MSL 200 KIAS
- Above 6,000' – 14,000' MSL 230 KIAS
- Above 14,000' MSL 265 KIAS
- 310 KIAS = **USAF** AIRFIELD MAX HOLDING SPEED
- 230 KIAS = NAVY AIRFIELD MAX HOLDING SPEED

ICAO

- Make outbound track timing good
- 0-14,000' MSL (CAT C and D) 230KIAS
- 14,001' – 20,000' 240KIAS
- 20,001' – 34,000' 265KIAS
- 34,001'+ 0.83 Mach
- 25 DEGREES = MAX BANK ANGLE DURING ICAO HOLDING

Low Altitude Instrument Approaches (11-217)

- 200 KIAS = RECOMMENDED MAX SPEED FOR PROCEDURE TURN

PROCEDURE TURN (PT); THREE TYPE: HOLDING, 45/180, and 80/260

- OUTBOUND LEG: Adjust length so you stay inside "remain within distance"
- ENTRY: Turn in the shortest direction to intercept, teardrop, or parallel
- TIMING: When outbound abeam IAF/ after completing outbound turn. Also passing FAF
- DESCENT: Do not descend from the PT fix altitude until you are abeam the PT fix heading outbound or wings level. Do not descend from the PT completion altitude until you are established on the inbound segment of the approach
- MISC:
  - If your heading is within 90 of the outbound PT course, you may use normal lead points
  - Teardrop course must be within 30 degrees of the PT course. Teardrop not allowed on ICAO 45/180 Course Reversals due to less protected airspace.
  - On non-maneuvering side and >180K, correct with at least 20 deg intercept angle
  - If the PT course is intercepted outbound, maintain course for the remainder of the leg, then turn toward the maneuvering side to reverse course.
  - The PT prior to the FAF will NOT be flown when: SNERT
    - Cleared for a "**S**traight-in" approach
    - Approach is **N**oPT
    - When **E**stablished in a published or assigned holding pattern, cleared the approach and the holding course and PT course are the same.
    - **R**adar vectored to the final approach course
    - When conducting "**T**imed" approaches

45/180 and 80/260 DEGREE MANEUVER:

- 45/180 – to begin the reversal maneuver, turn 45 away from the outbound track towards the maneuvering side. Use 1+15 for cat D, then begin a 180 turn in the opposite direction from the initial turn to intercept the PT course inbound
- 80/260 – to begin the reversal maneuver, make an 80 turn away from the outbound track toward the maneuvering side followed by an immediate 260 turn in the opposite direction to intercept the inbound course.
- ENTRY: Upon reaching the PT fix, turn in the shortest direction to intercept the PT course outbound. Use normal lead points.
- PROCEEDING OUTBOUND: Intercept and maintain the outbound track ASAP.
- DESCENT: Do not descend from the PT fix altitude until you are abeam the PT fix and on a parallel or intercept heading to the outbound track. Do not descend from the PT completion altitude until you are established on the inbound segment of the approach.
- NOTE: FAA – there is no requirement to wait until you are on a parallel or intercept heading to begin descent from the PT fix altitude. ICAO – you must wait due to different TERPs criteria.

HOLDING PATTERN IN LIEU OF PROCEDURE TURN (HILO PT)

- ENTRY: same as holding procedure
- DESCENT: Depicted in two ways; at holding fix or on inbound leg. When a descent is depicted on the inbound leg, you must be established on the inbound segment of the approach before descent.
- MISC:
  - If cleared for the approach while holding in a HILO PT, complete the holding pattern and commence the approach without making addition turns in the holding pattern, additional circuits are neither necessary nor expected by ATC. Request additional patterns to lose altitude if required.

PROCEDURE TRACK

- ENTRY: When over the IAF, turn in the shortest direction to intercept the published track. If your heading is within 90 deg of the procedural course, you are not required to overfly the IAF. Use normal lead points. If not within 90 deg of the course obtain maneuvering airspace
- TIMING: Varies with each approach; in some cases not required (DME used)
- DESCENT: *At the IAF*: When abeam or past the IAF and on a parallel or intercept heading to the course. For subsequent descents be established on the appropriate track segment.
  - *Teardrop*: Descend from the turn altitude when established on the inbound segment. You may turn to the inbound course at any time; do not exceed "remain within" distance.
  - *Arc to Radial*: Once a leadpoint has been reached and a turn to the next segment has begun, pilots may descend to the next altitude.

ICAO Course Reversals (11-217)

FOR USE IN AIRSPACE NOT UNDER FAA CONTROL
4 METHODS: 45/180, 80/260, Base Turn, & Racetrack.

ENTRY: The 45/180, 80/260, and base turns must be entered from a track that is within ± 30 degrees of the outbound reversal track. For base turns where the ± 30 degree entry sector does not include the reciprocal of the inbound track, the entry sector is expanded to include it. If the arrival track is not within the entry sector, the pilot must use a published holding pattern to reverse course or use good judgement to maneuver while avoiding terrain. **The 45/180, 80/260, and Base Turn are similar to FAA "Procedure Turns"**

- The protected airspace for "reversal procedures" does not permit a racetrack or holding maneuver to be conducted unless so specified. You may not enter an ICAO procedure turn using the "Holding Technique" used in FAA airspace.

If established in an arrival holding pattern that does not position the aircraft within the entry sector, the pilot must:

1. Request an alignment maneuver, or
2. Request descent in holding and the straight-in approach.

TIMING: When outbound abeam/after completing the outbound turn, if abeam position cannot be determined.

DESCENT: **1.** At the IAF - when abeam or past the IAF and on parallel or intercept heading.
2. Past the IAF - be established on a segment of the IAP.

MISC: **1.** Max airspeed during reversal maneuvers - 250 KIAS. Before reaching the IAF, reduce to maneuvering speed.
2. Reference PANSOPS Regulations found in Jeppesens at Base Ops for maneuvering airspeeds for circling approach alignment.

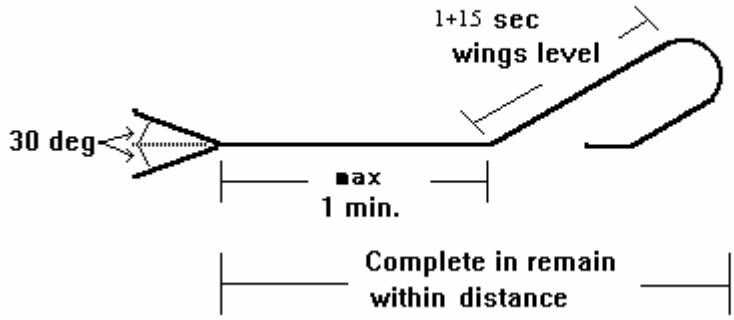
RACETRACK: Entry procedures are the same as for holding procedures with several exceptions:

1. Teardrop offset is limited to 30 degrees.
2. The teardrop entry is limited to 1 1/2 minutes wings level on the teardrop track, after which you are to turn to a heading parallel to the outbound track for the remainder of the outbound time.
3. If the outbound time is 1 minute, the time on the teardrop shall be 1 min also
4. Regardless of which entry procedure is used, do not return directly to the facility without first intercepting the inbound track

ICAO COURSE REVERSAL MANEUVERS

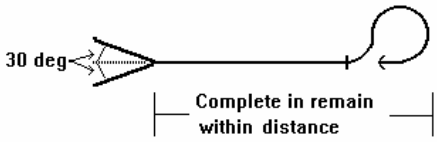
45/180 Course Reversal

ENTRY: From +/- 30 deg of the outbound reversal track.

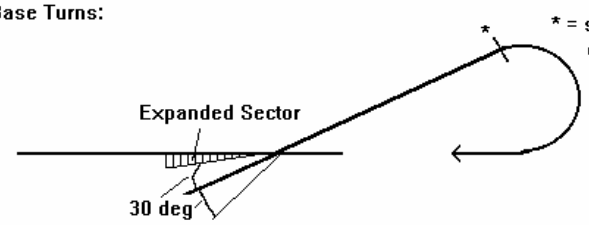


80/260 Course Reversal:

ENTRY: From +/- 30 deg of the outbound reversal track.

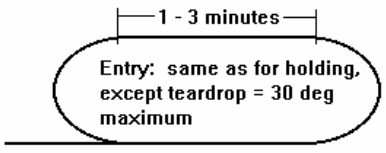


Base Turns:



If the +/- 30 deg. entry sector does not include the reciprocal of the inbound track, the entry sector is expanded to include it.

Racetrack Patterns:



TEARDROP: 30 deg, max offset
Max length - 1 1/2 min, rest on outbound track.
If depicted outbound time 1 min, teardrop time will be 1 min.

Do not return directly to the facility without first intercepting the inbound track.

CAT II & Autoland Procedures (1C-5A-1 and 11-2C-5V3)

AIRCREW REQUIREMENTS:

- Both pilots must be CAT II qualified and current
- ACs must have 100 hours in command and logged at least 3 simulated CAT II approaches in the aircraft
- 3 Engine and Autoland touchdowns are prohibited
- Use of autothrottles for CAT II approaches is permitted
- Use of autothrottles for CAT II go-around is prohibited
- DH based upon a radar altimeter setting / 100' min HAT
- Max X-Wind is 10 kts for actual CAT II (15 for training and CAT I weather mins)
- Vis only approaches: plan for 8000 lbs of fuel for go-around and climb out

AIRPLANE EQUIPMENT REQUIREMENT:

- Autopilot and autoland subsystem operational (green light on)
- Dual ILS receivers (training requires 1 ILS and it's associated RA)
- Dual radar altimeters (test prior to flight or while airborne)
- Dual flight directors
- Complete differential pressure instruments
- Attitude indicators in both positions
- Compass systems in both positions

CAT II RESTRICTIONS:

1. CAT II Appr must be performed utilizing the autoland mode of the autopilot to DH
2. If CAT II capability is lost at/or below 300 feet radar altitude, a missed approach shall be performed unless visual cues are sufficient to complete the approach and landing

COPILOT DUTIES (C A M E L)

C Crosscheck barometric and radar altimeters (at 1000' AGL is good)
A Announce the illumination of any fault light or malfunction affecting the autopilot, radar altimeter, flight director, or if the autoland light goes out
M Make "100 above" call off the radar altimeter
E Eyes outside. From 100 above to CAT II DH, the copilot will concentrate primarily on outside references to determine if visual cues will be sufficient to complete the landing
L "Land" or "go around" off the radar altimeter

NOTES:

- Tolerances for continuation of the approach from 100 feet above DH to DH are:
    - Airspeed +/- 5 KCAS of computed final approach airspeed, and deviation from glideslope and localizer not to exceed one-half dot.
- FSAS APP/LDG mode must be engaged to fly an autoland approach
- Recommended that localizer intercept performed at A/S < 170K
- After localizer capture, if one compass system is in error, HSI course for that system must be adjusted to bring the crab angle indicator to within 4 deg of the other crab angle indicator or the autopilot yaw axis will disengage
- If one of the AFCS axes disengages, don't reengage the axis during that approach. Continue manually using the FDS or return to ILS capture point if an autoland approach is necessary.
- ILS capture should be accomplished with 40% flaps and airspeed at Vapp + 20 not > 170K
- AFCS vert nav must be engaged prior to glideslope intercept
- Flaps should be extended to LANDING at 1/4 dot fly-up or when ILS bullseye comes into view
- Depress AUTOLAND button when stabilized on glideslope above 700-ft radar altitude.

Windshear on Landing

Windshear Detection: (Audible tone through GPWS speaker and/or red light)

Prerequisites: 1) Landing data loaded
2) Landing gear down
3) IAS more than 60K
4) ACT SHR alt initializes at 2500'; A/C above 200'
5) A/C heading within 30 deg of runway heading
6) FSAS APP/LDG PG 1 or 2 was last FSAS page selected for display

Red WINDSHEAR Light: Present wind component (INS) and predicted wind component (FSAS Landing Data) differ by more than 15 kts. This number = Delta SHR

Audible Tone AND Light: Actual GS (INS) is at least 15 kts below RGS
Reference Groundspeed (RGS) = Vapp (TAS) - surface headwind (+ tailwind)

Windshear Procedures:

- Always match groundspeed (GS) and RGS(Technique)
- If difference in RGS and GS is greater than 15 knots then apply following procedures:
  - Non-flying pilot should give the pilot airspeeds to fly by adding delta SHR to Vapp
  - Decreasing Tailwind: If GS > RGS by > 15 knots then maintain Vapp
  - Decreasing Headwind: If GS < RGS by > 15 knots then maintain RGS

Severe Windshear: (Technique) Abort the approach when Delta SHR exceeds 50 knots

Definition:

- Tone
- Airspeed change over 10 knots
- 500 VVI up or down
- 1 dot GS change

Basic Procedure:

- Go around immediately
- Increase engine power not to exceed engine limits
- Increase pitch attitude to **15 to 18** degrees
- Respect the stick shaker

European Area Divert Options

Divert		**Distance to Destination Base**					
Base	ICAO	Runway Length	Lajes	Mildenhall	Ramstein	Rhein Main	Rota
Lajes	LPLA	10.8K	-	1260	1680	1730	1000
Mildenhall *	EGUN	9.2K	1260	-	330	340	1000
Ramstein *	ETAR	8.0K	1680	330	-	55	1000
Rhein Main	EDAF	13.1K	1730	340	55	-	1050
Rota *	LERT	12.1K	1000	1000	1000	1050	-
Sigonella	LICZ	8.0K	-	980	750	770	1500
Brize Norton	EGVN	10.0K	-	90	380	390	1100
Lakenheath	EGUL	9.0K	1260	10	330	340	1010
Santa Maria	LPAZ	10.0K	150	-	-	-	950
Spangdahlem	ETAD	10.0K	-	280	50	80	1030
Torrejon	LETO	13.4K	1100	730	700	750	270

Pacific Area Divert Options

	Runway Length	Dist to Alt
From HICKAM AFB, HI:		
Barbers Point, PHNA	8K	10 W
Kaneohe Bay, PHNG	8K	15 NE
Hilo International, PHTO	9K	190 SE
Midway, PMDY	8K	1150 NW
From ELMENDORF AFB, ALASKA		
Eareckson, PASY	7K	1250 W
Eielson, PAEI	14K	220 N
Anchorage, PANC	11K	5 S
King Salmon, PAKN	8K	250 SW
McChord, KTCM	10K	1270 SE
From ANDERSEN AFB, GUAM:		
Wake, PWAK	10K	1350 E
Kadena, RODN	12K	1250 NW
Agana, PGUM	10K	15 SW
Saipan, PGSN	9K	110 NE
Chuuk, PTKK	6K	400 SE
From YOKOTA AB, JAPAN:		
Iwakuni, RJOI	8K	400 E
Kadena, RODN	12K	800 NE
Nagoya, RJNN	9K	110 SW
Misawa, RJSM	10K	320 N
Haneda Tokyo, RJTT	10K	20 SE
Osan, RKSO	9K	760 W
From KADENA AFB, JAPAN:		
Osan, RKSO	9K	700 N
Yokota, RJTY	11K	800 NE
Futenma, ROTM	9K	5 S
Naha, ROAH	10K	10 SW
Andersen, PGUA	11K	1250 SE
Iwakuni, RJOI	8K	500 N
From OSAN AB, KOREA:		
Kadena, RODN	12K	700 S
Yokota, RJTY	11K	760 E
Kunsan, RKJK	9K	80 S
Taegu, RKTN	9K	110 SE
Iwakuni, RJOI	8K	360 SE

OR USE THE FMS: Select EDIT, then WYPT, and type in any identifier.
Press the DATA button, then press the Line Select key next to the identifier.
The FMS will now display: bearing, distance, ETE and ETA to the identifier.

CENTCOM AOR Divert Table

		Distance/Mag Head to Destination Base					
Base	ICAO	Runway Length	Kuwait OKBK	Incirlik LTAG	Batman LTCJ	Bahrain OBBI	Al Udiied OTBH
Kuwait	OKBK	11483	X	786/302	626/323	227/139	304/142
Incirlik	LTAG	10000	785/123	X	277/075	1008/127	1082/128
Batman	LTCJ	10000	625/143	279/253	X	850/142	928/143
Bahrain	OBBI	12979	229/318	1010/306	850/322	X	84/142
Al Udied	OTBH	12303	306/321	1083/308	929/322	84/330	X
Prince Sultan	OEPS	X	312/001	998/318	896/335	214/049	215/071
Balad AB	ORBD	X	337/144	476/288	288/322	563/142	641/143
Baghdad	ORBI	X	308/139	489/293	320/327	535/139	612/140
Al Asad	ORAA	X	393/131	396/295	257/341	619/134	696/136

Travis Local Divert Options

Divert Base	**ICAO**	**Hours**	**OPS Freqs**
Beale AFB	KBAB	1400-0700Z Mon-Thu 1400-000Z Fri 1600-2300Z Wknd & Hol	CP 321.0 / 311.0 SOF 240.225 / 138.025
Fairchild AFB	KSKA	24 Hrs	CP 321.0 / 311.0
Edwards AFB	KEDW	1400-0600Z Wkday 1600-0000Z Sat & Hol Closed Sun	CP 304.0
Fallon NAS	KNFL	1515-0645Z Mon-Fri 1800-0200Z Sat 2000-0200Z Sun	Base Ops 238.0
Hill AFB	KHIF	1500-0500Z Mon-Thu 1500-0100Z Fri 1700-0100Z Wknd & Hol	CP 381.3
Klamath Falls Intl	KLMT	1500-0600Z	Twr 257.8 / 118.5
March Field	KRIV	1500-0700Z Clsd Hol	CP 349.4 / 311.0 138.45
McChord AFB	KTCM	24 HRS	CP 349.4
Moffett Federal Airfield	KNUQ	1430-0630Z	Base Ops 251.7
Nellis AFB	KLSV	1430-0630Z	Base Ops 372.2
Sacramento INTL	KSMF	24 HRS	Twr 125.7 / 256.7
Vandenberg AFB	KVBG	1600-0100Z Mon-Fri	CP 311.0/321.0
		All times 1hr earlier in DST	

Special Area Ops

GERMANY (ASRR and AP/2)

GENERAL ARRIVAL

- Procedures for civilian fields in Germany: Depart IAF at 210 +/-10 knots until 12nm track distance from touchdown. Then slow to 160 +/-10 (if possible) with flaps 40 to the outer marker. At outer marker, gear down & flaps landing.

GENERAL DEPARTURE

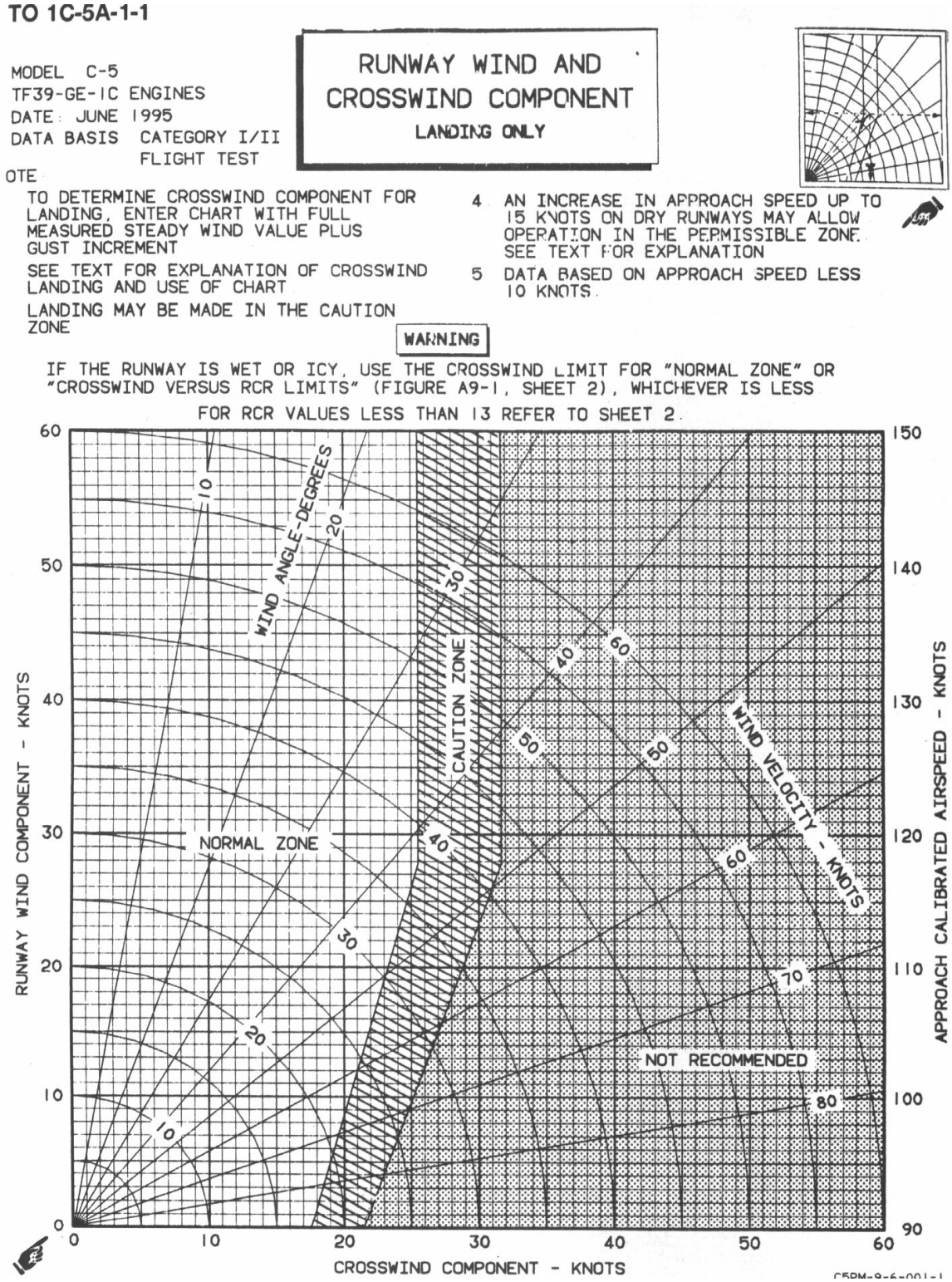
- Noise Abatement Procedures, at civilian fields
- Climb to 1500' AGL with takeoff power set
- At 1500' AGL set climb power and climb at Vmco+10 with flaps 40%
- At 3000' AGL resume normal climb schedule

SPAIN (FCG)

FILING

- Put the aircraft tail number, "SPAIN 01" and "Request OAT in Spain" in block 18 of the DD1801 flight plan.

Landing Wind Chart (1C-5A-1-1)



Emergency

Emergency and Precautionary Engine Shutdown (1C-5A-1)

EMERGENCY ENGINE SHUTDOWN

1) Engine Fire
2) Engine Flames out for unknown reason
3) Excessive Fuel Flow
4) Uncommanded TR extension
5) Visible fluids from an engine or pylon that can't be stopped
6) Engine Disintegration
7) Pylon Fire (Pylon Fire Checklist)

PRECAUTIONARY ENGINE SHUTDOWN*

1) Bleed Valve Fail to Close on Duct Overheat
2) Oil pressure high, low, zero
3) Oil temp high
4) TIT overtemp*
5) CSD fails to DISC or reconnects after DISC
6) Overheat
7) TR not locked light, unaccompanied by any other TR indication, or failure of a TR to retract
8) N1 or N2 overspeed*
9) Hydraulic overpressure
10) Excessive engine vibration
11) Nacelle bleed duct failure
12) Start valve light on open after airstart

*Note: IAW Section 3 and Section 5, allow the normal 5 minute engine cool down time at idle when conditions permit. N/A for vibrations.

Emergency Airspeeds (1C-5A-1)

Airstart without starter assist:

Below 10,000ft - 10% N2 Min
10,000 to 30,000 - 210 KCAS Min (may be attempted above)

Note: Airstart is more difficult with alternate fuels. The most favorable conditions are below 20,000 ft and greater than 210 knots.

RAT Operation of Emergency Generator and Flt Controls

RAT EXTENSION - 350 / 0.825
RAT RETRACTION - 180 / 0.45
Below 15,000 ft - 175 KIAS minimum
Above 15,000 ft - 190 KIAS minimum
Not Mod by TCTO 1C-5-736: Below 175 KIAS turn off the ISOLATED BUSSES to maintain EMER BUS elec pwr & pwr FLT CNTRLS Maintain 155 KIAS min for Flight Instrument Ops (Airstart is not available with ISO BUS switch OFF)

3-Eng Climb

Initially 250 KCAS or M.60 whichever is less. When time permits climb at:

Gross Weight	Airspeed
above 650,000 lbs	250 / M.60
550,000 lbs to 650,000 lbs	230 / M.60
450,000 lbs to 550,000 lbs	210 / M.60
below 450,000 lbs	190 / M.60

2-Eng Climb

190 KCAS or M.45 whichever is less (at all weights)

APU INLET DOORS WILL NOT CLOSE ABOVE	170
FLIGHT CONTROL POWER OFF	350 / 0.825
YAW AUG FAULTED OR INOP	300 / 0.825
YAW AUG INOP TURBULENCE PENETRATION	0.70 - 0.75 (BELOW FL310)
MAIN TANK LOW (FUEL MISMANAGEMENT)	280 / 0.825
MAIN SUMP LOW	280 / 0.825
DRIFTDOWN (2 OR 3 ENGINES AT NRT)	250 / 0.60
2 ENGINE APPROACH SPEED	CHARTED 40% Vapp
2 ENGINE APPROACH - DOWNWIND CLEAN	2 ENG Vapp + 40
2 ENGINE APPROACH - BASE LEG GEAR - DOWN FLAPS - UP	2 ENG Vapp + 40
2 ENGINE APPROACH - FAF or GS intercept FLAPS - 40%	2 ENG Vapp OR 2 ENG Vmca (Whichever is greater)
DITCHING FINAL APPROACH SPEED	Vapp - 15 OR MIN CONTROL SPEED
DITCHING TOUCHDOWN SPEED	Vapp - 20
NIGHT DITCHING APPR & TOUCHDOWN	Vapp

Emergency Electrical Power (1C-5A-1)

SEVEN BUS OPERATION *(IFR)* **(SIX BUS noted by * is not mod by TCTO 1C-5-736)**

*Emergency AC	*Emergency DC	*ISO AC	*Battery Bus
ISO DC	*Avionics ISO AC	*Avionics ISO DC	

INSTRUMENTS

*Pilot's ADI	*HSI	*VSFI	*TCAS (Pilot Only)
*Rate of Turn	*CADC	*Standby ADI	

NAVIGATION

*VOR/ILS No 1	*INS No 1 or 3	*Mag Compass
(No TACAN)	(No ADF)	

COMMUNICATIONS

*VHF No 1	*UHF No 1	*IFF

INTERPHONE

*Pilot	*Flight Engineer	
*L FWD Cargo	*Troop	*Bailout Alarm

PILOT LIGHTING

*Flood Lights	*Mag Compass	*Appr Plate Holder

ENGINE INSTRUMENTS

*N2

LANDING GEAR

Indicators (ISO DC)	Antiskid (ISO DC)	*Must button gear down

FLAPS AND SLATS

*Slats will decouple on first extension or retraction
Asymmetry detection but not protection (ISO DC)

AIR CONDITIONING AND PRESSURIZATION

*Left Pack - Manual Control	*Floor Heat (No overheat protection)

FIRE DETECTION

APU (ISO DC)	*FSS

FIRE PROTECTION

*Engine	*APU	*FSS

RAT CONTROL

*Auto	*Manual

***PILOT PITOT STATIC HEAD HEATER (No Mast)**
***ENGINE START IGNITION (Airstart)**
***MANUAL PITCH TRIM (Trigger not required)**
BRAKES ANTI-SKID PROTECTED (ISO DC)
ENGINE START IGNITION (ISO DC)
MASTER CAUTION (ISO DC)

THREE BUS OPERATION (*VFR*)

Emergency AC	Emergency DC	Battery Bus

INSTRUMENTS

Pilot's ADI	Rate of Turn	VSFI
CADC	(No HSI)	Standby ADI
No TCAS		

NAVIGATION

INS No 1 or 3	Mag Compass	
(No VOR/ILS)	(No TACAN)	(No ADF)

COMMUNICATIONS

IFF	(No Radios)	

INTERPHONE

Pilot	Flight Engineer	
Cargo	Troop	Bailout Alarm

LANDING GEAR

Valve Gear Down	(No Antiskid)	
(No Indicators)		

FLAPS AND SLATS

Slats will decouple on first extension or retraction
(No Asymmetry detection or protection)

AIR CONDITIONING AND PRESSURIZATION

Left Pack - Manual Control

FIRE PROTECTION

Engine	APU	(No FSS)

RAT CONTROL

Auto	Manual

PILOT PITOT STATIC HEAT
MANUAL TRIM
BRAKES (NO ANTI-SKID)

LOSS OF NORMAL DC POWER-DUAL TR Failure

LOSSES (NAV AC BUS 1 ENERGIZED): UHF 2, VHF 2, HF1 & 2, VHF NAV/GS2, TAC1 & 2, RIGHT PACK, ENG ANTI-ICE, WINDSHIELD HEAT, ENG FIRE DETECTION, NORMAL GEAR OPERATION, FLAP ASSYM WARNING, SLAT LIMIT DECOUPLE, TRs, CASTERING, AUTOPILOT, CP/ NAV/ JUMPSEAT INTERPHONE, COPILOT ADI / HSI ELECTRIC PITCH TRIM.

THE SECTION 3 CORRECTIVE ACTION IS TO TURN ON THE EMERGENCY GENERATOR TO RESTORE POWER TO THE ISO DC BUS AND PREVENT DEPLETION OF THE BATTERY. HOWEVER, NAV AC BUS NO. 1 WILL BE DEENERGIZED.

LOSSES (NAV AC BUS 1 DEENERGIZED): TAC 1, TAC 2, ADF 1, BDHI 1 &2, AUTOPILOT LAT AND PITCH, GO-AROUND, INS 1 & 3 CADC EXC, HSI RANGE PILOT AND COPILOT

OPERATIVE: MANUAL PITCH TRIM, P/FE/SCANNER INTERPHONE, PILOT ADI/HIS, VSFI, RUDDER TRIM, UHF1, VHF1, IFF, VHF NAV, GS1, INS1, INS 2-3 BATTERY (30 MINUTES), FD COMPUTER 1, LEFT PACK (MANUAL CONTROL), FLOOR HEAT (NO OVERHEAT PROTECTION), ENGINE FIRE PROTECTION, MANUAL GEAR OPERATION, FLAP/SLAT OPERATION, FLAP/SLAT OVERSPEED DETECTION/PROTECTION

Hydraulic Loss Guide (1C-5A-1)

Hydraulic Sys # 1
- Longer flap and slat extension times (allow twice the time)
- Marginal crosswind control at normal x-wind limits (can increase Vapp 15 kts)
- Aft MLG and NLG must be emergency extended
- Normal nose wheel steering inop - select emergency system
- Rudder pedal steering, castering, alternate brakes inop
- Loss of alternate pitch trim (no pitch autopilot)
- Wing overpressure relief
- Loss of # 1 thrust reverser

Hydraulic Sys # 2
- Normal and manual pitch trim inop - use alt trim
- Marginal crosswind control at normal x-wind limits (1/2 aileron control, reduced rudder)
- Loss of #2 thrust reverser
- Loss of RAT/ emerg gen operation

Hydraulic Sys # 3
- Reduced crosswind control at normal x-wind limits (only 1 actuator each rudder)
- Loss of #3 thrust reverser

Hydraulic Sys # 4
- Longer flap and slat extension times
- Fwd MLG must be emerg extended
- Loss of normal brakes - select alternate brakes
- Loss of #4 thrust reverser

System 1 & 2
- Secondary Climb/Dive Valve - Manual control lost
- Stabilizer Trim - Inop
- NLG and Aft MLG must be emergency extended
- Vapp (min) = Vapp(norm) + 10; Shallow descent
- Max X-Wind - Normal Zone only

System 1 & 4
- Secondary Climb/Dive Valve-Manual control lost
- Variable Feel Unit - Inop
- NLG must be emerg extended using CED Accumulator - 2500 psi
- Emerg Brakes - Select just prior to landing
- No Flap Approach
- MLG must be emerg extended / castering inop

SYSTEM	1	2	3	4
No 1 Thrust Reverser	X			
No 2 Thrust Reverser		X		
No 2 Thrust Reverser Emergency Retract	X			
No 3 Thrust Reverser			X	
No 3 Thrust Reverser Emergency Retract				X
No 4 Thrust Reverser				X
Left APU Start Accumulator	X			
Right APU Start Accumulator				X
NLG Extension and Retraction	X			
NLG Steering	NORM			EMER
Rudder Pedal Steering	X			
Aft MLG Extension and Retraction	X			
Aft MLG Rotation	NORM			ALT
Aft MLG Caster/Power Back	X			
Fwd MLG Extension and Retraction				X
Fwd MLG Rotation	ALT			NORM
MLG Brakes	ALT			NORM
Emergency Brake Accumulator				X
Aft MLG & NLG Kneeling	X			
Fwd MLG Kneeling				X
Left Aileron	X	X		
Right Aileron		X		X
LH & RH Flight Spoiler Panel No. 9	X	X		
LH & RH Flight Spoiler Panel No. 8	X		X	
LH & RH Flight Spoiler Panel No. 7		X	X	
LH & RH Flight Spoiler Panel No. 6			X	X
LH & RH Flight Spoiler Panel No. 5		X		X
Inboard Elevators		X	X	
Outboard Elevators	X		X	
Alternate Pitch Trim (Screw Actuator)	X			
Normal & Manual Pitch Trim (Nut Actuator)		X		
Variable Feel Unit	X			X
NLG Emergency Extension (Door Accumulator)				X
Fwd MLG Emergency Extension (Left APU Accum.)	X			
Aft MLG Emergency Extension (Right APU Accum.)				X
Fwd Cargo Winch	NORM			ALT
Aft Cargo Winch	ALT			NORM
Flap Drive Motor	X			X
Upper Rudder	X		X	
Lower Rudder		X	X	
Left and Right Ground Spoiler Panels	X			X
Emergency Generator		X		
Air Refueling System				X
Aft Cargo Door and Ramp System	X			
Fwd Cargo Door and Ramp System				X
Crew Entrance Door and Ladder				X
Flight Station Stair/Ladder				X
Troop Compartment Stair/Ladder	X			
Ram Air Turbine		X		
FSS Secondary Climb/Dive Valve Override	X			

Emergency Equipment Guide (1C-5A-1)

PORTABLE OXYGEN BOTTLES

- NORM: Select for all cabin altitudes up to 30,000 ft; pressure on demand
- 30M: Used from 30,000 to 42,000 ft cabin altitude; delivers slight positive pressure
- 42M: Used from 42,000 to 45,000 ft cabin altitude; delivers positive pressure
- EMER: Further increases pressure for use over 45,000 ft

FIRE EXTINGUISHERS

- Effective range for Halon 1211 fire extinguisher is 8 ft
- Ventilate area after using Halon 1211; decomposition products can be hazardous - have a sharp acrid odor

EMERGENCY ESCAPE BREATHING DEVICE

- EEBD is a 15 min, self-contained breathing unit
- Maximum operating altitude is 41,000 ft
- Check color of blue litmus paper; if paper has turned PINK, unit is not serviceable
- Airflow noise within hood indicates normal operation

EMERGENCY EXIT LIGHTS

- Batteries require 16 hours to charge but provide only 45 minutes of power
- With switch in "ARM" position, acft electrical power failure or sudden deceleration cause the lights to come on.
- Lights can be illuminated for portable use by pulling red release handle; light is turned off by stowing the handle

ESCAPE SLIDE DEPLOYMENT

- If slide case does not split and deploy normally, grasp both cables attached to the girt bar and pull sharply
- If slide fails to inflate, grasp red metal T-bar marked PULL and pull sharply
- If slide still fails to inflate, pull slide half-tie release handle
- Winds in excess of 15 MPH or running engines can cause slide to position itself at unsafe angles to the fuselage.

LIFE RAFT

To deploy the relief crew life raft accomplish the following

- Pull the escape ladder down and remove # 2 escape hatch
- Pull the automatic ejection handle (case rises up to hatch opening)
- Pull out the life raft case hold-down pin & push the container outboard

NOTE: Should the case fail to split or inflate, pull the D-ring located on the top of the case stowage platform

Equipment	Number	Equipment	Number	Equipment	Number
Oxygen Bottle	**16**	**Oxygen Recharger Hose**	**10**	**Crash Axes**	**3**
Forward FE Station	1	In Troop Compartment	2	Emerg Equip Area by FE	1
Forward Nav Station	1	Forward FE Station	1	By #5 Service Door	1
Emerg Equip Area by FE	1	Forward Nav Station	1	Troop Compartment	1
Between Bunk Rooms	1	Emerg Equip Near FE	1		
Across From #5 Service	1	Across From #5 Service	1	**Rope Ladder**	**1**
In Crew Lavatory	1	Crew Lavatory	1	Aft Courier Comp Floor	1
In Cargo Compartment	6	In Cargo Compartment	3		
In Troop Compartment	4			**Escape Slides**	**5**
				#5 Service Door	1
Exit Signs	**12**	**EEBD's**	**8**	In Troop Compartment	4
#1-2-3 L/R-4-5-6-7 L/R	9	Left of Nav Station	1		
Crew Entrance	1	Across From Crew Closet	1	**Escape Ropes**	**8**
Stairwells	2	Aft of Crew Entrance (L/R)	2	#3 L/R-4-6-Ladder	5
		Forward of Troop Doors (7L/7R)	2	Cargo Comp (7L/R, CED)	3
Fire Extinguishers	**15A/17B**	Troop Comp (Aft LM seats)	2		
Emerg Equip Area by FE	1			**First Aid Kits**	**22**
Relief Crew Coat Closet	1	**Escape Descent Reels**	**24**	Emerg Equip Area by FE	2
Relief Crew Bag Comp	1	Pilot's Window	1	By #5 Service Door	2
By Courier Coat Closet	1	Copilot's Window	1	By Courier Coat Closet	1
Cargo Compartment	6A/8B	#1 Escape Hatch	7	Troop Compartment	15
Troop Compartment	5	#2 Escape Hatch	15		

Air Refueling

Mission Planning & Required Equipment

- Check the weather on track
  - Must have at least 1NM visibility, 2NM for any tanker cell
  - You can launch with moderate turbulence predicted on track but discontinue if encountered while refueling.
  - Do not launch when severe turbulence is predicted on track.
- Confirm ALTRV details if necessary
- Check planned formating altitude against capabilities, check for formating ability in a turn
- Determine required takeoff time

Primary means of identification:
- WX Radar with beacon
- Air to air TACAN

Secondary aids:
- INS
- Radial/DME from a common navaid
- UHF/DF Steer
- ATC vectors if within radar contact
- TCAS

Sequence of Events

45 min prior:
FE computes the fuel onload requirement (Block 14 & 52)

30 min prior:
Monitor AR primary frequency and HF 6761 (Tanker Common)
Tanker radar beacon will be on in EMCON 1 (identify tanker as soon as possible)

15 min prior:
Change TACAN to Air to Air mode (AATR, Lower number and channel Y)
CAT radio call (Callsign, Altitude and Timing early or late)
Note: If not at the proper altitude, call when you are

10 min prior:
If there has been no radio contact, tanker transmits initial information in the blind and will be over the ARCP at ARCT. Tanker will cycle beacon 15sec on and 15sec off, for one minute

Prior to the ARIP:
Complete the rendezvous checklist (Prior to descent, NLT ARIP)
Obtain clearance in the block altitude, unless on an ALTRV
Be cleared to the AR frequency
Positively identified the tanker
Confirm that the tanker has accepted MARSA.

Inbound to the ARCP:

Determine tanker turn range and offset.
Skin Paint the tanker within 25 miles.
Accomplish the precontact check before 1/2 mile.
Determine as early as possible if overrun procedures will be needed.

RADAR TILT TECHNIQUES

Technique 1: Altitude difference in 100's / DME = Tilt in degrees
EX: You are a receiver at FL250. Your tanker is at FL260.
Your A/A TAC says 2.0 DME. 1000ft alt difference / 100 = 10;
10 / 2.0 = 5 degrees up tilt

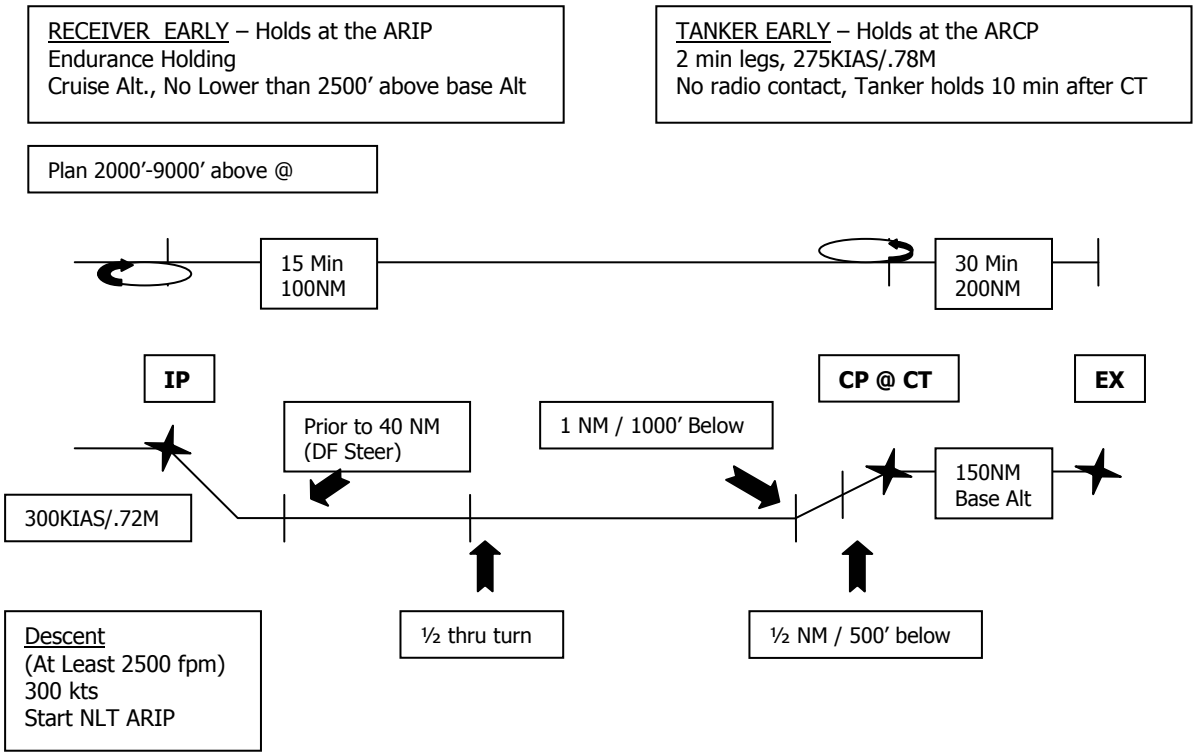
Technique 2: DME + Tilt required = 8

TANKER LIGHTING

One Tanker
Flash Red/White on both upper and lower beacons

Tanker cells:

#1	R over R
#2	W over W
#3	R/W over R/W (or R over W)
#4	W over R



EMCON Procedures

Item	Action	1	2	3	4
1	RADIOS SET 30 MINUTES PRIOR TO ARCT (IF DUAL RADIO CAPABLE)	X	X	*	**
2	15 MINUTE CALL	X	X		
3	A/A TACAN SET 15 MIN PRIOR TO ARCT	X	X	#	
4	BEACON POSITIVE IDENTIFICATION (IF APPLICABLE)	X			
5	ADF CHECK (IF APPLICABLE)	X			
6	1/2 WAY THRU THE TURN CALL (TANKER)	X			
7	MANDATORY BOOM OPERATOR CALLS A. PRECONTACT CALL B. CLEAR RECEIVER TO CONTACT C. ACKNOWLEDGE CONTACT / DISCONNECT D. VERBAL CORRECTIONS E. ADVISE RECEIVERS TO RETURN TO PRECONTACT FOR CHECKLIST OR EQUIPMENT CONSIDERATIONS	X X X X X X	 X		
8	MANDATORY RECEIVER CALL AFTER 15 MIN CALL A. VISUAL CONTACT ESTABLISHED / LOST TO INCLUDE OVERRUN B. PRECONTACT CALL C. WHEN CONTACT OR DISCONNECT IS MADE D. VERBALLY NOTIFY BOOM OPERATOR PRIOR TO MANUAL / EMERGENCY BOOM LATCHING PROCEDURES	 X X X X	 X		
9	POST AIR REFUELING REPORT	X	X		
10	1 MILE CLOSURE CALL (RECEIVER)	X			

***** Radio silent. Use of other emitters is authorized unless prohibited by Supported Operations Plans (SOP).

****** No emissions (radios, beacon, navigation transmitters, radar, IFF, exterior lighting etc.) unless authorized by Air Tasking Order, Rules of Engagement, Operations Plans, Safe Passage Procedures, or other mission directives.

Point Parallel only.

Note: Variations may be authorized. For example, "EMCON 2. Item 7a/8b. COMM N/A." This means use normal Emission Option 2 procedures except the precontact call is deleted (as directed by scheduling, FRAG, an ATO, etc.).

Considerations:

1. EMCON 1 - (T.O. 1-1C-1)
   Used for initial training, re-qualification training, difference training. Reference attached chart; mandatory calls, and emitters.
2. EMCON 2- (T.O. 1-1C-1) Restricted Communications
   Used for standard air refueling operations. (If not specified on schedule, use EMCON 2 procedures).
3. EMCON 3 - (T.O. 1-C-1) (Communications out).
   A. Point Parallel Rendezvous considerations.
      1) Used for exercises and operational sorties only.

2) Turn on BCN and A/A TACAN 15 min prior to ARCT and have receiver turn on A/A at ARIP, or no later than 15 min prior to CT.
3) If not at RNDV altitude do not conduct point parallel RNDV. Do not cross ARIP (Receiver) inbound if you must descend to reach rendezvous altitude. Do not turn towards receiver if you must climb to reach RNDV altitude (Tanker).

B. Enroute Rendezvous Considerations.
1) Both A/C be at ARIP/RZ at the RZ time.
2) Do not accomplish rendezvous if not at rendezvous altitude.
3) Set rendezvous equipment no later than 15 minutes prior to rendezvous time.
4) Plan inbound track to RZ point so that both tanker and receiver cross RZ point with turn of 30 degrees or less down track.
5) Determine a radio silent termination time in the event of a missed rendezvous.

4. EMCON 4 - (T.O. 1-1C-1)
Use only when tasked by higher headquarters. Extensive briefing and pre coordination is required.

Airspeed & Boom Limits

BOOM LIMITS

	KC-135	**KC-10**
AZIMUTH	10° LEFT / RIGHT	21° LEFT / RIGHT
ELEVATION	20° UP / 40° DOWN	20° UP / 40° DOWN
INNER	6 FEET	6 FEET
OUTER	18 FEET	21 FEET

AIRSPEEDS

	KC-135	**KC-10**
Contact	252 KCAS / 0.62M	275 KCAS / 0.66M
1/2 NM	270 KCAS / 0.65M	290 KCAS / 0.70M
1 NM	280-300 KCAS / 0.72M	300 KCAS / 0.72M
> 1 NM	325 KCAS	325 KCAS
Adj AR Speed	≤ 265 KCAS / 0.64M	≤ 300 KCAS / 0.77M

AR Flight Plan / Fuel Card

	DEPARTURE TO AR #1			
	LO. ALT **AMCPAM 11-2**	T/O FUEL **Start with CFP Load**		FCST TD CFP
	TAKEOFF GROSS WEIGHT **OP WT + CARGO + T/O FUEL**		ENDURANCE **Normal Endurance AMCPAM 11-2**	
No	ITEM	TIME	FUEL	GROSS WEIGHT
1	EN ROUTE TO ARCP 1 / PAGE	CFP		
2	RESERVE	CFP		
3	(1 + 2) EN ROUTE + RESERVE	CFP	AMCPAM 11-2	**TO GW - #3 FUEL**
4	AIR DIST ____CFP___ RECOVERY **Use Enroute Chart**	**From ARCP to BINGO to "Begin Descent Point"**	**Use recovery FL chart: -20min; + 5K**	**#3 GW - #4 FUEL**
5	HOLDING AT __CFP___	+45 (1+15)	AMCPAM 11-2	
6	DESCENT/APP AND LANDING	CFP	7.0	
7	(3 + 4 + 5 + 6) SUB TOTAL	CFP	**#3 + #4 + #5 + #6**	
8	IDENTIFIED EXTRA		AFI 11-2C-5V3 Ch 15	
9	(7 + 8) TOTAL TAKEOFF	CFP	**#7 + #8**	
10	TAXI		3.0	
11	(9 + 10) REQUIRED RAMP		**#9 + #10**	
12	ACTUAL RAMP		S/E	
13	(12 - 11) STORED FUEL		**#12 - #11**	
14	(4 + 5 + 6) REQUIRED AT ARCP	CFP	**#4 + #5 + #6**	
15	MAX FORM ALT **AMCPAM 11-2 KC-135 = 150 KC-10 = 400**	REF ALT **The altitude at which the tanker will offload gas**		AVG (3 & CFP) **(#3 GW + End AR GW) / 2**
	MIN **ARCP to EXIT**	PPM X **Back of AMC FORM 160 =**	FUEL _____	

	ITEM	FUEL ON BOARD	GROSS WEIGHT
16	TAKEOFF	**Ramp Fuel - 3.0**	**Ramp - 3.0**
17	(3 + 8 + 15) BURNOFF TO EXIT 1	**#3 + #8 + #15**	**#16 GW - #17 FUEL**
18	(16 - 17) AT EXIT W/O TRANSFER	**#16 - #17**	
19	PLANNED TRANSFER	**From Mission Directive/Setup**	
20	(18 + 19) AFTER TRANSFER	**#18 + #19**	PLANNED/ACT **#17 GW + #19 FUEL**

	Blocks can be pulled directly from Comp Flt Plan
	Blocks not required to be filled in
	AMCPAM 11-2 Chart
	Requires non-standard calculation

No	AR #1 EXIT TO AR2 (When Applicable)				
21	EXIT GWT **#20 GW**	CHG IN FL **RZ Alt to LO**	CLIMB FUEL **3.0**	LO FUEL **#20 Fuel -3.0**	TEMP DEV CFP
	HIGHEST ACC FLT LVL **AMCPAM 11-2 p 9**	LVL OFF ALT **S/E**	LVL OFF GWT **#21 Exit GW - 3.0**	TEMP DEV CFP	ENDURANCE **USE LO GW, FUEL & TD ADD +20**

	ITEM		TIME	FUEL	GROSS WEIGHT
22	EN ROUTE TO ARCP 2	PAGE	CFP		
23	RESERVE		CFP		
24	(22 + 23) EN ROUTE + RESERVE		CFP	**AMCPAM 11-2 - 20 Mins**	**LO GW - #24 FUEL**
25	CLIMB FUEL			**3.0**	
26	AIR DIST ____CFP___ RECOVERY **Use Enroute Chart**		**From ARCP to BINGO to "Begin Descent Point"**	**Use recovery FL chart: -20 min; + 5K**	**#24 GW - #25 - #26 FUEL**
27	HOLDING AT __CFP___		+45 (1+15)	AMCPAM 11-2	
28	DESCENT/APP AND LANDING		CFP	**7.0**	
29	(24 + 25 + 26 + 27 + 28) SUB TOTAL		CFP	**#24 + #25 + #26 + #27 + #28**	
30	IDENTIFIED EXTRA			AFI 11-2C-5V3 Ch 15	
31	(29 + 30) REQUIRED AT EXIT			**#29 + #30**	
32	(20) PLANNED AT EXIT			**#20**	
33	ACTUAL AT EXIT				
34	(32 - 31) STORED FUEL **Compute after AR #1**			**#32 - #31**	
35	(26 + 27 + 28) REQUIRED AT ARCP 2		CFP	**#26 + #27 + #28**	
36	MAX FORM ALT **AMCPAM 11-2 KC-135 = 150 KC-10 = 400**		REF ALT **The altitude at which the tanker will offload gas**		AVG (24 & CFP) **(#24 GW + End AR2_GW) 2**
	MIN **ARCP to EXIT**	PPM **X Back of AMC FORM 160 =**		FUEL _____	

	ITEM	FUEL ON BOARD	GROSS WEIGHT
37	AFTER TRANSFER 1	**#20 FUEL**	**#20 GW**
38	(24 + 25 + 30 + 36) BURNOFF TO EXIT 2	**#24 + #25 + #30 + #36**	**#37 GW - #38 FUEL**
39	(37 - 38) AT EXIT W/O TRANSFER	**#37 - #38**	
40	PLANNED TRANSFER	**From Mission Directive/Setup**	
41	(39 + 40) AFTER TRANSFER	**#39 + #40**	PLANNED/ACT **#38 GW + #40 FUEL**

Blocks can be pulled directly from Comp Flt Plan
Blocks not required to be filled in
AMCPAM 11-2 Chart
Requires non-standard calculation

No	AR EXIT TO DESTINATION				
42	EXIT GWT **#20 GW**	CHG IN FL **RZ Alt to LO**	CLIMB FUEL **3.0**	LO FUEL **#20 or #41 Fuel -3.0**	TEMP DEV CFP
	HIGHEST ACC FLT LVL **AMCPAM 11-2 p 9**	LVL OFF ALT **S/E**	LVL OFF GWT **#42 Exit GW - 3.0**	TEMP DEV CFP	ENDURANCE **USE LO GW, FUEL & TD ADD +20**

	ITEM	TIME	FUEL	GROSS WEIGHT
43	EN ROUTE TO OH/BDP PAGE	CFP		
44	RESERVE	CFP		
45	(43 + 44) EN ROUTE TO OH/BDP + RESERVE	CFP	**AMCPAM 11-2 - 20 Mins**	**LO GW - #45 FUEL**
46	CLIMB FUEL		**3.0**	
47	AIR DIST ____CFP___ ALTERNATE & MISSED APP (Use normal chart)	CFP	**AMCPAM 11-2**	**#45 GW - #47 FUEL**
48	HOLDING AT ____CFP___	+45 (1+15)	**AMCPAM 11-2**	
49	DESCENT/APP AND LANDING	CFP	**7.0**	
50	(45 + 46 + 47 + 48 + 49) SUB TOTAL	CFP	**#45 + #46 + #47 + #48 + #49**	
51A	IDENTIFIED EXTRA		AFI 11-2C-5V3 Ch 15	
51B	STORED FUEL			
52	(50 + 51A + 51B) REQUIRED AT EXIT		**#50 + #51A + #51B**	
53	(20 or 41) PLANNED AT EXIT		**#20 OR #41 FUEL**	
54	ACTUAL AT EXIT			
55	(53 - 52) UNIDENTIFIED EXTRA		**#53 - #52**	
56	(47 + 48 + 49) REQUIRED AT DEST	CFP	**#47 + #48 + #49**	
57	(45 + 46 + 49 + 51A) BURNOFF TO DEST		**#45 + #46 + #49 + #51A**	
58	(20 OR 41 -57) LANDING FUEL		**#20 OR #41 FUEL - #57 FUEL**	

NAME	DATE		OPERATING WEIGHT
AIRCRAFT NUMBER	MISSION NUMBER		CARG0/PASSENGER WT.
CFP NO. AND PROFILE	TIME WINDS VALID		RAMP FUEL
DEPARTURE	DESTINATION		RAMP WEIGHT
LO. TEMP DEV CFP	**Highest Acceptable FL AMCPAM 11-2**	TAKEOFF FUEL	TAKEOFF WEIGHT

	Blocks can be pulled directly from Comp Flt Plan
	Blocks not required to be filled in
	AMCPAM 11-2 Chart
	Requires non-standard calculation

Systems

Landing Gear

Gear Handle = #1 Main DC
Emergency Extend Switch = #2 Main DC

			NORM HYDR SYS	ALT HYDR SYS	ELEC MOTORS	
	NOSE		#1	# 4 CED ACC	FWD AC MAIN # 2	
LEFT FMLG 1 Bogie		RIGHT FMLG 2 Bogie	#4	#1 L APU ACC	1 Bogie MAIN AC #1	2 Bogie MAIN AC #2
LEFT AMLG 3 Bogie		RIGHT AMLG 4 Bogie	#1	#4 R APU ACC	3 Bogie MAIN AC #3	4 Bogie MAIN AC #4

NOTES: Landing gear position indicators and landing gear warning horn - 28V isolated DC. In the absence of #1 Main C - solenoid valves can be actuated manually.
BRAKES: NORMAL BRAKES - HYDR SYS #4 thru the fwd gear down rotate line
ALT BRAKES - HYDR SYS #1 thru the aft gear down rotate line
WARNING: Normal and/or alternate brakes not available if Landing Gear Emergency Extend Switch is left in EXTEND (normal extension hydraulics is isolated)
EXAMPLE: L FMLG emergency extend switch in emergency extend AND normal brakes selected. **Result:** No brakes on left side! **Action:** Close extend switch OR select ALT Brakes.

Tire numbering:

```
          A
        1   2
  C  B          B  C
  1  2          1  2
```

NORMAL MLG RETRACTION

1. Gear handle placed UP
2. Wheel Spin-Up detection unit monitors the Wheel Speed detector on one of the forward wheels [1A2, 2A1, 3A1, and 4A2]
3. Anti-rotation brake valve sends reduced hydraulic pressure from the No. 4 hydraulic system through the 7 port valve and stops the wheels from spinning. May take 5 secs to generate a spin-down signal
4. Once the wheels stop spinning, hydraulic pressure is applied to the unlock side of the normal collar lock actuator which unlocks the collar lock.
   a) "RED WHEELS" as soon as the collar lock moves out the locked position.
5. A striker on the collar positions a plunger on the sequence interlock valve to start the gear rotation.
6. When the sequence interlock valve is positioned, hydraulic fluid is ported to the normal bogie rotation actuator. This causes the bogie to start rotating inboard.
7. MLG is rotated so the 90 deg position switch located on the end of the bogie rotation actuator makes contact, putting the MLG in the proper position to be retracted.

8. Gear-up valve is energized to allow hydraulic fluid to flow to the gear door locks "unlock" side and to unlock the gear down lock.
   a) "INTRANSIT" when hyd press move the downlock from the locked position.
9. After overcoming a restrictor (allows the downlock to unlock before hydraulic motors start to drive the gear up), hydraulic pressure powers two hydraulic gear motors thus retracting the gear inboard and up. As the MLG start up, a bogie positioner maintains the bogie perpendicular to the shock strut.
10. Front wheels enter the wheel well; Guide rollers between the two front wheels contact the track.
11. The "bogie pitch positioner unlock roller" contacts the ramping track causing the "bogie pitch positioner stop" to retract which allows the bogie to pivot to a nearly flat position in the wheel well.
12. Door mechanical linkages close gear doors and door lock valves are positioned, causing door lock cylinders to lock.
    a) Get an "UP" indication when door locks are locked.

NORMAL NLG RETRACTION

1. Gear handle placed "UP"
2. Power is removed from the following solenoids: DOOR OPEN, DOOR UNLOCK and NLG DOWNLOCK LOCKED.
3. Door operate valve is held open by an internal detent uplock; Hydraulic pressure from door operate valve passes through door unlock valve, keeping doors unlocked.
4. NLG downlock locked valve routes hydraulic pressure (which was holding downlock locked) to the return line.
5. NLG retract only valve is positioned causing the following events to occur:
   a) NLG downlock unlocks
   b) Get a "RED WHEELS" indication as soon as downlock is unlocked
   c) Brake on the NLG hydraulic actuator motor releases
   d) NLG retracts
6. As NLG retracts, hyd press that unlocked the downlock is prepared to lock the uplock.
   a) Downlock and uplock are actually the same unit - has a dual locking function
7. When the NLG is fully retracted, NLG uplock locks
   a) Uplock switch sends a signal to deenergize the NLG retract only solenoid
8. Power is removed from NLG retract only solenoid and the spring loaded retract valve moves to route hydraulic pressure to return lines.
9. Door close port of NLG door operate valve routes hydraulic pressure to NLG door hydraulic actuator, closing doors.
   a) Each door has its own door open sensor and target
   b) Get an "INTRANSIT" indication when first sensor and target separate
10. When all four door closed sensors and targets make contact, doors are in position to be locked; NLG door lock valve is opened, routing hydraulic pressure to door lock actuators
11. Get an "UP" indication when all door close relays and door lock relays are in the closed and locked position respectively

LANDING GEAR POSITION INDICATORS

Nose Gear

- UP = all doors closed and door lock relays are in the locked position
- INTRANSIT = Doors unlocked & not fully open
- RED WHEELS = Doors fully open, gear not down
- GREEN WHEELS = Gear down & locked

Main Gear

- UP = gear is up and door closed & door locked relays in locked position
- INTRANSIT = gear is in transit from up or down position
- RED WHEELS = gear down, side brace locked, positioning collar disengaged
- GREEN WHEELS = gear down, positioning collar engaged

LANDING GEAR WARNING LIGHT

- Gear Lever Up - any nose or main gear door locks are not in the locked position
- Gear Lever DOWN - the NLG is not down/locked or any MLG positioning collars are not engaged

LANDING GEAR WARNING HORN

- Flaps extended beyond 80% & NLG not down/locked or any MLG collar locks disengaged

Airspeed < 200 Kts and any throttle below min cruise, ADS switch in SAFE, and NLG not down or any MLG positioning collars not engaged

Brakes

NORMAL BRAKES: HYDRAULIC SYSTEM 4
ALTERNATE BRAKES: HYDRAULIC SYSTEM 1
EMERGENCY BRAKES: EMERGENCY BRAKE ACCUMULATOR

EMERGENCY BRAKES

- Approximately 3 full brake applications with a fully charged accumulator
- 1 full brake application with 1000 PSI pressure
- With a loss of system 1 and system 4, DO NOT accomplish the INFLIGHT BRAKE SYSTEM CHECK. This will deplete the Emergency Accumulator
- Anti-Skid protection available only with NORMAL or ALTERNATE brakes selected

ANTI-SKID OFF Light (ISO DC) (REASONS FOR ILLUMINATION):

- ANTI-SKID Switch - OFF
- BRAKE Switch - EMER
- ANTI-SKID Switch - TEST ARM and TEST 3 pushbutton - DEPRESSED
- ANTI-SKID Switch - ON and an overvoltage condition exists
- Loss of the two electrical power sources to the Anti-Skid Control Box

DET FAILED Light (ISO DC) (REASONS FOR ILLUMINATION)

- **Refer to the FCB for guidance for the 4 different scenarios:**
- Take-off continued
- Take-off aborted
- Full-stop landings
- Touch-and-go landings

BRAKES Light (MAIN DC#1):

- All brakes receiving pressure
- 1300 PSI in accumulator minimum

NO BRAKES Light (MAIN DC #1):

- No brakes are receiving pressure

EMER HYD LIGHT (ISO DC):

- BRAKE SUP selector switch - EMER
- Pressure from Emergency Accumulator is providing a minimum of 1300 PSI
- Light receives signal from pressure switch installed in supply line downstream of the emergency system shut-off valve

PARTIAL BRAKES OPERATION
- Permitted only to return an airplane to a base with repair capability
- Anti-skid must be operable
- If a leak exists, the brake lines must be capped IAW TO 1C-5A-2-10
- The following configurations are permitted:
    - Any 1 pair of brakes inop (22 op)
    - Any 1 pair of brakes on each side of airplane inoperative (20 op)
    - Any 1 pair of brakes on each side and 2 pair on the other side inop (18 op)
    - Any bogie with all brakes inop (18 op)
    - 2 fwd or 2 aft bogies with all brake inop (12 op)
- Allow 2 min for wheel spin-down prior to retracting landing gear
- Check CFL, refusal speed, Vbmax

ANTI-SKID INOPERATIVE PROCEDURES
- Permitted only with MAJCOM approval to return aircraft to a base with maintenance capability
- After landing, apply brakes gradually until a decelerating force is felt and steady brake pedal pressure is maintained
- Refer to TO 1C-5A-1-1 for performance data with anti-skid inoperative

ANTI-SKID SYSTEM FAILURES
- If one or more pair of brakes are not capable of being protected, leave Anti-Skid system OFF and avoid excessive braking
- Check number of brakes that are free-wheeling
    - More than 6 pairs free-wheeling - Leave Anti-Skid OFF
    - More than 4 pairs free-wheeling one side - Leave Anti-Skid OFF

Flaps and Slats

MECHANICAL FAILURE
- Broken flap cable: Shut off hydraulic pressure to flaps
- Flap cable tension detector switch: Shut off hydraulic pressure to flaps
- Torque limiter lockout:
    - Reset by reversing flap movement
    - If they don't reset, place flap handle to corresponding flap position and adjust airspeed accordingly

LOSS OF ELECTRICAL POWER
- Slats will overextend/retract and decouple
- Lose flap/slat asymmetry protection
- Move flap handle in small increments to prevent roll control problems in event of asymmetrical extension/retraction

ASYMMETRIC FLAPS
- Indications:
    - Flaps stop before reaching selected position
    - TE FLAP BRAKE light on
    - TE FLAP ASYMMETRY light on

ASYMMETRIC SLATS
- Indications
    - Slats stop before reaching commanded position
    - LE SLAT BRAKE light on
    - LE SLAT ASYMMETRY light on
    - SLAT-FLAP SYNC light on

SLAT-FLAP SYNC LIGHT
- Slats did not fully extend before flaps reached 40% or,
- Comes on approximately 10 seconds after flaps are fully retracted if slats are not fully retracted

LE SLAT BRAKE Light only (No LE SLAT ASYMMETRY light on)
- Indicates slat torque tube brake engaged due to either:
  - Flap/slat decouple or,
  - Torque tube overspeed

Cold Weather Ops

****NO FLT THRU KNOWN/FORECAST SEVERE ICING! ****
****NO FLT THRU FREEZING DRIZZLE, LIGHT FREEZING RAIN OR FREEZING RAIN ****

EXTERIOR PREFLIGHT
1) Get personnel out to the aircraft and begin to warm up the compartments as soon as possible.
2) Look for snow and ice on A/C wings, flight controls, tail, stab, and gear.
3) Gear chocked front and back of nose gear.

INTERIOR
1) Do not check oxygen prior to warming up the cargo compartment. Failure to comply could cause respiratory damage.
2) Make sure all instruments have warmed up sufficiently to ensure normal operations.

DEICING
1) Do not use deicing fluid with alcohol if possible.
2) Put stab trim full nose down, retract flaps and slats if possible, ailerons & rudder neutral.
3) Avoid the spraying of de-ice fluid on plastic, Plexiglas or in the APU or engine inlets.
4) Plan departure sequence to allow for extra time (1/2 hour as a technique) for the deicing.
5) Takeoff will be made as soon as possible after application of deicing fluid.
6) Heat bogie pitch unlock cylinders.

BEFORE STARTING ENGINES
1) Windshield heat control system will not work automatically if windshield temp below -40° C. The COLD START switch must be used to raise temp of glass to operating range.

STARTING ENGINES
2) Indicated oil pressure will rise rapidly to the normal operating range and may exceed 100 PSI when starting a cold-soaked engine during very cold weather (-25° F and below), shutdown immediately if pressure drops to 0.
3) The throttle should remain at "Idle" until the oil pressure is within normal operating range.
4) In the event an engine experiences a "hung" start, attempt to correct the difficulty by application of external heat to the fuel control. Reference FCB.
5) If icing conditions are present, turn on engine anti-icing immediately after each engine start.
6) If ice buildups are noted or suspected with the nacelle and engine anti-icing system operating, momentarily advance the engines symmetrically to 90 percent N1 every 5 minutes in order to prevent potentially dangerous ice accretions on unheated engine surface.

TAXI
1) If icing conditions are expected prior to establishing climb power, turn on AI prior to taxi.
2) Use caution with thrust to prevent slush/snow blast damage.
3) Slow taxi speed for turns 5 knots or less.
4) Nose wheel steering must be used with extreme care and combined with differential thrust and braking or nose wheel skidding will occur.
5) Significant increases in turning radius must be expected when taxiing on ice or snow covered surfaces.
6) Exercise flight controls frequently to check movement. CHECK SPOILER OPERATION!

TAKEOFF

1) **Takeoff in freezing rain, light freezing rain, and freezing drizzle is prohibited**.
2) **A final visual check of the surfaces will be made within 5 minutes of take-off** (-1)
3) Unless airplane performance dictates otherwise, a rolling take-off should be planned. If standing take-off procedures are used and skidding occurs prior to obtaining take-off power, the take-off shall be aborted.
4) Do not take off if snow and ice cannot be removed to within the limits of, 1/2 inch wet snow/slush or 3 inches dry snow.
5) Landing gear retraction time will be longer after 6 hours or more exposure to ground temps below -25°F/-32°C. The MLG retraction time may be as much as 40 seconds, and the NLG may require as much as 2 minutes.
6) To ensure adequate clearance, remember to include the two minutes the gear will remain extended for slush and snow clearing, add the obstacle height correction in TO 1C-5A-1-1.
7) Reduced RCR/RSC will effect: CFL, CEFS, VR, VMCG.

DESCENT

1) Turn on continuous ignition in heavy precipitation.
2) If icing conditions are expected during the descent, turn on the engine anti-ice system at least 10,000ft above the highest icing level to provide adequate warm-up time. If ice accumulates during descent, if possible, request vectors to preclude shedding ice over densely populated areas.
3) Do not extend the thrust reversers in icing conditions.

LANDING

1) If ice is known or suspected to be on the wing or horizontal tail during landing, the approach speeds should be increased 5 knots.
2) When the center of gravity is forward of 23 percent MAC, landings must be made with no more than 62.5 percent flaps.
3) If a landing must be made on a wet or icy runway, refer to TO 1C-5A-1-1 for landing ground roll distances, using applicable RCR to ensure that adequate stopping distance will be available after touchdown.
4) On runways where normal traction is reduced by moisture, ice, or snow, the airplane will not respond as readily to normal turning forces. Therefore, if any steering corrections are necessary, small nose gear steering movements should be made to produce the best results.

PARKING

1) Parking brake should be off.
2) Move flaps/slats to UP/Retract to prevent entry of snow, sleet, ice, etc.
3) A fan blade inspection is req'd after engine icing

Hot Weather Ops

EXTERIOR PREFLIGHT

1) Check and clean struts

TAXI

1) Use Brakes as little as possible
2) Beware of blowing sand/dust from engine
3) Keep outboard engines at idle if possible

BEFORE TAKEOFF

1) Line up – beware of generating giant dust clouds over approach end of runway

TAKEOFF

1) Strict adherence to takeoff and climb out airspeeds because of performance decrease required

CLIMB

1) Rate of climb will be less than normal

LANDING

1) Anticipate longer ground rolls
2) Don't attempt approaches at less than recommend approach speed over the end of the overrun.
3) Use care during braking to avoid overheating the brakes

ENGINE SHUTDOWN

1) Use chocks ASAP to release brake to aid in brake cooling

MWS/CMDS

MDF 5116 (MDF 5115 is old) – Program loaded in CMDS is found in front of 781

Manual Programs	Auto Programs
1) Evade MJU-10/7	1) Evade MJU-10/7
2) Preemptive	2) Evade MJU-10/7
3) Reactive MJU-10/7	3) Reactive MJU-10/7
4) Dispense Test	4) Reactive MJU-10/7

Manual Program 1 – This is an evade program that uses one reactive dispense followed by a post emptive flare dispense of MJU-7 flares. If no MJU-7s are loaded in the nose position and MJU-10s are loaded, then MJU-10s will replace the MJU-7s that are dispensed at 25ms LN and 30 ms RN only. There will be no post emptive/preemptive dispensing.

Manual Program 2 – This is a preemptive program that dispenses MJU-7 flares.

Manual Program 3 – This is a reactive program using MJU-10/7 flares. If no MJU-7s are loaded in the nose position and MJU-10s are loaded, then MJU-10s will replace the MJU-7s that are dispensed at 25ms LN and 30 ms RN only.

Manual Program 4 – This is a dispense test that dispenses one MJU-7 flare from any magazine.

Auto Program 1 – This is an evade program that uses one reactive dispense followed by a postemptive flare dispense of MJU-7 flares. If no MJU-7s are loaded in the nose position and MJU-10s are loaded, then MJU-10s will replace the MJU-7s that are dispensed at 25ms LN and 30 ms RN only. There will be no post emptive/preemptive dispensing.

Auto Program 2 – Same as Auto Program 1.

Auto Program 3 – This is a reactive program using MJU-10/7 flares. If no MJU-7s are loaded in the nose position and MJU-10s are loaded, then MJU-10s will replace the MJU-7s that are dispensed at 25ms LN and 30 ms RN only.

Auto Program 4 – Same as Auto Program 3.

NOTE: Auto programs and Manual programs are selected using the PGRM switch. Using the Manual trigger with the program switch in Auto will result in the Manual program being dispensed.

Recommended Settings

1) AAR-47 MWS – ON
2) ALE-47 MWS Switch – ON
3) "01", "02" Switches- OFF
4) "FL" Switch – ON
5) "CH" Switch – ON
6) MODE – AUTO
7) PGRM – Theater Directed.

FMS Techniques

- DURING THE FMS STARTUP, ENSURE THAT ON THE FMS START PAGE THE "*" SYMBOL IS **NOT** DISPLAYED NEXT TO FREEZE.
- IT TAKES **30 MINUTES** TO BUILD THE KALMAN FILTER ON THE GROUND FROM INITIAL START-UP; **15 MINUTES** IN THE AIR.
- KNOWN METHODS OF **RESETTING** THE FILTER ARE: SELECTING INAV RESET UNDER THE APPROPRIATE INTEGRATED INAV PAGE, SWITCHING TO AND FROM INS # 3, POWER INTERRUPTION TO BSIU 1 OR 2.
- IT'S MORE ACCURATE TO NAVIGATE OFF THE INTEGRATED SOLUTION (i.e. INU1/---) THAN TO USE THE INU BY ITSELF. THE KALMAN FILTER WILL MATHEMATICALLY PROVIDE A MORE ACCURATE NAV SOLUTION FOR **5** HOURS. WHEN THE GPS SIGNAL IS LOST FOLLOW THESE STEPS IN ORDER:
  1. TRY SWITCHING THE GPS (IDX / NAV CONFIGURATION).
  2. ENSURE THE GPS USE/OUT LINE ON THE INAV INTEGRATED SOLUTION IS"USE".
  3. DO NOT RESET THE KALMAN FILTER.
  4. NAVIGATE ON INU1/--- OR INU2/---.
  5. CONTINUALLY CHECK THE ACCURACY OF THE INUs ON THE INAV PAGE.
  6. IF THE INU 1 OR 2 IS LOST OR THE INTEGRATED SOLUTION IS UNRELIABLE, SELECT A RELIABLE INU FOR NAVIGATION.
  7. IF TRIPLE MIX IS USED, ENSURE THE GPS IS PLACED TO "OUT" ON THE INAV INTEGRATED SOLUTION PAGE.
- IF THE STEERING PAGE DISPLAYS "***" NEXT TO GROUND SPEED OR THE OTHER LINES DISPLAY "------" THEN TRY THE **INAV RESET**.
- DO NOT USE TRIPLE MIX WITH THE INU/GPS SOLUTIONS.
- IF BOTH HSIs DISPLAY NAV FLAGS WHEN IN I-NAV MODE REFER TO THE -1.
- IF ALL CDUs ARE UNRESPONSIVE AND INSTRUMENTS DRIFT (FMS MIL-STD 1553 BUS LOCK) COMPLETE THE FMS BUS LOCK PROCEDURE IN THE -1 SECTION 3.

INS (1C-5A-1)

INS OPERATION:

- INS will not turn on unless both battery unit power and primary power are available
  - Can operate on either power after being turned on
- After turning MSU switch to STBY, ALIGN or NAV, INS FAN annunciator light should go out within 30 secs
  - If not, turn INS off
- When operating on Emergency Generator power, the INS selected by the pilot receives power from the Emergency Generator. The other INSs are powered by their battery and should operate for a minimum of 30 minutes

MSU Selector Unit (MSU)

STBY	Turns on computer, provides auto shutdown for overtemp
ALIGN	Starts alignment, provides auto shutdown for overtemp
NAV	Ready to navigate and move airplane
ATT	Only provides attitude info, computer off, alignment is lost; Only BAT and WARN lights operate in ATT mode
BAT LIGHT	Indicates INS has shutdown due to low battery voltage "Too late light"
READY NAV LIGHT	Indicates NAV mode is available (alignment state 5 or less)

- With alignment state 5 or less, INS will enter NAV mode when NAV selected
- From "OFF" to READY NAV light "on" (state 5) takes approximately 15 min
- A realignment from NAV takes approximately 10 min if STBY, not OFF, is selected

INS ALIGNMENT:

1. INS mode select switch to ALIGN or NAV position
2. Insert preset position accurate to 0.1 arc minutes (600 ft)

- Inserting a position more than 38 NM from position stored in computer from previous shutdown will cause WARN light to illuminate
- All 3 preset positions must be within 0.5 NM of each other or the WARN light will illuminate
- Alignment degradation will occur if alignment is attempted at latitude greater than 80 degrees
- The INS warn light is 28VDC bulb GE 327 or substitute of equal rating. Failure to comply will cause damage to the mode circuit card in the navigation unit.

Alignment States:

9 Warm-up
- INS internal heaters bring operational temperature up to 171.2 deg F
- Total time in state 9 is approximately 4.5 minutes

8 Battery is tested for 12.8 seconds
Aligned to local horizontal
Attitude warnings removed at beginning of state 8
Total time in state 8 is 51 seconds minimum

7 Established a known relationship between INS platform and True North
Preset Position must be loaded in order to progress beyond state 7
Total time in state 7 is approximately 8.5 minutes

6 Continues to establish relationship between INS platform and True North
Compares loaded present position latitude with INS shutdown latitude
- Uses result of comparison, with a statistical error model to improve accuracy

5 Adequate alignment of the INS platform has been achieved
READY NAV light on MSU illuminates
Total time in state 5 is approximately 2 minutes

4 - 0 Cont operation of self-calibration process which began in alignment state 6
Total time in each state is approximately 1.5 minutes

HSI DISPLAY

- Heading is ALWAYS True heading with I-NAV selected
- Course Arrow depicts Great Circle route
- Bearing Pointer displays actual ground track
- Difference between lubber line and bearing pointer is present drift
- CDI displays cross-track: 1 dot equals 1.5 NM

TCAS (1C-5A-1)

SYMBOL	DESCRIPTION	RECOMMENDED ACTION
Red 	Resolution Advisory: CPA (Closest Point of Approach) 15-35 sec Symbol and aural advisory TCAS can handle 3 RAs	Execute Vertical Guidance Command "Climb, Climb" / "Descend, Descend" / "Clear of Conflict" Shows vertical guidance on TCAS with Green and Red Arcs Initial RA respond within 5 sec and requires .25 G maneuver Revised RA respond within 2.5 sec and requires .35 G maneuver
Yellow	Traffic Advisory: CPA (Closest Point of Approach) 20-48 Sec Symbol & aural advisory Traffic alert in progress, acquire visually	"Traffic, Traffic" Monitory Closely
Cyan 	Proximate Threat: < 1200' above or below **and** < 6 NM from your aircraft	Monitor
Cyan 	Non-Threat: Any traffic within the range of the display not classified by the above. > 1200' above or below the aircraft or > 6 NM from your aircraft	Information only, no action needed

- More Information on Resolution Advisories (RAs):
  - Windshear & GPWS Warnings have priority over TCAS
  - Resolution Advisories (RAs) between 2 TCAS II equipped aircraft are coordinated. (i.e. the 2 Mode S Transponders "talk" to each other to produce a coordinated resolution so that both aircraft don't climb or descend; instead, one climbs, the other descends.)
- ***"Monitor Vertical Speed"*** – Avoid Red arc vertical speed shown on display - - current vertical speed is permitted
- ***"Climb, Crossing Climb"*** means the intruder is above your aircraft and descending. Best avoidance tactic is to climb rather than beat intruders rate of descent. (***"Descend, Crossing Descend"*** is opposite case)
- Off Scale advisories (RA & TA) are shown by:
  - Off Scale Flag
  - Partial Symbol (yellow ● or red ■) at edge of outer range mark

General TCAS Information

- Surveillance Area
  - 80 NM Forward
  - 15 NM Either Side
  - 12 NM Behind
  - 9000' Above and Below
- Range Rings:
  - **2** NM Range Ring for Display Ranges of **3-5** NM
  - **6** NM Range Ring for Display Ranges of **10-15** NM
  - Range Ring at ½ the Display size for Ranges of **10-80** NM
  - Possible Ranges are 3,5,6,10,12,14,15,20,40, and 80 NM

- Altitude display modes:
  - ABOVE = (+9000', -2700'), for climbs
  - BELOW = (-9000', +2700'), for descents
  - NORM = (+2700', -2700'), for cruise
- Tracks up to **50** Intruders
  - Only **12** with highest threat potential are displayed
  - TCAS Mode S Processor located in Avionics **Bay 3**
  - Top and Bottom Antennas emit a rotating pulse that divides the **360°** Azimuth into **90°** quadrants in a fixed sequence that alternates between top & bottom
- Altitude of intruder relative to your aircraft is displayed as follows:
  - In hundreds of feet above (+) or below (-) your altitude (i.e. +02)
  - Trend Arrow (Climbing - ↑ or Descending - ↓) is displayed if intruder's VVI is at least 500 fpm (i.e. +02↓ = 200' above you descending greater than 500 fpm)
  - TCAS assumes non-altitude reporting (NAR) traffic (no Mode C) is at the same altitude. A RA cannot be generated in this case. Below 14,500' MSL, NAR traffic, NAR traffic is displayed as advisory, proximate, or TA. Above 14,500' MSL, NAR traffic will be displayed as non-threat only
  - Non-Bearing Information (no visual symbol depiction) is displayed as:
  - TA or RA, Range in NM, Relative altitude in hundreds of feet (i.e. +02, with a ↑ or ↓ as appropriate) i.e.: RA 2.5 +02 ↓ (all in red) means a Resolution Advisory on an aircraft with an undetermined bearing relative to your aircraft, 2.5 nm away, 200' above you, descending at greater than 500 fpm
  - If the intruder airplane does not have an operative Mode C, then no altitude data flag will be displayed.
- TCAS functions inhibited when:
  - Climb maneuver is inhibited when TCAS processor receives an input the flaps are 40% or greater.
  - Climb is limited to 44,000'
  - Increased descent resolution is prohibited when radar altitude is less than 1450' AGL.
- TCAS switches from RA to TA when:
  - **Below** 1,450' AGL **Increase Descent RAs inhibited**
  - Radar altitude is below **1100'** when climbing
  - Radar altitude is below **900'** when descending
  - Touchdown relay is energized
  - GPWS alert
- Deviations from ATC clearance for an RA
  - Shall notify ATC of the deviation as soon as practical
  - Once the traffic conflict is resolved, promptly return to the current ATC clearance or obtain a new clearance.
  - If a TCAS "RA" requires maneuvering contrary to ATC instructions, "right-of-way" rules, "cloud clearance" rules for visual flight rules, instrument flight rules, or other such criteria, pilots are expected to follow the TCAS "RA" to resolve the immediate traffic conflict.
  - Pilots shall keep deviations from rules or clearances to the minimum necessary to satisfy the "RA".

- TCAS Messages / Warnings
    - **TCAS Fail** = Inflight failure of TCAS. TCAS will be unusable. Set TCAS to Standby mode
    - **VSI Fail** = Loss of vertical speed Data. Prevents display of Resolution Advisory Information (RAs). TCAS may be used for SA
    - **RA Fail** = Loss of Valid Vertical Speed data. Inputs prevent display of RA info. TCAS may be used for SA
    - **TD Fail =** Loss of TCAS ability to present traffic on display. TCAS is unusable. No aural annunciations are issued. Set TCAS to Standby mode
- Information about aircraft equipped with various transponders
    - Mode S equipped aircraft interrogating another Mode S aircraft
        - All TCAS functions to resolve conflicts
    - Mode S equipped aircraft interrogating Mode C only aircraft
        - All TCAS functions to resolve conflicts with possible inefficiencies
    - Mode S equipped aircraft interrogating Mode 3A only aircraft
        - **NO TCAS RAs issued** - bearing and range still computed
    - Mode S equipped aircraft interrogating no transponder aircraft
        - **NO TCAS functions** - MK1 eyeball only
- Navigator's Circuit Breaker Panel No. 1 and No. 2:
    - Pilot's CB is "TCAS PROC / FLT VSI" on **"AVIONICS ISO AC BUS PH A"**
    - **Copilot's CB is "COPILOT TCAS VSI / TRA" on "AVIONICS AC BUS 2 PH A" Combined CB is "TCAS/TAS IND" on "26 VAC NAV BUS 2"**

Numbers/Ops Limits

Weight Restrictions (1C-5A-1)

MAX RAMP	772,000 lbs	MAX ZERO FUEL (2.00 G)	665,000 lbs
MAX RAMP (EWP)	**840,000 lbs**	MAX ZERO FUEL (2.25 G)	635,000 lbs
MAX TAKEOFF	769,000 lbs	MAX ZERO FUEL (2.50 G)	590,000 lbs
MAX TAKEOFF (EWP)	**840,000 lbs**	NORMAL RAMP	732,500 lbs
MAX INFLIGHT	769,000 lbs	NORMAL LAND	635,850 lbs
MAX INFLIGHT (EWP)	**840,000 lbs**	**NORMAL LAND (EWP)**	**769,000 lbs**
MAX LANDING	769,000 lbs	NORMAL LAND FUEL	159,250 lbs
MAX LANDING (EWP)	**840,000 lbs**	HI-ALT PEN (CONFIG)	600,000 lbs
MAX FUEL	332,500 lbs	MAX WT for flight with slats extended and flaps up	550,000 lbs

Engine Start Sequence (1C-5A-1)

- Push start button.
- At 11% N_2 go to run. Fuel flow < 900 PPH prior to ignition.
- At ~25% N_2, ignition. Must have light off within 30 sec of going to run.
- At ~35% N_2, oil press light out (10 psi) - must have pressure by idle N_2. Oil pressure light will depend on ambient temperature.
- At ~45% N_2, start button pops out (46% ± 3). If not, pull out by idle N_2. Check that the starter valve light is out if the starter button is pulled out.
- At ~55% N_2, fuel flow peaks, then drops to 1200-1400 pph.
- At ~65% $N_{2, idle}$ N_2 (61-67%). This is a guide, but write it up if out of this range. N_1 guide 17-29% (within 5 min of N_2 Idle). Fuel flow approx. 1400pph.

Engine Numbers (1C-5A-1)

TIT LIMITS:

Thrust	**Time**	**HT-90**
TRT	5 Min	940°C
MRT	30 Min	930°C
NRT	Continuous	915°C
Idle Guide	Continuous	370-525°C
Starting	25 Sec	800-860°C
	2 Sec	>860°C
Transient	2 Min	950°C
	30 Sec	950-960°C
Max Reverse	30 Sec	950°C

ENGINE RPM LIMITS:

N1 Maximum	106%
N1 Idle	17-29%
N1 Range	17-106%
N2 Maximum	102%
N2 Idle	61-67%
N2 Range	61-102%
N1/N2 Vibration Range	75-85%
N1 Icing Vibration Range	67-87%

- Use Anti-Ice when temperature is below 8°C with visible moisture
- On the ground with noted or suspected ice build-ups, momentarily advance engines symmetrically to 90% N1 every 5 minutes
- Avoid prolonged flight in icing conditions below 60% N1. If required, momentarily advance each engine, individually, to at least 90% N1 every 10 minutes above 15000 ft or every 6 minutes below 15000 ft.

STARTING NUMBERS:

Duty Cycle
1 Minute on 30 Seconds off
1 Minute on 30 Seconds off
1 Minute on 30 Minutes off
-or-
2 Minutes on 5 Minutes off

OIL PRESSURE:

Minimum	10 PSI
Idle Guide	10-22 PSI
80% N2 Guide	20-30 PSI
Oil Pressure Light On	8.25 PSI
Oil Pressure Light Out	9.75 PSI

OIL CONSUMPTION:

Home Station	1.1 Qt/Hr
Enroute Missions	2.2 Qt/Hr

- An additional 1.1 qt/hr is allowed to compensate for servicing inaccuracies.
- Note: Enroute consumption > 1.1 qt/hr but < 2.2 qt/hr requires inspection of engine for leaks. If none found, continue mission.

ENGINE SUCTION FEED LIMITS:

During Climb	
Outboard Engines:	12600 ft Maximum
Inboard Engines:	20000 ft Maximum
During Cruise	
Outboard Engines:	32000 ft Maximum
Inboard Engines:	40000 ft Maximum

HYDRAULIC PRESSURE:

Normal	3000 ± 150 PSI
Maximum	3400 PSI
Min for NLG Extension	2500 PSI
Min for Emerg Brake Lt	1300 PSI
Min for 1 Brake App	1000 PSI

Misc Limits (1C-5A-1)

OXYGEN PRESSURE:

Static (No Flow)	275-450 PSI
Stabilized (Flow)	275-400 PSI

CG LIMITS:

Normal	19-41% (Varies with weight)

PITCH AND BANK

Normal pitch on rotation	8-10°
Max pitch after takeoff	15°
Pitch attitude for windshear (once airborne)	15-18° (below shaker onset)
Max pitch for rapid descent	15°
Max pitch below 200 feet	10°
Max bank below 200 feet	15°
Max bank below 50 feet	5°

ANGLE OF ATTACK (2A-141, -1)

Holding	3
Approach (100% , no slats)	5
Approach (100% or 40% flap, slats)	7.2
Approach (No flap)	7.8
Flaps up - stall	15
Flaps down - stall	18

Airspeeds (1C-5A-1)

GENERAL

CLEAN MAXIMUM (SEA LEVEL)	402 KCAS
CLEAN MAXIMUM (22,500 FT)	392 KCAS / 0.875 M
CLEAN RECOMMENDED	350 KCAS / 0.825 M
RAPID DESCENT	350 KCAS / 0.825 M
DO NOT EXCEED 15°NOSE DOWN	
MAX TAXI AT GW > 732,500 LBS	30 KTS
MAX TAXI AT EWP WEIGHTS	15 KTS
LANDING LIGHT EXTENDED	300 KCAS / 0.825 M
DO NOT OPERATE > 25 MIN WHEN LESS THAN FULLY EXTENDED	
WINDSHIELD WIPER	175 KCAS
GOOD RAIN CLEARING UP TO	150 KCAS
ADEQUATE RAIN CLEARING UP TO	175 KCAS
WILL START TO FLOAT ABOVE	150 KCAS

TURBULENCE

CLEAN - SEVERE TURBULENCE	280 KCAS / 0.825 M
REC TURBULENCE PENETRATION	240 KCAS / 0.74 M
ALDCS INOP - MODERATE / SEVERE	240 KCAS / 0.825 M
ALDCS INOP - LIGHT	300 KCAS / 0.825 M
YAW AUG INOP	0.70 - 0.75 M
(DESCEND TO 31000 FT OR LOWER)	

THRUST REVERSERS

MAX WITH INBOARD T/R EXTENDED	350 KCAS / 0.825 M
MIN WITH INBOARD T/R EXTENDED	215 / SHAKER ONSET
T/R ON GROUND ABOVE REVERSE IDLE	150 KCAS - 60 KCAS

NOTE: LIMITED TO TRT - ABOVE REV IDLE BELOW 60 KCAS REQUIRES A FAN BLADE INSPECTION AT SUBSTANDARD RUNWAYS. DUST INGESTION MAY OCCUR AT SPEEDS UP TO 100 KNOTS WITH ENGINES ABOVE REVERSE IDLE AND BELOW 20 KNOTS AT REVERSE IDLE.

LANDING GEAR

LANDING GEAR EXTENDED	250 KCAS / 0.60 M
LANDING GEAR OPERATION	250 KCAS / 0.60 M
LANDING GEAR RECOMMENDED	200 KCAS
NLG MAY NOT RETRACT AT AIRSPEEDS > THAN	225 KCAS
MLG MAY NOT ROTATE AT AIRSPEEDS > THAN NORMAL HYDRAULIC PRESSURE AVAILABLE	185 KCAS
MLG MAY NOT ROTATE AT AIRSPEEDS > THAN APU ACCUMULATOR PRESSURE ONLY	170 KCAS

FLAPS

40% FLAPS, SLAT EXTENDED / RETRACTED	215 KCAS / 0.45 M
62.5% FLAPS	195 KCAS / 0.45 M
62.5% FLAPS, NO SLATS	185 KCAS / 0.45 M
LANDING FLAPS	180 KCAS / 0.45 M
LANDING FLAPS, NO SLATS	175 KCAS / 0.45 M
SLATS EXTENDED, NO FLAPS	215 KCAS / 0.45 M

WARNING: With slats extended and flaps full up, the stall warning system shaker and audible) will be for the flaps down configuration. The airplane should not be flown to shaker onset in this configuration. Reduced maneuver load limits above 550,000 lbs for slat extended / flaps retracted

AIR REFUELING

A/R DOOR OPEN	350 KCAS / 0.825 M
NORMAL RENDEZVOUS	300 KCAS / 0.72 M
RENDEZVOUS OUTSIDE 3 NM	325 KCAS
1 NM	300 KCAS / 0.72 M
KC-135 AT 1/2 NM	270 KCAS / 0.65 M (BRIEF + 15)
KC-10 AT 1/2 NM	290 KCAS / 0.70 M (BRIEF + 15)
KC-135 CONTACT	252 KCAS / 0.62 M
KC-10 CONTACT	275 KCAS / 0.66 M
NOSE DOWN PITCH TRIM > 2.7 DEG (5-27, -1)	
CG FORWARD OF 30%	270 KCAS / 0.65 M
CG AFT OF 30%	300 KCAS / 0.775 M

DOORS

RAMP OPEN 3”	350 KCAS
RAMP AND CENTER DOOR OPEN AND OPERATING	205 KCAS / 0.45 M
TROOP DOORS OPEN	205 KCAS / 0.45 M
PARATROOP AIR DEFLECTOR EXTENDED	205 KCAS
PARATROOP JUMP PLATFORMS DEPLOYED	205 KCAS
VISOR DOOR OPENED GROUND SPEED	3 KTS MAX
VISOR DOOR OPENING	35 KTS STEADY/GUST
VISOR DOOR OPENED	70 KTS STEADY/GUST
AFT CARGO DOOR OPENING	35 KTS STEADY/GUST
AFT CARGO DOOR OPENED	70 KTS STEADY/GUST
AFT SIDE CARGO DOORS OPENED IN FLIGHT	MAY LOSE AT ANY SPEED
PROBABILITY OF MINOR DAMAGE TO CTR DOOR	UP TO 250 KCAS
PROBABILITY CTR DOOR WILL BE LOST	ABOVE 250 KCAS

TAKEOFF AND LANDING

ACCELERATION CHECK SPEED TOLERANCE	- 3 KCAS
RUDDER EFFECTIVE FOR DIRECTIONAL CONTROL	APPROX 60 KCAS
ELEVATOR EFFECTIVE FOR DIRECT CONTROL	APPROX 80 KCAS
Vapp INCREASE FOR ICE ON WING OR TAIL KNOWN OR SUSPECTED	+ 5 KCAS
MINIMUM TOUCHDOWN SPEED	Vapp - 10 KCAS

Brake Temperatures (1C-5A-1)

100° C - Temp increase from random light braking. Brake temps are cumulative
200° C - Gear should remain extended after takeoff until brakes cool to 200
300° C - Fire is possible if hydraulic leaks are observed in gear or brake areas (Quick stop and check)
400° C - Do not approach airplane until brakes have cooled to this temp
740° C - START OF CAUTION ZONE
- CLEAR RUNWAY; DO NOT SET BRAKES
- CHOCK NOSE WHEEL
- REQUEST STANDBY FIRE EQUIPMENT
- IF HYD FLUID LEAK, FIRE IS PROBABLE
- EVACUATE A/C ASA PRACTICAL
- DO NOT APPROACH A/C UNTIL BRAKES ARE 400°
- INSPECT BRAKES PRIOR TO SUBSEQUENT TAKEOFF

800 - 1000° C
- SAME AS 740 EXCEPT
- BLOWN FUSE PLUGS ARE PROBABLE
- LEAVE IMMEDIATE AREA OF AIRCRAFT

OVER 1000°
- HYD FLUID FIRE AND BLOWN FUSE PLUGS ARE IMMINENT

BRAKE COOLING TIMES ARE BASED ON BRAKES BEING RELEASED

Traffic Pattern Numbers

Min speed clean = 100% flap Vapp + 60 KCAS
Min speed base leg or inbound proc. turn = 100% flap Vapp + 20 KCAS
Min speed early configuration = 100 % flap Vapp + 30 KCAS
Min speed circling = 100% flap + 20 KCAS (flaps at 40%)
Min speed 3-engine Vapp = the higher of 2eng Vmca or Vapp
FF = GW minus 1000 pph to maintain 210 KCAS, clean, level flight.
FF = GW plus 1000 pph to maintain current speed, 40% flap, gear down
FF = GW to maintain Vapp, configured, on glide slope

Acronym Techniques

In three engine situations:

✓	Checklist complete?
D	Dump fuel?
E	Declare Emergency
T	**Trim requirements***
R	**Reversing technique***
A	**Ensure V_{APP} is greater than V_{MCA}***
S	Section III-landing with one or more engines inop
H	Hydraulic considerations, ATM online, APU if planning to abandon aircraft on runway
*	Mandatory briefing items

Partial flap technique:

L	Landing distance
A	Airspeed
T	Tire limit speed
E	E - category?
X	X-wind?
F	FSAS toggled
R	spoiler ratio shifter to "Flaps Down" if doing 40% flaps for wind
G	GPWS inhibited

What Fire Handle Does:

F Fuel (Manual at pylon)
I Ignition
G Generator (Removes Elect Field)
H Hydraulics
T Thrust Reverser
S Starter
A Air (Bleed)
F Fuel (Electric on Fuel Control)
E Exposes Agent Button

Required Radio Calls:

V Vacating assigned altitude
A Altitude Change when VFR on top
C Climb/descent less than 500 FPM
A Approach Missed
T True airspeed change 5% or 10 kts
I Into holding or point to which cleared
O Out of holding or point cleared from
N Navaid loss
S Safety of flight information

Before Taxi:

F Forms (ER Signed) & Form F
F Fuels (Have receipts) - Refueled
F Final Fleet
F Folks (Pax)
F FSAS (Loaded, #2 on GS)
F Figures (TOLD)
F FMS (Flight Plan Loaded and Checked)
F Final Walkaround

TACC deviation Codes

Code	Description
200	Crew directed crew rest in the interest of flight safety i.e., fatigue, 3 consecutive maximum crew duty days (CDD), etc. Note: For inoperative autopilot use applicable 9XX code.
202	Crew rest upon arrival-not for reset i.e., delayed at aircraft on loading/offloading cargo/pax, troubleshooting maintenance, etc.
207	Crew duty time insufficient due to deviation/divert at a previous station (identify reason in remarks).
210	Crew availability, awaiting replacement crew or crew member i.e., DNIF, disqualified, etc.
211	Crew availability, flying hour limitations i.e., a crew or crewmember logged too many hours for a specified period.
219	Crew duties performed improperly (or not performed) delayed mission departure.
220	Crew directed; training (identify type of training in remarks).
221	Crew directed; aerial port services requested, no discrepancy found or crew flew "as is" (state service in remarks).
222	Crew directed; maintenance requested, no discrepancy found or crew flew "as is" (state system in remarks) or when the write-up is for a MC part according to the MEL. Note: This deviation code applies when no waiver is requested. If waiver is requested use appropriate, 900-series deviation code.
223	Crew directed; crew requested fuel/defuel (actual fuel required different from flight plan).
250	Used when a waiver is required at a base that has no AMC maintenance or inadequate maintenance. This code is not to be used if maintenance is performed and a waiver is required. Use the appropriate 900-series deviation code.
261	Used when an entire formation deviates sympathetically due to a single problem aircraft within the formation. If the deviation is caused "outside-the-formation," all aircraft in the formation will be charged with the same deviation code (fog, runway closure, slot time, dip clearance, etc.).
263	Used for unit training missions (Locals/Off-Station) held because their mated Tanker/Receiver (external customer) cannot meet the scheduled Air Refueling Control Time.
265	Used when the wing commander or equivalent directs the deviation of a mission to more effectively use AMC resources.
299	Used when there is no OTHER operations deviation code that describes the deviation

Instructor Guides/Limits

Planning

- Launch
  - No Pax authorized during T&G or sim EP's (MAJCOM approved MX may be aboard)
  - Must be able to takeoff within 4 hours of schedule departure (waiverable by IP)
- Alternate Base
  - Approval by 60 OG/CC
  - Select from 60 AW Guide to Alternate Airfields
- Fuel
  - 4.0 Local: 120,000 lbs (ERCC: 210,000 lbs)
  - Heavy AR: 220,000 lbs (> 625,000 lbs = heavy AR)

Requirements

- Weather Minimums
  - Launch: 1600 RVR
  - VFR Pattern: 2300/3
  - T&G: 300/40 RVR (3/4 sm)
  - Simulated Cat II: 200/ 24 RVR (1/2 sm)
  - Simulated Engine Out or No Flap
    - Published circling mins during day
    - 1000/2 at night
  - Circling
    - As published
    - 1500/2 at night during Bash II in NE quadrant
    - MDA – 900' AGL in NE quadrant area between 19 and 32 during Bash II
- Noise Abatement
  - Review chart in Base Ops
  - ATC instructions override noise concerns
  - Terminate at 2200L, 2300L during Bash Phase II, except:
    - Night AR & Off-station recoveries
    - Waiverable by 60 OG/CC
- BASH
  - BASH II during designated calendar periods (Oct to Mar)
  - No departures or arrivals during designated Bird Hours (waiverable by 60 OG/CC)
  - T&G's only if runway used is BHC low
  - Circling minimum change during Bash II

Restrictions

- T&G
  - Min WX: See weather minimums
  - Min Runway: 8000’
  - Min RCR: 12
  - Max Crosswind: not to exceed Normal Zone corrected for RCR
  - < 632,850 GW
- No Flap (AC upgrade or higher)
  - Full stop only
  - < 525,000 GW
  - Max crosswind: 15 knots
  - Circling minimums
  - Min runway: 8000’
  - All engines/ no other simulated emergencies
- Simulated Cat II ILS
  - Any usable ILS signal
  - Min WX: 200 / 24 RVR (1/2 sm)
  - Max crosswind: 15 knows
  - DH as published or 100 above HAT
  - Left seat only/ all engines
- MAP or G/A Initiate above
  - 100’ AGL minimum with all engines
  - 200’ AGL minimum with 3 engines
  - 500’ AGL minimum with personnel/equipment on runway
- Simulated Engine-Out (CP with 500 hours or higher)
  - Initiate above 500’ AGL
  - Do no combine with No Flap or Cat II
- High Altitude Penetration:
  - Max GW: 600,000 lbs
  - Max Altitude: 20,000 MSL

Proficiency Sortie Events

- Bold Face
- 3 instrument approaches
- Missed approach
- Weather permitting:
  - VFR
  - Simulated engine out landing & G/A (NA for CPs < 500 hours)
- If available:
  - Holding pattern or PT
  - Circling approach
  - Partial or No Flap Landing (NA for CPs/FPs)

Note: Students must have been formally placed in an upgrade program (see training folder) before they can perform maneuvers restricted to the next higher crew qual, i.e. IP T&G, Engine Out, No Flap, or Taxi

Quick Turn Checklists

SITUATION	CHECKLISTS
Anytime the shutdown of all engines is planned, including operational stops	After Landing Engine Shutdown
Engine running operational stops	After Landing Asterisk Operational Stop After Landing Before Taxi Asterisk Before Takeoff Asterisk Lineup
Taxi back for takeoff following a full stop landing or abort or any other situation to deplane/enplane the scanner	After Landing Asterisk Quickstop Before Takeoff Asterisk Lineup
Taxi back for takeoff following a full stop landing or abort and crew members, passengers, maintenance personnel or small articles are to be on/off loaded during taxi back	After Landing Asterisk Operational Stop After Landing Before Takeoff Asterisk Lineup
Minimum ground time with all engines shutdown while crewmembers remain with the aircraft. i.e. Double Blocks (unless refueling then no ops stop checklists)	After Landing Operational Stop After Landing Operational Stop Engine Shutdown Operational Stop Starting Engines Before Taxi Before Takeoff Lineup
Minimum ground time with one engine left running to provide electrical power	After Landing Asterisk Operational Stop After Landing Operational Stop Engine Shutdown Operational Stop Starting Engines Before Taxi Before Takeoff Lineup