

Revision: 1
Date: 04/19/2017

SAMPLE CORP

MINIMUM EQUIPMENT LIST



GULFSTREAM G-V TYPE

**GV, GV-SP, GV-SP (G550), GV-SP (G500)
GIV-X, GIV-X (G450), GIV-X (G350)**

NXXXXXX S/N ###

This MEL developed from the Master MEL for the GULFSTREAM AEROSPACE GV, GV-SP, GV-SP (G550), GV-SP (G500) GIV-X, GIV-X (G450), GIV-X (G350)
REVISION: 8a dated 08/24/2015

And MMEL PL-25 Rev.21, PL-34 Rev.4

NOTE: ER operations within this manual refer to airplanes operated under 14 CFR Part 135 on stage lengths where the single engine cruise segment exceeds 180 minutes.

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Log of Revisions

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HIGHLIGHTS OF CHANGE

Revision 1 - This aircraft was split from an existing G-V Fleet MEL.

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2. Administrative Control Item (ACI). An ACI is listed by the aircraft operator in the MEL for tracking and informational purposes. As an example, ACI may be used to track ETOPS accomplishment of required APU cold-soak, or in-flight verification starts. An ACI may be added to an aircraft operator's MEL by approval of the POI provided no relief is granted, or provided conditions and limitations are contained in an approved document (e.g., Structural Repair Manual (SRM) or Airworthiness Directive (AD)). If relief other than that granted by an approved document is sought for an ACI, a request must be submitted to the Administrator. If the request results in review and approval by the FOEB, the item becomes an MMEL item rather than an ACI.

3. ATA System Page. The ATA system page is divided into four (4) columns and contains: item and repair category; number installed; number required for dispatch; and remarks or exceptions. Standard ATA categories are used. Items are numbered sequentially.

A. Item. This column depicts the equipment, system, component, or function listed in the "Item" column.

B. Repair Category. See definition #24.

C. Number Installed. This column depicts the number (quantity) of instrument and equipment items normally installed in the aircraft. This number represents the aircraft configuration considered in developing this MMEL. Should the number be a variable (e.g., NXXXXX configuration differences, cockpit lighting items, cabin lighting items, cargo restraint components) a number is not required and the "-" symbol is used.

D. Number Required for Dispatch. This column depicts the minimum number (quantity) of **instrument and equipment** items required for operation provided the conditions specified in the "Remarks or Exceptions" column are met. Where the MMEL shows a variable number required for dispatch, the MEL must reflect the actual number required for dispatch or an alternate means of configuration control approved by the Administrator.

E. Remarks or Exceptions. This column may include a statement(s) either prohibiting or permitting operation with a specific number of instrument and equipment items inoperative, provisos (conditions and limitations) for such operation, and appropriate notes.

F. Provisos. Provisos are indicated by a number or a lower case letter in "Remarks or Exceptions". Provisos are conditions or limitations that must be complied with for operation with the listed instrument or equipment item inoperative.

G. Notes. Notes provide additional information for crewmember or maintenance consideration. Notes are used to identify applicable material, which is intended to assist with compliance, but do not relieve the aircraft operator of the responsibility for compliance with all applicable requirements. Additional notes may be amended, deleted, or added to the MEL by the aircraft operator, as appropriate. Notes are not a part of the provisos.

NOTE: To the extent practical, placards should be located adjacent to the control or indicator for the item affected; however, unless otherwise specified, placard wording and location will be determined by the operator.

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H. Vertical Bar (change bar). A vertical bar indicates a change, addition, or deletion in the adjacent text for the current revision of that page only. All change bars applicable to the previous revision of the MMEL are removed prior to the release of the next revision.

4. Airplane Flight Manual (AFM), Rotorcraft Flight Manual (RFM). The FAA-approved AFM/RFM is the document approved by the responsible FAA Aircraft Certification Office (ACO) during type certification. The approved flight manual for the specific aircraft is listed on the applicable Type Certificate Data Sheet (TCDS). The approved flight manual is the source document for operational limitations and performance parameters for an aircraft. The term "approved flight manual" can apply to either an AFM or an RFM. The FAA requires an approved flight manual for aircraft type certification.

5. Deleted per PL-25 Rev 20.

6. Code of Federal Regulations (CFR) and Federal Aviation Regulations (FAR). CFR, the current term, and FAR both refer to the applicable portions of the Federal Aviation Act and Code of Federal Regulations.

7. Considered Inoperative. The phrase, "Considered Inoperative", as used in the provisos, means that an instrument and equipment item must be treated for dispatch, taxi and flight purposes as though it were inoperative. The item will not be used or operated until the original deferred item is repaired. Additional actions include: documenting the item on the dispatch release (if applicable), placarding, and complying with all remarks, exceptions, and related MMEL provisions, including any (M) and (O) procedures and observing the repair category.

8. Continuing Authorization – Single Extension. An aircraft operator who has the authorization to use an FAA-approved MEL may also have the authority to use a continuing authorization to approve a single (one-time) extension to the repair interval for category B or C items in accordance with Operations Specification D095. Continuing Authorization – Single Extension is not authorized for repair category A and D items.

9. Dash (-). Indicates a variable number (quantity) of the instrument and equipment items may be installed or required for dispatch. This is common when a NXXXXX MEL is used since aircraft of the same make and model may have differing numbers of specific instrument and/or equipment items installed.

10. Day of Discovery. This is the calendar-day an equipment/instrument malfunction was recorded in the aircraft maintenance record/logbook. This day is excluded from the calendar-days or flight-days specified in the MMEL for the repair interval of an inoperative instrument and/or equipment item. This provision is applicable to all MMEL items; i.e., categories A, B, C, and D.

11. Deactivated and/or Secured. When the MMEL refers to an instrument and/or equipment item as deactivated and/or secured, the specified component must be put into an acceptable condition for safe flight. An acceptable method of deactivating and/or securing will be established by the aircraft operator.

12. Deleted. "Deleted" in the remarks column after a sequence item indicates that the item was previously listed but is now required to be operative if installed in the aircraft.

13. Extended Range Operations (ER). ER refers to extended range operations (ETOPS) of an airplane with operational approval to conduct ETOPS in accordance with the applicable regulations.

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14. Excess Items. Excess items are those instrument and equipment items that have been installed that are redundant to the requirements of the 14 CFR.

15. Flight Day. A flight-day is a 24-hour period (from midnight to midnight) either universal coordinated time (UTC) or local time, as established by the aircraft operator, during which at least one flight is initiated for the affected aircraft.

16. Heavy Maintenance Visit (HMV). HMV is a scheduled C-check/D-check or airworthiness maintenance program inspection where the aircraft is scheduled to be out of service for 4 or more days.

17. Icing Conditions. An atmospheric environment that may cause ice to form on the aircraft (structural) or in the engine(s) (induction).

18. Inoperative. A system and/or component malfunction to the extent that it does not accomplish its intended purpose and/or is not consistently functioning normally within its approved operating limit(s) and/or tolerance(s).

19. Inoperative Components of an Inoperative System. Inoperative instrument and equipment items, which are components of a system that is inoperative, are usually considered components directly associated with and having no other function than to support that system (warning/caution systems associated with the inoperative system must be operative unless relief is specifically authorized per the MMEL).

20. Is Not Used. The phrase "Is Not Used" in the provisos, remarks or exceptions for an MMEL instrument or equipment item may specify that another item in the MMEL "is not used". In such cases, crewmembers must not activate, actuate, or otherwise utilize that item under normal operations. It is not necessary for aircraft operators to accomplish the (M) procedure(s) associated with the item. However, operational requirements must be complied with, and an additional placard must be affixed, to the extent practical, adjacent to the control or indicator for the item that is not used. This informs crewmembers that an instrument or equipment item is not to be used under normal operations.

21. Nonessential Equipment and Furnishings (NEF). NEFs are those items installed on the aircraft as part of the original type certification, STC, or other form of alteration that have no effect on the safe operation of flight and would not be required by the applicable certification rules or operational rules. They are those items that, if inoperative, damaged, or missing, have no effect on the aircraft's ability to be operated safely under all operational conditions. NEF items are not instrument and equipment items already identified in the MEL or CDL of the applicable aircraft. They do not include instrument and equipment items that are functionally required to meet the certification rule or for compliance with any operational rule.

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22. Operative. An operative system and/or component will accomplish its intended purpose and is consistently functioning normally within its design operating limit(s) and tolerance(s). When an MMEL item specifies that an item of equipment must be operative, it does not mean that it's operational status must be verified; it's to be considered operative unless reported or known to be malfunctioning. When an MMEL item specifies that an item of equipment must be verified operative, it means that it must be checked and confirmed operative at the interval(s) specified for that MMEL item. When an MMEL item specifies that an item of equipment must be verified but no interval is specified, verification is required only at the time of deferral.

Other terminology sometimes used interchangeably with "operative" within the MMEL is "operates normally", "fully operative", and "considered operative". The aircraft operator's MEL may incorporate standardized terminology of the aircraft operator's choice to specify that an item of equipment must be operative, provided the aircraft operator's MEL definitions indicate that the selected "operative" terminology means that the required item of equipment will accomplish its intended purpose and is consistently functioning normally within its design operating limit(s) and tolerance(s).

23. Placarding. Each inoperative instrument or equipment item must be placarded to inform and remind the crewmembers and maintenance personnel of the item condition. To the extent practical, placards should be located adjacent to the control or indicator for the item affected; however, unless otherwise specified (i.e. AFM), placard wording and location will be determined by the aircraft operator.

24. Repair Category. All users of an MEL approved under parts 91K, 121, 125, 129, 135 and 142 must effect repairs of inoperative instrument and equipment items, deferred in accordance with the MEL, at or prior to the repair times established by the following letter designators. Part 91 MEL users (D095/D195 LOAs) are not required to comply with the repair categories, but will comply with any provisos defining a repair interval (flights, flight legs, cycles, hours, etc):

A. Repair Category A. This category item must be repaired within the time interval specified in the "Remarks or Exceptions" column of the aircraft operator's approved MEL. For time intervals specified in "calendar days" or "flight days", the day the malfunction was recorded in the aircraft maintenance record/logbook is excluded. For all other time intervals (i.e., flights, flight legs, cycles, hours, etc.), repair tracking begins at the point when the malfunction is deferred in accordance with the operator's approved MEL.

B. Repair Category B. This category item must be repaired within 3 consecutive calendar-days (72 hours) excluding the day the malfunction was recorded in the aircraft maintenance record/logbook. For example, if it were recorded at 10 a.m. on January 26th, the 3-day interval would begin at midnight the 26th and end at midnight the 29th.

C. Repair Category C. This category item must be repaired within 10 consecutive calendar-days (240 hours) excluding the day the malfunction was recorded in the aircraft maintenance record/logbook. For example, if it were recorded at 10 a.m. on January 26th, the 10-day interval would begin at midnight the 26th and end at midnight February 5th.

D. Repair Category D. This category item must be repaired within 120 consecutive calendar-days (2880 hours) excluding the day the malfunction was recorded in the aircraft maintenance record/logbook.

25. Takeoff. Takeoff is the act of beginning a flight in which an aircraft is accelerated from a state of rest to that of flight. For the purposes of MEL relief, this translates to the point at which the pilot physically begins to apply power to initiate the takeoff from the runway or takeoff surface.

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26. Deleted per PL-25 Rev 20.

27. Visible Moisture. An atmospheric environment containing water, in any form, that can be seen in natural or artificial light; for example, clouds, fog, rain, sleet, hail, or snow.

28. Visual Flight Rules (VFR). VFR is as defined in 14 CFR Part 91. This precludes a pilot from filing an Instrument Flight Rules (IFR) flight plan.

29. Visual Meteorological Conditions (VMC). VMC means the atmospheric environment is such that would allow a flight to proceed under the visual flight rules applicable to the flight. This does not preclude operating under Instrument Flight Rules.

30. (M). This symbol indicates a requirement for a specific maintenance procedure which must be accomplished prior to operation with the listed item inoperative. Normally, these procedures are accomplished by maintenance personnel; however, other personnel may be qualified and authorized to perform certain functions. Procedures requiring specialized knowledge or skill, or requiring the use of tools or test equipment, should be accomplished by maintenance personnel. The satisfactory accomplishment of all maintenance procedures, regardless of who performs them, is the responsibility of the aircraft operator. Appropriate procedures are required to be produced as part of the aircraft operator's manual or MEL.

31. (O). This symbol indicates a requirement for a specific operations procedure which must be accomplished in planning for and/or operating with the listed item inoperative. Normally, these procedures are accomplished by the flightcrew; however, other personnel may be qualified and authorized to perform certain functions. The satisfactory accomplishment of all procedures, regardless of who performs them, is the responsibility of the aircraft operator. Appropriate procedures are required to be produced as a part of the aircraft operator's manual or MEL.

32. Electronic Fault Alerting System. New generation aircraft display system fault indications to the flight crew by use of computerized display systems. Aircraft manufacturers incorporate individual design philosophies when determining the data that is represented. The following are customized definitions (specific to each manufacturer) to help determine the level of messages affecting the aircraft's dispatch status.

A. AIRBUS (A300-600, A310, A318/319/320/321, A330, A340, A380)

Airbus aircraft equipped with Electronic Centralized Aircraft Monitoring (ECAM) provide different levels of system condition messages {WARNING (red), CAUTION (amber)}. On A318/319/320/321, A330 and A340, the ECAM STATUS page also provides MAINTENANCE STATUS messages. Any message that affects airplane dispatch is displayed at the WARNING or CAUTION level. For A318/319/320/321, MAINTENANCE STATUS messages may also affect airplane dispatch. System faults that result only in messages on the Central Maintenance System (CMS) (for A330, A340 and A380) or on the Centralized Fault Display System (CFDS) (for A318/319/320/321) do not affect airplane dispatch and do not require action other than as addressed within the aircraft operator's standard maintenance program.

MINIMUM EQUIPMENT LIST

AIRCRAFT: G-V	REGISTRATION: NXXXXX	SERIAL NUM: ###	REV. NO: 1 DATE: 04/19/2017	PAGE NO: XV
DEFINITIONS - Rev 21 dated 05/11/2015				

B. BOEING (B-717, MD-10, MD-11)

These aircraft are equipped with an alerting function which is a subsystem within the Electronic Instrument System (EIS). The alerting function provides ### levels of system condition alerts (WARNING, CAUTION, ADVISORY, MAINTENANCE and STATUS). Alerts that affect aircraft dispatch will include WARNING, CAUTION, STATUS or MAINTENANCE level. MAINTENANCE alerts are displayed on the status page of the EIS display panel under the maintenance heading. A MAINTENANCE alert on the EIS indicates the presence of a system fault which can be identified by the Central Fault Display System (CFDS) interrogation. The systems are designed to be fault tolerant, however, for any MAINTENANCE alert, the MEL must be verified for dispatch purposes.

C. BOEING (747-400, 747-8, 757, 767, 777, 787)

Boeing airplanes equipped with Engine Indicating and Crew Alerting Systems (EICAS) provide different priority levels of system messages (WARNING, CAUTION, ADVISORY, STATUS and MAINTENANCE). Any messages that affect airplane dispatch status will be displayed at a STATUS message level or higher. The absence of an EICAS STATUS or higher level (WARNING, CAUTION, ADVISORY) indicates that the system/component is operating within its approved operating limits or tolerances. System conditions that result only in a maintenance level message, i.e. no correlation with a higher level EICAS message, do not affect dispatch and do not require action other than as addressed within an aircraft operator's standard maintenance program.

D. CANADAIIR (CL-65, CL-604)

Canadair aircraft equipped with Engine Indication and Crew Alerting Systems (EICAS) provide four classes of messages (WARNING, CAUTION, ADVISORY, and STATUS). Any message that affects aircraft dispatch will be at the WARNING, CAUTION, or STATUS level. System conditions that only require maintenance are not visible to the flight crew. These maintenance indications/messages are only activated by maintenance personnel using the Maintenance Diagnostics Computer.

E. De-HAVILLAND (DASH 8 SERIES 400)

Series 400 aircraft are equipped with a Caution/Warning Panel that annunciates all cautions and warnings. Advisory messages are displayed by the Electronic Indication System (EIS) or individual advisory lights supplied in the cockpit. "Class 1 failures" are failures that prevent continued operation of a specific Line Replacement Unit or channel and are annunciated via advisory messages: caution, warning or advisory lights in the flight compartment. Dispatching with such posted failures are to be in accordance with the MMEL. "Class 2 failures" are failures which do not prevent continued system function. These faults will not be annunciated to the flight crew and the absence of the higher level alert (warning, caution, advisory) indicates that the system/component is operating within its approved operating limits or tolerances. Such faults would be evident during maintenance interrogation performed during maintenance activities. Class 2 faults do not affect dispatch and will be listed in the Fault Isolation Manual (FIM). Class 2 faults will be left to the discretion of the aircraft operators when these faults are to be rectified.

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DEFINITIONS - Rev 21 dated 05/11/2015				

F. EMBRAER (EMB-135/145, ERJ-170/190 Series)

The EMB-135/145 and ERJ-170/190 are equipped with an Engine Indicating and Crew Alerting System (EICAS) that provides three different message levels: WARNING, CAUTION, and ADVISORY. The ERJ-170/190 Series add STATUS messages. Failures that effect dispatchability are presented to the flight crew at one of these levels. Other failures may be presented only to the maintenance personnel on the Multi Function Display (MFD) maintenance pages or through the download of the Central Maintenance Computer (CMC). System conditions that result only in a maintenance level message, i.e. no correlation with a higher level EICAS message, do not affect dispatch and do not require action other than as addressed within an aircraft operator's standard maintenance program.

G. FOKKER (FK-100)

Fokker aircraft are equipped with Multi Function Display System (MFDS) which provides electronic message referring to the different priority levels of system information (WARNING (red), CAUTION (amber), AWARENESS (cyan) AND STATUS (white). Any messages that affect aircraft dispatch will be at the WARNING, CAUTION or AWARENESS level. In these cases, the MEL must be verified for dispatch capability and maintenance may be required. System conditions that only require maintenance are not presented on the flight deck. These maintenance indications/messages may be presented on the Maintenance & Test Panel (MAP) or the Centralized Fault Display Unit (CFDU) and by dedicated Built-In Test Evaluation (BITE) of systems.

H. GULFSTREAM G-IV, G-V, GV-SP, GIV-X, GVI

Gulfstream airplanes equipped with EICAS provide different priority levels of system messages: WARNING (red), CAUTION (amber), and ADVISORY (cyan or blue). **ADVISORY messages are further classified into STATUS, INFORMATION, and MAINTENANCE messages.** Any WARNING or CAUTION message affects airplane dispatch status and requires that the **AFM and MEL** be used to determine dispatch capability. **ADVISORY STATUS messages that** indicate a system failure (e.g., FMS 1 fail) require that the **AFM and MEL** be used to determine dispatch capability. **ADVISORY INFORMATION messages (e.g., Cockpit Phone Call) and MAINTENANCE messages (i.e., includes the words 'Maintenance Required' in the text of the message)** do not affect airplane dispatch capability. **ADVISORY MAINTENANCE messages** indicate the presence of a system fault which can be identified by Maintenance Data Acquisition Unit (MDAU on the G-V) interrogation, Central Maintenance Computer (CMC on the GV-SP/GIV-X/VI) interrogation or by reference to the Airplane Flight Manual.

I. GULFSTREAM G-150, G-200

Gulfstream airplanes equipped with EICAS provide different priority levels of system messages: WARNING (red), CAUTION (amber), ADVISORY (green), and STATUS (white). The Airplane Flight Manual prohibits take off with any WARNING message displayed. CAUTION, ADVISORY and STATUS messages may affect airplane dispatch status and requires the Airplane Flight Manual or the MEL be used to determine dispatch capability. The airplane may dispatch with CAUTION, ADVISORY and STATUS messages that indicate proper system operation and are not illuminated due to a system failure (i.e. FUEL STBY PUMP ON when the pump is selected ON, GND A/B OUT with LAND selected on the ground, or APU GEN OFF with the switch OFF). MAINTENANCE and MAINTENANCE DATA STATUS messages do not affect airplane dispatch status. They indicate the presence of a system fault which can be retrieved from the Maintenance Diagnostics Computer. In all cases, the Airplane Flight Manual must be referenced and procedures compiled with for the displayed message prior to applying MEL dispatch relief.

SAMPLE CORP				
MINIMUM EQUIPMENT LIST				
AIRCRAFT: G-V	REGISTRATION: NXXXXX	SERIAL NUM: ###	REV. NO: 1 DATE: 04/19/2017	PAGE NO: XVII
PREAMBLE (06/14/1989)				

The following is applicable for authorized certificate holders operating under Federal Aviation Regulations (FAR) Parts 121, 125, 129, and 135: The 14 CFR requires that all equipment installed on an aircraft in compliance with the Airworthiness Standards and the Operating Rules must be operative. However, the Rules also permit the publication of a Minimum Equipment List (MEL) where compliance with certain equipment requirements is not necessary in the interests of safety under all operating conditions. Experience has shown that with the ### levels of redundancy designed into aircraft, operation of every system or installed component may not be necessary when the remaining operative equipment can provide an acceptable level of safety.

A Master Minimum Equipment List (MMEL) is developed by the FAA, with participation by the aviation industry, to improve aircraft utilization and thereby provide more convenient and economic air transportation for the public. The FAA approved MMEL includes those items of equipment related to airworthiness and operating regulations and other items of equipment which the Administrator finds may be inoperative and yet maintain an acceptable level of safety by appropriate conditions and limitations; it does not contain obviously required items such as wings, flaps, and rudders. The MMEL is the basis for development of individual operator MELs which take into consideration the operator's particular aircraft equipment configuration and operational conditions. Operator MELs, for administrative control, may include items not contained in the MMEL; however, relief for administrative control items must be approved by the Administrator. An operator's MEL may differ in format from the MMEL, but cannot be less restrictive than the MMEL. The individual operator's MEL, when approved and authorized, permits operation of the aircraft with inoperative equipment. Equipment not required by the operation being conducted and equipment in excess of 14 CFR requirements are included in the MEL with appropriate conditions and limitations. The MEL must not deviate from the Aircraft Flight Manual Limitations, Emergency Procedures or with Airworthiness Directives. It is important to remember that all equipment related to the airworthiness and the operating regulations of the aircraft not listed on the MMEL must be operative.

Suitable conditions and limitations in the form of placards, maintenance procedures, crew operating procedures and other restrictions as necessary are specified in the MEL to ensure that an acceptable level of safety is maintained.

The MEL is intended to permit operation with inoperative items of equipment for a period of time until repairs can be accomplished. It is important that repairs be accomplished at the earliest opportunity. In order to maintain an acceptable level of safety and reliability the MMEL establishes limitations on the duration of and conditions for operation with inoperative equipment.

SAMPLE CORP				
MINIMUM EQUIPMENT LIST				
AIRCRAFT: G-V	REGISTRATION: NXXXXX	SERIAL NUM: ###	REV. NO: 1 DATE: 04/19/2017	PAGE NO: XVIII
PREAMBLE (06/14/1989)				

The MEL provides for release of the aircraft for flight with inoperative equipment. When an item of equipment is discovered to be inoperative, it is reported by making an entry in the Aircraft Maintenance Record/Logbook as prescribed by 14 CFR. The item is then either repaired or may be deferred per the MEL or other approved means acceptable to the Administrator prior to further operation. MEL conditions and limitations, do not relieve the operator from determining that the aircraft is in condition for safe operation with items of equipment inoperative. When these requirements are met, an Airworthiness Release, Aircraft Maintenance Record/Logbook entry, or other approved documentation is issued as prescribed by 14 CFR. Such documentation is required prior to operation with any item of equipment inoperative.

Operators are responsible for exercising the necessary operational control to ensure that an acceptable level of safety is maintained. When operating with multiple inoperative items, the interrelationships between those items and the effect on aircraft operation and crew workload will be considered. Operators are to establish a controlled and sound repair program including the parts, personnel, facilities, procedures, and schedules to ensure timely repair.

WHEN USING THE MEL, COMPLIANCE WITH THE STATED INTENT OF THE PREAMBLE, DEFINITIONS, AND THE CONDITIONS AND LIMITATIONS SPECIFIED IN THE MEL IS REQUIRED

MINIMUM EQUIPMENT LIST

AIRCRAFT:
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21-11. SYSTEM,
SEQUENCE NUMBERS &
ITEM

REPAIR CATEGORY

2. NUMBER INSTALLED

3. NUMBER REQUIRED FOR DISPATCH

4. REMARKS AND EXCEPTIONS

21 AIR CONDITIONING

1. Cabin Altitude Indicator
(Overhead Panel)

C

1

0

May be inoperative provided cabin altitude is available on EICAS Synoptic display.

C

1

0

May be inoperative provided:
a) Cabin Pressure Selector Panel is operative, and
b) Pressurization is operated in AUTO mode.

C

1

0

May be inoperative provided:
a) Cabin Differential Pressure Indicator is operative, and
b) A chart is provided to crew to convert Cabin Differential Pressure to Cabin Altitude.

D

1

0

May be inoperative provided airplane is equipped with additional pneumatic three-in-one cabin pressurization monitoring instrument, and Cabin Altitude Indicator portion is fully operative.

C

1

0

(O) May be inoperative provided airplane is operated in unpressurized configuration.
Refer to **OMP 21-1** for (O) procedures.

MINIMUM EQUIPMENT LIST

AIRCRAFT:
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NXXXXXSERIAL NUM:
###REV. NO: 1
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21-21. SYSTEM,
SEQUENCE NUMBERS &
ITEM

REPAIR CATEGORY

2. NUMBER INSTALLED

3. NUMBER REQUIRED FOR DISPATCH

4. REMARKS AND EXCEPTIONS

21 AIR CONDITIONING

2. Cabin Differential
Pressure Indicator

D

1

0

May be inoperative provided cabin
differential pressure is available on
EICAS Synoptic display.

C

1

0

May be inoperative provided:
a) Cabin Pressure Selection Panel
is operative, and
b) Pressurization is operated in
AUTO mode.

D

1

0

May be inoperative provided:
a) Cabin Altitude Indicator is
operative, and
b) A chart is provided to crew to
convert Cabin Altitude to Cabin
Differential Pressure.

D

1

0

May be inoperative provided airplane is
equipped with additional pneumatic
three-in-one cabin pressurization
monitoring instrument, and Cabin
Altitude Indicator portion is fully
operative.

C

1

0

(O) May be inoperative provided
airplane is operated in unpressurized
configuration.
Refer to **OMP 21-2** for (O) procedures.3. Cabin Rate of Climb
Indicator

D

1

0

MINIMUM EQUIPMENT LIST

AIRCRAFT:
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NXXXXXSERIAL NUM:
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21-31. SYSTEM,
SEQUENCE NUMBERS &
ITEM

REPAIR CATEGORY

2. NUMBER INSTALLED

3. NUMBER REQUIRED FOR DISPATCH

4. REMARKS AND EXCEPTIONS

21 AIR CONDITIONING

4. Automatic
Pressurization Control
Systems

B

2

0

(O) Except for ER operations, may be inoperative provided:

- a) Manual Pressurization Control System is operative,
- b) Cabin Altitude and Differential Pressure Indicators are operative,
- c) Cabin Rate of Climb Indicator is operative,
- d) Autopilot is operative, and
- e) Airplane is operated in accordance with AFM Limitations.

Refer to **OMP 21-4** for (O) procedures.

B

2

0

(O) Except for ER operations, may be inoperative provided airplane is operated in unpressurized configuration.

Refer to **OMP 21-4** for (O) procedures.

5. Manual Pressurization
Control System

C

1

0

May be inoperative provided both Automatic Pressurization Control Systems are operative.

6. Semi-Auto
Pressurization Control
System

C

1

0

SAMPLE CORP

MINIMUM EQUIPMENT LIST

AIRCRAFT: G-V	REGISTRATION: NXXXXX	SERIAL NUM: ###	REV. NO: 1 DATE: 04/19/2017	PAGE NO: 21-4
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1. SYSTEM, SEQUENCE NUMBERS & ITEM	REPAIR CATEGORY			
	2. NUMBER INSTALLED			
	3. NUMBER REQUIRED FOR DISPATCH			
	4. REMARKS AND EXCEPTIONS			

21	AIR CONDITIONING				
7.	Cabin Altitude Pressure Warning System	C	1	0	May be inoperative provided: a) Cabin Altitude and Differential Pressure Indicators are operative, b) Cabin Oxygen On Warning System is operative, and c) Airplane is operated in accordance with AFM Limitations.
		C	1	0	(O) May be inoperative provided airplane is operated in unpressurized configuration. Refer to OMP 21-7 for (O) procedures.
8.	Pressurization Outflow Valve Position Indicator	C	1	0	May be inoperative provided all other components of the cabin Pressure Control Panel and Cabin Pressure Indicator are operative.

MINIMUM EQUIPMENT LIST

AIRCRAFT:
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21-51. SYSTEM,
SEQUENCE NUMBERS &
ITEM

REPAIR CATEGORY

2. NUMBER INSTALLED

3. NUMBER REQUIRED FOR DISPATCH

4. REMARKS AND EXCEPTIONS

21 AIR CONDITIONING

9. Cockpit Zone
Temperature Control
System & Cabin Zone
Temperature Control
Systems

C

3

2

C

3

1

(O) May be inoperative provided:
a) Ram Air is operative, and
b) Airplane is operated in
unpressurized configuration.
Refer to **OMP 21-9** for (O) procedures.

1) Automatic Systems

C

3

0

May be inoperative provided:
a) Associated manual control
system is operative, and
b) Associated temperature
indicator is operative.

2) Manual Systems

C

3

0

May be inoperative provided:
a) Associated automatic control
system is operative, and
b) Associated temperature
indicator is operative.10. Cockpit/Cabin Zone
Temperature Indicators
(Overhead Panel)

D

3

0

May be inoperative provided
associated Automatic Temperature
Control System is operative.

D

3

0

May be inoperative provided
associated zone temperature is
available on EICAS Synoptic display.

D

3

0

May be inoperative provided
associated Manual Temperature
Control System is operative.11. Duct Temperature
Indicators (Overhead
Panel)

D

3

0

MINIMUM EQUIPMENT LIST

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21-61. SYSTEM,
SEQUENCE NUMBERS &
ITEM

REPAIR CATEGORY

2. NUMBER INSTALLED

3. NUMBER REQUIRED FOR DISPATCH

4. REMARKS AND EXCEPTIONS

21 AIR CONDITIONING

12. Environmental Control
System (ECS) Packs1) Pressurized
Configuration

C

2

1

Except for ER operations, may be inoperative provided:

- a) Inoperative ECS Pack is selected OFF,
- b) Bleed Air Isolation Valve is CLOSED and OPERATIVE,
- c) Right Main TRU is operative,
- d) Airplane is operated at or below FL410, and
- e) Autothrottle must be operative and engaged at or above FL400.

2) Unpressurized
Configuration

C

2

0

Except for ER operations, may be inoperative provided outflow valve is operative.

13. Three-In-One Cabin
Pneumatic
Pressurization
Monitoring Instrument

C

1

0

May be inoperative provided primary Cabin Altitude and primary Cabin Differential Pressure Indicators are operative either in the overhead panel or on the Synoptic Display.

14. Air Conditioning
System Pack Inlet
Valves

C

2

1

(M) Except for ER operations, may be inoperative provided:

- a) Affected Valve is CLOSED and deactivated electrically,
- b) Associated Air Conditioning Pack is selected OFF, and
- c) Airplane is operated in accordance with AFM Limitations.

Refer to **OMP 21-14** for (M) procedures.

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21-71. SYSTEM,
SEQUENCE NUMBERS &
ITEM

REPAIR CATEGORY

2. NUMBER INSTALLED

3. NUMBER REQUIRED FOR DISPATCH

4. REMARKS AND EXCEPTIONS

21 AIR CONDITIONING

15. Outflow Valve System

C

1

0

(M) (O) May be inoperative provided:

- a) Outflow valve is positioned to full OPEN position and electrically isolated,
- b) Airplane is operated in unpressurized configuration, and
- c) Extended overwater operations are not conducted.

Refer to **OMP 21-15** for (M/O) procedures.

1) AC Motors

C

2

1

May be inoperative provided:

- a) DC motor is operative, and
- b) Airplane is operated in accordance with AFM Limitations.

16. Pressure Relief Valve

C

1

0

(O) May be inoperative provided:

- a) Cabin differential pressure and cabin altitude displays are operative,
- b) Selected cabin altitude is 1,000 feet higher than normal cabin altitude for the cruise flight level, and
- c) Flight crew monitors actual cabin differential pressure and maintains it at or below 9.5 psi.

Refer to **OMP 21-16** for (O) procedures.

C

1

0

(O) May be inoperative provided airplane is operated in unpressurized configuration.Refer to **OMP 21-16** for (O) procedures.

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21-81. SYSTEM,
SEQUENCE NUMBERS &
ITEM

REPAIR CATEGORY

2. NUMBER INSTALLED

3. NUMBER REQUIRED FOR DISPATCH

4. REMARKS AND EXCEPTIONS

21 AIR CONDITIONING

17. Cabin Pressure
Indicator and Control
Panel

1) Manual Light

C

1

0

2) Control Knob

Deleted MMEL Revision 7.

3) Flight/Landing Switch
(Light Function Only)

C

1

0

4) Fault/Manual Switch
(Light Function Only)

C

1

0

5) Auto/Semi Switch
(Light Function Only)

C

1

0

18. Selector Panel (Semi-
Auto)

B

1

0

May be inoperative provided:

- a) Auto system (Cabin Pressure Control Panel) is operative, and
- b) Semi-auto mode is considered inoperative.

19. Remote Filter
(Pressure Relief Valve
PRV)

B

1

0

20. CPAM (Cabin Pressure
Acquisition Module)

C

1

0

May be inoperative provided both auto systems are operative.

MINIMUM EQUIPMENT LIST

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21-91. SYSTEM,
SEQUENCE NUMBERS &
ITEM

REPAIR CATEGORY

2. NUMBER INSTALLED

3. NUMBER REQUIRED FOR DISPATCH

4. REMARKS AND EXCEPTIONS

21 AIR CONDITIONING

21. Ram Air System

1) Pressurized
Configuration

C

1

0

May be inoperative provided:

- a) Automatic Pressurization Control System is operative,
- b) Manual Pressurization Control System is operative,
- c) Bleed Air Pressure Regulating and Shut-Off Systems are operative, and
- d) Airplane is operated in accordance with AFM Limitations and Procedures.

2) Unpressurized
Configuration

C

1

0

(O) May be inoperative provided:

- a) Airplane is operated in unpressurized configuration, and
- b) Airplane is operated in accordance with AFM Limitations and Procedures.

Refer to **OMP 21-21** for (O) procedures.

22. PSU Fan

C

1

0

(O) May be inoperative provided:

- a) Ambient Temperature is 95 degrees F (35 degrees C) or cooler,
- b) TRU electrical loads are 50% or less,
- c) Right main TRU is operative, and
- d) Both Environmental Control System (ECS) Packs are operative.

Refer to **OMP 21-22** for (O) procedures.

MINIMUM EQUIPMENT LIST

AIRCRAFT:
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22-11. SYSTEM,
SEQUENCE NUMBERS &
ITEM

REPAIR CATEGORY

2. NUMBER INSTALLED

3. NUMBER REQUIRED FOR DISPATCH

4. REMARKS AND EXCEPTIONS

22 AUTO FLIGHT

1. Autothrottle Systems

C

2

0

2. Performance
Management Systems
(SmartPerf/TOLD)
(GV)

C

2

0

May be inoperative provided Quick
Reference Handbook is immediately
available to the flight crew.

(GV-SP / GIV-X)

0

0

NOT APPLICABLE TO THIS AIRCRAFT.

3. Control Wheel
Autopilot Disconnect
Buttons

C

2

1

May be inoperative provided:
a) Autopilot is not utilized below
1,500 feet AGL,
b) Approach minimums do not
require the use of the autopilot,
and
c) Airplane is piloted from the side
with operative button.4. Autothrottle Disconnect
Buttons (on Thrust
Lever Handles)

C

2

1

C

2

0

May be inoperative provided
Autothrottle is not used.5. Autothrottle
Engage/Disengage
Switches (on Thrust
Lever Stem)

C

2

1

C

2

0

May be inoperative provided
Autothrottle is not used.6. Touch Control Steering
Switches (TCS)

D

2

0

MINIMUM EQUIPMENT LIST

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22-21. SYSTEM,
SEQUENCE NUMBERS &
ITEM

REPAIR CATEGORY

2. NUMBER INSTALLED

3. NUMBER REQUIRED FOR DISPATCH

4. REMARKS AND EXCEPTIONS

22 AUTO FLIGHT

7. Flight Guidance
Computers (FGC)
(Autopilots/Flight
Directors)

C

2

1

(M)(O) Except for ER operations or where enroute operations or approach minimums require its use, may be inoperative provided airplane is operated in accordance with AFM Limitations in the event operative FGC fails and Yaw Damper is inoperative. Refer to **OMP 22-7** for (M/O) procedures.

NOTE: AP/FGC is required for MNPS, RVSM, RNP and RNAV operations.

8. Yaw Damper Systems

C

2

1

(O) Except for ER operations, may be inoperative provided airplane is operated in accordance with AFM Limitations. Refer to **OMP 22-8** for (O) procedures.

9. Takeoff/Go-Around
(TO/GA) Buttons (on
Power Lever Handles)

C

2

1

May be inoperative provided approach minimums do not require its use.

C

2

0

(O) May be inoperative provided:

- a) Both power levers are operated manually for takeoff and go-around, and
- b) Autopilot and Flight Director are not used below 500 feet or MDA, whichever is higher.

Refer to **OMP 22-9** for (O) procedures.

NOTE: Flight Director Takeoff and Go-Around guidance and Autothrottle are not available with both TO/GA switches inoperative.

10. Mach Trim Systems
(GV-SP/GIV-X only)

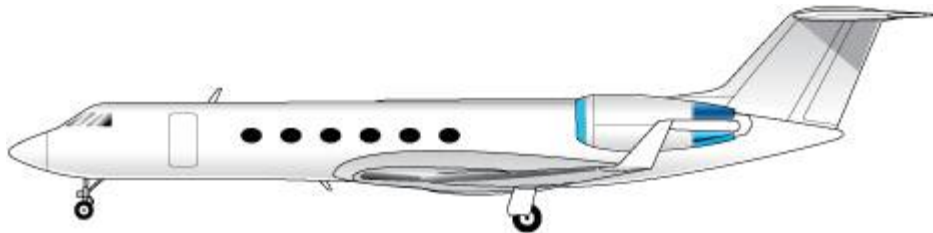
0

0

NOT APPLICABLE TO THIS AIRCRAFT.


SAMPLE CORP

MAINTENANCE / OPERATIONAL / PLACARDING PROCEDURES MANUAL



GULFSTREAM G-V TYPE

NXXXX S/N ###

Gulfstream[®] with additional information added by: 

MOP Revision 8a
August 24, 2015
GAC DOC. No. GV-1

CONTROL PAGE

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Preface

This Manual contains procedures of a general nature to be used when a **MAINTENANCE (M)** or **OPERATIONS (O)** procedure is to be accomplished by Authorized Personnel. Authorized Personnel is defined as a person qualified in accordance with applicable Federal Aviation Regulations who has been given the responsibility by appropriate company management to perform these procedures.

Procedures requiring specialized knowledge or skill, or requiring the use of tools or test equipment should be accomplished by maintenance personnel.

Crew Operating Procedures

MEL authorized inoperative items marked with an **(O)** require specific operating procedures be performed. Prior to conducting further operations, the following procedures and/or restrictions shall be complied with by authorized personnel:

Determine that continued operation with the inoperative item is authorized according to the approved MEL.

Determine that continued operations with the authorized item inoperative will not affect the safety of the flight.

Determine that any MEL required alternate equipment is operative.

Whenever a two pilot crew is used, the PIC will brief the SIC on the procedure to be used during the flight.

Maintenance Procedures

MEL authorized inoperative Items marked with an **(M)** require specific maintenance procedures be performed. Prior to conducting further operations, the following procedures and/or restrictions shall be complied with by authorized personnel:

Determine that continued operation with the inoperative item is authorized according to the approved MEL.

Determine that continued operations with the authorized item inoperative will not affect the safety of the flight.

Determine that any MEL required alternate equipment is operative.

Authorized personnel shall utilize the procedures in the Manufacturer's Maintenance Manuals and Technical Publications any time maintenance is being performed.

**This OMP Manual is based on Gulfstream G-V MOPP (GAC DOC. No. GV-1) Revision 8a
August 24, 2015**

OMP-1

Circuit Breaker Disengagement, Safetizing and Fuse Removal

This describes the requirements when authorized personnel disengage a circuit breaker (CB) and the maintenance procedure for safetizing CBs in the off position and/or fuse removal. Aircraft may continue in service provided authorized personnel comply with the following procedures and/or restrictions:

A. On aircraft to depart from an airport where company authorized maintenance is not available:

Appropriate CB is disengaged (pulled or turned off) as required by the applicable MEL authorized inoperative item procedure.

B. On aircraft to depart an airport where company authorized maintenance is available:

- 1) Toggle type CBs are safetied in the off position by securing the toggle with twisted safety wire to a nearby screw.
- 2) Push button type CBs are locked in the off position by slipping a CB lockout device over the push button shaft or by tying off with a plastic bundle tie.
- 3) Fuses are inspected and replaced or removed if necessary.

Note: Verify that deactivation of circuit breaker does not affect another system

OMP-2

Placarding Procedures

This describes the requirements when authorized personnel placard inoperative items of equipment. Aircraft may continue in service provided authorized personnel comply with the following procedures and/or restrictions:

An authorized inoperative item is required to be placarded by the MEL, it shall be placarded as follows:

A. The placard should preferably be white, self-adhesive, with the word "INOP" or "INOPERATIVE" clearly marked across the label. In some cases, the Operator and Maintenance Procedures manual will specify alternate wording. If a white self-adhesive placard is not available, a piece of paper with the specified wording written on it shall be taped in place.

B. When, due to position or number of placards, a doubt exists as to the purpose or intent of the placard, identify the item. One method is to write the MEL's Item number or description on the placard. The following are examples of methods to identify an inoperative item, when necessary for clarity:

Here is an Example of the Placard label format:

<p>INOPERATIVE</p> <p>DATE:</p> <p>SIGNED:</p>

C. The placard shall be placed in the position specified in the MEL or the Operator and Maintenance Procedures manual. When the position is not specified then the placard shall be placed on or immediately adjacent or over to the defective instrument, control, switch, or device.

D. Placards will normally accompany this manual, inside an interior pocket.

Installation of a placard is not maintenance. Therefore the actual installation of the placard does not require a maintenance release or approval for return to service.

OMP-3

Stowing Electrical Wiring or Connectors

Whenever a procedure calls for disconnecting, unplugging or stowing an electrical wire or electrical connector, the following procedures shall be accomplished:

A. Stowing Electrical Wiring

Assure the electrical wire(s) will not arc or short and, if necessary, wrap wire ends in a non-conductible material.

Place end of wire(s) in a liquid proof material (plastic bag, etc.) and tie-wrap.

Secure the wire(s) to a suitable nearby stationary object.

B. Stowing Electrical Connector

Place electrical connector in a liquid proof material (plastic bag, etc) and tie-wrap.

Secure the electrical connector to a suitable nearby stationary object.

Fuel lines, hydraulic lines, control cables, etc. are not suitable objects for securing electrical wires or electrical connectors. Protection against chafing, battery acids, fluids, personnel and cargo, high temperatures, and protection in wheel wells and landing gear areas must be assured.

OMP-4

Securing Components via Safety Wire or Tie Wrap

1. Whenever a procedure calls for securing a component *using safety wire*, the following procedures shall be accomplished:

Ensure the wire(s) will not damage component, and do not overtighten.

Cut Safety Wire short enough to ensure no other component will be affected by its presence.

Wrap end of wire back onto itself, to ensure no possibility of chaffing wires, conduit or tubing by sharp end.

Fuel lines, hydraulic lines, control cables, etc. are not suitable objects for securing components to with safety wire. The possibility exists for the wire to provide a path for electrical current. Ensure that any possible chaffing of electrical wires or components would not produce an open circuit. Wrap the wire, if necessary, in an insulated tape to eliminate these risks.

2. Whenever a procedure calls for securing a component *using a tie-wrap*, the following procedures shall be accomplished:

Cut Tie-wrap short enough to ensure no other component will be affected by its presence. When cutting off excess, be aware that the end of the tie-wrap may be sharp enough to cut insulation, or pierce tubing. Dull the edges as necessary.

Fuel lines, hydraulic lines, control cables, etc. are not suitable objects for securing components to with tie-wraps. Ensure that any possible chaffing of electrical wires, tubing, or components would not pierce insulation or tubing. Wrap the wire, if necessary, in an insulated tape to eliminate these risks.

OMP 21-1

This describes the procedures to be used when the Cabin Altitude Indicator (Overhead Panel) is inoperative.

Aircraft may continue in service provided authorized personnel comply with the following procedures and/or restrictions:

OPERATIONS (O)

To operate the airplane unpressurized, select manual pressurization and slew the outflow valve to the full open position with both engine bleeds and air conditioning packs selected ON if available.
If not, select RAM Air ON. Monitor cabin differential pressure to be nominally zero psid during the flight.

OMP 21-2

This describes the procedures to be used when the Cabin Differential Pressure Indicator is inoperative.

Aircraft may continue in service provided authorized personnel comply with the following procedures and/or restrictions:

OPERATIONS (O)

To operate the airplane unpressurized, select manual pressurization and slew the outflow valve to the full open position with both engine bleeds and air conditioning packs selected ON if available.
If not, select RAM Air ON. Monitor cabin differential pressure to be nominally zero psid during the flight.

OMP 21-4

This describes the procedures to be used when the Automatic Pressurization Control System is inoperative.

Aircraft may continue in service provided authorized personnel comply with the following procedures and/or restrictions:

OPERATIONS (O)

Flight crew will ensure required items e.g. **Manual Pressurization Control System, Cabin Altitude and Cabin Rate of Climb Indicator and Auto Pilot** are functional. **AFM, Section 2, Normal Procedures, Before Starting Engines.** Flight crew will operate airplane in accordance with **AFM, Section 1, Limitations, Cabin Pressurization Control and Section 3, Abnormal Procedures, Loss of Automatic Pressurization Control.** For Taxi, Takeoffs and Landings - Max Cabin Pressure Differential 0.3 psi.

To operate the airplane unpressurized, select manual pressurization and slew the outflow valve to the full open position with both engine bleeds and air conditioning packs selected ON if available.
If not, select RAM Air ON. Monitor cabin differential pressure to be nominally zero psid during the flight.

OPERATIONS (O)

To operate the airplane unpressurized, select manual pressurization and slew the outflow valve to the full open position with both engine bleeds and air conditioning packs selected ON if available.
If not, select RAM Air ON. Monitor cabin differential pressure to be nominally zero psid during the flight.

OMP 21-7

This describes the procedures to be used when the Cabin Altitude Pressure Warning System is inoperative.

Aircraft may continue in service provided authorized personnel comply with the following procedures and/or restrictions:

OPERATIONS (O)

To operate the airplane unpressurized, select manual pressurization and slew the outflow valve to the full open position with both engine bleeds and air conditioning packs selected ON if available.
If not, select RAM Air ON. Monitor cabin differential pressure to be nominally zero psid during the flight.

OMP 21-9

This describes the procedures to be used when the Cockpit Zone Temperature Control Systems & Cabin Zone Temperature Control Systems are inoperative.

Aircraft may continue in service provided authorized personnel comply with the following procedures and/or restrictions:

OPERATIONS (O)

To operate the airplane unpressurized, select manual pressurization and slew the outflow valve to the full open position with both engine bleeds and air conditioning packs selected ON if available. If not, select RAM Air ON. Place temperature controls in OFF position. Monitor cabin differential pressure to be nominally zero psid during the flight.

OMP 21-14

This describes the procedures to be used when one Air Conditioning System Pack Inlet Valve is inoperative.

Aircraft may continue in service provided authorized personnel comply with the following procedures and/or restrictions:

MAINTENANCE (M)

Maintenance will ensure affected Valve is "CLOSED" and electrically deactivated when associated Air Conditioning Pack switch is selected "OFF". Associated Air Conditioning CB must NOT be pulled. AMM, chapter 21-21-00.

Flight crew may accomplish this task if properly qualified and authorized.

CAUTION: Pulling (de-energizing) associated Air Conditioning CB will cause valve to open, allowing airflow to restart.

OMP 21-15

This describes the procedures to be used when the Outflow Valve System is inoperative.

Aircraft may continue in service provided authorized personnel comply with the following procedures and/or restrictions:

MAINTENANCE (M)

Maintenance will ensure Outflow Valve is positioned to full OPEN position and electrically de-energized by pulling the Cab Press Man Cont breaker LEER E-8.

Flight crew may accomplish this task if properly qualified and authorized.

OPERATIONS (O)

To operate the airplane unpressurized, refer to AFM Section 3-21-90. Also refer to 4-22-30 in the event that smoke is detected in the baggage compartment.

OMP 21-16

This describes the procedures to be used when the Pressure Relief Valve is inoperative.

Aircraft may continue in service provided authorized personnel comply with the following procedures and/or restrictions:

OPERATIONS (O)

Flight Crew will ensure:

- a) Cabin Differential Pressure and Cabin Altitude Displays are operative.
- b) Select Semi-Auto Operation and selected Cabin Altitude is 1,000 feet higher than normal Cabin Altitude for cruise flight level.
- c) Monitor actual Cabin Differential Pressure and maintain it at or below 9.5 psi.

OR

OPERATIONS (O)

To operate the airplane unpressurized, select manual pressurization and slew the outflow valve to the full open position with both engine bleeds and air conditioning packs selected ON if available.

If not, select RAM Air ON. Monitor cabin differential pressure to be nominally zero psid during the flight.

OMP 21-21

This describes the procedures to be used when the Ram Air System is inoperative.

Aircraft may continue in service provided authorized personnel comply with the following procedures and/or restrictions:

OPERATIONS (O)

To operate the airplane unpressurized, select manual pressurization and slew the outflow valve to the full open position with both engine bleeds and air conditioning packs selected ON if available.
If not, select RAM Air ON. Monitor cabin differential pressure to be nominally zero psid during the flight.

OMP 21-22

This describes the procedures to be used when the PSU Fan is inoperative.

Aircraft may continue in service provided authorized personnel comply with the following procedures and/or restrictions:

OPERATIONS (O)

Flight crew will:

- a) Minimize ground operation time, especially during hot weather.
- b) During Ground operation, monitor TRU load – limit load to 50%.
- c) For ground operation longer than 15 minutes ensure main and baggage doors are closed, APU air is selected “ON” and outflow valve is fully OPEN.

OMP 22-7

This describes the procedures to be used when the Flight Guidance Computers (FGC) (Autopilots) is inoperative.

Aircraft may continue in service provided authorized personnel comply with the following procedures and/or restrictions:

MAINTENANCE (M)

Maintenance will pull and reset the affected IAC (GV) or MAU Channel (GV-SP/GIV-X) and Guidance Panel circuit breakers in attempt to reset the FGC. If FGC does not recover, no further action required.

OPERATIONS (O)

Flight crew will observe AFM limitations in the event the operative FGC fails and the Yaw Damper is inoperative.

OMP 22-8

This describes the procedures to be used when one Yaw Damper System is inoperative.

Aircraft may continue in service provided authorized personnel comply with the following procedures and/or restrictions:

OPERATIONS (O)

Flight crew will ensure airplane is operated in accordance with AFM Limitations in the event the operative Yaw Damper fails.

OMP 22-9

This describes the procedures to be used when the Takeoff/Go-Around (TO/GA) Buttons (on Power Lever Handle(s)) is inoperative.

Aircraft may continue in service provided authorized personnel comply with the following procedures and/or restrictions:

OPERATIONS (O)

Flight Director and Autothrottle are not available for Takeoff or Go-Around with both TO/GA buttons inoperative. Flight crew shall use raw data and manual throttles for takeoff and go-around.

For takeoff, once airborne and above 500 ft AGL, pilot-not-flying (PNF) shall select desired lateral mode (HDG or LNAV) on guidance panel as directed by pilot-flying (PF). Additionally, PNF shall select desired vertical mode (FLCH or VS or FPA) and engage autothrottle as directed by PF.

For go-around, after flaps and landing gear have been retracted and airplane is above 500 ft AGL, PNF shall select desired lateral mode (HDG or LNAV) and vertical mode (FLCH or VS or FPA) on guidance panel and engage autothrottle at direction of PF.

OMP 23-1

The following restrictions apply any time an airplane is flown with an item or items of Communication Equipment inoperative.

Aircraft may continue in service provided authorized personnel comply with the following procedures and/or restrictions:

14 CFR REQUIREMENTS:

Section 91.205

- (d) *Instrument flight rules.* For IFR flight, the following instruments and equipment are required:
(2) Two-way radio communication and navigation equipment suitable for the route to be flown.

Section 91.511(a)(c) Overwater operations

(a) Except as provided in paragraphs (c), (d), and (f) of this section, no person may take off an airplane for a flight over water more than 30 minutes flying time or 100 nautical miles from the nearest shore unless it has at least the following operable equipment:

- (1) Radio communication equipment appropriate to the facilities to be used and able to transmit to, and receive from, at least one communication facility from any place along the route:
- (i) Two transmitters.
 - (ii) Two microphones.
 - (iii) Two headsets or one headset and one speaker.
 - (iv) Two independent receivers.

MEL Communications 14 CFR Part 91 Requirements: QUICK REFERENCE

91.205 IFR

COMM (b) 1- VHF COMM TRANSMITTER
1- COMM RECEIVER

91.205 VFR DAY

NO COMM REQUIREMENT OUTSIDE OF CONTROLLED AIRSPACE

91.507 VFR NIGHT AND OVER THE TOP

1 - VHF COMM TRANSMITTER
1 -COMM RECEIVER

91.511 OVERWATER

VHF-COMM (a)(d) 2-VHF COMM TRANSMITTERS
2-VHF COMM RECEIVERS
2-MICROPHONES
2-HEADSETS OR 1 HEADSET & 1 SPEAKER EQUIPPED
HF-COMM (a)(d) 1-HF TRANSMITTER (IF EQUIPPED WITH 2 VHF COMM'S)
1-HF RECEIVER (IF EQUIPPED WITH 2 VHF COMM'S)

Cont'd

OMP 23-1 (Cont'd)

14 CFR REQUIREMENTS (Cont'd):

Section 135.161 VFR aircraft operations

(a) No person may operate an aircraft under VFR over routes that can be navigated by pilotage unless the aircraft is equipped with the two-way radio communication equipment necessary under normal operating conditions to fulfill the following:

- (1) Communicate with at least one appropriate station from any point on the route, except in remote locations and areas of mountainous terrain where geographical constraints make such communication impossible.
- (2) Communicate with appropriate air traffic control facilities from any point within Class B, Class C, or Class D airspace, or within a Class E surface area designated for an airport in which flights are intended; and
- (3) Receive meteorological information from any point en route, except in remote locations and areas of mountainous terrain where geographical constraints make such communication impossible.

Section 135.165 Extended over-water or IFR operations

(d) *Airplane communication equipment requirements.* Except as permitted in paragraph (e) of this section, no person may operate a turbojet airplane having a passenger seat configuration, excluding any pilot seat, of 10 seats or more, or a multiengine airplane in a commuter operation, as defined in part 119 of this chapter, under IFR or in extended over-water operations unless the airplane is equipped with—

- (1) At least two independent communication systems necessary under normal operating conditions to fulfill the functions specified in §121.347(a) of this chapter; and
- (2) At least one of the communication systems required by paragraph (d)(1) of this section must have two-way voice communication capability

MEL Communications 14 CFR Part 135 Requirements: QUICK REFERENCE

135.161 VFR NIGHT AND/OR OVER THE TOP (Carrying Passengers)

COMM	1-VHF COMM RECEIVER 1-VHF COMM TRANSMITTER
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135.165 IFR

COMM	1-VHF COMM TRANSMITTER 2-VHF COMM RECEIVERS
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135.165 IFR EXTENDED OVERWATER

COMM	2-VHF COMM TRANSMITTERS 2-VHF COMM RECEIVERS
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Appendix 1: Example Deferred Discrepancy log

Appendix 2: 8900.1 – NEF Program Guidance

Last Revision: 4/10/2017

History and Background

The Minimum Equipment List program was created by the FAA to allow aircraft operators to fly an aircraft with equipment inoperative. The documentation which allows this deferred maintenance operation is accomplished by the issuance of a Supplemental Type Certificate in the form of a "Minimum Equipment List" (MEL). Additional helpful information is included in Advisory Circular 91-67, expressing what the FAA expects of Part 91 operators using an MEL. *The following text contains some, but not all the information contained in AC 91-67.* Part 135 operators will usually have a General Operating Manual, which will also clarify how the specific company plans to address MEL usage.

FAR 91.213 and 135.179 provide for the use of an MEL when the Administrator determines that certain redundant or non-essential equipment need not function at all times and will cause no adverse impact on safety. Long-term data shows that an acceptable safety level can be maintained, under controlled conditions, with certain items of equipment inoperative. These operational conditions and limitations might include flight restrictions, special operational procedures, systems or component deactivation, or a combination of such actions.

Each MEL is based on the specific configuration of a single aircraft. Most, if not all aircraft have installed equipment that is not essential for safe operation under all operating conditions. Some of this equipment is in place for a specific purpose, such as flight during night, instrument flight rules (IFR) or in icing conditions. Other equipment may be installed merely for convenience sake, such as music or video playback systems, galley equipment, tables, and the like. Until the minimum equipment program was developed, no easy mechanism was in place to allow operators to fly with these types of equipment inoperative. Some of the more complex or important pieces of equipment may require both Operator and Maintenance procedures to ensure that redundant systems are operative, the inoperative system is "safed" to ensure no complication during flight, or the crew follow certain procedures to circumvent the inoperative system. This is the utility of the Minimum Equipment list.

The MEL is derived from a Master Minimum Equipment List (MMEL), which gives an FAA approved framework from which to build the aircraft/operator specific procedures contained in the MEL. While the MMEL is for an aircraft type, the MEL is tailored to the operator's specific aircraft and operating environment and may be dependent upon the route structure, geographic location, the number of airports where spares and maintenance capability are available, etc. The MMEL cannot address these individual variables, nor standard terms such as "As required by Regulations". It is for these reasons that a MMEL cannot be approved for use as a MEL. It is the operator's responsibility to develop or obtain Operations "O" and Maintenance "M" procedures. Some sources of procedures may be a manufacturer developed Operation and Maintenance procedure manual, a Dispatch Deviation Procedure Manual, (DDPG), Dispatch Deviation Guide (DDG), or other equivalent document where these procedures are available.

An operators MEL can *never* be less restrictive than the approved MMEL for that aircraft.

Timeframes

Normally, once an MEL is submitted to a FSDO, the administrator will attempt to begin review of the MEL within 20 days, and have the document approved and returned to the operator within 60 days. If the POI decides major changes are required to the operators MEL. The website <http://fsims.faa.gov/PICDetail.aspx?docId=8900.1,Vol.4,Ch4,Sec2> addresses general questions operators may have regarding Minimum Equipment Lists.

Approval of MEL and Issuance of Letter of Authorization

A letter of authorization (LOA) for a specific aircraft, in use by a specific operator, is issued to the aircraft operator by the FAA. This letter will be cosigned by the operator. The letters of authorization are issued without expiration dates and remain valid until voluntarily surrendered by the operator, the operator ceases to be the owner or operator of the aircraft, or the FAA suspends or revokes the authorization for cause. In any case, should it become invalid, it must be returned to the holding FSDO within 10 calendar days. Should an operator's principal base of operations (address) change, the letter remains valid, however, the operator must notify both the FSDO of the area moved from and the FSDO of the area moved to in writing within 10 calendar days of the change.

Training Requirements for Use of the MEL

All persons authorized to use the MEL, including flight crew and maintenance personnel, shall thoroughly familiarize themselves with all policies and procedures concerning the use of the MEL before initial use.

The following training may be used to complete the required training. However, it is general in nature and specific training for required maintenance paperwork will be accomplished utilizing actual forms used. It is also highly recommended that Part 91 operators also reference AC 91-67 for additional FAA guidance regarding your MEL program.

Policy for use of MEL

All components/systems on an aircraft fall into three categories with regard to airworthiness requirements.

1. *Equipment obviously required for aircraft to be airworthy.* This would include items such as tires, primary control systems, wings, and units required for original certification. These are generally not included in the MEL, though subsystems related to them may be.

2. *Equipment that does not affect the airworthiness of the aircraft.* These include passenger and operator convenience items such as galley equipment, entertainment systems, cabin trim, ashtrays, curtains, pillows, additional systems for weather detection, recognition lighting systems, logo lights, flight phones etc. These usually will be included in the MEL, to remove ambiguity, unless they are obviously not an airworthiness item. Sometimes the item is not a factor, but it's relationship to a critical system, such as the electrical system, may require its inclusion in the MEL.

3. *Equipment that does not clearly fall into either of the above categories or for which some deviation from the normal complement of equipment has been approved.*

The MEL will always include items from the third category, for which operation of the aircraft with some deviation from airworthiness standards or operating rules has been approved. These are components and systems which the operator or manufacturer have proven that the aircraft may safely operate without, and may include specific conditions which must be applied.

The MEL does not include every piece of equipment or system in the aircraft. When no specific mention of a unit or system is made in the MEL list, it is necessary that the equipment be in place and operative, unless it falls into the second category of equipment. The Pilot in Command (PIC) assumes responsibility to determine if an item is clearly not affecting airworthiness of the aircraft and can be deferred under the NEF program described in the last section of this manual.

Should any doubt exist as to interpretation of MEL items, or the proper category of an item, assistance shall be obtained from the Maintenance Manager, his/her assigned delegate, or the Manager of Flight Operations or his/her delegate

The Pilot-in-Command of an aircraft is directly responsible for, and is the final authority as to, the operation of that aircraft. It is his responsibility to assure that the inoperative equipment is less than or equal to but not more than that allowed for in the MEL. However, this authority does not allow the PIC to operate an aircraft with an inoperative item requiring maintenance that has not been approved for return to service.

MEL authorized inoperative items that do not affect other equipment such as radio black boxes, control heads, etc. may be temporarily removed for repair with a log book entry. Remember, necessary weight and balance entries must also be made.

Before a qualified crewmember operates the aircraft with an inoperative item he/she shall:

1. Determine that the inoperative item is an MEL authorized inoperative item, or not an airworthiness item.
2. Determine that the inoperative item will not affect safety of flight.
3. Determine that any required alternate equipment is operative.
4. Review the aircraft maintenance record to assure that the proper write ups and sign-offs have been accomplished.
5. Notify the Maintenance Manager or his/her delegate at the earliest opportunity of any inoperative item. This notification will allow him to program and initiate procedures to assure timely corrective action is accomplished.

Prior to any maintenance being accomplished by any non-company personnel or organization the Maintenance Manager or his/her delegate will determine whether that personnel or organization is suitable and qualified. In the event the personnel or organization is not suitable or qualified, then they will be considered as a place where repair or replacement cannot be made.

Before an aircraft is approved for return to service, procedures will be accomplished as follows:

1. Determine whether or not maintenance action is required in addition to that mandated in the MEL, and ensure prevention of secondary hazards.
2. Comply with the appropriate procedures in the MEL Operator and Maintenance Procedures Manual (Tab 2) for the inoperative item.
3. A placard is affixed on or near the inoperative equipment per OMP-2 in section 2 of this manual.

Before an aircraft is approved for return to service under an (M) provision of the MEL, that flights' PIC will make certain that:

1. The authorized maintenance person is familiar with and understands the provisions and procedures of the approved MEL.
2. The aircraft maintenance record is completed by the authorized maintenance person.

Proper sign-offs of deferral paperwork is essential, and a quick reference checklist is provided on the following page to help you complete the paperwork fully and correctly.

NON-ESSENTIAL FURNISHINGS MANUAL (NEF)

Part 91 Operations Only

This guide has been developed from Federal Order 8900.1, Vol. 4, Chapter 4, Dated 11/18/2015 and PL-116.

NEF List		
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NEF PROGRAM PROCEDURES MANUAL

APPLICABILITY:
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PREFACE

Our operation chooses to develop and use a list of Non-Essential Equipment and Furnishings, as it allows the majority of deferrals to be addressed before they occur, and will usually not require the pilot or maintainer to address the NEF flowchart on page 10 of Federal Order 8900.1, Vol. 4, Chapter 4. Should an item not on the list we provide be deemed inoperative and Non-Essential per the NEF flowchart that item may be deferred as long as the item is then reported and added to the NEF list on file with both this operation, and the CHDO/FSDO at which the list is being approved and maintained. *All of these NEF items are considered Repair Category D, though repair categories do not affect Part 91 operations.*

Under Part 91 operations this initial list or subsequent updates need not be submitted to the FSDO for approval, but must be available for FAA review upon request. This does not apply to subpart K operators. Category timeframes (all denoted as “D” within this document) are not restrictive for Part 91 operations. Items must be cleared or inspected and deferred by Part 91 operators, at latest, by the next scheduled inspection.

Identification of applicable equipment:

They are those items that, if inoperative, damaged, or missing, have no effect on the aircraft's ability to be operated safely under all operational conditions. These nonessential items may be installed in areas including, but not limited to, the passenger compartment, flight deck area, service areas, cargo areas, crew rest areas, lavatories, and galley areas. Cosmetic items that are fully serviceable but worn or soiled may be deferred under an operator's NEF process. All of these items must not affect other systems necessary for flight, or present a hazard (bare wires, inhibiting movement within the aircraft, etc.). Each item deemed non-essential must pass the flowchart test for NEF equipment prior to its inclusion to the NEF program (refer to the flowchart on page 5 of this document for further guidance).

Even though an item may not have been identified on the NEF list prior to its inoperative status, the flight crew, maintenance and/or flight operations personnel may defer an item as long as it meets the above criteria, and is reported within the specified timeframe. Examples of these items are as follows: Decorative trim and moldings, cabin tables, beverage dispensers, ovens, entertainment items (monitors, DVD players, stereo equipment), inflight telephones (if not necessary for inflight communication), cup holders, reading lights, sunshades, etc.).

Documentation of inoperative, missing or damaged items:

A placard will be placed on the item in accordance with OMP-2 of the O&M procedures in section 2 of the MEL. The item will be logged into the Deferred Maintenance Log, just as with an MEL entry, using the ATA code of 25 NEF. The Repair Category is not applicable to Part 91 operations, but may be specified if Operations or Maintenance prefer the equipment repair to be expedited. As our operation chooses to use a defined NEF List, reporting of NEF deferrals to the CHDO/FSDO is not necessary.

Follow-up Maintenance:

When the item is repaired, the item will then be signed off the deferral log, just as an MEL item would be, and any placards for that item removed.

The flight crew will be made aware of any status change by referral to the Deferred Maintenance Log prior to flight.

NEF List:

The following pages (pages 2 through 4) will specify the approved NEF items, as well as any O&M procedures required to ensure the item will have no adverse during flight operations. **If there is a conflict between this document and the MEL, the MEL always takes precedence.**

Non-Essential Equipment and Furnishings List

ITEM	O&M PROCEDURE
Cockpit	
1. Access Compartment Latches	(M) Door must be secured closed by use of tape or safety wire per OMP-4
2. HUD Protective cover	
3. Cockpit Seat Covering worn or torn	
4. Seat, sidewall, overhead, etc. trim	
5. Carpet	(O) Ensure no tripping hazard exists
6. Foot Tread Trim	(O) Ensure no tripping hazard exists
7. Coat and/or Hat Hooks	(O) Crew will stow coats and/or hats in an alternate location
8. Window Heat Contact Covers	
9. Sunshades	(O) Ensure shade is secured or removed
10. Placards	(O) May be inoperative provided missing information is duplicated on a temporary label until permanent placard can be replaced.
11. Spare Headset	
12. Compartment Doors	(M) Door must be secured closed by use of tape or safety wire per OMP-4
13. Observers Storage Compartment	(M) Door must be secured closed by use of tape or safety wire per OMP-4
14. Document Holders	
15. Yoke Chart Clips	
16. Class 1 or 2 EFB Systems (or Ipad)	(M) Pull & Collar associated Circuit Breaker, if installed. (O) Any information, or flight planning or filing this unit supplied must be available by alternate means. This includes, but is not limited to Charts, Approach Plates, Weather, filing services, and aircraft publications (AFM, MEL, etc.)
17. XM Weather Systems	(M) Pull & Collar associated Circuit Breaker
18. QAR Reporting System	(M) Pull & Collar associated Circuit Breaker
Galley	
19. Coffee Heater/Makers	(M) Pull & Collar associated Circuit Breaker
20. Coffee/Tea/Brewing Pots	(M) Pull & Collar associated Circuit Breaker
21. Ice Drawer	
22. Water Heaters	(M) Pull & Collar associated Circuit Breaker
23. Plate Warmers/Warmer Pads	(M) Pull & Collar associated Circuit Breaker
24. Chillers	(M) Pull & Collar associated Circuit Breaker
25. Galley Lighting Control Panel	(O) May be inoperative provided an alternate Control Panel is operative to provide adequate cabin lighting.
26. Galley Work Lighting	(M) Pull & Collar associated Circuit Breaker
27. Galley Sinks and Drains	(O) Placard drain areas and brief passengers on loss of use
28. Sink Drain Handle	
29. Galley Water Spigot	
30. Hot Cup System	(M) Pull & Collar associated Circuit Breaker
31. Microwave/Convection oven	(M) Pull & Collar associated Circuit Breaker
32. Ovens and Controls	(M) Pull & Collar associated Circuit Breaker
33. Galley 115VAC Outlets	(M) Pull & Collar associated Circuit Breaker
34. Galley Coat Hanger Clips	
35. Galley Mirrors	
36. Work Tables	
37. Waste Containers	
Cabin	
38. Video Display	(M) Pull & Collar associated Circuit Breaker
39. Stereo	(M) Pull & Collar associated Circuit Breaker
40. DVD, VHS or CD player	(M) Pull & Collar associated Circuit Breaker