# SECTION 5: GROUND HANDLING PROCEDURES

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CHAPTER 1: GENERAL

Scope
1. This chapter of the manual focuses on general ground handling procedures.

Environment Awareness
2. The area around an aircraft on the airside is extremely hazardous and presents numerous dangers to employees working in this environment. In order to reduce the possibility of accidents occurring, employees should not undertake any action which could distract them from performing the task at hand or pose a hazard to the area i.e. mobile phones, radio’s and smoking.

3. Only vehicles and equipment required for the servicing of an aircraft should approach the aircraft or operate in the parking bay. Only employees who are licensed and trained to operate such vehicles on the airside should be in control of this vehicles/equipment. All employees operating on the airside should be familiar with any emergency procedures that might be needed in the event of an accident or incident. These should include:
   a. Emergency contact call numbers.
   b. Emergency equipment locations and operating techniques.
   c. Fuel hydrant shut-off valves.
   d. Emergency exit locations and routes.

Protective Clothing
4. Personal protective equipment is designed to protect the user against health and safety risks. Local requirements must be referred to for more specifications and compliance. Airside workers shall adhere to the following types of protective clothing guidelines as it is their responsibility to wear it:
   a. Hearing protection - high noise levels produced by aircraft while engines are running will damage hearing.
   b. Safety shoes - equipment can be dropped on or driven over one's feet e.g. tug, tow bars, dollies.
   c. High visibility vests - staff not clearly visible to other airside operators in poor visibility conditions or areas of low light level can be injured.

Parking Bay Clearance and FOD
5. Any parking bay or stand to be occupied by an aircraft must be clear of all obstructions, vehicles and foreign objects.

6. It is the responsibility of the person loading the aircraft to ensure the following:
   a. Ramp equipment is to be positioned behind the equipment restraint line with parking brakes applied.
   b. Chocks and maintenance stands are not positioned on the taxi line.
   c. Unnecessary or unauthorised employees do not occupy the bay.
   d. There is clear line of sight between the flight deck and the automated parking bay system or marshaller.
e. No equipment is placed at the head of the parking bay.

f. All loose items or debris must be removed from the manoeuvring area and the parking bay.

**Chocks and Cones**

7. Once the aircraft has come to complete stop the engineer / ground handler in charge will place chocks forward and aft of the main gear in accordance with the normal chock placements as per the IATA IGOM Aircraft Chocking procedures.

8. Aircraft that will be in the bay for extended periods of time must be properly chocked when the brakes are released.

9. Cones must be placed at strategic points around the aircraft where damage is most likely to occur. These would include engine inlet cowlings and wingtips. Please refer to the aircraft servicing diagrams for exact positions (RHM-Sect 3).

**Handling in the case of Damage /Spillages/Leakages**

10. If damage or spillage of a package is noticed on board of an aircraft, during loading/unloading or on the ramp, immediate action must be taken.

11. The airport authority and OCC must be notified immediately upon noticing any damages /leakages /spillages.

**General**

12. All Handling Companies which are contracted to SAA shall ensure processes are in place for the supervision of all airside operational activities as per SAA's Service Level Agreements.

13. The Handling Company must ensure that all employees are adequately trained for the aircraft types handled and training records must be maintained.

14. All employees must complete initial and recurrent airside safety training and dangerous goods training.

15. All handling companies must be contracted to SAA and each contract must have an attendant Service Level Agreement to monitor performance, safety and security.

16. The SLA must be monitored by a responsible SAA representative to ensure that the above requirements are being fulfilled.

17. All handling companies must ensure that servicing equipment complies with the requirements of the Aircraft Maintenance Manual and IATA standards, and unserviceable equipment is clearly identified as “OUT OF SERVICE” and removed from operations.

18. This process will be audited by South African Airways on a regular basis and will be done according to the published South African Airways internal audit process as per the Quality Assurance Manual.

19. The ramp agent or SAA engineer shall assume final responsibility for supervision and oversight of personnel and activities during airside operations.

20. Equipment and passengers are not allowed to cross the path of a taxing aircraft.

21. All vehicles/equipment are to be positioned behind the equipment restraint line. The brakes must be applied prior to the arrival of the aircraft at the parking position.

22. All equipment/vehicles shall have parking brakes applied and the gear selectors must be in the park or neutral position when parked away from, or positioned at, the aircraft. If equipped with, the wheel chocks will be applied.

23. Elevation devices must not be driven in the elevation position, except for final positioning.
24. Only employees operating equipment are allowed on equipment whilst in motion.

25. Equipment must be used for its intended purpose.

**Securing of Aircraft and Equipment in High Winds**

26. High winds pose a great risk of damage and the forecast or reported aerodrome wind, including gusts, shall be taken into account when applying these procedures:

27. Wind speeds between 25-45kts:
   a. **Secure aircraft:** make sure the chocks are in position at front and rear of nose and both main landing gear wheels.
   b. **Operation of doors:** up to winds of 40kts, all cabin and compartment doors are designed to operate normally and can be left open. Above 40kts, doors have to be closed unless they are enclosed / protected by passenger bridges.

28. Wind speeds above 45kts. It is the handling agent’s responsibilities to ensure that the following requirements are fulfilled when the actual or forecast wind speeds above 45kts:
   a. **Secure aircraft:** if possible, park the aircraft into the wind and link the chocks together. Make sure the park brake is set. Check the tarmac for FOD.
   b. **Ground Support Equipment (GSE):** Remove and secure all vehicles not immediately needed at least 5 metres from the aircraft in such a way that it cannot cause any damage to the aircraft.

**Passenger Steps**

29. The following procedures must be adhered to before steps are positioned against or removed from an aircraft. Most types of steps used are motorised and the utmost care must be taken when manoeuvring this equipment as damage to the aircraft or staff in the vicinity can occur due to the poor visual field available to the driver.

30. Only qualified and licensed employees may operate this equipment.

31. The driver is responsible to ensure that the unit is in clean and safe working order with no visual damage or leaks.

32. This check must be accomplished in a walk-around inspection of the equipment before it is operated.

33. Steps should be positioned in the demarcated areas clear of the aircraft manoeuvring area.

34. Only once the aircraft has come to a complete stop, engines shutdown and chocks in place and the engineer gives the all-clear signal, may the driver manoeuvre the steps toward the aircraft.

35. The steps may never be moved at a faster pace than a brisk walk when approaching an aircraft.

36. Motorised equipment must make a complete stop to check the brakes before approaching the aircraft.

37. Final height adjustments must be made before the steps are positioned against the aircraft.

38. Steps may not be positioned underneath an open door, as the platform could damage the door.

39. Once the steps are at the correct height, the stabilisers must be lowered and the weather canopy extended before the door of the aircraft is opened.

40. The relationship between the top platform and the doorsill should be continually checked due to the aircraft lowering or raising due to loading and unloading operations.
41. Before steps can be removed from an aircraft, the crew must be advised and a restraining device must be put across the open doorway or the aircraft door should be closed.

42. The steps should be moved at least 3 metres from the aircraft side and then lowered into the position to withdraw the steps.

43. Utmost care must be taken while reversing the steps due to the poor visibility. Steps should only be parked in the demarcated area.

**Passenger Steps- Wide Body Aircraft**

44. In order to meet SAA’s priority boarding / disembarkation requirements, service providers are to ensure the following procedures are adhered to on arrival and departure of all wide body types regardless of destination or origin.

45. Two steps shall be made available by the service provider at all SAA wide-body aircraft for use on arrival and departure. (Remote stand operations)

46. The steps / chutes shall be positioned at doors D1L (first) and D2L (second) at the aircraft.

47. In order to speed up boarding and avoid aisle congestion onboard, dual air bridges shall be used. Business class passengers will be directed through the left bridge and economy class passengers through the right.

48. A SAA staff member or representative must be available inside the bridge to direct passengers to the correct bridge. Passengers will be requested to produce their boarding pass which must be verified.

**Air Bridges**

49. Air bridges connect the aircraft to the terminal building by means of a motorised and retractable walkway. The utmost care should be taken when manoeuvring this equipment to prevent any possible damage to the aircraft and surrounding equipment. The following points must be adhered to when the air bridge is to be operated:

a. Only qualified and licensed staff may operate this equipment.

b. The driver is responsible to ensure that the unit is in a clean and safe working order with no visual damage or leaks.

c. This check must be accomplished in a walk-around inspection of the equipment before it is operated.

d. Air bridges should always be retracted and the wheels parked in the designated area.

e. While the bridge is being manoeuvred, there should be no other persons but the operator in any of the moving areas.

f. The operator must ensure that his / her full attention is given to the task at hand and should not be distracted by outside influences i.e. radios, mobile phones etc.

g. For air bridges utilising wheels, the operator should position the joining cabin in such a way that he / she is able to see the direction in which the wheels are facing at all times.

h. Only once the aircraft has come to a complete stop, engines shutdown and chocks in place and the engineer gives the all-clear signal, may the driver manoeuvre the air bridge towards the aircraft.

i. Final height adjustments must be made before the air bridge is positioned against the aircraft.
j. The relationship between the top platform and the doorsill should be continually checked due to the aircraft lowering or raising due to loading and unloading operations.

k. Before the air bridge can be removed from an aircraft, the crew must be advised and a restraining device must be put across the open doorway or the aircraft door should be closed.

l. Utmost care must be taken while reversing the steps due to the poor visibility. The air bridge should only be parked in the demarcated area.

**Conveyor Belt Loaders**

50. The conveyor belt is used to lift bulky items into the bulk hold of containerised aircraft or to assist in the loading of bulk loaded aircraft.

51. The conveyor belt loader is a motorised platform with a reversible conveyor belt attached.

52. The following procedures must be adhered to when the conveyor belt loader is to be operated.

   a. Only qualified and licensed employees may operate this equipment.
   
   b. The driver is responsible to ensure that the unit is in a clean and safe working order with no visual damage or leaks.
   
   c. This check must be accomplished in a walk-around inspection of the equipment before it is operated.
   
   d. The conveyor belt loader should be positioned in the demarcated areas clear of the aircraft manoeuvring area.
   
   e. Only once the aircraft has come to a complete stop, engines shutdown and chocks in place and the engineer gives the all-clear signal, may the driver manoeuvre the conveyor belt loader towards the aircraft.
   
   f. The conveyor belt loader may never be moved at a faster pace than a brisk walk when approaching an aircraft.
   
   g. The operator must ensure that his / her full attention is given to the task at hand and should not be distracted by outside influences i.e. radios, mobile phones etc.
   
   h. When positioning the conveyor belt loader, the handrails must be in the retracted position.
   
   i. Motorised equipment must make a complete stop to check the brakes before approaching the aircraft.
   
   j. The conveyor belt loader must never be placed against or in the doorway of a compartment. The conveyor belt loader should be aligned at the correct height and position, just short of contact with the doorsill.
   
   k. Conveyor belt loaders may not be used to carry passengers or staff around the apron.
   
   l. When employees are to walk up or down the conveyor belt, the handrails must be extended and the belt must not be moving.
   
   m. The weight constraints for loading or unloading must never be exceeded.
   
   n. The operator must take the utmost care when removing conveyor belt loader from the aircraft to the demarcated area.
   
   o. The operator must ensure that no parcels remain on the ground near the conveyor belt loader and that the conveyor belt loader is moved away from the aircraft before the belt section is lowered.
Lower Deck Loader

53. The Lower Deck Loader is used to load containers or pallets into the lower deck section of containerised aircraft.

54. This unit comprises two platforms that can be independently raised or lowered, the front section lifting to the aircraft lower deck sill and the aft section lifting from the ground to the front section.

55. The Lower deck loader is motorised and the following procedures must be adhered to:
   a. Only qualified and licensed staff may operate this equipment.
   b. The driver is responsible to ensure that the unit is in a clean and safe working order with no visual damage or leaks.
   c. This check must be accomplished in a walk-around inspection of the equipment before it is operated.
   d. The lower deck loader should be positioned in the demarcated areas clear of the aircraft manoeuvring area.
   e. Only once the aircraft has come to a complete stop, engines shutdown and chocks in place and the engineer gives the all-clear signal, may the driver manoeuvre the lower deck loader towards the aircraft.
   f. The lower deck loader may never be moved at a faster pace than a brisk walk when approaching an aircraft.
   g. The operator must ensure that his / her full attention is given to the task at hand and should not be distracted by outside influences i.e. radios, mobile phones etc.
   h. When positioning the lower deck loader, the handrails must be in the retracted position, and must be raised once the cargo doors are opened.
   i. Motorised equipment must make a complete stop to check the brakes before approaching the aircraft.
   j. The lower deck loader must never be placed against or in the doorway of a compartment.
   k. The lower deck loader should be aligned at the correct height and position, just short of contact with the doorsill.
   l. The approach to the aircraft should always be undertaken in low gear.
   m. Lower deck loaders may not be used to carry passengers or staff around the apron.
   n. Care must be taken not to entangle and ropes, straps or uniform items in the manoeuvring wheels and rollers on both platforms.
   o. This equipment must not be manoeuvred in the elevated position.
   p. Handrails must be retracted before closing the cargo door.

Main Deck Loaders (Trucks, PAUs)

56. Main Deck loaders include vehicles such as catering trucks, cleaning trucks, PAUs and any other form of motorised equipment that can be elevated to load directly onto the main deck of an aircraft.

57. The following procedures must be adhered to when a main deck loader is to be used:
   a. Only qualified and licensed staff may operate this equipment.
b. The driver is responsible to ensure that the unit is in a clean and safe working order with no visual damage or leaks.

c. This check must be accomplished in a walk-around inspection of the equipment before it is operated.

d. The main deck loader should be positioned in the demarcated areas clear of the aircraft manoeuvring area.

e. Only once the aircraft has come to a complete stop, engines shutdown and chocks in place and the engineer gives the all-clear signal, may the driver manoeuvre the main deck loader towards the aircraft.

f. The main deck loader may never be moved at a faster pace than a brisk walk when approaching an aircraft.

g. The operator must ensure that his / her full attention is given to the task at hand and should not be distracted by outside influences i.e. radios, mobile phones etc.

h. Motorised equipment must make a complete stop to check the brakes before approaching the aircraft.

i. All main deck loaders must have a guide to signal the approach to and from the aircraft using conventional hand signals.

j. The guide should always be placed so that the driver has him / her easily visible. Should the driver lose sight of the guide, the vehicle must be stopped immediately.

k. No part of the vehicle or elevated platform may make contact with the aircraft side or be placed beneath an open door. This is to reduce the possibility of damage due to the aircraft settling due to loading or unloading operations.

l. Stabiliser jacks must be deployed and locked into position on the vehicle before the loading platform can be raised.

m. Care must be taken to ensure that items do not fall from the raised platform. This could injure staff below and create a FOD hazard.

**Toilet and Water Servicing**

58. The toilet and water-servicing units are motorised vehicles with a sealed tank mounted on the back. This unit is able to drain the onboard aircraft lavatory tanks and replenish the tanks with new chemicals. These chemicals are toxic and corrosive and care must be taken when manoeuvring or working in the area where the unit is servicing.

59. The potable water truck will replenish the aircraft onboard water tanks with potable water in accordance with the desired quantity.

60. The following procedures must be adhered to when manoeuvring these vehicles around the aircraft, and the relevant servicing procedure must be obtained from the aircraft technical manuals.

a. Only qualified and licensed employees may operate this equipment.

b. The driver is responsible to ensure that the unit is in a clean and safe working order with no visual damage or leaks.

c. This check must be accomplished in a walk-around inspection of the equipment before it is operated.
d. The toilet and water unit should be positioned in the demarcated areas clear of the aircraft manoeuvring area.

e. Only once the aircraft has come to a complete stop, engines shutdown and chocks in place and the engineer gives the all-clear signal, may the driver manoeuvre the toilet and water unit towards the aircraft.

f. The toilet and water unit may never be moved at a faster pace than a brisk walk when approaching an aircraft. This must be strictly adhered to as these units reverse underneath the aircraft.

g. The operator must ensure that his / her full attention is given to the task at hand and should not be distracted by outside influences i.e. radios, mobile phones etc.

h. Motorised equipment must make a complete stop to check the brakes before approaching the aircraft.

i. All toilet and water units must have a guide to signal the approach to and from the aircraft using conventional hand signals.

j. The guide should always be placed so that the driver has him easily visible. Should the driver lose sight of the guide the vehicle must be stopped immediately.

k. The operator of the toilet service truck must ensure that he / she wears their protective uniform at all times when servicing an aircraft.

l. The following instructions relate to the specific servicing of South African Airways’ aircraft with regards to toilet servicing and the prevention of ‘blue ice’ formation and accumulation:

   - Servicing of airplane vacuum toilets.
   - Servicing of airplane recirculation toilets.
   - Deep cleaning of airplane with recirculating toilets

**Servicing Of Airplane Vacuum Toilets**

61. This procedure gives the instructions for the servicing of the waste tanks.

62. Make sure that you read and obey the specified instructions when you use the equipment to service the toilets.

63. The waste tanks have the same outlet at the service panel. Each waste tank has a connection to flush the tank and a control handle for the drain valve on the service panel.

64. Waste tank servicing includes these steps:

   a. Drain the waste tanks.
   b. Flush the waste tanks.
   c. Close the drain valves to the waste tanks.
   d. Put the chemical precharge in the waste tanks with the pump on the service cart for the waste tanks.

**WARNING:** MAKE SURE YOU FOLLOW THE MANUFACTURER'S INSTRUCTIONS WHEN YOU USE THE CHEMICAL PRECHARGE. THE CHEMICAL PRECHARGE CONTAINS CORROSIVE AND/OR POISONOUS MATERIALS. THESE MATERIALS CAUSE INJURY TO PERSONS OR DAMAGE TO THE AIRPLANE IF YOU DO NOT FOLLOW THE INSTRUCTIONS.
Draining the Toilet Waste Tanks

66. Open the toilet service access panel.
67. Ensure that electric power is available.
68. Open the cap on the drain fitting.
69. NOTE: Fluid in the drain line indicates that the drain valve is leaking.
70. Connect the toilet service-vehicle waste drain hose to the toilet drain connection.
71. Push the "PRESS-TO-OPEN" lever on the drain fitting.
72. Drain each tank in a clockwise sequence (example: Fwd Left, Aft Left, Aft Right, and Fwd Right). Pull the control handle on the drain valve to open the drain valve for the waste tank that you want to drain.
73. NOTE: The drain valve is open after you pull the handle down approximately five inches.
74. Make sure that each waste tank drains by listening for the liquid flow through the hose that drains the waste tank or putting your hand on the hose that drains the waste tank, and feel the vibration of the liquid while it flows.
75. Do the steps (6) and (7) again until you drain each subsequent waste tank.

Flushing of the Toilet Waste System

76. Flush each waste tank in a clockwise sequence.
77. Make sure the control handle on each drain valve for the waste tanks are down.
78. Connect the flush line on the service cart to the rinse fitting on the service panel.
79. Caution: THE TOILET SERVICING CART MUST SUPPLY A PRESSURE OF 30-50 PSIG (2, 05-5, 5 BAR) AND A FLOW OF 40 LITERS PER MINUTE. IF THE PRESSURE OR FLOW IS TOO SMALL THE WASTE TANK WILL NOT GET CLEAN. THIS WILL RESULT IN THE WASTE TANK VOLUME BEING REDUCED.
80. Put a minimum of 38 litres (190 litres maximum) of water into the waste tank with a pump.
81. If you cannot get the rinse water to go into the tank; summon a SAA technician to do the fault isolation steps (FIM 38-30-00).
82. If the precharge shutoff valve will not open summon a SAA technician to manually operate the Precharge Shutoff Valve.
83. Disconnect the Line used to flush the waste tanks.
84. Make sure the waste tank drains by listening for the liquid flow through the hose that drains the waste tank and put your hand on the hose that drains the waste tank to feel the vibration of the liquid while it flows.
85. Go to the subsequent rinse fitting in a clockwise direction and do steps (2) through (7) until each waste tank has been rinsed.
86. Push the control handles for the drain valves to the closed position.

Chemical Precharge Servicing

87. Add the chemical precharge to the waste tanks through the service panel.
88. Connect the chemical precharge (blue liquid) hose from the service cart to the rinse fitting on the service panel.
89. Pump the required quantity of the chemical precharge into the waste tank. Refer to the decal at the service panel for the precharge quantity.

90. Disconnect the chemical precharge hose.

91. Go to the subsequent rinse fitting in a clockwise sequence and do steps (1) thru (3) until each waste tank has the correct amount of chemical precharge.

92. Close the rinse fitting caps.

93. Wash the service panel area and door with a soft bristle brush or sponge as necessary to remove any contamination.

94. Dry with clean cloth.

95. Close the service panel door.

**Close-up**

96. Make sure that the work area is clean and clear of tools and other items.

97. Close the access doors.

98. Remove the access platforms.

99. Remove the ground support and maintenance equipment, the special and standard tools and all other items.

**Servicing Of Airplane Recirculating Toilets**

100. These servicing procedures apply to each toilet system. The drain fitting, flush port and drain valve handles are accessible by opening the servicing door. Each time the toilet tank is serviced; always recharge the system with recommended amount of chemical precharge.

   a. **WARNING:** DO NOT OVERSERVICE THE TOILET SYSTEM. A LEAKAGE OF TOILET FLUID CAN POSSIBLY ENTER ELECTRICAL AND/OR ELECTRONIC SYSTEMS AND CAUSE A DANGEROUS MALFUNCTION. THIS COULD CAUSE AN UNWANTED EFFECT TO THE FLIGHT SAFETY OF THE AIRPLANE AND RESULT AS INJURY OR LOSS OF LIFE TO THE PERSONS ABOARD.

   b. **CAUTION:** TOILET FLUIDS ARE CORROSIVE TO THE AIRPLANE STRUCTURE. STAINS ON BODY SKIN INDICATE IN-FLIGHT LEAKAGE OR UNSATISFACTORY SERVICING PROCEDURES. IN-FLIGHT RELEASE OF ICE BUILDUP FROM THE FORWARD TOILET SERVICE PANEL MAY CAUSE ENGINE DAMAGE OR DAMAGE TO AIRPLANE STRUCTURE.

**Draining the Toilet Waste Tanks**

101. Open the relevant toilet service access panel.

102. Open the caps of the toilet drain connections and the fill and rinse connections.

103. Remove the doughnut seal or turn and pull the handle of the hose adapter (Y-fitting) to release the doughnut seal in the waste outlet.

104. **NOTE:** Fluid in the drain line indicates that the drain valve is leaking.

105. Connect the toilet service-vehicle hose-adapter and the 4-inch diameter drain hose to the toilet drain connections.

106. Pull and turn the toilet drain-valve control-handle(s) until it is (they are) fully locked. The waste will drain.

107. Touch the drain hose and make sure that the waste has drained completely.
Flushing of the Toilet Waste System

108. Connect the flush/fill hose (1~inch diameter) of the toilet service vehicle to the relevant fill and rinse connections.

109. Operate the toilet service vehicle.

110. Make sure that the water pressure is stable at 2.4 bar (35 psi) and the water flow rate is stable at 38 litres (10 US gal) per minute.

111. Flush the toilet system with water (Refer to the decal at the service panel for the flush quantity).

112. NOTE: The drain valve must be in the OPEN position.

113. Touch the drain hose and make sure that the fluid has drained completely.

114. Switch off the toilet service vehicle.

115. Turn and push the toilet drain-valve control-handle(s) to close the valve(s).

Chemical Precharge Servicing

116. Use the toilet service vehicle to precharge each waste tank with a toilet chemical (blue liquid). (Refer to the decal at the service panel for the precharge quantity).

117. NOTE: This will take approximately 15 seconds.

118. Switch off the toilet service vehicle.

119. Disconnect the 4-inch drain hose.

120. Make sure there are no leaks from the drain connections. Leaks are not permitted.

121. Push and turn the handle of the hose adapter to compress the doughnut seal in the waste outlet or close the inner flapper.

122. Disconnect the hose adapter.

123. Close the cap(s) of the toilet drain connections.

124. Disconnect the fill and rinse hose and let the connections drain completely.

125. Close the cap(s) of the fill and rinse connections.

126. Wash the service panel area with a soft bristle brush or sponge as necessary to remove any contamination.

127. Dry with clean cloth.

Close-up

128. Make sure that the work area is clean and clear of tool(s) and other items.

129. Close the access doors.

130. Remove the access platforms.

131. Remove the ground support and maintenance equipment, the special and standard tools and all other items.

Deep Cleaning Of Airplane Recirculating Toilets

132. This procedure is to be used when toilets are extremely smelly or fouled up.

133. These deep cleaning procedures apply to each toilet system.
134. **WARNING**: DO NOT OVERFILL THE TOILET SYSTEM. A LEAKAGE OF TOILET FLUID CAN POSSIBLY ENTER ELECTRICAL AND/OR ELECTRONIC SYSTEMS AND CAUSE A DANGEROUS MALFUNCTION. THIS COULD CAUSE AN UNWANTED EFFECT TO THE FLIGHT SAFETY OF THE AIRPLANE AND RESULT AS INJURY OR LOSS OF LIFE TO THE PERSONS ABOARD.

135. **CAUTION**: TOILET FLUIDS ARE CORROSIVE TO THE AIRPLANE STRUCTURE.

### Drain the Toilet Waste Tanks

136. Open the relevant toilet service access panel.

137. Open the caps of the toilet drain connections and the fill and rinse connections.

138. Remove the doughnut seal or turn and pull the handle of the hose adapter (Y-fitting) to release the doughnut seal in the waste outlet.

139. **NOTE**: Fluid in the drain line indicates that the drain valve is leaking.

140. Connect the toilet service-vehicle hose-adapter and the 4-inch diameter drain hose to the toilet drain connections.

141. Pull and turn the toilet drain-valve control-handle(s) until it is (they are) fully locked. The waste will drain.

142. Touch the drain hose and make sure that the waste has drained completely.

### Flush the Toilet Waste System

143. Connect the flush/fill hose (1-inch diameter) of the toilet service vehicle to the relevant fill and rinse connections.

144. Operate the toilet service vehicle.

145. Make sure that the water pressure is stable at 2.4 bar (35 psi) and the water flow rate is stable at 38 litres (10 US gal) per minute.

146. Flush the toilet system with water. Refer to the decal at the service panel for the flush quantity.

147. **NOTE**: This will take approximately 35 seconds.

148. **NOTE**: The drain valve must be in the OPEN position.

149. Touch the drain hose and make sure that the fluid has drained completely.

150. Switch off the toilet service vehicle.

151. Turn and push the toilet drain-valve control-handle(s) to close the valve(s).

### Deep Clean the Toilet Tanks

152. Use the toilet service vehicle to fill each waste tank with deep cleaning chemical solution (refer to Approved products list) to the level of the flapper. (Refer to Fig 1).

153. **CAUTION**: DO NOT OVERFILL THE TOILET TANKS AS TOILET FLUIDS ARE CORROSIVE TO THE AIRPLANE STRUCTURE.

154. Flush the toilet every 30 minutes to agitate the chemicals.

155. Allow the chemicals to soak in the toilet tank for eight hours.

### Drain the Toilet Waste Tanks

156. Open the relevant toilet service access panel.

157. Open the caps of the toilet drain connections and the fill and rinse connections.
158. Remove the doughnut seal or turn and pull the handle of the hose adapter (Y-fitting) to release the doughnut seal in the waste outlet.

159. NOTE: Fluid in the drain line indicates that the drain valve is leaking.

160. Connect the toilet service-vehicle hose-adapter and the 4-inch diameter drain hose to the toilet drain connections.

161. Pull and turn the toilet drain-valve control-handle(s) until it is (they are) fully locked. The waste will drain.

162. Touch the drain hose and make sure that the waste has drained completely.

**Flushing of the Toilet Waste System**

163. Connect the flush/fill hose (1-inch diameter) of the toilet service vehicle to the relevant fill and rinse connections.

164. Operate the toilet service vehicle.

165. Make sure that the water pressure is stable at 2.4 bar (35 psi) and the water flow rate is stable at 38 litres (10 US gal) per minute.

166. Flush the toilet system with water. Refer to the decal at the service panel for the flush quantity.

167. NOTE: This will take approximately 35 seconds.

168. NOTE: The drain valve must be in the OPEN position.

169. Touch the drain hose and make sure that the fluid has drained completely.

170. Switch off the toilet service vehicle.

171. Turn and push the toilet drain-valve control-handle(s) to close the valve(s).

**Chemical Precharge Servicing**

172. Use the toilet service vehicle to fill each waste tank with DISINFECTANTS (blue liquid).

173. NOTE: This will take approximately 15 seconds.

174. Switch off the toilet service vehicle.

175. Disconnect the 4-inch drain hose.

176. Make sure there are no leaks from the drain connections. Leaks are not permitted.

177. Push and turn the handle of the hose adapter to compress the doughnut seal in the waste outlet.

178. Disconnect the hose adapter.

179. Close the cap(s) of the toilet drain connections.

180. Disconnect the fill and rinse hose and let the connections drain completely.

181. Close the cap(s) of the fill and rinse connections.

182. Wash the service panel area with a soft bristle brush or sponge as necessary to remove any contamination.

183. Dry with clean cloth.

**Close-up**

184. Make sure that the work area is clean and clear of tool(s) and other items.
185. Close the access doors.
186. Remove the access platforms.
187. Remove the ground support and maintenance equipment, the special and standard tools and all other items.
188. The Handling Company must ensure that employees are adequately trained for the aircraft types handled and training records must be maintained.
189. Only disinfectant fluid which complies with approved specification must be used.
190. All handling companies must ensure that servicing equipment complies with the requirements of the Aircraft Maintenance Manual.
191. Handling companies must retain records of disinfecting services of potable water containers.
CHAPTER 2: ARRIVAL PROCEDURES

Scope

1. This chapter of the manual focuses on the following arrival process pertains to the handling of all aircraft that are currently operated by South African Airways.

2. For specific operating / servicing instructions of ground equipment or aircraft equipment please refer to the relevant sections included in this manual.

Arrival Procedure (GSP)

3. Conduct foreign Object Damage (FOD) check on entire stand removing all debris just prior to arrival.

4. Make sure the stand surface condition is sufficient free of ice, snow etc., to ensure safe aircraft movement.

5. Make sure all required Ground Support Equipment (GSE) is available and serviceable, and is positioned well clear of all aircraft path, outside the Equipment Restraint Area (ERA).

6. Make sure the aircraft path and ramp area free of objects and obstacles that the aircraft may strike or endanger others due to jet blast effects.
7. Make sure additional ground personnel (i.e., wing walkers) are present, if required.

**Actions After Arrival**

8. Upon aircraft stopping:
   a. Position wheel chocks at Nose Landing Gear (NLG) wheels as per wheel chock placement procedure.
   b. Position and connect the Ground Power Unit (GPU), if required before engine shut down.

9. After the engines have been shut down, are spooling down and anti-collision lights have been switched off:
   a. Position wheel chocks at the Main Landing Gear (MLG) wheels remove nose gear chocks (if required) and verbally /visually confirm to flight crew.
   b. Confirm there is no damage on the cabin door area prior to positioning the Passenger Boarding Bridge (PBB).
   c. Position the safety cones.
   d. Conduct an arrival walkabout for inspection to inspect for damage on the following parts of the aircraft before positioning GSE:
      - All cargo doors and door surround /frames
      - All access panels and servicing access points
      - Visible parts of the aircraft fuselage, engines, propellers (if applicable), landing gears
      - All cabin doors and door surround /frames

**Ground Support Equipment on Arriving Aircraft – Ground Power Unit**

10. It is permitted to preposition a Ground Power Unit (GPU) inside the ERA provided there is a marked GPU parking position.

11. Position the GPU on the appropriate side of the aircraft.

12. Set parking brake /chock for the GPU.

13. Ensure the GPU, while in operation, is positioned a minimum of 3m (10 ft.) from any fuelling vehicles and aircraft fuel vent exists.

**Passenger Escorting**

14. Passengers on airside of airports are the responsibility of the airline in order to ensure safe environment for passengers to walk on the apron.

15. An SAA staff member or representative must always accompany the passengers on the bus to the aircraft. The staff member will take up a strategic position at the foot of the steps to ensure that only those passengers of the bus board the aircraft. The staff member must not leave their post until all the passengers have embarked.

16. Ground staff must take up positions at strategic points to ensure passengers moving between the aircraft and the terminal building via the apron for passenger embarkation is protected. Passengers crossing driveways have preference over vehicles except for emergency vehicles. Vehicles must stop and wait whilst passengers are walking across the road. This process must be strictly controlled and passengers must be escorted to ensure that the risk of injury is reduced.
17. Passengers should never be embarked on a self-manoeuvre stand when an adjacent aircraft is starting up its engines. Ensure that passengers do not walk to the aircraft rear steps, underneath the wings or near to aircraft engines on their way to the aircraft.

**Passenger Escorting - Arrivals**

18. Passengers on airside of airports are the responsibility of the airline in order to ensure a safe environment for passengers to walk on the apron.

19. An SAA staff member or representative must always accompany the passengers on the bus from the aircraft. The staff member will take up a strategic position at the foot of the steps and must not leave their post until all the passengers have disembarked.

20. Ground staff must take up positions at strategic points to ensure passengers moving between the aircraft and the terminal building via the apron for passenger disembarkation is protected. Passengers crossing driveways have preference over vehicles except for emergency vehicles. Vehicles must stop and wait whilst passengers are walking across the road.

21. This process must be strictly controlled and passengers must be escorted to ensure that the risk of injury is reduced.

22. Passengers should never be disembarked on a self-manoeuvre stand when an adjacent aircraft is starting up its engines.

23. Ensure that passengers do not walk from the aircraft rear steps underneath the wings or near to aircraft engines on their way from the aircraft.

**Wheel Chock Placements**

24. The engineer or ground handling agent shall be responsible for the provision and placement of chocks on all SAA arrival flights.

25. Ensure that there are an adequate number of serviceable chocks available on stand based on the aircraft type to be chocked. Chocks must be on bay a minimum of 10 min prior to ETA.

26. After the following criteria has been met, the chocks must be placed by the designated individual of the loading team:
   a. Aircraft has come to a complete stop as directed by marshal or guidance system.
   b. All engines have been switched off and are spooling down OR GPU is connected.
   c. Anti-collision light (beacon) has been switched off.

27. The first action to take place shall be placement of chocks at the left nose gear tyre of the aircraft as per Diagram 1 below. There must be slight gap (2CM) between the chock and the tyre to prevent the chock from getting stuck.

28. Place the main gear chocks FWD and AFT of the outer main gear tyres as per Diagram 1 below. The chocks should only slightly touch the tyre.

29. Once all chocks have been placed the Flight Deck crew must be notified (chocks inserted) by the supervisor using the correct hand signal as per diagram 2 below.

30. Only once the Flight Deck has given the thumbs up signal to the supervisor shall the handling process be allowed to commence. (Diagram 4)
Diagram 1

Diagram 2 (chocks inserted)

Diagram 3 (chocks removed)

Diagram 4 (thumbs up – All Clear)
CHAPTER 3: AIRCRAFT FUELLING

Scope
1. This chapter of the manual focuses on aircraft fuelling procedures.
2. South African Airways’ fuelling policy states that refuelling/defuelling shall only be carried out by accredited, licensed fuel companies. Only personnel that have completed initial and recurrent training specifically for the fuelling service will be used. This chapter should be read in conjunction with the SAA Operations Manual.

Procedures
3. In view of the possible risk to property, equipment and personnel during refuelling operations, the following regulations shall be applied.
4. The aircraft engineer, line engineer or member of the flight deck crew will oversee the entire fuelling operation and shall inform the flight deck when fuelling commences and is completed.
5. A three metre safety fuelling safety zone around all fuelling equipment, including aircraft fuel vents, is maintained and is free of any obstructions, devices or personnel. Portable electronic devices, such as Mobile Telephones, Portable Radios and Pagers, Photographic equipment, should not be used within the fuel safety zone.
6. In the event of a fuel spill the engineer must inform the appropriate ground response personnel (airport authority) and notify the flight crew (PIC) or engineer on board immediately. Refuelling must cease immediately and the appropriate authorities shall be notified to arrange for clean-up operations. The emergency shut off valve must be activated when installed. Request the fire service through the airport authority. Verify whether all activities must be stopped around the aircraft. Reduce activities inside and outside the spill area to reduce the risk of ignition.
7. When fuel is spilt during a quick turnaround and there is a danger of combustion caused by the proximity of hot aircraft engines, refuelling must cease immediately.
8. When there is a fuel spill the aircraft’s APU must be shut down as the heat from its exhaust could cause ignition of fuel vapours.
9. Refuelling is not permitted during adverse weather conditions - specifically lightning.
10. The escape route of the fuel bowser will be kept clear at all times.
11. Vehicles and items of Ground Servicing Equipment must not be parked over a fuel hydrant pit and/or isolation chamber.
12. Drivers must not drive over refuelling hoses and bonding cables.
13. No person must interfere with the refuelling operations and no electrical equipment may be attached or detached from the aircraft during fuelling.
14. All Fuel Company fuel delivery vehicles must be fitted with at least two 9kg dry chemical type fire extinguishers in quick release housings consistent with local regulations. At least one extinguisher shall be readily available from either side of the fuel vehicle.
15. Refuelling may not commence until the bonding lines are correctly positioned.
16. During refuelling operations, the APU should not be started. The engineer or flight deck crew should be consulted should there be a requirement for the APU to be started.
17. Refuelling of an aircraft may not commence whilst passengers are disembarking if the fuel hydrant or bowser connection being used is within 15 metres of the passengers.
18. Where passengers or crew remain onboard the aircraft during refuelling the operator or airlines
flight crew will ensure that:
   a. Passengers remain seated with their seat belts unfastened;
   b. An announcement is made onboard stating that refuelling is in progress and that smoking is
   forbidden;
   c. That emergency doors are manned during the refuelling process in order to expedite any
   required evacuation from the aircraft;
   d. That steps normally used for passenger embarkation or disembarkation, or an air bridge, is
   in position at the main passenger doors of the aircraft in order to facilitate any evacuation;
   e. Where a boarding bridge is in use, an interior access path is maintained from the aircraft to
   the terminal to facilitate evacuation;
   f. Evacuation zones around the aircraft are kept open;
   g. The ground engineer must be in constant communication with the flight deck via the
   headset while refuelling is in progress.

19. Refuelling may be carried out with passengers boarding only when the flight deck of the aircraft
is manned and they have been advised and given approval.

20. Ground Handling/Refuelling companies shall consult their local regulatory authorities and
ensure that they are familiar with any procedures that may be applicable to that station.

**Fuel Pool**

21. SAA is a member of the IATA Fuel Quality Pool (IFQP). IFQP is a group of qualified fuel
inspectors who inspect fuelling facilities of all airports that member airlines fly to.

22. In accordance with the respective airlines’ national Regulatory Authorities (EASA Air Operation
Regulation, FAR 121 etc) requirements, the airlines are required to regularly inspect and
monitor the procedures being followed by fuel suppliers for storage, supply, distribution and
into plane servicing of fuel at all such airports from where their aircraft’s are operating and
uplifting fuel, including the fuel facilities of the OEM’s.

23. Briefly the goals of the Fuel Quality Pool are:
   a. To fulfil regulators’ requirements for inspection of fuel facilities.
   b. To minimize Airlines’ and Fuel Suppliers’ workload by sharing inspections at jointly served
   airports. This reduces both airlines and fuel supplier’s costs tremendously.

24. The fuel facilities inspection is only confined to quality and safety issues. All inspections are
performed in accordance with a comprehensive and standardized checklist, based on IFQP
Control of Fuel Quality & Fuelling Safety Standards, latest edition and endorsed by all IATA Fuel
Quality Pool members. This ensures that a fixed set of standards, performance levels, quality
and safety procedures are followed by everyone. Agreed specifications and proper standards.
CHAPTER 4: DEPARTURE PROCEDURES

Scope

1. This chapter of the manual focuses on the following departure process pertains to the handling of all aircraft that are currently operated by South African Airways.

2. For specific operating / servicing instructions of ground equipment or aircraft equipment please refer to the relevant sections included in this manual.

3. Please note that it is the engineer’s responsibility to check that all servicing doors and panels are closed prior to aircraft operation.

Departure Procedure

4. The ramp area is clear of all FOD and any equipment.

5. The apron surface condition is sufficient free of ice, snow etc. to ensure safe aircraft movement.

6. The ramp area is free of objects/obstacle that may be impacted by the aircraft or may endanger others due to jet blast effects.
7. All persons not involved in the aircraft departure operation must remain clear of the departing aircraft, behind the ERA.

8. Additional ground staff such as wing walkers are present, if applicable/required.

9. Verbal communication with the flight crew is established by means of an interphone system, departures using marshalling hand signals without any headset communication are only conducted in exceptional cases.

10. In the event an Air Starter Unit (ASU) is required for engine start, communicate with the flight crew on ASU positioning and engine start sequence.

**Pre Departure Walkabout Check**

11. The walk around should start as soon as possible after all ground service activities have been completed. Walk around the entire aircraft at a normal walking pace. The check shall start as close as possible to departure time. If any part of the aircraft still has GSE engaged at the time of the check, or if GSE re-engages with the aircraft after the check, the applicable area(s) must be reinspected:

12. The pre departure walk around check shall include the following:

   a. The apron is clear of all FOD items that may cause aircraft damage or pose a risk.
   b. All GSE and passenger boarding devices are detached.
   c. The stand area is clear of obstructions. GSE and vehicles are positioned clear of the aircraft path.
   d. Adequate clearance exists between the aircraft and facilities or fixed obstacles along the aircraft movement path.
   e. All aircraft servicing panels and/or hatches are closed and secured. Exception; external power and headset panels.

**Wheel Chock Removal – Headset Operator**

13. Via the interphone, request chock removal approval from the flight crew, and confirm the aircraft parking brakes are set.

14. Check all GSE have been disconnected from the aircraft.

15. Check the passenger boarding stairs have been retracted from the aircraft, if applicable.

16. Check the tow tractor and tow bar are fully secured to the nose gear and parking brakes are set on the tractor, if applicable.

17. Give clearance to ground staff to remove chocks.

**Engine Start Using Air Start Unit**

18. Only personnel and equipment involved in engine starting or aircraft are permitted within the ERA during engine start.

19. Establish communications with the flight crew and confirm the total number of engines to be started, the engine start sequence to be used and number of ASUs being used.

20. All personnel and equipment must remain clear of engine danger areas.

21. Advise the engine start sequence to the ASU operator(s) and any other ground personnel.

22. Where possible, the ASU should be positioned on the opposite side of the aircraft to the engine being started.
23. If the aircraft is to be pushed back, connect the pushback tractor and set the tractor’s parking brake, where this is possible without disconnecting ground electrical power.

24. Confirm with the flight crew that the aircraft parking brake is set, then remove main gear chocks.

25. The ASU operator shall ensure that the unit is ready to supply air pressure.

26. The headset operator informs the flight crew that the ground crew are ready for engine start.

27. Start the engine(s) –Departure Communication Dialogue and signals for communications requirements. Ref: chapter 4 4.6.8.2 Page 135 IGOM.

28. When engine start is complete, the headset operator signals ASU and ground power operator(s) to disconnect the ASU and remove ground power.

29. Disconnect the ASU hose(s).

30. Close and latch external air start and electrical panels.
CHAPTER 5: AIRCRAFT MANOEUVRING

Scope
1. This subject establishes the procedures for the safe handling, towing, parking and docking of aircraft and must be read in conjunction with the applicable Maintenance Manual chapters.
2. Note: While towing aircraft, extreme care must be taken by the responsible personnel, to prevent damage to aircraft, tractors and towing equipment.

Sections Affected
3. Aircraft Maintenance.
4. Departures.
5. Foreign Operators Aircraft Maintenance (FOAM).
6. Heavy Maintenance.
7. Line Stations.

Responsibility
8. The following personnel are responsible for towing and push-back operations:
9. The tug driver is responsible for the use of the correct serviceable towbar and nose gear steering isolation pin for the type of aircraft that is being towed and for the safety of the aircraft during towing.
10. The technician in charge of the aircraft must indicate to the tug driver where the aircraft must be parked.
11. Whenever an aircraft has to deviate from the demarcated towing lines in the hangar, the Supervisory Officer or technician in charge of the aircraft, must position personnel on the wingtips, to guide the tug driver.
12. Note: The personnel referred to above will be held responsible for damage done to the aircraft if they failed to signal the tug driver to stop when approaching an obstacle.
13. The Manager of the affected sections must ensure that all applicable personnel under their control received proper training in the manning of brakes, headsets, observation of wingtips or any other aspects of observation while towing.
14. No untrained personnel are allowed to participate in aircraft towing operations.

Towing of Aircraft
15. Before attempting to tow an aircraft the responsible Technician must ensure that the following is done:
16. Note: Refer to the applicable Maintenance Manual Chapter 9, Towing and Taxiing of Aircraft.
   a. The undercarriage locking devices are fitted.
   b. The correct type of tow bar is correctly fitted between aircraft and tractor. Where applicable the steering isolation pin must be correctly fitted and torque links disconnected when required.
   c. A Technician is in the cockpit to operate brakes, navigation lights. Etc.
   d. The cabin, flight deck and cargo doors are closed.
   e. The aircraft is clear of any obstacles that may be hazardous to the towing operation.
f. That a headset is used as per the maintenance manual applicable to the aircraft type.
g. The wheel chocks are removed and placed on the tug.
h. Clearance is obtained from the control tower before commencing towing operations in areas outside of technical.
i. Notes: The recognised system for “brakes on” and “brakes off” are as follows:
   - Brakes on - one long sustained hoot from tractor horn.
   - Brakes off - two short hoots from tractor horn.
j. CAUTION: ENSURE THAT ALL ENGINE COWLS AND LATCHES ARE CLOSED BEFORE TOWING OF AIRCRAFT.
k. Towing Aircraft without Hydraulic Power:
l. When towing an aircraft without hydraulic power, the Technician in charge of the aircraft, must ensure that all precautions applicable to the type of aircraft have been complied with, and will take full responsibility for the ensuing manoeuvre.

Towing and Reversing in Confined Spaces
17. When an aircraft has to be towed or reversed in a confined space the following must be done.
18. Properly trained employees must be positioned at the wingtips and tail of the aircraft.
19. At night or in times of poor visibility the applicable employees must be equipped with flashlights. The aircraft navigation lights and, if possible, the overawing lights must switched on.
20. When approaching an obstacle, the following must be done:
   a. Stop the aircraft at least 10 meters from the obstacle.
   b. The tug driver and observers must ensure that the aircraft will clear the obstacle.
   c. The tug driver must proceed at walking pace until the obstacle is cleared.
   CAUTION: THE OBSERVER MUST ENSURE VISUAL CONTACT WITH THE TUG DRIVER AT ALL TIMES.

Towing Aircraft Into and Out-Of Hangars
21. The person in charge of the aircraft to be towed, must arrange observers for the wingtips and tail of the aircraft.

Docking of Aircraft
22. The Supervisory Officer in charge must ensure that the docking operation is accomplished in such a way as to prevent damage to aircraft / equipment and injury to staff.

Parking of Aircraft
23. The following precautions must be taken when parking an aircraft.
24. The aircraft must be parked with its nose into wind, whenever possible, for ground run purposes.
25. The aircraft must be parked in such a way that should an oleo (shock absorber) go flat, or collapse, or a strong wind slightly move the aircraft, collision with nearby obstacles will be avoided.
26. The aircraft must be parked clear of possible jet blast.
27. The aircraft must not be parked on soft, boggy or sloping ground.
28. The aircraft’s wheels must be properly chocked before disconnecting the towbar, refer to the applicable maintenance manual for chock positions.

29. The towbar must be disconnected at the tow tractor first before disconnecting at the aircraft nose gear.

**Protection of Aircraft**

30. The following guidelines should be followed to protect the aircraft while on the ground:

   a. Particular attention should be paid to unrecognised/unauthorised persons at all facilities, but particularly on ramps, in terminals, hangars and in the vicinity of parked aircraft.

   b. Persons observed under conditions which may indicate that they are not authorised in the area should be challenged and if their presence cannot be satisfactorily explained, should be reported to the appropriate local authority.

   c. Aircraft should not be left unattended in areas accessible to the public.

   d. Aircraft out of service and left unattended must be closed and all stairs or jetways removed. Where heightened threats or risks are known, the aircraft may be sealed or guarded to prevent or detect unauthorised access.

   e. Aircraft interiors should be searched prior to the boarding of passengers and immediately after the deplaning of passengers at termination point. Suspicious articles should be brought to the attention of the appropriate local authority.

   f. Available outside lighting should be utilised during hours of darkness to dissuade and detect unauthorised intrusions to properties, parked aircraft and vehicles.

   g. Under extreme conditions consideration should be given to guarding the aircraft.

   h. Refer to Cabin Crew Members Manual and Aviation Security Program for more information.

**Security of Parking Area**

31. It is recommended that the following points be followed to allow for maximum security of aircraft on the tarmac:

   a. Parking should be sought on a tarmac parking apron located within the air operating area. The apron should be separated from public access areas by structures, walls or fences of sufficient height and construction to protect the aircraft and the air operating area from intrusion by trespassers;

   b. The apron should be isolated enough from the public areas to preclude damage to aircraft that might result from thrown objects.

   c. There should be sufficient distance from roadways or apron areas on which there is appreciable vehicular traffic which might endanger the aircraft.

   d. There should be a clear line of vision between the parked aircraft and the ground control tower.

   e. There should be sufficient lighting to view the aircraft from the tower and a roving patrol covering the parking areas to ensure protection for unattended aircraft, both night and day.

   f. SOUTH AFRICAN AIRWAYS employees, its authorised agent or representative must be in possession of and display the appropriate security permit, issued by a competent authority, whilst in a restricted area.
g. SOUTH AFRICAN AIRWAYS management or representatives must ensure that, upon termination or suspension of employment, an employee's security permit is returned to the issuing authority.

h. Only authorised employees of SOUTH AFRICAN AIRWAYS, its agent or representative or other officials (authorised to do so) may be allowed to board an aircraft owned or operated by SOUTH AFRICAN AIRWAYS whilst it is in preparation for flight, during transit periods or after the arrival at a terminal building.

i. Personnel working under the control of SOUTH AFRICAN AIRWAYS at the aircraft must report any persons without the appropriate security permit to supervisors or Police or Airport Authority.

j. At airports where employees are not screened upon entering the ramp area, SAA Aviation Security may require the screening of all cleaning, catering and other service providers before boarding the aircraft. An aircraft brought into service (commencement of first operation/routing) shall be subjected to a pre-flight check. The operating crew, or duly appointed aviation security service providers (where applicable), must physically inspect the aircraft interior areas for suspicious items before:

- Baggage, cargo and passengers are loaded aboard an originating flight, and immediately following the disembarkation of passengers from a transit flight, or flight termination where an aircraft exits service.
- Items found onboard the aircraft for both terminating and transit flights must be removed and handed over to a SAA representative or agent. These items should be recorded on WorldTracer at the Baggage Services office.

k. Only flightdeck crew and designated engineering staff shall inspect the flightdeck compartment of the aircraft.

l. Inspections shall be sufficient to ensure no unauthorised person or harmful/prohibited articles are present onboard the aircraft and will include catering and food preparation areas, toilets, and crew rest stations.

m. Engineering staff must inspect wheel wells, avionics and cargo compartments for signs of tampering and/or suspicious items, before an aircraft may be brought into service.

### Aircraft Unattended and Not In Service

32. Must be parked in a secure and well-lit area;

33. Steps and air bridges must be removed and all access doors must be secured, or sufficient access control to an unattended aircraft shall be applied, and

34. Aircraft brought into service from maintenance and/or parking area must be inspected to ensure that no unauthorised persons or harmful / prohibited articles are on board.

35. An aircraft, if left unattended in such a manner that unauthorised access may have been gained to it, must be subjected to a security search by fully trained and qualified SOUTH AFRICAN AIRWAYS employees or agents to ensure that no unauthorised persons, weapons or harmful articles have been placed on board.

36. Baggage, cargo, company stores, catering, fuel or any other supplies/equipment may not be placed on board an unattended aircraft. In events where such items have been loaded prior to the relevant agreed/operational periods, such items shall be subjected to physical inspection by the crew and engineering staff.

37. An aircraft on short turnaround or transit stop need not be locked, provided it is attended or under constant surveillance by the airline crew or competent security staff.
38. Whenever SOUTH AFRICAN AIRWAYS operations are assessed as being “at risk” by either SOUTH AFRICAN AIRWAYS Aviation Security or the relevant Civil Aviation Authority, additional security measures will be implemented.

Security of Aircraft Cleaning Services

39. SOUTH AFRICAN AIRWAYS duly appointed cleaning staff must ensure that the aircraft are cleared of all redundant or unused refuse and materials. Before departure, it is the responsibility of the Cabin Staff to ensure that the cleaners remove all items.

40. Aircraft cleaning will normally be undertaken before the aircraft is checked or searched.

41. SOUTH AFRICAN AIRWAYS ground staff or duly appointed security staff (where applicable) must ensure the cleaners do not re-enter any area of the aircraft that has been subjected to the pre-departure check. If a cleaner has to enter a checked area of the cabin, that area must be checked again. All cleaners engaged on the aircraft must display a valid ID at all times.

42. Security checks or searches shall be sufficient to ensure that no unauthorised person is present or prohibited item has been left onboard the aircraft.

43. Checks shall include:
   a. Thorough visual inspections of the interior of the aircraft and its fittings, without the use of a specific checklist.
   b. The crew is required to record this check on the flight report records as kept by the SCCM.
   c. Searches shall include:
      • Thorough visual and physical inspection of the interior of the aircraft and its fittings, utilising the aircraft security search checklist located in the Onboard Security Procedures Manual, or an alternate list as provided by SAA Aviation Security.
      • Inspection of accessible hatches and service panels, undercarriage wells and areas under control surfaces, and
      • Inspection of not less than 10% of life jacket pouches or a 100% if there is suspicion unauthorised access had been gained to the aircraft.

Aircraft Pushback Procedure

44. The following procedure must be complied with for aircraft pushback:
   a. The Technician must ensure that there are two wheel chocks on the tractor before pushback.
   b. The Technician supervising the pushback must ensure that the area of intended pushback is clear of aircraft and equipment before commencing pushback.
   c. The Technician supervising the pushback must ensure that the park brake is released before commencing the push back.
      • WARNING: IF THE PUSH BACK IS INTERRUPTED AT ANY STAGE, CONFIRMATION OF THE PARK BRAKE RELEASE MUST BE OBTAINED BEFORE PUSHBACK RESUMES.
   d. The Technician supervising the pushback must walk alongside the nose wheels on the inside of the turning circle.
      • WARNING: THE MINIMUM DISTANCE BETWEEN ANY GROUND TECHNICIAN WALKING WITH AN AIRCRAFT DURING ARRIVAL OR DEPARTURE MUST BE THREE METRES FROM ANY LANDING GEAR WHEEL AND NEVER FORWARD OF THE PATH OF TRAVEL.
   e. Chock both nose wheels before removing towbar.
• **WARNING:** ENSURE THAT THE AIRCRAFT PARK BRAKE IS SET BEFORE CHOCKING THE NOSE WHEELS.

45. The towbar must be disconnected from the tow tractor before disconnecting at the aircraft nose gear.

a. After the towbar has been disconnected the aircraft, the Technician doing the departure must withdraw the steering lock-out pin, remove the chock / s and show the steering lock-out pin to the captain of the aircraft.

b. The Technician must instruct the tug driver to do the following:
   - Clear the aircraft, by waiting at a point in front of the appropriate wing tip where he is visible to the crew.
   - Wait until all the engines have been started, and drive off when the Technician supervising the pushback signals him to do so.
   - **WARNING:** DURING PUSHBACK THE TUG DRIVER MUST AT ALL TIMES HAVE VISUAL CONTACT WITH THE TECHNICIAN ON THE HEADSET. IF VISUAL CONTACT IS LOST, THE TRACTOR MUST BE STOPPED IMMEDIATELY AND NOT MOVED AGAIN, UNTIL VISUAL CONTACT IS REGAINED.

**Communication Loss during Push Back**

46. In the event of communication loss during push back, the following applies:

a. If the Technician becomes aware of the communication loss then the Technician must do the following:
   - Indicate to the tug driver to stop the tug.
   - Indicate to the flight crew by waving the headset and send for a replacement headset.

b. If the cockpit crew become aware of the communication loss, they will flick the main landing lights on and off, the ground crew must then do the following:
   - Stop the tug immediately.
   - Re-establish communication.

   c. Note: During electrical storms whenever lightning activity is present, immediately establish communication on the vehicle radio set.
CHAPTER 6: DE-ICING PROCEDURES

Introduction

1. This procedure is to ensure that the aircraft de-icing is carried out during the icing conditions before operation on an aircraft can take place, which will maintain the safe operation of an aircraft during take-off and during the flight.

2. There are minimum requirements for ground based aircraft de-icing/anti-icing methods and procedures to ensure the safe operation of aircraft during icing conditions on the ground. It is to ensure the aircraft "critical areas" which include the wings, horizontal stabilizers, and vertical stabilizer which must be free of contaminants in order to take off safely. A build-up of ice or snow on these surfaces not only adds extra weight, but most importantly, it also disrupts the flow of air, which reduces lift. Furthermore, freezing deposits may cause moving parts, such as elevators, ailerons, flap actuating mechanism etc., to jam and create a potentially hazardous condition.

Scope

3. This section of the document establishes the minimum requirements for ground-based aircraft de-icing/anti-icing methods with fluids and procedures to facilitate the safe operation of aircraft during icing conditions.

4. Any deposit of frost, ice or snow deposits, which can affect its flying qualities because of reduced aerodynamic lift, increased drag, modified stability and control characteristics of an aircraft are effectively removed by the application of the procedures specified in this document. It is imperative, therefore, that any deposits adhering to a parked aeroplane are completely removed (de-icing) and, if conditions exist for the formation of ice before take-off, the aeroplane horizontal surfaces and controls are coated with an ice-preventing agent (anti-icing) which will retain its effectiveness for the period between application and take-off (holdover time).

5. South African Airways' de-icing policy is that de-icing shall only be carried out by accredited, licensed de-icing companies. For personnel performing the actual de-icing/anti-icing treatment on aircraft, practical training with the de-icing/anti-icing equipment shall be included as prescribed by ICAO Doc 9640-AN/940 'Manual of Aeroplane Ground De-icing/Anti-icing Operations'. The oversight of this de-icing as well as training verification will be done by Ground Handling.

6. The de-icing procedures are applicable to all stations in the South African Airways network where a reasonable expectation of icing is present e.g. London, Munich, Frankfurt, Washington and New York. All stations where icing occurs shall have a contracted and licensed de-icing provider with de-icing equipment that conforms to aircraft manufacturer standards. SAA will inspect and evaluate the standard operation procedures adequacy of de-icing facilities and equipment used by the contracted de-icing service provider in provision of de-icing services as outlined in the flight operations manual (FOM) Chapter 9.

7. SAA ground handling and stations where icing condition is likely to occur, must ensure that they receive a copy of the published seasonal de-icing procedures which outlines the winter program operation as published by the local Airport Authority or Service provider.

8. SAA will have an oversight and conduct inspections on the service provider at least on one of the stations where these conditions occur. Oversight will be done by the trained person. As SAA has the accredited contracted de-icing/anti icing service provider which is audited by the DAQCP (de-icing/anti icing quality control pool) to ensure compliance on the standards as the airline is an active member of pool.
Oversight And Inspection

9. SAA shall have an oversight of the service providers performing De-icing in the stations where icing conditions occurs. The oversight and inspections should be carried out in the following manner:
   a. Standard operating procedures must be requested from the service providers or the local airport winter schedule programs and procedure.
   b. DAQCP audit pool report must be analysed and follow-up must be made regarding the outcome of the audit results.
   c. Airport managers or airline representatives must inform the SAA ground handling department or SAA headquarters of the scheduled internal and regulatory pool audits in order to keep the records and follow ups.
   d. Any changes of seasonal de-icing procedures from the local airport authorities and service providers must be communicated to Ground handling department.
   e. SAA stations, Quality assurance department and GH department must request the results of the audits conducted in form of reports which includes checklists, corrective measures if applicable, laboratory analysis reports for fluids received from the handling agents and alert letters in cases of safety related findings which require immediate action.

Inspections

10. SAA will ensure that other than oversight on the services rendered by the service provider will visit one station to do the physical inspection during the winter operation where icing conditions occur. The oversight will be done by the trained person. The inspection will include but not limited the following checks:
   a. De-icing facilities
   b. Storage tanks of the liquids and maintenance of these facilities.
   c. Equipment used
   d. Types of vehicle used to carry out de-icing
   e. Maintenance of the equipment and calibrations
   f. Type of fluid stored.
   g. Type 1 and 4
   h. Acceptance of fluid procedure.
   i. Certification of conformity
   j. Documentation compliance
   k. Checklists
   l. Quality assurance

De-Icing Procedure

11. Specific procedures must be followed when ground de- and anti-icing is necessary.

12. The contamination check shall include the detection of clear ice and under-wing frost. For the limits on the thickness/area of contamination the respective section of the OM Part 2 has to be consulted.
13. Under no circumstances shall an aeroplane that has been anti-iced receive a further coating of anticing fluid directly on top of the contaminated film. If an additional treatment is required before flight, a complete de-icing/anti-icing shall be performed. Ensure that any residues from previous treatment are flushed off. Anti-icing only is not permitted in that case.

14. Under certain meteorological conditions de-icing and/or anti-icing procedures may be ineffective in providing sufficient protection for continued operations. Examples of these conditions are freezing rain, ice pellets and hail, heavy snow, high wind velocity, fast dropping Outside Air Temperature (OAT) or any time when freezing precipitation with high water content is present. No Holdover Time Guidelines exist for these conditions.

15. During Cold Weather Operations, two procedures are available, which can also be used in combination.

   a. Step one: De-icing, where any deposit of frost, slush or ice is completely removed from the wing, stabiliser and control surfaces.

   b. Step two: Anti-icing, usually regarded as step two, but also possible as stand-alone treatment in case no prior contamination exists.

Definitions

| Active Frost          | A condition when frost is forming. Active frost occurs when aeroplane.
|                       | – At or below 0 °C (32 °F); and
|                       | – At or below dew point

| Anti-icing Code       | Anti-icing fluid is a precautionary procedure that provides protection against the formation of frost or ice and accumulations of snow or slush on treated surfaces of the aeroplane for a limited period of time (holdover time).

   This code is given to the flight crew/Pilot-in-Command that de-icing/anti-icing has been carried out and the details of the anti-icing treatment that was applied.

   1. Mixture of water and Type I fluid.

   2. Premix Type I fluid.

   3. Type II fluid, Type III fluid, or Type IV fluid.

   4. Mixture of water and Type II fluid, Type III fluid, or Type IV fluid.

   **NOTE:** Fluids mentioned in (1) and (2) must be heated to ensure a temperature of 60 °C (140 °F) minimum at the nozzle.

   SAE Type II and IV fluids for anti-icing are normally applied unheated on clean aircraft surfaces but may be applied heated.
### Check

**Cold Soaking**

SAE Type III fluids for anti-icing may be applied heated or unheated on clean aircraft surfaces.

An examination of an aircraft item against the relevant standard by a trained and qualified person.

Ice can form even when the outside air temperature (OAT) is well above 0 °C (32 °F). An aircraft equipped with wing fuel tanks may have fuel that is at a sufficiently low temperature such that it lowers the wing skin temperature to below the freezing point of water.

If an aircraft has been at a high altitude, where cold temperature prevails, for a period of time, the aircrafts' major structural components such as the wing, tail, and fuselage will assume the lower temperature, which will often be below the freezing point. This phenomenon is known as cold soaking. While on the ground, the cold soaked aircraft will cause ice to form when liquid water, either as condensation from the atmosphere or as rain, comes in contact with cold soaked surfaces.

This is the formation of ice, normally in the area of the wing fuel tanks, caused by the cold soak effect. Clear ice is very difficult to be detected visually and may break loose during or after take-off, and poses a hazard particularly to aircraft with rear fuselage mounted engines.

This is the formation of frost, normally in the area of the wing fuel tanks, caused by the cold soak effect.

Water, visible moisture, or humidity forming ice or frost on the wing surface, when the temperature of the aircraft wing surface is at or below 0 °C (32 °F).

The wings of an aeroplane are said to be 'cold-soaked' when they contain very cold fuel as a result of having just landed after a flight at high altitude or from having been refuelled with very cold fuel.

Whenever precipitation falls on a cold-soaked aeroplane when on the ground, clear icing may occur. Even in ambient temperatures between -2 °C and +15 °C, ice or frost can form in the presence of visible moisture or high humidity if the aeroplane structure remains at 0 °C or below. Clear ice is very difficult to be detected visually and may break loose during or after take-off. The following factors contribute to cold-soaking:
<table>
<thead>
<tr>
<th><strong>Contamination</strong></th>
<th>Contamination is understood as all forms of frozen or semi-frozen moisture, such as frost, snow, slush or ice.</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Contamination Check</strong></td>
<td>Check of aeroplane surfaces and components for contamination, to establish the need for de-icing.</td>
</tr>
<tr>
<td><strong>De-Icing</strong></td>
<td>Procedure by which frost, ice, snow or slush is removed from an aeroplane in order to provide clean surfaces and components.</td>
</tr>
<tr>
<td><strong>De-icing/Anti-icing</strong></td>
<td>Combination of or referring to both of the procedures for 'de-icing' and 'anti-icing'. It may be performed in one or two steps.</td>
</tr>
<tr>
<td><strong>De-icing Service Provider</strong></td>
<td>The company responsible for the aircraft de-icing/anti-icing operations on an airfield.</td>
</tr>
<tr>
<td><strong>De-icing Fluid</strong></td>
<td>1. Heated water. 2. Heated Mixture of water and Type I fluid. 3. Heated Premix Type I fluid. 4. Heated Type II, Type III, or Type IV fluid. 5. Heated Mixture of water and Type II, Type III, or Type IV fluid.</td>
</tr>
<tr>
<td><strong>NOTE:</strong></td>
<td>The effect of unheated de-icing fluid is minimal.</td>
</tr>
<tr>
<td><strong>Freezing Conditions</strong></td>
<td>Conditions in which the outside air temperature is below +3 °C (37,4 °F) and visible moisture in any form (such as fog with visibility below 1,5 km, rain, snow, sleet or ice crystals) or standing water, slush, ice or snow is present on the runway.</td>
</tr>
<tr>
<td><strong>Freezing Drizzle</strong></td>
<td>Fairly uniform precipitation composed exclusively of fine drops (diameter less than 0,5 mm [0,02 in]) very close together which freezes upon impact with the ground or other exposed objects.</td>
</tr>
<tr>
<td><strong>Freezing Fog</strong></td>
<td>A suspension of numerous very small water droplets which freezes upon impact with ground or other exposed objects, generally reducing the horizontal visibility at the earth's surface to less than 1 km (5/8 mile).</td>
</tr>
<tr>
<td><strong>Freezing Precipitation</strong></td>
<td>Corresponds to freezing rain or freezing drizzle.</td>
</tr>
</tbody>
</table>
Frost/Hoar Frost  
Frost is the tiny solid deposition of water vapour from saturated air which occurs when the temperature of a surface is below 0 °C (32 °F). Frost generally occurs generally with clear skies at temperatures below freezing the point.

Ground Ice Detection System (GIDS)  
System used during aeroplane ground operations to inform the ground crew and/or the flight crew about the presence of frost, ice, snow or slush on the aeroplane surfaces.

Hail  
Precipitation of small balls or pieces of ice with a diameter ranging from 5 to >50 mm (0,2 to >2,0 in.) falling either separately or agglomerated.

Holdover Time  
Estimated time period for which an anti-icing fluid will prevent the formation of frost or ice and the accumulation of snow on the protected surfaces of an aeroplane, under weather conditions, as specified in Chapter 9.2.4.8.

Ice Pellets  
Precipitation of transparent (grains of ice), or translucent (small hail) pellets of ice, which are spherical or irregular and which have a diameter of 5 mm (0,2 in.) or less. The pellets of ice usually bounce when hitting hard-ground.

Light Freezing Rain  
Precipitation of liquid water particles which freezes upon impact with the ground or exposed objects, either in the form of drops of more than 0.5 mm (0,02 in) or smaller drops which, in contrast to drizzle, are widely separated. Measured intensity of liquid water particles are up to 2,5 mm (0,10 in)/hour or 25 grams/dm2/hour with a maximum of 0,25 mm (0,01 in) in 6 minutes.

Local Frost  
The limited formation of frost in localized wing areas cooled by cold fuel or large masses of cold metal in the wing structure; this type of frost does not cover the entire wing.

Lowest Operational Use Temperature (LOUT)  
The lowest operational use temperature (LOUT) is the higher (warmer) of

1. The lowest temperature at which the fluid meets the aerodynamic acceptance test for a given type (high speed or low speed) of aeroplanes, or

2. The freezing point of the fluid plus the buffer of 10 °C for Type I fluid and 7 °C for Type II, III or IV fluids.

For applicable values refer to the fluid manufacturer’s documentation.
<table>
<thead>
<tr>
<th>Condition</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Moderate and Heavy Freezing Rain</td>
<td>Precipitation of liquid water particles which freezes upon impact with the ground or other exposed objects, either in the form of drops of more than 0.5 mm (0.02 inch) or smaller drops which, in contrast to drizzle, are widely separated. Measured intensity of liquid water particles is more than 2, 5 mm/hour (0, 10 inch/hour) or 25 grams/dm²/hour.</td>
</tr>
<tr>
<td>Negative Buffer</td>
<td>A negative buffer exists when the freezing point of a de-icing fluid is above the OAT.</td>
</tr>
<tr>
<td>Post Treatment Check</td>
<td>An external check of the aeroplane after de-icing and/or anti-icing treatment accomplished from suitably elevated observation points (e.g. from the de-icing equipment itself or other elevated equipment) to ensure that the aeroplane is free from any frost, ice, snow, or slush.</td>
</tr>
<tr>
<td>Pre-Take-off Check</td>
<td>A check to assess whether the applied holdover time is still appropriate. This check is normally performed from inside the flight deck.</td>
</tr>
<tr>
<td>Pre-Take-off Contamination Check</td>
<td>A check of the critical surfaces for contamination. This check will be performed when the condition of the critical surfaces of the aeroplane cannot be effectively assessed by a pre-take-off check or when the applied holdover time has been exceeded or if there is any doubt regarding the effectivity of anti-icing. This check is normally accomplished from outside the aeroplane just before commencing take-off roll.</td>
</tr>
<tr>
<td>Rain or High Humidity (On Cold Soaked Wing)</td>
<td>Water, visible moisture or humidity forming ice on the wing surface, when the temperature of the aeroplane's wing surface is at or below 0 °C (32 °F). Precipitation in the form of mixture of rain and snow.</td>
</tr>
<tr>
<td>Rain and Snow</td>
<td>A build-up of dried out thickened fluids typically found in aerodynamically quiet areas of the aircraft.</td>
</tr>
<tr>
<td>Residue/Gel</td>
<td>Snow or ice that has been reduced to a soft watery mixture.</td>
</tr>
<tr>
<td>Slush</td>
<td>Precipitation of ice crystals, most of which are branched, star shaped or mixed with unbranched crystals. At temperatures higher than -5 °C (23 °F), the crystals are generally agglomerated into snowflakes.</td>
</tr>
<tr>
<td>Snow</td>
<td>Precipitation of very small white and opaque particles of ice that are fairly flat or elongated with a diameter of less than 1 mm (0.04 in.). When snow grains hit hard ground, they do not</td>
</tr>
</tbody>
</table>
### Snow Pellets

Precipitation of white, opaque particles of ice. The particles are round or sometimes conical; their diameter range from about 2-5 mm (0.08-0.2 in.). Snow pellets are brittle, easily crushed, they do bounce and may break on hard ground.

**NOTE:** For holdover time purposes treat snow grains as snow.

### Tactile Check

A tactile check requires a person to touch specific aircraft surfaces. Tactile checks, under certain circumstances, may be the only way of confirming the critical surfaces of an aircraft are not contaminated. For some aircraft, tactile checks are mandatory as part of the de-icing/anti-icing check process to ensure the critical surfaces are free of frozen contaminants.

### Types of Icing:

#### Clear Ice

A coating of ice, generally clear and smooth, but with some air pockets. It is formed on exposed objects at temperatures at, below or slightly above the freezing temperature by freezing of super cooled drizzle, droplets or raindrops. Since only little air is trapped the result is a clear or glazed appearance.

Crews must be aware of the difficulty of detecting clear ice and, in some situations, its presence may only be detected by touch. It can also form on aeroplane surfaces below a layer of snow or slush.

#### Dry Snow

Fine, powder-like snow which does not stick and may be blown or brushed away.

#### Frost

Ice-crystal deposits formed on cold, clear nights by sublimation on surfaces which have a temperature lower than the surrounding air. Such deposits on leading edges and upper surfaces, even when they are very thin (hoar frost) can seriously affect an aeroplane's performance. Frost 3 mm or less on the lower surface of a wing has no effect and may be discounted. The OM Part 2 specifies limits of frost deposits for take-off.

#### Rime Ice

Small frozen water droplets, spherical opaque/milky granular appearance looking similar to frost in a freezer. Typically, rime ice has low adhesion to the surface and its surrounding rime ice particles.
Wet Snow

| Has a much higher liquid content and tends to stick on airframe/engine components and may freeze. |

16. **Note:** Significant deposits can form on upper wing surfaces in the vicinity of fuel tanks after refuelling with low temperature fuel or when sufficient super cooled fuel remains in tanks after a long flight at altitude.

17. This has occurred with ambient temperatures as high as 14 °C. Conversely, refuelling with relatively warm fuel can cause dry falling snow to melt with the danger of refreezing on the upper surface of the wing.

**De-Icing Aircraft Procedure**

18. South African Airways adheres to the Clean Aircraft Concept where an inspection or inspections be made before take-off or attempted take-off. It is imperative that take-off not be attempted in any aircraft unless the pilot-in-command (PIC) has determined that all critical components of the aircraft are free of frost, ice or snow contamination. This requirement may be met if the PIC obtains verification from properly trained and qualified personnel that the aircraft is ready for flight.

19. Ice, snow, slush or frost may be removed from aircraft surfaces by heated fluids, mechanical methods, alternate technologies or combinations thereof. The following procedures shall be used for their removal by fluids.

20. Pre-step process to be done prior to de-icing/anti-icing If agreed by the aircraft operator, a pre-step process prior to the de-icing process, in order to remove large amounts of frozen contamination (e.g. snow, slush or ice), may be considered to reduce the quantity of glycol-based de-icing fluid that is needed.

**Requirements**

21. Ice, snow, slush and frost shall be removed from aircraft surfaces prior to dispatch or prior to ant-icing.

22. For maximum effect, fluids shall be applied close to the surface of the skin to minimise heat loss.

23. **NOTE:** The heat in the fluid effectively melts any frost, as well as light deposits of snow, slush and ice. Heavier accumulations require the heat to break the bond between the frozen deposits and the structure; the hydraulic force of the fluid spray is then used to flush off the residue. The de-icing fluid will prevent re-freezing for a period of time depending on aircraft skin and ambient temperature, the fluid used, the mixture strength and the weather.

**General De-Icing Fluid Application Strategy**

24. For effective removal of snow and ice, the following techniques shall be adopted. Certain aircraft can require unique procedures to accommodate design differences, see manufacturer's instructions.

25. Ice, snow or frost dilutes the fluid. Apply enough hot de-icing fluid ensure that re-freezing does not occur and all contaminated fluid is driven off.
26. Wings, horizontal stabiliser, and elevators spray from the leading edge to the trailing edge. Do not spray from the rear. Start at the highest point of the surfaces and work to the lowest parts, i.e. on most aircraft start at the wing tip and work towards the wing root.

27. NOTE: Refer to the Aircraft Manufacturer’s Maintenance Manual for any deviation from this procedure.

28. Mobile equipment:

29. Truck-mounted de-icing/anti-icing equipment must usually be compatible for the application of Type I, Type II, Type III and Type IV fluids.

30. De-icing and anti-icing fluids can show degradation (for example viscosity decreased) because of too much mechanical shearing. Therefore, you must only use compatible pumps and spraying nozzles recommended by fluid manufacturers.

31. To be compatible with SAE guidelines, centrifugal pumps can be used with Type I fluids.

Post De-icing/Anti-icing Check

32. When de-icing has been completed a careful inspection must be carried out by a trained and qualified person and in accordance with the manufacturer's recommendation. This is to confirm that flying and control surfaces have been cleared and that hinge slots, static vents, intakes and drain holes are free of any obstruction. This check shall include wings, horizontal stabilizers (both lower and upper surfaces), vertical stabilizer, and fuselage, including pitot heads, static ports temperature and angle of attack sensors. This check shall also include any other parts of the aeroplane on which a de-icing/anti-icing treatment was performed according to the requirements identified during the contamination check.

33. The post de-icing/anti-icing check shall be performed from points offering sufficient visibility of all treated surfaces (e.g., from a de-icing/anti-icing vehicle, ladder, or other suitable means of access).

34. Any contamination found shall be removed by further de-icing/anti-icing treatment and the check shall be repeated.

35. Before take-off the Commander must ensure that he has received confirmation that this Post De-icing/Anti-icing Check has been accomplished.

36. NOTE: For specific aeroplane types, additional requirements exist e.g. special clear ice checks, such as tactile checks on wings. These special checks are not covered by the Post De-icing/Anti-icing Check. Aeroplane operators shall make arrangements that the ground personnel is trained and familiar with those specific requirements.

37. When the de-icing provider performs the de-icing/anti-icing treatment as well as the Post-de-icing/-anti-icing Check, it may either be performed as a separate check or incorporated into the de-icing operation as defined below.

38. If possible, control surfaces and linkages shall be moved through their full ranges.

39. The de-icing provider shall specify the actual method adopted in his winter procedures:

   a. As the de-icing/anti-icing treatment progresses the De-icing sprayer will closely monitor the surface receiving treatment, in order to ensure that all forms of frost, ice, slush or snow (with the exception of cold-soaked fuel frost on the lower surface of wings and light frost on the fuselage, which may be allowed) are removed and that, on completion of the treatment, these surfaces are fully covered with an adequate layer of anti-icing fluid;
b. Once the treatment has been completed, the De-icing Operator will carry out a close visual check of the surface where treatment commenced, in order to ensure it has remained free of contamination (this check is not required for ‘frost only’ conditions);

c. Where the request for de-icing/anti-icing did not specify the fuselage, a visual check of the fuselage shall be performed at this time, in order to confirm that it has remained free of contamination (with the possible exception of light frost which may be allowed);

d. Any evidence of contamination that is outside the defined limits shall be reported to the flight crew immediately and be removed by further de-icing/anti-icing treatment. Then the post de-icing/anti-icing check shall be repeated.

40. It is the responsibility of the De-icing Operator to ensure that the surfaces mentioned above are free of frost, ice, slush and snow, prior to the start of the anti-icing treatment.

41. Ensure that on completion of the treatment these surfaces are fully covered with an adequate layer of anti-icing fluid.

42. **NOTE:** If any significant damage on the airplane is identified during the walk-around/contamination check and/or damage identified or caused during the de-/anti-icing process, it must immediately be reported to the flight crew for further investigation and decision for aircraft airworthiness.

**Pre-take-off Check**

43. The flight crew shall continually monitor the weather conditions after the performed de-icing/anti-icing treatment. Prior to take-off a flight crew member shall assess whether the applied holdover time is still appropriate and/or if untreated surfaces may have become contaminated.

44. This Check is normally performed from inside the flight deck.

**Pre-Take-Off Contamination Check**

45. A contamination check of the aircraft must include all parts of the aircraft. You must do this visual inspection from a position which gives a clear view of all surfaces. Because you cannot always see collected clear ice easily, we recommend that you do an inspection of the critical surfaces (wings, vertical and horizontal stabilizers and rudder) with your hands. (Tactile check) also known as clear ice check.

46. During checks on the ground, electrical or mechanical ice-detectors must not replace physical checks.

47. If the aircraft arrives at the gate with the flaps/slats in a position other than fully retracted, you must do an inspection of these flaps/slats, and de-ice them before retraction if necessary.

48. A check of the critical surfaces for contamination.

49. This check shall be performed when the condition of the critical surfaces of the aircraft cannot be effectively assessed by a pre-take-off check or when the applied holdover time has been exceeded.

50. This check is normally performed from outside the aircraft.

51. The alternate means of compliance to a pre-take-off contamination check is to perform a complete de-icing/anti-icing re-treatment of the aircraft.

**Responsibilities and Aircraft Acceptance**

52. The Commander is responsible for effective de/anti-icing to conform to OM Part 2 and legal requirements.
53. His request for such treatment and the fluid mixtures used will always take precedence over locally recommended procedures.

54. In case of continuing precipitation the Commander shall assess, whether or not the applied holdover time is still appropriate. After receiving the anti-icing code, he is responsible for ensuring that the relevant control surfaces remain free of frost, ice, slush and snow until take-off.

55. Under normal circumstances the ground handling agent is responsible for correct and comprehensive de-icing of the aeroplane and for the visual check upon completion, paying particular attention to the upper surfaces of wings and stabiliser. The visual check may be performed by the flight crew.

56. The following elements comprising the Anti-Icing Code shall be recorded and be communicated to the flight crew by referring to the final step of the fluid de-icing/anti-icing treatment procedure; it shall be provided in the sequence given below:

**NOTE:** This information shall not be communicated in circumstances where anti-icing holdover times do not apply, e.g., local frost prevention in cold-soaked wing areas, symmetrical local area de-icing, or de-icing of specific surfaces only (such as leading edges for removal of impact ice), etc. In these circumstances, upon completion of the treatment, the flight crew shall be provided with the de-icing fluid type applied (e.g., "Type I"); a statement that holdover time does not apply (e.g., "no holdover time applies"); and confirmation that the post-de-icing check has been completed (e.g., "post de-icing check completed").

a. Fluid type (i.e. Type I, II, III or IV);

b. The fluid name (manufacturer and brand/trade name) of the Type II, III, or IV anti-icing fluid, if applicable.

**NOTE:** Communication of this element is not required for Type I fluid.

c. The concentration of fluid (dilution) within the neat fluid/water mixture, expressed as a percentage by volume for Type II, III, or IV (i.e., 100% (“neat”) = 100% fluid, 75% = 75% fluid and 25% water, 50% = 50% fluid and 50% water).

**NOTE:** Communication of this element is not required for Type I fluid.

d. Local time (hours: minutes), either:

i. For a one-step de-icing/anti-icing: at the start of the final treatment; or

ii. For a two-step de-icing/anti-icing: at the start of the second step (anti-icing).

e. The date in the following format: day, month, year (DDMMMYY (e.g., 28JAN15 = January 28, 2015)).

**NOTE:** This element is required for record keeping and is optional for flight crew notification.

f. Statement “Post de-icing/anti-icing check completed”.

**NOTE:** For specific aircraft types, additional requirements exist, e.g., tactile checks for clear ice on wing surfaces. Additional confirmation for these checks may be required.

57. **EXAMPLE:** The last step of a de-icing/anti-icing procedure is the application of a mixture of 75% Type II fluid and 25% water, made by the Manufacturer as Brand X, commencing at 13:35 local time on 20 February 2016, is reported and recorded as follows:

a. – "TYPE II / 75% / MANUFACTURER, BRAND X / 1335 / 20FEB16 / POST DEICING/ ANTI-ICING CHECK COMPLETED".
NOTE: An alternative means of visual communication of the anti-icing code to the flight crew can be used (e.g., written on paper, EMBs, ACARS, EFBs, etc.).

58. Protection period is measured from the time of treatment start. After satisfactory de-/anti-icing it is for the Commander to decide whether the holdover time is adequate for taxiing and take-off.

NOTE: A degraded type II or type IV fluid shall be used with the holdover time guideline for type I fluids (see Chapter 9.2.4.8.3) in the Flight operation manual (FOM).

Communication Procedures

59. NOTE: No flight crew communication is required and no holdover time applies if the aircraft is de-iced using Type I for overnight frost in the absence of further precipitation or active frost.

Communication Prior to Starting De-icing / Anti-icing Treatment

60. Before an aeroplane is de-iced or anti-iced, the Commander shall ensure that the crew members and passengers are informed of the decision to do so.

61. Before starting de-icing/anti-icing, the flight crew shall be requested to confirm the treatment required (i.e., surfaces and components to be de-iced, anti-icing requirements, plus any special de-icing procedures).

62. Before fluid treatment starts, the flight crew shall be requested to configure the aircraft for de-icing/anti-icing (surfaces, controls, and systems as per aircraft type requirements or recommended procedures).

63. The de-icing crew shall wait for confirmation that this has been completed before commencing the treatment.

64. For treatments conducted without the flight crew present, suitably Qualified Staff shall be nominated by the aircraft operator to confirm the treatment required (when applicable) and to confirm the correct configuration of the aircraft.

Communication During De-icing/Anti-Icing

65. During off-gate de-icing/anti-icing a two-way communication between flight crew and de-icing/anticing operator/supervisor must be established prior to the de-icing/anti-icing treatment. This shall be done either by intercom or by VHF radio. In case VHF is used, the register or “tail number” of the aeroplane instead of flight number must be used during all communications. During treatment all necessary information to cockpit must be given by this means (Beginning of treatment, treatment of sections requiring deactivation of aeroplane systems, anti-icing code, etc.). Contact with flight crew may be closed after anti-icing code and readiness for taxi-out has been announced.

66. When off-gate de-icing/anti-icing area is entered by taxiing, a sufficient taxi and stopping guidance must be arranged, or marshaller assistance must be given. In case radio, contact must be established before entering the de-icing/anti-icing area, the signs with clearly marked operation frequency must be visible from the cockpit before entering this area.

67. The de-icing/anti-icing operator together with the airport authorities must publish all necessary information about how to operate on the off-gate site by NOTAM or in the OM Part C.

68. This information has to include at least the location of, and standard taxi routing to the de-icing/anti-icing area, means to coordinate the de-icing/anti-icing operation and means to communicate before and during the de-icing/anti-icing operation and information about taxi and stopping guidance.
Post De-icing / Anti-icing Communication

69. An aircraft shall not be dispatched for departure after a de-icing/anti-icing operation until the flight crew has been notified of the type of de-icing/anti-icing operation performed (i.e., the Anti-icing Code). The Anti-icing Code shall be provided by Qualified Staff upon completion of the treatment, indicating that the checked surfaces are free of frost, snow, slush, or ice; that de-icing/anti-icing is complete, that equipment is cleared from the area; and in addition, providing the necessary information for the flight crew to estimate the appropriate holdover time for the prevailing weather conditions when anti-icing fluid has been used. When a treatment is interrupted for a significant period of time (e.g., truck runs out of fluid) the flight crew shall be informed stating the reason, the action to be taken and the estimated time delay. When continuing the treatment, the previously treated surfaces must be fully de-iced and anti-iced again, when the holdover time of the treatment from before the interruption is not sufficient.

All Clear Signal

70. The flight crew shall receive a confirmation from the ground crew that all de-icing/anti-icing operations are complete and that all personnel and equipment have been removed from the area before reconfiguring or moving the aircraft.

Holdover Time

71. Holdover times are the estimated times that the applied anti-icing fluid will prevent the formation of frost, ice and the accumulation of snow on the treated surfaces of an aircraft.

72. When you do a one-step de-icing/anti-icing procedure (not recommended by Airbus), the holdover time starts when you apply the fluid.

73. When you apply the first step of a two-step de-icing/anti-icing procedure, the holdover time starts when you apply the fluid.

74. The holdover times given are for general information only. Conditions can make the protection times shorter:
   a. Severe weather
   b. Strong winds and jet blasts
   c. The age and condition of the fluid
   d. The method used to apply the fluid.

75. Holdover time guidelines give an indication as to the time frame of protection that could reasonably be expected under conditions of precipitation. However, due to the many variables that can influence holdover time, these times should not be considered as minima or maxima as the actual time of protection may be extended or reduced, depending upon the particular conditions existing at the time. Holdover time guidelines are established and published by the FAA. The responsibility for the application of this data remains with the user.

76. **CAUTION:** Heavy precipitation rates or high moisture content, high wind velocity, or jet blast may reduce holdover time below the lowest time stated in the range. Holdover time may also be reduced when aircraft skin temperature is lower than OAT. Therefore, the indicated times should be used only in conjunction with a pre-take-off check.

77. **CAUTION:** Surface coatings are currently available that may be identified as ice phobic or hydrophobic, enhance the appearance of aircraft external surfaces and/or lead to fuel savings. Since these coatings may affect the fluid wetting capability and the resulting fluid thickness of de-icing/anti-icing fluids they have the potential to affect holdover time and aerodynamics.
Data Collection

78. To comply with regulations and enable useful evaluation and follow-up of operator performance, establish a system for recording and controlling operations. The data is usually computerised and the system records automatically some parameters (e.g. mixtures, time of de-icing and time of anti-icing etc.) but this can also be recorded manually. The details fed into the system (e.g. flight number, aircraft type, areas treated, duration of operation, volume and type of fluid used, temperature etc.) will depend on the particular setting and vehicle system. The data should be at hand to be presented when requested. The data is also an invoicing requirement unless otherwise settled between operators/airlines. There are different ways of providing and recording this data, such as instant invoice capability or remotely via the coordinator or as a handmade receipt. Some airports also need verification of where and how much de-icing fluid has been used. This data should be recorded as seasonal information and not needed on a daily basis. Some companies also require Internet based record keeping for all de-icing events in order to fulfil certain aircraft specific data analysis and reporting as well as the generally required event information.

79. The minimum information required is listed below:

a. The fluid type (e.g. Type I, II, III, IV)
b. The concentration of fluid within the fluid/water mixture, expressed as a percentage by volume. Note that this is no requirement for Type I fluid
c. The local time (hours/minutes) at the beginning of the final de-icing/anti-icing step
d. The date (written: day, month, and year).
e. Gate/location
f. Truck/boom
g. Station
h. Operator flight number or aircraft registration
i. Identification of applicator

Fluid Handling

80. De-icing/anti-icing fluid is a chemical product with environmental impact. During fluid handling, avoid any unnecessary spillage and comply with local environmental and health laws and the manufacturer’s safety data sheet.

81. Different products shall not be mixed without additional qualification testing.

Storage

82. Tanks dedicated to the storage of de-icing/anti-icing fluids shall be used.

83. Storage tanks shall be of a material of construction compatible with the de-icing/anti-icing fluid, as specified by the fluid manufacturer (corrosion resistant steel, plastic, etc). Care should be taken to avoid using dissimilar metals in contact with each other, as galvanic couples may form and degrade thickened fluids.

84. Tanks shall be conspicuously labelled to avoid contamination.

85. Tanks shall be inspected annually for corrosion and/or contamination. If corrosion or contamination is evident, tanks shall be maintained to standard or replaced. To prevent
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corrosion at the liquid/vapour interface and in the vapour space, a high liquid level in the tanks is recommended.

**Acceptance Of Fluid**

86. The fluid must be tested before the acceptance and must have the following information:

a. Fluid type
b. Batch number
c. Acceptance date
d. Expiry date

87. The information must be kept for record purposes.

88. **NOTE:** If the quality of the fluids is checked in accordance with the lowing procedure, the inspection interval may be longer than one year:

**Laboratory Checks For Fluids**

89. The laboratory checks shall be performed for the fluids at the start and in the middle of the de-icing season and upon request by the airline. Fluid samples shall be taken from all de-icing/anti-icing vehicle spray nozzles of all vehicles and from all storage tanks in use.

90. Perform the laboratory check for fluids as follows:

a. **Type I fluid:**
   i. Visual Contamination Check:
      - Put fluid from the sample into a clean glass bottle or equivalent.
      - Check for any kind of contamination (e.g. rust particles, metallic debris, rubber parts, etc.) - the check can be made by any equivalent method.
   ii. Refractive Index Check:
      - Make sure the refractometer is calibrated and clean
      - Put a fluid drop taken from the sample or from the nozzle onto the test screen of the refractometer and close the prism
      - Read the value on internal scale and use the correction factor given by the manufacturer of the fluid in case the temperature of the refractometer is not 20ºc
      - Compare the value with the figures from the fluid manufacturer *)
      - Clean the refractometer and return it into the protective cover
      - The check can be made by any equivalent method
   iii. **PH-value Check:**
      - If a fluid manufacturer has not published any tolerances for the refractive index of diluted fluids, the measured refractive index shall be within limits corresponding to a concentration not lower than the nominal concentration and not higher than 7% above the nominal concentration. For type I fluids, the highest concentration at which a product may be used must also be observed.

   **Example:** For a sample with 50% nominal concentration, the measured refractive index must correspond to minimum 50% and maximum 57% concentration.
- Take a piece of ph paper and put it in the fluid so that the ph paper becomes wetted with the fluid
- Remove the ph paper from the fluid and compare its colour with the colour of the table provided with the ph paper and read the corresponding ph value
- Compare the ph-value with the figures from the fluid manufacturer
- The check can be made by any equivalent method

**NOTE:** The pH check in the laboratory should be performed with a pH measurement instrument.

b. **Type II, type III, and type IV fluids:**

The laboratory checks for type II, III and IV can be done using the 3 above mention methods plus the following method:

i. **Field Viscosity Check**
   - This check shall be made with a falling ball method, where the reference liquids represent the minimum and maximum allowed viscosities of the tested product.
   - Put the sample into a clean sample tube.
   - Insert the steel ball into the glass, fill it up completely and close it.
   - Return the glass into the test tool and turn it vertically and let all steel balls reach the lower end of the test tubes.
   - After all 3 balls have reached the bottom of the tubes, turn the tool ±180 degrees to a full vertical position.
   - The balls will move downwards with a different speed.
   - The speed of the middle steel ball shall be between the speed of the two other balls or be equal to the speed of one of them.
   - The check can be made by any equivalent method.
   * Perform this check if it is suitable to identify contaminants in the fluid and/or detect degradation of the fluid used.

ii. **Concentration Checks:**
   - Fluids or fluid/water mixture samples shall be taken from the de-icing/anti-icing vehicle nozzles on a daily basis when vehicles are in use. The sample shall be protected against precipitation. Perform a refractive index check must be performed.

**NOTE 1:** Trucks without a mixing system
   - Samples may be taken from the truck tank instead of at the nozzle. Ensure that the fluid is at a uniform mix.

**NOTE 2:** Trucks with proportional mixing systems
   - Operational setting for flow and pressure shall be used. Allow the selected fluid concentration to stabilise before taking sample.

**NOTE 3:** Trucks with automated fluid mixture monitoring system
   - The interval for refractive index checks has to be determined by the handling company.
Staff Training And Qualification

91. De-icing/anti-icing procedures must be carried out exclusively by personnel trained and qualified on this subject.

92. Companies providing de-icing/anti-icing services should have both a Qualification Programme and a Quality Assurance Programme to monitor and maintain an acceptable level of competence.

Training For Crews

93. Both initial and annual recurrent training for flight crews and ground crews shall be conducted to ensure that all such crews obtain and retain a thorough knowledge of aircraft de-icing/anti-icing policies and procedures, including new procedures and lessons learned.

94. Training success shall be proven by an examination/assessment which shall cover all training subjects shall include but are not limited to the following (when applicable):
   a. Effects of frost, ice, snow, slush and fluids on aircraft performance.
   b. Basic characteristics of aircraft de-icing/anti-icing fluids, including causes and consequences of fluid degradation and residues.
   c. General techniques for removing deposits of frost, ice, slush, and snow from aircraft surfaces and for anti-icing.
   d. De-icing/anti-icing procedures in general and specific measures to be performed on different aircraft types.
   e. Types of checks required.
   f. De-icing/anti-icing equipment and facilities operating procedures including actual operation.
   g. Safety precautions.
   h. Emergency procedures.
   i. Fluid application and limitations of holdover time tables.
   j. De-icing/anti-icing codes and communication procedures.
   k. Special provisions and procedures for contract de-icing/anti-icing (if applicable).
   l. Environmental considerations, e.g. where to de-ice, spill reporting, hazardous waste control.
   m. New procedures and development, lessons learned from previous winters.
   n. Conditions which can lead to the formation of ice on the aircraft.

Records

95. Records of personnel training and qualifications shall be maintained for proof of qualification.

96. The air operator or service provider should maintain accurate records of the training and qualifying of both flight and ground personnel. This proof of qualification should be for both initial and annual recurrent training and qualification. A record of the training and qualification will be placed on the individual’s file.

97. Additionally, training for ground personnel should include procedures and methods for the storage, testing and handling of de-icing and anti-icing fluids.
CHAPTER 7: AIRCRAFT DOORS

Scope
1. This chapter applies to employees who received training and is responsible for opening and closing of aircraft doors.

General
2. Only authorised and trained employees are allowed to operate these doors.
3. Cabin doors shall only be opened or closed with ground equipment in place; this will prevent falling and a safe operation.
4. Only trained personnel will operate cabin doors.
5. No door will be left open without restraints in place.

Manually Operated Doors
6. The operation of this type of doors requires no special training.
7. It must be demonstrated to the personnel before they are permitted to operate.

Electrical, Pneumatically or Hydraulically Operated Doors
8. As a result of the technical complexity of these doors, no person shall operate these doors without prior training (S.E.P.T. training).

Opening Doors from Outside
9. The passenger loading bridge must be secure in place prior to opening these doors.
10. Two knocks will indicate that the door is required to be opened from outside.
11. Cabin crew must indicate by thumbs up signal before ground personnel may open doors from outside.
12. Ground personnel must count slowly to ten before opening the door in order for cabin crew to step away from the door.

Closing of Cabin Doors
13. First ensure no obstruction is cleared before closing door.
   a. Assistance must always be given in the initial closing of cabin doors.
   b. Doors must be fully closed before ground personnel leave the vicinity.

Re-opening of Cabin Doors
14. Once all doors had been closed for departure, no attempt must be made to re-open any door without specific authority for aircraft commander.
CHAPTER 8: VEHICLE MAINTENANCE

Scope

1. This chapter applies to employees who make use of SAA vehicles to perform their daily functions.
2. The following areas are covered by this procedure:
   a. Load Control
   b. Ramp
   c. Arrivals
   d. Baggage Services
   e. VIP
   f. SWAT
   g. Flight Dispatch
   h. Safety
   i. Security
   j. Cargo

Use of Vehicles

3. Employees will not be allowed to drive a vehicle on the airside without the following:
   a. valid drivers’ license (code in relevance to the vehicle type)
   b. current in AVOP with icon endorsed on the ACSA permit
   c. current ACSA permit
   d. A copy of each document as mentioned in 2.1.1. – 2.1.3. must be documented by the Team leader of the department and filed for auditing purposes.
   e. Employees shall be required to perform inspection on the necessary vehicle prior to driving.
   f. The inspection check list will be provided to the driver/s of the vehicle/s at start of shift, together with the log book/s.
   g. Employees are required to contact and advise their Team Leader immediately should there be issues relating to the vehicle inspections.
   h. The vehicle log book will be completed with all necessary information, including the kilometres from the clock before driving and kilometres from the clock at end of vehicle use per shift.
   i. Team leaders are required to sign off in the log book at end of shift and file all vehicle inspection check lists.
   j. Employees will ensure that the vehicles are kept clean of all papers, bottles, food items and company materials during and after use of the vehicle.
Log Books

4. A log book is issued per vehicle.

5. The log book is used to monitor fuel usage, distances travelled, driver’s hours and performance, vehicle roadworthiness, and it records who drove the vehicle, where and when.

6. It provides for recording of the date, driver’s name, names of employees accompanying the driver, vehicle registration number, kilometre reading at the start and end of shift, distance covered, as well as the amount of fuel and oil taken on.

7. The log books MUST be handed back to the Team leader at shift end, for the purpose of sign off.

Vehicle Fuel, Oil and Water Intake

8. Employees are to ensure that the vehicle’s fuel intake is sufficient for the performance of his/her duties on airside.

9. The log books provide for the recording of fuel and oil intake and the drivers must ensure that the information is recorded.

10. Water checks will form part of the daily checks.

Vehicle Maintenance

11. Employees shall ensure that the inside of the vehicle, is kept clean at all times.

12. The vehicles will be washed once a month and a full inspection performed.

13. The transport department will collect and drop off vehicles over a two (2) day period.

14. A full report on any repairs, service or maintenance required will be provided by the transport department.

15. This information must be disseminated to the Managers and Team leaders of the respective departments.

16. For any repair work required, a shopping cart must be created in SAP and budget information included.

Incidents and Reporting

17. All incidents and accidents MUST be reported immediately to the Team leader on duty.

18. Accidents must be reported to the SAPS and a case number and full report must be provided to the Transport department as well as the Safety Department.

19. For any repair work required, a shopping cart must be created in SAP, with budget information, case number and incident report included.

20. All incidents resulting from gross negligence to property will be handled in accordance with company policy as referred to in the basic conditions of employment.
Incidents Report Form

GROUND SAFETY INCIDENT REPORT (GSR) FORM

Ref No / mm / yy
(for office use only)

PHONE NUMBERS:
GROUND SAFETY: +27 11 978 9178
GROUND SAFETY: +27 11 978 5642
AVIATION SAFETY: +27 11 978 5714
AVIATION SAFETY:

FAX NUMBERS:
GROUND SAFETY: +27 11 978 9178
GROUND SAFETY: +27 11 978 5642
AVIATION SAFETY: +27 11 978 5714
AVIATION SAFETY:

(1) REPORTING PERSON NAME:

(2) DATE OF EVENT:
___/___/___
dd / mm / yy

(3) LOCAL TIME OF EVENT:

(4) AIRPORT:

(5) FLIGHT NO.: SA___

(6) AIRCRAFT TYPE: ___

(7) A/C REGISTRATION: ___

(8) LOCATION OF EVENT:
(Terminal / Apron and Bay No)

(9) WEATHER

Heavy Rain
Light Rain
Snow
Icing
Fog
Hail
Clear

(10) DAY / NIGHT
Day / Night

(11) INJURIES:

(12) EQUIPMENT / VEHICLES INVOLVED:

STEPS
BRIDGE
TUG
TOWBAR
BUS
POWER
UNIT
PAU
CONVEYER
BELT
FMC
FORKLIFT
REFUELING
CART/VEHICLE
LIFTING
VEHICLES

(13) PHASE OF GROUND OPERATION:

PARKED
LOADING
PUSH-BACK
TAXI OUT
TAXI IN
APPROACHING
PARKING BAY
TURN AROUND
FUELING
OFF LOADING
MAINTENANCE

(14) EVENT:

- Disruptive Pax Behaviour & Intoxication
- Communication Manuals Failure
- Crew Injury / Illness
- Dangerous Goods Onboard
- Equipment
- Dangerous Goods Equipment
- FOD
- Evacuation of A/C

- Excess Hand Baggage Onboard
- Fire / Smoke in A/C
- Dangerous Goods
- Ground Handling Events Impacting
- Passenger Injury / Illness
- Slide Deployment
- Standard Operating Procedures
- Other

(15) HAZARD:

- Potential Hazard which may Cause Injury / Damage
- Regulations Which Are Not Enforceable
- Safety Standards Compromised
- Inadequate Policies & Procedures
- Recommendations for the Enhancement of Ground Safety
- Unsafe Acts or Conditions
- Other

(16) Please indicate position of damage on the aircraft (if applicable)

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Division: Operations
Department: Airport Operations Procedures and Support Services
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Audit Checks

21. Audit checks will be performed weekly by the Quality Auditors of the various areas of the business to ensure full compliance to standard.

22. The manager of the transport department will perform quarterly checks on all the documented information, e.g. fines received, incident reports, audit reports and corrective action plans, serviceability of the vehicles, vehicle inspection check lists and log books.

23. Non-compliance will result in findings and corrective action plans will be required from the necessary area/s.

Vehicle Inspection Check List

1. To be carried out BEFORE any daily operations
2. To be carried out AT THE END of each shift
3. To be carried out when a CHANGE of driver takes place
4. Use a separate sheet for each vehicle
5. Place an X against any item that requires attention
6. Place a check mark next to the rest

VEHICLE REG. NO.: INSPECTED BY:
DATE:

BEFORE STARTING

<table>
<thead>
<tr>
<th>Tyres</th>
<th>Wheels</th>
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<tbody>
<tr>
<td>Tyre Tread Depth</td>
<td>Rim damage</td>
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<tr>
<td>Inflation Pressure</td>
<td>Wheel nuts</td>
</tr>
<tr>
<td>Cracks and Cuts</td>
<td>Dust Caps</td>
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ENGINE COMPARTMENT

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<thead>
<tr>
<th>Oil level</th>
<th>Steering fluid</th>
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<td>Loose hoses</td>
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<tr>
<td>Brake Fluid level</td>
<td>Accessory belts</td>
</tr>
<tr>
<td>Clutch Fluid level</td>
<td>Battery security</td>
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<tr>
<td>Battery water level</td>
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DRIVER / PASSENGER COMPARTMENT

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<thead>
<tr>
<th>Emergency lights</th>
<th>Brake operation</th>
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<tbody>
<tr>
<td>Steering system</td>
<td>Restraint system</td>
</tr>
<tr>
<td>Mobile radios</td>
<td>Loose objects</td>
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</tbody>
</table>

LUGGAGE COMPARTMENT

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<thead>
<tr>
<th>Spare Tyre</th>
<th>Wipers &amp; screen</th>
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<tbody>
<tr>
<td>Jack &amp; Wheel spanner</td>
<td>Lights</td>
</tr>
<tr>
<td>Special Equipment</td>
<td>Car radio / hooter/ strobe</td>
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<tr>
<td></td>
<td>Road license disc</td>
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Record External Damage Here!

Further Comments:
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