

**BY ORDER OF THE COMMANDER  
AIR COMBAT COMMAND**



**AIR FORCE INSTRUCTION 21-103**

**AIR COMBAT COMMAND  
Supplement**

**ADDENDUM\_NN**

**10 DECEMBER 2014**

**Maintenance**

**EQUIPMENT INVENTORY, STATUS, AND  
UTILIZATION REPORTING SYSTEM/HC-  
130J MINIMUM ESSENTIAL SUBSYSTEM  
LIST (MESL)**

**COMPLIANCE WITH THIS PUBLICATION IS MANDATORY**

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This MESL compliments AFI 21-103, *Equipment Inventory, Status, and Utilization Reporting*. It applies to all HC-130J ACC units. This Addendum applies to Air National Guard (ANG) and Air Force Reserve Command (AFRC) units and members. Ensure that all records created as a result of processes prescribed in this publication are maintained in accordance with Air Force Manual (AFMAN) 33-363, *Management of Records*, and disposed of in accordance with (IAW) Air Force Records Information Management System (AFRIMS) Records Disposition Schedule (RDS) located at <https://www.my.af.mil/gcss-af61a/afirms/afirms/>. Refer recommended changes or comments on AF Form 847, *Recommendation for Change of Publication*, to HQ ACC/A4C, 130 Douglas St., Suite B-210, Langley AFB VA 23665-2791, and send information copies to the applicable OCR.

**SUMMARY OF CHANGES**

This publication has been substantially revised and must be completely reviewed. Major changes include: addition of Fuel systems and Hydraulic systems. Correcting and adding of new Work Unit Codes (WUC) to FSL. Notes 1-69 have been revised to match Table 1.

**1. General.** The MESL is the basis of status reporting IAW AFI 21-103. MESLs lay the ground work for reporting the status of aircraft availability. They list the minimum essential systems and subsystems that must work on an aircraft for it to perform specifically assigned unit wartime, training, test, or other missions. Mission Ready Available (MRA) is used in readiness Status of Resources and Training Systems reporting only and denotes Mission Capable (MC) aircraft capable of being configured for a contingency mission in accordance with Commander Air Combat Command (COMACC) OMNIBUS Plan.

1.1. Qualifying notes are used to define aircraft exceptions and help explain complex degraded mission systems such as suspension equipment.

1.2. Aircraft status for generation and deployment: The goal is to generate or deploy Fully Mission Capable (FMC) aircraft, recognizing status actually achieved may be less than FMC. A Not Mission Capable (NMC) aircraft may be deployed provided it is safe for flight and can be configured and generated to MRA status at an employment site.

1.3. All ACC units will generate, or deploy and regenerate, using ACC MESLs. Major Command (MAJCOM) differences in MESLs are acknowledged. Upon actual deployment to another MAJCOM theater, the gaining MAJCOM has the responsibility to resource the differences in support/mission equipment.

**2. Reading the MESL (Table 1).** A MESL is read by comparing the systems stated by work unit code (WUC) against the Full Systems List (FSL) and all applicable Basic Systems List (BSL) across the page. Each unit's Design Operational Capability (DOC) statement determines applicability of BSL columns. The aircraft MESLs incorporate all ACC assigned aircraft; therefore, it is important to compare only those columns listed in the MESL which are applicable to the unit's assigned aircraft. For example, units with CC (wartime) coded aircraft would determine and report status using only the FSL and BSL columns related to their DOC statement and units with CB (test) coded aircraft would determine and report status using only the FSL and TST columns. Units with multiple coded aircraft will ensure status is reported using the MESL columns appropriate to the individual aircraft assignment code.

Table 1. HC-130J MESL

<b>D/N LL</b>	-	<b>DAY/NIGHT LOW LEVEL</b>								
<b>HAAR</b>	-	<b>HELICOPTER AIR TO AIR REFUELING</b>								
<b>D/N IN/EX</b>	-	<b>DAY/NIGHT INFILTRATION/EXFILTRATION</b>								
<b>FARP</b>	-	<b>FORWARD AREA REFUEL POINT</b>								
<b>AD</b>	-	<b>AERIAL DELIVERY</b>								
<b>SAR/AMC/AE</b>	-	<b>SEARCH AND RESCUE/AIRBORNE MISSION/ COMMANDER/AERO-MEDICAL EVACUATION</b>								
<b>TST</b>	-	<b>TEST</b>								
<b>AAR</b>	-	<b>AIR TO AIR REFUELING</b>								
		<b>FULL SYS LIST</b>	<b>BASIC SYSTEM LISTS</b>							
<b>WUC</b>	<b>SYSTEM/ SUBSYSTEM</b>	<b>FSL</b>	<b>D/N LL</b>	<b>H A A R</b>	<b>D/N IN/ EX</b>	<b>F A R P</b>	<b>AD</b>	<b>SAR/ AMC /AE</b>	<b>TST</b>	<b>AAR</b>
11000	WINDSHIELD / WINDOWS	X	X	X	X	X	X	X	X	X
11230	CARGO RAMP HYDRAULIC	X		X	X	X	X	X	X	
11250	CARGO DOOR HYDRAULIC	X		X	X	X	X	X	X	
11270	MLG DOOR	X	X	X	X	X	X	X	X	X
11280	NLG DOOR	X	X	X	X	X	X	X	X	X
11290	AIR DEFLECTOR DOORS	X					X(1)	X(1)	X(1)	
11300	DOORS MECHANICAL (I.E. TROOP & CREW)	X	X(2)	X(2)	X(2)	X(2)	X(2)	X(2)	X(2)	X(2)
12A00	ENHANCED CARGO HANDLING SYSTEM	X					X(3)		X(3)	

















	PANEL (CNBP)									
82LC0	COLOR MULTI PURPOSE DISPLAY UNIT (CMDU OR HDD)	X	X(58)							
82LG0	HUD ELECTRONIC UNIT	X	X(59)							
82LJA	COMM/NAV IDENTIFICATION MANAGEMENT UNIT (CNIMU)	X	X(60)							
82LJB	COMM/NAV IDENTIFICATION SYSTEM PROCESSOR (CNI-SP)	X	X(42)							
82LLA	DIGITAL MAP	X(41)								
91110	EVACUATION AND EMERGENCY EQUIPMENT	X	X	X	X	X	X	X	X	X
91210	AIRCRAFT LIFE RAFTS	X	X(65)							
96300	AIRCREW EYE RESP PROTECTION SYSTEM (AERPS)	X	X(41)							
97A00	EXPLOSIVE DEVICES AND COMPONENTS	X	X	X	X	X	X	X	X	X

**Notes:**

1. One required if mission dictates paratroop door use.
2. May be inoperative provided the ACAWS CREW DOOR OPEN messages are operative. Paratroop Door(s): May be inoperative provided affected Door is secured CLOSED and latched, and the exit is not required to meet minimum emergency exits per number of passengers carried.
3. Sufficient electrical locks, MFCD and PLCU's must be operational for heavy equipment

- drops only.
4. Bulldog winch or other approved method may be substituted.
  5. Personnel static line drops require one operational static line retriever system. Bomb rack/extraction delivery system required for heavy drops. CDS drops require one static line without retriever. ADCP may be inoperative provided soft panel control.
  6. Anti-Skid may be inoperative provided: Anti-Skid System ECBs are opened, Flight Manual Performance limitations are applied, Shall be repaired at first capable repair facility, Maximum Effort operations are not allowed, Restricted to one full stop landing.
  7. Flap position indicator gauge may be inoperative provided flap positioning indicator (AMU) is operative.
  8. May be inoperative provided the oil cooler flap manual control is operational and the associated engine oil temperature indication is operational.
  9. One is required; (except for 3A) provided all dedicated sensor input and control logic is serviceable to/from the operative FADEC on the engine with the lost redundancy.
  10. Deleted
  11. May be inoperative provided the oil quantity is verified before flight and the OIL QTY 1 (2,3,4) LO (C) is operational.
  12. May be inoperative provided APU bleed air or electrical power is not required and an alternate air source and external electrical power are available for starting engines.
  13. One resolver must be operational per power lever. One operational RVDT must be connected to the operating FADEC on each engine Prop. Control Panel/Switch may be inoperative as long as function is available through soft panel. Syncrophaser not required.
  14. Auto may be inoperative for pressurized flight provided manual control is operational. N/A below 10,000 feet.
  15. One may be inoperative provided the effected valve is open and the divider valve is operational.
  16. May be inoperative provided the effected valve is open, both wing isolation valves are operational, and all nacelle shut off valves are operational.
  17. One may be inoperative provided: (1) Affected valve is CLOSED, (2) All Nacelle Shut off Valves are operative. Less than 3, May conduct a one-time flight to repair facility. Fly unpressurized (Manual/Open) and with no icing forecast.
  18. Will be operational for flights into known or forecasted icing conditions. Engine anti-ice valve may be inoperative provided the failed valve has failed OPEN. If any engine valve is failed CLOSED, do not operate in known or forecast icing conditions.
  19. One anti-ice detector may be inoperative provided the AOA sensor is considered inoperative. Wing leading edge lights must be operational and the aircraft is not operated in known or forecasted icing conditions.
  20. Cargo compartment may be inoperative, but flight deck must be operational.
  21. One fan in each position must be operational.
  22. May be inoperative provided: 1) Divider valve operative. 2) Left wing isolation valve is operative. 3) ECS cross-flow valve is operative.
  23. May be inoperative provided APU electrical power is not required and external power or aircraft battery power are available.

24. All four must be operational for home station departures. One may be inoperative en-route if repair capability is not available. Flight to a destination with repair capability, including en-route stops, may be made if no other electrical malfunctions exist and the generator is removed and pad installed.
25. Anti-collision/strobe lights must be operational. One landing/taxi light on the same side of the aircraft must be operational. Both wing tip lights and one beaver tail light must be operational for night missions.
26. Interior lighting must be adequate for the safe movement of personnel/equipment for night operations.
27. NVIS lights must be operational on same side of POD in use.
28. The Aux hand pump may be inoperative provided the electrical Aux pump is operational and no AAR is required.
29. May be inoperative provided the direct reading gauge is serviceable.
30. May be inoperative provided Rudder Boost Pressure Indication is operative.
31. One channel may be inoperative.
32. One may be inoperative provided: All fuel flow indicators are operative, associated fuel boost pump is operative, all other fuel quantity indicators for tanks with fuel on the same side of the cross-ship valve are operative, fuel quantity in the associated tank is verified by an accepted procedure before each takeoff (dipstick).
33. Both may be inoperative provided: All fuel flow indicators are operative, associated fuel transfer pump is operative, all other fuel quantity indicators for tanks with fuel on the same side of the cross-ship valve are operative, fuel quantity in the associated tank is verified by an accepted procedure before each takeoff (magnetic sight gauge). Auxiliary boost pump may be inoperative provided the ECB for the inoperative pump is open. If the pump is inoperative, associated tank is considered unusable.”
34. One may be inoperative provided: All fuel flow indicators are operative, At least one associated fuel transfer pump is operative, all other fuel quantity indicators for tanks with fuel on the same side of the cross-ship valve are operative, fuel quantity in the associated tank is verified by an accepted procedure before each takeoff (dipstick). Both may be inoperative provided associated Fuel Tanks are verified EMPTY.
35. Main tank transfer pumps: one may be inoperative provided ECBs for inoperative transfer pump is open and the respective Main Tank Boost Pump is operative. External transfer pump: One pump in each tank may be inoperative provided ECBs for inoperative External Tank Transfer Pump are opened. Both pumps in each tank may be inoperative provided: ECBs for inoperative pumps are open, both tanks are empty.
36. Two required for in-flight refueling missions. May be inoperative provided valve is electrically disconnected and secured OPEN.
37. May be inoperative provided: Associated Fuel Level Control Valve is operative, affected Valve is secured CLOSED, Main Tank Transfer Pumps are operative, Cross-ship Separation Valve is operative. Valve must be manually closed if failed open or ECBs opened if valve is failed closed.
38. One may be inoperative provided: Applicable Flight Manual Limitations and Procedures are observed, Main Tank Transfer Pumps are operative, ECBs for inoperative Main Tank Boost Pump are strapped opened.
39. Although the fuel quantity indications can be displayed on multiple HDD System Status Displays as well as on the hard panel, repetitions in excess of one indication per tank are not

relevant. The “number installed” includes one indication per tank and the “number required” specifies the number of tanks that must have an operative indication.

40. One is required for in-flight refueling missions. May be inoperative provided valve is electrically disconnected and secured OPEN.
41. Maybe inoperative unless required to accomplish mission objectives.
42. Must have at least one fully operational. All stall warning system aural and visual warnings must be functional.
43. One required for normal airspace; both must be operational for missions in RVSM airspace.
44. If both autopilots are inoperative, consideration is given to reduce crew duty day. One needs to be operational in RVSM airspace.
45. May be inoperative provided, UHF #1 or VHF #1 is operational and at least one additional UHF or VHF radio is operational.
46. May be inoperative provided that one operative unit is available for each primary crew member. Public address may be inoperative as long as effective communications may be conducted by the crew.
47. IFF mode C, S required for flight. Mode 4 maybe inoperative for all CONUS flights. Unless directed by mission.
48. May be inoperative if deactivated and secured and is not required for compliance with ATC requirements. Passengers will not be carried.
49. Cockpit Voice Recorder (CVR) Beacon may be inoperative provided flight profile does not include extended overwater segments.
50. One VHF and one UHF secure voice system maybe inoperative.
51. Only voice SATCOM required
52. Required if thunderstorms or hazardous conditions that can be detected by airborne radar are forecast or exist along the route of flight, or essential to accomplish mission objectives.
53. One may be inoperative provided flight through airspace with no Nav-aids will not be conducted. Consult FLIP for airspace restrictions. EGI data input to special mission equipment may be inoperative for mission execution, if functions can be accomplished manually.
54. AAR-47 Missile Warning, AN/ALE-47 Flare and Chaff dispensing, AN/ALR-56M Radar Warning system must be operational as required for mission profile.
55. BAU's 1, 2, 4, and 5 must be operational. BAU 3 (day time only) and/or 6 will be used as replacements or can be failed (swap modules).
56. All busses required except the Electronic Warfare Bus, unless required for mission accomplishment.
57. Required for deployed aircraft only
58. HDD #1-#4, all data fields and displays must be operative for the associated HDD to be considered operative. However, when an input is not present and the correct “data not available or fail” indication (which may be a blank or removal of the indication) is displayed, the affected HDD may still be considered operative provided the failed indication is not required for the current mission. HDD #5-#8, may be inoperative unless essential for accomplishment of mission objectives.
59. One HUD may be inoperative providing both HDD's on the same effected side are operational. Both may be inoperative provided: (1) HDDs #1-4 are operative (including operative independent PFDs in the Pilot and Copilot positions), (2) Forecast weather at

destination is at or above category 1 approach minimums.

60. CNI-MU at CSO position may be inoperative on flights not requiring a CSO. One CNI-SP may be inoperative for onetime flight to repair facility.
61. Must have one fully operational.
62. May inoperative unless essential for performance of mission, route, or Air Traffic Control Requirements.
63. All components of the #1 VHF/ILS navigation system must be operational.
64. One time flight authorized to repair facility, including en-route stops. One operational regulator required at each primary crew station.
65. For extended overwater operations, sufficient life rafts must be available to accommodate all persons on board. Two life rafts required for normal operations.
66. May be inoperative provided control is available through the associated soft panel.
67. One time flight authorized to repair facility, including en-route stops.
68. Both may be inoperative. Unless required by mission.
69. One may be inoperative provided CAT II ILS approaches will not be flown.

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**Attachment 1****GLOSSARY OF REFERENCES AND SUPPORTING INFORMATION*****References***

AFMAN 33-363, *Management of Records*, 1 March 2008

***Abbreviations and Acronyms***

**AAR**—Air to Air Refueling

**ACC**—Air Combat Command

**AD**—Aerial Delivery

**AE**—Aeromedical Evaluation

**AF**—Air Force

**AFB**—Air Force Base

**AFMAN**—Air Force Manual

**AFRIMS**—Air Force Records Information Management System

**AMC**—Airborne Mission Commander

**ANG**—Air National Guard

**BSL**—Basic Systems List

**D/N IN/EX**—Day/Night Infiltration/Exfiltration

**D/N NVG LL**—Day/Night Night Vision Goggle Low Level

**DOC**—Design Operational Capability

**DTADS**—Data Transfer and Diagnostic System

**ECHS**—Enhanced Cargo Handling System

**FARP**—Forward Area Refuel Point

**FMC**—Fully Mission Capable

**FSL**—Full Systems List

**HAAR**—Helicopter Air to Air Refueling

**IAW**—In Accordance With

**IMT**—Information Management Tool (IMT's have converted to "Forms")

**IPRA**—Integrated Precision Radar Application

**MC**—Mission Capable

**MLG**—Main Landing Gear

**MRA**—Mission Ready Available

**NLG**—Nose Landing Gear

**NMC**—Not Mission capable

**NVG**—Night Vision Goggle

**OPR**—Office of Primary Responsibility

**PLCU**—Pallet Lock Control Unit

**PMA**—Portable Maintenance Aid

**RDS**—Records Disposition Schedule

**SAR**—Search and Rescue

**SCA**—Self Contained Approach

**TST**—Test

**WUC**—Work Unit Code

***Adopted Forms***

AF Form 847, *Recommendation for Change of Publication*