82D CONGRESS } SENATE { REPORT
2d Session } { No. 1140

INVESTIGATION OF AIRPLANE ACCIDENT AT ELIZABETH, N. J., AND MATTERS RELATING TO NEWARK AIRPORT

JANUARY 31 (legislative day, JANUARY 10), 1952.—Ordered to be printed

Mr. JOHNSON of Colorado, from the Committee on Interstate and Foreign Commerce, submitted the following

REPORT

[Pursuant to S. Res. 268]

On January 22, 1952, a commercial aircraft approaching the Newark Airport crashed at Elizabeth, N. J., killing all 23 persons aboard, including former Secretary of War Robert Patterson, and 6 residents of the city who were trapped in their homes.

Immediately, on the following day, the distinguished Senators from New Jersey (Mr. Smith and Mr. Hendrickson) submitted Senate Concurrent Resolution 55 calling for the establishment of a joint congressional committee to investigate the tragedy, the joint committee to be composed of five Members of the Senate who are members of the Senate Committee on Interstate and Foreign Commerce and five Members of the House to be selected from the membership of the House Committee on Interstate and Foreign Commerce. That resolution was referred to your committee, and its chairman immediately assigned two of the committee's four professional staff members to the exclusive task of investigating the Newark crash.

It was the opinion of your committee, after preliminary consideration of Senate Concurrent Resolution 55, that inasmuch as a concurrent resolution such as this would require action by both the Senate and the House of Representatives with resultant delay and loss of time in getting the investigation under way the simpler and more expeditious approach to the problem would be for the New Jersey Senators, who have given a great deal of time and attention to this matter, and who have been pressing the committee hard for early action, to introduce a simple Senate resolution which would not require time-consuming action by the other House. The matter was discussed with both New Jersey Senators with the result that Senate Resolution 268, was submitted.

The resolution specifically called for a full and complete investigation of (1) the airplane crash which occurred on January 22, 1952, at Elizabeth, N. J., with a view to ascertaining the cause of such crash, and (2) the operation, location, and proposed expansion of the Newark Airport. It further requested a study and investigation, together with such recommendations as it may deem advisable with respect to the elimination of hazards not only to occupants of planes but to residents of the Newark area and the prevention of similar accidents in the future.

During the past 2 years, complaints from officials and citizens of Newark and Elizabeth, as to the noise and potential danger of planes flying overhead, have increased. Last summer, citizen groups were organized to find ways and means of curtailing the noise nuisance. Some members of these groups urged the complete abandonment of the Newark Airport site. Officials of the Port of New York Authority, operators of Newark Airport, and representatives of the Civil Aeronautics Administration and the airlines using the airport have conferred in a common effort to correct this situation, However, before these objectives could be accomplished, within a period of 38 days, December 16, 1951, to January 22, 1952, Elizabeth experienced two commercial plane crashes within the heavily populated areas of the city. These accidents resulted in the deaths of 79 airborne persons and 6 residents of Elizabeth who were trapped in their homes.

This committee's staff, by direction of the chairman of your committee, and in response to the urgent request of the Senators from New Jersey, made an on-the-spot investigation on January 25 and 26, viewing the scene of the accident, examining the wreckage and consulting with Federal, State, county officials, private citizens, and local authorities having jurisdiction or interest in the accident. Among those consulted and interviewed were New Jersey Attorney General Parsons, Union County Prosecutor Cohn, Assistant Prosecutor Morss, Detective Chief Lombardi, State Senator Hand, CAB Regional Director of Accident Investigations Joseph Fluet, the regional administrator of Civil Aeronautics, Mr. Young, Messrs. Tobin and Glass of the Port of New York Authority, Operations Director Armstrong of the Newark Airport, representatives of American Airlines, the Airline Pilots Association, Consolidated Vultee Aircraft Corp.—manufacturers of the Convair—and investigators of other airlines voluntarily assigned by them to gather information and experience to be used in the advancement of air safety.

The investigators of this committee were strongly impressed by the generous and complete cooperation between the Federal, State, and local authorities having responsibility in the investigation. Union County Prosecutor Cohn and CAB Accident Director Fluet should be especially commended for their coordination of the local facilities, Red Cross, police, and other local organizations in bending every effort to relieve the anxiety of relatives of the victims and in examining into the cause of the accident.

On December 16, 1951, a nonscheduled C–46 crashed in Elizabeth, killing 56 persons. Although the findings in this accident have not been officially released by the CAB, your committee understands from the data developed by its staff, that it was due to an oil leakage in a cylinder head which ignited and burned through the nacelle and wing of the plane. This plane had apparently received all required check-

ups as specified in the regulations of the Civil Aeronautics Administration. Even though the required checkup did not reveal the leakage, CAB investigators have been able to determine its location and the propagation of the fire.

The cause of the crash of the American Airline's Convair aircraft on January 22, 1952, has not been determined. The plane was attempting an ILS (instrument landing system) landing over the city of Elizabeth to the No. 6 runway in weather reported to have been 400-foot ceiling and ¾-mile visibility.

The fact that within the short space of 38 days the citizens of Elizabeth experienced two tragic plane crashes in the very heart of their city is terrifying and horrifying to those on the ground who least of all expect death and injury from above. This destruction from above appears to climax the long protests of citizens of powerfully disturbing noises created by reportedly low-flying planes.

The committee's investigators were keenly aware of the grinding noises of planes overhead. It is their opinion that the citizens of Elizabeth and those in surrounding municipalities have, at present, a legitimate complaint and that the responsible officials should expedite pending projects and plans to eliminate aircraft noises and hazards. This responsibility lies equally upon the airport users, the airport itself, and the Port of New York Authority. The fear of those living in the area, especially in Elizabeth and Newark, is very real and cannot be discounted by showing the extreme improbability of the recurrence of accidents similar to the last two tragedies.

The Newark Airport

The Newark airport is one of the oldest commercial airports in the United States and has served the New York metropolitan area since the inauguration of scheduled airline service. In 1943, Newark Airport was expanded by the United States Army in connection with its military flight operations and it is today considered a valuable national-defense asset. This is enhanced by the fact that it is one of the few air terminals on the eastern seaboard that is adjacent to ocean-going shipping terminal facilities. Its great value as a commercial air terminal to northern New Jersey was recognized by the strong opposition that Newark and other municipalities registered when the LaGuardia Airport on Long Island, N. Y., was developed, and the transfer of many scheduled airline flights thereto was made.

The Port of New York Authority acquired the Newark Airport on October 22, 1947, by a 50-year lease from the city of Newark. This lease required the port authority to develop the airport as a major commercial terminal and to build two sets of parallel runways for use by the heaviest commercial aircraft. A year ago the port authority acquired by condemnation, 800 acres of undeveloped land adjoining the south side of the airport and lying within the city of Elizabeth. The city of Elizabeth authorized the abandonment of streets lying therein and is reported to have specifically approved the plans of the authority to expand the airport in its direction.

Closing of the Newark Airport is obviously action that should be taken only if no other satisfactory way can be found to protect the citizens living in the vicinity of the Newark Airport. The very fact that the Newark Airport is near the center of large populated areas

increases its utility as a commercial air terminal provided, of course, it can be operated with adequate safety and without undue annoyance. Its location near a deep-water channel increases its national defense value. Many millions of dollars have been invested in the airport by the city of Newark, by the Federal Government, and by the Port of New York Authority. This investment can in all probability be only partially recouped if the airport is abandoned and the land is sold for other uses. Other sites for the Newark terminal were mentioned to the committee investigators, but they have not been studied in detail. At this time, the committee has devoted its primary attention to ways and means of improving permanently the safety of flight operations into and out of the present Newark Airport and of reducing the noise and danger to citizens in the adjoining areas.

THE NEWARK INSTRUMENT RUNWAY

The complaints of the citizens of Elizabeth are aggravated by the frequency of airplanes making straight-in instrument approaches from the southwest which take them directly over the business center of Elizabeth. The present ILS (instrument landing system) is alined for the use of runway 6 (northeast/southwest). This system directs aircraft by a radio beam. The beam is bisected by an approaching airplane at some designated point along its course and the aircraft then flies "down the beam" to the airport runway. This beam, at one point, passes about 400 feet to the south of Elizabeth Courthouse and approximately 550 feet overhead. The built-up section of Elizabeth commences about 1¼ miles from the approach end of runway 6 (northeast/southwest). On take-off, airplanes fly over Elizabeth only when the wind is from the southwest. It should be kept in mind that, while landing, the engines of aircraft do not develop full power and are not as noisy therefore, as when the aircraft is climbing following takeoff.

To have the approach for an instrument runway pass over a highly congested section of any city is not desirable and the Civil Aeronautics Administration, which has the responsibility for selecting the instrument runways, avoids such a condition when possible. In a congested metropolitan area like that surrounding the present Newark Airport, it probably is impossible to avoid all congested areas. Runway 6 (northeast/southwest) has always been used for instrument landings. According to the CAA, six factors are weighed in making a determination of the runway upon which to install instrument landing aids, namely:

1. Approach areas suitable for the safe maneuvering of aircraft just prior to landing or for continuation of flight in event the landing cannot be made on the first attempt.
2. Direction of approach which is over the most sparsely settled areas.
3. Direction of approach such that the flow of landing aircraft will not conflict with other aircraft in the vicinity.
4. Direction of approach such that landing aircraft will head into the wind prevailing during periods of restricted visibility.
5. A runway with adequate length, width, and clearance from airport structures.
6. Suitable sites for installation of the radio, radar, and lighting aids which comprise the system of landing aids.

No priority is given to any of the six factors listed, and according to the CAA, the selection of a given instrument runway generally represents a compromise after all factors have been taken into consideration. A northeast/southwest alinement has been found to be the most desirable for all airports in the New York area. (See appendix.) This does not preclude some realinement (20°) in the instrument runway at Newark as hereinafter discussed.

The location of the present runway 6 (60°) and its use for all instrument landings at Newark substantially increases the number of landing aircraft flying directly over the city of Elizabeth. According to the United States Weather Bureau, instrument weather exists at Newark 21 percent of the time. This is a condition when the ceiling is less than 1,000 feet and visibility is 3 miles or less. According to the same source, at least 6 percent of the time the ceiling is less than 500 feet and visibility is less than 1 mile. When instrument weather condition exists, aircraft landings at Newark Airport must utilize an instrument landing aid.

NEW RUNWAY ORIENTATION AT NEWARK AIRPORT

Following acquisition of the Newark Airport, the Port of New York Authority conducted extensive studies as to the best manner of developing the Newark Airport in accordance with the provisions of its lease. Based upon these studies, a new runway for instrument operations has been under construction for more than a year. It is located on the east side of the field, alined 40°–220° magnetic, in contrast with the 60°–240° alinement of the present instrument runway. Approaches to the new runway from the southwest, will bring in flights over less densely populated areas outside the business section of Elizabeth. Aircraft will fly up the Arthur Kill Van Kull waterway and pass over the eastern edge of the city of Elizabeth with maximum approach clearances. The completion of this runway as the instrument approach to Newark Airport will accomplish a most desirable improvement and should be expedited.

The Port of New York Authority has advised the committee that this runway cannot possibly be completed and put into use before November 1, 1952. (See telegram in appendix.) A portion of this runway has been constructed over swampland and problems connected with stabilizing the fill and the pouring of concrete or other hard surface thereon are said to preclude earlier completion. Every effort should be made to secure the earliest practicable completion of this new instrument runway.

IMPROVEMENT IN FLIGHT TRAFFIC PATTERNS AND PROCEDURES

Since the new instrument runway for the Newark Airport cannot be completed for 10 months, immediate steps to alleviate the danger and noise of low-flying aircraft have been studied. The committee investigators have found that several changes have been considered, and others can and should be taken. It should be recognized, however, that any change in the aircraft flight pattern and procedures will involve technical engineering and safety problems, and no change should be adopted by the responsible authorities until all safety factors have been thoroughly examined with reference to both persons on the ground and in the aircraft.

(*a*) *Preferential use of runways under visual flight conditions*

At Newark, the CAA adopted recently, the practice of requiring aircraft to take off on the runway permitting flight over the least populated areas surrounding the airport whenever wind and weather conditions permit such use without hazard to the aircraft. This increases aircraft taxying time and increases congestion on the airport, but reduces the volume of aircraft flying low over congested areas on an appreciable portion of time when local weather permits flight by visual reference to the ground. Legal authority to adopt this policy is confirmed by the Administrator of Civil Aeronautics.

A new access taxiway to the west end of the present east-west runway (10°–28°) will be completed by the New York Port Authority and placed in use on February 5, 1952. This will permit the airport control tower to direct traffic to use runway 10 as a first priority and will effect take-offs to the east and over the ocean, thus minimizing take-offs over congested areas. (See appendix.)

(*b*) *Adoption of higher cross-wind component for "no-wind conditions"*

In connection with the establishment of the preferential use of runways, a study should be made of the feasibility of providing that the first priority runway must be used for landings and take-offs whenever the cross-wind velocity is less than 15 miles per hour and there is no tail-wind component. The maximum cross-wind component now tolerated by the CAA in directing runway use is 6 miles per hour, and this has been selected after giving consideration to the operating characteristics of all types of airplanes in general use.

The committee investigators found that the airline pilots and companies using LaGuardia and the New York International Airports recently approved the 15 miles per hour increase in the cross-wind component in connection with the preferential use of runways at these airports but that the feasibility of doing so at Newark had not been taken up. Your committee has urged the airlines using the Newark terminal to do so, and now understands they have agreed to make a study immediately and to reach a decision prior to February 5 so that if the higher wind component is found feasible and approved by the CAA it can be adopted at the same time the new access taxiway is opened.

(*c*) *Radar departure procedures to improve the air traffic pattern in IFR weather*

The general adoption of radar-directed departures at Newark Airport under instrument weather conditions will permit the flexible use of more desirable flight paths which, in many cases, can be so laid out and directed as to avoid the more congested and heavily populated areas. A new surveillance radar is being installed at the Newark Airport tower to replace the wartime GCA, but this new equipment will not be ready for this winter season. This installation should be expedited. (See appendix.)

(*d*) *Turns at low altitudes following take-off to avoid congested areas*

The Civil Air Regulations now permit such turns at the discretion of the pilot when the safe operation of his aircraft warrants. This is proper and the practice of banking following take-off to avoid congested areas should be encouraged by the immediate study of this

practice by all interested groups. This should be followed by briefing of pilots with respect to the conditions under which such turns can be made with safety. (See appendix.)

(*e*) *Possibility of closing the No. 6 instrument runway at Newark Airport*

This possibility has been considered and is rejected. According to the Civil Aeronautics Administration the closing of runway 6 would result in the complete shut-down of operations at Newark Airport for approximately 6 percent of the time and would restrict the capacity of the airport to handle traffic under visual contact as well as instrument weather conditions.

More important, the closing of runway 6 would have an adverse effect upon the safety of air traffic using Newark Airport. This adverse effect is not the result of technical problems created by the use of different or more difficult instrument approach procedures, but is a direct result of the fact that the prevailing winds in the Newark area during instrument weather are from a northeasterly direction. Closing runway 6 would deprive approaching air traffic of the runway best oriented to take advantage of the prevailing wind component during the most difficult type of aircraft landing.

(*f*) *Possibility of temporarily raising the glide path "beam" for the more present No. 6 instrument runway*

This possibility has been considered and is rejected. Glide path equipment is capable of providing glide-path slopes up to 3½°; however, this angle has been determined to be unsuitable for large transport aircraft. Whenever the glide-path slope is increased above the optimum 2½° to 2¾°, it becomes increasingly more difficult to fly because of the higher rates of descent and experience has proved that the touchdown point is projected further down the runway. In order to retain the operational optimum glide slope at Newark, a setting of 2° 39 feet has been selected by the Civil Aeronautics Administration. To obtain the required obstruction clearance in the instrument approach zone with this optimum setting, the glide-path transmitter was located at 1,600 feet from the approach end of the runway departing from the normal citing of 750 feet.

Because of the length of the ILS runway at Newark and the fact that the glide-path transmitter is located 1,600 feet from the approach end of the runway, any increase in the glide-path angle would introduce very undesirable factors in the Newark approach. For example, if the ILS glide-path angle were increased to 3° without moving the glide-path transmitter, the altitudes above Elizabeth would be increased approximately 25 feet at the middle marker location, 66 feet at a point in the approach 1.5 miles from the runway end, 100 feet at the 3-mile point, 160 feet at 4.5 miles from the end of the runway, and 200 feet at a point 6 miles from the runway end. However, it is probable that the glide-path transmitter would have to be moved closer to the approach end of the runway if the glide path is raised. This would result in reduced heights over close-in obstructions and very little increase in height over more distant obstructions. Net result of increased glide angle would be reduced safety and probably an increase in missed approaches.

(g) *Possibility of raising instrument weather minimums at Newark Airport*

The present weather minimums at Newark now permit qualified air transport pilots to operate into and out of Newark with the ILS aid with a cloud ceiling as low as 250 feet and visibility of three-fourths of a mile. Few airlines operate under these conditions and American Airlines, for example, restrict straight-in ILS landings to 300-foot ceilings and three-fourths-mile visibility, and other landings to 500-foot ceilings or better.

The effect of raising instrument minimums at Newark on the volume of traffic would be to restrict instrument approaches in proportion to the amount by which the instrument minimums are raised. For example, raising ceiling minimums above 500 feet would probably result in eliminating more than one-third of all instrument approaches conducted at the Newark Airport. Thus, raising the landing minimums at Newark, which handles approximately 20 percent of all instrument approaches in the metropolitan area, would result in the routing of aircraft to other airports in the area and add to the already saturated traffic conditions which presently exist there.

Except for the reduction in number of instrument approaches indicated above, raising the instrument weather minimums at Newark will probably not reduce the exposure of persons on the ground since the track of landing aircraft using the ILS instrument approach facilities would be the same. However, taken in connection with the other steps being taken to divert traffic from congested areas, and discussed above, raising the weather minimums should have a salutary effect.

It is recommended that the weather minimums be raised immediately to 500-foot ceiling and 1 mile visibility until such time as the new instrument runway 4 is operational. This recommendation is made notwithstanding the fact that the recent accident record in the Newark area does not indicate that weather minimums were an important contributing factor. The committee believes, however, there is ample evidence to indicate that the safety of flight operations at Newark will be improved by raising the instrument minimums.

Summary of Committee Recommendations

Your committee recommends:

1. Expedite the completion of the new instrument runway 4 at Newark Airport.
2. Designate runway 10 as the first priority runway for landings and take-offs when weather permits, not later than February 5, 1952.
3. Examine, and, if possible raise the cross-wind component for runway use at Newark Airport.
4. Adopt radar direction as the required departure procedure at Newark for instrument weather as soon as technical equipment is ready.
5. Encourage the practice of making low altitude turns after take-offs to avoid congested areas whenever the safety of flight will not be endangered.
6. Raise the instrument weather minimums at Newark Airport to a ceiling of 500 feet and 1 mile visibility until such time as the new instrument runway 4 is operational.

7. Adopt on February 5, 1952, simultaneously, recommendations 2 and 3, at the opening of the access taxiway to runway 10.

As part of your committee's continuing program of studying the progress of civil aviation and the responsibilities of the Federal Government thereto, the committee has investigated each major airline crash and will continue to do so. It will continue to study ways and means of improving aircraft safety and of reducing the danger and annoyance to persons in their homes and on the ground.

It is recognized that the advent of large four-engine transport aircraft which came in general use following the war intensified the aviation annoyance problem to persons living within the vicinity of major air terminals. At the same time, the safety factor has substantially improved. Moreover, the development of new all-weather landing and navigation aids are being developed and have been encouraged by your Committee for years, especially the SC–31 all-weather navigation program. New Federal legislation has been sponsored to increase aviation safety and will continue to be expedited whenever the need therefor becomes manifest. The problem of aviation safety presents the greatest challenge to the aeronautical industry and requires the intent and constant attention of all concerned.

APPENDIX

CIVIL AERONAUTICS BOARD,
Washington 25, January 29, 1952.

M. EDWARD C. SWEENEY,
Professional Staff Member,
Senate Committee on Interstate and Foreign Commerce,
Senate Office Building, Washington, D. C.

DEAR ED: As per your request to me yesterday there is enclosed herewith the approach control transcription of January 22, 1952.

Sincerely yours,

Bill
W. K. ANDREWS,
Director, Bureau of Safety Investigation.

Enclosure.

APPROACH CONTROL TRANSCRIPTION, JANUARY 22, 1952

Wm. A. Williams, operator

American 6780: The Newark weather indefinite 400 sky obscured three-quarters of a mile light rain fog. Altimeter 2997—Over.

6780: Descend to three—to 2500—Over.

6780: Thank you.

6780: Descend to 1500—leave—you can leave Linden at 3:39—Over.

6780: Leaving Linden at :41. Listen for radar on localizer voice cleared to land 6, the wind northeast 4.

6780: What is your position now?

6780: This is Newark approach control American 6780 Newark approach control—Over.

6780: American 6780 This is Newark Radar, if you hear Newark Radar we're not hearing your transmissions, try another frequency—Over.

6780: This is Newark approach control, if you hear Newark approach control try another frequency—Over.

NEWARK RADAR TRANSCRIPTION, JANUARY 22, 1952

TEN-MILE PRECISION SCOPES

G. Dehner, operator

American 6780: This is Newark radar. How do you hear?—Over.

6780: This is Newark radar, have you 5½ miles out, coming up on the glide path, and you're 900 feet to left of course.

American 6780: 5 miles out, on the glide path, still 900 feet to the left of course. Coming back to the course now, you're now 400 feet left, glide path is good 4¼ miles out.

Three hundred feet to the left you're coming back, you're right on course now, and your glide path is going a little high 100 to 150 feet high on the glide path 4 miles out, the courthouse 1 mile ahead of you.

Glide path is good 3½ miles out and you're drifting to the right, you're 900 feet to the right of course and a half mile from the courthouse.

THREE-MILE PRECISION SCOPES

J. Penka, operator

American 6780: This is Newark Radar, we've lost your target, sir, after you drifted well to the right there. I don't have you in radar contact at present, we'll try and pick you up.

American 6780: This is Newark Radar still unable to pick up a target on you—could you advise us your position?

American 6780: This is Newark Radar, do you hear?—Over.

Ten-mile operator, G. Dehner

American 6780—American 6780. This is Newark Radar, 1–2–3–4–5–5–4–3–2–1. Do you hear Newark Radar?—Over.

CIVIL AERONAUTICS BOARD,
Washington 25, January 29, 1952.

Mr EDWARD C. SWEENEY,
Professional Staff Member,
Senate Committee on Interstate and Foreign Commerce,
Senate Office Building, Washington, D. C.

DEAR MR. SWEENEY: As per your request of yesterday I am pleased to enclose listings of all accidents involving civil aircraft which have occurred at or near the Newark Airport since the installation of the ILS approach system at that location.

List No. 1 covers those air-carrier accidents which did not involve instrument approach. List No. 2 covers those air-carrier accidents which did occur during instrument conditions. List No. 3 covers the non-air-carrier accidents which occurred during the period. None of the latter involved instrument approach.

There is also enclosed a complete résumé of those accidents which involve the Convair 240 aircraft.

If the Board can be of any further service to you, please do not hesitate to call on us.

Sincerely yours,

DONALD W. NYROP, *Chairman.*

Enclosures.

AIR CARRIER ACCIDENTS WHICH OCCURRED AT OR NEAR THE NEWARK AIRPORT, NEWARK N. J., DURING THE PERIOD OF JANUARY 1, 1948, TO DATE [1]

LIST 1. ACCIDENTS NOT INVOLVING INSTRUMENT APPROACH

Date, April 2, 1948; location, Newark, N. J.; operator, Northwest; injury, none; damage, substantial.

Just as the aircraft left the ground on a ferry flight, the front loading door came off and struck the left propeller. The field was circled and a normal landing made on the airport. Examination indicated that probably on numerous occasions the door had been locked before the rods or "bayonettes" were lined up

[1] Source: Civil Aeronautics Board, Bureau of Safety Investigation, Analysis Division, January 25, 1952

with the receptacles in the door frame. This caused the rod assemblies to bend or break, and only two of the bayonettes were actually holding the door at the time of the accident. Design on the door could be improved.

Date, January 27, 1950; location, Newark, N. J.; operator, TWA; injury, none; damage, substantial.

Nose gear collapsed during normal taxi turn.

Date, March 8, 1950; location, Newark, N. J.; operator, American Air Transport Inc.; injury, none; damage, substantial.

Landing was made in a strong, gusty wind. Aircraft skipped on touchdown then touched again in a wheel landing attitude. There was considerable side motion during the roll and excessive rudder control was utilized. Aircraft had rolled approximately 1,500 feet when the gear collapsed. Evidence indicates failure of gear structure was due to excessive side loads at time of touchdown and/or during landing roll.

Date, November 28, 1950; location, Newark, N. J.; operator, American Air Transport, Inc.; injury, none; damage, substantial.

The left wing dropped as aircraft became airborne and, when pilot was unable to bring it up, he reduced power and discontinued his take-off. Aircraft touched down on left gear and veered off runway onto soft ground. The right gear retracted and left gear folded back. Investigation disclosed aileron control chains and cables were connected in reverse.

Date, August 11, 1951; location, Newark, N. J.; operator, All American Airways; injury, none; damage, destroyed.

Pilot failed to maintain directional control of aircraft during a night take-off, and cut power as it ran off the runway. Aircraft ran into a swamp area, shearing the right gear on a ditch, and came to a stop on top of a 4-foot embankment. Fire started under right engine, as the fuel tanks had ruptured. Fire was extinguished by ground personnel. All occupants were safely evacuated.

Date, December 16, 1951; location, Elizabeth, N. J.; operator, Miami Airline, Inc.; injury, fatal; damage, washout.

During take-off at the Newark Airport white smoke was observed coming from the right engine nacelle. The control tower advised the flight of this condition and cleared it to return to Newark and land on any runway desired. The Miami Airline captain on the ground at Newark Airport requested the control tower to advise the flight that the main right landing gear brake appeared to be burning and suggested that the captain lower the landing gear. This message was acknowledged and as the landing gear doors opened, flames were observed shooting out of the right nacelle. The aircraft started a left turn apparently in an attempt to return to the Newark Airport. During the turn control was lost of the aircraft and it crashed.

LIST 2. ACCIDENTS INVOLVING INSTRUMENT APPROACH

Date, March 2, 1948; location, Newark, N. J.; operator, Meteor Air Transport; injury, none; damage, substantial.

En route Detroit to Newark, the aircraft was exposed to icing conditions for approximately 40 minutes. Newark was contacted for an emergency landing, which was approved. After one approach was missed, a "missed approach" procedure was applied and a second approach made. This time, visual contact was made and the aircraft approached runway 6. As it passed over the approach lights, the plane stalled, shearing off the runway light supports and the right wing of the aircraft. The plane continued on in flight attitude, bounced onto the end of the runway, continued down the runway under control and was taxied into a parking area. Weather was ceiling, 500 foot; visibility, 1 to 1¼ miles; heavy icing.

Date, May 21, 1951; location, Newark, N. J.; operator, National; injury, none; damage, substantial.

Pilot was making a night ILS approach. As flight passed over the middle marker the copilot advised that approach lights were visible to the right. Both pilots saw that the airplane was about to contact the ground prematurely and power and full up elevator control were applied simultaneously. The aircraft contacted the ground in a swamp area 110 feet to the left and 1,200 feet from the approach end of the runway. As a result of pilot action it became airborne again and a second touchdown was made within the airport boundary. The left stabilizer struck an upright steel pipe.

Date, Jan. 22, 1952; location, Elizabeth, N. J.; operator, American; injury, fatal; damage, wash-out.

Landing was diverted from La Guardia and Idlewild Airports to the Newark Airport due to weather conditions. Weather in Newark at the time was given as 400-foot ceiling, obscuration visibility three-quarter mile, light rain, light fog. While making an ILS approach monitored by GCA the aircraft disappeared from the radar scope just before reaching the airport. Shortly thereafter it was learned that the aircraft had crashed into houses and was burning in the city of Elizabeth. (This information is preliminary since accident is now in process of investigation.)

NOTE.—Approval for the first airline to make ILS approaches into Newark Airport was given in December of 1947. This approval was extended to other airlines operating into Newark shortly after this date. There were no ILS connected accidents at the Newark airport in 1947. Therefore, these listings cover the period of 1948 to date.

LIST 3. NON-AIR-CARRIER ACCIDENTS AT OR NEAR NEWARK AIRPORT, 1948 TO DATE

Date	Type	Injury	Damage	Remarks
Mar. 22, 1948	Stinson 108	None	Substantial	Gear rectracted during landing roll.
Oct. 19, 1948	Widgeon	do	do	Gear collapsed during landing roll.
Oct. 27, 1948	Piper J3C	Minor	do	Struck a runway light.
Sept. 29, 1949	Lodestar	Serious	Demolished	Struck wires.
Feb. 4, 1951	Bonanza 35	None	Substantial	Gear retracted during landing roll.

NOTE.—None of this group involved instrument approach.

CONVAIR 240, ACCIDENTS 1947 TO DATE

Date, August 19, 1948; location, Glenview, Ill.; operator, American; injury, none; damage, substantial.

When pilot attempted to lower gear for landing, the nose gear would not extend. The locating lugs of the upper cam of steering gear centering assembly were sheared. Following this the nose gear was cocked to the left and jammed against the left lower longitudinal nose wheel well beam. (Scheduled domestic—passenger-carrying.)

Date, August 31, 1948; location Louisville, Ky.; operator, American; injury, none; damage, substantial.

After a normal touchdown the nose wheel gear collapsed allowing propellers, nose wheel doors, and nose to strike runway. The failure was due to a defective brazed joint in the hydraulic retracting cylinder. (Scheduled domestic—passenger-carrying.)

Date, November 13, 1948; location, St. Louis, Mo.; operator, American; injury, minor; damage, substantial.

After arriving at ramp and opening loading door, the landing gear collapsed. Three green lights had shown when gear was extended and pressure was up. But tests showed that handle could be moved to a position one-half inch above full down and still get the green lights. On landing, friction from the solenoid pin probably held the gear up for a time. Changes are being made which will make it impossible to get the green lights without the landing gear primary lock being engaged. (Scheduled domestic—passenger-carrying.)

Date, November 19, 1948; location, New York, N. Y.; operator, American; injury, none; damage, substantial.

In landing through heavy rain and turbulent air the crew forgot to lower the gear. When the gear warning horn sounded, both pilots mistook it for the stall warning and applied more power. The airplane made a belly landing. (Scheduled domestic—passenger-carrying.)

Date, March 18, 1948; location, Ardmore, Okla.; operator, American; injury, none; damage, substantial.

In practicing a "low visibility approach" pull-out was started too late. Airplane hit in level position on all three wheels. The center section failed on both sides. The fire following the accident was extinguished. (Scheduled domestic—non-revenue.)

Date, July 24, 1948; location, Habana, Cuba; operator, Pan American Airways; injury none; damage, substantial.

Nose gear retracted after normal landing. A defective brazed joint in the nose-wheel retracting cylinder was responsible. (Scheduled international—passenger-carrying.)

Date, December 9, 1948; location, Habana, Cuba; operator, Pan American Airways; injury, minor; damage, substantial.

Airplane failed to get off after a run of 2,500 feet and an unidentified vibration occurred. Pilot reduced power and attempted to stop. The airplane went off the end of the runway, struck a ditch taking off the left main and nose gears, the right wing and engine. A fire broke out in the wing which had separated. The brakes had been applied when nearly airborne. Two main tires were worn through and the two remaining could not stop the airplane. There was an engine malfunction and vibration due to failure of the water injection regulator vent line check valve to function upsetting the mixture. (Scheduled international—passenger-carrying.)

Date, January 22, 1949; location, Columbus, Ohio; operator, American; injury, none; damage, substantial.

Hit a small duck in flight. Landed safely. (Scheduled domestic—passenger-carrying.)

Date, January 27, 1949; location, Denver, Colo.; operator, Continental; injury, none; damage, substantial.

Landing was normal except plane not exactly lined up with runway. It angled to left and hit on ice ridge 8½ inches high damaging the gear and center section above it. One to three inches of snow on the runway contributed to the difficulty of maintaining a straight course. (Scheduled domestic—passenger-carrying.)

Date, June 22, 1949; location, Memphis, Tenn.; operator, American; injury, serious; damage, destroyed.

Right engine failed during take-off and propeller automatically feathered at 20 to 50 feet altitude. Gear was retracted and altitude gained slowly on left engine. Just before crossing a power line a slow retraction of flaps was started. Air speed dropped and pilot was unable to maintain altitude. Pilot made a wheels-up landing. Fire followed. Thirteen passengers and one crew member received serious injury. Twenty-eight passengers and two crew were uninjured. Engine failure resulted from failure of the impeller shaft thrust bearing. (Scheduled domestic—passenger-carrying.)

Date, August 11, 1949; location, Portland, Maine; operator, Northeast; injury, none; damage, destroyed.

Approach was normal until throttles were closed at 20 to 25 feet over end of runway when the propellers went into reverse. The airplane dropped hard, but continued forward 1,065 feet spilling gasoline which ignited. The passengers were all evacuated before the airplane burned up. The propellers had reversed because the solenoid-operated throttle reverse circuit stops were in the up position with manual override control in out position when the throttles were retarded. This allowed the throttles to be retarded beyond the "detent" position, thus operating the propeller-reversing mechanism. Improper adjustment and residual magnetism resulted in the solenoid plunger jamming in the energized position. (Scheduled domestic—passenger-carrying.)

Date, September 5, 1949; location, Hutchinson, Kans.; operator, Continental; injury, none; damage, substantial.

Taxi strips were unlighted and there were no reflectors at the intersection. Pilot was using nose light which has a narrow beam and is not adjustable from the cockpit. He missed a turn and bogged down in soft ground. The nose gear was pushed back into fuselage as it struck the edge of the taxi strip. (Scheduled domestic—passenger-carrying.) (Reflectors have since been installed.)

Date, December 15, 1949; location, Miami, Fla.; operator, Pan American Airways; injury, none; damage, substantial.

Landing gear hydraulic line failed and pressure was lost. In returning to ramp the pilot failed to use air brakes and emergency procedure before colliding with ramp equipment. (Scheduled international—passenger-carrying.)

Date, February 20, 1950; location, New York, N. Y.; operator, Northeast; injury, none; damage, substantial.

Nose gear failed in taxying. (Scheduled domestic—passenger-carrying.)

Date, June 18, 1950; location, Tulsa, Okla.; operator, American; injury, none; damage, substantial.

Aircraft was landed short of runway on sod and nose gear collapsed. (Scheduled domestic—passenger-carrying.)

Date, November 2, 1950; location, near Trinidad, Colo.; operator, Continental; injury, serious; damage, none.

Aircraft encountered sudden, unexpected severe turbulence which caused several pasengers to be thrown from their seats. (Scheduled domestic—passenger-carrying.)

Date, November 4, 1950; location, near Baltimore, Md.; operator, American; injury, serious; damage, none.

Flight encountered sudden, severe turbulence without warning. (Scheduled domestic—passenger-carrying.)

Date, November 19, 1950; location, Tucson, Ariz.; operator, American; injury, none; damage, substantial.

Nose gear shock strut trunnion ram failed, allowing gear to collapse, and nose of aircraft to contact ramp surface. (Scheduled domestic—passenger-carrying.)

Date, December 7, 1950; location, Eugene, Oreg.; operator, Western; injury none; damage, substantial.

A section of propeller blade, at tip, tore loose and penetrated fuselage, damaging hydraulic lines and causing decompression. Pilot returned to Eugene and during approach found right gear failed to extend, necessitating a go-around. Left engine (right engine was feathered) lost power momentarily and pilot was forced to make a close-in approach. Aircraft angled off runway onto soft sod area and bogged down. (Scheduled domestic—passenger-carrying.)

Date: Jan. 10, 1951; location, Springfield, Mo.; operator, American; injury, serious; damage, none.

Aircraft momentarily encountered severe turbulence and down-drafts. Hostess was thrown to the floor and received a fractured ankle. (Scheduled domestic—passenger-carrying.)

Date: Feb. 27, 1951; location, Tulsa, Okla.; operator, Mid-Continent; injury, none; damage, destroyed.

Shortly after take-off and following gear retraction at approximately 145 miles per hour, the left-engine torque-meter assembly failed, causing propeller to automatically feather and to continue rotating. Pilot leveled off at approximately 150 feet, as air speed had started to drop, and then initiated a left turn to avoid flying over a building. The flaps were retracted at the start of the turn and air speed dropped to a point where aircraft failed to maintain altitude. Aircraft struck a grove of trees, then slid on the ground and caught fire. (Scheduled domestic—passenger-carrying.)

Date: Aug. 7, 1951; location, New York, N. Y.; operator, American; injury, none; damage, substantial.

Aircraft bounced on landing and stalled in hard. (Scheduled domestic—passenger-carrying.)

Date: Aug. 25, 1951; location, Buffalo, N. Y.; operator, American; injury, none; damage, substantial.

Flight had established normal cruise when a slight vibration was noted and immediate check disclosed an intense fire in left engine. The engine was feathered and fire extinguished only after reserve bank of CO_2 had been discharged. Single-engine flight conditions were established and flight returned to Buffalo, landing without further incident. Preliminary investigation indicates fire followed internal failure in engine. (Scheduled domestic—passenger-carrying.)

Date, March 25, 1951; location, Maturin, Venezuela; operator, PAA; injury none; damage, substantial.

When making prelanding check, flight found they had no hydraulic fluid and immediately set up emergency procedure for landing. Crew was unable to

maintain directional control and aircraft veered off the runway, hitting a pile of gravel. Investigation disclosed failure of hydraulic line tube fitting as a result of improper installation. (Scheduled international—passenger-carrying.)

Date, September 2, 1951; location, Kingston, Jamaica; operator PAWA; injury, minor; damage, destroyed.

Flight was cleared to land on runaway 14, and pilot requested a right turn in while one-half mile west and south of the airport. Approach was made after dark with visibility restricted to approximately 3–4 miles in rain, and a 10-knot east-southeast wind. Aircraft struck the water during final approach, tearing off right wing, and submerged in 24 feet of water. All occupants were safely evacuated and were picked up by launch, in the immediate vicinity. (Scheduled international—passenger-carrying.) (Preliminary.)

Date, September 28, 1951; location, National Airport, Washington, D. C.; operator, American; injury, none; damage, substantial.

During take-off, as aircraft was becoming airborne, the right engine backfired and fire was observed around it. Pilot immediately set up single-engine procedure and initiated emergency fire procedure. However, fire was still burning as aircraft landed and was extinguished by ground fire-fighting equipment. Investigation disclosed piston and/or link rod in No. 9 cylinder had failed. (Scheduled domestic—passenger-carrying.)

Date, October 24, 1951; location, LaGuardia Field, New York, N. Y.; operator, American; injury, none; damage, substantial.

Fire occurred in No. 2 engine nacelle while flight was holding over New Rochelle. Propeller was feathered and both banks CO_2 discharged. Severe fire damage in zone 2. Aircraft landed without incident. (Scheduled domestic—passenger-carrying.) (Preliminary.)

Date, November 6, 1951; location, Charleston, W. Va.; operator, American; injury, none; damage, substantial.

Aircraft bounced during landing in a gusty 20- to 30-mile-per-hour wind and dropped in hard, resulting in failure of the nose gear. (Scheduled domestic—passenger-carrying.)

Date, January 14, 1952; location, New York, N. Y.; operator, Northeast; injury, serious; damage, destroyed.

Flight was making an instrument approach to LaGuardia Field and crashed in the river a half mile from the airport. All occupants were rescued by boats in the river. (Scheduled domestic—passenger-carrying.) (Preliminary.)

Date, January 22, 1952; location, Elizabeth, N. J.; operator, American; injury, fatal; damage, destroyed.

Flight was making an instrument approach, monitored by GCA, when aircraft crashed into buildings and burned. (Scheduled domestic—passenger-carrying.) (Preliminary.)

History of the Establishment of Newark Instrument Runway [2]

A CAA low-frequency loop-type range was installed on the site of the present Newark LF range prior to 1933. Instrument approaches using this facility were conducted by the air carriers landing at Newark Airport during the period following 1933. However, the instrument approach technique on the low-frequency range at that time did not require the establishment of an "instrument runway" as such, due to the fact that the minimum ceilings for such approaches were predicated on the ability of the pilot to circle and make a contact approach after break-out, on the runway having the most favorable wind component.

In 1943, Newark Airport was expanded and developed by the United States Army in connection with its military operations. This included a lengthening of runway 6 (northeast-southwest). At the time this improvement was undertaken, the CAA was requested to make recommendations to the Air Force regarding the selection of a runway for ILS installation. This required the designation of a single runway as the "instrument runway" due to the characteristics of ILS approaches which require landing on the runway on which the ILS is oriented.

The initial study of the problem showed that the prevailing winds associated with instrument weather conditions in the Newark area are from the east and

[2] Furnished by the Civil Aeronautics Administration.

northeast. Consequently, major attention was given to the northeast-southwest and north-south runways. An additional factor requiring that these two runways be given primary consideration as instrument runways was the fact that of all of the runways at Newark Airport these two had the most unobstructed approaches. Of the two, the north-south runway appeared impractical due to the fact that swampy terrain made the location of sites for the middle and outer markers difficult and, in addition, use of this runway would require relocation of a portion of a new highway. In addition, the north-south runway was only 5,000 feet in length while the northeast-southwest runway, as lengthened by the United States Army project, would be 7,000 feet.

At the conclusion of World War II, Newark Airport was returned to civil use and the permanent ILS was installed on runway 6 (northeast-southwest) in accordance with the studies made by CAA in conjunction with the United States Army during World War II. Further facts developed at that time confirmed the selection of this runway as proper for instrument operations. These are:

1. A northeast-southwest orientation of the instrument runway at Newark coincides generally with IFR traffic requirements of the New York area due to the fact that instrument operations into and out of LaGuardia, Floyd Bennett, and Idlewild are along this line of flight.

2. Instrument approaches from other directions could be extremely hazardous in view of the proximity of the high buildings in downtown Newark and New York City and, in addition, could create serious conflicts with the instrument approaches to the other airports mentioned in 1 above due to a conflict in traffic flow.

3. The flow of air traffic into the New York area (principally Boston-New York, Washington-New York, and Chicago-New York) is northeast-southwest, along the orientation of the instrument runway at Newark.

The Beneficial Effect of the Proposed New Instrument Runway at the Newark Airport [3]

The direction of the proposed relocation of the Newark ILS runway is in accordance with the recommendations made in a study entitled, "Air Traffic Capacity and Flow Direction Analysis of the New York Metropolitan Area," prepared cooperatively by the Civil Aeronautics Administration, first region, and the Port of New York Authority. This study indicates that the most favorable instrument approach for the New York area, based on weather data, is a northeast-southwest direction. If the northeast and southwest approaches are implemented with navigational aids for straight-in instrument approaches during straight-in instrument conditions, these two directions will permit an average of 98 percent operations, since the cross-wind component exceeds 25 miles per hour less than 10 hours per year for either direction. Under present IFR circling minimums, circling of the airport can be almost completely eliminated for this reason.

A new runway system is now under construction at the Newark Airport, which is part of a master plan proposing two parallel northeast-southwest runways, alined 40°–220° mag. (in contrast to the 60–240 alinement of the present runway). This lay-out conforms to the recommendation made previously in this study for the most advantageous instrument runway direction. The lateral separation of 4,000 feet between these parallel runways is beyond the 3,000-foot limit felt necessary to permit take-offs on a single runway and landings on a parallel runway simultaneously in IFR weather. Runway 4R–22L, which will accommodate landings from the southwest and northeast, is under construction.

To achieve maximum airport capacity and bidirectional IFR operation, the study further recommends that runway 4R–22L should be completed and equipped for instrument approaches from the northeast, and runway 4L–22R should be constructed and equipped for instrument approaches from the southwest. However, the initial 4R–22L runway will accommodate bidirectional approaches until the traffic volume warrants the construction of the parallel instrument runway 4L–22R.

Relocation of the instrument runway and realinement of the ILS localizer would permit the establishment of a holding pattern northeast of the Newark Airport between the present New Rochelle holding pattern and the Paterson holding pattern, provided a fan marker or other suitable fix were provided.

Approaches from a southwest direction over the proposed alined localizer would result in flights being conducted over less densely populated areas and would lie outside the Elizabeth business area. Approach clearance criteria will permit minimums equal to those presently utilized.

[3] Prepared by the Civil Aeronautics Administration.

[Copy of telegram]

JANUARY 30, 1952.

Mr. E. C. SWEENEY,
Room 138–A, Senate Office Building, Washington, D. C.:

Following information supplied as per your request for Committee on Interstate and Foreign Commerce: Port Authority assumed jurisdiction over Newark Airport in 50-year lease with city of Newark on October 22, 1947. Pursuant to terms of leasing contract, authority has acquired 800 additional acres of land and is constructing new runway system and new terminal building. Investment in airport prior to 1947 totaled $23,000,000. Since 1947 Port Authority invested or committed $20,000,000. Size of airport now totals 2,300 acres. Access taxiway costing $175,000 to west end of runway 10–28 will be operational February 5, 1952. This will permit take-offs to the east over the ocean as priority 1. New instrument runway in process of construction. Fill has been completed and surfacing will begin when settlement of fill permits. Port Authority engineers estimate November 1, 1952, as date on which this runway will be operational. Present instrument runway 6–24 alined toward Elizabeth will be closed on date new instrument runway opens. Alinement of new runway will permit take-offs and landings without necessity of flying over business center and congested residential part of Elizabeth as is now required under instrument conditions by runway 6–24.

Plane movements in 1951 at Newark totaled 100,177. In 1950, plane movements totaled 89,171. Passengers handled at Newark in 1951 totaled 1,189,612. Total in 1950 was 916,066.

FRED M. GLASS,
Director, Department of Airport Development,
The Port of New York Authority

PREFERENTIAL USE OF CERTAIN RUNWAYS AT AIRPORTS UNDER WEATHER CONDITIONS WHEN LOCAL FLIGHT IS PRACTICABLE BY VISUAL REFERENCE TO THE GROUND [4]

The CAA has given serious consideration to the preferential use of those airport runways permitting flight over the least populated areas surrounding the airport whenever wind and weather conditions would permit such use without hazard to aircraft operation. A number of locations have been studied from this standpoint, and where it has been found practical to adopt such an arrangement, immediate favorable reaction has been the rule. Among the cities where some form of this principle has been applied have been Washington, D. C., Miami, Fla., Newark, N. J. (as well as other airports in the New York City area), and, to a lesser extent, at Los Angeles and smaller airports in that vicinity.

At Newark, the control tower, on October 22, 1951, adopted a preferential runway use procedure with the cooperation of the airline pilots and companies and the Port of New York Authority, which provides for the use of the runways for take-off in the following order: 6—24—28—10 (pending completion of a taxiway serving runway 10, at which time it will become first preference). This preference order was established to allow flight over less populated areas when operating conditions permit. In working on this problem, first priority was given to take-offs, since public reaction to aircraft noise indicated that corrective measures in this phase of airport operation were most imperative.

Continuing study is being given to the preferential use of runways for landings. However, several problems have arisen in this field. First, there is not as much flexibility in selecting a runway for landing as for take-off. Present procedures require that the tower controller select the runway most nearly alined with the wind whenever the wind velocity is 6 miles per hour or greater. Below this wind speed, he may direct traffic to any runway without a tailwind component. Greater flexibility in landing runway assignment is dependent upon the operating characteristics of each different type of aircraft in general use today.

In connection with requiring adherence to preferential use of runways selected by CAA, it should be pointed out that we believe that the Administration has the necessary legal authority to effectuate this policy. This is derived from section 60.19 of the Civil Air Regulations issued by the Civil Aeronautics Board, which provides:

"No person shall operate an aircraft contrary to air traffic control instructions in areas where air traffic control is exercised."

[4] Furnished by Civil Aeronautics Administration.

Under this provision of the Civil Air Regulations, the controller may require a pilot, if he lands at an airport, to land on the runway selected by the tower unless an emergency exists, in which case the pilot has authority under another section of the Civil Air Regulations (60.2) to deviate therefrom. However, in practice, the CAA does not arbitrarily exercise its authority and the pilot has the right to request the controller to authorize the use of another runway if the one designated by the controller is unsatisfactory to the pilot for any reason. This consideration of the pilot's wishes is practical and necessary due to the fact that, for reasons unknown to the controller, use of a particular runway might be unsatisfactory and even unsafe under conditions known only to the pilot. Thus, while the CAA has the basic legal authority to require mandatory compliance with a runway selected under a preferential use procedure, this authority in practice is not exercised without careful consideration of the pilots' requests and estimates of safety conditions. We have not and do not expect to encounter any difficulty in achieving satisfactory results from preferential use of runways under this procedure since the pilots have cooperated in working out these arrangements and have not requested exceptions unless such exceptions appeared necessary.

Radar Departure Procedures [5]

The inauguration of radar departure procedures at Newark Airport would aid considerably in improving the over-all air traffic problem in IFR weather.

Our current experience with radar departure procedures at LaGuardia and with the more expanded radar traffic control at Washington indicates clearly that air traffic congestion in the area would be greatly alleviated. The greatest gains would be in the handling of departing aircraft, elimination of delays on the ground awaiting a departure clearance, and in greater flexibility and simplification of departure routings. In addition, and of particular interest to the Newark problems, the use of radar departures relieves the present situation where departing aircraft are confined to paths defined by radio courses, and permits the flexible use of more desirable flight paths which, in many cases, can be so laid out as to avoid the more congested and heavily populated areas.

The wartime GCA radar now in use at Newark was not designed for continuous operation but has been operated almost six times the normal life of such equipment, and despite frequent overhaul and excellent maintenance, the surveillance radar element is not considered sufficiently reliable, nor are the radar data available to the controller in the tower in such a manner as to permit inauguration of radar departure procedures. The first unit of the new ASR–2 General Electric radar is presently being installed at Newark tower. This is the first model off the assembly line and must undergo extensive acceptance testing and any necessary redesign by the manufacturer prior to being available. We do not anticipate that the new radar will be completed and commissioned in time to be of use this winter season.

Comments on Banking Aircraft After Take-Off [6]

In accordance with your request for comments on the legal aspects involved in ordering or permitting pilots to make turns after take-offs at altitudes of less than 500 feet to avoid flying over congested areas, with particular reference to the effect of such a requirement on operations conducted at the Newark Airport, the following is submitted:

Prior to August 27, 1948, Civil Air Regulation 61.7209, Banking after take-off, pertaining to scheduled air carriers, provided that: "So far as practicable, the aircraft shall not be banked immediately after take-off until at least a minimum altitude of 500 feet has been attained." Special Civil Air Regulation, serial No. 398, effective August 25, 1947, provided exceptions to this section for LaGuardia Field and Newark Airport.

On August 27, 1948, the Civil Aeronautics Board, by Civil Air Regulations Amendment 61–2, copy attached, rescinded section 61.7209 and Special Civil Air Regulation, serial No. 398.

This amendment was designed to permit the establishment of better traffic patterns to control the flight paths of aircraft both taking off and landing and, by permitting aircraft to bank before reaching any specific altitude on take-off,

[5] Furnished by the Civil Aeronautics Administration.
[6] Furnished by Civil Aeronautics Administration.

enabled flights over congested areas in many instances to be effectively avoided. This amendment does not require the pilot to make turns at lower altitudes than the safe operation of his aircraft warrants nor does it deprive him of exercising good judgment.

The Civil Aeronautics Board is authorized pursuant to title 6 of the Civil Aeronautics Act of 1938, as amended, to promulgate rules of safe flight of aircraft. Section 61.7209 and Special Civil Air Regulation 398 were promulgated pursuant to this statutory authority. Civil Air Regulations Amendment 61–2 rescinding these regulations eliminated prohibitions against banking scheduled air carrier aircraft until a specific altitude had been attained and enabled establishment of traffic patterns at Newark without the limitations imposed by such a requirement.

Rescission of these regulations better enables pilots to avoid congested areas in the vicinity of the Newark Airport following take-offs, and does not appear to have had any adverse effect on safety.

UNITED STATES OF AMERICA CIVIL AERONAUTICS BOARD

WASHINGTON, D. C.

Civil Air Regulations Amendment 61–2
Effective: August 27, 1948
Adopted: August 27, 1948

BANKING AFTER TAKE-OFF

Section 61.7209 of the Civil Air Regulations, in effect, forbids the banking of air carrier aircraft immediately after take-off until a minimum altitude of 500 feet has been attained. This regulation prohibits the changing of the aircraft's course until this altitude has been reached which in some instances results in flight at a low altitude directly over highly congested areas. It is desirable to avoid such flights wherever possible and the rescission of this regulation will permit the establishment of better traffic patterns which will accomplish this purpose. Since other provisions of the Civil Air Regulations establish adequate safeguards against unnecessary and unsafe maneuvering of aircraft at low altitudes and § 60.108 (c) requires aircraft to conform to traffic patterns prescribed for individual airports, this regulation may be rescinded without an adverse effect on safety.

Special Civil Air Regulations Serial Numbers 188 and 398 provide exceptions to section 61.7209 and, therefore, may be terminated upon rescission of this rule.

Interested persons have been afforded an opportunity to participate in the making of this regulation, and due consideration has been given to all relevant matter presented.

In consideration of the foregoing the Civil Aeronautics Board hereby amends the Civil Air Regulations (14 CFR, Part 61, as amended), effective August 27, 1948:

1. By rescinding section 61.7209.
2. By rescinding Special Civil Air Regulations Serial Numbers 188 and 398.

(Secs. 205 (a), 601–610, 52 Stat. 984, 1007–1012; 49 U. S. C. 425 (a), 551–560)

By the Civil Aeronautics Board:

(Signed) Fred A. Toombs,
FRED A. TOOMBS,
Acting Secretary.

[SEAL]

Part 61 last printed June 15, 1948.

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