

APPENDIX C ELEMENTS OF A CONTRACTOR FLIGHT RELEASE (CFR)

C-1 INTRODUCTION

AR 95-20, *Contractor's Flight and Ground Operations*, (Ref. 1) establishes requirements for all ground and flight operations by contractors using Government air vehicles for which the Government has assumed some of the risk. AR 95-20 also identifies approving authorities for contractor operations.

The US Army Aviation and Troop Command (ATCOM) has airworthiness authority for all air vehicles for which it has engineering cognizance. The scope of this authority is provided in Army Regulation (AR) 70-62, *Airworthiness Qualification of US Army Aircraft Systems*, (Ref. 2). ATCOM signifies acceptance of airworthiness responsibility by issuing a contractor flight release (CFR), airworthiness release (AWR), or statement of airworthiness qualification (SAQ). An agency, other than the US Army having engineering cognizance of an air vehicle typically signifies its acceptance of airworthiness responsibility by some other means, such as a type certificate. A CFR might not be required for a leased air vehicle when the contractor assumes all liability.

As provided for in AR 95-20 (Ref. 1), the Government flight representative (GFR) is responsible for surveillance of all contractor flight and ground operations involving the previously described air vehicles. As such, the GFR might want assurance that a Government furnished air vehicle is airworthy.

A contractor might want the Government to assume part (or all) of the liability for flight test operations. Also, ATCOM Engineering might want assurance that a contractor has complied with airworthiness requirements contained within a contract. Hence, the ATCOM contract clauses often include issuance of a CFR as a precondition for flight. Such contract clauses might require a CFR prior to the maiden flight of a prototype or initial flight following major modification, or upon request by the program, project or product manager (PM), weapon systems management officer (WSMO), Government plant representative office, Government flight representative (GFR), or contracting officer (KO).

Format of the CFR should be in accordance with the approving authority's established standing operating procedure (SOP) or outside military command(s) or agency general correspondence format.

The use of distribution statements as provided for in Department of Defense Directive Number 5230.24, *Distribution Statements on Technical Documents*, (Ref. 3) should be considered for use on sensitive technical information.

C-2 CONTENTS

Contents should be as specified in the following paragraphs.

C-2.1 ADMINISTRATIVE INFORMATION

The administrative information that follows should be provided in the letter of transmittal or prior to the main body of the CFR.

C-2.1.1 ADDRESSEE

A letter of transmittal by the point of contact (POC) to transmit the CFR through the GFR and to management of the contractor. Only a POC can transmit an approved CFR to a contractor. The first and second tier technical points of contact should be identified on the cover sheet or within the transmittal letter. Typically, these technical POCs will be the GFR and the air vehicle systems engineer at the procuring activity (PA), respectively.

C-2.1.2 SIGNATURE, REVISIONS, AND DATE

Technical approval is usually indicated by the ATCOM Director of Engineering signing the cover page of the CFR. Typically, all technical content is coordinated and validated by the appropriate technical offices and safety office prior to being signed by the Director. Any identified hazard or risk should have been eliminated or reduced to an acceptable level. Also, security markings and classified information should be coordinated with the security office of the approving authority. A classified CFR should not be sent to a GFR or contractor unless they are authorized to receive the data. The Director approves the basic CFR and all revisions to the CFR. Revision number and effective date should be included on the cover sheet or first sheet of the CFR. Unless there is an SOP-related limitation on the number of revisions prior to the issuance of a new CFR, the CFR with the highest revision number should supersede all previously issued CFRs.

C-2.1.3 SUBJECT/SCOPE

The cover sheet or first page of the CFR should clearly identify that this is a contractor flight release for a specific type (ground or flight) of test, evaluation, or operation of one model, design, and series Army air vehicle with identifying serial number(s). Model, design, and series prefixes and suffixes should be included.

An example follows:

CONTRACTOR'S FLIGHT RELEASE FOR FLIGHT TEST OF YAH-68A
HELICOPTERS SERIAL NUMBERS 95-00001, 95-00002, AND 95-00003 or SERIAL
NUMBERS 95-00001 THROUGH 95-00003 INCLUSIVE.

C-2.1.4 TERMINATION

Prior to the main body of the CFR, a termination date or clearly defined event for cancellation of the CFR should be identified. This termination date or event is defined as the date or completion of event after which this CFR or revision is no longer valid. For example, the termination provisions should read: "This CFR/revised CFR is terminated upon completion of Stability Augmentation System Testing, defined in Contractor Test Plan Number XXYZZ, or on date (DAY MONTH YEAR), whichever is sooner."

C-2.2.1 REFERENCES*

References cited in the main body of the release should be listed in the order in which they are referenced, or they may be included in an appendix. If an appendix is used, that appendix should be cited in this paragraph. Operations and maintenance manuals, contract numbers, Government and contractor specifications, test plans, previous Federal Aviation Administration or military (FAA or MIL) type certificate(s), and systems safety assessments should be cited as appropriate. CONTRACT NUMBER CONTRACTOR'S SPECIFICATION NUMBERS ##### (AS NECESSARY TO DEFINE CONFIGURATION) OPERATOR'S _____ MANUALS AND CHECKLISTS TM 55-1520-XYZ-10 AND TM 55-1520-XYZ-IOCL (DRAFT AND/OR FINAL, WITH CHANGES CITED) CONTRACTOR'S APPROVED GROUND AND FLIGHT OPERATIONS PROCEDURES NUMBER ##### CONTRACTOR'S APPROVED TEST PLAN NUMBER AABBCC MAINTENANCE MANUALS TM 55-1520-XYZ-23 (DRAFT AND/OR FINAL, WITH CHANGES CITED) MODIFICATION WORK ORDERS (MWOs) AND TECHNICAL BULLETINS (TBs) INCORPORATED. Fig. C-1. CFR Generic References Example C-2.2.2 REVISIONS

Revisions to the CFR should be documented in tabular format. Minimum contents of this table should include revision number and date, a brief description of changes, and identification of affected pages. An example of revision documentation is shown in TABLE C-1. If there is an SOP-related reissue of the CFR due to the number of changes, the baseline CFR which these revisions have changed should be identified.

TABLE C-1
TYPICAL CFR REVISION TABLE

REVISION ACCOMPLISHMENTS		DESCRIPTION OF CHANGES	PAGES
REVISION NUMBER	DATE AFFECTED		
R-1	DDMMYY	Change Maximum SAS Off Airspeed to 90 KIAS from 100 KIAS to 200 KIAS	4
R-2	DDMMYY	Increase Vne from 193 KIAS to 200 KIAS	5

C-2.2 MAJOR ELEMENTS

C-2.2.3 CONFIGURATION

Configuration of the subject air vehicle should be defined by reference to contractor or Government specifications and drawing numbers, modification work orders (MWOs), technical bulletins (TBs), approved engineering change proposals (ECPs), etc.

*The underlined portion of the paragraph number and title identifies the paragraph number and title in the CFR.

These documents should be referenced in par. 1 of the CFR (explained in subpar. C-2.2.1 of this appendix) or may be included in an appendix to the CFR, and should completely and clearly identify the configuration to be operated, tested, or evaluated. Also, version descriptions for all flight critical software such as that defined software for automatic flight control, control and display, engine, and weapon systems should be described or identified by release number. Changes to the configuration during subsequent revisions should be documented as shown in TABLE C-2.

TABLE C-2

TYPICAL CONFIGURATION DEFINITION TABLE

DESCRIPTION OF CHANGES	REVISION NUMBERS		
	R-1	R-2	R-3
Incorporation Increased Authority Stability Augmentation System (SAS) (Drawing Number XXYYZZ)	X	X	X
Incorporate Programmable Stabilator (Drawing Number AABCC)		X	X
Incorporate "Stabilator Fail" Warning Indicator (Drawing Number DDEEFF)			

C-2.2.4 OPERATING INSTRUCTIONS, PROCEDURES, LIMITATIONS, AND RESTRICTIONS

This element of the CFR should include, as a minimum, all operating instructions, procedures, restrictions, and limitations not included in referenced operator's manuals. Reference to approved and applicable operator's manuals is acceptable in whole or in part. Only limitations, restrictions, procedures, and instructions applicable to this/these particular air vehicle(s) are required, and special emphasis should be placed on characteristics of this/these particular air vehicle(s). The use of "NOTES," "CAUTIONS," AND "WARNINGS," (see glossary for definitions) , in the text of the CFR, should occur only when not cited in referenced documents or when necessary for added emphasis.

C-2.2.4.1 OPERATING INSTRUCTIONS

This paragraph should identify additional, deleted, and amended operating instructions which modify the content of approved operator's manuals cited by reference. Reference to approved and applicable operator's manuals is acceptable in whole or in part. Addition, deletion, substitution, and/or supplementation of operator's manual procedures should identify applicable page and paragraph numbers. An example, showing both an additional instruction and substitution of instructions, follows: "The AC should operate subject air vehicle using the following additional instruction, added as paragraph 8-20.1, page 8-8 of TM 55-1520-XYZ-10:

8-20.1 TEXT OF ADDITION"

"The AC shall delete existing paragraph 8-25, page 8-12 of

TM 55-1520-XYZ-10, replace with paragraph below, and operate subject aircraft in accordance with paragraph below:

8-25 TEXT OF SUBSTITUTION"

Replacement text inserted here.

C-2.2.4.2 PROCEDURES

Approved contractor's ground and flight operations procedures shall be cited for normal operations of these air vehicles. This element of the CFR should identify the method the Government should use to approve and monitor those procedures. Normally, a GFR will perform those approval and monitoring functions for the contractor-developed flight procedures.

If not covered in the contractor's procedures, requirements for preflight briefings, postflight debriefs, and chase and rescue air vehicles should be discussed.

A brief example of this element follows: "The contractor should conduct flight and ground operations of subject air vehicle in accordance with AR 95-20 and CONTRACTOR'S APPROVED GROUND AND FLIGHT OPERATIONS PROCEDURES NUMBER #####, dated DDMMYY. Changes to these procedures shall be approved by the GFR prior to operations, and procedures should be subject to monitoring by the GFR.

The contractor should coordinate the chase air vehicle with the Government Test Coordinator/GFR in accordance with AR 705-24, *Management of Test and Test Support Aircraft*, (Ref. 4) prior to each flight."

C-2.2.4.3 LIMITATIONS

Limitations which are different or missing from operator's manual limitations should be cited in this paragraph. Unless required for added emphasis, only those limitations different from the limitations in approved operator's manuals should be cited here. Such limitations may include, but are not limited to, limitations on flight envelopes, operating limitations for fatigue critical components, and mission equipment operating limitations. These limitations may be in the form of numerical values (airspeeds, rotational speeds, voltages, etc.); they may be in the form of procedural limitations (no operation of subsystem x while subsystem y is inoperable for more than two minutes); or they may be a combination of the two forms (no operation above 100 KIAS with subsystem x inoperative). Fatigue critical components are typically listed in a separate element of the CFR. An example follows:

"The contractor shall observe three additional limitations for operation. These limitations are:

1. Maximum airspeed for external cargo jettison when transporting SYSTEM XYZ externally shall be 70 KIAS.
2. Maximum main rotor speed shall be 334 Revolutions Per Minute (RPM).
3. The Radar shall not be operated for more than twenty (20) minutes in the 'active' mode, and each period in the 'active' shall be followed by a minimum period of five (5) minutes in either the 'standby' mode or with power off."

This element of the CFR should include important operating limits and restrictions that should be observed during ground and flight operations. Typical limitations are most

forward and aft center of gravity locations, maximum allowable gross weight, maximum and minimum allowable rotor speeds, maximum allowable torques, maximum allowable oil temperatures, never to exceed velocity, maximum allowable slope landing capability, and maximum allowable towing speeds. Mission equipment limitations, such as maximum allowable rate of fire should also be included.

C-2.2.4.4 RESTRICTIONS

A restriction is like a regulation. Certain actions and areas are to be avoided, etc. Any type of restriction that affects operation, such as environmental, procedural, and electromagnetic vulnerability, should be covered. Environmental restrictions may identify temperature, humidity, precipitation, icing, sand and dust, vibration, and altitude conditions which may have an adverse action on the air vehicle operation, reliability, or flight safety. Procedural restrictions may include bans on flight in instrument meteorological conditions (IMC), prohibition on single pilot flight, or prohibition on flight without a crew chief and flight engineer. Electromagnetic vulnerability restrictions may place restrictions on flight within close proximity to transmitters with specified output power in identified frequency ranges. These restrictions may be more or less restrictive than those in the operator's manual. If necessary, these may be presented in graphical format, and included as an appendix to the CFR. An example follows: "The contractor shall not perform flight into known or forecast moderate or more severe icing conditions."

C-2.2.5 MAINTENANCE PROCEDURES, INSPECTIONS, AND FREQUENCY OF INSPECTION

This element should describe additional maintenance procedures, inspections, and inspection frequencies not cited in referenced maintenance manuals. In all subparagraphs of this element,, reference to approved and applicable maintenance manuals and supplemental procedures is acceptable in whole or in part, and should be used where applicable. The use of "NOTES," "CAUTIONS," AND "WARNINGS," should be the same as defined in paragraph 4 of the CFR (par. C-2.2.4 of this appendix), and should occur only when not cited in referenced documents or when necessary for added emphasis.

C-2.2.5.1 MAINTENANCE PROCEDURES

All special maintenance procedures which are not included in approved maintenance manuals should be identified. Reference may be made to maintenance manuals, contractor's approved procedures, and appropriate safety of flight (SOF) messages. Considerations for safety of flight and safety of maintenance monitoring by the GFR are described in AR 95-20 (Ref. 1). An example of such a cited procedure would be a required inspection which is cited in the maintenance manual using one inspection with a chemical compound, but is changed to use a different chemical.

C-2.2.5.2 INSPECTIONS

This element should include additional or modified inspection requirements for inspections performed during preflight, postflight, and periodic or phase maintenance on the air vehicle systems or mission equipment packages (MEP), and not contained in referenced maintenance manuals. These inspections may be necessitated by additional or modified equipment for modification programs, may be based on experience gained during prototype air vehicle flight and maintenance operations, or may be desirable to address concerns surfaced or to verify analysis performed during the design phase. An example would be the requirement to inspect fire control computer connections for moisture or corrosion after flight in visible moisture.

C-2.2.5.3 FREQUENCY OF INSPECTION

The objective of this element is to define inspection frequencies which have changed from referenced maintenance manual frequencies. Only frequencies which have changed from maintenance manual frequencies should be included in this paragraph. The application of these additional or modified inspection frequencies to modified air vehicles may be simple. However, prototype air vehicles may not have well established maintenance inspection frequencies. This lack of established frequencies may require reference to an attachment for complete definition.

Three types of frequency of inspection changes may be required. Scheduled maintenance inspections which have frequencies changed from maintenance manual frequencies should be cited. Additionally, new scheduled inspection requirements may be generated due to equipment additions in a modification program or based on experience gained during prototype air vehicle flight and maintenance operations. Finally, excessive repetition of scheduled inspections may induce maintenance related failures, and inspection frequencies may be reduced in order to evaluate the effect on safety.

Inspection frequency changes should identify the scheduled inspection and revised frequency (expressed in days, flight hours, cycles, rounds, etc.). An example follows:

INSPECTION REQUIREMENT	REVISED FREQUENCY
CLEAN & LUBRICATE ARMAMENT SYSTEM, XM-201	CLEAN & 2000 ROUNDS
LUBRICATE ARMAMENT SYSTEM, XM-201	MONTHLY

C-2.2.6 APPENDICES

Appendices may be used to show configuration data, list references, provide operating and maintenance limitations figures, other graphical data, and information which is too voluminous for inclusion in the main body of the CFR. Additionally, when a limited amount of classified information is to be a part of the CFR, a classified appendix may be used to allow the main body of the CFR to remain unclassified. All appendices used should be referenced in the appropriate paragraph of the CFR, and should be packaged in the order in which they are referred to in the CFR.

ATTACHMENT TO APPENDIX C DEFINITIONS

NOTE - An operating procedure, practice, or condition that must be highlighted.
CAUTION - An operating procedure, practice, or condition which, if not strictly observed, could result in damage to or destruction of equipment, or minor injury to personnel. WARNING - An operating procedure, practice, or condition which, if not correctly followed, could result in severe injury to personnel or loss of life, or loss of a major system.

APPENDIX C
LIST OF ACRONYMS AND ABBREVIATIONS

AR	=	army regulation
ATCOM	=	aviation and troop command
AWR	=	airworthiness release
CFR	=	contractor flight release
ECPs	=	engineering change proposals
FAA	=	federal aviation administration
GAR	=	government flight representative
IMC	=	instrument meteorological condition
IR	=	infrared
KO.	=	contracting officer
MEP	=	mission equipment package
MIL	=	military
MWOs	=	modification work orders
PA	=	procuring activity
PM	=	program/project/product manager
POC	=	points of contact
RPM	=	revolutions per minute
SAQ	=	statement of airworthiness qualification
SOF	=	safety of flight
SOP	=	standing operating procedure
TB	=	technical bulletin
WSMO	=	weapon systems management officer

APPENDIX C
REFERENCES

1. AR 95-20, *Contractor's Flight and Ground Operations*,
Vol 1, *Contractor's Flight and Ground Operations*, November 1991,
Vol 2, *Government Flight Representative Guidance*, November 1991.
2. AR 70-62, *Airworthiness Qualification of US Army Aircraft Systems*, 15 July 1993.
3. DoDD 5230.24, *Distribution Statements on Technical Documents*,
18 March 1987
4. AR 705-24, *Management of Test and Test Support Aircraft*,
15 May 1978.