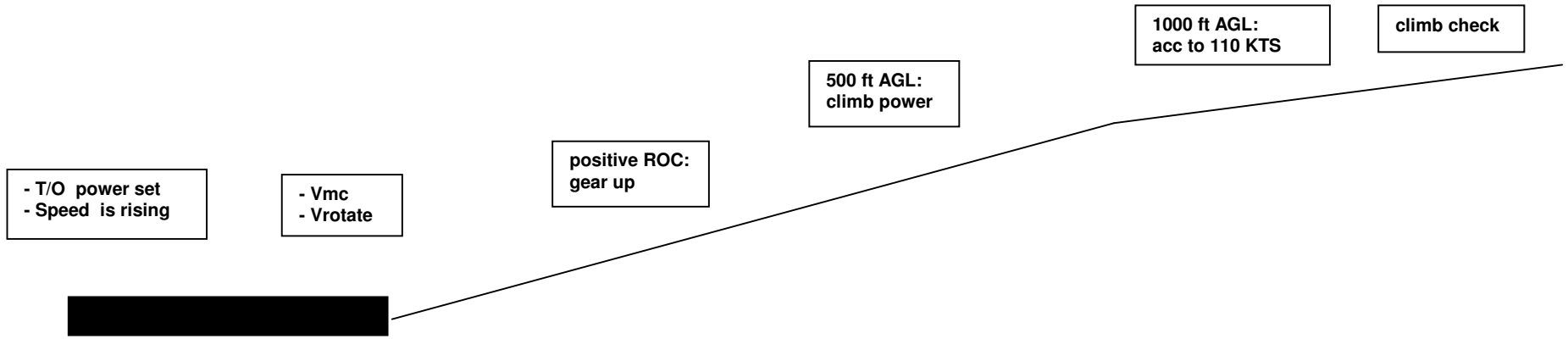
T A K E O F F A N D C L I M B

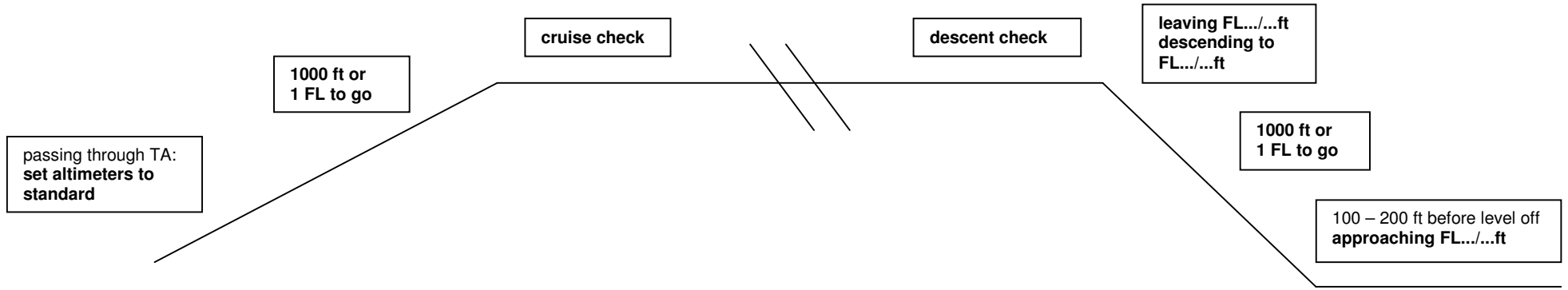
POSITION	T/O AND T/O ROLL	AT Vrotate	POSITIVE ROC	500 FT AGL	1000 FT AGL	CLIMB OUT
PITCH	NIL	PULL TO 12° ANU	+8° - +10°ANU	+7° - +8° ANU	+5° ANU	+5° ANU
THROTTLES RPM MIXTURE	37“ HIGH RPM FULL RICH	37“ HIGH RPM FULL RICH	37“ HIGH RPM FULL RICH	33“ 2600 RPM FULL RICH	33“ 2600 RPM FULL RICH	33“ 2600 RPM FULL RICH
SPEED	ACCELERATION TO Vrot	79 KTS	ACC TO 92 KTS	92 KTS	ACC TO 110 KTS	110 KTS
CONFIGURATION: GEAR / FLAPS	GEAR DOWN NORMALLY: FLAPS UP	GEAR DOWN FLAPS UP	GEAR UP FLAPS UP	GEAR UP FLAPS UP	GEAR UP FLAPS UP	GEAR UP FLAPS UP



REMARKS	- adjust power to 30“, then release brakes and set carefully 37“ during acceleration - on long rwy: set t/o power without holding aeroplane on the brakes	- rotate with both hands to max 15° ANU at a rate of 3°/sec - as a lateral guidance: look to the far end of the rwy to keep lateral tracking	- before lifting the gear: check positive ROC on VSI - gear retraction: no big pitch change to be expected, only drag reduction		- no power change for acceleration; therefore only pitch adjustement to increase speed - climb check, when workload is reduced and time permits	- check / adjust throttles during climb out frequently - for a further climb after level off (more than 1000 ft) open cowl flaps and set climb power

L E V E L O F F A N D C L E A N D E S C E N T

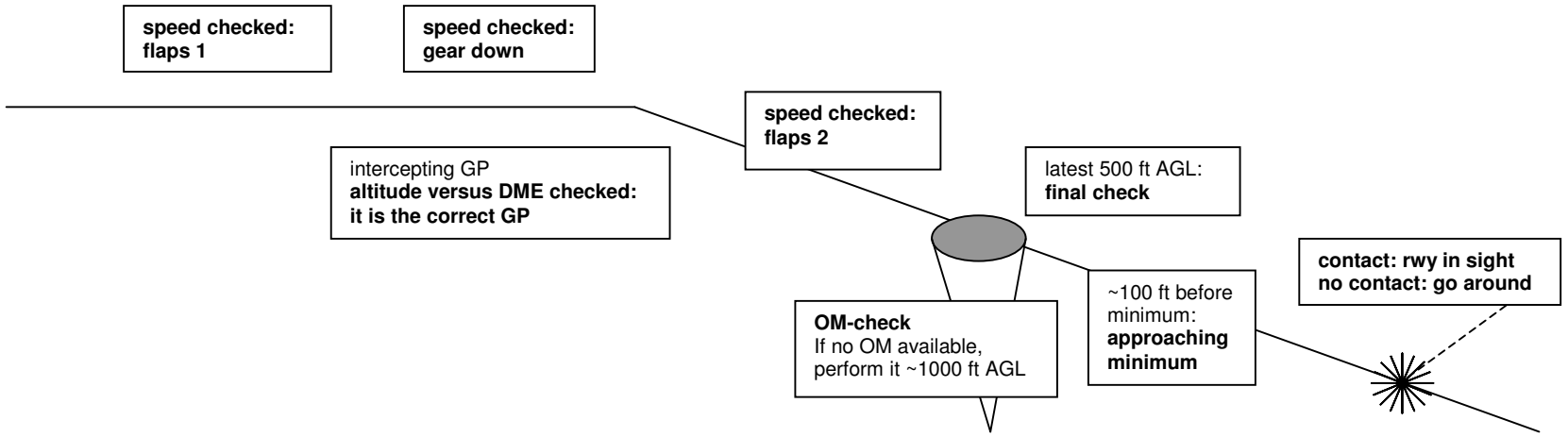
POSITION	1000 FT OR 1 FL TO GO	LEVEL OFF AND CRUISE	DESCENT PREPAR.	DESCENT	LEVEL OFF
PITCH	5° ANU	0° AND	0° AND	-2° AND	0° AND
THROTTLES RPM MIXTURE	33“ 2600 RPM MIXTURE RICH	27“ 2400RPM 11GAL / HOUR	27“ 2400RPM 11GAL / HOUR	21“ 2400RPM ADJUST MIXTURE	27“ 2400RPM 11GAL OR FULL RICH
SPEED	110 KTS	140 KTS	140 KTS	140 KTS	140 KTS
CONFIGURATION: GEAR / FLAPS	GEAR UP FLAPS UP	GEAR UP FLAPS UP	GEAR UP FLAPS UP	GEAR UP FLAPS UP	GEAR UP FLAPS UP



REMARKS	- *latest* when passing through TA, set altimeters to standard. Adapt afterwards your wording: say FL instead of altitude	- level off anticipation: about 100 ft before level off - adjust pitch to cruise attitude - allow speed to build up before setting cruise power - during speed builds up, keep pitch attitude - set cruise power - perform cruise check, when workload is reduced	- perform descent check, whenever possible, before starting decent - arrange your descent according the 3°-rule. *dist: out to commence descent: (FL x 3) / 10*	- normal ROD is about 500 - 800 ft - adjust MP during descent, otherwise MP and speed will increase - when cleared down to an altitude, perform immediately check for approach	- if not under radar vector do not descent below published minimum altitudes (MOCA / MORA / MSA / IAA) - even under radar be all the time aware of your present position

PRECISION APPROACH

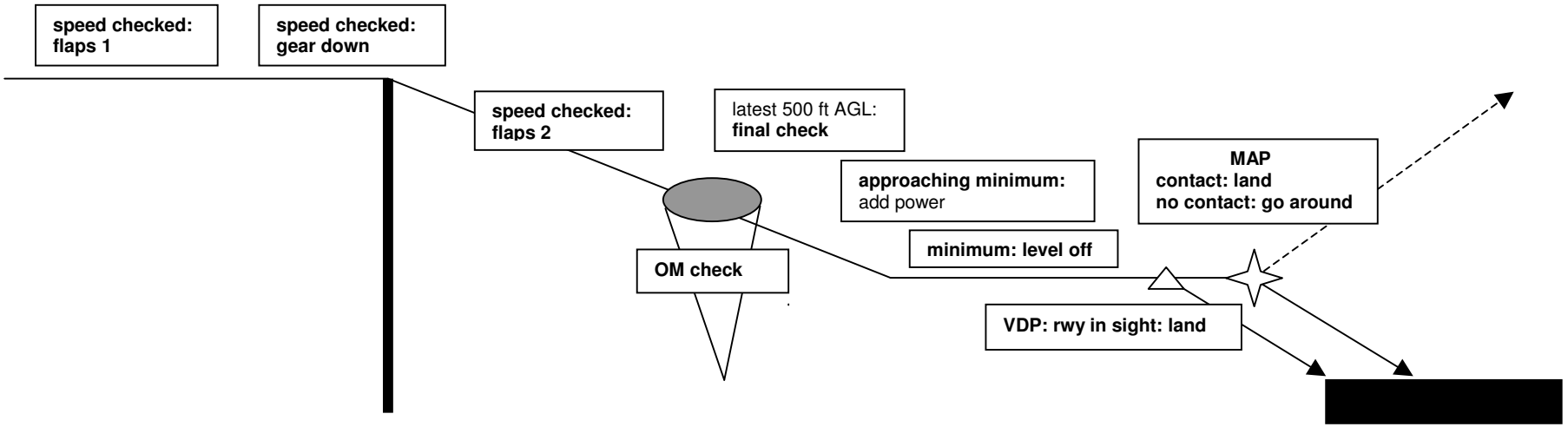
POSITION	CLEAN	1 DOT BELOW GP	ON GP AND ON LOC	APPROACHING OM	ON FINAL	
PITCH	0° AND	-4° AND	-7° AND	-8° AND	-5° AND	-6° AND
THROTTLES RPM MIXTURE	24“ 2400RPM FULL RICH	24“ 2400RPM FULL RICH	20“ 2400 RPM FULL RICH	18“-20“ 2400 RPM FULL RICH	18“ HIGH RPM FULL RICH	19“ HIGH RPM FULL RICH
SPEED	130 KTS	120 KTS	110 KTS	100 KTS	100 KTS	90 KTS
CONFIGURATION: GEAR / FLAPS	GEAR UP FLAPS UP	GEAR UP FLAPS 1	GEAR DOWN FLAPS 1	GEAR DOWN FLAPS 2 (IF DESIRED)	GEAR DOWN FLAPS 1	GEAR DOWN FLAPS 2



REMARKS	- start an instrument approach only, if there is a reasonable chance for a successful landing		- intercepting GP: check FAP versus height / DME - on ILS: do not fly / follow needles: *react on tendencies of GP- and LOC- indications*	- in IMC or in marginal Wx conditions, have all settled and be established on ILS latest 1000 ft AGL - flaps setting is up to your decision making process	- on final: only small corrections needed to remain established on ILS - reduce power to idle upon crossing the threshold and maintain your flight path to the aiming point: there start your flare with both hands

NON PRECISION APPROACH

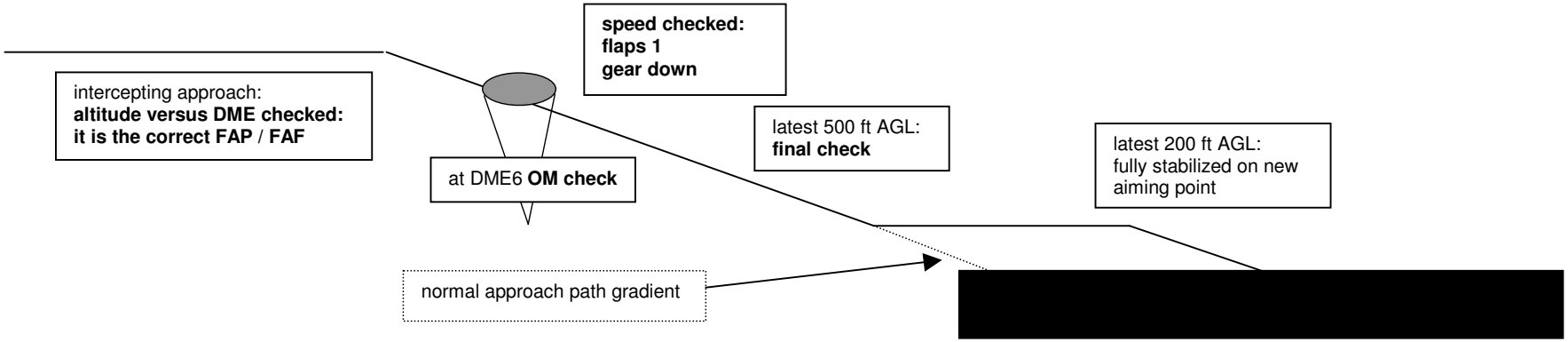
POSITION	INBOUND TRACKING	BEFORE / OVER FAF	BETWEEN FAF / OM	MINIMUM		AT VDP OR AT MAP	
PITCH	-4° AND	-7° AND	-8° AND	-2° AND	-4° AND	-6° AND	-5° AND
THROTTLES RPM MIXTURE	24“ 2400RPM FULL RICH	18“-20“ 2400 RPM FULL RICH	18“-20“ 2400 RPM FULL RICH	24“ HIGH RPM FULL RICH	26“ HIGH RPM FULL RICH	18“ HIGH RPM FULL RICH	19“ HIGH RPM FULL RICH
SPEED	120 KTS	110 KTS	100 KTS	100 KTS	90 KTS	100 KTS	90 KTS
CONFIGURATION: GEAR / FLAPS	GEAR UP FLAPS 1	GEAR DOWN FLAPS 1	GEAR DOWN FLAPS 2 (IF DESIRED)	GEAR DOWN FLAPS 1	GEAR DOWN FLAPS 2	GEAR DOWN FLAPS 1	GEAR DOWN FLAPS 2



REMARKS	- established on in-bound track means: *+/- 5° tracking from requested QDM or TRACK*	- be prepared to leave FAF at exact position: *shortly before FAF reduce power and lower the nose in order to really start descent over FAF*	- time check over OM or FAF is compulsory to determine positions - pass over intermediate altitudes just at or above	- for the last step down: select a higher ROD to fly a level off not undershooting the altitude (big pitch changes may be necessary) - ~ 50 ft before MDA: add power for the level flight and continue tracking	- at VDP: *if rwy in sight*, continue visually on a 3° GP - at MAP: *if contact:* land. Proceed visually on a new aiming point to get a 3° final *if no contact:* go around - don‘t use VASIS/PAPI <200 ftAGL

L O W D R A G A P P R O A C H

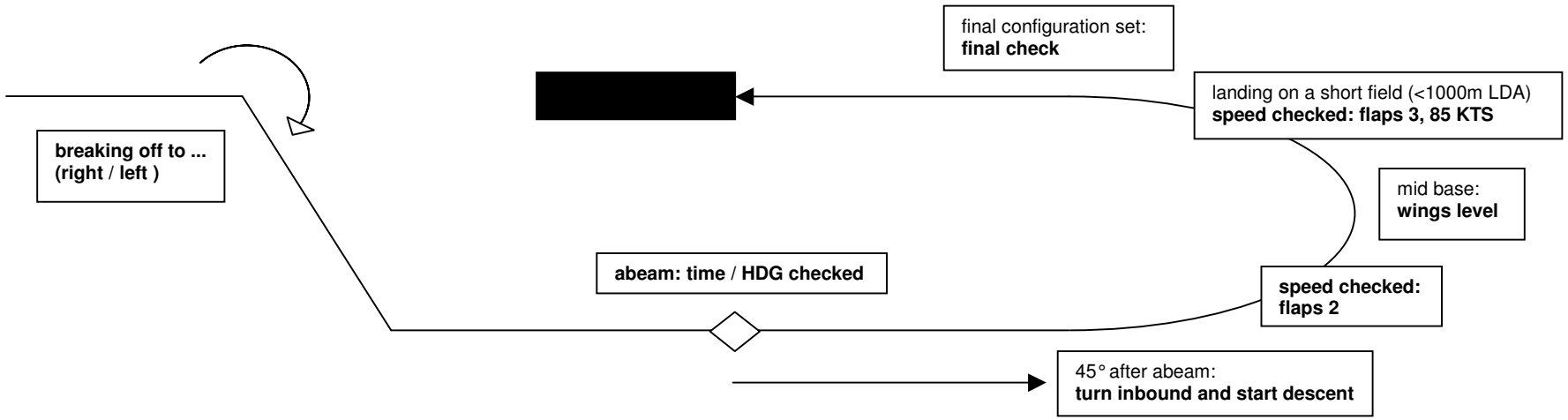
POSITION	CLEAN	ESTABLISHED ON APPROACH	REDUCING SPEED	ON FINAL
PITCH	0° AND	-6° AND	-3° to 0° AND	-5° AND
THROTTLES RPM MIXTURE	27“ 2400RPM FULL RICH	18“-20“ 2400RPM FULL RICH	BACK TO ≈ 15“ (CONSIDER SPEED BRAKES) 2400 RPM OR HIGH RPM (IF NEEDED) FULL RICH	18“ HIGH RPM FILL RICH
SPEED	140 KTS	140 KTS	REDUCING SPEED	100 KTS
CONFIGURATION: GEAR / FLAPS	GEAR UP FLAPS UP	GEAR UP FLAPS UP	LOWERING GEAR (AT MAX POSSIBLE SPEED) SETTING FLAPS (AT MAX POSSIBLE SPEED)	GEAR DOWN FLAPS 1



REMARKS	- this approach is a *VISUAL* procedure to gain some time: *perform only when visual ground contact is established* - preferentially to be done at aerodromes with high speed appr (i.e: LSZH)	- intercepting approach: check FAP / FAF versus height / DME - during approach with high speed: do not fly / follow needles! IMPORTANT *react on tendencies of approach indications (GP, LOC, VOR, NDB)*	- at DME4 reduce power carefully (turbo disengage). - at max flaps and gear lowering speed, set the corresponding configuration - stay on the glide path - be fully stabilized on GP latest at 200 ft AGL, (decision point)	- final and landing are the same as with a standard approach; the only difference is the new aimimg point somewhere down the runway

C I R C L I N G A P P R O A C H

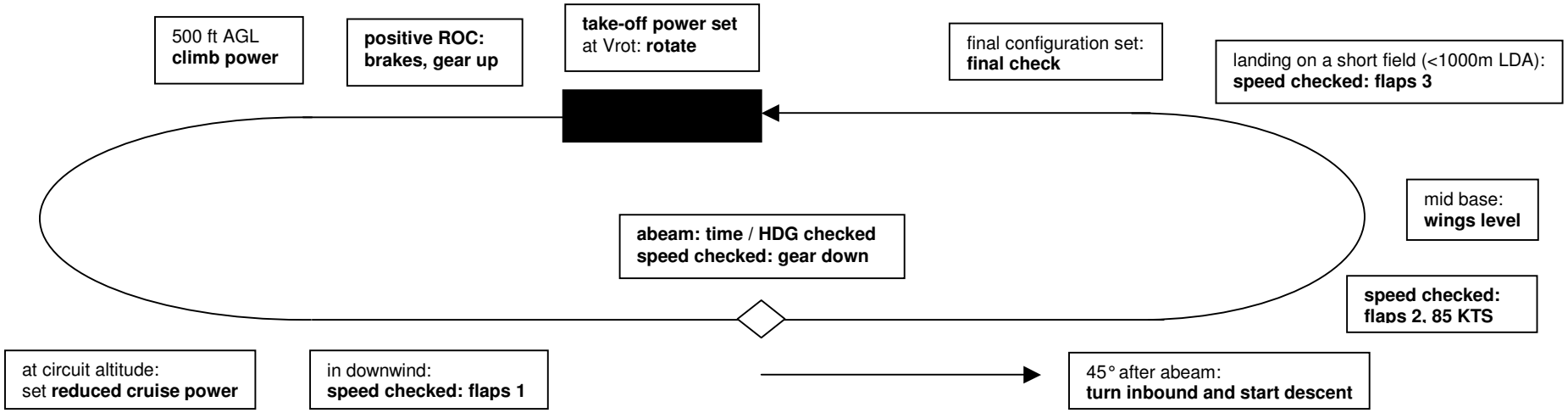
POSITION	APPROACH	BREAK - OFF	ABEAM	45° AFTER ABEAM	MID BASE	FINAL
PITCH	-7° AND	-2° AND	-2° AND	-8° AND	-6° AND	-4° AND
THROTTLES RPM MIXTURE	20“ 2400 RPM FULL RICH	24“ 2400 RPM FULL RICH	24“ 2400 RPM FULL RICH	18“ 2400 RPM FULL RICH	19“ 2400 RPM FULL RICH	19“ HIGH RPM FULL RICH
SPEED	110 KTS	100 KTS	100 KTS	100 KTS	100 KTS	90 KTS
CONFIGURATION: GEAR / FLAPS	GEAR DOWN FLAPS 1	GEAR DOWN FLAPS 1	GEAR DOWN FLAPS 1	GEAR DOWN FLAPS 1	GEAR DOWN FLAPS 2	GEAR DOWN FLAPS 2



REMARKS	- approaching circling minimum: start level-off with care and con-centration to keep altitude within IFR - tolerances: + 100 ft / - 0 ft	- break off rule: *apply 90° rule* - set OBS of HSI to the landing rwy	- time / HDG checked: adjust time and HDG for wind - influence, if neccessary	- turn inbound and start descent: reduce power and lower the nose - established in descent: set flaps 2. Counteract the flaps *„ballooning“* to keep continuous descent	- make a short wings level to check position target altitude: ~ 500 - 600 ft AGL - loosing gnd contact: be mentally ready to perform any time GA	- aim for a long enough and therefore stable final: 300 ft AGL fully stabilized on rwy axis and on imaginary GP - short field (<1000 m): set full flaps on final

C I R C U I T

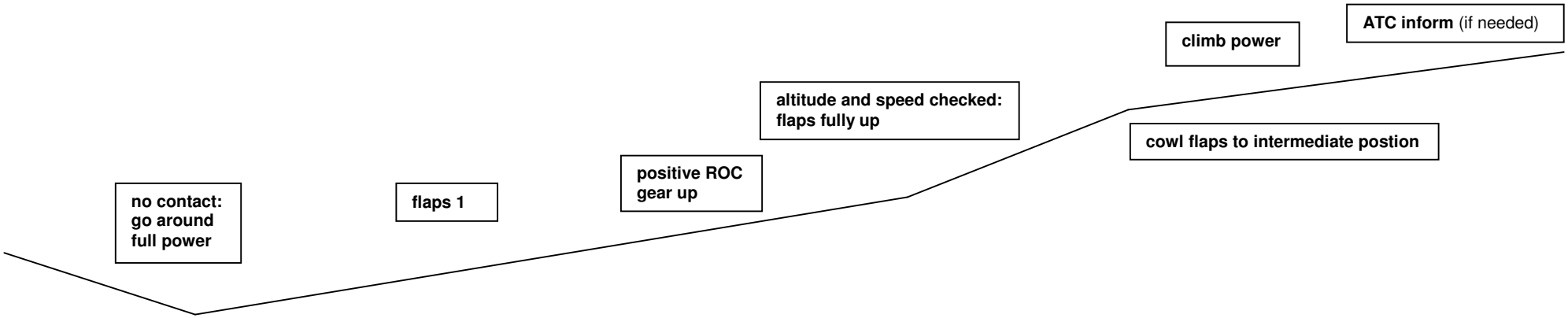
POSITION	CLIMB OUT	CIRCUIT ALTITUDE	ABEAM	45° AFTER ABEAM	MID BASE	FINAL
PITCH	10° (MAX 15°) ANU	0° AND	-2° AND	-8° AND	-6° AND	-4° AND
THROTTLES RPM MIXTURE	37“ HIGH RPM FULL RICH	22“ 2400 RPM FULL RICH	24“ 2400 RPM FULL RICH	18“ 2400 RPM FULL RICH	19“ 2400 RPM FULL RICH	19“ HIGH RPM FULL RICH
SPEED	ACC TO Vrot	100 KTS	100 KTS	100 KTS	100 KTS	90 KTS
CONFIGURATION: GEAR / FLAPS	GEAR UP FLAPS UP	GEAR UP FLAPS UP	GEAR DOWN FLAPS 1	GEAR DOWN FLAPS 1	GEAR DOWN FLAPS 2	GEAR DOWN FLAPS 2



REMARKS	- principally it is the same manoeuvre as the circling approach, except for flaps and gear setting in downwind and *everything happens faster:* so make a good briefing already on gnd - ***no checks except final to be done in circuit*** - ***whole circuit shall be flown with cowl flaps in intermediate position***	- abeam: time / HDG checked; adjust for wind-influence - abeam: lower as well the gear	- turn inbound and start descent: reduce power and lower the nose - established in descent: set flaps 2. Counteract the flaps *„ballooning“* to keep continuous descent	- make a short wings level to check position target altitude: ~ 500 - 600 ft AGL	- aim for a long enough and therefore stable final: 300 ft AGL fully stabilized on rwy axis and on imaginary GP - short field (<1000 m): set full flaps on final

MISSED APPROACH

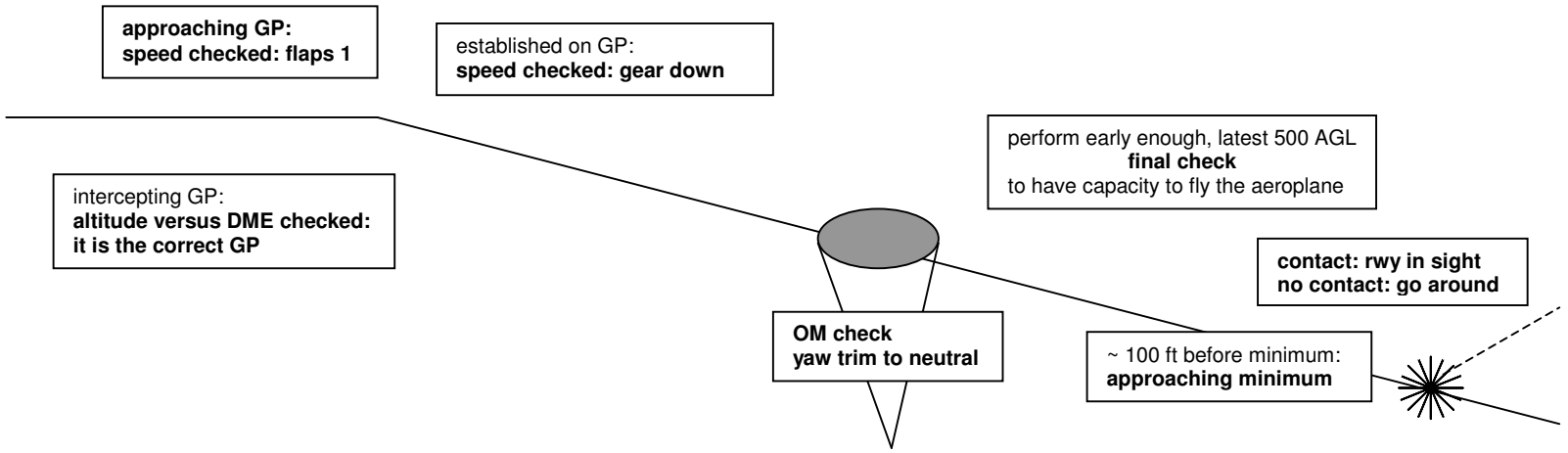
POSITION	INITIATION	CONFIGURATION CHANGES			CLIMB OUT	
PITCH	+2° ANU	+5° ANU	+5° ANU	+8° ANU	+5° ANU	+ 5° ANU
THROTTLES RPM MIXTURE	37“ HIGH RPM FULL RICH	37“ HIGH RPM FULL RICH	37“ HIGH RPM FULL RICH	37“ HIGH RPM FULL RICH	37“ 2400 RPM FULL RICH	37“ 2400 RPM FULL RICH
SPEED	100 OR 90 KTS	92 KTS blue line	92 KTS blue line	92 KTS blue line	ACC TO 110 KTS	110 KTS
CONFIGURATION: GEAR / FLAPS	GEAR DOWN FLAPS 1 OR 2	GEAR DOWN FLAPS 1	GEAR UP FLAPS 1	GEAR UP FLAPS UP	GEAR UP FLAPS UP	GEAR UP FLAPS UP



REMARKS	- once a missed appr is initiated, the proc has to be completed - pull up pitch and add full power (carefully: do not overboost engines) *at the same time*	- this step has only to be done, if approach was performed with flaps 2 - speed may drop initially below appr-speed, but will recover with drag reduction	- before lifting the gear check positive ROC on VSI - specially lifting flaps causes big pitch changes. Perform this step therefore with the necessary care and try not to do anything else at the same time. At this moment fly the aeroplane. - at safe altitude (all obstacles cleared or 500 ft AGL) and safe speed (>blue line), flaps fully up	- if performing same approach again: *no climb and descent check required for the next approach* - if level off is quite close to the gnd (eg circuit), *fly in first priority attitude and reduce throttles initially to an approximative value* to keep level flight - when all settled, inform ATC

1 – ENGINE – OUT PRECISION APPROACH

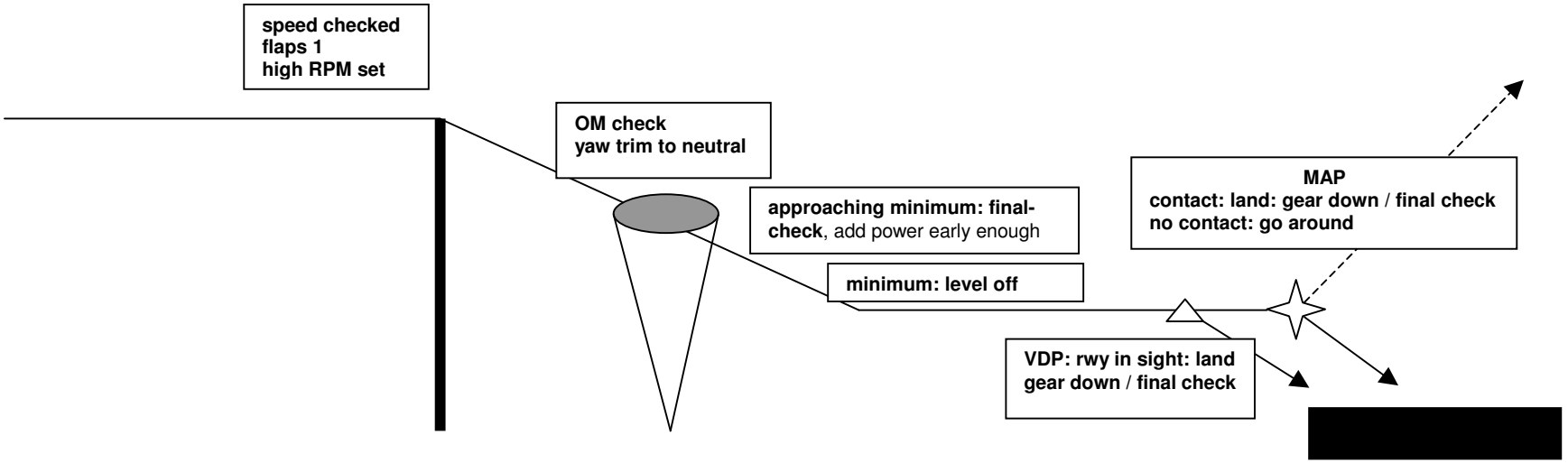
POSITION	CLEAN: LEVEL FLIGHT	APPROACHING GP	OVER OM	ON FINAL
PITCH	+1° ANU	-5° AND	-6° AND	-5° AND
THROTTLE RPM MIXTURE	34“ 2600 RPM FULL RICH	22“ 2600 RPM FULL RICH	18“-23“ HIGH RPM FULL RICH	18“-23“ HIGH RPM FULL RICH
SPEED	110 KTS	100 KTS	100 KTS	100 KTS
CONFIGURATION: GEAR / FLAPS	GEAR UP FLAPS UP	GEAR DOWN FLAPS 1	GEAR DOWN FLAPS 1	GEAR DOWN FLAPS 1



REMARKS	- remember: start an instrument approach only, if there is a reasonable chance for a success-full landing; specially valid for 1-engine-out approach: look for favoured conditions concerning WX, rwy and other facilities	- approaching GP: set flaps 1 and established on GP lower the gear. At the same time reduce power to keep approach speed: *expect big pitch- (flaps ballooning and starting descent) and yaw- change (power reduction for descent)*	- over OM *set yaw trim to neutral.* From there on maintain flight path with foot pressure - with less flaps setting: you have less power changes and therefore less assymetrie and better performance for corrections	- never fly below GP on a 1-engine out approach: big power- and yaw-changes needed to restore - if needed, set more flaps - expect yaw changes on landing: compensate with reducing foot pressure and opposite rudder

1 – ENGINE – OUT NON PRECISON APPROACH

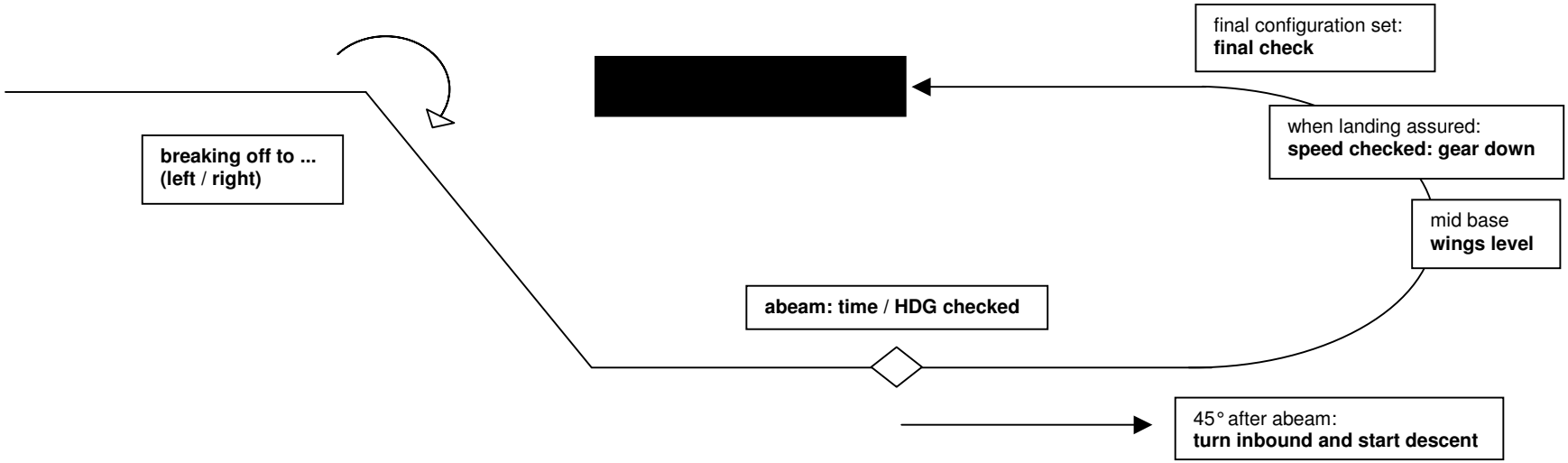
POSITION	INBOUND TRACKING	BEFORE / OVER FAF	OVER OM	MINIMUM	AT VDP OR AT MAP
PITCH	+1° ANU	-5° AND	-5° AND	-2° AND	-5° AND
THROTTLE RPM MIXTURE	34“ 2600 RPM FULL RICH	22“ 2600 RPM FULL RICH	18“-23“ HIGH RPM FULL RICH	37“ HIGH RPM FULL RICH	23“ HIGH RPM FULL RICH
SPEED	110 KTS	100 KTS	100 KTS	100 KTS	100 KTS
CONFIGURATION: GEAR / FLAPS	GEAR UP FLAPS UP	GEAR DOWN FLAPS 1	GEAR DOWN FLAPS 1	GEAR DOWN FLAPS 1	GEAR DOWN FLAPS 1



REMARKS	- same remarks valid as for the approach with all engine: in this section only varying things mentioned	- set flaps 1, reduce power and lower the gear	- *set yaw trim to neutral and maintain flight path with foot pressure*	- add power early enough to keep level flight. Remember: power means additional yaw: be ready for compensation with the foot	- *general note for a 1-engine-out approach:* **avoid a missed approach by all means** **-** if needed, set more flaps

1 – ENGINE – OUT CIRCLING APPROACH

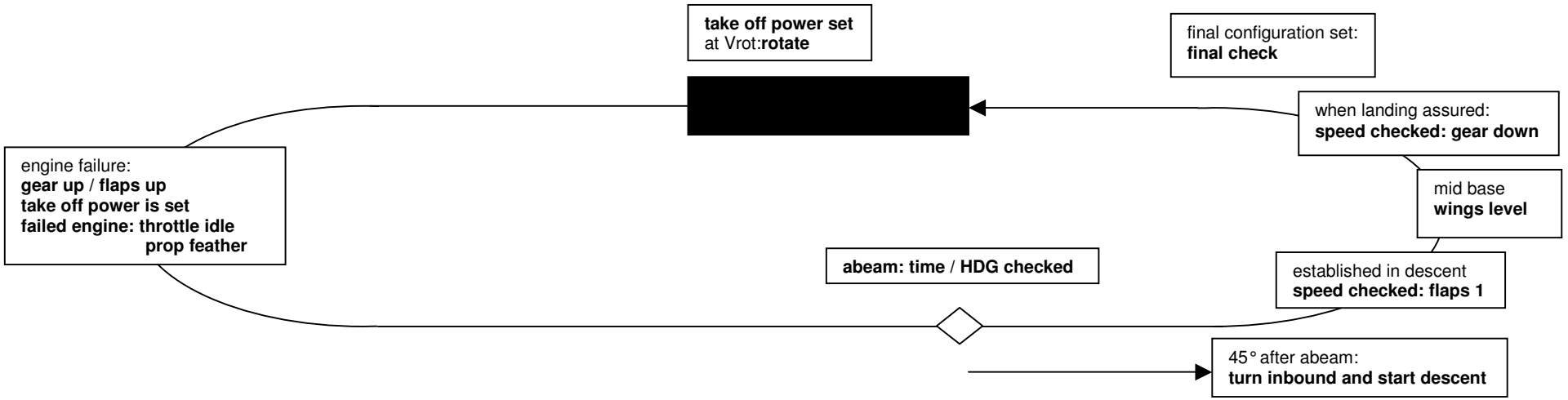
POSITION	APPROACH	LEVEL – OFF / BREAK - OFF	45° AFTER ABEAM	MID BASE / FINAL
PITCH	-5° AND	-2° AND	-2° AND	-5° AND
THROTTLE RPM MIXTURE	20“ HIGH RPM FULL RICH	30“-34“ HIGH RPM FULL RICH	16“ HIGH RPM FULL RICH	23“ HIGH RPM FULL RICH
SPEED	100 KTS	100 KTS	100 KTS	100 KTS
CONFIGURATION: GEAR / FLAPS	GEAR UP FLAPS 1	GEAR UP FLAPS 1	GEAR UP FLAPS 1	GEAR DOWN FLAPS 1



REMARKS	- same remarks valid as for the circling with all angine: in this section only different thing mention - after flaps 1 setting, increase to high RPM in order to be ready any time for a missed approach	- add power early and carefully enough due to much increase in yaw. If possible *do not trim* this yaw, fly the a/p with foot pressure - if altitude / speed can not be maitained, lift the flaps up	- during 1-engine-out descent, keep the a/p tendentiously slightly above the normal approach angle - if a/p was trimmed during circling *do not forget* to set yaw trim to neutral position for landing	- when landing is assured, lower the gear and perform immediately afterwards the final check - loosing gnd contact: be mentally prepared to perform any time a missed approach

1 – E N G I N E – O U T C I R C U I T

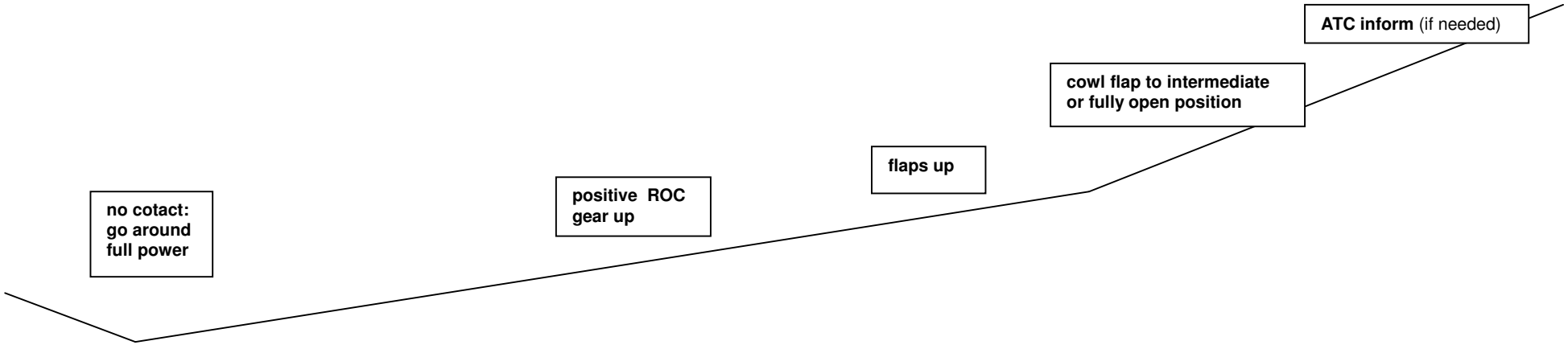
POSITION	CLIMB OUT AFTER E / F	CIRCUIT ALTITUDE	45° AFTER ABEAM	MID BASE / FINAL
PITCH	+5° ANU	+2° ANU	-5° AND	-5° AND
THROTTLE RPM MIXTURE	38“ HIGH RPM FULL RICH	28“ HIGH RPM FULL RICH	16“ HIGH RPM FULL RICH	23“ HIGH RPM FULL RICH
SPEED	92 KTS	100 KTS	100 KTS	100 KTS
CONFIGURATION: GEAR / FLAPS	GEAR UP FLAPS UP	GEAR UP FLAPS UP	GEAR UP FLAPS 1	GEAR DOWN FLAPS 1



REMARKS	- same remarks valid as for the circuit with all angine: in this section only different things mentioned - when engine failure happens perform ***engine failure drill after take off*** and fly the a/p with foot pressure: trim only if needed to relax the foot ***- no checks except final to be done in the circuit*** ***- the whole circuit shall be flown with cowl flaps in intermediate position and high RPM setting***	- established in descent: set flaps 1 - during 1-engine-out descent, keep the a/p tendentiously slightly above the normal approach angle - if a/p was trimmed during circling *do not forget* to set yaw trim to neutral position for landing	- when landing is assured, lower gear and perform immediately afterwards the final check - remember landing technique: expect yaw when reducing power and opposite rudder may be required; do not float

1 – ENGINE – OUT MISSED APPROACH

POSITION	INITIATION	CONFIGURATION CHANGE		CLIMB OUT
PITCH	+1° ANU	+1° ANU	+6° ANU	+4° ANU
THROTTLE RPM MIXTURE	38“ HIGH RPM FULL RICH	38“ HIGH RPM FULL RICH	38“ HIGH RPM FULL RICH	38“ HIGH RPM FULL RICH
SPEED	100 KTS	92 KTS blue line	92 KTS blue line	92 KTS
CONFIGURATION: GEAR / FLAPS	GEAR DOWN FLAPS 1	**GEAR UP** FLAPS 1	GEAR UP **FLAPS UP**	GEAR UP FLAPS UP



REMARKS	- *first of all:* ***avoid a missed approach by all means*** - add power carefully in order to keep ball centered: compensate with foot pressure	- same remarks valid as for missed approach with all engines - *pomptly retract gear and flaps*, after having checked positive ROC on VSI - specially lifting flaps causes big pitch changes. Perform this step therefore with the necessary care: *at this moment fly a/p*	- adjust pitch to maintain Vxse until clear of obstacles and Vyse up to safe altitude - reduce power on living engine as early as possible to reduce stress on it