

Unusual attitudes

INSTRUMENT FLYING

Objective

To recognise, and recover to straight and level from a nose-high or nose-low unusual attitude.

Considerations

- Unusual attitude can be entered due high workload, fixation, leans
- Trust the instruments
- Recover to straight and level first
- Then regain altitude and heading
- Change – check – hold – adjust – trim
- Must identify the position of the horizon

Limited panel



1. Check airspeed—stop further increase or decrease
2. Adjust power to compensate
3. Roll wings level

Change If altitude ↑ – ↓ backpressure (push)
If altitude ↓ – ↑ backpressure (pull)
Until 100s pointer stops moving

Check

Hold

Adjust

Trim (but you shouldn't need to)

Airmanship

- Enough height for recovery
- SRS – A/S, Alt, then the rest
- Limiting speeds – V_A , V_{NO} , V_{NE} , and RPM limit

Air exercise

- Smooth control movements whenever speed above V_A

Attitude	Recognition	Recovery
Nose high	<ul style="list-style-type: none">• Low or ↓ airspeed• ↑ altitude• ↑ rate of climb• ↓ engine RPM	<ul style="list-style-type: none">• Full power and level wings• Push forward on c/c until airspeed/altimeter stops• Check• Hold• At normal cruise speed reduce power• Adjust• Trim
Nose low	<ul style="list-style-type: none">• High or ↑ airspeed• ↓ altitude• ↑ rate of descent• ↑ engine RPM	<ul style="list-style-type: none">• ↓ power and level wings• Ease out of dive, check airspeed• When altimeter stops• Check• Set cruise power• Hold• Adjust• Trim
Spiral dive	<ul style="list-style-type: none">• High or ↑ airspeed• ↓ altitude• High angle of bank• High rate of descent• High or ↑ G-loads• ↑ engine RPM	<ul style="list-style-type: none">• Close throttle and level wings• Ease out of dive, check airspeed• When altimeter stops• Check• Set cruise power• Hold• Adjust• Trim

- When straight and level regained, return to original reference altitude and heading

Aeroplane management

- Smooth positive control movements

Human factors

- Human orientation system has limitations
- Instrument failure rare
- Trust the instruments