

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

AIR FORCE INSTRUCTION 21-103



**AIR COMBAT COMMAND
ADDENDUM-LL Supplement**

15 JULY 2010

Maintenance

**EQUIPMENT INVENTORY, STATUS AND
UTILIZATION REPORTING SYSTEM/MC-
12W 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 MC-12W ACC units. This addendum applies to Air National Guard and Air Force Reserve Command units and members. Ensure that all records created as a result of processes prescribed in this publication are maintained in accordance with (IAW) Air Force Manual 33-363, *Management of Records*, and disposed of IAW Air Force Records Information Management System (AFRIMS) Records Disposition Schedule located at <https://www.my.af.mil/gcss-af61a/afrims/afrims/>. Contact supporting records managers as required. Send recommended changes or comments on AF Form 847, *Recommendation for Change of Publication*, to HQ ACC/A4CQ, 130 Andrews St, Suite 211, Langley AFB, VA 23665-2791, and send information copies to the applicable Office of Collateral Responsibility.

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 be operational on an aircraft for it to perform specifically assigned unit training, contingency, wartime, training, test or other missions. Mission Ready Available (MRA) is used in readiness Status of Resources and Training System (SORTS) reporting only and denotes Mission Capable (MC) aircraft capable of being configured for a contingency mission IAW 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 and specify the unit's requirements and resource the differences in support/mission equipment.

1.4. Reading the MESL. 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 that 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. Units with TF (training) coded aircraft would determine and report status using only the FSL and TNG columns. Units with multiple coded aircraft will ensure status is reported using the MESL columns appropriate to the individual aircraft assignment code.

Table 1. MC-12W AIRCRAFT SYSTEM MESL

| | WUC | SYSTEM/SUBSYSTEM | BSL | | | |
|-----|----------------------------------------|------------------------------|-----|-----|-----|-----|
| | | | FSL | TNG | FMV | INT |
| | 11 - AIRFRAME | | | | | |
| 1. | 11A | Airframe | X | X | X | X |
| 2. | 11B | Crew Door | X | X | X | X |
| 3. | 11C | Fuselage | X | X | X | X |
| 4. | 11D | Wings and Nacelles | X | X | X | X |
| 5. | 11E | Empennage | X | X | X | X |
| | 12 - COCKPIT AND FUSELAGE COMPARTMENTS | | | | | |
| 6. | 12A | Flight Deck Crew Seating | X | X | X | X |
| 7. | 12B | Mission Systems Crew Seating | X | | X | X |
| 8. | 12C | Instructor Seating | X | | | |
| 9. | 12E | Toilet | X | | | |
| | 13 - LANDING GEAR | | | | | |
| 10. | 13A | Landing Gear | X | X | X | X |
| 11. | 13B | Wheels and Brakes | X | X | X | X |
| | 14 - FLIGHT CONTROL | | | | | |
| 12. | 14A | Flight Controls | X | X | X | X |
| 13. | 14B | Rudder Boost | X | X | X | X |

| | | | BSL | | | |
|------------------------------------------------------|------------|-----------------------------------------------------|------------|------------|------------|------------|
| | WUC | SYSTEM/SUBSYSTEM | FSL | TNG | FMV | INT |
| 14. | 14C | Flaps | X | X | X | X |
| 15. | 14D | Electric Pitch Trim | X | | | |
| 22 - TURBO PROP POWER PLANT | | | | | | |
| 16. | 22A | Turboprop Power Plant | X | X | X | X |
| 17. | 22B | Fire Suppression System | X | X | X | X |
| 32 - HYDRAULIC PROPELLER | | | | | | |
| 18. | 32A0 | Hydraulic Propeller | X | X | X | X |
| 19. | 32B | Auto-Feather System | X | X | X | X |
| 41 - AIR CONDITIONING AND SURFACE ICE CONTROL | | | | | | |
| 20. | 41A | AC and Heat for Flight Deck | X | X | X | X |
| 21. | 41B | AC and Heat for Cabin Compartment | X | X1 | X | X |
| 22. | 41C | Pressurization | X | X2 | X2 | X2 |
| 23. | 41D | Bleed Air System | X | X3 | X3 | X3 |
| 24. | 41E | Anti-Ice/De-Ice Systems | X | | | |
| 42 - ELECTRICAL POWER SUPPLY | | | | | | |
| 25. | 42A | Generator | X | X | X | X |
| 26. | 42B | Battery | X | X | X | X |
| 27. | 42C | Inverters EFIS 85 | X | X | X | X |
| 44 - LIGHTING SYSTEMS | | | | | | |
| 28. | 44A | Interior - Flight Deck | X | X9 | X9 | X9 |
| 29. | 44B | Interior - Cabin | X | X9 | X9 | X9 |
| 30. | 44C | Interior- Instrumentation | X | X9 | X9 | X9 |
| 32. | 44E | Exterior Lights (Navigation, Landing, Taxi, Strobe) | X | X9 | X9 | X9 |
| 33. | 44F | Emergency Exit Lights (Impact) | X | X | X | X |
| 45 - HYDRAULIC AND PNEUMATIC PWR SUPPLY | | | | | | |
| 34. | 45A | Hydraulic Pump and Systems | X | X | X | X |
| 46 - FUEL SYSTEM | | | | | | |
| 35. | 46A | Fuel Tanks | X | X | X | X |
| 36. | 46B | Fuel Cross-feed | X | X | X | X |
| 37. | 46C | Vent System | X | X | X | X |
| 38. | 46D | Fuel Quantity Instruments | X | X | X | X |
| 39. | 46E | Fuel Boost Pump | X | X | X | X |

| | | | BSL | | | |
|-----------------------------------------------|-----|--------------------------------------------------------|-----|-----|-----|-----|
| | WUC | SYSTEM/SUBSYSTEM | FSL | TNG | FMV | INT |
| 40. | 46F | Standby Fuel Pump | X | X | X | X |
| 47 - OXYGEN SYSTEM | | | | | | |
| 41. | 47A | Oxygen System - Flight Deck | X | X | X | X |
| 42. | 47B | Oxygen System - Cabin | X | X1 | X | X |
| 49 - MISCELLANEOUS UTILITIES | | | | | | |
| 43. | 49A | Fire Extinguisher - Portable | X | X | X | X |
| 44. | 49B | Windshield Wipers | X | | | |
| 51 - INSTRUMENTS | | | | | | |
| 45. | 51A | Enhanced Ground Proximity Warning System | X | X | X | X |
| 46. | 51B | Pitot Static System | X | X | X | X |
| 47. | 51C | Air Data Computer | X | X | X | X |
| 48. | 51D | Attitude and Heading Reference System (AHRS) | X | X3 | X3 | X3 |
| 49. | 51E | AF Standard Flight Director System | X | | | |
| 50. | 51F | Primary Flight Display (PFD) Proline 21 | X | X | X | X |
| 51. | 51G | Multi-Function Display (MFD) Proline 21 | X | | | |
| 52. | 51H | Electronic Standby Instrument System (ESIS) Proline 21 | X | X | X | X |
| 53. | 51J | Airspeed Indicator EFIS 85 | X | X | X | X |
| 54. | 51K | Altitude Indicator EFIS 85 | X | X | X | X |
| 55. | 51L | Left Vertical Speed Indicator EFIS 85 | X | X | X | X |
| 56. | 51M | Engine (ITT, Torque, N1, N2) EFIS 85 | X | X8 | X8 | X8 |
| 57. | 51N | Engine Fuel Flow Indicator EFIS 85 | X | X | X | X |
| 58. | 51P | Engine Oil Pressure Indicator EFIS 85 | X | X | X | X |
| 59. | 51Q | Attitude Direction Indicator (ADI) EFIS 85 | X | X | X | X |
| 60. | 51S | Horizontal Situation Indicator (HSI) EFIS 85 | X | X | X | X |
| 61. | 51T | Multi-Function Display (MFD) EFIS 85 | X | | | |
| 62. | 51U | Standby Compass | X | X | X | X |
| 52 - AUTOPILOT | | | | | | |
| 63. | 52A | Flight Management System (FMS) | X | X3 | X3 | X3 |
| 64. | 52C | Digital Autopilot | X | | | |
| 54 - TELEMETRY/DATA LINK | | | | | | |
| 65. | 54A | Remote Video System (ROVER) | X | | | |
| 66. | 54B | Pacific Wind (PW) Transmit and Receive System | X | | | |
| 55 - MALFUNCTION ANALYSIS RECORDING EQUIPMENT | | | | | | |
| 67. | 55A | Cockpit Voice Recorder (CVR) | X | | | |

| | | | | BSL | | | |
|-----|-----|-----------------------------------------------------|-----|-----|-----|-----|--|
| | WUC | SYSTEM/SUBSYSTEM | FSL | TNG | FMV | INT | |
| | | 62 - VHF COMMUNICATIONS | | | | | |
| 68. | 62A | VHF Communications | X | X | X3 | X3 | |
| | | 64 - INTERPHONE | | | | | |
| 69. | 64A | Interphone | X | X | X | X | |
| | | 65 - IFF | | | | | |
| 70. | 65A | IFF/SIF (APX-119) | X | X5 | X5 | X5 | |
| 71. | 65B | Traffic Collision Avoidance System (TCAS)/Sky Watch | X | | | | |
| 72. | 65C | Mode 4 | X | X6 | X6 | X6 | |
| | | 66 - EMERGENCY COMMUNICATIONS | | | | | |
| 73. | 66A | Emergency Locator Transmitter (ELT) | X | X | X | X | |
| | | 68 - SATELLITE COMMUNICATIONS | | | | | |
| 74. | 68A | KuSS/INMARSAT | X | | X10 | X10 | |
| 75. | 68B | UHF SATCOM | X | | X4 | X4 | |
| | | 69 - MISCELLANEOUS COMM EQUIPMENT | | | | | |
| 76. | 69B | Taqlane KG-175D or KG-250 Data Encryption | X | | X | X | |
| 77. | 69C | PRC-117G Multi-band Radio System | X | X3 | X3 | X3 | |
| 78. | 69D | ARC-231 Multi-band Radio System | X | X3 | X3 | X3 | |
| 79. | 69E | High Performance Waveform | X | | | | |
| | | 71 - RADIO NAVIGATION | | | | | |
| 80. | 71A | VOR/ILS/MB | X | | | | |
| 81. | 71B | Global Positioning System (GPS) | X | | | | |
| | | 72 - RADAR NAVIGATION | | | | | |
| 82. | 72A | Radar Altimeter | X | | | | |
| 83. | 72B | Weather Radar | X | | | | |
| | | 76 - ELECTRONIC COUNTERMEASURE | | | | | |
| 84. | 76A | AN/ALE-47 Countermeasures Dispensing System (CMDS) | X | | | | |
| 85. | 76B | AN/AAR-47 Missile Warning System | X | | | | |
| | | 77 - PHOTOGRAPHIC/RECONNAISSANCE | | | | | |
| 86. | 77A | Payload Electro Optical/Infra-red (MX-15) | X | | X | | |
| 87. | 77B | Video Data System w/ DVR & Video Distribution | X | | X | | |
| 88. | 77C | Laser Illuminator | X | | | | |
| 89. | 77D | Laser Designator (if installed) | X | | | | |
| 90. | 77E | Iridium Phone | X | | | | |
| 91. | 77F | Pennant Race System | X | | | | |
| 92. | 77H | Wind Jammer System | X | | | | |
| 93. | 77I | Sentry Software | X | X | X | X | |
| 94. | 77J | Sensor Operator Handgrip | X | | | | |
| | | 91 - EMERGENCY EQUIPMENT | | | | | |

| | | | | BSL | | |
|----------------------------------------------------------------------------------------------------|---------------------------------------|---------------------------------|-----|-----|-----|-----|
| | WUC | SYSTEM/SUBSYSTEM | FSL | TNG | FMV | INT |
| 95. | 91A | Life Raft | X | X7 | X7 | X7 |
| | 97 - EXPLOSIVE DEVICES AND COMPONENTS | | | | | |
| 96. | 97A | Squib, Engine Fire Extinguisher | X | X | X | X |
| Qualifying Notes: | | | | | | |
| 1. Only required if mission equipment operators or passengers are in the aft of the aircraft. | | | | | | |
| 2. Not required for flight below 10,000 ft MSL. | | | | | | |
| 3. One system must be operational. | | | | | | |
| 4. Not required if KuSS or INMARSAT is operational. | | | | | | |
| 5. Not required if the commercial transponder is operational. | | | | | | |
| 6. Do not launch or enter aircraft into a contingency zone with a known inoperative Mode 4 system. | | | | | | |
| 7. Required for all over water flights. | | | | | | |
| 8. Instruments that present digital or analog information – one must be operational. | | | | | | |
| 9. As required by AFI 11-202 Volume 3, <i>General Flight Rules</i> . | | | | | | |
| 10. If INMARSAT installed, 2 of 4 channels required. | | | | | | |

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Attachment 1

GLOSSARY OF REFERENCES AND SUPPORTING INFORMATION

References

AFI 11-202V3, <http://www.e-publishing.af.mil/shared/media/epubs/AFI11-202V3.pdf>
General Flight Rules

AFI 21-103, <http://www.e-publishing.af.mil/pubfiles/af/21/afi21-103/afi21-103.pdf>,
Equipment Inventory, Status, and Utilization Reporting

Abbreviations and Acronyms

EFIS— Electronic Flight Instrument System

FMV— Full Motion Video

ILS— Instrument Landing System

INMARSAT— International Marine Satellite

INT— Signals Intelligence Mission

MB— Marker Beacon

TNG— Training

UHF— Ultra High Frequency

VHF— Very High Frequency

VOR— VHF Omnidirectional Radio