



COMPTROLLER GENERAL OF THE UNITED STATES  
WASHINGTON, D.C. 20548

B-164497(1)



To the President of the Senate and the  
Speaker of the House of Representatives

All civilian airmen must periodically be assessed as medically fit to fly by the Department of Transportation's Federal Aviation Administration. This report discusses how the agency makes that assessment and suggests ways to improve the detection of medically unfit airmen.

We made our review pursuant to the Budget and Accounting Act of 1921 (31 U.S.C. 53), and the Accounting and Auditing Act of 1950 (31 U.S.C. 67).

Copies of this report are being sent to the Director, Office of Management and Budget, and the Secretary of Transportation.

A handwritten signature in black ink, appearing to read "James R. Stacks".

Comptroller General  
of the United States

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ABBREVIATIONS

ECG	electrocardiogram
FAA	Federal Aviation Administration
GAO	General Accounting Office
ICAO	International Civil Aviation Organization
NDR	National Driver Register
NHTSA	National Highway Traffic Safety Administration

COMPTROLLER GENERAL'S  
REPORT TO THE CONGRESS

THE FEDERAL AVIATION ADMINISTRATION  
SHOULD DO MORE TO DETECT CIVILIAN  
PILOTS HAVING MEDICAL PROBLEMS  
Department of Transportation

D I G E S T

The Federal Aviation Administration is required to prescribe medical standards for airmen to promote flight safety in the United States. To obtain a pilot's license, a man or woman must pass a test demonstrating his or her aeronautical knowledge and skill, and pass a medical evaluation which is also given periodically thereafter.

This medical examination consists primarily of a vision and hearing test; blood pressure and pulse readings; urinalysis, identifying kidney disease and diabetes; and, for air transport pilots over 35, an electrocardiogram. The Federal Aviation Administration concedes that the required examination does not identify *all* disqualifying diseases and conditions; thus, some airmen continue to fly who are medically unfit. (See p.25 .)

Nineteen of 28 scheduled American passenger airlines require medical examinations which exceed Federal requirements. These airlines carry about 85 percent of all airline passengers annually. Generally they require additional examinations as part of pilot health maintenance programs. The remaining nine airlines rely on the Federal medical certification; a system they consider adequate. (See p.15.)

The safety of more than 200 million aircraft passengers each year depends largely on the medical fitness of the pilot and crew. Cockpit crew members who are medically unfit run a high risk of incapacitation during flight. This increases the probability of accidents, injury, or death of others as the following examples show.

*Eighty-three passengers were killed when a pilot-in-command of a commercially chartered aircraft suffered a heart attack while attempting to land. Although the pilot had passed the highest federally required medical examination successfully 2 months before the accident, an investigation disclosed he had a history of coronary heart disease and diabetes--both disqualifying conditions.*

*Another pilot, complaining of severe chest pains, had seen a private physician. On the basis of two electrocardiograms he was diagnosed as having a coronary problem. An electrocardiogram was not required by the Government, the pilot did not admit his condition, and he passed the federally required medical examination successfully. Later the pilot died of a heart attack during a pleasure flight.*

These cases of aircraft accidents attributed to pilot medical problems are not isolated. From 1965 to 1975 there were 600 accidents due to pilot death or incapacitation from physiological or psychological factors. Twenty-one of these pilots had passed the highest federally required medical examination. During the same period, 44 cases of pilot or copilot inflight incapacitations were reported. Of the pilots involved, 24 had the highest federally required medical certification. Probably these statistics are not complete because pilot incapacitation before a fatal crash is difficult to determine without witnesses.

Additional screening techniques possibly could have detected the pilot impairment contributing to 28 percent of the accidents resulting from medical factors, excluding alcohol, during 1972-74. Despite various medical studies urging more extensive medical screening, the Federal Aviation Administration has adopted few of these recommendations. In contrast, more extensive medical screening is required for air traffic controllers, military pilots, and by many airlines in examining their pilots. (See p. 8.)

*The Federal Aviation Administration should evaluate the recommendations of the various medical studies. Specifically it should*

- require resting electrocardiograms of all pilots periodically;*
- consider blood cholesterol levels and cigarette smoking in evaluating pilots; and*
- reevaluate needs for chest X-rays and exercise electrocardiograms, especially for air transport pilots.*

The International Civil Aviation Organization--a United Nations organization--has published medical standards for airmen which exceed those of the Federal Aviation Administration. Despite U.S. policy to comply with these standards, not all have been adopted because of opposition from the U.S. aviation community and medical interests. (See p. 18.)

The United States is the only member of the International Civil Aviation Organization to express considerable disagreement with its medical requirements. (See p. 22.)

*The Federal Aviation Administration should conform to international medical standards as closely as possible. (See p. 23.)*

Other sources of available information could help to identify pilots who are medically unfit. GAO estimates from a statistically drawn sample of 926,000 active airmen that about 23,000 airmen have had their motor

vehicle driver's license withdrawn or denied for various reasons, including driving while intoxicated and medical disabilities. Yet all these airmen have valid medical certificates from the Federal Aviation Administration.

Information from motor vehicle departments' records could reduce the number of medically unfit pilots. However, the Federal Aviation Administration often does not obtain this information because of legislative restrictions. (See p. 27.)

*To improve the identification of medically unfit airmen, GAO recommends that the Congress provide the Secretary of Transportation authority to furnish the Federal Aviation Administration, motor vehicle driver data, which the Department maintains, with respect to an individual applicant for an airmen medical certificate.*

Federal aviation regulations prohibit airlines from using airmen they know do not meet Federal medical requirements. Although the Federal Aviation Administration has generally not enforced this regulation, GAO could not determine the extent to which airlines may use airmen they know do not meet Federal requirements. The Federal Aviation Administration says it intends to require airlines to comply. (See p. 30.)

*When airlines know their pilots and other airmen do not meet Federal medical standards, the Federal Aviation Administration should enforce existing regulations requiring the airlines to remove such airmen.*

#### AGENCY COMMENTS AND OUR EVALUATION

The Department of Transportation agreed to reconsider recommendations of various medical studies discussed in this report. If its subsequent evaluation shows that safety can be improved by more extensive medical screening, the Department will start action. The Department said that it would also review the merits of adopting international medical requirements.

The Department concurred with GAO's legislative recommendation. It agrees to require that airlines comply in removing airmen they know do not meet Federal requirements. (See p. 34.)

## CHAPTER 1

### INTRODUCTION

The safety of more than 200 million aircraft passengers each year depends largely on the medical fitness of the pilot and crew. Medically unfit cockpit crew members run a higher risk of inflight incapacitation thus increasing the probability of accidents, injuries, and deaths. For example, 83 passengers were killed in 1966 when the pilot-in-command of a commercial aircraft, chartered by the military to transport personnel, suffered a heart attack while attempting to land. A later investigation disclosed that although the pilot had a history of coronary heart disease and diabetes--both disqualifying conditions for a pilot license under the Department of Transportation's Federal Aviation Administration (FAA) regulations--he had passed FAA's highest medical examination 2 months before the accident.

From 1965 to 1975 there were 600 accidents due to pilot inflight death or incapacitation from physiological or psychological factors. (See app. II.) Twenty-one of the pilots involved in these accidents had FAA's highest medical certification. During the same period, 44 incidents of pilot or copilot incapacitations were reported. Of these pilots, 24 had FAA's highest medical certification. However, these statistics may be incomplete because pilot incapacitation before a fatal crash is difficult to determine without witnesses. Although all nonfatal incapacitations must be reported; such reports are not always made.

### AIRMEN MEDICAL REQUIREMENTS

Under the Federal Aviation Act of 1958 (49 U.S.C. 1421), FAA is responsible for promoting flight safety by prescribing minimum safety standards for airmen--pilots, flight engineers, flight navigators, and air traffic controller tower operators. Airmen must pass a medical evaluation and a test of aeronautical knowledge and skill. This report discusses FAA's airman medical evaluation; one of our previous reports, "Improved Controls Needed Over Private Pilot Licensing" (RED-76-65, Feb. 26, 1976), discussed FAA's evaluation of private pilot's aeronautical knowledge and skill.

FAA has established three classes of airman certificates, each with a different medical standard, based on the level of airman responsibility. (See app. III.) Listed below is the minimum class of medical certificate that is required to exercise a particular aviation activity.

<u>Activity</u>	<u>Minimum required medical certificate</u>
Airline transport pilot	Class I
Air traffic controller tower operator	Class II
Commercial lighter-than-air pilot	Class II
Commercial pilot	Class II
Flight engineer	Class II
Flight navigator	Class II
Private lighter-than-air pilot	Class III
Private pilot	Class III
Student lighter-than-air pilot	Class III
Student pilot	Class III

#### Periodic examinations

FAA's medical certification standards and examinations are designed to determine an airman's medical fitness only for the period during which an issued certificate is valid--6 months for class I, 1 year for class II, and 2 years for class III.

Compliance with FAA medical requirements is determined by the physician whose general examination focuses on an inspection of the airman's eyes, ears, nose, and throat and a check for abnormal heart rhythms. In addition, the physician must conduct

- various vision tests,
- a hearing test,
- blood pressure and pulse readings,
- a urinalysis which identifies kidney disease and diabetes,
- a resting electrocardiogram (ECG) for class I airmen during the first examination after age 35 and annually after age 40,
- a review of pertinent medical history, and
- any other tests the physician deems necessary.

Appendix IV contains a copy of the FAA required medical certification form.



An ECG is used to evaluate the status of the cardiovascular system, including the existence of disease. There are two basic types of ECGs--those taken at rest and those taken after exercise. Exercise ECGs can be further classified into two popular types--standard double Master's and treadmill.

Double Master's ECGs consist of a 3-minute walk over two sets of 9-inch high steps. The total number of trips made over these steps is based on the patient's sex, age, height, and weight. Before the test a resting ECG is taken. The test is not ECG-monitored, but ECGs are taken on completion of the exercise and 2, 4, 6, 8, and 10 minutes thereafter.

In treadmill ECGs a patient walks on a treadmill for a designated period at different speeds and grades. The patient is ECG monitored during the entire test. The test is usually terminated when the patient attains about 90 percent of his predicted maximal heart rate or at the onset of chest pain.

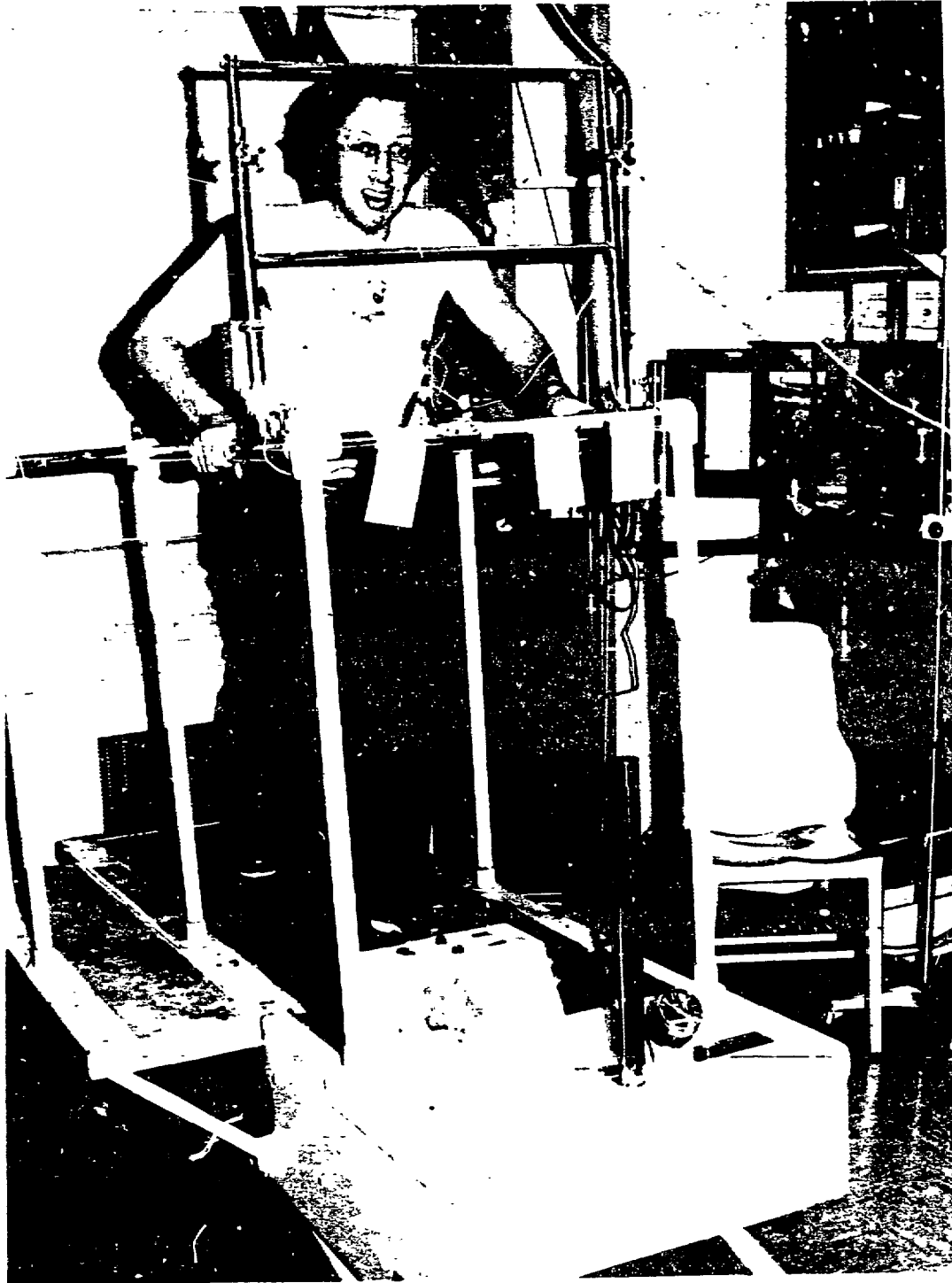
#### Medical standards

FAA's policy is to prescribe minimal medical standards, thus enabling the examining physician to evaluate each airman's condition in relation to basic criteria and the airman's ability to perform required duties. FAA's stated policy is that an airman is entitled to certification if he can demonstrate ability to fly safely despite a physical defect. This policy applies mostly to those fixed or static defects, such as visual deficiencies and amputations, which can be demonstrably compensated for in noncommercial flying. Under this policy medical certificates may be issued for certain static defects.

However, the Federal Aviation Regulations specify that a medical certificate will mandatorily be denied if an applicant has a medical history or clinical diagnosis of any of the following nine conditions.

- Character or behavior disorder severe enough to repeatedly manifested itself in overt acts.
- Psychotic disorder.
- Alcoholism.
- Drug dependency.
- Epilepsy.





TREADMILL ECG

--Disturbance of consciousness without satisfactory explanation of the cause.

--Myocardial infarction (heart attack).

--Angina pectoris (chest pain occurring on exertion, often preceding or following a heart attack) or other evidence of coronary disease.

--Diabetes requiring medication.

#### AVIATION MEDICAL EXAMINERS

An important element of FAA's medical certification program is the periodic medical examination and issuance of medical certificates to airmen by selected private practicing physicians. FAA has designated approximately 7,000 physicians as aviation medical examiners, about 2,900 of whom are senior examiners. All examiners can issue class II and III certificates, but only senior examiners can issue class I medical certificates. In addition, FAA has authorized class II and III medical certificates to be issued at 500 military facilities. Aviation medical examiners annually examine over 500,000 airmen. The airman pays for the examination.

After completing the medical examination, the examiner is authorized to

--issue the medical certificate,

--deny the medical certificate, or

--defer the issuance decision to FAA.

#### SCOPE OF REVIEW

In reviewing the effectiveness of FAA's aviation medical program we evaluated the medical standards, examination procedures, and program management.

We contacted aviation medical examiners, medical and aviation organizations, and private air carriers. We compared FAA's medical requirements with those established for military pilots in the Army, Air Force, and Navy, as well as those established by the International Civil Aviation Organization (ICAO), a United Nations organization composed of 132 nations. ICAO issues standards and recommends practices for international air navigation and related activities.

FAA's pilot medical requirements were also compared to those established for air traffic controllers--air route traffic control and tower operators. Controllers, like pilots, work in an environment of fast-developing traffic information from aircraft, radar receivers, other traffic control centers, and weather stations. Controllers must make rapid decisions and provide incisive instructions to pilots to insure aviation safety. Both FAA and the Civil Service Commission prescribe medical standards for controllers. FAA requires air traffic control tower operators to annually meet FAA class II medical standards. The Civil Service Commission program provides additional medical requirements for all controllers.

We obtained information from the National Driver Register (NDR), maintained by the National Highway Traffic Safety Administration (NHTSA), Department of Transportation. We interviewed FAA officials and reviewed records at FAA's Eastern and Central regional offices in New York City, New York, and Kansas City, Missouri; FAA's Aeronautical Center in Oklahoma City, Oklahoma; and FAA's Washington headquarters.

## CHAPTER 2

### MEDICAL STANDARDS INADEQUATE

FAA requires pilots and other licensed airmen to meet minimum physical standards, but examination procedures do not readily identify all disqualifying diseases and conditions. Additional screening techniques may decrease the number of inflight pilot incapacitations and deaths by identifying cardiovascular problems and some blood and lung diseases. Since 1958, studies have recommended using more extensive screening techniques, but FAA has not adopted most of these recommendations because of opposition from the aviation community. Currently, FAA is studying the need for more extensive medical screening.

In addition to the FAA examination, many airlines conduct their own medical evaluation of airmen which often exceeds FAA's minimum medical requirements.

### ADDITIONAL SCREENING

During 1972-74 the National Transportation Safety Board, which is responsible for investigating accidents, attributed 68 accidents to pilot impairment due to medical factors, excluding alcohol. The majority of these factors such as fatigue, suicide, and air sickness, could not readily have been detected by a more extensive medical examination. However, it is possible the medical factors contributing to 19 accidents (28 percent) and 32 deaths could have been detected with a more thorough medical examination.

According to an FAA medical official, medical factors in these 19 cases may have been detected through the use of resting and exercise (treadmill) electrocardiograms (18 cases) and chest X-rays (1 case). Of these tests only the resting ECG is required of class I pilots and then only during the first examination after age 35 and annually after age 40. ECGs are not required for class II and III pilots. Of the 18 medical problems which may have been detected with an ECG, all involved class II and III pilots.

A standard resting ECG appears to detect an existing heart abnormality about 50 percent of the time. Subjecting a person to stress by exercise increases the positive findings considerably--a standard double Master's ECG detects an existing abnormality about 75 percent of the time, and a treadmill ECG detects an existing abnormality about 90-95 percent of the time. Below are several examples of accidents in which additional screening techniques may have detected the medical factors which contributed to the accident.

--A 51-year-old class III pilot suffered a heart attack in flight, resulting in his and one passenger's death. Another passenger was severely injured. The autopsy report revealed that the pilot had evidence of arteriosclerosis and a previous heart attack. As people age cholesterol tends to be deposited on walls of the blood vessels contributing to the process of arteriosclerosis--thickening of the arteries. Some individuals inherit a tendency to deposit cholesterol at a more rapid rate than normal. These individuals may develop coronary heart disease, thus increasing the risk of heart attack. In this case the pilot had a 95-percent occlusion (closing) of the arteries due to arteriosclerosis. Because he possessed a class III medical certificate, no ECGs were required. According to an FAA medical official, a resting ECG might have identified the pilot's condition, but an exercise ECG would have had a greater probability of doing so.

--Another accident was probably caused by a pilot heart attack. The 56-year-old pilot had a class II medical examination 87 days before the accident. An ECG was not taken because it is not required for class II certificates. The autopsy report indicated severe arteriosclerosis of the coronary artery. Again, a resting ECG may have identified this condition, but an exercise ECG would have increased the likelihood of identification.

--In another accident a pilot became incapacitated because of lung and brain cancer, a condition which, if known would have resulted in the denial of the pilot's medical certificate. According to an FAA official, a routine chest X-ray may have detected the lung condition.

#### CARDIOVASCULAR TESTING

The average American man has one chance in three of having some major incapacitating cardiovascular problem, and one chance in five of having a heart attack before the age of 60. For persons aged 35 to 64 (the age span of active flying personnel), nearly one death in three is attributed to cardiovascular disease. During 1972-74 the average age of the 18 pilots incapacitated by heart attack--which might have been detected by a routine ECG--was 52. Of special interest to the air transportation industry is that more than half of

all coronary deaths are sudden, and 65 percent of these are unheralded. Sudden death is the first presenting symptom in one of every five coronary attacks.

#### Eighth Bethesda Conference

According to the October 1975 Eighth Bethesda Conference of the American College of Cardiology report, "Cardiovascular Problems Associated with Aviation Safety," periodic resting and exercise ECGs are the only practical noninvasive methods currently available for detecting silent coronary disease. The report, funded by FAA, is the result of a study ending with a 2-day conference attended by more than 70 cardiologists and other medical and aviation experts.

Coronary heart disease, even in its most serious form, can go undetected in persons who are not evaluated periodically. The report emphasizes the need for preventive strategy. Because of the rapid increase in the manifestations of coronary heart disease after the age of 45, the Eighth Bethesda Conference report recommended that FAA require:

--A standardized resting ECG from all classes of pilots before medical certification or after a certification lapse of 5 years.

--A resting ECG from all pilots upgrading their class status, such as from class III to class II.

--A resting ECG from all pilots during the first examination after and within 12 months of reaching age 35 and again after age 40; thereafter, a resting ECG from class I and II pilots annually and biennially from class III pilots.

--An exercise (treadmill) ECG from all pilot classes before certification as well as at ages 40 and 45 and biennially thereafter.

ECGs before medical certification are an important aid in detecting coronary heart diseases. These initial ECGs form a baseline against which later ECGs may be compared to identify changes and possible disease conditions. It is accepted medical practice to place more credence in changes detected by comparing later ECGs than in identifying an abnormality on a single ECG. FAA, however, does not require ECGs before the initial medical certification.



An FAA official explained that there are two basic problems with the exercise treadmill ECG. First, a shortage of facilities to do the required number of examinations exists. Second, because the treadmill method is relatively new, adequate data is not available concerning its reliability and effectiveness. FAA, however, is studying these and other practical considerations to determine whether the Eighth Bethesda Conference recommendations can be applied to the medical certification program. As of May 1976 FAA had not decided whether to implement these recommendations.

#### First Bethesda Conference

An earlier study sponsored by the American College of Cardiology--The First Bethesda Conference--also reviewed the medical standards for airmen. In its 1965 report, "Standards of Physical Fitness of Aircrew," the conference recommended that FAA require:

- Routine resting ECGs for all aircrew before initial medical certification, at age 35, and annually from age 40.
- An exercise (double Master's) ECG of class I and III pilots at age 40 and annually thereafter.

In 1969 FAA recognized the need for early identification of cardiovascular disease in airmen and published a notice of proposed rulemaking to require

- a resting ECG of all class I pilots when initially certified and
- an exercise (double Master's) of all class I pilots at age 35, 40, 45, and 50 and annually thereafter.

FAA received numerous comments on the proposal. The comments reflected some support and considerable opposition, particularly concerning the double Master's ECG requirement. Some of the comments received concerned the following:

- Denying certification to an individual based on ECG findings, without benefit of historical and clinical judgment, would not be sound medical procedure. FAA stated, however, that denials would not be issued in this manner. FAA recognized that the ECG can only supplement a thorough medical history and a physical examination. Thus, FAA considered the ECG to be a diagnostic aid, and if any abnormalities were found,

a further complete cardiovascular evaluation in which all historical information and clinical findings would be considered in making a certification determination.

--Double Master's ECG is unreliable, with many false-positive and false-negative results. FAA stated, however, that the science of electrocardiography had progressed to the point where false-positive and false-negative readings had been reduced to a tolerable minimum.

--No heart examination, with the possible exception of cineangiocardiology (the X-ray of the heart after injecting a material not transparent to X-rays), could offer any factor of predictability of an incapacitating incident for a particular individual. FAA concluded that this objection was groundless, stating that prediction of incapacitation was based on statistical probability and on the known natural course of a disease as revealed by all available medical findings.

After further study, in the light of comments received, FAA withdrew the notice. It concluded that the cardiovascular standards proposed were very complex and the exercise ECG too controversial to be adopted.

#### 1958 Flight Safety Foundation Study

In addition to the two Bethesda Conference reports, FAA was urged to increase its ECG requirements as early as 1958. FAA's predecessor, the Civil Aeronautics Board, <sup>1/</sup> contracted with the Flight Safety Foundation, Inc., a nonprofit organization, to evaluate the airmen medical standards and their administration. The study's recommendations included requiring a resting ECG at the original issuance of class I certificates and at time of original issuance, at age 40, and annually thereafter for class II medical certificates. Although FAA did not implement these recommendations, various other Flight Safety Foundation's recommendations helped formulate current medical requirements, such as ECGs for class I airmen during the first examination after age 35 and annually after age 40, recognition of the nine mandatory disqualifying diseases (see p. 3), and the need to have all airmen examined by an FAA designated physician rather than by any physician.

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<sup>1/</sup>The responsibilities of the Civil Aeronautics Board under the Civil Aeronautics Act of 1938 were transferred to FAA in 1958.

## BLOOD CHEMISTRY TESTING

Blood chemistry tests use chemical or biological substances to examine blood specimens for the presence or absence of a disease or condition. FAA does not routinely require blood chemistry tests because it considers such tests invasive; that is, they would involve penetrating the body. However, FAA officials said that if the medical history or physical examination indicated a need for various blood chemistry tests, such testing would be done.

Unlike pilots and other cockpit crew, air traffic controllers annually take several blood chemistry tests as part of a preventive medicine program. These tests help identify controllers with disruptive diseases producing various effects, such as altered judgment, impaired memory, and blurred vision. The blood chemistry tests routinely required and the diseases they help diagnose are:

- Blood sugar (glucose): diabetes.
- Uric acid: gout, a chronic metabolism disorder.
- Cholesterol: cardiovascular disease.
- Urea nitrogen: kidney disease.

The military standards reviewed--Army, Navy, and Air Force--require blood chemistry tests for such things as blood types, syphilis, anemia, and sickle-cell anemia. Anemia, which is a reduction in the volume of red blood cells--the oxygen carrying component of blood--is a disqualifying medical condition. At flight altitudes oxygen is reduced, anemia increases the oxygen loss to the airman, thus causing dizziness and incapacitation. Sickle-cell anemia is a genetically transmitted condition, occurring mostly in blacks, in which red blood cells are rapidly destroyed. Sudden intensification of the disease can occur at flight altitude, leaving the individual incapacitated. Most of these tests are required during initial military airman certification, and all three services perform the anemia test annually. In 1958 the Flight Safety Foundation recommended that anemia tests be required in all FAA examinations.

### Eighth Bethesda Conference

The 1975 Eighth Bethesda Conference report indicated the need for various blood chemistry tests. The report states that in the absence of any clinical or laboratory evidence of cardiovascular disease, blood pressure is the

best predictor of cardiovascular events that might cause unexpected disability or death. Blood pressure readings combined with blood cholesterol and glucose levels and a history of cigarette smoking help identify pilots with a high risk of unexpected disability or death from cardiovascular disease.

A 45-year-old male who smokes one pack of cigarettes a day has 2.8 times the risk of sudden death as a nonsmoker irrespective of any other risk factors. The risk that overt coronary heart disease will develop in a 45-year-old male pilot who has the maximum blood pressure permitted by FAA regulations, a high serum cholesterol level, and smokes cigarettes is 8 times greater than for a 45-year-old male nonsmoker with a lower systolic blood pressure and serum cholesterol concentration. A 55-year-old cigarette smoking male pilot with the maximum systolic blood pressure permitted by FAA and a high serum cholesterol level has a more than one-in-five chance that some manifestation of coronary disease will develop within 6 years. Diabetes further increases the risk to a one-in-four chance.

The Eighth Bethesda Conference report concludes that risks of this general order are excessive. The report therefore recommends that serum cholesterol, glucose concentrations, and cigarette smoking be included in the equation with blood pressure in determining health criteria for flying status.

#### PULMONARY TESTING

Diseases, such as emphysema and tuberculosis, can affect performance at flight altitude. When a pilot inhales air at high altitudes, there is not enough pressure to force adequate amounts of oxygen through the membranes of the lungs into the blood stream so that it can be carried to the body tissues. The function of various organs, including the brain, is then impaired. Pulmonary diseases which further reduce oxygen intake increase this impairment.

An important aid in diagnosing pulmonary diseases are periodic chest X-rays. FAA does not require tests that would detect the existence of decreased pulmonary function or disease in pilots. However, FAA requires air traffic controllers to have an annual chest X-ray. The three military services also require annual chest X-rays of their airmen.

The 1965 First Bethesda Conference and the 1958 Flight Safety Foundation Study both recommended chest X-rays be required at the original issuance of any medical certificate. The First Bethesda Conference also recommended X-rays at age 35 and annually after age 40.

## AIRLINE MEDICAL PROGRAMS

Of the 28 U.S. scheduled passenger airlines, 1/ 19 require medical examinations of their flight crews that exceed those required by FAA. These airlines carry about 85 percent of all airline passengers. Ten of these airlines require entrance and retention examinations using, in most instances, standards and procedures more stringent than those FAA uses. The various examinations include such things as audiometric hearing tests, resting and exercise ECGs, chest X-rays, blood chemistry tests, and psychological testing. The nine other airlines conduct entrance but not retention examinations. These 19 airlines generally require these additional procedures to extend the working life of their pilots as well as to assure air safety.

The remaining nine airlines do not require entrance or retention examinations but rely solely on the FAA medical certification system, which they generally believe is adequate. These airlines annually transport about 15 percent of all airline passengers.

In 1971 FAA proposed a regulation which would have shifted responsibility for conducting airmen physical examinations to the airlines. The proposal would have required an airline physician to perform the FAA certification examination periodically as well as after a flight crew member is absent from flight duty for 20 or more consecutive days because of illness or injury. An examination would also have been required if the airline knew that a flight crew member had a physical deficiency or an increase in a physical deficiency making him unable to meet physical requirements.

This proposal was an effort by FAA to use the airlines' medical capabilities. Current FAA policy, however, prohibits airline physicians from certifying their company's flight crew. The proposal aroused considerable opposition from the airlines and the pilots. Comments indicated that under the proposal airlines would experience a conflict of interest and that the goodwill necessary for the preventive medicine programs currently conducted by the airlines would be destroyed. In 1974 FAA withdrew the proposal.

According to an FAA medical official, the 10 airlines that give preemployment and periodic examinations increase the probability of identifying medical problems. By identifying health problems earlier, airlines may have helped decrease incidents of in-flight pilot incapacitation.

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1/Excludes helicopter and intrastate airlines.

## CONCLUSIONS

Additional screening techniques--resting and exercise ECGs and chest X-rays--may have detected pilot impairment due to medical factors, excluding alcohol, contributing to 28 percent of the accidents during 1972-74. Despite the urging of various medical studies that FAA require more extensive medical screening, FAA has not adopted most of these measures for pilots. However, more extensive screening is required of air traffic controllers than of air transport pilots (class I). This disparity does not seem to be adequately justified.

## RECOMMENDATIONS


To reduce accidents, injuries, and deaths from pilot incapacitations, we recommend that the Secretary of Transportation require the Administrator, FAA, to reevaluate the need to implement the recommendations of the various medical studies discussed in this chapter. FAA should at least require:

- A standardized resting ECG from all classes of pilots before medical certification or after a certification lapse of 5 years.
- A resting ECG from all pilots upgrading their class status, such as from class III to II.
- A resting ECG from all pilots during the first examination after and within 12 months of reaching age 35 and again after age 40; thereafter, a resting ECG from class I and II pilots annually and biennially for class III pilots.
- Consideration of cholesterol concentrations and cigarette smoking when medically evaluating pilots.

In addition, FAA should reevaluate the need to require chest X-rays; additional blood chemistry tests for blood sugar, uric acid, urea nitrogen levels, and anemia; and some type of exercise ECG, particularly for air transport pilots (Class I).

## AGENCY COMMENTS

The Department of Transportation said (see app. I) it would reevaluate the need to implement the recommendations of the various medical studies discussed in our report and was currently studying the recommendations contained in the Eighth Bethesda Conference report.



The Department said it also plans to conduct an evaluation of the medical factors contributing to accidents which we believe possibly could have been detected with a more thorough examination. If its evaluation shows that safety can be enhanced by more extensive medical screening requirements, the Department said it would initiate the proper action.

### CHAPTER 3

#### NEED TO COMPLY WITH

#### INTERNATIONAL STANDARDS

The Federal Aviation Administration's airmen medical requirements are less stringent than those the International Civil Aviation Organization established. Despite U.S. policy to comply with international standards as much as possible, FAA has not adopted all the more stringent ICAO medical requirements because of opposition from the aviation community, including medical interests. Some examination procedures and standards established for military pilots are also more stringent than those of FAA.

#### COMPARISON OF MEDICAL REQUIREMENTS

Pursuant to article 37 of the Convention on International Civil Aviation, the United States agreed to collaborate in securing the highest practical degree of uniformity in regulations, standards, procedures, and organizations concerning aircraft, personnel, airways, and auxiliary service matters in which uniformity would facilitate and improve air navigation. When it is impractical to comply in all respects with any standard, member nations are obligated to immediately notify ICAO of the differences.

A comparison of FAA and ICAO medical requirements shows that in many cases the ICAO requirements are more stringent. Though FAA has made several efforts to strengthen its airmen medical requirements, each proposed change was withdrawn because of strong opposition from the aviation community (whose comments are summarized on pp. 11 and 15).

#### Hearing requirements

ICAO requires class I and II airmen be tested on an audiometer (a standardized electronic device which provides quantitative measurement of hearing) at first issuance of a medical certificate. The testing should occur not less than once every 5 years up to age 40, and thereafter not less than every 3 years. ICAO class III airmen are biennially tested for ability to hear an average conversational voice at a distance of 6 feet.



FAA requires all airmen to pass a hearing test using a whispered-voice criterion. Air transport pilots (class I) are required to be able to hear the examiner's whispered voice at a distance of 20 feet, class II and class III at 8 and 3 feet, respectively. FAA research indicates that the whispered-voice test is sometimes unreliable and varies according to each physician's idea of a whispered voice. Unlike the whispered-voice test, hearing loss can accurately be measured with an audiometer.

FAA requires air traffic controllers to pass a hearing test using the audiometer. In justifying this requirement, FAA stated that controllers must be able to hear with each ear, both with and without the use of headphones, voice communication from pilots or other controllers. According to FAA officials, "inability to hear correctly while working in an environment with electrical interference or background noise could be very dangerous for the flying public." Because pilots also operate in this environment, we believe there is as great a need to insure that pilots can properly hear controller communications as there is for controllers to adequately hear pilots. The military services required audiometric testing of all pilots at each examination.

Although FAA does not routinely require audiometric tests for any certificate, it requires all senior aviation medical examiners to have an audiometer. FAA officials stated that these physicians are required to measure audiometrically the hearing loss for those class I airmen who fail the whispered-voice test. Because the whispered-voice criterion is difficult to quantify and because audiometers are already available to senior examiners, we believe that such testing could readily be instituted for class I airmen.

#### Cardiovascular requirements

ICAO requires resting ECGs for air transport and commercial pilots (class I and II) before first issuance of a certificate, no less than every 2 years for airmen between the ages of 30 and 40 and annually thereafter. For private pilots (class III), ICAO recommends that member nations require resting ECGs before first issuance of a medical certificate, at the first reexamination after the age of 40, and once every 5 years thereafter.

The military services reviewed required a resting ECG on initial medical certification of the airman and periodically thereafter.

--Air Force: Resting ECG initially, at age 35, and annually thereafter.

--Army: Resting ECG initially, biennially until age 35, and annually thereafter.

--Navy: Resting ECG initially; at ages 27, 30, 33, and 35; and annually thereafter.

As discussed on page 2 , FAA requires resting ECGs of class I pilots during the first examination after age 35 and annually after age 40. However, FAA requires a resting and exercise ECG of air traffic controllers before appointment and a resting ECG annually thereafter.

#### Different commercial standards

ICAO includes noncarrier service commercial pilots in its class I medical category. FAA, however, requires these pilots to obtain only a class II medical certificate. Non-carrier service is similar to that provided by the scheduled airlines but usually on an unscheduled basis and in smaller aircraft. Although statistics on the number of passengers carried by aircraft flown by this type of commercial pilot are incomplete, FAA estimates that 15 million passengers were transported in 1975.

As discussed earlier, FAA's class I requirements are less stringent than ICAO's class I. Because FAA's class II requirements are lower than its class I, this places U.S. commercial pilot medical requirements considerably below ICAO's. For example, ICAO's additional requirements for commercial pilots include an audiometric test, an initial ECG upon certification, and ECGs biennially between ages 30 to 40. Both ICAO and FAA require commercial pilots to be examined annually; however, ICAO recommends that after age 40 the 12-month interval period should be reduced to 6 months. The 1958 Flight Safety Foundation Study also recommended that all differences between class I and class II medical requirements be eliminated.

Because commercial pilots often fly aircraft requiring only a single pilot, the disastrous implications of an in-flight pilot incapacitation are obviously increased in relation to aircraft requiring a co-pilot. Consequently, FAA needs to insure that commercial pilots be at least as medically fit as air transport pilots. Until FAA requires

commercial pilots to meet its class I medical requirements, passengers using their services will not be assured the same degree of safety as passengers using scheduled air carriers.

No glider pilot medical requirements

ICAO requires glider pilots to meet private pilot medical requirements (class III). The ICAO class III medical requirements provide physical, visual, color perception, and hearing standards. ICAO requires class III airmen to be reexamined every 24 months. Also, ICAO recommends that the 24-month examination period for these airmen be reduced to 12 months after the age of 40. In some respects these requirements are more stringent than FAA's private pilot (class III) medical requirements discussed earlier.

FAA, however, does not require glider pilots to meet any specific medical standards. These pilot applicants must state merely that they have no known defect which would prohibit them from piloting such aircraft. Thus, these pilots determine their own medical fitness. Presumably a psychotic or an epileptic could certify that his known physical defect does not make him unable to pilot a glider, carry passengers, and if he were a commercial glider pilot, accept remuneration for his services. In 1970 the National Transportation Safety Board concluded that:

"Although most glider operations occur in isolated areas, the possibility does exist that medical incapacitation could produce accidents involving loss or damage to property and injury to innocent people."

\* \* \* \* \*

"A user of glider services, whether he is buying instruction or flying as a passenger, should have reasonable assurance that the pilot he hires is medically safe. All other users of commercial aviation have this assurance.

"Glider operations do enter the 'hostile environment' of flight. Aerobatics are performed. High altitude flights, involving the use of oxygen, are flown. The glider pilot should be medically fit to cope with stresses imposed in such flying."

Therefore, the Board recommended to FAA that

--student and private glider pilots hold at least a class III medical certificate and

--commercial glider pilots hold at least a class II medical certificates.

As of August 1976 FAA has not adopted these recommendations

#### Less significant differences

FAA and ICAO medical standards differ in several less significant areas.

- FAA permits the use of certain drugs to control simple high blood pressure; ICAO currently does not.
- Certain categories of hernias are not disqualifying under FAA standards; ICAO considers all hernias disqualifying.
- FAA does not consider pregnancy disqualifying, unless complications occur; ICAO considers pregnancy disqualifying.
- ICAO subjects private pilots (class III) to a slightly different distant vision standard.
- FAA does not require free balloon pilots to meet any specific medical standards; ICAO requires them to meet pilot medical requirements (class III).

ICAO is currently reevaluating the standards concerning pregnancy, hernias, and the use of certain drugs for high blood pressure control. An ICAO official told us that these standards would probably be changed shortly, and the more lenient FAA standards adopted. ICAO will also reevaluate the medical requirements for free-balloon pilots within the next year, but not the additional vision requirements for private pilots (class III) because they are considered insignificant. This official emphasized, however, that ICAO's position is firm on the more significant FAA-ICAO differences and that they will not be reevaluated.

#### CONCLUSIONS

FAA's policy is to comply with the ICAO standards to the maximum extent practical. However, FAA medical requirements differ from ICAO's in several major areas. Of the 132 member ICAO nations, the United States is the only one to express considerable disagreement with the ICAO medical requirements. Only one other nation has expressed any differences with ICAO medical standards. These differences are minor in that they concern the use of certain drugs for blood pressure control and permit certain types of hernias.

The integrity and usefulness of the ICAO standards depends on their acceptance by member nations. Unless there is substantial compliance with minimum medical standards, problems may arise in maintaining these standards for licensing of personnel and the later acceptance of such standards by the international civil aviation community.

We believe that FAA's standards should equal or exceed ICAO's in all important areas. The recommendations contained on page 16 regarding cardiovascular requirements, if adopted, would raise FAA's medical standards above ICAO's in this important area. In addition, FAA needs to adopt certain other ICAO medical requirements so that FAA standards at least equal international standards.

#### RECOMMENDATIONS

We recommend that the Secretary of Transportation direct the Administrator, FAA, to

- adopt ICAO medical requirements for commercial and glider pilots and
- require audiometric hearing tests of at least class I and II airmen.

#### AGENCY COMMENTS AND OUR EVALUATION

In conjunction with its evaluation of the need for more extensive medical screening requirements, the Department of Transportation said that it would also review the merits of adopting ICAO medical requirements where applicable. However, the Department said that our conclusion that FAA's airmen medical requirements are less stringent than those established by ICAO is not entirely correct. The Department believes that FAA's standards are more stringent in some significant areas.

We concur that FAA's medical requirements are, in some instances, more stringent than ICAO's. As the Department's comments indicate:

- ICAO's visual requirement No. 1 requires an uncorrected distant visual acuity of 20/200 corrected to 20/30; FAA class I and II standards require an uncorrected distant visual acuity of at least 20/100 corrected to 20/20 or better with corrective glasses.
- ICAO standards permit the use of oral drugs to control diabetes mellitus; FAA standards do not.

However, FAA has not adopted all the more stringent ICAO medical requirements relating to commercial and glider pilot certificates.

The Department said that it had repeatedly considered the need for specific glider pilot medical requirements, but had determined that such requirements would not be implemented without documented justification. Although FAA has not established medical standards for glider pilots, it does recognize that there are certain medical conditions which would make a pilot unfit to fly such aircraft. On occasion FAA has denied these pilots glider certificates based on medical factors of which it was aware. However, because these pilots are not given physical examinations, FAA is not assured that it is aware of all pertinent medical information. Unless FAA requires physical examinations of glider pilots to identify medical conditions it believes endanger aviation safety, medically unfit pilots will continue to fly, endangering themselves and the public.

Concerning audiometric hearing tests, the Department said that while ICAO hearing requirement No. 1 provides for audiometric testing, it also states that alternative methods providing equivalent result shall be used. Under this requirement, certification can be granted to an applicant who has failed the audiometric test if he has hearing performance in each ear separately equivalent to that of a normal person (against a background noise) and has ability to hear an average conversational voice in a quiet room using both ears at a distance of 6 feet. The Department believes FAA's whispered-voice test for both class I and II applicants exceeds ICAO's alternate test.

Although FAA hearing requirements may exceed ICAO's alternate test, FAA research indicates that its whispered-voice test is sometimes unreliable. Because hearing loss can accurately be measured with an audiometer and FAA requires senior aviation medical examiners to have an audiometer, we believe FAA should require such testing of class I and II pilots. We see no reason why civilian pilots should be treated differently than controllers and military pilots who are required to have audiometric tests.

## CHAPTER 4

### BARRIERS TO INFORMATION

#### ON UNFIT AIRMEN

The Federal Aviation Administration concedes that required airmen physical standards and examination procedures will not readily identify all disqualifying diseases and conditions. To compensate for this, FAA relies on the airman to properly disclose known or suspected medical problems. Medical histories submitted, however, are not always accurate. FAA, therefore, needs to obtain data on airmen with disqualifying conditions from other sources, such as motor vehicle driver records. FAA, however, often does not obtain such information due to legislative restrictions.

#### INACCURATE MEDICAL HISTORIES

The medical certificate application has two basic sections--the medical history section completed by the airman and the physician's examination report. According to an FAA medical official, without an accurate medical history the FAA-required testing would not diagnose most of the mandatory disqualifying diseases and conditions. Of the nine mandatory disqualifying diseases, FAA relies solely on the medical history to diagnose epilepsy and disturbances of consciousness. In addition, it relies primarily on the medical history to diagnose psychotic and personality disorders, alcoholism, drug addiction, myocardial infarction (heart attack), and angina pectoris (coronary disease).

The airman is responsible for completing the medical history part of the application, but he may not remember or recognize various symptoms and conditions or may falsify his statement. FAA sometimes identifies medical history inaccuracies while reviewing each application at its Civil Aeromedical Institute in Oklahoma City, Oklahoma, where selected examination information is computerized. Using programed reviewing criteria, FAA matches the current examination with those previously submitted enabling it to identify some medical history inconsistencies. FAA does not maintain statistics of inaccuracies identified.

Our review of FAA data identified numerous examples of inaccurate medical histories. FAA reliance on medical histories, which may be inaccurate, to detect disqualifying

diseases may endanger flight safety through the issuance of certificates to medically unfit individuals. The following is a discussion of four such cases.

- An individual with a commercial pilot license, complaining of severe chest pains, visited his private physician. He was diagnosed as having a coronary problem based on two electrocardiograms which both showed the condition. The pilot did not admit this later during his class II FAA medical examination. He later died of a heart attack in flight. According to an FAA medical official, if the FAA had required ECGs of class II pilots, the coronary problem would have been identified.
- In an accident attributed to heart attack, the National Transportation Safety Board concluded that a pilot and his family had knowledge of a previous coronary problem. An autopsy report also indicated evidence of a previous myocardial infarction. Again, the pilot did not indicate any history of heart trouble during his class III FAA application.
- FAA was informed of an air transport pilot (class I) with a valid FAA medical certificate who was known to be hypertensive, to have advanced coronary heart disease, to be on medication, and to be an alcoholic. The FAA aviation medical examiner, however, did not identify these conditions. The same examiner had certified the pilot since 1955, and each time the pilot had falsified his medical history.
- FAA received a report indicating a pilot had been hospitalized 5 months after his last FAA examination. The pilot was diagnosed as having
  - hepatic cirrhosis, a liver disease marked by progressive destruction of liver cells;
  - diabetes mellitus, a chronic form of diabetes involving insulin deficiency;
  - high blood pressure;
  - a chronic ulcer; and
  - a chronic bronchitis.

According to the former Federal Air Surgeon:



"It is highly unlikely, if not impossible, for any of these conditions to develop within 5 months time to the point where they would be disqualifying. \* \* \* In this instance we (FAA) had 13 examinations going back 7 years, all indicating a negative history and normal physical examination."

LEGISLATIVE RESTRICTIONS  
CONCEAL UNFIT AIRMEN

Some disqualifying medical conditions for pilot and other airmen licenses are difficult for FAA to identify if an individual conceals his true medical history. Although information contained in the National Driver Register, maintained by the Department of Transportation's National Highway Traffic Safety Administration, could be useful to FAA in determining an airman's medical history, legislative restrictions prevent FAA from using the data.

The NDR was established, pursuant to 74 Stat. 526, as a central clearing house to assist States in identifying applicants for driver licenses who had their licenses suspended, denied, or revoked by another State for any reason, including medical conditions. Suspensions of less than 6 months for a series of nonmoving violations are excluded. The NDR information regarding an individual's sobriety, behavioral conduct, other medical conditions, or criminal records are pertinent to airman certification.

NDR's data's usefulness to FAA

To determine NDR's usefulness to FAA's airman certification, NHTSA, at our request, identified probable matches from two samples of airmen records with data maintained in the register. NHTSA officials estimate that the probable matches identified are at least 95-percent reliable.

The first sample consisted of 163 pilots involved in aircraft accidents that resulted in 244 fatalities. These represent all aircraft accidents during 1972-74 for which records were available in which the National Transportation Board concluded that pilot impairment either caused or contributed to each of the accidents. Of the 163 accidents, the majority (103) involved alcohol impairment. Among the other factors cited by the Board were heart disease, psychological problems, and fatigue.

The NDR comparison revealed that 13 of these 163 pilots had their motor vehicle driver's license withdrawn or denied. The majority (8 cases) involved violations for driving while intoxicated. Because alcohol problems are difficult to identify by a routine examination, the NDR provides a valuable aid in identifying such cases. These 13 accidents

might have been prevented if FAA had access to the information contained in the NDR and used it to suspend or revoke the pilot's medical certificate.

The second sample consisted of approximately 11,000 airmen records statistically drawn from the 926,000 active airmen with class I, II, and III medical certificates. The NDR comparison revealed 269 airmen with medical certificates who have had their motor vehicle driver's licenses withdrawn or denied. Of these, 60 had multiple records and 4 airmen had 4 separate withdrawals or denials each. Again, the majority of records were for driving while intoxicated. Other reasons were cited as follows:

<u>Reason for license withdrawal/denial</u>	<u>Class I</u>	<u>Class II</u>	<u>Class III</u>	<u>Total</u>
Driving while intoxicated	19	60	65	144
Repeated violations (points)	9	33	31	73
Required reports (failure to show)	9	8	20	37
Speeding	7	12	9	28
Financial responsibility	4	10	11	25
Violation of restriction	1	3	2	6
Reckless	1		3	4
Disability	1	1	1	3
Miscellaneous	1	1	1	3
Hit and run	0	1	1	2
Fatal accident	0	0	1	1
Misrepresentation	0	0	1	1
Habitual violator	1	0	0	1
No reason cited	<u>2</u>	<u>6</u>	<u>9</u>	<u>17</u>
Total (note a)	<u>55</u>	<u>135</u>	<u>155</u>	<u>345</u>

a/Includes multiple records; many airmen had more than one of the above violations.

Although all these reasons of license withdrawal and denial are not automatically disqualifying for certification, they do indicate a need for further investigation. The NDR data, as any other diagnostic tool, should be considered as merely an additional aid for estimating the presence of a potentially hazardous condition. Among the offenses besides driving while intoxicated which should be of interest to FAA are those which indicate a character and behavior disorder, such as antisocial behavior.

Projecting the results of this statistical sample, we estimate that the following number of airmen may also have their motor vehicle driver's license withdrawn or denied.

<u>Airman class</u>	<u>Denials, suspensions, or revocations</u>	
	<u>Actually identified</u>	<u>Estimate of occurrence among all airmen</u>
I	43	1,800
II	109	9,800
III	<u>117</u>	<u>11,300</u>
Total	<u>269</u>	<u>22,900</u>

As the above table indicates, FAA can expect to identify approximately 22,900 active airmen who may represent potential safety problems. Among the more significant medical problems FAA can expect to find are an estimated 12,500 airmen with records of driving while intoxicated and about 200 with physical disabilities which prevent them from driving an automobile. Also, our sample indicates that FAA can expect a 2.5 percent match between NDR data and initial airmen applications.

#### NDR data use restrictions

Although NHTSA has provided us with statistical information, it believes it cannot give FAA the names of airmen successfully matched with the NDR. Legislation establishing the register (74 Stat. 526) provides that:

"Only at the request of a State, a political subdivision thereof, or a Federal department or agency, shall the Secretary furnish information contained in the register \* \* \* and such information shall be furnished only to the requesting part and only with respect to an individual applicant for a motor vehicle operators' license or permit." (Underscoring supplied.)

Unless FAA is provided the airmen names, corrective action cannot be initiated. Until further investigation indicates otherwise, the 269 airmen matched with the NDR represent a potential safety problem.

We believe that safe air transportation is as important to the Nation as safe automotive transportation and that efforts should be made to reduce the risk of aircraft accidents, injuries, and deaths. FAA access to data already established and maintained by the Department of Transportation in the NDR could greatly aid FAA in achieving this

objective, especially because the NDR data is public information in most of the States providing the data. However, it would be impractical for FAA to contact each State's motor vehicle department concerning the medical fitness of the estimated 500,000 airmen examined annually.

#### AIRLINE IDENTIFICATION OF UNFIT AIRMEN

As discussed on page , many of the airlines conduct preemployment and/or routine physical examinations for pilots and other members of the cockpit crew. Often, individuals who do not meet FAA medical standards are identified.

The medical director of a major U.S. airline said that of the 3,761 applicants given preemployment examinations during 1964-69, 6 percent did not meet FAA standards, yet all possessed class I medical certificates. The following lists several of the disqualifying conditions exhibited by these applicants.

- Severe hearing loss.
- High blood pressure.
- Sociopathic personality.
- Glaucoma.
- Diabetes.
- Abnormal ECG and hypertension.
- Ear drum perforations.
- Emphysema and no left eye.

Unless FAA is notified of airmen not meeting applicable standards, their certificates remain in force. Although the airline may refuse to hire or voluntarily ground hired pilots who are medically unfit, FAA has sole authority to revoke or suspend a medical certificate. In the above cases, the airmen were still free to seek employment with another airline and presumably could find employment with one which relied solely on FAA's medical certification.

The following examples, further illustrating this problem, were taken from testimony of the former Federal Air Surgeon during hearings before the Subcommittee of

Department of Transportation and Related Agencies of the  
House Committee on Appropriations, April 1972.

--On the history portion of his application, an aircrew member reported hospitalization for serious injuries sustained in an automobile accident. The FAA aviation medical examiner completed the examination and issued the certificate. FAA reviewed the hospital records relating to the accident. Because laboratory reports were consistent with a diagnosis of cirrhosis of the liver, FAA did additional investigating. Subsequently, FAA documented and confirmed a long history of chronic alcoholism. The airman was, at the time of the accident, on furlough from the airline for excessive drinking. When FAA denied the medical certificate, the airline was in the process of returning the airman to duty.

--A report to FAA indicated that a pilot became totally incapacitated while on an instrument approach to a large and busy air terminal. In a followup investigation, the pilot's physician told FAA that the pilot had the flu, had not eaten properly, was overly fatigued, and had merely passed out. FAA was also told that the pilot was placed in a body cast because "the ambulance attendants dropped him from the stretcher as they were removing him from the aircraft fracturing a vertebra." FAA subsequently determined that, in fact, the pilot had a major convulsive seizure during which he sustained a compression fracture of a vertebra.

Later, FAA learned that the pilot had a long history of alcohol abuse with repeated admissions to the hospital for "drying out." On each occasion, he had been admitted by his FAA aviation medical examiner always for an unrelated condition and always had been discharged with an unrelated diagnosis. The physician stated he did not realize the pilot was an alcoholic.

In this instance the airline's medical department had grounded the pilot. Nonetheless, the pilot had circumvented the airline's physician by obtaining a certificate from his FAA examiner and had returned to duty. The airline medical director was constrained from informing FAA by labor contract provisions.

Airline responsibility

An FAA medical certificate is considered by airlines as apparent evidence of an airman's physical fitness.

However, as the previously discussed cases illustrate, airlines are often aware of medically unfit airmen with medical certificates.

Federal aviation regulations provide that airlines may not use an employee as an airman unless he

- holds appropriate current FAA certificates,
- has required FAA certificates in his possession while engaged in operations, and
- is otherwise qualified for the operation for which he is to be used.

This regulation, in effect, prohibits airlines from using airmen with FAA medical certificates who the airlines know do not meet FAA medical requirements. We could not determine the extent to which airlines may use airmen they know do not meet FAA medical requirements. However, an FAA official said that although this regulation has generally not been enforced, FAA intends to require airline compliance in the future.

#### CONCLUSIONS

FAA has not obtained all information pertinent to the physical fitness of airmen; consequently, medically unfit airmen continue to endanger themselves and the public. FAA efforts to obtain such data are hampered by legislative restrictions.

#### RECOMMENDATION TO THE SECRETARY OF TRANSPORTATION

We recommend that the Secretary of Transportation require the Administrator, FAA, to enforce regulations requiring airlines to remove from flying status airmen who airlines know do not meet FAA medical standards.

#### RECOMMENDATION TO THE CONGRESS

We recommend that, to improve FAA's ability to identify medically unfit airmen, the Congress provide the Secretary of Transportation authority to furnish FAA, upon request, information contained in the NDR with respect to an individual who is an applicant for an FAA medical certificate. This could

be accomplished by further amending section 2 of Public Law 86-660, 74 Stat. 526, to read as follows:

"Only at the request of a State, a political subdivision thereof, or a Federal department or agency, shall the Secretary furnish information contained in the register \*\*\* and such information shall be furnished only to the requesting party and only with respect to an individual applicant for a motor vehicle operators' license or permit, or a Federal Aviation Administration airmen medical certificate." (Underscoring indicates proposed addition.)

AGENCY COMMENTS AND OUR EVALUATION

The Department stated that FAA intends to require airline compliance in removing from flying status airmen who the airlines know do not meet FAA medical standards. FAA plans to issue a notification to the airlines advising them of Federal Aviation Regulation requirements and instructing them to comply with these provisions.

The Department also agreed that the NDR contains information that could be valuable in determining the qualifications of airmen. However, the Department believes effective use of this information will depend to a great extent upon the availability of adequate resources within the agency since extensive investigations may have to be conducted.

APPENDIX I

APPENDIX I



OFFICE OF THE SECRETARY OF TRANSPORTATION  
WASHINGTON, D.C. 20590

ASSISTANT SECRETARY  
FOR ADMINISTRATION

August 27, 1976

Mr. Henry Eschwege  
Director  
Community and Economic Development Division  
U.S. General Accounting Office  
Washington, D. C. 20548

Dear Mr. Eschwege:

This is in response to your letter of June 28, 1976, requesting comments from the Department of Transportation on the General Accounting Office draft report entitled, "Undetected Pilot Medical Problems Endanger the Flying Public." We have reviewed the report in detail and prepared a Department of Transportation reply.

Two copies of the reply are enclosed herein.

Sincerely,

*William S. Heffelfinger*  
for William S. Heffelfinger

Enclosures



DEPARTMENT OF TRANSPORTATION REPLY  
TO  
GAO DRAFT REPORT OF JUNE 28, 1976  
ON  
UNDETECTED PILOT MEDICAL PROBLEMS  
ENDANGER THE FLYING PUBLIC  
  
SUMMARY OF GAO FINDINGS AND  
RECOMMENDATIONS

The General Accounting Office (GAO) concludes that many medically unfit airmen are flying. In support of this, the GAO states that the Federal Aviation Administration (FAA) requires pilots and other licensed airmen to meet only minimum physical standards and that present examination procedures do not readily identify all disqualifying diseases and conditions. The GAO contends that more extensive medical screening is required of air traffic controllers, military pilots, and international pilots than is required by FAA pilot examinations. The GAO believes that additional screening techniques possibly could have detected pilot impairments from medical conditions which contributed to 28 percent of the accidents involving medical factors that occurred during the period from 1972 through 1974. In this connection, the GAO notes that the FAA did not adopt the results of various medical studies which urged more extensive medical screening. The GAO also notes that despite U. S. policy to adhere to international airmen medical standards, FAA has not adopted the more stringent requirements of these standards because of opposition from the aviation community. The GAO also found a lack of enforcement of regulations which require airlines to remove pilots and other airmen from flying status when they do not meet Federal medical standards. In addition, GAO expresses the belief that certain information which is not currently available to FAA because of legislative restrictions (See GAO note p.37) would aid in reducing the number of medically unfit pilots if it were made available.

The GAO recommends that the Secretary of Transportation require the Administrator of FAA to (1) reevaluate the need to implement the recommendations of the various medical studies discussed in the report, including the adoption of certain additional medical screening requirements cited therein, (2) require commercial, glider, (see GAO note p37) pilots to meet International Civil Aviation Organization (ICAO) medical requirements, including audiometric hearing tests of at least Class I and II airmen, and (3) enforce regulations requiring airlines to remove from flying status, airmen which airlines know do not meet FAA medical standards. The GAO also recommends that the Congress consider providing FAA authority to obtain routine access to National Driver Register data (See GAO note p. 37)

(See GAO note p. 37)

DEPARTMENT OF TRANSPORTATION POSITION  
ON  
GAO RECOMMENDATIONS

1. With regard to recommendation (1) above, we will reevaluate the need to implement the recommendations of the various medical studies discussed in the report, including the listed additional medical screening requirements. We are currently studying the recommendations contained in the report funded by the FAA which resulted from the Eighth Bethesda Conference held in late 1975. Our evaluation will encompass a more complete analysis of the medical factors contributing to the accidents which the GAO cites possibly could have been detected with a more thorough medical examination. If the evaluation shows that safety can be enhanced by more extensive medical screening requirements, proper rulemaking action will be initiated.
2. Recommendation (2) above is based upon GAO's conclusion that FAA's airmen medical requirements are less stringent than those established by ICAO. This is not entirely correct since in several significant areas we feel FAA's standards are more stringent as discussed below:
  - a. While ICAO Hearing Requirement No. 1 provides for audiometric testing, it also states that alternative methods providing equivalent results shall be used. Under this requirement, certification can be granted to an applicant who has failed the audiometric test if he has hearing performance in each ear separately equivalent to that of a normal person (against a background noise) and has ability to hear an average conversational voice in a quiet room using both ears at a distance of six feet. We believe FAA's whispered voice test for both Class I and II applicants exceeds ICAO's alternate test.
  - b. ICAO's Visual Requirement No. 1 requires an uncorrected distant visual acuity of 20/200 corrected to 20/30; FAA Class I and II standards require an uncorrected distant visual acuity of at least 20/100 corrected to 20/20 or better with corrective glasses.
  - c. ICAO standards would permit the use of oral drugs to control diabetes mellitus; FAA standards would not.

With regard to glider (see GAO note p.37) pilots, the FAA has repeatedly considered the need for specific medical requirements.

(see GAO note p.37)

[See GAO note]

It has also been repeatedly determined that medical standards for glider pilots would not be implemented without documented justification.

However, in conjunction with the evaluation discussed in paragraph 1 above, we will review the merits of adopting ICAO medical requirements, where applicable.

3. Concerning recommendation (3) above, the FAA intends to require compliance by air carriers in removing airmen from flying status when it is known that they do not meet FAA medical standards. In this regard, we plan to issue a notification to the air carriers advising them of Federal Aviation Regulation requirements and instructing them to comply with these provisions.

4.

(See GAO note)

We recognize that the National Driver Register contains information that could be valuable in determining the qualifications of airmen, however, effective use of this information would depend to a great extent upon the availability of adequate resources within the agency since extensive investigations may have to be conducted.

  
\_\_\_\_\_  
Acting Administrator

GAO note: Deleted comments relate to matters which were discussed in the draft report but omitted from this final report.

APPENDIX II

APPENDIX II

ACCIDENTS THE NATIONAL TRANSPORTATION SAFETY BOARD  
ATTRIBUTED TO PHYSIOLOGICAL OR PSYCHOLOGICAL FACTORS  
DURING 1965 TO 1975

<u>Factor</u>	<u>Number of accidents</u>
Alcohol	407
Cardiovascular	58
Psychological	26
Fatigue/sleep	46
Consciousness/seizure	10
Gastrointestinal	3
Cerebral hemorrhage	2
Drugs	7
Respiratory	4
Miscellaneous	18
Unknown	<u>19</u>
Total	<u>600</u>

FAA AIRMENMEDICAL STANDARDS(14 CFR 67)Class I medical certificates

(a) To be eligible for a first-class medical certificate, an applicant must meet the requirements of paragraphs (b) through (f) of this section.

(b) Eye:

- (1) Distant visual acuity of 20/20 or better in each eye separately, without correction; or of at least 20/100 in each eye separately corrected to 20/20 or better with corrective glasses, in which case the applicant may be qualified only on the condition that he wears those glasses while exercising the privileges of his airman certificate.
- (2) Near vision of at least  $v=1.00$  at 18 inches with each eye separately, with or without corrective glasses.
- (3) Normal color vision.
- (4) Normal fields of vision.
- (5) No acute or chronic pathological condition of either eye or adenexae that might interfere with its proper function, might progress to that degree, or might be aggravated by flying.
- (6) Bifoveal fixation and vergencephoria relationship sufficient to prevent a break in fusion under conditions that may reasonably occur in performing airman duties.

(Tests for the factors named in this subparagraph are not required except for applicants found to have more than one prism diopter of hyperphoria, six prism diopters of esophoria, or six prism diopters of exophoria. If these values are exceeded, the Federal Air Surgeon may require the applicant to be examined by a qualified eye specialist to determine if there is bifoveal fixation and adequate vergencephoria relationship. However, if the applicant is otherwise qualified, he is entitled to a medical

certificate pending the results of the examination.)

(c) Ear, nose, throat, and equilibrium:

(1) Ability to

(i) Hear the whispered voice at a distance of at least 20 feet with each ear separately; or

(ii) Demonstrate a hearing acuity of at least 50 percent of normal in each ear throughout the effective speech and radio range as shown by a standard audiometer.

(2) No acute or chronic disease of the middle or internal ear.

(3) No disease of the mastoid.

(4) No unhealed (unclosed) perforation of the eardrum.

(5) No disease or malformation of the nose or throat that might interfere with, or be aggravated by, flying.

(6) No disturbance in equilibrium.

(d) Mental and neurologic

(1) Mental.

(i) No established medical history or clinical diagnosis of any of the following:

(a) A personality disorder that is severe enough to have repeatedly manifested itself by overt acts.

(b) A psychosis.

(c) Alcoholism. As used in this section, "alcoholism" means a condition in which a person's intake of alcohol is great enough to damage his physical health or personal or social functioning, or when alcohol has become a prerequisite to his normal functioning.

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(d) Drug dependence. As used in this section, "drug dependence" means a condition in which a person is addicted to or dependent on drugs other than alcohol, tobacco, or ordinary caffeine-containing beverages, as evidenced by habitual use or a clear sense of need for the drug.

(ii) No other personality disorder, neurosis, or mental condition that the Federal Air Surgeon finds:

(a) Makes the applicant unable to safely perform the duties or exercise the privileges of the airman certificate that he holds or for which he is applying; or

(b) May reasonably be expected, within 2 years after the finding, to make him unable to perform those duties or exercise those privileges; and the findings are based on the case history and appropriate, qualified, medical judgment relating to the condition involved.

(2) Neurologic.

(i) No established medical history or clinical diagnosis of either of the following:

(a) Epilepsy.

(b) A disturbance of consciousness without satisfactory medical explanation of the cause.

(ii) No other convulsive disorder, disturbance of consciousness, or neurologic condition that the Federal Air Surgeon finds:

(a) Makes the applicant unable to safely perform the duties or exercise the privileges of the airman certificate that he holds or for which he is applying; or

(b) May reasonably be expected, within 2 years after the finding, to make him unable to perform those duties or exercise those privileges; and the findings are based on the case history and

appropriate, qualified, medical judgment relating to the condition involved.

(e) Cardiovascular:

- (1) No established medical history or clinical diagnosis of:
  - (i) Myocardial infarction; or
  - (ii) Angina pectoris or other evidence of coronary heart disease that the Federal Air Surgeon finds may reasonably be expected to lead to myocardial infarction.
- (2) If the applicant has passed his thirty-fifth birthday but not his fortieth, he must, on the first examination after his thirty-fifth birthday, show an absence of myocardial infarction on electrocardiographic examination.
- (3) If the applicant has passed his fortieth birthday, he must annually show an absence of myocardial infarction on electrocardiographic examination.
- (4) Unless the adjusted maximum readings apply, the applicant's reclining blood pressure may not be more than the maximum reading for his age group in the following table:

<u>Age group</u>	<u>Maximum readings (reclining blood pressure in mm)</u>		<u>Adjusted maximum readings (reclining blood pressure in mm) (note a)</u>	
	<u>Systolic</u>	<u>Diastolic</u>	<u>Systolic</u>	<u>Diastolic</u>
20-29	140	88		
30-39	145	92	155	98
40-49	155	96	165	100
50 and over	160	98	170	100

a/For an applicant at least 30 years of age whose reclining blood pressure is more than the maximum reading for his age group and whose cardiac and kidney conditions, after complete cardiovascular examination, are found to be normal.



- (5) If the applicant is at least 40 years of age, he must show a degree of circulatory efficiency that is compatible with the safe operation of aircraft at high altitudes.

An electrocardiogram, made according to acceptable standards and techniques within the 90 days before an examination for a first-class certificate, is accepted at the time of the physical examination as meeting the requirements of subparagraphs (2) and (3) of this paragraph.

(f) General medical condition:

- 1) No established medical history or clinical diagnosis of diabetes mellitus that requires insulin or any other hypoglycemic drug for control.
- (2) No other organic, functional, or structural disease, defect, or limitation that the Federal Air Surgeon finds:
  - (i) Makes the applicant unable to safely perform the duties or exercise the privileges of the airman certificate that he holds or for which he is applying; or
  - (ii) May reasonably be expected, within 2 years after the finding, to make him unable to perform those duties or exercise those privileges; and the findings are based on the case history and appropriate, qualified medical judgment relation to the condition involved.

Class II medical certificates

- (a) To be eligible for a second-class medical certificate, an applicant must meet the requirements of paragraphs (b) through (f) of this section.

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(b) Eye:

- (1) Distant visual acuity of 20/20 or better in a each eye separately, without correction; or of at least 20/100 in each eye separately corrected to 20/20 or better with corrective glasses, in which case the applicant may be qualified only on the condition that he wears those glasses while exercising the privileges of his airman certificate.
- (2) Enough accommodation to pass a test prescribed by the Administrator based primarily on ability to read official aeronautical maps.
- (3) Normal fields of vision.
- (4) No pathology of the eye.
- (5) Ability to distinguish aviation signal red, aviation signal green, and white.
- (6) Bifoveal fixation and vergencephoria relationship sufficient to prevent a break in fusion under conditions that may reasonably occur in performing airman duties. (Tests for the factors named in this subparagraph are not required except for applicants found to have more than one prism diopter of hyperphoria, six prism diopters of esophoria, or six prism diopters of exophoria. If these values are exceeded, the Federal Air Surgeon may require the applicant to be examined by a qualified eye specialist to determine if there is bifoveal fixation and adequate vergencephoria relationship. However, if the applicant is otherwise qualified, he is entitled to a medical certificate pending the results of the examination.

(c) Ear, nose, throat, and equilibrium:

- (1) Ability to hear the whispered voice at 8 feet with each ear separately.
- (2) No acute or chronic disease of the middle or internal ear.
- (3) No disease of the mastoid.
- (4) No unhealed (unclosed) perforation of the eardrum.

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(5) No disease or malformation of the nose or throat that might interfere with, or be aggravated by, flying.

(6) No disturbance in equilibrium.

(d) Mental and neurologic:

(1) Mental.

(i) No established medical history or clinical diagnosis of any of the following:

(a) A personality disorder that is severe enough to have repeatedly manifested itself by overt acts.

(b) A psychosis.

(c) Alcoholism. As used in this section, "alcoholism" means a condition in which a person's intake of alcohol is great enough to damage his physical health or personal or social functioning, or when alcohol has become a prerequisite to normal functioning.

(d) Drug dependence. As used in this section, "drug dependence" means a condition in which a person is addicted to or dependent on drugs other than alcohol, tobacco, or ordinary caffeine-containing beverages, as evidenced by habitual use or a clear sense of need for the drug.

(ii) No other personality disorder, neurosis, or mental condition that the Federal Air Surgeon finds:

(a) Makes the applicant unable to safely perform the duties or exercise the privileges of the airman certificate that he holds or for which he is applying; or

(b) May reasonably be expected, within two years after the finding, to make him unable to perform those duties or exercise those privileges; and the findings are based on the case history and appropriate, qualified, medical

judgment relating to the condition involved.

(2) Neurologic.

- (i) No established medical history or clinical diagnosis of either of the following:
  - (a) Epilepsy.
  - (b) A disturbance of consciousness without satisfactory medical explanation of the cause.
- (ii) No other convulsive disorder, disturbance of consciousness, or neurologic condition that the Federal Air Surgeon finds:
  - (a) Makes the applicant unable to safely perform the duties or exercise the privileges of the airman certificate that he holds or for which he is applying; or
  - (b) May reasonably be expected, within two years after the finding, to make him unable to perform those duties or exercise those privileges; and the findings are based on the case history and appropriate, qualified, medical judgment relating to the condition involved.

(e) Cardiovascular:

- (1) No established medical history or clinical diagnosis of:
  - (i) Myocardial infarction; or
  - (ii) Angina pectoris or other evidence of coronary heart disease that the Federal Air Surgeon finds may reasonably be expected to lead to myocardial infarction.

(f) General medical condition:

- (1) No established medical history or clinical diagnosis of diabetes mellitus that requires insulin or any other hypoglycemic drug for control.

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- (2) No other organic, functional, or structural disease, defect, or limitation that the Federal Air Surgeon finds:
  - (i) Makes the applicant unable to safely perform the duties or exercise the privileges of the airman certificate that he holds or for which he is applying; or
  - (ii) May reasonably be expected, within two years after the finding to make him unable to perform those duties or exercise those privileges; and the findings are based on the case history and appropriate, qualified, medical judgment relating to the condition involved.

Class III medical certificates

- (a) To be eligible for a third-class medical certificate, an applicant must meet the requirements of paragraphs (b) through (f) of this section.

(b) Eye:

- (1) Distant visual acuity of 20/50 or better in each eye separately, without correction; or if the vision in either or both eyes is poorer than 20/50 and is corrected to 20/30 or better in each eye with corrective glasses, the applicant may be qualified on the condition that he wears those glasses while exercising the privileges of his airman certificate.
- (2) No serious pathology of the eye.
- (3) Ability to distinguish aviation signal red, aviation signal green, and white.

(c) Ears, nose, throat, and equilibrium:

- (1) Ability to hear the whispered voice at 3 feet.
- (2) No acute or chronic disease of the internal ear.
- (3) No disease or malformation of the nose or throat that might interfere with, or be aggravated by, flying.

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(4) No disturbance in equilibrium.

(d) Mental and neurologic:

(1) Mental.

(i) No established medical history or clinical diagnosis of any of the following:

(a) A personality disorder that is severe enough to have repeatedly manifested itself by overt acts.

(b) A psychosis.

(c) Alcoholism. As used in this section, "alcoholism" means a condition in which a person's intake of alcohol is great enough to damage his physical health or personal or social functioning, or when alcohol has become a prerequisite to his normal functioning.

(d) Drug dependence. As used in this section, "drug dependence" means a condition in which a person is addicted to or dependent on drugs other than alcohol, tobacco, or ordinary caffeine-containing beverages, as evidenced by habitual use or a clear sense of need for the drug.

(ii) No other personality disorder, neurosis, or mental condition that the Federal Air Surgeon finds:

(a) Makes the applicant unable to safely perform the duties or exercise the privileges of the airman certificate that he holds or for which he is applying; or

(b) May reasonably be expected, within two years after the finding, to make him unable to perform those duties or exercise those privileges; and the findings are based on the case history and appropriate, qualified, medical judgment relating to the condition involved.

## (2) Neurologic.

- (i) No established medical history or clinical diagnosis of either of the following:
  - (a) Epilepsy.
  - (b) A disturbance of consciousness without satisfactory medical explanation of the cause.
- (ii) No other convulsive disorder, disturbance of consciousness, or neurologic condition that the Federal Air Surgeon finds:
  - (a) Makes the applicant unable to safely perform the duties or exercise the privileges of the airman certificate that he holds or for which he is applying; or
  - (b) May reasonably be expected, within two years after the finding, to make him unable to perform those duties or exercise those privileges; and the findings are based on the case history and appropriate, qualified, medical judgment relating to the condition involved.

## (e) Cardiovascular:

- (1) No established medical history or clinical diagnosis of:
  - (i) Myocardial infarction; or
  - (ii) Angina pectoris or other evidence of coronary heart disease that the Civil Air Surgeon finds may reasonably be expected to lead to myocardial infarction.

## (f) General medical condition:

- (1) No established medical history or clinical diagnosis of diabetes mellitus that requires insulin or any other hypoglycemic drug for control;
- (2) No other organic, functional or structural disease, defect or limitation that the Federal Air Surgeon finds:

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- (i) Makes the applicant unable to safely perform the duties or exercise the privileges of the airman certificate that he holds or for which he is applying; or
- (ii) May reasonably be expected, within two years after the finding to make him unable to perform those duties or exercise those privileges; and the findings are based on the case history and appropriate, qualified, medical judgment relating to the condition involved.



COPY OF FAA MEDICAL CERTIFICATE FORM

COPY OF FAA FORM 8500-9 (MEDICAL CERTIFICATE), OR FAA FORM 8429-2 (MEDICAL/STUDENT PILOT CERTIFICATE) ISSUED

AA-6380756

MEDICAL CERTIFICATE CLASS AND STUDENT PILOT CERTIFICATE

THIS CERTIFIES THAT (Full name and address)

DATE OF BIRTH	HEIGHT	WEIGHT	HAIR	EYES	SEX
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has met the medical standards prescribed in Part 67 Federal Aviation Regulations for the issuance of Medical Certificate

DATE OF EXAMINATION

EXAMINER'S SERIAL NO.

EXAMINER SIGNATURE

EXAMINER TYPED NAME

AIRMAN'S SIGNATURE

WHEN ISSUED AS A MEDICAL STUDENT PILOT CERTIFICATE, the holder has met standards prescribed in Part 61, FAR's for such certificate, and is prohibited from carrying passengers.

APPLICATION FOR  AIRMAN MEDICAL CERTIFICATE  AIRMAN MEDICAL AND STUDENT PILOT CERTIFICATE

1 FULL NAME (Last, first, middle) PATH CONTROL

2A ADDRESS (No Street, City, State, ZIP No.) 2B SOCIAL SECURITY No.

COUNTRY

2C PLACE OF BIRTH (Student pilot applicants only)

3 DATE OF BIRTH (dd, day, mm) 4 HEIGHT (inches) 5 WEIGHT (pounds) 6 COLOR OF HAIR 7 COLOR OF EYES 8 SEX

9A CLASS OF MEDICAL CERTIFICATE APPLIED FOR 9B TYPE OF AIRMAN CERTIFICATE(S) HELD

FIRST	AIRLINE TRANSPORT	FLIGHT INSTRUCTOR
SECOND	COMMERCIAL	PRIVATE
THIRD	ATC SPECIALIST	STUDENT
	FLIGHT ENGINEER	NONE
	FLIGHT NAVIGATOR	OTHER

10 OCCUPATION (If ATC Specialist, specify position and facility)

11 EXTENDED ACTIVE DUTY MEMBER OF 12 EMPLOYER

a AIR FORCE	d COAST GUARD
b ARMY	e NATL GUARD
c NAVY/MARINES	f NONE

13 LENGTH OF TIME IN PRESENT OCCUPATION

14 PRIMARY TYPE OF FLYING

BUSINESS	PLEASURE
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15 CURRENTLY USE ANY MEDICATION (including eye drops)

YES TYPE AND PURPOSE

NO

16 TOTAL PILOT TIME

CIVIL	16 TO DATE	17 LAST 6 MOS
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18 HAS AN FAA AIRMAN MEDICAL CERTIFICATE EVER BEEN DENIED, SUSPENDED, OR REVOKED

YES	DATE
-----	------

19 HAVE YOU AS A PILOT HAD AN AIRCRAFT ACCIDENT WITHIN THE PAST 2 YEARS

YES	DATE
-----	------

20 DATE OF LAST FAA PHYSICAL EXAM (If none, state so)

21 MEDICAL HISTORY - HAVE YOU EVER HAD OR HAVE YOU NOW ANY OF THE FOLLOWING: (For each "yes" checked, describe condition in REMARKS)

Yes/No	Condition	Yes/No	Condition	Yes/No	Condition	Yes/No	Condition
	a. Frequent or severe headaches		g. Heart trouble		m. Nervous trouble of any sort		s. Major injuries, loss of or military service
	b. Dizziness or spinning spells		h. High or low blood pressure		n. Any drug or narcotic habit		t. Reception for life insurance
	c. Unconsciousness for any reason		i. Stomach trouble		o. Excessive drinking habit		u. Admission to hospital
	d. Eye trouble except glasses		j. Kidney stones or blood in urine		p. Attempted suicide		v. Record of traffic conviction
	e. Hay fever		k. Sugar or albumin in urine		q. Mental sickness requiring drugs		w. Record of other convictions
	f. Asthma		l. Epilepsy or fits		r. Military medical discharge		x. Other diseases

REMARKS (if no changes since last report, so state)

FOR FAA USE REVIEW ACTION CODES

22 HAVE YOU EVER BEEN ISSUED A STATEMENT OF DEMONSTRATED ABILITY (WAIVER)

NO	PHYSICAL DEFECTS NOTED ON STATEMENT OF DEMONSTRATED ABILITY (WAIVER)	WAIVER SERIAL NO.
YES (Give defects and waiver No.)		

23 MEDICAL TREATMENT WITHIN PAST 5 YEARS

DATE	NAME AND ADDRESS OF PHYSICIAN CONSULTED	REASON

24 APPLICANT'S DECLARATION

I hereby certify that all statements and answers provided by me on this examination form are complete and true to the best of my knowledge, and I agree that they are to be considered part of the basis for issuance of any FAA certificate to me.

SIGNATURE OF APPLICANT (In ink) DATE

REPORT OF MEDICAL EXAMINATION										
NOR- MAL	CHECK EACH ITEM IN APPROPRIATE COLUMN (Enter <i>NE</i> if not evaluated)				AB- NOR- MAL	NOTES: Describe every abnormality in detail, enter applicable item number before each comment. Use additional sheets if necessary and attach to this form.				
	25. Head, face, neck and scalp									
	26. Nose									
	27. Sinuses									
	28. Mouth and throat									
	29. Ears, general (Normal and external canals) (Auditory acuity under 400)									
	30. Drums (Perforation)									
	31. Eyes, general (Visual acuity under items 50 & 51)									
	32. Ophthalmoscopic									
	33. Pupils (Equality and reaction)									
	34. Ocular motility (Associated parallel movements, conjugate)									
	35. Lungs and chest (Including bruits)									
	36. Heart (Throat, auscultation, sounds)									
	37. Vascular system									
	38. Abdomen and viscera (Including hernia)									
	39. Anus and rectum (Hemorrhoids, fistula, proctitis)									
	40. Endocrine system									
	41. G-U system									
	42. Upper and lower extremities (Strength, range of motion)									
	43. Spine, other musculoskeletal									
	44. Identifying body marks, scars, tattoos									
	45. Skin and lymphatics									
	46. Neurologic (Tendon reflexes, equilibrium, cerebellum, coordination, etc.)									
	47. Psychiatric (Specify any personality deviation)									
	48. General systemic									
FOR FAA USE - PATHOLOGY CODE NOS.										
49. HEARING		RIGHT EAR		LEFT EAR		50. DISTANT VISION (Standard not typed only)		51. NEAR VISION (Use lower values)		
WHISPERED VOICE (STANDING SIDEWAYS)		FT		FT		RIGHT EYE 20/		20/		
DISTANT EAR C-TEST		500 1000 2000 4000		500 1000 2000 4000		LEFT EYE 20/		CORRECTED TO 20/		
AUDIOMETER (Decibel Loss)						CORRECTED TO 20/		20/		
						BOTH EYES 20/		CORRECTED TO 20/		
52. INTRAOCULAR TENSION (Tonometry required for Air Traffic Control Specialist)					53. COLOR VISION (Test used, number of plates missed)					
TACTILE		RIGHT EYE		LEFT EYE						
TONOMETRIC										
54. FIELD OF VISION					55. HETEROPHORIA DIOPTERS (Not required for Class Three)					
RIGHT EYE		LEFT EYE		DISTANCE		ESOPHORIA		EXOPHORIA		
56. BLOOD PRESSURE					57. PULSE (When)					
RECLUMBENT MM MERCURY		SYSTOLIC		DIASTOLIC		RESTING		AFTER EXERCISE		
								7 MINUTES AFTER EXERCISE		
58. URINALYSIS		59. ECG (Draw)		60. OTHER TESTS						
ALBUMIN		SUGAR								
61. COMMENTS ON HISTORY AND FINDINGS, RECOMMENDATIONS (Attach all consultation reports, ECGs, X-rays, etc. to this report before mailing)								FOR FAA USE		
								CORRE		
								PENDING		
								VERIFIED		
62. APPLICANT'S NAME					63. DISQUALIFYING DEFECTS (List by item no.)					
HAS BEEN ISSUED <input type="checkbox"/> MED CERT <input type="checkbox"/> MED AND STUDENT PROT CERT										
<input type="checkbox"/> NO. CERTIF. ISSUED - FURTHER EVALUATION REQUIRED										
<input type="checkbox"/> HAS BEEN DENIED - LETTER OF DENIAL ISSUED (attached)										
64. MEDICAL EXAMINER'S DECLARATION <i>I hereby certify that I personally examined the applicant named on this medical examination report, and that this report with any attachment embodies my findings completely and correctly.</i>										
DATE OF EXAMINATION			AVIATION MEDICAL EXAMINER'S NAME AND ADDRESS (Type or print)				AVIATION MEDICAL EXAMINER'S SIGNATURE			

PRINCIPAL OFFICIALS RESPONSIBLE  
FOR ADMINISTERING ACTIVITIES  
DISCUSSED IN THIS REPORT

Tenure of office  
From                      To

DEPARTMENT OF TRANSPORTATION

SECRETARY OF TRANSPORTATION:

William T. Coleman, Jr.	Mar. 1975	Present
John T. Barnum (acting)	Feb. 1975	Mar. 1975
Claude S. Brinegar	Feb. 1973	Feb. 1975
John A. Volpe	Jan. 1969	Feb. 1973
Alan S. Boyd	Jan. 1967	Dec. 1968

FEDERAL AVIATION ADMINISTRATION

ADMINISTRATOR:

John L. McLucas	Nov. 1975	present
James E. Dow (acting)	Apr. 1975	Nov. 1975
Alexander P. Butterfield	Mar. 1973	Mar. 1975
John H. Shaffer	Mar. 1969	Mar. 1973
David D. Thomas (acting)	Aug. 1968	Mar. 1969
Gen. William F. McKee	July 1965	July 1968
Najeeb E. Halaby	Feb. 1961	July 1965