

## 21. RUNWAY GROOVING PROJECT AT CHICAGO MIDWAY AIRPORT

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### INTRODUCTION

In November 1967 the entire length of runways 13R/31L and 4R/22L (fig. 1) were resurfaced with a continuous pour of concrete 100 feet wide. After the normal curing period for concrete, a slipperiness-when-wet condition arose and caused aircraft hydroplaning.

A thorough investigation of this condition was made. Representatives of the airlines, Air Transport Association of America, Federal Aviation Administration, Air Line Pilots Association, Chicago Department of Public Works, and Chicago Department of Aviation participated in the study.

After a test demonstration of transverse grooving by Super-Cut, Inc., the Chicago Department of Aviation submitted a request for labor, material, and equipment necessary to groove both runways in their entirety. Accordingly, plans and specifications were drawn up by the Chicago Department of Public Works, bids were submitted, and Brighton Building and Maintenance Company was awarded the contract known as Public Works Project No. 419 and Federal Aid to Airports Program Project No. 9-11-016-11.

The work on this project commenced on July 29, 1968, with a time limit of 50 days from starting date. The project was completed, within the allotted time limit, on September 14, 1968.

### DESCRIPTION OF PROJECT

The existing concrete runway surfaces and adjoining asphalt shoulders were grooved to a depth of 1/4 inch. The grooves were 1/4 inch wide and were spaced  $1\frac{1}{4}$  inches from center to center. The grooving was placed across the 100 feet of concrete and extended an additional 1 foot on each asphalt shoulder. Accumulation of debris and slush resulting from the grooving operation was immediately washed from the runway into grass areas by high-pressure hoses attached to high-pressure sprinkling trucks.

Complete cooperation between Ralph Scafuri (Project Engineer), the Federal Aviation Administration control tower, the airport management, and the contractor permitted continuous aircraft operations during the entire period of this grooving project.

Final inspection was made on September 26, 1968, by H. F. Zalewski, R. J. Bronson, L. Weinberg, N. DiGuito, V. Cronin, and Ralph Scafuri of the Bureau of Engineering; Michael J. Berry and Charles O'Connor of the Chicago Department of Aviation; C. W. Carstens and H. W. Hopper of the Federal Aviation Administration; and J. F. Mann of the Air Transport Association of America. These gentlemen accepted the completed project as satisfactory and according to plans and specifications.

Independent inspections of the grooved runways were made by Larry Tennis (Flight Standards), George Davis (Manager of Dispatch), and Carl Johnson (Station Manager), representing American Airlines, and by Robert Fulton (Station Manager), John Kukar (Airport Engineer), Mel Volz (Flight Manager), and Clark Luther (Regional Manager of Flight Operations), representing United Air Lines. All were satisfied that the grooving of these two runways would give top performance to landing aircraft by improving braking action and providing perfect drainage during rainfalls.

#### COMMENTS

It is the opinion of the airport management, as well as of pilots questioned at random, that the grooving undoubtedly provides a great improvement and reduces the possibility of hazardous conditions for landing aircraft. It is too early at this time to make a determination as to any possible deficiencies in the construction of the runways due to the grooving.

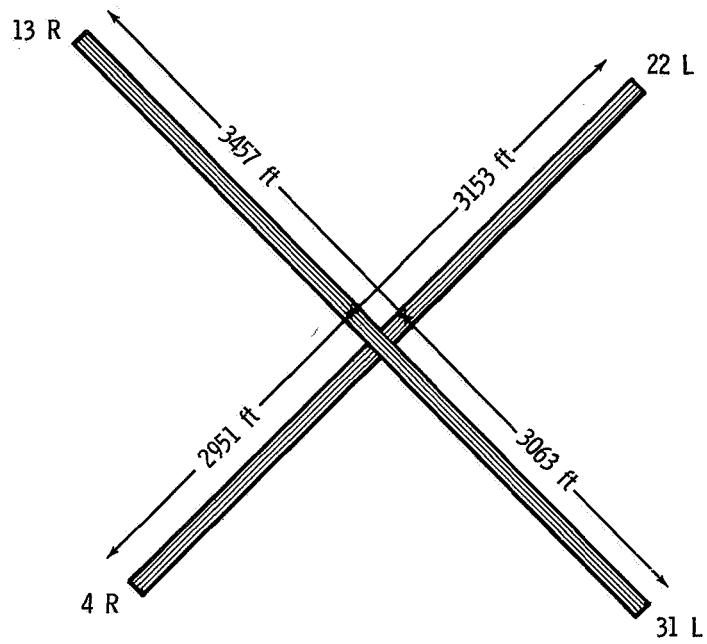


Figure 1.- Layout of runways 13R/31L and 4R/22L at Chicago Midway Airport.