

Tecnam Sierra Standard Operating Procedures and Maneuvers Supplement



January 12, 2012

Normal Takeoff

Flaps take off

Trim set

Fuel pump on

Landing light on

Check for traffic

Line up on white stripe

Full power

Stick should be located in the middle of the travel space

Steer with feet only - **you will need a lot of right rudder**

Gradually apply back pressure to lift the nose off ground
but leave the mains on the ground

Rotate 48kts

Climb out 68kts

Maintain right rudder

Flaps up - 500 agl

Follow noise abatement procedures

Level Off

Lower nose to achieve level flight

Reduce power to 5100RPM

Reset trim to remain in level flight

Verify: flaps up, engine instruments green

*Note: Start level off approximately 100ft before
desired altitude to avoid overshooting.*

Straight and Level Flight

Use outside references to establish and maintain the
desired pitch attitude and wings level position.

*Note: use instrument panel glareshield position
with respect to the horizon*

Check the ball of the slip/skid indicator.

*Note: Ball to the left of center requires left rudder
for balanced flight, ball to right of center requires
right rudder for balanced flight. Keep the ball in
the middle by "stepping on the ball."*

Trim as required.

*Note: Use trim to minimize the stick force required
to hold the desired pitch attitude not to change the
attitude.*

Check the altimeter and vertical speed indicator.

Make small pitch corrections necessary to maintain
desired altitude.

Do not fixate on any one instrument.

Turns (Level Flight)

Look in the direction of turn before banking!
Use rudder and aileron together to establish the desired bank angle.

Simultaneous apply back pressure to elevator.

Once the desired bank angle is established, neutralize the rudder and aileron inputs. Keep in elevator.

Note: Level altitude turns require some elevator force (back stick) to maintain a constant altitude (more bank, more elevator back stick.)

Use rudder and aileron together to roll out of the bank to wings level.

Release any back stick elevator pressure.

Neutralize the rudder and aileron.

Check that the ball is centered.

Note: To roll out on a specific heading, lead the heading by one third the bank angle (example: 30 degrees bank angle, lead rollout by 10 degrees.)

Climbs

Apply full power and right rudder as needed
Raise the nose to the desired climb pitch attitude
Refine pitch attitude to maintain desired airspeed

Note: $V_x = 56\text{kts}$ (best angle)

V_y (best rate) = 68kts

cruise climb = 70-80kts

Set trim to hold desired attitude and airspeed.

Keep the ball centered.

Descents

Reduce power to desired RPM and lower nose to the pitch attitude for desired airspeed.

Note: For a cruise descent, reduce power to maintain a descent rate of approximately 500 ft/min. and maintain cruise speed.

Trim as required to minimize elevator force.

Keep the ball centered.

Level Off From Descent

Simultaneously add desired power and raise the nose.
Trim to eliminate stick pressure.

Note: To level off from a descent, lead the level off by approximately 100 feet

Note: To level off in cruise flight bring power to 5100RPMs. To level off for the traffic pattern bring power to approximately 3200 rpms.

Normal Landing

10nm from airport, landing light on, fuel pump on, listen to AWOS and/or request airport advisory

5nm from airport begin self announcing position

Enter traffic pattern following noise abatement procedures

As you enter the pattern power back to 3,200 rpms to get the aircraft slowed down, retrim

Downwind leg 3,200 RPM, 60-65kts level flight, retrim

Abeam of numbers, reduce power to 2,800 rpms, add first notch of flaps (3 seconds), retrim for 60kt decent

Base, add landing flaps (3 seconds), retrim, adjust power/ power if need be for appropriate decent altitude and to maintain 60kt decent

Final, adjust power if need be for appropriate decent altitude and to maintain 60kt decent. Add final flaps if desired, retrim.

Once the runway is made, reduce power to idle

20 feet above runway, begin transition from maintaining airspeed to maintaining attitude. Focus eyes at far end of the runway. Gradually increase back pressure on stick to try and hold aircraft 2 feet off the runway as long as possible. Use your feet to point airplane down the runway and hand to maintain altitude and keep it over the centerline.

Once main wheels touch the ground, steer with feet.

Gradually lower the nose wheel and begin applying brakes as needed

Clear runway

Make radio call

Reset trim, put flaps up.

Note: If fast, raise nose; if slow, lower nose.

*Summary: **PITCH CONTROLS AIRSPEED, POWER CONTROLS ALTITUDE.***

Power On Stall

2 clearing turns

Reduce power to 3000 rpm

Increase pitch, trim and rudder to maintain altitude

Once within the white arc, add 1 notch of flaps

Adjust pitch and power to maintain altitude until 48kts

At 48kts, apply full power, right rudder, and immediately pitch back to further reduce airspeed until stall

Watch coordination and maintain heading

Recovery

Pitch for level attitude

Once airspeed has increased to 60kts, establish 60kt climb

Remove flaps and climb to desired altitude.

Return to cruise flight.

Note: For turning stall maintain shallow bank angle and keep plane coordinated.

Power Off Stall

2 clearing turns

Reduce power to 3000 rpm

Increase pitch attitude and trim to maintain altitude

Once within the white arc, bleed in flaps

Adjust pitch and power to maintain altitude until 60kts

At 60kts, reduce power to idle and establish 60kt glide

Descend 300 feet and then gradually pitch back to maintain altitude and induce a stall.

Recovery

Pitch down enough to fully break the stall.

Simultaneously apply full power, right rudder as needed, pitch for level attitude, and remove first notch of flaps.

Once airspeed is 60kts, establish 60kt climb

Bleed out flaps and climb to desired altitude.

Return to cruise flight

Note: For turning stall maintain shallow bank angle and keep plane coordinated.

Slow Flight

2 clearing turns

Reduce power to 3,000

Increase pitch attitude and trim to maintain altitude

Once within the white arc, bleed in flaps

Adjust pitch and power to maintain altitude at 48kts

Recovery

Full power

Pitch for level attitude

Bleed out flaps while in the white arc

Retrim

Steep Turns

4800 RPM - Establish cruise flight at or below 96kts rpm
2 clearing turns
Choose landmark for entry heading
Trim airplane for level flight
Choose landmark for entry heading
Begin roll to 45° bank
At 30°, add 100-200rpm and continue roll to 45°
adjusting back pressure as needed
Maintain altitude
10° prior to roll-out heading, begin roll out and reduce
power 100-200rpm.
Roll out at entry altitude and heading.

Turns Around a Point

Determine wind direction
Select a suitable site. Should have emergency landing
areas, no towers, and not disturb the neighbors.
Establish cruise flight at or below 96kts 4800 rpm
Select four points around the point that are equidistance
from the center. These four points are your
targets.
Enter maneuver at 1000 feet
When point in abeam of wing begin turn
Steepest turn should be downwind. Shallowest upwind.
Keep object same distance from aircraft by adjusting
bank angle. Steeper brings it closer. Shallower
takes it further away.

S-Turns Across a Road

Determine wind direction
Select either Rt 50, Rt 404, or Rt 301. Winds should be
perpendicular to road. (Talk to ESN tower for 50)
Establish cruise flight at or below 96kts 4800 rpm
Select target distance from road
Enter maneuver at 1000 feet perpendicular to road
When over the road begin turn
Steepest turn should be downwind. Shallowest upwind.
Airplane should be wings level only when crossing the
road. Adjust bank angle accordingly.

Go-Arounds

Apply full power
Reduce flaps to take-off setting
Pitch for level attitude until 60kts and then begin climb
Bleed out flaps

Short Field Takeoff

Take-off flaps
Fuel pump on
Stop aircraft at the very end of the runway
Hold brakes and apply full power
Release brakes
Steer with feet only - **you will need a lot of right rudder**
Climb out at 55kts
Above obstacle height, retract flaps, pitch for 68kts

Short Field Landing

Fuel pump on
Set up final approach at 55kts
Establish aim point prior to actual touch down point
After touch down, maintain full after elevator, retract flaps, apply brakes but do not skid!

Soft Field Takeoff

Inspect field condition checking for grass height, holes, debris, and wetness
Flaps - Take-off
Fuel pump on
Full aft pressure during taxi continuing through takeoff
Apply full power
Steer with feet only - **you will need a lot of right rudder**
As soon as main wheels leave the ground, lower nose to level attitude and fly aircraft 5 feet off the ground until 60kts
Climb out at 60-68kts

Soft Field Landings

Fuel pump on
Perform low pass to inspect field condition for grass height, holes, debris, and wetness
Set up normal approach to landing
Keep nose wheel off the ground as long as possible holding aft pressure as long as possible
Use minimal braking and keep aircraft moving until parked

Note: Be sure to check NOTAMS that runway is open! Kentmorr closes when it is muddy.

Crosswind Takeoff

Modify appropriate takeoff procedures as such:

Begin ground roll with full aileron into the wind

Gradually take out most of the aileron as aircraft accelerates

Upon lift-off, establish coordinated crab into the wind

NOTE: When crosswind is from the left, you will need to apply right rudder immediately upon addition of power. A combination of weather-veining and being slow on the rudder could put you in a ditch.

Crosswind Landing

Modify appropriate landing procedures as such

Add 5kts approach speed if runway length allows,
especially in gusts

Apply rudder to point nose down the runway

Apply aileron to hold aircraft over the centerline

Note: Net effect should be the aircraft slightly cross controlled with the wing down into the wind

Note: Control input should be increased as aircraft decelerates and maintained until landing

Forward Slips

Apply full rudder

Apply enough opposite aileron to hold the aircraft over the centerline

Pitch to maintain airspeed

This is most effective with no power, full flaps and downward wing into the crosswind wind

Flat Tire Upon Landing

Stop aircraft

Radio call - Notify UNICOM and landing traffic of runway situation

If able, push aircraft off of runway while keeping as much weight off of that wheel as possible

If unable to reach UNICOM - Call CSP emergency numbers for assistance

Aborted Takeoff

Retard throttle

Apply full braking

Steer as appropriate

Note: Grass can be used to slow the airplane down

Loss of Engine

Establish and trim for best glide speed 68kts
Select emergency landing site and head that way

IF there is time, try to restart engine

Work right to left

Throttle - Half Open

Fuel - Verify On Both

Fuel Pump - On

Ignitions - Check

Attempt re-start

IF there is time, call for help giving position

Radio 121.5 MHz

Transponder 7700

Secure Engine

If engine will not restart - Fuel Shutoff Up

Ignition Switches - Off

Flaps - as necessary

Master off after final flaps

Unlock and slide open canopy prior to touchdown

Loss of Engine Immediately After Takeoff

Pitch DOWN for 60kts

Make shallow turns right or left

Off runway 29 - prepare for ditching

Ditching

Pitch for 68

Head towards a boat or shoreline

Place MAYDAY call 121.5 and squawk 7700

Seats belts: TIGHTEN

Flaps: FULL DOWN

Fuel selector: BOTH OFF

Electrical fuel pump: OFF

Ignition: BOTH OFF

Turn master switch off

Open two side canopy latches

Landing speed: 47 KIAS

Ditch with high aircraft nose attitude

Engine Fire - Emergency Decent

Cabin heat shut off

Shut off fuel

Turn fuel pump off

Apply full throttle

Pitch for highest possible airspeed within the yellow arc to try and snuff out flames

Select emergency field

Mayday 121.5 and 7700

Prepare for forced landing (use loss of engine checklist)

Employ slip to increase decent and keep fire away from firewall

Emergency Descent

Reduce power to idle.

Flaps up.

Lower the pitch attitude to increase airspeed until desired rate of descent is obtained. If air is smooth ≤ 138 kts if turbulent ≤ 110 kts

Banking bank to 45 degrees.

Trim.

Approaching desired altitude, level the wings and gradually raise the nose.

Add power and trim to level off, if available.

Flat Tire Upon Landing

Stop aircraft

Radio call - Notify UNICOM and landing traffic of runway situation

If able, push aircraft off of runway while keeping as much weight off of that wheel as possible

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Spin Recovery

From the FAA Airplane Flying Handbook

Reduce the power to idle

Position the ailerons to neutral

Apply full opposite rudder against the rotation

After spin rotation stops, neutralize the rudder

Begin applying back-elevator pressure to raise the nose to level flight

Overheating Cylinders/Water (In-Flight)

Reduce RPMs to lowest possible to maintain safe flight
Land as soon as practicable

Overheating Oil Without Loss of Oil Pressure

Reduce RPMs
Lower angle of attack
If oil temperature continues to climb, land

Overheating Oil With Loss of Oil Pressure

Select and head towards emergency landing spot
Declare an emergency 121.5 and 7700
Prepare for loss of engine and use of appropriate checklist

Loss of Radio

If in a pattern at a towered field, look for light gun signals.
If under flight following or in towered airspace with radar, squawk 7600
Otherwise return home or to nearest appropriate airport
Overfly and observe airport traffic pattern
Carefully merge with traffic
Execute normal landing

Loss of Flap Control

If flaps are down, maintain airspeed below 68 kts when returning to airport
If flaps are up, return home and execute normal landing

Loss of Trim Control

Fly the aircraft paying special attention to airspeed in the pattern.

Loss of Brakes

If you are fast and have adequate runway, go-around and re-approach using short field landing technique or land at longer runway
Land with minimum airspeed
Roll into the grass on the side of the runway if needed to stop the plane

Electrical Fire

Master Switch - OFF
Aux Alternator - OFF
Vent fumes from cabin
Land as soon as practical

Loss of Generator or Alternator

Switch to the other
Limit electrical load
If both are out, turn off all unneeded electrical equipment
Land as soon as practical
Use no-flap landing