FEDERAL AVIATION AGENCY
BUREAU OF FLIGHT STANDARDS
Washington 25, D. C.

March 31, 1961.

CIVIL AIR REGULATIONS DRAFT RELEASE NO. 61 - 6

SUBJECT: Standards, Procedures, and Limitations Governing Establishment and Revision of Overhaul Periods for Powerplants, Propellers, Accessories, and Components Thereof for Air Carrier Aircraft

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The Bureau of Flight Standards of the Federal Aviation Agency has under consideration proposed new standards, procedures, and limitations governing the establishment and revision of overhaul periods for engines, propellers, accessories, and components thereof used on air carrier aircraft operated under the provisions of Parts 40, 41, and 42 of the Civil Air Regulations. The reasons therefor are set forth in the explanatory statement of the attached proposal which is being published in the Federal Register as a Notice of Proposed Rule Making.

The Bureau of Flight Standards desires that all persons who will be affected by the requirements of this proposal be fully informed as to its effect upon them, and is therefore circulating copies in order to afford interested persons ample opportunity to submit comments as they may desire.

Because of the large number of comments which we anticipate receiving in response to this Draft Release, we will be unable to acknowledge receipt of each reply. However, you may be assured that all comment will be given careful consideration.

It should be noted that comments should be submitted in duplicate to the Docket Section of the Federal Aviation Agency by May 8, 1961. Thereafter, such comments will be available in the Docket Section to all interested persons, and an additional period will be allowed for submission of further comments in response thereto. In order to insure consideration, such additional comments must be received by May 23, 1961.

George C. Prill

Acting Director,
Bureau of Flight Standards

FEDERAL AVIATION AGENCY
BUREAU OF FLIGHT STANDARDS

/14 CFR Parts 40, 41, 42/

/Regulatory Docket No. 708 ; Draft Release No. 61- 6/

NOTICE OF PROPOSED RULE MAKING

Standards, Procedures, and Limitations Governing Establishment and Revision of Overhaul Periods for Powerplants, Propellers, Accessories, and Components Thereof for Air Carrier Aircraft

Pursuant to the authority delegated to me by the Administrator (14 CFR 405.27), notice is hereby given that there is under consideration proposed new standards, procedures, and limitations governing the establishment and revision of overhaul periods for engines, propellers, accessories, and components thereof, as hereinafter set forth.

Interested persons may participate in the making of the proposed rules by submitting such written data, views, or arguments as they may desire. Communications should be submitted in duplicate to the Docket Section of the Federal Aviation Agency, Room B-316, 1711 New York Avenue, N. W., Washington 25, D. C., prior to May 8, 1961. Thereafter, such comments will be available in the Docket Section to all interested persons. After examination of the original comments received, interested persons may submit such additional comments in response thereto as they may desire. Such additional comments must be submitted prior to May 23, 1961.

(Photostatic copies of comments on file in the Docket Section may be obtained upon payment of the cost of such copies.) All original comments and additional comments in response thereto received by the dates

specified for receipt thereof will be considered by the Administrator before taking action on the proposed rules. The proposals contained in this notice may be changed in the light of comments received.

The current provisions of the Civil Air Regulations require the establishment of overhaul time limitations for airframes, engines, propellers and appliances or, alternatively, standards by which such time limitations shall be determined. The basic principle followed by the Federal Aviation Agency is that overhaul be performed at times well within the expected or proven service life of each part of the aircraft. In determining the expected or proven service life of engines, propellers, and accessories, the Agency considers factors involving (1) geographical areas or areas of operation; (2) engine operating powers, procedures, etc.; (3) number of landings, long haul versus short haul, etc.; (4) maintenance organizations and inspection procedures; (5) other operators' service experience records; (6) manufacturers' recommendations and (7) service history. Primary reliance is placed upon service experience, particularly of known or evident trends toward malfunctioning, including the information obtained from tests, inspections, or measurements performed in accumulating such service experience.

In accordance with current policy, overhaul time limitations for engines not previously used in air carrier service are tentatively established at 1,000 hours, unless the engine has unconventional features, in which case a different overhaul time is established by the Agency. When 1,000 hours is the tentative overhaul time limitation,

a representative number of engines are required to undergo complete disassembly and inspection at 800 hours. If the inspection of the disassembled engine and an evaluation of the air carrier's maintenance records and reports are found satisfactory, the overhaul time is increased to 900 hours. Subsequently, the overhaul time limitation may be established at 1,000 hours by similar inspection and evaluation at 900 hours. With respect to engines with substantial air carrier experience, disassembly and inspection is accomplished starting at 900 hours. Increases beyond the established 1,000 hour overhaul time limitation are permitted when the air carrier's records and reports of service experience for the previous 90 days show that such increase will not adversely affect safety. This finding is made by a duly authorized representative of the Administrator after evaluating the condition of three to five engines completely disassembled at the currently approved overhaul time limitation.

Engine overhaul time limitations have been the subject of many formal and informal meetings between the Bureau of Flight Standards and various air carriers and manufacturers. Numerous objections to the current policy regarding increases in overhaul time limitations have been made on the grounds that the Federal Aviation Agency has placed undue emphasis on engine conditions found during inspection, repair and overhaul which have not caused in-flight failure.

The current policy has been in effect for several years and the Bureau recognizes that it does provide for a wide latitude of interpretation on application: Furthermore, the Bureau believes

that in-flight safety, being the final quality product of the air carriers, should be the predominant factor governing overhaul time limitations for engines and essential engine accessories. In addition, the Bureau is aware that the present procedures do not provide a sufficiently specific standard for establishing and revising overhaul time limitations for propeller and powerplants, excluding the engine and its essential accessories.

Accordingly, in order to provide a more practical and orderly means of establishing overhaul time limitations, it is proposed to establish new standards and procedures, governing the overhaul time limitations for powerplants and propellers and the components and accessories thereof. With respect to engines, it is proposed to utilize the "performance level" attained by an individual air carrier as a basis for adjusting the overhaul time limitations for each air carrier. The Bureau has chosen the words "performance level" as a means of representing the air carrier's actual in-flight airworthiness of an engine as the final product of the air carrier's maintenance, inspection procedures, engine operating powers, and procedures adapted by the air carrier to its type of operation, such as the number of landings, short haul versus long haul, and geographical area or areas of operation.

The performance level is proposed to be expressed in terms of the number of adjusted engine failures actually experienced during flight by the air carrier per 1,000 engine hours flown on a particular type aircraft. In addition, the performance level is expressed as a

ratio so as to not require the air carrier to operate 1,000 engine hours to establish a performance ratio, thereby providing the air carrier the opportunity to request adjustment of such approved overhaul time limitations every 90 days. In applying the term "performance level" the Bureau also recognizes that certain in-flight failure of engines should be exempted in the calculation of the performance level; accordingly, failures such as those caused by foreign object ingestion are exempted in the calculation of the performance level.

The engine performance level would be used to determine whether and to what extent an air carrier could simultaneously increase the currently approved overhaul time limitation for an engine and its essential accessories or the extent an air carrier would be required to simultaneously decrease the currently approved overhaul time limitations for an engine and its essential engine accessories. The Bureau also recognizes that prior to reducing overhaul time limitations, the air carrier should be given a reasonable opportunity to provide or adjust his maintenance, inspection or operational procedures to correct the factors which would otherwise require a reduction in the overhaul time limitations; accordingly, this opportunity has been provided for in this proposal.

Under this proposal, the Agency would establish for new model powerplants and propellers and the accessories and components thereof, overhaul periods designated as starting, interim and basic overhaul time limitations. At such time as the engine and essential engine accessories are approved for operation under the basic overhaul time

limitation, further revision to such overhaul time limitation would be governed by the "performance level" provisions of this proposal. After the powerplant, excluding the engine and its essential engine accessories, and the propeller have been approved for operation at the basic overhaul time limitation, further revision of such overhaul time limitation would be determined by inspection of disassembled units and service experience over a 90 day period. The overhaul time limitations for powerplants, excluding the engine and its essential accessories, having substantial experience would be established at the period shown in the Appendix of this proposal. However, the overhaul time limitation for the engine and its essential accessories would be established at a period 200 hours less than the overhaul time limitation for such engines as shown in the Appendix. Further revision of the overhaul time limitation for the powerplant, excluding the engine and its essential accessories would be determined by inspection of specified disassembled units and satisfactory service experience over a 90 day period. However, when the engine and its essential accessories is approved for operation at the overhaul time limitation shown in the Appendix, further revision of such overhaul time limitation would be governed by the "performance level" provision of this proposal. In the case of propellers with substantial experience, the overhaul time limitations would be those set forth in the Appendix of this proposal. Further revision of such overhaul time limitation would be determined by the inspection of disassembled units and service experience of such propellers.

In consideration of the foregoing, it is proposed to promulgate the following standards, procedures, and limitations, governing overhaul periods for powerplants, and propellers, and accessories and components thereof installed on aircraft operated under Parts 40, 41, and 42 of the Civil Air Regulations:

Standards, Procedures and Limitations Governing the Overhaul Periods for Powerplants and Propellers, and Accessories and Components Thereof

Section Index

Definitions

Section
100 - Definitions.

Initial Time Limitations

Section
200 - Powerplant and Propeller and Accessories and Components Thereof.

Revision of Overhaul Times

Section
300 - Turbine Engines and Their Essential Engine Accessories.

400 - Reciprocating Engines and Their Essential Engine Accessories.

500 - Propellers and Accessories and Components Thereof.

600 - Powerplants and Components Thereof (Other Than Engine and Essential Engine Accessories).

APPENDIX

Definitions

Section 100. Definitions. When used in this proposal, the following terms shall mean:

"Adjusted Engine Failures." Adjusted engine failures means the sum of all engine failures less the exempt engine failures.

"Exempt Engine Failure." Exempt engine failure means any engine failure:

(a) caused by foreign object ingestion;

(b) caused by an error directly attributable to personnel engaged in maintenance, servicing, and overhaul activities of the carrier;

(c) caused by malfunction of aircraft components other than the engine or its essential accessories;

(d) occurring when the aircraft is being operated with a Special Flight Permit issued in accordance with the provisions of Civil Air Regulations Part 1, section 1.76.

"Engine Failure." Engine failure shall mean any engine shutdown 1/ or substantial inability to develop rated thrust or power for the flight regime engaged in from the time the aircraft begins the takeoff roll to the end of the landing roll.

"Engine." Engine means the complete engine assembly as defined by engine type certificate, except the accessories thereof.

"Engine Sections." Engine sections means those assemblies and subassemblies of the engine described by the engine

1/ Except for the purpose of training, demonstration, or flightcheck.

manufacturer and specifically approved as such by the Agency; for example: air inlet section, compressor section, combustion section, propeller reduction gear section, torquemeter assembly, etc.

"Essential Engine Accessories." Essential engine accessories means those appurtenances and accessories which are a part of, or required for, the operation of the engine.

"Starting Overhaul Time Limitation." The starting overhaul time limitation means the initial overhaul period approved for an air carrier when the carrier introduces into his operation a new make or model powerplant, or propeller, for a particular aircraft make or model.

"Interim Overhaul Time Limitation." The interim overhaul time limitation means an intermediate overhaul period, greater than the starting overhaul time limitation and less than the basic overhaul time limitation.

"Basic Overhaul Time Limitation." The basic overhaul time limitation means a tentative overhaul period prescribed for a new model powerplant or propeller.

"Engine Hours." Engine hours means the total time in service for all engines of a particular make and model operated in a particular aircraft model by an air carrier.

"Performance Level." Performance level means the number of adjusted engine failures experienced by the operator per 1,000 engine hours of time in service on a particular model engine on a particular make and model aircraft. The performance level is expressed as a ratio, e.g., .20 engine failures per 1,000 engine hours.

"Powerplant." Powerplant means an aircraft engine and its component parts and other parts necessary to properly install such engine in an aircraft, but not the propeller (if used).

"Acceptable Performance Level." Acceptable performance level means a performance level which is .20 or less adjusted engine failures per 1,000 engine hours for turbine engines and .60 or less adjusted engine failures per 1,000 engine hours for reciprocating engines.

"Substantial Experienced Engine or Propeller." Substantial experienced engine or propeller means a particular model engine, propeller, and accessories and components thereof, which has been operated by a U. S. certificated air carrier for a period of 90 days at or above the basic overhaul time limitation.

"New Model." New model means a particular model of engine or propeller, and accessories and components thereof not listed in the appendix which is a part of this proposal.

Section 200. Initial Time Limitations Powerplant and Propeller, and Accessories and Components Thereof.

(a) New Model. When an air carrier introduces a new model powerplant, engine, or propeller, and the accessories and components thereof into its operation, the Agency will establish the starting, interim, and basic overhaul time limitations and will require that a specific number of units be disassembled by the air carrier

for inspection by a duly authorized representative of the Administrator when they have been operated to the starting, interim and basic overhaul time limitation. Approval for operation to the next higher overhaul time will be granted when the air carrier shows that his maintenance and inspection program, service experience with the unit and results of the disassembly inspections substantiate such increase. The number of disassembled units shall be determined in accordance with the following table of sample units:

Sample Units

Number of Operating Units 2/	Number of Disassembled Units
1 - 3	1
4 - 7	2
8 - 21	3
22 - 51	4
52 - 101	5
102 and above	6

(b) Substantial Experience

(1) When the air carrier introduces into its operation an engine model or essential engine accessory which has received substantial experience, the overhaul time limitation will

2/ These numbers represent the total number of units of a particular model engine, propeller, accessory or appliance operating under the terms of the air carrier's Air Carrier Operating Certificate.

be established by a duly authorized representative of the Administrator upon his evaluation of the operator's experience, knowledge, personnel training, as well as the capabilities and "know-how" of the overhaul facilities. After evaluation of these factors, the overhaul time limitation shall be at least 200 hours less than that indicated in the appendix.

(2) When the air carrier introduces into its operation propellers and powerplant components and accessories (other than engine and essential engine accessories) which have received substantial experience, the overhaul time limitations will be established by a duly authorized representative of the Administrator, subject to evaluation of the operator's experience, knowledge, and personnel training, as well as the capabilities and "know-how" of the overhaul facility. After evaluation of these factors, an overhaul time limitation will be approved which does not exceed that specified in the appendix.

(3) The Agency will grant approval for operation of the engine and propeller, accessories and components thereof to a higher overhaul time when the air carrier shows that his maintenance and inspection program, service experience with the unit, and results

of the disassembly inspections substantiate such increase.

(c) When approval is granted to an air carrier to operate engines and the essential engine accessories to the basic overhaul time limitations or the overhaul time limitation shown in the appendix, the applicable performance level provisions of sections 300 or 400 shall apply, and further amendment of the air carrier's engine and essential engine accessory overhaul time limitations will be determined accordingly.

(d) When approval is granted to an air carrier to operate a propeller or a powerplant and components and accessories thereof (other than engine and essential engine accessories) to the basic overhaul time limitation or the overhaul time limitations shown in the appendix, the provisions of sections 500 or 600 shall apply, and further amendment of the air carrier's overhaul time limitations on these units will be determined accordingly.

Revision of Overhaul Times

Section 300. Turbine Engines and Their Essential Engine Accessories.

The following becomes applicable when approval has been granted to the air carrier to operate the engine and essential engine accessories to the basic overhaul time limitations or the overhaul time limitations shown in the appendix. The overhaul time limitations will be revised on the basis of the previous 90-day engine performance level/ at the current approved overhaul period. By the 25th day following each 30 days of operation at the currently approved overhaul time limitations, the

air carrier shall determine and record its performance level and the nature of the engine failures experienced for that 30-day period for each engine model.

(a) The air carrier may be approved for a 200-hour increase in the approved overhaul time limitations for the engine, engine sections and essential engine accessories when:

(1) The performance level for the engine is not greater than .1 and;

(2) Suitable maintenance procedures are incorporated in the air carrier's maintenance manual to assure continued airworthiness to the new overhaul period, and;

(3) The air carrier and a duly authorized representative of the Administrator have determined that no condition exists in the engine or essential engine accessories that would prevent their operation to the next higher increment of overhaul time. This shall be accomplished by the routine inspection of engines during disassembly and/or by inspection of disassembled units selected by a duly authorized representative of the Administrator; however, the sum total of such engines and their essential engine accessories shall not be less than specified in the table of sample units shown in section 200.

(4) When the disassembly inspection indicates certain engine sections or essential engine accessories

do not justify an increase in overhaul time, those other engine sections or accessories for which the air carrier shows that his maintenance and inspection program, service experience, and results of the disassembly inspections substantiate an increase in the overhaul period, may be approved for an increase in the overhaul time limitations.

(b) The air carrier may be approved for a 100-hour increase in the overhaul time limitations for the engine, engine section and essential engine accessories when:

(1) The performance level of the engine is not greater than .15 and;

(2) Suitable maintenance procedures are incorporated in the air carrier's maintenance manual to assure continued airworthiness to the new overhaul period, and;

(3) The air carrier and a duly authorized representative of the Administrator have determined that no condition exists in the engine or essential engine accessories that would prevent their operation to the next higher increment of overhaul time. This shall be accomplished by routine inspection of engines during disassembly and/or by inspection of disassembled units selected by a duly authorized representative of the Administrator; however, the

sum total of such engines and their essential engine accessories shall not be less than specified in the table of sample units in section 200.

(4) When the disassembly inspection indicates certain engine sections or essential engine accessories do not justify an increase in overhaul time, those other engine sections or accessories for which the air carrier shows that his maintenance and inspection program, service experience, and results of the disassembly inspections substantiate an increase in the overhaul period, may be approved for an increase in the overhaul time limitations.

(c) When the performance level of the engine is greater than .15, no increase in overhaul time limitations will be approved for the engine, engine sections or essential engine accessories.

(d) When the performance level is greater than .2 for any 30-day recorded period, the Agency will notify the air carrier that the current engine and essential engine accessories overhaul time limitations will be reduced by 100 hours to become effective 60 days from the date of such notification unless:

(1) Circumstances warrant earlier action under the emergency authority of the Administrator; or,

(2) At the end of the 60-day notification period, the performance level for the preceding 90 days has improved to .2 or less, in which case the overhaul

time limitations need not be reduced.

(e) When the air carrier has been maintaining an acceptable performance level at the currently approved overhaul time limitation and the engine suddenly develops a new difficulty, such as to raise the performance level above that which would require a reduction of the overhaul time limitation, and when the carrier can identify the cause(s) for this difficulty and present a program, acceptable to a duly authorized representative of the Administrator, which is designed to bring the performance level to .2 or less, the air carrier, prior to having its engine overhaul time limitation reduced, will be placed on a proving period at his currently approved overhaul time limitation for a period of not less than 90 days nor more than 180 days. In the event the performance level has not improved to .2 or less, the applicable overhaul time limitation will be reduced.

(f) When the air carrier's essential engine accessories approved overhaul time limitations are two or three times the approved engine overhaul time limitation, increases in these essential engine accessories overhaul time limitations may be in the same order. Example: Engine overhaul time is 1,200 hours and the fuel control overhaul time is 2,400 hours. When the engine is approved to 1,400 hours, the fuel control may be approved to 2,800 hours.

Section 400. Reciprocating Engines and Their Essential Engine Accessories.

The following becomes applicable at the time approval has been granted to the air carrier to operate the engine and essential engine accessories to the basic overhaul time limitations or the overhaul time limitations shown in the appendix. The overhaul time limitations will be revised on the basis of the previous 90 days engine performance level/ at the current approved overhaul period. By the 25th day following each 30 days of operation at the currently approved overhaul time limitations, the air carrier shall determine and record its performance level and the nature of the engine failures experienced for that 30 days' period for each engine model.

(a) The air carrier may be approved for a 100-hour increase in the approved overhaul time limitations for the engine, engine section and essential engine accessories when:

(1) The performance level of the engine is not greater than .4 and;

(2) Suitable maintenance procedures are incorporated in the air carrier's maintenance manual to assure continued airworthiness to the new overhaul period and;

(3) The air carrier and a duly authorized representative of the Administrator have determined that no condition exists in the engine or essential engine accessories that would prevent their operation to the next higher increment of overhaul time. This shall be accomplished by routine inspection of

engines during disassembly and/or by inspection of disassembled units selected by a duly authorized representative of the Administrator; however, the sum total of such engines and their essential engine accessories shall not be less than specified in the table of sample units in section 200.

(4) When the disassembly inspection indicates certain engine sections or essential engine accessories do not justify an increase in overhaul time, those other sections or accessories for which the air carrier shows that his maintenance and inspection program, service experience and results of the disassembly inspections substantiate an increase in the overhaul period, may be approved for an increase in the overhaul time limitations.

(b) When the performance level of the engine is greater than .4, no increase in engine or essential engine accessories overhaul time limitations will be approved.

(c) When the performance level is greater than .6 for any 30-day recorded period, the Agency will notify the air carrier that the current engine and essential engine accessories overhaul time limitations will be reduced by 100 hours to become effective 60 days from the date of such notification unless:

(1) Circumstances warrant earlier action under the emergency authority of the Administrator; or,

(2) At the end of the 60-day notification period, the

performance level for the preceding 90 days has improved to .6 or less, in which case the overhaul time limitations need not be reduced.

(d) When the air carrier has been maintaining an acceptable performance level at the currently approved overhaul time limitation and the engine suddenly develops a new difficulty, such as to raise the performance level above that which would require a reduction of the overhaul time limitation, and when the carrier can identify the cause(s) for this difficulty and present a program, acceptable to a duly authorized representative of the Administrator, which is designed to bring the performance level to .6 or less, the air carrier, prior to having its engine overhaul time limitation reduced, will be placed on a proving period at his currently approved overhaul time limitation for a period of not less than 90 days nor more than 180 days. In the event the performance level has not improved to .6 or less, the applicable overhaul time limitation will be reduced.

(e) When the air carrier's essential engine accessories approved overhaul time limitations are two or three times the approved engine overhaul time limitations, increases in these essential engine accessories overhaul time limitations will be in the same order. Example: Engine overhaul time is 1,200 hours, and the carburetor overhaul time is 2,400 hours. When the engine is approved to 1,400 hours, the carburetor may be approved to 2,800 hours.

Section 500. Propellers and Accessories and Components Thereof.

The following becomes applicable when approval has been granted to the air carrier to operate propellers to the basic overhaul time limitation or the overhaul time limitations shown in the appendix.

(a) Overhaul time limitations may be increased when the air carrier and a duly authorized representative of the Administrator have determined that the air carrier's maintenance and inspection program, service experience with the unit, and results of disassembly inspections substantiate such increase. This determination will be made on the basis of service experience during the preceding 90-day period at the currently approved overhaul time limitation and disassembly inspection of sample units operated to within 50 hours of the currently approved overhaul time limitation. Inspections shall be accomplished by routine inspections during disassembly and/or by inspection of those designated as sample units; however, the total number inspected shall not be less than that specified in the table of sample units in section 200. Suitable maintenance procedures shall be incorporated in the air carrier's maintenance manual to assure continued airworthiness to the higher overhaul period.

(b) Routine increases of overhaul time limitations may be approved in increments not greater than 20 percent of the currently approved overhaul time limitations, not

to exceed 400 hours, except that a 25-hour adjustment period may be made to correspond with existing airframe or engine inspection periods.

(c) Overhaul time increases may exceed the aforementioned limits in those cases where the overhaul period is less than double the engine overhaul period on which they are operated and when service experience indicates that the propeller and accessories and components thereof may operate to double the engine overhaul period with no adverse effect on continued airworthiness. Under these conditions, a disassembly inspection program may be used without the necessity of operating for a 90-day period at each overhaul time limitation step. An overhaul time increase up to a maximum of 600 hours may be granted if disassembly inspections, at the currently approved overhaul time limitation, substantiates such increase. Additional 600-hour increases, to reach double the engine overhaul period, may be granted when, at the currently approved overhaul time limitation, the air carrier and a duly authorized representative of the Administrator have determined that the air carrier's maintenance and inspection program, service experience with the unit, and results of disassembly inspections substantiate such increase. The number of sample units shall not be less than the number specified in the table of sample units in section 200, and shall have operated

to as near the air carrier's currently approved overhaul time as normal scheduling will permit, but in no case will a sample be considered that is not within 50 hours of the currently approved overhaul time. After reaching an overhaul period of double the engine overhaul time, further increases will be granted in accordance with routine increases in overhaul time limitations shown in section 500. (a) and (b). When overhaul time limitations are double the engine overhaul period, procedures shall be established governing the inspection and testing which shall be accomplished within 100 hours of the midoverhaul period to assure continued airworthiness to the overhaul period. These procedures shall be incorporated in the air carrier's maintenance manual.

Section 600. Powerplant and Components Thereof (Other Than Engine and the Essential Engine Accessories).

(a) Except as provided in paragraph (b) hereunder, increases in overhaul time limitations for powerplants and components thereof (other than engine and the essential engine accessories) shall be approved in increments of 20 percent or less of the currently approved overhaul time limitations, not to exceed 400 hours, except a 25-hour adjustment may be made to correspond with existing airframe and engine inspection periods. Increase in overhaul time limitations may be approved when:

(1) The air carrier has operated the unit for at least 90 days at its currently approved overhaul time limitation, and;

(2) The air carrier and a duly authorized representative of the Administrator have determined that no condition exists that would prevent its operation to the higher increment of overhaul time. This may be accomplished by routine inspection of units during disassembly and/or by inspection of disassembled units; however, the sum total shall not be less than specified in the table of sample units in section 200, and;

(3) The units presented for disassembly inspection have been operated to as near the air carrier's currently approved overhaul time limitation as normal scheduling will permit, but in no case will a sample unit be considered that is not within 50 hours of the currently approved overhaul time, and;

(4) Suitable maintenance procedures are incorporated in the air carrier's maintenance manual to assure continued airworthiness to the higher overhaul period.

(b) For the purpose of establishing overhaul time limitations at a multiple of the engine overhaul period, increases in overhaul time limitations may be in repetitive increments not to exceed 50 percent of the approved engine overhaul time limitation, provided:

(1) The carrier shows that the unit has a record of high reliability and no chronic difficulties when operated by a U. S. air carrier for a period of 12 months; and,

(2) When, at the currently approved overhaul time limitation, the air carrier shows that his maintenance and inspection program and service experience with the unit substantiate such increase, and;

(3) The air carrier and a duly authorized representative of the Administrator have determined that no condition exists in the unit that would prevent its operation to the next higher increment of overhaul time. This may be accomplished by routine inspection of disassembled units at the approved overhaul time, and;

(4) Units presented for inspection shall have been operated to as near the air carrier's currently approved overhaul time as normal scheduling will permit, but in no case will a sample be considered that is not within 50 hours of the currently approved overhaul time, and the number of units inspected shall be in accordance with the table of sample units in section 200, and;

(5) Suitable maintenance procedures are incorporated in the air carrier's maintenance manual to assure continued airworthiness to the new overhaul period, and;

(6) When the unit overhaul time limitations are in multiples of the engine overhaul time limitations, procedures shall be established governing the inspection and testing which shall be accomplished within 100 hours of each engine overhaul period to assure continued airworthiness. These procedures shall be incorporated in the air carrier's maintenance manual.

APPENDIX

The Federal Aviation Agency has established the following overhaul time limitations, subject to sampling inspection as prescribed in section 200 of this proposal for powerplant, accessories and components thereof, for fixed-wing aircraft:

P&W Wasp Major (R-4360)	1300 Hours
P&W Double Wasp (R-2800) C/CA/CB Series	1500 Hours
P&W Double Wasp (R-2800) B Series	1200 Hours
P&W Twin Wasp (R-2000) All Series	1300 Hours
P&W Twin Wasp (R-1830) All Series	1200 Hours
P&W Turbo Jet JT3C-6	1000 Hours
P&W Turbo Jet JT3C-7	1000 Hours
P&W Turbo Jet JT4A	1000 Hours
Wright C-18 Series	1400 Hours
Wright TC-18 Series	1000 Hours
Wright (R-1820) G-102 & 202 Series	1200 Hours
R. R. Dart 510, 511 & 525 Series	1400 Hours
Essential Engine Accessories	2800 Hours
R. R. Dart 528 Series	1400 Hours
Essential Engine Accessories	2800 Hours
Allison 501-D13	1000 Hours

NOTE: The time limitations specified in this appendix are established for engines with substantial experience and serve the same purpose for such engines as the basic overhaul time limitation prescribed for a new model engine.

The Federal Aviation Agency has established overhaul time limitations for the following propellers, and accessories and components thereof:

Aero Products A6441	2500 Hours
Hamilton Standard 43E60	2500 Hours
Hamilton Standard 43H60	2000 Hours
Hamilton Standard 34E60	2500 Hours
Hamilton Standard 33D50	2500 Hours
Hamilton Standard 33E60	2000 Hours
Hamilton Standard 23E50	2500 Hours

The overhaul time limitation for propellers not listed above shall be the overhaul time limitation for the engines on which they operate.

This regulation is proposed under the authority of sections 313(a), 601, 604 and 605 of the Federal Aviation Act of 1958, (72 Stat. 752, 775, 778; 49 USC 1354, 1421, 1424, 1425).

George C. Pill

Director,
Bureau of Flight Standards

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