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DEPARTMENT OF TRANSPORTATION

Federal Aviation Administration

14 CFR Part 39

[Docket No. 2000–NE–47–AD; Amendment 39–12564; AD 2001–25–11]

RIN 2120–AA64

Airworthiness Directives; Pratt and Whitney PW4000 Series Turbofan Engines

AGENCY: Federal Aviation Administration, DOT.

ACTION: Final rule; request for comments.

SUMMARY: This amendment supersedes two airworthiness directives (AD's), AD 99–17–16 and AD 2001–15–12. Those AD's both apply to Pratt and Whitney (PW) model PW4000 series turbofan engines. AD 99–17–16 generally requires that operators limit the number of PW4000 engines with potentially reduced stability margin to no more than one engine on each airplane, and requires initial and repetitive on-wing and test cell engine stability tests. It also establishes reporting requirements for stability testing data. AD 2001–15–12 also limits the number of PW4000 engines with potentially reduced stability on each airplane by applying rules based on airplane and engine configuration. In addition, AD 2001–15–12 also requires that engines that exceed high pressure compressor (HPC) cyclic limits based on cycles-since-overhaul (CSO) are removed from service, limits the number of engines with the HPC cutback stator (CBS) configuration to one on each airplane, and establishes a minimum rebuild standard for engines that are returned to service. These AD's were prompted by reports of surges during takeoff on airplanes equipped with PW4000 series turbofan engines.

This amendment continues the limitation on the number of PW4000 engines with potentially reduced stability on each airplane to no more than one, and introduces a new cool engine fuel spike test to allow engines to be returned to service after having exceeded cyclic limits or undergone work in the shop. This AD also continues the limitation on the number of engines with HPC CBS configuration to one on each airplane, places a cyclic limit on how long a CBS engine may remain in service, and establishes a minimum rebuild standard for engines that are returned to service. This amendment is prompted by further analyses of compressor surges in PW4000 engines, and continuing reports of surges in the PW4000 fleet. The actions specified by this AD are intended to prevent engine power losses due to HPC surge.

DATES: Effective January 17, 2002. The incorporation by reference of certain publications listed in the rule is approved by the Director of the Federal Register as of January 17, 2002.

Comments for inclusion in the Rules Docket must be received on or before March 4, 2002.

ADDRESSES: Submit comments in triplicate to the Federal Aviation Administration (FAA), New England Region, Office of the Regional Counsel, Attention: Rules Docket No. 2000–NE–47–AD, 12 New England Executive Park, Burlington, MA 01803–5299. Comments may be inspected at this location, by appointment, between 8:00 a.m. and 4:30 p.m., Monday through Friday, except Federal holidays. Comments may also be sent via the Internet using the following address: *9-ane-adcomment@faa.gov*. Comments sent via the Internet must contain the docket number in the subject line. The service information referenced in this AD may be obtained from Pratt & Whitney, 400 Main St., East Hartford, CT 06108, (860)565–6600, fax (860)565–4503. This information may be examined, by appointment, at the FAA, New England Region, Office of the Regional Counsel, 12 New England Executive Park, Burlington, MA; or at the Office of the Federal Register, 800 North Capitol Street, NW., suite 700, Washington, DC.

FOR FURTHER INFORMATION CONTACT: Peter White, Aerospace Engineer, Engine Certification Office, FAA, Engine and Propeller Directorate, 12 New England Executive Park, Burlington, MA 01803–5299; telephone (781) 238–7128; fax (781) 238–7199.

SUPPLEMENTARY INFORMATION: Since 1999, the FAA has noted a growing number of takeoff (T/O) surge events in Pratt and Whitney PW4000 series turbofan engines. These surges typically occur within 20 to 60 seconds after throttle advance to T/O power, a critical phase of flight. These events have resulted in numerous aborted T/O's, in-flight engine shutdowns, and diverted flights. To date, two events have occurred where two engines have surged at once, the latest in March 2001 involving a twin-engine airplane on takeoff.

The investigation into these surges revealed that these events are due to low stability resulting from open clearances in the aft stages of the high pressure compressor (HPC). The most open clearance condition in the aft stages of the HPC due to temperature differences between the compressor rotor and the compressor stator occurs about 20–60 seconds after the throttle is advanced for T/O. A binding of the compressor flowpath and stator segments within the outer case may add to this normal thermal mismatch condition, resulting in uneven wear patterns and areas of increased locally open clearances. Further investigation revealed common factors that can increase the likelihood for a single or multiple-engine surge event. These ''common factors'' have been identified as Engine Pressure Ratio (EPR), and ambient temperature and pressure. Pratt and Whitney (PW) has used this information to better understand the occurrence of the two dual surge events experienced to date in the PW4000 series fleet.

Since 1999, the FAA has issued five AD's that apply to the PW4000 series engines to address this surge condition. On August 12, 1999, the FAA issued AD 99–17–16 (64 FR 45426, dated August 20, 1999) to require that operators limit the number of PW4000 engines with potentially reduced stability margin to no more than one engine on each airplane, and require initial and repetitive on-wing and test cell engine stability tests. AD 99–17–16 also establishes reporting requirements for stability testing data.

On October 19, 2000, the FAA issued AD 2000–22–01 (65 FR 63793, dated October 25, 2000), to limit the number of engines to one on each airplane with

the HPC in a configuration known as the cut-back stator (CBS) configuration. AD 2000–22–01 established cyclic limits for the removal of HPC's in the CBS configuration and prohibited operators from using engines with HPC modules that incorporated the CBS configuration after the effective date of that AD. AD 2000–22–01 was later superseded by AD 2001–15–12.

On April 13, 2001, the FAA issued emergency AD 2001–08–52 in response to the March 2001, dual-engine surge event. That emergency AD restricted the use of and, ultimately, required the removal of certain PW4000 engines identified by serial number. Those engines were all suspect of reduced stability, and, therefore, at higher risk of surges. Emergency AD 2001–08–52 was superseded by AD 2001–09–07.

On April 20, 2001, the FAA issued AD 2001–09–07 (66 FR 21083, dated April 27, 2001), to supersede emergency AD 2001–08–52. AD 2001–09–07 made changes to the list of serial numbers identifying the affected engines, clarified the requirements of the emergency AD, and added engines with the HPC CBS configuration to the restrictions contained in the emergency AD to limit the number of PW4000 engines to no more than one engine with potentially reduced stability on each airplane and removal of certain PW4000 engines before exceeding cyclic limits that are determined by airplane model and engine configuration. AD 2001–09–07 was also superseded by AD 2001–15–12.

Finally, on July 17, 2001, the FAA issued AD 2001–15–12 (66 FR 38896, dated July 26, 2001) that superseded both AD 2000–22–01 and AD 2001–09–07. AD 2001–15–12 was issued as an interim measure to maintain fleet safety while an improved stability screening test was created, which would allow improved discrimination of low-surge margin engines. AD 2001–15–12 continued the limitation on the number of engines with the HPC CBS configuration and with potentially reduced stability on each airplane, but based those limitations on an evaluation by configuration, installation, thrust rating and other variables. That evaluation was used to create cyclic limits for each airplane and engine combination to maintain the risk of a multiple engine surge at an acceptable level. AD 2001–15–12 also introduced a minimum build standard for engines returned to service. Since AD 2001–15–12 was issued, the FAA has received reports of 11 additional takeoff surges in the PW4000 fleet. This amendment supersedes AD 2001–15–12 and AD 99–17–16. The FAA has continued to evaluate the PW4000 fleet surge data and improve its understanding of the PW4000 fleet's engine surge behavior, and has determined that the requirements of currently effective AD's are not sufficient to meet the original safety intent of those AD's. An evaluation of the PW4000 fleet by configuration, installation, thrust rating and utilizing the ''common factor'' variables was performed to determine which subpopulations of engines are most prone to high power takeoff surges. As a result of this evaluation, cyclic limits were created for each airplane and engine combination to maintain the risk of multiple-engine surge risk at an acceptable level. An improved off-wing (test cell) stability margin verification test was developed to allow return to service of engines, which were removed for exceeding the cycles-since-overhaul threshold, or that have had flowpath work performed while in the shop.

Although AD 2001–15–12 was adopted without notice, the FAA invited comments on the rule. The FAA received one comment from an operator of PW4000 engines. The operator notes that the AD contains a requirement that engines which exceed the specified cyclic limits be removed from service within 50 cycles after the effective date of the AD and ''thereafter.'' The operator requests that the FAA clarify whether that initial grace period of 50 cycles is available to only engines that have exceeded the cyclic limits on the effective date of the AD or if the 50-cycle grace period is also be available to engines that reach the cyclic limits after the effective date of the AD. This AD contains similar cyclic limits and a similar initial grace period. The FAA has changed the wording of the requirement to make clearer that the initial grace period applies only to those engines that would otherwise be required to be removed immediately upon the AD becoming effective. The FAA has determined that allowing those engines to operate for an additional 50 cycles will not result in an unacceptable level of safety while mitigating some of the cost of an unscheduled engine removal. As engines approach the cyclic limits after the effective date of the AD, however, the FAA expects that operators will schedule engine removals so that no unscheduled removals will be necessary.

FAA's Determination of an Unsafe Condition and Required Actions

Since the unsafe condition described is likely to exist or develop on other PW4000 series turbofan engines of the same type design, this AD is being issued to prevent engine power losses due to HPC surge events. This AD requires:

- Limiting the number of engines with the HPC CBS configuration to one on each airplane prior to further flight after the effective date of this AD, and
- Limiting the number of engines that exceed cyclic limits, based upon airplane and engine configuration, within 50, 100 or 200 CIS after the effective date of this AD, and
- A minimum rebuild standard for engines that are returned to service.

This AD also allows engines removed from service due to exceeded cyclic limit to be returned to service after either an HPC overhaul, or successfully completing a cool engine fuel spike stability evaluation.

Interim Action

The actions specified in this AD are considered interim action and further action is anticipated based on the continuing investigation of the HPC surges. This AD has been coordinated with the FAA Transport Airplanes Directorate.

Immediate Adoption of This AD

Since a situation exists that requires the immediate adoption of this regulation, it is found that notice and opportunity for prior public comment hereon are impracticable, and that good cause exists for making this amendment effective in less than 30 days.

Comments Invited

Although this action is in the form of a final rule that involves requirements affecting flight safety and, thus, was not preceded by notice and an opportunity for public comment, comments are invited on this rule. Interested persons are invited to comment on this rule by submitting such written data, views, or arguments as they may desire. Communications should identify the Rules Docket number and be submitted in triplicate to the address specified under the caption **ADDRESSES.** All communications received on or before the closing date for comments will be considered, and this rule may be amended in light of the comments received. Factual information that supports the commenter's ideas and suggestions is extremely helpful in evaluating the effectiveness of the AD action and determining whether additional rulemaking action would be needed.

Comments are specifically invited on the overall regulatory, economic, environmental, and energy aspects of the rule that might suggest a need to modify the rule. All comments submitted will be available, both before

and after the closing date for comments, in the Rules Docket for examination by interested persons. A report that summarizes each FAA-public contact concerned with the substance of this AD will be filed in the Rules Docket.

Commenters wishing the FAA to acknowledge receipt of their comments submitted in response to this action must submit a self-addressed, stamped postcard on which the following statement is made: ''Comments to Docket Number 2000–NE–47–AD.'' The postcard will be date stamped and returned to the commenter.

Regulatory Analysis

This final rule does not have federalism implications, as defined in Executive Order 13132, because it would not have a substantial direct effect on the States, on the relationship between the national government and the States, or on the distribution of power and responsibilities among the various levels of government. Accordingly, the FAA has not consulted with state authorities prior to publication of this final rule.

The FAA has determined that this regulation is an emergency regulation that must be issued immediately to correct an unsafe condition in airplanes, and is not a ''significant regulatory action'' under Executive Order 12866. It has been determined further that this action involves an emergency regulation under DOT Regulatory Policies and Procedures (44 FR 11034, February 26, 1979). If it is determined that this emergency regulation otherwise would be significant under DOT Regulatory Policies and Procedures, a final regulatory evaluation will be prepared and placed in the Rules Docket. A copy of it, if filed, may be obtained from the Rules Docket at the location provided under the caption **ADDRESSES.**

List of Subjects in 14 CFR Part 39

Air transportation, Airplanes, Aviation safety, Incorporation by reference, Safety.

Adoption of the Amendment

■ Accordingly, pursuant to the authority delegated to me by the Administrator, the Federal Aviation Administration amends part 39 of the Federal Aviation Regulations (14 CFR part 39) as follows:

PART 39—AIRWORTHINESS DIRECTIVES

■ 1. The authority citation for part 39 continues to read as follows:

Authority: 49 U.S.C. 106(g), 40113, 44701.

§ 39.13 [Amended]

■ 2. Section 39.13 is amended by removing Amendment 39–12346 (66 FR 38896, dated July 26, 2001) and Amendment 39–11263 (64 FR 11263, dated August 20, 1999), and by adding a new airworthiness directive (AD), Amendment 39–12564, to read as follows:

2001–25–11 Pratt and Whitney: Amendment 39–12564. Docket No. 2000–NE–47–AD. Supersedes Amendment 39–12346, and Amendment 39–11263.

Applicability: This airworthiness directive (AD) is applicable to Pratt and Whitney (PW) model PW4050, PW4052, PW4056, PW4060, PW4060A, PW4060C, PW4062, PW4152, PW4156, PW4156A, PW4158, PW4160, PW4460, PW4462, and PW4650 turbofan engines. These engines are installed on, but not limited to, certain models of Airbus Industrie A300, Airbus Industrie A310, Boeing 747, Boeing 767, and McDonnell Douglas MD–11 series airplanes.

Note 1: This AD applies to each engine identified in the preceding applicability provision, regardless of whether it has been modified, altered, or repaired in the area subject to the requirements of this AD. For engines that have been modified, altered, or repaired so that the performance of the requirements of this AD is affected, the owner/operator must request approval for an alternative method of compliance in accordance with paragraph (o) of this AD. The request should include an assessment of the effect of the modification, alteration, or repair on the unsafe condition addressed by this AD; and, if the unsafe condition has not been eliminated, the request should include specific proposed actions to address it.

Compliance: Compliance with this AD is required as indicated, unless already done.

To prevent engine power losses due to high pressure compressor (HPC) surge, do the following:

(a) When complying with this AD, determine the configuration and category of each engine on each airplane as follows:

(1) Use the following table 1 to determine the configuration of the engine:

TABLE 1.—ENGINE CONFIGURATION LISTING

Configuration	Configuration designator	Description
(i) Phase 1 without high pressure turbine (HPT) 1st turbine vane cut back (1TVCB).	A	Engines that did not incorporate the Phase 3 configuration at the time they were originally manufactured, or have not been converted to Phase 3 configuration; and have not incorporated HPT 1TVCB using any revision of SB PW4ENG 72–514.
(ii) Phase 1 with 1TVCB	B	Same as configuration (1) except that HPT 1TVCB has been incorporated using any revision of SB PW4ENG 72–514.
(iii) Phase 3, 2nd Run	C	Engines that incorporated the Phase 3 configuration at the time they were originally manufactured, or have been converted to the Phase 3 configuration during service; and that have had at least one HPC overhaul since new.
(iv) Phase 3, 1st Run	D	Same as configuration (3) except that that the engine has not had an HPC overhaul since new.
(v) HPC Cutback Stator Configuration Engines	E	Engines that currently incorporate any revision of SB's PW4ENG72–706, PW4ENG72–704, or PW4ENG72–711
(vi) Engines that have passed Testing-21	F	Engines which have successfully passed Testing-21 performed in accordance with paragraph (h)(1) of this AD. Once an engine has passed a Testing-21, it will remain a Configuration F engine until the HPC is overhauled, or is replaced with a new or overhauled HPC.

(2) Use the following Table 2 to determine the category of Airbus engines:

TABLE 2.—AIRBUS AIRPLANE ENGINE CATEGORY LISTING

Engine model	Category	Engine serial number (SN)
(i) PW4156, PW4156A, and PW4158 engines.	1	717201, 717205, 717702, 717703, 717710, 717752, 717788, 717798, 717799, 724023, 724026, 724027, 724033, 724034, 724036, 724037, 724040, 724041, 724044, 724045, 724048, 724049, 724050, 724051, 724052, 724055, 724056, 724059, 724061, 724062, 724063, 724065, 724067, 724073, 724074, 724075, 724079, 724088, 724089, 724090, 724091, 724094, 724095, 724551, 724552, 724555, 724556, 724557, 724558, 724561, 724562, 724563, 724564, 724567, 724568, 724569, 724570, 724571, 724572, 724573, 724574, 724575, 724576, 724577, 724578, 724640, 724806, 724807, 724808, 724809, 724811, 724820, 724821, 724827, 724833, 724835, 724836, 724840, 724841, 724848, 724849, 724855, 724857, 724858, 724861, 724862, 724865, 724866, 724868, 724909, 724910, 724913, 724914, 724924, 724925, 724926, 724927, 727912, 728519, 728520, 728521, 728522, 728523, 728524, 728525, 728526, 728527, 728528, 728534, 728535, 728536, 728537, 728538, 728539, 728540, 728541, 728542, 728543, 728544, 728545, 728546, 728547, 728548, 728549, 728550, 728551, 728552, 728553, 728554, 728557, 728558, 728559, 728560, 728561, 728562, 728563, 728564.
(ii) PW4158 engines	2	717704, 724001, 724002, 724004, 724005, 724006, 724007, 724008, 724009, 724010, 724011, 724019, 724020, 724031, 724035, 724038, 724039, 724042, 724043, 724047, 724068, 724069, 724071, 724076, 724077, 724080, 724085, 724086, 724087, 724092, 724093, 724096, 724097, 724801, 724802, 724803, 724804, 724805, 724813, 724814, 724819, 724823, 724824, 724825, 724826, 724828, 724831, 724832, 724843, 724846, 724847, 724851, 724852, 724853, 724854, 724859, 724860, 724863, 724864, 724867, 724869, 724870, 724871, 724872, 724873, 724874, 724875, 724876, 724880, 724881, 724882, 724883, 724884, 724885, 724886, 724887, 724888, 724889, 724890, 724892, 724893, 724894, 724895, 724896, 724897, 724898, 724899, 724900, 724932, 727315, 727436, 728501, 728502, 728503, 728504, 728505, 728506, 728507, 728508, 728509, 728510, 728511, 728515, 728518, 728531, 728532, 728533.
(iii) PW4156, PW4156A, and PW4158.	3	All others not listed by SN in this Table.

Engines Used on Boeing Airplanes

(b) Except as provided in paragraph (g) of this AD, within 50 airplane cycles after the effective date of this AD, limit the number of engines that exceed the engine cycles-since-new (CSN), engine cycles-since-overhaul (CSO), or engine cycles since passing Testing-21 (CST) limits listed in the following Table 3, to:

(1) No more than one engine per airplane for dual-engine airplanes.

(2) No more than two engines per airplane for three-engine airplanes.

(3) No more than three engines per airplane for four-engine airplanes:

TABLE 3.—ENGINE STAGGER LIMITS FOR BOEING AIRPLANES

Configuration designator	B747–PW4056	B767–PW4052	B767–PW4056	B767–PW4060/ PW4060A/PW4060C/ PW4062	MD–11 PW4460/ PW4462
A	1,400 CSN or CSO	3,000 CSN or CSO	1,600 CSN or CSO	900 CSN or CSO	800 CSN or CSO.
B	2,100 CSN or CSO	4,400 CSN or CSO	2,800 CSN or CSO	2,000 CSN or CSO	1,200 CSN or CSO.
C	2,100 CSN or CSO	4,400 CSN or CSO	2,800 CSN or CSO	2,000 CSN or CSO	1,300 CSN or CSO.
D	2,600 CSN or CSO	4,400 CSN or CSO	3,000 CSN or CSO	2,200 CSN or CSO	2,000 CSN or CSO.
E	750 CSN or CSO	750 CSN or CSO	750 CSN or CSO	750 CSN or CSO	750 CSN or CSO.
F	800 CST	800 CST	800 CST	800 CST	800 CST.

(c) Except as provided in paragraph (g) of this AD, within 100 airplane cycles after the effective date of this AD, limit the number of engines that exceed the CSN, CSO, or CST limits listed in Table 3, to:

(1) No more than one engine per airplane for three-engine airplanes.

(2) No more than two engines per airplane for four-engine airplanes.

(d) Within 200 airplane cycles after the effective date of this AD, limit the number of engines that, exceed the CSN, CSO, or CST limits listed in Table 3, to no more than one engine per airplane for four-engine airplanes.

(e) Thereafter, ensure that no more than one engine per airplane exceeds the CSN, CSO, or CST limit listed in Table 3.

Engines Used on Airbus Airplanes

(f) For engines installed on Airbus airplanes, do the following:

(1) Within 50 airplane cycles after the effective date of this AD, limit the number of engines that exceed, the CSN, CSO, or CST limits listed in the following Table 4, to no more than one engine per airplane:

TABLE 4.—ENGINE STAGGER LIMITS FOR AIRBUS AIRPLANES

Configuration designator	A310 PW4156 and PW4156A and A300 PW4158 Category 1	A300 PW4158 Category 2	A310 PW4156 and PW4156A and A300 PW4158 Category 3	A310 PW4152
A	900 CSN or CSO	1,850 CSN or CSO	500 CSN or CSO	1,050 CSN or CSO
B	2,200 CSN or CSO	4,400 CSN or CSO	1,600 CSN or CSO	4,000 CSN or CSO
C	2,200 CSN or CSO	4,400 CSN or CSO	1,600 CSN or CSO	4,000 CSN or CSO
D	4,400 CSN or CSO	4,400 CSN or CSO	4,400 CSN or CSO	4,400 CSN or CSO
E	750 CSN or CSO	750 CSN or CSO	750 CSN or CSO	750 CSN or CSO
F	800 CST	800 CST	800 CST	800 CST

(2) Thereafter, ensure that no more than one engine per airplane, that exceeds the CSN, CSO, or CST limit listed in Table 4.

Configuration E Engines

(g) For all configuration E engines, do the following:

(1) Before further flight, limit the number of engines with configuration E from Table 1 of this AD to one on each airplane.

(2) Remove all engines with configuration E from service before accumulating 1,300 CSN or cycles-since-conversion to configuration E, whichever is later.

Stability Testing Requirement

(h) Engines removed from service in accordance with paragraphs (b), (c), (d) or (f) of this AD may be returned to service under the following conditions:

(l) After passing a cool-engine fuel spike stability test (Testing-21) that has been done in accordance with one of the following PW4000 Engine Manual (EM) Temporary Revisions (TR's) as applicable, except for engines configured with Configuration E, or engines that have experienced a Group 3 takeoff surge:

(i) PW4000 PW EM 50A443, Temporary Revision No. 71–0026, dated November 14, 2001.

(ii) PW EM 50A822, Temporary Revision No. 71–0018, dated November 14, 2001.

(iii) PW EM 50A605, Temporary Revision No. 71–0035, dated November 14, 2001.

(iv) Engines tested before the effective date in accordance with PW IEN 96KC973D, dated October 12, 2001, meets the requirements of Testing-21, or

(2) The HPC was replaced with an HPC that is new from production with no time in service, or

(3) An engine whose HPC has been overhauled, or replaced with an overhauled HPC.

Minimum Build Standard

(i) For any engine that undergoes an HPC overhaul after the effective date of this AD, do the following:

(1) Inspect the HPC mid-hook and rear-hook of the HPC inner case for wear in accordance with PW4000 Clean, Inspect and Repair (CIR) Manual PN 51A357, Section 72–35–68 Inspection/Check–04, Indexes 8–11, revised September 15, 2001. If the HPC rear hook is worn beyond serviceable limits, replace the HPC inner case rear hook with an improved durability hook in accordance with PW SB PW4ENG72–714, issued June 27, 2000. If the HPC inner case mid hook is worn beyond serviceable limits, repair the HPC inner case mid hook in accordance with any revision of PW4000 CIR PN 51A357 Section 72–35–68, Repair–16, issued June 15, 1996.

(2) After the effective date of this AD, any engine that undergoes an HPC overhaul may not be returned to service unless it meets the build standard of the following PW SB's: PW4ENG 72–484, PW4ENG 72–486, PW4ENG 72–514, and PW4ENG 72–575. Engines that incorporate the Phase 3 configuration already meet the build standard defined by PW SB PW4ENG 72–514.

(j) After the effective date of this AD, any engine that undergoes separation of the HPC and HPT modules must not be installed on an airplane unless it meets the build standard of PW SB PW4ENG 72–514. Engines that incorporate the Phase 3 configuration already meet the build standard defined by PW SB PW4ENG 72–514.

(k) After the effective date of this AD, Testing-21 must be performed in accordance with paragraph (h) of this AD, before an engine can be returned to service after having undergone maintenance in the shop, except under any of the following conditions;

(1) The HPC was overhauled, or replaced with an overhauled HPC, or

(2) The HPC was replaced with an HPC that is new from production with no time in service, or

(3) The shop visit did not result in the separation of a major engine flange, with the exception of the ''A'' flange or ''T'' flange.

(l) 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 period, use the lowest cyclic limit associated with any configuration used during that overhaul period.

(m) For engines that experience a surge, do the following:

(1) For engines that experience a Group 3 takeoff surge, remove the engine from service and perform an HPC overhaul.

(2) For engines that experience a surge at Engine Pressure Ratios (EPR's) greater than 1.25, remove the engine from service within 25 cycles and perform Testing-21.

Definitions

(n) 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) 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 SB's PW4ENG 72–490, PW4ENG 72–504, or PW4ENG 72–572 after original manufacture.

(3) A Group 3 takeoff surge is defined as the occurrence of any of the following engine symptoms during 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 following aircraft 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.

Alternative Methods of Compliance

(o) An alternative method of compliance or adjustment of the compliance time that provides an acceptable level of safety may be used if approved by the Manager, Engine Certification Office (ECO). Operators must submit their requests through an appropriate FAA Principal Maintenance Inspector, who may add comments and then send it to the Manager, ECO.

Note 2: Information concerning the existence of approved alternative methods of compliance with this airworthiness directive, if any, may be obtained from the ECO.

Special Flight Permits

(p) Special flight permits may be issued in accordance with §§ 21.197 and 21.199 of the Federal Aviation Regulations (14 CFR 21.197 and 21.199) to operate the airplane to a location where the requirements of this AD can be done.

Testing-21 Reports

(q) Report the results of the cool engine fuel spike stability assessment tests (Testing-21) to the ANE–142 Branch Manager, Engine Certification Office, 12 New England Executive Park, Burlington, MA 01803–5299, or by electronic mail to 9-ane-surge-ad-reporting@faa.gov. The following data must be reported:

(1) Engine serial number.

(2) Engine configuration designation per Table 1.

(3) Date of the cool engine fuel spike stability test.

(4) HPC Serial Number, and HPC time and cycles since new and since compressor overhaul at the time of the test.

(5) Results of the test (Pass/Fail).

Documents That Have Been Incorporated by Reference

(r) The inspection shall be done in accordance with the following Pratt & Whitney service bulletin (SB), Internal Engineering Notice (IEN), Temporary Revisions (TR's), Clean, Inspection, and Repair Manual (CIR) repair procedures:

Document No.	Pages	Revision	Date
PW SB PW4ENG72–714	1–2	1	November 8, 2001.
	3	Original	June 27, 2000.
	4	1	November 8, 2001
	5–12	Original	June 27, 2000.
Total pages: 12.			
PW IEN 96KC973D	All	Original	October 12, 2001.
Total pages: 19.			
PW TR 71–0026	All	Original	November 14, 2001.
Total pages: 24.			
PW TR 71–0018	All	Original	November 14, 2001.
Total pages: 24.			
PW TR 71–0035	All	Original	November 14, 2001.
Total pages: 24.			
PW CIR 51A357, Section 72–35–68, Inspection/Check–04, Indexes 8–11.	All	Original	September 15, 2001.
Total pages: 5.			
PW CIR 51A357, Section 72–35–68, Repair 16	All	Original	June 15, 1996.
Total pages: 1.			

This incorporation by reference was approved by the Director of the Federal Register in accordance with 5 U.S.C. 552(a) and 1 CFR part 51. Copies may be obtained from Pratt & Whitney, 400 Main St., East Hartford, CT 06108, (860)565–6600, fax (860)565–4503. Copies may be inspected at the FAA, New England Region, Office of the Regional Counsel, 12 New England Executive Park, Burlington, MA; or at the Office of the Federal Register, 800 North Capitol Street, NW, suite 700, Washington, DC.

Effective Date

(s) This amendment becomes effective on January 17, 2002.

Issued in Burlington, Massachusetts, on December 12, 2001.

Robert G. Mann,

Acting Manager, Engine and Propeller Directorate, Aircraft Certification Service.

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SECURITIES AND EXCHANGE COMMISSION

17 CFR Part 241

[Release No. 34–45194]

Commission Guidance on the Scope of Section 28(e) of the Exchange Act

AGENCY: Securities and Exchange Commission.

ACTION: Interpretation.

SUMMARY: We are publishing interpretive guidance on the application of Section 28(e) of the Securities Exchange Act of 1934 (''Exchange Act''). This section provides a safe harbor to money managers who use the commission dollars of their advised accounts to obtain research and brokerage services. The guidance we are publishing today clarifies that the term ''commission'' for purposes of the Section 28(e) safe harbor encompasses, among other things, certain transaction costs, even if not denominated a ''commission.''

EFFECTIVE DATE: The guidance is effective on January 2, 2002.

FOR FURTHER INFORMATION CONTACT: Catherine McGuire, Chief Counsel; Joseph Corcoran, Special Counsel, (202) 942–0073, Office of the Chief Counsel, Division of Market Regulation, Securities and Exchange Commission, 450 Fifth Street, NW, Washington, DC 20549–1001.

SUPPLEMENTARY INFORMATION:

I. Background

If money managers use commission dollars of their advised accounts to obtain research and brokerage services, Section 28(e) prevents them from being held to have breached a fiduciary duty, provided the conditions of the section are met.[1] Previously, the Commission interpreted Section 28(e) to be available only for research and brokerage services obtained in relation to commissions paid to a broker-dealer acting in an ''agency'' capacity.[2] That interpretation prevented money managers from relying on the safe harbor for research and brokerage services obtained in relation to fees charged by market makers when they executed transactions in a ''principal'' capacity.

The Nasdaq Stock Market, Inc. (''Nasdaq'') asked us to reconsider this interpretation of Section 28(e). In particular, Nasdaq urged us to interpret the Section 28(e) safe harbor to apply not just to research and brokerage services obtained in relation to commissions on agency transactions, but also to such services obtained in relation to fully and separately disclosed fees on certain riskless principal transactions effected by National Association of Securities Dealers, Inc. (''NASD'') members and reported under certain NASD trade reporting rules.[3] In Nasdaq's view, the recent amendments to its trade reporting rules for certain riskless principal transactions support a modification of the Commission's interpretation of Section 28(e).[4]

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[1] 15 U.S.C. 78bb(e).

[2] Investment Advisers Act Release No. 1469 (February 14, 1995), 60 FR 9750 (February 21, 1995). In this release, the Commission stated, ''[t]he safe harbor does not encompass soft dollar arrangements under which research services are acquired as a result of principal transactions,'' adopting a position originally outlined in a 1990 staff letter, authorized by the Commission, to the Department of Labor. *See* Letter re: *Section 28(e) of the Securities Exchange Act of 1934* (July 25, 1990). *See also* Investment Company Act Release No. 20472 (August 11, 1994), 59 FR 42187 (August 17, 1994).

[3] *See* Letter from Hardwick Simmons, Chief Executive Officer, The Nasdaq Stock Market, Inc. to Harvey L. Pitt, Chairman, Commission, dated September 7, 2001.

[4] *See* Exchange Act Release Nos. 41208 (March 24, 1999), 64 FR 15386 (March 31, 1999) (File No. SR–NASD–98–59); 41606 (July 8, 1999), 64 FR 38226 (July 15, 1999) (File No. SR–NASD–98–08); 43303 (September 19, 2000), 65 FR 57853 (September 26, 2000) (File No. SR–NASD–00–52). These filing amended NASD Rules 4632 (the trade reporting rule for Nasdaq National Market securities), 4642 (the trade reporting rule for Nasdaq SmallCap Market securities), and 6420 (the trade reporting rule for eligible securities).