

Apt Elev
4940'

Alt Set: hPa Trans level: By ATC Trans alt: 8000'

1. If unable to comply with STAR notify ATC.
2. SIDs and STARs must be announced in operation on ATIS and will only be in force when FAJS Surveillance Radar is operational.
3. STARs include minimum noise routes.

8900'

MSA
WKV VORBRONKHORST 3C (MEV 3C)
RWY 01 ARRIVALUNLICENCED MILITARY AERODROME
TO BE USED IN EMERGENCY ONLY.Pretoria Flying
TNG Area 2

FA(R)-171

WATERKLOOF
D 116.9 WKV
S25 50.0 E028 13.2D9 WKV
S25 48.8 E028 23.1
MAX 210 KTD18.6
279°
9.6
D28.3
090°
270°BRONK-
HORSTSPRUIT
D 114.3 MEV
S25 47.5 E028 33.7
MAX 250 KTILS DME
111.3 WKI

NOT TO SCALE

1 Ensure not to penetrate
the Pretoria Flying TNG
Area 2 and FA(R)-171.JOHANNESBURG
D 115.2 JSV
S26 09.4 E028 13.9

MAXIMUM APPROACH SPEED POINTS (SLP)

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.

▼ LOST COMMS ▼ LOST COMMS ▼ LOST COMMS ▼ LOST COMMS ▼ LOST COMMS ▼ LOST COMMS ▼ LOST COMMS ▼ LOST COMMS ▼

If not cleared for an arrival, proceed to nearest STAR entry position at last assigned **FL** or **FL90**, whichever is highest. Comply with associated communication failure procedure.

Before MEV: Proceed to MEV and enter holding, hold at last assigned **FL** for minimum 5 minutes, then descend to **FL120** in the holding. Leave MEV at **FL120** on MEV 3C STAR and descend to **8000'**, when passing D9 WKV descend to **6500'**, when passing WKV R-145 turn RIGHT, 280° heading, when passing WKV R-170 turn RIGHT, 340° heading to intercept ILS.

After MEV: Continue on STAR and descend to **FL90**, when passing D9 WKV descend to **6500'**, when passing WKV R-145 turn RIGHT, 280° heading, when passing WKV R-170 turn RIGHT, 340° heading to intercept ILS.

Note: Aircraft entering TMA at or below **FL110** are to enter the designated holding at last assigned **FL** and continue on designated STAR.

Caution: Holdings below **FL110** will be conducted partially outside controlled airspace.

ROUTING

Intercept WKV R-099 inbound to D9 WKV, turn LEFT, 190° heading for radar vectoring to ILS.

In the event of a missed approach with the intention of diverting to an alternate airport comply with the following SIDs:

to E & SE **MEV 3A**;
to N, W & SW **HBV 2G**.

Apt Elev
4940'

Alt Set: hPa Trans level: By ATC Trans alt: 8000'

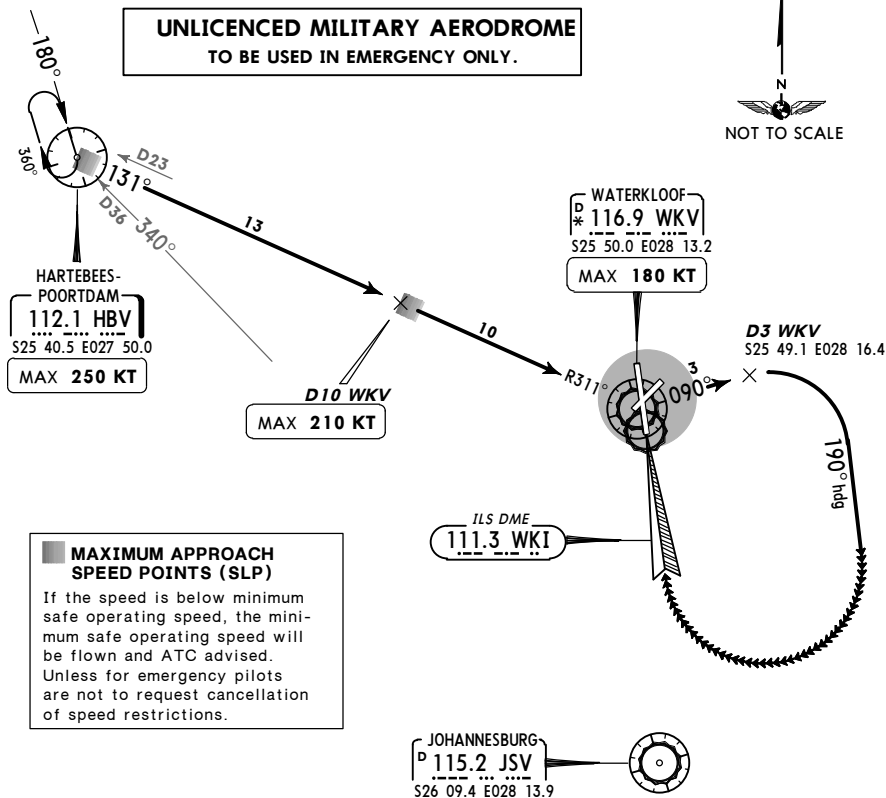
1. If unable to comply with STAR notify ATC.
2. SIDs and STARs must be announced in operation on ATIS and will only be in force when FAJS Surveillance Radar is operational.
3. STARs include minimum noise routes.

8900'

MSA
WKV VORHARTBEES 2F (HBV 2F)
RWY 01 ARRIVAL

UNLICENCED MILITARY AERODROME

TO BE USED IN EMERGENCY ONLY.

MAXIMUM APPROACH
SPEED POINTS (SLP)

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.



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If not cleared for an arrival, proceed to nearest STAR entry position at last assigned **FL** or **FL90**, whichever is highest. Comply with associated communication failure procedure.

Before HBV: Proceed to HBV and enter holding, hold at last assigned **FL** for minimum 5 minutes, then descend to **FL120** in the holding. Leave HBV at **FL120** on HBV 2F STAR, at D10 WKV descend to **FL90**, when passing WKV descend to **6500'**, at D3 WKV turn RIGHT, 190° heading, when passing WKV R-145 turn RIGHT, 280° heading, when passing WKV R-170 turn RIGHT, 340° heading to intercept ILS.

After HBV: Continue on STAR maintaining last assigned **FL**, at D10 WKV descend to **FL90**, when passing WKV descend to **6500'**, at D3 WKV turn RIGHT, 190° heading, when passing WKV R-145 turn RIGHT, 280° heading, when passing WKV R-170 turn RIGHT, 340° heading to intercept ILS.

Note: Aircraft entering TMA at or below **FL110** are to enter the designated holding at last assigned **FL** and continue on designated STAR.

Caution: Holdings below **FL110** will be conducted partially outside controlled airspace.

ROUTING

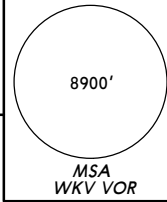
Direct to WKV, turn LEFT, WKV R-090 to D3 WKV, turn RIGHT, 190° heading for radar vectoring to ILS.

In the event of a missed approach with the intention of diverting to an alternate airport comply with the following SIDs:

to E & SE **MEV 3A**;
to N, W & SW **HBV 2G**.

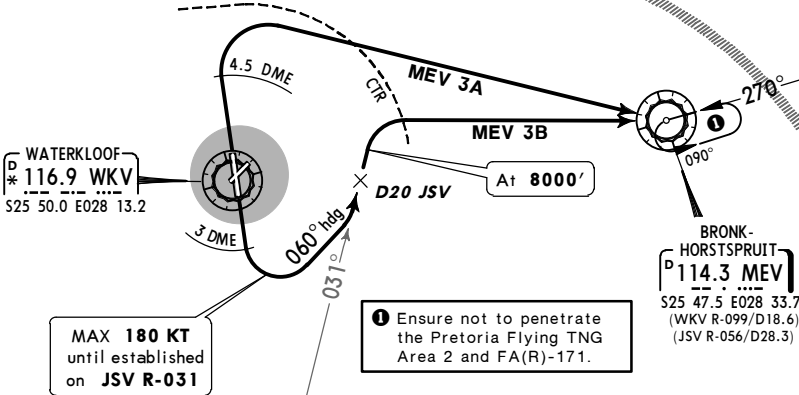
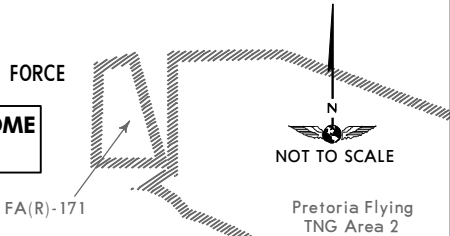
Apt Elev
4940'

- Trans level: By ATC Trans alt: 8000'
1. If unable to comply with SID notify ATC.
 2. Contact JOHANNESBURG Radar at 6500' on frequency provided.
 3. Cross CTR boundary at or above 8000'.
 4. SIDs include minimum noise routes.



BRONKHORST 3A (MEV 3A)
BRONKHORST 3B (MEV 3B)
RWYS 01, 19 DEPARTURES
PROCEDURES TO BE FLOWN ONLY
ON AUTHORITY FROM SOUTH AFRICAN AIR FORCE

UNLICENCED MILITARY AERODROME
TO BE USED IN EMERGENCY ONLY.



❶ Ensure not to penetrate the Pretoria Flying TNG Area 2 and FA(R)-171.

MEV 3A

This SID requires a minimum climb gradient of 286' per NM (4.7%).

Gnd speed-KT	75	100	150	200	250	300
286' per NM	357	476	714	952	1190	1428

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Comply with SID, maintain last assigned
Aircraft wishing to return must continue to SID termination point and climb to preferred above MSA at or below last assigned
appropriate STAR LOST COMMS procedure.

MEV 3A

FL to MEV, at MEV continue as per flight plan.

FL. At MEV enter holding and comply with the appropriate STAR LOST COMMS procedure.

FL

Comply with SID, maintain last assigned
climb to flight plan **FL.**

MEV 3B

FL to MEV, at MEV continue as per flight plan and

Aircraft wishing to return must continue to SID termination point and climb to preferred above MSA at or below last assigned
MEV 3C LOST COMMS procedure.

FL

Note: Fuel jettisoning may be done in the holding prior to commencing the STAR.
Caution: Holdings below **FL110** will be conducted partially outside controlled airspace.

▲ DOWN TO ▲ DOWN TO ▲ DOWN TO ▲ DOWN TO ▲ DOWN TO ▲ DOWN TO ▲ DOWN TO ▲ DOWN TO ▲

MEV 3A: Climb to **8000'**, further climb under radar control.
MEV 3B: Climb to **7000'**, at D20 JSV climb to **8000'**, further climb under radar control.

SID	RWY	ROUTING
MEV 3A	01	Climb on runway heading to WKV 4.5 DME, turn RIGHT to MEV, then as per flight plan.
MEV 3B	19	Climb on runway heading to WKV 3 DME, turn LEFT, 060° heading, intercept JSV R-031 to D20 JSV, at 8000' turn RIGHT to MEV, then as per flight plan.

8900'

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Apt Elev
4940'

Trans level: By ATC Trans alt: 8000'

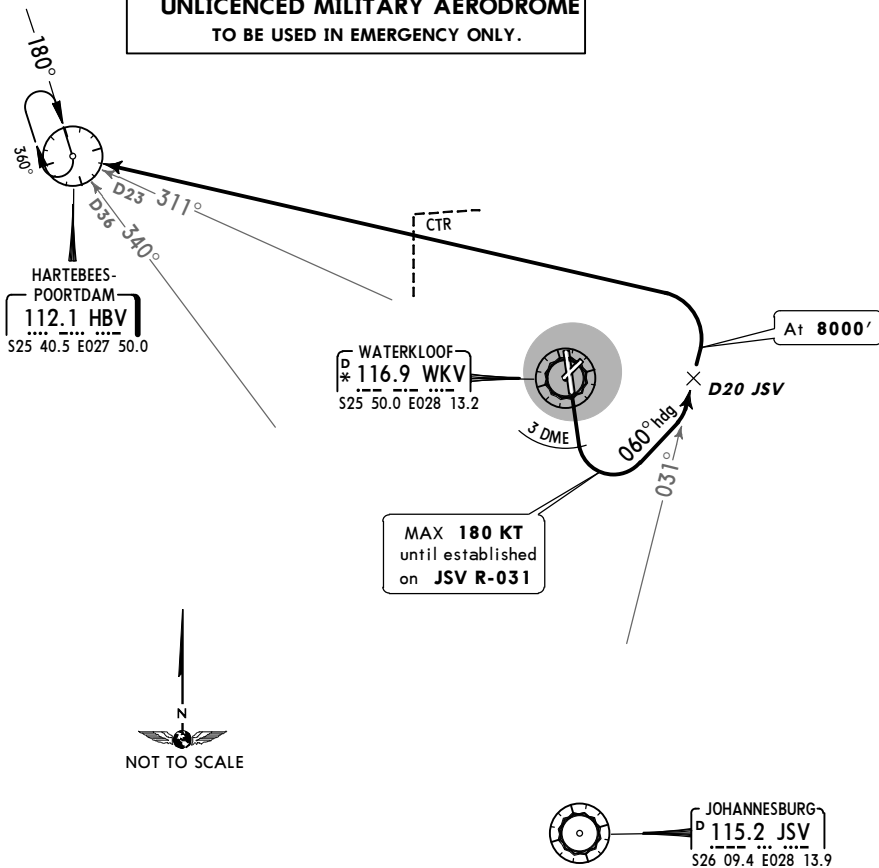
1. If unable to comply with SID notify ATC.
2. Contact JOHANNESBURG Radar at 6500' on frequency provided.
3. Cross CTR boundary at or above 8000'.
4. SIDs include minimum noise routes.

8900'

MSA
WKV VOR

HARTBEES 3E (HBV 3E)
RWY 19 DEPARTURE
PROCEDURES TO BE FLOWN ONLY
ON AUTHORITY FROM SOUTH AFRICAN AIR FORCE

UNLICENCED MILITARY AERODROME
TO BE USED IN EMERGENCY ONLY.



▼ LOST COMMS ▼ LOST COMMS ▼ LOST COMMS ▼ LOST COMMS ▼ LOST COMMS ▼ LOST COMMS ▼ LOST COMMS ▼ LOST COMMS ▼

Comply with SID, maintain last assigned **FL** to HBV, at HBV continue as per flight plan and climb to flight plan **FL**.

Aircraft wishing to return must continue to SID termination point and climb to preferred above MSA at or below last assigned **FL**. At HBV enter holding and comply with the HBV 2F LOST COMMS procedure.

Note: Fuel jettisoning may be done in the holding prior to commencing the STAR.

Caution: Holdings below **FL110** will be conducted partially outside controlled airspace.

▲ DOWN TO ▲ DOWN TO ▲ DOWN TO ▲ DOWN TO ▲ DOWN TO ▲ DOWN TO ▲ DOWN TO ▲ DOWN TO ▲

Climb to **7000'**, at D20 JSV climb to **8000'**,
further climb under radar control.

ROUTING

Climb on runway heading to WKV 3 DME, turn **LEFT**, 060° heading, intercept JSV R-031 to D20 JSV, at **8000'** turn **LEFT** to HBV, then as per flight plan.

Apt Elev
4940'

Trans level: By ATC Trans alt: 8000'

1. If unable to comply with SID notify ATC.

2. Contact JOHANNESBURG Radar at 6500' on frequency provided.

3. Cross CTR boundary at or above 8000'.

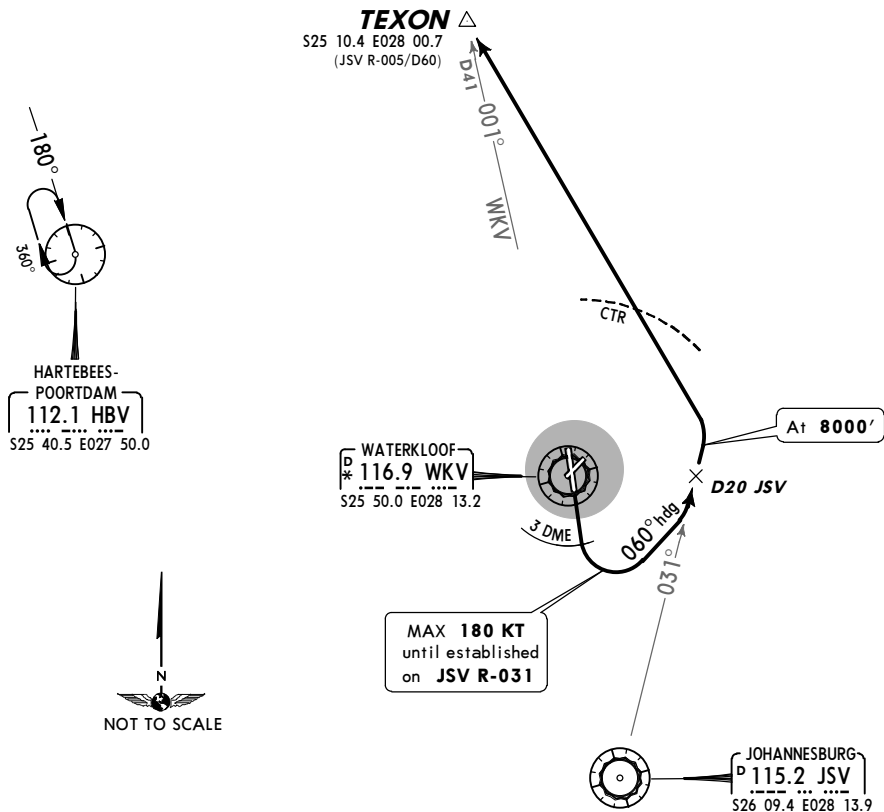
4. SIDs include minimum noise routes.

8900'

MSA
WKV VOR

TEXON 1B [TEXO1B]
RWY 19 DEPARTURE
 PROCEDURES TO BE FLOWN ONLY
 ON AUTHORITY FROM SOUTH AFRICAN AIR FORCE

UNLICENCED MILITARY AERODROME
TO BE USED IN EMERGENCY ONLY.



▼ LOST COMMS ▼ LOST COMMS ▼ LOST COMMS ▼ LOST COMMS ▼ LOST COMMS ▼ LOST COMMS ▼ LOST COMMS ▼ LOST COMMS ▼

Comply with SID, maintain last assigned **FL** to TEXON, at TEXON continue as per flight plan and climb to flight plan **FL**.

Aircraft wishing to return must continue to SID termination point and climb to preferred **FL** above MSA at or below last assigned **FL**. At TEXON proceed to HBV, enter holding and comply with HBV 2F LOST COMMS procedure.

Note: Fuel jettisoning may be done in the holding prior to commencing the STAR.

Caution: Holdings below **FL110** will be conducted partially outside controlled airspace.

Climb to **7000'**, at D20 JSV climb to **8000'**,
 further climb under radar control.

ROUTING

Climb on runway heading to WKV 3 DME, turn **LEFT**, 060° heading, intercept JSV R-031 to D20 JSV, at **8000'** turn **LEFT** to TEXON, then as per flight plan.

NOISE ABATEMENT

LT minus 2 HOURS = UTC (Z)

GENERAL

The following procedures are designed to avoid excessive noise in areas adjacent to the aerodrome and in areas overflown 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 5950'.

Rapid changes in engine power should be avoided.

Runway changes will only take place if the wind velocity exceeds 8 KT.

Heavy category aircraft commanders are permitted to select the runway for arrivals and departures. Heavy category aircraft are not permitted to practice 500' circuits.

Bad weather circuits (500') may be flown in IMC or two per training/rating sortie.

No aerobatic flights or low level arrivals may take place at Waterkloof unless authorized.

ARRIVALS

All arrivals, wind and traffic permitting, will be executed on RWY 01.

The final approach path shall be strictly at the angle defined by the ILS and PAIPGP (3°).

DEPARTURES

All departures, wind and traffic permitting, will be executed on RWY 19.

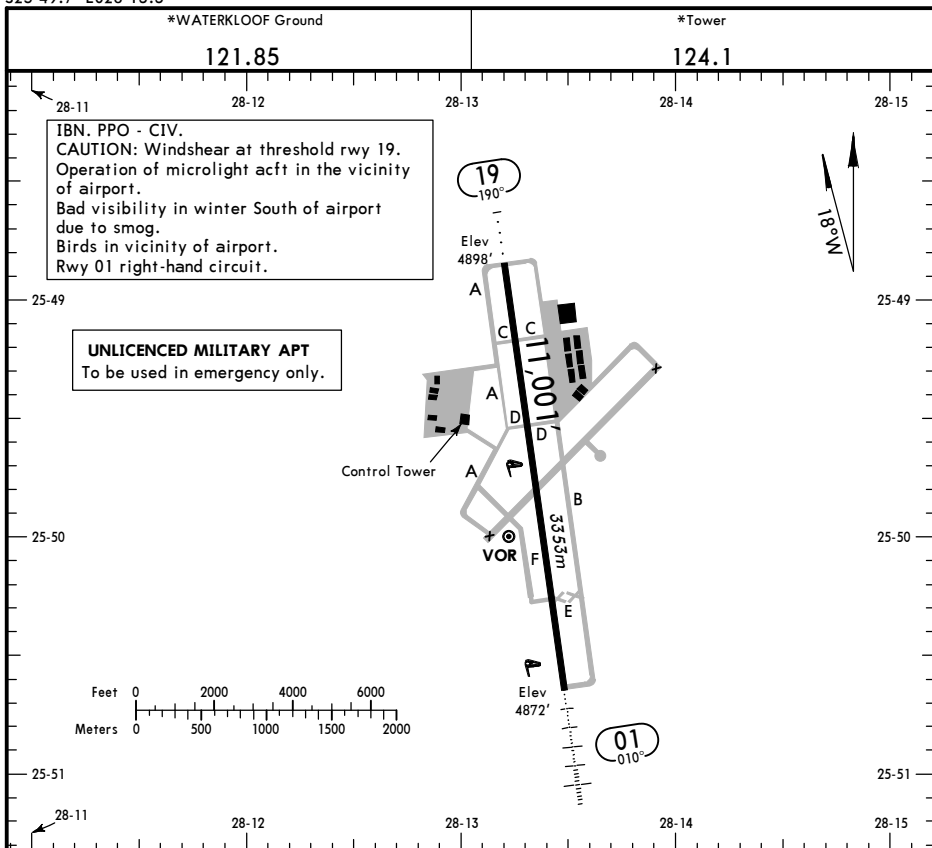
- | | |
|-------------------|--|
| Take-off to 6450' | <ul style="list-style-type: none">- take-off power;- take-off flaps;- climb at $V_2 + 10$ to 20 KT or as limited by body angle;- depending on ACFT type, the take-off power/thrust may be reduced at a lower altitude; |
| At 6450' | <ul style="list-style-type: none">- reduce thrust (if not already reduced) to not less than climb power/thrust; |
| 6450' to 7950' | <ul style="list-style-type: none">- climb at $V_2 + 10$ to 20 KT; |
| At 7950' | <ul style="list-style-type: none">- accelerate smoothly to en-route climb speed with flap retraction on schedule. |

RUN-UP TESTS

Between 1800-0600LT engine run-ups will only be permitted with the authorization of the operations coordinator.

FAWK/WKF
Apt Elev 4940'
S25 49.7 E028 13.3

JEPPESSEN WATERKLOOF, S AFR REP
11 APR 14 10-9 Eff 15 Apr WATERKLOOF AB



ADDITIONAL RUNWAY INFORMATION

RWY				USABLE LENGTHS		TAKE-OFF	WIDTH
				LANDING BEYOND	Glide Slope		
01	HIRL	HIALS	PAPI (angle 3.0°)	Threshold	10,090' 3075m		148'
19	HIRL	ALS	PAPI (angle 3.0°)				45m

JAR-OPS

TAKE-OFF

	LVP must be in Force	All Rwys	
	RCLM (DAY only) or RL	RCLM (DAY only) or RL	NIL (DAY only)
A			
B	250m	400m	500m
C			
D	300m		

STRAIGHT-IN RWY	A	B	C	D
01 ILS	5086'(214')	5102'(230')	5112'(240')	5122'(250')
FULL	R600m	R600m	R600m	R600m
Limited	R750m	R750m	R750m	R750m
ALS out	R1200m	R1200m	R1200m	R1300m

CIRCLE-TO-LAND ❶	A	B	C	D
	MINIMUMS NOT YET ESTABLISHED BY S AFR REP CAA			

❶ Entirely at pilots discretion.

TAKE-OFF RWY 01, 19		
LVP must be in force		
RCLM (DAY only) or RL	RCLM (DAY only) or RL	NIL (DAY only)
A	400m	500m
B		
C		
D		

JEPPESSEN WATERKLOOF, S AFR REP
11 APR 14 11-1
Eff 15 Apr ILS Rwy 01

11 APR 14
Eff 15 Ap

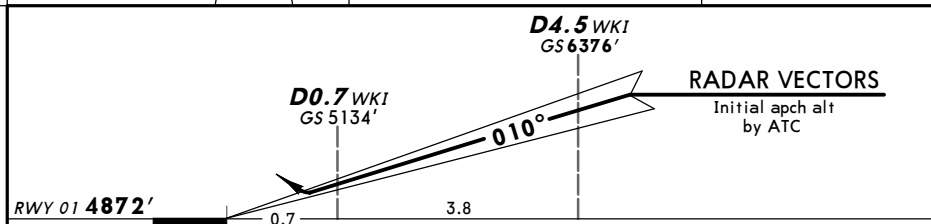
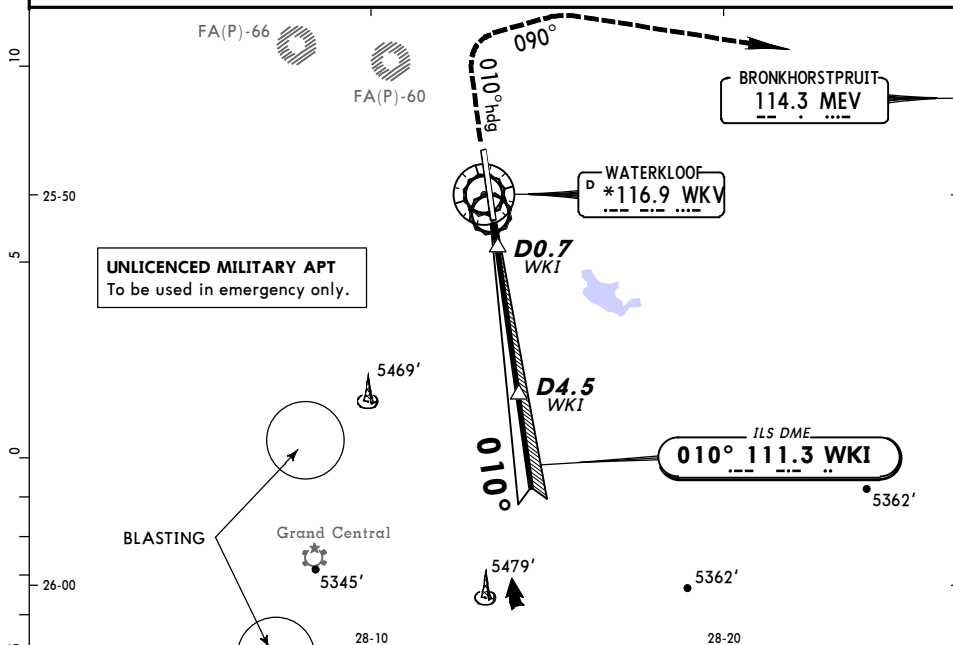
11-1

ILS Rwy 01

BRIEFING STRIP™

Alt Set: hPa Rwy Elev: 166 hPa Trans level: By ATC Trans alt: 8000'

1. **VOR and DME required.** 2. Radar vectored ILS. 3. Acft under JOHANNESBURG radar control until established on ILS or passing through 8000'. 4. ILS DME reads zero at rwy 01 thresh.



Gnd speed-Kts	70	90	100	120	140	160	
Gs	3.00°	372	478	531	637	743	849

HIALS

PAPI

PAPI

7000' on hdg 010°

JAR-OPS

STRAIGHT-IN LANDING RWY 01

ILS

$DA(H)$ A: **5086'** (214') C: **5112'** (240')
B: **5102'** (230') D: **5122'** (250')

LOC (GS out)

CIRCLE-TO-LAND

ENTIRELY AT
PILOTS DISCRETION

A					
B	RVR 600m	RVR 1000m	NOT APPLICABLE		MINIMUMS NOT YET ESTABLISHED BY S AFR REP CAA
C					
D					

CHANGES: RWY 06/24 closed.

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