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Recommended Citation
Daniel E. Wanat, Certification Procedures - Aircraft and Pilot - The Roles of the Federal Aviation Administration and the National Transportation Safety Board, 20 DePaul L. Rev. 729 (1971)
Available at: https://via.library.depaul.edu/law-review/vol20/iss3/5

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CERTIFICATION PROCEDURES—AIRCRAFT AND PILOT—THE ROLES OF THE FEDERAL AVIATION ADMINISTRATION AND THE NATIONAL TRANSPORTATION SAFETY BOARD

To Fly Without Feathers Is Not Easy
Platus

FLIGHT IN THE DESTINY OF MAN

From man's earliest beginnings there has been within the hearth of the human spirit an almost insatiable desire to travel. At first, man had only his legs to carry him from place to place, but his particular genius and ingenuity soon led him to develop many and diverse modes of transportation. Though crude and highly unsophisticated at first, these tools of travel eventually broadened man's living experience from the places of his creation to any point upon this planet and beyond.

With the growth of travel in the life of man came more refined and complex means to carry him to wherever he journeyed. Though bound for centuries to surface travel on land or sea, man's continuing sophistication soon led him to tire of this most slow and tedious mode of movement. Finally man looked to the broad expanses of air and sky to ultimately quench his thirst for the vehicle through which he could most quickly and safely reach the points of destination to which his travels did take him.

The advent and progress of air travel brought the history of man to the point where now it stands. It is here, therefore, that flight can no longer exist as a novelty or experiment. It is here—where in the United States alone scheduled airlines employ some 26,262 pilots, fly some 2,403 airplanes, and carry some 159,188,000 passengers; where the total civilian fleet of fixed wing aircraft numbers some 131,097 airplanes¹—that air flight must face the stern tests of reality in a world too complex to remain isolated and independent from regulation and restraint. To this end, the United States, which is the one nation to be given the singular distinction of doing the most for air travel, has sought to promote its continued well being through a meticulous system of rules, promulgated by power granted by its people and fostered by the hope that these regulations shall serve only those in whose best interests they were created.

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Since air travel today necessitates the co-operation of both man and machine, it is the purpose of this comment to examine the rules and regulations promulgated by the continuing authority of the federal government of the United States as directed to the certification of aircraft and pilots. The scope of this work in this respect is limited in its definition of aircraft to fixed winged private or commercial aircraft, thus excluding fixed winged transport aircraft, rotocraft and lighter-than-air craft. Both private and commercial pilot certification procedures will, however, be examined. The overall discussion of these areas will necessitate an analysis of the Federal Aviation Act of 1958 and the regulations appertaining thereto. To complete the survey of the federal government’s regulation of aviation in its most basic elements, the functional and procedural relationship between the Federal Aviation Administration and the National Transportation Safety Board will be discussed. It must also be stated, at the outset of this comment, that its general scope is not all encompassing, but is limited to the extent that the author wishes only to relate to his readers a descriptive analysis of aircraft and pilot certification and adjudication procedures sufficient to be expressive of their content, logic, and necessity.

THE HISTORICAL EVOLUTION OF THE REGULATION OF AIR FLIGHT

Aviation safety and regulation in the United States began in 1926, when Congress passed the Air Commerce Act. This legislation, as the first of its kind, was to play the major role in correcting the previous failure of the federal government to provide for adequate airspace regulation. It did, therefore, effectively divide the control of airspace between civil and military authority. Also, under this Act, the President could reserve and set

2. See 49 U.S.C.A. § 1301 (1963). Congress has defined, for the purposes of this Act, an aircraft as "... any contrivance now known or hereafter invented, used, or designed for navigation of or flight in the air." Thus the Congressional definition is broader in scope than any use of the term aircraft as intended in this work.


4. See 49 U.S.C. § 1651 (1969). The National Transportation Safety Board was created by the Department of Transportation Act of 1967. Generally the Act seeks to envelop all modes of transportation into one Executive Department, thus facilitating their promotion and control.

5. Act of May 20, 1926, ch. 344, § 1, 44 Stat. 568. This act represented the first attempt by Congress to regulate air flight. It was not designed, however, to create extensive regulatory measures governing the various facets of air flight regulations as were from time to time promulgated subsequent to this piece of legislation.

7. Act of May 20, 1926, ch. 344, § 4, 44 Stat. 568, 570. Specifically the Act states that "[t]he President is authorized to provide by Executive order for the setting apart and the protection of airspace reservations in the United States for national defense or other governmental purposes. . . ." [Emphasis added].


12. 5 FED. REG. 2109, 2421 (1940).

13. The Reorganizational Plans III therefore sought to take measures concomitant with the urgent need continually to revamp the structural makeup of the governmental bodies which had been given the authority to regulate air flight safety conditions. The plan devised did much to synthesize the work structure though its failings were seen by the necessity of the subsequent legislation passed.

14. 5 FED. REG. 2109, 2421 (1940).
Rather than resolving the procedural difficulties in the regulation of air flight, this totally inter-complex alignment of control, simply added to the problem of effective management and operation in this area. The problems perpetuated therein existed until 1958 when Congress passed the Federal Aviation Act. Under this Act all of the safety regulation powers were vested in a single individual, the new Federal Aviation Administrator. This administrator was not bound “by the decisions or recommendations of any committee, board, or other organization created by Executive Order.” The Act, therefore, simplified governmental regulation of air safety by creating a single federal agency with powers adequate to enable it to provide for the safe and efficient use of the navigable airspace by both civil and military operations.

The reasons why Congress, in the fact of almost thirty years of working under the regulatory system prior to the Federal Aviation Act, sought to, at this time restructure it are difficult to derive. The problems of air safety, however, were little known to the general public until perhaps June 30, 1956, when as a result of the midair collision of two airliners over the Grand Canyon 128 lives were lost. This disaster may have prompted Congressional action as may have the fatal air crashes between civil and military aircraft operating under the separate flight rules established by the Civil Air Regulations. Whatever the reasons, the Act, when adopted, led significantly to the improvement of air safety conditions, for the Federal Aviation Agency was given the authority to: (1) establish, maintain, and operate air navigation facilities, and provide for

16. 49 U.S.C.A. § 1341(a) (1963). The significance of this provision may readily be seen when examined within the context of the overall development of regulation within this area. At long last, therefore, the governmental agency given the authority over the activities involved in air flight could function without the restraint of Executive control. The Federal Aviation Act went so far as to provide additionally that “[i]n the exercise of his duties and the discharge of his responsibilities . . . the Administrator need not submit his decisions for the approval of . . . any committee, board, or other organization created by Executive order.” 49 U.S.C.A. § 1341(a) (1963) (emphasis added).
18. H.R. Rep. No. 2360, 85th Cong., 2nd Sess. 2 (1958). As it is unfortunately indicated by the events reported in this volume, the impetus given to revamp governmental control arose only when Congress was confronted with the stark reality that if no positive action was taken the possibility of even more grievous consequences would arise. Here, had the steps eventually taken predated the disaster detailed in the text, it might never have occurred.
20. 49 U.S.C.A. § 1341(a) (1963). This was simply the federal agency created to govern the regulation of air flight safety pursuant to the Federal Aviation Act.
the consolidation of research and development of such facilities; (2) develop and operate a common system of air traffic control and navigation for the safe and efficient use of airspace by both civil and military aircraft; (3) promulgate, administer and enforce safety regulations for the manufacture, operation, and flight of aircraft; and (4) provide for the promotion, encouragement, and development of civil aeronautics, both in the United States and abroad.²¹

Apart from the sweeping substantive powers granted, the Act also retained the best components of the previous legislation. Thus the Act retained the Civil Aeronautics Board as an independent body to regulate the economic aspects of the aviation industry and to investigate aircraft accidents.²² The Civil Aeronautics Board also continued to act as the court of appellate review in proceedings affecting airmen or aircraft certificates, including the review of orders denying the issuance of an airman certificate. This appeal to the Board could only be denied where the certificate was under suspension or was revoked previously within one year.²³

Pursuant to the Act also, an office of the Civil Air Surgeon was established to cope with the ever-increasing medical problems of flight.²⁴ This office was concerned, therefore, with promulgating the medical standards to be met and adhered to by airmen.

From the passage of the Federal Aviation Act, no significant air safety legislation was promulgated until Congress enacted the Department of Transportation Act in 1966.²⁵ With this Act the historical development of air safety regulation has reached the structural point where it still remains today. The provisions of this Act have once again restructured the

²¹ See Morris, The Federal Aviation Act of 1958, 28 U. of Kan. City L. Rev. 35 (1959). It should be noted, as Mr. Morris has so aptly done, that in providing for the consolidation of common, civil and military airways, the Administrator of the Federal Aviation Agency, was vested with the authority and full discretion and control of all military personnel in their discharge of Federal Aviation Agency responsibilities. This, of course, greatly facilitated a primary objective of the Federal Aviation Act, that being to ultimately phase out all military personnel from the operation of domestic non-military air traffic control and communication facilities, which were then under military control.


procedural departments which control the conditions in and governing of the regulatory status of aviation.

It is within the Department of Transportation Act that Congress has created the National Transportation Safety Board (NTSB), whose basic functions are to review investigations of transportation accidents and to determine their causes. Specifically, the NTSB is to carry out the functions transferred to it by the Act—to decide the cause or probable cause of transportation accidents and to review, on appeal, the amendment, suspension, modification, revocation, or denial of certificates or licenses issued by the Secretary of the newly created Department.

While the NTSB is established within the framework of the Department of Transportation for certain administrative purposes, the Act specifically provides that it shall be independent of the Secretary and the other officers of the Department of Transportation in the exercise of its powers and duties. Its certificate appeals decisions are reviewable only by the federal courts.

Physically, the NTSB is an independent entity comprised of five members appointed by the President with Senate confirmation. They are chosen for their competence in the field of transportation and they serve five-year terms. The NTSB has its own budget and its own employees and hearing examiners. It may draw upon the Department of Transportation for its resources in the performance of its duties, yet must submit only an annual report of its activities to Congress.

Apart from the revisions previously examined, the Department of

27. 49 U.S.C. § 1654 (1964). The certification appeals decisions of the NTSB involve, not only determinations made by the Secretary of the Department of Transportation, but also those of the heads of the various agencies under the Department's control.

In the exercise of its safety functions the NTSB may "... conduct special studies on matters pertaining to safety in transportation and the prevention of accidents ... make recommendations to the Secretary or Administrators concerning rules, regulations, and procedures for the conduct of accident investigations ... and arrange for the personal participation of members or other personnel of the Board in accident investigations conducted by the Secretary or Administrators in such cases as it deems appropriate. ..." See 49 U.S.C. § 1654(d)(1)(5)(7) (1964). Thus the NTSB has a wide range of powers to conduct properly the procedures for which it has been organized.


Transportation Act is also most significant because it has transferred the Federal Aviation Agency to the new Department where it has become known as the Federal Aviation Administration\(^3\) (FAA). The FAA is headed by the Administrator who reports directly to the Secretary of Transportation.\(^3\) Finally, under the Act, the Bureau of Safety of the Civil Aeronautics Board has been transferred intact to the NTSB and has become its Bureau of Air Safety.\(^3\)

The examination of the Department of Transportation Act completes the evolutionary process of air safety agency development. Today the reformed structure remains the same and the prospects for any radical change would appear to be few, for through the forty-two years since the passage of the Air Commerce Act\(^3\) a system of conceptual simplicity has finally evolved. Three agencies, each independent of restraining executive control, have functions so particularly delineated that the confusion in implementation which may have arisen in the past has all but vanished. Thus, within the span of two generations, aviation has transitioned from a "white scarf" barnstorming image to a sophisticated study of man and machine.

THE CERTIFICATION OF AIRCRAFT

The Federal Aviation Act empowers the Federal Aviation Administrator to promote safety of flight of civil aircraft in air commerce by prescribing from time to time: (1) such minimum standards governing the design, materials, workmanship, construction, and performance of aircraft . . . as may be required in the interest of safety; (3) reasonable rules and regulations and minimum standards governing . . . (A) the inspection, servicing, and overhaul of aircraft . . . and (6) such reasonable rules and regulations, or minimum standards . . . as the Administrator may find necessary to provide adequately for the national security and safety in air commerce.\(^3\)

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32. 49 U.S.C. § 1655(c)(1) (1964). The Act, however, provides that the Federal Aviation Administrator has the duty to exercise the functions, powers, and duties of the Secretary of the new Department pertaining to aviation safety. Therefore, the transfer, at least in this respect, was not one of a wholesale nature.
34. See Allen, National Transportation Safety Board Bureau of Aviation Safety, supra note 29.
36. 49 U.S.C.A. § 1421(a)(1-6) (1963). The Federal Aviation Act also provides that "[t]he Administrator shall exercise and perform his powers and duties . . . in such manner as will best tend to reduce or eliminate the possibility of, or recurrence of, accidents in air transportation, but shall not deem himself required to give preference to either air transportation or other air commerce in . . . administration and enforcement. . . ." (Emphasis added) Congress has adopted,
In these broad and sweeping terms is contained the general grant of power given to the FAA to govern the initial and continued use of civil aircraft in the United States. What the FAA has done with this power comprises the topic next to be discussed.

Specifically, the Federal Aviation Act empowers the Administrator of the FAA to issue a type certificate to any interested person filing an application therefore and an airworthiness certificate to the registered owner of any aircraft upon the filing of a similar application. By way of definition, a type certificate is one issued to a particular applicant having reference to an aircraft which has not been previously produced for private or commercial use. To be eligible for certification, the applicant must submit the design data, test reports, and any computations which are or may be necessary to show that the aircraft in question meets the airworthiness and aircraft noise requirements as are also established by the FAA. More particularly, the applicant must submit: (1) drawings and specifications; (2) information on dimensions, materials, and processes necessary to delimit the structural strength of the product; and (3) any other data which is or should be known, relevant to the aircraft's general operational capabilities. It is only upon the receipt of all this information and any investigation and hearings which may be necessary that the aircraft will be certified as to type.

From the preceding discussion it can be seen that the FAA's interest begins with the design standards and requirements of a given aircraft. The

through the Act, the wise policy of affording the Administrator wide latitude in its implementation, while securing that his powers will not be used in derogation of his functions. For the judicial interpretations of the Administrator's functions, see Air Line Pilots Ass'n, Intern. v. Quesada, 276 F.2d 892 (2d Cir. 1960); and Porter v. Southeastern Aviation, Inc., 191 F. Supp. 42 (Tenn. D.C. 1961).


38. 49 U.S.C.A. § 1423(c) (1963). An additional certificate interim to the type and airworthiness certificates, but not made a part of the discussion in the text, is the production certificate. When issued by the Administrator, it authorizes the production of duplicate aircraft to those previously type certified. As in the analysis of the other types of certification, the production certificate is only issued wherein the applicant can demonstrate those qualifications necessary "... to assure manufacture of each unit in conformity with the type certificate or any amendment or modification thereof." Thereafter the Administrator may prescribe the duration of and any limitations upon the certificate as are required in the interests of safety. 49 U.S.C.A. § 1423(b) (1963).

39. See 14 C.F.R. § 21.21(b) (1970) and 14 C.F.R. § 36 (1970). It should also be noted in this regard that the Administrator does have the authority to impose any restrictions or conditions as he deems proper.


actual approval of an aircraft design is the responsibility of the FAA's engineering and manufacturing personnel.\textsuperscript{42} It is they who assure that provisions are made for proper design, workmanship, construction and equipment. It should also be noted that when a type certificate is issued, the Administrator may provide for the duration of it and any conditions or restrictions upon it as are required in the interest of air safety.\textsuperscript{43}

Apart from the type certificate, there is the airworthiness certificate which qualifies a civilian aircraft for flight pursuant to Congressional authority vested in the FAA.\textsuperscript{44} It is this certificate, when issued, which recognizes the capability of a given aircraft to perform, with all due safety, the functions for which it was designed. In this regard, the FAA has sought to require stringent regulations principally denoting the flight standards to be met by an aircraft before it can be certified. For example, the standard airworthiness certificates are issued only for aircraft previously type certified in the "normal, utility, acrobatic, or transport category."\textsuperscript{45}

For the issuance of the standard airworthiness certificate, a respective applicant must present to the Administrator a statement of conformity to


\textsuperscript{43} 49 U.S.C.A. § 1423(a)(2) (1963). This section of the Act further states that "[t]he Administrator may record upon any certificate issued for aircraft . . . a numerical determination of all the essential factors relative to the performance of the aircraft . . . for which the certificate is issued."

\textsuperscript{44} 49 U.S.C.A. § 1423(c) (1963).

\textsuperscript{45} 14 C.F.R. § 21.175(a) (1970). Since the transport category aircraft would necessitate an examination far beyond the scope of this work, the airworthiness standards applicable to the other three types of aircraft are alone hereinafter discussed.

The Federal Aviation Regulations, 14 C.F.R. § 23.3 (1970), themselves detail the description of the other airplane categories. "(a) The normal category is limited to airplanes intended for nonacrobatic operation. Nonacrobatic operation includes—

(1) Any maneuver incident to normal flying;

(2) Stalls (except whip stalls); and

(3) Lazy eights, chandelles, and steep turns, in which the angle of bank is not more than 60 degrees.

(b) The utility category is limited to airplanes certified for limited acrobatic operation. Airplanes certified in the utility category may be used in any of the operations covered by paragraph (a) of this section and in limited acrobatic operations. Limited acrobatic operations includes—

(1) Spins (if approved for the particular type of airplane); and

(2) Lazy eights, chandelles, and steep turns, in which the angle of bank is more than 60 degrees.

(c) The acrobatic category is limited to airplanes intended for use without restrictions other than those shown to be necessary as a result of required flight tests.

(d) Small airplanes may be certified in more than one category if the requirements of each requested category are met."
type design certification requirements. The Administrator must there-
after determine, upon inspection of the aircraft, whether it does conform to
the type design and is in a condition for safe operation. Further, the ap-
plicant must also file a statement showing that the aircraft has been flight-
checked. With regard to both type design and flightcheck compliance,
the applicant must be able to offer conclusive proof that all requirements
have been met by any necessary tests which could have been made on the
aircraft or any calculations derived therefrom, and equal in accuracy to
the results of the testing. Finally, a systematic investigation of each
probable combination of weight and center of gravity must be demon-
strated attesting to the in-flight control, maneuverability and stability of the
questioned aircraft.

It is only upon the proffer by an applicant of the above detailed state-
ments and proofs that the Administrator will issue an airworthiness certifi-
cate. The actual procedure leading to this approval is accomplished through
a series of board meetings which are attended by FAA engineering per-
sonnel who have examined data relating to structural components and
power plant systems of the aircraft. Also in attendance are flight test
engineers and pilots; representation from air carriers' operations and main-
tenance specialists is welcomed. Further, the FAA may assign one of
its own operations specialists to closely scrutinize such things as the air-
craft's cockpit layout or to further examine the weight and balance in-
formation submitted by the applicant. Finally, the FAA will assign to the
case a maintenance specialist to assure the establishment of initial inspec-
tion and overhaul times for aircraft structures and components.

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involving the airworthiness certificate, see generally, Nyrop, Civil Aeronautics Ad-
ministrator v. Bridoux, Docket No. SR-2080 (1951); Donnell, Airman Certificate,
5 C.A.B. 313 (1942); Karoly, Airman Certificate, 5 C.A.B. 301 (1942); Ray-
mond Lee Kidd, Airman Certificate, 5 C.A.B. 35 (1941); and Brown, Airman
Certificate, 1 C.A.B. 661 (1940).
50. 14 C.F.R. § 23.21(a)(2) (1970). The regulations in § 23.21(b) also pro-
vide that "[t]he following general tolerances are allowed during flight testing. How-
ever, greater tolerances may be allowed in particular tests:

<table>
<thead>
<tr>
<th>Item</th>
<th>Tolerance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Weight</td>
<td>+5%, −10%</td>
</tr>
<tr>
<td>Critical item affected</td>
<td></td>
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<tr>
<td>by weight</td>
<td>+5%, −1%</td>
</tr>
<tr>
<td>C.G.</td>
<td>±7% total travel</td>
</tr>
</tbody>
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51. Supra note 42.
52. Supra note 42.
As an aside to the above discussion, it must be remembered that the FAA is not only responsible for the certification of the aircraft, but is also responsible for its continued airworthiness. Thus, the FAA requires the air carrier operators to report certain significant failures, malfunctions, or defects daily through a report called the Mechanical Reliability Report. An analysis of these documents may result in a maintenance or operation alert, an advisory circular, or, if a design change is mandatory, the FAA will issue an airworthiness directive. Thus, it can readily be seen that the certificate, when issued, is in force, so long as the maintenance and preventive maintenance upon the aircraft are performed.

As an added dimension to its requirements for certification of an aircraft, the FAA has newly initiated regulations seeking to establish noise levels below which certain aircraft must operate to be certified as airworthy. These regulations, which have been made a part of the type certification process, are particularly directed to "subsonic turbojet powered airplanes." Specifically, the FAA has provided that the aircraft subject to these provisions meet various noise certification test and measurement conditions. These conditions detail the maximum noise levels at which an aircraft can operate and are geared to produce reasonable tolerance levels in the aim of reducing the possible personal and property damage which may have resulted had these provisions not been introduced.

To complete this examination of aircraft certification procedures, mention must be made of the fact that to remain certified, the aircraft must continue to be registered in the United States. Also, should the registered owner of the aircraft fail to comply with the prescribed maintenance or registration requirements, the Administrator of the FAA, dependent upon the determination of a fact-finding hearing, is empowered to suspend, revoke, or terminate the airworthiness certificate and, in so doing, request its surrender by the owner of the aircraft.

These, then, are the basic certification procedures warranted in the flight of civilian aircraft. It is or should readily be seen that the FAA has

53. Supra note 42.
54. Supra note 42.
55. 14 C.F.R. § 36 (1970). Due to the extraordinarily technical language used and necessitated by these regulatory provisions, a general discussion is preferred to eliminate the reality of indifference often induced by such an examination.
the power to fix and control the standards governing the safety of air flight and its possible consequences. The regulations promulgated by the FAA are exhaustive in their effect and application. They are implemented with a view towards uniformity and prevention necessary to dismantle any threats of, or damage to, persons or property as the result of the flights of aircraft not consonant with their terms.

If the regulation of this area is remiss in any fashion, this must rest only in the realm of the immense character of the undertaking. The FAA, forced by necessity, cannot make meticulous examinations upon each application and thereafter of each and every aircraft sought to be certified and to so remain. Thus, reliance must be placed upon the applicant's own conscious efforts at all times to meet the demands of the certification process. This, in most instances, is done because the detrimental effect of an air disaster and its ramifications places the registered owner, possibly, in the position of a party liable at law for the results. Apart from civil liability, there are the beforementioned FAA sanctions which, if enforced, can cause the deprivation of his livelihood to the negligent or willful owner.

THE CERTIFICATION OF PILOTS

The Federal Aviation Act provides that

The Administrator is empowered to issue airmen certificates specifying the capacity in which the holders thereof are authorized to serve as airmen in connection with aircraft.60

Pursuant to this provision, the FAA has prescribed that no person may act as the pilot of any aircraft unless he has been currently certified as a pilot and unless he has a medical certificate appropriate to the conditions under which he is certified to fly.61

Generally, the individual applying for a pilot certificate must first qualify for the appropriate category and type ratings.62 These simply state

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61. 14 C.F.R. § 61.3(a)(c) (1970). It should be noted that the regulations do not extend so far as to attempt to bind a pilot operating an aircraft within a foreign country who has obtained a current pilot certificate issued by the country in which the aircraft is being operated. Thus the foreign nation's certificate would suffice, but only where the aircraft is of United States registry.
62. See 14 C.F.R. §§ 61.15-61.16 (1970). For example, "[t]he category ratings to be placed on private, [and] commercial . . . pilot certificates are—(1) Airplanes;
the nature of aircraft (airplane, rotocraft, glider, or lighter-than-air) and type of aircraft (propeller, turboprop, or turbojet) which, upon certification, the pilot may fly. To this end a prospective pilot must take both a written and a practical, in-flight examination to determine his fitness to command the category and type aircraft for which he seeks certification.63

The written examination entails a demonstration of knowledge appropriate and necessary for proper pre-flight and in-flight operation of the aircraft. The applicant must receive a minimum grade of 70 on the entire test to have passed.64

Once the applicant for pilot certification has taken, and within twenty-four months, passed the written examination, he is eligible for the flight test.65 This test, in addition to the above requirement, also necessitates that an applicant hold the medical certificate appropriate to the pilot certificate which he is seeking. Finally, an applicant must have the applicable aeronautical experience and a written statement, made not more than sixty days before applying to take the test, from a certified flight instructor indicating his readiness to take the test.66

The flight test, in general, is designed to adjudge the applicant’s performance of in-flight procedures and maneuvers as evidenced by his knowledge of them and the smoothness and accuracy he demonstrates in their execution. This necessitates, in the judgment of the examiner, that the pilot be “the obvious master of the aircraft, with the successful outcome of the maneuver never seriously in doubt.”67 It must be noted that should an applicant fail any phase of this test he fails the entire test and thus is re-

(2) Rotocraft; (3) Gliders; and (4) Lighter-than-air. . . .” The type ratings required may be exemplified by “. . . (1) (a) large aircraft . . . (2) a helicopter . . . [or] (3) A turbojet powered airplane.”

64. 14 C.F.R. § 61.19(b) (1970). The regulations also provide for stringent sanctions for cheating or other unauthorized conduct wherein if a prospective candidate for an airman’s certificate is found so to have done, he is precluded from holding any certificate for a period of one year from the date of the violation. 14 C.F.R. § 61.20(b) (1970).
67. 14 C.F.R. § 61.23(a) (1970). In analyzing the procedures which have been adopted and the necessary qualifications which must be had to pilot an aircraft, it is perhaps best to begin by examining in toto the general regulations governing certification policies in this area. Thereafter, the specific distinctions between the private pilot and the commercial pilot certificates can be made. The reader should, therefore, keep this progression of ideas in mind to be able to fully apprise the ramifications of this general to specific categorical presentation.
quired to be re-examined in all phases of flight testing. This procedure, at first blush, seems somewhat arbitrary and ill-conceived in the light of the other regulations which specifically delineate what must be done for certification. The fate of the prospective pilot is not, however, left in the hands of the examiner. This is so because in the overall planning of this procedure the FAA has assigned its operational pilot specialist. This individual is also a member of the Flight Operations Evaluation Board which serves in developing the operational procedures and limitations set forth in the airplane flight manual. The operational pilot specialist is also a member of the Flight Standardization Board, which has the primary responsibility of developing proper training and flight checking standards and procedures for pilots. The FAA has thus insured a continuum of constant objectivity which otherwise may be lacking in this phase of pilot certification.

Apart from these prerequisites to pilot certification, the applicant must be certified as being medically sound. To this end the FAA has divided medical certification into various subclasses, each varying in degree dependent upon the nature of, and consistent with the requirements prescribed for determination of pilot categories as: (1) private, (2) commercial non-passenger, or (3) commercial passenger.

Generally, the medical certificate acknowledges the applicant's physical and mental condition to be such as would enable him to exercise safely the duties and privileges of the airman certificate. Specifically, the medical certificate is based upon an extensive examination of the applicant's external physical appearance and dexterity, his motor-stimuli response, and his nervous and cardiovascular systems internally. The applicant must also establish that he has had no medical history or clinical diagnosis of: (1) a character or behavioral disorder; (2) a psychotic disorder; 

68. 14 C.F.R. § 61.23(b) (1970). It should also be noted in this regard that the applicant or examiner may terminate the flight test at any time when the failure of an item which is required makes passing the test impossible. This lessens the harsh results which will ensue, for if the test is discontinued voluntarily, the applicant is entitled to credit for those entire phases of the test which he has passed.

69. Supra note 42.

70. Supra note 42.


72. 14 C.F.R. § 67 (1970). The medical certificate is divided into subclasses each varying in the particular qualifications attendant to the types of pilot certificate available.


(3) chronic alcoholism;\textsuperscript{75} (4) drug addiction;\textsuperscript{76} or (5) epilepsy.\textsuperscript{77} All the examinations given are geared, of course, to physical fitness in the light of possible human failure of proper control during flight.

Finally, should the physician find upon examining the applicant that he is not medically fit to pilot an aircraft, the applicant may still apply, within thirty days following the denial, to the Federal Air Surgeon for additional reconsideration.\textsuperscript{78} Also, if issued, the medical certificate is not of indefinite duration. For example, a first class medical certificate expires in sixteen months from the date it was issued for a commercial pilot and twenty-four months from the date it was issued for a private pilot.\textsuperscript{79}

With these preliminary requirements now completely discussed as to how generally a pilot is certified, the specific provisions for a private pilot certificate can be examined. Apart from an age requirement of seventeen years or older, an ability to read, write and speak English (or, in the event an applicant cannot, a restriction must be placed upon the operation of his aircraft as to make it safe), the holding of a medical certificate\textsuperscript{80} and the taking of the written examination, the regulations govern a prospective private pilot's individual preparedness. In this regard, the applicant must show that he has had at least forty hours of flight instruction and solo time; at least twenty hours of solo flight time of which at least fifteen were in an airplane; and at least ten hours of cross-country flight time.\textsuperscript{81} In addition to all of these requirements, the applicant must pass an intricately detailed test given in three phases—an oral operation test, a basic piloting technical test, and a cross-country flight test.\textsuperscript{82} Upon the completion of each of

\begin{itemize}
\item 78. 14 C.F.R. § 67.27(a) (1970). After the Federal Air Surgeon has made his determination upholding the denial of the medical certificate, his decision is considered as a denial by the Administrator of the FAA.
\item 82. 14 C.F.R. § 61.87(a) (1970). The oral operational test examines: (1) the
these various procedures to the satisfaction of the examiner, an individual can qualify for a private pilot certificate.

The commercial pilot certificate procedure parallels, but on a higher plane, that of the private pilot. All facets of certification, including those of aeronautic experience, skill and knowledge do, therefore, require a degree of proficiency commensurate with the additional degree of responsibility emburdened upon the commercial pilot. Thus the requirements are much more stringent in statement and application.

The FAA has promulgated one additional requirement applicable in various stages of both private and commercial pilot certification. This is the instrument rating. To qualify for an instrument rating, the applicant must pass an extensive written examination demonstrative of his knowledge of: (1) flight under zero visibility conditions; (2) radio navigation systems; (3) instrument landing systems; (4) radio communication procedures; and (5) meteorology. Finally, to be given this rating the applicant must have, at a minimum, forty hours of instrument time logged under actual or simulated conditions.

These, then, are the necessary and ancillary certification procedures for pilots. It must be remembered that the Administrator of the FAA may order any suspension, revocation or termination of the certificate upon investigation initiated at the complaint of any interested party or upon self investigation. To this end, a pilot, whose certificate has been revoked, may not apply for any pilot certificate or rating for one year after the date of the order. Therefore, the certificate rests firmly in its owner's hands, but only until, and when circumstances arise creating reasonable grounds for invoking a sanction upon the pilot's operation of his aircraft.

85. 14 C.F.R. § 61.35(c) (1970). In the complete instrument rating testing, the applicant must make two instrument approaches in accordance with air traffic control and this will include a transition from en route airways. During the flight at least one of the instrument approaches must be made at a place where the applicant has not previously made an instrument approach.
It can be seen from this entire discussion that the certification procedures for a pilot are directed towards the orderly and proficient production of aircraft commanders. The regulations are preventative measures intended to eliminate air safety accidents due to pilot error or physical inability. They are enforced so as to promote that degree of air safety necessary in the light of the ever-increasing growth of air traffic. Finally, their failings, if any, must rest in the insufficient support of private parties or airlines in adhering to interim post-certification but pre-renewal procedures, for the FAA is forced to act after the fact. Fortunately, this to date has not been the case.

THE APPEAL PROCEDURE TO THE NATIONAL TRANSPORTATION SAFETY BOARD

In the light of the preceding analysis of the procedures encompassing the certification of aircraft and pilots, one other aspect of administrative control must be examined to complete the general discussion of governmental regulation in this area. This remaining area involves the role of the NTSB as the court of appellate review when the Administrator of the FAA has issued an order amending, modifying, denying, suspending, or revoking an aircraft or pilot certificate. The rules of procedure for an appeal to the NTSB must be discussed to determine whether that governmental entity grounds its decisions on review upon those requirements, which of necessity must be met in an adjudicatory context.

The Federal Aviation Act provides that

[any person whose certificate is affected by ... an order of the Administrator ... may appeal the Administrator's order to the Board and the Board may, after notice and hearing, amend, modify, or reverse the Administrator's order if it finds that safety in air commerce or air transportation and the public interest do not require affirmation of the Administrator's order.]

To insure the proper implementation of this provision the Federal Aviation Act further provides that

[the Board and the Administrator, subject to the provisions of this Act and the Administrative Procedure Act, may conduct their proceedings in such manner as will be conducive to the proper dispatch of business and to the ends of justice.]

From within these two broad provisions is derived the nature of the appeals procedure to the NTSB.

88. 49 U.S.C.A. § 1481 (1963). For the text of the Administrative Procedure Act, see 5 U.S.C.A. §§ 551-59 (1963). This Act, in general, is applicable to any federal legislation embodying the creation of an administrative agency unless the statute so creating the agency specifically prescribes otherwise.
When the Administrator of the FAA has issued an order revoking, modifying, amending, denying, or suspending an aircraft or pilot certificate, an appeal by the individual holding or seeking said certificate may be filed with the NTSB within ten days after receipt of notice of the order. In form, the appeal identifies the Administrator's order and details those facts from which the order and appeal were necessitated.

After the appeal is filed, the NTSB assigns an examiner to the case. The examiner is empowered to give notice of, and hold a prehearing conference and a subsequent hearing. His duties, related to the hearing, are analogous to that of a trial judge.

Subsequent to the appointment of a trial examiner, the Administrator of the FAA must, within twenty days after the notice of the appeal, file a complaint alleging the grounds upon which the order in question should be upheld. The certificate holder has twenty days thereafter to file an answer. From the time wherein a complaint is filed to that when an answer is filed, either party may move to dismiss. If the motion is granted by the trial examiner in its entirety, the proceeding is terminated, but an additional appeal to the NTSB may yet be had. No appeal on a motion to dismiss as to one or more but not all of the issues may be granted, however, until the examiner has made his initial decision of the remaining issues at the conclusion of the hearing.

At the hearing itself, each party has the right to introduce oral or written evidence; to cross examine witnesses; to confrontation; and pur-

89. 14 C.F.R. § 421.21(a) (1970). This procedure differs in part with that of an appeal from the Administrator's decision denying an airman's certificate. See 14 C.F.R. §§ 421.15-421.20 (1970). They differ, however, only as to the number of days in which the appellant has to file his appeal and the Administrator has to file a complaint. In all other respects, the procedures are the same, and therefore, to detail both would result in a needless duplication of effort.

90. 14 C.F.R. § 421.21(b) (1970).

91. 14 C.F.R. § 421.29 (1970). The examiner has the power to "1) give notice concerning, and hold, prehearing conferences and hearings; 2) [t]o administer oaths and affirmations; 3) [t]o examine witnesses; 4) [t]o issue subpoenas and to take or cause depositions to be taken; 5) [t]o rule on offers of proof and receive evidence; 6) [t]o regulate the course of the hearings; 7) [t]o hold conferences, before or during the hearing, for the settlement or simplification of issues by consent of the parties; 8) [t]o dispose of procedural requests or similar matters; [and] 9) [t]o make initial decisions."


95. 14 C.F.R. § 421.27(b) (1970).

96. 14 C.F.R. § 421.27(b) (1970).
suant to the Administrative Procedure Act, to counsel.\textsuperscript{97} At the close of the hearing, either party may make oral argument.\textsuperscript{98} Thereafter, the examiner may render his initial decision. This determination by the trial examiner includes a statement of his findings and conclusions, as well as the reasons or basis therefore.\textsuperscript{99} The decision is rendered upon all material issues of fact, law, or discretion as expressed in the record.\textsuperscript{100}

From the initial decision of the trial examiner, the party adversely affected may, within twenty days, appeal to the NTSB.\textsuperscript{101} Upon filing a timely appeal, each party is entitled to written briefs, but the NTSB may refuse the parties the right to oral argument.\textsuperscript{102}

In considering whether to entertain the issues raised on appeal from the examiner's decision, the NTSB will determine as to whether: (a) a finding of material fact is erroneous; (b) a necessary legal conclusion is without governing precedent or is a departure from or contrary to law, Board rules, or precedent; (c) a substantial and important question of law, policy, or discretion is involved, or (d) a prejudicial procedural error has occurred.\textsuperscript{103} If the NTSB determines that the trial examiner has committed error in any one or more of these, it may reverse the findings or remand the cause for further proceedings. Finally, a party may petition the NTSB, after it has made its decision, for a rehearing if a showing of error or newly discovered material matter can be made.\textsuperscript{104}

These are the rules for pursuing an appeal before the NTSB. They readily fulfill the function of the Board as the court of review of the FAA's adverse decisions in various certification proceedings. They provide for the appellant an adequate forum for adjudicating his alleged claim, in

\textsuperscript{97} 5 U.S.C.A. § 555(b) (1963). The Act specifically provides that '[a] person compelled to appear in person before an agency or representative thereof is entitled to be accompanied, represented, and advised by counsel or, if permitted by the agency, by other qualified representative. A party is entitled to appear in person or by or with counsel or other duly qualified representative in an agency proceeding.'

\textsuperscript{98} 14 C.F.R. § 421.33 (1970). The regulations also acknowledge the fact that the parties must be given, prior to the time when the examiner renders his initial decision a reasonable opportunity to submit their proposed findings and conclusions.


\textsuperscript{100} 14 C.F.R. § 421.40(b) (1970).

\textsuperscript{101} 14 C.F.R. § 421.46(a) (1970). Though this regulatory provision relates to the time within which an appeal must be perfected, the appellant must also serve, within ten days after the initial decision of the trial examiner, notice upon the NTSB and the other parties of his appeal.

\textsuperscript{102} 14 C.F.R. § 421.46(a)(c) (1970).

\textsuperscript{103} 14 C.F.R. § 421.47 (1970).

\textsuperscript{104} 14 C.F.R. § 421.28(a) (1970).
that the ultimate determination of the issues raised is made in an adversary setting. To be sure, they are not unique in design; however, they do complement the requisite safety motive underlying the whole structure of air flight regulations. Also, if in the event that an individual who has been denied relief by the NTSB seeks an additional assertion of his complaint, he may subsequently appeal his case to the federal courts,\textsuperscript{105} thus insuring himself full opportunity to obtain redress.

**CONCLUSION**

From this entire discussion of the specific certification and appeals procedures utilized by the FAA and the NTSB what conclusions or projections can be drawn? Do the procedures promote the interests of pre- and in-flight safety for which they were designed? Are they comprehensive in their scope so as to preclude the possibility of any air crash disaster? What are their limitations?

It is the author's opinion that the certification procedures entail the finest dramatization of governmental agency planning and execution that can be found today. They provide a uniform system of judging the qualifications of man and machine for the performance of a most vital job. These procedures enable the FAA to determine, at first hand, the object of their purpose. Also in their execution lies a self-perpetuating progression of continuous improvement. Thus, when the aircraft and airline industries seek certification of a new product or aircraft, the FAA must keep abreast of its future ramifications and adequately adjust its procedures to provide for the all too often unforeseen occurrence. Likewise, the physical and mental acumen required of the pilot must be changed in a like degree to the developments attendant to the tools with which he works.

These factors become even more important when cast within the light of the fact that the FAA has forecast a doubling, tripling, and even quadrupling of the major indicators of aviation activity in the United States by 1979.\textsuperscript{106} Airline passengers will, therefore, more than triple from 128 million in 1967 to 444 million in 1979; the airlines' fleet will increase from 2,403 to 3,860 in the same expanse of time; and the general aviation fleet will almost double from 107,000 to 203,000.\textsuperscript{107} These statistics indirectly reveal just how well certification procedures really work, for while the projections for future air flight are becoming increasingly greater in number, the air flight accident ratio is most definitely on the wane. For example,

\begin{itemize}
  \item \textsuperscript{105} 49 U.S.C.A. § 1486(a) (1963).
  \item \textsuperscript{106} Kemp, *FAA, Air Safety Program*, 34 J. of Air L. & Com. 363 (1968).
  \item \textsuperscript{107} Id.
\end{itemize}
one recent study showed that the total fatalities in aviation accidents were on the order of 2,100 people per year which represents less than 2 per cent of the total accidental deaths experienced in the entire United States for the same yearly period.\textsuperscript{108}

It is, of course, the certification procedures of the FAA which must lie at the very basis of the generally bright picture in air safety projections. Alone, however, these procedures could not be implemented, for they of necessity need the active co-operation of the aircraft and airlines industries, as well as that of the private owner. Private assistance in this entire area, more than any other, must be and has, up until now, been readily given. This fact must, therefore, be given a good deal of the praise for the measure of success which has been achieved in air safety regulation. It may be said that this marriage of private and governmental interests is born of economic necessity—its prosperous past and present—but this, true as it may be, does not detract from the fine example here present of working not merely within the law, but with and for the law.

Finally, if past experience can afford the basis for prophetic hypothesis, the FAA will meet the demands of tomorrow. It will, therefore, leave open the areas of research and development to accommodate the almost certain growth in air travel and its attendant safety requirements.

Turning to the NTSB, its functions are necessarily stabilized by administrative and constitutional convention. As the court of appeals in the administrative process its procedure adequately preserves an adversary aura which is never to be denied when injury is suffered. Its failings, if any, can be analyzed only within the context of the adjudicatory process established throughout the United States. If one can say that this process does not seek equality through justice, then the NTSB must fall beneath the trodden past of the system under which it was created. As an administrative organization serving a judicial function, however, it does fulfill its role.

\textit{Daniel E. Wanat}