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DEPARTMENT OF TRANSPORTATION
FEDERAL AVIATION ADMINISTRATION
WASHINGTON, D. C.

Revision: 0 a
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M A S T E R M I N I M U M E Q U I P M E N T L I S T

G-21G

FEDERAL AVIATION ADMINISTRATION
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FEDERAL AVIATION ADMINISTRATION
MASTER MINIMUM EQUIPMENT LIST

Page: 1
Revision: 0 a
Date: 01/30/96

G-21G

Table of Contents

SYSTEM NO.	SYSTEM	PAGE
--	Table of Contents	I
--	Log of Revisions	II
--	Control Page	III
--	Highlights of Change	IV
--	Definitions	V, VI, VII, VIII
--	Definitions	IX, X, XI, XII
--	Preamble	XIII, XIV
--	Guidelines for (O) & (M) Procedures	XV
21	Air Conditioning	21-1
22	Auto Flight	22-1
23	Communications	23-1, 2
24	Electrical Power	24-1
25	Equipment/Furnishings	25-1, 2
26	Fire Protection	26-1
27	Flight Controls	27-1
28	Fuel	28-1
30	Ice and Rain Protection	30-1
31	Indicating/Recording Systems	31-1
32	Landing Gear	32-1
33	Lights	33-1, 2
34	Navigation	34-1, 2, 3, 4, 5
35	Oxygen	35-1
37	Vacuum/Pressure	37-1
61	Propellers	61-1

FEDERAL AVIATION ADMINISTRATION

Page: II

MASTER MINIMUM EQUIPMENT LIST

Revision: 0 a

Date: 01/30/96

G-21G

Log of Revisions

REV. NO.	DATE	PAGE NUMBERS	INITIALS
0a	01/30/96	HIGHLIGHTS OF REV., DEFINITIONS	
0a	01/30/96	GUIDELINES	
0a	01/30/96	21-1, 22-1, 23-1, 23-2, 24-1	
0a	01/30/96	25-1, 25-2, 26-1, 27-1, 28-1	
0a	01/30/96	30-1, 31-1, 32-1, 33-1, 33-2	
0a	01/30/96	34-1, 34-2, 34-3, 34-4, 34-5	
0a	01/30/96	35-1, 37-1, 61-1	

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FEDERAL AVIATION ADMINISTRATION

Page: III

MASTER MINIMUM EQUIPMENT LIST

Revision: 0 a

Date: 01/30/96

G-21G

Control Page

SYSTEM	PAGE	REV NO.	CURRENT DATE
Cover Page	-	0 a	01/30/96
Table of Contents	I	0 a	01/30/96
Log of Revisions	II	0 a	01/30/96
Control Page	III	0 a	01/30/96
Highlights of Change	IV	0 a	01/30/96
Definitions	V	6	01/31/95
	VI	6	01/31/95
	VII	6	01/31/95
	VIII	6	01/31/95
	IX	6	01/31/95
	X	6	01/31/95
	XI	6	01/31/95
	XII	6	01/31/95
Preamble	XIII	2	06/14/89
	XIV	2	06/14/89
Guidelines for (O) & (M) Procedures	XV	0 a	01/30/96
21	21-1	0 a	01/30/96
22	22-1	0 a	01/30/96

	G21gr0a. txt			
23		23-1	0 a	01/30/96
		23-2	0 a	01/30/96
24		24-1	0 a	01/30/96
25		25-1	0 a	01/30/96
		25-2	0 a	01/30/96
26		26-1	0 a	01/30/96
27		27-1	0 a	01/30/96
28		28-1	0 a	01/30/96
30		30-1	0 a	01/30/96
31		31-1	0 a	01/30/96
32		32-1	0 a	01/30/96
33		33-1	0 a	01/30/96
		33-2	0 a	01/30/96
34		34-1	0 a	01/30/96
		34-2	0 a	01/30/96
		34-3	0 a	01/30/96
		34-4	0 a	01/30/96
		34-5	0 a	01/30/96
35		35-1	0 a	01/30/96
37		37-1	0 a	01/30/96
61		61-1	0 a	01/30/96

FEDERAL AVIATION ADMINISTRATION Page: IV
 MASTER MINIMUM EQUIPMENT LIST Revision: 0 a
 Date: 01/30/96

G-21G

Highlights of Change

The asterisk symbol (*) has been deleted in accordance with Policy Letter(PL) 61, designated as Global Change(GC) 8. See Definitions section for placarding policy.

Relief for Public Address System revised in accordance with PL-9, designated as GC-13. Relief for Cockpit Voice Recorders added in accordance with PL-29 and PL-53. Relief for Boom Microphones added in accordance with PL-58, designated as GC-14.

Relief for First Aid Kits added in accordance with PL-73, designated as GC-17.

Relief for Portable Fire Extinguishers revised in accordance with PL-75, designated as GC-19.

Relief for Cockpit and Instrument Lighting systems revised in accordance with PL-77, designated as GC-21. Relief for Ice Detect Lights added in accordance with PL-37.

Relief for ATC Transponders and Automatic Altitude Reporting Systems revised in accordance with PL-76, designated as GC-20. Relief for TCAS II added in accordance with PL-32, designated as GC-2. TCAS I relief added in accordance with PL-80, designated as GC-30. Relief for GPWS added in accordance with PL-54, designated as GC-10. Relief for FPAS added in accordance with PL-74, designated as GC-18.

FEDERAL AVIATION ADMINISTRATION
MASTER MINIMUM EQUIPMENT LIST

Page: V
Revision: 6
Date: 01/31/95

G-21G

Definitions

1. System Definitions.

System numbers are based on the Air Transport Association (ATA) Specification Number 100 and items are numbered sequentially.

- a. "Item" (Column 1) means the equipment, system, component, or function listed in the "Item" column.
- b. "Number Installed" (Column 2) is the number (quantity) of 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., passenger cabin items) a number is not required.
- c. "Number Required for Dispatch" (Column 3) is the minimum number (quantity) of items required for operation provided the conditions specified in Column 4 are met.

NOTE: 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.

- d. "Remarks or Exceptions" (Column 4) in this column includes a statement either prohibiting or permitting operation with a specific number of items inoperative, provisos (conditions and limitations) for such operation, and appropriate notes.
- e. A vertical bar (change bar) in the margin indicates a change, addition or deletion in the

G21gr0a.txt

adjacent text for the current revision of that page only. The change bar is dropped at the next revision of that page.

2. "Airplane/Rotorcraft Flight Manual" (AFM/RFM) is the document required for type certification and approved by the responsible FAA Aircraft Certification Office. The FAA approved AFM/RFM for the specific aircraft is listed on the applicable Type

FEDERAL AVIATION ADMINISTRATION

Page: VI

MASTER MINIMUM EQUIPMENT LIST

Revision: 6

Date: 01/31/95

G-21G

Definitions

Certificate Data Sheet.

3. "As required by FAR" means that the listed item is subject to certain provisions (restrictive or permissive) expressed in the Federal Aviation Regulations operating rules. The number of items required by the FAR must be operative. When the listed item is not required by FAR it may be inoperative for time specified by repair category.

4. Each inoperative item must be placarded to inform and remind the crewmembers and maintenance personnel of the equipment condition.

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.

5. "-" symbol in Column 2 and/or Column 3 indicates a variable number (quantity) of the item installed.

6. "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.

7. "ER" refers to extended range operations of a two-engine airplane which has a type design approval for ER operations and complies with the provisions of Advisory Circular 120-42A.

8. "Federal Aviation Regulations" (FAR) means the applicable portions of the Federal Aviation Act and Federal Aviation Regulations.

9. "Flight Day" means a 24 hour period (from midnight to midnight) either Universal Coordinated Time (UCT) or local time, as established by the operator, during which at least one flight is initiated for the affected aircraft.

10. "Icing Conditions" means an atmospheric environment that may cause ice to form on the aircraft or in the engine(s).

11. Alphabetical symbol in Column 4 indicates a proviso

(condition or limitation) that must be complied with for

FEDERAL AVIATION ADMINISTRATION

Page: VII

MASTER MINIMUM EQUIPMENT LIST

Revision: 6

Date: 01/31/95

G-21G

Definitions

operation with the listed item inoperative.

12. "Inoperative" means 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) or tolerance(s).

13. "Notes:" in Column 4 provides 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 operator of the responsibility for compliance with all applicable requirements. Notes are not a part of the provisions.

14. Inoperative components of an inoperative system: Inoperative items which are components of a system which 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).

15. "(M)" 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 operator. Appropriate procedures are required to be published as part of the operator's manual or MEL.

16. "(O)" 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 flight crew; 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 operator. Appropriate procedures are

FEDERAL AVIATION ADMINISTRATION

Page: VIII

MASTER MINIMUM EQUIPMENT LIST

Revision: 6

Date: 01/31/95

Page 7

Defi ni ti ons

required to be published as a part of the operator's manual or MEL.

NOTE: The (M) and (O) symbols are required in the operator's MEL unless otherwise authorized by the Administrator.

17. "Deactivated" and "Secured" means that the specified component must be put into an acceptable condition for safe flight. An acceptable method of securing or deactivating will be established by the operator.

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

19. "Visual Meteorological Conditions" (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.

20. "Visible Moisture" means 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.

21. "Passenger Convenience Items" means those items related to passenger convenience, comfort or entertainment such as, but not limited to, galley equipment, movie equipment, ash trays, stereo equipment, overhead reading lamps, etc.

22. Repair Intervals: All users of an MEL approved under FAR 121, 125, 129 and 135 must effect repairs of inoperative systems or components, deferred in accordance with the MEL, at or prior to the repair times established by the following letter designators:

Category A. Items in this category shall be repaired within the time interval specified in the remarks column of the operator's approved MEL.

Category B. Items in this category shall be repaired within three (3) consecutive calendar days (72 hours), excluding the day the malfunction was recorded in the aircraft maintenance

G21gr0a.txt

record/logbook. For example, if it were recorded at 10 a.m. on January 26th, the three day interval would begin at midnight the 26th and end at midnight the 29th.

Category C. Items in this category shall be repaired within ten (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.

Category D. Items in this category shall be repaired within one hundred and twenty (120) consecutive calendar days (2880 hours), excluding the day the malfunction was recorded in the aircraft maintenance log and/or record.

The letter designators are inserted adjacent to Column 2.

23. Electronic fault alerting system - General

New generation aircraft display system fault indications to the flight crew by use of computerized display systems. Each aircraft manufacturer has incorporated individual design philosophies in determining the data that would be represented. The following are customized definitions (specific to each manufacturer) to help determine the level of messages affecting the aircraft's dispatch status. When preparing the MEL document, operators are to select the proper Definition No. 23 for their aircraft, if appropriate.

a. BOEING (B-757/767, B-747-400, B-777)

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 affects 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,

FEDERAL AVIATION ADMINISTRATION

Page: X

MASTER MINIMUM EQUIPMENT LIST

Revision: 6

Date: 01/31/95

G-21G

Definitions

do not affect dispatch and do not require action other than as addressed within an operators standard maintenance program.

b. DOUGLAS (MD-11)

Some Douglas aircraft are equipped with an alerting function which is a subsystem within the Electronic Instrument System

(EIS). The alerting function provides various 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. AIRBUS (A-300-600, A-310, A-320/319/321, A-330, A-340

Airbus aircraft equipped with Electronic Centralized Aircraft Monitoring (ECAM) provide different levels of system condition messages (WARNING, CAUTION, STATUS, and ADVISORY). A-320/319/321, A-330, and A-340 also provide MAINTENANCE status messages.

Any message that effects airplane dispatchability will normally be at the WARNING, CAUTION or STATUS level. MAINTENANCE messages (A-320/319/321, A-330, and A-340 only) are also indicated on ECAM Status Page below the white Maintenance label.

A MAINTENANCE status (Class II) message on ECAM indicates the presence of a system fault which can be identified by CFDS (A-320/319/321) or CMS (A-330/A-340) interrogation. The systems are designed to be fault tolerant, however for any MAINTENANCE status (Class II) message, the A-320/319/321 MEL must be verified for dispatch capability. For the A-330 and A-340, MAINTENANCE status messages do not affect dispatch.

d. FOKKER (FK-100)

FEDERAL AVIATION ADMINISTRATION

Page: XI

MASTER MINIMUM EQUIPMENT LIST

Revision: 6

Date: 01/31/95

G-21G

Definitions

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 affects 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.

24. "Administrative control item" means an item listed by the operator in the MEL for tracking and informational purposes. It may be added to an operator's MEL by approval of the Principal Operations Inspector provided no relief is granted, or provided conditions and limitations are contained in an approved document (i.e. Structural Repair Manual, airworthiness directive, etc.). If relief other than that granted by an approved document is sought for an administrative control item, 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 administrative control item.

25. "****" symbol in Column 1 indicates an item which is not required by regulation but which may have been installed on some models of aircraft covered by this MMEL. This item may be included on the operator's MEL after the approving office has determined that the item has been installed on one or more of the operator's aircraft. The symbol, however, shall not be carried forward into the operator's MEL. It should be noted that neither this policy nor the use of this symbol provide authority to install or remove an item from an aircraft.

26. "Excess Items" means those items that have been installed that are redundant to the requirements of the FARs.

27. "Day of Discovery" is the calendar day an equipment/instrument malfunction was recorded in the aircraft

FEDERAL AVIATION ADMINISTRATION
MASTER MINIMUM EQUIPMENT LIST

Page: XII
Revision: 6
Date: 01/31/95

G-21G

Definitions

maintenance log and or record. This day is excluded from the calendar days or flight days specified in the MMEL for the repair of an inoperative item of equipment. This provision is applicable to all MMEL items, i.e., categories "A, B, C, and D."

FEDERAL AVIATION ADMINISTRATION Page: XIII
MASTER MINIMUM EQUIPMENT LIST Revision: 2
Date: 06/14/89

G-21G

Preamble
(Effective 6/14/89)

The following is applicable for authorized certificate holders operating under Federal Aviation Regulations (FAR) Parts 121, 125, 129, 135: The FAR require 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 various 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
Page 12

G21gr0a.txt

excess of FAR 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.

FEDERAL AVIATION ADMINISTRATION Page: XIV
MASTER MINIMUM EQUIPMENT LIST Revision: 2
Date: 06/14/89

G-21G

Preamble
(Effective 6/14/89)

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. 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 FAR. 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 FAR. 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.

G-21G

Guidelines for (O) & (M) Procedures

The FOEB has identified a need for certain procedures to provide an adequate level of safety while providing relief for the following items. These procedures must be established by the operator. The following guidelines are to help establish these required procedures.

- 22.1 (M) Procedure to assure that no electrical or mechanical fault will have any adverse effect on any flight control system.
- 23.3 (O) Procedure to specify how passengers will be briefed and to operate within MMEL restrictions.
- 31.2 (O) Procedure for recording aircraft time for maintenance purposes.
- 32.1 (O) Procedure to ensure that the normal braking system is not impaired, the aircraft tires are properly blocked to prevent movement if parked on an incline, and the aircraft is not left unattended with the engines running.
- 33.7 (O) Procedure for briefing passengers.
- 34.14
 - 1) (M) Procedure to ensure the system is deactivated and secured.
 - 2) (O) Procedure to ensure TA and RA display is visible to the non-flying pilot, and audio functions are operative on the flying pilot side.
 - 3) (O) Procedure to ensure non-flying pilot monitors pilot display.
 - (O) Procedure to ensure TA ONLY mode is selected and all TA functions/elements are operative.
 - 4) (O) Procedure to ensure all RA display/functions are operative.
- 34.15 (M) Procedure to ensure the system is deactivated and secured.
- 34.16.1, 4, 5 (O) Procedure to ensure crew awareness of aircraft altitude and performance.
- 34.17.1, 2, 3, 4, 6 (O) Procedure to ensure crew awareness of aircraft altitude and performance.

U. S. DEPARTMENT OF TRANSPORTATION

MASTER MINIMUM EQUIPMENT LIST

FEDERAL AVIATION ADMINISTRATION

AIRCRAFT:

G-21G

REVISION NO: 0 a

PAGE:

DATE: 01/30/96

21-1

SYSTEM & SEQUENCE NUMBERS	ITEM	1.	2. NUMBER INSTALLED		4. REMARKS OR EXCEPTIONS
			3.	NUMBER REQUIRED FOR DISPATCH	
21 AIR CONDITIONING					
1.	Cabin Heat Valves	C	2	0	May be inoperative provided failed valve is in the CLOSED/OFF position.
2.	Air Conditioner ***	C	1	0	

U. S. DEPARTMENT OF TRANSPORTATION

FEDERAL AVIATION ADMINISTRATION

AIRCRAFT:

G-21G

REVISION NO: 0 a

PAGE:

DATE: 01/30/96

22-1

SYSTEM & SEQUENCE NUMBERS	ITEM	1.	2. NUMBER INSTALLED		4. REMARKS OR EXCEPTIONS
			3. NUMBER REQUIRED FOR DISPATCH		
22	AUTO FLIGHT				
1.	Autopilot ***	C	1	0	(M)As required by FAR.

U. S. DEPARTMENT OF TRANSPORTATION

MASTER MINIMUM EQUIPMENT LIST

FEDERAL AVIATION ADMINISTRATION

AIRCRAFT:

G-21G

REVISION NO: 0 a

PAGE:

DATE: 01/30/96

23-1

SYSTEM & SEQUENCE NUMBERS	ITEM	1.	2. NUMBER INSTALLED		4. REMARKS OR EXCEPTIONS
			3.	NUMBER REQUIRED FOR DISPATCH	
23	COMMUNICATIONS				
1.	Communications Equipment (VHF, HF, UHF)	C	-	-	As required by FAR.
2.	Cockpit Speaker ***	C	1	0	May be inoperative provided two operative headsets are available to the flight crew.
3.	Passenger Address *** (PA) System				
	1) Passenger Configuration	B	1	0	(0)May be inoperative provided alternate normal and emergency procedures and/or operating restrictions are established and used.
	2) Cargo Configuration	D	1	0	
4.	Cockpit Voice *** Recorder (CVR) (Flight Data Recorder Required by FAR)	A	1	0	May be inoperative provided Flight Data Recorder is operative and repairs are made within three flight days.
					OR
***	Cockpit Voice Recorder (Flight Data Recorder not required by FAR)	A	1	0	May be inoperative provided repairs are made within three flight days.

U. S. DEPARTMENT OF TRANSPORTATION

MASTER MINIMUM EQUIPMENT LIST

FEDERAL AVIATION ADMINISTRATION

AIRCRAFT:

G-21G

REVISION NO: 0 a

PAGE:

SYSTEM & SEQUENCE NUMBERS	ITEM	1.	2. NUMBER INSTALLED	3. NUMBER REQUIRED FOR DISPATCH	4. REMARKS OR EXCEPTIONS
23 COMMUNICATIONS					
5. Boom Microphones (If FDR Required by FAR)					
1)	Cockpit Voice Recorder Equipped to Record Boom Microphones per FAR 135.151(d).	A	-	0	May be inoperative provided: a) Flight Data Recorder (FDR) operates normally, and b) Repairs are made within three flight days.
2)	Cockpit Voice Recorder not Equipped to Record Boom Microphone	D	-	0	
Boom Microphones (If No FDR Required by FAR)					
1)	Cockpit Voice Recorder Equipped to Record Boom Microphones per FAR 135.151(d)	A	-	0	May be inoperative provided repairs are made within three flight days.
2)	Cockpit Voice Recorder Not Equipped to Record Boom Microphone	D	-	0	

U. S. DEPARTMENT OF TRANSPORTATION

MASTER MINIMUM EQUIPMENT LIST

FEDERAL AVIATION ADMINISTRATION

AIRCRAFT: G-21G

REVISION NO: 0 a

PAGE:

DATE: 01/30/96

24-1

SYSTEM & SEQUENCE NUMBERS	ITEM	1.	2. NUMBER INSTALLED	3. NUMBER REQUIRED FOR DISPATCH	4. REMARKS OR EXCEPTIONS

24	ELECTRICAL POWER				
1.	A.C. Inverter	B	2	1	One may be inoperative for day VFR.
2.	A.C. Inverter Warning Light	B	1	0	May be inoperative provided AC voltmeter is operative.

U. S. DEPARTMENT OF TRANSPORTATION

FEDERAL AVIATION ADMINISTRATION

MASTER MINIMUM EQUIPMENT LIST

AIRCRAFT:

G-21G

REVISION NO: 0 a

PAGE:

DATE: 01/30/96

25-1

SYSTEM &

1.

2. NUMBER INSTALLED

SEQUENCE NUMBERS	ITEM			3. NUMBER REQUIRED FOR DISPATCH	4. REMARKS OR EXCEPTIONS
25	EQUIPMENT/FURNISHINGS				
1.	Cockpit Shoulder Harness	B	2	1	Right side may be inoperative for single pilot operations, however, right seat must remain unoccupied.
2.	Passenger Seat	C	-	0	All may be inoperative provided: a) Affected seat does not block emergency egress to an aisle or exit, and b) Affected seat is blocked and placarded "DO NOT OCCUPY." NOTE 1: A seat with an inoperative seat belt or shoulder harness is considered inoperative. NOTE 2: A seat with an inoperative recline mechanism is considered to be inoperative if the seat back cannot be secured in the upright position.
3.	Approved Flotation Equipment	C	-	0	As required by FAR.
4.	ELT	C	1	0	As required by FAR.
		C	1	0	OR May be inoperative for published scheduled flights in scheduled air carrier service.

U. S. DEPARTMENT OF TRANSPORTATION

FEDERAL AVIATION ADMINISTRATION

MASTER MINIMUM EQUIPMENT LIST

AIRCRAFT:

G-21G

REVISION NO: 0 a

PAGE:

DATE: 01/30/96

25-2

SYSTEM & SEQUENCE NUMBERS	ITEM	1.	2. NUMBER INSTALLED	3. NUMBER REQUIRED FOR DISPATCH	4. REMARKS OR EXCEPTIONS

25	EQUI PMENT/FURNI SHI NGS			
5.	Passenger Conveni ence Item(s)	-	-	Passenger convenience items, as expressed in this MMEL are those related to passenger convenience, comfort or entertainment such as, but not limited to, galley equipment, movie equipment, ash trays, stereo equipment, overhead reading lamps, etc. Items addressed elsewhere in this document shall not be included. (M) and (O) procedures may be required and included in the air carrier's appropriate document.
6.	First Aid Kits	D	-	Any in excess of those required by FAR may be incomplete or missing provided the required distribution is maintained.

U. S. DEPARTMENT OF TRANSPORTATION

MASTER MINIMUM EQUIPMENT LIST

FEDERAL AVIATION ADMINISTRATION

AIRCRAFT:

G-21G

REVISION NO: 0 a

PAGE:

DATE: 01/30/96

26-1

SYSTEM & SEQUENCE NUMBERS	1. ITEM	2. NUMBER INSTALLED	3. NUMBER REQUIRED FOR DISPATCH	4. REMARKS OR EXCEPTIONS
26	FIRE PROTECTION			

1.	Portable Fire Extinguishers	D	-	-	Any in excess of those required by FAR may be inoperative or missing provided: a) The inoperative fire extinguisher is tagged inoperative, removed from the installed location, and placed out of sight so it can not be mistaken for a functional unit, and b) The required distribution is maintained.
2.	Engine Fire Extinguisher Pressure/Thermal Indicators	C	4	0	May be missing provided fire bottles are checked for proper charge before each flight.

U. S. DEPARTMENT OF TRANSPORTATION

FEDERAL AVIATION ADMINISTRATION

MASTER MINIMUM EQUIPMENT LIST

AIRCRAFT:

G-21G

REVISION NO: 0 a

PAGE:

DATE: 01/30/96

27-1

SYSTEM & SEQUENCE NUMBERS	ITEM	1.	2. NUMBER INSTALLED		4. REMARKS OR EXCEPTIONS
			3. NUMBER REQUIRED FOR DISPATCH		
27	FLIGHT CONTROLS				
1.	Aileron Trim Tab	C	1	0	May be inoperative provided:

Indicator					
2.	Rudder Trim Tab Indicator	C	1	0	<p>May be inoperative provided:</p> <ul style="list-style-type: none"> a) Tab is visually checked for full range of operation, b) Tab operation is not affected, and c) Tab is positioned to neutral prior to each departure and neutral position is verified by visual inspection.

U. S. DEPARTMENT OF TRANSPORTATION

MASTER MINIMUM EQUIPMENT LIST

FEDERAL AVIATION ADMINISTRATION

AIRCRAFT:

G-21G

REVISION NO: 0 a

PAGE:

DATE: 01/30/96

28-1

SYSTEM & SEQUENCE NUMBERS	ITEM	1.	2. NUMBER INSTALLED	3. NUMBER REQUIRED FOR DISPATCH	4. REMARKS OR EXCEPTIONS
28 FUEL					
1.	Fuel Control Sensor Tube Heater	C	4	0	<p>May be inoperative provided:</p> <ul style="list-style-type: none"> a) Corresponding circuit

G21gr0a.txt

2. Fuel Low Level Warning Light	C	2	1	<p>breaker is pulled, and</p> <p>b) Aircraft is not operated with OAT below 0 degrees C.</p> <p>One may be inoperative provided associated Fuel Quantity Gauge is operative.</p>
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U. S. DEPARTMENT OF TRANSPORTATION

FEDERAL AVIATION ADMINISTRATION

MASTER MINIMUM EQUIPMENT LIST

AIRCRAFT:

G-21G

REVISION NO: 0 a

PAGE:

DATE: 01/30/96

30-1

SYSTEM & SEQUENCE NUMBERS	ITEM	1.	2. NUMBER INSTALLED	3. NUMBER REQUIRED FOR DISPATCH	4. REMARKS OR EXCEPTIONS
30 ICE AND RAIN PROTECTION					
1. Pitot Heater	B	1	0		Left unit must be operative for IFR passenger carrying and for flight in known or forecast icing conditions. Two heated pitot tubes are required for these

G21gr0a.txt

					conditions if a second airspeed indicator is installed and operative.
2.	Surface Deicing System (Wing Vertical and Horizontal Stabilizer)	C	1	0	May be inoperative provided aircraft is not operated in known or forecast icing conditions.
3.	Windshield Deice System	C	1	0	May be inoperative provided aircraft is not operated in known or forecast icing conditions.
4.	Propeller Anti-icing/Deicing System	C	1	0	May be inoperative provided aircraft is not operated in known or forecast icing conditions.
5.	Intake Deflector	C	2	0	Both may be inoperative provided: <ul style="list-style-type: none"> a) Inoperative deflectors are verified in the extended position, and b) Operation is conducted in accordance with the AFM.

U. S. DEPARTMENT OF TRANSPORTATION

MASTER MINIMUM EQUIPMENT LIST

FEDERAL AVIATION ADMINISTRATION

AIRCRAFT:

G-21G

REVISION NO: 0 a

PAGE:

DATE: 01/30/96

31-1

SYSTEM & SEQUENCE NUMBERS	ITEM	1.	2. NUMBER INSTALLED		4. REMARKS OR EXCEPTIONS
			3.	NUMBER REQUIRED FOR DISPATCH	
31	INDICATING/RECORDING SYSTEMS				
1.	Clock with sweep second hand or electric digital clock	C	1	0	May be inoperative for VFR operations.
2.	Flight Hour Recorder	C	1	0	(0)

3. Flight Data
*** Recorder

A

1

0

May be inoperative repairs are made within three flight days.

U. S. DEPARTMENT OF TRANSPORTATION

MASTER MINIMUM EQUIPMENT LIST

FEDERAL AVIATION ADMINISTRATION

AIRCRAFT:

G-21G

REVISION NO: 0 a

PAGE:

DATE: 01/30/96

32-1

SYSTEM & SEQUENCE NUMBERS	ITEM	1.	2. NUMBER INSTALLED	3. NUMBER REQUIRED FOR DISPATCH	4. REMARKS OR EXCEPTIONS
32	LANDING GEAR				
1.	Parking Brake	C	1	0	(0) May be inoperative provided normal braking system is not affected.

U. S. DEPARTMENT OF TRANSPORTATION

MASTER MINIMUM EQUIPMENT LIST

FEDERAL AVIATION ADMINISTRATION

AIRCRAFT:

G-21G

REVISION NO: 0 a

PAGE:

DATE: 01/30/96

33-1

SYSTEM & SEQUENCE NUMBERS	ITEM	1.	2. NUMBER INSTALLED		4. REMARKS OR EXCEPTIONS
			3.	NUMBER REQUIRED FOR DISPATCH	
33 LIGHTS					
1.	Anti-collision Beacon Light System	B	1	0	May be inoperative for day operations.
2.	Position Lights	C	3	0	May be inoperative for day operations.
3.	Flight Compartment and Instrument Lighting Systems	C	-	-	Individual lights may be inoperative provided the remaining lights are:

G21gr0a.txt

					<ul style="list-style-type: none"> a) Sufficient to clearly illuminate all required instruments, controls, and other devices for which it is provided, b) Positioned so that direct rays are shielded from crewmembers eyes, and c) Lighting configuration and intensity is acceptable to the flight crew.
4.	Landing Lights	C	2	0	May be inoperative for day operations.
5.	Cabin Lights	C	-	-	Individual lights may be inoperative provided lighting configuration at the time of dispatch is acceptable to the flight crew.
6.	Strobe Light System ***	C	1	0	

U. S. DEPARTMENT OF TRANSPORTATION

MASTER MINIMUM EQUIPMENT LIST

FEDERAL AVIATION ADMINISTRATION

AIRCRAFT:

G-21G

REVISION NO: 0 a

PAGE:

DATE: 01/30/96

33-2

SYSTEM & SEQUENCE NUMBERS	ITEM	1.	2. NUMBER INSTALLED		4. REMARKS OR EXCEPTIONS
			3.	NUMBER REQUIRED FOR DISPATCH	
33	LIGHTS				
7.	Passenger Notice System (Fasten Seat Belt/No Smoking) ***	C	1	0	(0)May be inoperative provided appropriate verbal briefings are given to the passengers.
8.	Anchor Light ***	C	1	0	As required by FAR.
9.	Ice Detection Lights	C	-	0	May be inoperative provided a portable lamp/light of adequate capacity for wing and/or control surface inspection is available for night operations in icing conditions.

U. S. DEPARTMENT OF TRANSPORTATION

FEDERAL AVIATION ADMINISTRATION

MASTER MINIMUM EQUIPMENT LIST

AIRCRAFT:

G-21G

REVISION NO: 0 a

PAGE:

DATE: 01/30/96

34-1

SYSTEM & SEQUENCE NUMBERS	ITEM	1.	2. NUMBER INSTALLED		4. REMARKS OR EXCEPTIONS
			3.	NUMBER REQUIRED FOR DISPATCH	
34	NAVIGATION				
1.	Vertical Speed Indicator	B	1	0	May be inoperative on right side for all flights, and may be inoperative on left side for all but IFR passenger carrying operations.
2.	Gyroscopic Rate of Turn/Slip Skid Indicator	B	1	0	May be inoperative on: <ul style="list-style-type: none"> a) the right side for all flights, b) the left side for all non-passenger carrying operations, c) the left side for passenger

carrying day VFR flights.

3.	Navi gati on Equi pment (VOR/I LS, LORAN, OMEGA/VLF, GPS I NS, DOPPLER, RNAV)	C	-	-	As requi red by FAR.
4.	Weather Radar/ Thunderstorm Detecti on Equi pment	C	1	0	As requi red by FAR.
5.	DME	C	1	0	As requi red by FAR.
6.	Marker Beacon	C	1	0	May be i noperati ve provi ded approach procedure does not requi re i ts use.
7.	ATC Transponders and Automatic Al ti tude Reporti ng Systems	D	-	-	Any i n excess of those requi red by FAR may be i noperati ve.
8.	Radar Al ti meter	C	1	0	

U. S. DEPARTMENT OF TRANSPORTATION

MASTER MINIMUM EQUIPMENT LIST

FEDERAL AVIATION ADMINISTRATION

AIRCRAFT:

G-21G

REVISION NO: 0 a

PAGE:

DATE: 01/30/96

34-2

SYSTEM & SEQUENCE NUMBERS	ITEM	1.	2. NUMBER INSTALLED		4. REMARKS OR EXCEPTIONS
			3.	NUMBER REQUIRED FOR DISPATCH	
34	NAVI GATI ON				
9.	Fl ight Di rector	C	1	0	
10.	RMI	C	1	0	
11.	ADF	C	1	0	As requi red by FAR.
12.	Al ti tude Encoder				Combi ned wi th Transponders, Rev. 0a
13.	Nonstabi lized Magnetic (Standby) Compass	B	1	0	May be i noperati ve provi ded any combi nation of three gyro or INS (IRU) stabi lized compass systems are operati ve.
		B	1	0	OR May be i noperati ve provi ded: a) Any combi nation of the two

G21gr0a.txt

				gyro or INS stabilized compass systems are operative, and
				b) Aircraft is operated with dual independent navigation capability and under positive radar control by ATC on the en route portion of the flight.
				OR
B	1	0		May be inoperative for flights that are entirely within areas of magnetic unreliability provided at least two stabilized directional gyro systems are installed, operative, and used in conjunction with approved free gyro navigation techniques.

U. S. DEPARTMENT OF TRANSPORTATION

MASTER MINIMUM EQUIPMENT LIST

FEDERAL AVIATION ADMINISTRATION

AIRCRAFT:

G-21G

REVISION NO: 0 a

PAGE:

DATE: 01/30/96

34-3

SYSTEM & SEQUENCE NUMBERS	1. ITEM	2. NUMBER INSTALLED	3. NUMBER REQUIRED FOR DISPATCH	4. REMARKS OR EXCEPTIONS
34	NAVI GATI ON			
14. ***	Traffi c Alert/ Col l i si on Avoi dance			
	1) TCAS System C	-	0	(M)May be inoperative provided the system is deactivated and secured.
***	2) Combi ned TA and C RA Dual Di spl ays	2	1	(O)May be inoperative on the non-flying pilot side provided: a) TA and RA elements and audio functions are operative on flying pilot side, and b) TA and RA di spl ay i ndi cati ons are vi si bl e to the non-flying pilot.
	3) Resol uti on Advi sory (RA) Di spl ay System(s) C	2	1	(O)One may be inoperative on non-flying pilot side.
		-	0	OR (O)May be inoperative provided: a) All Traffi c Alert (TA) di spl ay elements and voi ce command audi o functi ons are

G21gr0a.txt

					operative, and b) TA only mode is selected by the crew.
4) TA Display System(s)	C	-	0		(O)May be inoperative provided all installed RA display and audio functions are operative.
15. TCAS I	C	1	0		(M)May be inoperative provided the system is deactivated and secured.

U. S. DEPARTMENT OF TRANSPORTATION

MASTER MINIMUM EQUIPMENT LIST

FEDERAL AVIATION ADMINISTRATION

AIRCRAFT:

G-21G

REVISION NO: 0 a

PAGE:

DATE: 01/30/96

34-4

SYSTEM & SEQUENCE NUMBERS	ITEM	1.	2. NUMBER INSTALLED		4. REMARKS OR EXCEPTIONS
			3.	NUMBER REQUIRED FOR DISPATCH	
34 NAVIGATION					
16. Ground Proximity Warning System ***					
1) Modes 1-4	A	-	0		(O)May be inoperative provided: a) Alternate procedures are established, used and b) Repairs are made within two flight days.
2) Test Mode	A	1	0		May be inoperative provided: a) The GPWS is considered inoperative and b) Repairs are made within two flight days.
3) Glideslope Deviation (Mode 5)	B	2	0		
4) Advisory Callouts ***	C	-	0		(O)May be inoperative provided alternate procedures are established and used.
5) Windshear Mode	C	-	0		(O)May be inoperative provided alternate procedures are

G21gr0a.txt
 established and used.

U. S. DEPARTMENT OF TRANSPORTATION

FEDERAL AVIATION ADMINISTRATION

MASTER MINIMUM EQUIPMENT LIST

AIRCRAFT:

G-21G

REVISION NO: 0 a

PAGE:

DATE: 01/30/96

34-5

SYSTEM & SEQUENCE NUMBERS	1. ITEM	2. NUMBER INSTALLED	3. NUMBER REQUIRED FOR DISPATCH	4. REMARKS OR EXCEPTIONS
34	NAVI GATI ON			
17.	Flight Profile Advisory System(FPAS)			
	1) Gear Mode A	1	0	(0)May be i noperati ve provi ded: a) Al ternate procedures are establi shed and used, and b) Repai rs are made wi thi n two fl ight days.
	2) Mi ni mums Mode A	1	0	(0)May be i noperati ve provi ded: a) Al ternate procedures are establi shed and used, and b) Repai rs are made wi thi n two fl ight days.
	3) Radi o Al ti tude Mode A	1	0	(0)May be i noperati ve provi ded: a) Al ternate procedures are establi shed and used, and b) Repai rs are made wi thi n two fl ight days.
	4) Test Mode A	1	0	(0)May be i noperati ve provi ded: a) Al ternate procedures are establi shed and used, and

G21gr0a.txt

b) Repairs are made within two flight days.

5) Glide Slope Deviation Mode B 1 0

6) Advisory Callouts C - 0

(0) May be inoperative provided alternate procedures are established and used.

U. S. DEPARTMENT OF TRANSPORTATION

MASTER MINIMUM EQUIPMENT LIST

FEDERAL AVIATION ADMINISTRATION

AIRCRAFT:

G-21G

REVISION NO: 0 a

PAGE:

DATE: 01/30/96

35-1

SYSTEM & SEQUENCE NUMBERS	ITEM	1.	2. NUMBER INSTALLED		4. REMARKS OR EXCEPTIONS
			3.	NUMBER REQUIRED FOR DISPATCH	
35 OXYGEN					
1. Oxygen System (Passenger)	C	1	0		As required by FAR.

U. S. DEPARTMENT OF TRANSPORTATION

MASTER MINIMUM EQUIPMENT LIST

FEDERAL AVIATION ADMINISTRATION

AIRCRAFT:

G-21G

REVISION NO: 0 a

PAGE:

DATE: 01/30/96

37-1

SYSTEM & SEQUENCE NUMBERS	ITEM	1.	2. NUMBER INSTALLED	3. NUMBER REQUIRED FOR DISPATCH	4. REMARKS OR EXCEPTIONS
37	VACUUM/PRESSURE				
1.	Instrument Pressure Indicator	C	2	1	One may be inoperative for day VMC.

U. S. DEPARTMENT OF TRANSPORTATION

MASTER MINIMUM EQUIPMENT LIST

FEDERAL AVIATION ADMINISTRATION

AIRCRAFT:

G-21G

REVISION NO: 0 a

PAGE:

DATE: 01/30/96

61-1

SYSTEM & SEQUENCE NUMBERS	ITEM	1.	2. NUMBER INSTALLED		4. REMARKS OR EXCEPTIONS
			3. NUMBER REQUIRED FOR DISPATCH		
61 PROPELLERS					
1.	Propeller Synchroscope ***	C	1	0	
2.	Synchronizer/ Synchrophaser ***	C	1	0	

G21gr0a.txt