Climbing and Descending

1. Principles of Flight

Climbing
- Aeroplane is in equilibrium when climbing
- Lift is not increased
- T must be greater than D
- Rate of climb (climb performance) depends on excess power available

Climb Performance
- Power: More power better climb performance
- Altitude: Limits the performance
- Weight: ↑ weight → ↓ rate of climb
- Flop: ↑ drag → ↓ rate of climb
- Wind: Affects climb angle and distance in climb

Climb Configurations

<table>
<thead>
<tr>
<th>Performance</th>
<th>Power</th>
<th>Attitude</th>
</tr>
</thead>
<tbody>
<tr>
<td>Best RoC</td>
<td>Full</td>
<td>kts</td>
</tr>
<tr>
<td>Best AoC</td>
<td></td>
<td></td>
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<tr>
<td>Cruise</td>
<td></td>
<td></td>
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<tr>
<td>Recommended</td>
<td></td>
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</tbody>
</table>

Descent Configuration

<table>
<thead>
<tr>
<th>Performance</th>
<th>Power</th>
<th>Attitude</th>
</tr>
</thead>
<tbody>
<tr>
<td>Glide</td>
<td>Idle</td>
<td>kts</td>
</tr>
<tr>
<td>Powered</td>
<td></td>
<td></td>
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<tr>
<td>Cruise</td>
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</tbody>
</table>

2. Airmanship

- Situational awareness – what was, is, and will be
- VFR Met minima
- Minimum and maximum heights
- Lookout – restrictions
- I'M SAFE

3. Aeroplane Management

- Smooth throttle movements
- Mixture RICH
- Carb heat HOT for descent
- Temperatures and pressures

4. Human Factors

- Trapped gases in ears
- Diving
- Empty sky myopia
- Noise

5. Air Exercise

Climbing

Entry
- Power: mixt RICH, full power, balance
- Attitude: climb attitude, wings level, balance
- Trim: to maintain attitude
- Airspeed = _____ RoC = _______
- Airspeed controlled with attitude

Maintaining
- Lookout
- Attitude
- Instruments
- Change – check – hold – trim

Exit
- Attitude: select and hold S+L attitude, adjust as speed increases, balance
- Power: wait for aeroplane to accelerate, then set cruise power, balance
- Trim: to hold S+L attitude

Descending

Entry
- Power: mixt RICH, carb heat HOT, close throttle, balance
- Attitude: hold S+L attitude until glide speed, then set glide attitude
- Trim: to maintain attitude
- Airspeed = _____ RoD = _______
- Airspeed controlled with attitude

Maintaining
- Lookout
- Attitude
- Instruments
- Change – check – hold – trim

Exit
- Power: carb heat COLD, increase power to cruise, balance
- Attitude: simultaneously set to S+L, balance
- Trim: to hold S+L attitude