

TRANSPORT CANADA MMEL

REVISION 04

TO

BELL 222, 222B, 222U, 230 AND 430 HELICOPTERS

MASTER MINIMUM EQUIPMENT LIST

ORIGINAL SIGNED BY:

WILLIAM JUPP  
CHIEF, FLIGHT TEST  
AIRCRAFT CERTIFICATION  
FOR MINISTER OF TRANSPORT

NOV. 10, 1998

REVISION: 04

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Log of Revisions

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Original	Jul. 29, 1992		
01	Dec. 15, 1992		
02	Sep. 12, 1994		
03	Aug. 08, 1996	I, II, III, IV, V, VI, VII, VIII, IX, X, XI, XII, XIII, XIV, 21-1, 22-1, 23-1, 24-1, 25-1, 25-2, 26-1, 27-1, 28-1, 30-1, 31-1, 32-1, 33-1, 33-2, 34-1, 34-2, 34-3, 35-1, 52-1, 63-1, 63-2, 77-1	
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## Preamble

All equipment installed on an aircraft in compliance with the Airworthiness Standards and the Operating Rules must be operative. However, CAR 605.07 permits the publication of a Master Minimum Equipment List (MEL) where compliance with certain equipment requirements is not necessary in the interest 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 the required level of safety. A Master Minimum Equipment List (MMEL) is developed by Transport Canada, with participation by the aviation industry, to improve aircraft utilization and thereby provide more convenient and economic air transportation for the public. The approved MMEL includes those items of equipment related to airworthiness and operating regulations and other items of equipment Transport Canada finds may be inoperative and yet maintain the required level of safety by appropriate conditions and limitations; it does not contain obviously required items such as rotor blades and engines. 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. 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 airworthiness 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 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.

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## Preamble

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 the required 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 the required 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. The item is then either repaired or deferred per the MEL. Note that in the event of a conflict between the MEL and the requirements of an Airworthiness Directive (AD), the Airworthiness Directive prevails [See CAR 605.09(2)]. Also note the requirements of the MEL may not apply to an aircraft that is operated in compliance with the conditions of a flight permit that has been issued specifically for that purpose [See CAR 605.08(2)]. 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 [See CAR 605.08(1)].

When these requirements are met, an Airworthiness Release, Aircraft Maintenance Record/Logbook entry, or other approved documentation is issued. 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 the required level of safety is maintained. When operating with multiple inoperative items the interrelationship 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.

Unless otherwise specified, each MMEL item contained herein is applicable to all Model 222, 222B, 222U, 230 and Model 430 aircraft. If an item is applicable to a specific series and/or models only, it will be specified below the item in brackets in the Item column; example "(430 only)".

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

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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.

NOTE: Where the MMEL shows a variable number installed, the MEL must reflect the actual number installed or an alternate means of configuration control must be approved by Transport Canada.

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 approved means of configuration control approved by Transport Canada.

d. "Remarks or Exceptions" (Column 4) 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. References given in Column 4 are to bring attention to certain interrelationships between the subject item and other MMEL items or AFM material. These references are intended to assist with compliance, but do not relieve the operator of responsibility for determining such other interrelationships, as stated in the preamble.



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## Definitions

f. 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.

g. A revision (change) bar adjacent to an item or page number indicates that the item or page was renumbered only and that no technical content change was made in the text.

2. "Airplane/Rotorcraft Flight Manual" (AFM/RFM) is the document required for type approval and approved by Transport Canada. The approved AFM/RFM for the specific aircraft is listed on the applicable Type Approval Data Sheet.

3. "As required by FAR", "As required by regulation", or "As required by ANO", mean that the listed item is subject to certain provisions (restrictive or permissive) expressed in the Federal Aviation Regulations, the Airworthiness Manual, ANO's or other operating rules. The number of items required by such a rule must be operative. Items installed that are in excess of the requirements may be permitted by the operator's MEL to be inoperative if not otherwise required by the MMEL.

4. Each inoperative item must be placarded to inform and remind the crew members 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.

NOTE: Where the MMEL shows a variable number installed, the MEL must reflect the actual number installed or an alternate means of configuration control approved by Transport Canada.

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.

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## Definitions

7. "Federal Aviation Regulations:" (FAR) means the applicable portions of the Federal Aviation Act and Federal Aviation Regulations.
8. "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.
9. "Icing Conditions" means an atmospheric environment that may cause ice to form on the aircraft or in the engine(s).
10. Alphabetical symbol in Column 4 indicates a proviso (condition or limitation) that must be complied with for operation with the listed item inoperative.
11. "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).
12. "NOTES:" in Column 4 provides additional information for crew member or maintenance consideration. Notes are used to identify applicable material which is intended to assist with compliance but does not relieve the operator of the responsibility for compliance with all applicable requirements. Notes are not a part of the provisos.
13. 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).

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## Definitions

14. "(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.

15. "(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 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 Transport Canada.

16. "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.

17. "Visual Flight Rules" (VFR) is as defined in the ANO. This precludes a pilot from filing an Instrument Flight Rules (IFR) flight plan.

18. "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.

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Definitions

19. "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.

20. "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.

21. Repair Intervals: All users of an MEL must effect repairs or 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 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, 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.

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## Definitions

22. Engine Indicating Crew Alerting System (EICAS), Electronic Centralized Aircraft Monitoring System (ECAM) or similar systems that provide electronic messages refer to a system capable of providing different priority levels of systems information messages (e.g., Warning, Caution, Advisory Status and Maintenance). Any airplane discrepancy message that affects dispatchability will normally be at status message level (e.g., Advisory Status) or higher.

23. "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 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 Transport Canada. If the request results in review and approval, the item becomes an MMEL item rather than an administrative control item.

24. "\*\*\*\*" 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. The "\*\*\*\*" symbol may be considered equivalent to the term "if installed".

25. "Excess Items" means those items that have been installed and are redundant to the requirements.

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

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## Guidelines for (O) and (M) Procedures

A need has been identified for certain procedures to provide an adequate level of safety while providing relief for some items. Those procedures must be established by the operator. The following guidelines specify the objectives of the required procedures:

- 24-1 (M) Procedure to deactivate and secure generator.
- 28-1 (O) Procedure to ensure required fuel quantity exists.  
(M) Procedure to ensure operation of low fuel caution system sensors and annunciation.
- 28-3 (O) Procedure to drain fuel manually and ensure no leaks exist.
- 31-1 (M) Procedure to verify that the main transmission, tail rotor gearbox, and engine chip detectors are functional. |
- 32-1 (M) Procedure to secure landing gear down.
- 32-2 (M) Procedure to secure landing gear down.
- 32-3 (M) Procedure to secure landing gear down.
- 32-4 (M) Procedure to deactivate system and secure in locked position.
- 33-7 (O) Alternate procedure for passenger notification.
- 63-1 (M) Procedure to inspect, deactivate and secure rotor brake system.
- 63-2 (O) Procedure to ensure pilot monitors transmission oil temperature warning light system, and verifies operation of transmission oil pressure indicating system and transmission oil pressure warning light system during start-up prior to each flight.
- 63-3 (O) Procedure to ensure pilot verifies operation of transmission oil pressure warning light system, transmission oil temperature indicating system and monitors transmission oil temperature warning light system during start-up prior to each flight.
- 63-4 (O) Procedure to ensure pilot monitors and verifies operation of transmission temperature indicating system, transmission oil pressure indicating system and transmission oil pressure warning light system during start-up prior to each flight.
- 63-5 (O) Procedure to ensure pilot verifies operation of transmission oil pressure indicating system, transmission oil temperature indicating system and monitors transmission oil temperature warning light system during start-up prior to each flight.

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Highlights of Change

Page

XIII Added 31-1 Guidelines for (M) procedure

31-1 Added relief for Chip Detector Power Unit (Model 430 only)

63-1 Removed remark stating that aircraft shall not depart airport where repairs or replacements can be made for the following:

2. Transmission Oil Temperature Indicating System;
3. Transmission Oil Pressure Indicating System;
4. Transmission Oil Temperature Warning Light System; and,
5. Transmission Oil Pressure Warning Light System.

Other minor editorial changes.

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SYSTEM & SEQUENCE NUMBERS	1. RIC	2. NUMBER INSTALLED		3. NUMBER REQUIRED FOR DISPATCH	4. REMARKS OR EXCEPTIONS
21					
1	C	2	0		May be inoperative provided: <ul style="list-style-type: none"> <li>a) Respective heated windshield(s) (Item 30-5) is (are) installed and operative.</li> <li style="text-align: center;">or</li> <li>b) A bleed air heater (Item 21-3) is installed and operative, and</li> <li>c) Heater/Defog Valve (Item 21-2) is operative.</li> </ul>
2	C	1	0		May be inoperative provided heated windshield (Item 30-5) is installed and operative.
3 ***	D	-	0		May be inoperative provided adequate alternate means are available for windshield defrost, defog and ventilation of the interior of the aircraft.
4 ***	D	-	0		May be inoperative provided adequate alternate means are available for windshield defrost, defog and ventilation of the interior of the aircraft.



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SYSTEM & SEQUENCE NUMBERS	1. RIC	2. NUMBER INSTALLED	3. NUMBER REQUIRED FOR DISPATCH	4. REMARKS OR EXCEPTIONS
22				AUTO FLIGHT
1				Automatic Flight Control Systems (AFCS)
1)	Model 222 Only ***	D - 0		May be inoperative for VFR flight conditions.
2)	Model 222B/222U ***	D - 0		
3)	Model 230 ***	D - 0		
4)	Model 430 only ***			
i)	Autopilot including Flight Director	D - 0		May be inoperative for VFR flight conditions.
ii)	Stability Control Augmentation System	D - 0		May be inoperative for VFR flight conditions.

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23							
	COMMUNICATIONS						
1	Communications System: (FM, HF, UHF, VHF, etc.)	C	-	0			As required by regulations.
2	Cockpit Voice recorder	D	-	0			
***							
3	Flight Data recorder	D	-	0			
***							

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24	ELECTRICAL POWER					
1	Starter/ Generator	B	2	1	(M)	One generator may be inoperative for day visual flight conditions provided that flight duration is less than or equal to one hour.
2	Inverters	B	-	1		One may be inoperative for Day Visual Flight Conditions.
3	Generator Voltmeters (Model 430 only)	C	2	0		Generator loadmeter must be operative.
4	Battery Voltmeter (Model 430 only)	C	1	0		
5	Inverter Voltmeter (Model 430 only)	C	-	0		

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25	EQUIPMENT/ FURNISHINGS				
1 ***	Helicopter Flotation System	C	- 0		As required by regulations.
2	i) Passenger Seat Belts	D	- 0		One for each occupied seat. If belt is inoperative or missing seat must be blocked and placarded "DO NOT OCCUPY".
	ii) Passenger Shoulder Harness	D	0		As required by regulations. If the shoulder harness is required the seat must be blocked and placarded "DO NOT OCCUPY".
3	Crewmember Shoulder Harness	B	- 0		As required by regulations. If harness becomes inoperative, aircraft shall not depart airport where repairs or replacements can be made.
4 ***	Cargo Suspension System	D	- 0		
5 ***	Hoist System	D	- 0		
6 ***	Emergency Locator Transmitter (ELT)	C	- 0		As required by regulations.
7 ***	Emergency Medical Services (EMS) Equipment	D	- 0		May be inoperative provided system is deactivated and secured.

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25				EQUIPMENT/ FURNISHINGS
8 ***	D	- 0		<p>Passenger convenience items, as expressed in the 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.</p>

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26				FIRE PROTECTION
1	C	1	0	Baggage Compartment Smoke Detector System  May be inoperative if compartment is empty.



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		2. NUMBER INSTALLED				
		3. NUMBER REQUIRED FOR DISPATCH				
		4. REMARKS OR EXCEPTIONS				
28	FUEL					
1	Fuel Quantity Gauge	B	2	1	May be inoperative provided: <ul style="list-style-type: none"> <li>a) (O) Alternate acceptance procedure is used to determine the fuel quantity, and</li> <li>b) (M) Low fuel caution system is verified operative.</li> </ul>	
2 ***	Auxiliary Fuel Tank	D	-	0	May be inoperative provided: <ul style="list-style-type: none"> <li>a) Flight is not predicated upon the use of the system, and</li> <li>b) Auxiliary tank fuel is considered in weight and balance computations.</li> </ul>	
3 ***	Solenoid Drain Valve System	D	-	0	(O) May be inoperative provided the manual drain valve is verified closed prior to flight.	



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30	ICE AND RAIN PROTECTION					
1	Pitot Tube Heat	B	2	0		May be inoperative provided aircraft is not operated in known or forecast icing conditions.
2	Windshield Wipers	C	2	0		May be inoperative for VFR flight conditions provided operations are not conducted in precipitation.
3	Static Port Heaters	C	4	0		May be inoperative provided aircraft is not operated in known or forecast icing conditions.
4	Engine Inlet Anti-Icing System	C	2	0		May be inoperative if known and forecast conditions for flight are at ambient temperatures above +4.5 degrees C (+40 degrees F).
5 ***	Heated Windshields	C	-	0		May be inoperative provided adequate alternate means are available for windshield defrosting and defogging.

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MASTER MINIMUM EQUIPMENT LIST

AIRCRAFT: Bell 222, 222B, 222U, 230 and 430 Helicopters	REVISION NO: 04 DATE: Nov. 10, 1998	PAGE: 31-1 of 1
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SYSTEM & SEQUENCE NUMBERS	1. RIC	2.	3.	4.	REMARKS OR EXCEPTIONS	
		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 Digital Presentation	C	-	1	Operative clock must be located on the instrument panel in a position that makes it plainly visible to, and usable by, any pilot at the pilot's station.	
	(Models 222, 222B, 222U and 230 only)	C	-	0	May be inoperative for VFR provided Elapsed Timer is installed and operative.	
2 ***	Elapsed Timer (Models 222, 222B, 222U and 230 only)	C	-	0	May be inoperative provided Clock is operative.	
3 ***	Hour Meter (Models 222, 222B, 222U and 230 only)	C	-	0		
4 ***	Aircraft/Engine Monitoring System	C	-	0		
5	Integrated Ins- trument Display System (IIDS) (Model 430 only)	A	2	1	One screen may be inoperative provided remaining screen is fully operative. Single Flight only to maintenance facility.	
6	IIDS, NP, NG, and NR. Data sources (Model 430 only)	A	2	1	One may be inoperative providing ALT advisory appears below NP, NG and NR readouts. Single flight only to maintenance facility.	
7.	Chip Detector Power Unit (CDPU) (Model 430 only)	C	1	0	(M) May be inoperative provided main transmission, tail rotor gearbox, and engine chip detectors are verified to be functional.	

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32						
WHEEL LANDING GEAR (Model 222 and 222B) (Model 230 with WLG) (Model 430 with WLG)						
1	Landing Gear Position Indicating and Warning	B	1	0	(M)	May be inoperative provided landing gear is secured in the down position.
2	Landing Gear Position Extension/Retraction System	C	1	0	(M)	May be inoperative provided landing gear is secured in the down position.
3	Emergency Landing Gear Extension System	C	1	0	(M)	May be inoperative provided landing gear is secured in the down position.
4 ***	Nose Wheel Locking System	C	-	0	(M)	

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SYSTEM & SEQUENCE NUMBERS	1. RIC	2. NUMBER INSTALLED		3. NUMBER REQUIRED FOR DISPATCH	4. REMARKS OR EXCEPTIONS
33					
1	Position Light System	C	1 0		May be inoperative for day operations.
2	Anti-Collision Light System	C	1 0		May be inoperative for day operations.
3	Landing Light System	C	1 0		May be inoperative for day operations.
4	Cockpit Instrument Lighting System	C	- 0		May be inoperative provided: <ul style="list-style-type: none"> <li>a) Sufficient lighting is operative to make each required instrument, control, and other device for which it is provided easily readable.</li> <li>b) Direct rays and reflections do not impair visibility either inside or outside the aircraft.</li> <li>c) Lighting intensity can be controlled or preset to a satisfactory level for the expected flight conditions, and</li> <li>d) Lighting configuration at dispatch is acceptable to the flight crew.</li> </ul> <p style="text-align: center;">or</p> <ul style="list-style-type: none"> <li>e) Copilot station instrument lights may be inoperative for single pilot day operations.</li> </ul>

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SYSTEM & SEQUENCE NUMBERS	1. RIC	2.	3.	4. REMARKS OR EXCEPTIONS
			NUMBER INSTALLED	
			NUMBER REQUIRED FOR DISPATCH	
33				LIGHTS
5	C	-	0	Cabin Emergency Lights May be inoperative for cargo operations provided the flight deck crew are the only occupants of the aircraft.
6	C	-	0	Cabin Lighting System May be inoperative: a) For day operations or b) Provided inoperative lights do not exceed fifty (50) percent of the total installed.
7	B	-	0	Passenger Notice System (Fasten Seat Belt-No Smoking) (O) May be inoperative provided: a) Passengers are not carried. or b) Alternate procedures are established and used for passenger notification. or c) Public address system is installed and operative.
8 ***	D	-	0	External Utility Light(s)
9 ***	D	-	0	Supplemental Lighting System

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SYSTEM & SEQUENCE NUMBERS	1. RIC	-	2. NUMBER INSTALLED	3. NUMBER REQUIRED FOR DISPATCH	4. REMARKS OR EXCEPTIONS
34	NAVIGATION				
1	Airspeed Indicator	B	-	1	Copilot's/backup instrument may be inoperative for VFR provided two pilots are not required by regulations.
2	Sensitive Altimeter Adjustable for Barometric Pressure	B	-	1	Copilot's/backup instrument may be inoperative for VFR provided two pilots are not required by regulations.
3	Magnetic Directions Indicator (Models 222 222B, 222U and 230 only)	B	-	1	Copilot's may be inoperative provided two pilots are not required by regulation.
4	Slip-skid Indicator	B	-	1	Copilot's may be inoperative provided two pilots are not required by regulation.
5	Gyroscopic Bank and Pitch Indicator				
	a) Models 222/230 Non EFIS	B	-	1	Copilot's instrument may be inoperative provided two pilots are not required by regulations.
	b) Model 230-2 Tube EFIS	B	-	1	Copilot's instrument may be inoperative for VFR provided two pilots are not required by regulations.
6	Gyroscopic Direction Indicator (Models 222/230 Non EFIS)	B	-	1	Copilot's instrument may be inoperative provided two pilots are not required by regulations.
7	Vertical Speed Indicator	B	-	1	Copilot's/backup instrument may be inoperative for VFR provided two pilots are not required by regulations.
8	Gyroscopic Rate of Turn Indicator	B	-	0	May be inoperative for day VFR.

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SYSTEM & SEQUENCE NUMBERS	1. RIC	2.	3.	4.
		NUMBER INSTALLED		REMARKS OR EXCEPTIONS
		NUMBER REQUIRED FOR DISPATCH		
34	NAVIGATION			
9	OAT/Free Air Temperature Indicator	C -	1	May be inoperative provided temperature can be obtained from alternate onboard source.
10	Alternate Source of Static Pressure for the Altimeter, Airspeed and Vertical Speed Indicators	C 1	0	May be inoperative for VFR.
11 ***	Navigation Systems (VOR, ILS, ADF, Long Range, etc.)	C -	0	As required by regulation.
12 ***	Thunderstorm Detection Equipment/WX Radar	C -	0	As required by regulation.
13 ***	ATC Transponder	C -	0	As required by regulation.
14 ***	Standby Attitude Indicator	C -	0	May be inoperative for VFR.
15	Flight Director			
	a) Models 222, 222B, 222U and 230 only	C -	0	
	b) Model 430 only	C -	0	May be inoperative for VFR.
16 ***	Radio Altimeter	C -	0	
17 ***	Altitude Encoding System	C -	0	As required by regulation.

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SYSTEM & SEQUENCE NUMBERS	1. RIC	-	2. NUMBER INSTALLED	3. NUMBER REQUIRED FOR DISPATCH	4. REMARKS OR EXCEPTIONS
34	NAVIGATION				
18 ***	Marker Beacon	C	- 0		May be inoperative provided approach is not predicated on its use.
19 ***	DME	C	- 0		May be inoperative provided approach is not predicated on its use.
20 ***	Nav. 2 or any other independent, approved backup navigation display system (RMI, CDI, or similar) in the Single Pilot cockpit	C	- 0		May be inoperative for VFR.
21	E.A.D.I. (230 Four Tube EFIS and 430)	C	- 1		Copilot's instrument may be inoperative for VFR provided two pilots are not required by regulation.
22	E.H.S.I. (230 Four Tube EFIS and 430)	C	- 1		Copilot's instrument may be inoperative for VFR provided two pilots are not required by regulation.
23	Directional Gyro (Dual pilot EFIS configuration only)	C	- 1		One DG may be inoperative for VFR provided two pilots are not required by regulations. Pilots must be able to display remaining DG.
24	Vertical Gyro (Dual pilot EFIS configuration only)	C	- 1		One VG may be inoperative for VFR provided two pilots are not required by regulations. Pilots must be able to display remaining VG.



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SYSTEM & SEQUENCE NUMBERS	1. RIC		2. NUMBER INSTALLED	3. NUMBER REQUIRED FOR DISPATCH	4. REMARKS OR EXCEPTIONS
35					OXYGEN
1 ***		D	-	0	As required by regulations.  Oxygen System (Crew and Passengers)

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SYSTEM & SEQUENCE NUMBERS	1. RIC	2. NUMBER INSTALLED		3. NUMBER REQUIRED FOR DISPATCH	4. REMARKS OR EXCEPTIONS
52					
1	C	1	0		May be inoperative provided it is determined through visual check that doors are closed and latched prior to flight.

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SYSTEM & SEQUENCE NUMBERS	1. RIC	2. NUMBER INSTALLED		3. NUMBER REQUIRED FOR DISPATCH	4. REMARKS OR EXCEPTIONS
63	ROTOR DRIVE				
1	Rotor Brake System (Models 222, 222B, 222U and 230 only)	B	- 0	(M)	May be inoperative provided a maintenance inspection determines the rotor disc free and the system is deactivated and secured.
2	Transmission Oil Temperature Indicating System	B	1 0	(O)	May be inoperative provided: <ul style="list-style-type: none"> <li>a) Transmission oil temperature warning light system (Item 63-4) is operative; and,</li> <li>b) Transmission oil pressure indication system (Item 63-3) and warning light (Item 63-5) are operative.</li> </ul>
3	Transmission Oil Pressure Indicating System	B	1 0	(O)	May be inoperative provided: <ul style="list-style-type: none"> <li>a) Transmission oil pressure warning light system (Item 63-5) is operative; and,</li> <li>b) Transmission oil temperature indicating system (Item 63-2) and warning light (Item 63-4) are operative.</li> </ul>

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SYSTEM & SEQUENCE NUMBERS	1. RIC	2. NUMBER INSTALLED		3. NUMBER REQUIRED FOR DISPATCH	4. REMARKS OR EXCEPTIONS
63					ROTOR DRIVE
4	B	1	0	(0)	May be inoperative provided: <ul style="list-style-type: none"> <li>a) Transmission oil temperature indicating system (Item 63-2) is operative; and,</li> <li>b) Transmission oil pressure warning light (Item 63-5) and indicating system (Item 63-3) are operative.</li> </ul>
5	B	1	0	(0)	May be inoperative provided: <ul style="list-style-type: none"> <li>a) Transmission oil pressure indicating system (Item 63-3) is operative; and,</li> <li>b) Transmission oil temperature warning light (Item 63-4) and indicating system (Item 63-2) are operative.</li> </ul>

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SYSTEM & SEQUENCE NUMBERS	1. RIC	-	2. NUMBER INSTALLED	3. NUMBER REQUIRED FOR DISPATCH	4. REMARKS OR EXCEPTIONS
77	ENGINE INDICATING				
1	Triple Tachome- ter Indicator System (Model 222, 222B, 222U and 230 only)	C	-	1	Copilot's may be inoperative provided two pilots are not required by regulation.
2	Triple Torque Indicator System	C	-	1	Copilot's may be inoperative provided two pilots are not required by regulation.
3	Engine-Out Warning Light System	B	-	1	Aircraft shall not depart airport where repairs or replacements can be made.
4 ***	Fuel Flow Indicator System	C	-	0	