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Flying Operations

EC-130E/H--OPERATIONS PROCEDURES

COMPLIANCE WITH THIS PUBLICATION IS MANDATORY

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This volume implements AFPD 11-2, *Aircraft Rules and Procedures*; AFPD 11-4, *Aviation Service*; and AFI 11-202V3, *General Flight Rules*. It applies to all active duty EC-130E/H units and their assigned Back-up Aircraft Inventory (BAI) aircraft. This volume does not pertain to the Air National Guard or the Air Force Reserve. This document is new and must be completely reviewed. The major command (MAJCOM) will forward proposed MAJCOM/DRU/FOA-level supplements to this volume to Air Staff and the lead MAJCOM/DRU/FOA office of primary responsibility (OPR) for approval in accordance with (IAW) AFPD 11-2. Copies of MAJCOM/DRU/FOA-level supplements, after approved and published, will be provided by the issuing MAJCOM/DRU/FOA to HQ AFFSA/XOF, HQ ACC/DOTV, and the user MAJCOM/DRU/FOA and National Guard Bureau (NGB) offices of primary responsibility. Field units below MAJCOM/DRU/FOA level will forward copies of their supplements to this publication to their parent MAJCOM/DRU/FOA office of primary responsibility for post publication review. **NOTE:** The terms Direct Reporting Unit (DRU) and Field Operating Agency (FOA) as used in this paragraph refer only to those DRUs/FOAs that report directly to HQ USAF. Keep supplements current by complying with AFI 33-360V1, *Publications Management Program* (periodic review). See paragraph **1.6.** of this volume for guidance on submitting comments and suggesting improvements to this publication.

The Privacy Act of 1974 applies to certain information gathered pursuant to this volume. The Privacy Act System Number F011 AF XO A, Air Force Operations Resource Management Systems (AFORMS) covers required information.

The Paperwork Reduction Act of 1974 as amended in 1996, affects this volume.

★SUMMARY OF REVISIONS

Updates Table 4.4, clarifying inoperative Main Fuel Quantity Indicators policy. Clarifies definition of screen height in para 5.15.3. Updates paras 6.2.11, 6.2.12, and 7.4.1 to reflect actual forms requirements. Changes para 6.12.2.3, clarifying climb gradient policy and standardizing with other C-130 variants. Changes "Engine-out Departure Procedures" to "Special Departure Procedures" in para 6.12.2.3.1. Rewords paras 6.12.2.4.1 and 6.12.2.4.2 for clarity. Clarifies VFR departure policy and restrictions in para 6.12.3.2. Defines VFR minimum climb rate altitude in para 6.12.3.5. Clarifies circling MDA in para 6.37.3. Changes procedures for checking defensive systems in para 6.50.2. Clarifies policy for local supplements in para 10.1.1. Removes reference to CHUM in paras 11.1.4 and 11.2.4. Changes para 11.4 and replaces Figure 11.1, to eliminate conflict with Chapter 14. Changes IAS/CAS corrections in para 11.7.6.2.3. Figures 11.3 through 11.6 are changed to reflect the current form. Corrects minor administrative errors in paras 7.5.10.2.3, 7.12.3.1, 11.1.1, 11.5.1.2, 11.6.1, 11.7.4, 11.8, and 11.11.1.

Print Change 1 using duplex head-to-head format and post/replace the appropriate page-for-page. Change 1 (C1) affects pages 1, 2, 30, 31, 43, 46, 50-52, 63, 68, 71, 72, 76, 84-87, 89, 92, 93, 95-98. A (★) indicates revisions from the previous edition.

Table 4.2. Propellers.

Item/System	Installed	Operational	Remarks/Limitations/Exceptions
Propeller	4	4	Propeller may be operated with a feather override failure where the override button fails to pop out at full feather, (faulty pressure switch) provided maintenance instructions in the applicable fault isolation manual are followed and no other system is affected.
Synchrophaser	1	1	If the synchrophaser fails, mission may continue to a repair facility provided no other portion of the propeller system is affected.

Table 4.3. Electrical System (See Note).

Item/System	Installed	Operational	Remarks/Limitations/Exceptions
Generators, Engine-Driven	4	4	
Generators, Engine-Driven (En route)	4	3	If a generator fails at an en route stop, flight to a destination with repair capability, including en route stops, may be made. If the AC generator is not equipped with a disconnect, it will be removed and the generator mount padded before flight.
Generators, Engine Driven (Local Training)	4	3	Local training missions may continue after a generator is disconnected or removed and the mount padded, provided no other electrical malfunction exists.
Transformer Rectifiers (TR)	4	4	One Essential TR unit may be inoperative for flight to a repair facility provided no other electrical malfunction exists.
ATM and ATM generator	1	1	If the ATM, ATM generator fails, flight in visual meteorological conditions (VMC) is authorized provided no other electrical malfunctions exist.
Generator Out Lights	4	3	(See note)
AC Loadmeter	4	3	(See note)
Note: All associated equipment and indicators will be operational for each operative engine-driven generator (generator control panel, voltage regulator, generator out/caution light, AC loadmeter, etc.).			

★Table 4.4. Fuel Systems.

Item/System	Installed	Operational	Remarks/Limitations/Exceptions
Main Tank Fuel Pumps	4	4	One main tank fuel boost pump may be inoperative for flight to a repair facility provided the respective fuel dump pump is operational.
Main Tank Dump Pumps	4	4	
Auxiliary Tank Fuel Pumps (per tank)	1	0	Auxiliary tank fuel pumps should be operational for any tank containing fuel.
External Tank Fuel Pumps (per tank, if tank contains fuel)	2	1	Fuel in the tank with the inoperative boost pump will be trapped should the second boost pump fail. Fuel balancing with the opposite tank will then be necessary, resulting in a reduction of usable fuel.
★Main Fuel Quantity Indicators (see note)	4	3	One main fuel tank indicator may be inoperative provided: 1. Both the tank with the inoperative indicator and its symmetrically opposite tank quantity are verified by use of a fuel tank dipstick. The fuel tank dipstick is calibrated for JP-4. Use with other fuels is inaccurate for reading pounds of fuel quantity. 2. At en route stops when engines are shut down, the tank with the inoperative indicator and the symmetrically opposite tank will be dip checked. 3. Crossfeed operation will begin when the symmetrically opposite quantity indicator has decreased to 1,500 lbs (inboards) and 2,500 lbs (outboards). 4. Engine out training using the engine corresponding to the inoperative indicator or its symmetrical opposite will not be conducted during tank to engine operation. 5. Flights consisting of multiple stops/landings when the mission profile does not allow dipping of tanks (i.e., EROs, pilot pro sorties) will terminate with a minimum of 8,000 lbs calculated main tank fuel.

Item/System	Installed	Operational	Remarks/Limitations/Exceptions
★Main Fuel Quantity Indicators	4	2	★Two main fuel tank indicators may be inoperative provided: ★1. All conditions required with 3 operational main fuel quantity indicators (above) are met. 2. Inoperative indicators are asymmetrical. 3. Engine out training is not performed unless all engines are on crossfeed from auxiliary or external tanks with operative indicators. 4. Symmetrical engine fuel flow is maintained. 5. Mission will terminate with a minimum of 8,000 lbs calculated main tank fuel.
External Fuel quantity Indicator (see note)	2	0	One external fuel tank indicator may be inoperative provided both external fuel tanks are checked full or empty. Both external fuel tank indicators may be inoperative provided both external tanks are verified empty. When an external tank indicator is inoperative and the tank cannot be visually checked empty due to foam modification, comply with the following prior to flight: 1. Check pressure with each pump in the external tank. If no pressure is obtained, the tank is verified empty. 2. If pressure is obtained, ground transfer the fuel from the external tank. Defuel the external tank if unable to ground transfer. 3. When unable to verify an external tank is empty prior to engine start, place the tank on crossfeed until no pressure is obtained. This will be completed prior to takeoff.

Auxiliary Tank Fuel Quantity Indicators	2	0	If fuel quantity indicator is inoperative, fuel quantity will be verified with the magnetic sight gauge.
Note: Both a main and external fuel tank indicator may be inoperative on the same wing provided the limitations listed for a single inoperative main fuel tank indicator and a single external fuel tank indicator are followed.			

Table 4.5. Hydraulics.

Item/System	Installed	Operational	Remarks/Limitations/Exceptions
Engine-driven Hydraulic Pumps	4	4	
Utility/Booster System Engine Pump Pressure Warning Lights	4	4	
Utility System Hydraulic Pressure Indicator	1	1	
Booster System Hydraulic Pressure Indicator	1	1	
Hydraulic Suction Boost Pumps	2	2	
Auxiliary Hydraulic Pump	1	1	
Auxiliary Hydraulic Pressure Indicator	1	1	Direct reading gauge in cargo compartment may be inoperative.
Rudder Boost Pressure Indicators	2	1	

Table 4.6. Anti-Ice/De-Ice System.

Item/System	Installed	Operational	Remarks/Limitations/Exceptions
Ice Detection System	1	1	(See note)
Pitot-Heat System	2	2	
TAS Probe Heat	1	1	
Wing/Empennage Anti-Icing System	2	2	(See note)
Engine Inlet Air Duct Anti-Icing Systems	4	4	(See note)
Leading Edge Temperature Indicators	6	6	
Wing Leading Edge and Wheel Well Overtemperature Warning Lights	7	7	

concerns. Based on crew inputs, the AC will decide whether to continue the current course of action or pursue another. The AC is final decision authority.

5.14. Runway Condition Reading (RCR) and Runway Surface Condition (RSC) Limitations:

5.14.1. When no reported RCR is available, consider the runway surface wet when water on the runway causes a reflective glare.

5.14.2. The performance charts used to determine braking action are based on concrete runways. The RCR values for the following runway surfaces depicted in **Table 5.1.** are estimates based on operational experience and should be used only as a guide.

Table 5.1. RCR Values.

TYPE SURFACE	RCR (DRY)	RCR (WET)
Asphalt/Concrete	23	12
Aluminum Matting	20	10
M8A1/With Anti-Skid (PSP)	20	8
M8A1/Without Anti-Skid (PSP)	13	3
Clay/Crushed Rock	16	5
Coral	16	4

5.14.3. Limit EC-130 aircraft operations into and out of slush or water covered runways to a covering of 1 inch. This number is based on performance charts where an RSC of 10 is equal to 1 inch of slush or water. Performance data where more than 1 inch of slush or water is present may not be accurate.

5.15. Runway and Taxiway Requirements:

5.15.1. Minimum runway width is 80 ft/25 meters. Minimum taxiway width is 30 ft/9 meters.

5.15.2. Minimum runway for landing is landing distance from 50 feet over the threshold plus the RVR/visibility correction factor specified in **Table 5.2.**

★5.15.3. Minimum runway required for takeoff is critical field length (CFL) plus 50 feet for each foot of screen height, or altitude at the departure end of the runway (DER), required by the departure procedure. If screen height is not available or cannot be determined, use CFL plus 1750 feet as minimum runway.

Table 5.2. RVR/Visibility Correction Factors.

RVR (Visibility):	Add to Landing Distance:
Less than 40, (3/4)	1,000 feet.
Equal to or greater than 40, (3/4)	500 feet.
Note: If the runway length available for landing is less than required above, mission ready pilots may use landing ground roll plus 1,000 feet as minimum runway length when approved by OG/CC or equivalent. In this case, modify the landing to touchdown in the first 500 feet of runway.	

5.16. Aircraft Taxi and Taxi Obstruction Clearance Criteria:

5.16.1. After landing and clearing the runway, and with approval of the pilot, the Airborne Maintenance Technician (AMT)/Scanner may open the aft cargo door and lower the ramp to approximately 12 inches above horizontal in preparation for back taxi if needed.

5.16.2. Without wing walkers, avoid taxi obstructions by at least 25 feet; with wing walkers, by at least 10 feet. **EXCEPTION:** According to AFI 11-218, *Aircraft Operations and Movement on theGround*, aircraft may taxi without marshallers/wing walkers at home station along locally established taxi lines which have been measured to ensure a minimum of 10 feet clearance from any obstruction.

5.16.3. When taxi clearance is doubtful, use wing walker(s). If wing walker(s) are not available, deplane aircrew member(s) to maintain obstruction clearance.

5.16.4. Reverse Taxi:

5.16.4.1. The pilot will coordinate reverse taxi directions and signals to be used with the AMT/Scanner and marshaller (when available).

5.16.4.2. Secure all cargo and ensure all passengers are seated.

5.16.4.2.1. Open the aft cargo door and lower the ramp to approximately 12 inches above horizontal.

5.16.4.2.2. The AMT/Scanner will be on the aircraft ramp in the best position to direct reverse taxi, report any hazards, and provide the pilot with timely interphone instructions on turns, distance remaining, conditions of the maneuvering area, and stopping point. If an ABCCC capsule is installed, the AMT/Scanner will be positioned in the rear capsule door.

5.16.4.3. During night reverse taxi operation, the pilot and AMT/Scanner will ensure that the taxi area is sufficiently lighted.

5.16.4.4. Stop no less than 25 feet from an obstruction even if using a wing walker.

5.17. Operating With BAK-12 Systems. EC-130 aircraft operations are authorized on runways where BAK-12 systems are installed with an eight-point cable tie-down system without regard to the Dash-1 Caution. When operating from runways equipped with other types of systems, or if it is unknown if the BAK-12 system includes eight point tie-downs, comply with the appropriate dash one guidance.

5.18. Classified Equipment and Material:

5.18.1. Equipment. When classified equipment is aboard, ensure the C2 or the base operations officer is aware of the requirement for aircraft security in accordance with this volume. At bases not under jurisdiction of the USAF, ensure the aircraft and equipment are protected. Do not leave classified information stored in navigation (e.g., INS, SCNS), radio equipment (e.g. KY-58, KY-75, SATCOM, Mode 4) or mission systems unless appropriate security measures are taken and equipment is properly guarded.

5.18.2. Material. Ensure authenticators and other classified materials are turned in at destination and receipts are obtained for classified material if necessary. The aircraft gun storage box or high value bin can be used for material up to secret if a storage facility is not available.

5.18.3. Emergency Destruction. Destroy/damage classified material/equipment prior to a crash landing or bailout if possible.

Chapter 6

AIRCREW PROCEDURES

Section 6A—General

6.1. Aircrew Uniforms. Wear the aircrew uniform on all missions unless otherwise authorized. When the USAF Foreign Clearance Guide requires civilian attire, wear conservatively styled civilian clothing. Squadron commanders will determine clothing and equipment to be worn or carried aboard all flights commensurate with mission, climate, and terrain involved.

6.1.1. All crewmembers will have NOMEX flight gloves in their possession.

6.1.2. All crewmembers will wear flight gloves during takeoff, landing, air refueling, and as directed by the AC.

6.1.3. Crewmembers will remove rings and scarves, and will secure any jewelry that presents a potential for catching, snagging, pulling, and tearing prior to performing aircrew duties.

6.2. Personal and Professional Equipment. Aircrew members will carry or wear personal and professional equipment as follows on all flights:

6.2.1. Flight equipment, including as a minimum: headset, personal helmet, oxygen mask, and operable flashlight.

6.2.2. Identification tags.

6.2.3. Other items such as mobility folders, shot records, and passports may be required by squadron commander/DETCO, or other command directive.

6.3. Tool Kits. At least one AMT/Scanner tool kit will be aboard the aircraft for all missions. During ABCCC capsule trainer sorties, the AMT will checkout a multimeter.

6.4. Publications. Primary crewmembers will carry the publications specified in **Table 6.1**., including all applicable supplements, on all missions. Units may specify additional publications in local **Chapter 10**. This requirement is satisfied when fully posted publications are kept on board the aircraft. When there are multiple crewmembers per crew position, coordinate to ensure all required publications are carried.

6.5. Flight Crew Information File (FCIF):

6.5.1. Review the FCIF before all missions. Go/No Go status will be IAW AFI 11-202V2, *Aircrew Standardization/Evaluation Progra*m. During exercises and contingencies, deployed squadron staff will develop procedures to comply with this paragraph and local requirements.

6.5.2. Crewmembers delinquent in FCIF review and joining a mission en route will receive an FCIF update from their primary aircrew member counterpart on that mission. Instructor pilots flying with general officers or senior staff members are responsible for briefing appropriate FCIF items.

6.5.3. Crewmembers not assigned or attached to the unit operating a mission will certify FCIF review by entering the last FCIF Volume I, Part B number and their initials on the flight orders.

Table 6.1. Required Publications.

PUBLICATION	EC-130E	EC-130H
Aircraft Flight Manual (-1)	E	E
Aircraft Performance Manual (-1-1)	E	E
Aircraft Flight Manual (SCNS -1-4)	CP	N/A
Abbreviated Checklists (-1 and AFI 11-2EC-130V3)	ALL	ALL
TO 1C-130-101	E	E
TO 1C-1-29	CP	CP
AFI 11-202, Volume 3	CP	CP
AFI 11-2EC-130E/H, Volume 3	CP	CP
Appropriate Fuel Planning Document	N	N

6.6. Mission Kits/Aircrew Bricks. Carry mission kits on all missions. Contents of the mission kits will be determined by mission requirements. Supplement mission kits as necessary for contingency operations.
Suggested items include, but are not limited to, the following (* indicates mandatory for all missions, if applicable; + indicates mandatory for all missions away from home station, if applicable):

6.6.1. Publications:

6.6.1.1. AFI 11-401, *Flight Management*

6.6.1.2. AFI 11-2EC-130E/HV1, *EC-130E/H--Aircrew Training*

6.6.1.3. +AFI 23-202, *Buying Petroleum Products and Other Supplies and Services Off-Station*

6.6.1.4. +Airfield Suitability and Restrictions Report (ASRR)

6.6.1.5. TO 1-1C-1, *Basic Flight Crew Air Refueling Manual*

6.6.2. Forms:

6.6.2.1. DD Form 1351-2, **Travel Voucher or Sub-voucher**

6.6.2.2. +DD Form 1854, **US Customs Accompanied Baggage Declaration**

6.6.2.3. +CF 7507, **General Declaration (Outward/Inward)**

6.6.2.4. *DD Form 2131, **Cargo/Passenger Manifest**

6.6.2.5. +AF Form 15, **United States Air Force Invoice**

6.6.2.6. *AF Form 70, **Pilot's Flight Plan and Log** (or computerized flight plan)

6.6.2.7. +AF Form 315, **United States Air Force AvFuels Invoice**

6.6.2.8. AF Form 457, **USAF Hazard Report**

6.6.2.9. +AF Form 651, **Hazardous Air Traffic Report (HATR)**

6.6.2.10. AF Form 1297, **Temporary Issue Receipt**

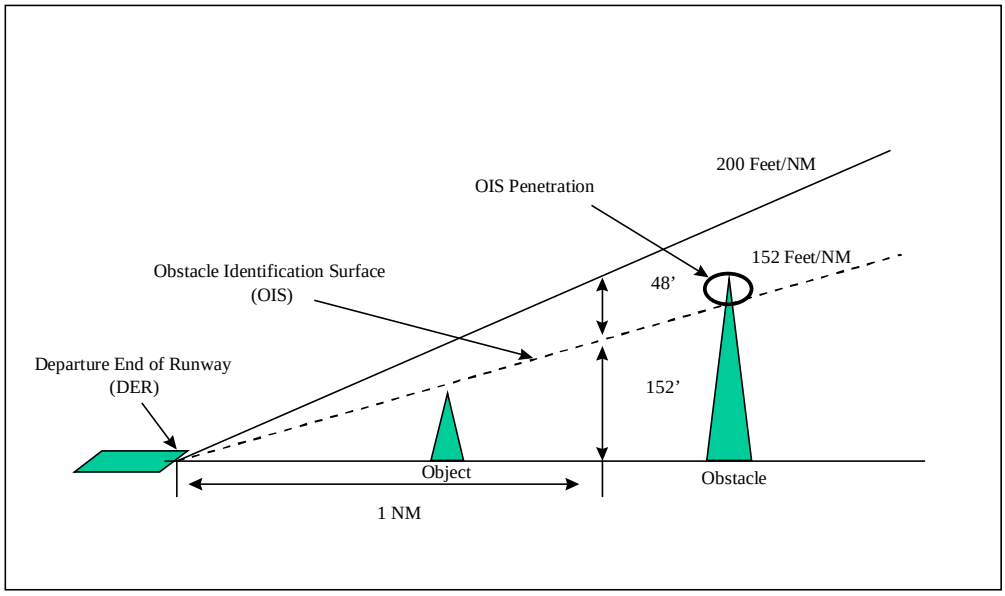
★6.6.2.11. *AF Form 4116, C-130 Flight Plan and Log

★6.6.2.12. *UDI Worksheet, Individual C-130 Aircraft Usage Log

cedure is fully understood and the aircraft is capable of meeting all restrictions. **NOTE:** Jeppesen procedures do not use the "Trouble T" symbol. In order to determine climb restrictions on a Jeppesen procedure you must have both the airfield diagram and the approach pages.

6.12.2.2. **Obstacle Identification.** Aircrews are not trained to identify departure obstacles, nor do they have sufficiently detailed information to create an IFR departure. The following information is meant to provide a greater understanding of the factors affecting the construction of instrument departure procedures, not to allow crews to create their own. The Obstacle Identification Surface (OIS) for IFR departure purposes is a 40:1 slope (152 ft/nm, or 2.5%) (FAA Handbook 8260.3B; AFJMAN 11-226, *United States Standard for Terminal Instrument Procedures (TERPS)*). This slope is projected from the departure end of the runway (DER, or screen height) until reaching an IFR MEA or until the DP terminates. Climb gradients of 200 ft/nm will provide at least 48 ft/nm clearance above all obstacles that do not penetrate the OIS. Higher climb gradients will provide at least 48 ft/nm clearance above all obstacles that do penetrate the OIS. The AC must be aware and thoroughly brief the crew on all obstacles along the departure flight path.

Figure 6.1. Obstacle Identification Surface.



6.12.2.2.1. The AMC ASRR is an excellent source for obstacle information; however, it is not a stand-alone document. It is intended to supplement published climb gradients and obstacle information found on SIDs, published IFR departure procedures, GDSS/C2IPS, and terrain charts.

6.12.2.2.2. HQ ACC/DORO is the source for additional airfield obstacle data, DSN 574-2971.

★6.12.2.3. IFR Climb Gradient Policy. Thoroughly review departure instructions, published or verbal, and aircraft performance data to determine if the aircraft is capable of meeting all restrictions. Both normal and engine-out performance must be calculated ***(EXCEPTION***: If engine-out performance meets or exceeds the published minimum climb gradient, it is not necessary to calculate four engine performance). If no minimum climb gradient is published, the aircraft must be capable of climbing at least 200 ft/nm minimum with all engines operating, and 152 ft/nm minimum with one engine inoperative. If a higher climb gradient is required, use that climb gradient as the minimum with all engines operating, and use that climb gradient minus 48 feet/nm as the minimum with one engine inoperative. ***WARNING:*** Pilots must be aware that subtracting 48 feet/nm may reduce the obstacle clearance to zero. When three-engine performance is marginal, crew coordination procedures and actions to be taken (EP checklists, fuel dumping, LBT antenna jettison, etc.) must be carefully thought out and briefed before takeoff. If an engine fails after takeoff, there is little or no margin for error on departure. The risk is even greater in instrument meteorological conditions.

★6.12.2.3.1. Special Departure Procedures (SDPs) have been developed for certain airfields, specific to aircraft type. If a current USAF-approved SDP is available and aircrews are trained to use it, engine-out climb gradient and maximum gross weight restrictions published on this procedure may be used for departure. The aircraft must be capable of meeting or exceeding the IFR climb gradient for the published IFR departure (200 feet/ NM if none published) with all engines operating. (Note: Approved SDPs provide 35 feet of obstacle clearance over obstacles within 3000 feet of the special engine-out routing).

6.12.2.4. IFR Departure is not authorized when:

★6.12.2.4.1. The departure runway has non-standard takeoff weather minimums, and no climb gradient is published, or a climb gradient is required in addition to the minimum weather.

★6.12.2.4.2. No authorized IFR departure procedures exist for the departure runway, and the departure airfield does not have a published instrument approach IAW AFI 11-202V3.

6.12.2.4.3. Aircraft performance does not meet or exceed the requirements of para **6.12.2.3.** In this case, the crew will consider the following in the priority listed below:

6.12.2.4.3.1. Calculate TOLD/aircraft performance using 100 percent engine efficiency, or using drag index for LBT antennae removed (EC-130H). These options require squadron CC/DO (or designated representative) approval. Crews must verify engine efficiency and thoroughly brief responsibilities for and timing of LBT antenna jettison prior to take-off.

6.12.2.4.3.2. Download fuel.

6.12.2.4.3.3. Delay the mission until climatological conditions allow for sufficient performance to meet the requirements of paragraph **6.12.2.3.**

6.12.2.4.3.4. Coordinate alternate departure procedures that will provide obstacle clearance with the controlling agency. These procedures must comply with AFI 11-202V3 and AFMAN 11-217 guidance regarding IFR departures.

6.12.2.4.3.5. Depart VFR. Comply with para **6.12.3.** below and the following:

6.12.2.4.3.5.1. OG/CC or designated representative approval is required. Conduct an ORM analysis for the VFR departure, and provide this analysis to the approving official.

6.12.2.4.3.5.2. If the crew intends to continue the mission IFR after departure, weather conditions must allow AFI 11-202V3 VFR cloud clearances during climb to an IFR MEA, an appropriate minimum IFR altitude, or a point where it is possible to intercept an IFR departure procedure and comply with all subsequent restrictions.

6.12.2.5. Diverse Departures. At airfields where obstacles are not a factor, but an instrument approach is published, aircrews may fly a diverse departure. A diverse departure means to fly runway heading to 400 ft AGL, then turn to departure heading maintaining a minimum climb of 200 ft/nm to the appropriate IFR MEA. The pilot may turn in any direction after reaching at least 400 ft AGL. A published instrument approach without a "Trouble T" indicates a diverse departure is authorized from that airfield, unless diverse departures are specifically prohibited in the front of the FLIP IAP book.

6.12.3. VFR Departures. Comply with AFI 11-202V3, paragraph 8.1.

6.12.3.1. VFR departures require detailed planning to ensure the aircraft is capable of avoiding obstacles and high terrain. The AC, with the assistance of the crew, is solely responsible for determining obstacle clearance requirements for a VFR departure. The crew should conduct an Operational Risk Management (ORM) review as part of the planning process. Consider factors such as weather, surrounding terrain, proximity of obstructions, etc. ***NOTE:*** Charts available to aircrews (TPC, JOG, etc.) may not accurately depict all obstacles (trees, power lines, towers, etc.) around the airfield 200 ft AGL and higher due to chart scale and feature density. Portrayed obstructions may be as much as 2 to 3 miles from each other with an unknown number of uncharted obstacles in between which are almost as high. Charts must be updated with the latest obstacle data via NOTAMs and CHUM to provide the most complete picture of obstacles in the vicinity of the airfield. Pilots must use extreme caution when departing VFR with marginal aircraft performance.

★6.12.3.2. Conduct night VFR departures, other than VFR pattern operations, only when required for mission accomplishment. ***WARNING:*** Departure at night does not afford opportunity to see and avoid terrain. Pilots must exercise extreme caution when aircraft performance is marginal and VFR departure is required at night.

6.12.3.3. The planned departure and emergency return routes will be thoroughly briefed to the entire crew. Escape routing must always be planned to ensure obstacle clearance and emergency recovery in the event of engine failure. Emergency recovery altitudes must be planned to avoid creating undue hazard to persons or property IAW 11-202V3, para 5.10.

6.12.3.4. Four-engine climb performance (climb gradient capability) must ensure obstacle avoidance along the planned departure route, as determined by a review of VFR charts. In the opinion of the AC, available charts must provide sufficient detail to identify obstacles which may be a factor on takeoff. The chart updating requirements and accuracy considerations of paragraph **6.12.3.1.** above apply.

★6.12.3.5. Engine-out climb performance (climb gradient capability) must ensure that in event of an engine failure, the planned departure or emergency return route (which may be different than the planned departure route) provides obstacle avoidance. Minimum engine-out climb capability is dependent on the departure conditions (terrain, weather, etc.). However, in all cases the aircraft must be

capable of maintaining a climb rate of at least 100 ft/nm to VFR traffic pattern altitude. Emergency recovery altitudes must be planned to avoid creating undue hazard to persons or property IAW 11-202V3, para 5.10.

6.13. Takeoff Minimums. Takeoff minimums are according to **Table 6.3.**

6.13.1. OG/CC or equivalent must approve takeoff if departure alternates are required.

Table 6.3. Departure Alternate Requirements.

If departure weather is:	A departure alternate is:
At or above authorized ceiling and visibility landing minimums.	Not required
Below either authorized ceiling or visibility minimums but RVR is 16 or greater (visibility ¼ miles or greater):	Required (see notes 1 and 2)
Below either authorized ceiling or visibility minimums but RVR is 12 or greater at the approach end and 10 or greater at the departure end and runway centerline lighting is operational:	Required (see notes 2 and 3)

Notes:

1. Alternate must be located within 30 minutes flight time with weather reported and forecast at or above approach minimums or 200-1/2 (RVR 24), whichever is higher for 1 hour after takeoff.

-OR-

Alternate must be located within 2 hours flight time with weather to be at least 500-1 above approach minimums but no lower than 700-2 for a precision approach or 800-2 for a non-precision approach for ETA at the alternate + or - 1 hour.

2. Aircraft must be able to maintain MEA to the alternate if an engine fails.

3. Must have centerline lighting and dual RVR display slave readouts for both approach and departure end of runway. For runways with triple RVR readouts, the pilot may use any two consecutive read-outs to determine if the runway is usable for departure (aircraft performance permitting). For example: Approach end RVR=8, midfield RVR=12, departure end RVR=10. If aircraft performance and runway length will permit taking off at midfield, this runway is usable for takeoff.

6.14. Destination Alternate(s). Destination alternate requirements are IAW AFI 11-202V3 except as follows:

6.14.1. File two alternates when the forecast surface winds, prevailing or intermittent, exceed crosswind limit corrected for RCR, or when operational necessity dictates filing to a destination where the forecast visibility, prevailing or intermittent, is less than published for an available approach.

6.14.2. File an alternate whenever the destination is outside the CONUS. **EXCEPTION:** Intra-theater flights outside CONUS that do not exceed 3 hours, comply with basic AFI 11-202V3.

6.14.3. If the destination is remote or an island, with no alternate available, add holding fuel in accordance with **Table 14.1.** in lieu of an alternate. The forecast weather at the remote or island destination must meet the following restrictions:

6.34.4.1. SIGMET (significant meteorological information) advisories will be transmitted from the servicing ATC unit. Crews will consider all SIGMETs valid for their aircraft until verified as not applicable with a military METRO service.

6.35. Crew Coordination. Aircrew members will confine their activities to aircraft operation below 10,000 feet.

6.36. Instrument Approach Procedures:

6.36.1. Only DoD FLIP and NOAA published approaches are authorized for use. Submit requests to MAJCOM Standardization/Evaluation for use of other instrument procedures (e.g., Jeppesen/host nation procedures).

6.36.2. If the minimum altitude is not adequately depicted on an instrument approach procedure chart and terrain clearance is not confirmed by ATC radar, continue to the initial approach fix at or above the minimum altitude depicted on the en route chart and complete the descent to the initial approach altitude in a holding pattern.

6.37. Instrument Approach Minimums. The EC-130 is a category "C" aircraft. If approach speeds exceed 140 knots, the minimums for category "D" will be used. DH/MDA, instrument approach visibility and, if required, ceiling minimums will be as published, with the following Exceptions:

6.37.1. Precision Approaches. Minimum visibility is one-half mile or RVR 24. DH will be based on a HAT of no less than 200 feet.

6.37.1.1. If full flight instrumentation is not operational, visibility must be at least three-fourths of a mile (RVR 40), and/or ceiling must be at least 300 ft. Base DH on a minimum HAT of 300ft.

6.37.1.2. Full flight instrumentation for an ILS includes dual flight displays, (one flight director plus ADI repeat satisfies this requirement), complete differential pressure instruments, compass system/heading reference systems, and attitude indicators in the pilot and copilot positions.

6.37.1.3. Full flight instrumentation for a PAR includes complete differential pressure instruments, compass systems/heading reference systems, and attitude indicators in the pilot and copilot position.

6.37.2. Non-precision Approaches. Use published minimums.

★6.37.3. Circling Approach. Minimum descent altitude (MDA) will be as published for category aircraft. If the minimums are not published by category (i.e., one minimum for all cats), the minimum altitude will be as published, but no lower than the value indicated below, plus the published airport elevation:

6.37.3.1. Category C. 500 feet, 1.5 miles.

6.37.3.2. Category D. 600 feet, 2 miles.

6.37.4. Aircrews performing approaches and landings at locations where temperatures are 0 degrees centigrade or below will refer to the Flight Information Handbook, section D, Temperature Correction Chart, to correct minimum descent altitude (MDA), decision height (DH), and other altitudes inside the final approach fix (FAF) if required.

6.38. Weather Below Minimums. If the ceiling is below the value depicted for the approach but the visibility value is at or above the authorized minimums, the pilot will comply with the fuel requirements of **Table 14.1.** prior to initiating en route descent or penetration and approach.

6.38.1. An AC may hold at a destination which is below landing minimums but forecast to improve to-or-above minimums, fuel permitting.

6.38.2. If advised that weather conditions are below landing minimums after starting an approach, comply with AFI 11-202V3. The AC may elect to continue the approach to the missed approach point.

6.39. Wake Turbulence Avoidance. Comply with wake turbulence avoidance criteria. Acceptance of a visual or contact approach clearance or instructions to follow an aircraft is acknowledgment that the pilot will maintain a safe interval for wake turbulence avoidance.

Section 6G—Post-Flight

6.40. Aircrew Debriefing. Debrief all missions IAW local **Chapter 10**.

6.41. Customs, Immigration, and Agriculture Inspections:

6.41.1. Obtain Customs, Agriculture, and Public Health clearance, as required, prior to opening any doors (other than the crew entrance door) or enplaning and deplaning personnel.

6.41.2. Proceed directly from the aircraft to Customs, Immigration, or Agricultural Inspection for processing at those stations where Federal or local inspections are required. The AMT/Scanner or the AC completes the necessary forms before reporting to inspectors.

6.41.3. After clearing with border clearance agencies, the AMT/Scanner returns to the aircraft for post-flight procedures.

6.41.4. All aircrew members will obey foreign or host country laws and customs as prescribed in the FCG.

6.41.5. US military aircraft are sovereign instruments. When cleared to over-fly or land in foreign territory, it is US policy to assert that military aircraft are entitled to the privileges and immunities which customarily are accorded warships. These privileges and immunities include, in the absence of stipulations to the contrary: exemption from duties and taxation, immunity from search, seizure, and inspections (including customs and safety inspections), or other exercise of jurisdiction by the host nation over the aircraft, personnel, equipment, or cargo on board. USAF ACs will not authorize search, seizure, inspection, or similar exercises of jurisdiction enumerated above by foreign authorities except by direction of HQ USAF or the American Embassy in the country concerned.

6.41.5.1. ACs will not permit the inspection of their aircraft by officials of any foreign government. If requested to do so, the AC and crew will deny access and seek aid from the senior USAF representative or US Embassy or consulate within the host nation. Customs or other officials will be informed of the above policy and requested to confirm their request through their own government and with US Department of State representatives. If necessary, the crew will seal the aircraft enter crew rest, and cancel departure intentions until resolution of the matter by appropriate authority. Communications by the fastest means available will be used to inform command and control facilities should this situation occur.

6.43.2.1.1. Aircraft that land in the US north of 35 degrees north latitude need not be sprayed between 1 October and 31 March, unless the aircraft will immediately proceed to a part of the US located south of 35 degrees north latitude.

6.43.2.1.2. The US Public Health Service may require spraying of aircraft for emergency purposes or special requirements (see USAF Foreign Clearance Guide for exceptions).

6.43.2.2. The state of Hawaii, to include flights from the CONUS.

6.43.2.3. A foreign area, according to the requirements of the country concerned or of the USAF. (See USAF Foreign Clearance Guide for individual country requirements.)

6.43.3. Use insecticide, Aerosol D-Phenotrin-2%, NSN 6840-1-067-6674 (or equivalent), to spray the aircraft.

6.43.3.1. Aerosol normally is dispersed at a flow rate of 10 seconds per 1,000 cubic feet. Direct the nozzle toward the ceiling of the compartment or space being sprayed. Do not spray any plastic surface or allow the spray to wet it.

6.43.3.2. Spray spaces inaccessible from within the aircraft after completely loading fuel, baggage, cargo, and passengers, including baggage compartments, wheel wells, and other similar spaces.

6.43.3.3. Spray the cabin, cockpit, and other spaces accessible from within the aircraft after the crew is on board and after closing all doors, windows, hatches, and ventilation openings.

6.43.4. Spray for 50 seconds unless longer periods are specified for the country being transited.

6.43.5. When seeing any insect or rodent infestation of the aircraft in-flight, notify the destination CCC, base operations, or airport manager of the situation before landing so the proper authorities can meet the aircraft.

6.43.6. Upon arrival, do not open cargo doors or hatches except to enplane officials required to inspect the aircraft for insect or rodent infestation. Do not onload or offload until the inspection is satisfactorily completed. This procedure may be altered to satisfy mission or local requirements, as arranged by the base air terminal manager.

6.43.7. The US Public Health Service may require spraying of aircraft for emergency purposes or special requirements (see USAF FCG for exceptions).

Section 6H—Miscellaneous Procedures

6.44. Aircraft Pushback Operations. In situations where aircraft backing cannot be performed and time constraints and/or adverse weather prevent ground personnel from pre-positioning the aircraft, aircrew members may be required to participate in aircraft pushback operations. Comply with the requirements in paragraph **6.40.** above. Following pushback, chocks will be installed prior to disconnecting the tow bar and the FE will deplane to inspect the nosewheel scissor connection. Commence with BEFORE STARTING ENGINES checklist. **NOTE:** If a Dash-1 preflight was performed and no bleed down was performed, it should be accomplished at this time.

6.45. One-Time Flights. An aircraft may be released for a one-time flight with a condition which might be hazardous for continued use provided the aircraft is airworthy for one flight to another station.

6.45.1. This release must be authorized by the OG/CC, the senior maintenance officer, or the chief of the ALC repair team and requires NAF/DO coordination.

6.45.2. After the maintenance release is obtained, coordinate mission requirements with the controlling agency.

6.45.3. The AC's concurrence is required before the aircraft can be flown.

6.46. Buddy and Windmill Taxi Starts. Buddy and windmill taxi starts may be performed when approved by the wing/group commander or equivalent. Wing or group commanders may delegate this authority to their squadron or DETCO when the unit is deployed. This authorization will not be construed to allow repeated buddy or windmill starts at various scheduled en route stops. Nonessential aircrew members and all passengers will be loaded after completion of a buddy or windmill taxi start.

6.47. Three-Engine Takeoffs. Actual engine-out takeoffs require authorization from NAF/CC on a case-by-case basis.

★6.48. Volcanic Ash Precautions. Do not conduct operations in the general area of volcanic activity unless specifically directed. Volcanic dust may extend for several hundred miles, so flights should be planned well clear of the area and, if possible, the flight path should be on the upwind side of the volcanic dust. If volcanic dust is encountered, serious damage to aircraft surfaces, engines, windshields, and pitot/ static systems may occur. Aircraft which have encountered volcanic dust will not be cleared to fly until suitable maintenance inspections have been accomplished. The following are additional aircraft manufacturer recommendations if encountering volcanic ash:

6.48.1. Recommended Flight Procedures. Immediately reduce throttles to idle, exit ash as quickly as possible (180 degree turn recommended), switch on engine and wing anti-ice, set all air conditioning packs on high, put on oxygen masks at 100% (if required), turn on ignition (if applicable), monitor TIT limits, airstart engine (if required), monitor airspeed and pitch attitude, and land at the nearest suitable airport.

6.49. Impoundment. If an aircraft is involved in a serious in-flight incident, the AC should impound the
aircraft immediately after landing and contact the controlling C2 for further instructions.

6.50. AN/ALE 47 Ordnance Procedures. Conduct the following procedures after the live firing of chaff/flares on the EC-130E attached C-130 aircraft:

6.50.1. After landing, taxi to the de-arm area or another suitable safe location to check for hung ordnance. A protruding or partially ejected chaff/flare cartridge identifies AN/ALE-47 hung ordnance.

NOTE: ALE-47 or flare squibs that fail to fire are NOT considered hung ordnance.

★6.50.2. The AMT/Scanner will visually check the chaff dispensers from the left and right paratroop door windows, then deplane out the crew entrance door and check the forward flare locations. Proceed to the starting engine position for the number 1 and number 4 engines, checking the wing root chaff and flare dispensers. From these positions visually check the aft chaff dispensers (as well as possible). Maintain interphone contact at all times.

6.50.3. If hung ordnance is found, the aircraft will remain in a de-arm area until EOD/Weapons personnel meet the aircraft. The aircraft must remain in the designated safe area until munitions personnel can clear all hung ordnance.

6.50.4. If hung ordnance is not found, the aircraft can proceed to the parking location.

★Present a current AF Form 522, **USAF Ground Weapons Training Data**, for weapon issue. The same weapon will be reissued until the mission terminates. If an armed aircrew member must leave the crew en route, transfer the weapon to another authorized aircrew member using AF Form 1297, **Temporary Issue Receip**t.

7.4.1.1. Load and unload weapons at approved clearing barrels if available. To transfer loaded weapons to another aircrew member, place the weapon on a flat surface. Do not use hand-to-hand transfer.

7.4.1.2. Do not wear weapons off the flight line except to and from the armory and other facilities associated with aircrew activities (e.g., base operations, fleet service, cargo and passenger terminals, flight line cafeteria or snack bar). Weapons will remain under the positive control of the crewmember at all times.

7.4.1.3. Aircrew members will be armed prior to preflight duties. When no passengers are aboard and after a satisfactory stowaway check, weapons may be stored in the gun box in flight. Aircrew members will rearm before landing. Weapons will not be unloaded before placement in the gun box.

7.4.1.4. During crew rest, store weapons in the most secure facility available, normally a base or civil law enforcement armory. If a weapons storage facility is unavailable, secure firearms and ammunition in the aircraft. If the aircraft is not equipped with a gun box, leave the weapons in the most secure and least visible location on the aircraft. Attempt to seal the weapons with a boxcar seal and maintain the seal number. Lock and seal the aircraft doors.

7.4.2. Contingency Missions:

7.4.2.1. Normally, all crewmembers will be issued weapons prior to combat/combat support sorties, as part of the survival equipment, in accordance with theater directives. Procedures for weapons issue will be determined by squadron commander/DETCO in conjunction with life support personnel.

7.4.2.2. Do not wear weapons off the flight line except to and from the squadron area/briefing facility. Carefully consider the need to enter other facilities associated with aircrew activities (e.g., base operations, fleet service, cargo and passenger terminals, flight line cafeteria or snack bar), and avoid doing so, if possible. Consider storing weapons with life support while visiting these facilities. Weapons will remain under the positive control of the crewmember at all times.

7.5. Preventing and Resisting Hijacking. Refer to AFI 13-207 for detailed guidance. Security operations surrounding EC-130 aircraft at deployed locations are normally sufficient to deter piracy without any action by aircrew. Aircrew should always remain vigilant to any unusual circumstances, and report them to security forces.

7.5.1. The Air Transportation Act of 1974 and the Federal Aviation Act of 1958, as amended, vest the FAA Administrator with exclusive responsibility for the direction of law enforcement activity in aircraft hijacking situations involving all aircraft (civil and military) in-flight in the United States.

7.5.2. In taking action during an aircraft hijacking situation, military forces will act under military command within the scope of their duties.

7.5.3. In the event an aircraft involved in an aircraft hijacking situation is carrying documents, equipment, or material that DoD has determined to be highly sensitive, or weapons of mass destruction,

DoD will provide the FAA, and where appropriate, the FBI, with all pertinent information. Where possible, the FAA will consult and cooperate with DoD before directing any law enforcement activity.

7.5.4. An aircraft is most vulnerable to hijacking when the aircrew is aboard and the aircraft is operationally ready for flight.

7.5.5. A concerted effort must be made to prevent the hijacking of military or military contract aircraft by detecting potential hijackers before they board the aircraft.

7.5.6. Should preventive efforts fail, any actual attempt to hijack a military aircraft must be resisted in a manner appropriate to the situation.

7.5.7. Since air piracy may be committed by political terrorists or by individuals to whom the threat of death is a stimulus rather than a deterrent, ordinary law enforcement procedures may be ineffective. Thus, successful conclusion of a hijacking situation and apprehension of the hijackers may require use of specialized law enforcement techniques and procedures.

7.5.8. Delaying actions have been most successful in overcoming hijackings without loss of life or property.

7.5.9. In the case of an aircraft carrying passengers, the primary concern is the safety of the passengers.

7.5.10. Render assistance to hijacked civil or military contract aircraft as requested by the pilot in command of the aircraft and the authority exercising operational control of the anti-hijacking effort.

7.5.10.1. Responsibilities. When tasked for surveillance operations, the crew will:

7.5.10.1.1. Immediately after launch, establish radio contact with the C2 center via HF.

7.5.10.1.2. Rendezvous with the hijacked aircraft for surveillance as soon as possible after takeoff.

7.5.10.1.3. During rendezvous with the hijacked aircraft, assume a trail position out of cockpit and cabin view. Remain in an unobserved position unless otherwise directed. Safety is paramount; therefore, aircraft will maintain a 10NM trail in Canadian airspace and 5NM trail in all other airspace.

7.5.10.2. After direction to assume surveillance mission, continue until:

7.5.10.2.1. Fuel state dictates aborting to arrive at alternate with fuel reserves specified in this AFI.

7.5.10.2.2. Recalled by the C2 agency.

★7.5.10.2.3. The hijacked aircraft's destination is determined to be a country requiring over flight clearance for the surveillance aircraft. Contact a C2 center or command post for further direction. Until directed to over-fly sovereign airspace, remain out of that country's territorial airspace as specified in the FCG.

7.6. Armed Passengers. EC-130 aircraft normally do not carry passengers; therefore the risk of hijacking is further reduced. When carried, passengers will normally not carry weapons or ammunition on their person or in hand carried baggage. Exceptions include special agents and guards of the Secret Service or State Department and other individuals specifically authorized to carry weapons. Take every precaution to

7.11.2.3. Fly a direct course toward destination announced by the hijacker, if no course is specified.

7.11.2.4. Transmit the international distress signal, MAYDAY, on any of the international distress frequencies (121.5 MHz, 243.0 MHz, or 2182 KHz) in an effort to establish communications.

7.11.2.5. Set mode 3, code 7700 on transponder.

7.11.2.6. If radio contact cannot be established, follow procedures set forth in FLIP.

7.11.3. Consider the presence of classified documents and equipment aboard the aircraft. When a landing in an unfriendly nation is imminent, attempt to dispose of or destroy the equipment or material.

7.12. Force Protection. Crews must be alert to the possibility of terrorist activities at all times. The following considerations may help crewmembers avoid becoming victims of terrorism when operating in overseas locations:

7.12.1. Personal Conduct. Crews must realize their conduct can make them a target for individuals dissatisfied with US foreign involvement in their national affairs. Local foreign nationals may or may not condone a military presence - crew conduct will be watched and judged. Therefore, utilize the following:

7.12.1.1. Maintain good military bearing both on and off duty.

7.12.1.2. Avoid dressing in clothes that highlight the fact you are an American, i.e., cowboy hats, wide belt buckles, shirts with pro-American slogans, etc.

7.12.1.3. Do not wear clothing displaying profanity.

7.12.1.4. Know where “off-limits” areas are and avoid them.

7.12.1.5. Beware of personnel offering to take you on a “personal” sightseeing tour.

7.12.1.6. Do not get involved with anyone trying to involve you in games of chance.

7.12.1.7. When possible, always travel in groups of two or more.

7.12.1.8. Avoid demonstrations for any cause.

7.12.1.9. Avoid discussion of politics.

7.12.2. Ground Transportation Security. When traveling to and from billeting, messing facilities, etc., consider the following to minimize drawing attention to yourself as a potential target:

7.12.2.1. Select a plain car; minimize the “rich American” look.

7.12.2.2. If possible, consider not using a car that announces Government ownership.

7.12.2.3. Keep the gas tank at least half full at all times.

7.12.2.4. Do a thorough check of the car to look for signs of tampering - look at undercarriage and wheel-wells.

7.12.2.5. Park in well-lighted areas, preferably under US control.

7.12.2.6. Always lock your car. If possible, do not leave it on the street overnight.

7.12.2.7. Only leave the ignition key with parking attendants.

7.12.2.8. Before entering vehicles, check for suspicious objects. Look underneath vehicle seats.

7.12.2.9. Guard against establishing a routine. Vary times, routes, and modes of travel. Avoid late night travel.

7.12.2.10. Travel with companions or in convoys when possible.

7.12.2.11. Avoid isolated roads and dark alleys.

7.12.2.12. Ride with seat belts buckled, doors locked, and windows closed.

7.12.2.13. Do not allow the vehicle to be boxed in. Maintain a large enough interval between you and the vehicle in front so that you can pass.

7.12.2.14. Circle the block for confirmation of surveillance.

7.12.2.15. Do not stop or take other actions, which could lead, to a confrontation.

7.12.2.16. Recognize events that could signal the start of an attack, such as:

7.12.2.16.1. Cyclist falling in front of your car

7.12.2.16.2. Flagman or workman stopping your car.

7.12.2.16.3. Fake police or government checkpoints.

7.12.2.16.4. Disabled vehicle/accident victims on the road.

7.12.2.16.5. Unusual detours

7.12.2.16.6. An accident in which your car is struck.

7.12.2.16.7. Cars or pedestrian traffic that box you in.

7.12.2.16.8. Sudden activity or gunfire.

7.12.2.17. Know what to do if you are under attack:

7.12.2.17.1. Consider sounding the horn.

7.12.2.17.2. Put another vehicle between you or your pursuer.

7.12.2.17.3. Execute an immediate turn and escape, jump curbs at a 30-45 degree angle, 35-mph minimum.

7.12.2.17.4. Ram a blocking vehicle only as a last resort.

7.12.2.17.5. Go to the closest safe haven.

7.12.2.17.6. Report the incident to security police.

7.12.3. Personal Identification. Consider the following actions to avoid advertising the fact you are an American:

★7.12.3.1. Don’t discuss our military affiliation with strangers.

7.12.3.2. Avoid military style luggage such as B-4 bags & duffel bags with military logos, etc.

7.12.3.3. Consider placing your official passport and related documents such as military ID, flight orders, club card, dog tags, billeting receipts in your hand-carried luggage and not in your wallet or purse.

Chapter 10

LOCAL OPERATING PROCEDURES

10.1. General. Units will publish local and unique unit operating procedures as a supplement to this chapter, commencing with paragraph 10.2. The title of this paragraph will indicate the unit concerned, for example: "355 WG Local Operating Procedures."

★10.1.1. Such procedures will not duplicate, alter, or amend the provisions of this volume. Required items may be published as a local “In Flight Guide” or other aircrew aid, provided reference is included in this chapter.

10.1.2. The following items are required by other chapters in this volume:

10.1.2.1. Copilot left-seat training restrictions and approval procedures. (Para **3.1**.)

10.1.2.2. Procedures regarding the use of navigators on proficiency trainers. (Para **3.2**.)

10.1.2.3. Mission debriefing requirements and procedures. (Para **6.40**.)

10.1.2.4. Fuel planning and in-flight fuel management procedures. **(Chapter 11** and **Chapter 14**)

10.1.2.5. Approved VFR ARA approaches, including SCNS ARA input data. (Para **11.11**.)

10.1.2.6. Hostile Environment Repair Kit inventory and issue procedures (Para **12.11**.)

10.1.2.7. Search and Rescue Procedures. **(Chapter 21**)

10.1.2.8. Combat Checklists. (Para **17.6**.)

10.1.3. Additional items including, but not limited to, the following:

10.1.3.1. Local terrain and weather rules.

10.1.3.2. Local flying area procedures.

10.1.3.3. Taxi or parking plans.

10.1.3.4. Evacuation or dispersal plans.

10.1.3.5. Noise abatement procedures.

10.1.3.6. Scheduling procedures.

10.1.3.7. Additional required publications (Para **6.4**.)

10.1.3.8. Bird Condition restrictions

10.1.4. Forward copies of local operating procedures to NAF Standardization and Evaluation office.

Chapter 11

NAVIGATOR PROCEDURES

11.1. General: All EC-130 operations requiring a navigator will use navigation forms prescribed by this volume.

★11.1.1. Forms. This volume contains instructions for completion of AF Forms 4116, **C-130 Flight Plan and Log**. Samples of several are included. Computer flight plan forms may be used in lieu of the AF Form 70, **Pilot's Flight Plan and Flight Log**, and the flight plan portion of the AF Form 4116.

11.1.2. Communications. The navigator will record ATC clearances and monitor the readback. This includes all ATC instructions during departure, en route, and approach. **EXCEPTION:** Not required when ATC instructions require immediate execution by the pilot, or when such action would interfere with the timely performance of aircrew duties.

11.1.2.1. Monitor the primary command radio unless directed by the aircraft commander to do otherwise.

11.1.3. Departure and Approach Monitoring. Immediately after takeoff, cross-check available flight instruments with the airborne radar to ensure the aircraft remains clear of obstructions. During departure and arrival in instrument meteorological conditions (IMC) with airborne radar inoperative, use all available navigational aids to accurately position the aircraft. On all departures and arrivals, have the appropriate approach plate open to monitor course, timing, and altitude. The navigator will monitor the aircraft position using an ONC, TPC, or JOG chart. In IMC or at night the navigator will use all available navigational aids (including aircraft radar) to keep the aircraft clear of all obstructions. Backup the pilots and assist as necessary. Report any deviations immediately. Assist in clearing for other aircraft when possible. Confine activities to these critical duties during all departures and arrivals.

★11.1.4. Flight Following. The navigator will flight follow on all missions using a suitable plotting chart (JNC, JNCA, or GNC). On flights along airways or Category II routes, use applicable plotting charts suitable for radar flight following (JNC, JNCA, or GNC). Use a terrain chart (ONC scale or larger) depicting all terrain in the departure/arrival terminal area (within 25NM of the airfield).

11.2. Flight Planning Procedures:

11.2.1. General. Regardless of whether a flight plan is prepared by the aircrew or is furnished by another agency, the aircraft commander and navigator will verify routes and altitudes to ensure proper terrain clearance. On overseas flights, verify the flight planned routing against the diplomatic clearance, if applicable. Ensure all required fuel computations are accurate and complete, and confirm the ramp fuel load is compatible with mission requirements.

11.2.2. Category I Routes. Accomplish flight and fuel planning using the AF Form 4116 or a computer flight plan (CFP).

11.2.3. Category II Routes. Use the AF Form 70, AF Form 4116, or a CFP. Compute required fuel using the CFP.

★11.2.4. **Updating Charts.** The AC and navigator will jointly verify routing, altitude, and fuel load prior to departure. A copy of the navigator's flight plan will be provided to the copilot to verify routing and aid in position reporting.

11.3. Computer Flight Planning. As with any computer generated mission planning product, the aircrew is always responsible for accuracy of data used in flight. Verify computer generated flight plans for correctness prior to each flight. Untested or BETA versions of developing software will not be used for actual mission planning. ***NOTE:*** The primary flight/mission planning system is the Air Force Flight Management System (AFFMS). This includes the Portable Flight Planning Software (PFPS/CFPS). Upgraded or new versions of PFPS/CFPS will be released and authorized by the MAJCOM/DO for use after applicable testing has been completed.

11.3.1. Creating Flight Logs. In addition to manual flight logs, computer flight planning systems including Computer Flight Planning System (CFPS), Portable Flight Planning System (PFPS), Falcon View are authorized to create a navigator flight log.

11.3.2. Electronic Data Transfer. If the flight planning computer transfers a flight plan to the aircraft electronically, it must be an ACC approved system. MAJCOM/DOT will periodically publish a listing of approved systems. Aircrews will not use unapproved versions of any system to load an aircraft navigation computer without MAJCOM/DOT approval. EC-130E/H aircrews are authorized to use the Data Transfer Module (DTM) for loading flight plan data.

11.3.3. Computer Fuel Plans. Computer aided flight planning systems (that meet the criteria in paragraph **11.3. 1.**) produce flight plans and fuel calculations for C-130 and other aircraft. Computer Flight Plans may be used in place of the AF Form 4116. However, add alternate, identified extra, and reserve fuel in addition to the calculation. The printed format is user configurable and may be tailored to local needs. Section 4 covers detailed planning using these systems.

★11.4. Fuel Planning. Accomplish fuel planning IAW T.O. 1C-130H-1-1 and Chapter 14 of this volume. CFP en route fuel may be used for fuel analysis in lieu of en route fuel derived from T.O. 1C-130H-1-1. AF Form 4116 fuel analysis blocks may be reproduced on the computer flight plan printed format.

★Figure 11.1. AF Form 4116 Fuel Load Components.

SITUATION	FUEL REQUIREMENTS
ENROUTE	Fuel for flight time from departure to overhead destination or initial penetration fix at cruise altitude (including time for planned orbit, escort, search, recovery, appropriate climb, weather recon, etc. when applicable).
ENROUTE RESERVE	10% of flight time over a Category I route/segment, not to exceed 45 minutes. For orbit/search missions, 10% of flight time for that portion with inadequate NAVAIDS from the orbit/search point to destination. Compute at terminal fuel flow.
ALTERNATE AND MISSED APPROACH	**Alternate:** Fuel for flight time from overhead destination or initial penetration fix to alternate, or most distant alternate when two are required. Compute at terminal fuel flow. Required whenever alternate must be filed. **Missed Approach:** 2,200 lbs. Required if destination is below ceiling minimums but above visibility minimums for planned destination approach.
HOLDING	Entry required. Minimum 2,000 lbs. If flight time over a Category II route is greater than 3+20, when an alternate is located in Alaska, alternate not available or located at latitudes greater than 59 degrees N/S, use 3,500 lbs. These holding fuel calculations meet or exceed the fuel requirements of AFI 11-202V3 2.2.3. Fuel Reserves.
APPROACH LANDING	Approach: 1,000 lbs (2,000 lbs for high altitude approach). Entry always required. **Minimum Landing Fuel:** 4,000 lbs. Entry always required.
PRESSURIZATION LOSS	Additional fuel for pressure loss at ETP - used when pressurized, carrying passengers, and aircraft oxygen is not available to the passengers. Compute at 1,000 lbs/hr for time from ETP to FSAF or LSAF or "T" time. If computed fuel required for pressurization loss is less than total of items 2, 4, 5, and 12, no additional entry required in "Identified Extra". If computed fuel exceeds the total of item 2, 4, 5, and 12, add the difference in "Identified Extra."
STORED FUEL	Ramp fuel for succeeding legs without refueling.
OFF-COURSE MANEUVERS	Fuel for anticipated off-course maneuvering for terrain clearance, thunderstorm avoidance, and ATC requirement. Compute at 100 lbs/min for departure, 50 lbs/min en route.
ICING	500 lbs/hour of anticipated icing.
KNOWN HOLDING DELAYS	Fuel for anticipated/planned excess holding time. Compute at terminal fuel flow.
TAXI AND TAKEOFF	Normally 1,300 lbs. For known taxi delays or additional engine-running ground time in excess of 20 minutes, add 50 lbs/min.
UNIDENTIFIED EXTRA	Difference between ramp and actual ramp fuel. Normally, should not exceed 2200 lbs. (fuel conservation)
MINIMUM DIVERSION	Total of ALTERNATE AND MISSED APPROACH, HOLDING, and APPROACH/LANDING. Will never be less than 7,000 lbs.

11.5. Equal Time Point (ETP) Computations:

11.5.1. ETP Computations. Wind Factor and ETP Data Computations are required on Category I routes or Category I portions of routes when the total time between the last suitable airfield (LSAF) and the first suitable airfield (FSAF) is 5 hours or more. Suitable airfields are those within 100 NM of flight planned course centerline meeting weather, fuel, and EC-130E/H runway requirements from **Chapter 6** of this volume or the aircraft flight manual. For air refueling missions, make a separate computation for each fuel analysis required. The ETP should drive the location of your planned AR track. Plan to have sufficient fuel at each EAR point to proceed to an abort base if the tanker does not show. Use a point abeam the AR abort base as the LSAF or FSAF for wind factor computations, and enter ETP data on page 4 of AF Form 4116.

11.5.1.1. In-flight ETP. Recompute the ETP when the actual arrival over any reporting point prior to the ETP exceeds 15 minutes ahead or behind time when the change was caused by erroneous wind information. If the change was caused by factors other than a change in the wind (i.e., slow TAS or deviation for weather), simply compute a new ETA to the ETP, as the ETP itself will not have changed.

11.5.1.2. Wind Factor Data:

★***NOTE:*** In the following paragraphs for wind factor computation convenience, LSAF means level-off, abeam or over LSAF, or closest planned checkpoint or radio aid within 100 NM of LSAF. FSAF means abeam or over FSAF, closest planned checkpoint or radio aid within 100 NM of FSAF, descent point, or destination. Use any of the options in the ETP options graph, **Figure 11.2.** Specify the option used in the ETP computations section of the AF Form 4116. Record computations in the ETP computations section.

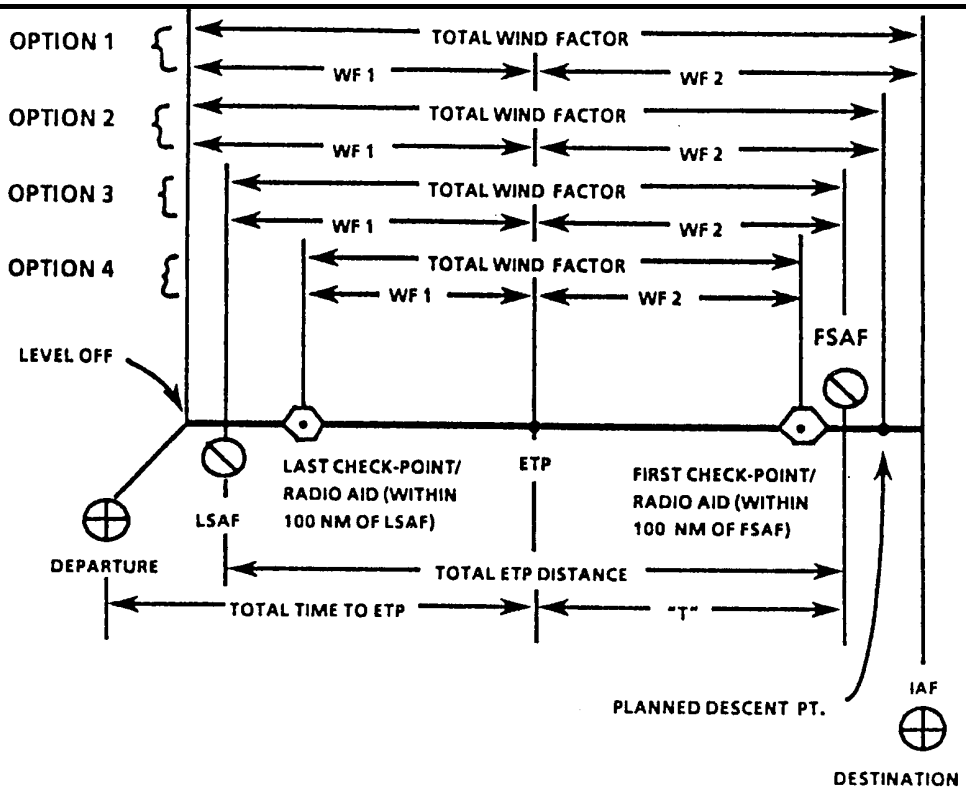
11.5.1.2.1. Total. Compute the average ground speed (GS) between LSAF and FSAF. Divide the total distance between the two end points by the total time between the two points:

Average GS = Total Distance/Total Time

Then, subtract average flight planned true airspeed (TAS) from average GS to obtain the total wind factor.

Total Wind Factor = Average GS - Average TAS

Figure 11.2. ETP Computations



1. WIND FACTOR COMPUTATION (USE OPTION 1, 2, 3, OR 4):

   A. TOTAL WIND FACTOR:

   $$\frac{\text{TOTAL WIND FACTOR DISTANCE}}{\text{TOTAL WIND FACTOR TIME}} = \text{AVERAGE GS}$$

   AVERAGE GS - PLANNED AVERAGE TAS = TOTAL WIND FACTOR

   B. FIRST HALF WIND FACTOR (WF 1):

   $$\frac{\text{DISTANCE FROM BEGIN PT. TO APPROX. MID-POINT}}{\text{TIME FROM BEGIN PT. TO APPROX. MID-POINT}} = \text{AVERAGE GS}$$

   AVERAGE GS - PLANNED AVERAGE TAS = WF 1

   C. SECOND HALF WIND FACTOR (WF 2):

   $$\frac{\text{DISTANCE FROM APPROX. MID-POINT TO END PT.}}{\text{TIME FROM APPROX. MID-POINT TO END PT.}} = \text{AVERAGE GS}$$

   AVERAGE GS - PLANNED AVERAGE TAS = WF 2

2. ETP COMPUTATION:

   A. $$\frac{\text{TOTAL ETP DISTANCE (LSAF TO FSAF)}}{\text{(WF 2 - WF 1) + 2(PLANNED AVG TAS)}} = \frac{\text{"T"(TIME IN MIN FROM ETP TO FSAF)}}{60}$$

   B. TIME (FROM DEPARTURE) TO ETP = TOTAL TIME TO FSAF - "T"

age GS to obtain the 1st half wind factor.

11.5.1.2.3. 2nd Half. Compute the average GS between the approximate midpoint and the FSAF. Subtract flight planned TAS from the computed average GS to obtain the 2nd half wind factor.

11.5.1.3. ETP Data:

11.5.1.3.1. DISTANCE (LSAF TO FSAF). Enter the total distance (regardless of level off) from or abeam the LSAF along course from departure to or abeam the FSAF along course toward destination.

11.5.1.3.2. T( )MIN. The flight time from the ETP to the FSAF or return to the LSAF.

11.5.1.3.3. TOTAL TIME TO FSAF - T = TIME TO ETP. Subtract the time, T( )MIN, from the total flight plan time to the FSAF. TIME TO ETP is the total time from departure to the ETP (departure and takeoff may not necessarily be the same). Compute and record ETA to ETP by adding TIME TO ETP to departure time.

11.5.1.4. Signature Block. Sign the page 1 of AF Form 4116 after completing the flight plan portion (or verifying the CFP) and completing the time and fuel analysis, wind factor, and ETP data.

11.6. Flight Charts. Maintain a plotting chart showing flight progress on all Category I routes. The following information will be shown on the chart:

★11.6.1. Navigator's name and coordinated universal date in the vicinity of departure or coast out point. Chart number, and chart edition will be annotated on the back of all stripped charts.

11.6.2. The flight plan centerlines and portions of ADIZ and FIR boundaries pertinent to the route. Label reporting points with proper names or geographical coordinates. Prominently mark warning and restricted areas within 25 NM of planned course and 3000 feet of planned altitude on the chart (not required if a FLIP en route chart with this information is immediately available and used). Annotate airfields along the planned route (within 50 NM) which could serve as possible emergency landing areas. Consider the following factors when selecting emergency airfields: type aircraft, weather conditions, runway length, runway weight-bearing capacity, runway lighting, radio navigational aids, and proximity to planned flight path.

11.6.3. Fixes or position plots and clearly designated time of each fix or position. Fixes or positions may be numbered and the corresponding numbers entered in the position column of the log instead of the geographical coordinates or descriptive position. Use standard symbols from AFPAM 11-216.

11.7. Flight Records Completion (AF Form 4116). This form will include in-flight progress and proposed data. Complete it in sufficient detail to fully evaluate or reconstruct the flight. The section is divided into two parts on the front side of the form (actual and proposed), with substantiation areas on the backside of the form. These procedures are designed to accommodate a wide range of different C-130 navigation equipment configurations.

11.7.1. AF Form 4116, C-130 Flight Plan and Record. All items in the flight plan portion are self-explanatory except as noted.

11.7.1.1. ZONE OR WPT. Used to list waypoints and fuel zones.

11.7.1.2. TO. List proper names of intersections, waypoints, or coordinates if no name is assigned. Include a separate flight plan line for all of the following (use an additional AF Form 4116 if required).

11.7.1.2.1. Initial Level Off. A separate line is not required when using ACCI-series fuel planning publications to determine en route fuel, but is recommended for ETP computations. Compute zone time for climb lines by using average climb TAS. If a line contains both climb and cruise, compute zone time at en route TAS plus 1 minute for each 4000 feet of climb.

11.7.1.2.2. Level off after air refueling. Compute as in paragraph **11.6.1.3**.

11.7.1.2.3. Rendezvous or Air Refueling (receiver only). From the ARIP to the EAR.

11.7.1.3. RETA. Revised ETA. Use this column when route diversions or unexpected speed changes cause significant ETA changes (greater than 3 minutes).

11.7.1.4. A OR B. Ahead or behind. Entry optional.. List minutes ahead of (A) or behind (B) flight plan time. Based on original ETA.

11.7.1.5. ALTERNATE. Use AFI 11-202V3, *General Flight Rul*es, and **Chapter 6** of this volume, to determine the requirement for a destination alternate airfield. Enter the proper name or the ICAO identifier of the alternate airfield, if required. Enter the AR abort airfield for legs ending with air refueling.

11.7.1.5.1. DISTANCE. The straight line distance or total flight planned zone distance from destination to alternate airfield. For air refueling, use the straight line distance or total flight planned zone distance from EAR to abort airfield.

11.7.1.5.2. TIME. Compute using cruise true airspeed and best known wind.

11.7.2. Actual Side:

11.7.2.1. The actual side of the flight log will contain actual observations and data obtained in-flight to substantiate the progress and position of the aircraft. When an entry is the same as the entry above it, a check mark may be used to indicate "same as previous entry."

11.7.2.2. POSITION. Enter one of the following:

11.7.2.2.1. Position coordinates (latitude and longitude).

11.7.2.2.2. Number or letter corresponding to the specific fix or position on the navigation chart.

11.7.2.2.3. Proper name or ICAO identifier of the navigation facility (e.g., LEV VORTAC) or geographical point. ***NOTE:*** A position entry may be a fix, Dead Reckoning (DR) position, air position, or Most Probable Position (MPP).

11.7.2.3. TC. Enter the measured true course (for position to position computations) from the previous position to the current logged position.

11.7.2.4. W/V. Wind and drift block. Enter either the computed average wind (fix to fix) based on the data entered on the actual side, or an average wind at the position from reliable Doppler, Inertial Navigation System (INS), Self-Contained Navigation System (SCNS), Global Positioning System (GPS), and Computer-Aided Navigation System (CANS). Use either computed or computer derived average drift correction.

11.7.2.5. TH. Enter the average true heading (computed from average compass heading or TH) from last fix or air position to current air position.

11.7.2.6. TAS. Enter the average true airspeed since the previously logged position.

11.7.2.7. ALT. Enter the altitude flown since the previously logged position.

11.7.2.8. GD/AD. Ground distance/air distance. The ground distance flown since the last fix or position if the data will be used to compute the ground speed (position to position computations). If the line is a ground plot DR line, enter the computed ground distance (from ground speed and time) for the DR position. If the line is used for air plot, enter the air distance computed from true airspeed and time since last fix or position.

11.7.2.9. TIME. Enter the time corresponding to the distance used in paragraph **11.6.2.8.**

11.7.2.10. GS. Ground Speed. Enter computed ground speed for position to position data. Enter an average ground speed from Doppler, INS, SCNS, GPS, or CANS if the system information is reliable.

NOTES:

1. When flying designated Category II portions of the route, no entries are required in the actual or proposed sides. ETA/ATA blocks on the flight plan portion satisfy log requirements.
2. On Category I routes, when Doppler, INS, SCNS, GPS, or CANS are providing reliable information, only time, position, average true heading, average true airspeed, altitude, and spot wind entries are required on the actual side for a full-line entry.

11.7.3. Proposed Side:

11.7.3.1. The PROPOSED side of the log will contain "the best known information" required to proceed to a point or abeam a point down track indicated in the CHECKPOINT block. When an entry is the same as the entry above it, a check mark may be used to indicate "same as previous entry."

11.7.3.2. TAS. Enter the proposed true airspeed between present logged position and the next position.

11.7.3.3. TC. Enter the measured true course to the next position.

11.7.3.4. W/V. Wind and drift block. Enter the best known wind information in the W/V block. A spot wind from Doppler, INS, SCNS, GPS, or CANS may be used. Enter a computed drift correction or spot drift correction in the DC block. Drift correction and ground speed will correspond with the wind used.

11.7.3.5. All blocks on the proposed side of the log require entries except in the following circumstances:

11.7.3.5.1. On portions of flights designated Category II.

11.7.3.5.2. On departure, approach, and other segments of the flight under positive radar control.

11.7.3.5.3. When numerous alters for weather, traffic, etc., make the accomplishment of the entries impractical.

11.7.3.6. REMARKS. Use the REMARKS sections to record pertinent information and events along with times of the events. Remarks will include, but not be limited to, clearances, equipment malfunctions, computer updates, navigator changeovers, and alter headings. Alter headings may be individually plotted or averaged to obtain DR positions.

★11.7.4. Clearance/Remarks. Enter ATC clearances as discussed in paragraph **11.1.2.** When practical, record assigned ATC frequencies on departure and approach in this section. Use this section to record other pertinent flight information as required.

11.7.5. Nav Aid Data. Use this section to record actual and corrected readings (if applicable). Compare Doppler, INS, SCNS, GPS, and/or CANS positions (latitude and longitude, or distance-to-go and cross track) for each position fix. At minimum, record the integrated navigation solution. If a navigation solution is updated, record its incorrect position and show that it was updated (in remarks section). Fix data substantiated by ICAO identifier or coordinates in the position block on the actual side of the AF Form 4116 need not be duplicated in this section.

11.7.6. Calibration. Use this section for true airspeed and heading deviation checks.

11.7.6.1. Heading Checks. See AFPAM 11-216, *Air Navigati*on, for additional information. For Celestial Heading Checks, use exact longitude (degrees and minutes), LHA, declination (DEC), and latitude to interpolate for exact ZN (use the "15/45" rule for this interpolation). Zn, headings, and deviations should be recorded or computed to the nearest tenth. All blocks are self-explanatory except the following:

11.7.6.1.1. DEV/CORR. Use this block to record INS, SCNS, GPS, or CANS deviation from actual heading and corrections to be applied to computer heading.

11.7.6.1.2. COMPUTER. Record INS, SCNS, GPS, or CANS, displayed heading in this block. ***NOTE:*** Regardless of the method used, ensure the sextant vertical reticule is properly aligned or apply an appropriate correction.

11.7.6.2. True Airspeed Checks. All blocks are self-explanatory except the following:

11.7.6.2.1. IOAT. Indicated outside air temperature. Not applicable for aircraft with operable TOAT displays.

11.7.6.2.2. TOAT. True outside air temperature. Apply correction to IOAT for heat of compression error (obtained from the aircraft performance manual). For aircraft with operable TOAT displays, enter the displayed value.

★11.7.6.2.3. IAS, CAS, EAS, TAS. Use the ICE-T method in AFPAM 11-216 to convert indicated airspeed (IAS) to true airspeed (TAS). Use the appropriate flight performance manual for airspeed corrections. On aircraft with TAS displays from operable air data computers/ transducers (ADCs/ADTs), enter only the displayed TAS value. Where two values are displayed from different ADCs/ADTs, enter the average of the two values. ***NOTE:*** For 245 and 270 true airspeeds, use the following correction for IAS to CAS: EC-130E, zero; EC-130H, +1. Use the following for CAS to EAS correction: EC-130E, minus 3; EC-130H, minus 2.

11.7.6.2.4. ITAS. Indicated true airspeed. Read directly from the true airspeed gauge.

11.7.6.2.5. CORR. Correction to ITAS. Subtract ITAS from TAS.

11.7.6.2.6. ITAS. Indicated true airspeed. Subtract indicated true airspeed (read directly from the true airspeed gauge) from computed TAS. Result will be CORR (correction to the ITAS). Navigators should also check the SCNS/CANS TAS for accuracy.

★**11.8. Enroute Procedures.** Heading deviation checks are not required on Category II routes.

11.8.1. Deviation Checks. On Category I routes or route segments, compute a heading deviation for each system being used as soon as practical after initial level off or coast out. Record deviation for all compass systems. On aircraft with reliable single INS or SCNS with a reliable INS, accomplish an initial heading deviation check to validate the INS heading. If INS heading differs from both compass-derived headings by more than 2 degrees, perform a celestial heading check. On dual INS equipped aircraft, if the INS true headings agree within 2 degrees of each other, they may be used in lieu of celestial heading checks as the primary heading reference. **EXCEPTION:** A deviation check is not required on flights transiting Category I routes of 2 hours or less if: the aircraft is equipped with two or more operable heading systems (the standby compass is not considered a system for this requirement).

11.8.2. True Airspeed Checks. Compute a true airspeed check within 1 hour after reaching the initial cruise altitude.

11.8.3. Fix Interval. Time between recorded positions (full-line entries on AF Form 4116, actual and proposed sides) will not exceed 1+20. Under normal conditions, 1 hour or less is the recommended time between recorded positions.

11.8.3.1. Immediately report malfunctions or loss of navigational capability which will degrade course centerline accuracy to the air traffic control center (ATCC).

11.8.3.2. Provide en route data for AF Form 72, **Air Report (AIRE**P), for flights outside the contiguous US when required by computer flight plan.

11.9. Celestial Procedures:

11.9.1. Precomps. Numerous specialized techniques are discussed in AFPAM 11-216.

11.9.2. Celestial Heading Checks. See AFPAM 11-216 for a comprehensive discussion of celestial concepts.

11.10. In-flight Fuel Management. Required for each flight over a Category I route when the flight time between LSAF and FSAF airfields is 5 hours or more. Use the in-flight fuel management section on the AF Form 4116. Refer to procedures in local **Chapter 10**.

11.11. Airborne Radar Approach (ARA) Procedures:

★11.11.1. **VFR Operations.** Units will submit VFR ARA approach plates for approval to NAF Stan/Eval (MAJCOM Stan/Eval if no NAF exists). During VFR, the minimum ceiling and visibility will be 1,500 feet and 3 miles. Use Figure 11.7 for ARA Construction Procedures. Publish approved VFR ARA approaches in **Chapter 10**. **Chapter 10** should include SCNS ARA input data. If available, pilots will back up the navigator using a published instrument approach.

11.11.2. IFR Operations. Refer to AFI 11-202 V3, and **Chapter 5** and **Chapter 8** for Self-Contained Approaches (SCA). Weather minimums will be established non-precision airfield minimums, or 500 feet and 1 mile, whichever is higher.

11.11.2.1. Except for contingencies, ARAs conducted in actual IMC must use approach plates published by the Defense Mapping Agency Aeronautical Center (DMAAC) or approved by MAJCOM. During contingencies, the MAJCOM DO or JFACC may approve IMC ARA approach plates. Units must comply with any restrictions in FLIP or the host nation agreement, and receive written approval from ATC and airspace management authority.

11.11.3. Radar Monitoring. Use ground-based radar monitor, where available (IFR and VFR).

11.11.4. Planning and Coordination. Prior to entering the terminal area, the navigator will coordinate the following items with the pilot (see ARA briefing guide, AFI 11-2C-130V3 CL-5, *Navigator Checklis*t):

11.11.4.1. Desired pattern altitude and headings.

11.11.4.2. Distance on final where descent will commence.

11.11.4.3. Glide slope angle and initial rate of descent (normally not greater than 400 feet per NM).

11.11.4.4. Minimum descent altitude and missed approach. Missed approach will conform to published procedures for a usable approach, if available.

11.11.5. Terminology and Procedures:

11.11.5.1. The navigator will advise the pilot when positive radar identification of the airfield complex is made.

11.11.5.2. The navigator will direct the aircraft by headings to the final approach course.

11.11.5.3. During the approach, the navigator will advise the pilot of the drift and groundspeed. If pilots can view this information on the selected SCNS/INS display, this advisory is not required.

11.11.5.4. The turn onto base leg (if required) should be made to allow for a 10 NM final (or as required).

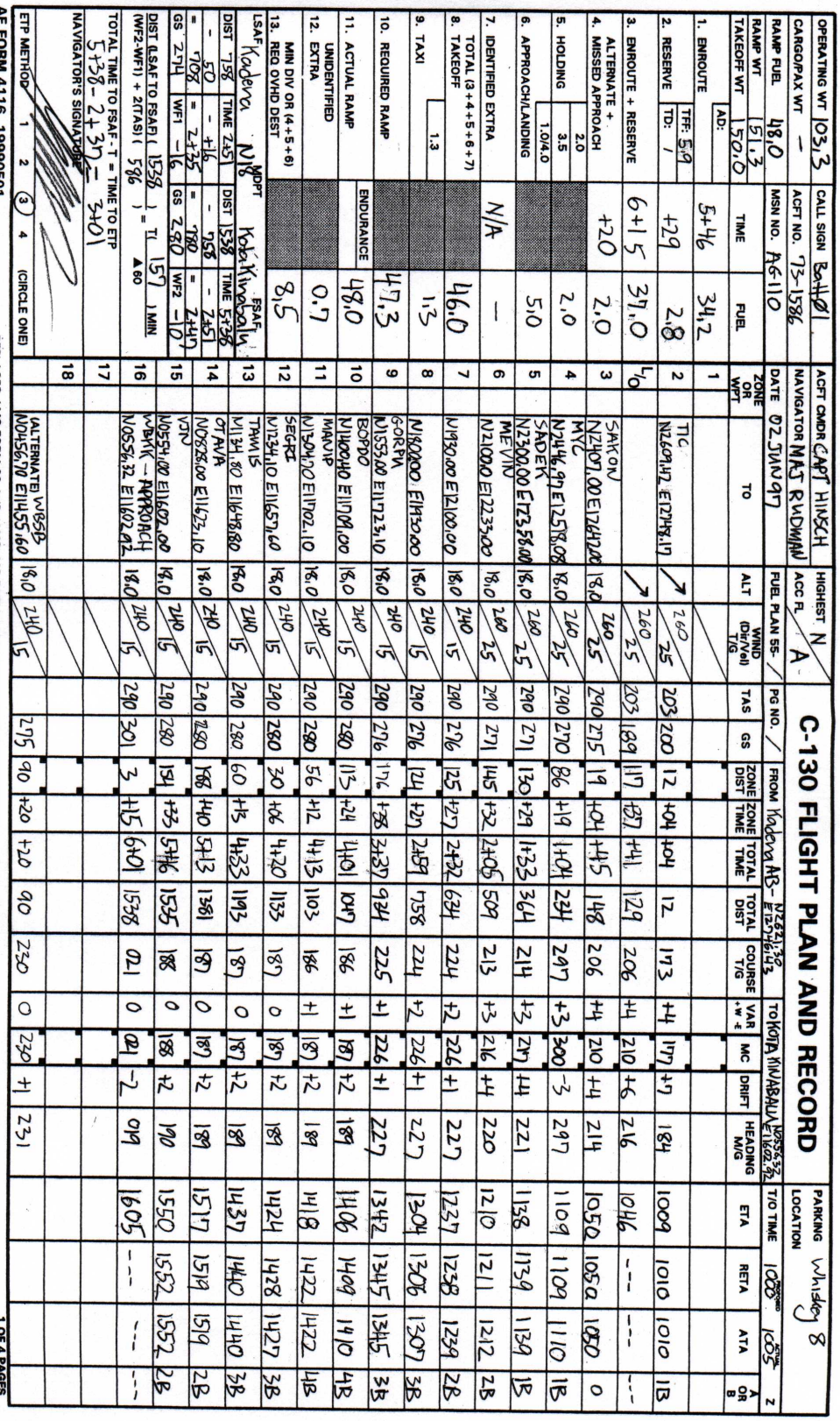
11.11.5.5. The navigator will state the distance from touchdown each mile from the end of the runway beginning 10 miles out. A glide path warning should be given 10 seconds prior to the "begin descent point."

11.11.5.6. The navigator will give heading information at least every nautical mile during the final approach.

11.11.5.7. Use **Chapter 5** procedures for required non-precision approach calls upon reaching the MDA.

11.12. Sample Entries. The following pages show representative entries for approved navigational forms.

★Figure 11.3. AF Form 4116, C-130 Flight Plan and Record (1 of 4)



OPERATING WT 103,3 | CALL SIGN BATHØ1 | ACFT CMDR CAPT HINSCH | HIGHEST ACC FL N/A | C-130 FLIGHT PLAN AND RECORD | PARKING LOCATION Whiskey 8

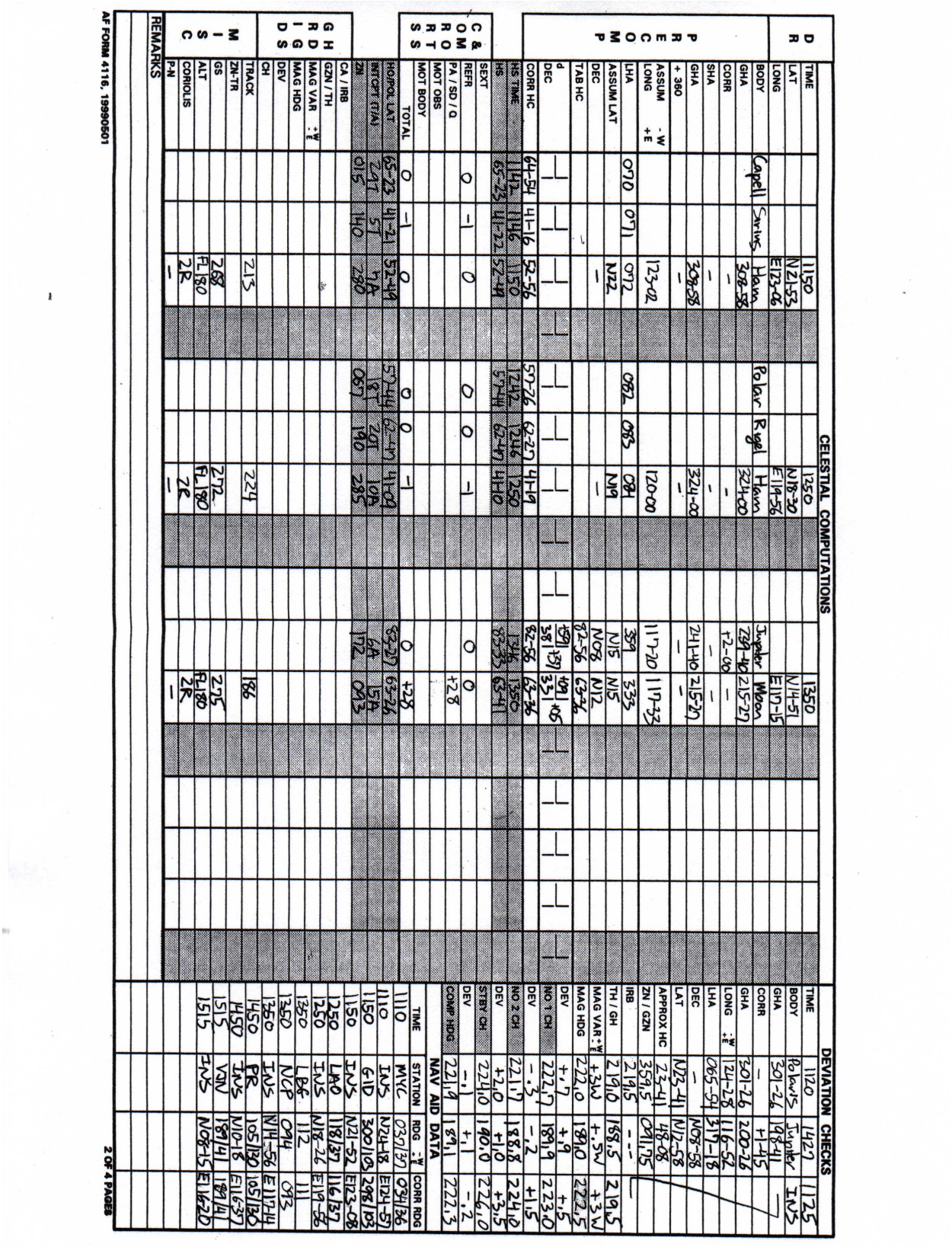
CARGO/PAX WT — | ACFT NO. 73-1586 | NAVIGATOR MAJ RUDMAN | FUEL PLAN 55- | PG NO. | FROM Kadena AB- N2331.52 E12746.15 | TO KOTA KINABALU N0554.52 E11652.72 | T/O TIME 1000 | 1005 | Z

RAMP FUEL 48,0 | MSN NO. A6110 | DATE 02 JAN 97

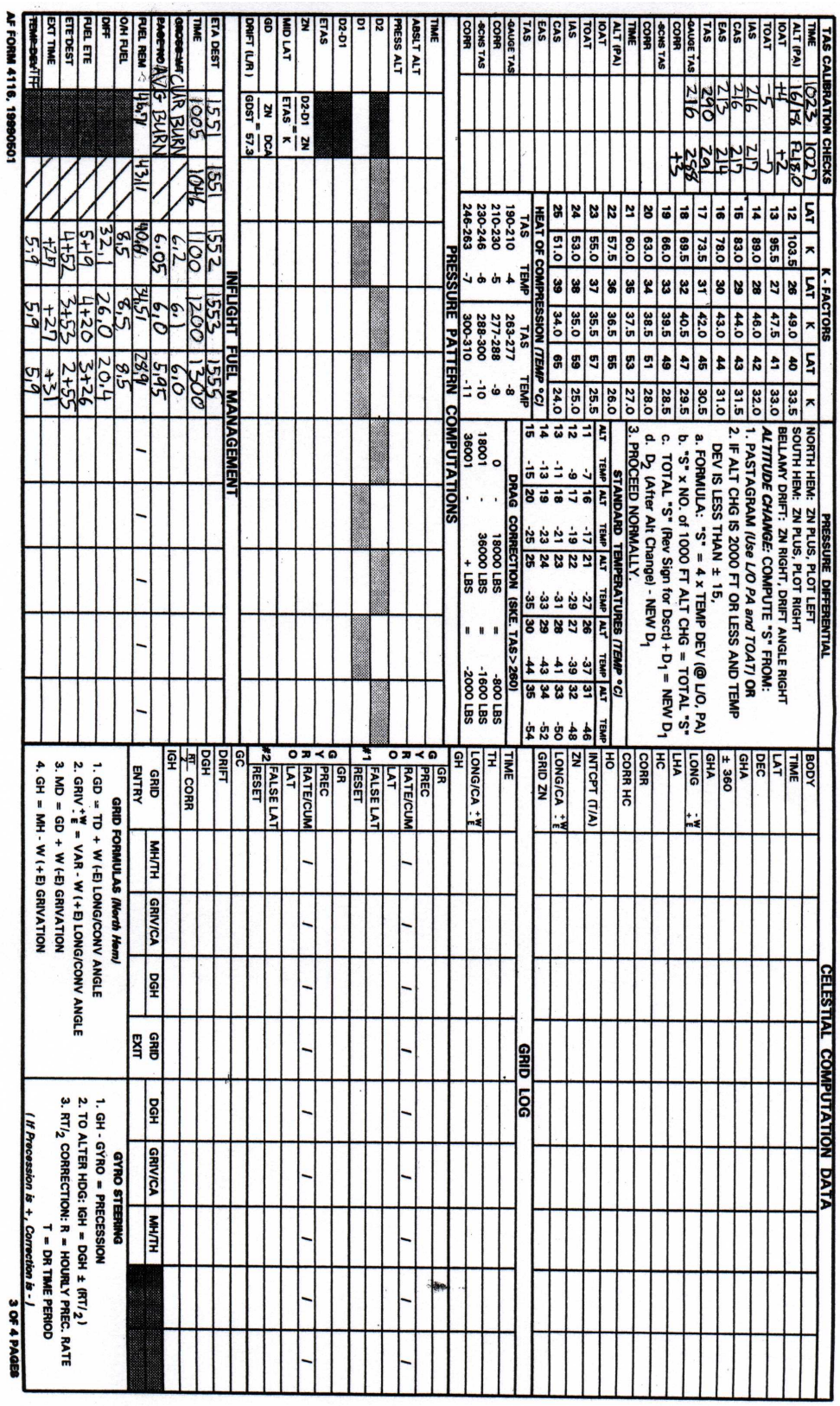
	RAMP WT 151,3	TAKEOFF WT 150,0	AD:	TIME	FUEL		ZONE OR WPT	TO	ALT	WIND (Dir/Vel) T/G	TAS	GS	ZONE DIST	ZONE TIME	TOTAL TIME	TOTAL DIST	COURSE T/G	VAR +W -E	MC	DRIFT	HEADING M/G	ETA	RETA	ATA	A OR B
1. ENROUTE				5+46	34,2	1																			
2. RESERVE	TFF: 5.9	TD: 1		+29	2,8	2		TIC N2601.42 E12749.17	260	25	203	200	12	+04	+04	12	173	+4	177	+7	184	1009	1010	1010	13
3. ENROUTE + RESERVE				6+15	37,0	4/0			260	25	203	189	117	+37	+41	129	206	+4	210	+6	216	1046	---	---	
4. MISSED APPROACH	2.0			+20	2,0	3		SAIKON N2707.00 E12642.00 MYC	18,0	25	260	275	19	+04	+45	148	206	+4	210	+4	214	1050	1050	1050	0
5. HOLDING	3.5				2,0	4		N2446.97 E12518.08	18,0	25	260	270	86	+19	+04	234	207	+3	300	-3	297	1109	1109	1110	18
6. APPROACH/LANDING	1.0/4.0				5,0	5		SADEK N2300.00 E12358.00 MEVIN	18,0	25	290	271	130	+29	+33	364	214	+3	217	+4	221	1138	1139	1139	18
7. IDENTIFIED EXTRA			N/A		—	6		N2100.00 E12233.00	18,0	25	290	271	145	+32	+05	509	213	+3	216	+4	220	1210	1211	1212	28
8. TAKEOFF	1.3				46,0	7		N1930.00 E12100.00	18,0	15	290	296	125	+27	+32	634	224	+2	226	+1	227	1237	1238	1239	28
9. TAXI					1,3	8		N1800.00 E11930.00	18,0	15	290	296	124	+29	+59	958	224	+2	226	+1	227	1304	1306	1307	38
10. REQUIRED RAMP					47,3	9		GORPA N1553.00 E11723.10 BOPDO	18,0	15	290	276	176	+38	+38	984	225	+1	226	+1	227	1342	1345	1345	38
11. ACTUAL RAMP	ENDURANCE				48,0	10		N1400.00 E11700.00 MANUP	18,0	15	290	280	113	+24	+41	1097	186	+1	187	+2	189	1406	1409	1410	48
12. EXTRA					0.7	11		N1340.00 E11702.10 SEGRI	18,0	15	290	280	56	+12	+13	1103	186	+1	187	+2	189	1418	1422	1422	48
UNIDENTIFIED																									
MIN DIV OR (4+5+6)																									
13. REQ OVHD DEST					8,5	12		N1234.10 E11657.60 TAWIS	18,0	15	290	280	30	+06	+20	1133	187	0	187	+2	189	1424	1428	1427	38
LSAF Kadena NDPT Kota Kinabalu FSAF						13		N1134.80 E11648.80 OTAVA	18,0	15	290	280	60	+13	+33	1193	187	0	187	+2	189	1437	1440	1440	38
DIST 758	TIME 2+51	DIST 1538	TIME 5+36																						
- 50	= +16	- 958	- 245			14		N0925.00 E11627.10 VOTO	18,0	15	290	280	148	+40	+53	1341	187	0	187	+2	189	1517	1519	1519	28
= 708	= 2+35	= 580	= 2+40																						
GS 274	WF1 -16	GS 280	WF2 -10			15		N0554.00 E11602.00 WBAK – APPROACH	18,0	15	290	280	154	+33	+56	1535	188	0	188	+2	190	1550	1552	1552	28
DIST (LSAF TO FSAF) (1538) = TI 157 1 MIN						16		(ALTERNATE) WBKP N0456.70 E11455.60	18,0	240 15	290	301	3	+15	6+01	1538	021	0	021	-2	019	1605	---	---	
(WF2-WF1) + 2(TAS) (586) = TI 60																									
TOTAL TIME TO FSAF - T = TIME TO ETP						17																			
5+38 - 2+37 = 3+01																									
NAVIGATOR'S SIGNATURE						18																			
ETP METHOD 1 2 (3) 4 (CIRCLE ONE)																									

AF FORM 4116, 19990501 — REPLACES AMC FORM 28 AND (AMC) MC FORM 1400, JUN 92, WHICH IS OBSOLETE. — 1 OF 4 PAGES

★**Figure 11.4. AF Form 4116, C-130 Flight Plan and Record (2 of 4)**



★Figure 11.5. AF Form 4116, C-130 Flight Plan and Record (3 of 4)



★**Figure 11.6. AF Form 4116, C-130 Flight Plan and Record (4 of 4)**