

shop, except under any of the following conditions:

(1) Engine HPC has incorporated the RCC rear HPC in accordance with PW SB PW4ENG 72-755, dated February 28, 2003. Completing this SB changes the engine configuration to Configuration I.

(2) The shop visit did not result in the separation of a major engine flange located between "A" flange and "T" flange; or

(3) Engines that successfully passed Testing-21 with zero CST, and are split at Flange E for transportation reasons as specified in the applicable Storage/Transport section of the applicable EM.

Thrust Rating Changes, Installation Changes, and Engine Transfers

(p) When a thrust rating change has been made by using the Electronic Engine Control (EEC) programming plug, or an installation change has been made during an HPC overhaul, use the lowest cyclic limit of Table 3 or Table 4 of this AD, associated with any engine thrust rating change or with any installation change made during this period. See paragraph (v)(2) for definition of HPC overhaul period.

(q) When a PW4158 engine is transferred to another PW4158 engine operator whose engine fleet has a different category, use the lowest cyclic limit in Table 4 of this AD that was used or will be used during the affected HPC overhaul period.

(r) When a PW4158 engine operator whose engine fleet changes category in accordance with paragraph (h) of this AD, use the lowest cyclic limits in Table 4 of this AD that were used or will be used during the affected HPC overhaul period.

(s) Engines with an HPC having zero CSN or CSO at the time of thrust rating change, or installation change, or engine transfer between PW4158 engine operators, or subsequent change in operator engine fleet category in accordance with paragraph (h) of this AD in the direction of lower to higher Table 4 limits, are exempt from the lowest cyclic limit requirement in paragraphs (p), (q), and (r) of this AD.

Engines That Surge

(t) For engines that experience a surge, and after troubleshooting procedures are completed for airplane-level surge during forward or reverse thrust, do the following:

(1) For engines that experience a Group 3 takeoff surge, remove the engine from service before further flight and for engines that will be installed on Airbus or McDonnell Douglas airplanes, perform an HPC overhaul; or for engines that will be installed on Boeing airplanes, incorporate the RCC rear HPC in accordance with PW SB PW4ENG 72-755, dated February 28, 2003.

(2) For any engine that experiences a forward or reverse thrust surge at EPR's greater than 1.25 that is not a Group 3 takeoff surge, do the following:

(i) For Configuration A, B, C, D, F, G, and H engines, remove engine from service within 25 CIS or before further flight if airplane-level troubleshooting procedures require immediate engine removal, and perform Testing-21 in accordance with paragraph (i) or (j) of this AD, as applicable.

(ii) For Configuration E engines, remove engine from service within 25 CIS or before further flight if airplane-level troubleshooting procedures require immediate engine removal.

(3) Paragraphs (t)(1) and (t)(2) are not applicable to engines that incorporate the RCC rear HPC in accordance with PW SB PW4ENG 72-755, dated February 28, 2003.

Terminating Action for Boeing Airplanes

(u) For Boeing operators with PW4000 engines installed on Boeing 747 or Boeing 767 airplanes, modify the engine HPC assembly by incorporating the RCC rear HPC in accordance with PW SB PW4ENG 72-755, dated February 28, 2003 as follows:

(1) For engines installed on Boeing 767 airplanes, manage the engine configuration installed on the airplanes in your fleet as follows:

(i) By May 31, 2006 and thereafter, ensure that at least one Configuration I engine is installed on the airplane.

(ii) After May 31, 2006, the non-Configuration I engine installed on the airplane must have incorporated the Haynes material in the HPC inner case rear hook during the original engine build or during an HPC overhaul in accordance with PW4ENG 72-714, dated June 27, 2000 or Revision 1, dated November 8, 2001, or Chromalloy Florida Repair procedure 00CFL-039-0, dated December 27, 2000.

(2) For engines installed on Boeing 747 airplanes, manage the engine configuration installed on the airplanes in your fleet as follows:

(i) By January 31, 2007 and thereafter, ensure that no more than one non-Configuration I engine is installed on the airplane.

(ii) After January 31, 2007, the non-Configuration I engine installed on the airplane must have incorporated the Haynes material in the HPC inner case rear hook during the original build or during an HPC overhaul in accordance with PWENG 72-714, dated June 27, 2000, or Revision 1, dated November 8, 2001, or Chromalloy Florida Repair procedure 00CFL-039-0, dated December 27, 2000.

(3) Prior to June 30, 2009 or whenever the HPC module is disassembled to a level that separates the HPC rear case assembly at H flange from the HPC module, whichever occurs first, incorporate the RCC rear HPC in accordance with PW SB PW4ENG 72-755, dated February 28, 2003. Engines incorporating the RCC rear HPC are Configuration I engines. See paragraph (v)(7) for definition of HPC rear case assembly.

(4) Incorporation of the RCC rear HPC constitutes terminating action to the Testing-21 requirements as specified in paragraph (o) of this AD, and engine stagger limit requirements as specified in paragraphs (c), (d), and (e) of this AD for engines installed on Boeing airplanes.

Note 2: Terminating action to this AD for engines installed on Airbus and McDonnell Douglas airplanes is pending RCC rear HPC certification to 14 CFR part 25. Once approved, this AD will be superseded to add terminating action requirements for the Airbus and McDonnell Douglas fleets.

Definitions

(v) For the purposes of this AD, the following definitions apply:

(1) An HPC overhaul is defined as restoration of the HPC stages 5 through 15 blade tip clearances to the limits specified in the applicable fits and clearances section of the engine manual.

(2) An HPC overhaul period is defined as the time period between HPC overhauls.

(3) An HPT overhaul is defined as restoration of the HPT stage 1 and 2 blade tip clearances to the limits specified in the applicable fits and clearances section of the engine manual.

(4) A Phase 3 engine is identified by a (-3) suffix after the engine model number on the data plate if incorporated at original manufacture, or a "CN" suffix after the engine serial number if the engine was converted using PW SBs PW4ENG 72-490, PW4ENG 72-504, or PW4ENG 72-572 after original manufacture.

(5) A Group 3 takeoff surge is defined as the occurrence of any of the following engine symptoms that usually occur in combination during an attempted airplane takeoff operation (either at reduced, derated or full rated takeoff power setting) after takeoff power set, which can be attributed to no specific and correctable fault condition after completing airplane-level surge during forward thrust troubleshooting procedures:

(i) Engine noises, including rumblings and loud "bang(s)."

(ii) Unstable engine parameters (EPR, N1, N2, and fuel flow) at a fixed thrust setting.

(iii) Exhaust gas temperature (EGT) increase.

(iv) Flames from the inlet, the exhaust, or both.

(6) Takeoff EPR data is defined as Maximum Takeoff EPR if takeoff with Takeoff-Go-Around (TOGA) is selected or Flex Takeoff EPR if takeoff with Flex Takeoff (FLXTO) is selected. Maximum Takeoff EPR or Flex Takeoff EPR may be recorded using any of the following methods:

(i) Manually recorded by the flight crew read from the Takeoff EPR power management table during flight preparation (see Aircraft Flight Manual (AFM) chapter 5.02.00 and 6.02.01, or Flight Crew Operation Manual (FCOM) chapter 2.09.20) and then adjusted by adding 0.010 to the EPR value recorded; or

(ii) Automatically recorded during Takeoff at 0.18 Mach Number (Mn) (between 0.15 and 0.20 Mn is acceptable) using an aircraft automatic data recording system and then adjusted by subtracting 0.010 from the EPR value recorded; or

(iii) Automatically recorded during takeoff at maximum EGT, which typically occurs at 0.25-0.30 Mn, using an aircraft automatic data recording system.

(7) HPC rear case assembly is defined as the HPC rear case with heat shields and other minor detail parts installed within the HPC rear case, but not including the HPC rear segmented stators.

Alternative Methods of Compliance

(w) An alternative method of compliance or adjustment of the compliance time that provides an acceptable level of safety may be