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Flight to Grandmother's

United States Federal Aviation Administration

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DEPARTMENT OF TRANSPORTATION
FEDERAL AVIATION ADMINISTRATION

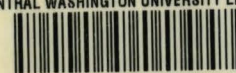


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A
FLIGHT
TO
GRANDMOTHER'S

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PART ONE

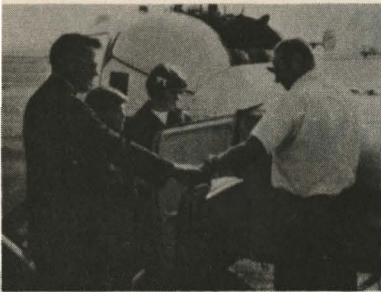
A FLIGHT TO GRANDMOTHER'S



1. Meet Colleen and Brian Jones. They are going to visit their grandmother's farm. Because it is so far from their house to the farm, they are going to fly. Let's follow them and find out what happens as they fly across the country.



2. To get to the big International Airport where the long-distance airplanes take off, they are going to take a helicopter. Their father, Mr. Jones, will go with them on the helicopter to the International Airport. Then Colleen and Brian will go the rest of the way alone.



3. They get on the helicopter at a special landing place for helicopters at the city airport.



4. They fasten their seat belts



5. and take off.



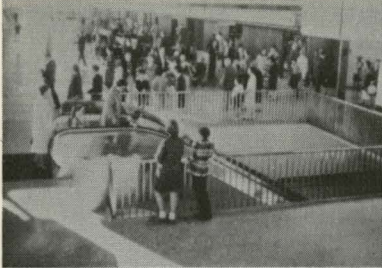
6. A few minutes later



7. . . . they arrive at the International Airport where Colleen and Brian will catch their plane.



8. They have arrived early so they decide to use the extra time to look around the airport.



9. This is the inside of the airport terminal building where they go before they get on the airplane. In it, they see many things. Of course, all airport terminal buildings do not have all these things, but most of them do. They see:



10. Ticket counters and baggage scales. Colleen and Brian weigh their baggage



11. and get their tickets here.



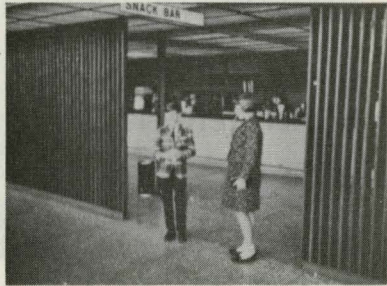
12. Arrival and departure schedules - which tell them when their airplane will leave.



13. Trip insurance counters.



14. Rent-A-Car booth.



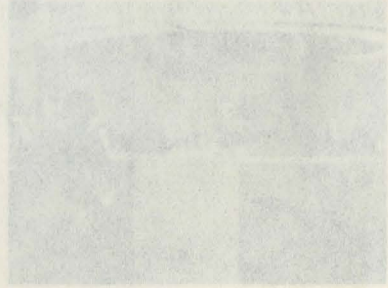
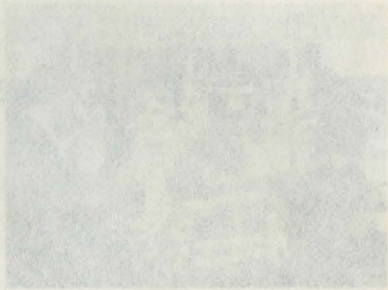
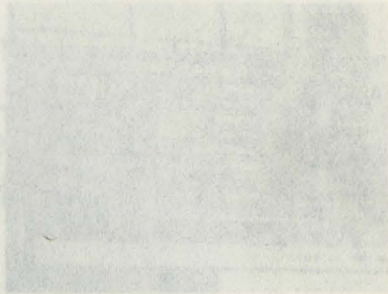
15. Snack bar.



16. Airport limousine booth.



17. News stand.



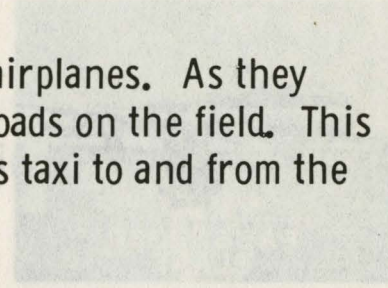
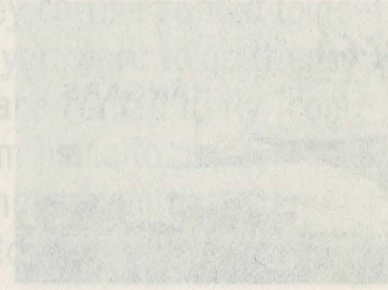
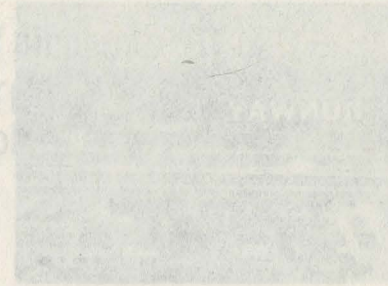
18. Gift shop.



19. Baggage pickup area.



20. They go outside and look at the airplanes. As they walk outside, they see two kinds of roads on the field. This road is called a taxiway. The airplanes taxi to and from the field on the taxiway.





21. Another kind of road has airplanes coming down (landing) and going up (taking off). This road is called a runway.



22. Down the field Brian and Colleen see several large buildings. Father tells them that these buildings are called hangars and are used as garages for airplanes.



23. Colleen and Brian see many airplanes around the airport. Here are some of them. This airplane carries many passengers. It also carries mail and some cargo. It is called a passenger plane (or transport). Like a bus, this airplane goes at a regular time to a regular place every day.



24. The transport is just one type of airplane. It is the one most people know about. But airplanes do other things besides just carry people. Some airplanes carry only cargo. They are called cargo planes.



25. Some planes are like taxis. They can be rented to go wherever you want to go, whenever you want to go there. We call them air taxis because they are rented to fly from place to place the way taxis drive from place to place. Colleen and Brian will ride one of these from the big airport where their transport lands to a smaller airport near grandmother's farm.



26. Some airplanes are used by businessmen to carry them across the country.



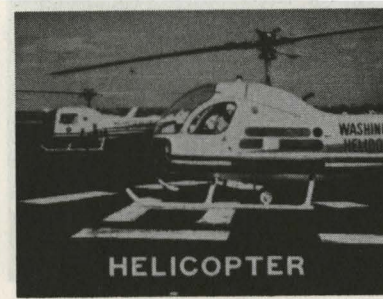
27. Some airplanes are used to spray insect-killing chemicals on plants.



28. Some airplanes are used to patrol pipelines and powerlines to be sure they are working properly.



29. Some airplanes are used just for fun.



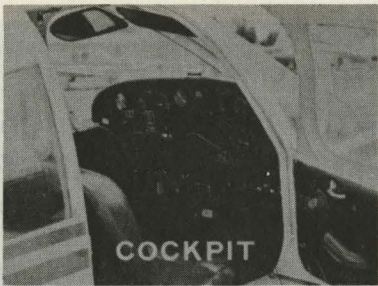
30. Here is a helicopter. It can land in a small place. It doesn't need runways or taxiways. We use helicopters to go short distances and land on small places. This is just like the one Colleen and Brian rode to the International Airport.



31. There are many kinds of airplanes doing many jobs for us every day. They carry people and cargo safely and quickly from place to place.



32. Most of these airplanes have the same parts. The body of the airplane is called the fuselage.



33. The place where the pilot sits is called the cockpit.



34. The tail of the airplane has several parts.



35. This is the rudder that makes the airplane go left and right.



36. This is the elevator. It makes the plane go up and down.



37. This part of the airplane is the wing. Colleen and Brian saw many kinds of wings.



38. High wings.



39. Low wings.



40. Fat wings.



41. Thin wings.



42. This is one kind of landing gear. It is called tricycle gear.



43. This is another kind. It is called conventional landing gear. What is the difference?



44. Brian noticed that most of the airplanes folded their landing gear inside the airplane. He wondered why.



45. His father told him that the landing gear slows the airplane when it is in the air -- so the pilot pulls the gear up just after he goes up and puts the gear down just before he comes down.



46. This is the propeller. It pulls the airplane through the air.



47. Colleen noticed that some airplanes do not have propellers. They have special engines called jets which push the airplane through the air.



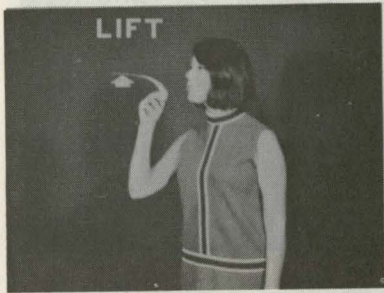
48. Brian looked at all the different kinds of airplanes and said, "I know that gravity makes them stay on the ground. What makes an airplane fly?"



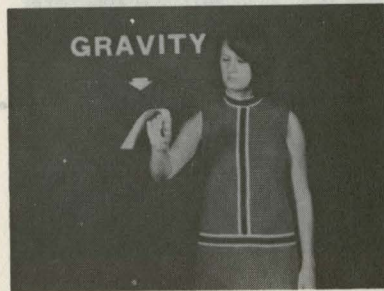
49. You know that gravity keeps most things on the ground. So whatever gets an airplane off the ground must be stronger than gravity. What can be stronger than gravity?



50. To find out, take a piece of paper and fold it like this. Notice that the paper is like the top of an airplane wing.



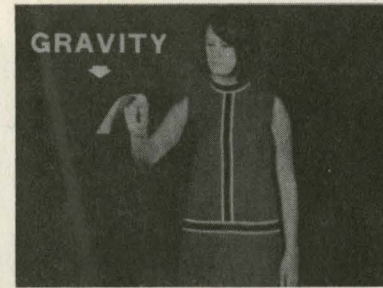
51. Blow across the top of the paper and the paper will rise. This is called lift.



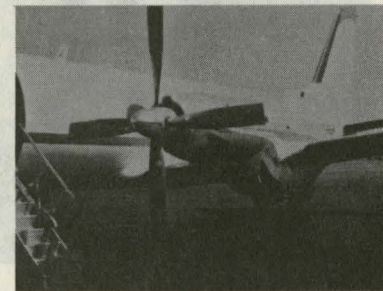
52. When you stop blowing, the paper settles again.



53. Now instead of moving the air over the paper, move the paper through the air. The paper rises again.



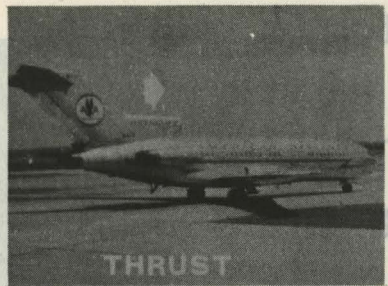
54. When the paper is not moving, it settles. Just as the paper rises when it is moved through the air by your arm, the wing rises when it is pulled through the air by the airplane's engine. The wing is built so that it will develop lift when pulled through the air. Lift is what is stronger than gravity.



55. The engine makes the wing move -- either by



56. turning its propeller



57. . . . or just by pushing. The engine makes thrust which pushes the airplane and the wing through the air.



58. The air going over and under the wing makes lift which pushes the airplane up into the air and the airplane flies.

PART TWO

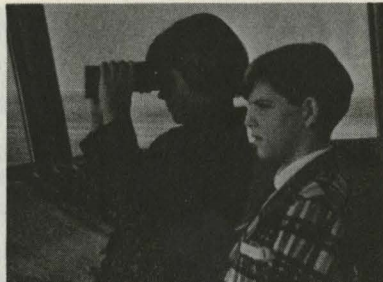
A FLIGHT TO GRANDMOTHER'S



59. Colleen, Brian and father get permission to visit the control tower. They watch the ground controller tell the pilots when they may taxi.



60. They see the other controller tell the airplanes when they may land or take off.



61. As Colleen and Brian look at their airplane



62. . . . they see some men come out of the terminal. The two men are the crew that will fly their airplane.



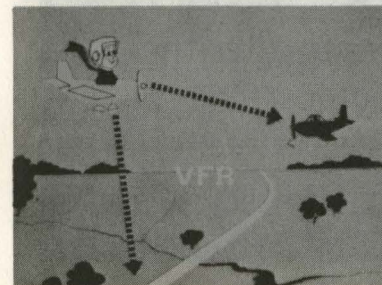
63. The controller shows Colleen and Brian a signal light. He flashes the light at the airplane in case the radios fail. They say, "Goodbye," to the controllers because they know their airplane is nearly ready to go.



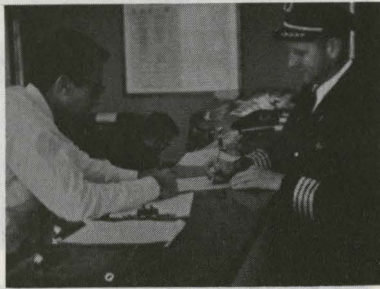
64. This man is the pilot. He flies the airplane. He is getting into the airplane now, but he has been at work for some time.



65. Before he can fly, the pilot must find out about the weather. If there are only a few clouds, or if the clouds will be above the height at which he flies, or if the air is clear enough that he can see other airplanes, the pilot may decide to plan his flight as a VFR (visual flight rules) flight.



66. When flying VFR, the pilot can see the ground and he is always watching for other airplanes.



67. If the clouds are low, the air is not clear or if the pilot plans to fly very high, he will fly IFR (instrument flight rules). He must be sure about the weather all the way along his flight. The weather may be clear at the place he is leaving and raining at the place where he will land.



68. When flying IFR, the pilot may not see the ground. Radio stations on the ground send out special signals for airplanes. The instruments in the cockpit tell the pilot exactly where he is.



69. The airplane does not begin to fly even after the pilot gets in. He and his helpers, the first officer and the flight engineer, must check all the parts of the airplane to be sure they work. So the pilots sit in the cockpit and make sure everything works.



70. While they do this, Colleen and Brian have come down from the control tower to get on the airplane. They say, "Goodbye," to father.



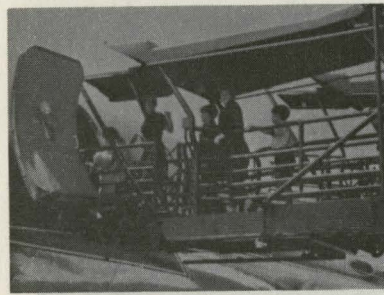
71. This is the mobile lounge that will take them to the airplane.



72. They get in the lounge



73. . . . and the driver takes them to the airplane.



74. They walk up the ramp and into the airplane



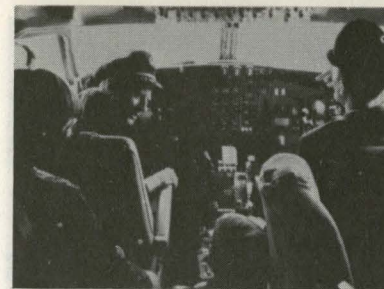
75. and meet the stewardess.



76. She helps them find their seats and fasten their seat belts.



77. Later, she will give them dinner or a sandwich. She helps the passengers be comfortable.



78. Before the airplane takes off, Colleen and Brian visit in the cockpit with the pilots. The pilots show them some of the airplane controls.



79. While the passengers get on, the cargo crew is loading the baggage and mail into the airplane



80. . . . and the ground crew is putting fuel in the airplane.



81. Now the airplane is ready to taxi to the runway.



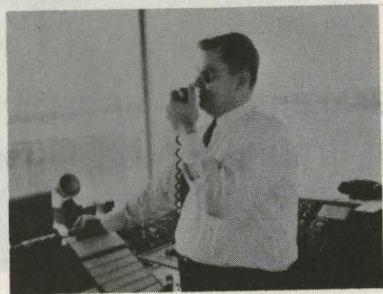
82. The pilot calls the tower on his radio and asks for permission to taxi to the runway. "Dulles ground control, this is American 257 at Gate 6 for taxi instructions, over."



83. The ground controller will tell him which taxiway to take. "American 257, this is Dulles ground control, cleared to Runway 27 via north taxiway, wind 260° at one five, altimeter 3008, time one five and one-half, over."



84. When he reaches the runway, he calls the control tower and asks permission for takeoff. "Dulles Tower, this is American 257, at Runway 27, for takeoff."



85. The tower will then tell him when he may take off.
"American 257, cleared for takeoff."



86. (Jet takeoff sounds)



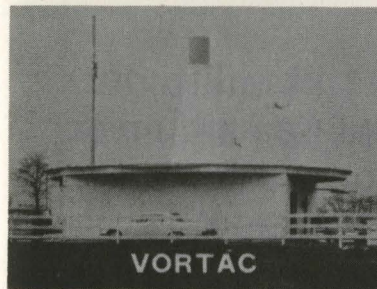
87. After he leaves the field, he will call the air route traffic control center on the radio.



88. Here some controllers will watch his airplane on the radar screen and tell him where to fly.



89. The controllers make sure that the airplanes that are flying IFR do not get close to each other.



90. As we go across the country, we fly on highways in the sky called airways. These airways are marked by radio stations on the ground called VOR's or VORTAC's.



91. The pilot tunes his radio and a dial tells him where the radio stations and the airways are.



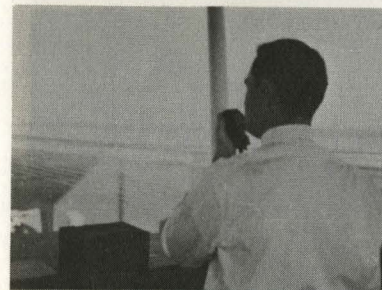
92. Finally, the airplane arrives above another airport. The pilot calls the tower and asks for permission to land. "Greenville Tower, this is American 257, outer marker for landing." "American 257, this is Greenville Tower, cleared to land Runway one five."



93. Today, the weather is clear but the pilot will approach by using his instruments. Colleen and Brian will never know if the pilot can see out or not because he lands just as well on instruments as he does when he can see.



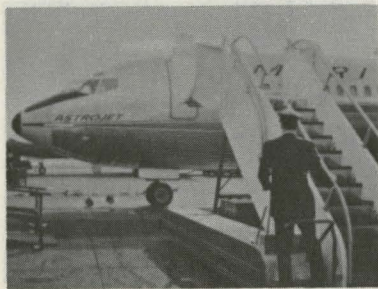
94. The airplane lands and the pilot calls the ground controller. "Greenville ground control, American 257, at 18 for taxi instructions."



95. The ground controller tells the pilot where to go. "American 257, turn right at first intersection, cleared to the ramp."



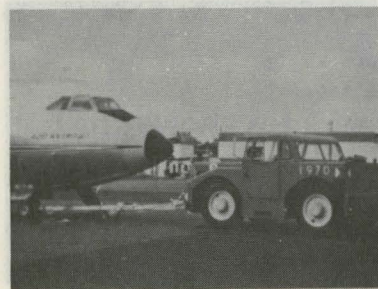
96. This man is part of the ground crew. He shows the pilot where to park the airplane.



97. He helps the passengers get off the airplane.



98. Other members of the ground crew unload the baggage and mail.



99. They have finished their trip in the airliner but the airplane is not through yet. It is towed to the hangar.



100. There the maintenance crew inspects the airplane, checks the engines and the radios, and looks at the wires and lights:



101. If the airplane needs repairs, repairs are made. Then the airplane is ready to carry more boys and girls, mail and cargo, wherever they need to go.



102. Colleen and Brian say "Goodbye" to the stewardess.
.....



103. . . . and get off the airplane.



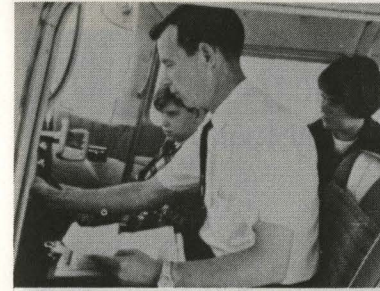
104. They meet the air taxi pilot. He takes Colleen and Brian to the air taxi and loads their baggage aboard.



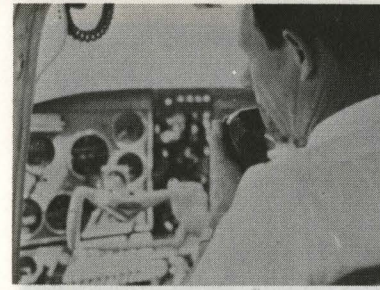
105. This pilot, too, has checked the weather, decided how much fuel to carry and checked over the airplane.



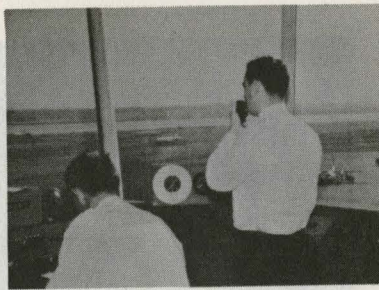
106. He calls ground control and gets permission to taxi to the runway.



107. At the end of the runway, he warms up his engines, checks the airplane again



108. . . . then calls the control tower for permission to take off. "Greenville Tower, Cessna nine five Yankee, runway 18, ready for takeoff."



109. The tower answers, "Cessna nine five Yankee, cleared for takeoff." Off they go!



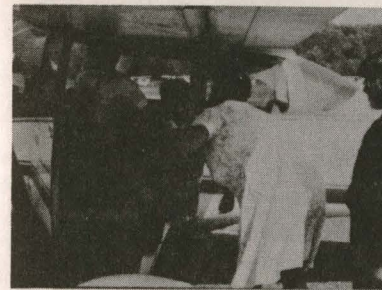
110. The air taxi will not fly as high as the transport plane, so this pilot will fly VFR and find his way by looking at the ground.



111. The airport where the air taxi will land does not have a control tower. . . .



112. . . . so the pilot checks the wind, looks for other airplanes, and lands. Grandmother is anxiously waiting for them.



113. She says, "COLLEEN! -- BRIAN! My, it's good to see you! And, coming here by air, you made a much faster trip." . . .



114. . . . and then she takes Brian and Colleen to the car Off they go to Grandmother's farm.

For the assistance and cooperation provided in the production of "A Flight to Grandmother's", we are most grateful to the following:

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