

## **Arizona Type Ratings Profiles**

**In order to provide the student with an efficient method by which to demonstrate maneuvers outlined in the ATP – Type Rating Practical Test Standard, we are providing you with the following profiles. The purpose of these profiles is to share with you knowledge gained during years of experience instructing and administering flight checks in the CitationJet family of aircraft. Profiles are NOT regulatory, nor do they appear in the Practical Test Standards. Profiles are designed to make life easier for the applicant. They are written to keep flight time and expense to a minimum while still meeting the regulatory requirements of the practical test. Though not regulatory, it is strongly suggested that you learn these profiles thoroughly, especially if you are new to the aircraft. Knowing procedures, configuration changes, power settings and target airspeeds will dramatically reduce your mental workload and should help you to receive the best value possible for your time and training dollar.**

**As you peruse these suggestions, you will notice that we frequently mention “fuel flow” as an index by which power is set during approaches and maneuvering. Currently, this is not the most common method of energy management taught by schools in the business. Consequently, our decision to hold onto this “old school” teaching method probably merits some explanation. There are N1 power settings in the abbreviated checklist and the performance charts in the AFM which define “limiting” power settings that provide maximum performance, such as at takeoff, climb and cruise. These power settings are primarily a function of temperature and altitude and as a result, they vary significantly and on non-FADEC airplanes, must be monitored by the crew and adjusted accordingly as the airplane climbs. During approaches and maneuvers, we are not interested in maximum performance. What most students new to the aircraft need is a “go to” power setting that they can use for approaches that will not stall the aircraft, not get them too fast and will allow the extension of flaps and gear when appropriate. Ideally, this power setting should work for approaches at sea level airports as well as high altitude airports. A great “go to” power setting for the CJ & CJ2 family is 350 pounds per side fuel flow and for the CJ3 and CJ4 is 400 pounds per hour. It’s good for level flight while either clean or configured to flaps “approach” while being vectored and is also useful on the typical 3° glideslope when fully configured. This power setting provides about 170 kts clean and will stabilize you at 120 kts or so on a 3 degree glide slope while configured to land. It also works well from sea level to approach segments well above 10,000 ft. Rough air may dictate adjustment of these suggested power settings so monitor airspeed and make corrections as needed.**

# Arizona Type Ratings

## CitationJet Maneuvers Guide

### STEEP TURNS

1. Enter at 200 Kts. Power required is between 450 and 500 lbs per side fuel flow, depending upon model, weight and wind conditions.
2. Bank aircraft 45 degrees. As you pass 30 degrees of bank, pitch up 1 to 2 degrees. Little if any power increase will be required to maintain 200 Kts.
3. Roll out on assigned heading. Lead roll out by 10 to 15 degrees. Passing 30 degree bank, pitch down 1 to 2 degrees to maintain altitude. Maintain 200 Kts.

### STALLS

**Note:** There may be a stall recovery procedures defined in the **EMERGENCY/ABNORMAL Checklist** of your CJ. That procedure addresses actual and "unintentional" stalls. The following procedures are suggested for the intentional demonstration of an "EMINENT" stall to the stick shaker only, not full stalls. Should an actual stall occur, follow the published procedure, which will generally suggest the intentional lowering of the nose and subsequent altitude loss to ensure recovery.

### STALLS, CRUISE CONFIGURATION (Frequently Coupled)

1. Compute Vref and set Airspeed bug accordingly.
2. Maintain assigned altitude and set power at or slightly above IDLE.
3. As airspeed bleeds off, the autopilot will continuously trim the nose up to maintain altitude. Consequently, be aware that the aircraft may be in a nose-high trim state at recovery.
4. At first indication of a stall, .85 AOA or Stick Shaker, advance thrust levers to max power. The Stick Shaker "should" disconnect the autopilot.
5. Feel free to lower the nose slightly, sacrificing a modest amount of

altitude to get the wing flying again. If desired, selecting flaps to 15 degrees, (Takeoff & Approach) will significantly increase lift very quickly. Lowering the nose dramatically will frequently invite a secondary stall.

6. Maintain assigned heading. As airspeed increases, return to your target altitude.
7. At  $V_{ref}+10$  KIAS minimum, select FLAPS UP.

### **STALL: TAKEOFF/APPROACH CONFIGURATION, TURNING**

1. Maintain assigned altitude and heading and set power to Idle.
2. After airspeed drops below maximum flap extension speed, select flaps to Takeoff & Approach (15 degrees).
3. As airspeed bleeds off, trim nose up to maintain altitude. Stop trimming at 140 Kts. Maintain altitude with back pressure only below 140 kts.
4. When instructed, execute a 20 degree bank while holding altitude with back pressure.
5. At first indication of stall, .85 AOA or Stick Shaker, **level wings** and advance thrust levers to max power.
6. Sacrifice altitude as necessary to accelerate. Maintain assigned heading as directed and return to target altitude.
7. At  $V_{ref} + 10$  KIAS or at termination of the shaker, select flaps UP.

### **STALL: LANDING CONFIGURATION**

1. Compute  $V_{ref}$  and set airspeed bug
2. Maintain assigned altitude and heading. Set no more than 300 lbs per side fuel flow, flight idle if desired.
3. Below maximum flap extension speed, select flaps to TAKEOFF & APPROACH (15 degrees)
4. Below maximum gear extension speed, select gear down and perform the BEFORE LANDING CHECK.

5. As airspeed bleeds off, trim nose up to maintain altitude.
6. After 3 Green and below flap extension speed, select flaps to LAND.
7. Maintain assigned heading and altitude, stop trimming at 140 kts.
8. At first indication of a stall, .85 AOA or Stick Shaker Activation, advance thrust levers to max power.
9. Sacrifice altitude as necessary to accelerate. Maintain assigned heading as directed and return to target altitude as able.
10. Patiently wait for airspeed to increase to Vref **MINIMUM** and shaker termination before selecting flaps to APPROACH.
11. Once flaps are retracted to 15 degrees, select gear UP. (Retracting gear before flaps are at approach setting will result in the gear warning horn which cannot be silenced).
12. At Vref + 10 KTS (minimum), select flaps UP.

## **EMERGENCY DESCENT**

1. Oxygen masks DON and 100% (or EMER) per checklist, if due to Decompression or smoke in the cabin
2. Thrust levers to IDLE.
3. Speedbrakes EXTEND.
4. Suggest moderate bank to prevent negative airframe loading while lowering the nose.
5. Establish Nose-Down attitude per checklist.
6. Ignitors "ON" if conditions warrant.
7. Allow airspeed to increase to Vmo or Mmo (minus a few) to 14,000 feet MSL or MEA as required.
8. Clean up and simulate proceeding to nearest suitable airport.

## **UNUSUAL ATTITUDE RECOVERY**

1. Nose high, decaying airspeed (At least 2 ADIs showing mostly blue sky):

Power as required, create significant bank (not to exceed 60 degrees),

Gently nudge nose to the horizon. Nose will tend to fall to the horizon due to bank. This bank will provide positive "G" loading on the airframe and its occupants while nose high attitude is being corrected.

2. Nose low, accelerating (At least 2 ADIs showing mostly brown):

Power IDLE, extend speedbrakes, level wings and gently pull nose to horizon.

## **APPROACHES**

### **ILS APPROACH, ALL ENGINES OPERATING**

1. Set power between 300 and 350 lbs per side fuel flow for small CJs and 350 to 400 lbs per side for the CJ3 & CJ4. This will result in approximately 170 kts clean.
2. Once inbound, at glide slope intercept altitude and you observe GLIDE SLOPE needle come ALIVE, select flaps to APPROACH.
3. One dot prior to intercepting glide slope, select gear DOWN and perform the "BEFORE LANDING CHECKLIST". Speed at this point will typically be 150 kts or so.
4. At Glide Slope Intercept, select flaps to LAND.
5. Airspeed should gradually decrease from 140 to 150 kts at the top of descent to Vref plus 10 to 15 kts on a 3 degree glide slope at 300 to 350 lbs fuel flow.
6. Adjust power on short final as required to cross the threshold at target speed, between Vref and Vref + 10 knots plus any gust factor.
7. If you are on speed, power is normally reduced to idle at the threshold and a shallow flare of only 5 degrees or so is required to touchdown smoothly without floating.

### **ILS, ONE ENGINE INOPERATIVE**

1. Perform the "Engine Failure During Approach" Checklist.
2. Essentially same procedure as Two Engine ILS EXCEPT:
  - Maintain Vref+ 10Kts **minimum** and FLAPS FIFTEEN until 100' to 150' AGL and landing assured. Adjust power coming down the glide slop as required.
  - Use FLAPS DOWN to cross threshold at 50' AGL and at Vref as in normal landing if desired. If landing is made FLAPS FIFTEEN, maintain Vref + 10 kts to the flare.

### **NON-PRECISION APPROACH**

1. Intercept Final Approach Course inbound at 150 Kts **minimum**. Select Flaps to APPROACH within 5 miles of Final Approach Fix. (no less than 2 miles)
2. Crossing Final Approach Fix select gear DOWN and perform the BEFORE LANDING CHECKLIST.
3. Descend at 130 KIAS to and maintain MDA until MAP or until field is in sight and aircraft is in position to land. Remember to power up at level-off to prevent further deceleration.
4. If circling, we suggest maintaining Category C speeds, 120 to 140 kts. Adjust power as required to maintain speed in this range.
5. If landing is to be made, select flaps to LAND when intercepting a visual glidepath appropriate for a normal landing. Descend from the MDA only when intercepting a normal landing glide path.

### **NO FLAP APPROACH, NON-PRECISION**

1. Consult the "Abnormal Landing, No Flap" Checklist.
2. Adjust "REF" speed per the checklist.
3. Maintain 150 kts minimum to Final Approach Fix. Then select gear DOWN and perform the BEFORE LANDING CHECKLIST no later than FAF, earlier if desired.
4. Approach angle should be NORMAL. A flat approach will usually result in a longer landing roll. Most pilots will consume between two and three times the normal runway during a no flap landing.

## GO AROUND OR MISSED APPROACH

1. Apply go-around thrust while pressing "TOGA", on the left thrust lever. Rotate at least to the command bars and select flaps to APPROACH.
2. After establishing a positive rate of climb, select gear UP.
3. At Ref + 10 **minimum**, select flaps UP and perform the AFTER TAKE OFF CHECKLIST".
4. If single engine, retract flaps at V2+10 KIAS and accelerate to Venr per Checklist, typically 1500 feet AGL.