



Clearance	Details
NIBEX ONE BRAVO RNAV (GNSS) ARRIVAL (NIBEX 1B)	
NIBEX 1B ARRIVAL Note: Significant point NIBEX at position: S264925.56 E02740'3.41 (R235/50DME JSV)	Leave NIBEX for JS012. At JS012 turn right to JS013. At JS013 turn left to JS014. At JS014 turn left proceeding to JS015 and intercept the ILS LOC RWY 03R.
Communication Failure (NIBEX 1B)(Squawk 7600)	
<p>Before NIBEX Proceed to NIBEX and enter the NIBEX RNAV (GNSS) hold. Hold at last assigned level for minimum 5 MIN, then descend to FL130 in the hold, or maintain last assigned level if below FL130. Leave NIBEX on the "After NIBEX" Communication Failure Procedure.</p> <p>After NIBEX Continue on the NIBEX 1B RNAV (GNSS) STAR to JS012. At JS012 descend to FL100, at JS013 descend to FL090, at JS014 adjust to 9000' ALT. At JS015 complete a straight-in ILS approach and land RWY 03R.</p> <p>Note Aircraft entering the TMA at FL110 and below are to enter the NIBEX RNAV (GNSS) hold at last assigned level, and continue the routing for the NIBEX 1B STAR.</p> <p>Caution Holding patterns below FL110 will be conducted partially outside of controlled airspace.</p>	
AVILO ONE BRAVO ARRIVAL (AVILO 1B)	
AVILO 1B ARRIVAL Note: Significant point AVILO at position: S265854.69 E0284315.62	Leave AVILO for JS018. At JS018 turn left for JS017. At JS017 turn left proceeding to ETLIG for radar vectoring onto the ILS LOC RWY 03.
Communication Failure (AVILO 1B)(Squawk 7600)	
<p>Before AVILO Proceed to STV and enter the STANDERTON RNAV (GNSS) hold descending to FL240, or if lower than FL240, last assigned level and hold for minimum 5 MIN. Leave STV on the "After STV" Communication Failure Procedure.</p> <p>After AVILO Continue on the AVILO 1B RNAV (GNSS) STAR. At ETLIG continue on the RNAV (GNSS) RWY 03R to JS2F1 and intercept the ILS LOC RWY 03R and land RWY 03R.</p> <p>Note: Nil Caution: Nil</p>	

6 JOHANNESBURG FIR

O R Tambo International Airport

All STAR applicable for runway 21L. Use STAR for runway 21R only when instructed by ATC or announced on ATIS.

6.1 Standard Terminal Arrival Routes (STAR) RWY 21L

6.1.1 Applicable to the following aircraft:

- a) Aircraft already cleared for the STAR.
- b) All aircraft inside the Johannesburg FIR with flight plan destinations as O R Tambo International, and able to comply with a STAR.
- c) When Communication Failure is experienced after being cleared for the approach, continue with the approach and land on the designated RWY.
- d) Speed limit points (SLP) will be defined per procedure. If the speed is below minimum safe operating speed, the minimum safe operating speed will be flown and ATC advised. Unless for emergency pilots are not to request cancellation of speed restrictions.

6.1.2 Communication Failure Procedures for STAR.

If not cleared for an arrival, proceed to the nearest STAR entry position at last assigned level or FL090, whichever is the highest. Comply with the Communication Failure procedure associated with that STAR position.

6.1.3 Provisions

- a) Aircraft must be able to receive the ATIS.
- b) SIDs and STARs are announced in operation on ATIS.
- c) Runway 21L is in use on the ATIS.
- d) SIDs and STARs will only be in force when surveillance radar in operation.
- e) If unable to comply with SID or STAR, notify ATC.
- f) General Aviation Traffic operates below the TMA up to 7500FT ALT and is considered separated from traffic operating in the TMA.

RUNWAY 21L

Clearance	Details
AVAGO ONE DELTA RNAV (GNSS) ARRIVAL (AVAGO 1D)	
AVAGO 1D ARRIVAL Note: Significant point AVAGO at position: 254309.90S 0272639.36E (R320/50DME JSV)	To OR364 at FL110 or above, to OR365 at 8000FT or above, turn left to OR366 at 8000FT or above. At OR366 continue on track 035°M, expect radar vectors RWY 21L.
Communication Failure (AVAGO 1D)(Squawk 7600)	
Before AVAGO Proceed to AVAGO and enter the AVAGO 1D RNAV (GNSS) hold. Hold for 5 minutes at last assigned level (at or above FL110) Descend to FL130 in the hold or maintain last assigned level if below FL130. Leave AVAGO on the "After AVAGO" Communication Failure Procedure. After AVAGO Continue on the AVAGO 1D RNAV (GNSS) STAR. At OR366 to UVLOG. At UVLOG, continue on the RNAV-02 APCH RWY 21L. Note NIL Caution NIL	



Clearance	Details
NIBEX ONE DELTA RNAV (GNSS) ARRIVAL (NIBEX 1D)	
Clearance	Details
NIBEX 1D ARRIVAL Note: Significant point NIBEX at position: 264925.56S 0274013.41E (R235/50DME JSV)	Leave NIBEX for JS023. At JS023 turn left proceeding to UVLOG for radar vectoring onto the ILS LOC RWY 21L. Pass NIBEX 250KT IAS or less. Pass JS023 210KT IAS or less. On LOC maintain 180KT IAS until 10 DME. Passing the Outer Marker at 150KT IAS, or as cleared by ATC.
Communication Failure (NIBEX 1D)(Squawk 7600)	
<p>Before NIBEX Proceed to NIBEX and enter the NIBEX RNAV (GNSS) hold. Hold at last assigned level for minimum 5 MIN, then descend to FL130 in the hold, or maintain last assigned level if below FL130. Leave NIBEX on the "After NIBEX" Communication Failure Procedure.</p> <p>After NIBEX Continue on the NIBEX 1D RNAV (GNSS) STAR. At JS023 descend to FL090, at UVLOG descend to 8000' ALT. AT UVLOG continue on the RNAV (GNSS) RWY 21L to JS3F2 and intercept the ILS RWY 21L and land RWY 21L.</p> <p>Note: Aircraft entering the TMA at FL110 and below are to enter the NIBEX RNAV (GNSS) hold at last assigned level and continue on the routing for the NIBEX 1D STAR.</p> <p>Caution: Holding patterns below FL110 will be conducted partially outside of controlled airspace.</p>	

7 DEPARTING FLIGHTS

GENERAL

IFR flights departing from controlled aerodromes will receive initial ATC clearance from the local aerodrome control tower. The clearance limit will normally be the aerodrome of destination.

IFR flights departing from other aerodromes can take off without prior arrangements with the Area Control Centre concerned, unless controlled airspace is to be entered immediately after take-off. In such cases arrangements must be made to obtain a clearance before the controlled airspace is entered.

Aircraft noise during take-off and landing creates an ever increasing annoyance to inhabitants of areas adjacent to aerodromes. Continuous efforts are made to devise procedures in order to reduce aircraft noise without jeopardising safe operations

In order to reduce or to restrict aircraft noise to the minimum, the following procedures are proposed:-

- Turnouts immediately after take-off must as far as possible be avoided and runway heading must be maintained to a reasonable altitude.
- Where possible, aircraft must climb at the best angle of climb after take-off and this must be maintained until all built-up areas are over-flown, or the desired altitude has been reached/attained.

- Testing and run-ups of aircraft engines must as far as possible be avoided during the period 2000 and 0400.
- An appeal is made to all pilots to be considerate towards inhabitants of areas adjacent to aerodromes by combating aircraft noise at all times.

7.1 NOISE ABATEMENT PROCEDURES

Two examples of operating procedures for the climb have been developed by ICAO as guidance. These two examples of Noise Abatement procedures can be defined as follows:

NADP 1 - The first example (NADP 1) is intended to describe one method, but not the only method, of providing noise reduction for noise-sensitive areas in close proximity to the departure end of the runway.

NADP 2 - The second example (NADP 2) similarly describes one method but not the only method, of providing noise reduction to areas more distant from the runway end.

These procedures applies to jet aircraft and may be disregarded if:

At 3000FT AGL or when levelled off by ATC, or when levelled by the Standard Instrument Departure (SID)

The following procedure will be in force at the listed airport:

King Shaka International Airport (Durban)	NADP 1
Lanseria International Airport	NADP 1

NADP 1

1) TAKE-OFF TO 800FT AGL

- i) Take-off power/thrust
- ii) Speed, climb at V_2+10 knots (V_2+20 km/h)

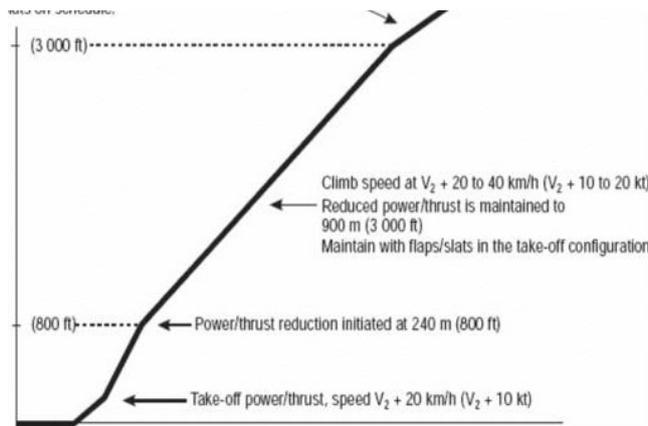
Note: Dependant on aircraft type the take-off power/thrust may be reduced at a lower height.

2) AT 800FT AGL

- i) Power/thrust reduction is initiated in accordance with the noise abatement power/thrust schedule provided in the aircraft operating manual.

- 3) 800FT AGL TO 3000FT AGL
 - i) Climb at V_2+10 to 20km/h).
 - ii) Reduced power/thrust is maintained to 900M (3000FT)
 - iii) Maintain with flaps/slats in take-off configuration.

- 4) AT 3000FT AGL
 - i) On reaching 900M (3000FT) maintain positive rate of climb.
 - ii) Accelerate smoothly to en-route climb speed
 - iii) Retract flaps/slats on schedule.
 - iv) In addition, all aircraft at or below FL100 will fly a maximum speed of 250KIAS. No jet aircraft are to use RWY or TWY intersection for take-off at any airport within South Africa between the hours of 2000-0400.



Noise abatement take-off climb - Example of a procedure alleviating noise close to the departure (NADP1)

The following procedures will be in force at the listed airports:

Bram Fischer International Airport. (Bloemfontein)	NADP 2
Cape Town International Airport.	NADP 2
King Phalo Airport (East London)	NADP 2
George Airport	NADP 2

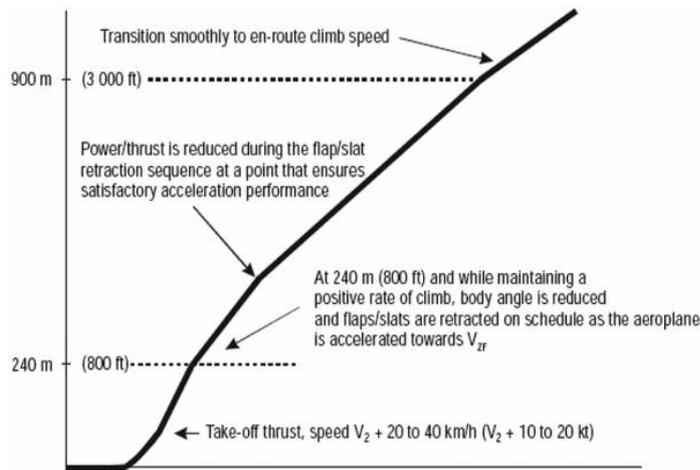
Kimberley Airport	NADP 2
O R Tambo International Airport	NADP 2
Chief Dawid Stuurman International Airport (Port Elizabeth)	NADP 2
Upington International Airport	NADP 2
Wonderboom Airport (Pretoria)	NADP 2

NADP 2

- 1) Take-off to 800FT AGL
 - i) Take-off power/thrust
 - ii) Speed, climb at V₂+10 to 20knots (V₂+20 to 40km/h)

Note: Dependant on aircraft type, the take-off power/thrust may be reduced at a lower height.

- 2) At 800FT AGL
 - i) While maintaining a positive rate of climb, body angle reduced.
 - ii) Flaps/Slats are retracted on schedule
 - iii) Aircraft is accelerated towards VZ_F.
- 3) 800FT AGL to 3000FT AGL
 - i) Power/Thrust is reduced during the flap/slat retraction sequence at a point that ensures satisfactory acceleration performance.
 - ii) At 3000FT AGL
 - iii) On reaching 900M (3000FT), transition smoothly to en-route climb speed.



Noise abatement take-off climb - Example of a procedure alleviating noise distant from the aerodrome (NADP 2)

7.2 NOISE ABATEMENT PROCEDURES - WATERKLOOF AIR FORCE BASE (MIL UNLICENSED)

1) GENERAL

The following procedures are designed to avoid excessive noise in areas adjacent to the aerodrome and in areas overflowed during take-off and landing. Strict adherence within the limits of safety and performance is required. Aircraft not landing at Waterkloof are not permitted to overfly built up areas below 1000 FT AGL.

- a) Rapid changes in engine power should be avoided.
- b) Heavy category aircraft commanders are permitted to select the runway for arrivals and departures.
- c) Bad weather circuits (500FT) may be flown in IMC or two per training/rating sortie.
- d) Heavy category aircraft are not permitted to practice 500FT circuits.

2) ARRIVALS

- a) All IFR arrivals, wind and traffic permitting, will be executed on RWY01.
- b) The final approach path shall be strictly at the angle defined by the ILS and PAPI glide path (3°).
- c) VFR flights must adhere to the glide path on final approach and where possible avoid built up areas.
- d) Fighter aircraft flying via initial point may not exceed 400KTS IAS.

3) DEPARTURES

- a) VFR flights will climb to 1000FT AGL as soon as possible and once clear of built up areas ascend accordingly.

4) TAKE-OFF TO 1500 FT AGL

- a) Take-off power.
- b) Take-off flaps.
- c) Climb at $V_2 + 10$ to 20KTS or as limited by body angle. Dependent on ACFT type, take-off power/thrust may be reduced at a lower altitude.

5) AT 1500 FT AGL

- a) Reduce thrust (if not reduced already) to not less than climb power/thrust.

6) 1500 FT AGL TO 3000 FT AGL

- a) Climb at $V_2 + 10$ to 20KTS.

7) AT 3000 FT AGL

- a) Accelerate smoothly to en-route climb speed with flap retraction on schedule.

8) ENGINE RUN-UP TESTS

Engine run-up tests on Saturdays, Sundays and public holidays and on working days between 1600 and 0400 will only be permitted with the authorization of the operations coordinator.

9) EXEMPTIONS

Restrictions to arrivals/departures do not apply in the following cases.

- a) In an emergency or simulated emergency.
- b) For operational flights.
- c) For inspection and calibration flights.
- d) For flights with the prior authorization from the Air Wing Coordinator AFB Waterkloof.

10) NIGHT FLYING TRAINING - MONDAY TO THURSDAY

Night flying training must be authorised by the Air Wing Coordinator.

- a) Final arrival: 2000.
- b) No circuit and landings between 1900 and 2000.

11) FLYING TRAINING - SATURDAYS, SUNDAYS AND PUBLIC HOLIDAYS

- i) Saturdays: Flying training authorised by the Air Wing Coordinator may take place between 0600 and 1600.
- ii) Sundays: No flying training may take place except with prior authorization by CAF.
- iii) Public Holidays: No flying training may take place.

8 CAPE TOWN INTERNATIONAL AIRPORT

8.1 Standard Instrument Departures (SID) RWY01

8.1.1 Unless otherwise authorised by ATC, the maximum speeds applicable shall comply with noise abatement procedures as laid down in paragraph 8.1. In addition, all aircraft at or below FL 100 will fly a MAXIMUM speed of 250 KIAS.

8.1.2 At 2000 FT ALT contact Cape Town Radar (APP) on the frequency provided in the ATC clearance. Advise RADAR (APP) of level passing on first contact for Mode-C check.

8.1.3 Cross CTR boundary at or above 2500 FT ALT.

8.1.4 Where climb gradient required is greater than 3.3% see provisions contained within every specific procedure.

8.1.5 If unable to comply with SID notify ATC.

8.1.6 Communication Failure Procedure for SID

- a) Except in the event of an emergency, aircraft shall comply with the communication failure procedures for each SID irrespective of VMC or IMC.
- b) Comply with the SID procedure, climb to MSA or maintain last assigned flight level, whichever is highest. At the SID termination position set course as per flight plan and climb to flight plan level.

RUNWAY 01

Clearance	RWY	Turn	Details
KODES 1A DEPARTURE (KODES 1A)			
KODES 1A DEPARTURE (KODES 1A) NOTE: Significant point KODES at position: S330840 E0184520 (R-032/50DME "CTV")	01	Right	Climb to FL090, maintain RWY track to 3DME "CTV" then turn left to track 330°M to intercept R-354 "CTV" (outbound). Passing 8DME "CTV" turn right to track 060°M to intercept R-032 "CTV" (outbound) direct KODES. Further climb will be under radar control. At KODES set course as per flight plan.
Communication Failure (KODES 1A) (Squawk 7600)			
Comply with the KODES 1A SID, maintain last assigned level. Passing 30DME "CTV" climb to flight plan level. At KODES continue as per flight plan. Aircraft wishing to return must continue to the SID termination point at FL090, then proceed to ERDAS and comply with the appropriate ERDAS STAR Communication Failure procedure.			
IMSOM 1A DEPARTURE (IMSOM 1A)			
IMSOM 1A DEPARTURE (IMSOM 1A) NOTE: Significant point IMSOM at position: S335603.8989 E0180031.2411 (R-283/30DME "CTV")	01	Left	Climb to FL090, maintain RWY track to 3DME "CTV" then turn left to track 330°M to intercept R-354 "CTV" (outbound). Passing 8DME "CTV" turn left direct IMSOM. Further climb will be under radar control. At IMSOM set course as per flight plan.
Communication Failure (IMSOM 1A) (Squawk 7600)			
Comply with the IMSOM 1A SID, maintain last assigned level. At IMSOM continue as per flight plan and climb to flight plan level. Aircraft wishing to return must continue to the SID termination point at FL090, then proceed to "ASPIK" and comply with the appropriate "ASPIK" STAR Communication Failure procedure			

8.2 Standard Instrument Departures (SID) RWY19.

8.2.1 Unless otherwise authorised by ATC, the maximum speeds applicable shall comply with noise abatement procedures as laid down in paragraph 8.1. In addition, all aircraft at or below FL 100 will fly a MAXIMUM speed of 250 KIAS.

8.2.2 At 2000 FT ALT contact Cape Town Radar (APP) on the frequency provided in the ATC clearance. Advise RADAR (APP) of level passing on first contact for Mode-C check.

8.2.3 Cross CTR boundary at or above 2500 FT ALT.

8.2.4 Where climb gradient required is greater than 3.3% see provisions contained within every specific procedure.

8.2.5 If unable to comply with SID notify ATC.



8.2.6 Communication Failure Procedure for SID

- a) Except in the event of an emergency, aircraft shall comply with the communication failure procedures for each SID irrespective of VMC or IMC.
- b) Comply with the SID procedure, climb to MSA or maintain last assigned flight level, whichever is highest. At the SID termination position set course as per flight plan and climb to flight plan level.

RUNWAY 19

Clearance	RWY	Turn	Details
TETAN 1A DEPARTURE (TETAN 1A)			
TETAN 1A DEPARTURE (TETAN 1A) NOTE: Significant point TETAN at NDB "WC" position: S333948.00 E0192458.00 (R-089/44.5DME "CTV") 6.2%@ 140KTAS= 880ft/min 6.2%@ 180KTAS= 1130ft/min 6.2%@ 220KTAS= 1381ft/min	19	Left	Restricted to a minimum climb gradient of 6.2% until passing FL085 due to terrain. Do not cross (North of) "CTV" R-140 below FL085. Climb to FL090, maintain RWY track to 5DME "CTV" then turn left to track 145°M. Passing 18DME "CTV" turn left direct TETAN. Further climb will be under radar control. At TETAN set course as per flight plan.
Communication Failure (TETAN 1A) (Squawk 7600)			
Comply with the TETAN 1A SID, maintain last assigned level. Crossing R-105 "CTV" climb to flight plan level. At TETAN continue as per flight plan. Aircraft wishing to return must continue to the SID termination point and then route direct ERDAS and comply with the appropriate ERDAS STAR Communication Failure procedure.			
TETAN 1B DEPARTURE (TETAN 1B)			
TETAN 1B DEPARTURE (TETAN 1B) NOTE: Significant point TETAN at NDB "WC" position: S333948.00E0192458.00 (R-089/44.5DME "CTV") 4.6%@ 140KTAS=652ft/min 4.6%@ 180KTAS= 838ft/min 4.6%@ 220KTAS=1024ft/min	19	Left	Restricted to a minimum climb gradient of 4.6% until passing 5700 FT ALT due to terrain. Do not cross (north of) R-140 below 8500 FT ALT. Climb to FL090, maintain RWY track to 5DME then adjust onto R-190 "CTV" (outbound). Passing 20DME "CTV" turn left to track 100°M. Crossing R-170 "CTV" turn left direct TETAN. Further climb will be under radar control. At TETAN set course as per flight plan.
Communication Failure (TETAN 1B) (Squawk 7600)			
Comply with the TETAN 1B DEPARTURE and maintain last assigned level. Crossing R-105 "CTV" climb to flight plan level. At TETAN continue as per flight plan. Aircraft wishing to return must continue to the SID termination point and then route direct ERDAS and comply with the appropriate ERDAS STAR Communication Failure procedure.			

Clearance	RWY	Turn	Details
IMSOM 1B DEPARTURE (IMSOM 1B)			
IMSOM 1B DEPARTURE (IMSOM 1B) NOTE: Significant point IMSOM at position: S335603.8989 E0180031.2411 (R-283/30DME "CTV")	19	Right	Climb to FL090, maintain RWY track to 5DME "CTV" then turn right to track 240°M to intercept R-210 "CTV" (outbound). Passing 5500 FT ALT turn right direct ASPIK, then direct IMSOM. Further climb will be under radar control. At IMSOM set course as per flight plan.
Communication Failure (IMSOM 1B) (Squawk 7600)			
Comply with the IMSOM 1B SID, maintain last assigned level. At IMSOM continue as per flight plan and climb to flight plan level. Aircraft wishing to return must continue to the SID termination point at FL090, then proceed to ASPIK and comply with the appropriate ASPIK STAR Communication Failure procedure.			
OKTED 1B DEPARTURE (OKTED 1B)			
OKTED 1B DEPARTURE (OKTED 1B) NOTE: Significant point OKTED at Position: S341312.000 E0193330.000 (R-131/50 DME "CTV") 6.2% @ 140KTAS= 880ft/min 6.2% @ 180KTAS= 1130ft/min 6.2% @ 220KTAS=1381ft/min	19	Left	Restricted to a minimum climb gradient of 6.2% until passing FL085 due to terrain. Do not cross (North of) "CTV" R-140 below FL085. Climb to FL090, maintain RWY track to 5DME "CTV" then turn left to track 145°M. Passing 18DME "CTV" turn left direct OKTED. Further climb will be under radar control. At OKTED continue as per flight plan.
Communication Failure (OKTED 1B) (Squawk 7600)			
Comply with the OKTED 1B SID, maintain last assigned level. At OKTED continue as per flight plan and climb to flight plan level. Aircraft wishing to return must continue to the SID termination point and then route direct GETEN and comply with the appropriate STAR Communication Failure procedure.			
OKTED 1C DEPARTURE (OKTED 1C)			
OKTED 1C DEPARTURE (OKTED 1C) NOTE: Significant point OKTED at position: S341312.000 E0193330.000 (R-131/50 DME "CTV") 4.6% @ 140KTAS= 652ft/min 4.6% @ 180KTAS= 838ft/min 4.6% @ 220KTAS=1024ft/min	19	Left	Restricted to a minimum climb gradient of 4.6% until passing 5700 FT ALT due to terrain. Do not cross (north of) "CTV" R-140 below FL085. Climb to FL090, maintain RWY track to 5DME then adjust onto R-190 "CTV" (outbound). Passing 20DME "CTV" turn left to track 100°M. Crossing R-170 "CTV" turn left direct OKTED. Further climb will be under radar control. At OKTED set course as per flight plan.
Communication Failure (OKTED 1C) (Squawk 7600)			
Comply with the OKTED 1C SID, maintain last assigned level. At OKTED continue as per flight plan and climb to flight plan level. Aircraft wishing to return must continue to the SID termination point and then route direct GETEN and comply with the appropriate STAR Communication Failure procedure.			



Clearance	RWY	Turn	Details
GRASMERE FIVE BRAVO DEPARTURE (GRASMERE 5B) RESTRICTED TO TURBO PROP AIRCRAFT ONLY.			
GRASMERE 5B DEPARTURE Note: Significant point GAV at position: S263053. 63 E0274035.17 5.0% @ 80KT IAS = 405 FPM 5.0% @ 120KT IAS = 608 FPM 5.0% @ 160KT IAS = 810 FPM 5.0% @ 200KT IAS = 1013 FPM	03L	Left	Restricted to a minimum climb gradient of 5.0% to the CTR boundary. Climb to 8000' ALT, maintain RWY track to 3 DME JSV or 6100' ALT, whichever is later, then turn left onto track 261°. Crossing 13 DME JSV turn left direct to GAV. Further climb will be under radar control. At GAV set course as per flight plan.
Communication Failure (GRASMERE 5B) (Squawk 7600)			
Comply with the GRASMERE FIVE BRAVO SID, climbing to 8700' ALT or maintain last assigned level, whichever is highest. At GAV set course as per flight plan and climb to flight plan level. Aircraft wishing to return must continue to the SID termination point and climb to last assigned level or MSA if last cleared level is below MSA. At GAV proceed to NIBEX and comply with the NIBEX 2A RWY03R STAR Communication Failure Procedure.			
EXOBI ONE ALFA DEPARTURE (EXOBI 1A)			
EXOBI 1A DEPARTURE Note: Significant point "EXOBI" at position: S260252.2666 E0290851.3211 (R-101/50 DME "JSV") 4.2% ROC @ 140KTAS= 595ft/min 4.2% ROC @ 180KTAS= 766ft/min 4.2% ROC @ 220KTAS= 936ft/min	03L/R	Right	Restricted to a minimum climb gradient of 4.2% to the CTR boundary. Climb to FL090, maintain RWY track to 5.5 DME JSV then turn right onto track 101°. At 15 DME JSV turn right onto track 126° to intercept R101 JSV (OUBD) to EXOBI. Cross 15 DME JSV at FL090 or above if cleared by ATC. Further climb will be under radar control. At EXOBI set course as per flight plan.
Communication Failure (EXOBI 1A) (Squawk 7600)			
Comply with the EXOBI ONE ALPHA SID, climbing to FL090 or maintain last assigned level, whichever is highest. At EXOBI set course as per flight plan and climb to flight plan level. Aircraft wishing to return must continue to the SID termination point and climb to last assigned level or MSA if last cleared level is below MSA. At EXOBI proceed to WIV and comply with the WITBANK 4A RWY03R STAR Communication Failure Procedure.			
EGMEN ONE CHARLIE RNAV (GNSS) DEPARTURE (EGMEN 1C)			
EGMEN 1C DEPARTURE Note: Significant point EGMEN at position: S253845.74 E0285805.53 (R070/50DME JSV) 4.1% @ 140KT IAS = 581 FPM 4.1% @ 180KT IAS = 747 FPM 4.1% @ 220KT IAS = 913 FPM	03L	Left	Restricted to a minimum climb gradient of 4.1% to the CTR boundary. Climb to FL090, maintain RWY track to JS031. At JS031 turn right to JS032. At JS032 turn left direct to EGMEN. Further climb will be under radar control. At EGMEN set course as per flight plan.

Clearance	RWY	Turn	Details
Communication Failure (EGMEN 1C) (Squawk 7600)			
Comply with the EGMEN ONE CHARLIE SID, climbing to FL090 or maintain last assigned level, whichever is highest. At EGMEN set course as per flight plan and climb to flight plan level.			
Aircraft wishing to return must continue to the SID termination point and climb to last assigned level or MSA if last cleared level is below MSA. At EGMEN proceed to OKPIT and comply with the OKPIT 4A RWY03R STAR Communication Failure Procedure.			
APDAK ONE BRAVO RNAV (GNSS) DEPARTURE (APDAK 1B)			
APDAK 1B DEPARTURE Note: Significant point APDAK at position: 263303.55S 0290252.64E (R137/50DME JSV) 4.2% @ 140KT IAS = 596 FPM 4.2% @ 180KT IAS = 766 FPM 4.2% @ 220KT IAS = 936 FPM Note: This procedure is CO-DEPENDENT on the UNPOM 1A RNAV(GNSS) STAR RWY 03R procedure which needs to be published in order for the APDAK 1B RNAV (GNSS) SID RWY 03L Communication Failure Procedure to be valid.	03L	Right	Restricted to a minimum climb gradient of 4.2%, until reaching CTR BDRY. Climb to FL110. To OR378 on course 035°M, turn right direct to OR379 at or below FL090, to OR415 at or above FL110, to APDAK at or above FL110. At APDAK, set course as per flight plan.
Communication Failure (APDAK 1B) (Squawk 7600)			
Comply with the APDAK 1B RNAV (GNSS) SID RWY 03L. At APDAK set course as per flight plan and climb to flight plan level. Aircraft wishing to return to FAOR must continue as per the APDAK 1B RNAV (GNSS) SID to APDAK. At APDAK proceed to UNPOM and enter the UNPOM 1A RNAV (GNSS) hold at FL110. Hold for 5 minutes. Thereafter, comply with the After UNPOM 1A RNAV (GNSS) STAR Communication Failure Procedure.			

11 JOHANNESBURG FIR

O R TAMBO INTERNATIONAL AIRPORT NOTE: SIMULTANEOUS USE OF PARALLEL RUNWAYS 03L/ 03R AND 21L/21R - O R TAMBO INTERNATIONAL AIRPORT

11.1 STANDARD INSTRUMENT DEPARTURES (SID) RWY 21R

11.1.1 Unless otherwise authorised by ATC, the maximum speeds applicable shall comply with noise abatement procedures as laid down in ENR 1.5 paragraph 8.1

11.1.2 At 6500 FT ALT contact Johannesburg Radar (APP) on the frequency provided in the ATC clearance. Advise Radar (APP) of level passing on first contact for Mode-C check.

11.1.3 Cross CTR BDRY at or above 8 000 FT ALT.

11.1.4 Where climb gradient required is greater than 3.3% see provisions contained within every specific procedure.

11.2 COMMUNICATION FAILURE PROCEDURE FOR SID:



11.2.1 Except in the event of an emergency, aircraft shall comply with the communication failure procedures for each SID irrespective of VMC or IMC.

11.2.2 Comply with the SID procedure, climb to MSA or maintain last assigned flight level, whichever is highest. At the SID termination position set course as per flight plan and climb to flight plan level.

RUNWAY 21

Clearance	RWY	Turn	Details
EGMEN TWO BRAVO DEPARTURE (EGMEN 2B)			
EGMEN 2B DEPARTURE Note: Significant point EGMEN at position: S253845.74 0285805.53E (R070/50 DME JSV) 4.3% @140KT IAS = 610 FPM 4.3% @180KT IAS = 784 FPM 4.3% @220KT IAS = 958 FPM	21R	Left	Restricted to a minimum climb gradient of 4.3% to the CTR boundary. Climb to 8000' ALT, maintain RWY track to 4.5 DME JSV then turn left onto track 111°. Intercept R253 WIV (INBD). Crossing R016 STV turn left onto track 054° to intercept R024 STV (OUBD) direct to EGMEN.
Communication Failure (EGMEN 2B) (Squawk 7600)			
Comply with EGMEN 2B SID, climbing to 8300' ALT or maintain last assigned level, whichever is highest. At EGMEN set course as per flight plan and climb to flight plan level. Aircraft wishing to return must continue to the SID termination point and climb to last assigned level or MSA if last cleared level is below MSA. At EGMEN proceed to OKPIT and comply with the OKPIT 4B RWY21L STAR Communication Failure Procedure.			
APDAK TWO BRAVO DEPARTURE (APDAK 2B)			
APDAK 2B DEPARTURE Note: Significant point APDAK at position: 263303.55S 0290252.64E (R137/50 DME JSV) 4.2% @140 KT IAS = 596 FPM 4.2% @180 KT IAS = 766 FPM 4.2% @220 KT IAS = 936 FPM	21R	Left	Restricted to a minimum climb gradient of 4.2% to CTR boundary. Climb to 8000' ALT, maintain RWY track to 4.5 DME JSV then turn left direct to APDAK. Cross 4.5 DME JSV at 7000' ALT or above. Further climb will be under radar control. At APDAK set course as per flight plan.
Communication Failure (APDAK 2B) (Squawk 7600)			
Comply with the APDAK 2B SID, climbing to 8300' ALT or maintain last assigned level, whichever is the highest. At APDAK continue as per flight plan. Aircraft wishing to return must continue to the SID termination point and climb to last assigned level or MSA if last cleared level is below MSA. At APDAK proceed to STV and comply with the appropriate STAR Communication Failure Procedure.			

Clearance	RWY	Turn	Details
VASUR THREE BRAVO DEPARTURE (VASUR 3B)			
VASUR 3B DEPARTURE Note: Significant point VASUR at position: 253346.76S 0275335.87E (R015/23DME LIV) 4.2% @140KT IAS = 596 FPM 4.2% @180KT IAS = 766 FPM 4.2% @220KT IAS = 936 FPM	21L/R	Right	Restricted to a minimum climb gradient of 4.2% to the CTR boundary. Climb to 8000' ALT, maintain RWY track to 9 DME JSV then turn right onto track 291°M. Passing 15 DME JSV turn right onto track 351°M to intercept R198 LIV (INBD). At LIV intercept R015 LIV (OUBD) to VASUR. Further climb will be under radar control. At VASUR set course as per flight plan.
Communication Failure (VASUR 3B) (Squawk 7600)			
Comply with VASUR 3B SID, climbing to 8700' ALT or maintain last assigned level, whichever is highest. At VASUR set course as per flight plan. Aircraft wishing to return must continue to the SID termination point and climb to last assigned level or MSA if last cleared level is below MSA. At VASUR proceed to AVAGO and comply with the AVAGO 2B RWY21 STAR Communication Failure Procedure.			
RAGUL ONE DELTA DEPARTURE (RAGUL 1D)			
RAGUL 1D DEPARTURE Note: Significant point RAGUL at position: 262654.35S 0273443.89E (FL110) 3.3% @140KT IAS = 468 FPM 3.3% @180KT IAS = 602 FPM 3.3% @220KT IAS = 736 FPM Note: This procedure is CO-DEPENDENT on the NIBEX 1D RNAV (GNSS) STAR RWY 21L procedure which needs to be published in order for the RAGUL 1D RNAV (GNSS) SID RWY 21R Communication Failure Procedure to be valid.	21R	Right	Restricted to a minimum climb gradient of 3.3%, until reaching CTR boundary. Climb to FL090. To OR389 on course 215°M, turn right to OR398 at FL090 or below, turn left to RAGUL at FL110 or above, set course as per flight plan.
Communication Failure Procedure (Squawk 7600)			
Comply with the RAGUL ONE DELTA RNAV (GNSS) SID RWY 21R . At RAGUL set course as per flight plan and climb to flight plan level. Aircraft wishing to return to FAOR must continue as per the RAGUL 1D RNAV (GNSS) SID to RAGUL. At RAGUL proceed to NIBEX and enter the NIBEX 1D RNAV (GNSS) STAR RWY 21L hold at FL110. Hold for 5 minutes. Thereafter, comply with the "After NIBEX 1D RNAV (GNSS) STAR" Communication failure procedure.			
OVALA ONE BRAVO DEPARTURE (OVALA 1B)			
OVALA 1B DEPARTURE Note: Significant point OVALA at position: 264903.39S 0283744.70E (R170/45DME JSV) 4.2% @140KT IAS = 595 FPM 4.2% @180KT IAS = 766 FPM 4.2% @220KT IAS = 936 FPM	21L/R	Left	Restricted to a minimum climb gradient of 4.2% to the CTR boundary. Climb to 8000' ALT, maintain RWY track to 4.5 DME JSV then turn left onto track 111° to intercept R170 JSV (OUBD) to OVALA. Cross 4.5 DME JSV at 7000' ALT or above. Further climb will be under RADAR control. At OVALA set course as per flight plan.



Clearance	RWY	Turn	Details
Communication Failure (OVALA 1B) (Squawk 7600)			
<p>Comply with the OVALA 1B SID, climbing to 8300' ALT or maintain last assigned level, whichever is highest. At OVALA continue as per flight plan.</p> <p>Aircraft wishing to return must continue to the SID termination point and climb to last assigned level or MSA if last cleared level is below MSA. At OVALA route direct to STV and comply with the STANDERTON 5B RWY21L STAR Communication Failure Procedure.</p>			
GRASMERE SIX CHARLIE DEPARTURE (GRASMERE 6C)			
GRASMERE 6C DEP Note: Significant point GAV at position: S263053.63 E0274035.17 5.3% @ 80KT IAS = 429 FPM 5.3% @ 120KT IAS = 644 FPM 5.3% @ 160KT IAS = 859 FPM 5.3% @ 200KT IAS = 1073 FPM	21R	Right	Restricted to Turbo Prop aircraft only. Restricted to a minimum climb gradient of 5.3% to the CTR boundary. Climb to 8000' ALT, maintain RWY track to JSV. At JSV turn right onto track 301° (Turn radius to remain within 2.5 DME JSV). Crossing 13 DME JSV turn left direct to GAV. At GAV set course as per flight plan.
Communication Failure (GRASMERE 6C) (Squawk 7600)			
<p>Comply with the GRASMERE SIX CHARLIE SID, climbing to 8300' ALT or maintain last assigned level, whichever is highest. At GAV set course to the next fix outside 60DME JSV and climb to flight plan level.</p> <p>Aircraft wishing to return must continue to the SID termination point and climb to last assigned level or MSA if last cleared level is below MSA. At GAV proceed to NIBEX and comply with the NIBEX 2C RWY21L STAR Communication Failure Procedure.</p>			
EXOBI THREE BRAVO DEPARTURE (EXOBI 3B)			
EXOBI 3B DEPARTURE Note: Significant point EXOBI at position: S260252.27 E0290851.32 (R101/50DME JSV) 4.2% @ 140KT IAS = 595 FPM 4.2% @ 180KT IAS = 766 FPM 4.2% @ 220KT IAS = 936 FPM	21L/R	Left	Restricted to a minimum climb gradient of 4.2% to the CTR boundary Climb to 8000' ALT, maintain RWY track to 4.5 DME JSV then turn left onto track 111°. Cross 4.5 DME JSV at 7000' ALT or above. Passing 15 DME JSV turn left onto track 076° to intercept R101 JSV (OUBD) to EXOBI. Further climb will be under radar control. At EXOBI set course as per flight plan.
Communication Failure (EXOBI 3B) (Squawk 7600)			
<p>Comply with the EXOBI THREE BRAVO SID, climb to 8300' ALT or maintain last assigned level, whichever is highest. At EXOBI continue as per flight plan.</p> <p>Aircraft wishing to return must continue to the SID termination point and climb to last assigned level or MSA if last cleared level is below MSA. At EXOBI proceed to WIV and comply with the WITBANK 3C RWY21L STAR Communication Failure Procedure.</p>			

Clearance	RWY	Turn	Details
HEIDELBERG FIVE DELTA DEPARTURE (HEIDELBERG 5D)			
HEIDELBERG 5D DEPARTURE Note: Significant point HGV at position: S264148.50 E0281659.39 4.2% @140KT IAS = 595 FPM 4.2% @180KT IAS = 766 FPM 4.2% @220KT IAS = 936 FPM	21L/R	Left	Restricted to a minimum climb gradient of 4.2% to the CTR boundary. Climb to 8000' ALT, maintain RWY track to 4.5 DME JSV then turn left direct to HGV. Cross 4.5 DME JSV at 7000' ALT or above. Further climb will be under radar control. At HGV set course as per flight plan.
Communication Failure (HEIDELBERG 5D) (Squawk 7600)			
Comply with the HEIDELBERG FIVE DELTA SID, climbing to 8300' ALT or maintain last assigned level, whichever is highest. At HGV continue as per flight plan. Aircraft wishing to return must continue to the SID termination point and climb to last assigned level or MSA if last cleared level is below MSA. At HGV proceed to STV and comply with the STANDERTON 5B RWY21L STAR Communication Failure Procedure.			
LANSERIA ONE CHARLIE DEPARTURE (LANSERIA 1C)			
LANSERIA 1C DEPARTURE Note: Significant point LIV at position: S255656.14 E0275448.86 5.3% @ 80KT IAS = 429 FPM 5.3% @120KT IAS = 644 FPM 5.3% @160KT IAS = 859 FPM 5.3% @200KT IAS =1073 FPM	21R	Right	Restricted to Turbo Prop aircraft only. Restricted to a minimum climb gradient of 5.3% to the CTR boundary. Climb to 8000' ALT, maintain RWY track to JSV. At JSV turn right onto track 301° (Turn radius to remain within 2.5 DME JSV). Crossing 13 DME JSV turn right direct LIV. At LIV intercept R015 LIV (OUBD) to VASUR. At VASUR set course as per flight plan.
Communication Failure (LANSERIA 1C) (Squawk 7600)			
Comply with the LANSERIA ONE CHARLIE SID, climbing to 8300' ALT or maintain last assigned level, whichever is highest. At VASUR set course as per flight plan and climb to flight plan level. Aircraft wishing to return must continue to the SID termination point and climb to last assigned level or MSA if last cleared level is below MSA. At VASUR proceed to AVAGO and comply with the AVAGO 2B RW Y21 STAR Communication Failure Procedure.			
EGMEN ONE DELTA RNAV (GNSS) DEPARTURE (EGMEN 1D)			
EGMEN 1D DEPARTURE Note: Significant point EGMEN at position: S253845.74 E0285805.53 (R070/50 DME JSV) 3.8% @140KT IAS = 539 FPM 3.8% @180KT IAS = 693 FPM 3.8% @220KT IAS = 847 FPM	21R	Left	Restricted to a minimum climb gradient of 3.8% to the CTR boundary. Climb to FL090, maintain RWY track 214° to JS008. At JS008 turn left to JS004. At JS004 turn left to JS028. At JS028 turn left to EGMEN. Further climb will be under radar control. At EGMEN set course as per flight plan. Brakpan/Benoni, 5.5 NM SSE, circuit operates at 6000' ALT.



Clearance	RWY	Turn	Details
Communication Failure (EGMEN 1D) (Squawk 7600)			
<p>Comply with the EGMEN ONE DELTA SID, climbing to 8400' ALT or maintain last assigned level, whichever is highest. At EGMEN set course as per flight plan and climb to flight plan level.</p> <p>Aircraft wishing to return must continue to the SID termination point and climb to last assigned level or MSA if last cleared level is below MSA. At EGMEN proceed to OKPIT and comply with the OKPIT 4B RWY21L STAR Communication Failure Procedure.</p>			
APDAK ONE DELTA RNAV (GNSS) DEPARTURE (APDAK 1D)			
APDAK 1D DEPARTURE Note: Significant point APDAK at position: S263303.55 E0290252.64 (R137/50 DME JSV) 3.8% @140KT IAS = 539 FPM 3.8% @180KT IAS = 693 FPM 3.8% @220KT IAS = 847 FPM	21R	Left	Restricted to a minimum climb gradient of 3.8% to the CTR boundary Climb to 8000' ALT, maintain RWY track 214° to JS006. At JS006 turn left to JS002. At JS 002 turn right to APDAK. At APDAK set course as per flight plan. Brakpan/Benoni, 5.5 NM SSE, circuit operates at 6000' ALT.
Communication Failure (APDAK 1D) (Squawk 7600)			
<p>Comply with the APDAK ONE DELTA SID, climbing to 8400' ALT or maintain last assigned level, whichever is highest. At APDAK set course as per flight plan and climb to flight plan level.</p> <p>Aircraft wishing to return must continue to the SID termination point and climb to last assigned level or MSA if last cleared level is below MSA. At APDAK proceed to STV and comply with the STANDERTON 5B RWY21L STAR Communication Failure Procedure.</p>			
GEROX ONE CHARLIE DEPARTURE (GEROX 1C)			
GEROX 1C DEPARTURE Note: Significant point GEROX at position: S272249.01 E0284943.11 4.2% @140KT IAS = 595 FPM 4.2% @180KT IAS = 766 FPM 4.2% @220KT IAS = 936 FPM	21R	Left	Restricted to a minimum climb gradient of 4.2% to the CTR boundary. Climb to 8000' ALT, maintain RWY track 214° to JS007. At JS007 turn left to GEROX. At GEROX set course as per flight plan. Brakpan/Benoni, 5.5 NM SSE, circuit operates at 6000' ALT.
Communication Failure (GEROX 1C) (Squawk 7600)			
<p>Comply with GEROX ONE CHARLIE SID, climbing to 8400' ALT or maintain last assigned level, whichever is highest. At GEROX set course as per flight plan and climb to flight plan level.</p> <p>Aircraft wishing to return must continue to the SID termination point and climb to last assigned level or MSA if last cleared level is below MSA. At GEROX proceed to STV and enter the STV hold descending to FL240, or if below FL240, hold at last assigned level for minimum 5 MIN. Comply with the STANDERTON 5B RWY21L STAR Communication Failure Procedure.</p>			

12 SPECIAL PROCEDURES

Standard Instrument Departures and Standard Approach Terminal Routes, where in use, are shown on the charts in AD. All SIDs and STARs are subject to change without prior warning, especially during high surface wind and turbulent conditions, to accommodate opposite bound traffic.

OR TAMBO INTERNATIONAL AIRPORT

Applicable Only When Surveillance Radar Is In Operation.

- 1) Simultaneous use of parallel runways 03L/03R and 21L/21R - O R Tambo International Airport.
- 2) Simultaneous departures will be permitted, provided it is reasonably sure that radar identification with the respective aircraft will be established within 1 NM of the runway end and:
 - a) Tracks will diverge by 15° or more immediately after departure.
 - b) 3 NM longitudinal separation can be maintained between the aircraft until a track divergence of 15° or greater is established.

NOTE: Track divergence must be established within 7NM from the airport.

12.1 PARALLEL ILS APPROACHES

NOTE: Only applicable when aircraft are subject to straight-in or radar vectored approaches

- a) A minimum of 1000FT vertical separation or minimum 5NM radar separation must be provided between aircraft during the turn-on.
- b) A minimum of 5 NM radar separation must be provided between aircraft on the same localiser course (8NM in the case of heavy category aircraft.)
- c) A minimum of 3 NM radar separation must be provided between successive aircraft on adjacent localiser courses provided that:-
- d) This separation standard will only be applied after the aircraft are established on the respective localisers,
- e) The aircraft intend to land off the approaches,
- f) Aircraft will be informed when both runways are in use. (This information may be provided through the ATIS.)

12.2 PARALLEL APPROACHES (VISUAL/ILS) OR (VISUAL/ VISUAL)

NOTE: Only applicable when aircraft are subject to straight-in or radar vectored approaches.

- 1) A minimum of 1000 FT vertical separation or minimum 5NM radar separation will be provided between aircraft during the turn-on.
- 2) A minimum of 3NM radar separation will be provided between successive aircraft on adjacent final approach tracks
- 3) This separation will be applied only after the aircraft are established on their respective final approach tracks. (LOC/ VISUAL FINAL - VISUAL FINAL / VISUAL FINAL i.e. both aircraft on visual approaches.)

12.3 CAT II OPERATIONS

During category II operations there will be no parallel approaches unless the standard separations applicable to single runway operations can be maintained.

12.4 PARALLEL ARRIVALS AND DEPARTURES - SAME DIRECTION

- 1) When conditions dictate the use of one runway for landing and parallel runway for departure the following minima shall apply:-
 - a) If the departing aircraft's flight path crosses the extended centre line of the parallel runway, take-off clearance will ensure a minimum of 5NM radar separation from the arriving aircraft.
 - b) The departing aircraft's tracks will diverge by 15x or more away from the parallel runway immediately after take-off.
 - c) 3NM separation will be maintained between the two aircraft until a track divergence of 15x or more is established between the two aircraft.

12.5 SIMULTANEOUS, OPPOSITE DIRECTION OPERATIONS ON PARALLEL RUNWAYS

- 1) Simultaneous, opposite direction operations on parallel runways shall be permitted when:-
 - a) Conducted in VMC by DAY only; and
 - b) When the aircraft operating in the non standard direction is operating under visual flight rules (VFR) and carrying out calibration operations for the Civil Aviation Authority.
 - c) When the calibration flight conducts the circuit away from the parallel runway; and
 - d) All flights arriving or departing on the runway in use are aware of the calibration operations from the opposite direction.

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