AERONAUTICAL INFORMATION CIRCULAR 16/19

NOTICE OF AMENDMENT TO WAKE TURBULENCE SEPARATION STANDARDS ON FINAL APPROACH AT TORONTO/LESTER B. PEARSON INTERNATIONAL AIRPORT (CYYZ)

Purpose of the Circular

This circular is to advise pilots of amended wake turbulence separation standards for aircraft operating on final approach to all runways at Toronto/Lester B. Pearson International Airport (CYYZ).

It is expected that these amended wake turbulence separation standards will be implemented at other capacity-constrained airports in Canada for both the arrival and departure phases of flight. Additional changes will be notified by NOTAM or aeronautical information circulars.

Background

The demand for airport capacity increases every year, yet the main constraint to increasing airport capacity is the runway, which only accommodates a limited number of flights per unit of time. In less than visual meteorological conditions, this capacity is directly linked with the minimum surveillance and/or wake turbulence separation required between aircraft.

During recent years, knowledge about wake vortex behaviour in the operational environment has increased thanks to measured data and improved understanding of physical characteristics. In addition, the fleet mix has changed significantly since the last update to weight categories and associated wake turbulence separation minima. For these two reasons, International Civil Aviation Organization (ICAO) requested that the Federal Aviation Administration (FAA) and European Organization for the Safety of Air Navigation (EUROCONTROL) jointly undertake an effort to recategorize the existing fleet of aircraft and modify the associated wake turbulence separation minima. A goal of safely increasing capacity at the constrained airports around the world was also given to this joint undertaking, through the optimization of the proposed categories based on today's fleet mix. It is based on existing safety cases, trials and deployments.

Amended Wake Turbulence Separation Standards

The wake turbulence re-categorization will be referred to as Enhanced Wake Separation, while the wake turbulence separation currently in use will be referred to as Standard Wake Separation. Enhanced Wake Separation uses the criteria "as safe as," or "safer than today" in the safety assessment of the proposed change; specifically, Enhanced Wake Separation assures that for all but the heaviest of the heavy aircraft, the potential wake turbulence strength (circulation) encountered from any leading aircraft type is no greater than that possible under today's ICAO separations. In addition, Enhanced Wake Separation increases separation for the smallest, most vulnerable aircraft and as a result reduces the potential wake turbulence circulation that those aircraft might encounter. (While not a specific goal of Enhanced Wake Separation, the risk of the system was also put in better balance because of the increased separation for the most vulnerable aircraft and the reduced separation for the least vulnerable aircraft.)

The seven-group Enhanced Wake Separation is an alternative means of separating aircraft for wake turbulence purposes. The A380 aircraft is assigned to Group A. ICAO Heavy aircraft were assigned to one of two groups, Groups B and C, which are essentially an upper-heavy and lower-heavy group. ICAO Mediums were assigned Groups D, E, and F, which are essentially upper-, middle- and lower-medium groups. A few of the ICAO Mediums at the lowest end of the weight limit were assigned to Group G, along with all the ICAO Light aircraft.

Enhanced Wake Separation

On or soon after 0500Z Coordinated Universal Time (UTC) on 6 May 2019, Enhanced Wake Separation will be used between aircraft on final approach to all runways at Toronto/Lester B. Pearson International Airport. Confirmation of the specific date and time will be notified by NOTAM. All other phases of operation besides approach will be subject to Standard Wake Separation.

The seven Enhanced Wake Separation groups are based on the wake characteristics of the lead aircraft and the resistance to wake of the following aircraft. These depend primarily on maximum certificated take-off weight, wing characteristics, and speeds. Each aircraft group is described below.

- Group A Aircraft – aircraft types of 136,000 kg or more, and a wing span less than or equal to 80 m but greater than 74.68 m
- Group B Aircraft – aircraft types of 136,000 kg or more, and a wing span less than or equal to 74.68 m but great than 53.34 m
- Group C Aircraft – aircraft types of 136,000 kg or more, and a wing span less than or equal to 53.34 m but greater than 38.1 m
- Group D Aircraft – aircraft types of less than 136,000 kg, but more than 18 600 kg, and a wing span greater than 32 m
- Group E Aircraft – aircraft types less of than 136,000 kg, but more than 18 600 kg, and a wing span of 32 m or less but greater than 27.43 m
- Group F Aircraft – aircraft types less of than 136,000 kg, but more than 18 600 kg, and a wing span of 27.43 m or less
- Group G Aircraft – aircraft types of 18,600 kg or less (no wing span criterion)

Note: Minimum runway occupancy times (ROT) and speed compliance on final approach are required by all aircraft due to reduced spacing between aircraft pairs.

		FOLLOWER						
	Enhanced Group	**A**	**B**	**C**	**D**	**E**	**F**	**G**
	Aircraft Type Examples	A380	A124/1330/ B777	MD11/B767	B757/A320/ B737NG	E190/ DH8D	E170/ CRJ1	CL30/Light
LEADER **A**	A380		4 miles	5 miles	5 miles	6 miles	6 miles	8 miles
B	A124/1330/ B777		3 miles	4 miles	4 miles	5 miles	5 miles	7 miles
C	MD11/B767				3 miles	3.5 miles	3.5 miles	6 miles
D	B757/A320/ B737NG							4 miles
E	E190/ DH8D							4 miles
F	E170/ CRJ1							
G	CL30/Light							

Note: Blank spaces only require the minimum surveillance separation.

Standard Wake Separation

The current wake turbulence separation standards are based on three plus one categories; light, medium, heavy, and super (ICAO TEC/OPS/SEP – 08-0294.SLG) and will continue to be used on departure at Toronto/Lester B Pearson Airport and throughout Canada. Any changes from Standard Wake Separation to Enhanced Wake Separation will be notified by NOTAM or aeronautical information circulars.

		FOLLOWER			
		Super	**Heavy**	**Medium**	**Light**
LEADER	**Super**	4 miles	6 miles	7 miles	8 miles
	Heavy	4 miles	4 miles	5 miles	6 miles
	Medium				4 miles
	Light				

Note: Blank spaces only require the minimum surveillance separation.

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