U.S. Department of Transportation
Federal Aviation Administration

Advisory Circular

Subject: Mitsubishi MU-2B Training Program | **Date:** 7/22/16 | **AC No:** 91-89
Initiated by: AFS-800 | **Change:**

1 PURPOSE.

1.1 What is the Purpose of This Advisory Circular (AC)? This AC provides guidance and standardized methods for meeting the training requirements outlined in Title 14 of the Code of Federal Regulations (14 CFR) Part 91 Subpart N, Mitsubishi MU-2B Series Special Training, Experience, and Operating Requirements, for Mitsubishi MU-2B aircraft. The new part 91 subpart N mandates training, experience, and operating requirements to ensure the highest level of operational safety for the Mitsubishi MU-2B series airplanes. This AC describes an acceptable means, but not the only means, of complying with the requirement that all training and checking for the MU-2B aircraft must be conducted in accordance with a Federal Aviation Administration (FAA)-approved training program. This AC is not mandatory and does not constitute a regulation; however, it may be used by training providers to meet the requirements of part 91 subpart N. Training providers may also use this AC as a reference for developing their own MU-2B training programs to submit for FAA approval pursuant to the requirements of part 91 subpart N.

2 BACKGROUND.

2.1 SFAR 108 Issuance. In 2008, the FAA published SFAR 108 to mandate flight training and experience requirements for operators of the Mitsubishi Heavy Industries, LTD. (MHI) MU-2B twin turboprop aircraft. The rule became effective in 2009 and does not have an expiration date. The flight training and experience requirements were based on an FAA safety evaluation of the aircraft, which has unique control surfaces and characteristics. There is a fleet of approximately 300 aircraft operating today in accordance with 14 CFR parts 91 and 135. In the 20 years leading up to SFAR 108, the MU-2B series aircraft experienced 80 accidents with 40 fatalities. Since the effective date of SFAR 108, there have only been two fatal accidents. In addition to experience and annual training requirements for pilots, SFAR 108 mandates training curriculum and flight profiles for operators and training providers.

2.2 SFAR 108 Evaluation. Following the issuance of SFAR 108 on February 5, 2008, with a compliance date of February 5, 2009, Mitsubishi Heavy Industries America, Inc. (MHIA) began an evaluation to identify errors in flight profiles published in SFAR 108. At that time, MHIA notified the FAA of at least one error in procedure in the One Engine Inoperative Maneuvering/Loss of Directional Control (Minimum Controllable Airspeed with the Critical Engine Inoperative (V_{MC}) Demonstration) profile.

2.3 Continuous Descent Final Approach (CDFA) Use. Since the publication of SFAR 108, the FAA has approved the use of CDFA procedures in all training programs, including the training programs for the MU-2B. The MU-2B FAA Flight Standardization Board (FSB) subsequently included CDFA profiles in its FSB Report for use in MU-2B training programs. Because the FAA had not included CDFA procedures in SFAR 108, pilots were not permitted to train on these procedures or operate the aircraft consistent with them.

2.4 Revision of Procedures and Programs. In 2012, the FAA revised its stall recognition and recovery procedures for all aircraft and all training programs by removing the emphasis to ensure a "minimum loss of altitude" when performing stall training maneuvers and by emphasizing a positive reduction in angle of attack (AOA) procedure as the proper stall recovery method (refer to the current edition of AC 120-109, Stall Prevention and Recovery Training). The FAA also introduced the use of "startle factor" training through the use of the autopilot during stall recognition and recovery practice in all aircraft training programs. However, until now, the FAA had not included the "startle factor" training requirements in MU-2B training programs.

2.5 Flight Training Profiles. The MU-2B flight training profiles included in Appendix A, MU-2B Training Program, of this AC are now consistent with FAA policy on stall recognition and recovery procedures essential to proper MU-2B training and safety of flight.

3 APPLICABILITY.

3.1 Who Does This AC Apply To? Part 91 subpart N and this AC apply to all persons who operate the Mitsubishi MU-2B series airplane, including those who act as pilot in command (PIC), act as second in command (SIC), or other persons who manipulate the controls while under the supervision of a PIC. Part 91 subpart N and this AC are also applicable to those persons who provide training and checking conducted in the aircraft, as well as currency and experience for the Mitsubishi MU-2B series airplane. A single standard of training, checking, and currency to all MU-2B operations, including part 91 operations, is necessary to achieve safety. The part 91 subpart N requirements are in addition to the requirements of 14 CFR parts 61, 91, 135, 141, and 142.

3.2 What is the Approval Process for a Training Program? Part 91, § Section 91.1705, Required Pilot Training, states that only training programs approved by the Administrator may be used to satisfy the standards of part 91 subpart N. Part 91 subpart N, Preamble Section III, Discussion of Final Rule (81 FR 61583), states that training providers may submit the most current version of Appendix A of this AC for training program approval. Appendix A specifies a training program curriculum that meets the requirements of § 91.1705(h) and meets the standards for FAA approval. Appendix A may be electronically submitted to the FAA as a proposed training program for approval. Alternate means of compliance must also be approved by the FAA. If alternate compliance is sought, air carriers under part 135, program managers under part 91 subpart K (part 91K), and parts 91, 141, and 142 training providers (i.e., operators and training providers) must demonstrate that the proposed alternate means meets the standards of part 91 subpart N. Analysis, demonstrations, proof of concept testing, Differences documentation, or other evidence may be required. If the means of compliance in Appendix A is submitted as a proposed training program, it must conform to it in all significant respects.

1. The proposed MU-2B training program must include factory type design Differences as specified in part 91 subpart N, as applicable to the training and/or operation. The FAA recommends that where MU-2B Differences in addition to factory type design differences are applicable to training and/or operation, the Differences specified in the MU-2B series FSB Report be included in the training provider's proposed MU-2B training program.
2. The Administrator may require revision of an approved MU-2B training program at any time. An operator or training provider must present its approved training program and FAA approval documentation to any representative of the Administrator, upon request.
3. In order to provide subpart N of part 91-compliant instruction under an approved training program, each MU-2B qualified instructor must be an authorized instructor of an operator under parts 91K, 135, 141, and/or 142, or be named on the letter of authorization (LOA) approving an MU-2B training program for a part 91 training provider.[1]

3.2.1 Operators and Training Providers Under Parts 91K, 135, 141, and 142.

3.2.1.1 **Proposed Training Program Submission.** Operators and training providers may submit their proposed training program to their principal operations inspector (POI) or Training Center Program Manager (TCPM) for approval and inclusion in their approved training curriculum.

3.2.1.2 **MU-2B Training Program Submission.** Operators and training providers may submit an MU-2B training program that meets the content requirements of part 91 subpart N and include any Differences specified in the MU-2B series FSB Report applicable to the operator's MU-2B training. This proposed MU-2B training program may be submitted in accordance with existing FAA approval process guidance for training programs.

3.2.1.3 **MU-2B Instructors.** MU-2B qualified instructors are authorized instructors in accordance with the operator or training provider's approved training program.

3.2.2 Part 91 Training Providers.

3.2.2.1 **MU-2B Part 91 Subpart N Training.** All MU-2B part 91 subpart N training, including those conducted under part 91, must be conducted in accordance with an FAA-approved training program. The term "part 91 training provider"

[1] The term "part 91 training providers" refers to training providers providing training under part 61 authority in a part 91 operation.

refers to training conducted under part 61 authority in a part 91 operation. Part 91 training providers may submit a proposed training program to their jurisdictional FAA Flight Standards District Office (FSDO), who will then forward the proposed training program to the Flight Standards Service (AFS) General Aviation and Commercial Division (AFS-800) for approval. With AFS-800 approval, the jurisdictional FSDO will issue an LOA to the part 91 training provider, if it is determined that the proposed training program meets the standards of part 91 subpart N. Training programs approved for part 91 training providers will be approved for 24 calendar-months, unless superseded or rescinded prior to the approval expiration date.

1. Any proposed MU-2B training program that differs substantially from the training program curriculum presented in Appendix A of this AC must be coordinated with AFS-800 and the Kansas City Aircraft Evaluation Group (AEG) prior to FAA approval.
2. With AFS-800 approval, the jurisdictional FSDO will issue an LOA to the part 91 training provider, if it is determined that the proposed training program meets the standards of part 91 subpart N.
3. Means of compliance must conform to Appendix A in all significant respects. Proposed training programs that differ from the program described in Appendix A may be submitted as an alternative means of compliance if it meets the standards of part 91 subpart N.

3.2.2.2 Qualified Instructors. For part 91 training providers, MU-2B qualified instructors are listed by a certified flight instructor (CFI) certificate on the LOA approving the part 91 subpart N MU-2B training program. The FAA may request reporting of MU-2B-qualified instructor activity when issuing LOA-affiliated CFIs, similar to the reporting used for the renewal of a CFI certificate. Each MU-2B-qualified instructor may hold an LOA for their own FAA-approved MU-2B training program, or multiple MU-2B-qualified instructors may be listed on the same LOA for one FAA-approved MU-2B training program.

4 RELATED DOCUMENTS.

4.1 What Are the Related Documents (current editions)?

- Title 14 CFR Part 91 Subpart N.
- AC 120-108, Continuous Descent Final Approach.
- AC 120-109, Stall Prevention and Recovery Training.

4.2 Does This AC Cancel Any Prior ACs? No.

4.3 Where Are This AC and Other FAA Publications Located? You can view a list of all ACs at http://www.faa.gov/regulations_policies/advisory_circulars/. You can view the FAA Regulations at http://www.faa.gov/regulations_policies/faa_regulations/.

5 AC FEEDBACK FORM. For your convenience, the AC Feedback Form is the last page on this AC. Note any deficiencies found, clarifications needed, or suggested improvements regarding the contents of this AC on the Feedback Form.

John Barbagallo
Deputy Director, Flight Standards Service

APPENDIX A. MU-2B TRAINING PROGRAM

A.1 MU-2B General Training Requirements.

A.1.1 What Are the General Training Requirements for the Mitsubishi MU-2B?

A.1.1.1 **Training Requirements.** The Mitsubishi MU-2B training program consists of both ground and flight training. The minimum pilot training requirement hours are shown in Table A-1, Minimum Ground Instruction Training Hours, for ground instruction and Table A-2, Minimum Flight Instruction Training Hours, for flight instruction. An additional ground training requirement for Differences Training is shown in Table A-3, Minimum Differences Training Hours.

A.1.1.2 **Training Credit.** The MU-2B is certificated by the Federal Aviation Administration (FAA) as a single-pilot airplane. No training credit is given for second-in-command (SIC) training and no credit is given for right seat time under this program. Only the sole manipulator of the controls of the MU-2B airplane, flight training device (FTD), or Level C or D simulator can receive training credit under this program.

A.1.1.3 **Training Program Differences.** The training program references the applicable MU-2B Airplane Flight Manual (AFM) in several sections. There may be differences between sequencing of procedures found in the AFM's procedures sections and the checklists, procedures, and techniques found within this training program. Title 14 CFR part 91 subpart N requires that if there are any differences between the AFM's procedures sections (Normal, Abnormal, and Emergency) and the training and operating requirements of part 91 subpart N, the person operating the airplane must operate the airplane in accordance with the training specified in part 91 subpart N and an approved MU-2B training program.

A.1.1.4 **Minimum Programmed Training Hours.**

Table A-1. Minimum Ground Instruction Training Hours

Ground Instruction		
Initial/Transition	Requalification	Recurrent
20 hours	12 hours	8 hours

Table A-2. Minimum Flight Instruction Training Hours

Flight Instruction		
Initial/Transition	Requalification	Recurrent
12 hours with a minimum of 6 hours at Level E	8 hours Level C or Level E	4 hours at Level E, or 6 hours at Level C

Table A-3. Minimum Differences Training Hours

Differences Training	
Two factory type design models currently	1.5 hours at Level B
More than two factory type design models currently	3 hours at Level B
Each additional factory type design model added	1.5 hours at Level B
Each model modified from factory type design at Level C (recommended for part 91; refer to MU-2B Flight Standardization Board (FSB) Report for specific Differences applicable to training programs requiring FAA approval apart from part 91 subpart N)	Sufficient program hours to ensure proficiency in the variant aircraft for all Differences, with minimum 1.5 hours for Level C Initial/Transition Differences and 0.5 hours for Level C Recurrent Differences
Each model modified from factory type design at Level D (recommended for part 91; refer to MU-2B FSB Report for specific Differences applicable to training programs requiring FAA approval apart from part 91 subpart N)	Sufficient program hours to ensure proficiency in the variant aircraft for all Differences, with minimum 4 hours for Level D Initial/Transition Differences and 1 hour for Level D Recurrent Differences

A.2 Definitions of Levels of Training as Used in This AC.

A.2.1 Level A Training. Training that is conducted through self-instruction by the pilot. No minimum training program hours apply. Level A Differences are those Differences which need awareness, but which have no effect on procedures.

A.2.2 Level B Training. Training that is conducted in the classroom environment with the aid of a qualified instructor who meets the requirements of part 91 subpart N, applicable as specified in § 91.1705(h)(4). Level B Differences are of great enough degree to require formal training, but are not of great enough degree to require systems integration training, such as aircraft systems Differences that have only minor procedural Differences.

A.2.3 Level C Training. Training that is accomplished in an FAA-approved Level 5, 6, or 7 FTD or simulator. In addition to the basic FTD requirements, the FTD must be representative of the MU-2B cockpit controls and be specifically approved by the FAA for the MU-2B airplane for Level C Initial, Transition, Requalification, or Recurrent Training. Level C Training is applicable for recurring MU-2B training and to each model modified from factory type design where the change meets the definition for Level C Differences. Level C Differences are those Differences of great enough degree to require a systems integration training, but that are not of great enough degree to require actual flight training to ensure proficiency, such as installation of an Area Navigation (RNAV) System. Level C Initial Differences Training must include a Training Course Final Phase Check of items affected by the differences in type design.

A.2.4 Level D Training. Training that must be accomplished in the MU-2B airplane or approved MU-2B simulator. Level D Training is applicable to each model modified from factory type design where the change meets the definition for Level D Differences. Level D Differences are those Differences for which flight training is necessary to ensure proficiency, such as installation of an electronic flight instrument system (EFIS) with a primary flight display (PFD) format. Level D Initial and Recurrent Differences Training must include a Training Course Final Phase Check of items affected by the differences in type design.

A.2.5 Level E Training. Training that must be accomplished in the MU-2B airplane, Level C simulator, or Level D simulator. Level E Training is applicable to the MU-2B aircraft in relation to other Airplane Multiengine Land (AMEL) aircraft.

A.3 MU-2B Ground Training Curriculum Contents.

A.3.1 What Are the MU-2B Required Ground Training Tasks? All items in the ground training curriculum must be covered. The order of presentation is at the discretion of the instructor. The student must satisfactorily complete a written or oral exam given by the training provider based on this MU-2B training program.

A.3.1.1 Aircraft General.

1. Introduction.

2. Airplane (Structures/Aerodynamics/Engines) Overview.
    - Fuselage.
    - Wing.
    - Empennage.
    - Doors.
    - Windshield and Windows.
3. Airplane Systems.
    - Electrical Power.
    - Lighting.
    - Fuel System.
    - Powerplant.
    - Environmental.
    - Fire Protection.
    - Ice and Rain Protection.
    - Landing Gear and Brakes.
    - Flight Controls and Trim.
    - Pilot Static System/Flight Instruments.
    - Oxygen System.
4. Operating Limitations.
    - Weights.
    - Center of Gravity (CG) and Loading.
    - Airspeeds.
    - Maneuvering Load Factors.
    - Takeoff and Landing Operations.
    - En Route Operations.
5. Required Placards.
6. Instrument Markings.
7. Flight Characteristics.
    - Control System.
    - Stability and Stall Characteristics.
    - Single-Engine Operation.

- Maneuvering and Trim.
- Takeoff and Landing.

A.3.1.2 Electrical Power.

1. General Description.
2. Direct Current (DC) Electrical System.
    - DC Power Generation.
    - DC Power Distribution.
    - Battery System.
    - External Power System.
3. Alternating Current (AC) Electrical System.
    - AC Power Generation.
    - Controls and Indicators.
    - AC Power Distribution.
4. Limitations.
    - General Limitations.
    - Instrument Markings.

A.3.1.3 Lighting.

1. Exterior Lighting System.
    - Navigation Lights.
    - Anti-Collision Lights.
    - Wing Inspection Lights.
    - Taxi Lights.
    - Landing Lights.
    - Rotating Beacon.
    - Operation.
2. Interior Lighting System.
    - Flight Compartment Lights.
    - Passenger Compartment Lights.

3. Emergency Lighting System.
    - Cockpit Emergency Lighting.
    - Aircraft Emergency Lighting.
4. Procedures.
    - Normal.
    - Abnormal.
    - Emergency.

A.3.1.4 Master Caution System.

1. System Description and Operation.
    - Master Caution Light and Reset Switch.
    - Annunciator and Indicator Panels.
    - Operation Lights.
    - System Tests.
2. Procedures.

A.3.1.5 Fuel System.

1. Fuel Storage.
    - Refueling/Balancing.
    - Defueling and Draining.
    - Tank Vent System.
2. Fuel Distribution.
    - Fuel Transfer.
    - Fuel Balancing.
    - Boost Pump Operation.
3. Fuel Indicating.
    - Fuel Quantity.
    - Low Fuel Warning.
4. Fuel System Limitations.
    - Approved Fuels.
    - Fuel Anti-Icing Additives.
    - Fuel Temperature Limitations.

- Fuel Transfer and Fuel Imbalance.
- Fuel Pumps.
- Refueling.
- Capacity.
- Unusable Fuel.

A.3.1.6 Powerplant.

1. Engine Description.
   - Major Sections.
   - Cockpit Controls.
   - Instrumentation.
   - Operation.
2. Engine Systems.
   - Lubrication.
   - Fuel.
   - Ignition.
   - Engine Starting.
   - Anti-Ice.
3. Propeller System.
   - Ground Operations.
   - In-Flight Operations.
   - Synchronization.
   - Deice.
4. Ground Checks.
   - Overspeed Governor.
   - Single Red Line (SRL) and Delta Pressure/Pressure (P/P).
   - Negative Torque System (NTS) and Feather Valve.
   - Supplementary NTS.
5. In-Flight Post Maintenance Checks.
   - NTS In-Flight.
   - Flight Idle Fuel Flow.

6. Limitations.
    - Powerplant.
    - Engine Starting Conditions.
    - Airstart Envelope.
    - Engine Starting.
    - Oil.
    - Fuel.
    - Starter/Generator.
    - External Power.
    - Instrument Markings (as applicable).
    - TPE331-10-511M.
    - TPE331-5/6-252/251M.
    - TPE331-1-151M.
7. Engine Malfunctions and Failures.
    - Propeller Coupling.
    - Torque Sensor.
    - Engine Overspeed.
    - Fuel Control Spline.

A.3.1.7 Fire Protection.

1. Introduction.
2. Engine Fire Detection.
    - System Description.
    - Annunciator.
3. Portable Fire Extinguishers.

A.3.1.8 Pneumatics.

1. System Description.
2. System Operation.
    - Air Sources.
    - Limitations.

3. Wing and Tail Deice.
   - System Description.
   - Controls.
4. Entrance and Baggage Door Seal.
   - Air Source.
   - Operation.

A.3.1.9 Ice and Rain Protection.

1. General Description.
2. Wing Deice.
   - System Description.
   - Operation.
   - Controls and Indications.
3. Engine Anti-Ice.
   - System Description.
   - Operation.
   - Controls and Indications.
4. Window Defog.
   - Controls.
   - Operation.
5. Tail Deice.
   - Horizontal Stabilizer Deice.
   - Vertical Stabilizer Deice.
6. Pitot Static System Anti-Icing.
   - Pitot Tube Heating.
   - Static Port Heating.
   - Angle of Attack (AOA) Transmitter Heating.
7. Windshield Deice/Anti-Ice.
   - System Description.
   - Controls and Indications.

8. Windshield Wiper.
    - System Description.
    - Control and Operation.
9. Propeller Deice.
    - System Description.
    - Controls and Indications.
10. Ice Detector.
    - System Description.
    - Controls and Indications.
    - Operation.
11. Limitations.
    - Temperatures.
    - Cycling.

A.3.1.10 Air Conditioning.

1. System Description and Operation.
    - Refrigeration Unit (Air Cycle Machine (ACM)).
    - Air Distribution.
    - Ventilation.
    - Temperature Control.
    - Water Separator.
2. Limitations.

A.3.1.11 Pressurization.

1. General.
2. Component Description.
    - Cabin Pressure Controller.
    - Altitude Pressure Regulator.
    - Ram Air.
    - Outflow Safety Valves.
    - Air Filters.
    - Manual Control Valve.

- Pneumatic Relays.
- Venturi.

3. System Operation.
   - Ground Operation.
   - Takeoff Mode.
   - In-Flight Operation.
   - Landing Operation.
4. Emergency Operation.
   - High Altitude.
   - Low Altitude.
5. Limitations.
   - Maximum Differential.
   - Landing Limitations.

A.3.1.12 Landing Gear and Brakes.

1. General Description.
   - Landing Gear Doors.
   - Controls and Indicators.
   - Warning Systems.
   - Emergency Extension.
2. Nosewheel Steering.
3. Landing Gear/Brakes/Tires.
4. Limitations.
   - Airspeed (with flaps).
   - Emergency Extension.
   - Tire Speed.
   - Brake Energy.

A.3.1.13 Flight Controls.

1. Primary Flight Controls (elevator/rudder/spoilers).
   - Description.
   - Operations.

2. Trim Systems.
    - System Description.
    - Roll Trim.
    - Normal Operation.
    - Emergency Operation.
    - Rudder Trim.
    - Pitch Trim.
    - General.
    - Operations.
    - Trim-in-Motion Alert System.
3. Secondary Flight Controls.
    - System Description.
    - Flaps.
4. Limitations.
    - Instrument Markings.
    - Placards.
5. Flight Characteristics.
    - Control Systems.
    - Stability and Stall Characteristics.
    - Single-Engine Operation.
    - Maneuvering and Trim.
    - Takeoff and Landing.

A.3.1.14 Avionics.

1. Pitot-Static System.
    - System Description.
    - Pilot’s System.
    - Co-Pilot’s System.
    - Alternate Static.
2. Air-Data Computer (ADC).

3. Attitude Instrument Displays (EFIS and standard).
   - Electronic Altitude Director Indicator (EADI).
   - Standard Attitude Gyro.
4. Attitude and Heading Reference System (AHRS).
   - System Description.
   - Controls and Indications.
5. Navigation.
   - Navigation Systems Descriptions.
   - Compass System Descriptions.
   - Display Systems.
   - Terrain Awareness System.
   - Traffic Avoidance System.
   - Automatic Dependent Surveillance-Broadcast (ADS-B).
6. Communications.
   - Very High Frequency (VHF) Communications Systems.
   - Audio Control.
7. Standby Flight Instruments.
   - System Description.
   - Controls and Indications.
8. Automatic Flight Control System (AFCS).
   - Controls and Indications.
   - Yaw Damper.
   - Trim-in-Motion Alert System.
   - Autopilot Automatic Disconnect.
   - Aural Alert System.
9. AOA System.
   - System Description.
   - Controls and Indications.
10. Limitations.

A.3.1.15 Oxygen System.

1. System Description.

2. Crew Oxygen.
   - Oxygen Cylinder Assembly.
   - Pressure Gauge.
   - Outlet Valves.
   - Duration.
3. Passenger Oxygen.
   - System Description.
   - Duration.
4. Limitations.

A.3.1.16 Performance and Planning.

1. Takeoff Performance Charts.
   - Runway Requirements.
   - Normal and with One Engine Inoperative.
2. Climb Performance.
   - Normal and with One Engine Inoperative.
   - Obstacle Clearance.
   - Power Assurance Charts.
3. Cruise Performance.
   - Power Charts.
   - Maximum Practical Altitude.
   - Cruise Speeds/Engine Health.
   - Buffet Boundary.
4. Landing Performance.
   - Runway Requirements.
     - Dry Runway.
     - Wet Runway.
   - Go-Around.
     - One Engine Inoperative.
     - All Engines.

A.3.1.17 Weight and Balance (W&B).

1. Aircraft Loading Procedures.

2. Limitations.
   - Weight Limits.
   - CG Limits.
3. Plotter.
   - Description.
   - Use.
4. Calculations.
   - AFM Procedures.
   - Examples.

A.3.1.18 General Subjects.

1. Controlled Flight into Terrain Awareness.
2. Crew Resource Management (CRM)/Single Pilot Resource Management (SRM).
   - CRM.
   - SRM.
3. MU-2B FSB Report.

A.4 What Are the MU-2B Required Flight Training Tasks?

A.4.1 General Flight Training Requirements. All flight training maneuvers must be consistent with this training program and the applicable MU-2B checklist accepted by the FAA. The maneuver profiles shown in this advisory circular are presented to show the required training scenarios. Profiles conducted in-flight require planning and care on the part of both the instructor and student in order to provide the highest level of safety possible. The maneuver profiles shown in this advisory circular do not account for local geographic and flight conditions. The instructor and student must consider local conditions when performing these maneuvers in-flight.

A.4.2 Special Emphasis Items. Certain aspects of pilot knowledge, skills, and abilities must be emphasized and evaluated during the training and checking process of the MU-2B training program.

A.4.2.1 Accelerated stall awareness and recovery procedures with an emphasis on Configuration Management (CM) must be included in the training program. Awareness of the margin to stall in all flight operations and configurations must be emphasized throughout training.

A.4.2.2 Minimum controllable airspeed with the critical engine inoperative (V_{MC}) awareness and early recognition must be trained and checked. Minimum airspeeds for one engine inoperative must be emphasized in all configurations.

A.4.2.3 Airspeed management and recognition of airspeed deterioration below recommended speeds and recovery methods must be emphasized throughout training and checking.

A.4.2.4 Knowledge of icing conditions and encounters must be emphasized throughout training and checking, including equipment requirements, certification standards, minimum airspeeds, and the use of the autopilot and other applicable AFM procedures.

A.4.2.5 Airplane performance characteristics with all engines operating and with one engine inoperative must be emphasized.

A.4.3 MU-2B Flight Training Program Proficiency Standards.

A.4.3.1 General Visual Flight Rules (VFR)/Instrument Flight Rules (IFR).

1. Bank Angle: ±5 degrees of prescribed bank angle.
2. Heading: ±10 degrees.
3. Altitude: ±100 feet.
4. Airspeed: ±10 knots.

A.4.3.2 Instrument Approach—Final Approach Segment.

A.4.3.2.1 Precision Approach.

1. Heading: ±10 degrees.
2. Altitude: ±100 feet.
3. Airspeed: ±10 knots prior to final.
4. Airspeed: ±10 knots after established on final.
5. Glideslope (GS)/Localizer Deviation: within ¾ scale, not below GS.

A.4.3.2.2 Nonprecision Approach (NPA).

A.4.3.2.3 Straight-In.

1. Initial Approach Altitude: ±100 feet.
2. Heading: ±10 degrees.
3. Altitude (minimum descent altitude (MDA)): +100 feet, -0 feet.
4. Airspeed: +10 knots.
5. Course Deviation Indicator: within ¾ scale or ±10 degrees on the radio magnetic indicator (RMI).

A.4.3.2.4 Circling Approach.

1. Maximum Bank: 30 degrees.
2. Heading: within 10 degrees.
3. Altitude: +100 feet, -0 feet.
4. Airspeed: within 10 knots, but not less than the reference speed for final approach (V_{REF}).

Note: In all cases, a pilot must show complete mastery of the aircraft, with the outcome of each maneuver or procedure never seriously in doubt.

A.4.4 Maneuvers and Procedures. All flight training maneuvers and procedures must be conducted, as applicable to the MU-2B and each type of operation involved.

A.4.4.1 Preflight.

1. Preflight Inspection. The pilot must:
   - Conduct an actual visual inspection of the exterior and interior of the airplane, locating each item and explaining briefly the purpose of inspecting it; and
   - Demonstrate the use of the appropriate checklist, appropriate control system checks, starting procedures, radio and electronic equipment checks, and the selection of proper navigation and communications radio facilities and frequencies prior to flight.
2. Taxiing. This maneuver includes taxiing in compliance with instructions issued by the appropriate air traffic control (ATC) facility or by the person conducting the check.
3. Pre-Takeoff Checks. The pilot must satisfactorily complete all pre-takeoff aircraft systems and powerplant checks before takeoff.

A.4.4.2 Takeoff and Departure.

1. Normal. One normal takeoff, which, for the purpose of this maneuver, begins when the airplane is taxied into position on the runway to be used.
2. Instrument Takeoff. Takeoff with simulated instrument conditions at or before reaching an altitude of 200 feet above the airport elevation and visibility of 1800 Runway Visual Range (RVR).
3. Crosswind. One crosswind takeoff, if practical, under the existing meteorological, airport, and traffic conditions.
4. Powerplant Failure. One takeoff with a simulated failure of the most critical powerplant at a point after liftoff speed (V_{LOF}). In the MU-2B airplane, all simulated powerplant failures must only be

initiated when the person conducting the training or checking determines that it is safe under the prevailing conditions. The instructor must assure that the power lever does not move beyond the flight idle gate.

5. Rejected Takeoff. A rejected takeoff performed in an airplane during a normal takeoff run after reaching a reasonable speed, determined by giving due consideration to aircraft characteristics, runway length, surface conditions, wind direction and velocity, brake heat energy, and any other pertinent factors that may adversely affect safety or the airplane.
6. Area Departure. Demonstrate adequate knowledge of departure procedures, establishing appropriate ATC communications, and following clearances.

A.4.4.3 Flight Maneuvers and Procedures.

1. Steep Bank Turns. Each steep turn must involve a bank angle of 50 degrees with a heading change of at least 180 degrees, but no more than 360 degrees.
2. Approaches to Stalls. Must be performed in each of the following configurations: takeoff, clean, and landing. One approach to a stall must be performed in either the takeoff, clean, or landing configuration while in a turn with a bank angle between 15 degrees and 30 degrees.
3. Accelerated Stalls. Must be done in the flaps 20 degrees and flaps 0 degrees configurations.
4. Recovery Procedures. Must be initiated at the first indication of a stall.

A.4.4.4 Normal and Abnormal Procedures and Operations.

1. Runaway trim.
2. Normal and abnormal operations of the following systems:
    - Pressurization;
    - Pneumatic;
    - Air conditioning;
    - Fuel;
    - Electrical;
    - Flight control;
    - Anti-icing and deicing;

- Autopilot;
- Stall warning devices, as applicable;
- Airborne radar and weather detection devices;
- Other systems, devices, or aids available;
- Electrical, flight control, and flight instrument system malfunction or failure;
- Landing gear and flap system malfunction or failure; and
- Failure of navigation or communications equipment.

A.4.4.5 Flight Emergency Procedures.

1. Powerplant failure.
2. Powerplant, cabin, flight deck, wing, and electrical fires.
3. Smoke control.
4. Fuel jettisoning, as applicable.
5. Any other emergency procedures outlined in the appropriate AFM or FAA-accepted checklist.

A.4.4.6 Instrument Procedures.

1. Area departure.
2. Use of navigation systems, including adherence to assigned course and/or radial.
3. Holding procedures.
4. Aircraft approach category airspeeds.
5. Approach procedures. Each instrument approach must be performed according to all procedures and limitations approved for that facility. An instrument approach procedure begins when the airplane is over the initial approach fix (IAF) for the approach procedure being used, and ends when the airplane touches down on the runway or when transition to missed approach configuration is completed.
    - Instrument landing system (ILS), ILS/distance measuring equipment (DME), approach.
        - A manually controlled ILS with a powerplant inoperative; occurring before initiating the final approach course and continuing to full stop or through the Missed Approach Procedure (MAP).

    - A manually controlled ILS utilizing raw data to 200 feet or decision height (DH).
    - An ILS with the autopilot coupled.

- NPAs.
    - Non-Directional Beacon (NDB), NDB/DME approach, straight-in or circle.
    - Very high frequency Omnidirectional Range (VOR), VOR/DME, straight-in or circle.
    - Localizer (LOC), LOC/DME, LOC back course.
    - Global Positioning Satellite (GPS) approach. (If the aircraft/FTD/flight simulator has a GPS installed, the applicant must demonstrate GPS approach proficiency.)
    - Airport surveillance radar (ASR) approach.
- MAP. One missed approach procedure must be a complete, approved MAP as published or as assigned by ATC.
    - From a precision approach.
    - From an NPA.
    - With a simulated powerplant failure.
- Circling approach.
    - The circling approach must be made to the authorized MDA, followed by a change in heading and the necessary maneuvering (by visual reference) to maintain a flight path that permits a normal landing on the runway.
    - The circling approach must be performed without excessive maneuvering and without exceeding the normal operating limits of the airplane, and the angle of bank must not exceed 30 degrees.

A.4.4.7 Landings and Approaches to Landings.

1. Airport orientation.
2. Normal landings with stabilized approach.
3. Crosswind landings.
4. From a precision instrument approach.
5. From a precision instrument approach with a powerplant inoperative.
6. From a nonprecision instrument approach.
7. From a nonprecision instrument approach with a powerplant inoperative.

8. From a circling approach or VFR traffic pattern.
9. Go-around/rejected landings. A normal MAP or a visual go-around after the landing is rejected. The landing should be rejected at approximately 50 feet and approximately over the runway threshold.
10. Zero flap landing.
    - Runway requirements.
    - Airspeeds.

A.5 What Are the Applicable MU-2B Differences Training Tasks?

A.5.1 General Differences Training Requirements. When Differences Training is required, it must be consistent with this training program. Differences Training is required for operation of more than one factory type design MU-2B model, as specified in Table A-3. Differences Training is not required if Initial, Transition, Requalification, or Recurrent Training is conducted in each model and/or modified model of the MU-2B operated. The following Differences Training requirements do not account for every modification to MU-2B aircraft that should be trained for pilot proficiency. For these identified Levels B, C, and D Differences, and any similarly applicable Differences, an MU-2B pilot must be trained to safely operate MU-2B aircraft with applicable equipment with sufficient proficiency to meet the requirements of the Training Course Final Phase Check. Levels C and D Initial Differences and Level D Recurrent Differences must include a record of the Training Course Final Phase Check for evaluation items affected by applicable differences in aircraft type design.

A.5.2 Level B Differences Training. Level B Differences Training is applicable when operating more than one factory type design model of MU-2B, except the factory type design K and M models and the factory type design J and L models, which may be completed at Level A Training. Level A or B Differences Training is not a recurring annual requirement. Once a person has completed Level A or B Initial Differences Training between the applicable different models, no additional Differences Training between those models is required. When Level B Differences Training is applicable, it should include the following items that apply to the specific difference aircraft models or modification:

A.5.2.1 Training.

1. DC and AC Electrical Power: system and distribution.
2. Fuel System: including configuration, indications, and sequencing.
3. Landing Gear: including usage, brakes, and safety switch location.
4. Flaps: settings and operation.
5. Oxygen System: outlets and bottle sizes.

6. Engines: including torque/temp limiters, NTS, and SRL, as applicable.
7. Propeller: 3-, 4-, and 5-blade models, as applicable.
8. Ice and Rain Protection: including heated windshield, glycol, wipers, and Japan Civil Aviation Board (JCAB) versus FAA equipment.

A.5.2.2 Training Course Final Phase Check. Not required.

A.5.3 Level C Differences Training. Level C Differences Training is recommended for part 91 operations (refer to the MU-2B FSB Report for specific Differences applicable to training programs requiring FAA approval apart from part 91 subpart N). This training is needed when there are modifications that fall within the definition of Level C Degrees of Differences, as defined in FAA Order 8900.1, Flight Standards Information Management System (FSIMS), Volume 3, Chapter 19, Section 9, subparagraph 3-1314C, Level C Differences. Level C Initial Differences Training should include a record of the Training Course Final Phase Check for evaluation items affected by applicable differences in aircraft type design. Recurrent Differences are applicable to Level C Differences Training items without a record of the Training Course Final Phase Check. When Level C Differences Training is applicable, it should include all items that apply to the specific difference aircraft modification. A typical difference aircraft modification would be installation of an RNAV System, such as a GPS, and would include the following:

A.5.3.1 Training.

1. Autoflight: RNAV System use with autopilot or flight director (FD).
2. Electrical Power: sources and distribution.
3. Navigation: RNAV selection, RNAV display, course indication, Traffic Alert and Collision Avoidance System (TCAS), Terrain Awareness and Warning System (TAWS), and (Traffic Information Services-Broadcast (TIS-B).
4. Information Systems: such as electronic charts or Flight Information Service-Broadcast (FIS-B).
5. Preflight.
6. Instrument Approach: types of approaches, selection, sequencing, and use.
7. Normal Procedures.
8. Abnormal Procedures.

A.5.3.2 Training Course Final Phase Check Items Accomplished at Level C.

1. Preflight Check: system verification and setup.

2. Area Departure and Arrival: selection and sequencing of flight plans.
3. Approach: selection and sequencing of each type of instrument approach.
4. Missed Approach: selection and sequencing.

A.5.4 Level D Differences Training. Level D Differences Training is recommended for part 91 operations (refer to the MU-2B FSB Report for specific Differences applicable to training programs requiring FAA approval apart from part 91 subpart N). This training is needed when there are modifications that fall within the definition of Level D Degrees of Differences, as defined in Order 8900.1, Volume 3, Chapter 19, Section 9, subparagraph 3-1314D, Level D Differences. Level D Initial Differences Training must include a record of the Training Course Final Phase Check for evaluation items affected by applicable differences in aircraft type design. Recurrent Differences are applicable to Level D Differences Training items with a record of the Training Course Final Phase Check. When Level D Differences Training is applicable, it should include all items that apply to the specific difference aircraft modification. A typical difference aircraft modification would be installation of an EFIS with PFD format, such as a G600 or SAGEM, and would include the following:

A.5.4.1 Training.

1. Instrument Panel Layout.
2. Autoflight: RNAV System use with autopilot or FD.
3. Electrical Power: sources and distribution.
4. Indication Systems: multifunction display (MFD) and PFD systems indications.
5. Lighting: cockpit, instruments, and displays.
6. Flight Instruments: PFD and MFD format information.
7. Navigation: RNAV selection, RNAV display, course indication, TCAS, TAWS, TIS-B.
8. Vacuum: changes in design and use for EFIS instruments.
9. Information Systems: such as electronic charts or FIS-B.
10. Engine Indicating (if applicable).
11. Normal Procedures.
12. Abnormal Procedures.
13. Preflight.
14. Start and Taxi.
15. Takeoff.

16. Engine Failure on Takeoff: Airspeed and Altitude indication in PFD tape format.
17. In-flight Maneuvers: low speed awareness indications, steep turns, stalls, and V_{MC}.
18. Instrument Approaches: RNAV source selection and display, and types of approaches.

A.5.4.2 Training Course Final Phase Check Items Accomplished at Level D.

1. Preflight.
2. Start and Taxi.
3. Rejected Takeoff.
4. Normal Takeoff.
5. Steep Turns.
6. Approach to Stall (1): for low speed awareness cues.
7. Maneuvering with One Engine Inoperable.
8. Precision Approach (one engine inoperable).
9. Go-Around.
10. Normal Landing.
11. Additional for Instrument Rated.
12. Unusual Attitude.
13. Missed Approach: including sequencing missed approach RNAV.
14. NPA.
15. Circle-to-Land.
16. Landing.

A.6 MU-2B Training Course Final Phase Check Requirements.

A.6.1 What Are the Training Course Final Phase Check Requirements?

A.6.1.1 Completion of the MU-2B training program requires successful completion of a Training Course Final Phase Check taken in the MU-2B airplane or a Level C or D simulator for Initial/Transition Training. The Training Course Final Phase Check for Requalification or Recurrent Training may be taken in the MU-2B airplane, a Level C or D simulator, or in a Level 5 or 6 FAA-approved MU-2B FTD. The Training Course Final Phase Check must be conducted by a qualified flight instructor who meets the requirements of part 91 subpart N. Simultaneous training and checking is not allowed for Initial/Transition Training.

A.6.1.2 For pilots operating under 14 CFR part 135, checking must be done in accordance with applicable regulations. For the purpose of recurrent testing in part 135, § 135.293(b), the MU-2B is considered a separate type of aircraft.

A.6.1.3 The Training Course Final Phase Check must be conducted using the standards contained in the FAA Commercial Pilot—Practical Test Standards (PTS) for Airplane: Airplane Multiengine Land and Instrument Rating.

A.6.1.4 The Training Course Final Phase Check portion of the training is comprised of the following tasks for all airmen (instrument rated and non-instrument rated). An (*) indicates those maneuvers for Initial/Transition Training which must be completed in the MU-2B airplane or a Level C or D simulator.

1. Preflight Check.
2. Start and Taxi Procedures.
3. *Normal Takeoff (X-Wind) (Two Engine).
4. *Takeoff Engine Failure.
5. Rejected Takeoff.
6. *Steep Turns.
7. *Approach to Stalls (3) (must include accelerated stalls).
8. *Maneuvering with One Engine Inoperative—Loss of Directional Control (V_{MC}).
9. Abnormal and Emergency Procedures: to include MU-2B operation in icing conditions without the autopilot, or without trim-in-motion or automatic autopilot disconnect.
10. *Precision Approach (One Engine Inoperative).
11. Go-Around/Rejected Landing.
12. Normal Landing (X-Wind).
13. *Landing with One Engine Inoperative.
14. *Landing with Nonstandard Flap Configuration (0 or 5 degrees).
15. Postflight Procedures.

A.6.1.5 The following additional tasks are required for those airmen who possess an instrument rating. An (*) indicates those maneuvers for Initial/Transition Training which must be completed in the MU-2B airplane, or a Level C or D simulator.

1. Preflight Check.
2. Unusual Attitudes.
3. Abnormal and Emergency Procedures.

4. Basic Instrument Flight Maneuvers.
5. Area Arrival and Departure.
6. Holding.
7. Precision Approach (Two Engine).
8. *NPAs (2): must include an NPA with one engine inoperative.
9. Missed Approach from Either Precision or Nonprecision Instrument Approach (Two Engine).
10. Landing from a Straight-In or Circling Approach.
11. Circling Approach.
12. Postflight Procedures.

A.6.1.6 A form has been included for use in creating a training and final check record for the student and the training provider (see Figure A-29, Training Course Final Phase Check Form).

Figure A-29. Training Course Final Phase Check Form

TRAINING COURSE FINAL PHASE CHECK

NAME OF AIRMAN *(last, first, middle initial)*	GRADE OF CERTIFICATE	CERTIFICATE NUMBER

DATE OF CHECK	LOCATION OF CHECK	TYPE OF CHECK	MU-2B MODEL	FTD MODEL

SCHOOL NAME	INSTRUCTOR NAME	CFI NUMBER	EXPIRES

FLIGHT MANEUVERS GRADE *(S-Satisfactory, U-Unsatisfactory)*

MANEUVERS REQUIRED FOR ALL AIRMEN	A/C	FTD
PREFLIGHT CHECK		
START AND TAXI PROCEDURES		
*NORMAL TAKEOFF (X-WIND) (TWO ENGINE)		
*TAKEOFF ENGINE FAILURE		
REJECTED TAKEOFF		
*STEEP TURNS		
*APPROACH TO STALL (3)		
*MANEUVERING WITH ONE ENGINE INOPERABLE (V_{MC})		
ABNORMAL AND EMERGENCY PROCEDURES—TO INCLUDE THE MU-2B OPERATIOIN IN ICING CONDITIONS WITHOUT THE AUTOPILOT OR WITHOUT TRIM-IN-MOTION/AUTOMATIC AUTOPILOT DISCONNECT.		
*PRECISION APROACH (ONE ENGINE INOPERATIVE)		
GO-AROUND/REJECTED LANDING		
NORMAL LANDING (X-WIND)		
*LANDING WITH ONE ENGINE INOPERATIVE		
*LANDING WITH NONSTANDARD FLAP CONFIGURATION		
POST-FLIGHT PROCEDURES		
ADDITIONAL MANEUVERS REQUIRED FOR INSTRUMENT RATED AIRMEN	A/C	FTD
PREFLIGHT CHECK		
UNUSUAL ATTITUDES		
ABNORMAL AND EMERGENCY PROCEDURES		
BASIC INSTRUMENT FLIGHT MANEUVERS		
AREA ARRIVAL AND DEPARTURE		
HOLDING		
PRECISION APPROACH (TWO ENGINE)		
*NONPRECISION APPROACHES (NPA) (2)		
MISSED APPROACH FROM EITHER PRECISION OR NONPRECISION APPROACH (NPA) (TWO ENGINE) MUST INCLUDE AN APPROACH WITH ONE ENGINE INOPERABLE		
LANDING FROM A STRAIGHT-IN/CIRCLING APPROACH		
CIRCLING APPROACH		
POST-FLIGHT PROCEDURES		

RESULTS OF CHECK	SATISFACTORY		FLIGHT TIMES	AIRCRAFT	FTD
	UNSATISFACTORY				

INSTRUCTOR SIGNATURE	AIRMAN SIGNATURE

A.7 MU-2B Maneuver Profiles.

1. The Maneuver Profiles are provided to develop pilot proficiency with the procedures and techniques contained within this MU-2B flight training program.
2. Though constructed for use in the airplane, they may also be used in the FTD. When an FTD is used, a maneuver may be performed at lower altitudes or carried to its completion. When training is conducted in the MU-2B airplane, all maneuvers must be performed in a manner sufficient to evaluate the performance of the student while never jeopardizing the safety of the flight.

A.7.1 What Considerations Should be Made for the Maneuver Profiles?

A.7.1.1 Engine Performance. The following should be considered in reference to power settings and airspeeds:

1. Power settings shown in italics are provided as guidance only during training, and are not referenced in the AFM. Power setting guidance is provided to show the approximate power setting that will produce the desired airspeed or flight condition. Actual power settings may be different from those stated and should be noted by the instructor and student for reference during other maneuvers. Power settings in the profiles are stated in torque or pounds per square inch (psi) and will vary with aircraft model, engine model, weight, and density altitude. Power settings are based on standard atmospheric conditions.
2. Some pilots prefer to set power initially using fuel flow, because the fuel flow system is not field-adjustable. Fuel flow settings refer to engine operations only. If fuel flow is used to set power for takeoff, check torque and temperature after setting fuel flow and adjust torque or temperature, whichever is limiting, for maximum takeoff power prior to liftoff.
3. Improperly adjusted torque or improperly calibrated temperatures are a safety of flight issue and must be checked and corrected prior to conducting flight training.
4. The pilot should refer to the performance section of the AFM to determine actual speeds required for his or her particular model and specific weight for any given operation.

A.7.1.2 In-Flight Maneuvering.

1. Maneuvers conducted at altitude, such as stalls and steep turns, must always be preceded by clearing turns, and at least one crewmember must continually clear the flying area during the maneuver. The instructor must emphasize the importance of clearing the area, even if the maneuvers are being done in an FTD

or simulator. This will create the habit pattern in the pilot to clear the area before practicing maneuvers.

2. During stalling maneuvers and upon recognition of the indication of a stall, the pilot must call the stall to the instructor and then proceed with the recovery. In addition, during training, the pilot must announce the completion of the stall recovery maneuver. Instructors must exercise caution when conducting stall maneuvers and be prepared to take the controls if the safe outcome of the maneuver is in doubt.

3. During stall maneuvers, it is important that the instructor pay close attention to the position of the balance ball throughout the maneuver and recovery. Stall recognition and recovery is the completion criteria, although the stall in the training and proficiency check phases should progress past initial recognition (stick shaker). For training purposes, stall recovery procedures must include an at the "onset (buffeting) stall condition." At this condition, the stick shaker will have already been actuated. Caution must be exercised to ensure a safe recovery by positively reducing the AOA and accelerating prior to addition of power. Minimization of altitude loss is not a consideration in evaluating these maneuvers. AC 120-109 should be used as the guidance to completion of stall recognition and recovery maneuvers.

4. When demonstrating a loss of directional control with one engine inoperative, the engine failure must only be simulated. During the slowing of the aircraft to demonstrate loss of directional control, the instructor should use the rudder block method to allow the student to experience the loss of directional control associated with V_{MC}, at a speed of approximately 10 knots above actual V_{MC}.

Note: To accurately simulate single-engine operations, zero thrust must be established. The zero thrust torque setting will vary greatly from model to model. It is important to establish to zero thrust torque setting for your aircraft. This requires that the aircraft be flown on one engine to establish the zero thrust setting. This is accomplished by establishing single-engine flight with one propeller feathered and noting the performance with the operating engine at maximum torque or temperature. It is suggested that two airspeeds be established for zero thrust power settings. They are 120 knots, flaps 20 degrees, gear up for takeoff; and 140 knots, flaps 5 degrees, gear up for in-flight and approach maneuvering. Once performance has been established and recorded for each airspeed, restart the other engine and find the torque setting that duplicates the performance (climb or descent rate, airspeed) as was recorded with that propeller feathered. This torque setting will be zero thrust for the simulated inoperative engine. The student/pilot should note that the performance experienced with one engine operating at flight idle may produce greater performance than if the engine were stopped and the propeller feathered.

5. Premaneuver briefings for any maneuver that requires either an actual engine shutdown or a simulated engine failure must be undertaken when using an aircraft. In the case of an actual engine shutdown, the aircraft must be operating at a minimum altitude of 3,000 feet above ground level (AGL), and the maneuver must be done in a location where a safe landing can be made at an airport in the event of difficulty.

A.7.1.3 Takeoff and Landing.

1. When using the profiles to establish the procedure for configuring the aircraft for takeoff or landing, it is important to understand that each task for the procedure, as noted on the procedure diagram, establishes the point at which each task should have been completed and not the exact point at which the task should be completed, unless otherwise stated in the task box. Numbers which represent performance, such as descent rates or other maneuvering information that is not contained in the AFM, are shown in italics.
2. In all takeoff profiles, the prompt for the gear to be retracted is "No Runway Remaining, Gear Up." This should set the decision point for making a landback after an engine failure and should normally be reached at altitudes of less than 100 feet AGL. It is impractical to attempt a landback from above 100 feet AGL because it can require distances of up to 10,000 feet from the beginning of the takeoff run to bring the aircraft to a stop. Although, even on very long runways, landback will not be necessary above 100 feet AGL and above best single-engine rate-of-climb speed (V_{YSE}) for the flap configurations, if the single-engine climb capability found in the charts in the Pilot Operating Manual (POM), with the gear up, is positive (250 feet per minute (fpm) or better) and obstacles clearance is not an issue.
3. The manufacturer's FAA-accepted checklists describe a procedure for the discontinuance of flight following an engine failure after takeoff and the realization that the aircraft cannot climb. The corresponding flight profile in this training program is "Takeoff Engine Failure, Unable to Climb." This maneuver must not be attempted in the aircraft, but must be the subject of a classroom discussion or be demonstrated in the FTD.
4. The focus of all landing procedures, whether two engine or engine out, is on a stabilized approach from an altitude of 500 feet. This will not be possible for all approach procedure maneuvering, especially during NPAs or circle-to-land approaches. Approach

procedures for these two approaches should be stabilized from the point at which the pilot leaves the MDA for the landing.

5. When performing one engine inoperative approaches, landings, or missed approaches, the instructor must be prepared to add power to the simulated failed engine at the first sign of deteriorating airspeed or other situation that indicates the student's inability to correctly perform the maneuver.
6. While maneuvering in the pattern or during instrument approach procedures with one engine inoperative, a 30-degree bank angle must not be exceeded. This will become especially important when executing NPAs and circle-to-land approaches.

A.7.1.4 Emergency and Abnormal Procedures.

1. During training, either in the FTD or in the aircraft, the performance of emergency and abnormal procedures is critical to the completion of the training program. All emergency and abnormal procedures should be simulated when training in the MU-2B airplane.
2. When presenting emergency scenarios to the student, the instructor must not introduce multiple emergencies concurrently.
3. When practicing simulated engine failures, the instructor should also train engine failures under low power conditions. Detection of an engine failure under low power conditions, such as when slowing to approach speeds, can be more difficult to detect and attention to the identification of, and reaction to, a failed engine under low power conditions should be practiced. It may be prudent when experiencing a low power engine failure, such as when in close proximity to the final approach fix, to execute a missed approach as described in the single-engine missed approach profile

A.7.1.5 Scenario-Based Training (SBT). SBT creates an environment of realism. The SBT programs utilize a highly structured flight operation scenario to simulate the overall flight environment. The pilot is required to plan a routine, point-to-point flight, and initiate the flight. During the conduct of the flight, "reality-based" abnormal or emergency events are introduced without warning. Because the pilot is constantly operating in the world of unknowns, this type of training also builds in the "startle factor," and, just as in the real world, the consequences of the pilot's actions (decisions, judgment, airmanship, tactile skills, etc.) will continue to escalate and affect the outcome of the planned flight. Although flying skills are an integral part of this type of training, SBT enables the pilot to gain experience in dealing with unexpected events and, more importantly, further enhances the development of good judgment and decisionmaking.

A.7.2 How Are the MU-2B Maneuver Profiles Structured? Each MU-2B Maneuver Profile, in its respective section, follows the outline below:

1. Normal Takeoff (5- and 20-Degree Flaps).
2. Takeoff Engine Failure (5- and 20-Degree Flaps).
3. Takeoff Engine Failure on Runway or Rejected Takeoff.
4. Takeoff Engine Failure after Liftoff—Unable to Climb (Classroom or FTD Only).
5. Steep Turns.
6. Slow Flight Maneuvers.
7. One Engine Inoperative Maneuvering/Loss of Directional Control.
8. Approach to Stall (Clean Configuration/Wings Level).
9. Approach to Stall (Takeoff Configuration/15- to 30-Degree Bank).
10. Approach to Stall (Landing Configuration/Gear Down/40-Degree Flaps).
11. Accelerated Stall (No Flaps).
12. Emergency Descent (Low Speed).
13. Emergency Descent (High Speed).
14. Unusual Altitude Recovery (Nose High).
15. Unusual Altitude Recovery (Nose Low).
16. Normal Landing (20- and 40-Degree Flaps).
17. Go-Around/Rejected Landing.
18. No Flap or 5-Degree Flaps Landing.
19. One Engine Inoperative Landing (5- and 20-Degree Flaps).
20. Crosswind Landing.
21. ILS and Missed Approach.
22. Two Engine Missed Approach.
23. One Engine Inoperative ILS and Missed Approach.
24. One Engine Inoperative Missed Approach.
25. NPA and Missed Approach.
26. One Engine Inoperative NPA and Missed Approach.
27. Circling Approach at Weather Minimums.
28. One Engine Inoperative Circling Approach at Weather Minimums.

A.7.3 Section Model Groups. The three sections of this program are:

1. Marquise (-60), Solitaire (-40), N (-36A), P (-26A): Figures A-1 through A-28.
2. J (-35), K (-25), L (-36), M (-26): Figures B-1 through B-28.
3. B, D (-10), F (-20), G (-30): Figures C-1 through C-28.

Figure A-1

MU-2B MARQUISE (-60), SOLITAIRE (-40), N (-36A), P (-26A)

NORMAL TAKE-OFF, 5° OR 20° FLAPS

PRIOR TO TAKEOFF, CONSULT THE "WEIGHT FOR POSITIVE GRADIENT AFTER LIFTOFF" AND "SINGLE ENGINE RATE OF CLIMB" CHARTS FOR THE TAKEOFF FLAP SETTING SELECTED.

TAKE OFF SPEEDS

ROTATE

FLAPS 5°	N, MARQ	P, SOL
11,575 LBS.	109	
11,000 LBS.	106	
10,470 LBS.		110
10,000 LBS.	101	108
9,000 LBS.	100	106
8,000 LBS.		104
FLAPS 20°	**N, MARQ**	**P,SOL**
11,575 LBS.	105	
11,000 LBS.	103	
10,470 LBS.		103
10,000 LBS.	100	102
9,000 LBS.	100	100
8,000 LBS.		99

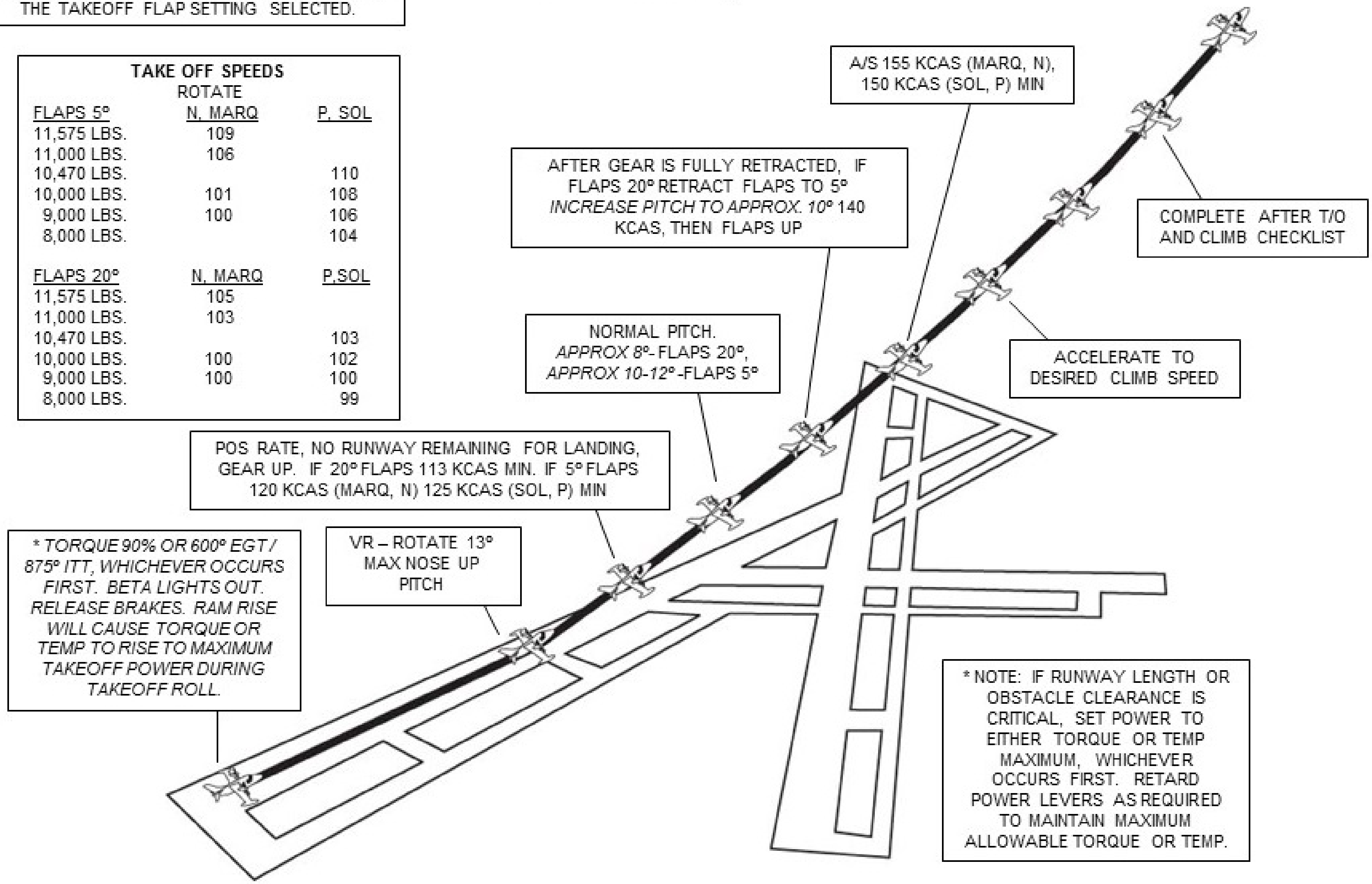


Figure A-2

MU-2B MARQUISE (-60), SOLITAIRE (-40), N (-36A), P (-26A)

TAKE-OFF ENGINE FAILURE – FLAPS 5° OR 20°

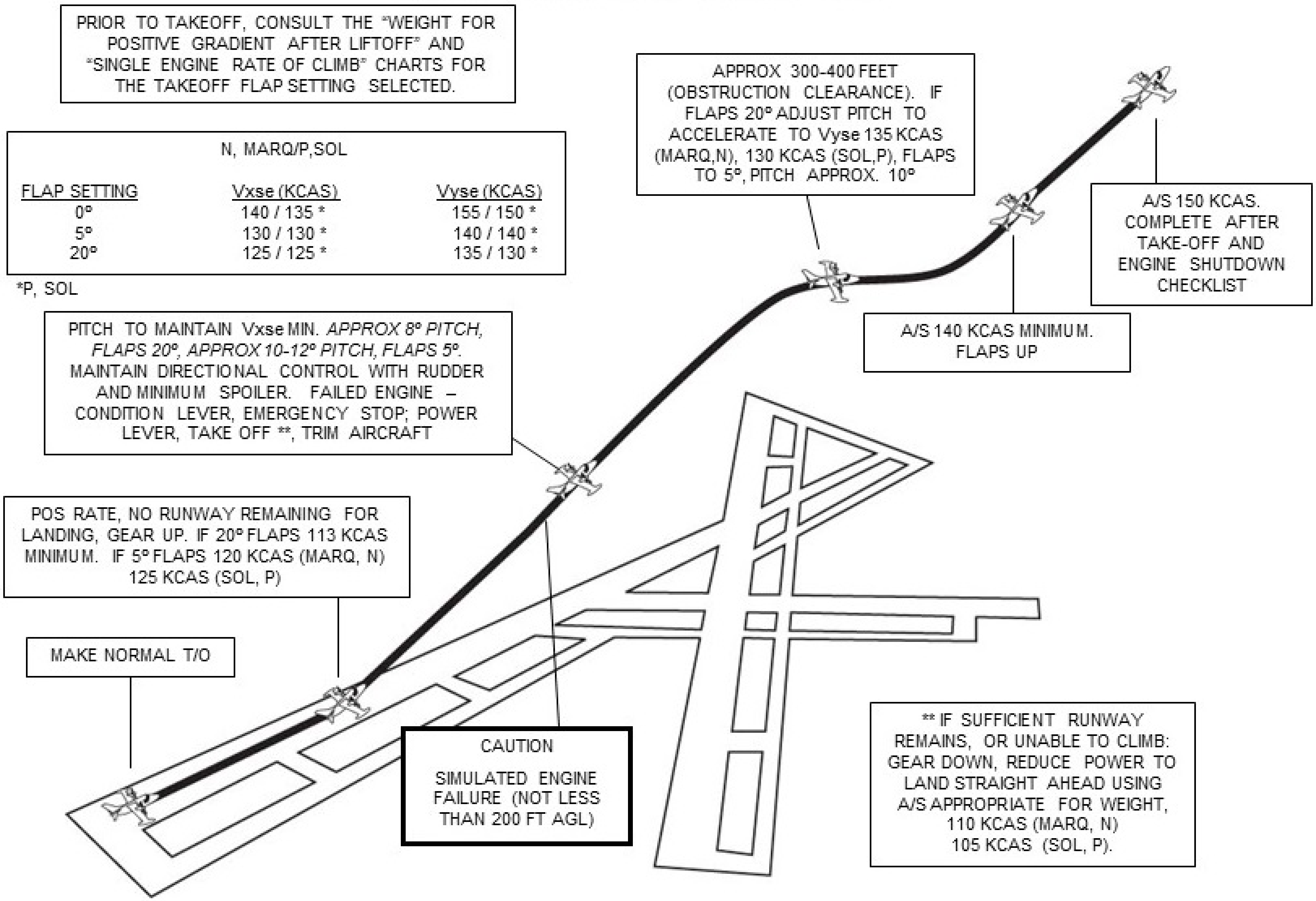


Figure A-3

MU-2B MARQUISE (-60), SOLITAIRE (-40), N (-36A), P (-26A)

TAKE-OFF ENGINE FAILURE ON RUNWAY

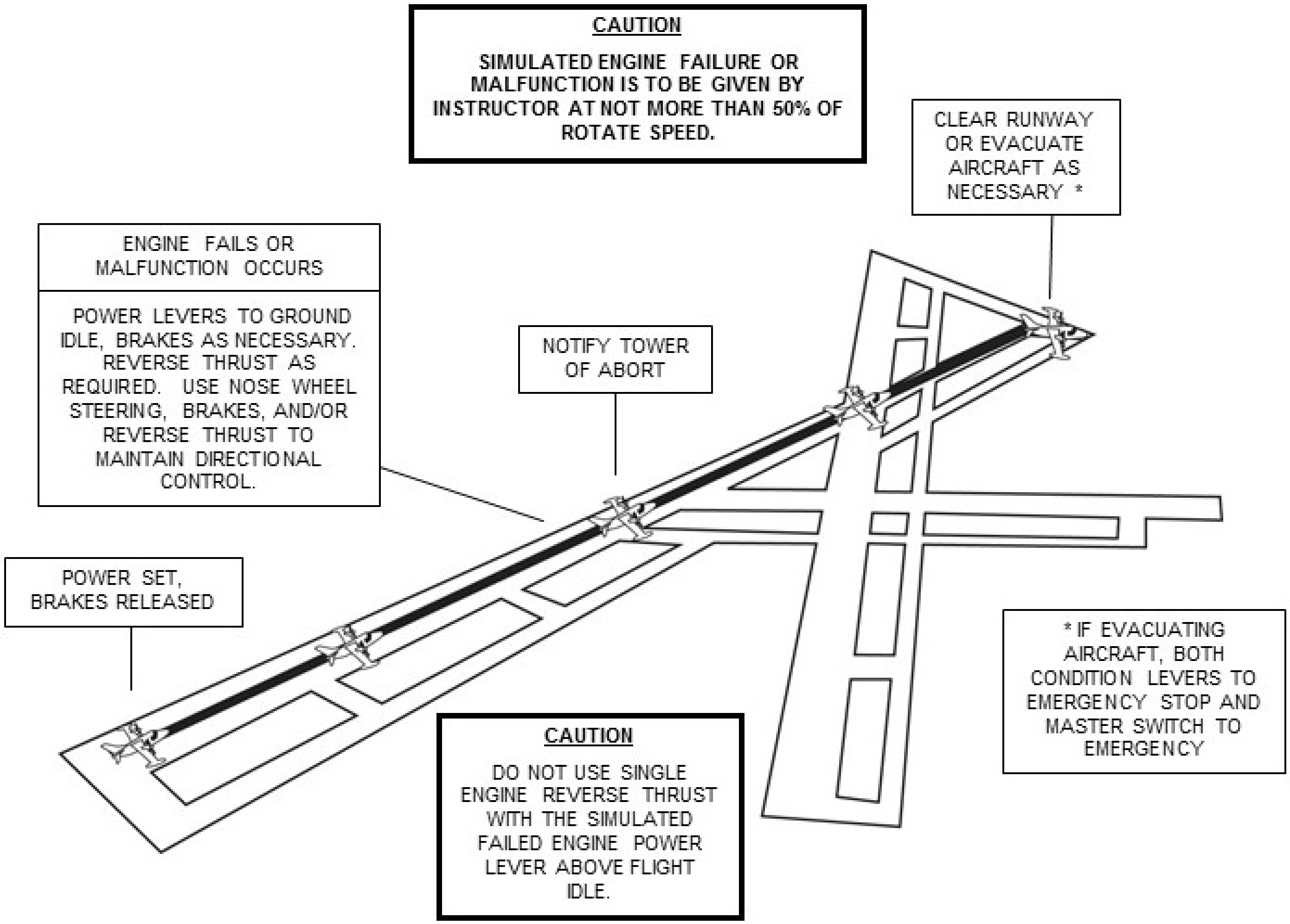


Figure A-4

MU-2B MARQUISE (-60), SOLITAIRE (-40), N (-36A), P (-26A)

TAKE-OFF ENGINE FAILURE - UNABLE TO CLIMB

CLASSROOM DISCUSSION OR FTD USE ONLY

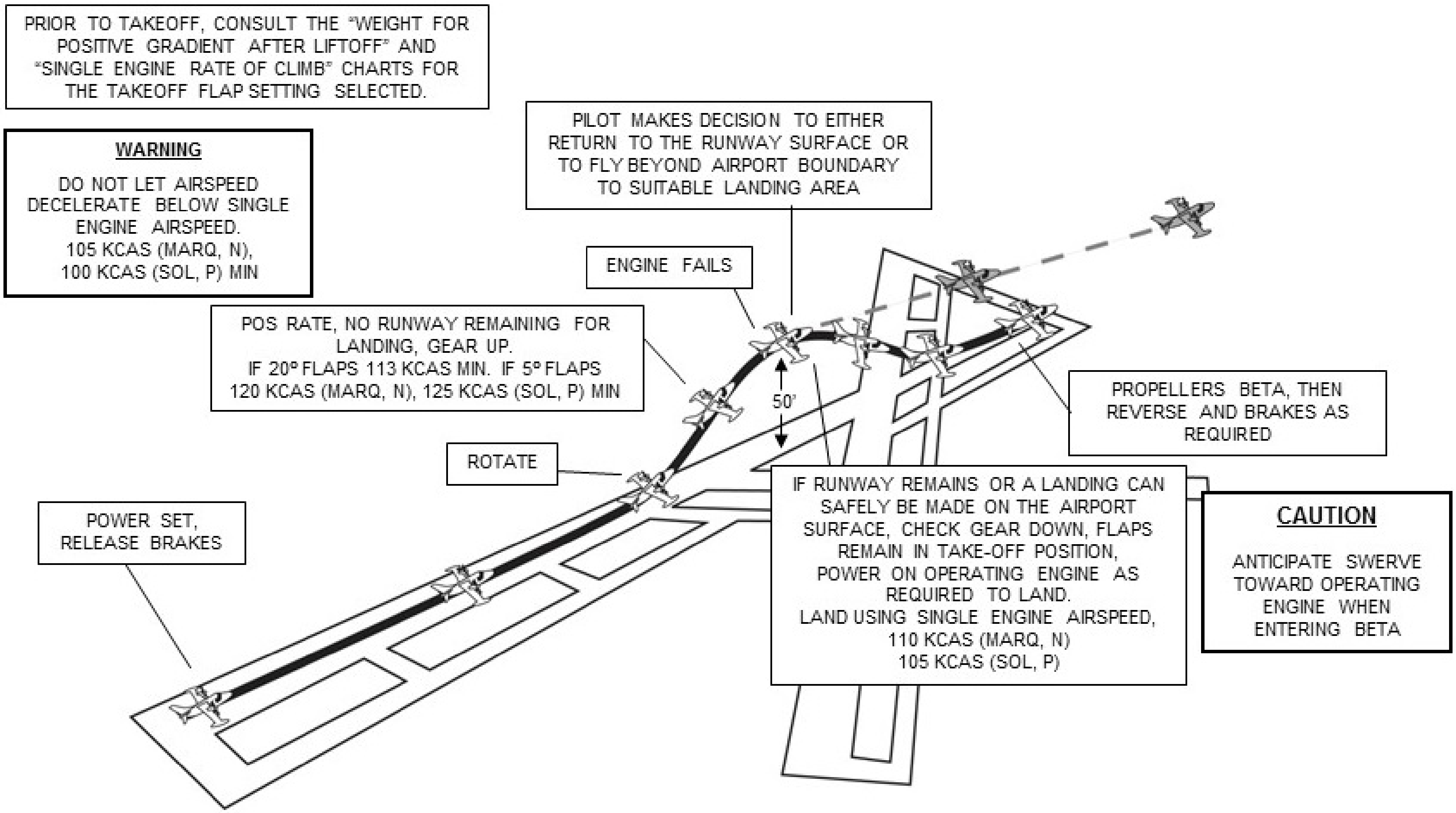


Figure A-5

MU-2B MARQUISE (-60), SOLITAIRE (-40), N (-36A), P (-26A)

STEEP TURNS

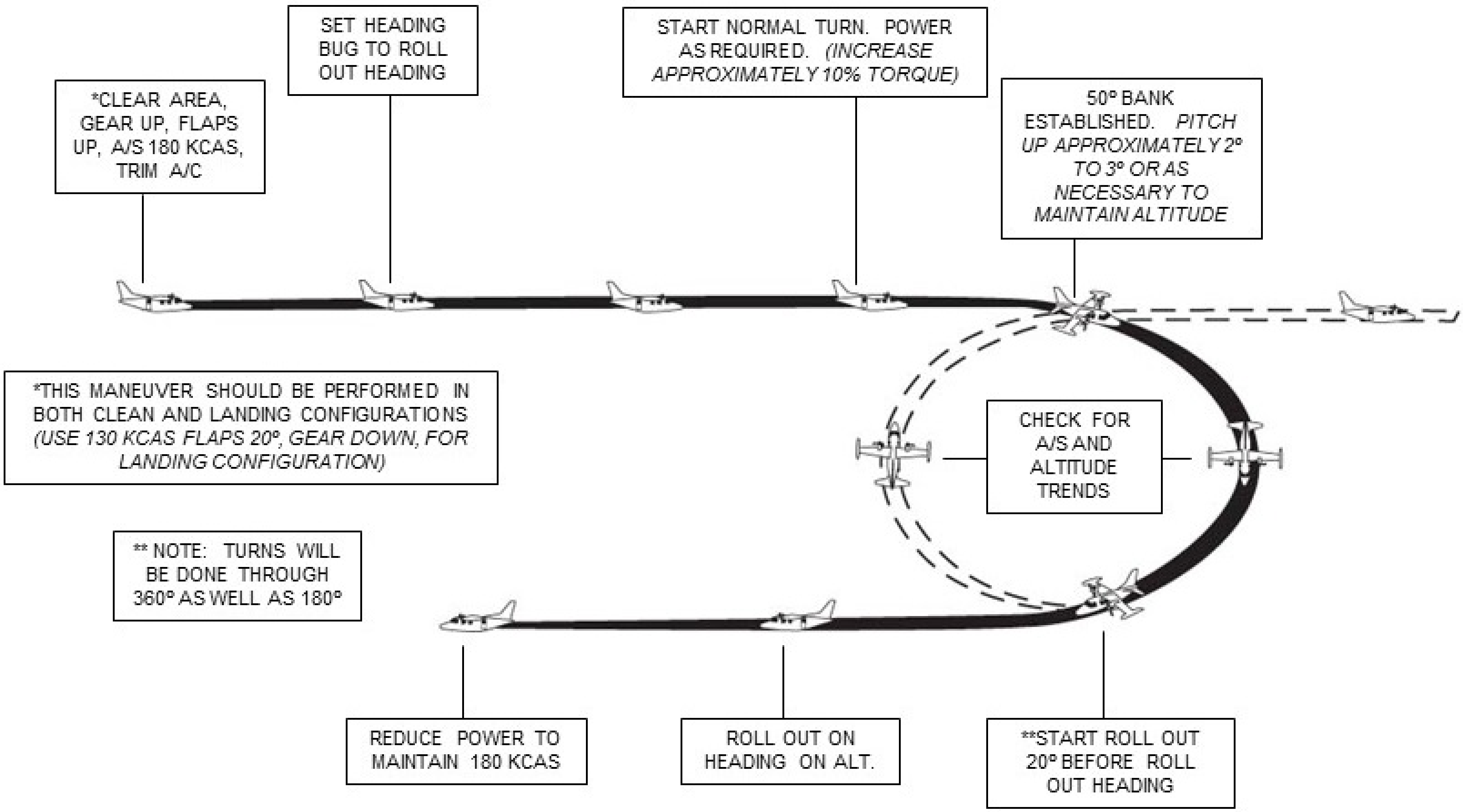


Figure A-6

MU-2B MARQUISE (-60), SOLITAIRE (-40), N (-36A), P (-26A)

SLOW FLIGHT MANEUVERING

MINIMUM CONTROLLABLE AIRSPEED

SLOW FLIGHT MANEUVERING IS CONDUCTED AS FOLLOWS:

CLEAR THE AREA PRIOR TO BEGINNING THE MANEUVER.

START WITH CLEAN CONFIGURATION AND CHANGE AIRCRAFT CONFIGURATION FROM CLEAN TO FULL FLAP AND GEAR IN STAGES. USE A MAXIMUM OF 15º BANK AND PERFORM HEADING CHANGES OF 90º LEFT AND RIGHT. CONSTANT ALTITUDE IS REQUIRED THROUGHOUT.
MAINTAIN 115KCAS IN ALL CONFIGURATIONS.

**APPROXIMATE POWER SETTINGS ARE:

CLEAN	*TORQUE (35%) PER ENGINE*	*APPROX PITCH +12*
5º FLAP	*TORQUE (32%) PER ENGINE*	*APPROX PITCH +8*
5º FLAP & GEAR	*TORQUE (44%) PER ENGINE*	*APPROX PITCH +9*
20º FLAP & GEAR	*TORQUE (42%) PER ENGINE*	*APPROX PITCH +4*
40º FLAP & GEAR	*TORQUE (54%) PER ENGINE*	*APPROX PITCH 0*

** NOTE: POWER SETTINGS WILL VARY WITH AIRCRAFT WEIGHT AND ALTITUDE.

STALL SPEEDS (APPROXIMATE)
AT MAXIMUM GROSS TAKEOFF WEIGHT
N, MARQ / P, SOL

ANGLE OF BANK FLAPS	0º	15º
UP	106/104*	108/106*
5º	99/ 98*	100/ 99*
20º	87/ 88*	88/ 88*
40º	81/ 78*	83/ 79*

*P, SOL

Vmc FLAPS 5º 99 KCAS (MARQ, N), 100 KCAS (SOL, P)
FLAPS 20º 99 KCAS (MARQ, N), 93 KCAS (SOL, P)

CAUTION

STALL WARNING MAY ACTIVATE
4 TO 9 KCAS ABOVE STALL

MINIMUM CONTROLLABLE AIRSPEED IS CONDUCTED AS FOLLOWS:

CLEAR THE AREA PRIOR TO BEGINNING THE MANEUVER.

THE MANEUVER MAY BE DONE IN ANY COMBINATION OF GEAR OR FLAP CONFIGURATIONS. IF BANK IS TO BE USED, IT SHOULD BE DONE AT BANK OF NOT MORE THAN 10º. BEGIN THE MANEUVER BY CONFIGURING THE AIRCRAFT IN THE DESIRED GEAR AND FLAP CONFIGURATION. SLOW THE AIRCRAFT UNTIL THE STALL WARNING (STICK SHAKER) IS ACTIVATED AND ADD POWER TO MAINTAIN ALTITUDE AND A SPEED JUST ABOVE AERODYNAMIC STALL. DO NOT ALLOW THE AIRCRAFT TO REACH AERODYNAMIC STALL "ONSET" BUFFET.

Figure A-7

MU-2B MARQUISE, SOLITAIRE, N/P

**ONE ENGINE INOPERATIVE MANEUVERING
LOSS OF DIRECTIONAL CONTROL**

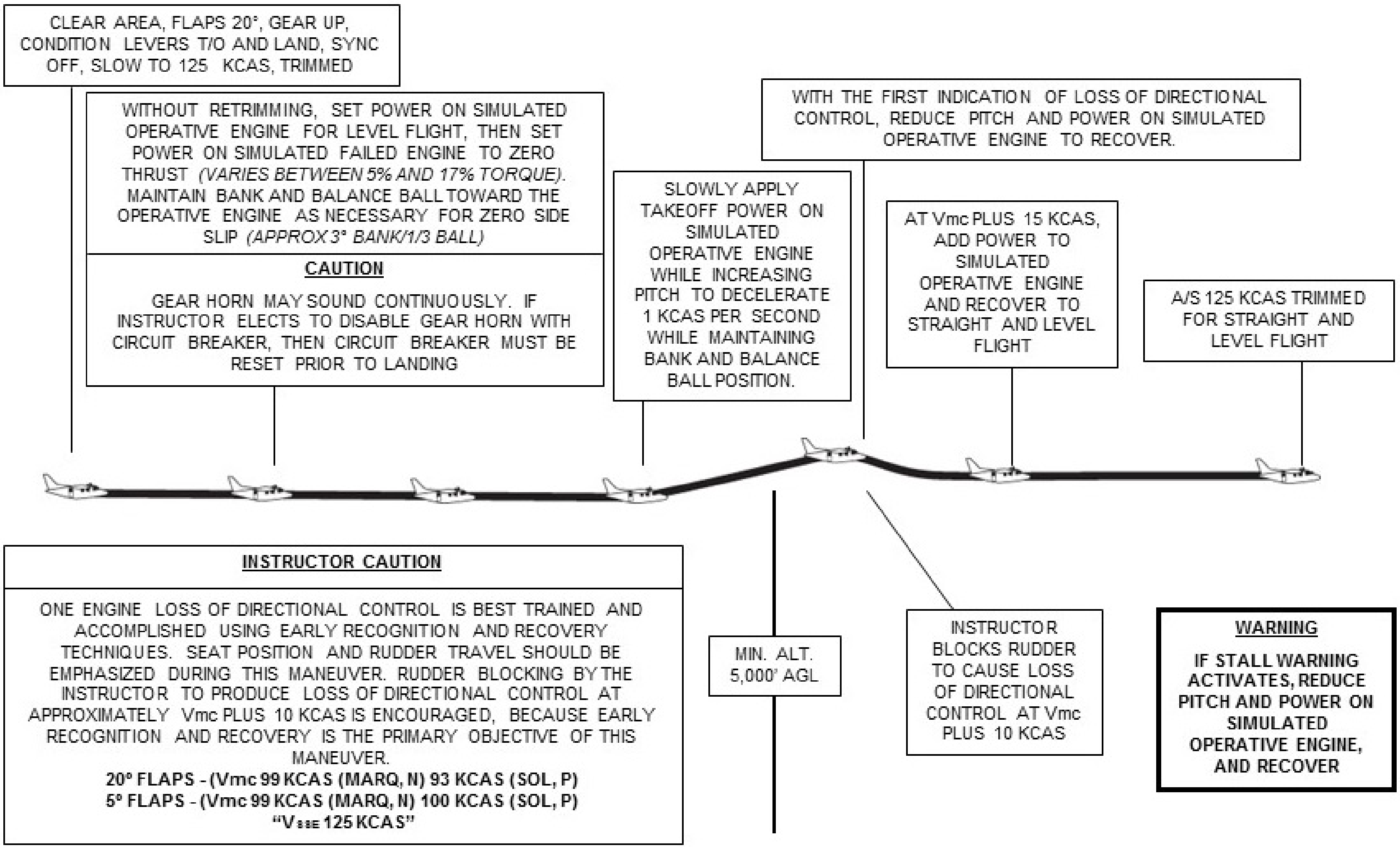


Figure A-8

MU-2B MARQUISE (-60), SOLITAIRE (-40), N (-36A), P (-26A)

APPROACH TO STALL CLEAN CONFIGURATION / WINGS LEVEL

CLEAR AREA, CONDITION LEVERS T/O AND LAND, SYNC OFF, 120/130 KCAS, AIRCRAFT TRIMMED

* OPTIONAL AUTOPILOT ON FOR AIRCRAFT WITHOUT AUTOMATIC AUTOPILOT DISCONNECT.

(20% TORQUE)

MAINTAIN LEVEL FLIGHT
TRIM FOR 120 KCAS

CONTINUE TO APPLY AFT CONTROL, WHILE MAINTAINING ALTITUDE UNTIL FIRST INDICATION OF A STALL..

* OR ALLOW AUTOPILOT TO CONTINUE TO TRIM NOSE UP WHILE MAINTAINING ALTITUDE UNTIL FIRST INDICATION OF A STALL..

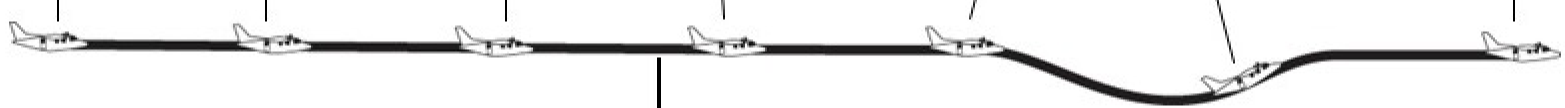
ON STALL RECOGNITION (STICK SHAKER OR "ONSET" BUFFET), CALL THE "STALL",

*DISCONNECT AUTOPILOT IF ON,

IMMEDIATELY AND SIMULTANEOUSLY REDUCE ANGLE OF ATTACK UNTIL STALL INDICATIONS CEASE AND LEVEL WINGS IF IN A BANK. ACCELERATE, INCREASE POWER SLOWLY AS APPROPRIATE, TRIM AS NECESSARY. STALL WARNING MAY ACTIVATE AT 4 TO 9 KCAS ABOVE STALL.

AFTER A SAFE FLIGHT CONDITION HAS BEEN ACHIEVED AND AS A/S INCREASES ABOVE 120 KCAS, BEGIN CLIMB TO ORIGINAL ALTITUDE AND/OR FLIGHTPATH.

ACCELERATE TO 140 KCAS, POWER AS REQUIRED



INSTRUCTOR NOTE:

ADVISORY CIRCULAR 120-109 STATES THAT PERFORMANCE OF STALL MANEUVERS DURING TRAINING SHOULD INCLUDE BOTH MANUAL FLIGHT AND FLIGHT WITH AUTOPILOT ENGAGED. PILOTS SHOULD BE TAUGHT HOW TO RESPOND APPROPRIATELY TO THE STARTLE FACTOR WHEN ENCOUNTERING AN UNEXPECTED STALL..

STALL TRAINING PROCEDURES WITH THE AUTOPILOT ENGAGED ARE NOTED WITH AN ASTERISK*

MIN. ALT.
5,000' AGL

STALL SPEEDS

FLAPS SET GR.WT.	UP	5	20	40
7,000	/85 *	/80 *	/72 *	/64 *
7,500	/88 *	/82 *	/74 *	/66 *
8,000	/91 *	/85 *	/76 *	/68 *
8,500	/93 *	/88 *	/79 *	/70 *
9,000	93/96 *	87/90 *	76/81 *	72/72 *
9,500	95/99 *	90/93 *	79/83 *	74/74 *
10,000	98/101*	92/96 *	81/85 *	75/76 *
10,470	/104 *	/98 *	/88 *	/78 *
10,500	101/	94/	83/	77/
11,000	103/	96/	85/	79/
11,575	106/	99/	87/	81/

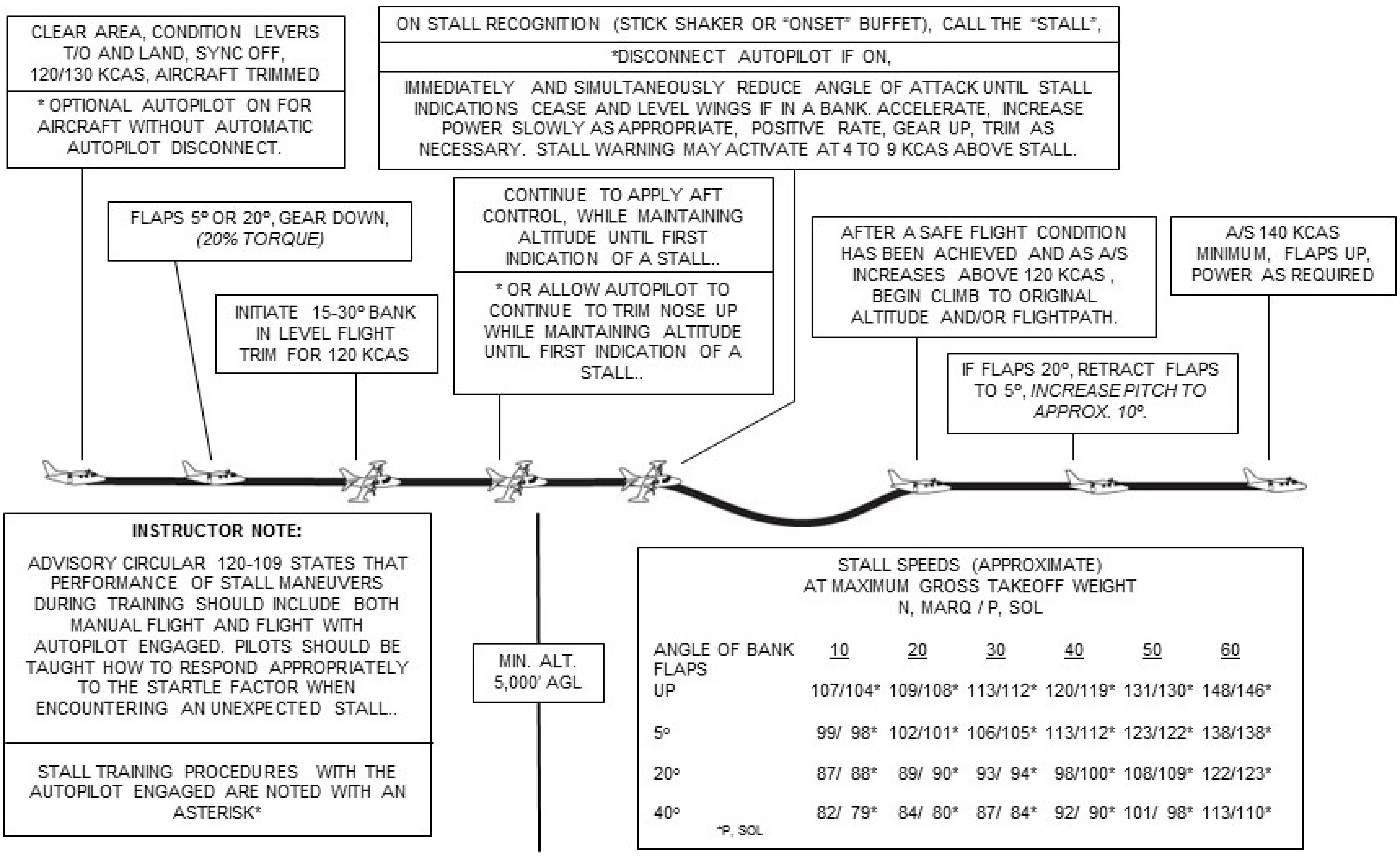
* P, SOL

Figure A-9

MU-2B MARQUISE (-60), SOLITAIRE (-40), N (-36A), P (-26A)

APPROACH TO STALL

TAKEOFF CONFIGURATION 15-30° BANK



ANGLE OF BANK / FLAPS	10	20	30	40	50	60
UP	107/104*	109/108*	113/112*	120/119*	131/130*	148/146*
5°	99/ 98*	102/101*	106/105*	113/112*	123/122*	138/138*
20°	87/ 88*	89/ 90*	93/ 94*	98/100*	108/109*	122/123*
40°	82/ 79*	84/ 80*	87/ 84*	92/ 90*	101/ 98*	113/110*

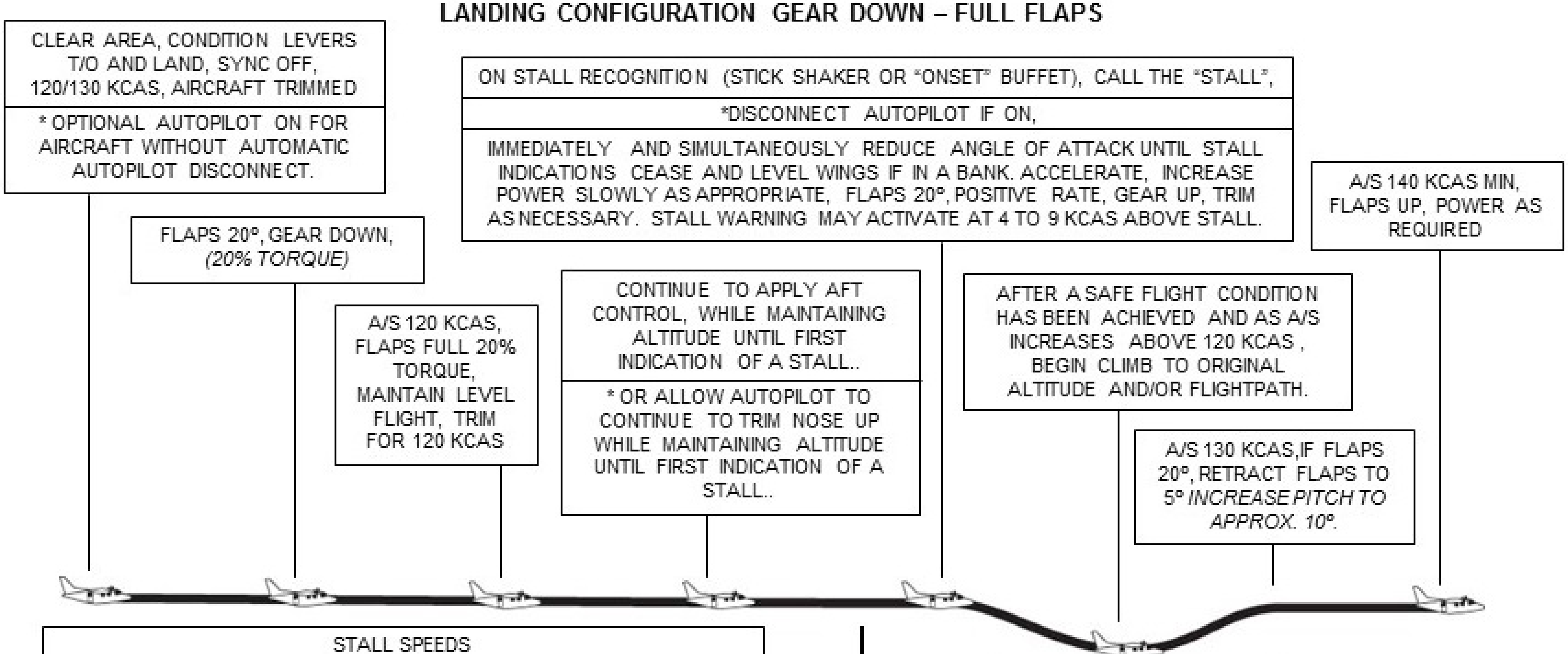
*P, SOL

Figure A-10

MU-2B MARQUISE (-60), SOLITAIRE (-40), N (-36A), P (-26A)

APPROACH TO STALL

LANDING CONFIGURATION GEAR DOWN – FULL FLAPS



STALL SPEEDS

FLAPS SET GR.WT.	UP	5	20	40
7,000	/85 *	/80 *	/72 *	/64 *
7,500	/88 *	/82 *	/74 *	/66 *
8,000	/91 *	/85 *	/76 *	/68 *
8,500	/93 *	/88 *	/79 *	/70 *
9,000	93/96 *	87/90 *	76/81 *	72/72 *
9,500	95/99 *	90/93 *	79/83 *	74/74 *
10,000	98/101*	92/95 *	81/85 *	75/76 *
10,470	/104 *	/98 *	/88 *	/78 *
10,500	101/	94/	83/	77/
11,000	103/	96/	85/	79/
11,575	106/	99/	87/	81/

* P, SOL

MIN. ALT. 5,000' AGL

INSTRUCTOR NOTE:

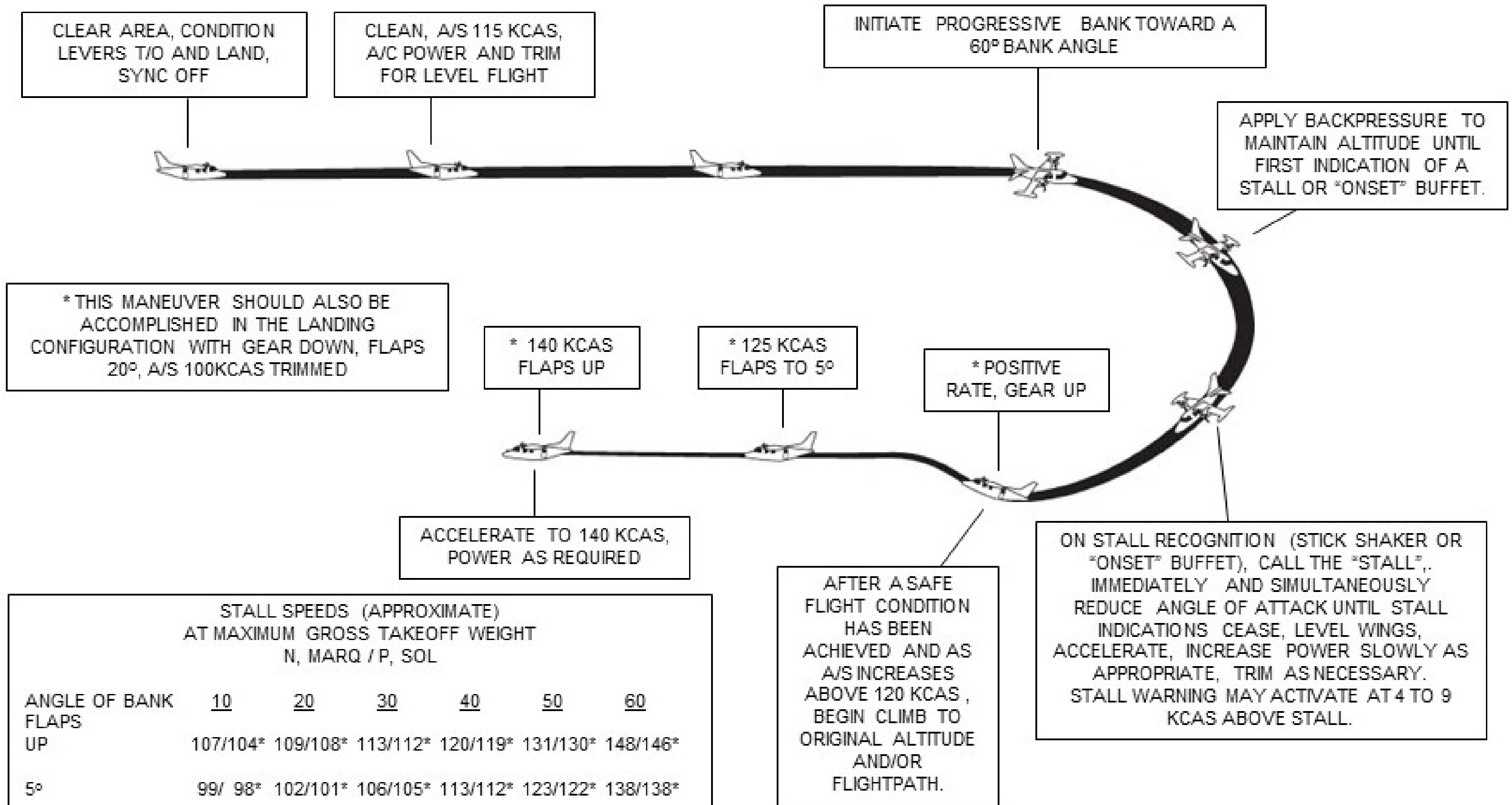
ADVISORY CIRCULAR 120-109 STATES THAT PERFORMANCE OF STALL MANEUVERS DURING TRAINING SHOULD INCLUDE BOTH MANUAL FLIGHT AND FLIGHT WITH AUTOPILOT ENGAGED. PILOTS SHOULD BE TAUGHT HOW TO RESPOND APPROPRIATELY TO THE STARTLE FACTOR WHEN ENCOUNTERING AN UNEXPECTED STALL..

STALL TRAINING PROCEDURES WITH THE AUTOPILOT ENGAGED ARE NOTED WITH AN ASTERISK*

Figure A-11

MU-2B MARQUISE (-60), SOLITAIRE (-40), N (-36A), P (-26A)

ACCELERATED STALLS



STALL SPEEDS (APPROXIMATE)
AT MAXIMUM GROSS TAKEOFF WEIGHT
N, MARQ / P, SOL

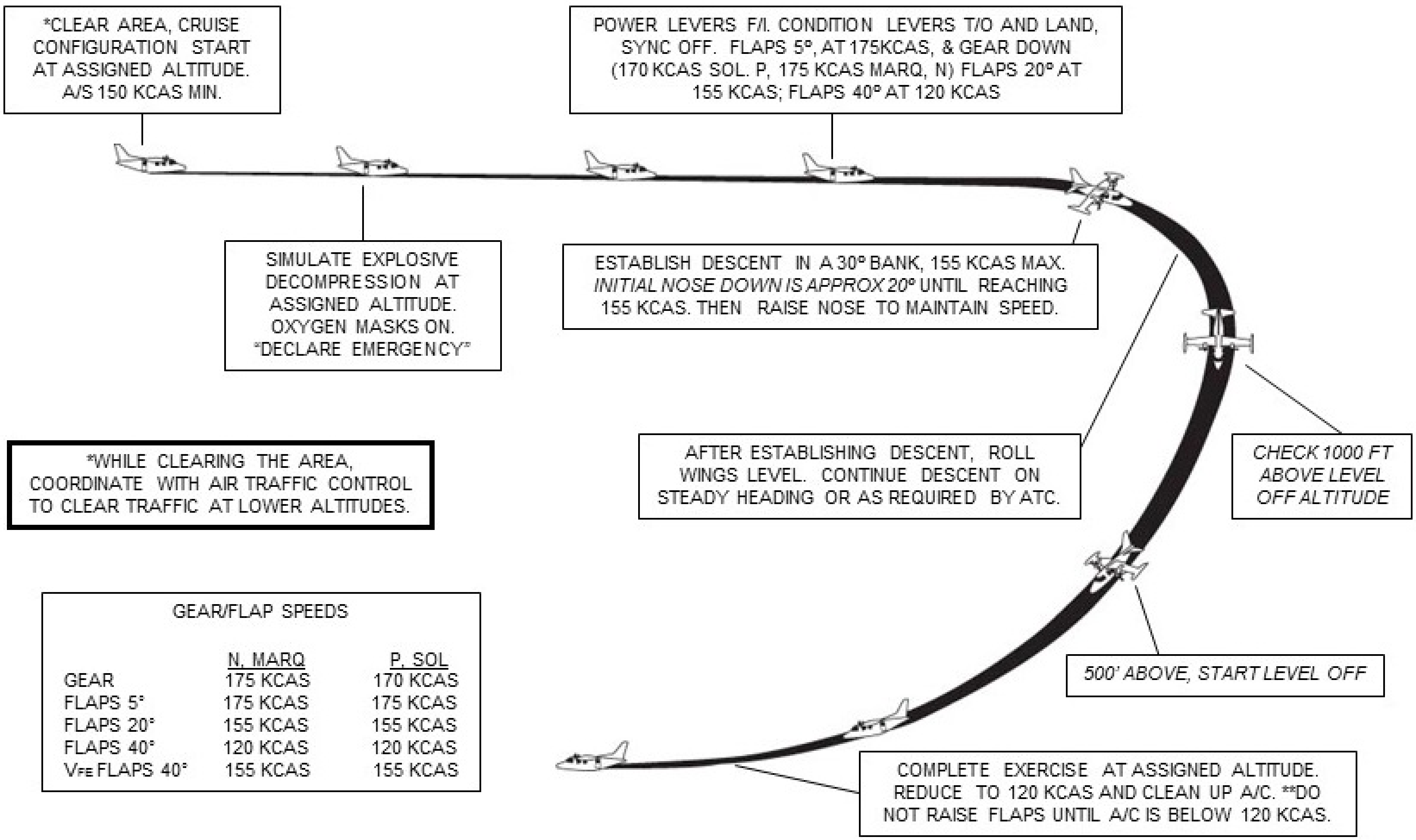
ANGLE OF BANK FLAPS	10	20	30	40	50	60
UP	107/104*	109/108*	113/112*	120/119*	131/130*	148/146*
5º	99/ 98*	102/101*	106/105*	113/112*	123/122*	138/138*
20º	87/ 88*	89/ 90*	93/ 94*	98/100*	108/109*	122/123*
40º	82/ 79*	84/ 80*	87/ 84*	92/ 90*	101/ 98*	113/110*

*P, SOL

Figure A-12

MU-2B MARQUISE (-60), SOLITAIRE (-40), N (-36A), P (-26A)

EMERGENCY DESCENT (LOW SPEED)



GEAR/FLAP SPEEDS

	N, MARQ	P, SOL
GEAR	175 KCAS	170 KCAS
FLAPS 5°	175 KCAS	175 KCAS
FLAPS 20°	155 KCAS	155 KCAS
FLAPS 40°	120 KCAS	120 KCAS
V_{FE} FLAPS 40°	155 KCAS	155 KCAS

Figure A-13

MU-2B MARQUISE (-60), SOLITAIRE (-40), N (-36A), P (-26A)

EMERGENCY DESCENT (HIGH SPEED)

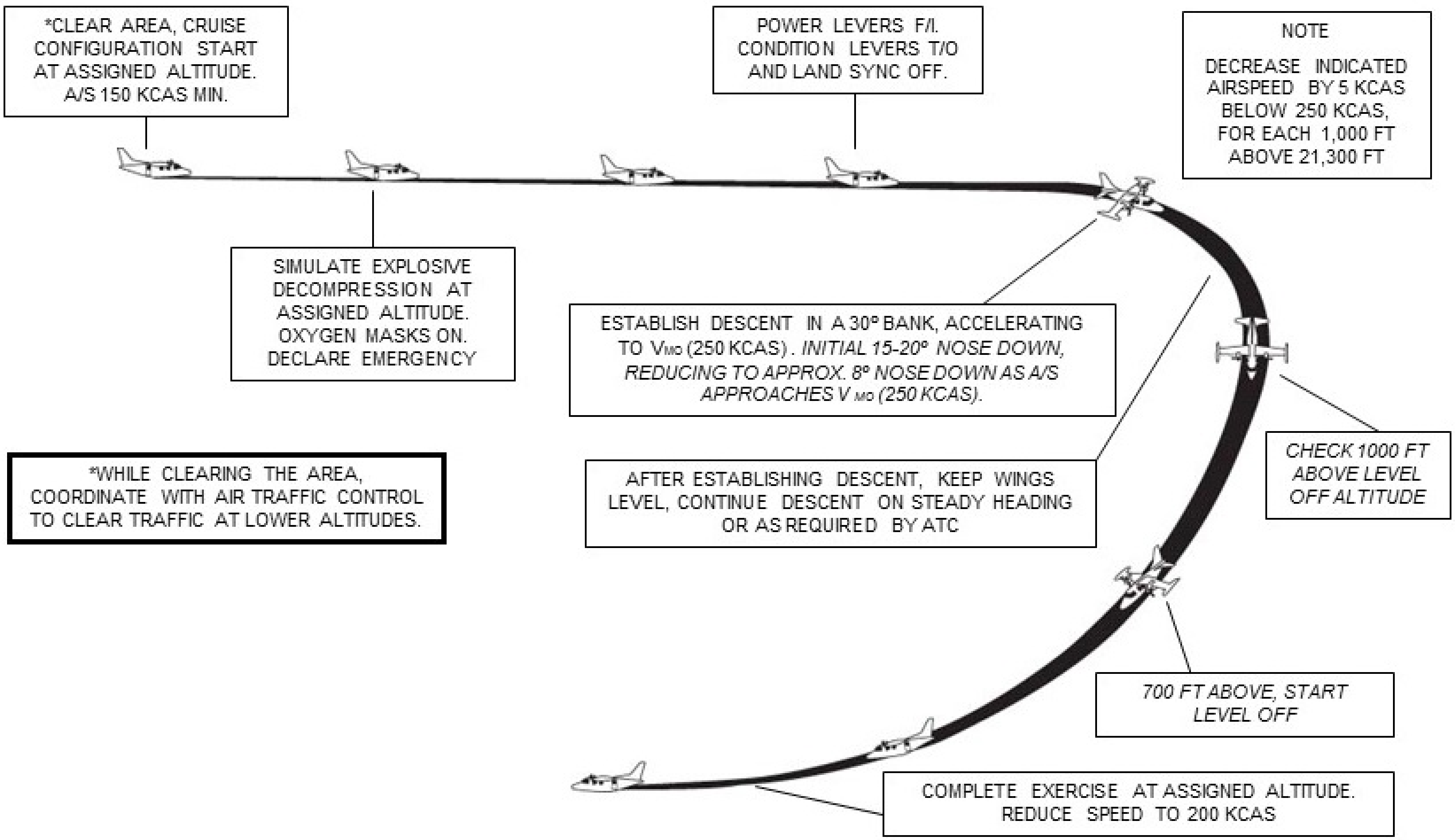


Figure A-14

MU-2B MARQUISE (-60), SOLITAIRE (-40), N (-36A), P (-26A)

UNUSUAL ATTITUDE RECOVERY (NOSE HIGH)

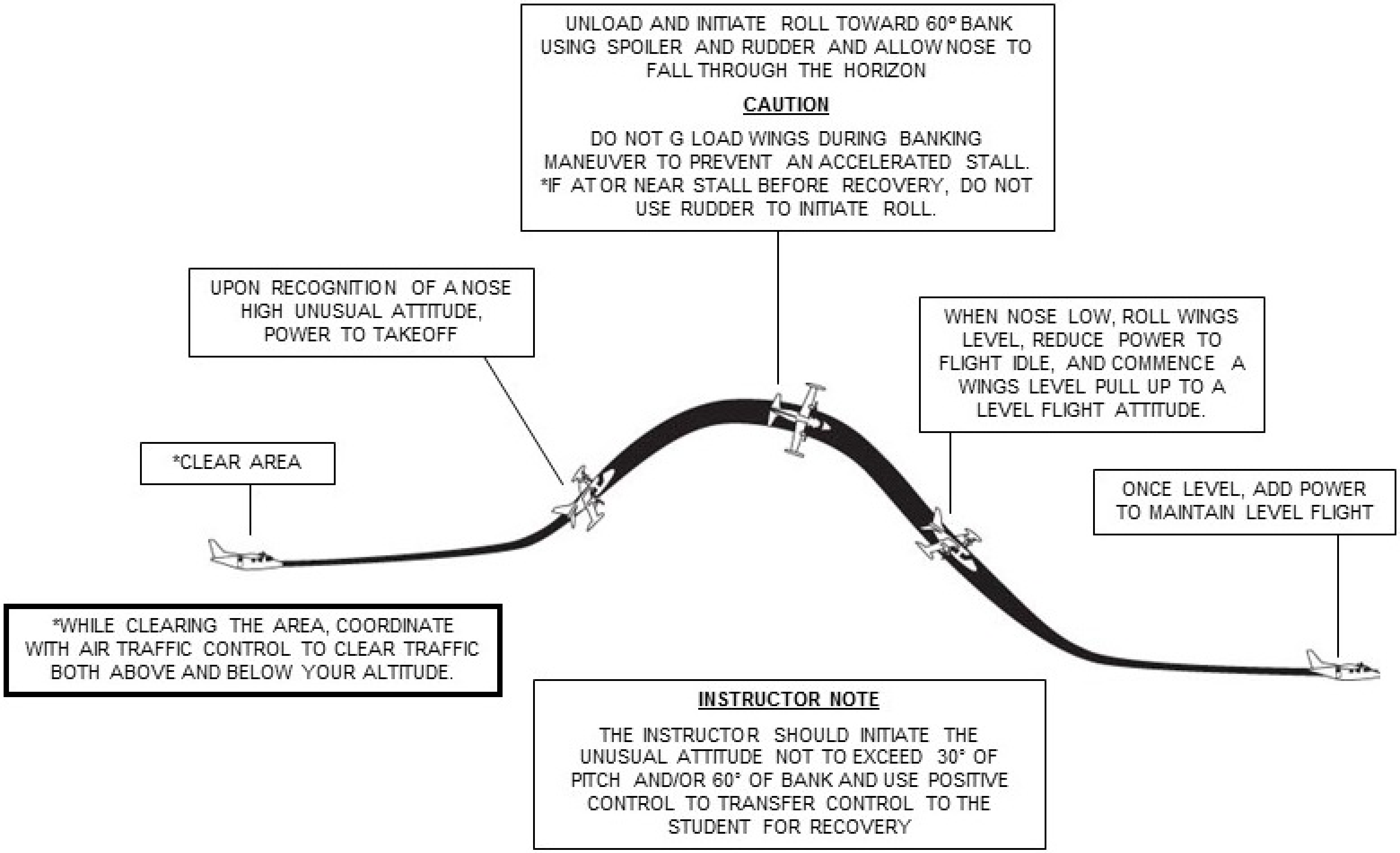


Figure A-15

MU-2B MARQUISE (-60), SOLITAIRE (-40), N (-36A), P (-26A)

UNUSUAL ATTITUDE RECOVERY (NOSE LOW)

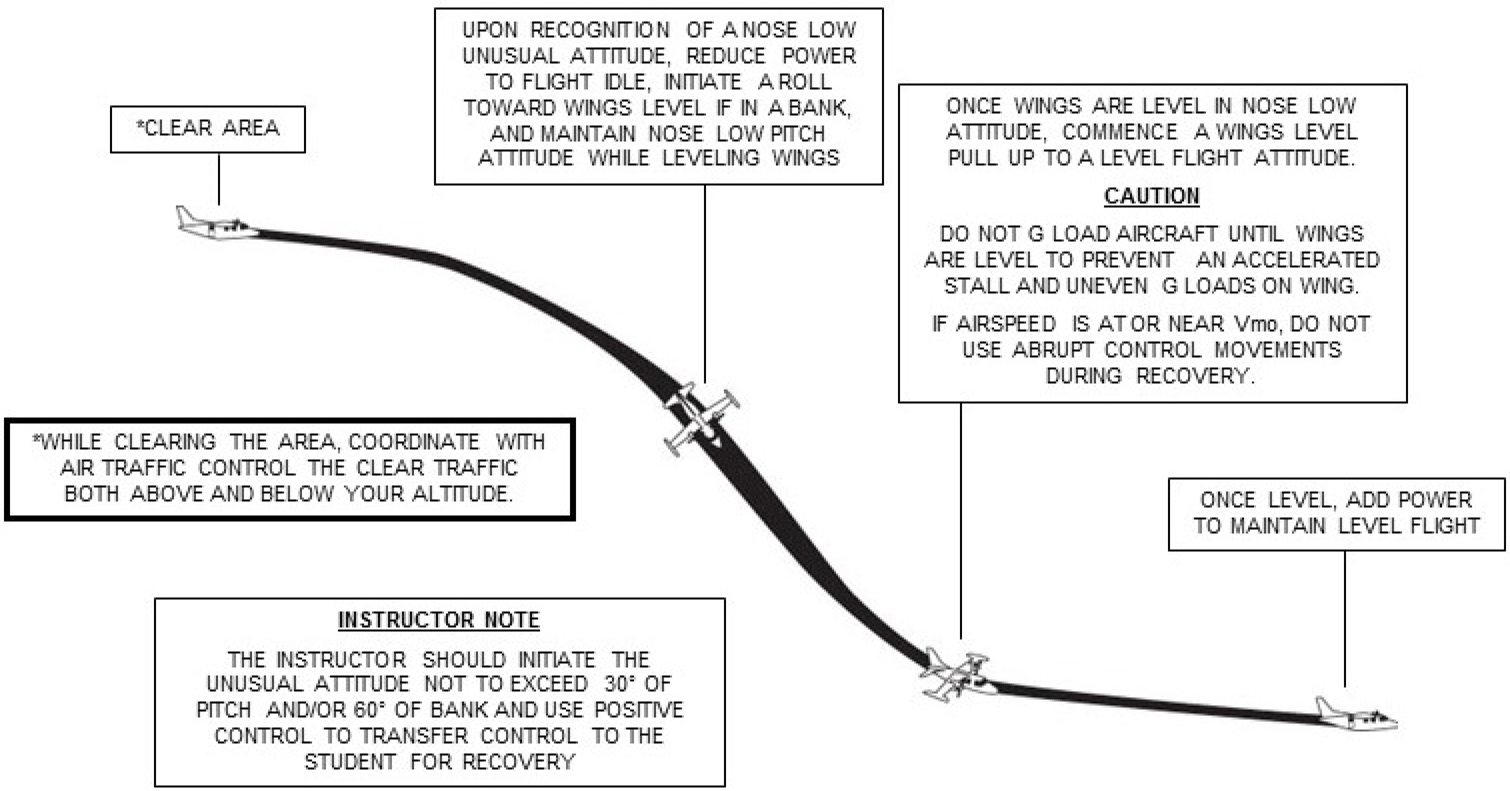
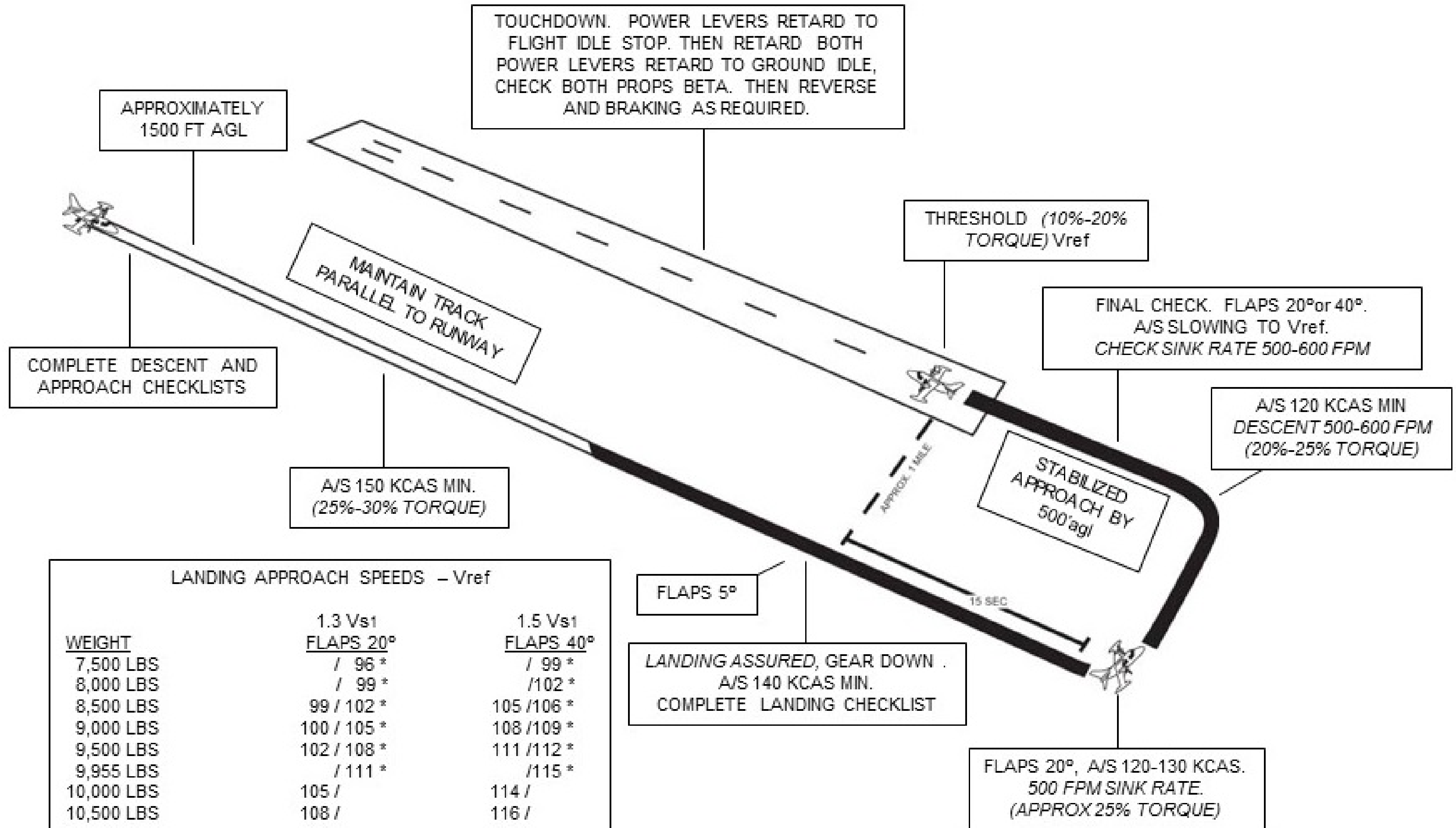


Figure A-16

MU-2B MARQUISE (-60), SOLITAIRE (-40), N (-36A), P (-26A)

NORMAL LANDING (20°or 40° FLAPS)



LANDING APPROACH SPEEDS – Vref

WEIGHT	1.3 Vs1 FLAPS 20°	1.5 Vs1 FLAPS 40°
7,500 LBS	/ 96 *	/ 99 *
8,000 LBS	/ 99 *	/102 *
8,500 LBS	99 / 102 *	105 /106 *
9,000 LBS	100 / 105 *	108 /109 *
9,500 LBS	102 / 108 *	111 /112 *
9,955 LBS	/ 111 *	/115 *
10,000 LBS	105 /	114 /
10,500 LBS	108 /	116 /
11,025 LBS	110 /	119 /

* P, SOL

Figure A-17

MU-2B MARQUISE (-60), SOLITAIRE (-40), N (-36A), P (-26A)

GO AROUND - REJECTED LANDING

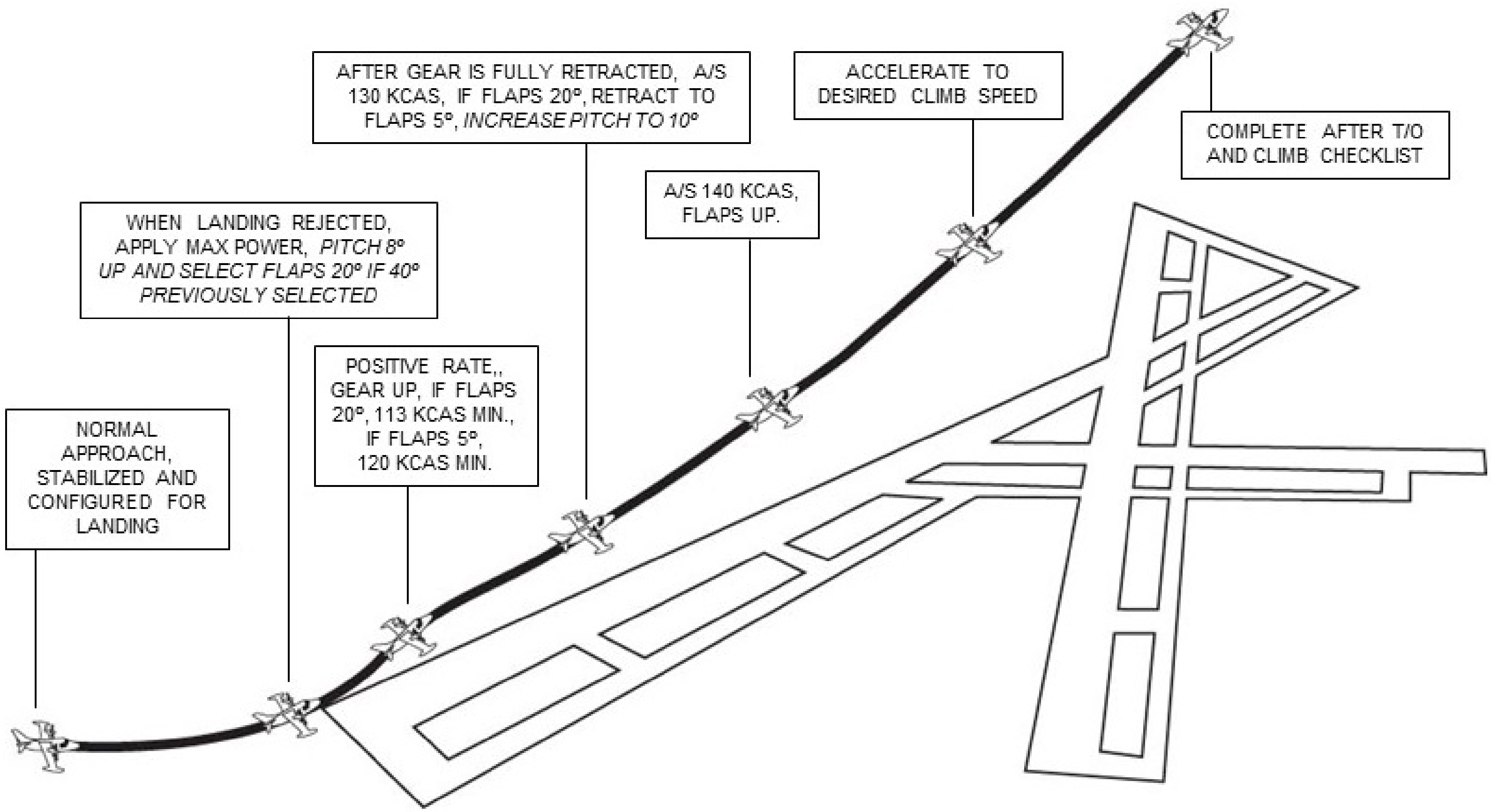
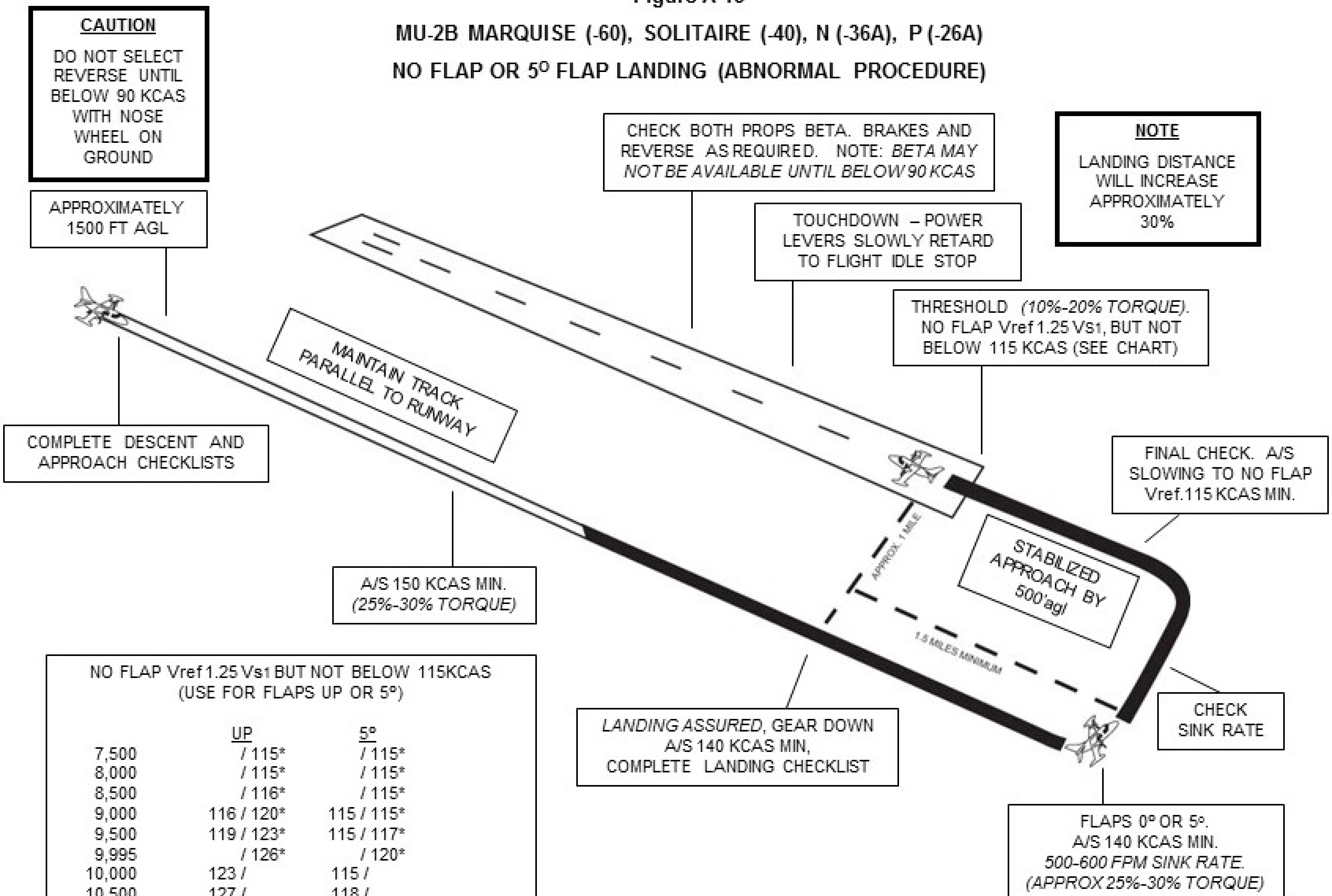


Figure A-18

MU-2B MARQUISE (-60), SOLITAIRE (-40), N (-36A), P (-26A)

NO FLAP OR 5º FLAP LANDING (ABNORMAL PROCEDURE)



NO FLAP Vref 1.25 Vs1 BUT NOT BELOW 115KCAS
(USE FOR FLAPS UP OR 5º)

	UP	5º
7,500	/ 115*	/ 115*
8,000	/ 115*	/ 115*
8,500	/ 116*	/ 115*
9,000	116 / 120*	115 / 115*
9,500	119 / 123*	115 / 117*
9,995	/ 126*	/ 120*
10,000	123 /	115 /
10,500	127 /	118 /
11,025	129 /	121 /

*SOL, P

Figure A-19

MU-2B MARQUISE (-60), SOLITAIRE (-40), N (-36A), P (-26A)

ONE ENGINE INOPERATIVE LANDING

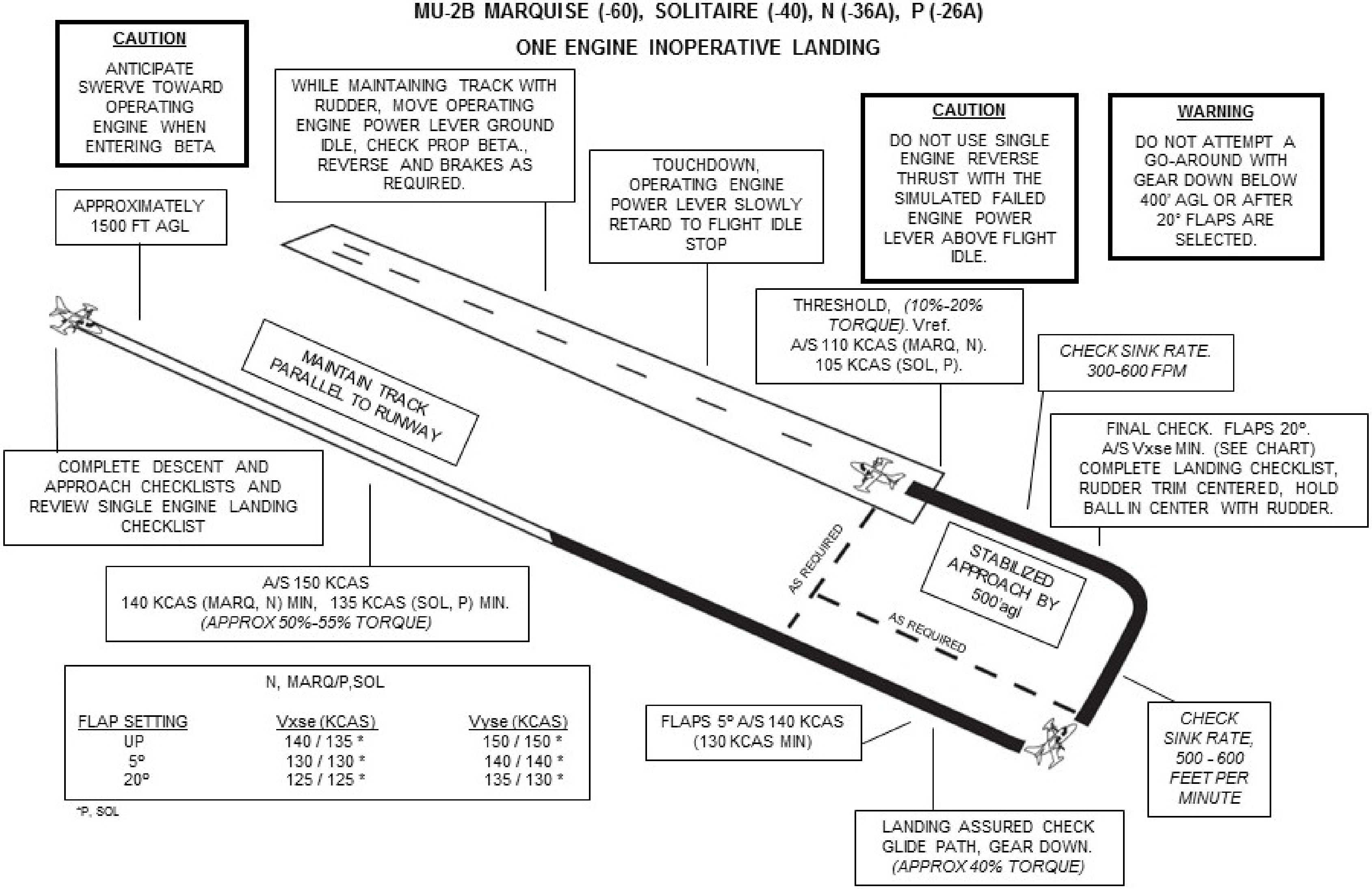


Figure A-20

MU-2B MARQUISE (-60), SOLITAIRE (-40), N (-36A), P (-26A)

CROSSWIND LANDING

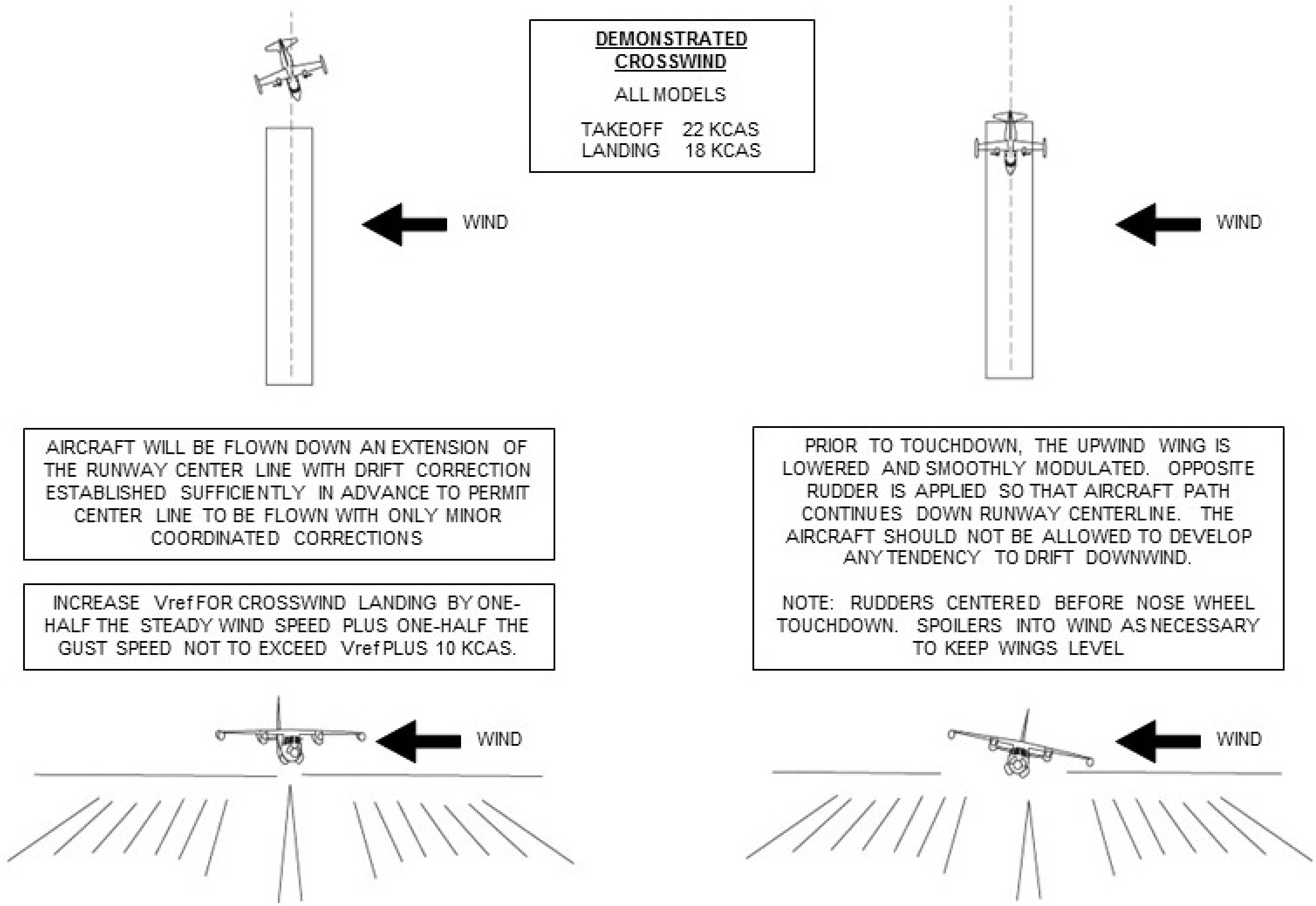
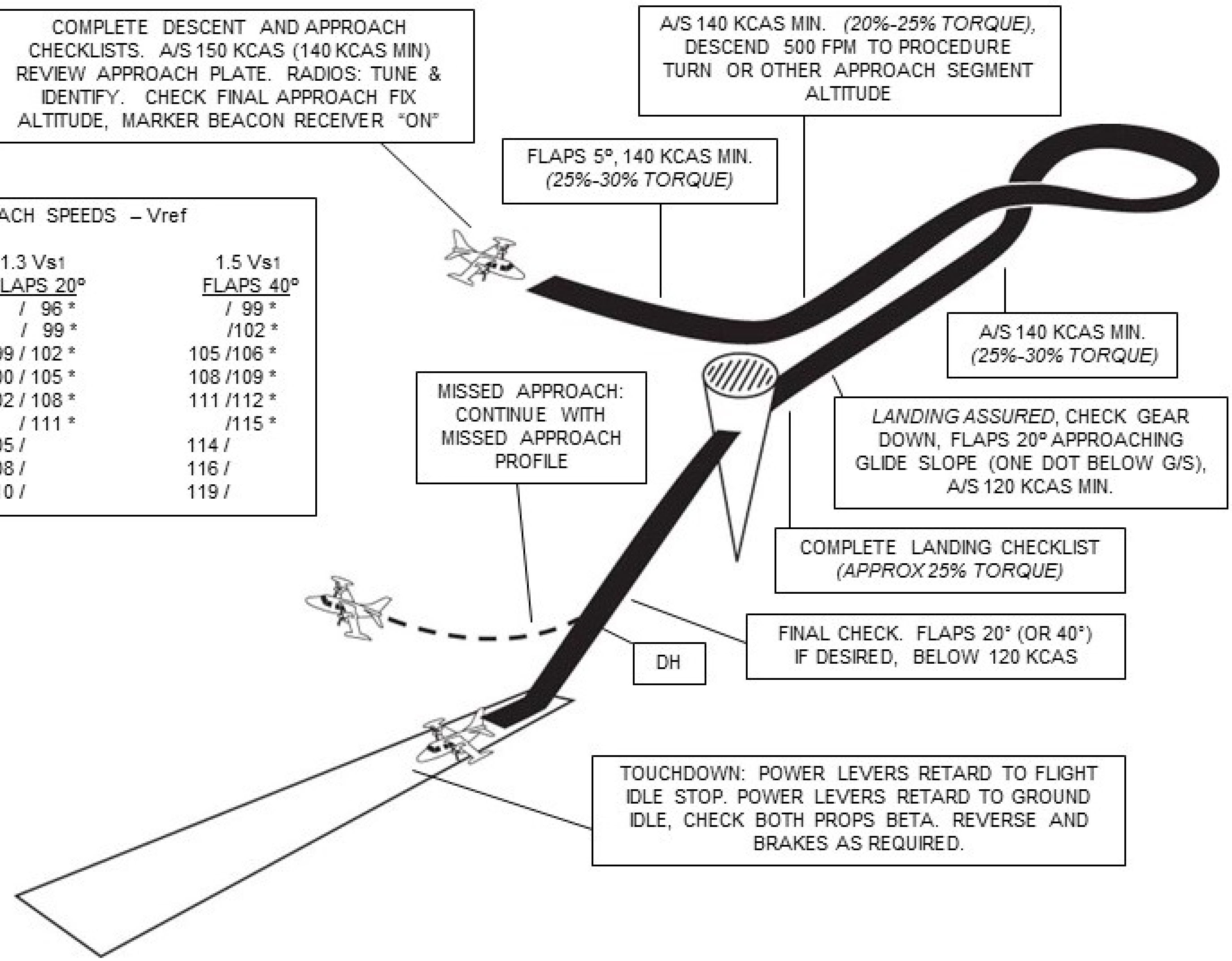


Figure A-21

MU-2B MARQUISE (-60), SOLITAIRE (-40), N (-36A), P (-26A)

ILS, LPV, RNP, LNAV/VNAV APPROACH



LANDING APPROACH SPEEDS – Vref

WEIGHT	1.3 Vs1 FLAPS 20º	1.5 Vs1 FLAPS 40º
7,500 LBS	/ 96 *	/ 99 *
8,000 LBS	/ 99 *	/102 *
8,500 LBS	99 / 102 *	105 /106 *
9,000 LBS	100 / 105 *	108 /109 *
9,500 LBS	102 / 108 *	111 /112 *
9,955 LBS	/ 111 *	/115 *
10,000 LBS	105 /	114 /
10,500 LBS	108 /	116 /
11,025 LBS	110 /	119 /

* P, SOL

Figure A-22

MU-2B MARQUISE (-60), SOLITAIRE (-40), N (-36A), P (-26A)

TWO ENGINE MISSED APPROACH

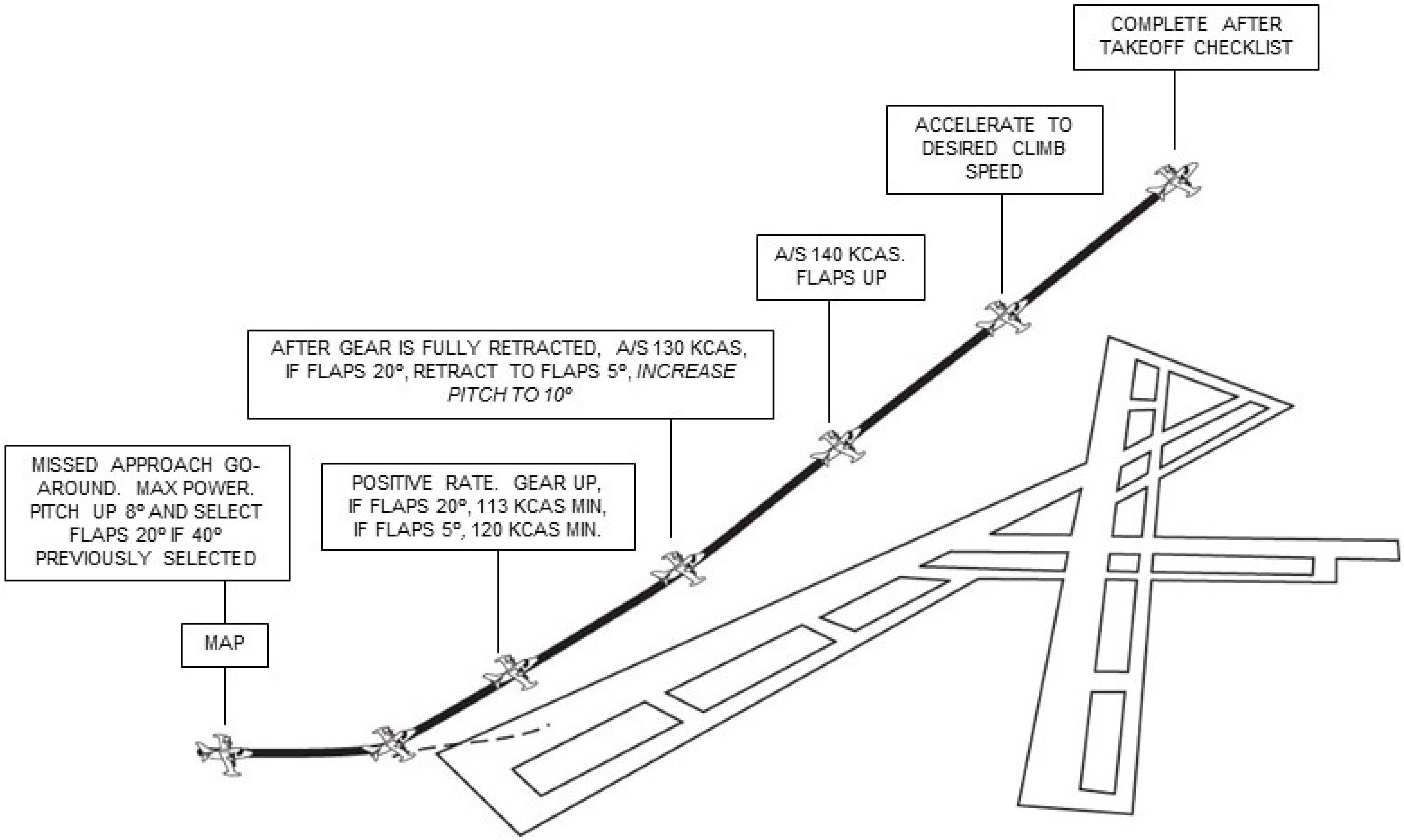


Figure A-23

MU-2B MARQUISE (-60), SOLITAIRE (-40), N (-36A), P (-26A)

ONE ENGINE INOPERATIVE ILS, LPV, RNP, LNAV/VNAV APPROACH

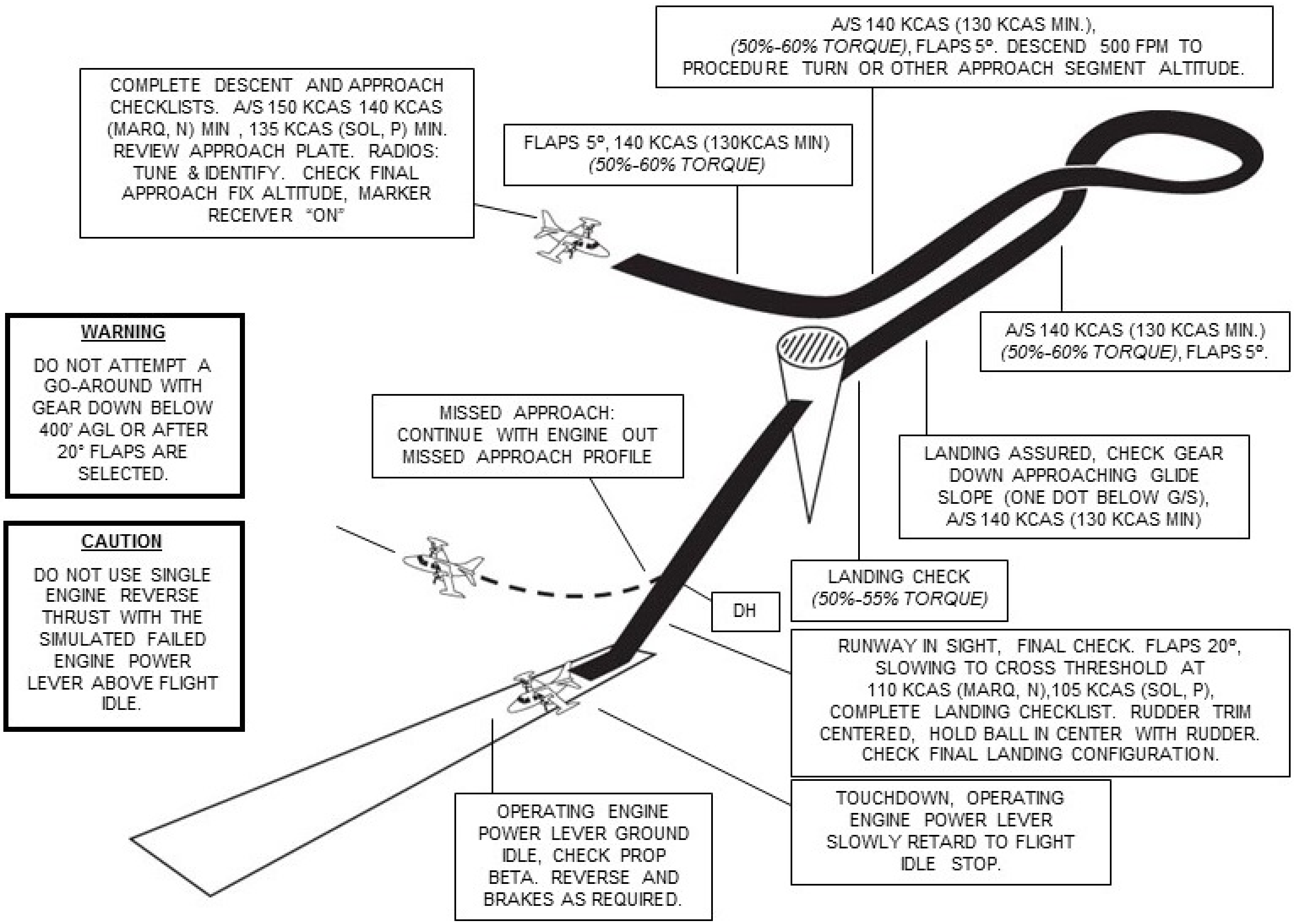


Figure A-24

MU-2B MARQUISE (-60), SOLITAIRE (-40), N (-36A), P (-26A)

ONE ENGINE INOPERATIVE MISSED APPROACH

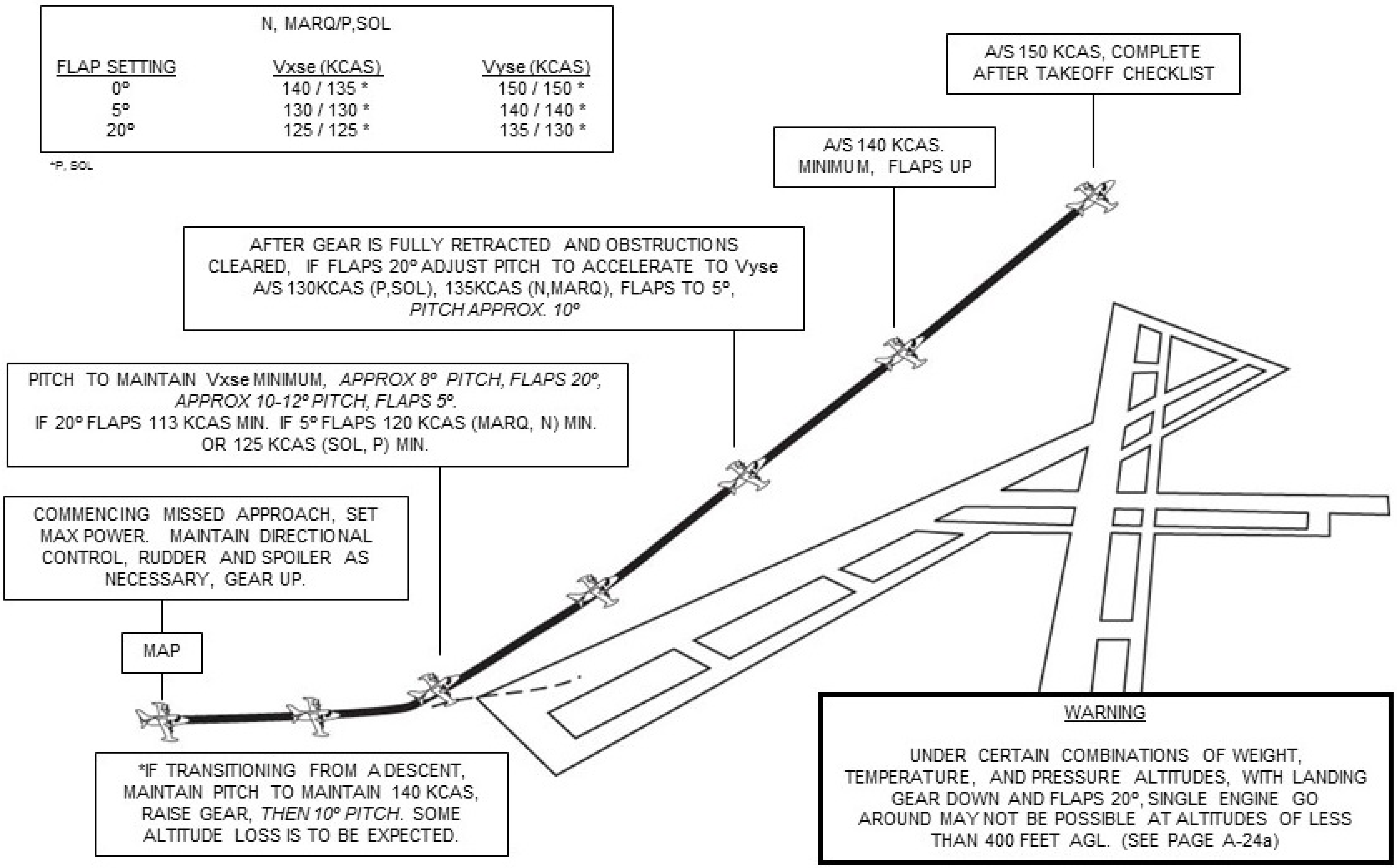
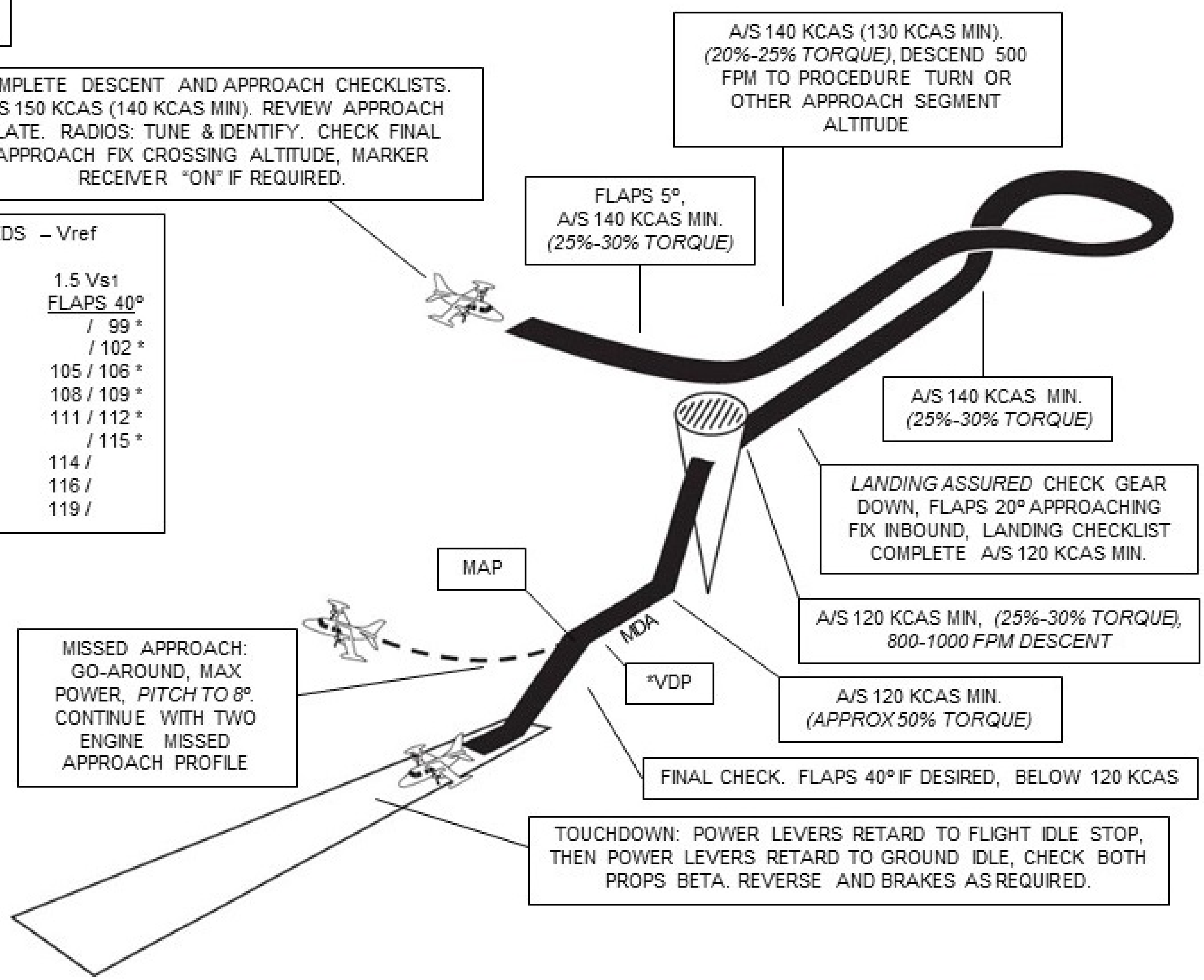


Figure A-25

MU-2B MARQUISE (-60), SOLITAIRE (-40), N (-36A), P (-26A)

NONPRECISION STRAIGHT-IN APPROACH



LANDING APPROACH SPEEDS – Vref

WEIGHT	1.3 Vs1 FLAPS 20°	1.5 Vs1 FLAPS 40°
7,500 LBS	/ 96 *	/ 99 *
8,000 LBS	/ 99 *	/ 102 *
8,500 LBS	99 / 102 *	105 / 106 *
9,000 LBS	100 / 105 *	108 / 109 *
9,500 LBS	102 / 108 *	111 / 112 *
9,955 LBS	/ 111 *	/ 115 *
10,000 LBS	105 /	114 /
10,500 LBS	108 /	116 /
11,025 LBS	110 /	119 /

* P, SOL

Figure A-25a

MU-2B MARQUISE (-60), SOLITAIRE (-40), N (-36A), P (-26A)

NONPRECISION STRAIGHT-IN APPROACH
****OPTIONAL USE OF CONTINUOUS DESCENT FINAL APPROACH (CDFA)**

NOTE

EITHER THIS PROCEDURE, OR ALTERNATELY PROFILE A-25 MUST BE DEMONSTRATED.

LANDING APPROACH SPEEDS – Vref

WEIGHT	1.3 Vs1 FLAPS 20°	1.5 Vs1 FLAPS 40°
7,500 LBS	/ 96 *	/ 99 *
8,000 LBS	/ 99 *	/102 *
8,500 LBS	99 / 102 *	105 /106 *
9,000 LBS	100 / 105 *	108 /109 *
9,500 LBS	102 / 108 *	111 /112 *
9,955 LBS	/ 111 *	/115 *
10,000 LBS	105 /	114 /
10,500 LBS	108 /	116 /
11,025 LBS	110 /	119 /

* P, SOL

****CAUTION**

WHEN USING CDFA METHOD, MISSED APPROACH MUST BE EXECUTED UPON REACHING DDA. **DESCENT BELOW MDA DURING MISSED APPROACH NOT AUTHORIZED**

*VDP
VISUAL DESCENT POINT

AN APPROACH CONSTRUCTED WITH A VDP SHOULD HAVE THE AIRCRAFT CROSS THE MDA AT OR BEYOND THE VDP.

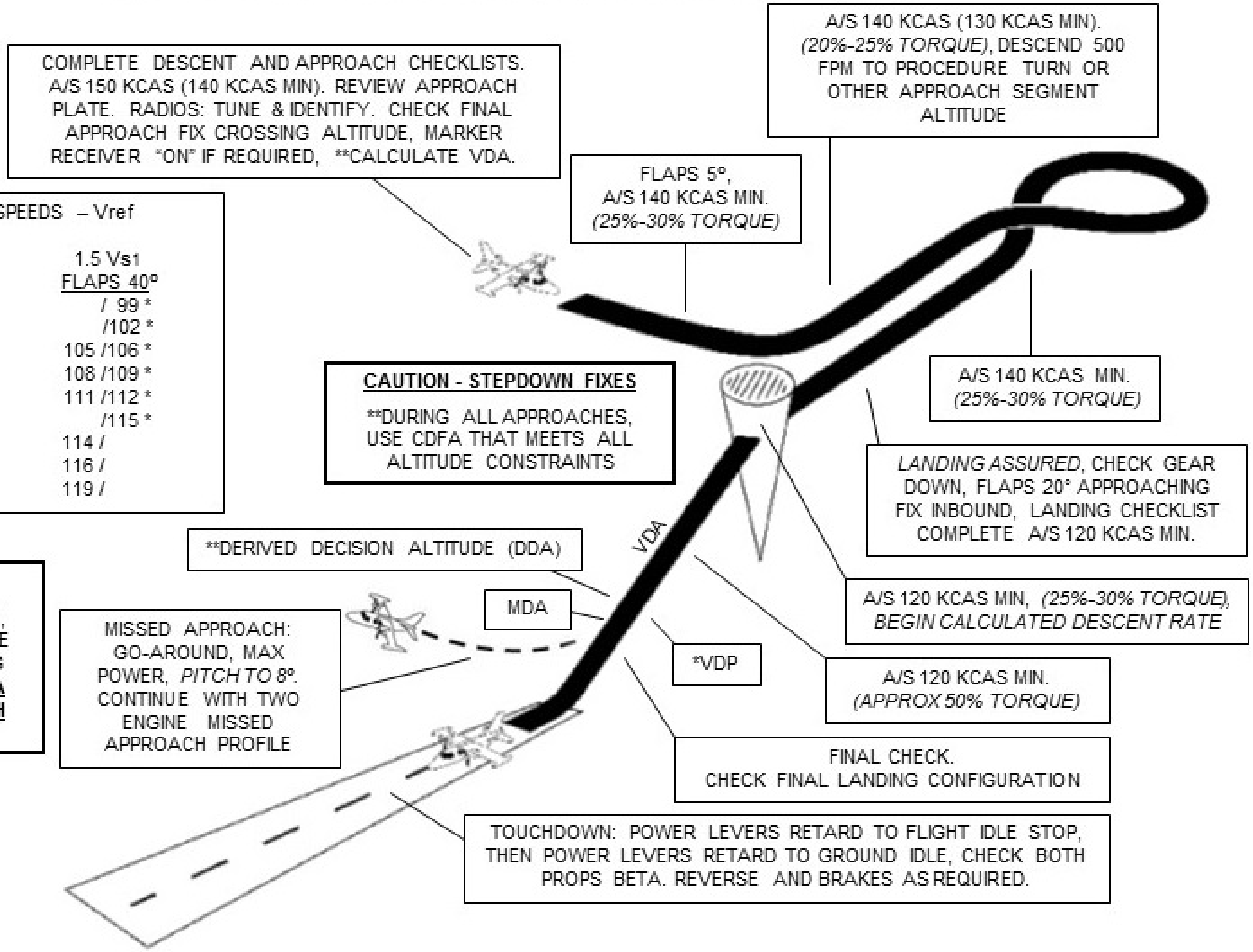


Figure A-26

MU-2B MARQUISE (-60), SOLITAIRE (-40), N (-36A), P (-26A)

ONE ENGINE INOPERATIVE STRAIGHT-IN NONPRECISION APPROACH

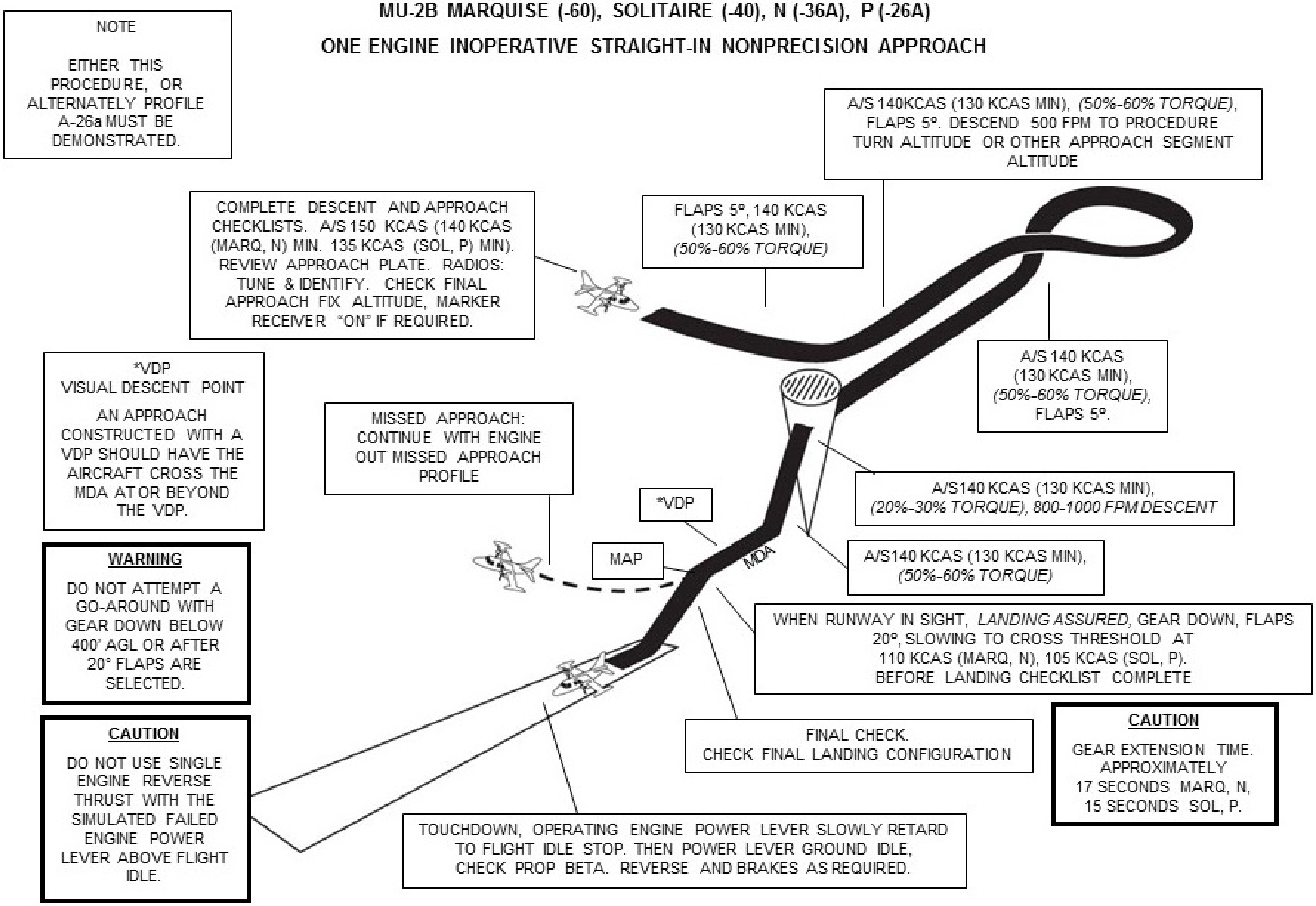


Figure A-26a

MU-2B MARQUISE (-60), SOLITAIRE (-40), N (-36A), P (-26A)

ONE ENGINE INOPERATIVE STRAIGHT-IN NONPRECISION APPROACH
****OPTIONAL USE OF CONTINUOUS DESCENT FINAL APPROACH (CDFA)**

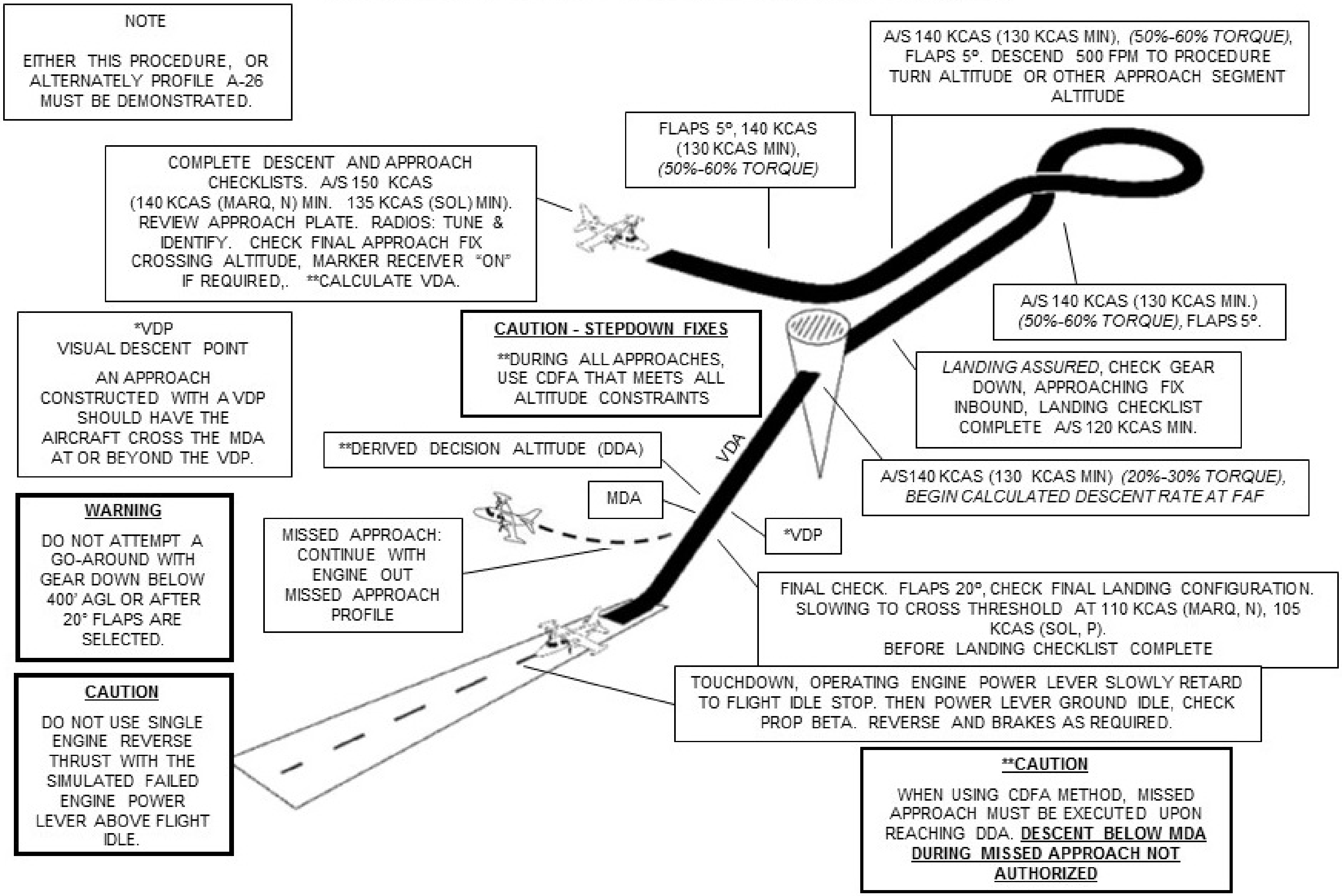
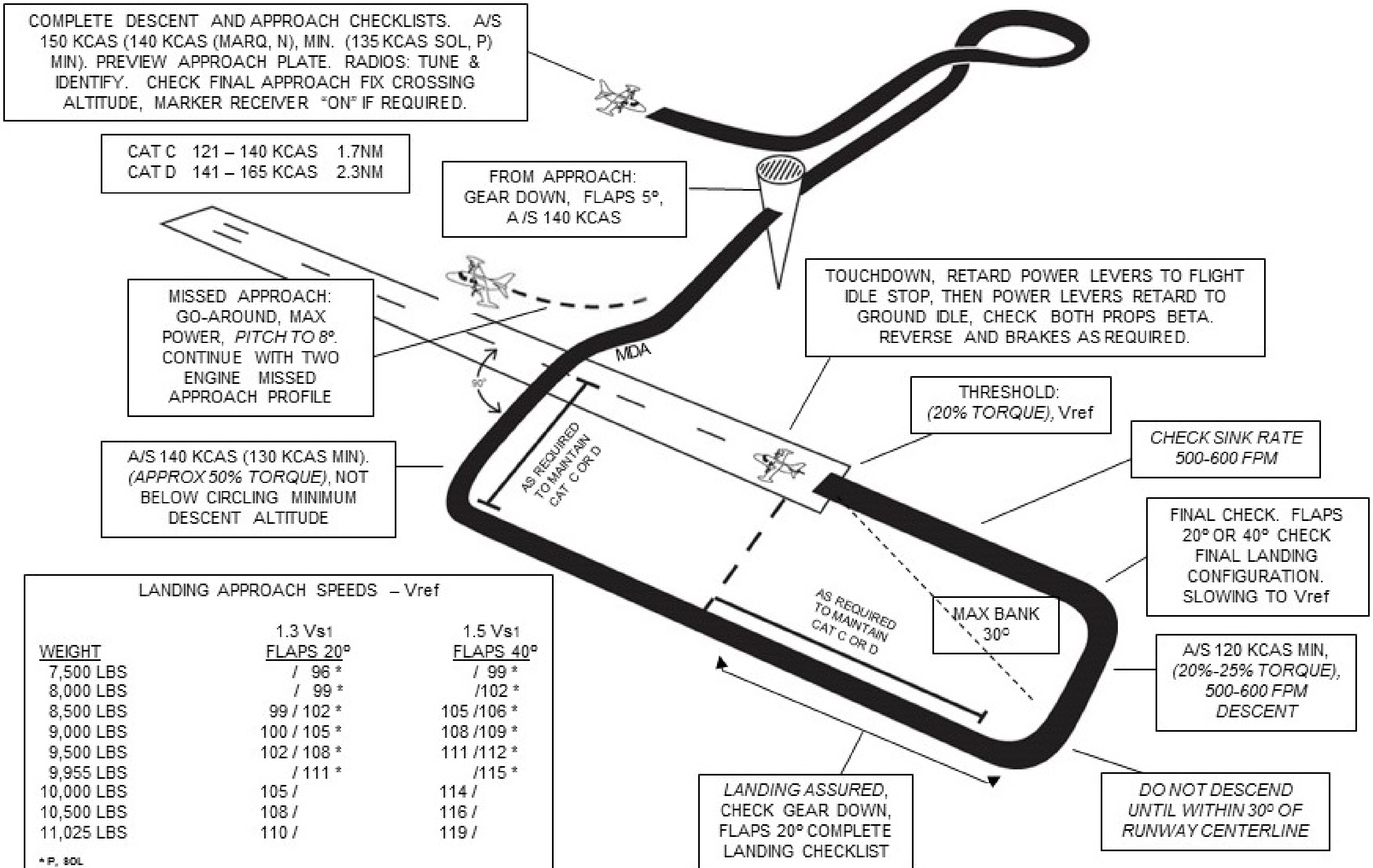


Figure A-27
MU-2B MARQUISE (-60), SOLITAIRE (-40), N (-36A), P (-26A)
CIRCLING APPROACH AT WEATHER MINIMUMS



LANDING APPROACH SPEEDS – Vref

WEIGHT	1.3 Vs1 FLAPS 20°	1.5 Vs1 FLAPS 40°
7,500 LBS	/ 96 *	/ 99 *
8,000 LBS	/ 99 *	/102 *
8,500 LBS	99 / 102 *	105 /106 *
9,000 LBS	100 / 105 *	108 /109 *
9,500 LBS	102 / 108 *	111 /112 *
9,955 LBS	/ 111 *	/115 *
10,000 LBS	105 /	114 /
10,500 LBS	108 /	116 /
11,025 LBS	110 /	119 /

* P, SOL

Figure A-28

MU-2B MARQUISE (-60), SOLITAIRE (-40), N (-36A), P (-26A)

ONE ENGINE INOPERATIVE CIRCLING APPROACH AT WEATHER MINIMUMS

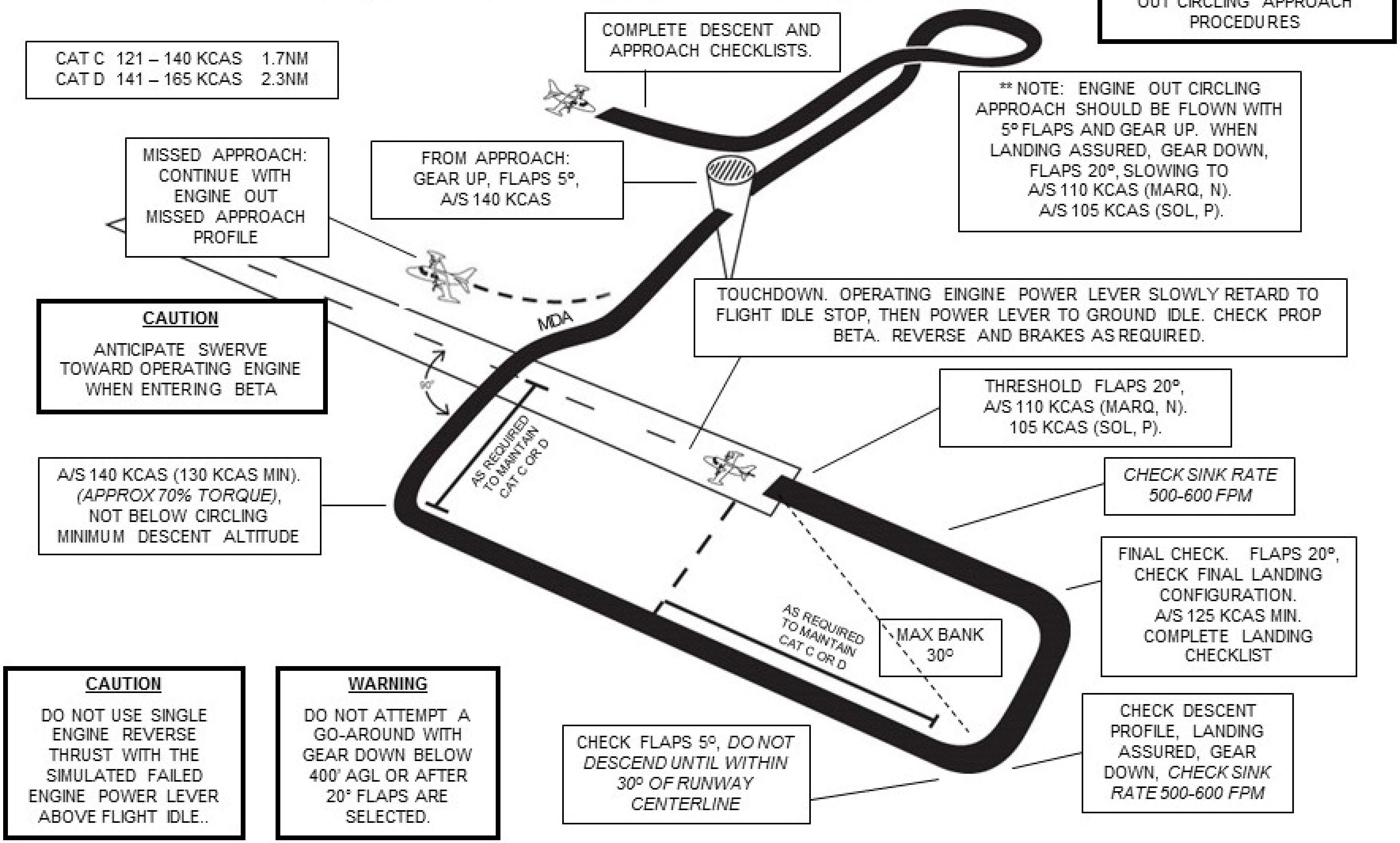


Figure B-1

MU-2B J (-35), K (-25), L (-36), M(-26)

NORMAL TAKE-OFF, 5° OR 20° FLAPS

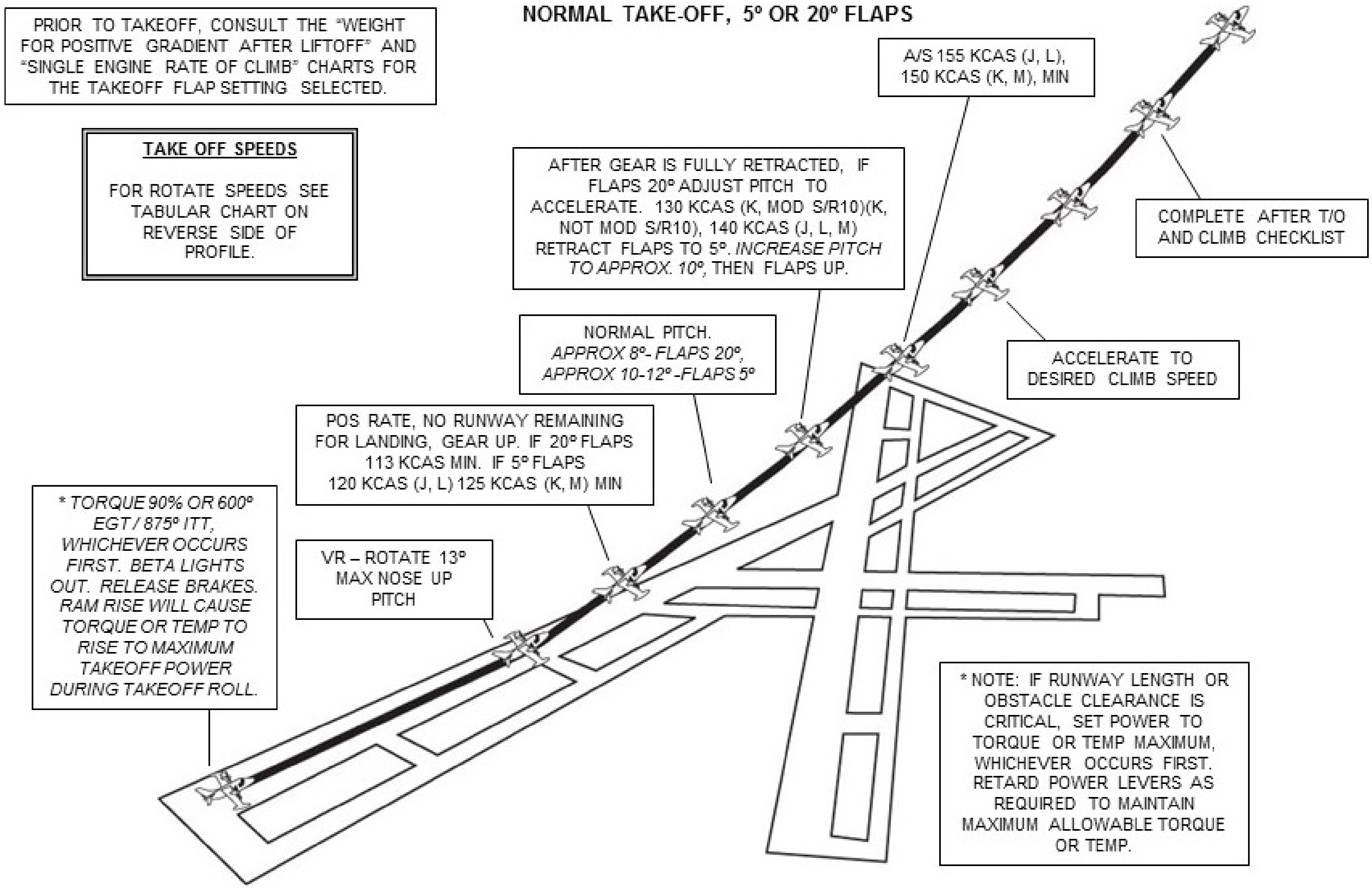


Figure B-1a

TAKE OFF SPEEDS
ROTATE

FLAPS 5°	K	M	J	L
11,575 LBS				109
11,000 LBS				106
10,800 LBS			109	105
10,470 LBS		110		104
10,000 LBS		108	105	101
9,920 LBS	108			101
9,500 LBS	107	107	103	101
9,000 LBS	106	106	101	100
8,000 LBS	104	104	100	
7,500 LBS	102			

FLAPS 20°	K	M	J	L
11,575 LBS				105
11,000 LBS				103
10,800 LBS			105	
10,470 LBS		103		
10,000 LBS		102	102	100
9,920 LBS	102			
9,500 LBS	101	101	101	100
9,000 LBS	100	100	100	100
8,000 LBS	99	99	100	
7,500 LBS	98			

Figure B-2

MU-2B J (-35), K (-25), L (-36), M(-26)

TAKE-OFF ENGINE FAILURE – FLAPS 5º OR 20º

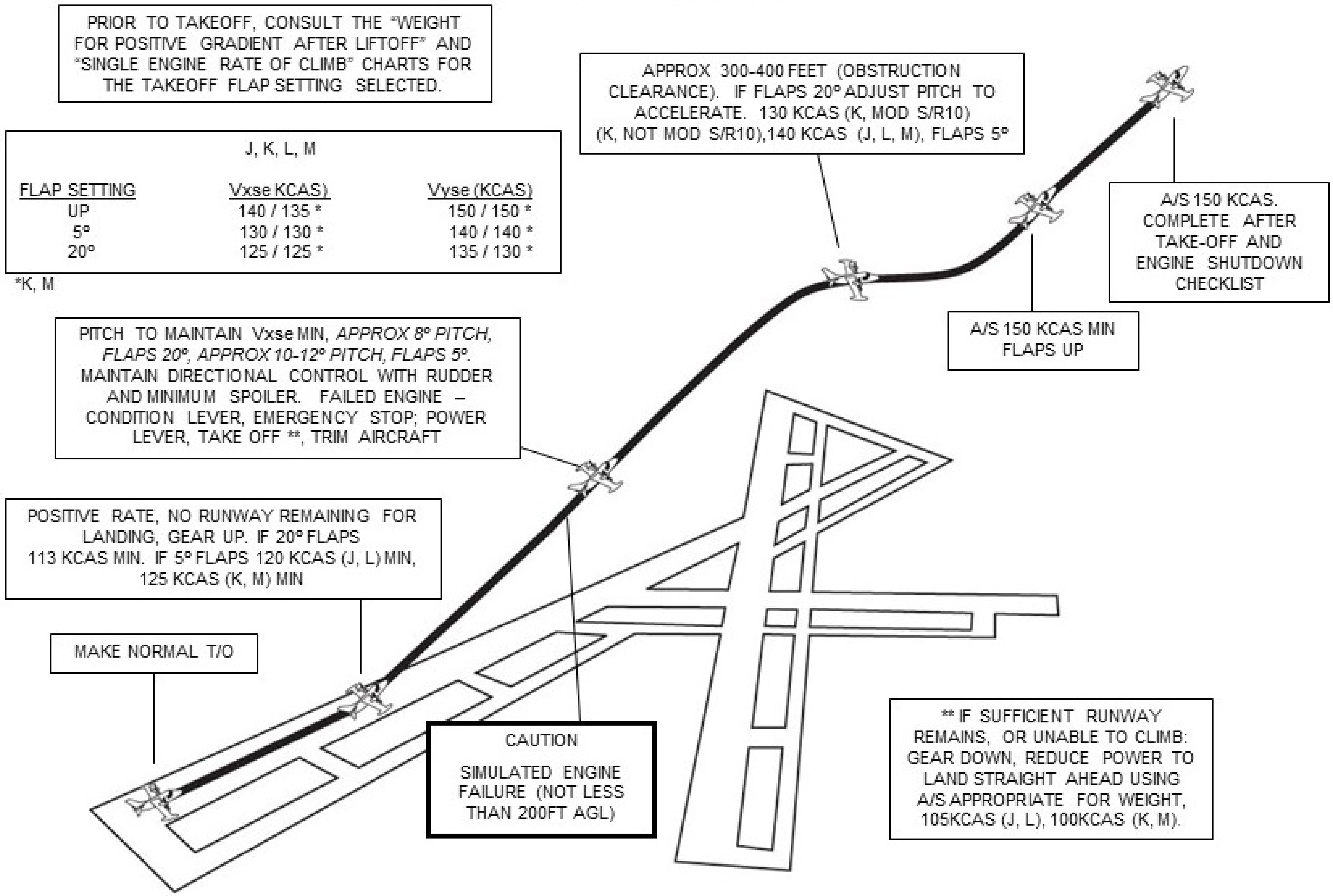


Figure B-3

MU-2B J (-35), K (-25), L (-36), M(-26)

TAKE-OFF ENGINE FAILURE ON RUNWAY

CAUTION

SIMULATED ENGINE FAILURE OR MALFUNCTION IS TO BE GIVEN BY INSTRUCTOR AT NOT MORE THAN 50% OF ROTATE SPEEDS.

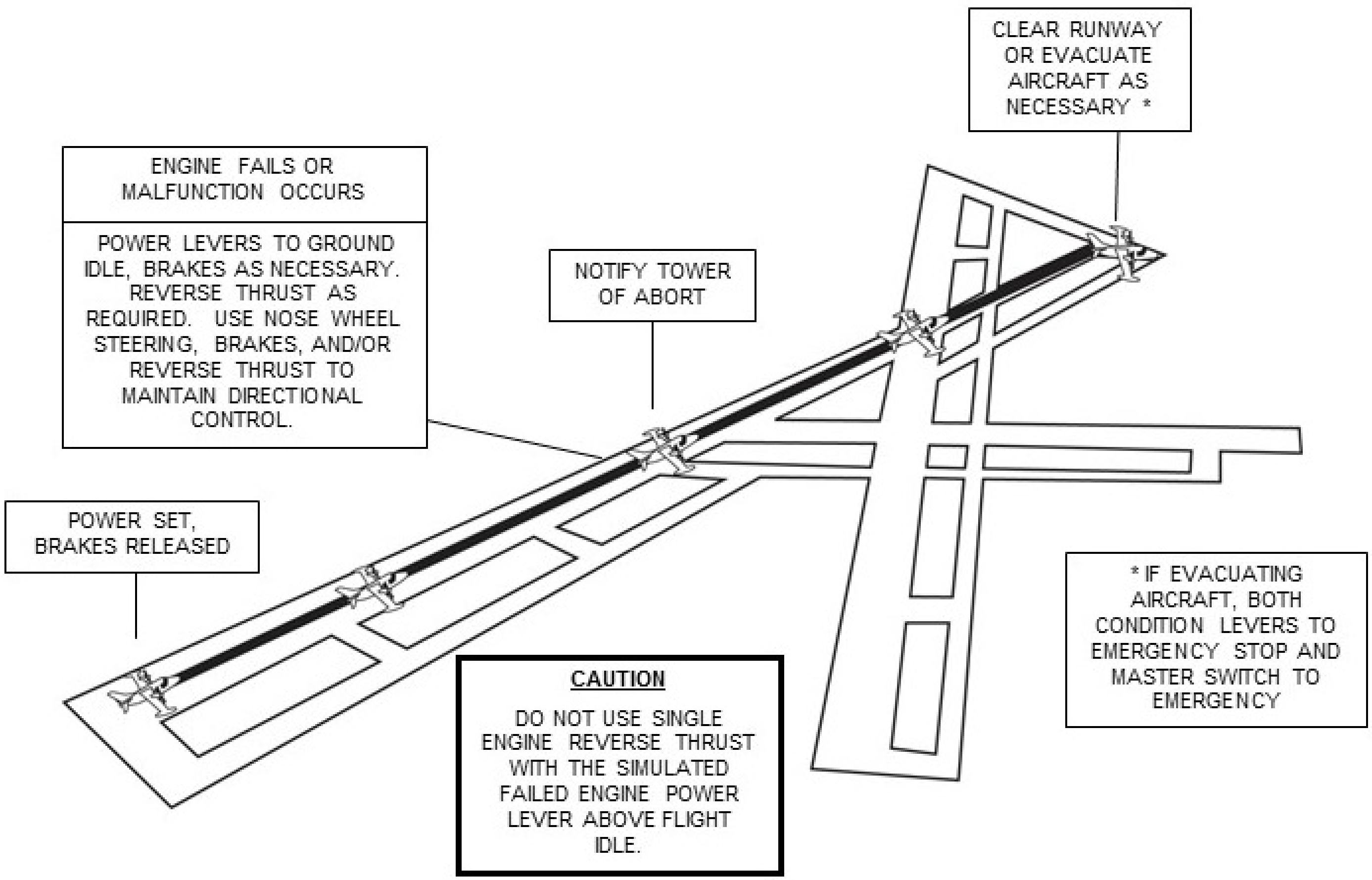


Figure B-4

MU-2B J (-35), K (-25), L (-36), M(-26)

TAKE-OFF ENGINE FAILURE - UNABLE TO CLIMB

CLASSROOM DISCUSSION OR FTD USE ONLY

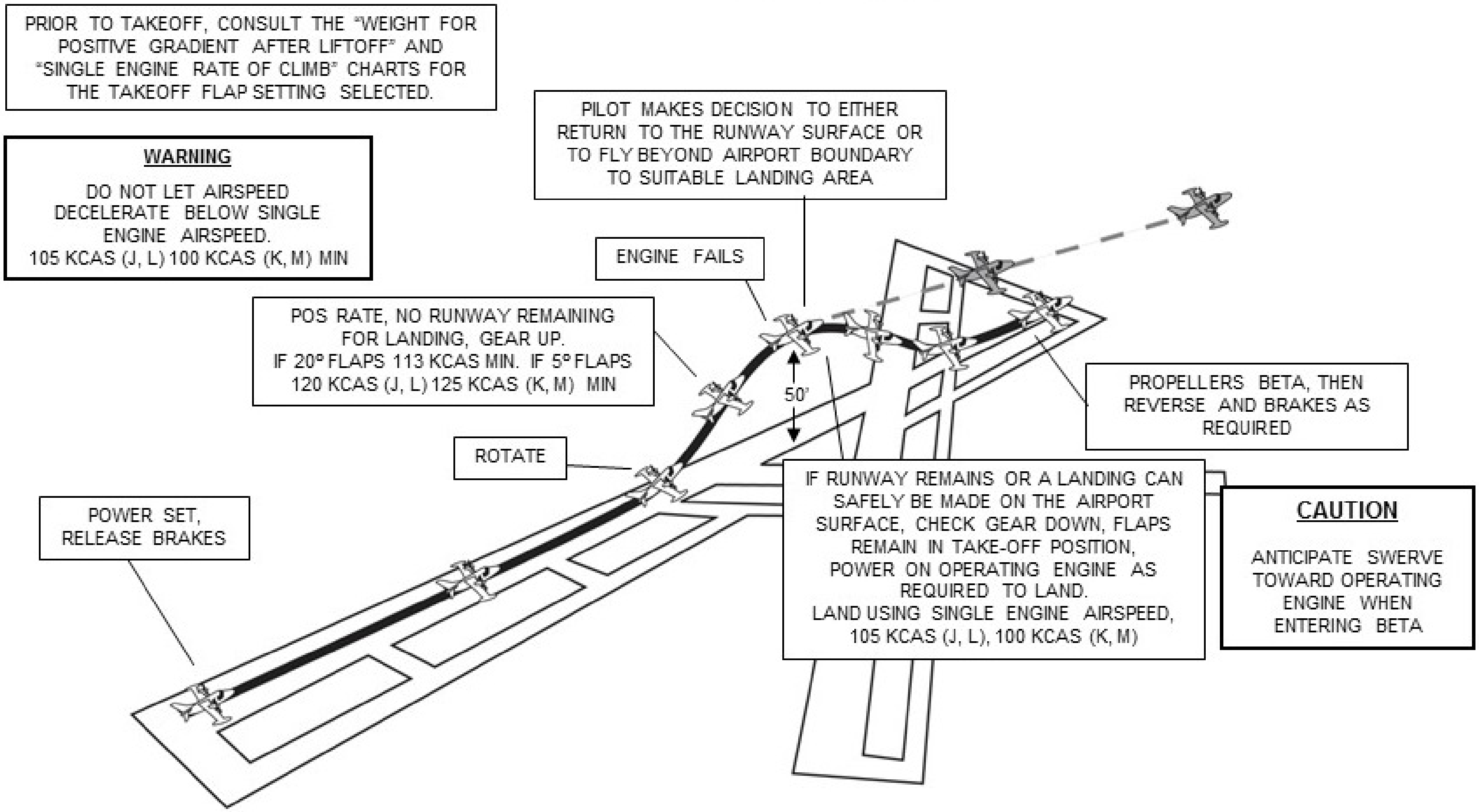


Figure B-5

MU-2B J (-35), K (-25), L (-36), M(-26)

STEEP TURNS

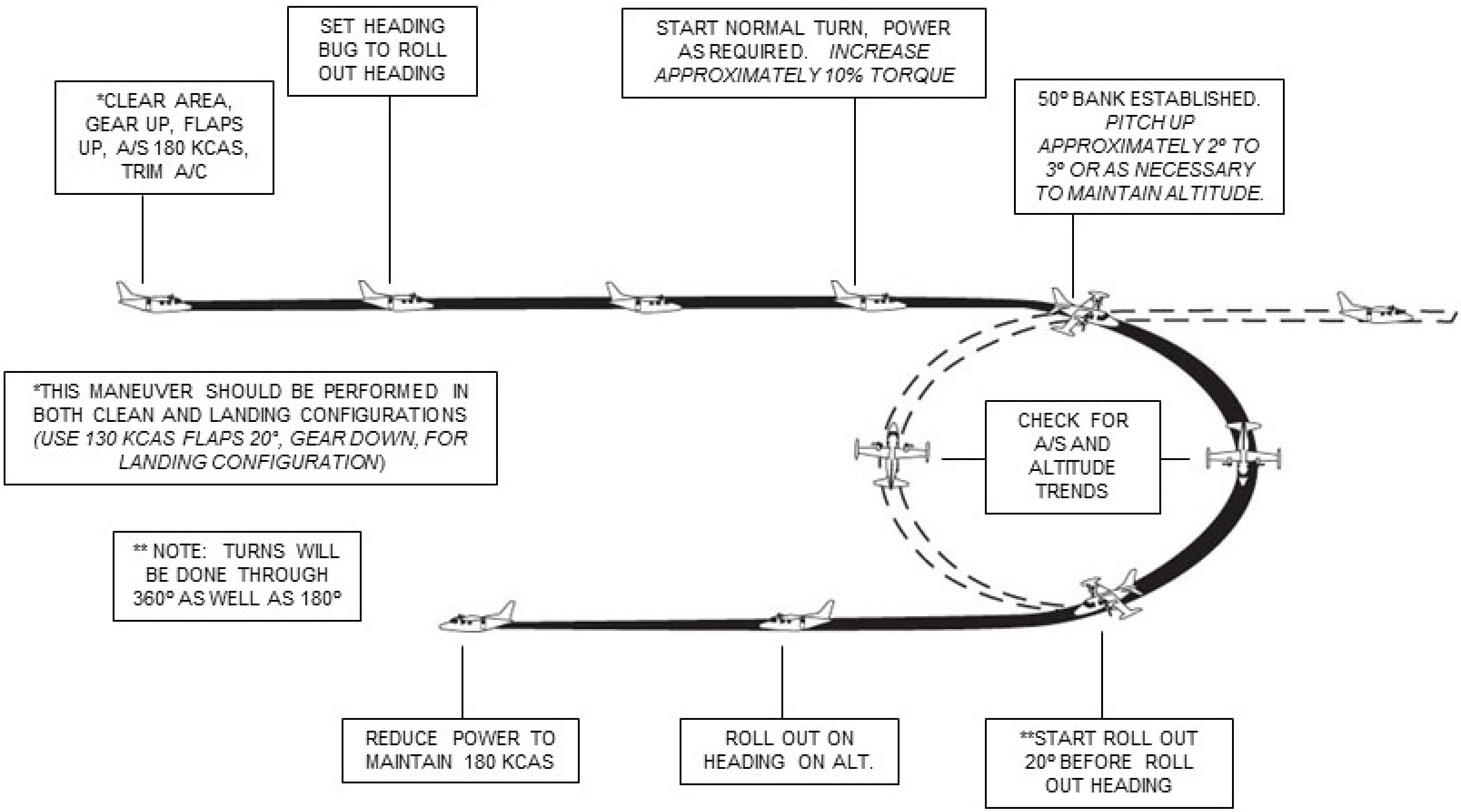


Figure B-6

MU-2B J (-35), K (-25), L (-36), M(-26)

SLOW FLIGHT MANEUVERING

MINIMUM CONTROLLABLE AIRSPEED

SLOW FLIGHT MANEUVERING IS CONDUCTED AS FOLLOWS:

CLEAR THE AREA PRIOR TO BEGINNING THE MANEUVER.

START WITH CLEAN CONFIGURATION AND CHANGE AIRCRAFT CONFIGURATION FROM CLEAN TO FULL FLAP AND GEAR IN STAGES. USE A MAXIMUM OF 15° BANK AND PERFORM HEADING CHANGES OF 90° LEFT AND RIGHT. CONSTANT ALTITUDE IS REQUIRED THROUGHOUT.
MAINTAIN 115 KCAS IN ALL CONFIGURATIONS.

**APPROXIMATE POWER SETTINGS ARE:

CLEAN	*TORQUE (35%) PER ENGINE*	*APPROX PITCH +12*
5° FLAP	*TORQUE (32%) PER ENGINE*	*APPROX PITCH +8*
5° FLAP & GEAR	*TORQUE (44%) PER ENGINE*	*APPROX PITCH +9*
20° FLAP & GEAR	*TORQUE (42%) PER ENGINE*	*APPROX PITCH +4*
40° FLAP & GEAR	*TORQUE (54%) PER ENGINE*	*APPROX PITCH 0*

** NOTE: POWER SETTINGS WILL VARY WITH AIRCRAFT WEIGHT AND ALTITUDE.

STALL SPEEDS (APPROXIMATE)
AT MAXIMUM GROSS TAKEOFF WEIGHT
J, K, L, M

ANGLE OF BANK	J / L / K / M 0°	J / L / K / M 15°
FLAPS		
UP	104/106/101/104	107/108/103/106
5°	98/ 99/ 95/ 98	100/101/ 97/100
20°	86/ 87/ 85/ 87	88/ 89/ 87/ 89
40°	79/ 81/ 76/ 78	82/ 83/ 78/ 80

Vmc FLAPS 5° 99 KCAS (J, L), 100 KCAS (K, M)
FLAPS 20° 90 KCAS (J), 99 KCAS (L), 93 KCAS (K, M)

CAUTION

STALL WARNING MAY ACTIVATE
4 TO 9 KCAS ABOVE STALL

MINIMUM CONTROLLABLE AIRSPEED IS CONDUCTED AS FOLLOWS:

CLEAR THE AREA PRIOR TO BEGINNING THE MANEUVER.

THE MANEUVER MAY BE DONE IN ANY COMBINATION OF GEAR OR FLAP CONFIGURATIONS. IF BANK IS TO BE USED, IT SHOULD BE DONE AT BANK OF NOT MORE THAN 10°. BEGIN THE MANEUVER BY CONFIGURING THE AIRCRAFT IN THE DESIRED GEAR AND FLAP CONFIGURATION. SLOW THE AIRCRAFT UNTIL THE STALL WARNING (STICK SHAKER) IS ACTIVATED AND ADD POWER TO MAINTAIN ALTITUDE AND A SPEED JUST ABOVE AERODYNAMIC STALL. DO NOT ALLOW THE AIRCRAFT TO REACH AERODYNAMIC STALL "ONSET" BUFFET.

Figure B-7

MU-2B J (-35), K (-25), L (-36), M(-26)

**ONE ENGINE INOPERATIVE MANEUVERING
LOSS OF DIRECTIONAL CONTROL**

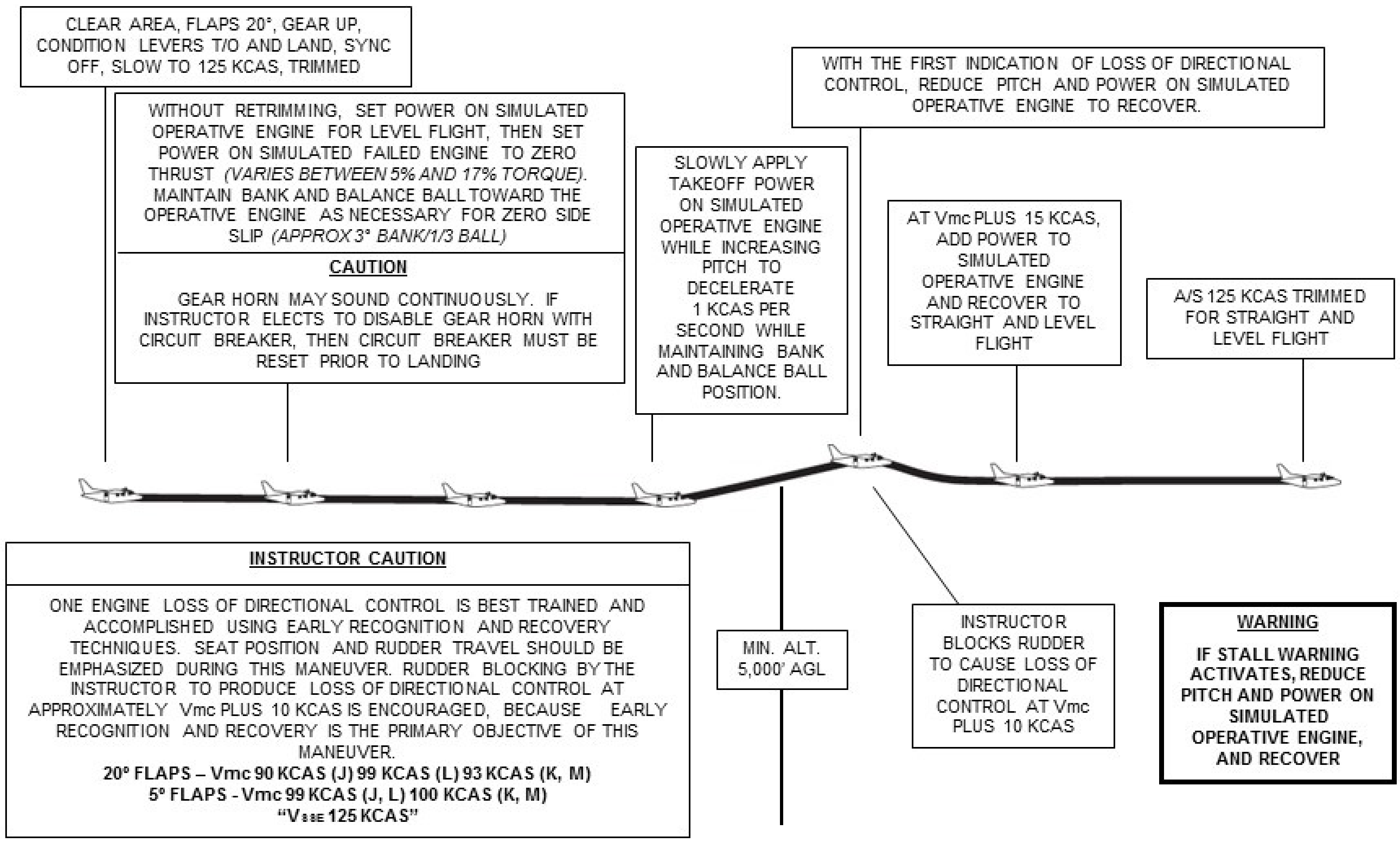
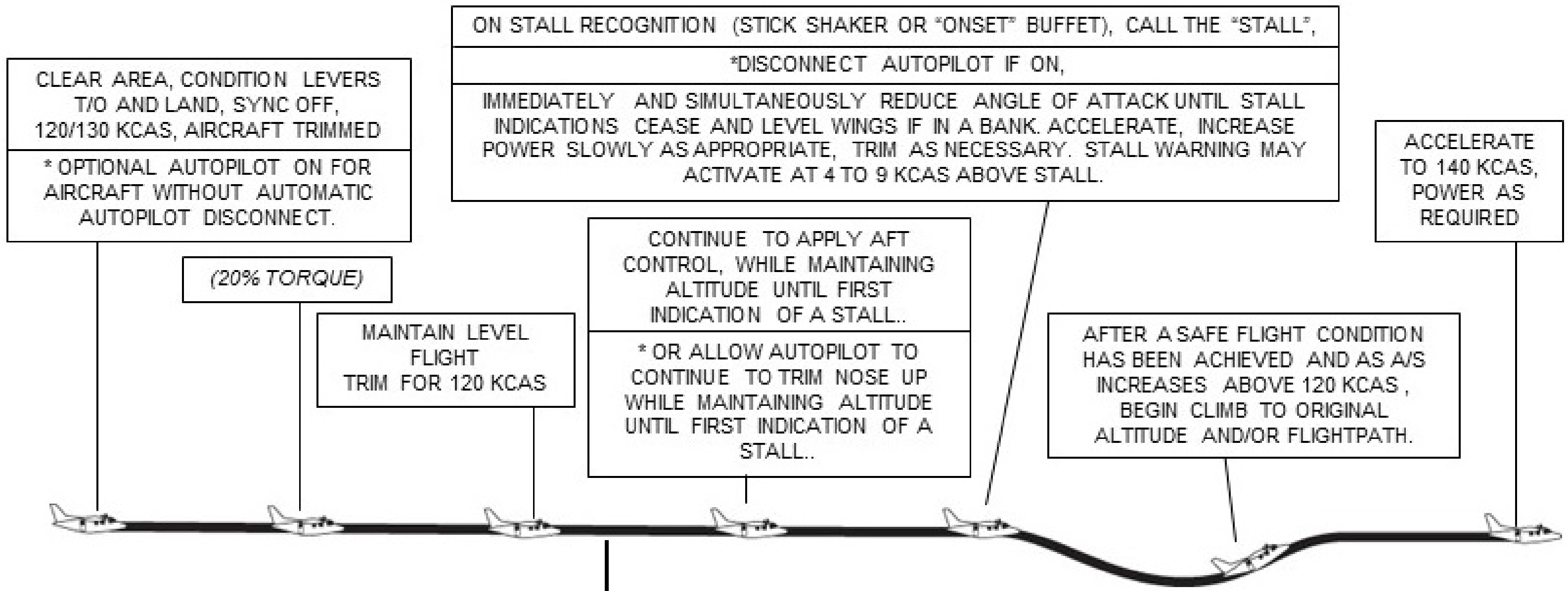


Figure B-8

MU-2B J (-35), K (-25), L (-36), M(-26)

APPROACH TO STALL CLEAN CONFIGURATION / WINGS LEVEL



MIN. ALT.
5,000' AGL

INSTRUCTOR NOTE:

ADVISORY CIRCULAR 120-109 STATES THAT PERFORMANCE OF STALL MANEUVERS DURING TRAINING SHOULD INCLUDE BOTH MANUAL FLIGHT AND FLIGHT WITH AUTOPILOT ENGAGED. PILOTS SHOULD BE TAUGHT HOW TO RESPOND APPROPRIATELY TO THE STARTLE FACTOR WHEN ENCOUNTERING AN UNEXPECTED STALL..

STALL TRAINING PROCEDURES WITH THE AUTOPILOT ENGAGED ARE NOTED WITH AN ASTERISK*

STALL SPEEDS

FLAPS SET	UP	5	20	40
GR.WT.	K / M / J / L	K / M / J / L	K / M / J / L	K / M / J / L
7,000	85/ 85/	80/ 80/	72/ 72/	64/ 64/
7,500	88 / 88/	83/ 83/	74/ 75/	67/ 66/
8,000	91/ 91/ 90/	86/ 85/ 84/	77/ 77/ 74/	69/ 68/ 69
8,500	94/ 94/ 93/	89/ 88/ 87/	79/ 79/ 77/	71/ 70/ 71/
9,000	97/ 96/ 95/ 93	91/ 91/ 89/ 88	82/ 81/ 79/ 77	73/ 72/ 73/ 72
9,500	99 /99/ 98/ 96	93/ 93/ 92/ 90	84/ 83/ 81/ 79	75/ 74/ 75/ 74
9,920	101/	95/	85/	76/
10,000	/102/100/ 98	/ 96/ 94/ 92	/ 86/ 84/ 81	/ 76/ 77/ 76
10,470	/104/	/ 98/	/ 88/	/ 78/
10,500	/103/101	/ 96/ 94	/ 85/ 83	/ 79/ 77
10,800	/104/	/ 98/	/ 86/	/ 80/ 78
11,000	/103	/ 97	/ 85	/ 79
11,500	/106	/ 99	/ 87	/ 81

Figure B-9

MU-2B J (-35), K (-25), L (-36), M(-26)

APPROACH TO STALL

TAKEOFF CONFIGURATION 15-30º BANK

CLEAR AREA, CONDITION LEVERS T/O AND LAND, SYNC OFF, 120/130 KCAS, AIRCRAFT TRIMMED

* OPTIONAL AUTOPILOT ON FOR AIRCRAFT WITHOUT AUTOMATIC AUTOPILOT DISCONNECT.

FLAPS 5º OR 20º, GEAR DOWN, *(20% TORQUE)*

INITIATE 30º BANK IN LEVEL FLIGHT TRIM FOR 120 KCAS

CONTINUE TO APPLY AFT CONTROL, WHILE MAINTAINING ALTITUDE UNTIL FIRST INDICATION OF A STALL..

* OR ALLOW AUTOPILOT TO CONTINUE TO TRIM NOSE UP WHILE MAINTAINING ALTITUDE UNTIL FIRST INDICATION OF A STALL..

ON STALL RECOGNITION (STICK SHAKER OR "ONSET" BUFFET), CALL THE "STALL",

*DISCONNECT AUTOPILOT IF ON,

IMMEDIATELY AND SIMULTANEOUSLY REDUCE ANGLE OF ATTACK UNTIL STALL INDICATIONS CEASE AND LEVEL WINGS IF IN A BANK. ACCELERATE, INCREASE POWER SLOWLY AS APPROPRIATE, POSITIVE RATE, GEAR UP, TRIM AS NECESSARY. STALL WARNING MAY ACTIVATE AT 4 TO 9 KCAS ABOVE STALL.

AFTER A SAFE FLIGHT CONDITION HAS BEEN ACHIEVED AND AS A/S INCREASES ABOVE 120 KCAS , BEGIN CLIMB TO ORIGINAL ALTITUDE AND/OR FLIGHTPATH.

IF FLAPS 20º, RETRACT FLAPS TO 5º, *INCREASE PITCH TO APPROX. 10º.*

A/S 140 KCAS MINIMUM, FLAPS UP POWER AS REQUIRED

INSTRUCTOR NOTE:

ADVISORY CIRCULAR 120-109 STATES THAT PERFORMANCE OF STALL MANEUVERS DURING TRAINING SHOULD INCLUDE BOTH MANUAL FLIGHT AND FLIGHT WITH AUTOPILOT ENGAGED. PILOTS SHOULD BE TAUGHT HOW TO RESPOND APPROPRIATELY TO THE STARTLE FACTOR WHEN ENCOUNTERING AN UNEXPECTED STALL..

STALL TRAINING PROCEDURES WITH THE AUTOPILOT ENGAGED ARE NOTED WITH AN ASTERISK*

MIN. ALT. 5,000' AGL

STALL SPEEDS (APPROXIMATE)
AT MAXIMUM GROSS TAKEOFF WEIGHT
J, K, L, M

BANK ANGLE	10	20	30	40	50	60
FLAPS	J / L / K / M	J / L / K / M	J / L / K / M	J / L / K / M	J / L / K / M	J / L / K / M
UP	106/107/102/105	108/109/105/108	112/114/109/112	120/121/116/120	130/132/126/130	148/150/143/147
5º	99/100 /96/ 98	101/102/ 98/101	105/107/102/105	112/113/109/112	122/123/119/122	138/140/134/138
20º	87/ 88/ 86/ 88	89/ 90/ 88/ 90	92/ 94/ 92/ 94	98/100/ 97/100	108/109/107/109	122/123/120/123
40º	81/ 82/ 77/ 79	83/ 84/ 79/ 81	86/ 87/ 82/ 84	92/ 93/ 87/ 90	100/102/ 96/ 98	112/115/108/110

Figure B-10

MU-2B J (-35), K (-25), L (-36), M(-26)

APPROACH TO STALL LANDING CONFIGURATION GEAR DOWN – FULL FLAPS

CLEAR AREA, CONDITION LEVERS T/O AND LAND, SYNC OFF, 120/130 KCAS, AIRCRAFT TRIMMED

* OPTIONAL AUTOPILOT ON FOR AIRCRAFT WITHOUT AUTOMATIC AUTOPILOT DISCONNECT.

FLAPS 20°, GEAR DOWN, *(20% TORQUE)*

A/S 120 KCAS, FLAPS FULL 20% TORQUE, MAINTAIN LEVEL FLIGHT, TRIM FOR 120 KCAS

CONTINUE TO APPLY AFT CONTROL, WHILE MAINTAINING ALTITUDE UNTIL FIRST INDICATION OF A STALL..

* OR ALLOW AUTOPILOT TO CONTINUE TO TRIM NOSE UP WHILE MAINTAINING ALTITUDE UNTIL FIRST INDICATION OF A STALL..

ON STALL RECOGNITION (STICK SHAKER OR "ONSET" BUFFET), CALL THE "STALL",

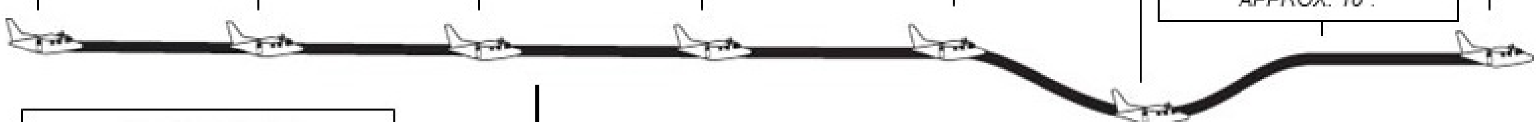
*DISCONNECT AUTOPILOT IF ON,

IMMEDIATELY AND SIMULTANEOUSLY REDUCE ANGLE OF ATTACK UNTIL STALL INDICATIONS CEASE AND LEVEL WINGS IF IN A BANK. ACCELERATE, INCREASE POWER SLOWLY AS APPROPRIATE, FLAPS 20°, POSITIVE RATE, GEAR UP, TRIM AS NECESSARY. STALL WARNING MAY ACTIVATE AT 4 TO 9 KCAS ABOVE STALL.

AFTER A SAFE FLIGHT CONDITION HAS BEEN ACHIEVED AND AS A/S INCREASES ABOVE 120 KCAS, BEGIN CLIMB TO ORIGINAL ALTITUDE AND/OR FLIGHTPATH.

A/S 130 KCAS, IF FLAPS 20°, RETRACT FLAPS TO 5° *INCREASE PITCH TO APPROX. 10°.*

A/S 140 KCAS MIN, FLAPS UP POWER AS REQUIRED



INSTRUCTOR NOTE:

ADVISORY CIRCULAR 120-109 STATES THAT PERFORMANCE OF STALL MANEUVERS DURING TRAINING SHOULD INCLUDE BOTH MANUAL FLIGHT AND FLIGHT WITH AUTOPILOT ENGAGED. PILOTS SHOULD BE TAUGHT HOW TO RESPOND APPROPRIATELY TO THE STARTLE FACTOR WHEN ENCOUNTERING AN UNEXPECTED STALL..

STALL TRAINING PROCEDURES WITH THE AUTOPILOT ENGAGED ARE NOTED WITH AN ASTERISK*

MIN. ALT. 5,000' AGL

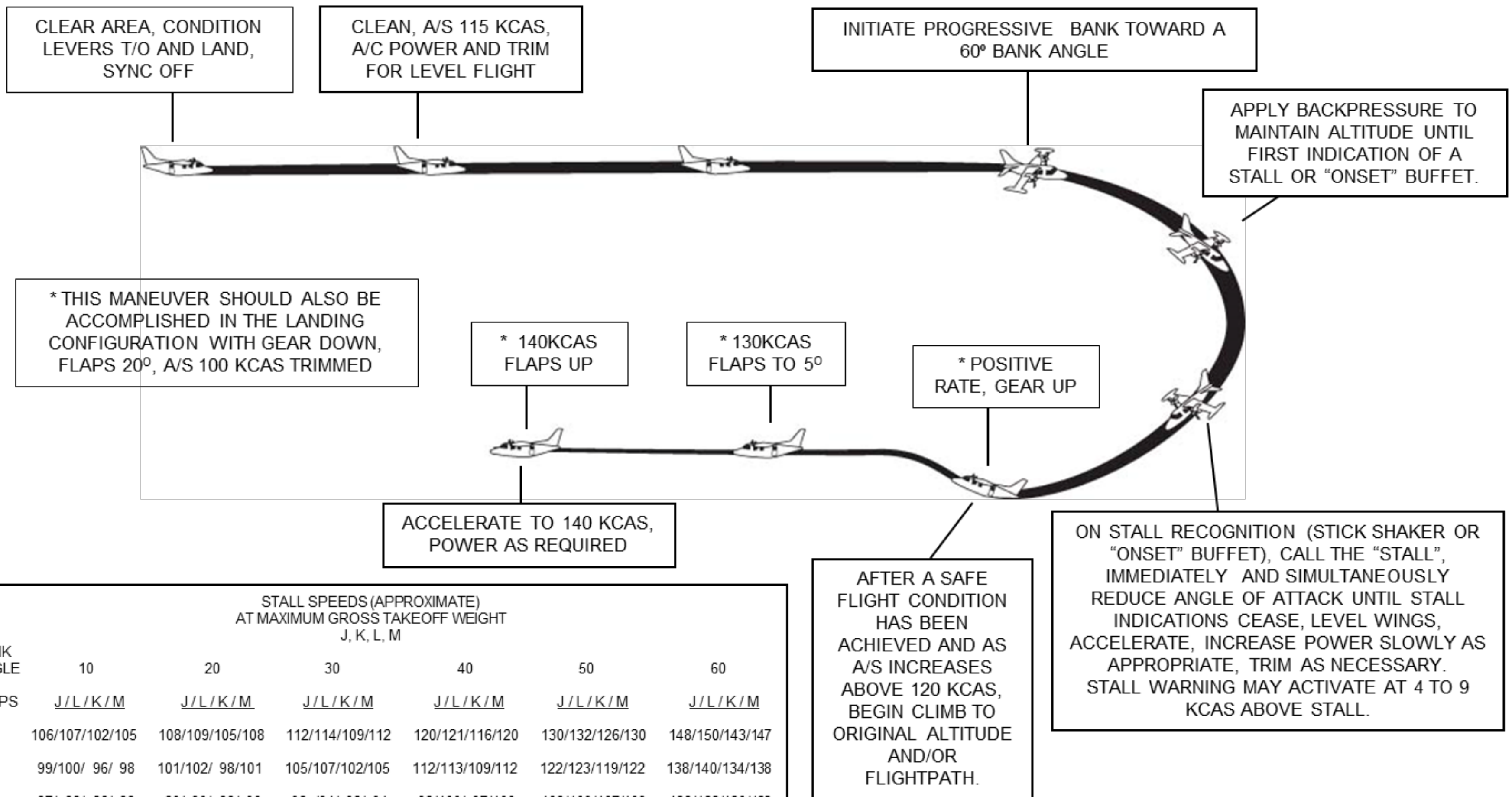
STALL SPEEDS

FLAPS SET	0	5	20	40
GR.WT.	K / M / J / L	K / M / J / L	K / M / J / L	K / M / J / L
7,000	85/ 85/	80/ 80/	72/ 72/	64/ 64/
7,500	88 / 88/	83/ 83/	74/ 75/	67/ 66/
8,000	91/ 91/ 90/	86/ 85/ 84/	77/ 77/ 74/	69/ 68/ 69
8,500	94/ 94/ 93/	89/ 88/ 87/	79/ 79/ 77/	71/ 70/ 71/
9,000	97/ 96/ 95/ 93	91/ 91/ 89/ 88	82/ 81/ 79/ 77	73/ 72/ 73/ 72
9,500	99 /99/ 98/ 96	93/ 93/ 92/ 90	84/ 83/ 81/ 79	75/ 74/ 75/ 74
9,920	101/	95/	85/	76/
10,000	/102/100/ 98	/ 96/ 94/ 92	/ 86/ 84/ 81	/ 76/ 77/ 76
10,470	/104/	/ 98/	/ 88/	/ 78/
10,500	/103/101	/ 96/ 94	/ 85/ 83	/ 79/ 77
10,800	/104/	/ 97/	/ 86/	/ 80/ 78
11,000	/103	/ 97	/ 85	/ 79
11,500	/106	/ 99	/ 87	/ 81

Figure B-11

MU-2B J (-35), K (-25), L (-36), M(-26)

ACCELERATED STALLS



STALL SPEEDS (APPROXIMATE)
AT MAXIMUM GROSS TAKEOFF WEIGHT
J, K, L, M

BANK ANGLE	10	20	30	40	50	60
FLAPS	J / L / K / M	J / L / K / M	J / L / K / M	J / L / K / M	J / L / K / M	J / L / K / M
UP	106/107/102/105	108/109/105/108	112/114/109/112	120/121/116/120	130/132/126/130	148/150/143/147
5º	99/100/ 96/ 98	101/102/ 98/101	105/107/102/105	112/113/109/112	122/123/119/122	138/140/134/138
20º	87/ 88/ 86/ 88	89/ 90/ 88/ 90	92 /94/ 92/ 94	98/100/ 97/100	108/109/107/109	122/123/120/123
40º	81/ 82/ 77/ 79	83/ 84/ 79/ 81	86/ 87/ 82/ 84	92/ 93/ 87/ 90	100/102/ 96/ 98	112/115/108/110

Figure B-12

MU-2B J (-35), K (-25), L (-36), M(-26)

EMERGENCY DESCENT (LOW SPEED)

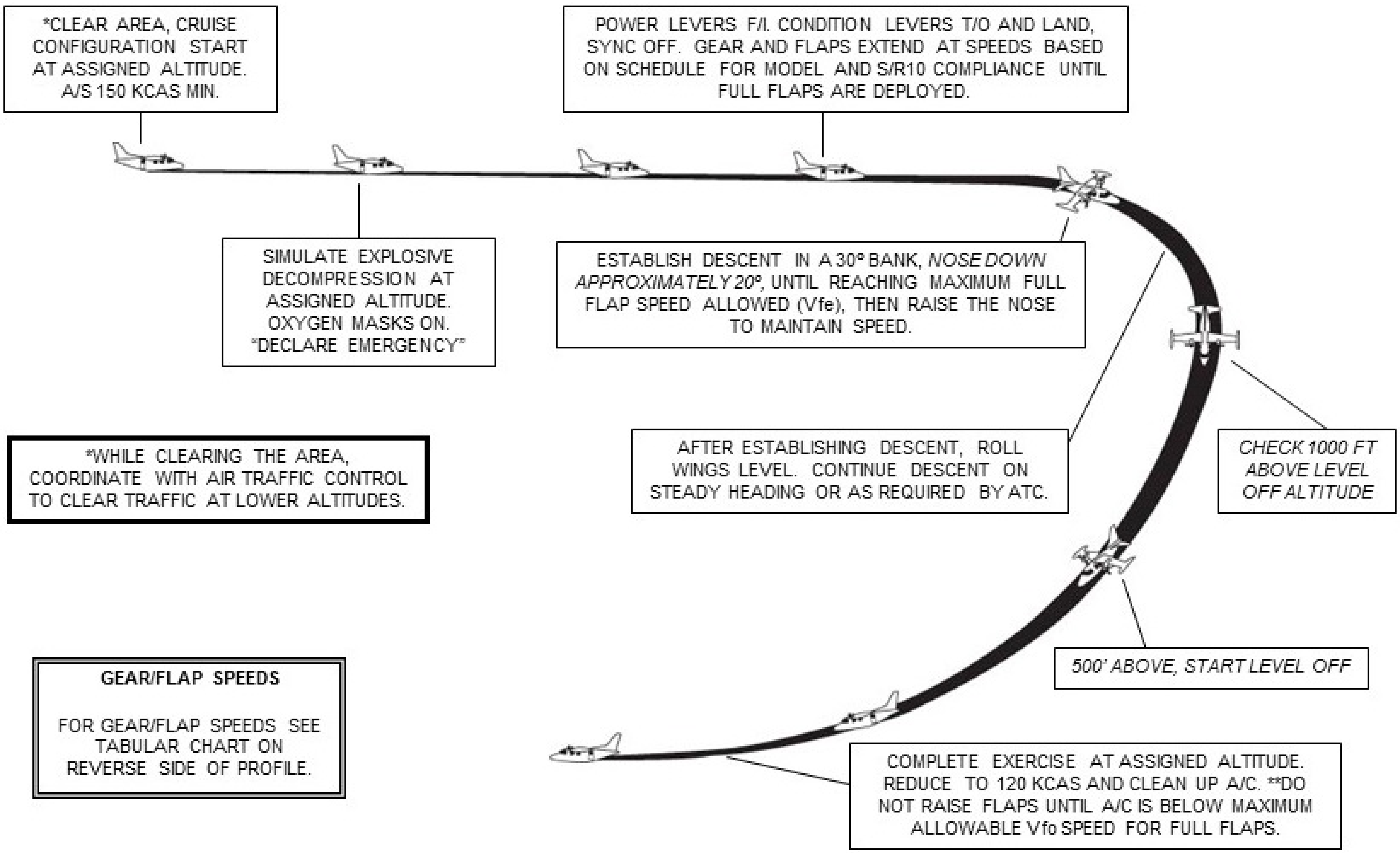


Figure B-12a

GEAR AND FLAP EXTEND SCHEDULE

(K+ AND J+ ARE MODIFIED BY S/R10)

GEAR			
K, K+:	160 KCAS		
M, J, J+:	170 KCAS		
L:	175 KCAS		
FLAPS	5º	20º	40º
J: S/N 548 – 609 NOT MODIFIED BY S/R10	146 KCAS	146 KCAS	120 KCAS
J+: S/N 548 – 609 MODIFIED BY S/R10 AND S/N 610 - 654	175 KCAS	146 KCAS	120 KCAS
K: S/N 239 – 279 NOT MODIFIED BY S/R10	140 KCAS	140 KCAS	120 KCAS
K+: S/N 239 – 279 MODIFIED BY S/R10 AND S/N 280 - 318	175 KCAS	140 KCAS	120 KCAS
L / M	175 KCAS	155 KCAS	120 KCAS

Figure B-13

MU-2B J (-35), K (-25), L (-36), M(-26)

EMERGENCY DESCENT (HIGH SPEED)

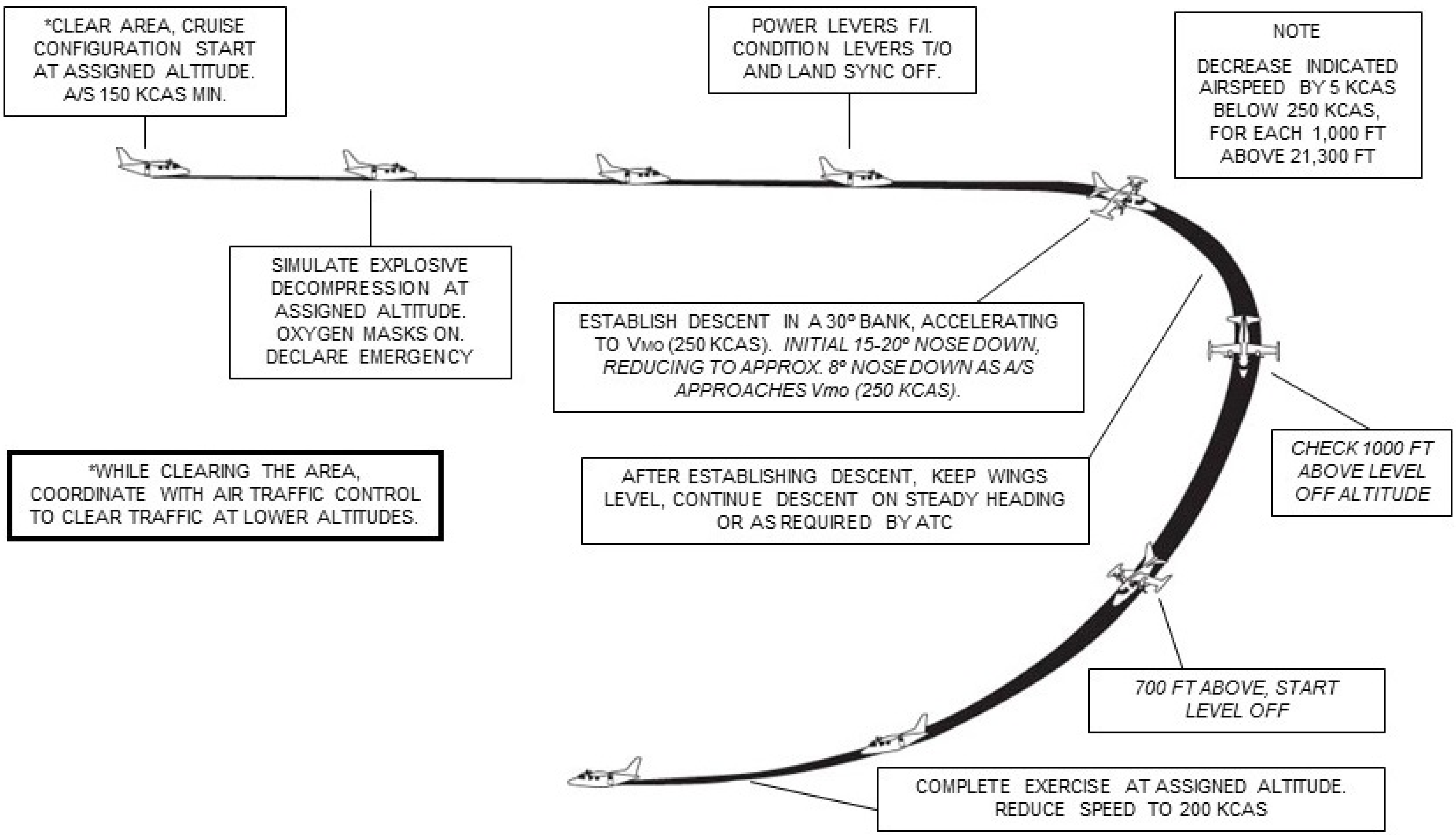


Figure B-14

MU-2B J (-35), K (-25), L (-36), M(-26)

UNUSUAL ATTITUDE RECOVERY (NOSE HIGH)

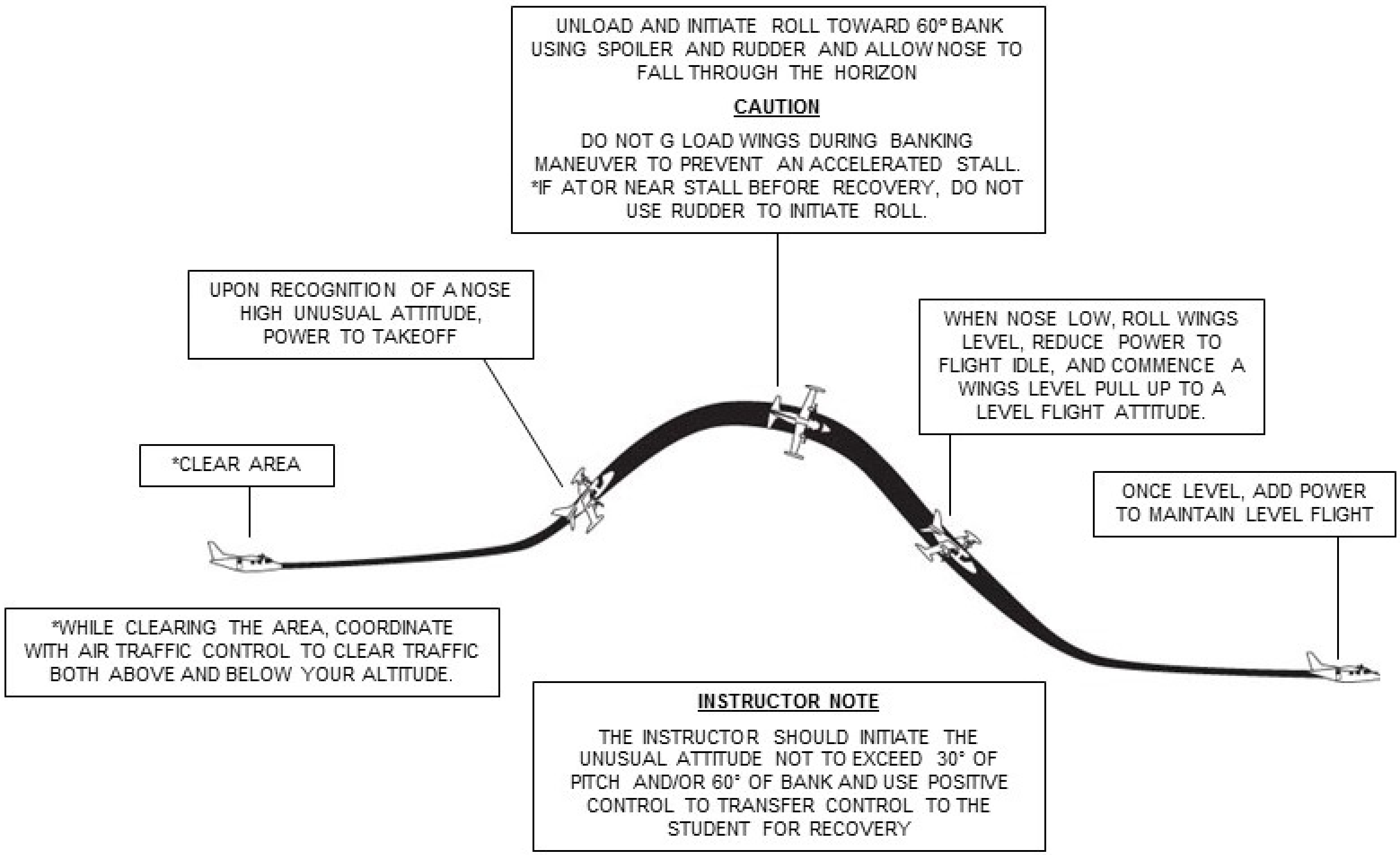


Figure B-15

MU-2B J (-35), K (-25), L (-36), M(-26)

UNUSUAL ATTITUDE RECOVERY (NOSE LOW)

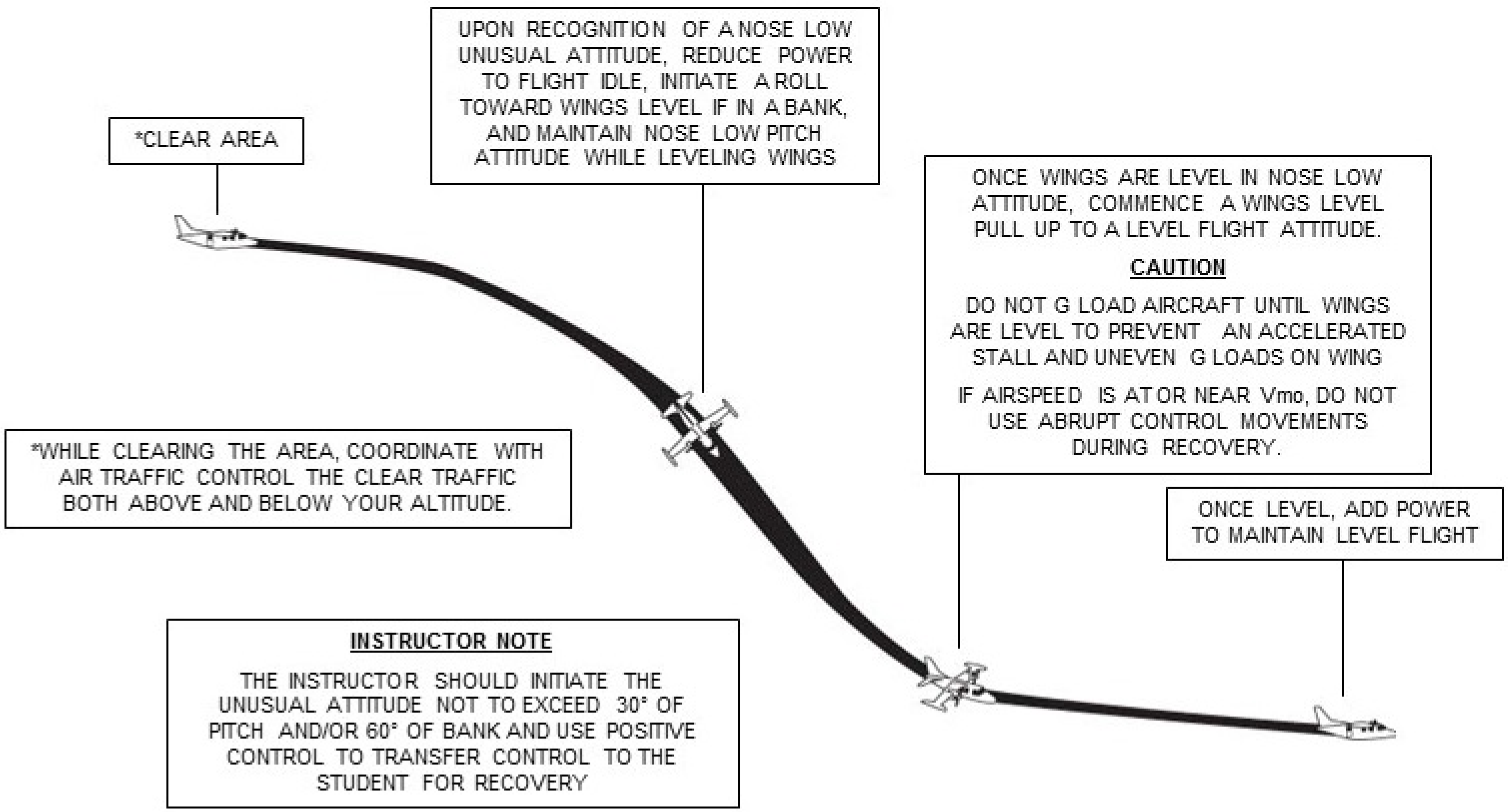
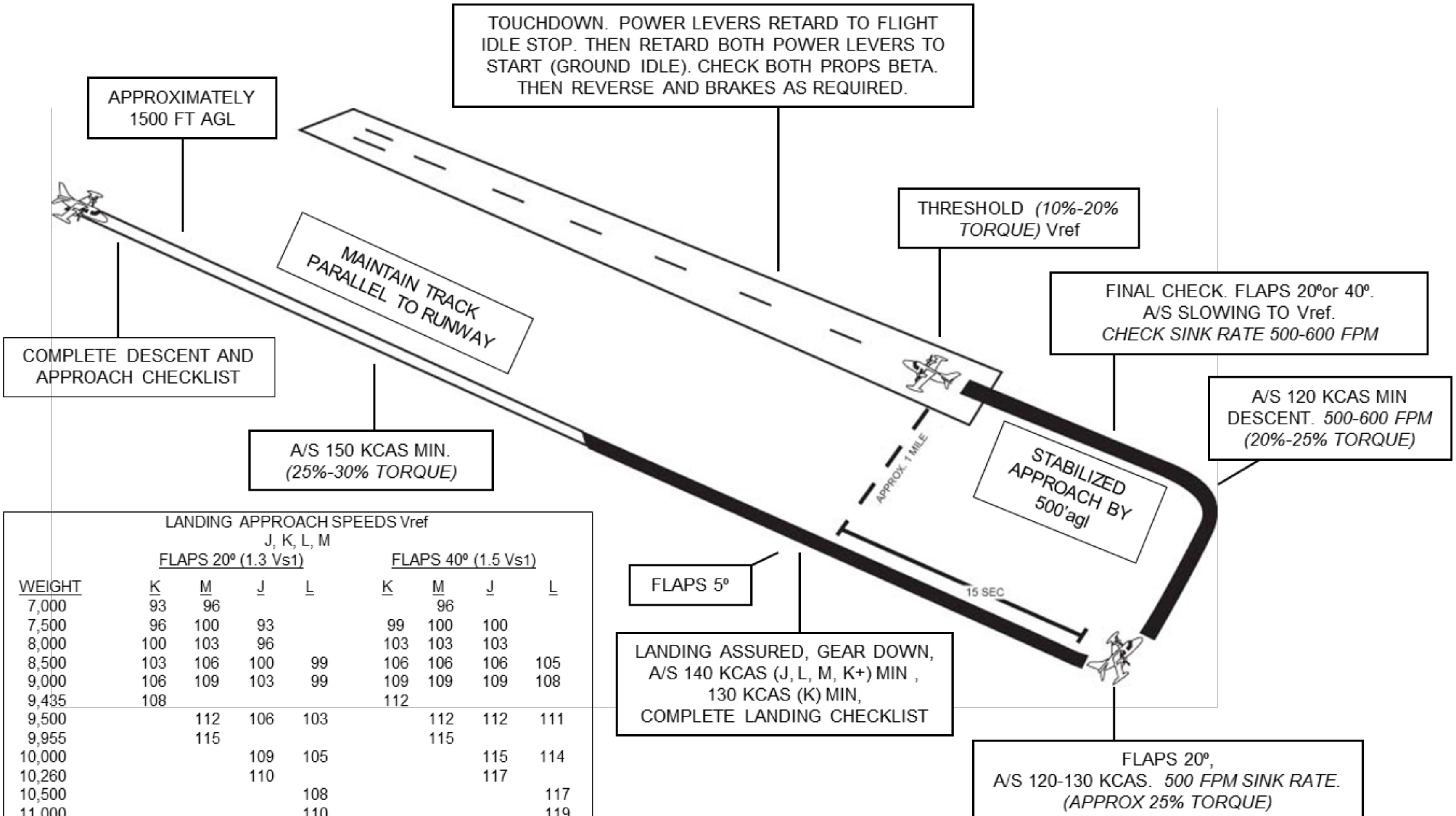


Figure B-16

MU-2B J (-35), K (-25), L (-36), M(-26)

NORMAL LANDING (20º or 40º FLAPS)



LANDING APPROACH SPEEDS Vref
J, K, L, M

WEIGHT	FLAPS 20º (1.3 Vs1) K	M	J	L	FLAPS 40º (1.5 Vs1) K	M	J	L
7,000	93	96				96		
7,500	96	100	93		99	100	100	
8,000	100	103	96		103	103	103	
8,500	103	106	100	99	106	106	106	105
9,000	106	109	103	99	109	109	109	108
9,435	108				112			
9,500		112	106	103		112	112	111
9,955		115				115		
10,000			109	105			115	114
10,260			110				117	
10,500				108				117
11,000				110				119
11,025				110				119

Figure B-17

MU-2B J (-35), K (-25), L (-36), M(-26)

GO AROUND - REJECTED LANDING

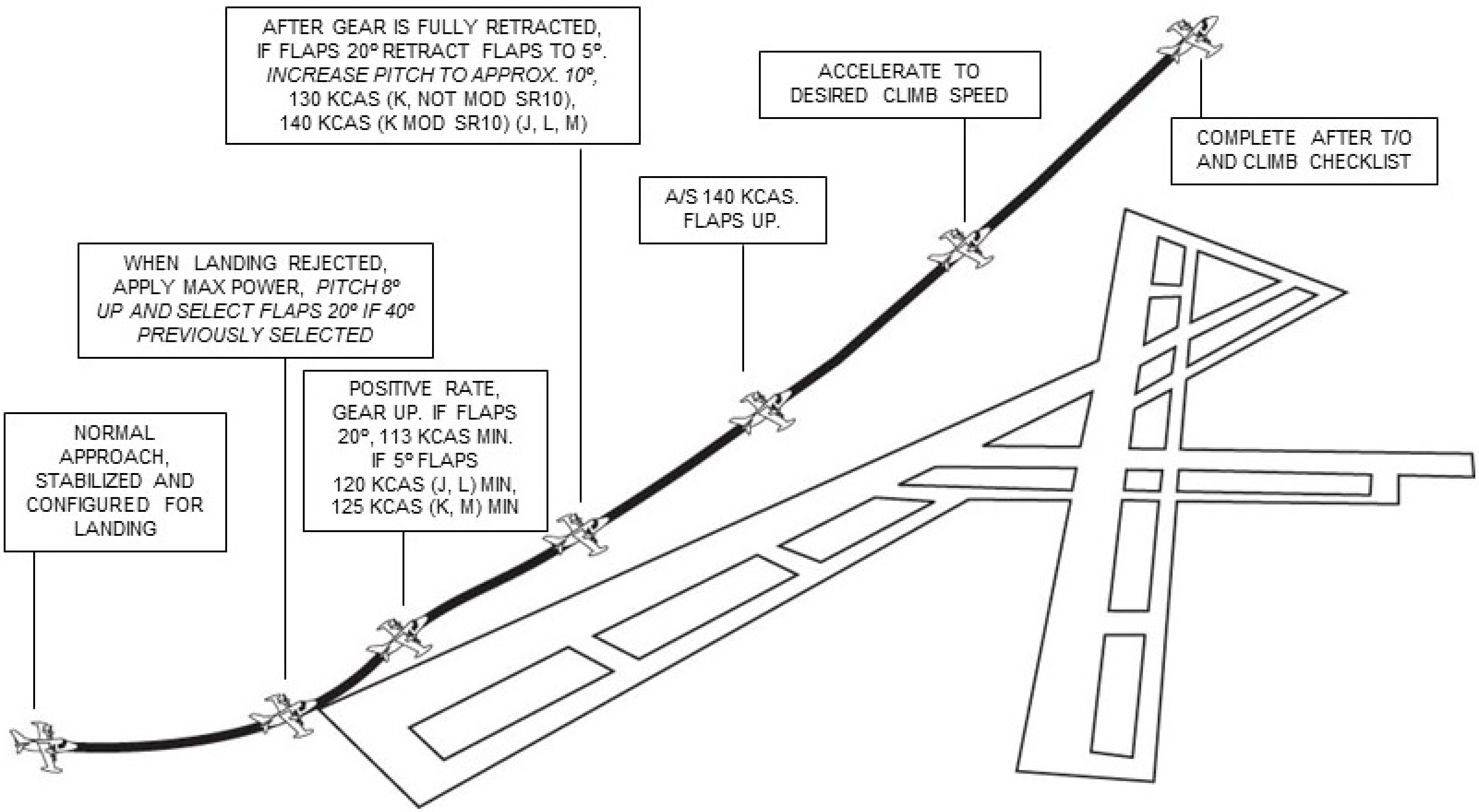
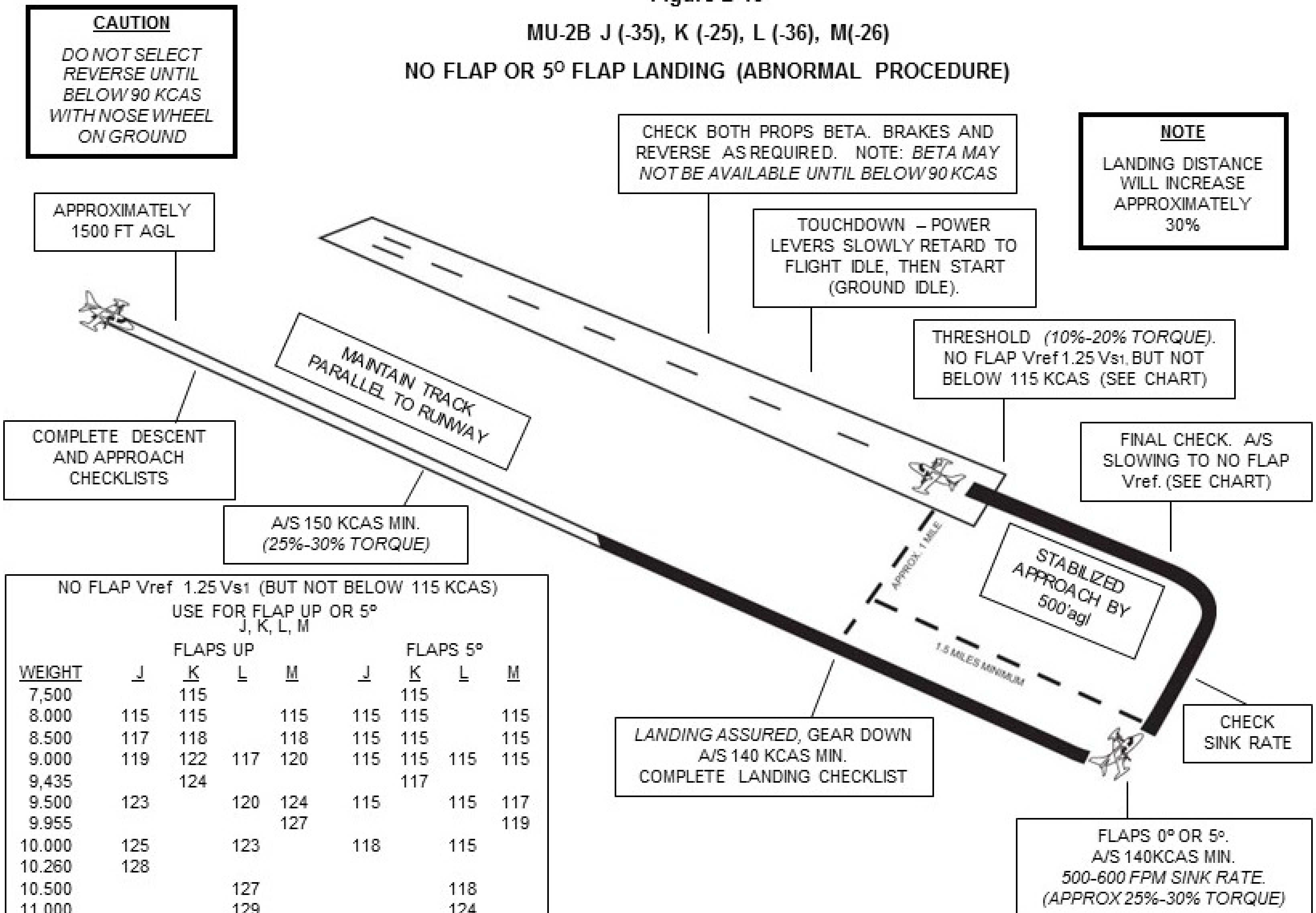


Figure B-18

MU-2B J (-35), K (-25), L (-36), M(-26)

NO FLAP OR 5° FLAP LANDING (ABNORMAL PROCEDURE)



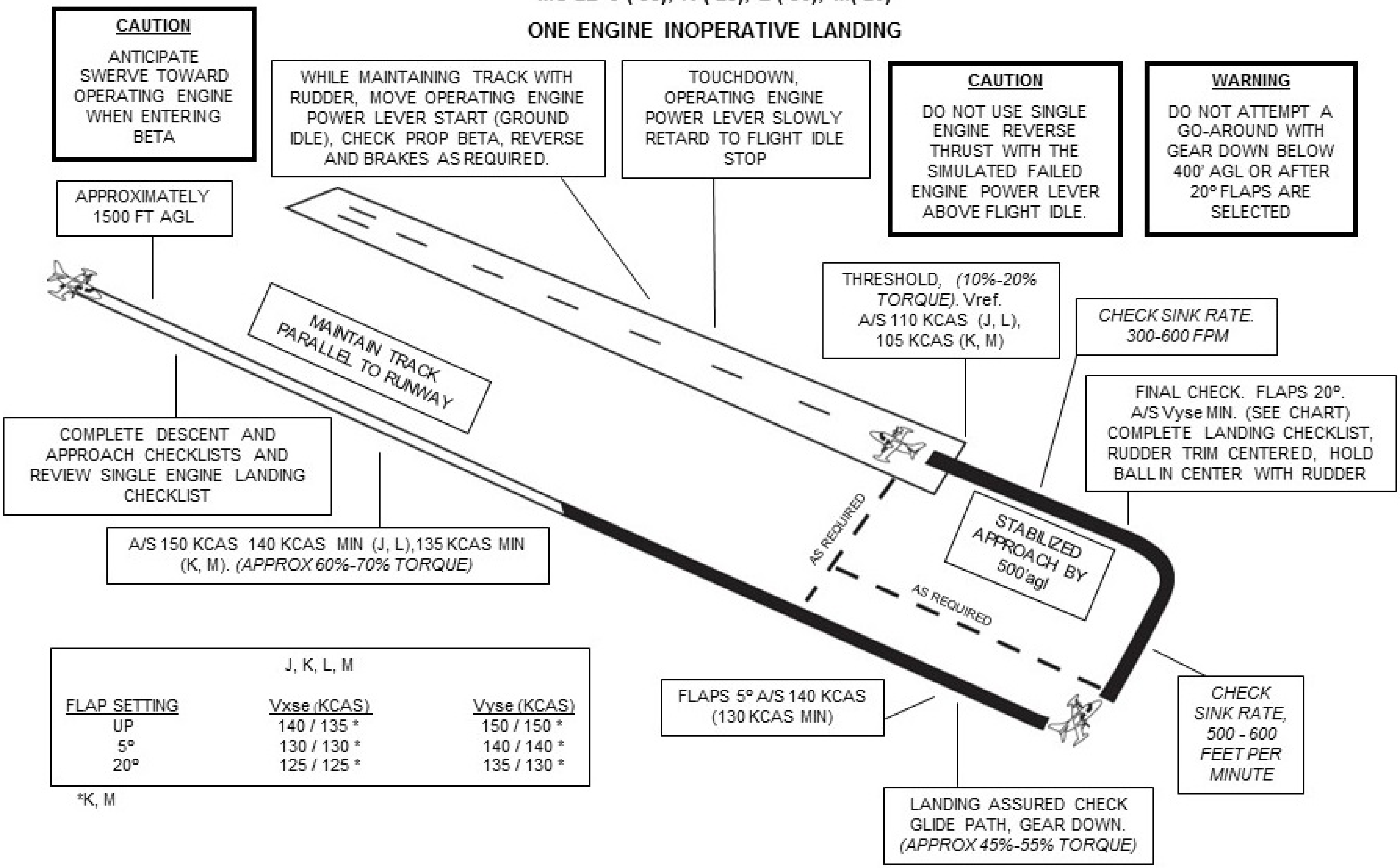
NO FLAP Vref 1.25 V_{S1} (BUT NOT BELOW 115 KCAS)
USE FOR FLAP UP OR 5°
J, K, L, M

	FLAPS UP				FLAPS 5°			
WEIGHT	J	K	L	M	J	K	L	M
7,500		115				115		
8.000	115	115		115	115	115		115
8.500	117	118		118	115	115		115
9.000	119	122	117	120	115	115	115	115
9,435		124				117		
9.500	123		120	124	115		115	117
9.955				127				119
10.000	125		123		118		115	
10.260	128							
10.500			127				118	
11,000			129				124	
11.025			129				124	

Figure B-19

MU-2B J (-35), K (-25), L (-36), M(-26)

ONE ENGINE INOPERATIVE LANDING



J, K, L, M

FLAP SETTING	Vxse (KCAS)	Vyse (KCAS)
UP	140 / 135 *	150 / 150 *
5°	130 / 130 *	140 / 140 *
20°	125 / 125 *	135 / 130 *

*K, M

Figure B-20

MU-2B J (-35), K (-25), L (-36), M(-26)

CROSSWIND LANDING

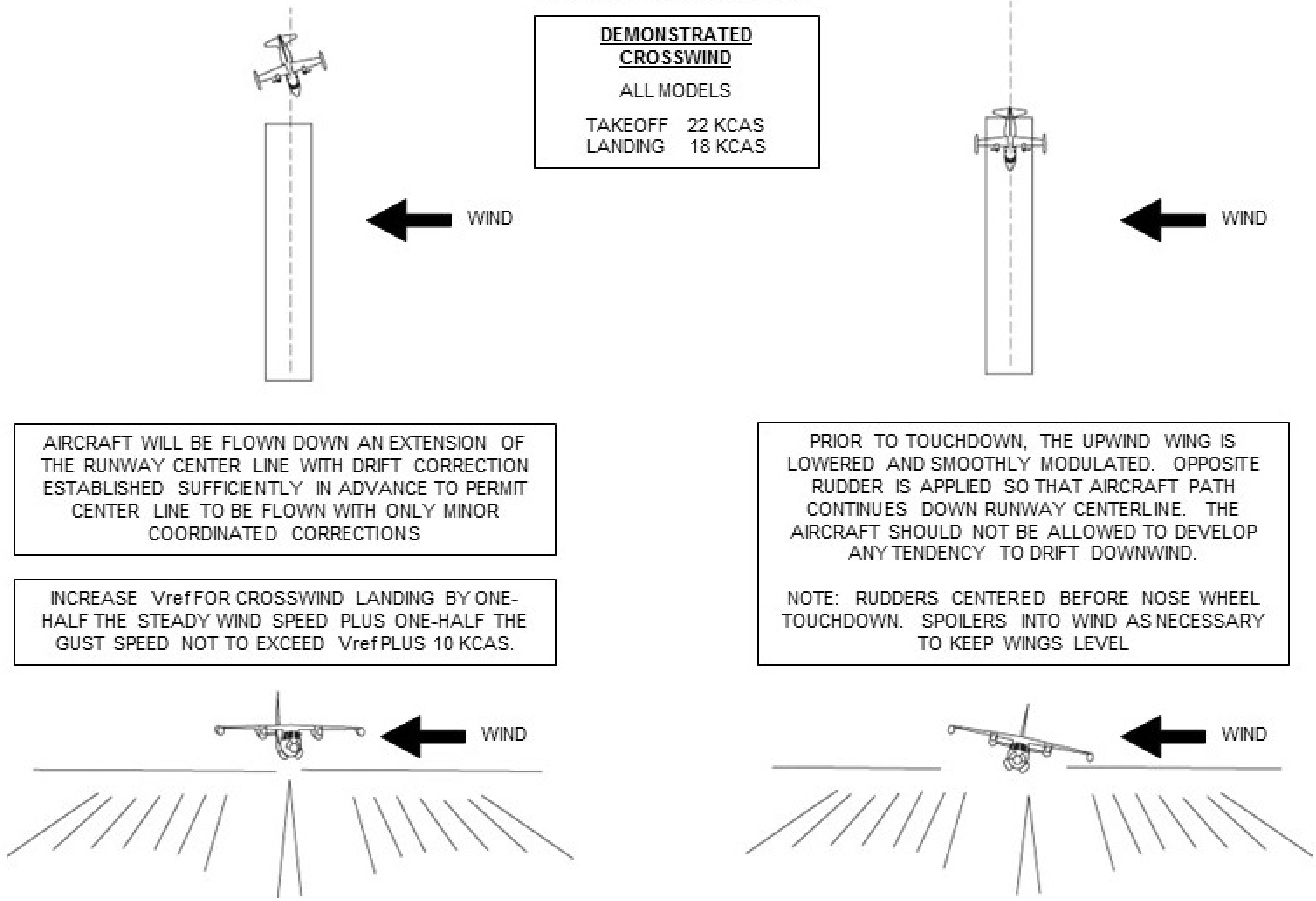
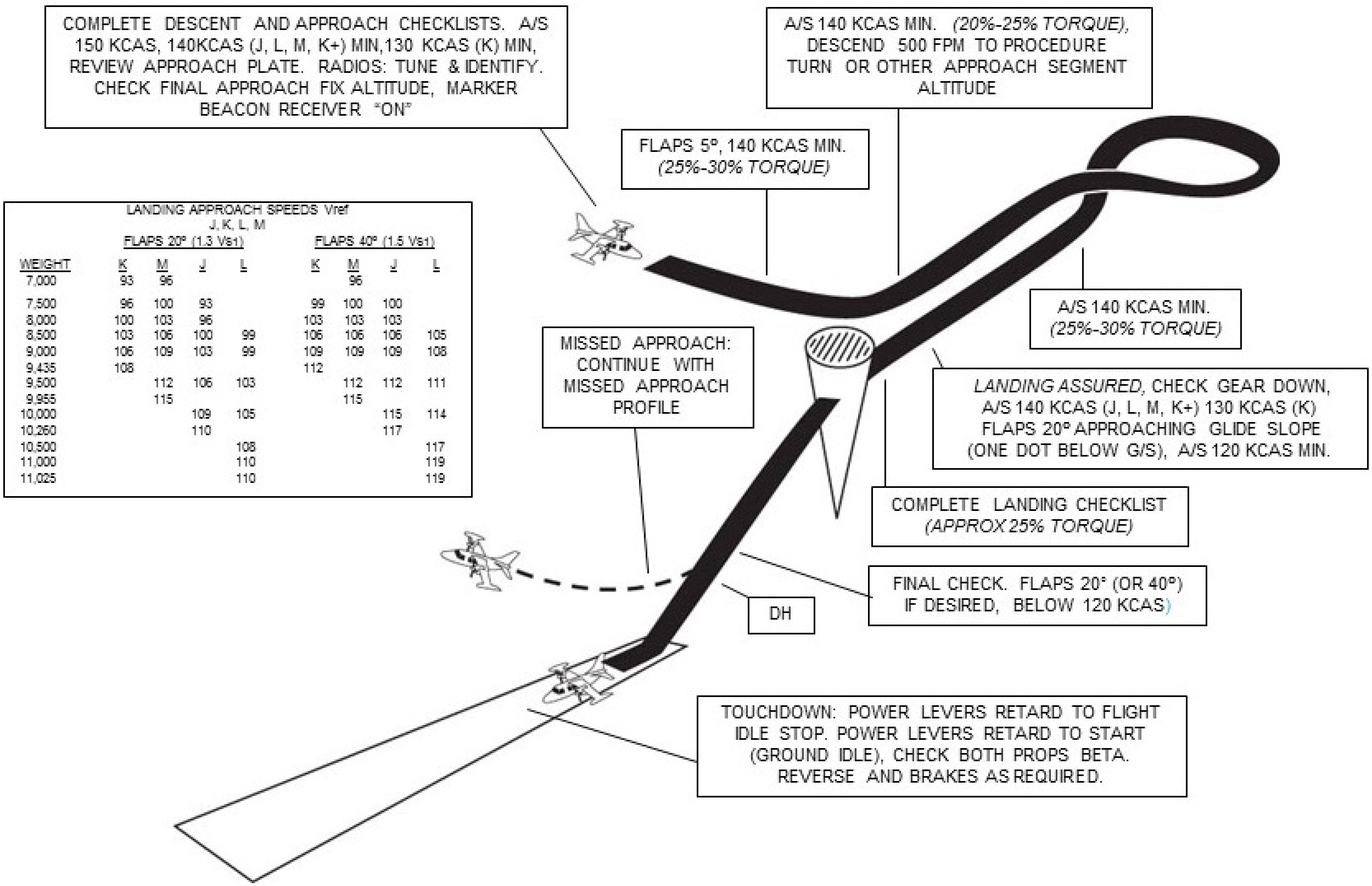


Figure B-21

MU-2B J (-35), K (-25), L (-36), M(-26)

ILS, LPV, RNP, LNAV/VNAV APPROACH



LANDING APPROACH SPEEDS Vref
J, K, L, M

WEIGHT	FLAPS 20º (1.3 Vs1) K	M	J	L	FLAPS 40º (1.5 Vs1) K	M	J	L
7,000	93	96				96		
7,500	96	100	93		99	100	100	
8,000	100	103	96		103	103	103	
8,500	103	106	100	99	106	106	106	105
9,000	106	109	103	99	109	109	109	108
9,435	108				112			
9,500		112	106	103		112	112	111
9,955		115				115		
10,000			109	105			115	114
10,260			110				117	
10,500				108				117
11,000				110				119
11,025				110				119

Figure B-22

MU-2B J (-35), K (-25), L (-36), M(-26)

TWO ENGINE MISSED APPROACH

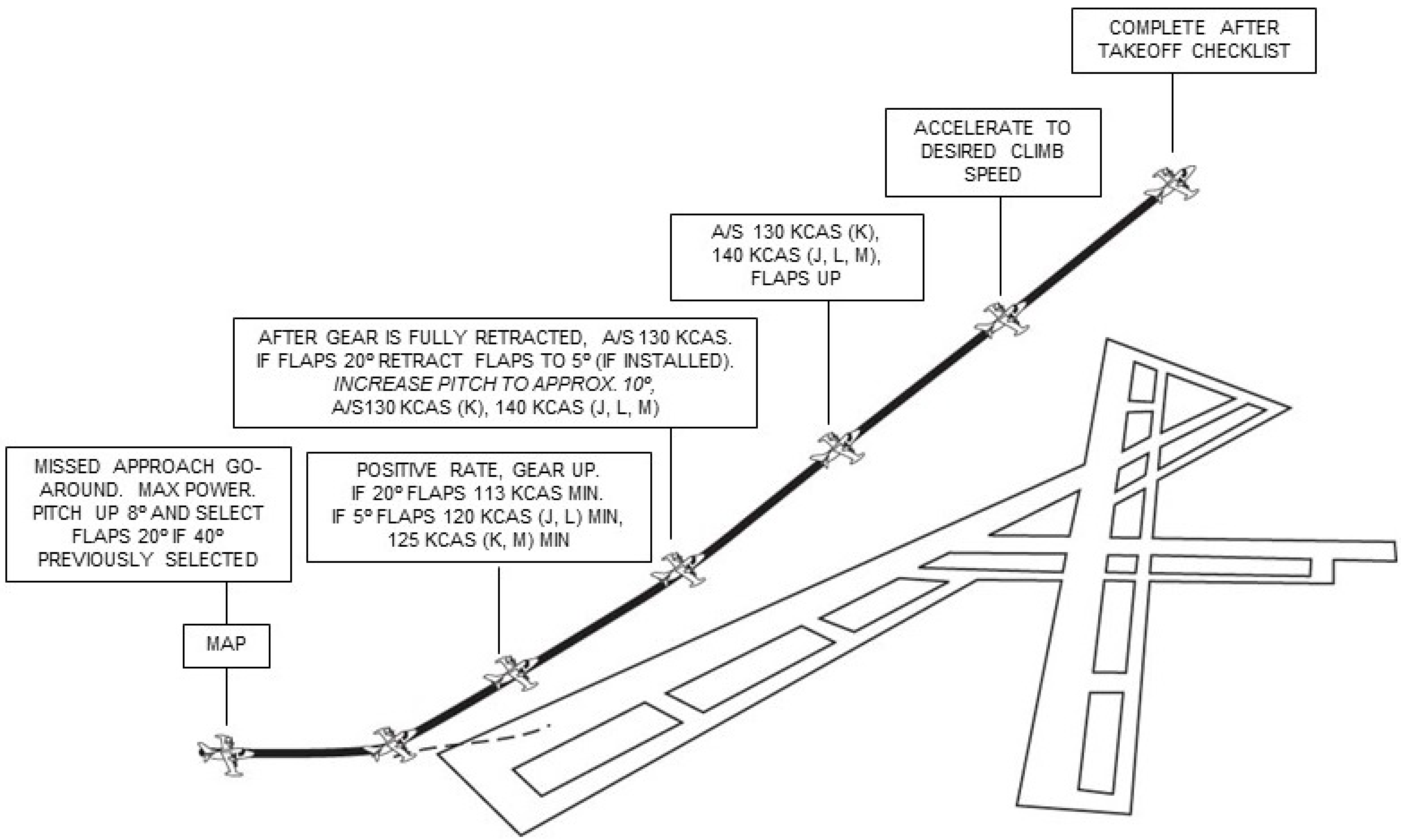


Figure B-23

MU-2B J (-35), K (-25), L (-36), M(-26)

ONE ENGINE INOPERATIVE ILS, LPV, RNP, LNAV/VNAV APPROACH

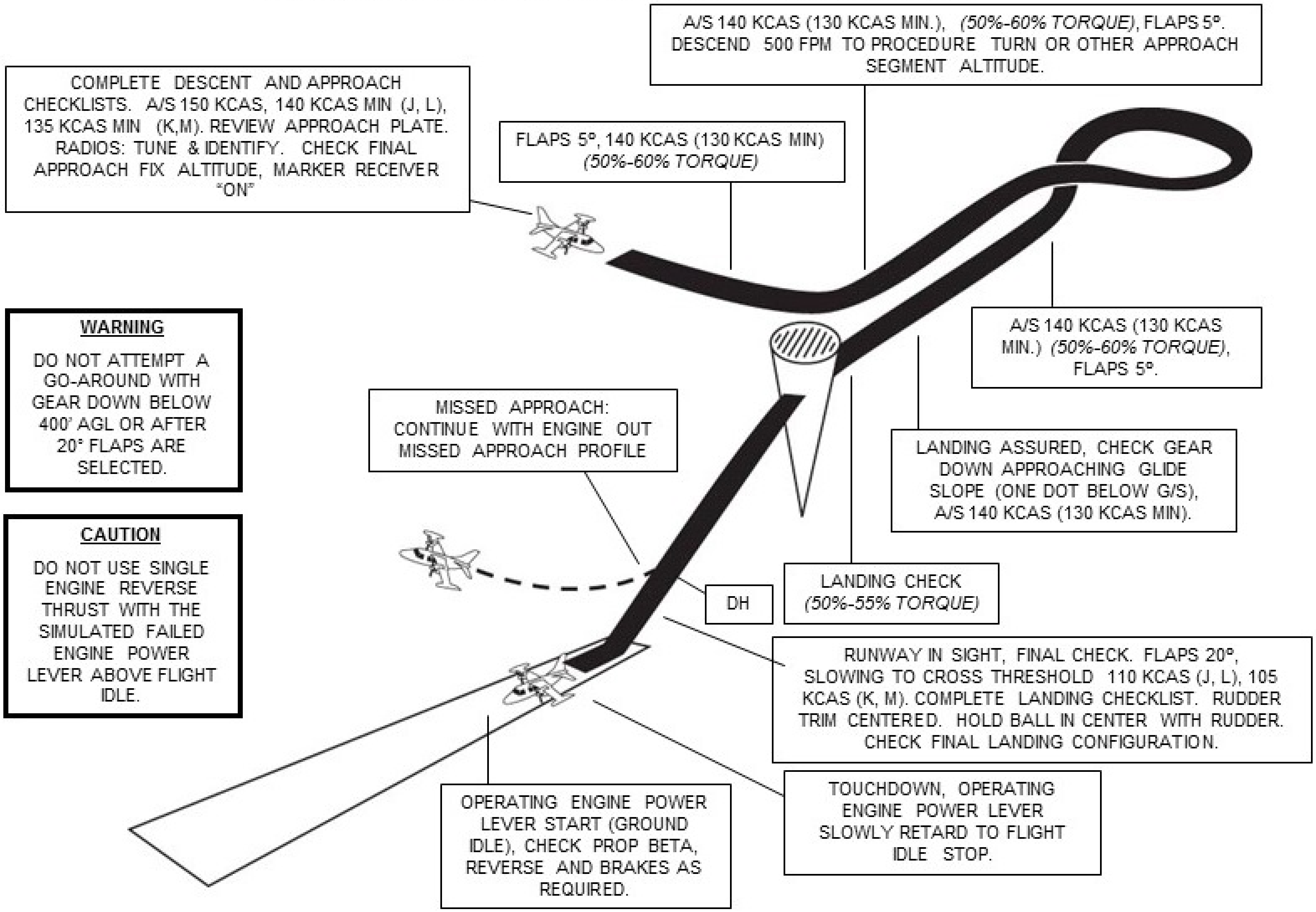
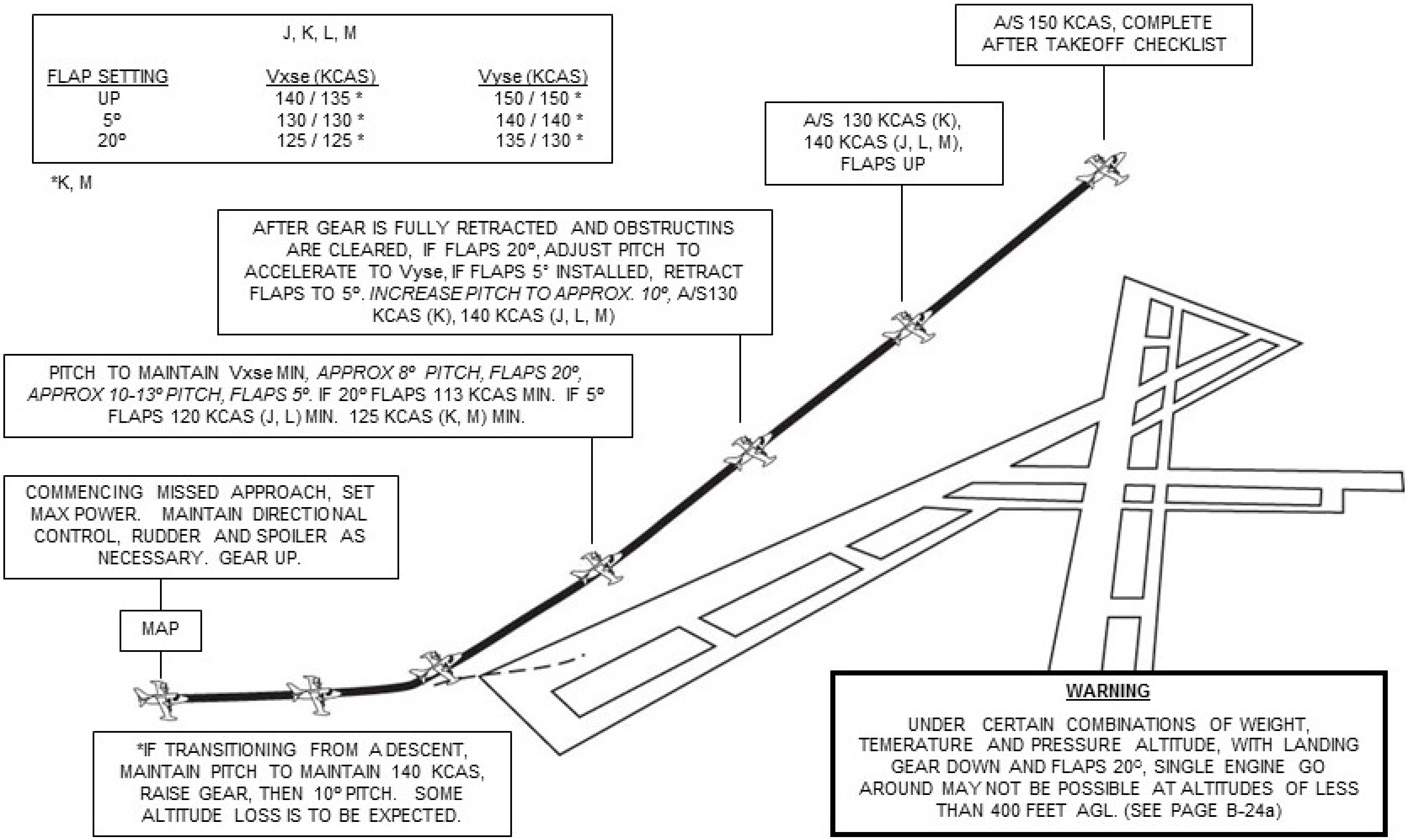


Figure B-24

MU-2B J (-35), K (-25), L (-36), M(-26)

ONE ENGINE INOPERATIVE MISSED APPROACH



NOTE

EITHER THIS PROCEDURE, OR ALTERNATELY PROFILE B-25a MUST BE DEMONSTRATED.

Figure B-25

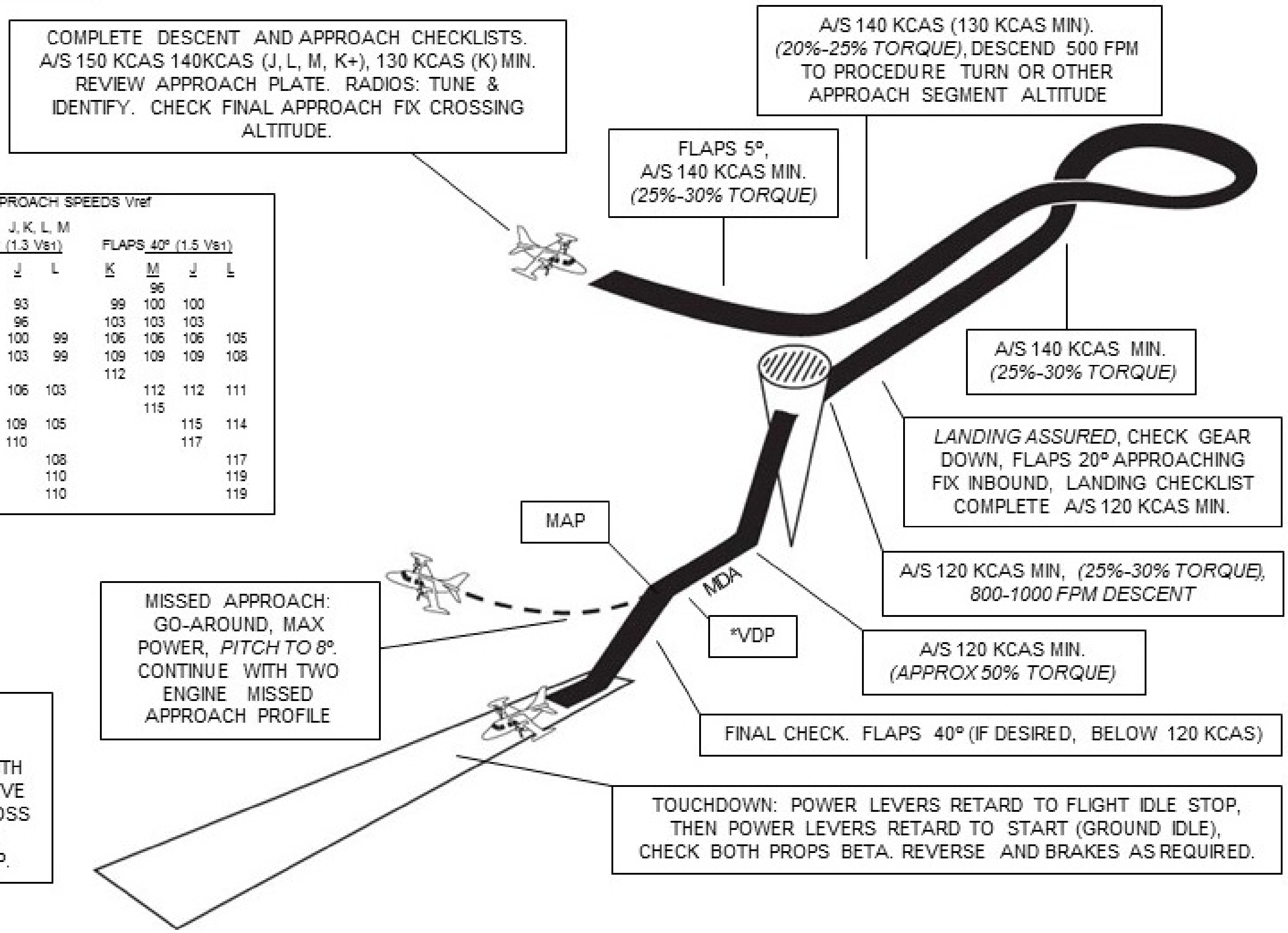
MU-2B J (-35), K (-25), L (-36), M(-26)

NONPRECISION STRAIGHT-IN APPROACH

LANDING APPROACH SPEEDS Vref

J, K, L, M

WEIGHT	FLAPS 20° (1.3 Vs1) K	FLAPS 20° (1.3 Vs1) M	FLAPS 20° (1.3 Vs1) J	FLAPS 20° (1.3 Vs1) L	FLAPS 40° (1.5 Vs1) K	FLAPS 40° (1.5 Vs1) M	FLAPS 40° (1.5 Vs1) J	FLAPS 40° (1.5 Vs1) L
7,000	93	96				96		
7,500	96	100	93		99	100	100	
8,000	100	103	96		103	103	103	
8,500	103	106	100	99	106	106	106	105
9,000	106	109	103	99	109	109	109	108
9,435	108				112			
9,500		112	106	103		112	112	111
9,955		115				115		
10,000			109	105			115	114
10,260			110				117	
10,500				108				117
11,000				110				119
11,025				110				119



*VDP

AN APPROACH CONSTRUCTED WITH A VDP SHOULD HAVE THE AIRCRAFT CROSS THE MDA AT OR BEYOND THE VDP.

Figure B-25a

MU-2B J (-35), K (-25), L (-36), M(-26)

NONPRECISION STRAIGHT-IN APPROACH
****OPTIONAL USE OF CONTINUOUS DESCENT FINAL APPROACH (CDFA)**

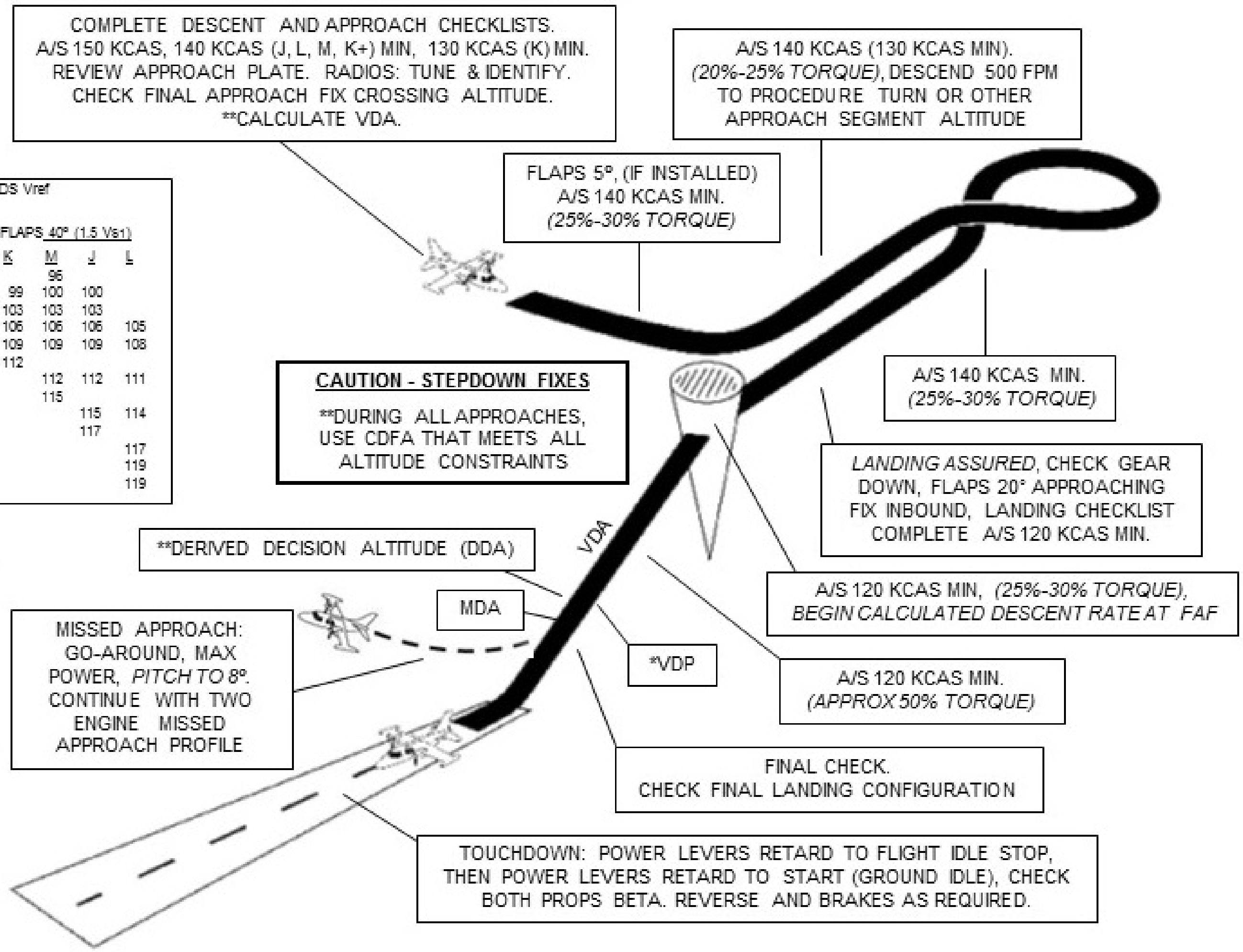
NOTE

EITHER THIS PROCEDURE, OR ALTERNATELY PROFILE B-25 MUST BE DEMONSTRATED.

LANDING APPROACH SPEEDS Vref

J, K, L, M

WEIGHT	FLAPS 20° (1.3 Vs1) K	M	J	L	FLAPS 40° (1.5 Vs1) K	M	J	L
7,000	93	96				96		
7,500	96	100	93		99	100	100	
8,000	100	103	96		103	103	103	
8,500	103	106	100	99	106	106	106	105
9,000	106	109	103	99	109	109	109	108
9,435	108				112			
9,500		112	106	103		112	112	111
9,955		115				115		
10,000			109	105			115	114
10,260			110				117	
10,500				108				117
11,000				110				119
11,025				110				119



****CAUTION**

WHEN USING CDFA METHOD, MISSED APPROACH MUST BE EXECUTED UPON REACHING DDA. **DESCENT BELOW MDA DURING MISSED APPROACH NOT AUTHORIZED**

*VDP
VISUAL DESCENT POINT

AN APPROACH CONSTRUCTED WITH A VDP SHOULD HAVE THE AIRCRAFT CROSS THE MDA AT OR BEYOND THE VDP.

Figure B-26

MU-2B J (-35), K (-25), L (-36), M(-26)

ONE ENGINE INOPERATIVE STRAIGHT-IN NONPRECISION APPROACH

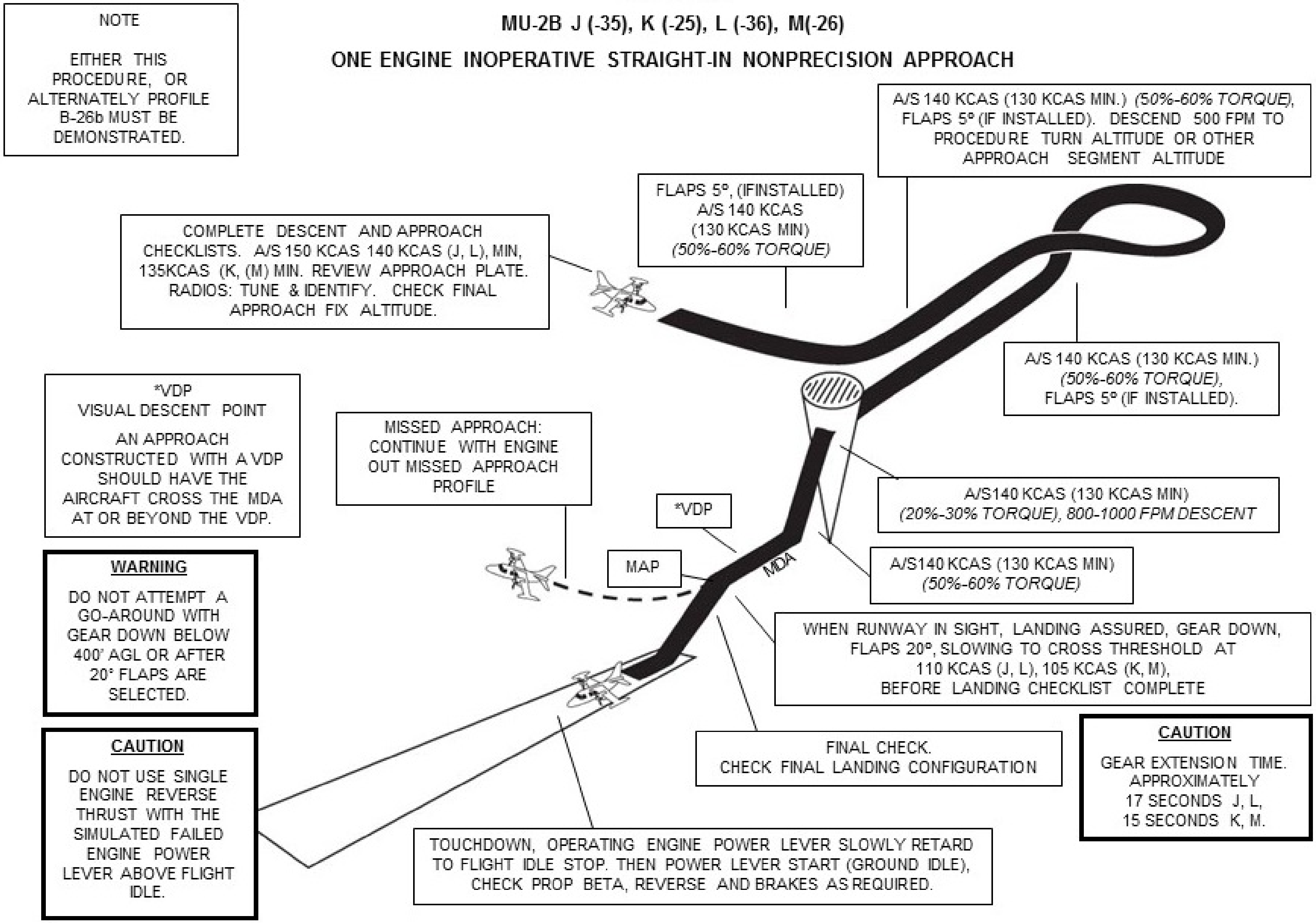


Figure B-26a

LANDING APPROACH SPEEDS Vref

J, K, L, M

WEIGHT	FLAPS 20° (1.3 Vs1) K	FLAPS 20° (1.3 Vs1) M	FLAPS 20° (1.3 Vs1) J	FLAPS 20° (1.3 Vs1) L	FLAPS 40° (1.5 Vs1) K	FLAPS 40° (1.5 Vs1) M	FLAPS 40° (1.5 Vs1) J	FLAPS 40° (1.5 Vs1) L
7,000	93	96				96		
7,500	96	100	93		99	100	100	
8,000	100	103	96		103	103	103	
8,500	103	106	100	99	106	106	106	105
9,000	106	109	103	99	109	109	109	108
9,435	108				112			
9,500		112	106	103		112	112	111
9,955		115				115		
10,000			109	105			115	114
10,260			110				117	
10,500				108				117
11,000				110				119
11,025				110				119

Figure B-26b

MU-2B J (-35), K (-25), L (-36), M(-26)

ONE ENGINE INOPERATIVE STRAIGHT-IN NONPRECISION APPROACH
****OPTIONAL USE OF CONTINUOUS DESCENT FINAL APPROACH (CDFA)**

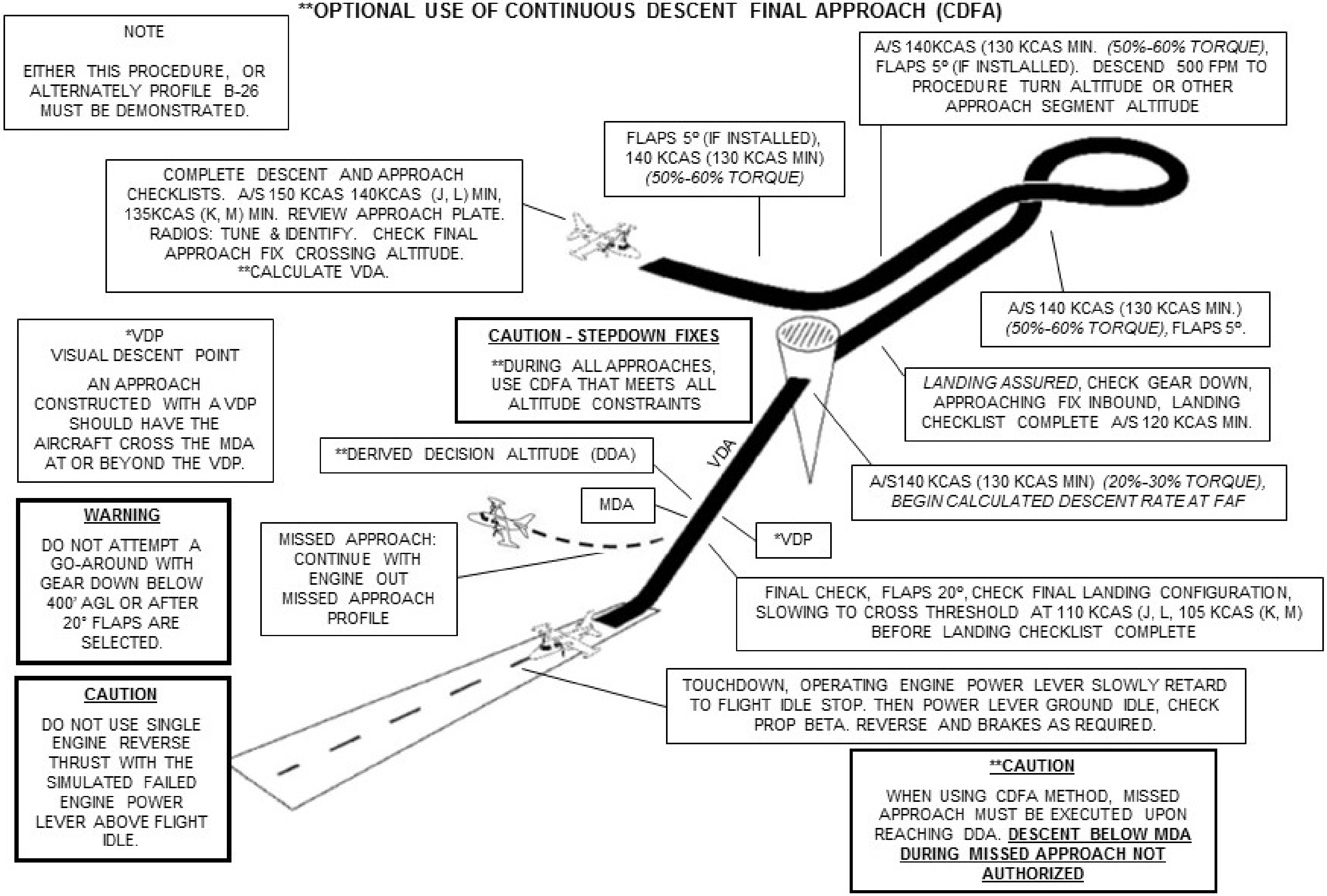
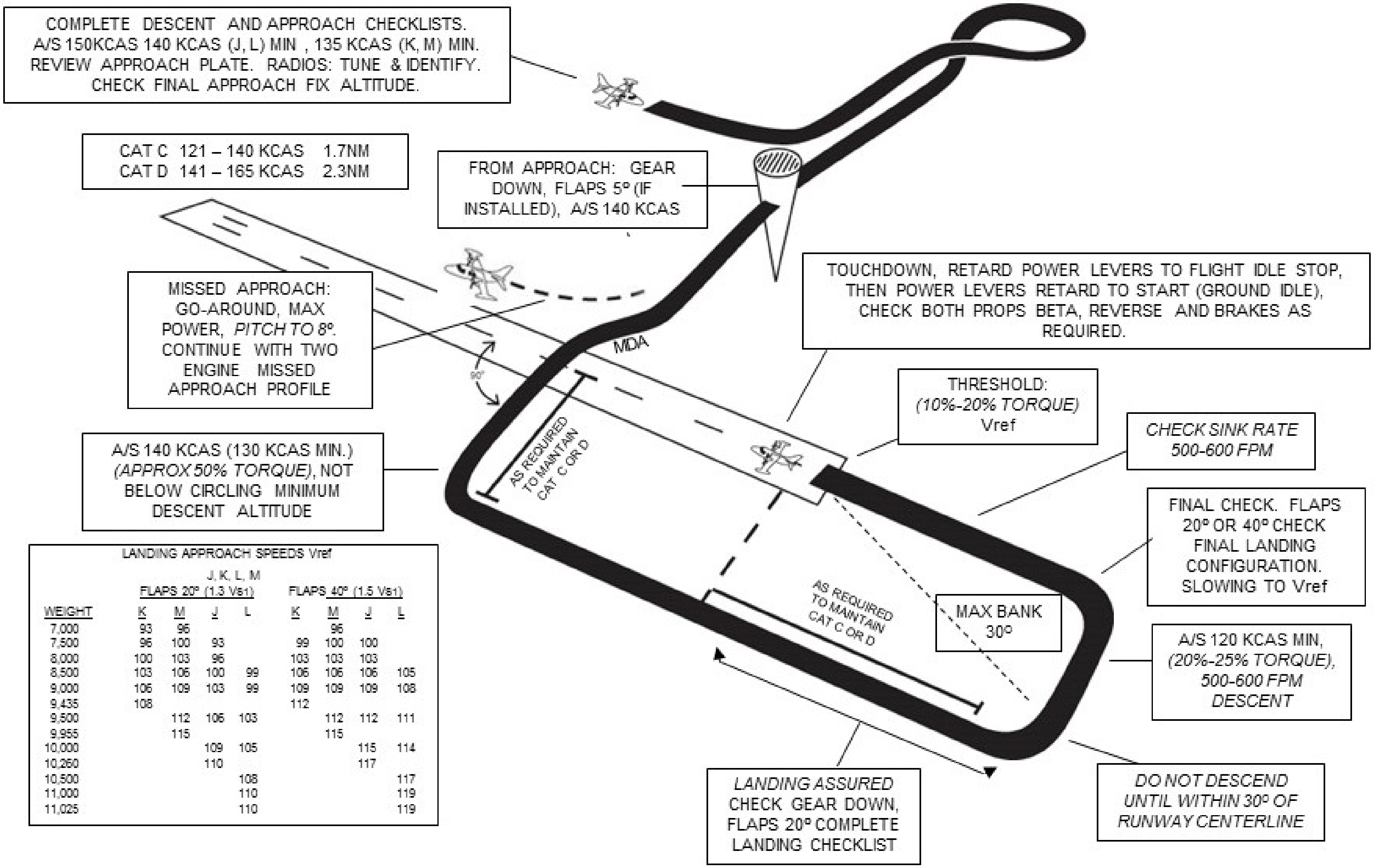


Figure B-27

MU-2B J (-35), K (-25), L (-36), M(-26)

CIRCLING APPROACH AT WEATHER MINIMUMS



LANDING APPROACH SPEEDS Vref

	J, K, L, M							
	FLAPS 20º (1.3 Vs1)				FLAPS 40º (1.5 Vs1)			
WEIGHT	K	M	J	L	K	M	J	L
7,000	93	96				96		
7,500	96	100	93		99	100	100	
8,000	100	103	96		103	103	103	
8,500	103	106	100	99	106	106	106	105
9,000	106	109	103	99	109	109	109	108
9,435	108				112			
9,500		112	106	103		112	112	111
9,955		115				115		
10,000			109	105			115	114
10,260			110				117	
10,500				108				117
11,000				110				119
11,025				110				119

Figure B-28

MU-2B J (-35), K (-25), L (-36), M(-26)

ONE ENGINE INOPERATIVE CIRCLING APPROACH AT WEATHER MINIMUMS

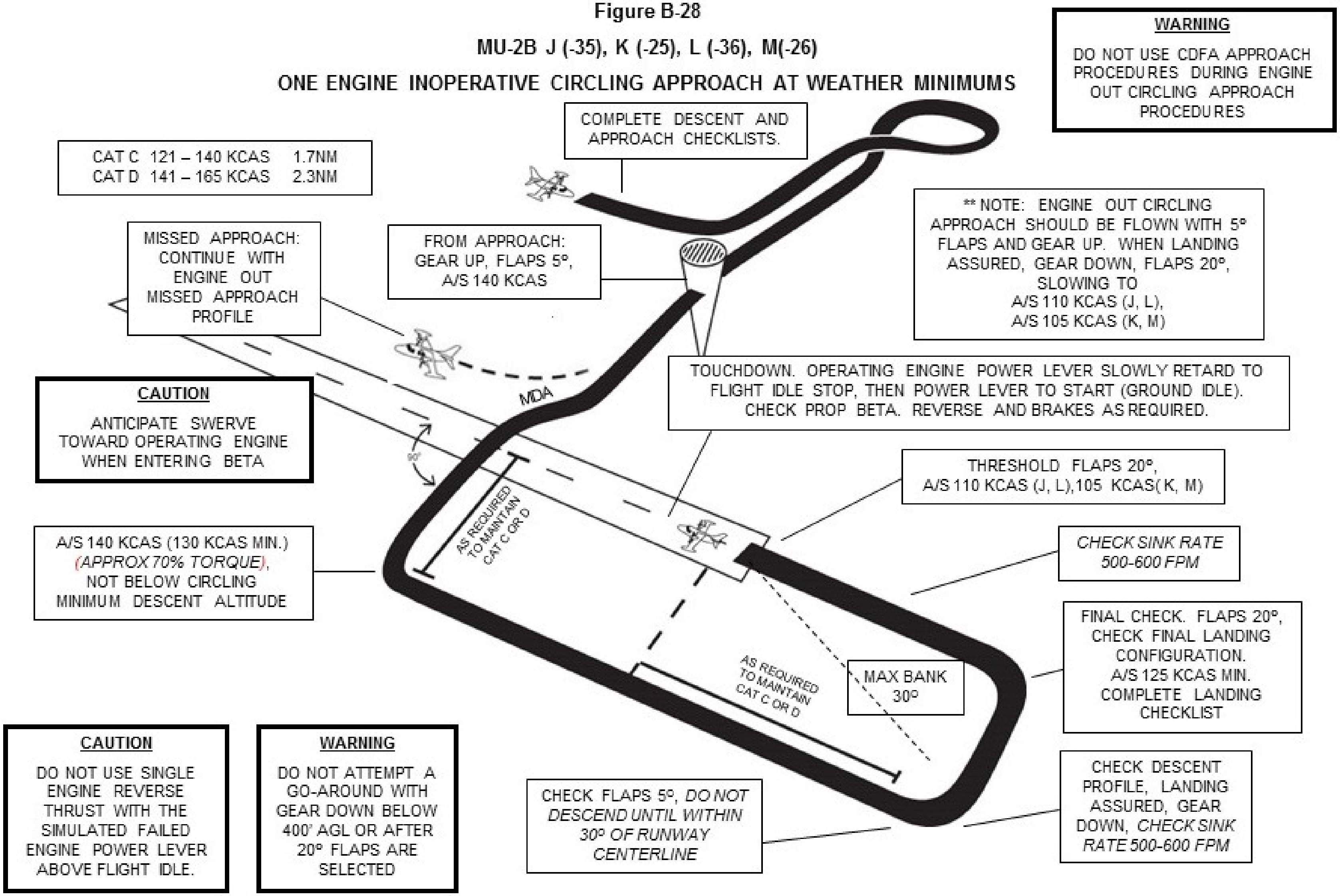


Figure C-1

MU-2B B, D (-10), F (-20), G (-30)

NORMAL TAKE-OFF, 5º OR 20º FLAPS

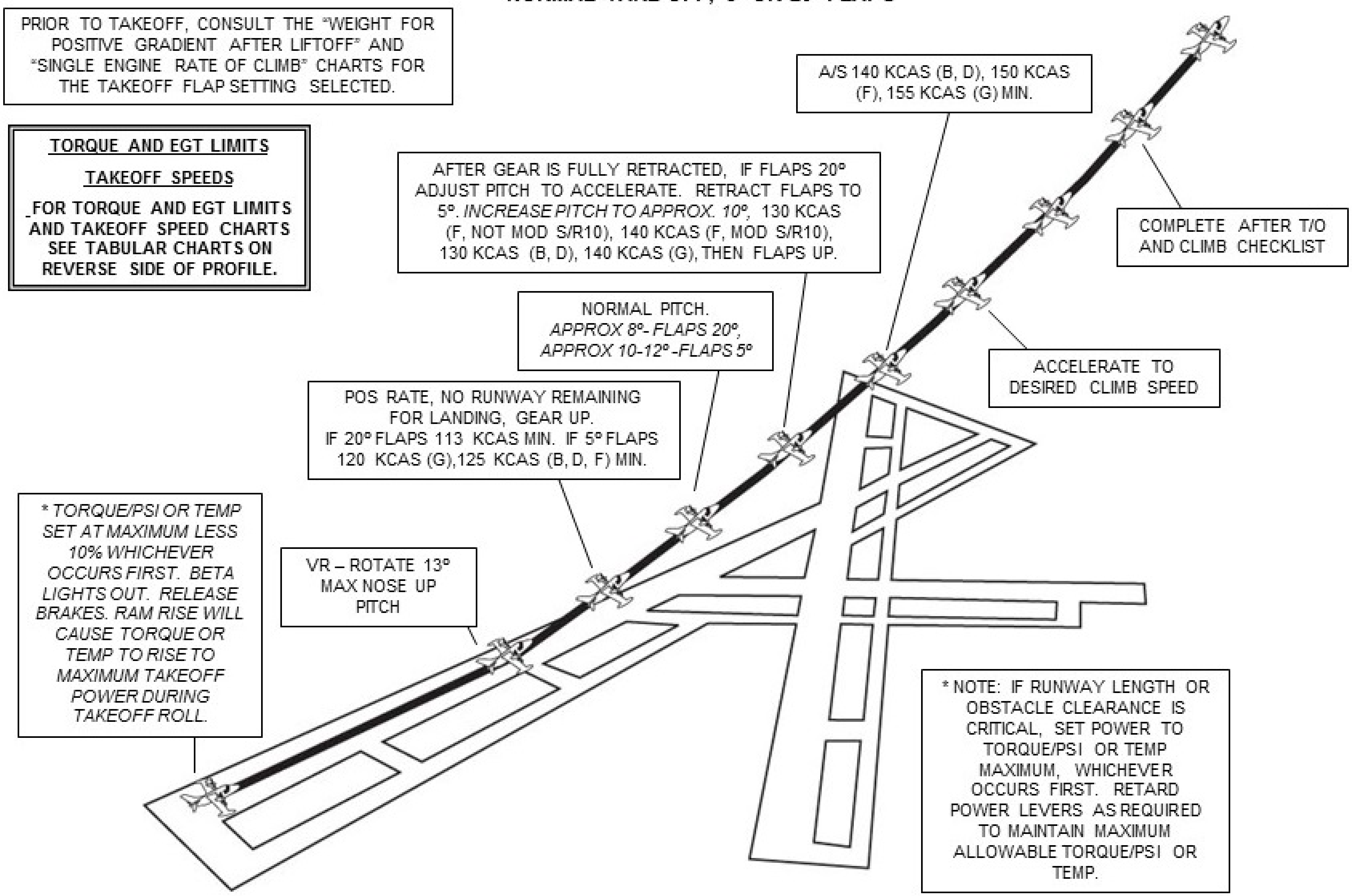


Figure C-1a

TORQUE LIMITS	
B, D	64 PSI
F, G	60 PSI (STATIC)
	64 PSI (RAM CONDITIONS 5 MINUTES)

EGT LIMITS DEPEND ON OUTSIDE AIR TEMPERATURE, CHECK EGT LIMITS PRIOR TO DEPARTURE.

TAKE OFF SPEEDS
ROTATE

FLAPS 5°	B	B+	D	F	G
10,800 LBS					109
10,000 LBS					105
9,920 LBS				108	
9,500 LBS				107	103
9,350 LBS		111	111		
9,000 LBS		110	110	106	101
8,930 LBS	109				
8,000 LBS	107	107	107	104	100
7,500 LBS	106	106	106	102	
7,000 LBS	104	104	104		

FLAPS 20°	B	B+	D	F	G
10,800 LBS					105
10,000 LBS					102
9,920 LBS				102	
9,500 LBS				101	101
9,350 LBS		104	104		
9,000 LBS		103	103	100	100
8,930 LBS	103				
8,000 LBS	101	101	101	99	100
7,500 LBS	100	100	100	98	
7,000 LBS	99	99	99		

B: NOT MODIFIED BY S/B 036 AND S/B 092
B+: MODIFIED BY S/B 036 AND S/B 092

Figure C-2

MU-2B B, D (-10), F (-20), G (-30)

TAKE-OFF ENGINE FAILURE – FLAPS 5º OR 20º

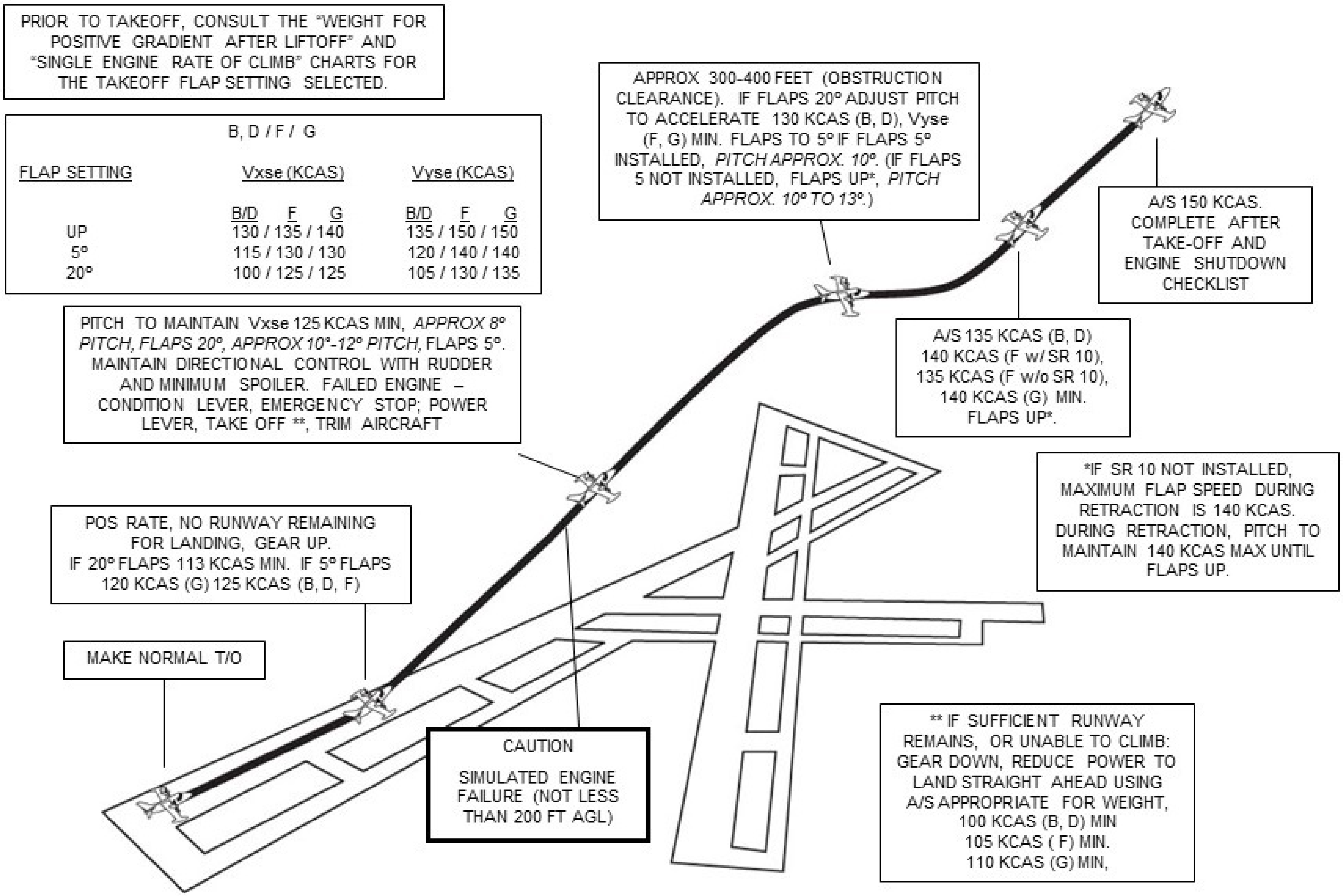


Figure C-3

MU-2B B, D (-10), F (-20), G (-30)

TAKE-OFF ENGINE FAILURE ON RUNWAY

CAUTION

SIMULATED ENGINE FAILURE OR MALFUNCTION IS TO BE GIVEN BY INSTRUCTOR AT NOT MORE THAN 50% OF ROTATE SPEEDS.

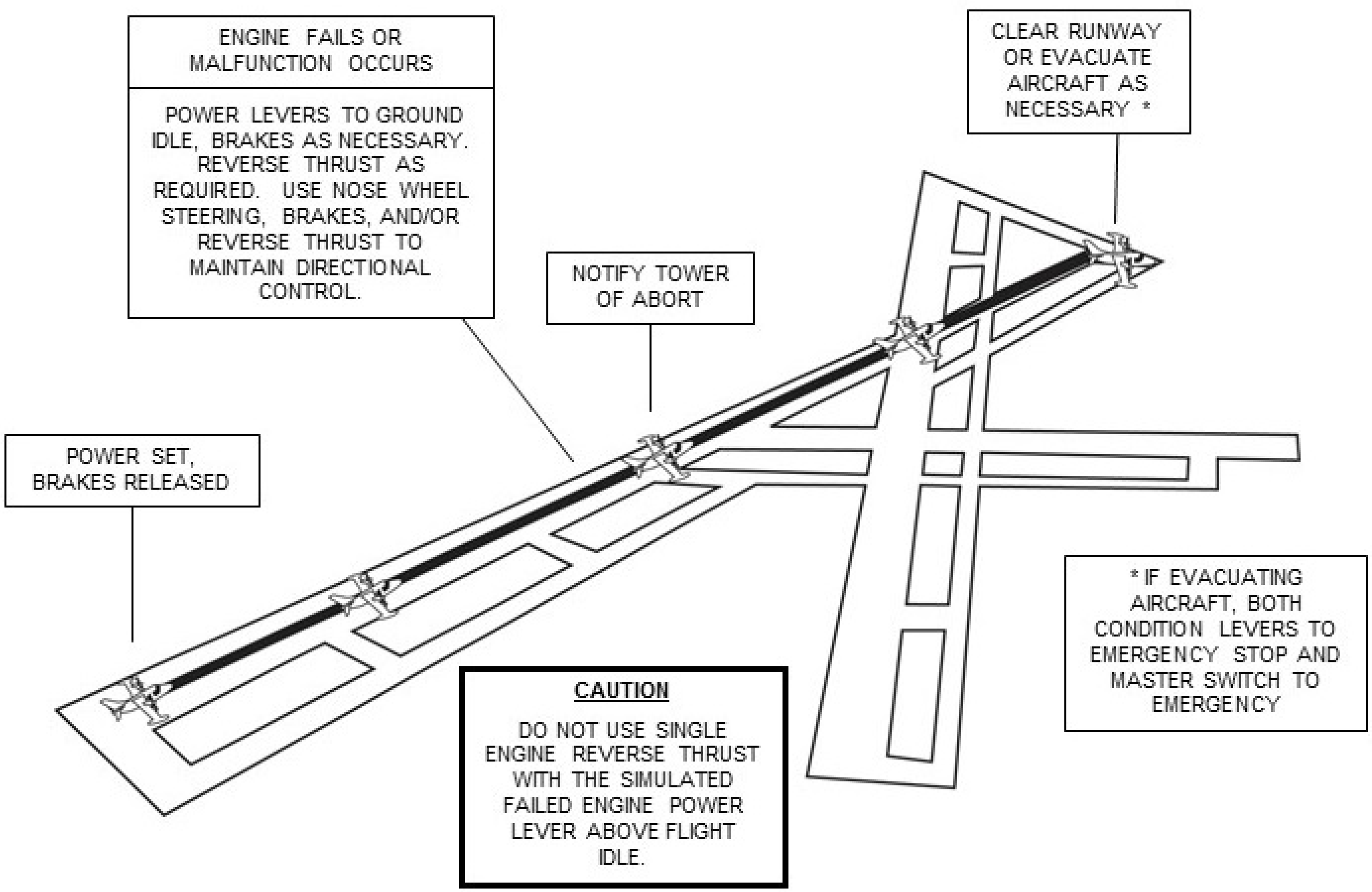


Figure C-4

MU-2B B, D (-10), F (-20), G (-30)

TAKE-OFF ENGINE FAILURE - UNABLE TO CLIMB

CLASSROOM DISCUSSION OR FTD USE ONLY

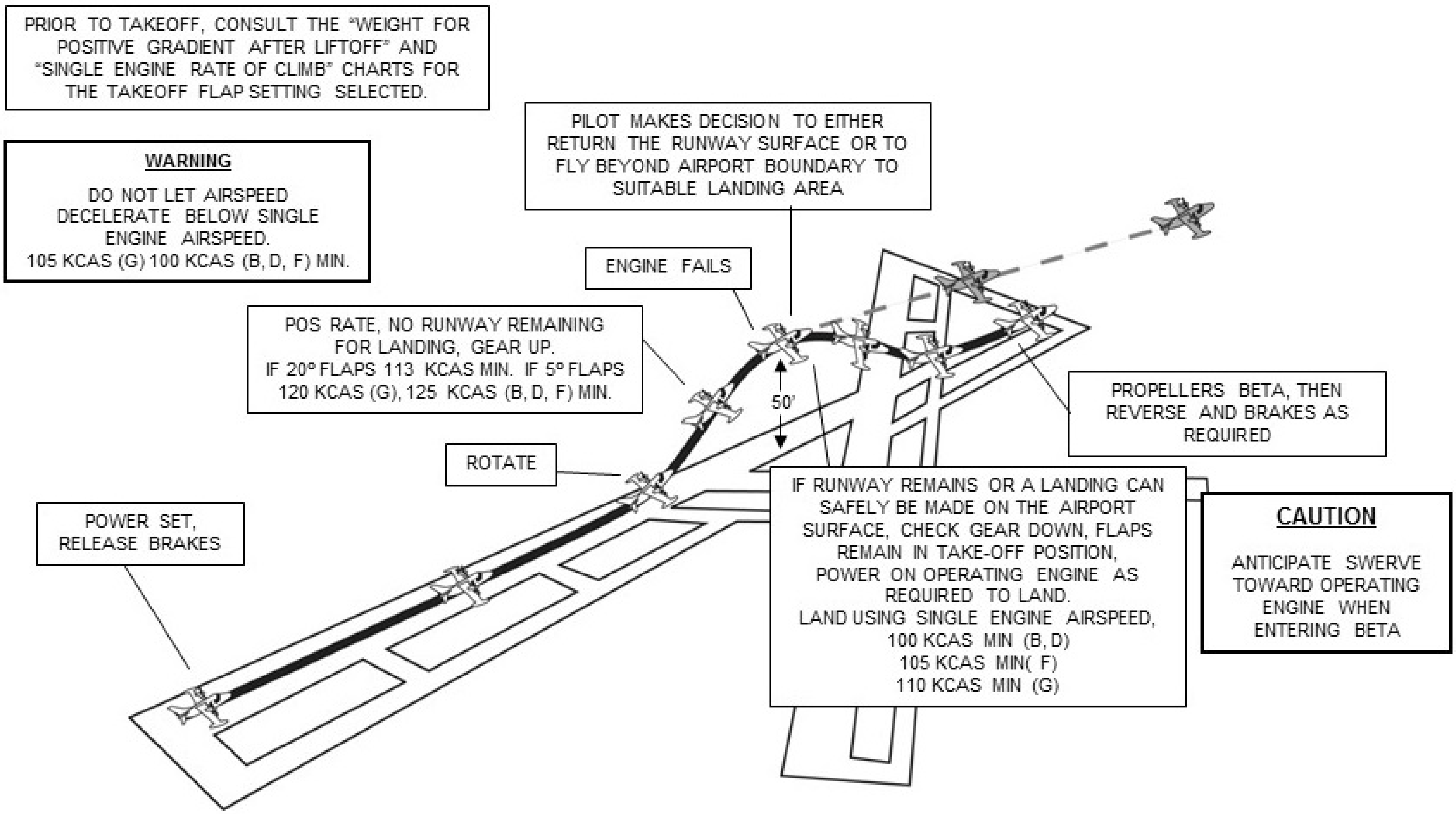


Figure C-5

MU-2B B, D (-10), F (-20), G (-30)

STEEP TURNS

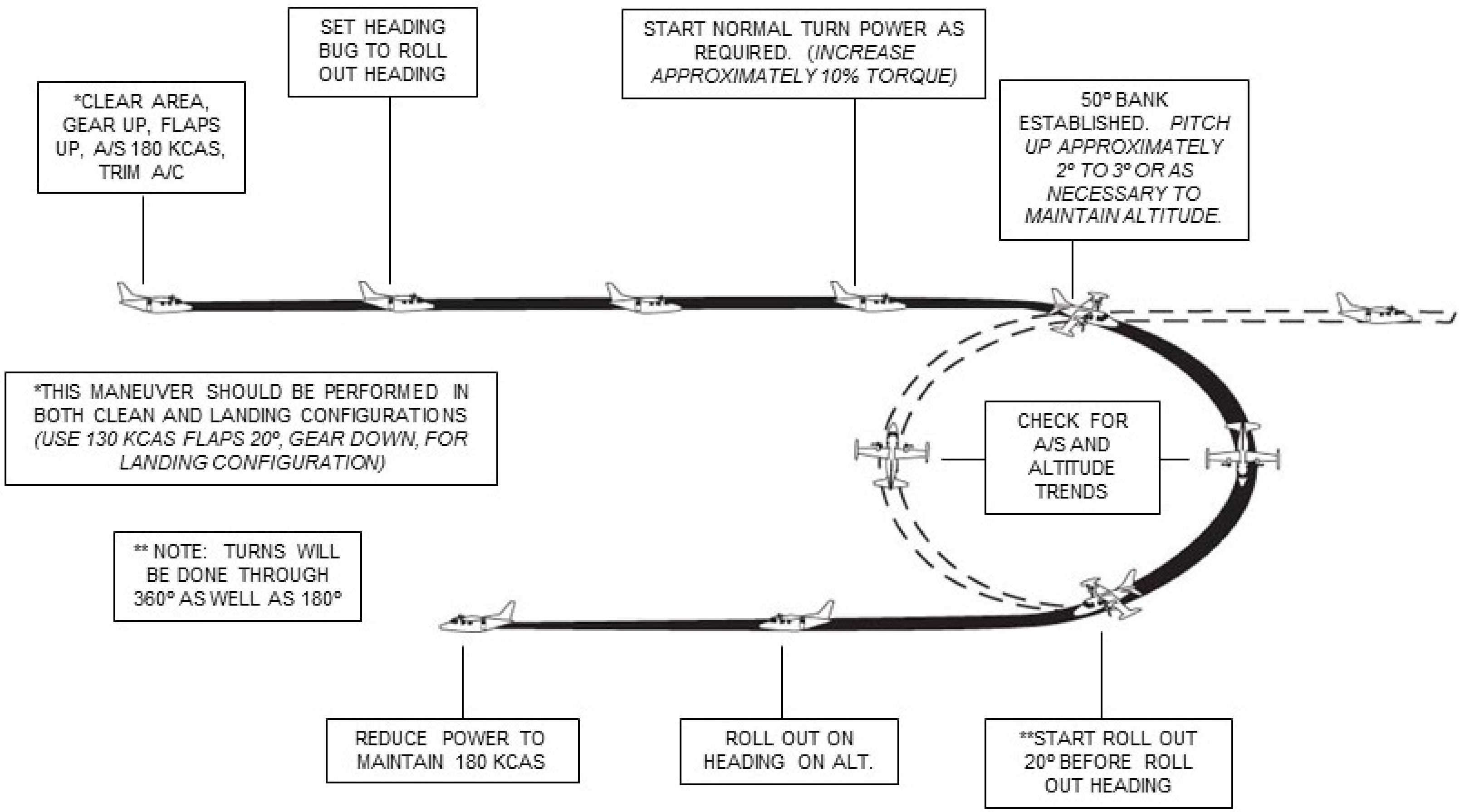


Figure C-6

MU-2B B, D (-10), F (-20), G (-30)

SLOW FLIGHT MANEUVERING

MINIMUM CONTROLLABLE AIRSPEED

SLOW FLIGHT MANEUVERING IS CONDUCTED AS FOLLOWS:

CLEAR THE AREA PRIOR TO BEGINNING THE MANEUVER.

START WITH CLEAN CONFIGURATION AND CHANGE AIRCRAFT CONFIGURATION FROM CLEAN TO FULL FLAP AND GEAR IN STAGES. USE A MAXIMUM OF 15° BANK AND PERFORM HEADING CHANGES OF 90° LEFT AND RIGHT. CONSTANT ALTITUDE IS REQUIRED THROUGHOUT.
MAINTAIN 115 KCAS IN ALL CONFIGURATIONS.

**APPROXIMATE POWER SETTINGS ARE:

CLEAN	*TORQUE (35%) OR PSI (23) PER ENGINE*	*APPROX PITCH +12*
5° FLAP	*TORQUE (32%) OR PSI (21) PER ENGINE*	*APPROX PITCH +8*
5° FLAP & GEAR	*TORQUE (44%) OR PSI (29) PER ENGINE*	*APPROX PITCH +9*
20° FLAP & GEAR	*TORQUE (42%) OR PSI (27) PER ENGINE*	*APPROX PITCH +4*
40° FLAP & GEAR	*TORQUE (54%) OR PSI (35) PER ENGINE*	*APPROX PITCH 0*

** NOTE: POWER SETTINGS WILL VARY WITH AIRCRAFT WEIGHT AND ALTITUDE.

STALL SPEEDS (APPROXIMATE)
AT MAXIMUM GROSS TAKEOFF WEIGHT
B, B+, D, F, G

ANGLE OF BANK	B/ B+ / D / F / G 0°	B / B+ / D / F / G 15°
FLAPS		
UP	95/ 98 / 98/ 102/104	98/ 99/ 99/ 103/107
5°	85/ 88/ 88/ 95/ 98	88/ 89/ 89/ 97/100
20°	80/ 81/ 81/ 85/ 86	81/ 83/ 83/ 87/ 88
40°	72/ 73/ 73/ 77/ 80	73/ 74/ 74/ 78/ 81

Vmc: 20° FLAPS (90 KCAS (G), 93 KCAS (F), 89 KCAS (D), 89/91 KCAS (B)
5° FLAPS (99 KCAS (G), 100 KCAS (F), 97 KCAS (D), 97/99 KCAS B)
(FOR B MODEL Vmc SPEED CONSULT SERIAL NUMBER APPLICABILITY IN AFM)

CAUTION

STALL WARNING MAY ACTIVATE
4 TO 9 KCAS ABOVE STALL

MINIMUM CONTROLLABLE AIRSPEED IS CONDUCTED AS FOLLOWS:

CLEAR THE AREA PRIOR TO BEGINNING THE MANEUVER.

THE MANEUVER MAY BE DONE IN ANY COMBINATION OF GEAR OR FLAP CONFIGURATIONS. IF BANK IS TO BE USED, IT SHOULD BE DONE AT BANK OF NOT MORE THAN 10°. BEGIN THE MANEUVER BY CONFIGURING THE AIRCRAFT IN THE DESIRED GEAR AND FLAP CONFIGURATION. SLOW THE AIRCRAFT UNTIL THE STALL WARNING (STICK SHAKER) IS ACTIVATED AND ADD POWER TO MAINTAIN ALTITUDE AND A SPEED JUST ABOVE AERODYNAMIC STALL. DO NOT ALLOW THE AIRCRAFT TO REACH AERODYNAMIC STALL "ONSET" BUFFET.

Figure C-7

MU-2B B, D (-10), F (-20), G (-30)

ONE ENGINE INOPERATIVE MANEUVERING
LOSS OF DIRECTIONAL CONTROL

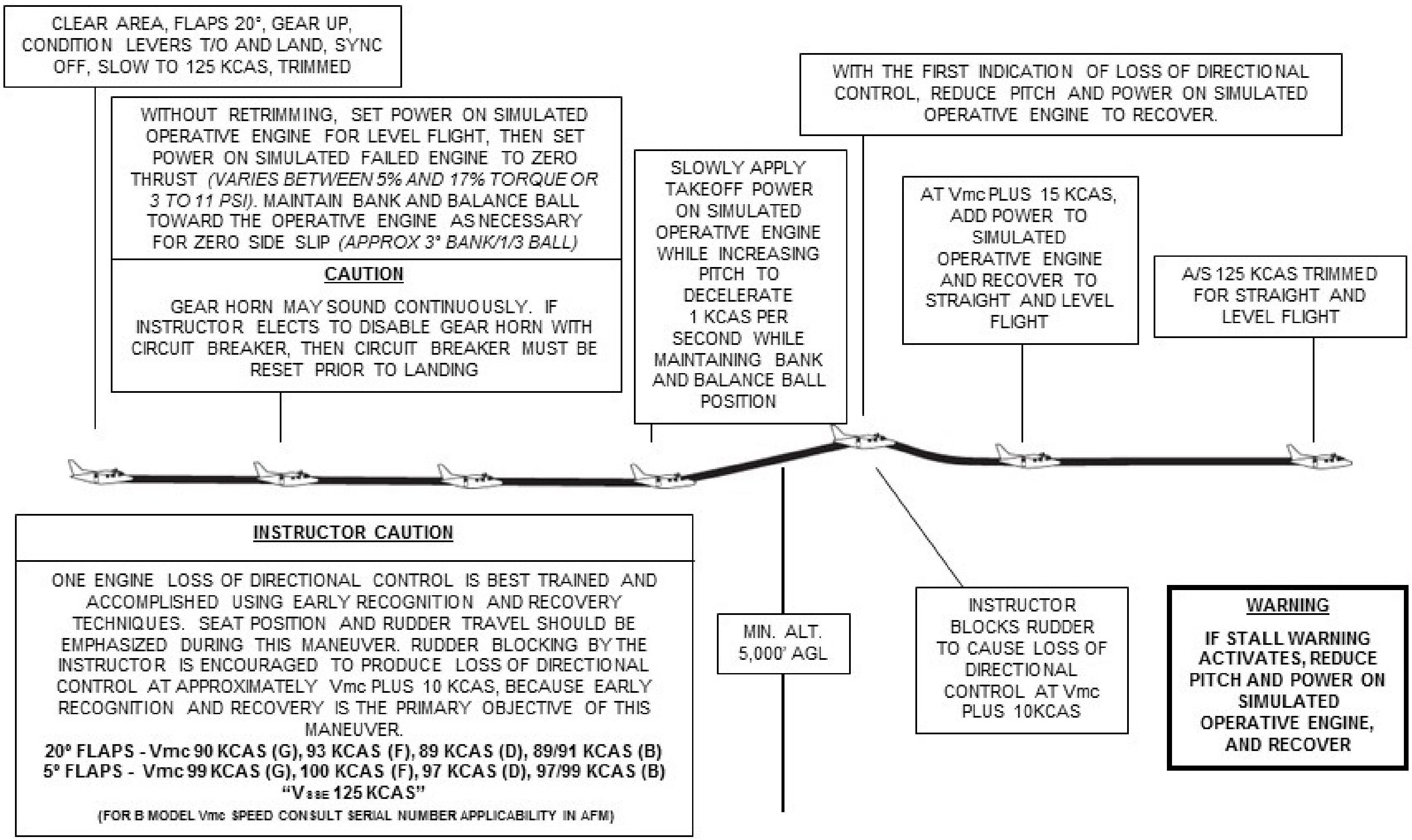


Figure C-8

MU-2B B, D (-10), F (-20), G (-30)

APPROACH TO STALL CLEAN CONFIGURATION / WINGS LEVEL

CLEAR AREA, CONDITION LEVERS T/O AND LAND, SYNC OFF, 120/130 KCAS, AIRCRAFT TRIMMED

* OPTIONAL AUTOPILOT ON FOR AIRCRAFT WITHOUT AUTOMATIC AUTOPILOT DISCONNECT.

(20% TORQUE OR 10 PSI)

MAINTAIN LEVEL FLIGHT
TRIM FOR 120 KCAS

CONTINUE TO APPLY AFT CONTROL, WHILE MAINTAINING ALTITUDE UNTIL FIRST INDICATION OF A STALL..

* OR ALLOW AUTOPILOT TO CONTINUE TO TRIM NOSE UP WHILE MAINTAINING ALTITUDE UNTIL FIRST INDICATION OF A STALL..

ON STALL RECOGNITION (STICK SHAKER OR "ONSET" BUFFET), CALL THE "STALL",

*DISCONNECT AUTOPILOT IF ON,

IMMEDIATELY AND SIMULTANEOUSLY REDUCE ANGLE OF ATTACK UNTIL STALL INDICATIONS CEASE AND LEVEL WINGS IF IN A BANK. ACCELERATE, INCREASE POWER SLOWLY AS APPROPRIATE, TRIM AS NECESSARY. STALL WARNING MAY ACTIVATE AT 4 TO 9 KCAS ABOVE STALL.

AFTER A SAFE FLIGHT CONDITION HAS BEEN ACHIEVED AND AS A/S INCREASES ABOVE 120 KCAS, BEGIN CLIMB TO ORIGINAL ALTITUDE AND/OR FLIGHTPATH.

ACCELERATE TO 140 KCAS, POWER AS REQUIRED

INSTRUCTOR NOTE:

ADVISORY CIRCULAR 120-109 STATES THAT PERFORMANCE OF STALL MANEUVERS DURING TRAINING SHOULD INCLUDE BOTH MANUAL FLIGHT AND FLIGHT WITH AUTOPILOT ENGAGED. PILOTS SHOULD BE TAUGHT HOW TO RESPOND APPROPRIATELY TO THE STARTLE FACTOR WHEN ENCOUNTERING AN UNEXPECTED STALL..

STALL TRAINING PROCEDURES WITH THE AUTOPILOT ENGAGED ARE NOTED WITH AN ASTERISK*

MIN. ALT.
5,000' AGL

STALL SPEEDS

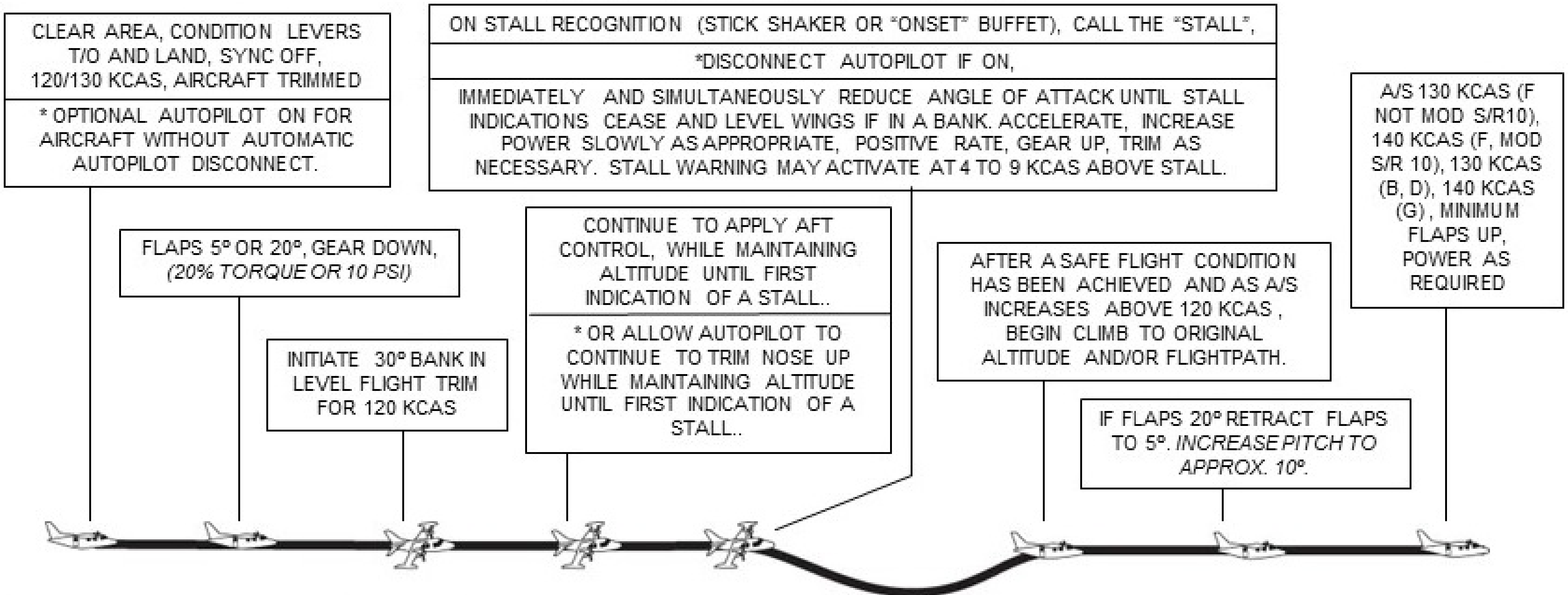
FLAPS SET	0	5	20	40
GR.WT.	B/ B+, D/ F/ G	B/ B+, D/ F/ G	B/ B+, D/ F/ G	B/ B+, D/ F/ G
7,000	85/ 85/ 85	76/ 76/ 80	70/ 70/ 72	63/ 63/ 64
7,500	88/ 88/ 88/	78/ 78/ 83/	73/ 73/ 74/	66/ 66/ 67/
8,000	90/ 90/ 91/ 90	81/ 81/ 86/ 84	75/ 75/ 77/ 74	68/ 68/ 69/ 69
8,500	93/ 93/ 94/ 93	83/ 83/ 88/ 87	78/ 78/ 79/ 77	70/ 70/ 71/ 71
8,930	95/	85/	79/	72/
9,000	/ 95/ 97/ 95	/ 86/ 91/ 90	/ 80/ 81/ 79	/ 72/ 73/ 73
9,350	/ 97/	/ 87/	/ 81/	/ 73/
9,500	/ 99/ 98	93/ 92	/ 83/ 81	/ 75/ 75
9,920	/101/	95/	/ 85/	/ 76/
10,000	/101	/ 94	/ 83	/ 77
10,500	/103	/ 97	/ 85	/ 79
10,800	/105	/ 98	/ 87	/ 81

Figure C-9

MU-2B B, D (-10), F (-20), G (-30)

APPROACH TO STALL

TAKEOFF CONFIGURATION 15-30º BANK



INSTRUCTOR NOTE:

ADVISORY CIRCULAR 120-109 STATES THAT PERFORMANCE OF STALL MANEUVERS DURING TRAINING SHOULD INCLUDE BOTH MANUAL FLIGHT AND FLIGHT WITH AUTOPILOT ENGAGED. PILOTS SHOULD BE TAUGHT HOW TO RESPOND APPROPRIATELY TO THE STARTLE FACTOR WHEN ENCOUNTERING AN UNEXPECTED STALL..

STALL TRAINING PROCEDURES WITH THE AUTOPILOT ENGAGED ARE NOTED WITH AN ASTERISK*

MIN. ALT. 5,000' AGL

STALL SPEEDS (APPROXIMATE)
AT MAXIMUM GROSS TAKEOFF WEIGHT
B, B+, D, F, G

BANK ANGLE	10	20	30	40	50	60
FLAPS	B/ B+, D/ F/ G	B/ B+, D/ F/ G	B/ B+, D/ F/ G	B/ B+, D/ F/ G	B/ B+, D/ F/ G	B/ B+, D/ F/ G
UP	96/ 99/102/106	99/ 101/105/108	103/105/109/112	109/111/116/120	120/122/126/130	136/138/143/148
5º	87/ 88/ 96/ 99	89/ 90/ 98/101	92/ 94/102/105	98/100/109/112	107/109/119/122	120/124/135/138
20º	80/ 82/ 86/ 87	82/ 84/ 88/ 89	86/ 87/ 92/ 93	91/ 93/ 97/ 98	99/101/107/108	113/114/120/122
40º	72/ 74/ 77/ 81	74/ 75/ 79/ 82	77/ 79/ 82/ 86	82/ 83/ 87/ 91	90/ 91/ 95/100	102/103/108/113

Figure C-10

MU-2B B, D (-10), F (-20), G (-30)

APPROACH TO STALL LANDING CONFIGURATION GEAR DOWN FULL FLAPS

CLEAR AREA, CONDITION LEVERS T/O AND LAND, SYNC OFF, 120/130 KCAS, AIRCRAFT TRIMMED

* OPTIONAL AUTOPILOT ON FOR AIRCRAFT WITHOUT AUTOMATIC AUTOPILOT DISCONNECT.

FLAPS 20°, GEAR DOWN, *(20% TORQUE OR 10 PSI)*

A/S 120 KCAS, FLAPS FULL TRIM FOR 120 KCAS

ON STALL RECOGNITION (STICK SHAKER OR "ONSET" BUFFET), CALL THE "STALL",

*DISCONNECT AUTOPILOT IF ON,

IMMEDIATELY AND SIMULTANEOUSLY REDUCE ANGLE OF ATTACK UNTIL STALL INDICATIONS CEASE AND LEVEL WINGS IF IN A BANK. ACCELERATE, INCREASE POWER SLOWLY AS APPROPRIATE, FLAPS 20°, POSITIVE RATE, GEAR UP, TRIM AS NECESSARY. STALL WARNING MAY ACTIVATE AT 4 TO 9 KCAS ABOVE STALL.

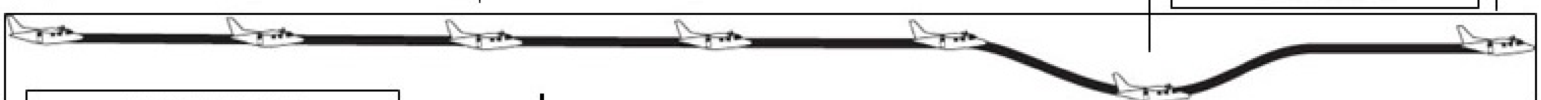
CONTINUE TO APPLY AFT CONTROL, WHILE MAINTAINING ALTITUDE UNTIL FIRST INDICATION OF A STALL..

* OR ALLOW AUTOPILOT TO CONTINUE TO TRIM NOSE UP WHILE MAINTAINING ALTITUDE UNTIL FIRST INDICATION OF A STALL..

AFTER A SAFE FLIGHT CONDITION HAS BEEN ACHIEVED AND AS A/S INCREASES ABOVE 120 KCAS , BEGIN CLIMB TO ORIGINAL ALTITUDE AND/OR FLIGHTPATH.

A/S 130 KCAS. IF FLAPS 20° RETRACT FLAPS TO 5°. *INCREASE PITCH TO APPROX. 10°.*

A/S 130 KCAS (F, NOT MOD S/R10), 140 KCAS (F, MOD S/R 10), 130 KCAS (B, D), 140 KCAS (G), MIN. FLAPS UP, POWER AS REQUIRED



INSTRUCTOR NOTE:

ADVISORY CIRCULAR 120-109 STATES THAT PERFORMANCE OF STALL MANEUVERS DURING TRAINING SHOULD INCLUDE BOTH MANUAL FLIGHT AND FLIGHT WITH AUTOPILOT ENGAGED. PILOTS SHOULD BE TAUGHT HOW TO RESPOND APPROPRIATELY TO THE STARTLE FACTOR WHEN ENCOUNTERING AN UNEXPECTED STALL..

STALL TRAINING PROCEDURES WITH THE AUTOPILOT ENGAGED ARE NOTED WITH AN ASTERISK*

MIN. ALT. 5,000' AGL

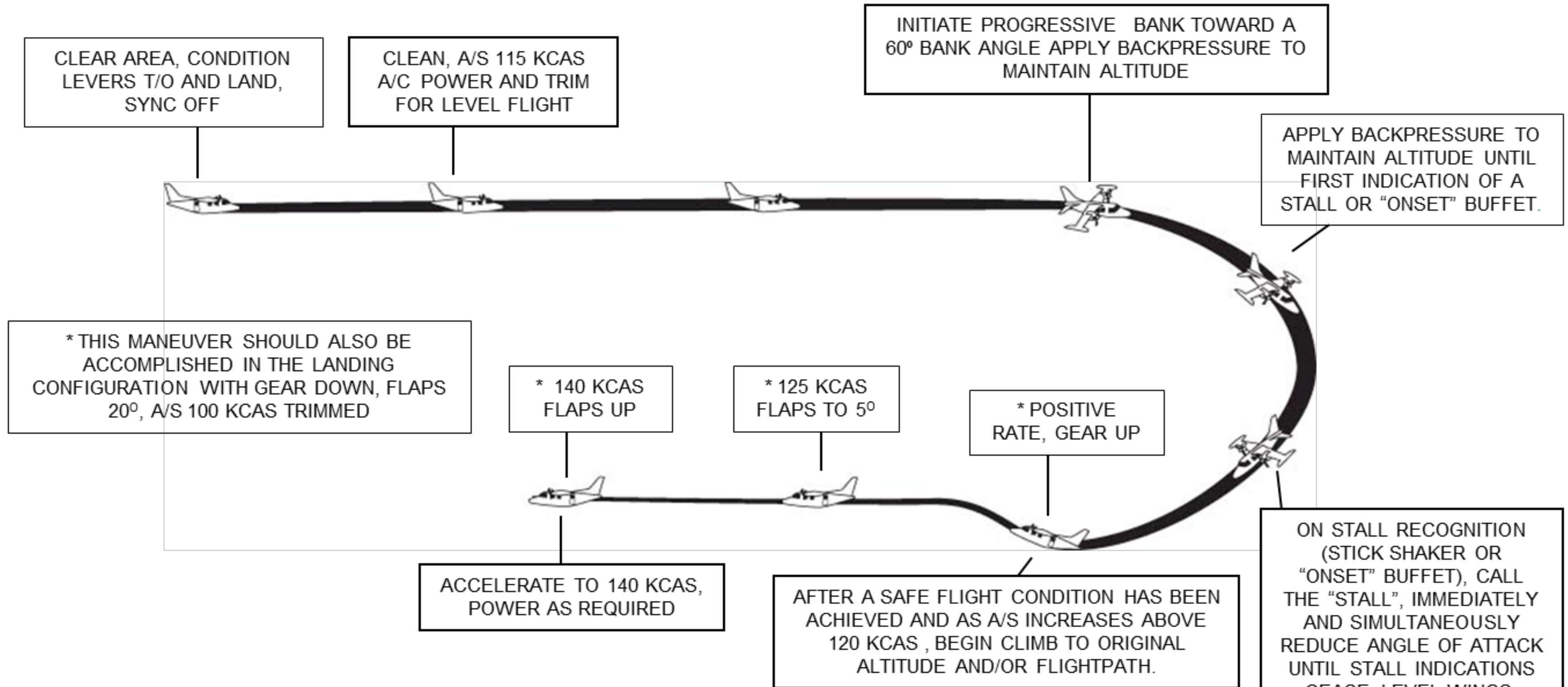
STALL SPEEDS

FLAPS SET	0	5	20	40
GR.WT.	B/ B+, D/ F/ G	B/ B+, D/ F/ G	B/ B+, D/ F/ G	B/ B+, D/ F/ G
7,000	85/ 85/ 85	76/ 76/ 80	70/ 70/ 72	63/ 63/ 64
7,500	88/ 88/ 88/	78/ 78/ 83/	73/ 73/ 74/	66/ 66/ 67/
8,000	90/ 90/ 91/ 90	81/ 81/ 86/ 84	75/ 75/ 77/ 74	68/ 68/ 69/ 69
8,500	93/ 93/ 94/ 93	83/ 83/ 88/ 87	78/ 78/ 79/ 77	70/ 70/ 71/ 71
8,930	95/	85/	79/	72/
9,000	/ 95/ 97/ 95	/ 86/ 91/ 90	/ 80/ 81/ 79	/ 72/ 73/ 73
9,350	/ 97/	/ 87/	/ 81/	/ 73/
9,500	/ 99/ 98	93/ 92	/ 83/ 81	/ 75/ 75
9,920	/101/	95/	/ 85/	/ 76/
10,000	/101	/ 94	/ 83	/ 77
10,500	/103	/ 97	/ 85	/ 79
10,800	/105	/ 98	/ 87	/ 81

Figure C-11

MU-2B B, D (-10), F (-20), G (-30)

ACCELERATED STALLS



STALL SPEEDS (APPROXIMATE)
AT MAXIMUM GROSS TAKEOFF WEIGHT
B, B+, D, F, G

BANK ANGLE	10	20	30	40	50	60
FLAPS	B/ B+, D/ F/ G	B/ B+, D/ F/ G	B/ B+, D/ F/ G	B/ B+, D/ F/ G	B/ B+, D/ F/ G	B/ B+, D/ F/ G
UP	96/ 99/102/106	99/ 101/105/108	103/105/109/112	109/111/116/120	120/122/126/130	136/138/143/148
5°	87/ 88/ 96/ 99	89/ 90/ 98/101	92/ 94/102/105	98/100/109/112	107/109/119/122	120/124/135/138
20°	80/ 82/ 86/ 87	82/ 84/ 88/ 89	86/ 87/ 92/ 93	91/ 93/ 97/ 98	99/101/107/108	113/114/120/122
40°	72/ 74/ 77/ 81	74/ 75/ 79/ 82	77/ 79/ 82/ 86	82/ 83/ 87/ 91	90/ 91/ 95/100	102/103/108/113

Figure C-12

MU-2B B, D (-10), F (-20), G (-30)

EMERGENCY DESCENT (LOW SPEED)

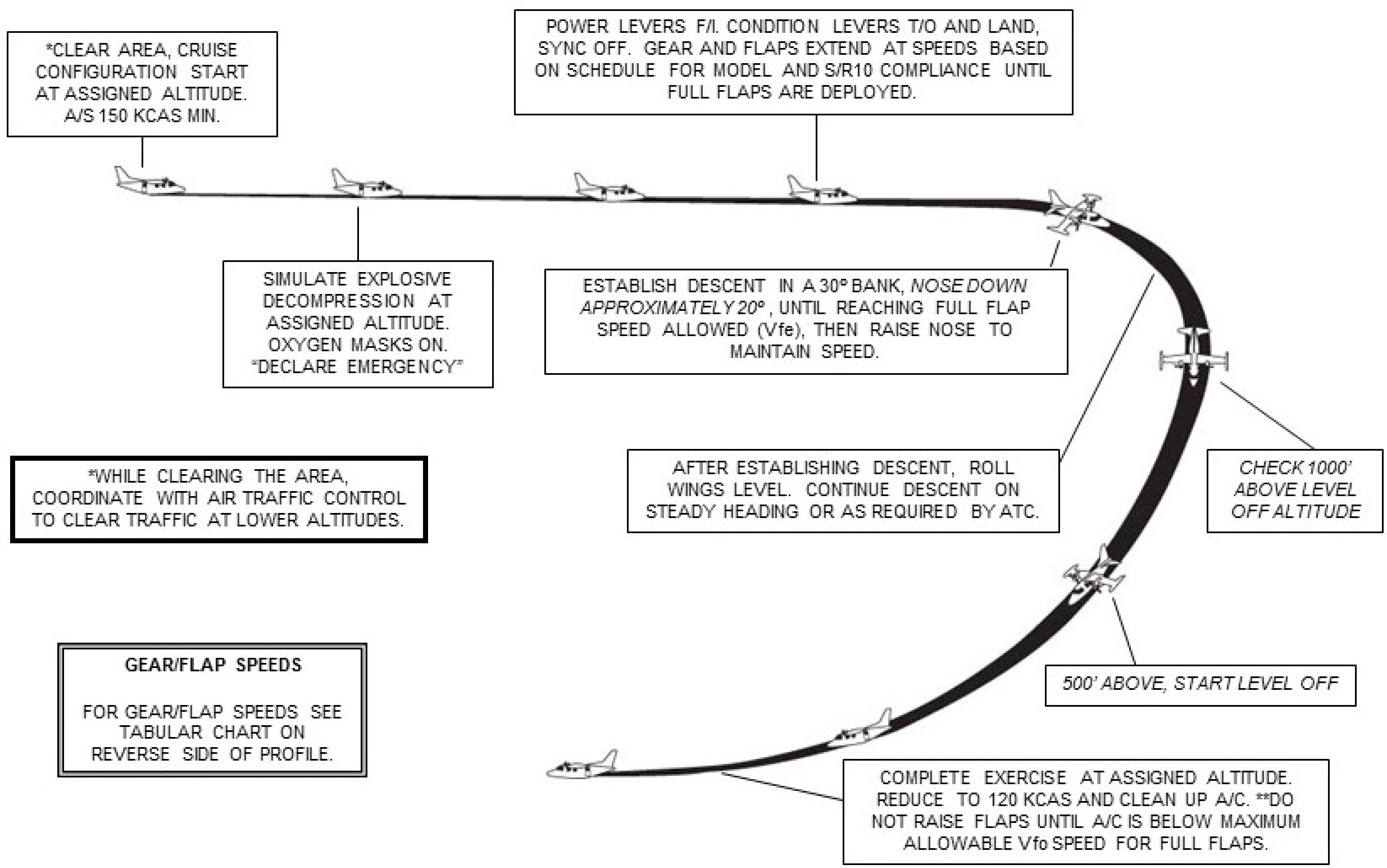


Figure C-12a

GEAR AND FLAP EXTEND SCHEDULE (F+ AND G+ ARE MODIFIED BY S/R10)			
GEAR			
B, D, F, F+:	160 KCAS		
G, G+:	170 KCAS		
FLAPS	5º	20º	40º
G: NOT MODIFIED BY S/R10	146 KCAS	146 KCAS	120 KCAS
G+: MODIFIED BY S/R10	175 KCAS	146 KCAS	120 KCAS
F: NOT MODIFIED BY S/R10	140 KCAS	140 KCAS	120 KCAS
F+: MODIFIED BY S/R10	175 KCAS	140 KCAS	120 KCAS
B, D	140 KCAS	140 KCAS	120 KCAS

Figure C-13

MU-2B B, D (-10), F (-20), G (-30)

EMERGENCY DESCENT (HIGH SPEED)

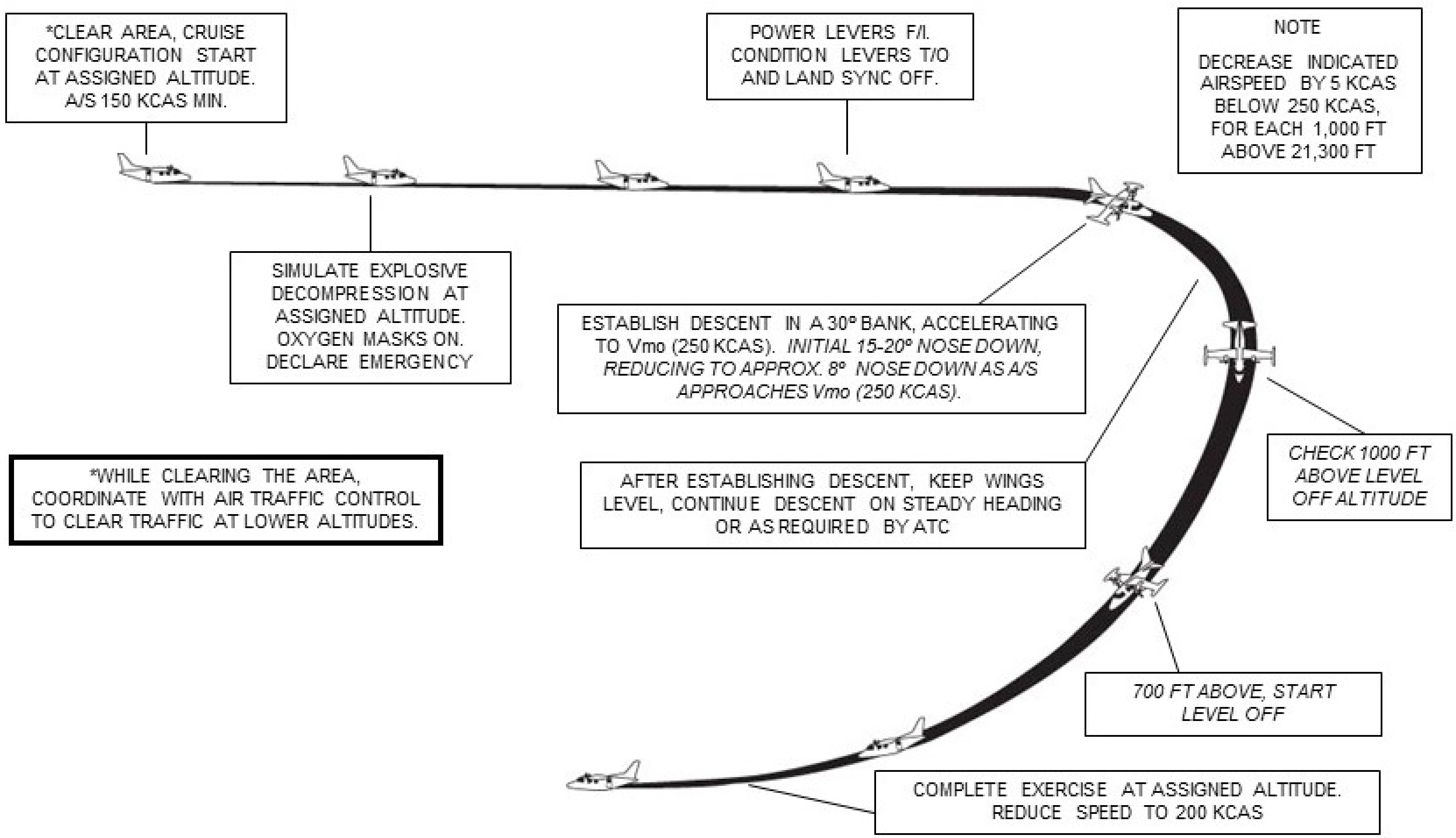


Figure C-14

MU-2B B, D (-10), F (-20), G (-30)

UNUSUAL ATTITUDE RECOVERY (NOSE HIGH)

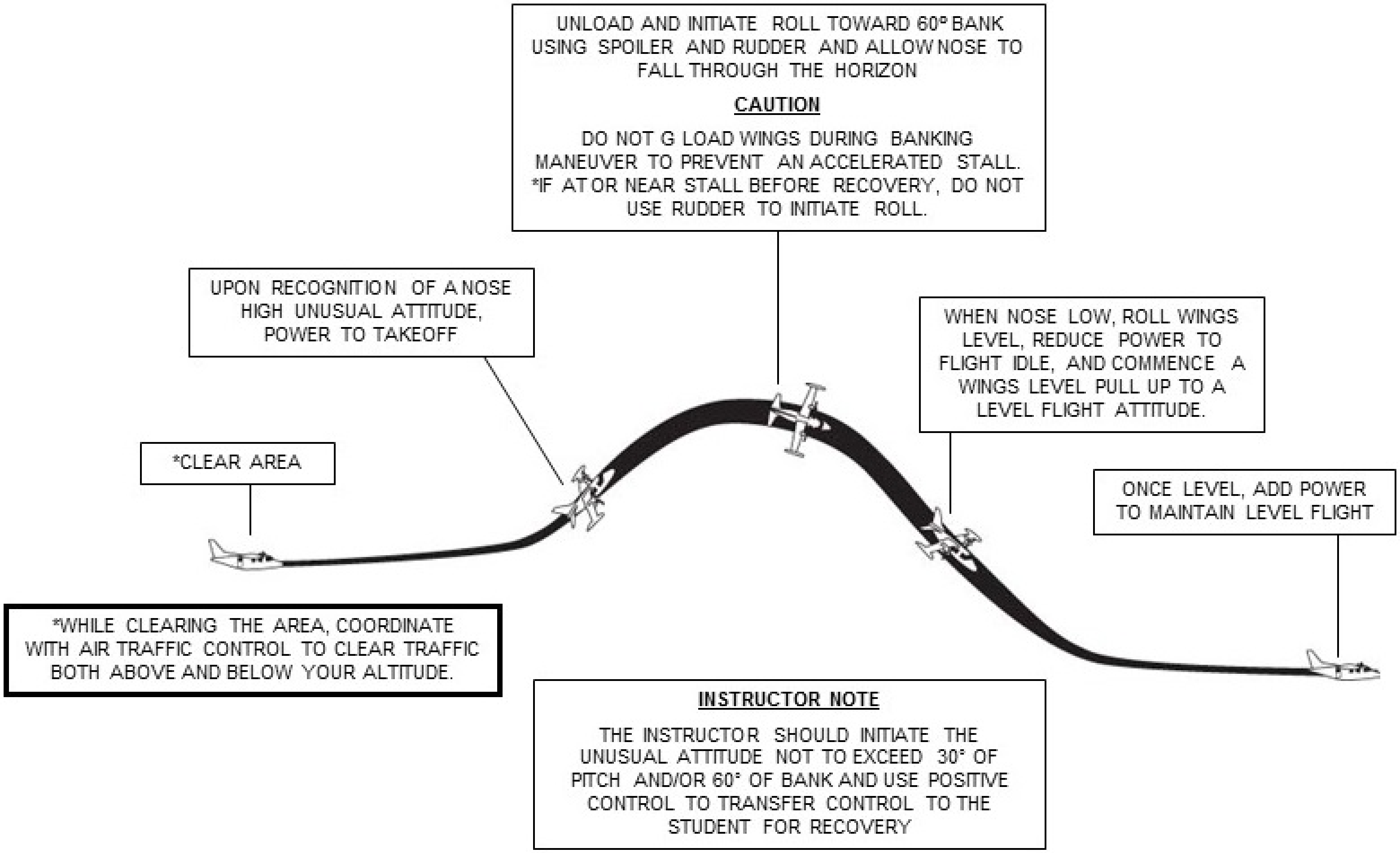


Figure C-15

MU-2B B, D (-10), F (-20), G (-30)

UNUSUAL ATTITUDE RECOVERY (NOSE LOW)

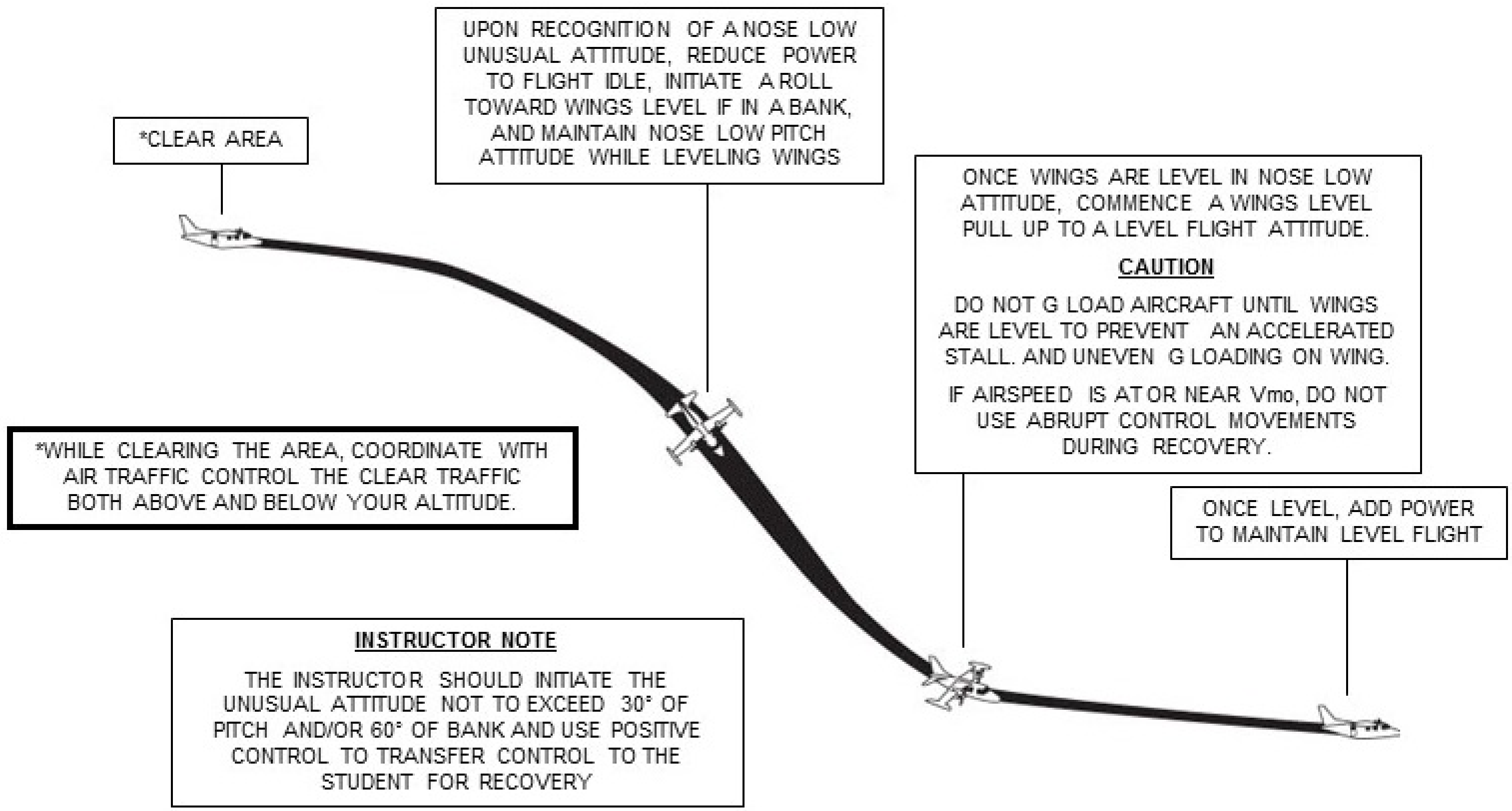
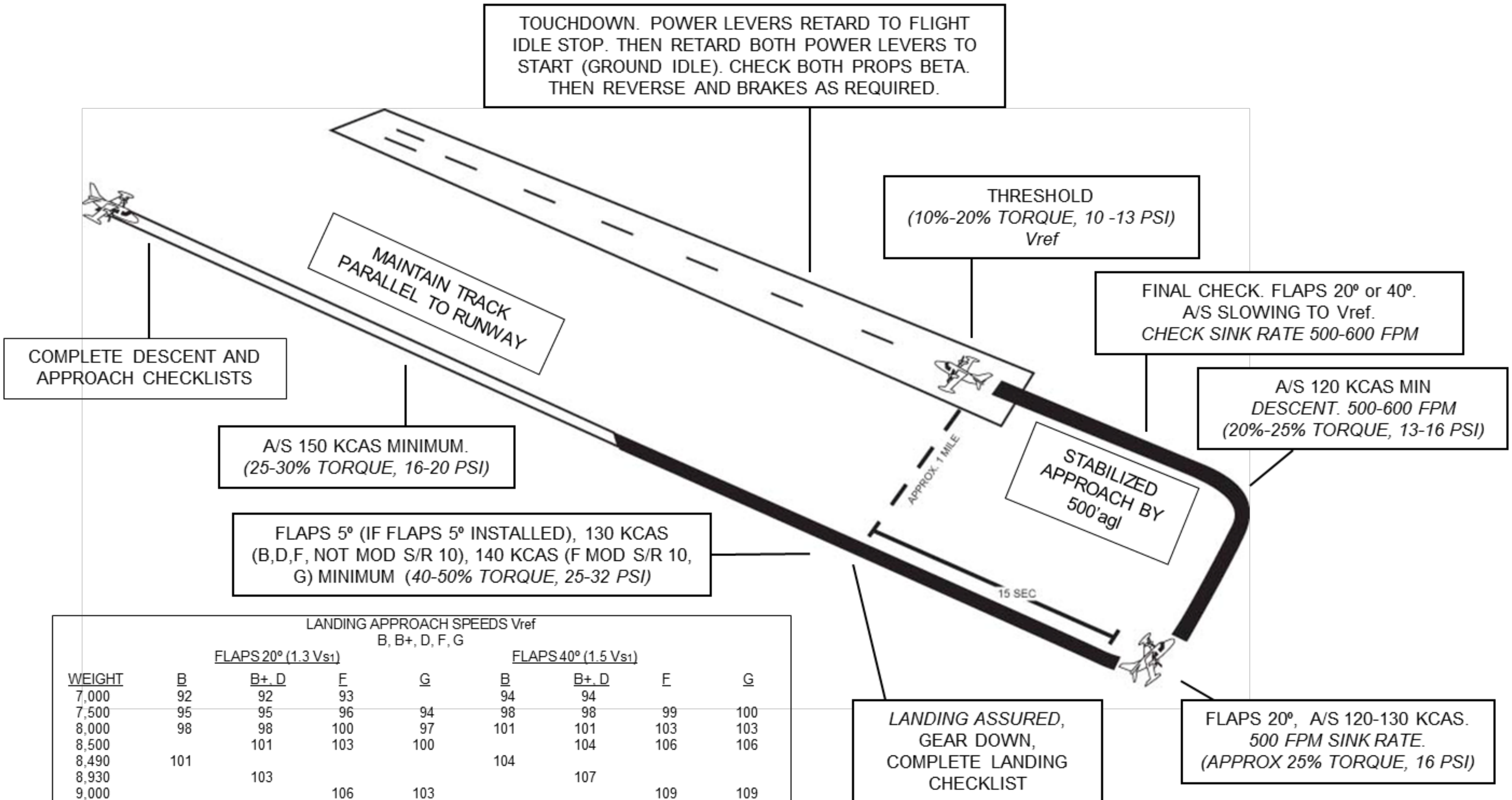


Figure C-16

MU-2B B, D (-10), F (-20), G (-30)

NORMAL LANDING (20ºor 40º FLAPS)



LANDING APPROACH SPEEDS Vref
B, B+, D, F, G

	FLAPS 20º (1.3 Vs1)				FLAPS 40º (1.5 Vs1)			
WEIGHT	B	B+, D	F	G	B	B+, D	F	G
7,000	92	92	93		94	94		
7,500	95	95	96	94	98	98	99	100
8,000	98	98	100	97	101	101	103	103
8,500		101	103	100		104	106	106
8,490	101				104			
8,930		103				107		
9,000			106	103			109	109
9,435			108				112	
9,500				105				112
10,000				108				115
10,260				109				117

Figure C-17

MU-2B B, D (-10), F (-20), G (-30)

GO AROUND - REJECTED LANDING

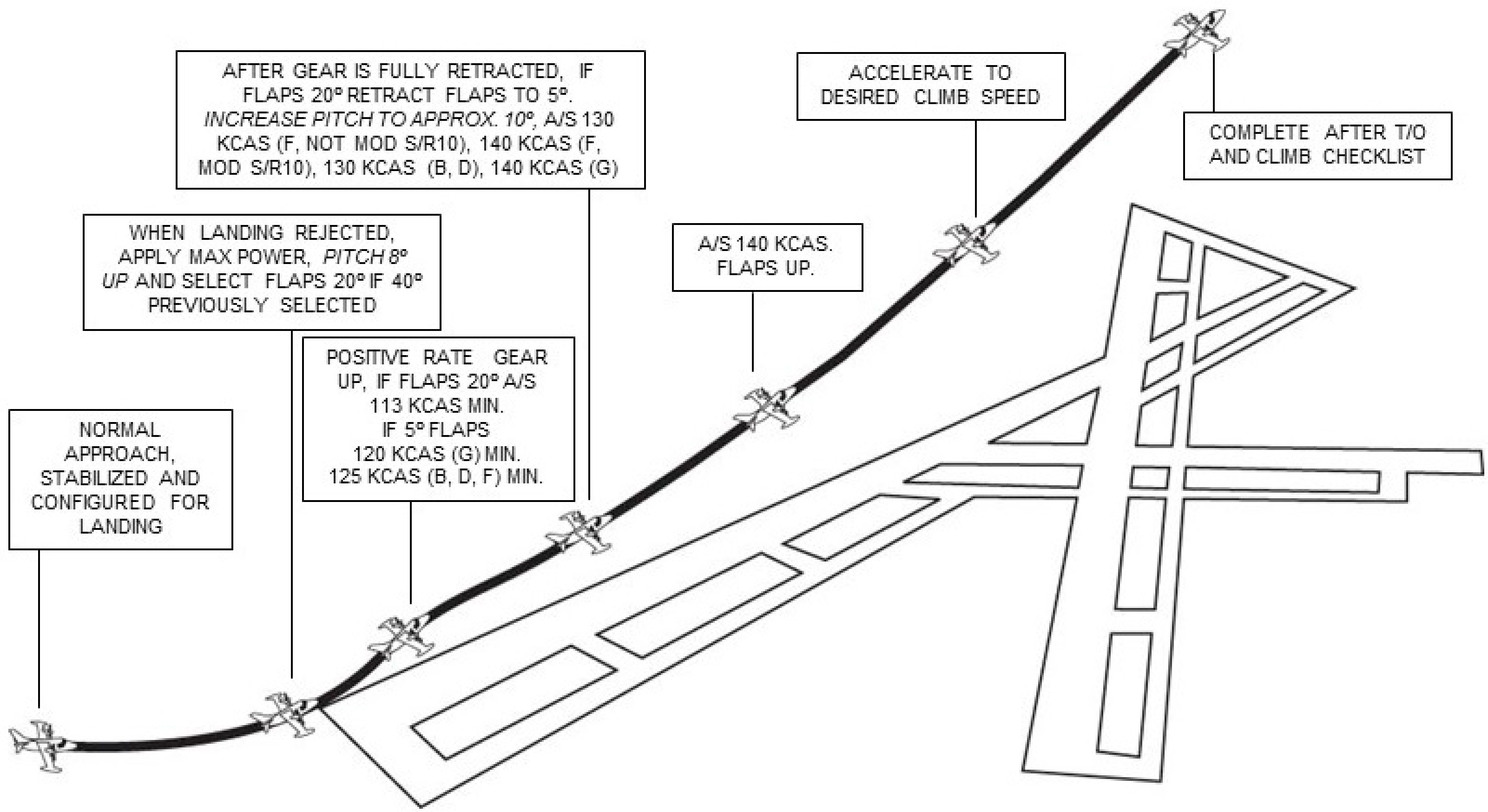
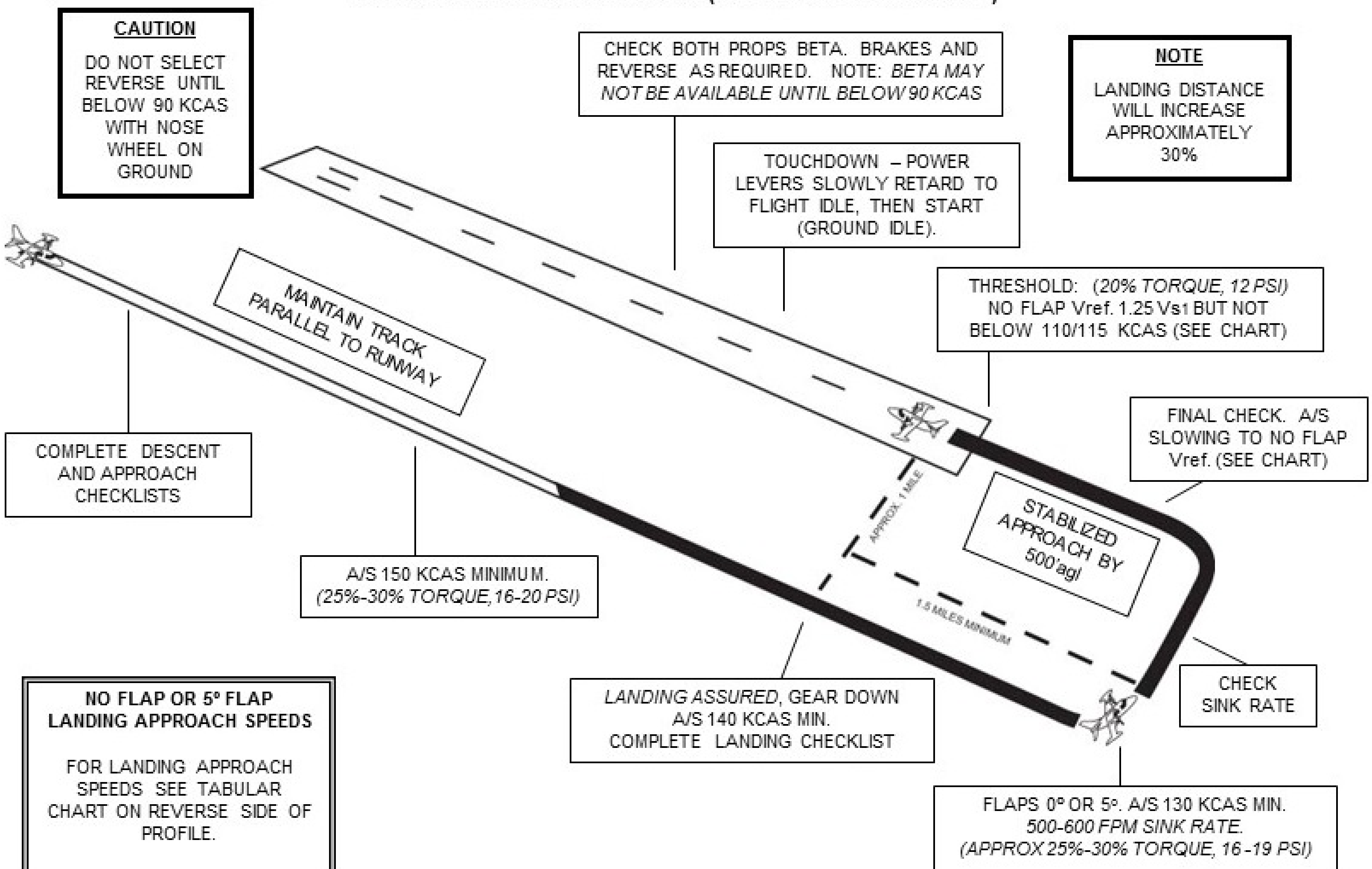


Figure C-18

MU-2B B, D (-10), F (-20), G (-30)

NO FLAP OR 5º FLAP LANDING (ABNORMAL PROCEDURE)



NO FLAP OR 5º FLAP LANDING APPROACH SPEEDS

FOR LANDING APPROACH SPEEDS SEE TABULAR CHART ON REVERSE SIDE OF PROFILE.

Figure C-18a

NO FLAP Vref 1.25 Vs1
(BUT NOT BELOW 110 KCAS (B, B+, D, F) 115 KCAS (G))
USE FOR FLAP UP OR 5º

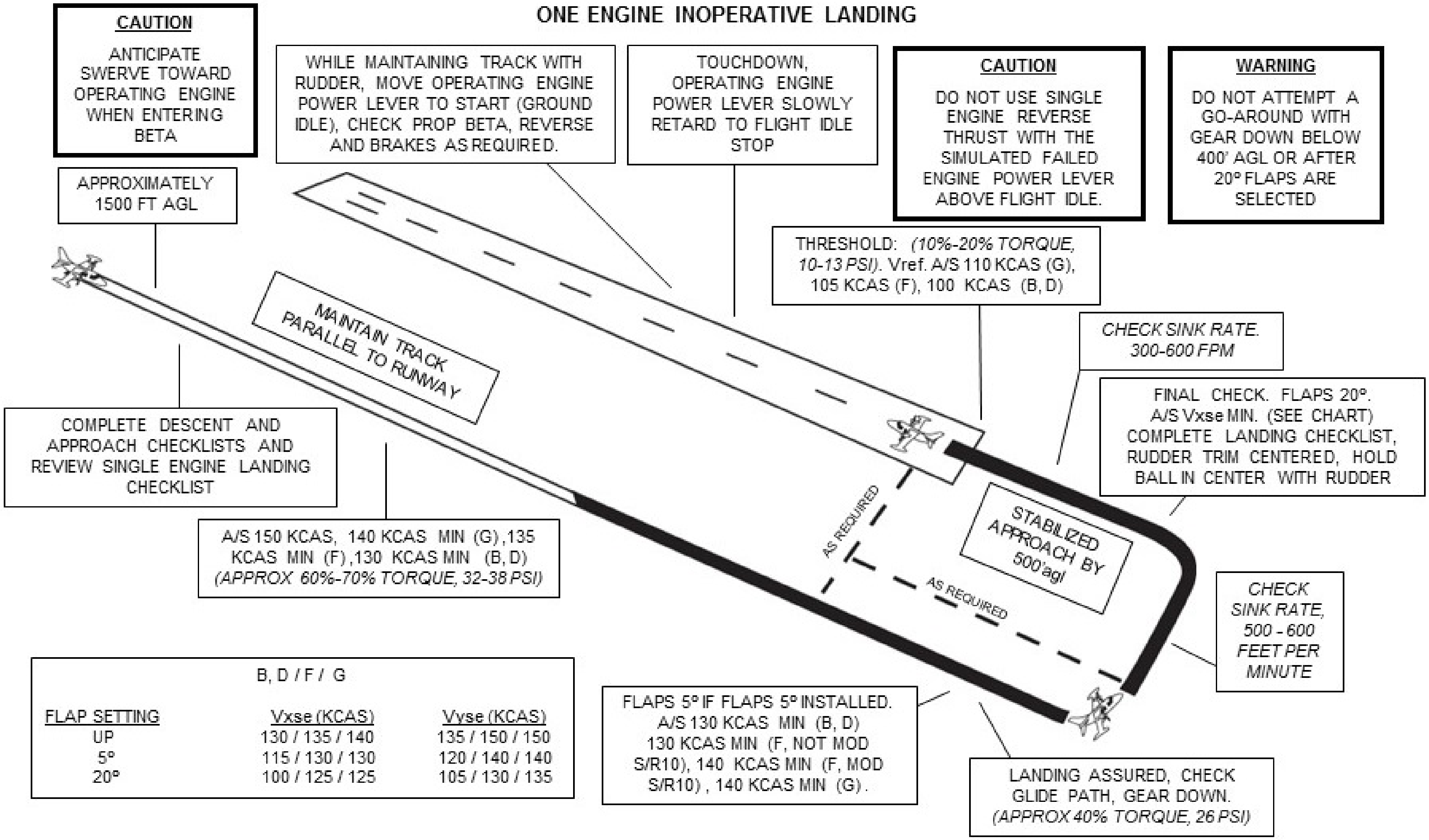
B, B+, D, F, G

	FLAPS UP					FLAPS 5º				
WEIGHT	B	B+	D	F	G	B	B+	D	F	G
7,500	110	110	110	110		110	110	110	110	
8.000	113	113	113	114	115	110	110	110	110	115
8,490	117					110				
8.500		117	117	118	117		110	110	110	115
8,930		119	119				110	110		
9.000				122	119				114	115
9,435				124					117	
9.500					123					115
10.000					127					118
10.260					128					120

Figure C-19

MU-2B B, D (-10), F (-20), G (-30)

ONE ENGINE INOPERATIVE LANDING



B, D / F / G

FLAP SETTING	Vxse (KCAS)	Vyse (KCAS)
UP	130 / 135 / 140	135 / 150 / 150
5º	115 / 130 / 130	120 / 140 / 140
20º	100 / 125 / 125	105 / 130 / 135

Figure C-20

MU-2B B, D (-10), F (-20), G (-30)

CROSSWIND LANDING

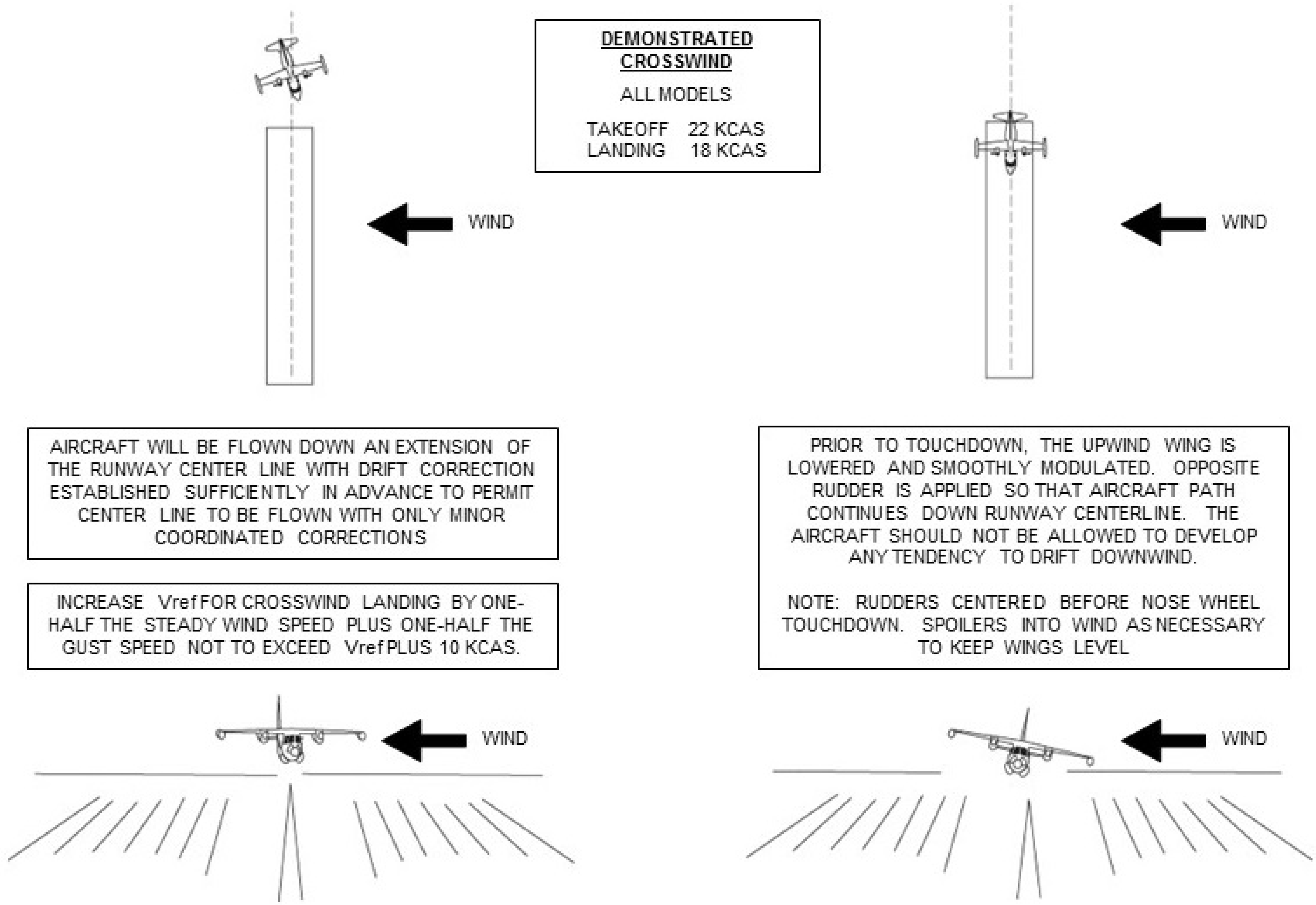
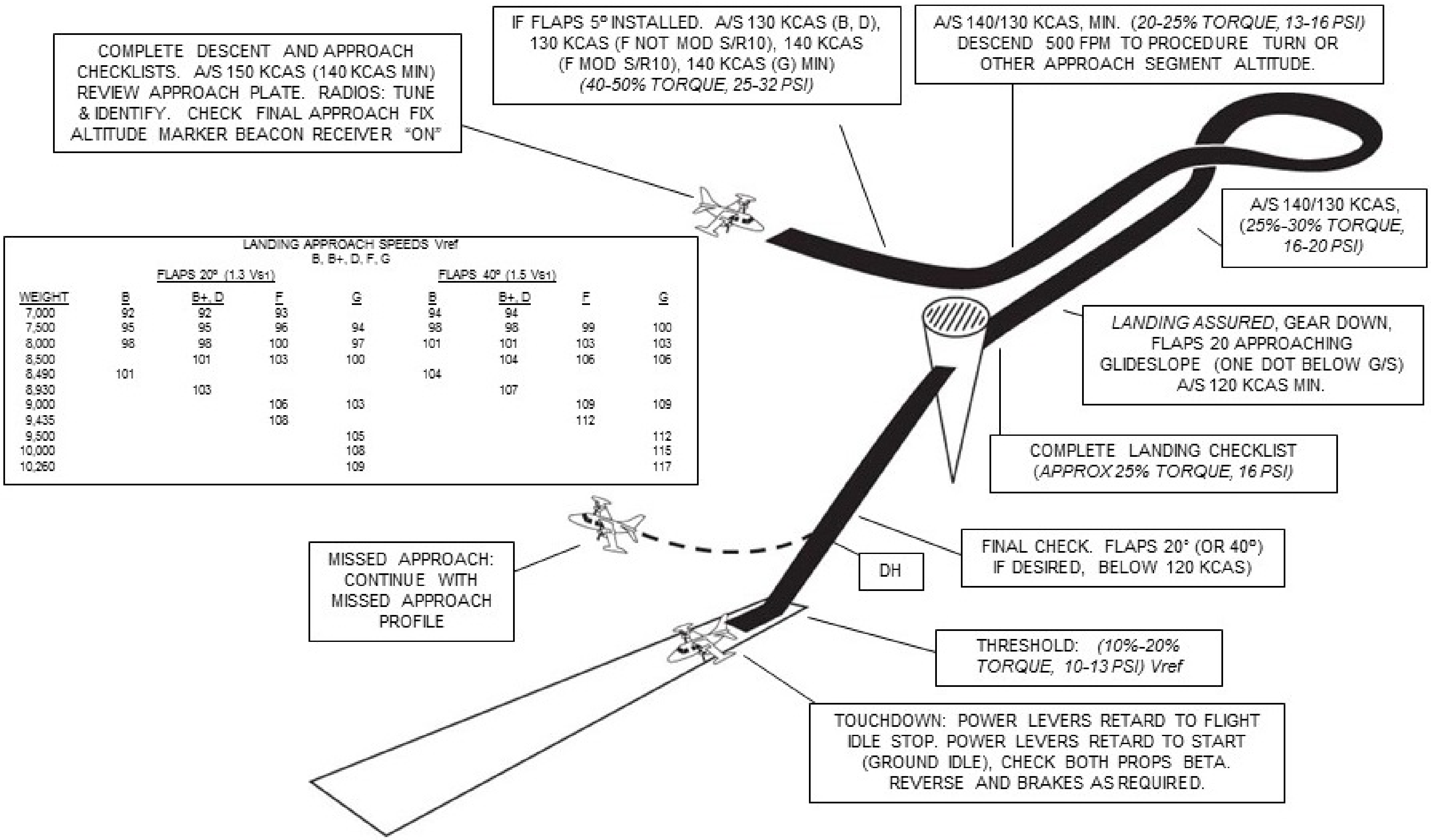


Figure C-21

MU-2B B, D (-10), F (-20), G (-30)

ILS, LPV, RNP, LNAV/VNAV APPROACH



LANDING APPROACH SPEEDS Vref
B, B+, D, F, G

	FLAPS 20° (1.3 Vs1)				FLAPS 40° (1.5 Vs1)			
WEIGHT	B	B+, D	F	G	B	B+, D	F	G
7,000	92	92	93		94	94		
7,500	95	95	96	94	98	98	99	100
8,000	98	98	100	97	101	101	103	103
8,500		101	103	100		104	106	106
8,490	101				104			
8,930		103				107		
9,000			106	103			109	109
9,435			108				112	
9,500				105				112
10,000				108				115
10,260				109				117

Figure C-22

MU-2B B, D (-10), F (-20), G (-30)
TWO ENGINE MISSED APPROACH

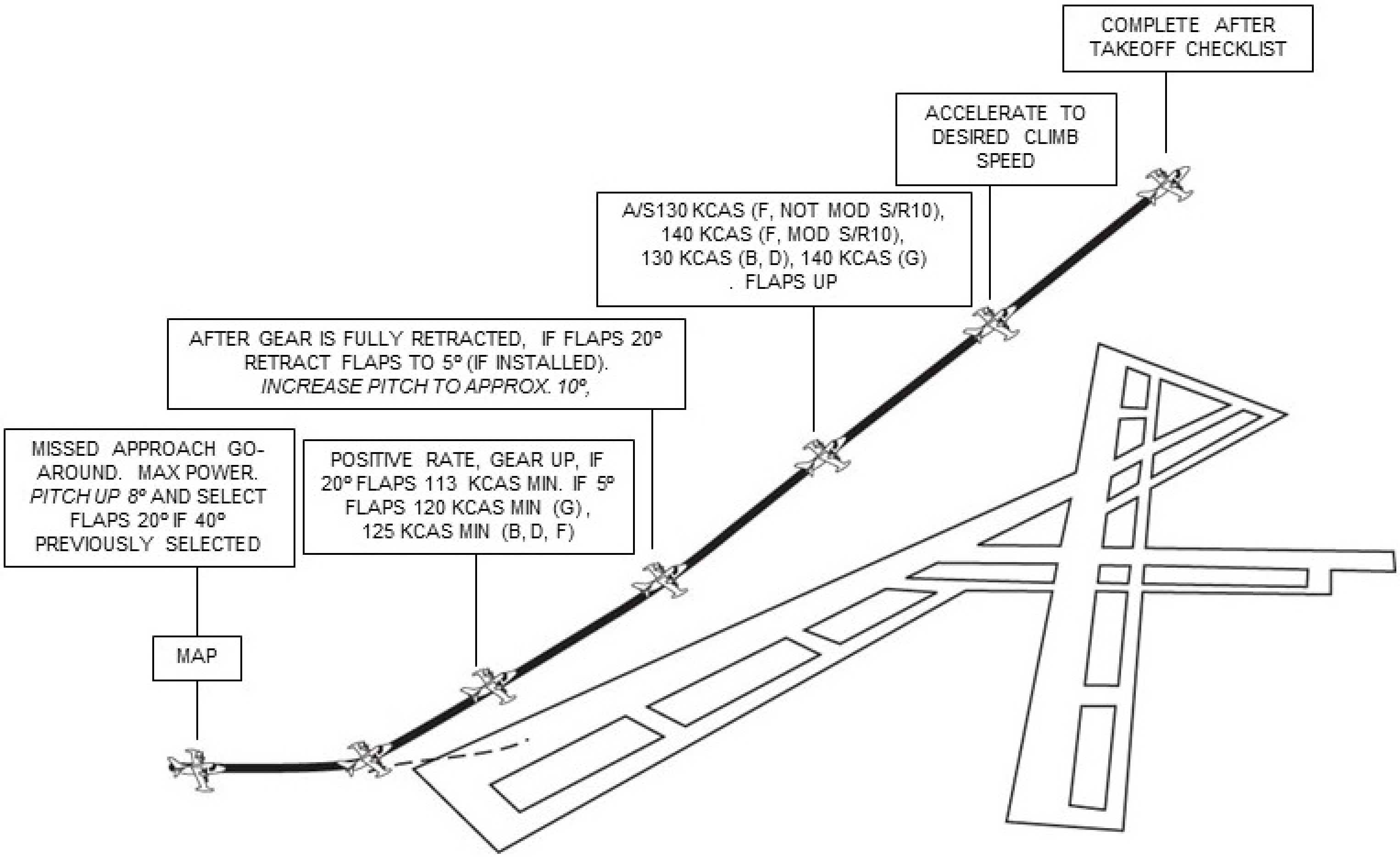


Figure C-23

MU-2B B, D (-10), F (-20), G (-30)

ONE ENGINE INOPERATIVE ILS, LPV, RNP, LNAV/VNAV APPROACH

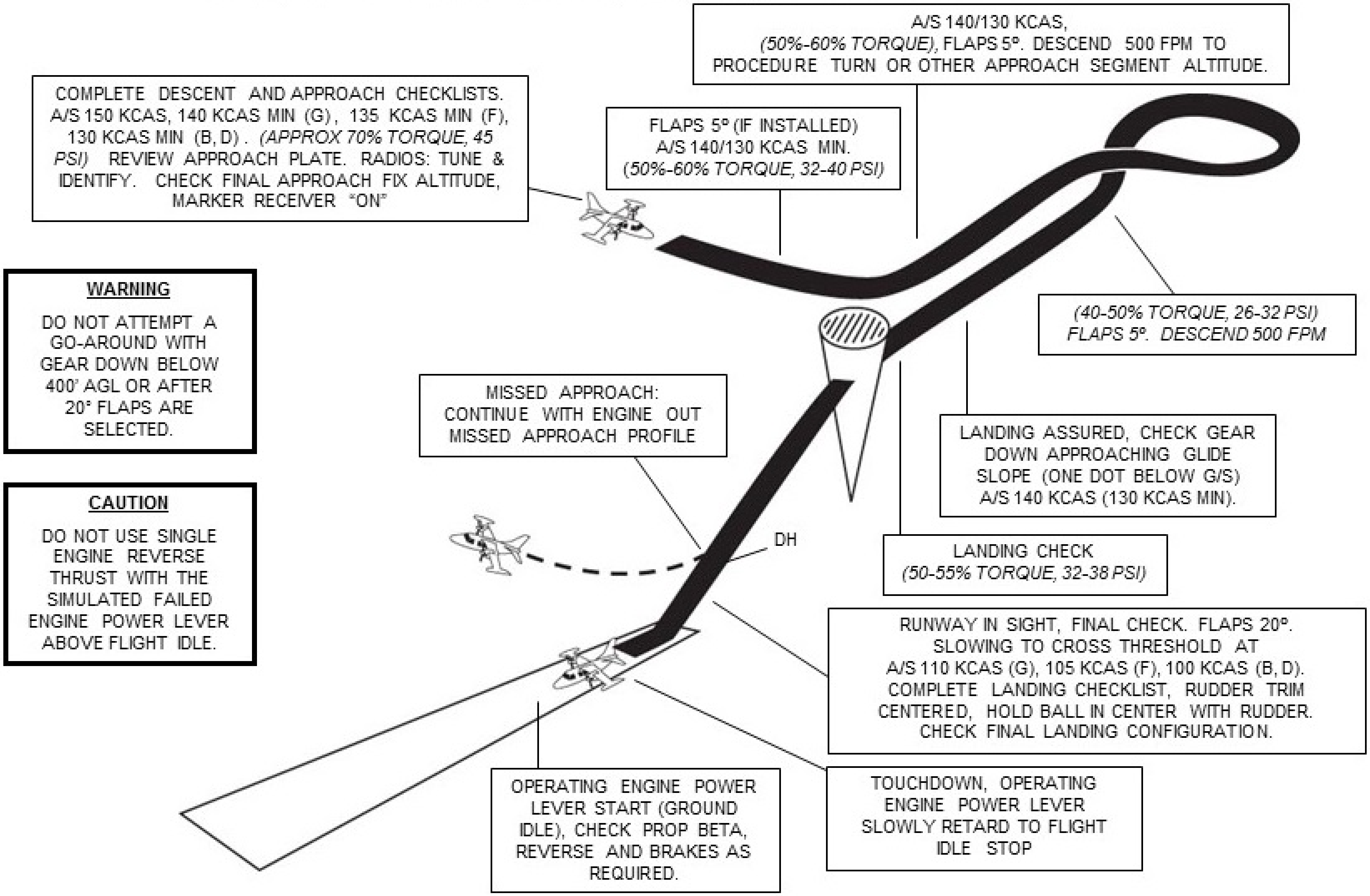


Figure C-24

MU-2B B, D (-10), F (-20), G (-30)

ONE ENGINE INOPERATIVE MISSED APPROACH

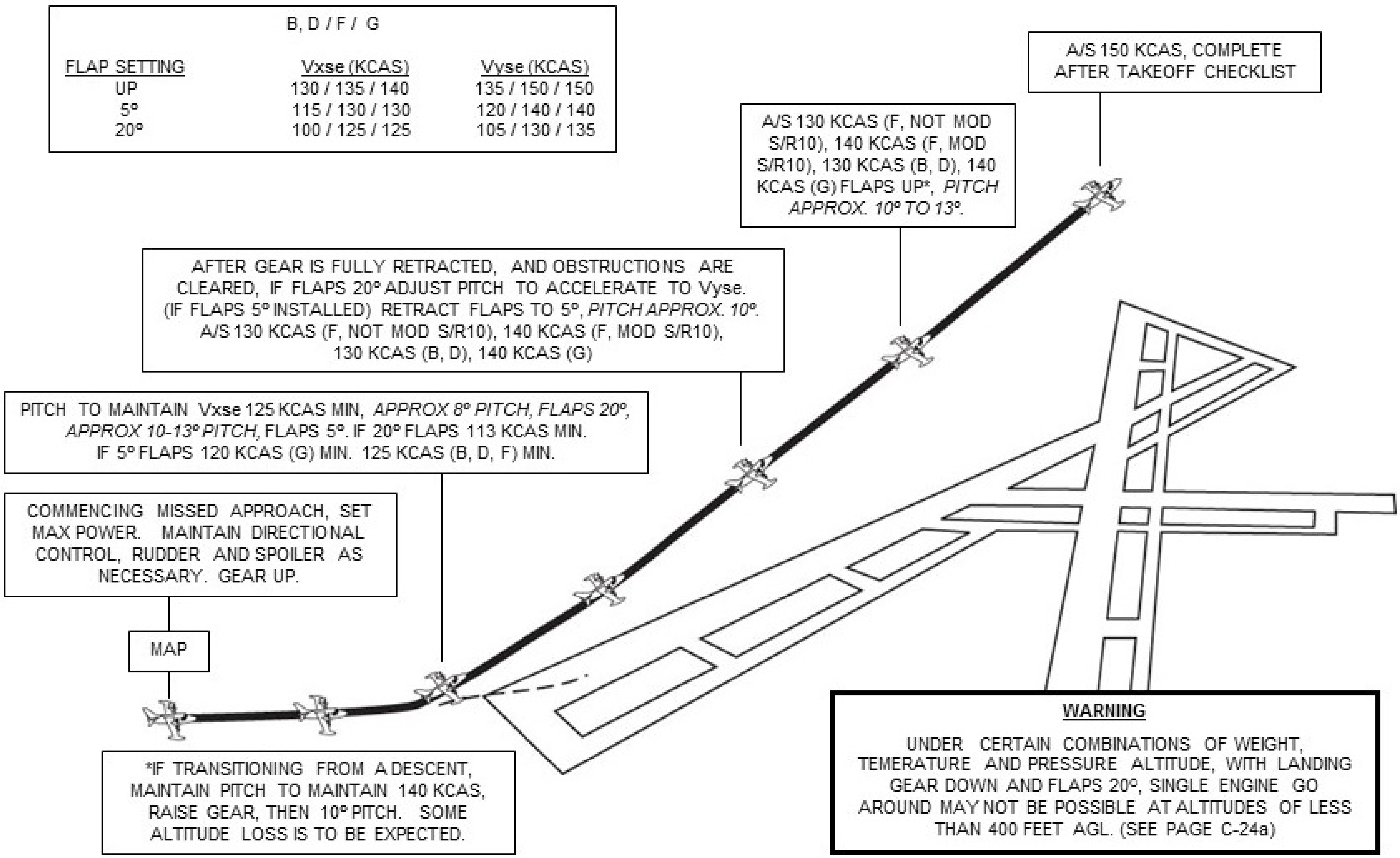
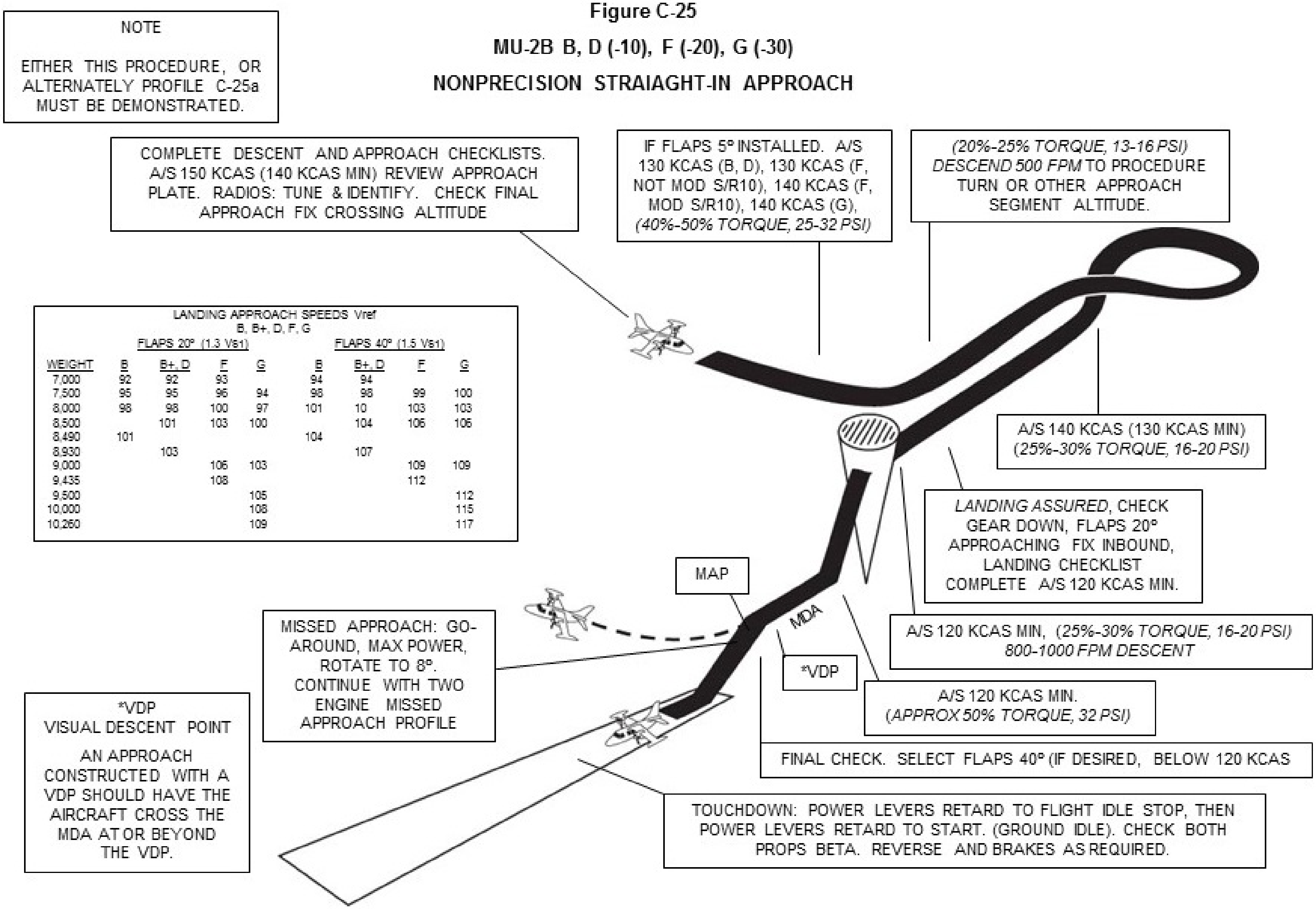


Figure C-25

MU-2B B, D (-10), F (-20), G (-30)

NONPRECISION STRAIAGHT-IN APPROACH



LANDING APPROACH SPEEDS Vref
B, B+, D, F, G

	FLAPS 20º (1.3 Vs1)				FLAPS 40º (1.5 Vs1)			
WEIGHT	B	B+, D	F	G	B	B+, D	F	G
7,000	92	92	93		94	94		
7,500	95	95	96	94	98	98	99	100
8,000	98	98	100	97	101	10	103	103
8,500		101	103	100		104	106	106
8,490	101				104			
8,930		103				107		
9,000			106	103			109	109
9,435			108				112	
9,500				105				112
10,000				108				115
10,260				109				117

Figure C-25a

MU-2B B, D (-10), F (-20), G (-30)

NONPRECISION STRAIGHT-IN APPROACH
****OPTIONAL USE OF CONTINUOUS DESCENT FINAL APPROACH (CDFA)**

NOTE

EITHER THIS PROCEDURE, OR ALTERNATELY PROFILE C-25 MUST BE DEMONSTRATED.

COMPLETE DESCENT AND APPROACH CHECKLISTS. A/S 150 KCAS (140 KCAS MIN) REVIEW APPROACH PLATE. RADIOS: TUNE & IDENTIFY. CHECK FINAL APPROACH FIX CROSSING ALTITUDE

IF FLAPS 5° INSTALLED. A/S 130 KCAS (B, D), 130 KCAS (F NOT MOD S/R10), 140 KCAS (F MOD S/R10), 140 KCAS (G), *(40%-50% TORQUE, 25-32 PSI)*

(20%-25% TORQUE, 13-16 PSI) DESCEND 500 FPM TO PROCEDURE TURN OR OTHER APPROACH SEGMENT ALTITUDE.

LANDING APPROACH SPEEDS Vref
B, B+, D, F, G

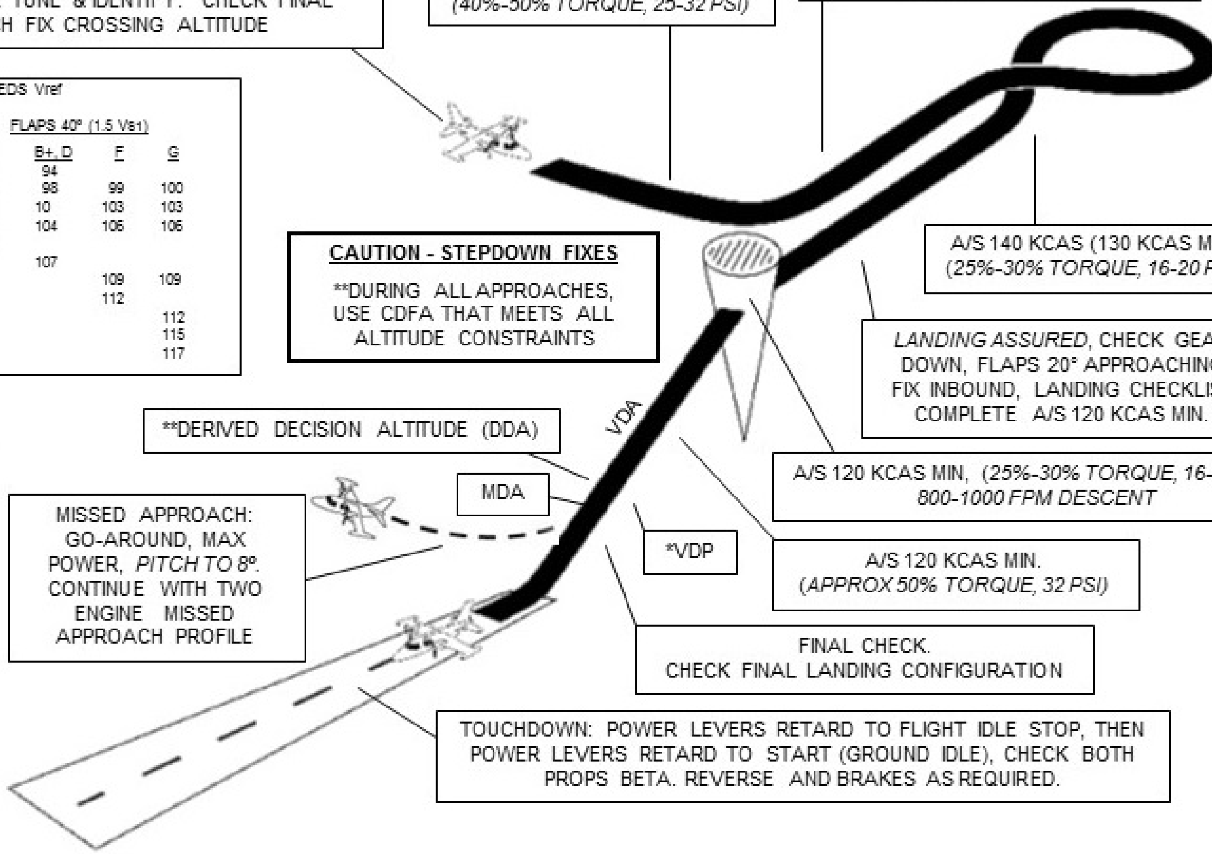
WEIGHT	FLAPS 20° (1.3 Vs1) B	FLAPS 20° (1.3 Vs1) B+, D	FLAPS 20° (1.3 Vs1) F	FLAPS 20° (1.3 Vs1) G	FLAPS 40° (1.5 Vs1) B	FLAPS 40° (1.5 Vs1) B+, D	FLAPS 40° (1.5 Vs1) F	FLAPS 40° (1.5 Vs1) G
7,000	92	92	93		94	94		
7,500	95	95	96	94	98	98	99	100
8,000	98	98	100	97	101	10	103	103
8,500		101	103	100		104	106	106
8,490	101				104			
8,930		103				107		
9,000			106	103			109	109
9,435			108				112	
9,500				105				112
10,000				108				115
10,260				109				117

CAUTION - STEPDOWN FIXES

**DURING ALL APPROACHES, USE CDFA THAT MEETS ALL ALTITUDE CONSTRAINTS

A/S 140 KCAS (130 KCAS MIN) *(25%-30% TORQUE, 16-20 PSI)*

LANDING ASSURED, CHECK GEAR DOWN, FLAPS 20° APPROACHING FIX INBOUND, LANDING CHECKLIST COMPLETE A/S 120 KCAS MIN.



**DERIVED DECISION ALTITUDE (DDA)

A/S 120 KCAS MIN, *(25%-30% TORQUE, 16-20 PSI) 800-1000 FPM DESCENT*

****CAUTION**

WHEN USING CDFA METHOD, MISSED APPROACH MUST BE EXECUTED UPON REACHING DDA. **DESCENT BELOW MDA DURING MISSED APPROACH NOT AUTHORIZED**

MISSED APPROACH: GO-AROUND, MAX POWER, *PITCH TO 8º*. CONTINUE WITH TWO ENGINE MISSED APPROACH PROFILE

A/S 120 KCAS MIN. *(APPROX 50% TORQUE, 32 PSI)*

FINAL CHECK.
CHECK FINAL LANDING CONFIGURATION

*VDP
VISUAL DESCENT POINT

AN APPROACH CONSTRUCTED WITH A VDP SHOULD HAVE THE AIRCRAFT CROSS THE MDA AT OR BEYOND THE VDP.

TOUCHDOWN: POWER LEVERS RETARD TO FLIGHT IDLE STOP, THEN POWER LEVERS RETARD TO START (GROUND IDLE), CHECK BOTH PROPS BETA. REVERSE AND BRAKES AS REQUIRED.

Figure C-26

MU-2B B, D (-10), F (-20), G (-30)

ONE ENGINE INOPERATIVE STRAIGHT-IN NONPRECISION APPROACH

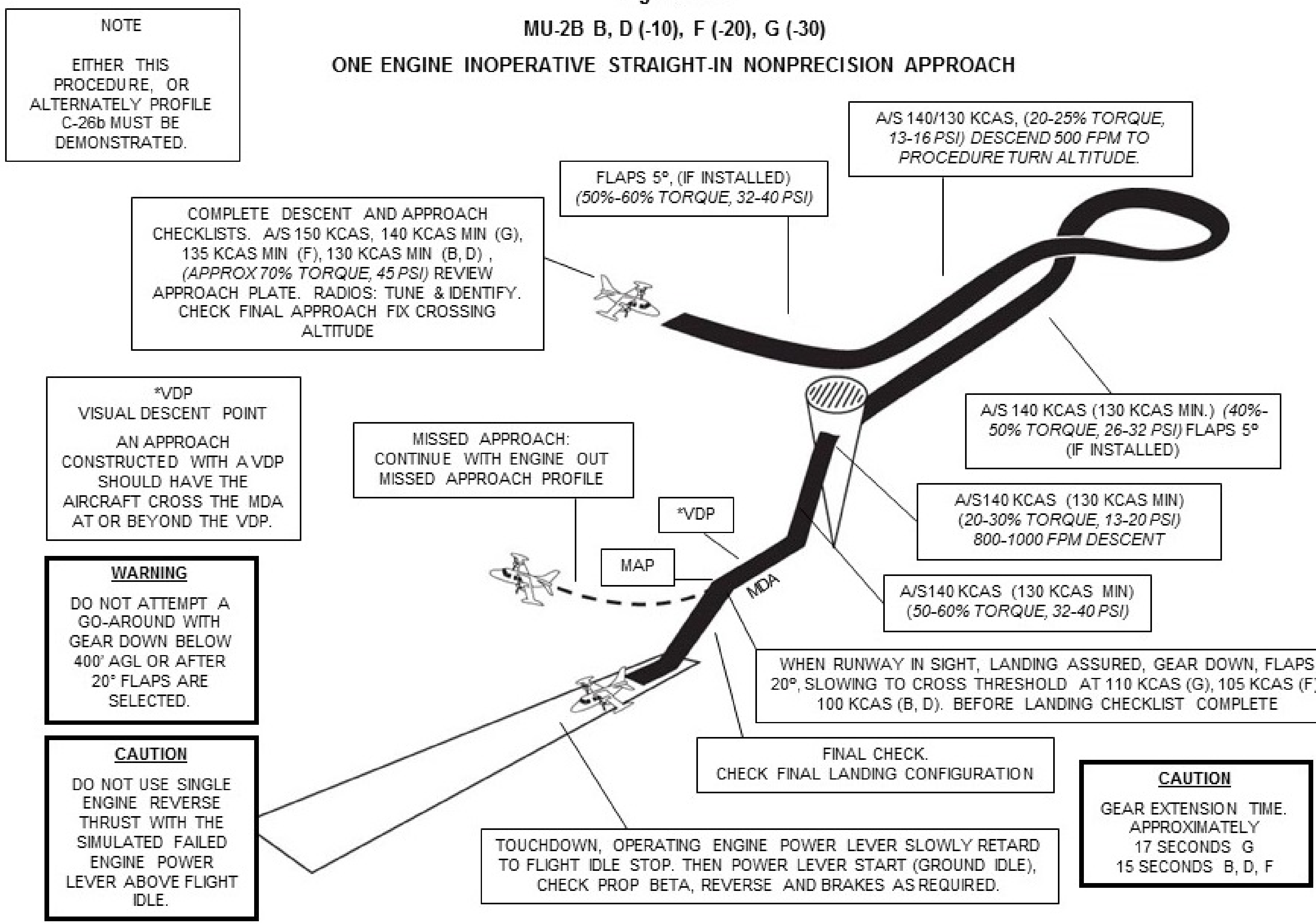


Figure C-26a

LANDING APPROACH SPEEDS Vref B, B+, D, F, G	FLAPS 20° (1.3 Vs1)				FLAPS 40° (1.5 Vs1)			
WEIGHT	B	B+, D	F	G	B	B+, D	F	G
7,000	92	92	93		94	94		
7,500	95	95	96	94	98	98	99	100
8,000	98	98	100	97	101	101	103	103
8,500		101	103	100		104	106	106
8,490	101				104			
8,930		103				107		
9,000			106	103			109	109
9,435			108				112	
9,500				105				112
10,000				108				115
10,260				109				117

Figure C-26b

MU-2B B, D (-10), F (-20), G (-30)

ONE ENGINE INOPERATIVE STRAIGHT-IN NONPRECISION APPROACH
****OPTIONAL USE OF CONTINUOUS DESCENT FINAL APPROACH (CDFA)**

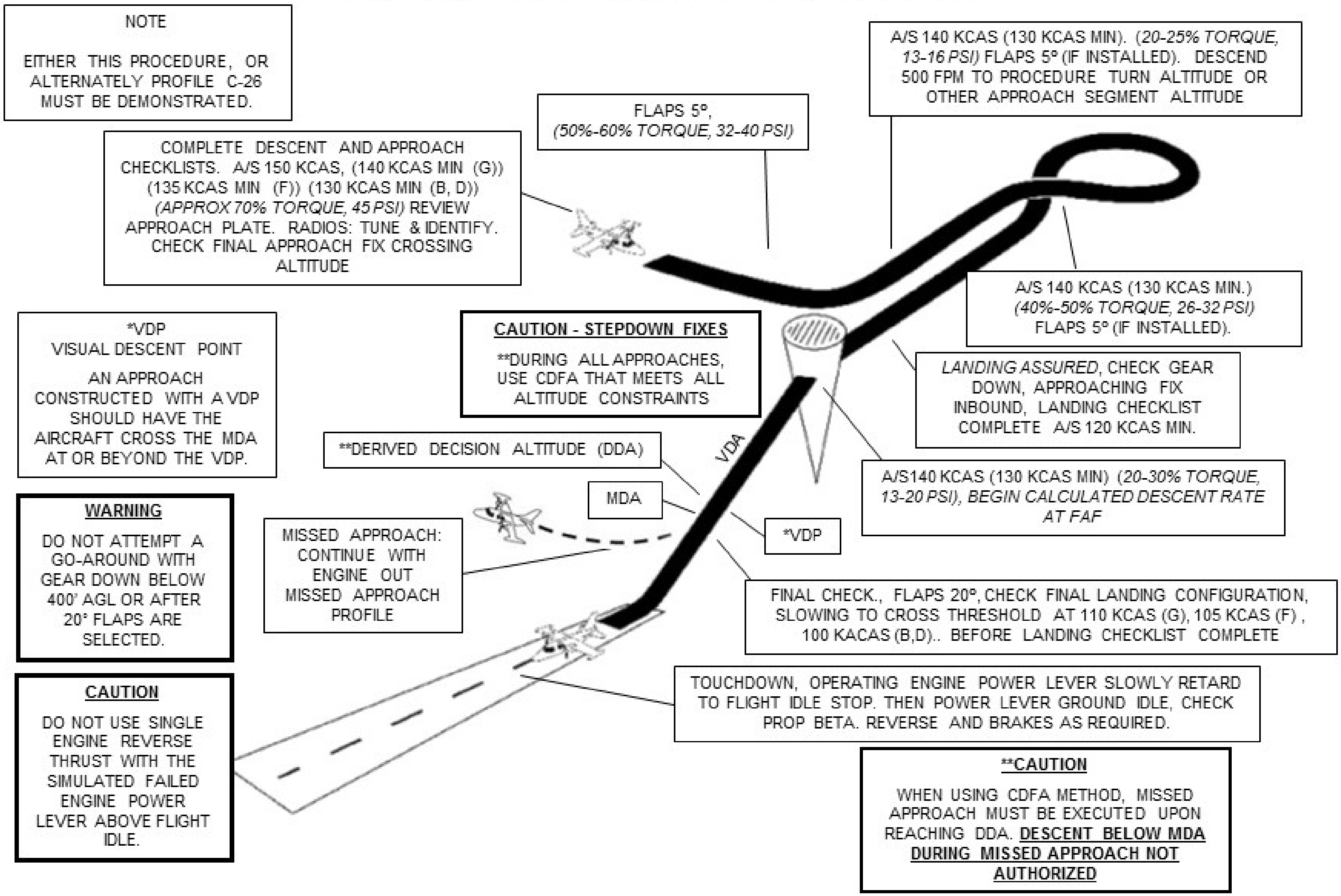
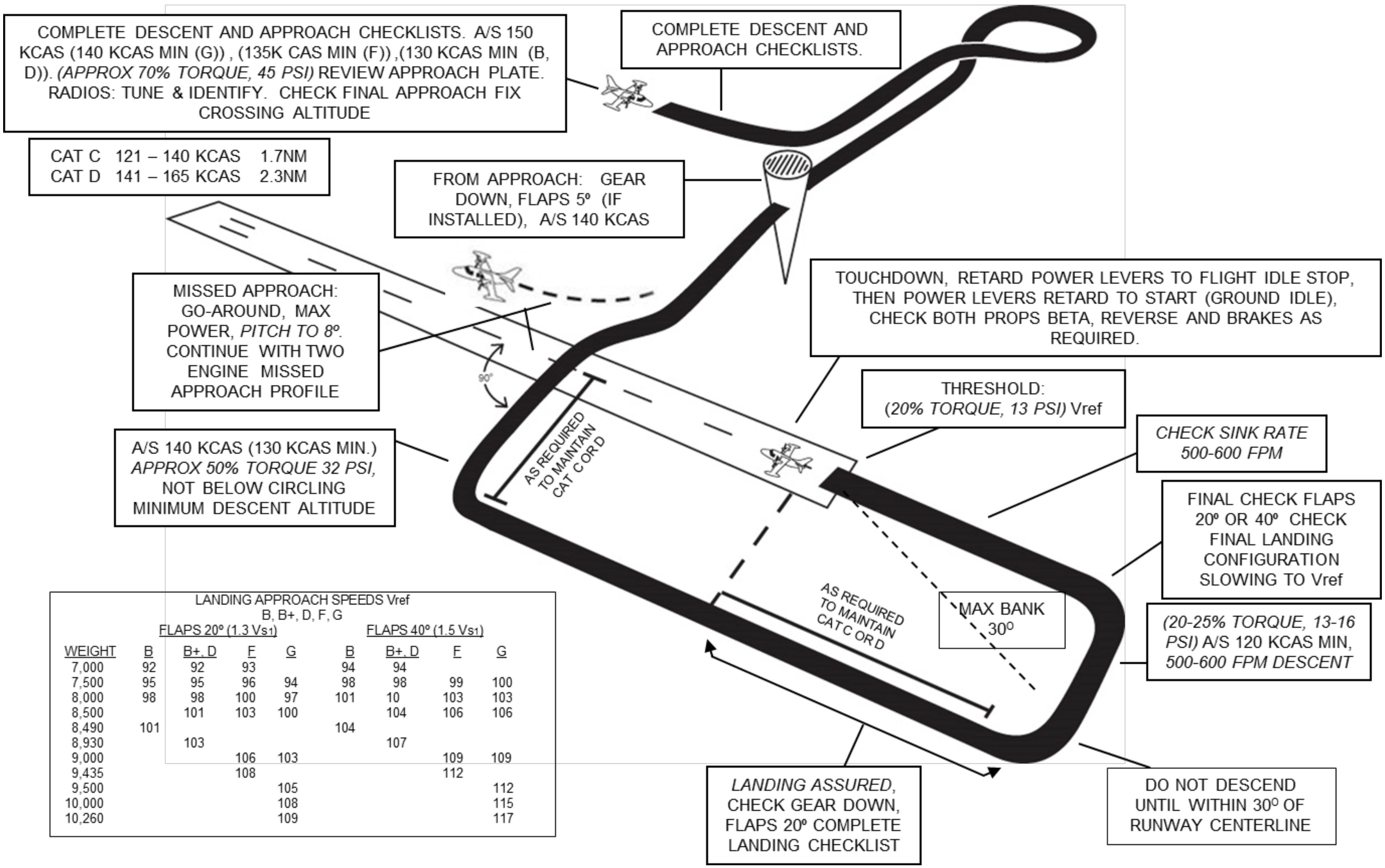


Figure C-27

MU-2B B, D (-10), F (-20), G (-30)

CIRCLING APPROACH AT WEATHER MINIMUMS



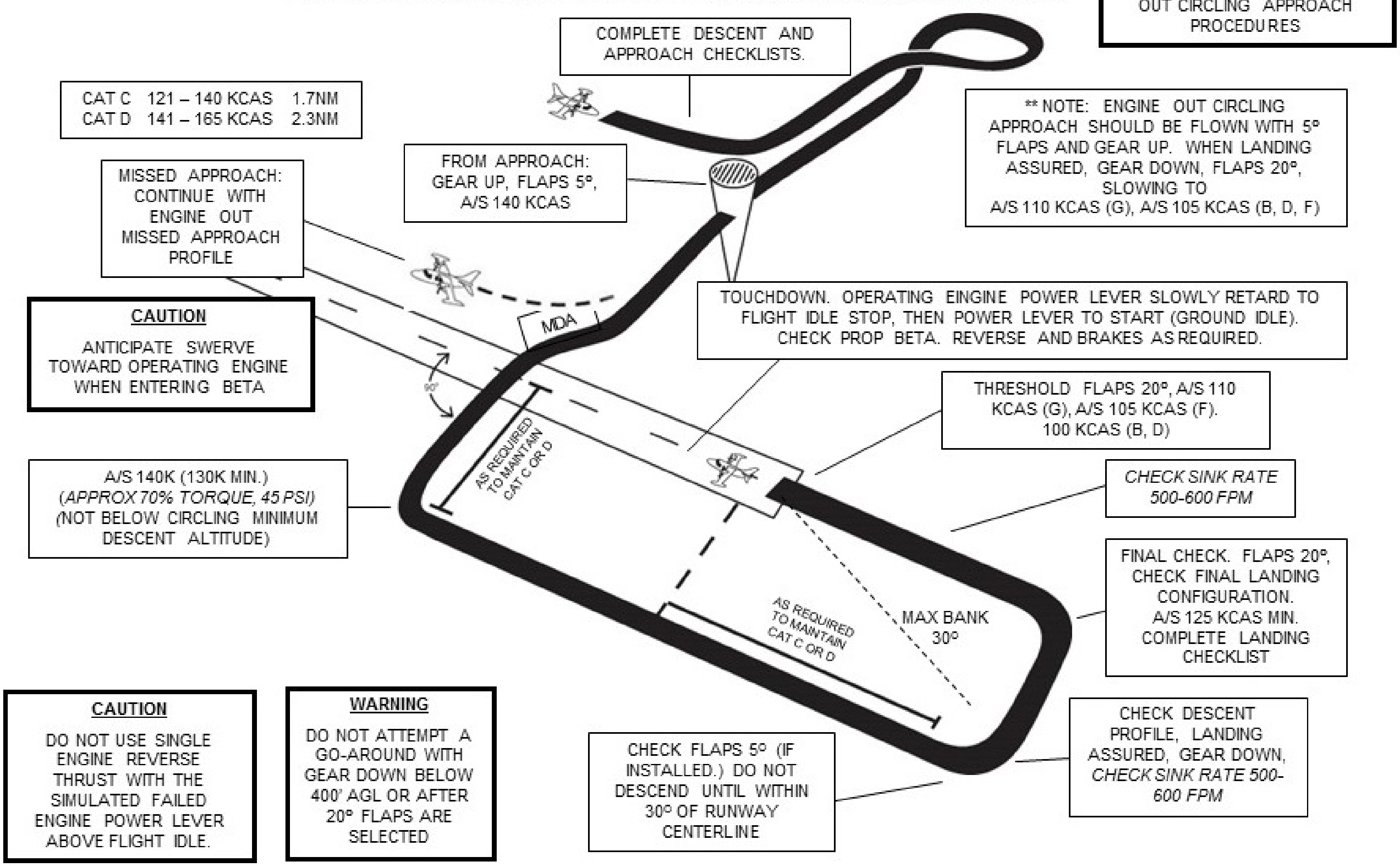
LANDING APPROACH SPEEDS Vref
B, B+, D, F, G

	FLAPS 20º (1.3 V_{s1})				FLAPS 40º (1.5 V_{s1})			
WEIGHT	B	B+, D	F	G	B	B+, D	F	G
7,000	92	92	93		94	94		
7,500	95	95	96	94	98	98	99	100
8,000	98	98	100	97	101	10	103	103
8,500		101	103	100		104	106	106
8,490	101				104			
8,930		103				107		
9,000			106	103			109	109
9,435			108				112	
9,500				105				112
10,000				108				115
10,260				109				117

Figure C-28

MU-2B B, D (-10), F (-20), G (-30)

ONE ENGINE INOPERATIVE CIRCLING APPROACH AT WEATHER MINIMUMS



Advisory Circular Feedback Form

If you find an error in this AC, have recommendations for improving it, or have suggestions for new items/subjects to be added, you may let us know by contacting the General Aviation and Commercial Division (AFS-800) at 9-AFS-800-Correspondence@faa.gov or the Flight Standards Directives Management Officer.

Subject: AC 91-89, Mitsubishi MU-2B Training Program

Date: ____________________

Please check all appropriate line items:

☐ An error (procedural or typographical) has been noted in paragraph ____________ on page _______.

☐ Recommend paragraph _____________ on page __________ be changed as follows:

____

____

☐ In a future change to this AC, please cover the following subject: *(Briefly describe what you want added.)*

____

____

☐ Other comments:

____

____

☐ I would like to discuss the above. Please contact me.

Submitted by: ______________________________ Date: _____________________