

DEPARTMENT OF TRANSPORTATION
FEDERAL AVIATION ADMINISTRATION
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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

R-44, R-22

DEPARTMENT OF TRANSPORTATION
FEDERAL AVIATION ADMINISTRATION
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R-44, R-22

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
23	Communications	23-1
24	Electrical Power	24-1
25	Equipment/Furnishings	25-1
28	Fuel	28-1
31	Indicating/Recording Systems	31-1
33	Lights	33-1, 2
34	Navigation	34-1
65	Rotors	65-1
71	Powerplant	71-1
77	Engine Indicating	77-1

R-44, R-22

Log of Revisions

REV.NO.	DATE	PAGE NUMBERS	INITIALS
1	02/01/2007	HIGHLIGHTS OF REV., DEFINITIONS	
1	02/01/2007	GUIDELINES	
1	02/01/2007	21-1, 25-1	

R-44, R-22

Control Page

SYSTEM	PAGE	REV NO.	CURRENT DATE
Cover Page	-	1	02/01/2007
Table of Contents	I	1	02/01/2007
Log of Revisions	II	1	02/01/2007
Control Page	III	1	02/01/2007
Highlights of Change	IV	1	02/01/2007
Definitions	V	6	01/31/1995
	VI	6	01/31/1995
	VII	6	01/31/1995
	VIII	6	01/31/1995
	IX	6	01/31/1995
	X	6	01/31/1995
	XI	6	01/31/1995
	XII	6	01/31/1995
Preamble	XIII	2	06/14/1989
	XIV	2	06/14/1989
Guidelines for (O) & (M) Procedures	XV	1	02/01/2007
21	21-1	1	02/01/2007
23	23-1	ORIGINAL	10/25/1993
24	24-1	ORIGINAL	10/25/1993
25	25-1	1	02/01/2007
28	28-1	ORIGINAL	10/25/1993
31	31-1	ORIGINAL	10/25/1993
33	33-1	ORIGINAL	10/25/1993
	33-2	ORIGINAL	10/25/1993
34	34-1	ORIGINAL	10/25/1993
65	65-1	ORIGINAL	10/25/1993
71	71-1	ORIGINAL	10/25/1993
77	77-1	ORIGINAL	10/25/1993

R-44, R-22

Highlights of Change

Cover page: Modified address and added fax number.

Guidelines for (O) & (M) Procedures: Modified (M) procedure for ATA 21-2.

Eliminated (M) procedures for ATA 21-4, 24-3, 30-1 and 52-2.

ATA 21-2 Added (M) symbol in column 4.

ATA 21-3 Provided relief for Air Conditioner.

ATA 25-6 Provided relief for Electronic News Gathering (ENG) Equipment.

R-44, R-22

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 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

R-44, R-22

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

R-44, R-22

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 provisos.

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

R-44, R-22

Definitions

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

R-44, R-22

Definitions

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,

R-44, R-22

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)

R-44, R-22

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

R-44, R-22

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."

R-44, R-22

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 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.

R-44, R-22

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.

R-44, R-22

Guidelines for (O) & (M) Procedures

21-2 (M) Procedure to secure Cabin Heating System. |

24-2 (M) Procedure to disconnect battery and secure electrical
cables.

28-2 (M) Procedure to disconnect the auxiliary fuel tank lines and cap
the openings.

AIRCRAFT:

R-44, R-22

REVISION NO: 1

PAGE:

DATE: 02/01/2007

21-1

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

21	AIR CONDITIONING				
1.	Fresh Air Vent	C	1	0	May be inoperative provided the vent is secured open.
2.	Cabin Heating System	C	1	0	(M) May be inoperative provided the valve is secured to the off position.
3.	Air Conditioner	C	-	0	

FEDERAL AVIATION ADMINISTRATION

AIRCRAFT:

R-44, R-22

REVISION NO: ORIGINAL

PAGE:

DATE: 10/25/1993

23-1

SYSTEM & SEQUENCE NUMBERS	ITEM	1.	2. NUMBER INSTALLED	3. NUMBER REQUIRED FOR DISPATCH	4. REMARKS OR EXCEPTIONS
23 COMMUNICATIONS					
1.	Communications System: (FM, HF, UHF, VHF, etc.)	C	-	0	As required by FAR.
2.	Cabin ICS System	C	-	0	

3.	External Loud Speaker	C	-	0	

AIRCRAFT:

R-44, R-22

REVISION NO: ORIGINAL

PAGE:

DATE: 10/25/1993

24-1

SYSTEM & SEQUENCE NUMBERS	ITEM	1.	2. NUMBER INSTALLED	3. NUMBER REQUIRED FOR DISPATCH	4. REMARKS OR EXCEPTIONS
24	ELECTRICAL POWER				
1.	Alternator Low Voltage Light	B	1	0	May be inoperative provided ammeter is operative.
2.	Battery (Second) ***	C	-	0	(M) May be inoperative provided: a) Battery is disconnected and secured, and b) Battery remains installed. OR c) Battery is removed, and d) Appropriate ballast is installed. OR e) Battery is removed, and f) Weight and balance is revised.

FEDERAL AVIATION ADMINISTRATION

AIRCRAFT:

R-44, R-22

REVISION NO: 1

PAGE:

DATE: 02/01/2007

25-1

SYSTEM & SEQUENCE NUMBERS	ITEM	1.	2. NUMBER INSTALLED	3. NUMBER REQUIRED FOR DISPATCH	4. REMARKS OR EXCEPTIONS
25	EQUIPMENT/FURNISHINGS				
1.	Passenger Seat Belts/Shoulder Harness	C	- 0	0	One required for each occupied seat. If belt is inoperative or missing, seat must be blocked and placarded.
2.	Passenger Convenience Item(s)	C	- 0	0	Passenger Convenience Items, as expressed in this MMEL, are those related to passenger convenience, comfort, or entertainment such as, but not limited to, cup holders, ash trays, overhead reading lamps, etc. Items addressed elsewhere in this document shall not be included. (M) and (O) procedures may be required and included in operator's appropriate document.
3.	Cargo Suspension System	C	- 0	0	
4.	Emergency Locator Transmitter (ELT)	C	- 0	0	As required by FAR.
5.	Sonic Locator	C	- 0	0	
6.	Electronic News Gathering (ENG) Equipment	D	- 0	0	May be inoperative provided system is deactivated and secured. (M) and/or (O) procedures may be required and included in the operator's appropriate document.

AIRCRAFT:

R-44, R-22

REVISION NO: ORIGINAL

PAGE:

DATE: 10/25/1993

28-1

SYSTEM & SEQUENCE NUMBERS	ITEM	1.	2. NUMBER INSTALLED		3. NUMBER REQUIRED FOR DISPATCH	4. REMARKS OR EXCEPTIONS
28	FUEL					
1.	Fuel Quantity Gage	B	1	0		(O)May be inoperative provided: a) the Aux tank is operative b) the flight is initiated with full Main and Aux tanks, and c) flight time does not exceed 2 hours.
2.	Auxiliary Fuel Tank	C	-	0		(M)May be inoperative provided: a) Aux tank is empty and disconnected, and b) The fuel gage is operative.

AIRCRAFT:

R-44, R-22

REVISION NO: ORIGINAL

PAGE:

DATE: 10/25/1993

31-1

SYSTEM & SEQUENCE NUMBERS	ITEM	1.	2. NUMBER INSTALLED		3. NUMBER REQUIRED FOR DISPATCH	4. REMARKS OR EXCEPTIONS
31	INDICATING/RECORDING SYSTEMS					
1.	Clock, Displaying Hours, Minutes and Seconds, with Sweep Second Pointer or Electric Digital Clock.	C	1	0		
2.	Hour Meter	C	-	0		(0)May be inoperative provided alternate means is utilized for recording time in service.
3.	Elapsed Timer ***	C	-	0		
4.	Aircraft/Engine *** Monitoring System.	C	-	0		

AIRCRAFT:

R-44, R-22

REVISION NO: ORIGINAL

PAGE:

DATE: 10/25/1993

33-1

SYSTEM & SEQUENCE NUMBERS	ITEM	1.	2. NUMBER INSTALLED		4. REMARKS OR EXCEPTIONS
			3.	NUMBER REQUIRED FOR DISPATCH	
33	LIGHTS				
1.	Position Light System	C	1	0	May be inoperative for day.
2.	Anti-Collision System	C	1	0	May be inoperative for day.
3.	Landing Light	C	2	0	May be inoperative for day.
4.	Cockpit Instrument Lighting System(s)	B	-	0	May be inoperative provided: a) Sufficient lighting is available to make each required instrument, control and other device for which it is provided easily readable, b) Direct rays and reflections do not impair visibility either inside or outside the aircraft, c) Lighting intensity can be controlled or preset to a satisfactory level for the expected flight condition, d) Lighting configuration at dispatch is acceptable to the pilot.
5.	Cabin Lighting System	C	1	0	
6.	Cockpit *** Utility Light	C	-	0	
7.	Strobe Light *** System	C	-	0	
8.	Search Light ***	C	-	0	

AIRCRAFT:

R-44, R-22

REVISION NO: ORIGINAL

PAGE:

DATE: 10/25/1993

33-2

SYSTEM & SEQUENCE NUMBERS	ITEM	1.	2. NUMBER INSTALLED	3. NUMBER REQUIRED FOR DISPATCH	4. REMARKS OR EXCEPTIONS
33	LIGHTS				
9. External *** Utility Light	C	-	0		
10. Supplemental *** Lighting System	C	-	0		

FEDERAL AVIATION ADMINISTRATION

AIRCRAFT:

R-44, R-22

REVISION NO: ORIGINAL

PAGE:

DATE: 10/25/1993

34-1

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

34	NAVIGATION				
1. ***	Gyroscopic Rate of Turn with Slip Indicator	C	-	0	As required by FAR.
2. ***	Gyroscopic Bank and Pitch Indicator	C	-	0	As required by FAR.
3. ***	Directional Gyro	C	-	0	As required by FAR.
4. ***	Vertical Speed Indicator	C	-	0	As required by FAR.
5. ***	ATC Transponder	C	-	0	As required by FAR.
6. ***	Navigation System (VOR, ILS, LORAN, GPS, marker beacon, DME, etc.)	C	-	0	As required by FAR.
7. ***	Altitude Encoder	C	-	0	As required by FAR.
8. ***	RMI	C	-	0	

AIRCRAFT:

R-44, R-22

REVISION NO: ORIGINAL

PAGE:

DATE: 10/25/1993

65-1

SYSTEM & SEQUENCE NUMBERS	ITEM	1.	2. NUMBER INSTALLED	3. NUMBER REQUIRED FOR DISPATCH	4. REMARKS OR EXCEPTIONS
65 ROTORS					
1.	Rotor Brake System C	1	1	0	(O)May be inoperative provided a check is performed to determine the main rotor is free to rotate.

AIRCRAFT:

R-44, R-22

REVISION NO: ORIGINAL

PAGE:

DATE: 10/25/1993

71-1

SYSTEM & SEQUENCE NUMBERS	ITEM	1.	2. NUMBER INSTALLED	3. NUMBER REQUIRED FOR DISPATCH	4. REMARKS OR EXCEPTIONS
71	POWERPLANT				
1. Electronic Engine *** RPM Governor	C	1	0	*	

AIRCRAFT:

R-44, R-22

REVISION NO: ORIGINAL

PAGE:

DATE: 10/25/1993

77-1

SYSTEM & SEQUENCE NUMBERS	ITEM	1.	2. NUMBER INSTALLED	3. NUMBER REQUIRED FOR DISPATCH	4. REMARKS OR EXCEPTIONS
77	ENGINE INDICATING				
1.	Tachometer, Engine A	1	1	0	May be inoperative for up to three days provided: a) Rotor tachometer is operative, and b) Aircraft shall not depart an airport where repairs or replacement can be made.