HB

160

(7)

COMMITTEE REPORT

HOUSE

FURTHER: cFINANCE

2/4/83

Date: [illegible]

Mr. Speaker:

The Committee on HESS has had HB 160

An Act making a special appropriation to the Department of Education for development of a training program for Alaska Aviation; and providing for an effective date.

under consideration and reports it back as follows:

[ ] do pass [ ] do not pass

[ ] do pass with attached amendments(s)

[ ] replace with CS for _____ [ ] same title [ ] new title

and recommends _____

[ ] AND attaches a "Letter of Intent" [ ] New Fiscal Note [ ] Zero Fiscal Note Attached

[ ] reports it back without recommendation

[ ] referred to the _____ Committee

MEMBERS SIGNING
DO PASS

M.W. Miller
Milo Hale
[illegible]
[illegible]

MEMBERS HAVING
OTHER RECOMMENDATIONS:

[illegible]
CHAIRMAN
Milo Hale

H 60

THE LEGISLATURE OF THE STATE OF ALASKA
THIRTEENTH LEGISLATURE

FISCAL NOTE

I. REQUEST
Bill/Resolution No. HB 160
Title "An Act.. special approp. to DOE for development of a training program.
Requested by House HESS COmmittee Date Feb. 15, 1983

II. FISCAL DETAIL
Agency Affected DOE
Program Category Affected
BRU, Program, Or Subprogram(s) Affected
(Note: If more than one budget component is affected, separate line-item amounts and funding for each component in the analysis section.)

EXPENDITURES (Thousands of Dollars)

	FY 83	FY 84	FY 85	FY 86	FY 87	FY 88
100 PERSONAL SERVICES						
200 TRAVEL						
300 CONTRACTUAL						
400 COMMODITIES						
500 EQUIPMENT						
600 LAND & STRUCTURES						
700 GRANTS,CLAIMS,ETC.						
TOTAL						

FUNDING (Thousands of Dollars)

GENERAL FUND		753,000				
FEDERAL FUNDS						
OTHER (Specify Source)						

POSITIONS

FULL TIME						
PART TIME						
TEMPORARY						

III. ANALYSIS (See Fiscal Note Preparation Instruction, Section III)

IV. DATE February 15, 1983 PREPARED BY House HESS Committee
AGENCY Legislative AFfairs Agency
PHONE 465-3777

Original: Legislative Finance
cc: Budget and Management
Prime Sponsor (First Legislator Named)

33-001 (Rev. 12/82)

ALASKA AVIATION SAFETY FOUNDATION

PROPOSED

AVIATION SAFETY TRAINING PROGRAMS

CONTENT AND BUDGET
SUMMARY

1. Develop and validate the curriculum in the form of 25 lesson plans including instructor ("How to Teach") and student manuals for use by experienced Alaskan aviation operators (pilots, managers, etc.) when training both private and commercial operators to fly aircraft safely in Alaska generally and in specific regions of Alaska. The lesson plans will cover the following most hazardous of aviation operations:

   a. Gathering weather information

   b. Interpreting weather information and trends

   c. Landings and take-offs:
      1. Gravel and sand bars 2. Lakes 3. Tundra 4. Mud 5. Ice
      6. Beaches 7. Airstrips 8. Runways 9. Snow 10. Glaciers

   d. Flight techniques in adverse weather:
      1. Vertigo 2. Whiteouts/depth perception 3. Turbulence 4. Icing

   e. Navigation/Pilotage

   f. Mountain flying, general and specific pass flying

   g. Flight techniques - area specific

   h. Fuel management and handling

   i. Cold weather operations

   APPROXIMATE COST $573,400

2. Prepare one or two exemplary audio-visual presentations for use in teaching specific validated lesson plans.

   APPROXIMATE COST $180,000

   TOTAL ESTIMATE $753,400

It is anticipated that Department of Education will issue Request for Proposal bids based on the attached proposal and the Definition of Alaskan Aviation Training Requirements previously completed by the Foundation.

The cost estimates (detailed on next page) are Foundation estimates based on a single preliminary survey of potential contractors. Actual bids may be more or less than the estimate.

Lance Wells, Executive Director
Alaska Aviation Safety Foundation
301 West Northern Lights Blvd., Suite 600
Anchorage, Alaska 99503

ALASKAN AVIATION SAFETY FOUNDATION PROPOSAL

BUDGETARY PRICE ESTIMATES

1983-1984

Proposed Start Work Date:	September 1, 1983
Personnel:	
Training Specialists (2.5 man-years)	$250,000.
Contract Secretarial Support (2.0 man-years)	50,000.
Alaskan Subject Matter Experts (9 man-months)	80,000.
Staff Project Support	25,000.
Per Diem: 540 days @ $150 per day	81,000.
Communications: Telephone and Postage	3,000.
Office Equipment: (Data Support)	20,000.
Office Supplies: @ $200 per month	2,400.
Office Space/Training Center:	24,000.
Printing: Progress and Final Reports	3,000.
Air Travel:	
Intrastate (via passes to extent possible)	10,000.
Leased Aircraft (donated to extent possible)	25,000.
Media Production: (Sample AV Programs)	180,000.
TOTAL:	$753,400.

Air carriers seek state-funded pilot training

Alaska Daily News 1-1-83

By CHUCK KLEESCHULTE
Daily News business reporter

Prompted by the promise of reductions in current sky-high insurance rates, Alaska air carriers are pushing hard to get a new pilot training program off the ground.

Air carriers over the weekend voted unanimously to seek $780,000 from the state's Legislature to fund the second stage of a proposed training program. It is designed so air taxi operators can offer courses for pilots and ground personnel tailor-made for Alaska weather and flying conditions.

"There is just no question that the aviation industry in this state needs more training. By additional training we can improve safety, cut accidents and reduce the rates air carriers pay for insurance," said Jim Dodson, an official of the newly formed Alaska Aviation Safety Foundation, sponsor of the new training program.

The Alaska Air Carriers Association in 1980, fresh on the heels of a National Transportation Safety Board report critical of air taxi operations in Alaska, hired American Airlines Training Corp. of Texas to study possible improvements in air carrier operations.

The American report completed last year stressed that Alaska's nation-leading air accident rate could be cut if pilots uniformly would be trained to handle Alaska aviation problems and be educated in safety practices so they would avoid wreckless behavior.

"We discovered when we studied Alaskan pilots that most needed more training to learn how to handle many uniquely difficult flying conditions. Flying in white-out conditions and flying where navigation is much more difficult make it important for Alaska pilots to be better trained than those in the Lower 48," says Michael K. Mitchell, an official of American Airlines Training Corp. "Flying out of Bethel daily requires more skill than a commercial 747 pilot ever needs," said Mitchell.

He says Alaska pilots, unlike those in the Lower 48, frequently have to fly by "dead reckoning" and by pilotage, using surface maps and landmarks to determine locations, rather than naglvational aides.

Mitchell said Alaska pilots especially face the danger of over-confidence prompting poor judgment in flight decisions, the so-called "Bush Syndrome."

To overcome such problems Mitchell proposes drafting pilot lessons especially tailored to Alaska problems, course manuals which Alaska air taxi operators will then use to satisfy Civil Aeronautics Board required refresher training.

Such training manuals, Mitchell said, could be written and in use by the end of 1984, provided funding for the safety program is found by this summer.

Lance Wells, executive director of the AACA, says the expenditure to fund the training program would ultimately benefit all air users through lower air fares, possible because of lower insurance liability premiums.

Dodson said several insurance firms have already promised to provide discounts to air taxi operators who complete the proposed safety program. He said the course also might attract other insurance firms to write policies for Alaskan air carriers.

At present only Lloyds of London underwrites aviation insurance given Alaska's high-risk loss history.

The possibility of lower rates is good news to an industry which already has seen nearly a dozen smaller operators go out of business during the past several years because of rapidly escalating insurance rates — the direct result of the state's high accident rate.

Alaska has a rate of non-fatal air accidents five times the rate of the Lower 48, a rate of fatal accidents twice the national average, says Alan L. Crawford, an NTSB regional investigator in Los Angeles.

Crawford during the carrier's annual convention in Anchorage Saturday urged Alaska officials to find funding for the safety program. Wells says carriers have received a commitment from the Sheffield administration to provide at least part of the amount needed for the program in the state's FY '84 budget now under development.

Wells, however, urged carriers to contact lawmakers to try to obtain full funding for the drafting of the training program.

Katherine Fanning
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Howard Weaver
Managing Editor

Gerald E. Grilly
General Manager

Steve Lindbeck
Editorial Page Editor

Lawrence Fanning, Editor and Publisher 1967 to 1971
Alaska's Only Morning Newspaper • Founded in 1946 by Norman C. Brown

Jan 31, 1983

Upgrade pilot training programs in Alaska

Alaska's air carriers have improved their aim considerably in efforts to shoot down the high cost of flying insurance. The target this legislative season is improved pilot training, and there is at least some chance of success.

Last year the industry sought help from Juneau in the form of legal limits to the financial liability facing air carriers in Alaska. Reducing the carriers' (and thus the underwriters') liability, it was thought, would translate into reduced insurance rates. But the legislation went nowhere — presumably because it pinpointed the wrong problem.

The problem with aviation and insurance coverage in Alaska is the high rate of accidents — not the legal responsibilities arising from them. And the high rate of accidents stems too often from human error arising from the combination of harsh weather, natural hazards, navigational difficulties and unwarranted overconfidence known as "the Bush syndrome."

Industry representatives tacitly admit as much in pressing for a state-funded pilot training program tailored to the special demands of Alaska flying conditions. "There is just no question that the aviation industry in this state needs more training," says Jim Dodson, an official of the Alaska Aviation Safety Program. "By additional training we can improve safety, cut accidents and reduce the rates air carriers pay for insurance."

There may be a battle over who will pay for the training. Air carriers have asked the legislature for $780,000 to fund the second stage of a proposed training program pitched to the needs of Alaska air taxi operators. The Sheffield administration apparently has expressed interest in picking up part of the tab, though a case also could be made for funding the program through a special levy on the industry.

There is little doubt of the pressures, challenges and risks associated with flying in Alaska. But the crucial factor in safely confronting those challenges is the human judgment of pilots who must know their profession better in Alaska than anywhere else in the country. "Flying out of Bethel daily requires more skill than a commercial 747 pilot ever needs," says an official of a company hired to study air carrier operations in Alaska.

That realization alone is enough to justify upgrading pilot training programs in our state. Aviation is a crucial lifeline to every corner of Alaska, and high insurance costs ultimately raise the cost of living throughout the Bush. Working to improve the competence and training of thousands of Alaska pilots can greatly improve the quality of life in dozens of communities that depend on them.

National Transportation Safety Board
Washington, D.C. 20594

Safety Information

FOR IMMEDIATE RELEASE

Tuesday
September 16, 1980

SB 80-78/3052
(202) 472-6100

Air taxis in Alaska have far higher accident rates than air taxis in the rest of the United States, the National Transportation Safety Board reported today in a special study.

Alaska's rate of nonfatal air taxi accidents per hour flown has been almost five times higher, and its fatal accident rate per hour more than twice, that of the rest of the country, the Board found.

The Board attributed the high rates to:

— The "bush syndrome," nourished by legends of Alaskan bush pilots, and other factors which today sometimes prompts air taxi pilots and passengers alike to take unwarranted risks to complete flights in the face of the state's unique environmental hazards.

— Inadequate airport facilities and pilots' frequent inability to obtain accurate information on airport conditions.

— Insufficient ground aids to navigation.

In 1974-78, Alaskan air taxi operators had a rate of 15.2 nonfatal accidents in every 100,000 hours, as compared with 3.3 in the rest of the country. The Alaskan rate of fatal accidents per 100,000 hours was 2.57; in the other states it was 1.11.

Sampling of Safety Board accident data showed that the pilot was cited as a causal or contributing factor in 85 percent of Alaskan air taxi accidents studied, as compared with 70 percent of similar accidents in the other states. The data also showed that most Alaskan accident pilots were experienced -- almost all had logged more than 1,000 hours, and 80 percent had more than 2,000 pilot hours.

The Board said Alaska air taxi operators believe the inadequacy of airport facilities and information on airport conditions are a significant factor in the state's air taxi accidents. And there is "virtual unanimity of opinion among

operators and pilots that runway conditions present a problem in much of rural Alaska" the Board reported.

Operators and pilots flying in the more rural areas also repeatedly cited the lack of navigation aids, inadequate observation of en route and destination weather, and inadequate dissemination of weather information when observations are made.

The Safety Board described as unprecedented for this or any other state a fiscal 1981 Alaska appropriation package totaling more than $51 million for further development of state aviation facilities. In combination with the Federal Aviation Administration's 10-year development plan for the state, improvements which the appropriation would finance could have a substantial impact on the safety of Alaska's aviation system, the Board said.

A series of 11 safety recommendations are incorporated in the Board's special study. Addressed to the State of Alaska, the FAA, and the Alaska Air Carriers Association, their goals include:

— Rapid completion of aviation projects to be funded by the $51 million appropriation.

— Centralization of authority and responsibility for planning operating and maintaining the State's aviation facilities.

— A comprehensive aviation system plan for Alaska.

— Permanent assignment of FAA operations and maintenance inspectors to Nome, Bethel and Ketchikan, and to "as many other regional hubs as possible."

— Continued development of weather data gathering and transmission facilities, including such new technology as weather observation by television and "meteor burst" communication which would transmit data from a single observation point in an Alaskan village simultaneously to all of the state's regional aviation hubs.

— Extension of the Alaska air carriers' safety program to specifically combat the "bush pilot syndrome."

The Safety Board's special study - "Air Taxi Safety in Alaska" will be available in approximately three weeks. Single copies may be obtained without charge by writing to the Publications Branch, National Transportation Safety Board, Washington, D.C. 20594. Multiple copies may be purchased by mail from the National Technical Information Service, U.S. Department of Commerce, Springfield, Virginia 22161.

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WASHINGTON, D.C.

ISSUED: September 25, 1980

Forwarded to:
Honorable Jay Hammond
Governor
State of Alaska
Juneau, Alaska 99801

SAFETY RECOMMENDATION(S)
A-80-96 through -100

The National Transportation Safety Board has studied the air taxi accidents which occurred in Alaska from 1974 through 1978. Accident data from the Safety Board's automated aviation accident data system for that period were analyzed by means of frequency distributions. Safety Board staff also visited Alaska to see the conditions under which the air taxi community operates, to discuss the community's attitudes and needs, and to examine the community's interaction with Federal and State agencies. While in Alaska, the Safety Board staff met with officials of the Federal Aviation Administration (FAA), the National Weather Service (NWS), the Alaska Department of Transportation and Public Facilities (DOT/PF), the Alaska Air Carriers Association, and 17 air taxi operators. 1/

The State of Alaska is heavily dependent on its air taxi industry to transport food, medicine, mail, and many other necessities of life to rural villages. Alaska, however, has an air taxi safety problem. During the 5-year period 1974-1978, there were 311 air taxi accidents in Alaska, of which 266 were nonfatal and 45 were fatal, compared with 753 air taxi accidents in the rest of the United States, of which 562 were nonfatal and 191 were fatal. More importantly, the nonfatal air taxi accident rate (per 100,000 flying hours) in Alaska is almost five times higher than the nonfatal air taxi accident rate in the rest of the United States, and the fatal air taxi accident rate in Alaska is more than double the fatal air taxi accident rate in the rest of the United States.

The Safety Board study concluded that there are three major factors responsible for the high air taxi accident rate in Alaska: (1) the "bush syndrome," (2) inadequate airfield facilities and inadequate communications of airfield conditions, and (3) inadequate weather observations, inadequate communications of the weather information, and insufficient navigation aids. The "bush syndrome" is an attitude on the part of air taxi operators, pilots, and passengers in Alaska that ranges from a casual acceptance of risks to a willingness to take unwarranted risks. Most of the active airports in Alaska are State owned and maintained, and many of their runways are inadequately maintained. Whiteouts, very rapid weather changes, and a scarcity of navigation aids cause pilots to make many off-airport takeoffs and landings in float-equipped and ski-equipped aircraft. The collection and dissemination of weather information and current runway condition information is hampered by a shortage of trained personnel and an inadequate communications system in rural Alaska.

1/ For more detailed information read "Special Study--Air Taxi Safety in Alaska" (NTSB-AAS-80-3).

The relationship between the State's air taxi operators and the FAA appears to be strained. Further, because of a lack of permanent FAA inspectors at the rural aviation transportation hubs, there is insufficient opportunity for the FAA to provide guidance to the air taxi operators.

The State of Alaska has recently appropriated, through Chapter 50, SLA 1980, substantial funds for the improvement of the State aviation system, including upgrading of runways and the installation of navigation aids, and weather reporting and communications equipment. A comprehensive State aviation system plan, adequate to implement the intent of Chapter 50, SLA 1980, does not appear to exist. Further, centralized control over, and authority for, developing such a plan does not appear to exist within the current State DOT/PF structure. Cooperation among the State, the FAA, the NWS, and the air taxi operators must be increased if the State is to develop and implement the plan.

Based on the results of this study, the National Transportation Safety Board recommends that the State of Alaska:

Coordinate with the Federal Aviation Administration and the National Weather Service to facilitate the rapid implementation of the air transportation projects contained in Chapter 50, SLA 1980. (Class I, Urgent Action) (A-80-96)

Improve the level of maintenance of the runway facilities at the rural villages within the State airport system. (Class II, Priority Action) (A-80-97)

Centralize authority and responsibility for planning, operating, and maintaining the State's aviation facilities. (Class II, Priority Action) (A-80-98)

Develop, in cooperation with the Federal Aviation Administration and the system users, a comprehensive aviation system plan and a program for the implementation of the plan. (Class II, Priority Action) (A-80-99)

Establish, in cooperation with the Federal Aviation Administration and the air taxi operators, a program to impress upon the public, particularly those living in rural villages, the importance of respecting and properly maintaining airfield facilities. (Class II, Priority Action) (A-80-100)

KING, Chairman, GOLDMAN and BURSLEY, Members, concurred in these recommendations. DRIVER, Vice Chairman, and McADAMS, Member, did not participate.

By: James B. King
Chairman

WASHINGTON, D.C.

ISSUED: September 25, 1980

Forwarded to:
Honorable Langhorne M. Bond
Administrator
Federal Aviation Administration
Washington, D.C. 20591

SAFETY RECOMMENDATION(S)
A-80-101 through -104

The National Transportation Safety Board has studied the air taxi accidents which occurred in Alaska from 1974 through 1978. Accident data from the Safety Board's automated aviation accident data system for that period were analyzed by means of frequency distributions. Safety Board staff also visited Alaska to see the conditions under which the air taxi community operates, to discuss the community's attitudes and needs, and to examine the community's interaction with Federal and State agencies. While in Alaska, the Safety Board staff met with officials of the Federal Aviation Administration (FAA), the National Weather Service (NWS), the Alaska Department of Transportation and Public Facilities (DOT/PF), the Alaska Air Carriers Association, and 17 air taxi operators. 1/

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The Safety Board study concluded that there are three major factors responsible for the high air taxi accident rate in Alaska: (1) the "bush syndrome," (2) inadequate airfield facilities and inadequate communications of airfield conditions, and (3) inadequate weather observations, inadequate communications of the weather information, and insufficient navigation aids. The "bush syndrome" is an attitude on the part of air taxi operators, pilots, and passengers in Alaska that ranges from a casual acceptance of risks to a willingness to take unwarranted risks. Most of the active airports in Alaska are State owned and maintained, and many of their runways are inadequately maintained. Whiteouts, very rapid weather changes, and a scarcity of navigation aids cause pilots to make many off-airport takeoffs and landings in float-equipped and ski-equipped aircraft. The collection and dissemination of weather information and current runway condition information is hampered by a shortage of trained personnel and an inadequate communications system in rural Alaska.

1/ For more detailed information read "Special Study--Air Taxi Safety in Alaska" (NTSB-AAS-80-3).

3052

The relationship between the State's air taxi operators and the FAA appears to be strained. Further, because of a lack of permanent FAA inspectors at the rural aviation transportation hubs, there is insufficient opportunity for the FAA to provide guidance to the air taxi operators.

The State of Alaska has recently appropriated, through Chapter 50, SLA 1980, substantial funds for the improvement of the State aviation system, including upgrading of runways and the installation of navigation aids, and weather reporting and communications equipment. A comprehensive State aviation system plan, adequate to implement the intent of Chapter 50, SLA 1980, does not appear to exist. Further, centralized control over, and authority for, developing such a plan does not appear to exist within the current State DOT/PF structure. Cooperation among the State, the FAA, the NWS, and the air taxi operators must be increased if the State is to develop and implement the plan.

Based on the results of this study, the National Transportation Safety Board recommends that the Federal Aviation Administration:

Evaluate, in cooperation with the State of Alaska and the National Weather Service, the feasibility of equipping its flight service stations and the NWS-certified weather observers in rural villages with high-frequency transceivers that have the appropriate frequencies to facilitate the ground-to-ground communication of weather and runway conditions. (Class II, Priority Action) (A-80-101)

Locate and maintain permanently a Principal Operations Inspector and a Principal Maintenance Inspector at Nome, Bethel, Ketchikan, and at as many other regional aviation hubs as possible. (Class II, Priority Action) (A-80-102)

Continue to develop, in cooperation with the National Weather Service, the concept of "meteor burst" technology for transmission of weather observations from rural villages to regional aviation hubs in Alaska. (Class II, Priority Action) (A-80-103)

Continue to develop and improve, in cooperation with the National Weather Service, the technology of the television weather observation system in Alaska. (Class II, Priority Action) (A-80-104)

KING, Chairman, GOLDMAN and BURSLEY, Members, concurred in these recommendations. DRIVER, Vice Chairman, and McADAMS, Member, did not participate.

By: James B. King
Chairman

WASHINGTON, D.C.

ISSUED: September 25, 1980

Forwarded to:
Ms. Tulinda Deegan
President
Alaska Air Carriers Association
Box 6469
Anchorage, Alaska 99502

SAFETY RECOMMENDATION(S)

A-80-105

The National Transportation Safety Board has studied the air taxi accidents which occurred in Alaska from 1974 through 1978. Accident data from the Safety Board's automated aviation accident data system for that period were analyzed by means of frequency distributions. Safety Board staff also visited Alaska to see the conditions under which the air taxi community operates, to discuss the community's attitudes and needs, and to examine the community's interaction with Federal and State agencies. While in Alaska, the Safety Board staff met with officials of the Federal Aviation Administration (FAA), the National Weather Service (NWS), the Alaska Department of Transportation and Public Facilities (DOT/PF), the Alaska Air Carriers Association, and 17 air taxi operators. 1/

The State of Alaska is heavily dependent on its air taxi industry to transport food, medicine, mail, and many other necessities of life to rural villages. Alaska, however, has an air taxi safety problem. During the 5-year period 1974-1978, there were 311 air taxi accidents in Alaska, of which 266 were nonfatal and 45 were fatal, compared with 753 air taxi accidents in the rest of the United States, of which 562 were nonfatal and 191 were fatal. More importantly, the nonfatal air taxi accident rate (per 100,000 flying hours) in Alaska is almost five times higher than the nonfatal air taxi accident rate in the rest of the United States, and the fatal air taxi accident rate in Alaska is more than double the fatal air taxi accident rate in the rest of the United States.

The Safety Board study concluded that there are three major factors responsible for the high air taxi accident rate in Alaska: (1) the "bush syndrome," (2) inadequate airfield facilities and inadequate communications of airfield conditions, and (3) inadequate weather observations, inadequate communications of the weather information, and insufficient navigation aids. The "bush syndrome" is an attitude on the part of air taxi operators, pilots, and passengers in Alaska that ranges from a casual acceptance of risks to a willingness to take unwarranted risks. Most of the active airports in Alaska are State owned and maintained, and many of their runways are inadequately maintained. Whiteouts, very rapid weather changes, and a scarcity of navigation aids cause pilots to make many off-airport takeoffs and landings in float-equipped and ski-equipped aircraft. The collection and dissemination of weather information and current runway condition information is hampered by a shortage of trained personnel and an inadequate communications system in rural Alaska.

1/ For more detailed information read "Special Study--Air Taxi Safety in Alaska" (NTSB-AAS-80-3).

The relationship between the State's air taxi operators and the FAA appears to be strained. Further, because of a lack of permanent FAA inspectors at the rural aviation transportation hubs, there is insufficient opportunity for the FAA to provide guidance to the air taxi operators.

The State of Alaska has recently appropriated, through Chapter 50, SLA 1980, substantial funds for the improvement of the State aviation system, including upgrading of runways and the installation of navigation aids, and weather reporting and communications equipment. A comprehensive State aviation system plan, adequate to implement the intent of Chapter 50, SLA 1980, does not appear to exist. Further, centralized control over, and authority for, developing such a plan does not appear to exist within the current State DOT/PF structure. Cooperation among the State, the FAA, the NWS, and the air taxi operators must be increased if the State is to develop and implement the plan.

Based on the results of this study, the National Transportation Safety Board recommends that the Alaska Air Carriers Association:

> Extend its safety program to reiterate the hazards of air taxi operations in Alaska and to overcome, in particular, the "bush pilot syndrome." (Class II, Priority Action) (A-80-105)

KING, Chairman, GOLDMAN and BURSLEY, Members, concurred in this recommendation. DRIVER, Vice Chairman, and McADAMS, Member, did not participate.

By: James B. King
Chairman

NATIONAL TRANSPORTATION SAFETY BOARD
WASHINGTON, D.C.

ISSUED: September 10, 1980

Forwarded to:

Honorable Langhorne M. Bond
Administrator
Federal Aviation Administration
Washington, D.C. 20591

SAFETY RECOMMENDATION(S)

A-80-86 through -89

The National Transportation Safety Board is investigating the presumed crash of a Cessna 340, N110RA, in the water near Petersburg, Alaska, on August 20, 1980. The aircraft, pilot, and three passengers are still missing.

The aircraft had been cleared for the approach to Petersburg when the pilot radioed that he was having control difficulties in the pitch axis. He requested and received clearance to climb to altitude and stated that his intentions were to return to Ketchikan, Alaska. Shortly thereafter, the pilot reported that the aircraft was breaking up.

The Safety Board's review of the maintenance records of the accident aircraft revealed a history of empennage structural problems dating back to 1977 when the aircraft had less than 100 hours total time. There were recurrent reports of in-flight empennage vibrations and recurrent findings of stabilizer and elevator structural cracks. Attempted corrective action had included installation of a new horizontal stabilizer at 174 hours and reskinning of the stabilizer at 893 hours. The left outboard elevator hinge bracket was found cracked and was replaced 8 days before the accident. Total time on the aircraft was 1,035 hours.

The Safety Board is aware of the special inspection requirements issued initially in December 1979, by the manufacturer in Cessna Multi-Engine Service Information Letter, ME-79-44, and the two subsequent revisions to the letter. The Board is also aware of Airworthiness Directive 80-16-06, dated August 23, 1980, which made Revision 2 of the Service Letter mandatory.

Recently, the Safety Board was informed by an FAA inspector in a General Aviation District Office that compliance with AD 80-16-06 has disclosed several instances of cracked structure in the elevator hinge area. In one case, a precautionary inspection on an aircraft with less than 40 hours total time revealed a crack in the elevator gusset.

The Safety Board is concerned that, at this time, the problem which is causing the empennage structural cracking on these particular models is not well defined. The service problems have been associated with those aircraft models with the larger

engines installed (greater than 285 maximum continuous horsepower) which were manufactured or modified before a structural change which strengthened the empennage was incorporated in the design. Additionally, the Safety Board is concerned that the 100-hour total time requirement for initial inspection and the 100-hour recurring inspection interval may not be adequate to detect potential failures. Also, structural cracks in low-time aircraft could be indicative of an unpredicted vibratory mode, a production line quality control deficiency, or both.

Therefore, the National Transportation Safety Board recommends that the Federal Aviation Administration:

Revise Airworthiness Directive 80-16-06, dated August 23, 1980, to require an initial inspection before further flight, regardless of the aircraft's total time, and restrict the performance envelope of those Cessna models affected by the AD to that of the basic Cessna model 335/340 until the empennage structural cracking problem is resolved. (Class I, Urgent Action) (A-80-86)

Evaluate the 100-hour recurring inspection interval now required in AD 80-16-06 to ascertain the need for a shorter interval, and amend the AD as appropriate. (Class I, Urgent Action) (A-80-87)

Evaluate the design certification data of the Cessna 335/340 empennage structure to ascertain if all possible vibratory modes and structural loads to which it can be exposed have been considered and require retrofit modification to aircraft affected by AD 80-16-06 as indicated to be necessary. (Class II, Priority Action) (A-80-88)

Evaluate the results of the initial inspections performed in compliance with the revised Airworthiness Directive, to ascertain the need for a Quality Assurance Systems Analysis Review (QASAR) of the Cessna 335/340 manufacturing process. (Class II, Priority Action) (A-80-89)

KING, Chairman, GOLDMAN and BURSLEY, Members, concurred in these recommendations. DRIVER, Vice Chairman, and McADAMS, Member, did not participate.

By: James B. King
Chairman

ALASKAN AVIATION SAFETY FOUNDATION
BOARD OF DIRECTORS
ADVISORY COMMITTEE
1983

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FUNDING REQUEST

TO

IMPLEMENT AND CONTINUE DEVELOPMENT

OF

ALASKAN AVIATION SAFETY TRAINING PROGRAMS

PREPARED BY:

ALASKA AVIATION SAFETY FOUNDATION
301 W. Northern Lights Blvd.
National Bank of Alaska Building
Suite 600
Anchorage, Alaska 99503
(907) 279-7684

Rex Bishop, Chairman
ALASKA HELICOPTERS

EXECUTIVE DIRECTOR & COUNSEL:

Lance Wells & Associates

DATE: January, 1983

TABLE OF CONTENTS

EXECUTIVE SUMMARY

PURPOSE: What follows is a proposed plan to develop and implement Alaskan aviation safety lesson plans and safety training programs along with sample training media appropriate for advance safety training of Alaskan aviators in all aspects of private and commercial aviation operations. Piloting, ground operations, maintenance and management are examples of the areas covered with first emphasis on piloting.

BACKGROUND: In 1981 the Alaska Aviation Safety Foundation (Foundation) received funding from the State of Alaska to design a training program for Alaskan aviators. American Airlines Training Corporation won the contract for that study which was Phase I of the development of a "Total Training System". The study, in which experienced Alaskan aviators throughout the state were interviewed, produced a set of training objectives which was published in a 175 page report titled Definition of Alaskan Aviation Training Requirements. Copies are available.

The National Transportation Safety Board and the FAA have reviewed the study and found it to be excellent. Implementation of the training program suggested in the study will have a dramatic positive impact on safety in Alaska. Numerous insurance

underwriters have indicated the same with respect to insurance rates due to the lower risk they face in a more safety conscious market. This translated to significantly lower costs to intra-Alaska travelors since over 20% of air fares within Alaska at the present time are attributable to air carrier's insurance costs.

METHODS AND DELIVERABLES: The results of the above study are the basis of Phase II in the development and implementation of this "Total Training System" which consists of 4 phases. The Second Phase will be the development of lesson plans suitable for use by experienced Alaskan aviation operators for use when training others to operate safely in specific regions of Alaska. In addition, the Foundation will develop a sample audio-visual training program for one of the Phase II lesson plans as a sample of what will be used in Phase III of the "Total Training System."

The development of these detailed lesson plans anticipate the efforts of experienced education/ training specialists on site in Alaska working with highly experienced Alaskan pilots, managers and opinion leaders selected by the industry itself and the Foundation directors. The training specialists have selected several lesson plan formats for use

when processing the information from the Alaskan aviators into instructional materials for use throughout the Alaskan aviation cc mmunity. In addition to the aviation lesson plans, the Foundation will develop lessons for potential trainers specifying "how to teach" using current methods and media.

FURTHER PHASES: (Not included in current proposal costs.) Following the completion of Phase II, the F undation proposes to convert each lesson plan selected by Alaskan operators into an appropriate training system using audio-visual media. This will be Phase III of a planned four-phase effort. Phase IV efforts may require the construction of sophisticated aviation simulation training devices which can result in a "Total Training System" specifically and regionally designed for the unique Alaskan aviation environment. This Total Training System can have a significant effect by reducing the exposure to risk when flying throughout Alaska.

FUTURE FUNDING: The Alaska Air Carriers Association and Aviation Safety Foundation are working hard to minimize, if not avoid all together, future requests for funding from the State for these projects and on-going safety training programs. Private funding mechanisms are being developed and it is anticipated

that these will supply the on-going needs of the Foundation. Some of the mechanisms are already in place and others are soon to be implemented:

a. Group Insurance Dividends and Savings.
b. Captive Insurance Reserve Earnings
c. Standard Charitable Fund raising from major aviation users.
d. Fund raising events (safety conferences, etc.)

The present request is, in effect, seed money which will allow the Foundation to start producing fruits and attract more private money. Future State monies may be needed, however, for transition into more sophisticated training modes.

ANALOGY

The following section is included to explain and clarify the process of Total Training System development. The development of a Total Training System for Alaskan aviation is analogous to the development of a complete housing community. The phases are ANALYSIS, DESIGN, DEVELOPMENT, and IMPLEMENTATION.

PHASE I - ANALYSIS

In developing a housing community, the investors and builders need to now what type of houses the purchasers want and need. An ANALYSIS will determine the location of the community, type of structure, appropriate number of rooms, etc. A similar "needs analysis" is required in the development of a Total Training System.

The ANALYSIS, Phase I, has been done by the Alaska Aviation Safety Foundation during interviews and observations in Alaska. The training objectives so developed have been reported in the Phase I final report titled Definition of Alaskan Training Requirements. Copies of the 175 page document are available. Requests should be submitted to the Foundation whose address is on the cover of the proposal.

PHASE II - DESIGN

The second phase in developing a housing community will result in a set of detailed plans for use by a competent builder when building the houses described in Phase I. In addition, the designer usually builds a model home which represents to the buyer and to investors the capability to

produce a quality product in Phase III.

This proposal for Phase II is to develop usable lesson plans and an audio-visual program as part of the Total Training System for private and commercial Alaskan aviators.

PHASE III - DEVELOPMENT

Using the plans prepared in Phase II, the housing developers can select all or part of the dwellings which they feel are appropriate for construction. The model home can serve as a standard against which subsequent buildings can be measured.

In Phase III of the development of a Total Training System for Alaska Aviation, the Foundation has the option of selecting as many lessons as wanted and can be afforded for audio-visual and hands-on training programs.

PHASE IV - TOTAL IMPLEMENTATION

Finally, the housing project can be completed by building those facilities which create a community, such as completion of paved streets, building of community centers, development of planned support systems, etc.

Phase IV of the plan to develop a Total Training System for Alaskan aviators will need to be tied into an organized instructional delivery network; for example, a television

satellite with the final evaluation performed in simulated settings, preferably at central locations. Regional training centers will be opened throughout Alaska which provide general training as well as "region specific" training.

CHAPTER I

INTRODUCTION

This proposal describes a process for the development of a set of lesson plans. These plans will be appropriate for use by experienced Alaskan aviators to use in teaching courses designed to make the learners safer pilots and managers. In addition, the Alaska Aviation Safety Foundation proposes to develop a sample audio-visual training program. This A/V program will demonstrate sophisticated training programs and devices which might be used as the training programs become more sophisticated.

This paper describes the background leading up to the proposed effort in Chapter II. This includes a review of relevant studies by Parker Associates, the National Transportation Safety Board, and a description of the Definition of Alaskan Aviation Training Requirements prepared by the Foundation in 1981 and 1982. Chapter III describes the proposed method for transforming the previously defined training objectives into lesson plans relevant to the unique needs and conditions in Alaska. A description of the deliverables available at the completion of the proposed work is included in Chapter III. Chapter IV describes proposed future efforts which might be expected in the ongoing process of creating a "Total Training System" for private and commercial Alaskan aviation.

CHAPTER II

BACKGROUND

Alaska's dependence on the air taxi industry for delivery of needed goods and services and the safety problems besetting the air taxi operators have been documented in previous studies such as Parker Associates' study, Air Service to Rural Alaska: A Study in Inadequacy and a 1980 National Transportation Safety Board Special Study entitled Air Taxi Safety in Alaska. The NTSB study reported that, "...about 30 percent of all air taxi accidents in the United States occurred in Alaska, and their rate of occurrence was four times that of the accident rate for air taxi operators in the rest of the United States." This accident rate among Alaskan air taxi operators has resulted in a tragic loss of life and injuries sustained, in addition to skyrocketing insurance costs. A recent letter dated January 4, 1983 from the NTSB to the Air Carriers Association points out that the problem identified in 1980 continues to manifest itself in recent accidents. The NTSB urges early implementation of the program proposed by the Foundation in the "Final Report on Definition of Alaskan Aviation Training Requirements." A copy of the letter is attached as Exhibit "A".

The Parker and NTSB studies prompted a search for solutions to serious problem. An unsuccessful effort was made to identify and obtain an existing Arctic training program.

Inquiries were made of training personnel in the United States Air Force, the Canadian United Forces, and several Scandinavian countries. Existing training programs which were being conducted in Alaska were found to be designed to meet recertification requirements of the Federal Aviation Administration (FAA) and were not responsive to the unique Alaskan operational environment. "Advanced" safety training is necessary for Alaska flying conditions.

The decision was made to develop a specifically designed training program suited to the needs of Alaskan aviators. This training program could be based on accident records compiled by the FAA or the National Transportation Safety Board (NTSB). However, such records were often incomplete and, in fact, represented a list of failures. Instead, it was decided to discover how experienced Alaskan pilots, maintenance and managerial personnel learned to cope with the many challenging problems regularly faced by private and commercial Alaskan aviators. The process of discovery was developed and validated by John Flanagan and reported in Psychological Bulletin in 1954. Flanagan's critical incident methodology, in conjunction with traditional job analysis procedures, is the basis for the interviewing process used in this study.

After careful consideration, the State of Alaska provided

funding for the study. The funds were included with those to be administered by the Alaska State Department of Education. American Airlines Training Corporation won the contract and assisted the Foundation with the study.

The goal of the Foundation is to provide effective, advanced flight, operations and management training in Alaska, based on information gathered from experienced Alaskan aviators with excellent safety records.

This training will produce highly-qualified, professionally oriented pilots, mechanics and managers and will result in a lower accident rate. The Air Carriers Association has worked with insurance underwriters attempting to obtain insurance premium reductions for individuals and commercial operators who participate in the proposed Alaskan aviation training programs offered by the Association and the Foundation. Several underwriters have expressed support for the concept of reducing insurance premiums and making direct contributions to the Foundation (a charitable institution) if the Foundation starts producing fruits in the near future. Two underwriters already are, based on assurances that training programs will be forthcoming soon.

During the course of the study, the investigators travelled to 58 locations (cities, towns, villages) throughout Alaska; interviewed approximately 177 air taxi operators and pilots;

visited numerous aviation facilities; and attended several aviation related seminars and lectures.

The questionnaire used in the interviews was designed by the research team and modified in response to changes suggested by the Foundation Board of Directors, and to respondents' comments and answers during the first interviews. The interviews were conducted on a one-to-one basis and lasted an average of two hours. Background information, flight techniques and operational conditions in the Alaskan environment were collected from the interviews. Respondents provided a variety of specific techniques which have helped them to prevent hazardous situations from becoming serious accidents. The information in the completed questionnaires was organized into an outline form using a computer. This outline of information provided a data base from which the training objectives were synthesized. The final report contains the unvalidated information from the questionnaires and the training objectives.

The Alaskan aviation training objectives indicate what needs to be taught, the instructional media and devices appropriate for presenting the information, and how to evaluate mastery of the objectives. The training objectives will serve as the basis for further development of an Alaskan aviation training program.

REGIONALIZED APPROACH

Based on information collected in formal pilot interviews and informal conversations with many other Alaskans interested in aviation, a complete Alaskan training system would have to be regionally oriented. There are sufficient differences in flying conditions among geographic regions to warrant training that addresses specific regions in which a pilot operates. Such a regionalized approach would also enable pilots to spend as little time as possible away from their home base to complete a training program. In addition, aviation training in Alaska will emphasize the development and improvement of judgment and decision-making skills rather than the manipulative skills associated with aircraft operation.

In addition to identifying training requirements that address piloting, mechanical and managerial skills and competencies, the study also investigated the management of air taxi operations. It became obvious to the research team that some operators in Alaska manage safe, profitable air taxi services. Those factors that contribute to such an operation were identified and serve as training requirements for air taxi management training.

GENERAL FINDINGS: The information collected from the interviews showed that, although some training requirements and the

training objectives to meet those requirements were applicable to Alaskan aviation in general, the majority were specific to different geographical areas in the state and also to different types and configurations of aircraft (single engine, ski, helicopter, multi-engine, float, etc.). It was also recognized that the primary emphasis of an Alaskan training system should be the development of decision making skills on the part of the pilot rather than manipulative flying skills. For example, the training emphasis should be on when to make a 180° turn to escape adverse weather or leave a mountain pass, and include specific operational procedures to be performed on the basis of such a decision.

PRELIMINARY RESULTS: The study identified several factors that had to be considered in the design of an Alaskan aviation training system:

PRIVATE AND COMMERCIAL

1. The primary objective of the training system should be acceptable and applicable to private and commercial aviation operators conducting flight operations in a uniquely stressful environment due to weather, geographic, and other adverse operational conditions.

REGIONALLY SPECIFIC

2. The training system should be tailored to specific

geographical areas of the State and to different types and configurations of aircraft.

LOCALLY AVAILABLE

3. Components of the training system should be accessible to pilots in the community in which they are located. This would avoid, as much as possible, pilots spending time away from their primary job to attend training in a distant geographic location.

PRACTICAL

4. The requirement for training system components for localized on-job-site training could be met by using transportable training devices and interactive audio-visual and print media. These programs should contain instructional components tailored to geographic areas and aircraft types.

EVALUATION

5. Instructional programs would be designed to teach specific decision-making skills and the operational procedures to be performed on the basis of such decisions. Evaluation of student performance must be made by qualified, certified airmen with extensive experience in the given geographical area using structured evaluation methods.

DECISION MAKING SKILLS THEN APPLICATION

6. The training system should be capable of allowing the airmen to first learn the necessary discriminations and decision-making capabilities, and then apply these skills in a simulated or operational environment. Non-transportable training devices could be required for operational training.

TRAINING CENTERS

7. Area training centers should be established for specific geographic regions. These training centers could be co-located with existing Community College facilities. The training system would thus permit the learning of needed decision-making skills and operational procedures through transportable media, and evaluation of student performance by designated airmen for localized job-site training. Support and administration for this training would be provided by the area training center.

CHAPTER III

METHOD AND DELIVERABLES

This chapter describes the process which the Foundation proposes to use to transform the results of their report, Definition of Alaskan Aviation Training Requirements, into usable lesson plans and a sample audio-visual training program lesson.

The Foundation will assign persons with expertise in Alaskan aviation needs and experience in development of aviation training programs to work with Alaskan aviation Subject Matter Experts (SME's) for the duration of the contract resulting from this proposal. The Alaskan Aviation Safety Foundation will identify suitable SME's for each type of lesson.

The Foundation will contract with these SME's for a period of time sufficient to convert their unique knowledge into the content of the lesson plan. One to two weeks per SME will be required. Several elements will assist in the success of this process. First, appropriate lesson plan formats have been identified. Lesson plan formats will be presented to the Foundation Board for approval. The approved formats will be the basis for the information gathered from the SME's. Second, the research team has and will continue to use the recommended operational techniques previously identified

by experienced Alaskan aviators in the study to Definite Alaskan Aviation Training Requirements. These techniques can be evaluated for efficacy and validated during the development of the lesson plans.

The validated list of techniques will become the "Trigger" which can serve to remind the SME of as many techniques as possible. In the development of some lessons, it is anticipated that several SME's will be required. Where SME's cannot agree on techniques or appropriate procedures for a lesson, the training developers will look to the Foundation Board for guidance or will include alternative methods in the lesson plans. Provisions will be made in each plan for the experienced Alaskan aviator designated to teach the courses from these lesson plans to provide specific information appropriate to the geographical area in which the learner will be operating.

A lesson will be selected for development into an audio-visual format. The lesson, which should take approximately 30-40 minutes, may include slide/tapes or video tapes or similar media. It may, for example, train pilots in a subject such as flying through a pass, landing on a beach, checking weather in Alaska or a similar subject. This sample program will demonstrate the use of various media therefore, the cost of this product may not be representative of each training lesson. The sample program will become the standard for transforming all of the lesson plans into

various representative media formats during Phase III of the development of a total training system for Alaskan aviators.

At this time, it appears that the completed lesson plans should number about 25. These would be clustered into the following units:

- Weather in Alaska
- Adverse Weather Flying Techniques
- Takeoff and Landing Techniques for Special Surfaces
- Navigation and Piloting Techniques
- Mountain and Pass Flying
- Area Specific Flying Techniques
- Fuel Management and Handling Techniques
- Cold Weather Operating Techniques
- Hazardous Materials in Alaska
- Survival Training
- Management Training Plans

In addition, a lesson will be developed which will prepare experienced Alaskan pilots and operators to use the plans developed in this project to teach others.

CHAPTER IV

FUTURE PHASES

At the conclusion of the effort described in this proposal, the citizens of the State of Alaska will have a usable product which can have a significant effect on aviation safety in the State. However, although the production of a set of lesson plans is useful and desirable, they do not represent a Total Training System. The lesson plans are a second, but necessary, step in the continuing process of providing safer aviation activities in Alaska through improved training.

The next step is to professionally prepare all of the lessons in an audio-visual, computer assisted and satellite transmittable aviation training program. Even though some Alaskan opinion leaders would prefer that the automated audio-visual programs be produced this year, we believe it is better to prepare the lesson plans and let experienced Alaskan aviators validate their effectiveness before committing the resources to automate them. Then, the Alaska Aviation Safety Foundation can define and build the training media required to produce the best trained arctic pilots possible. Therefore, the Foundation is proposing that each step be taken sequentially and proven before committing to a total training system. We believe that this approach will result in the ultimate goal of maximum safety through a "Total Training System" that effectively meets the Alaskan aviation training requirements.

National Transportation Safety Board

Washington, D.C. 20594

January 4, 1983

Office of the Chairman

[illegible]
N 1/20/83

Mr. Lance Wells
Executive Director
Alaska Air Carriers Association
Box 6469
Anchorage, Alaska 99502

Dear Mr. Wells:

As a result of its special study 1/ of air taxi safety in Alaska, the National Transportation Safety Board recommended on September 25, 1980, that the Alaska Air Carriers Association, "Extend its safety program to reiterate the hazards of air taxi operations in Alaska and to overcome, in particular, the 'bush pilot syndrome'" (A-80-105). The Safety Board later classified the recommendation "Closed-Acceptable Action" as a result of your organization's efforts in launching the Alaska Aviation Safety Foundation to promote a safer air transportation environment in Alaska.

The concerns which prompted the Safety Board to conduct the special study of Alaska air taxi operators in 1980 reappeared during a recent investigation. On May 16, 1982, a Gifford Aviation, Inc., deHavilland DHC-6, operated as Wein Air Alaska Flight 517 under the provisions of 14 CFR Part 135, crashed at Hooper Bay, Alaska. 2/ The investigation revealed a casual attitude on the part of the pilots regarding adherence to weight and balance regulations and operating procedures which led to the airplane operating with a center of gravity considerably aft of the published limit. Additionally, the investigation revealed poor maintenance practices regarding the condition of seatbelts in the accident airplane as well as two other DHC-6's operated by Gifford Aviation, Inc. These unsafe practices were precisely the same type noted during the Safety Board's special study and which generated the Safety Board's earlier recommendation to your organization.

Our staff has recently reviewed the "Final Report on Definition of Alaskan Aviation Training Requirements" prepared by American Airlines Training Corporation under the auspices of the Alaska Aviation Safety Foundation. The Safety Board is pleased with the program's content, objectives, and goals and urges its early implementation as soon as funds become available.

Respectfully yours,

Patricia A. Goldman for

Jim Burnett
Chairman

1/ Special Study--"Air Taxi Safety in Alaska" (NTSB-AAS-80-3).
2/ For more detailed information, read Aircraft Accident Report--"Gifford Aviation, Inc., deHavilland DHC-6, N103AQ, Hooper Bay, Alaska, May 16, 1982" (NTSB-AAR-82-14).

17B 160

Jim Dodson

Les Wills - Air Carriers

Charles Weir

Introduced: 2/8/83
Referred: Health, Education and Social Services and Finance

Funding Information
General Fund $753,000
Other Funds -0-
$753,000

IN THE SENATE BY JOSEPHSON

SENATE BILL NO. 114

IN THE LEGISLATURE OF THE STATE OF ALASKA

THIRTEENTH LEGISLATURE - FIRST SESSION

A BILL

For an Act entitled: "An Act making a special appropriation to the Department of Education for development by the Alaskan Aviation Safety Foundation of an Alaskan Aviation Training System; and providing for an effective date."

BE IT ENACTED BY THE LEGISLATURE OF THE STATE OF ALASKA:

* Section 1. The sum of $753,000 is appropriated from the general fund to the Department of Education for implementation development by the Alaskan Aviation Safety Foundation of an Alaskan Aviation Training System as outlined in the Final Report on the "Definition of Alaskan Aviation Training Requirements" from American Airlines Training Corporation to the Alaskan Aviation Safety Foundation, July 1982.

* Sec. 2. The unexpended and unobligated portion of the appropriation made by this Act lapses into the general fund June 30, 1984.

* Sec. 3. This Act takes effect July 1, 1983.

THE LEGISLATURE OF THE STATE OF ALASKA
THIRTEENTH LEGISLATURE

FISCAL NOTE

I. REQUEST
Bill/Resolution No. HB-160
Title An Act making a special appropriation to the Department of Education for...
Requested by House HESS Date 2/8/83

II. FISCAL DETAIL
Agency Affected Education
Program Category Affected Elementary & Secondary
BRU, Program, Or Subprogram(s) Affected State Contract Programs
(Note: If more than one budget component is affected, separate line-item amounts and funding for each component in the analysis section.)

EXPENDITURES (Thousands of Dollars)

	FY 83	FY 84	FY 85	FY 86	FY 87	FY 88
100 PERSONAL SERVICES						
200 TRAVEL						
300 CONTRACTUAL						
400 COMMODITIES						
500 EQUIPMENT						
600 LAND & STRUCTURES						
700 GRANTS,CLAIMS,ETC.		753.0				
TOTAL		753.0				

FUNDING (Thousands of Dollars)

GENERAL FUND		753.0				
FEDERAL FUNDS						
OTHER (Specify Source)						

POSITIONS N/A

FULL TIME						
PART TIME						
TEMPORARY						

III. ANALYSIS (See Fiscal Note Preparation Instruction, Section III)

IV. DATE 2/8/83 PREPARED BY Steve Hole
AGENCY Education
PHONE 465-2865

Original: Legislative Finance
cc: Budget and Management
Prime Sponsor (First Legislator Named)

33-001 (Rev. 12/82)

HESS STAFF REPORT

February 15, 1983

Summary: HB 160 by Hurlbert: An act making a special appropriation to the Department of Education for development of a training program for Alaska aviation; and providing for an effective date.

Section 1: A one time appropriation from the general fund to the Department of Education.

Section 2: Lapse date clause - June 30, 1984.

Section 3: Effective date clause - July 1, 1983

Bill Intent:
1) Reduce loss of life
2) Reduce insurance rates for commercial air carriers

Explanation:

1) In response to the National Transportation Safety Board's recommendations regarding Alaska's high air taxi accident rate (known as 'bush syndrome') the Legislature appropriated funds in HB 60 of FY 82 to DOE to conduct a study. See attachment.

2) The FY 82 appropriation of $300,000 was a dedicated grant to the Alaska Aviation Safety Foundation (of the Alaska Air Carriers Assoc.) which in turn subcontracted with American Airlines Training Corporation for the study. See manual and copies or proposal in Section H attached.

3) Reportedly, the $300,000 was "seed" money and the Alaska Air Carriers also contributed funds to the project. Amount unkown and not yet verified.

4) Proposal directed at commercial pilots and their respective insurance underwriters. Consequently, legislation will not effect the private pilot and their insurance rates. Presently, Lloyds of London underwrites approximately 90% of the Alaska air taxi operations.

5) Assurance of insurance rate reduction is not incorporated into legislation. Currently, the annual cost of insurance for aviation in Alaska is approximately $30 - $40 million.

6) An evaluation of product proficiency (curriculum for training program) should be done as assurance of the program's effectiveness with respect to the fiscal expense of this legislation.

7) Similar legislation (SB 114 by Senator Josephson) is in the Senate HESS Committee. Copy included. The fiscal note is identical to that of HB 160; however, funds are not appropriated to DOE for distribution through the contract-bidding process as in HB 160. SB 114 directs the funds as a pass-through grant. DOE administers the funds to the Alaska Aviation Safety Foundation in conjunction with the American Airlines Training Corporation.

Enclosures:

Left side of folder	Right side of folder
HB 160	summary
fiscal cost breakdown	SB 114
fiscal note (Hess staff)	news articles
	proposal - Section H

SECTION H

This section presents a proposal for the specification of curriculum and instructional content for an Alaskan aviation training system. Initial findings and preliminary results are discussed in reference to the on-going development of the training program. The activities for the proposed follow-on contract are described and the deliverables specified.

General Findings

The information collected from the interviews showed that although some training requirements and the training objectives to meet those requirements were applicable to Alaskan aviation in general, the majority were specific to different geographical areas in the state and also to different types and configurations of aircraft (single engine ski, helicopter, multi-engine, float, etc.) It was also recognized that the primary emphasis of an Alaskan training system should be the development of decision-making skills on the part of the pilot rather than manipulative flying skills. For example, the training emphasis should be on when to make a 180° turn to escape adverse weather or leave a mountain pass, and include specific operational procedures to be performed on the basis of such a decision.

Preliminary Indicated Results

The study identified several factors that had to be considered in the design of an Alaskan aviation training system:

1. The primary objective of the training system should be acceptable and applicable to airmen conducting flight operations in a uniquely stressful environment due to weather, geographic, and other operational conditions.

2. The training system should be tailored to specific geographical areas of the State and to different types and configurations of aircraft.

3. Components of the training system should be accessible to pilots in the community in which they are located. This would avoid, as much as possible, pilots spending time away from their primary job to attend training in a distant geographic location.

4. The requirement for training system components for localized on-job-site training could be met by using transportable training devices and interactive audio-visual and print media. These programs should contain instructional components tailored to geographic areas and aircraft types. Instructional programs would be designed to teach specific decision-making skills and the operational procedures to be performed on the basis of such decisions. Evaluation of student performance must be made by qualified, certified airmen with extensive experience in the given geographical area using structured evaluation methods.

5. The training system should be capable of allowing the airmen to first learn the necessary discriminations and decision-making capabilities, and then apply these skills in an operational environment.
   Non-transportable training devices could be required for operational training.

6. Area training centers should be established for specific geographic regions. These training centers could be co-located with existing Community College facilities. The training system would thus permit the learning of needed decision-making skills and operational procedures through transportable media, and evaluation of student performance by designated airmen for localized job-site training. Support and administration for this training would be provided by the area training center.

7. Area training centers would be used to provide additional training, practice, and evaluation through training devices located at the regional facility. Evaluation of student performance at the area training centers would

again be made by qualified, certified airmen with extensive experience in the given geographical region using structured evaluation methods.

8. A centralized administrative facility would be required for the administration, standardization, and evaluation of area training centers and job-site training activities. This facility would probably be located in Anchorage.

PROPOSED FOLLOW-ON CONTRACT

AATC proposes to begin work on a continuation contract depending on fund availability. AATC will conduct an in-depth analysis of the Alaskan aviation training objectives, and will develop curriculum and instructional content specifications. This effort will be based upon the data obtained from the initial study discussed above. Two specific activities are proposed: analysis of training objectives and development of curriculum and instructional content specifications.

Analysis of Alaskan Aviation Training Objectives

The study for the Alaskan Aviation Safety Foundation resulted in the identification of training requirements for various geographical areas, different types of aircraft, and diverse types of operational conditions. In addition, training requirements were defined that are applicable to all Alaskan aircraft operations. These training requirements were synthesized into training objectives that included operational conditions and standards of performance.

In order to define an Alaskan aviation training system, each training objective must be translated into effective instructional components that will enable a student to meet the operational task performance standards specified in the training objective. AATC will conduct an in-depth analysis of each operational task specified in the training objectives.

Each operational task must be analyzed in terms of the specific behavior that must be learned. AATC will define the following components for operational tasks:

1. The task-related knowledge that must be learned. This knowledge includes the operational procedures, rules and concepts that must be learned.

2. The operational cues that must be perceived.

3 The decisions that must be derived from cue perception and based upon appropriate applications of learned knowledge, procedures, rules, and concepts.

4. The action that is required based upon a specific decision. These instructional components will be defined for the different operational conditions under which a task could be performed, such as different aircraft types and configurations.

Development of Curriculum and Instructional Content Specifications

An important step in the formulation of a training system is the sequencing of instructional components into instructional segments. These segments must be sequenced into curricula that are learning and cost-effective for each type of student population. AATC will accomplish the following activities:

1. Define training tracks based on geographical area and aircraft type and configuration.

2. Sequence instructional components into instructional segments.

3. Specify performance assessment methodology for instructional segments.

4. Specify specific learning activities for instructional segments.

5. Specify instructional strategies for instructional segments.

6. Generate instructional segment content specifications.

7. Sequence instructional segments into curricula for each training track.

The output of these steps will be instructional content specifications for each instructional segment, and the sequencing of instructional segments into curricula for each training track.

DELIVERABLES

The following items will be deliverable as a portion of the proposed contract as defined above.

Preliminary Specifications

AATC will deliver a description of the Alaskan Aviation Training System curriculum. AATC will provide the following document:

Curricula and Instructional Content Specifications

Curricula will be developed for each training track. The instructional segments will be specified and sequenced for each curriculum. An instructional content specification will be provided for each instruction segment.

Sample Training System Components

AATC will deliver a completely portable and self-contained component of the Alaskan aviation training system. This component will consist of the following items:

1. An audiovisual (sound/slide) program that is applicable to all Alaskan aircraft operators. A typical program would be:

   Subject: Navigation-Pilotage and Dead Reckoning Techniques

   Content:

   a. Approximately 160 slides with audio narration. The program will contain an instructional component of approximately 120 slides and an interactive evaluation component of approximately 40 slides.

   b. Carousels and binders for the program.

   c. Student programmed text materials for the program. These materials will include evaluation components.

   d. Instructor test evaluation guide for the program.

   e. Presentation device for audiovisual programs. This device will be a programmed learning device, using rear-screen projection with self-contained audio components. A student response feature will be included to permit correct/incorrect answer feedback to questions inserted anywhere in the program.

These deliverables will provide the basis upon which an Alaskan aviation training system can be produced.

Development Of Specified System Components and Operational Metholodogy

The development of specifications for training system components and operational methodology can be initiated at anytime after the initial specification determination activity is essentially complete. As a practical matter, however, the availability of funds probably will be the pacing factor.

Guidance of the Alaskan Aviation Safety Foundation and the Alaskan Air Carriers Association will be sought throughout the intervening time period as well as during the actual implementation. AATC will be pleased to discuss these concepts and to attempt to clarify any uncertainties at the convenience of the customer.

National Transportation Safety Board
Washington, D.C. 20594

Safety Information

FOR IMMEDIATE RELEASE

Tuesday
September 16, 1980

SB 80-78/3052
(202) 472-6100

Air taxis in Alaska have far higher accident rates than air taxis in the rest of the United States, the National Transportation Safety Board reported today in a special study.

Alaska's rate of nonfatal air taxi accidents per hour flown has been almost five times higher, and its fatal accident rate per hour more than twice, that of the rest of the country, the Board found.

The Board attributed the high rates to:

— The "bush syndrome," nourished by legends of Alaskan bush pilots, and other factors which today sometimes prompts air taxi pilots and passengers alike to take unwarranted risks to complete flights in the face of the state's unique environmental hazards.

— Inadequate airport facilities and pilots' frequent inability to obtain accurate information on airport conditions.

— Insufficient ground aids to navigation.

In 1974-78, Alaskan air taxi operators had a rate of 15.2 nonfatal accidents in every 100,000 hours, as compared with 3.3 in the rest of the country. The Alaskan rate of fatal accidents per 100,000 hours was 2.57; in the other states it was 1.11.

Sampling of Safety Board accident data showed that the pilot was cited as a causal or contributing factor in 85 percent of Alaskan air taxi accidents studied, as compared with 70 percent of similar accidents in the other states. The data also showed that most Alaskan accident pilots were experienced -- almost all had logged more than 1,000 hours, and 80 percent had more than 2,000 pilot hours.

The Board said Alaska air taxi operators believe the inadequacy of airport facilities and information on airport conditions are a significant factor in the state's air taxi accidents. And there is "virtual unanimity of opinion among

operators and pilots that runway conditions present a problem in much of rural Alaska" the Board reported.

Operators and pilots flying in the more rural areas also repeatedly cited the lack of navigation aids, inadequate observation of en route and destination weather, and inadequate dissemination of weather information when observations are made.

The Safety Board described as unprecedented for this or any other state a fiscal 1981 Alaska appropriation package totaling more than $51 million for further development of state aviation facilities. In combination with the Federal Aviation Administration's 10-year development plan for the state, improvements which the appropriation would finance could have a substantial impact on the safety of Alaska's aviation system, the Board said.

A series of 11 safety recommendations are incorporated in the Board's special study. Addressed to the State of Alaska, the FAA, and the Alaska Air Carriers Association, their goals include:

— Rapid completion of aviation projects to be funded by the $51 million appropriation.

— Centralization of authority and responsibility for planning operating and maintaining the State's aviation facilities.

— A comprehensive aviation system plan for Alaska.

— Permanent assignment of FAA operations and maintenance inspectors to Nome, Bethel and Ketchikan, and to "as many other regional hubs as possible."

— Continued development of weather data gathering and transmission facilities, including such new technology as weather observation by television and "meteor burst" communication which would transmit data from a single observation point in an Alaskan village simultaneously to all of the state's regional aviation hubs.

— Extension of the Alaska air carriers' safety program to specifically combat the "bush pilot syndrome."

The Safety Board's special study - "Air Taxi Safety in Alaska" will be available in approximately three weeks. Single copies may be obtained without charge by writing to the Publications Branch, National Transportation Safety Board, Washington, D.C. 20594. Multiple copies may be purchased by mail from the National Technical Information Service, U.S. Department of Commerce, Springfield, Virginia 22161.

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WASHINGTON, D.C.

ISSUED: September 25, 1980

Forwarded to:
Honorable Jay Hammond
Governor
State of Alaska
Juneau, Alaska 99801

SAFETY RECOMMENDATION(S)
A-80-96 through -100

The National Transportation Safety Board has studied the air taxi accidents which occurred in Alaska from 1974 through 1978. Accident data from the Safety Board's automated aviation accident data system for that period were analyzed by means of frequency distributions. Safety Board staff also visited Alaska to see the conditions under which the air taxi community operates, to discuss the community's attitudes and needs, and to examine the community's interaction with Federal and State agencies. While in Alaska, the Safety Board staff met with officials of the Federal Aviation Administration (FAA), the National Weather Service (NWS), the Alaska Department of Transportation and Public Facilities (DOT/PF), the Alaska Air Carriers Association, and 17 air taxi operators. 1/

The State of Alaska is heavily dependent on its air taxi industry to transport food, medicine, mail, and many other necessities of life to rural villages. Alaska, however, has an air taxi safety problem. During the 5-year period 1974-1978, there were 311 air taxi accidents in Alaska, of which 266 were nonfatal and 45 were fatal, compared with 753 air taxi accidents in the rest of the United States, of which 562 were nonfatal and 191 were fatal. More importantly, the nonfatal air taxi accident rate (per 100,000 flying hours) in Alaska is almost five times higher than the nonfatal air taxi accident rate in the rest of the United States, and the fatal air taxi accident rate in Alaska is more than double the fatal air taxi accident rate in the rest of the United States.

The Safety Board study concluded that there are three major factors responsible for the high air taxi accident rate in Alaska: (1) the "bush syndrome," (2) inadequate airfield facilities and inadequate communications of airfield conditions, and (3) inadequate weather observations, inadequate communications of the weather information, and insufficient navigation aids. The "bush syndrome" is an attitude on the part of air taxi operators, pilots, and passengers in Alaska that ranges from a casual acceptance of risks to a willingness to take unwarranted risks. Most of the active airports in Alaska are State owned and maintained, and many of their runways are inadequately maintained. Whiteouts, very rapid weather changes, and a scarcity of navigation aids cause pilots to make many off-airport takeoffs and landings in float-equipped and ski-equipped aircraft. The collection and dissemination of weather information and current runway condition information is hampered by a shortage of trained personnel and an inadequate communications system in rural Alaska.

1/ For more detailed information read "Special Study--Air Taxi Safety in Alaska" (NTSB-AAS-80-3).

The relationship between the State's air taxi operators and the FAA appears to be strained. Further, because of a lack of permanent FAA inspectors at the rural aviation transportation hubs, there is insufficient opportunity for the FAA to provide guidance to the air taxi operators.

The State of Alaska has recently appropriated, through Chapter 50, SLA 1980, substantial funds for the improvement of the State aviation system, including upgrading of runways and the installation of navigation aids, and weather reporting and communications equipment. A comprehensive State aviation system plan, adequate to implement the intent of Chapter 50, SLA 1980, does not appear to exist. Further, centralized control over, and authority for, developing such a plan does not appear to exist within the current State DOT/PF structure. Cooperation among the State, the FAA, the NWS, and the air taxi operators must be increased if the State is to develop and implement the plan.

Based on the results of this study, the National Transportation Safety Board recommends that the State of Alaska:

Coordinate with the Federal Aviation Administration and the National Weather Service to facilitate the rapid implementation of the air transportation projects contained in Chapter 50, SLA 1980. (Class I, Urgent Action) (A-80-96)

Improve the level of maintenance of the runway facilities at the rural villages within the State airport system. (Class II, Priority Action) (A-80-97)

Centralize authority and responsibility for planning, operating, and maintaining the State's aviation facilities. (Class II, Priority Action) (A-80-98)

Develop, in cooperation with the Federal Aviation Administration and the system users, a comprehensive aviation system plan and a program for the implementation of the plan. (Class II, Priority Action) (A-80-99)

Establish, in cooperation with the Federal Aviation Administration and the air taxi operators, a program to impress upon the public, particularly those living in rural villages, the importance of respecting and properly maintaining airfield facilities. (Class II, Priority Action) (A-80-100)

KING, Chairman, GOLDMAN and BURSLEY, Members, concurred in these recommendations. DRIVER, Vice Chairman, and McADAMS, Member, did not participate.

By: James B. King
Chairman

WASHINGTON, D.C.

ISSUED: September 25, 1980

Forwarded to:
Honorable Langhorne M. Bond
Administrator
Federal Aviation Administration
Washington, D.C. 20591

SAFETY RECOMMENDATION(S)
A-80-101 through -104

The National Transportation Safety Board has studied the air taxi accidents which occurred in Alaska from 1974 through 1978. Accident data from the Safety Board's automated aviation accident data system for that period were analyzed by means of frequency distributions. Safety Board staff also visited Alaska to see the conditions under which the air taxi community operates, to discuss the community's attitudes and needs, and to examine the community's interaction with Federal and State agencies. While in Alaska, the Safety Board staff met with officials of the Federal Aviation Administration (FAA), the National Weather Service (NWS), the Alaska Department of Transportation and Public Facilities (DOT/PF), the Alaska Air Carriers Association, and 17 air taxi operators. 1/

The State of Alaska is heavily dependent on its air taxi industry to transport food, medicine, mail, and many other necessities of life to rural villages. Alaska, however, has an air taxi safety problem. During the 5-year period 1974-1978, there were 311 air taxi accidents in Alaska, of which 266 were nonfatal and 45 were fatal, compared with 753 air taxi accidents in the rest of the United States, of which 562 were nonfatal and 191 were fatal. More importantly, the nonfatal air taxi accident rate (per 100,000 flying hours) in Alaska is almost five times higher than the nonfatal air taxi accident rate in the rest of the United States, and the fatal air taxi accident rate in Alaska is more than double the fatal air taxi accident rate in the rest of the United States.

The Safety Board study concluded that there are three major factors responsible for the high air taxi accident rate in Alaska: (1) the "bush syndrome," (2) inadequate airfield facilities and inadequate communications of airfield conditions, and (3) inadequate weather observations, inadequate communications of the weather information, and insufficient navigation aids. The "bush syndrome" is an attitude on the part of air taxi operators, pilots, and passengers in Alaska that ranges from a casual acceptance of risks to a willingness to take unwarranted risks. Most of the active airports in Alaska are State owned and maintained, and many of their runways are inadequately maintained. Whiteouts, very rapid weather changes, and a scarcity of navigation aids cause pilots to make many off-airport takeoffs and landings in float-equipped and ski-equipped aircraft. The collection and dissemination of weather information and current runway condition information is hampered by a shortage of trained personnel and an inadequate communications system in rural Alaska.

1/ For more detailed information read "Special Study--Air Taxi Safety in Alaska" (NTSB-AAS-80-3).

The relationship between the State's air taxi operators and the FAA appears to be strained. Further, because of a lack of permanent FAA inspectors at the rural aviation transportation hubs, there is insufficient opportunity for the FAA to provide guidance to the air taxi operators.

The State of Alaska has recently appropriated, through Chapter 50, SLA 1980, substantial funds for the improvement of the State aviation system, including upgrading of runways and the installation of navigation aids, and weather reporting and communications equipment. A comprehensive State aviation system plan, adequate to implement the intent of Chapter 50, SLA 1980, does not appear to exist. Further, centralized control over, and authority for, developing such a plan does not appear to exist within the current State DOT/PF structure. Cooperation among the State, the FAA, the NWS, and the air taxi operators must be increased if the State is to develop and implement the plan.

Based on the results of this study, the National Transportation Safety Board recommends that the Federal Aviation Administration:

Evaluate, in cooperation with the State of Alaska and the National Weather Service, the feasibility of equipping its flight service stations and the NWS-certified weather observers in rural villages with high-frequency transceivers that have the appropriate frequencies to facilitate the ground-to-ground communication of weather and runway conditions. (Class II, Priority Action) (A-80-101)

Locate and maintain permanently a Principal Operations Inspector and a Principal Maintenance Inspector at Nome, Bethel, Ketchikan, and at as many other regional aviation hubs as possible. (Class II, Priority Action) (A-80-102)

Continue to develop, in cooperation with the National Weather Service, the concept of "meteor burst" technology for transmission of weather observations from rural villages to regional aviation hubs in Alaska. (Class II, Priority Action) (A-80-103)

Continue to develop and improve, in cooperation with the National Weather Service, the technology of the television weather observation system in Alaska. (Class II, Priority Action) (A-80-104)

KING, Chairman, GOLDMAN and BURSLEY, Members, concurred in these recommendations. DRIVER, Vice Chairman, and McADAMS, Member, did not participate.

By: James B. King
Chairman

WASHINGTON, D.C.

ISSUED: September 25, 1980

Forwarded to:
Ms. Tulinda Deegan
President
Alaska Air Carriers Association
Box 6469
Anchorage, Alaska 99502

SAFETY RECOMMENDATION(S)

A-80-105

The National Transportation Safety Board has studied the air taxi accidents which occurred in Alaska from 1974 through 1978. Accident data from the Safety Board's automated aviation accident data system for that period were analyzed by means of frequency distributions. Safety Board staff also visited Alaska to see the conditions under which the air taxi community operates, to discuss the community's attitudes and needs, and to examine the community's interaction with Federal and State agencies. While in Alaska, the Safety Board staff met with officials of the Federal Aviation Administration (FAA), the National Weather Service (NWS), the Alaska Department of Transportation and Public Facilities (DOT/PF), the Alaska Air Carriers Association, and 17 air taxi operators. 1/

The State of Alaska is heavily dependent on its air taxi industry to transport food, medicine, mail, and many other necessities of life to rural villages. Alaska, however, has an air taxi safety problem. During the 5-year period 1974-1978, there were 311 air taxi accidents in Alaska, of which 266 were nonfatal and 45 were fatal, compared with 753 air taxi accidents in the rest of the United States, of which 562 were nonfatal and 191 were fatal. More importantly, the nonfatal air taxi accident rate (per 100,000 flying hours) in Alaska is almost five times higher than the nonfatal air taxi accident rate in the rest of the United States, and the fatal air taxi accident rate in Alaska is more than double the fatal air taxi accident rate in the rest of the United States.

The Safety Board study concluded that there are three major factors responsible for the high air taxi accident rate in Alaska: (1) the "bush syndrome," (2) inadequate airfield facilities and inadequate communications of airfield conditions, and (3) inadequate weather observations, inadequate communications of the weather information, and insufficient navigation aids. The "bush syndrome" is an attitude on the part of air taxi operators, pilots, and passengers in Alaska that ranges from a casual acceptance of risks to a willingness to take unwarranted risks. Most of the active airports in Alaska are State owned and maintained, and many of their runways are inadequately maintained. Whiteouts, very rapid weather changes, and a scarcity of navigation aids cause pilots to make many off-airport takeoffs and landings in float-equipped and ski-equipped aircraft. The collection and dissemination of weather information and current runway condition information is hampered by a shortage of trained personnel and an inadequate communications system in rural Alaska.

1/ For more detailed information read "Special Study--Air Taxi Safety in Alaska" (NTSB-AAS-80-3).

The relationship between the State's air taxi operators and the FAA appears to be strained. Further, because of a lack of permanent FAA inspectors at the rural aviation transportation hubs, there is insufficient opportunity for the FAA to provide guidance to the air taxi operators.

The State of Alaska has recently appropriated, through Chapter 50, SLA 1980, substantial funds for the improvement of the State aviation system, including upgrading of runways and the installation of navigation aids, and weather reporting and communications equipment. A comprehensive State aviation system plan, adequate to implement the intent of Chapter 50, SLA 1980, does not appear to exist. Further, centralized control over, and authority for, developing such a plan does not appear to exist within the current State DOT/PF structure. Cooperation among the State, the FAA, the NWS, and the air taxi operators must be increased if the State is to develop and implement the plan.

Based on the results of this study, the National Transportation Safety Board recommends that the Alaska Air Carriers Association:

> Extend its safety program to reiterate the hazards of air taxi operations in Alaska and to overcome, in particular, the "bush pilot syndrome." (Class II, Priority Action) (A-80-105)

KING, Chairman, GOLDMAN and BURSLEY, Members, concurred in this recommendation. DRIVER, Vice Chairman, and McADAMS, Member, did not participate.

By: James B. King
Chairman

NATIONAL TRANSPORTATION SAFETY BOARD
WASHINGTON, D.C.

ISSUED: September 10, 1980

Forwarded to:

Honorable Langhorne M. Bond
Administrator
Federal Aviation Administration
Washington, D.C. 20591

SAFETY RECOMMENDATION(S)

A-80-86 through -89

The National Transportation Safety Board is investigating the presumed crash of a Cessna 340, N110RA, in the water near Petersburg, Alaska, on August 20, 1980. The aircraft, pilot, and three passengers are still missing.

The aircraft had been cleared for the approach to Petersburg when the pilot radioed that he was having control difficulties in the pitch axis. He requested and received clearance to climb to altitude and stated that his intentions were to return to Ketchikan, Alaska. Shortly thereafter, the pilot reported that the aircraft was breaking up.

The Safety Board's review of the maintenance records of the accident aircraft revealed a history of empennage structural problems dating back to 1977 when the aircraft had less than 100 hours total time. There were recurrent reports of in-flight empennage vibrations and recurrent findings of stabilizer and elevator structural cracks. Attempted corrective action had included installation of a new horizontal stabilizer at 174 hours and reskinning of the stabilizer at 893 hours. The left outboard elevator hinge bracket was found cracked and was replaced 8 days before the accident. Total time on the aircraft was 1,035 hours.

The Safety Board is aware of the special inspection requirements issued initially in December 1979, by the manufacturer in Cessna Multi-Engine Service Information Letter, ME-79-44, and the two subsequent revisions to the letter. The Board is also aware of Airworthiness Directive 80-16-06, dated August 23, 1980, which made Revision 2 of the Service Letter mandatory.

Recently, the Safety Board was informed by an FAA inspector in a General Aviation District Office that compliance with AD 80-16-06 has disclosed several instances of cracked structure in the elevator hinge area. In one case, a precautionary inspection on an aircraft with less than 40 hours total time revealed a crack in the elevator gusset.

The Safety Board is concerned that, at this time, the problem which is causing the empennage structural cracking on these particular models is not well defined. The service problems have been associated with those aircraft models with the larger

engines installed (greater than 285 maximum continuous horsepower) which were manufactured or modified before a structural change which strengthened the empennage was incorporated in the design. Additionally, the Safety Board is concerned that the 100-hour total time requirement for initial inspection and the 100-hour recurring inspection interval may not be adequate to detect potential failures. Also, structural cracks in low-time aircraft could be indicative of an unpredicted vibratory mode, a production line quality control deficiency, or both.

Therefore, the National Transportation Safety Board recommends that the Federal Aviation Administration:

Revise Airworthiness Directive 80-16-06, dated August 23, 1980, to require an initial inspection before further flight, regardless of the aircraft's total time, and restrict the performance envelope of those Cessna models affected by the AD to that of the basic Cessna model 335/340 until the empennage structural cracking problem is resolved. (Class I, Urgent Action) (A-80-86)

Evaluate the 100-hour recurring inspection interval now required in AD 80-16-06 to ascertain the need for a shorter interval, and amend the AD as appropriate. (Class I, Urgent Action) (A-80-87)

Evaluate the design certification data of the Cessna 335/340 empennage structure to ascertain if all possible vibratory modes and structural loads to which it can be exposed have been considered and require retrofit modification to aircraft affected by AD 80-16-06 as indicated to be necessary. (Class II, Priority Action) (A-80-88)

Evaluate the results of the initial inspections performed in compliance with the revised Airworthiness Directive, to ascertain the need for a Quality Assurance Systems Analysis Review (QASAR) of the Cessna 335/340 manufacturing process. (Class II, Priority Action) (A-80-89)

KING, Chairman, GOLDMAN and BURSLEY, Members, concurred in these recommendations. DRIVER, Vice Chairman, and McADAMS, Member, did not participate.

LaVanne Bursley

By: James B. King
Chairman