

**29. Preventing ADG Deployment on Ground**

- A. Deployment of the ADG can occur on the ground if the aircraft senses a weight-off-wheels condition and the ADG Control Unit (ADGCU) senses a loss of AC power. Most SkyWest aircraft have been modified to prevent ADG deployment on the ground when the parking brake is set.
- B. To prevent the aircraft from going into a weight-off-wheels condition:
  - 1) Aircraft power up: Set parking brake and turn the battery master on before selecting AC power, regardless of the AC power source
  - 2) Aircraft power down: Set the parking brake and remove AC power before turning the battery master off.
- C. The battery master should be the first power source on and the last source off.
- D. The park brake must be set when parking at the gate. If on a quick turn where brake temperatures are an issue, the parking brake may be released after chocks are set, providing the aircraft will remain powered.

**30. Pushback / Towing Procedures / Parking Brake Usage**

- A. The captain ensures the following:
  - 1) Pushback / LEKTRO Cart
    - a) The parking brake will remain on until a clearance for pushback has been received, if applicable, and both the flight and pushback crew are ready to commence the pushback and the tug driver directs "Release Brakes."
  - 2) Turn Out
    - a) The parking brake will remain on until ground personnel and equipment are clear, the flight crew is ready for taxi, and a clearance to do so has been received.
- B. Prior to commencing the pushback, ensure:
  - 1) The parking brake is off,
  - 2) The nose wheel steering is off, and
  - 3) Audio and/or visual communications have been established with the pushback crew. Communication must be maintained at all times throughout the pushback (refer to the FOM).
  - 4) When ramp surface conditions would prevent adequate traction for ground equipment, engine start will be delayed until pushback is complete and the pushback crew is clear of the aircraft. The pushback operator is responsible to notify the captain accordingly.
- C. Pushback procedure using the LEKTRO Cart:



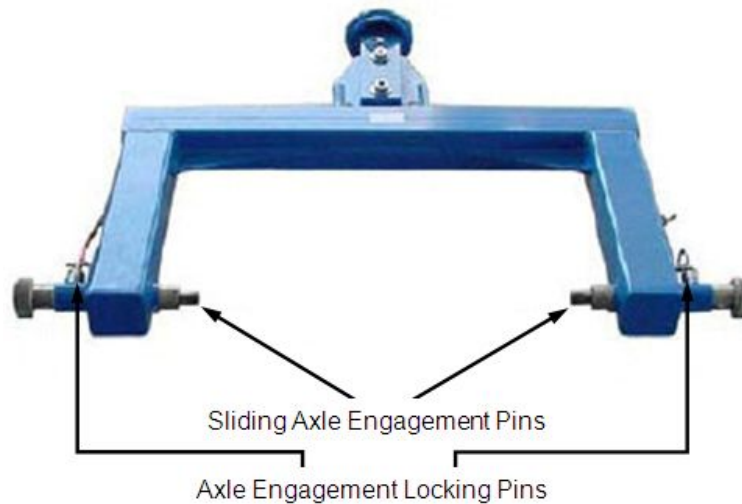
**CAUTION - Aircraft should never be positioned into the LEKTRO cart while an engine is running.**

- 1) The aircraft will be positioned onto the LEKTRO Cart Lift after calling for pushback clearance or, if the ramp is uncontrolled, when ready for push, as applicable.
- 2) When ready to push, the captain notifies the LEKTRO driver that the flight is ready for pushback. The pushback crew directs "Release Brakes" so that the aircraft can be positioned onto the LEKTRO cart.
- 3) The captain releases the parking brake, ensures the nose steering is off and communicates such to the pushback crew.

## 13. TOW BAR ATTACHMENT PROCEDURES

### A. Connecting the tow bar:

- 1) Disconnect tow bar from pushback/tow unit.
- 2) Insert [Sliding Axle Engagement Pins](#) into NLG wheel hub.
- 3) Ensure [Sliding Axle Engagement Pins](#) are fully seated.
- 4) Ensure [Axle Engagement Locking Pins](#) are fully seated.
- 5) Reconnect tow bar to pushback/tow unit.



## 14. AIRCRAFT MOVEMENT



**WARNING - THESE PROCEDURES ARE ONLY TO BE USED BY CS GROUND OPERATIONS AGENTS THAT HAVE BEEN CERTIFIED TO MOVE AIRCRAFT OR ARE UNDER DIRECT SUPERVISION OF A CERTIFIED STATION TRAINER WHILE UNDERGOING ON-THE-JOB TRAINING (OJT).**

- A. Moving a SkyWest aircraft using a tow tractor and tow bar or a tow tractor that does not use a tow bar (LEKTRO) may be done in one (1) of three (3) ways:
  - 1) Pushback/Dispatch - movement of an aircraft away from the gate area in preparation for the aircraft's departure under its own power with qualified flight deck personnel on board.
  - 2) Towing - short distance aircraft movement without an agent seated in the flight deck.
  - 3) Relocation - aircraft movement with an agent seated in the flight deck.
- B. Verbal commands and hand signals must be understood and acknowledged prior to implementation. In the absence of direct radio communication with the flight deck crew, all communication must be via the use of standard hand signals outlined in this manual.
- C. When the headset or adapter is inoperative or unavailable, a briefing must be conducted with the flight deck crew prior to aircraft movement.
- D. No agents will Pushback/Dispatch, Tow or Relocate a SkyWest aircraft unless they are certified to do so by a qualified ramp trainer, supervisor, or manager.
- E. **Pushback / Dispatch Procedures with Tow Bar and Tow Unit**
  - 1) Configure the aircraft for pushback by:
    - Connecting tow bar to aircraft
    - Connecting tow bar to tow tractor
    - Removing MLG chocks
    - Ensuring GSE is out of the Safety Diamond and intended pushback path of the aircraft
  - 2) Open the aircraft service interphone access service panel and connect interphone headset to aircraft.
  - 3) Once the pushback unit is connected and ready to push, the NLG chocks can be removed in preparation for immediate push back.



**WARNING - ONCE THE FLIGHT DECK CREW ACTIVATES THE ROTATING BEACON, USE EXTREME CAUTION WHILE IN THE IMMEDIATE VICINITY OF THE AIRCRAFT AS AIRCRAFT MOVEMENT IS IMMINENT.**

The following verbiage is suggested communication between the Pushback Operator and the flight deck crew. When the headset is inoperative or unavailable, hand signals must be used.

**Pushback Operator to PIC: "Ready to push, release brakes when ready"**

**PIC to Pushback Operator: (If not ready) "Negative..standby"**

**PIC to Pushback Operator: (If ready) "Brakes released, ready to push"**

- 4) Pushback Operator must ensure aircraft movement path is free of all obstructions.



**CAUTION - Do not exceed the NLG turn limits of 70° from center. When NLG turn limits have been exceeded, discontinue the push and immediately notify flight deck crew.**

- 5) Pushback Operator must push the aircraft no faster than a walking speed.



**WARNING - WHEN RAMP SURFACE CONDITIONS PREVENT ADEQUATE PUSHBACK UNIT TRACTION, ENGINE START MUST BE DELAYED UNTIL PUSHBACK IS COMPLETE. THE PUSHBACK OPERATOR IS RESPONSIBLE TO NOTIFY THE PIC ACCORDINGLY.**

- 6) Pushback Operator must ensure engine hazard areas are clear of all obstructions.

**PIC to Pushback Operator: "Clear to start engine (specify engine/s)"**

**Pushback Operator to PIC: "Clear to start engine (specify engine/s)"**



**CAUTION - Should the flight deck crew require an emergency stop, they will signal the Pushback Operator via a verbal command or a flashing illumination of the taxi lights or landing lights. Stop the aircraft in a smooth controllable manner. Do not resume pushback until the flight deck crew advises that it is clear to resume.**



**WARNING - IN THE EVENT OF AIRCRAFT BREAK-AWAY (TOW BAR OR HITCH MALFUNCTION), IMMEDIATELY STOP THE PUSHBACK/DISPATCH PROCESS.**

**BREAK-AWAY PROCEDURES:**

- 1) **PUSHBACK OPERATOR MUST IMMEDIATELY STOP THE PUSHBACK UNIT AND VERBALLY NOTIFY THE FLIGHT DECK CREW "EMERGENCY STOP".**
  - **WHEN VERBAL COMMUNICATION IS NOT AVAILABLE, THE PUSHBACK OPERATOR OR DISPATCH AGENT MUST IMMEDIATELY SIGNAL "EMERGENCY STOP" TO THE FLIGHT DECK CREW**
- 2) **AFTER AIRCRAFT COMES TO A COMPLETE STOP, CHOCK THE NLG.**
- 3) **NOTIFY THE FLIGHT DECK CREW OF REASON FOR EMERGENCY STOP.**



**CAUTION - Do not continue pushback process until instructed to do so by flight deck crew.**



**WARNING - ANY TIME IT IS NECESSARY FOR THE PUSHBACK OPERATOR TO DISCONTINUE INTERPHONE COMMUNICATIONS TO ASSIST THE WING WALKER(S), THE PUSHBACK OPERATOR MUST ADVISE THE PIC THAT INTERPHONE COMMUNICATIONS WILL BE INTERRUPTED OR TERMINATED. WITH A TWO-PERSON PUSHBACK CREW, BOTH INDIVIDUALS WILL BE BRIEFLY OUT OF VIEW OF THE FLIGHT DECK WHILE THE TOW BAR IS BEING DISCONNECTED.**

- 7) When completing the pushback, gradually come to a stop.
- 8) Once the aircraft has reached the designated disconnect point, continue to move the aircraft until the nose wheel landing gear position is straight (parallel to the aircraft fuselage).

**Pushback Operator to PIC: "Pushback complete, set brakes."**

**PIC to Pushback Operator: "Brakes set."**



**WARNING - ONCE AIRCRAFT MOVEMENT HAS STARTED, GROUND PERSONNEL MUST NOT ENTER THE SAFETY DIAMOND OR ENGINE HAZARD AREA UNTIL THE AIRCRAFT HAS COME TO A COMPLETE STOP AT THE DESIGNATED DISCONNECT POINT AND THE PUSHBACK OPERATOR HAS GIVEN THE "BRAKES SET" HAND SIGNAL.**

- 9) Disconnect tow bar from pushback unit.
- 10) Disconnect tow bar from aircraft.
- 11) Reconnect tow bar to pushback unit.
- 12) Inform flight deck crew ready to disconnect headset.

**Pushback Operator to PIC: "Off headset, follow hand signals."**

**PIC to Pushback Operator: "Cleared off headset."**

- 13) Disconnect the interphone headset from the aircraft. Close and secure the aircraft service interphone access panel.
- 14) Dispatch Agent must:
  - a) Ensure all aircraft doors are secure.
  - b) Ensure the aircraft is clear of all obstructions.
- 15) PIC will initiate the ready to taxi signal to the Dispatch Agent.

**NOTE - The flight deck crew may flash taxi lights to indicate they are ready to taxi.**

- 16) Dispatch Agent must verify clearance and return with a salute.
- 17) During the return of the pushback crew to the gate, the area must be checked for FOD and/or any hydraulic fluids found on the ground.

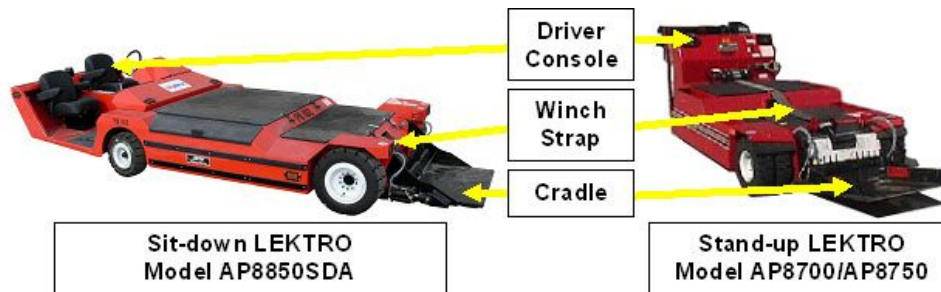


**WARNING - REPORT THE DISCOVERY OF ANY HYDRAULIC FLUIDS FOUND ON THE GROUND TO A SUPERVISOR IMMEDIATELY. HYDRAULIC FLUID BELIEVED TO HAVE LEAKED FROM THE AIRCRAFT MUST BE REPORTED IMMEDIATELY TO THE FLIGHT DECK CREW VIA RADIO COMMUNICATION.**

**F. Pushback / Dispatch Procedures using LEKTRO**

The LEKTRO is an electric tractor that does not use a tow bar. The LEKTRO tractor has a movable lifting device that cradles and lifts the aircraft nose wheel several inches off the ground.

**CAUTION - Only a one (1) inch strut strap is authorized for use on SkyWest aircraft.**



**CAUTION - To move CRJ 700 aircraft, the LEKTRO AP8700/AP8750 Tow Tractor must have metal ballast plates installed.**

- 1) Configure the aircraft for pushback by:
  - Removing MLG chocks
  - Ensuring GSE is out of the Safety Diamond and intended pushback path of the aircraft
- 2) Approach the aircraft with the LEKTRO from the front.
  - a) Stop the LEKTRO prior to entering the Safety Diamond using the brake pedal to test the brakes.
  - b) Approach the aircraft at a walking speed toward the aircraft NLG in line with the direction the NLG is pointing.
- 3) Approximately 3 feet from the NLG, stop the LEKTRO and lower the cradle to approximately 2 inches above the ground.
- 4) Open the aircraft service interphone access panel and connect interphone headset to aircraft.
- 5) Ensure the aircraft brakes are SET.

**WARNING - ONCE THE FLIGHT DECK CREW ACTIVATES THE ROTATING BEACON, USE EXTREME CAUTION WHILE IN THE IMMEDIATE VICINITY OF THE AIRCRAFT AS AIRCRAFT MOVEMENT IS IMMINENT.**

The following verbiage is suggested communication between the Pushback Operator and the flight deck crew. When the headset is inoperative or unavailable, hand signals must be used.

**Pushback Operator to PIC: "Set brakes."**

**PIC to Pushback Operator: "Brakes set."**

- 6) Remove the chock forward of the NLG.
- 7) Approach the aircraft and slow the LEKTRO to a full stop so the cradle stops approximately 2 inches from the NLG tires and the cradle is centered on the NLG.
- 8) Lower the cradle so that it rests on the ground.

- 9) Step off the deadman pedal (stand-up model) or set parking brake (sit-down model).
- 10) Attach the approved strut strap (with protective sleeve) to the aircraft.



**CAUTION - Only a one (1) inch strut strap is authorized for use on SkyWest aircraft.**

- Only the protective sleeve is to come into contact with the aircraft
- Ensure the protective sleeve is clean and free from grease, dirt, or grit, which may scratch the nose wheel oleo
- Loosen several feet of the winch strap
- Clip one end of the strut strap to the winch strap
- Wrap the strut strap around the NLG oleo (shiny piston)
- The strap must be placed so as not to damage the grounding plate, sensors, or the torque links
- Ensure the strut strap and winch strap are not twisted



**WARNING - THE STRUT STRAP MUST NOT COME IN CONTACT WITH THE "CENTERING PROXIMITY SWITCH". DAMAGE TO THE PROXIMITY SWITCH CAN RESULT IN FAILURE OF NLG RETRACTION AFTER TAKEOFF.**



STRUT STRAP PLACEMENT



CENTERING PROXIMITY SWITCH

- 11) Attach the other end of the strut strap to the winch strap hook and verify the hook safety latch is securely attached and functioning correctly.
- 12) Remove the remaining chock.
- 13) Ensure MCD is closed.
- 14) Ensure the aircraft brakes are released.



**WARNING - ONCE THE FLIGHT DECK CREW ACTIVATES THE ROTATING BEACON, USE EXTREME CAUTION WHILE IN THE IMMEDIATE VICINITY OF THE AIRCRAFT AS AIRCRAFT MOVEMENT IS IMMINENT.**

**Pushback Operator to PIC: "Release brakes."**

**PIC to Pushback Operator: "Brakes released."**



**CAUTION - SkyWest flight deck crews must NOT release the aircraft brake until clearance to pushback/taxi has been received from the ground control tower (where applicable). Agents must NEVER attempt to winch the aircraft NLG tires on the cradle without prior verification from the flight deck crew that aircraft brakes have been released and approval (where applicable) has been given to pushback/taxi.**



**WARNING - WHEN AN AIR START IS REQUIRED, AIRCRAFT NLG MUST BE CAPTURED AND SECURED ON THE CRADLE PRIOR TO INITIATING AIR START PROCEDURES. ENSURE A PORTABLE GPU IS USED (I.E., NON-PLB POWER) AND MCD IS CLOSED. COMMUNICATE WITH THE FLIGHT DECK CREW PRIOR TO LEKTRO CAPTURE TO VERIFY AIRCRAFT BRAKES HAVE BEEN RELEASED.**

- 15) Winch the aircraft fully onto the cradle ensuring the NLG tires remain centered on the cradle until the NLG tires touch the rear gate or stop switch.
- 16) Raise the cradle assembly sufficiently to allow it to clear ground obstacles while pushing.



- Maintain cradle height to a minimum to reduce change in aircraft center of gravity when nose is raised
- a) Monitor the tension on the winch strap as the cradle is raised to ensure the winch strap remains snug without being excessively tight or loose.

**Pushback Operator to PIC: "Ready to push"**

**PIC to Pushback Operator: (If not ready) "Negative...standby"**

**PIC to Pushback Operator: (If ready) "Ready to push"**



**CAUTION - Do not exceed the NLG turn limits of 70° from center. When NLG travel exceeds the limits, discontinue the push and immediately notify the flight deck crew.**

- 17) Pushback Operator must ensure aircraft movement path is free of all obstructions.
- 18) Pushback Operator must push the aircraft no faster than a walking speed.




**CAUTION - Should the flight deck crew require an emergency stop, they will signal the pushback operator via a verbal command or a flashing illumination of the taxi lights or landing lights. Stop the aircraft in a smooth controllable manner. Do not resume pushback until the flight deck crew advises that it is clear to resume.**



 **WARNING - IN THE EVENT OF AIRCRAFT BREAK-AWAY (STRUT STRAP OR WINCH STRAP FAILURE), IMMEDIATELY STOP THE PUSHBACK/DISPATCH PROCESS.**

**BREAK-AWAY PROCEDURES:**

- 1) **PUSHBACK OPERATOR MUST IMMEDIATELY STOP THE LEKTRO AND VERBALLY NOTIFY THE FLIGHT DECK CREW "EMERGENCY STOP".**
  - **WHEN VERBAL COMMUNICATION IS NOT AVAILABLE, THE PUSHBACK OPERATOR OR DISPATCH AGENT MUST IMMEDIATELY SIGNAL "EMERGENCY STOP" TO THE FLIGHT DECK CREW**
- 2) **AFTER AIRCRAFT COMES TO A COMPLETE STOP, CHOCK THE NLG.**
- 3) **NOTIFY THE FLIGHT DECK CREW OF REASON FOR EMERGENCY STOP.**


 **CAUTION - Do not continue pushback process until instructed to do so by flight deck crew.**

 **WARNING - WHEN SLIPPERY RAMP CONDITIONS PREVENT ADEQUATE TRACTION, PUSHBACK MUST BE COMPLETED PRIOR TO ENGINE START.**

- 19) Pushback Operator must ensure engine hazard areas are clear of all obstructions.

**PIC to Pushback Operator: "Clear to start engine (specify engine/s)."**


**Pushback Operator to PIC: "Clear to start engine (specify engine/s)."**

 **WARNING - ANY TIME IT IS NECESSARY FOR THE PUSHBACK OPERATOR TO DISCONTINUE INTERPHONE COMMUNICATIONS TO ASSIST THE WING WALKERS, THE PUSHBACK OPERATOR MUST ADVISE THE PIC THAT INTERPHONE COMMUNICATIONS WILL BE INTERRUPTED OR TERMINATED. WITH A TWO-PERSON PUSHBACK CREW, BOTH INDIVIDUALS WILL BE BRIEFLY OUT OF VIEW OF THE FLIGHT DECK WHILE THE LEKTRO IS BEING DISCONNECTED.**

- 20) When completing the pushback, gradually come to a stop.
- 21) Once the aircraft has reached the designated disconnect point, continue to move the aircraft until the NLG position is straight (parallel to the aircraft fuselage).
- 22) Stop LEKTRO.
- 23) Step off the deadman pedal (stand-up model) or set parking brake (sit-down model).
- 24) Lower cradle until the leading edge of the cradle lightly contacts the ground.
- 25) Ensure the aircraft brakes are set.

**Pushback Operator to PIC: "Pushback complete, set brakes."**

**PIC to Pushback Operator: "Brakes set."**

 **WARNING - ONCE AIRCRAFT MOVEMENT HAS STARTED, GROUND PERSONNEL MUST NOT ENTER THE SAFETY DIAMOND OR ENGINE HAZARD AREA UNTIL THE AIRCRAFT HAS COME TO A COMPLETE STOP AT THE DESIGNATED DISCONNECT POINT AND THE PUSHBACK OPERATOR HAS GIVEN THE "BRAKES SET" HAND SIGNAL.**

- 26) Unwind sufficient winch strap to disconnect the strut strap.

- 27) Disconnect one end of the strut strap from the winch strap and carefully remove the strut strap from the NLG.
- 28) Place the strut strap and winch strap on the LEKTRO's front deck.
- 29) Slowly back the LEKTRO away from the NLG until the cradle is pulled out from under and clear of the NLG tires.
- 30) Back LEKTRO away until clear of the aircraft.
- 31) Inform flight deck crew ready to disconnect interphone headset from the aircraft.

**Pushback Operator to PIC: "Off headset, follow hand signals."**

**PIC to Pushback Operator: "Cleared off headset."**

- 32) Disconnect the interphone headset from the aircraft. Close and secure the aircraft service access panel.
- 33) Raise LEKTRO cradle to full height for terrain clearance before driving away.
- 34) Dispatch Agent must:
  - a) Ensure all aircraft service doors are secure.
  - b) Ensure the aircraft is clear of all obstructions.
- 35) PIC will initiate the ready to taxi signal to the Dispatch Agent.

**NOTE** - The flight deck crew may flash taxi lights to indicate they are ready to taxi.

- 36) The Dispatch Agent must verify clearance and return with a salute.
- 37) During the return of the pushback crew to the gate, the area must be checked for FOD and/or any hydraulic fluids found on the ground.



**WARNING - IMMEDIATELY REPORT THE DISCOVERY OF ANY HYDRAULIC FLUIDS FOUND ON THE GROUND TO A SUPERVISOR. HYDRAULIC FLUID BELIEVED TO HAVE LEAKED FROM THE AIRCRAFT MUST BE REPORTED IMMEDIATELY TO THE FLIGHT DECK CREW VIA RADIO COMMUNICATION.**