

Ex. 16, 18 – Soft-field Take-offs & Landings



What you will learn:

- ✓ How to take-off from and land at soft and/or rough fields-grass, mud, sand, slush



Why learn this:

- ✓ Many small aerodromes have grass runways
- ✓ In an emergency situation or precautionary landing, likely to be landing on a farmer's field or similar.

Theories and Definitions:

- ✓ POH
- ✓ Ground Effect
- ✓ Soft Field:
 - Take-off Considerations
 - Landing Considerations

Ground Effect

- ✓ Ground effect results in decreased induced drag: making it possible for an a/c to become airborne at less than normal airspeed.

- ✓ Must accelerate in ground effect to normal airspeeds before leaving ground effect!

Ground Effect Vehicle



Soft Field: Landing Considerations

- ✓ Runway may be rough/bumpy
 - lighten the load on the nose gear to avoid damage
 - touch down at lowest safe airspeed
 - land into the wind to minimize ground speed

- ✓ Runway may be soft/muddy: may get stuck!
 - keep the nose gear off the ground for as long as possible
 - avoid unnecessary stopping
 - avoid use of brakes.

Procedures

- ✓ **Soft-Field Take-off**
 - Before Take-off
 - Take-off and Climb-out

- ✓ **Soft-Field Landing.**

Before Soft-Field Take-off

- ✓ **When taxiing:**
 - **control column all the way back**
 - **avoid use of brakes and unnecessary stopping**

- ✓ **Extend 10° of flaps prior to take-off**

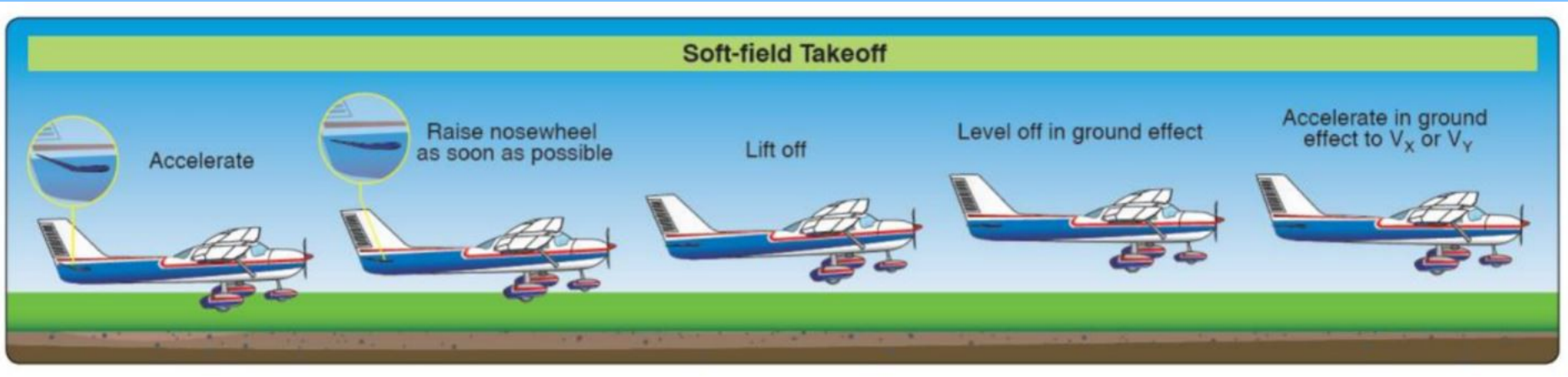
Soft-Field Take-off and Climb-out

- ✓ Control column all the way back
- ✓ Taxi onto the runway and transition to take-off roll in one smooth motion
- ✓ Smoothly apply full power
- ✓ As airplane accelerates, lower the nose (but keep nose gear off the ground)
- ✓ Let the plane “fly off” into the ground effect
- ✓ Accelerate in ground effect to a safe airspeed
- ✓ Climb out at a normal climb speed
- ✓ Flaps up at safe airspeed and altitude.

Soft-Field Take-off



Move your hands and feet through the steps...



Soft-Field Landing

- ✓ Flaps
- ✓ Add and maintain “a touch” of power during the flare
- ✓ Touch down softly on main gear
- ✓ Power idle (on rough runways, some power needs to be retained to prevent the plane from stopping)
- ✓ Hold nose gear off the ground for as long as possible
- ✓ Avoid unnecessary use of brakes or stopping

Soft-Field Landing

Move hands and feet through the steps

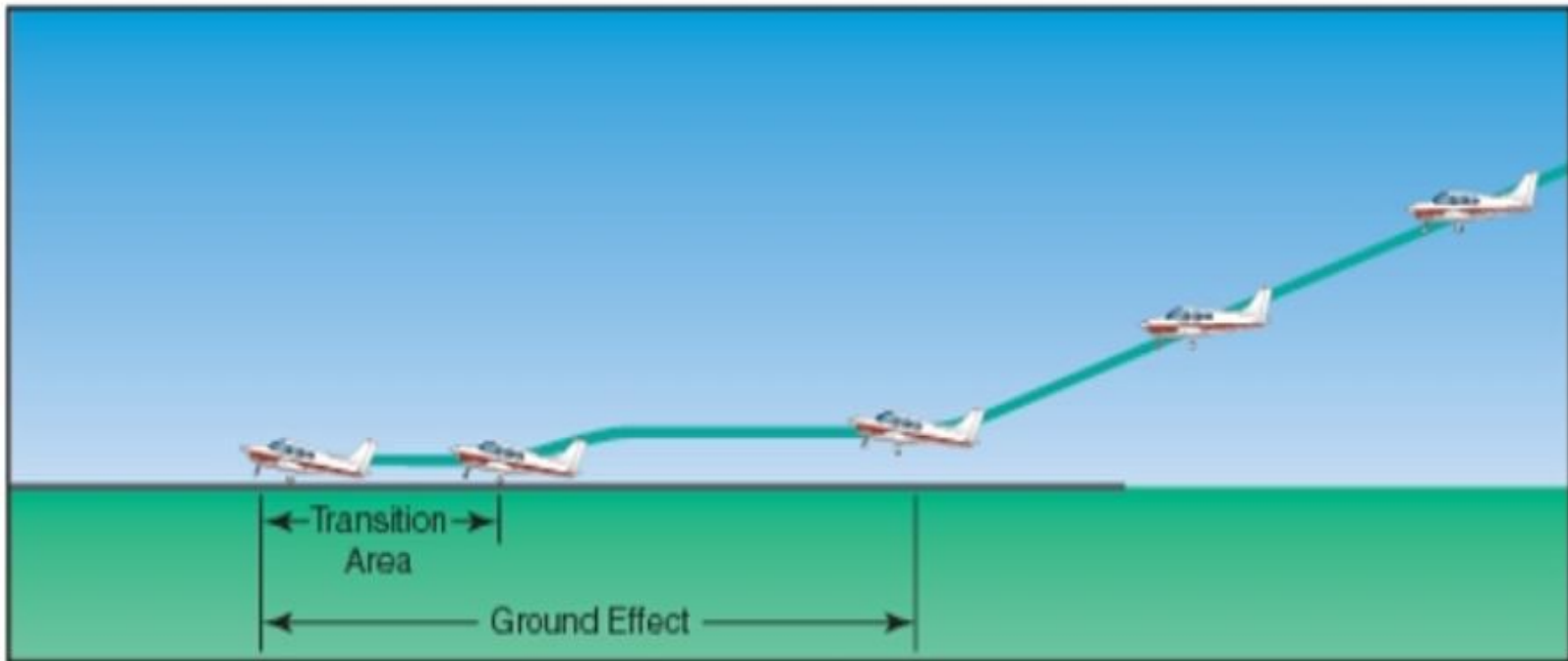


Figure 8-24. Soft/rough field approach and landing.

SAFETY

- !Relax back pressure promptly after adding power on take-off to avoid tail strike
- !Accelerate in ground effect before attempting to climb out of it
- !When in doubt about field condition, overfly the field for inspection and perform a low-and-over if necessary.

Conclusion

- ✓ Now you know how to take off and land from soft and rough fields
- ✓ This drastically expands the number of destinations available to you
- ✓ You are better equipped to handle an emergency off-airport landing

QUESTIONS?