

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



AIR FORCE INSTRUCTION 21-103

**AIR COMBAT COMMAND
Supplement**

Addendum O

17 DECEMBER 2012

Maintenance

**EQUIPMENT INVENTORY, STATUS AND
UTILIZATION REPORTING SYSTEM/E-4B
MINIMUM ESSENTIAL SUBSYSTEM LIST
(MESL)**

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This MESL compliments AFI 21-103, *Equipment Inventory, Status, and Utilization Reporting*. It applies to all ACC E-4B units. This addendum does not apply to Air National Guard (ANG) or 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 Air Force Records Information Management System (AFRIMS) Records Disposition Schedule (RDS) located at <http://www.my.af.mil/afirms/afirms/afirms/rims.cfm> Send recommended changes or comments on AF Form 847, *Recommendation for Change of Publication*, to HQ ACC/A4CA-E4, 219 Dodd Blvd, Langley AF VA 23665, and send information copies to the applicable Office of Collateral Responsibility (OCR). OCR: HQ ACC/A4Q.

SUMMARY OF CHANGES

This document has been substantially revised and must be completely reviewed. E-4B Pre Mod Block 1 table was removed. E-4B MESL Qualifying Notes updated for pilot proficiency front end training only.

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 SORTS reporting only and denotes MC aircraft capable of being configured for a contingency mission in accordance with COMACC OMNIBUS Plan.

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

1.2. Aircraft status for generation and deployment: The goal is to generate or deploy 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 differences in MESLs are acknowledged. Upon actual deployment to another MAJCOM theater, the gaining MAJCOM has the responsibility to resource and specify the unit's requirements and resource the differences in support/mission equipment.

2. Reading the MESL. A MESL is read by comparing the systems stated by work unit code (WUC) against the FSL and all applicable BSLs across the page. Each unit's Design Operational Capability (DOC) statement determines applicability of BSL columns. The aircraft MESLs incorporate all ACC assigned aircraft and 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 will determine and report status using only the FSL and BSL columns related to their DOC statement. Units with TF (training) coded aircraft will determine and report status only using the FSL and TNG columns, and units with CB (test) code aircraft will determine and report status using only the FSL and TST columns. Units with multiple code aircraft will ensure status is reported using the MESL columns appropriate to the individual aircraft assignment code.

Table 1. E-4B MESL.

NO.	WUC	SYSTEM/SUBSYSTEM		FSL	BSL	
					ACG	SSM
1.	11000	Airframe		X	X1	X1
2.	11BC0	Forward Cargo Door		X	X	X
3.	11GAA	Thermal Curtains		X	X	
4.	12000	Cockpit And Fuselage		X	X1	X1
5.	12CA0	Airstairs Assembly		X	X	X
6.	12E00	Galley and Lavatory Equipment		X	X7,15	X7,15,36
7.	13000	Landing Gear		X	X1	X1
8.	13L00	Landing Gear Brake Systems		X	X1	X1
9.	14000	Flight Controls		X	X1	X1
10.	23000	Turbofan Propulsion System		X	X1	X1
11.	23CA0	Thrust Reverser Assembly		X	X1	X1
12.	23LD0	Extended Mission Oil Distribution		X	X	
13.	24A00	Auxiliary Power Unit		X	X	X
14.	41000	Air Conditioning, Pressurization, and Surface Ice Control		X	X1	X1
15.	41JA0	Air Cycle Pack System		X	X	X
16.	41M00	Equipment Cooling System		X	X	X36
17.	42000	Electrical Power Supply		X	X1	X1
18.	42AA0	Integrated Drive Generator System		X	X3	X3,36
19.	42C00	DC Power System		X	X1	X1
20.	42F00	Mission Power Distribution System		X	X	X,35

21.	42FCB	60 HZ Frequency Converter		X	X5	X,36
22.	44000	Lighting System		X	X1	X1
23.	44B00	Exterior Lights		X	X1	X1
24.	45000	Hydraulic And Pneumatic Power Supply		X	X1	X1
25.	46000	Fuel System		X	X1	X1
26.	46BC0	Air Refueling Receiver System		X	X	X36
27.	46D00	Fuel Indicating System		X	X1	X1
28.	47000	Oxygen System		X	X15	X15
29.	47AA0	Converter Assembly And Components		X	X6	X6
30.	49000	Miscellaneous Utilities		X	X1	X1
31.	49F00	Potable Water System		X	X	X15,35
32.	49GA0	Toilet System		X	X	X15
33.	51000	Instruments		X	X1	X1
34.	51BF0	Electronic Flight Instrument System (EFIS)		X	X14	X14
35.	51BGA	Standby Attitude Indicator		X	X	X
36.	51BH0	Magnetic Heading Reference System		X	X	X
37.	51RA0	Flight Data Recorder System		X	X	X
38.	51UA0	Terrain Awareness and Warning System (TAWS)		X	X	X
39.	52D00	Autopilot/Flight Director (AP/FD) System		X	X8	X8
40.	60000	Very Low Frequency/Low Frequency (VLF-LF) Communications		X	X2	
41.	61000	High Frequency (HF) Communications		X	X9,16,17,22	X15,16,17,22,35

42.	62BA0	Flight Essential VHF Comm		X	X	X
43.	62BB0	VHF-FM Radio System		X	X	X15,35
44.	63K00	C3 UHF ARC-171 Equipment		X	X10,22	X10,22,35
45.	63L00	UHF Command Radio		X	X22	X4,22
46.	63M00	Multiplexer System		X	X	X15,35
47.	64AA0	Aircraft Interphone Systems		X	X	X
48.	64AE0	Flight/Service Interphone Systems		X	X1	X1
49.	64D00	Mission Interphone Systems		X	X	X35
50.	65CH0	IFF/Air Traffic Control (ATC) System		X	X4	X4
51.	65CJ0	TCAS System		X	X1	X1
52.	66B00	Emergency Locator Transmitter (ELT)		X	X	X
53.	67P00	SHF Antenna Pointing Group		X	X	X35
54.	67Q00	Computerized Antenna Pointing System (CAPS)		X	X	X,35
55.	67R00	SHF Receiver-Transmitter (R/T) Group		X	X3	X34,35
56.	67S00	USC-28 Modem Group		X	X11	
57.	67U00	Frequency Division Multiple Access		X	X15,22	X15,22,35
58.	68C00	UHF SATCOM		X	X22	X22,35
59.	68D00	INMARSAT System 2		X	X18,22,29	X18,22,29,35
60.	68EA0	Direct Broadcast System		X	X15	X15,35
61.	68EB0	Wideband SATCOM System		X	X15	X,35
62.	68F00	MILSTAR EHF Equipment Group		X	X	X15,35
63.	68G00	MILSTAR UHF Equipment Group		X	X	X15,35

64.	68H00	MILSTAR Common Equipment Group		X	X	X15,35
65.	68J00	Secure Emergency Conferencing Network (SECN)		X	X25	X15,35
66.	68K00	INMARSAT System 1		X	X23	X23,35
67.	69A00	Manual Distribution System		X	X	X,35
68.	69DA0	Aeronautical Telecommunications Network System		X	X16	X16,35
69.	69DAE	VHF DATA LINK		X	X16	X16
70.	69DAH	Communications Management Unit		X	X16	X16
71.	69DAQ	Selective Calling System (SELCAL) Decoder		X	X1	X1,35
72.	69DB0	Cockpit Voice Recorder		X	X	X
73.	69Q00	Communications Test Equipment		X	X15	X15,35
74.	69R00	Secure Voice		X	X2	X15,35
75.	69RDA	Facsimile Machine		X	X	X15,35
76.	69RGA	STU-IIIIR		X	X24	X15,35
77.	69U00	Ground Line Interface Facilities		X	X	
78.	69UC0	Voice Recorder System		X	X	
79.	69V00	Miscellaneous Electronics		X	X	X
80.	69Y00	Automatic Patch and Test System (APTS)		X	X2	X15,35
81.	69YDA	NTPC/APTS Server		X	X19	X19,35
82.	69YDF	Interface Control Processor (ICP)		X	X	X,35
83.	69Z00	Digital Voice System		X	X2	X15,35
84.	69ZBA	Red Switch		X	X	X,35
85.	69ZBB	Red Expansion Chassis		X	X	X,35

86.	69ZBC	Black Switch		X	X	X,35
87.	69ZBD	Black Expansion Chassis		X	X	X,35
88.	69ZC0	DVS Telephone Equipment		X	X15,32	X15,32,35
89.	69ZD0	Enhanced Command Console (ECC)		X	X26	X26,35
90.	69ZF0	DVS Uninterruptible Power Supply (UPS)		X	X	X,35
91.	69ZFF	ECC UPS		X	X15,27	X15,27,35
92.	71AQ0	Flight Environment Systems		X	X15	X15
93.	71AB0	VOR/ILS		X	X8	X8
94.	71AG0	TACAN		X	X4	X4
95.	71AH0	Flight Management System		X	X8	X8
96.	71AJ0	Global Positioning System		X	X28	X28
97.	72000	Radar Navigation		X	X1	X1
98.	72B00	Low Range Radio Altimeter (LRR)		X	X8,12	X8,12
99.	72F00	Weather Radar		X	X	X
100.	72FC0	Weather Radar Indicator		X	X8,13	X8,13
101.	73A00	INS System		X	X28	X28
102.	82A00	Automatic Data Processing Unit		X	X20	X15,35
103.	82E00	Message Processing System		X	X	X15,35
104.	82F00	Secure Data System		X	X	X15,35
105.	82G00	AUTODIN Terminal Equipment		X	X	X15,35
106.	82H00	Group Viewing System		X	X2, 21	X15,35
107.	82HE0	VTC System		X	X33	X33,35
108.	82J00	Local Area Network		X	X2	X15,35
109.	82KA0	Enhanced Network		X	X30	X30,35

		Distribution System				
110.	82KB0	ISDN Distribution System		X	X31	X31,35
111.	91000	Emergency Equipment		X	X1,15	X1,15
112.	97000	Explosive Devices and Components		X	X1	X1
QUALIFYING NOTES:						
1. IAW Boeing 747 Master Minimum Equipment List						
2. Aircraft must be capable of fulfilling its designated operational tasking IAW JCS OPOD 2-CY						
3. Seven of eight must be operational. All required on #1 and #2 engines						
4. One required operational						
5. Four of six including #3 and #6 must be operational						
6. Three of four converters must be operational						
7. One refrigerator, one freezer, one oven required						
8. Two of three systems must be operational						
9. One ALE capable HF and two of four liaisons (excluding radio for flight deck) required for mission use.						
10. Three out of five required						
11. Four of five RT drawers required						
12. Pilot's position required						
13. Navigators position required						
14. Center console EFIS may be inop						
15. As required by mission tasking						
16. Datalink may be inoperative provided enroute operations do not require its use						
17. HF #1 or HF#4 must be available for flight deck data link and/or voice						
18. INMARSAT must be available for flight deck data link and/or voice						
19. One of two NTPC/APTS servers must be operational and operator must have system control						
20. X terminal at position 6.28 and LAN extensions at 7 other consoles must be operational						
21. One display in Area 5 and the display in Area 4 must be operational						

22. Associated audio paths must be operational through the digital voice system (NOTE: not applicable to pilot front end trainers)
23. Must be capable of supporting HSD 128 operations
24. Six of nine STU-IIIs must be operational; of those, three must have black digital capability and one fax/data capability
25. Four of six voice ports must be operational in MELP mode
26. Must have one voice operator, radio operator, and designated admin console operational
27. ECC UPS #1 must be operational
28. Systems #1 and #2 must be operational
29. Four of the signal paths between each set of panels must be operational
30. Three domains must be functional, half of the ports in each area must be functional
31. Half of the ports in each area must be functional
32. Eight telephones Operator Interface Unit (OIU)s may be inoperative
33. Carry-on mini-kit may be used
34. One up and one down converter required
35. Not required for pilot proficiency front end trainers (Post Depot/Pre Mod)
36. As required for Pilot proficiency front end trainers (Post Depot/Pre Mod)

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Commander

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

AFI 21-103, *Equipment Inventory, Status and Utilization Reporting*, 26 January 2012

Adopted Forms

AF Form 847, *Recommendation for Change of Publication*

Abbreviations and Acronyms

ACC—Air Combat Command

ACG—Aircraft Generation

ALE—Automatic Link Establishment

AP/FD—Autopilot/Flight Director

APTS—Automatic Patch and Test System

ATC—IFF/Air Traffic Control

AUTODIN—Automatic Digital Network

C3—Command, Control, Communication

CAPS—Computerized Antenna Pointing System

DOC—Design Operational Capability

DVS—Direct Video System

ECC—Enhanced Command Console

EFIS—Electronic Flight Instrument System

EHF—Extremely High Frequency

ELT—Emergency Locator Transmitter

HQ—Headquarters

HSD—High Speed Data

IAW—In Accordance With

ICP—Interface Control Processor

ILS—Instrument Landing System

INMARSAT—International Maritime Satellite

INS—Inertial Navigation System

ISDN—Integrated Services Digital Network

LAN—Local Area Network

LRRA—Low Range Radio Altimeter

MELP—Mixed Excitation Linear Predictive
MILSTAR—Military Strategic, Tactical & Relay
NTPC—Windows NT Personal Computer
OIU—Operator Interface Unit
R/T—Receiver-Transmitter
SATCOM—Satellite Communications
SECN—Secure Emergency Conferencing Network
SELCAL—Selective Calling System
SHF—Super High Frequency
SCT—Single-Channel Transponder
SSM—Special Support Mission
TACAN—Tactical Airborne Navigation
TAWS—Terrain Awareness and Warning System
TCAS—Traffic Collision Avoidance System
TNG—Training
UHF—Ultra High Frequency
UPS—Uninterruptable Power Supply
VHF—FM--Very High Frequency, Frequency Modulated
VHF—Very High Frequency
VLFLF—Very Low Frequency/Low Frequency
VOR—VHF (Very High Frequency) Omni-directional Radio-range
VTC—Video Teleconferencing