B60 - INSTRUMENT APPROACH BRIEFING

Pilot: (Prior to FINAL APPROACH FIX)

1. INSTRUMENT APPROACH PROCEDURE: HAVE APPROACH PLATE IN A GOOD VISUAL LOCATION.

2. FIELD ELEVATION: HIGHLIGHT WITH MARKER PEN.

3. DECISION HEIGHT: HIGHLIGHT ON APPROACH PLATE AND SET IN RADAR ALTIMETER.

4. MINIMUM DESCENT ALTITUDE: HIGHLIGHT ON APPROACH PLATE AND SET IN ALERTER IF APPLICABLE.

5. TIME: ZERO CLOCK AND NOTE TIME TO MAP FOR ESTIMATED GROUND SPEED

6. RATE OF DESCENT: CALCULATE THE RATE OF DESCENT BY DIVIDING THE TIME INTO THE ALTITUDE TO BE LOST.

CALL OUTS

1. FINAL APPROACH FIX:

   a. Check altimeter(s)

   b. Instruments/warning flags

2. 500 FEET ABOVE FIELD ELEVATION

   a. Instrument/warning flags

   b. Significant excursions

3. 100 FEET ABOVE DH/MDA

4. DH/MDA

5. VISUAL CONTACT WITH RUNWAY/LIGHT

   or

6. GO AROUND (MISSED APPROACH PROCEDURE)

3. PERFORMANCE RATING

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4. DATE: _____ SIGNATURE _____ CFIAI# _____ EX _____

B60 HOLDING PROCEDURES

1. Description

Decelerate to holding airspeed (140 KIAS) before reaching the holding fix. Unless specified by the aircraft manufacturer, holding speed should be the minimum consistent with good aircraft control, but never in the area of reverse command. This lower speed will require less power and allow prolonged holding and fuel economy.

Procedures for holding patterns and recommended entry procedures outlined in the Airman's Information Manual will be used.

2. Acceptable Performance Guidelines

a. Adheres to holding procedures as listed in the Airman's Information Manual.

b. Altitude + or - 100 feet while holding.

c. Airspeed + or - 10 knots.

3. PERFORMANCE RATING

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4. DATE:_____ SIGNATURE_____ CFIAI#_____ EX_____

B60 ILS APPROACH

1. Description

The instructor pilot or ATC will clear the trainee for a front course approach. The localizer frequency will be set and identified on the appropriate NAV receiver with front course heading set on the OBS. The marker beacon should be turned on, the ADF turned tuned to proper frequency. The immediate VHF NAV receiver, if available, should be tuned and identified as necessary to provide fix points along the approach course, if applicable, or also be tuned to the localizer being used, or for missed approach maneuvering. The in-range checklist should be completed during the intermediate approach segment. This approach must be demonstrated with and without the use of ATC radar.

Prior to reaching the final approach fix inbound, the trainee shall verbally verify the field elevation, decision height, and missed approach procedures. As the glide slope is intercepted, the before landing checklist will be completed with the exception of landing flaps, which may be delayed until landing is assured. After passing the final fix, the approach airspeed should be maintained. At decision height, the trainee will continue the approach and land with hood removed or execute a missed approach as directed by the instructor pilot.

Note: One Engine: Procedure remains the same.

2. Acceptable Performance Guidelines

The trainee will comply with ATC or instructor's instructions, and fly the airplane in a precise, coordinated manner.

a. Descent below HG prior to initiation of the missed approach procedure is unsatisfactory.

b. Airspeed + or - 10 knots of specified approach speed.

c. Fly the approach with sufficient accuracy to effect a safe landing after the hood has been removed at decision height. Full scale deflection of either the glide slope or localizer needle is (unsatisfactory).

3. PERFORMANCE RATING

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4. DATE:_____ SIGNATURE_____ CFIAI#_____ EX_____

B60 BACK COURSE APPROACH

1. Description

Remember when flying a back course, correct away from the CDI with a localizer, the exception being when using aircraft equipped with an HSI. With the HSI, set the "tail" of the CDI on the inbound course, and fly the localizer the same as the front course. We will have correct CDI indications when inbound on the front course and outbound on the back course. We have reverse sensing inbound on the back course, and outbound on the front course.

The back course marker where installed normally indicated the ILS back course final approach fix where approach descent is commenced The back course marker is undulated at 3000 Hz and identified with two dots at a rate of 72-95 two dot combinations per minute and a white marker beacon light.

Note: The inner marker associated with a ILS continuous dot-dot-dot-dot.

2. Acceptable Performance Guidelines

The trainee will comply with ATC and published procedures. The aircraft will be operated in a smooth coordinated manner. Proper tuning and setting of the radios should be accomplished and no full scale deflections on the CDI during final approach are acceptable.

a. Altitude + 50 feet, - 0 feet at MDA and missed approach point.

b. Airspeed +10 knots of specified approach speed Vref.

c. Straight in -- be able to make a normal landing within the first third of the runway.

d. Circling -- remain within circling approach limits (radius and MDA altitude) until the airplane is in a position from which a normal landing can be made.

3. PERFORMANCE RATING

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4. DATE: _____ SIGNATURE _____ CFIAI# _____ EX _____

B60 VOR APPROACH

1. Description

ATC or the instructor pilot will clear the trainee for a specific VOR approach. The primary VHF navigational receiver to be used will be properly tuned, identified, and course selector set for the approach. If the number two navigational receiver is to be used to identify intersections, missed approach point, or as a backup for the number one receiver, it also will be properly tuned.

The in range checklist should be accomplished immediately prior to commencing the approach to reduce pilot workload and allow concentration on maneuvering the aircraft for the approach. The landing checklist may be accomplished at any time during the approach with the exception of landing gear and flaps. Prior to the final approach fix, the trainee will verify field elevation, MDA, time to missed approach, and missed approach procedures.

Upon passing the final approach fix, begin descent to MDA or step down fix, if applicable. Landing gear should be extended at the final approach fix inbound. Landing flaps may be delayed until landing is assure.

At MDA and appropriate time, the trainee will advise that the airport should be in sight. The instructor will advise that a landing or missed approach be executed.

Two variations of the VOR approach@ now exist. They are the DME arc to final approach course and the Area Navigation approach. The DME arc to final approach is accomplished by flying an arc around the VORTAC at a specified distance until intercepting the final approach course.

The RNAV approach is accomplished in the same manner as the normal VOR approach, but utilizes waypoints in lieu of the actual VORTAC station. This approach requires the use of special on-board RNAV equipment and special RNAV approaches are published. Unless the RNAV equipment is approved, there will be no RNAV approaches conducted during actual instrument conditions.

Note: One Engine: Procedure remains the same if within the performance capability of the airplane

3. Acceptable Performance Guidelines

The trainee will comply with ATC and published procedures. The aircraft will be operated in a smooth coordinated manner. Proper tuning and setting of the radios should be accomplished and no full scale deflections of the CDI during final approach are acceptable.

a. Altitude + 50 feet, - 0 feet at MDA and missed approach point.

b. Airspeed + or - 10 knots of specified approach speed.

c. Straight in - be able to make a normal landing within the first third of the runway.

d. Circling -- remain within circling approach limits (radius plus MDA altitude) until the airplane is in a position from which a normal approach to a landing can be made.

e. Accurate timing for conditions (wind, speed, etc.) if appropriate.

4. PERFORMANCE RATING

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5. DATE: _____ SIGNATURE _____ CFIAI# _____ EX _____

B60 NDB APPROACH

1. Description

ATC or the instructor pilot shall clear the trainee for an NDB approach from any specific position, or following a descent in a holding pattern. Emphasis will be placed on the proper technique in tracking a magnetic bearing. The before landing checklist, up to landing gear down and landing flaps, will be accomplished inbound to the NDB.

Station passage is confirmed when the ADF needle has made more than a 90 degrees swing. As station passage is recognized, the before landing checklist will be completed with the exception of landing flaps which may be delayed until landing is assured.

Prior to crossing the station inbound, the trainee will verify field elevation, MDA, missed approach procedure, and time from the station to missed approach.

Time over the station will be noted and the descent normally made at approximately 500 FPM At MDA and appropriate time, the trainee will advise that the airport should be in sight and the instructor pilot will advise if a landing or missed approach is to be executed.

2. Acceptable Performance Guidelines

a. The trainee will comply with recommended procedures and maneuvers the aircraft in a coordinated manner.

b. Altitude + 50, -0 feet at MDA and missed approach point.

c. Airspeed + or - 10 knots of specified approach speed.

d. Straight in - be able to make a normal landing within the first third of the runway.

e. Circling -- remain within circling approach limit, (radius and MDA altitude) until the airplane is in a position from which a normal approach to a landing can be made.

4. PERFORMANCE RATING

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5. DATE: _____ SIGNATURE _____ CFIAI# _____ EX _____

B 6 0 A S R A P P R O A C H

1. Description

RADAR

Capabilities. Radar is a method whereby radio waves are transmitted into the air and are then received when they have been reflected by an object in the path of the beam. Range is determined by measuring the time it takes (at the speed of light) for the radiowave to reach the object and then return to the receiving antenna. The direction of the detected object from a radar site is determined by the position of the rotating antenna when the reflected portion of the radio wave is received.

More reliable maintenance and improved equipment have reduced radar system failures to a negligible factor. Most facilities actually have some components duplicated-one operating and another which immediately takes over when a malfunction occurs to the primary component.

Limitations. It is very important for the aviation community to recognize the fact that there are limitations to radar service and that ATC controllers may not always be able to issue traffic advisories concerning aircraft which are not under ATC control and cannot be seen on radar.

The characteristics of radio waves are such that they normally travel in a continuous straight line unless they are:

"Bent" by abnormal atmospheric phenomena such as temperature inversions;

Reflected or attenuated by dense objects such as heavy clouds, precipitation, ground obstacles, mountains, etc.; or screened by high terrain features.

Surveillance Radar. Surveillance Radars are divided into two general categories:

1. Airport Surveillance Radar (ASR)

2. Air Route Surveillance Radar (ARSR)

ASR is designed to provide relatively short-range coverage in the general vicinity of an airport and to serve as an expeditious means of handling terminal area traffic through observations of precise aircraft locations on a radarscope. The ASR can also be used as an instrument approach aid.

ARSA is a long-range radar system designed primarily to provide a display of aircraft locations over a large area.

Surveillance radars scan through 360 degrees of azimuth and present target information on a radar display located in a tower or center. This information is used independently or in conjunction with other navigational aids in the control of air traffic.

Radar Approaches. The only airborne radio equipment required for radar approaches is a functioning radio transmitter and receiver. The radar controller vectors the aircraft to align it with the runway centerline. The controller continues the vectors to keep the aircraft on course until the pilot can complete the approach and landing by visual reference to the surface. There are two types of radar approaches: Precision Approach Radar (PAR) and Airport Surveillance Radar (ASR).

A radar approach may be given to any aircraft upon request and may be offered to pilots of aircraft in distress or to expedite traffic, however, an ASR might not be approved unless there is an ATC operational requirement, or in an unusual or emergency situation. Acceptance of a PAR or ASR by a pilot does not waive the prescribed weather minimums for the airport or for the particular aircraft operator concerned. The decision to make a radar approach when the reported weather is below the established minimums rests with the pilot.

A Surveillance Approach (ASR) is one in which a controller provides navigational guidance in azimuth only. The pilot is furnished headings to fly to align his aircraft with the extended centerline of the landing runway. Since the radar information used for an ASR is considerably less precise than that used for a precision approach, the accuracy of the approach will not be as great and higher minimums will apply. Guidance in elevation is not possible but the pilot will be advised when to commence descent to the minimum descent altitude (MDA) or if appropriate, to an intermediate step-down fix minimum crossing altitude and subsequently to the prescribed MDA. In addition, the pilot will be advised of the location of the missed approach point MAP prescribed for the procedure and his position each mile of final from the runway,

airport or heliport of MAP, as appropriate. If requested by the pilot, recommended altitudes will be issued at each mile, based on the descent gradient established for the procedure, down to the last mile that is at or above the MDA. Normally, navigational guidance will be provided until the aircraft reaches the MAP. Controllers will terminate guidance and instruct the pilot to execute a missed approach unless at the MAP the pilot has the runway, airport or heliport in sight or, for a helicopter, point-in-space approach, the prescribed visual reference with the surface is established. Also, if at any time during the approach the controller considers that safe guidance for the remainder of the approach cannot be provided, he will terminate guidance and instruct the pilot to execute a missed approach. Similarly, guidance termination and missed approach will be effected upon pilot request and, for civil aircraft only, controllers may terminate guidance when the pilot reports the runway, airport/heliport or visual surface route in sight or otherwise indicates that continued guidance is not required. Radar service is automatically terminated at the completion of a radar approach.

Note. The published MDA for straight-in approaches will be issued to the pilot before beginning descent. When a surveillance approach will terminate in a circle to land maneuver, the pilot must furnish the aircraft approach category to the controller. The controller will then provide the pilot with the appropriate MDA.

The recommended altitude on final approach decrease 300 feet each mile (approximate 3 degrees descent slope). The pilot should adjust his rate of descent or achieve a rate consistent with recommended altitude. If the MDA is reached before the missed approach point (MAP) the pilot should maintain this altitude to the MAP." The controller will advise the pilot when he reaches the MAP or one mile from the runway/airport, whichever is greater, and if at this point the airport, runway or runway environment is not in sight, a missed approach should be commenced. If on final, communication is not for more than 15 seconds, the pilot should take over visually; if unable, he should execute the missed approach procedure.

2. Acceptable Performance Guidelines

The trainee will comply with ATC and published procedures. The aircraft will be operated in a smooth coordinated manner. Proper tuning and setting of the radios should be accomplished.

a. Altitude +50 - 0 feet at MDA and missed approach point.

b. Airspeed + or - 10 knots of specified approach speed Vref.

c. Straight in -- be able to make a normal landing within the first third of the runway.

d. Circling -- remain within circling approach limits (radius and MDA altitude) until the airplane is in a position from which a normal approach to a landing can be made.

e. Accurate timing for condition (wind, speed, etc.) if appropriate.

3. PERFORMANCE RATING

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4. DATE:_____ SIGNATURE_____ CFIAI#_____ EX_____

B60 CIRCLING APPROACHES

1. Description

The approach to the airport from final fix is accomplished with approach flaps only. Maneuver the aircraft onto the downwind leg at a position not more than published minimum visibility distance from the landing runway. Visual reference with the runway must be maintained throughout the maneuver. Maintain MDA until turning final approach. The turn aircraft smoothly in alignment with the runway utilizing a normal glide slope approaching the runway. From this point a normal approach and landing shall be executed. It should be emphasized that excessively banked turns close to the ground are undesirable and should be avoided.

2. Acceptable Performance Guidelines

a. Airspeed + 5 - 0 knots.

b. Altitude +50, - 0 feet at MDA.

c. Bank angle maximum 30 degrees.

d. Remain within circling approach limits (radius and MDA altitude) until the airplane is in a position from which a normal approach to a landing can be made.

3. PERFORMANCE RATING

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4. DATE:_____ SIGNATURE_____ CFIAI#_____ EX_____

B60 DME ARC APPROACHES

1. Description

The ARC approach, although not widely used, should be familiar to the pilot like the more common approaches. The initial turn to intercept the ARC should be accomplished prior to the assigned distance so as to not overshoot the ARC limits. Once established on the ARC, the pilot should continually monitor his position and distance from the fix. Care should be taken not to use extreme correction angles to remain on the ARC. The lead radial should be noted and not bypassed unnoticed. Proper planning, smoothness and cockpit management should be greatly stressed. The before landing checklist should be completed prior to entering the ARC with the exception of the landing gear and final flap.

2. Acceptable Performance Guidelines

a. Airspeed + 5 - 0 knots.

b. Altitude +50, - 0 feet at MDA.

c. Bank angle maximum 30 degrees.

d. Advanced planning and the avoidance of extreme correction angles are emphasized. Good cockpit management.

3. PERFORMANCE RATING

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4. DATE:_____ SIGNATURE_____ CFIAI#_____ EX_____

B60 MISSED APPROACH

1. Description

At the completion of an instrument approach, at either MDA or DH, the instructor will command "MISSED APPROACH". At this time power will be advanced to maximum and pitch attitude adjusted to that which will check descent. As the aircraft accelerates, flaps will be retracted to the setting appropriate for the existing conditions. The pitch attitude with be adjusted for climb and the aircraft accelerated to Vy (120KIAS). The landing gear will be retracted when a positive rate of climb is established and, if necessary, final flap retraction will be accomplished. The appropriate missed approach procedure will be executed. Maximum power should be maintained until at least 500 feet AGL. The above procedures may vary slightly due to the difference in aircraft performance. Many of the aircraft used will have minimum performance and acceleration in the landing configuration; therefore, exact go-around procedure must be used to assure that a successful missed approach can be accomplished.

2. Acceptable Performance Guidelines

a. Judgment in executing the missed approach.

b. Maintain positive control of the aircraft.

c. When a missed approach is required, descent below MDA, or DH, prior to initiation of the missed approach procedure is considered unsatisfactory.

d. Correct sequence of procedures.

e. Compliance with published missed approach procedures or ATC instruction as appropriate.

3. PERFORMANCE RATING

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4. DATE: _____ SIGNATURE _____ CFIAI# _____ EX _____

B60 MISSED APPROACH-SINGLE ENGINE

1. Description

At the completion of an instrument approach with simulated engine failure, at either MDA or DH, the instructor will command "missed approach." At this time, power will be advanced to maximum and pitch attitude adjusted to that which will stop descent. Accelerate and maintain Vyse, (110 KIAS), retract landing gear when a positive rate of climb is attained. Use a maximum of 5 degrees bank angle to maintain directional control. Identify and simulate propeller feather on failed engine. Adjust pitch to maintain Vyse (110 KIAS) and climb until obstructions clearance altitude has been reached or assigned attitude by ATC. When flight path permits, accomplish engine failure climb checklist.

2. Acceptable Performance Guidelines

a. Judgment in executing the missed approach.

b. Maintain positive control of the aircraft, maintain straight flight path, correctly identify and simulate feathering of failed engine, maintain Vyse + or - 5 knots.

c. When a missed approach is required, descent below MDA, or DH, prior to mitigation of the missed approach procedure is considered unsatisfactory.

d. Correct sequence of procedures,

e. Compliance with published missed approach procedures or ATC instruction as appropriate.

3. PERFORMANCE RATING

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4. DATE:_____ SIGNATURE_____ CFIAI#_____ EX_____

B60 NORMAL LANDING

1. Description

The "IN RANGE" checklist will be completed before entering the traffic pattern. Unless otherwise directed by ATC, entry should be midfield at traffic pattern altitude and a 45 degree angle. Speed should be reduced to that compatible with other aircraft in the pattern if practicable.

When downwind opposite the point of touchdown, extend landing gear and complete "landing" checklist except for landing flaps. Angle of bank should not exceed 30 degrees while in the traffic pattern.

Under normal conditions, landing flaps should not be extended until established on final and the landing is assured. When established on final approach, and after landing flaps are extended, stabilize airspeed to that recommended by the manufacturer. If a recommended airspeed is not furnished by the manufacturer, a speed equal to 1.3 Vso should be used. The approach should be planned so the landing will be made in the center of the first third of the runway with a smooth transition from approach to landing attitude. Always use a smooth coordinated power reduction in aircraft using power during the approach.

The "AFTER LANDING" checklist will not be accomplished until clear of the runway.

2. Acceptable Performance Guidelines

A. Touchdown on the runway centerline.

B. Touchdown accomplished in the proper landing attitude beyond and within 200 feet of a line or mark specified.

C. Maintain runway centerline during landing rollout.

D. Plus or minus 5 knots of proper final approach speed.

3. PERFORMANCE RATING

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4. DATE: _____ SIGNATURE _____ CFIAI# _____ EX _____

B60 NO FLAP LANDING

1. Description

No flap landings will be conducted as a normal landing except without flaps and from a speed equal to 1.3 times the power off stall speed with flaps retracted (1.3 Vsl). (85 X 1.3 = 110.5 KIAS). The trainee should be aware that in most airplanes, the touchdown will be in a higher than normal nose up attitude, and that the landing roll will be longer due to the loss of drag caused by the no flap condition and higher touchdown speed. The use of brakes may be required as dictated by runway length and surface.

2. Acceptable Performance Guidelines

A. Touchdown on runway centerline.

B. Airspeed at threshold, 1.3 Vsl, + or - 5 knots, or manufacturer's recommended speed.

C. Maintain runway centerline during landing rollout.

3. PERFORMANCE RATING

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4. DATE: _____ SIGNATURE _____ CFIAI# _____ EX _____

B60 REJECTED LANDING

1. Description

This maneuver involves a go-around with both engines operating normally while in the final stages of a landing approach. All phases of the "BEFORE LANDING" checklist will have been completed.

At any time on final approach, prior to actual touchdown, the instructor will command, "go-around." This will simulate a landing obstacle such as fire equipment, another aircraft, large animal, etc., moving onto the runway directly into the landing path; or a sudden and violent shift in surface wind. The trainee will immediately apply maximum allowable power and stop the descent. When descent has stopped, the flaps will be positioned for takeoff and aircraft pitch adjusted to avoid altitude loss. Accelerate to Vyse for initial climb.

After a positive rate of climb is established, the gear will be retracted and the aircraft accelerated to Vy or Vx as appropriate.

From this point, the maneuver will be conducted in the same manner as a normal takeoff.

2. Acceptable Performance Guidelines

A. Proper sequence.

B. Airspeed + or - 5 knots of Vyse of Vyxe, as appropriate.

C. Unless otherwise directed, maintain a departure heading that will keep the aircraft aligned with the extended centerline of the runway.

3. PERFORMANCE RATING

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4. DATE: _____ SIGNATURE _____ CFIAI# _____ EX _____

B60 LANDING WITH ONE ENGINE

1. Description

   a. Conditions of Flight:

      (1) All engine cuts will be in accordance with manufacturer's recommendations.

      (2) All simulated engine failures will be accomplished with throttle, and feathering will be simulated with zero thrust when less than 2000 feet above terrain.

   b. The Maneuver

      (a) Speed on final should not be less than Vxse until the landing is assured; thereafter, at the approach speed commensurate with the flap position until the landing flare.

      (b) Under normal conditions, the landing will be made with full flaps; however, full flaps should not be lowered until the landing is assured. In this configuration, approach speed will be 1.3 Vsl.

      Note: Long flat approaches with high power output on the operating engine and/or excessive threshold speed that results in floating and unnecessary runway use should be avoided.

2. Acceptable Performance Guidelines

   The trainee shall use the correct procedures: for the operation of the airplane systems, use appropriate trim settings, observe the regular traffic pattern or approach path, maintain airspeed and aircraft control during touchdown and landing roll. Any reduction of airspeed below the engine out minimum control speed before the landing flare is initiated shall be disqualifying.

3. PERFORMANCE RATING

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4. DATE: _____ SIGNATURE _____ CFIAI# _____ EX _____

B60 SHORT & SOFT FIELD LANDINGS

1. Description

Short Field Landings. Short field landings should be made from a stabilized final approach in landing configuration. The manufacturer's recommended airspeed should be used, with moderately low power and a constant rate of descent. The landing should be accomplished with little or no floating. Upon touchdown, the throttles should be closed immediately, accompanied by application of brakes to minimize the after-landing roll.

Soft Field Landings. Extreme caution should be exercised when practicing short and soft field landings at minimum speeds. At these speeds, high sink rates may occur, requiring excessive altitude and/or power for recovery.

2. Acceptable Performance Guidelines

a. Stabilized approach

b. Airspeed + or - 5 knots.

c. Maximum braking during short field landing roll (Instructor's options).

d. Slowest possible airspeed at ground contact (soft field)

e. No excessively high sink rates,

3. PERFORMANCE RATING

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4. DATE: _____ SIGNATURE _____ CFIAI# _____ EX _____

B60 EMERGENCY DESCENT

1. Description

The primary purpose of this maneuver is to descend the aircraft as soon as practicable to a safe altitude. In order to maintain positive "G" forces and for the purpose of clearing altitudes below, a 30 to 40 degree bank should be established in the initial descent for at least a 90 degree heading change. This maneuver should be performed with the aircraft configured with gear down and flaps at approach.

Performance of this maneuver should strictly adhere to the procedures outlined in the aircraft flight manual. Unless an actual emergency exists, the emergency descent should always be done in daylight, VFR conditions, and never through any cloud layers.

2. Acceptable Performance Guidelines

a. Maintain positive aircraft control.

b. Do not exceed designated maximum speeds.

c. Maintain positive "G" forces.

Note: As soon as all prescribed procedures are completed and the descent is established and stabilized, this maneuver will normally be terminated.

3. PERFORMANCE RATING

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4. DATE: _____ SIGNATURE _____ CFIAI# _____ EX _____

PRECISION FLYING WITH EASE OF NUMBERS

Congratulations on the purchase of the pitch plus power program. This program will provide you with an organized professional power setting chart that will simplify your flying by stabilizing POWER - AIRSPEED - and PITCH. This will result in a confident, efficient and safe approach. Program the airplane to perform the way you want it to perform for a specific airspeed and configuration.

The two formulas this program teaches are:

1. Pitch + Power + = Performance
2. Program + Trim + Relax = Successful Approach

If the aircraft is programmed, trimmed, and the pilot is relaxed the end result is success.

Things to consider before starting your pitch plus power program.

a. The guideline numbers you develop are to be used as a supplemental aid. For any specific configuration it is emphasized that whatever power, pitch and trim is necessary will be used regardless of the guideline numbers developed.

b. Each aircraft has its own personality (for example-there are different errors in airspeed indicators and manifold pressure gauges).

c. Weight, temperature and altitude will vary the power setting required. The numbers that are developed may vary depending on the differences in weight, temperature, and altitude.

d. You will be required to fly your aircraft to develop the numbers for your specific aircraft.

e. Prior to takeoff (CAUTION) determine a non congested practice area. Determine location of obstacles and terrain clearances. It is recommended that a safety pilot assist.

f. Obey all Federal Aviation Regulations

g. Establish the aircraft in straight and level flight-adjust pitch attitude to 0 degrees.

h. Load aircraft as close as possible to maximum take off weight and still meet all performance requirements in the Pilot Operating Handbook.

i. The information provided is not meant to replace any information printed in the Pilot Operating Handbook.

j. The numbers developed are for an average weight, temperature and altitude.

k. Pitch, Power and trim must be in sequence or the airspeed will vary.

STEP BY STEP PROCEDURES

REVIEW:

1. Rules of Thumb
2. Instrument Approach Profile
3. Power Setting Chart

RULES OF THUMB

POWER

Power Change	Airspeed Change	Rate of descent/ascent
1 inch of manifold pressure	5 to 7 kts	100/150 fpm
100 RPM(fixed Pitch Props	7 to 7 kts	100/150 fpm

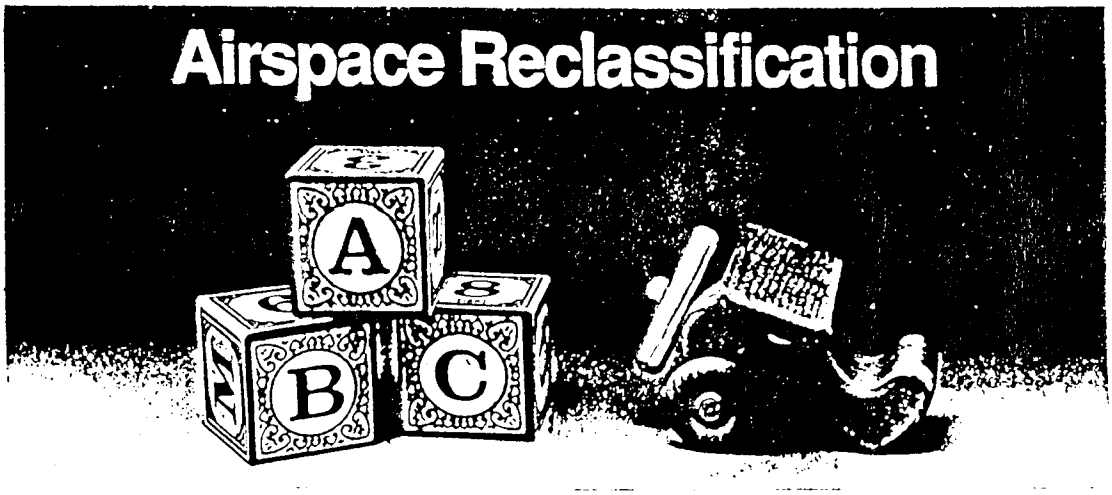
To determine the power vs airspeed value for your specific aircraft configure your aircraft at a constant airspeed and altitude. Add 4 inches of manifold pressure (500 RPM for FPP) and note the airspeed increase from original value. Then decrease 4 inches of manifold pressure (500 RPM for FPP) and note the airspeed decrease from the original value. Note the airspeed change vs power change. Determine the average speed per inch of manifold pressure or 100 RPM for FPP. Each aircraft has different variences in airspeed indications and manifold pressure. Determine how power changes affect airspeed for your specific aircraft.
To determine the power vs descent/ascent for a correct airspeed:
Configure your aircraft at a constant airspeed and altitude.
NOTE: the airspeed and reduce the power by 4 inches of manifold pressure 500 RPM for fixed pitch propellors and maintain a constant airspeed and note the rate of descent.
Reconfigure the aircraft at the same airspeed and altitude noted above but this time add 4 inches of manifold pressure-500 RPM for F.P.P. and note the rate of ascent.

FLAPS

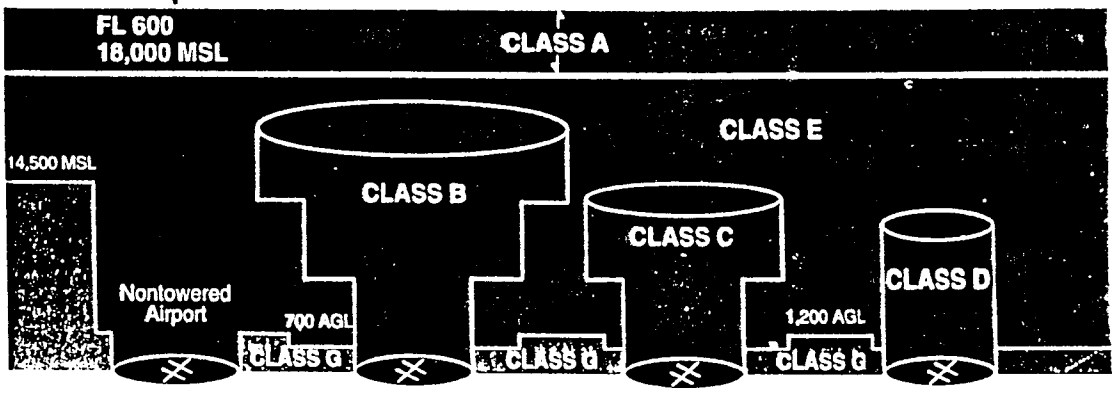
Flap Change	Airspeed Change
10^{o}	5 to 10 kts
15^{o}	15 to 20 kts
20^{o}	25 to 30 kts

To determine the flap vs airspeed value configure your aircraft at a specific airspeed and altitude. Using the initial speeds referenced in the Transitional and Approach phase of this program lower the flaps in 10 - 15 - 20 increments and NOTE THE AIRSPEED CHANGE. If your aircraft has an approach flaps position and no means of selecting intermediate flaps note the airspeed change at approach flaps. DO NOT EXCEED FLAP LIMITATION SPEEDS. There are a variety of type and size of flaps used on aircraft. Determine the effect of airspeed vs flaps for YOUR SPECIFIC AIRCRAFT.

Airspace Reclassification



Airspace Reclassification at a Glance



AGL - above ground level FL - flight level MSL - mean sea level

Effective September 16, 1993

And an Easy-to-Read Chart

Airspace Features	Class A	Class B	Class C	Class D	Class E	Class G
Former Airspace Equivalent	Positive Control Area (PCA)	Terminal Control Area (TCA)	Airport Radar Service Area (ARSA)	Airport Traffic Area (ATA) and Control Zone (CZ)	General Controlled Airspace	Uncontrolled Airspace
Operations Permitted	IFR	IFR and VFR	IFR and VFR	IFR and VFR	IFR and VFR	IFR and VFR
Entry Requirements	ATC clearance	ATC clearance	ATC clearance for IFR. All require radio contact.	ATC clearance for IFR. All require radio contact.	ATC clearance for IFR. All IFR require radio contact.	None
Minimum Pilot Qualifications	Instrument Rating	Private or student certificate	Student certificate	Student certificate	Student certificate	Student certificate
Two-way Radio Communications	Yes	Yes	Yes	Yes	Yes for IFR	No
VFR Minimum Visibility	N/A	3 statute miles	3 statute miles	3 statute miles	[3] statute miles	[2] statute mile
VFR Minimum Distance from Clouds	N/A	Clear of clouds	500' below, 1,000' above, and 2,000' horizontal	500' below, 1,000' above, and 2,000' horizontal	[1]500' below, 1,000' above, and 2,000' horizontal	Clear of clouds
Aircraft Separation	All	All	IFR, SVFR, and runway operations	IFR, SVFR, and runway operations	IFR and SVFR	None
Conflict Resolution	N/A	N/A	Between IFR and VFR ops	No	No	No
Traffic Advisories	N/A	N/A	Yes	Workload permitting	Workload permitting	Workload permitting
Safety Advisories	Yes	Yes	Yes	Yes	Yes	Yes
Differs from ICAO	No	[2]Yes	[3,4]Yes	[4]Yes for VFR	No	[5]Yes for VFR
Changes the Existing Rule	No	[6]Yes for VFR	No	[7,8,9]Yes	No	No

[1] Different visibility minima and distance from cloud requirements exist for operations above 10,000 feet MSL.

[2] Different visibility minima and distance from cloud requirements exist for night operations above 10,000 feet MSL, and operations below 1,200 feet AGL.

[3] ICAO does not have speed restrictions in this class. U.S. will retain the 250 KIAS rule.

[4] ICAO requires an ATC clearance for VFR.

[5] ICAO requires 3 statute miles visibility.

[6] Reduces the cloud clearance distance from standard to clear of clouds.

[7] Generally, the upper limits of the Control Zone have been lowered from 14,500 MSL to 2,500 feet AGL.

[8] Generally, the upper limits of the Airport Traffic Area has been lowered from 2,999 feet AGL to 2,500 feet AGL.

[9] The requirement for two-way communications for Airport Traffic Areas has been retained.

EASY TO USE AIRSPACE

"A" CLASSIFIED AIRSPACE = ALTITUDE = 18,000 AND ABOVE

"B" CLASSIFIED AIRSPACE = BIG AND BUSY = TERMINAL CONTROL AREAS

"C" CLASSIFIED AIRSPACE = CONTACT 20 MILES OUT = ARSA'S

"D" CLASSIFIED AIRSPACE = DESTINATION = AIRPORT TRAFFIC AREAS (ATA)

"E" CLASSIFIED AIRSPACE = EVERYTHING ELSE = AIRWAYS, ETC.

"F" CLASSIFIED AIRSPACE = FOREIGN AREAS = NOT U.S. AIRSPACE

"G" CLASSIFIED AIRSPACE = GROUND UP = UNCONTROLLED AIRSPACE

GENERAL MULTI-ENGINE OPERATING PROCEDURES TEST

1. What is the critical engine?
2. What does the term VMC mean and how is it determined for multi-engine airplanes?
3. What is the best method of determining the inoperative engine?
4. What does the term Vyse mean and how is it determined for multi-engine airplanes?
5. What does VMC mean to the pilot during takeoff in a light twin?
6. Describe a safe takeoff in a multi-engine airplane as it relates to speed.
7. Describe a safe takeoff in a multi-engine airplane as it relates to altitude gained.
8. Is it o.k. to spin a multi-engine airplane?
9. If an engine quits before you have reached rotation speed what are your options?
10. If an engine quits before you have attained Vyse and the correct configuration for that speed, what are your options?
11. If an engine quits after you have attained Vyse in the correct configuration what are your options?
12. Does the speed Vyse guarantee a positive rate of climb?
13. If an engine failure occurs below VMC what action should be taken with the throttle of the operating engine?
14. When an engine quits in a twin, half of the power is lost. Is it also true that only one half of the performance is lost?
15. With one engine out, what are the fuel management considerations?

ANSWERS FOR MULTI-ENGINE OPERATING PROCEDURES TEST

1. The critical engine is that engine, the loss of which, most adversely affects performance due to P-factor. If both engines rotate in the same direction, then the airplane will have a critical engine. If the engines rotate in opposite directions then there will be no critical engine.

2. VMC stands for "Velocity Minimum Control." It is the airspeed below which the airplane cannot maintain directional control with one engine operating at full power. VMC is determined with the airplane fully loaded at the aft center of gravity limit and full take off power on the operating engine, with the critical engine windmilling.

3. Determine the inoperative engine by first leveling the wings and holding a heading with rudder pressure. The foot not doing any work i.e. the dead foot identifies the dead engine. Confirm this assumption by throttling back on that same engine.

4. VYSE stands for Velocity best rate of climb single engine. It is the airspeed which delivers the best rate of climb or slowest descent with one engine out. VYSE is determined with gear up, flaps up, inoperative engine feathered.

5. It is correct procedure to keep all wheels on the ground in a tricycle gear airplane until VMC or VMC + 5 kts. is attained. Rotating the nose below that speed could result in complete loss of directional control during an engine failure.

6. For a safe takeoff in a multi-engine airplane, the nosewheel is rotated off the ground at or above VMC. It should not be lifted off the ground before VMC has been attained. After the initial liftoff, the best two engine rate of climb should be obtained as quickly as possible and then held until a minimum of 500 ft. above ground level. This takeoff assumes no obstacles ahead. Cruise climb speed and attitude can be used after this initial Vy climb.

7. For a safe takeoff in a multi-engine airplane, it is best to gain altitude as quickly as possible. This is accomplished by attaining Vy as quickly as possible after becoming airborne at or above VMC. The Vy speed should be held until a single engine return to the departure airport could be made without striking obstacles.

8. No, it is not o.k. to spin a multi-engine airplane under any circumstances. The airplanes are not spin tested by the factory test pilots so their response during spins and recovery is unknown.

9. Bring both throttles back and stop the takeoff.

10. The pilot must lower the nose to attain Vyse while identifying, confirming, and feathering the dead engine. If it is impossible to outclimb obstacles after this is accomplished, then find the most suitable emergency landing sight. If is is impossible to avoid striking the ground before feathering is accomplished, then select the most suitable area and make an emergency landing.

11. You must maintain Vyse while identifying, confirming, and feathering the inoperative engine. If there are obstacles between you and a safe return to the departure airport, then pick the most suitable place for an emergency landing. If it is possible to make a safe return to an aiport, then do so.

12. No, it does not. Even at full power on the good engine it means one of three types of performance. The best single engine rate of climb or maintaining altitude or single engine minimum sink is attained at Vyse.

13. The power on the operating engine should be reduced immediately.

14. False. Even though half the power is lost, the loss of performance in climb will be on the order of 80% loss or greater.

15. The fuel crossfeed should be utilized to level the wing fuel.

IFR Review

1. When may the term "CRUISE" be used instead of "MAINTAIN" in an ATC clearance?

   To assign a block of airspace from the minimum IFR altitude up to and including the altitude specified. Is used with airport clearance limits or at locations below or outside of controlled airspace.

2. Explain the primary reason for the continued use of Tower En Route Control?

   IFR enroute between two or more adjacent approach control facilities designed to expidite traffic.

3. To ensure proper flight plan processing when using TEC how would the pilot make known his intentions? Use "TEC" in remarks section of flt. plan.

4. Define the following

   MOCA: Minimum obstruction clearance altitude Guarantees obstructions clearance (1,000 feet clearance nonmountainous, 2000 feet clearance mountainous but only guarantees radio receptions within 22 n.m. of the fix.

   MEA: Minimum enroute altitude. Guarantees obstruction clearance and radio reception the entire distance between fixes.

   MCA: Minimum crossing altitude.

   MRA: Minimum reception altitude.

   MAA: Minimum authorized altitude.

5. At what point must a pilot begin to climb when a MCA is published a long a route ? Start a climb as to arrive at the fix at the MCA .

6. What reports are required to be made to ATC without a specific request?

   a. When leaving an assigned altitude.
   b. Altitude change when VFR on top.
   c. Change in TAS if it varies by more than 5% or 10 kts. (whichever the greater) from that filed on the flight plan.
   d. Missed approach.
   f. Reaching hold .
   g. Leaving hold.
   h. Loss or impairment of navigation or communication.
   i. Safety related fight information.
   j. Weather or hazardous conditions not forecasted.

   In addition to the reports that are required to be made at all times what reports are required when not in radar contact?

   a. Leaving FAF inbound
   b. Estimated time in error + or - 3 minutes.

8. You are cleared to hold at a specific VOR at 8,000 ft. Must you advise ATC when reaching the holding fix?

   You must advise ATC of the time and altitude upon reaching the holding fix.

9. Is it legal to file for an airport without an instrument approach as a alternate airport?

   Yes, provided the weather allows VFR descent and landing from the nearest published route segment?

10. What weather conditions must prevail and for what time period at an airport to be named as an alternate?

    At your estimated time of arrival at the alternate the weather must be forecasted to be no less than 800 feet overcast and two miles visibility for a non prec. approach, 600 feet overcast and two miles visibility for a precision approach, or the applicable alternate minimums for that airport. if published. FAR 91.23

11. When the approach facility is on the airport, what is the timing method on the initial leg.

    Fly outbound far enough to allow the aircraft to make a normal descent to the final approach altitude, observing the distance limit denoted on the approach chart.

12. What is the maximum altimeter error for IFR flight?

    75 feet.

13. What is the recommended allowable precession error in the DG for IFR flight?

    3 degrees for 15 minutes.

14. How is the aircraft category determined as it applies to landing minimums?

    Aircraft Category: (1.3 X VSO:)

A	B	C	D	E
Less than 91 kts.	91-120	121-140	141-165	166-210

    Aircraft category is determined by computing 1.3 times the stall speed in the landing configuration. at maximum certificated landing gross weight.

    Category E contains only certain military aircraft and is not included on Jepp charts. If it is necessary to maneuver at speed in excess of the upper limit of a speed range for a category, the minimum for the next highest category should be used.

15. Explain ASR,PAR, and no-gyro approaches?

Airport surveilance radar gives course guidance in azimuth only, with no glide-slope information. However, the pilot can receive recommended altitudes at each mile on final approach.

Precision approach radar gives both course guidance and glide-slope information.

No-Gyro approach is used when a directional gyro is inoperative or inaccurate. Turns are made at a standard rate when the order is given; i.e., "turn right, turn left." The turn is continued until the order is given to stop the turn. When the aircraft is on final approach, the pilot should use only half-standard rate turns.

16. What do the terms VOR A and VOR B mean on the approach plate margin?

Circling minimums only will apply. If there is more than one approach that does not align within 30 degrees of any runway at that airport, then the approach designations will be sequenced as VOR A,B,C, etc.

17. What is a contact and visual approach?

Contact approach is initiated by the PILOT when he can remain clear of the clouds and have visibility of one mile and can reasonably expect to continue to the destination airport in these conditions and only at airports with standard or special approach procedures

Visual approach can be initiated by ATC when flight to and landing at the airport can be accomplished in visual conditions. The pilot must maintain adequate spacing from any preceding aircraft that he is instructed to follow.

18. How much fly up is allowed at the middle marker? (in dots)

No fly-up is allowed. The aircraft must be at or above the glide slope. (FAR 91.87)

19. Explain the concentric rings on the plan view of an approach plate for both NOS and Jeppesen?

NOS= The solid ring is normally 10 NM from the FAF (or it will be labeled). everything inside the solid ring is to scale. The outer rings are not to scale and show the approximate locations of feeder facilities.

Jepp= Usually 5 miles and highlights obstructions.

20. What is a VDP depicted on the approach charts?

VDP=(Visual descent point)-A point on the approach at which a normal 3 degree approach visual to a safe landing can be made to a runway associated with a non-precision approach procedure. VDP is usually defined with a DME fix, fan marker, or a point where the VASI glide slope may be acquired.