

AERONAUTICAL INFORMATION CIRCULAR 1/19

NOTICE OF MANDATE TO APPLY AIRPORT COLLABORATIVE DECISION MAKING (A-CDM) PROCEDURES AT TORONTO/LESTER B. PEARSON INTERNATIONAL AIRPORT

1.0 Date of Applicability

The airport collaborative decision making (A-CDM) procedures described in this aeronautical information circular (AIC) are applicable as follows:

- A-CDM trials from 1100Z UTC on 18 February 2019
- A-CDM live operations from 1000Z UTC on 23 April 2019

2.0 Introduction

A-CDM is a method for improving the predictability of airport operations, resulting in more efficient use of available resources and a better passenger experience. A-CDM has been in use for some years in Europe and other parts of the world and its benefits have been amply demonstrated. Toronto/Lester B. Pearson International Airport (CYYZ) will be the first airport in North America where a new, even more powerful version of A-CDM will be introduced.

3.0 Purpose of the Circular

This AIC outlines the A-CDM procedures to be followed by operators at CYYZ during the A-CDM trials and subsequent introduction of A-CDM.

Additional information on the details of the A-CDM Project at CYYZ can be found at <http://torontopearson.com/acdm/>.

The A-CDM web portal for operational purposes can be found at <<https://acdm.gtaa.com/>>.

4.0 Background

A-CDM requires the partners involved in the operation of the airport to exchange certain information that meets prescribed levels of quality and timeliness. Furthermore, aircraft operations will be subject to defined A-CDM procedures. Adherence to these procedures is mandatory, unless an exemption applies as described below.

During the trials, A-CDM activation windows will be used. The A-CDM system and procedures will be in full operation during pre-announced periods (the activation window) during which partners will be using the A-CDM system as intended. This includes the sequencing of departures on the basis of system-generated target start-up approval times (TSATs). The A-CDM "Call Ready" procedure will also be introduced. Outside of the activation windows, the A-CDM system will be taken off-line to perform necessary enhancements.

The trial periods will be announced via the automatic terminal information service (ATIS) broadcast.

Operators and their designated representatives are reminded to make timely arrangements to ensure their ability to comply with the procedures on the date of their applicability.

5.0 Definitions

When used in this AIC and in connection with A-CDM generally, the following terms and abbreviations will have the meaning indicated.

Terms	Definition
Appropriate radio frequency	The radio frequency that a flight crew must use to contact the Apron Management Unit (AMU) or other air traffic services (ATS) unit as part of an A-CDM procedure. The name of the unit to contact in particular cases and the radio frequency are published in Attachment 1 to this AIC.
Calculated take-off time (CTOT)	The time calculated and issued by NAV CANADA, indicating when an aircraft should be airborne if it is to meet the constraints arising from the applicable Traffic Management Initiatives (TMI) (formerly referred to as APREQ).
Commercial air transport operation	An aircraft operation involving the transport of passengers, cargo, or mail for remuneration or hire.
Designated representative	A person or organization authorized by an operator to act and perform tasks on its behalf within the constraints of their representation agreement.
Estimated off-block time (EOBT)	The estimated time at which the aircraft will start movement associated with departure. Note: This is the time shown in Item 13 of the flight plan.
Flight crew member	A licensed crew member charged with duties essential to the operation of an aircraft during a flight duty period.
Flight plan	Specified information provided to air traffic services units, relative to an intended flight or portion of a flight of an aircraft.
General aviation (GA) operation	An aircraft operation other than a commercial air transport operation. General aviation operation includes business aviation (BA) operation.
Ground handler	Organization offering the ground handling services an aircraft needs during the period it is on the ground.
HMI	Human Machine Interface
Minimum turnaround time (MTTT)	The minimum turnaround time agreed with an operator or ground handler for a specified flight or aircraft type.
Operator	The person, organization, or enterprise engaged in or offering to engage in an aircraft operation.
Pilot-in-command (PIC)	The pilot designated by the operator, or, in the case of general aviation, the owner, as being in command and charged with the safe conduct of a flight.
Scheduled off-block time (SOBT)	The time that an aircraft is scheduled to depart from its parking position. Note: SOBT is the coordinated airport slot

Terms	Definition
Target off-block time (TOBT)	The time that an operator or ground handler estimates that an aircraft will be ready, all doors closed, boarding bridge removed, pushback vehicle available and ready to start-up/push-back immediately upon receiving clearance from the AMU. Note: TOBT is equivalent to estimated time of departure (ETD) as used by operators and ground handlers.
Target start-up approval time (TSAT)	The time at which an aircraft can expect start-up/push back approval. The TSAT may be equal to the TOBT.
Target take-off time (TTOT)	The time at which an aircraft is expected to be airborne based on their TSAT and taxi time to the assigned runway.

6.0 Scope of Applicability

The A-CDM procedures are mandatory for all flights operated as commercial air transport or general aviation operations at CYYZ. Helicopters and flights identified by any one of the following designators in Item 18 of their flight plan, or by any other agreed means that may be applicable, are exempt from adhering to the A-CDM procedures:

STS/FFR	Fire fighting
STS/HEAD	Flight with Head of State status
STS/HOSP	Flight on an actual medical mission
STS/MEDEVAC	Flight operated for life critical medical emergency evacuation
STS/SAR	Flight engaged in a search and rescue mission
STS/STATE	Flight engaged in military, customs or police services
STS/FLTCK	Aircraft actually performing NAVAID flight check

Exemptions are granted based on the type of mission an aircraft is engaged in and not the identity of the operator.

7.0 New A-CDM Working Position – Manager of Operations, Airport Flow

A new working position is being established to provide effective support to the A-CDM operation. This working position, established within the organizational structure of the Greater Toronto Airports Authority (GTAA) Integrated Operations Control Centre (IOCC), is called Manager Operations, Airport Flow (MO-AF). It serves as the single point of contact for all A-CDM related matters.

Tel.: 416-776-ACDM (2236)
E-mail: manageroperationsairportflow@gtaa.com

Operators and handling agents may contact MO-AF by phone to obtain guidance in case of urgent operational issues or by email to report a problem and to obtain information on data exchange methods and A-CDM software tool availability.

The operating hours of the MO-AF are 24/7, effective 1100Z UTC on 19 November 2018.

8.0 The A-CDM Operational Concept

One of the objectives of A-CDM at CYYZ is to make the aircraft turnaround more predictable and create an efficient outbound flow of traffic. This is achieved by requiring a reliable and accurate target off-block time (TOBT) for each flight. This TOBT is then used to set up an optimal pushback and start-up sequence that considers all applicable constraints, like de-icing and eventual air traffic flow management restrictions.

Operators and their designated representatives are responsible for keeping the TOBT current by providing updates as necessary. Flight crew are responsible for operating the aircraft, taking the TSAT into account. Failure to comply with these responsibilities will result in an operational penalty.

During the trial period, the flight crew procedures are identical to those described for live operations when the A-CDM trial is active. When the trial is not active, the procedures described for Contingency Operations are applicable.

More detail about the CYYZ A-CDM Operational Concept and the procedures to follow is contained in the Canada A-CDM Operations Manual – YYZ Edition, available from the GTAA. Send request to a-cdm@gtaa.com.

9.0 A-CDM procedures – Commercial Air Transport Operations

Note: For the A-CDM procedures applicable to general aviation operations, refer to the next section of this AIC.

9.1 Procedures for Operators and Handling Agents

9.1.1 Requirement for All Flights to Have a Current TOBT

The TOBT is used to indicate when the aircraft will be ready to push back and start its engines. The initial TOBT is obtained by the A-CDM system from one of the following sources, in the order of priority shown:

- Estimated time of departure (ETD) provided by an operator via the appropriate communications channel.
- Estimated off-block time (EOBT) from the flight plan.
- Scheduled off-block time (SOBT) from the airport coordinated schedule data held by the GTAA.

9.1.2 Preferred Way of Providing the TOBT

Operators are reminded that using the SOBT may result in an inaccurate TOBT. It is therefore highly recommended to explore the options for providing the ETD via the appropriate communications channel. This can be done by contacting the MO-AF at manageroperationsairportflow@gtaa.com.

9.1.3 Access to TOBT

The TOBT will be shown and accessible via the A-CDM application and the A-CDM portal as soon as it is set in the A-CDM system.

9.1.4 Pre-Departure Sequencing – TSAT Generation

Based on the TOBT, a TSAT is generated by the A-CDM system for every flight. The TSAT is used to indicate the sequence in which aircraft can expect to receive pushback and start-up approval, ensuring an optimal flow of traffic to the assigned runways. An update to the TOBT will always result in the recalculation of the TSAT. However, this may not always result in a different TSAT or position in the sequence for the flight concerned.

Any applicable constraints, like the calculated take-off time (CTOT), resulting from Traffic Management Initiatives (TMI), taxi times, and eventual de-icing time are considered in the calculation of the TSAT to ensure that such constraints are always met.

9.1.5 Access to the TSAT

The TSAT will be shown in the A-CDM system via the A-CDM application and the A-CDM web portal as soon as stand and runway information are both available in the A-CDM system.

9.1.6 TSAT Swapping

An operator or handling agent (as applicable) may swap the TSATs between flights of its own operator family if a given flight is delayed or if a reduction of the waiting time for a flight is desirable. Eligible flights are identified as such on the A-CDM system Human Machine Interface (HMI).

9.1.7 The Importance of Updating the TOBT

Operators and ground handlers, as appropriate, are responsible for updating the TOBT if there is a difference of +/- 5 minutes compared to the initial or previously updated TOBT. Operators and ground handlers are reminded that failing to update the TOBT will result in a TSAT that is no longer operationally correct. This, in turn, may cause the flight to be subject to unnecessary delay.

9.1.8 TOBT Update Limitations

The TOBT may be updated as many times as necessary until 10 minutes prior to the TOBT. Thereafter, only two more updates are possible. Should a third update be necessary, the operator or handling agent must contact the MO-AF on the following phone number for further instructions:

Tel.: 416-776-ACDM (2236)

9.1.9 Methods for Updating the TOBT

The TOBT may be updated via any of the available systems providing access to it.

9.2 Flight Crew Procedures

9.2.1 TOBT and TSAT Delivery Channels

Several channels are provided for the delivery of the TOBT and TSAT to the flight crew. Operators are free to use any available channel. The following channels are initially available:

- Advanced Visual Docking Guidance System (AVDGS).
- Any specific means of communication that may exist between the operator or ground handler and the flight crew. This means of communication may be shared with other operational communications.
- A-CDM web portal.

9.2.2 Access to TOBT

The TOBT will be displayed for the flight crew on all channels as soon as it is set in the A-CDM system.

9.2.3 Access to the TSAT

The TSAT will be displayed for the flight crew on all channels except the AVDGS as soon as it is set in the A-CDM system.

The TSAT will be displayed for the flight crew on the AVDGS as follows:

- 10 minutes before TOBT; or
- 20 minutes before TOBT if the TSAT is 20 minutes or more later than the TOBT (as may be the case due to TMI).

9.2.4 A-CDM Related Information on the AVDGS

The information displayed on the AVDGS depends upon the operating mode of the A-CDM system during the trials/in live operations as follows:

- Traditional Ramp Information Display (e.g. ETD) = A-CDM trial is not running/A-CDM procedures have been suspended.
- TOBT + time or TOBT + time and TSAT + time = A-CDM trial is running/live operations.
- NO A-CDM followed by instructions to contact the appropriate frequency of the Apron Management Unit (AMU) = In live operations, A-CDM procedures have been suspended.

9.2.5 Call Ready Procedure

The flight crew must call the AMU on radio frequency 122.875 MHz at TOBT +/- 5 minutes to confirm that the flight is ready as defined for the TOBT and state the location "gate." Thereafter, the crew must change to the appropriate radio frequency and monitor it for pushback and start-up approval.

If the flight crew fails to call within the specified time window, it will be assumed that the TOBT is no longer valid and the corresponding TSAT will be removed from the sequence. The operator or ground handler needs to provide a new TOBT for a new TSAT to be generated. This may result in a substantial delay for the flight concerned.

9.2.6 Procedures for Extended Times Between TOBT and TSAT

The time difference between the TOBT and the TSAT assigned to the flight may be substantial. The standard airport policy is for aircraft to stay at the gate until the assigned TSAT time. In cases where the gate is required for another flight, or on the specific request of the operator or ground handler, the aircraft concerned will be relocated to a waiting area.

9.2.7 A-CDM Imposed Waiting Time and On-Time Performance

Traditionally, on-time performance (OTP) is measured by the point in time when the aircraft releases the brakes, ready for movement associated with departure. If an aircraft waits at the stand for its TSAT, the time between TOBT and TSAT might be counted as a departure delay, adversely impacting the operator's OTP. Operators are recommended to implement procedures whereby the time when the flight crew makes the ready call is considered as the reference for OTP and any waiting time after having met the TOBT can be successfully ignored.

9.2.8 Pushback / Start-Up Approval

Except as specified in subsection 9.2.10 below, the detailed pushback instructions and start-up approval will be issued on the appropriate radio frequency by the AMU at TSAT +/- 5 minutes without a need for the flight crew to make an additional call.

If the pushback and start-up process does not commence within 2 minutes of the time the approval was issued, the flight crew must call the AMU on the appropriate radio frequency explaining the situation and requesting guidance on how to proceed. If this call is omitted, it will be assumed that the TSAT is no longer valid and it will be removed from the sequence. The operator or ground handler needs to provide a new TOBT for a new TSAT to be generated. This may result in a substantial delay for the flight concerned.

If the pushback and start-up process is interrupted for any reason after the aircraft has cleared the stand area or if the start-up process is expected to take longer than normal, the flight crew must call the AMU on the appropriate radio frequency, explaining the situation and requesting guidance on how to proceed.

Flight crew are reminded that the actual order of pushback and start-up approval depends on the operational decisions of the AMU and hence a difference may exist between the system generated sequence and the sequence as established by the AMU. However, even after such manual intervention, the applicable constraints, like CTOT, will be fully met also by the modified sequence.

9.2.9 Flight Crew Concerns About Meeting Constraints

All functions of the A-CDM system are designed to ensure that applicable constraints, most importantly those resulting from TMI are always fully met. For example, the TSAT is calculated taking all applicable constraints into account and if duly observed by the flight crew, the runway slot (CTOT) allocated to the flight will not be missed.

Nevertheless, if a flight crew estimates that a TSAT assigned to them and their applicable CTOT are not compatible, they should contact their operator or ground handler to resolve the issue via the MO-AF.

9.2.10 Procedures for Flights Proceeding via Taxiway K or to/from Vista Cargo and in the Air Canada Hangar Area

The procedures for such flights are identical to those described above, except that they will call the AMU on radio frequency 122.875 MHz, and then contact North Ground on radio frequency 121.650 MHz at TSAT +/- 5 minutes.

During the trial period, when the A-CDM procedure is not active, flight crew must contact North Ground right after having called the AMU.

9.2.11 De-icing Operations

The need for de-icing has a substantial impact on the standard A-CDM procedures, in particular, the extended taxi times needed to account for the duration of the de-icing operation. To ensure that the de-icing needs of individual flights are properly taken into account, the following additional procedures described in subsection 9.2.12 and subsection 9.2.13 are applicable during de-icing operations.

9.2.12 Standard Request for De-icing

A request for de-icing must be transmitted by the flight crew on the clearance delivery frequency 121.300 MHz.

9.2.13 Request for De-icing after Clearance Delivery

If the flight crew determines, following clearance delivery, that de-icing is required, they must contact the AMU on radio frequency 122.875 MHz and request de-icing.

10.0 General and Business Aviation Operations

Note: For the A-CDM procedures applicable to Commercial Air Transport Operations, refer to the previous section of this AIC.

10.1.1 Prior Permission to Operate Required (Reservation)

Operators or their designated representatives of general and business aviation aircraft, must obtain prior permission to operate (reservation) from the GTAA at maximum 72 hours before EOBT, or minimum 60 minutes before EOBT of the planned operation. CYYZ based general aviation (GA)/business aviation (BA) Tenant Carriers may book up to 30 days prior to EOBT.

Permission or reservation can be obtained at <<https://www.online-coordination.com/>>.

10.1.2 Requirement to Provide TOBT

All general and business aviation flights must have a TOBT. Operators must use the A-CDM portal at <https://acdm.gtaa.com/> to obtain their TOBT.

10.1.3 Pre-Departure Sequencing – TSAT Generation

Based on the TOBT, a TSAT is generated by the A-CDM system for every flight. The TSAT is used to indicate the sequence in which aircraft can expect to receive startup approval, ensuring an optimal flow of traffic to the assigned runways. An update to the TOBT will always result in the recalculation of the TSAT, however, this may not always result in a different position in the sequence for the flight concerned.

Any applicable constraints, like the CTOT resulting from TMI, taxi times, and eventual de-icing time are considered in the calculation of the TSAT, ensuring that such constraints are always met.

10.1.4 Access to the TSAT

The TSAT will be shown in the A-CDM web portal as follows:

- 10 minutes before TOBT; or
- 20 minutes before TOBT if the TSAT is 20 minutes or more later than the TOBT (as may be the case due to TMI).

10.1.5 The Importance of Updating the TOBT

Operators or their designated representatives are obliged to update the TOBT if there is a difference of +/- 5 minutes compared to the initial or previously updated TOBT. Failing to update the TOBT will result in a TSAT that is no longer operationally correct. This in turn may cause the flight to be subject to unnecessary delay.

10.1.6 TOBT Update Limitations

The TOBT may be updated as many times as necessary until 10 minutes prior to the TOBT. Thereafter, only two more updates are possible. Should a third update be necessary, the operator or their designated representative must contact the MO-AF on the following phone number for further instructions:

Tel.: 416-776-ACDM (2236)

10.1.7 Method for Updating the TOBT

The TOBT must be updated via the A-CDM web portal at <https://acdm.gtaa.com/>.

10.1.8 TOBT and TSAT Delivery Channels

Several channels are provided for the delivery of the TOBT and TSAT to the flight crew. Operators are free to use any available channel. The following channels are initially available:

- A-CDM web portal.
- Any specific means of communication that may exist between the operator or their designated representative and the flight crew.
- AVDGS.

10.1.9 Access to TOBT

The TOBT will be displayed for the flight crew on all channels as soon as it is set in the A-CDM system.

10.1.10 Access to the TSAT

The TSAT will be displayed for the flight crew on all channels as follows:

- 10 minutes before TOBT; or
- 20 minutes before TOBT if the TSAT is 20 minutes or more later than the TOBT (as may be the case due to TMI).

10.1.11 Call Ready Procedure

The flight crew must call the AMU on radio frequency 122.875 MHz at TOBT +/- 5 minutes to confirm that the flight is ready as defined for the TOBT and state the location "gate." Thereafter, the crew must change to the appropriate radio frequency and monitor it for pushback and start-up approval. If the flight crew fails to call within the specified time window, it will be assumed that the TOBT is no longer valid and the corresponding TSAT will be removed from the sequence. The operator or their designated representative needs to provide a new TOBT for a new TSAT to be generated. This may result in a substantial delay for the flight concerned.

10.1.12 Pushback / Start-Up Approval

Except as specified in subsection 10.1.14 below, the start-up approval will be issued by the AMU on the appropriate radio frequency at TSAT +/- 5 minutes without a need for the flight crew to make an additional call.

If the start-up process does not commence within 2 minutes of the time the approval was issued, the flight crew must call the AMU on the appropriate radio frequency, explaining the situation and requesting guidance on how to proceed. If this call is omitted, it will be assumed that the TSAT is no longer valid and it will be removed from the sequence. The operator or their designated representative needs to provide a new TOBT via the A-CDM web portal for a new TSAT to be generated. This may result in a substantial delay for the flight concerned.

If the start-up process is interrupted for any reason after the aircraft has cleared the stand area or if the start-up process is expected to take longer than normal, the flight crew must call the AMU on the appropriate radio frequency, explaining the situation and requesting guidance on how to proceed.

Flight crew are reminded that the actual order of start-up approval depends on the operational decisions of the AMU and hence a difference may exist between the system generated sequence and the sequence as established by the AMU. However, even after such manual intervention, the applicable constraints, like CTOT, will be fully met also by the modified sequence.

10.1.13 Flight Crew Concerns About Meeting Constraints

All functions of the A-CDM system are designed to ensure that applicable constraints, most importantly those resulting from TMI are always fully met. For example, the TSAT is calculated to take all applicable constraints into account. If duly observed by the flight crew, the runway slot (CTOT) allocated to the flight will not be missed.

Nevertheless, if a flight crew estimates that a TSAT assigned to them and their applicable CTOT are not compatible, they should contact their operator or ground handler to resolve the issue via the MO-AF.

10.1.14 Procedures for Flights Proceeding via Taxiway K or to/from Vista Cargo and the Air Canada Hangar Area

The procedures for such flights are identical to those described above, except that they will call the AMU on radio frequency 122.875 MHz, and then contact North Ground on radio frequency 121.650 MHz at TSAT +/- 5 minutes.

10.1.15 De-icing Operations

The need for de-icing has a substantial impact on the standard A-CDM procedures, especially the extended taxi times needed to account for the duration of the de-icing operation. To ensure that the de-icing needs of individual flights are properly taken into account, the following additional procedures described in subsection 10.1.16 and subsection 10.1.17 are applicable during de-icing operations.

10.1.16 Standard Request for De-icing

A request for de-icing must be transmitted by the flight crew on the clearance delivery frequency 121.300 MHz.

10.1.17 Request for De-icing After Clearance Delivery

If the flight crew determines after clearance delivery that de-icing is required, they must contact the AMU on radio frequency 122.875 MHz and request de-icing.

11.0 Contingency Operations

If the A-CDM system fails or becomes unreliable, the A-CDM procedures will be suspended. The suspension and eventual restarting of the procedures will be announced via the ATIS broadcast and a NOTAM.

During suspension of the A-CDM procedures, no TOBT and TSAT will be provided. Flight crew report ready when they are actually ready to push back and start engines and are ready to follow the guidance of the AMU or North Ground as appropriate.

12.0 Procedures for Aircraft Engaged in the Calibration and Testing of NAVAIDS

The following procedures shall be followed:

- Plan the calibration and test flights for periods of lower demand and undertake timely coordination with CYYZ.
- Obtain permission to operate as prescribed for general aviation aircraft. The request must cover the test flight as well as the staging flights coming to CYYZ and leaving after the mission is completed.
- The incoming and outgoing staging flights will be considered as any other general aviation operation and all A-CDM procedures shall be applicable.
- In the flight plan of the test flight, insert STS/FLTCH in Item 18.
- On departure for the test flight, follow the "Call Ready" procedure. The flight will not be subject to TSAT sequencing and will be afforded priority commensurate with the testing to be carried out.

13.0 Further Information

For further information, please contact the MO-AF at:

Tel. : 416-776-ACDM (2236)
E-mail : manageroperationsairportflow@gtaa.com



James Ferrier
Director, Aeronautical Information Management

Attachment 1 – List of Radio Frequencies

Service	Frequency
Tower – Backup	118.00 MHz
Tower – South	118.350 MHz
Tower – North	118.700 MHz
Ground – Centre	119.100 MHz
Ground – North	121.650 MHz
Ground – South	121.900 MHz
South Apron – Terminal 1 from Stand 143 to 272 3 Bay Hangar, Esso Avitat Skyservice, and Terminal 1 Hold – H1 to H14	122.075 MHz
Centre Apron	TBD (Future State)
North Apron – Terminal 3 & T-3 Satellite – Terminal 1 from stand 142 to 101, Infield Concourse (IFC) – Cargo West – Fedex	122.275 MHz
Apron – Backup	122.825 MHz
Apron Coordinator	122.875 MHz
Clearance Delivery	121.300 MHz