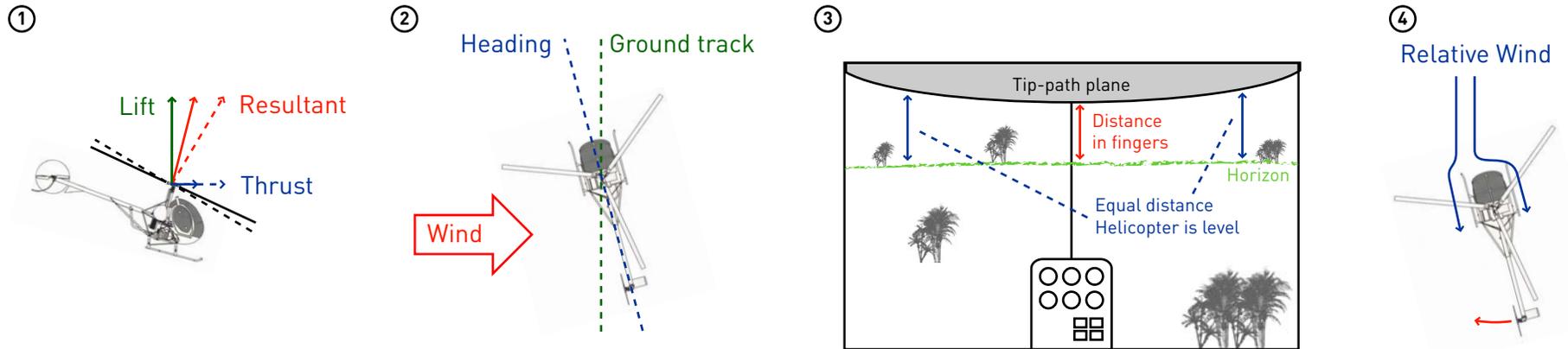


OBJECTIVE	- Familiarize the student with technique regarding straight and level flight, level turns, straight climbs and climbing turns, straight descents and descending turns. Demonstrate maneuvers and have student safely execute the maneuver at first with help from instructor. In the end, at least once with as little help as possible from instructor								
CONTENT	<ul style="list-style-type: none"> - Introduction and checks - Effect, use and coordination of flight controls - Cross checking instruments with outside references - Trim technique - Tenseness and over controlling - Crosswind adjustments - Common errors 								
SCHEDULE	<table border="0" style="width: 100%;"> <tr> <td style="width: 80%;">- Pre-flight Discussion</td> <td style="text-align: right;">20</td> </tr> <tr> <td>- Instructor Demonstration</td> <td style="text-align: right;">15</td> </tr> <tr> <td>- Student Practice</td> <td style="text-align: right;">40</td> </tr> <tr> <td>- Post-flight Critique</td> <td style="text-align: right;">15</td> </tr> </table>	- Pre-flight Discussion	20	- Instructor Demonstration	15	- Student Practice	40	- Post-flight Critique	15
- Pre-flight Discussion	20								
- Instructor Demonstration	15								
- Student Practice	40								
- Post-flight Critique	15								
EQUIPMENT	<ul style="list-style-type: none"> - Whiteboard + pens for pre- and post-flight discussions - Helicopter model 								
INSTRUCTOR'S ACTIONS	<ul style="list-style-type: none"> - Pre-flight - Discuss lesson objective - In-flight - Demonstrate maneuvers in head or cross wind conditions and coach student practice - Post-flight - Critique and evaluate student performance 								
STUDENT'S ACTIONS	<ul style="list-style-type: none"> - Pre-flight - Discuss lesson objective and ask questions - In-flight - Perform new maneuvers as directed - Post-flight - Ask pertinent questions 								
COMPLETION STANDARDS	<ul style="list-style-type: none"> - Student should demonstrate knowledge of elements related to maneuvers - Maintain RPM within limits - Maintain altitude +-200 feet and heading within +-15^o (For CPL +-100 feet and +-10^o) - Maintain proper ground track with crosswind correction - Maintain speed +-10kts (CPL +-5kts) - Perform checks 								

OBJECTIVE - Flight where a constant heading, altitude and airspeed is maintained

CONTROLS - CYCLIC Attitude, Airspeed, Ground track, Heading - PEDALS Trim
 - COLLECTIVE Altitude, Power setting - THROTTLE RPM

TECHNIQUE



- ① **Forward Flight**
- Tip-path plane tilted forward
 - Horizontal thrust component
 - The lower the nose, the greater the power, and the higher the airspeed

- ② **Straight**
- Compass for heading
 - Maintain a straight ground track
 - Fly towards a reference point approximately 2 miles ahead

- ③ **Level**
- Tip-path plane parallel to and constant distance from horizon
 - For normal cruise flight we use a 2 finger attitude - 70 knots
 - Constant collective position for a given airspeed
 - Scanning 80% outside and 20% inside easier to fly and for collision avoidance
 - Cross check with ASI, ALT, VSI
 - Only small corrections needed when we experience up-/down drafts

- ④ **Trim**
- Pedals adjust trim
 - Streamline airflow around the aircraft
 - Reduces drag
 - Use the trim string

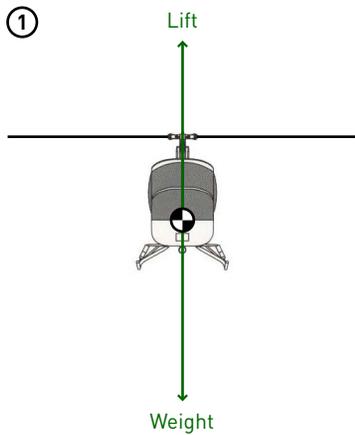
ERRORS

- Not in trim / Cross controlling
- Maintaining airspeed / attitude
- Over controlling
- Ground track
- Turbulence correction
- Inherently unstable
- Use of incorrect scanning technique
- Continuously process, 10° segments, Include instruments

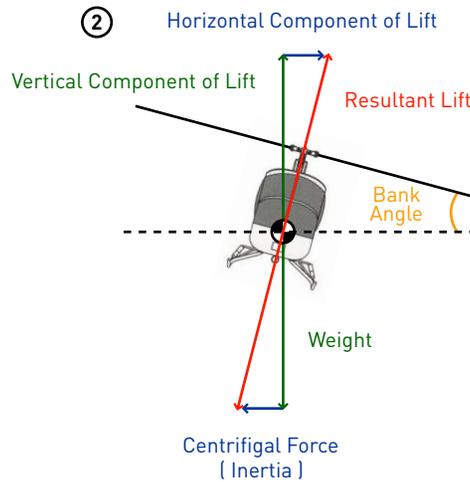
OBJECTIVE - A manouver used to change the heading of the helicopter, keeping the same altitude

CONTROLS - CYCLIC Attitude, Airspeed, Heading - PEDALS Trim
 - COLLECTIVE Altitude, Power setting - THROTTLE RPM

TECHNIQUE



- ① **Straight-and-level flight**
- Two finger attitude, 70 knots
 - Cruise power
 - Clear all around

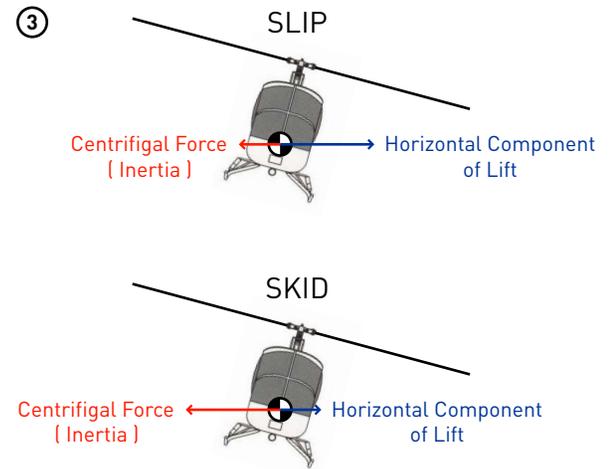


- ② **Level Turn**
- Apply sideward cyclic to start the turn
 - As angle of bank increase more lift is acting horizontally and vertical lift is decreased
 - Raise collective, leading with the throttle to compensate for the loss of vertical lift
 - Trim with pedals

Roll out

- Roll out before the desired heading
- Apply sideward cyclic in the opposite direction of the turning motion
- Lower collective, leading with the throttle to compensate for the extra vertical lift
- Trim with pedals

- ERRORS**
- Out of trim
 - Not scanning
 - Descending



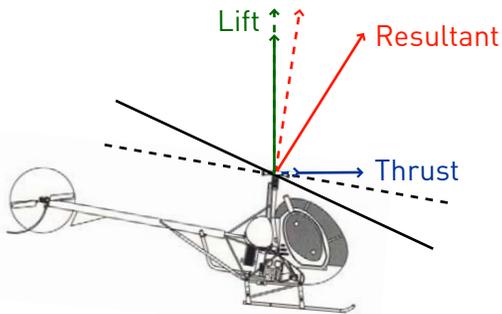
- ③ **Slip**
- Slides sideways into the center of the turn
 - Rate of turn too slow for the bank angle
- Skid**
- Slides sideways away from the center of the turn
 - Rate of turn too fast for the bank angle

OBJECTIVE - A maneuver used to gain altitude from straight-and-level flight

CONTROLS - CYCLIC Attitude, Airspeed - PEDALS Trim
 - COLLECTIVE Altitude, Power setting - THROTTLE RPM

TECHNIQUE

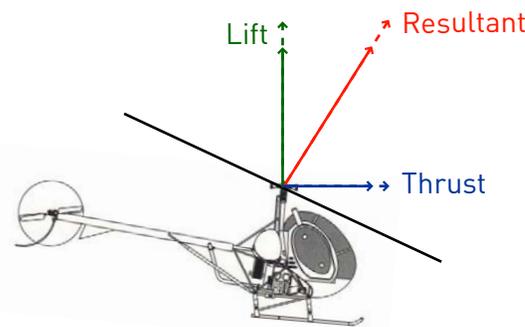
①



① **Speed climb**
 - Apply aft cyclic to transfer some thrust into lift

② **Power climb**
 - Raise collective to produce a greater amount of the resultant force

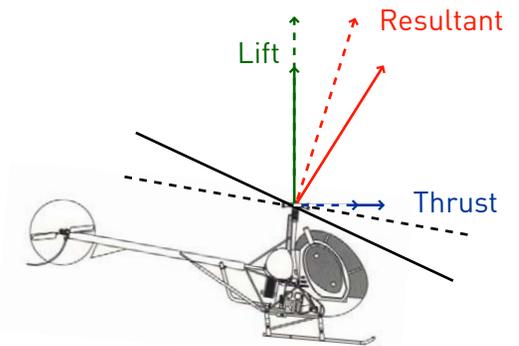
②



③ **Speed and power climb**
 - Aft cyclic to a four finger attitude, 55 knots
 - Raise collective, leading with the throttle to maintain RPM, to obtain climb power
 - Add left pedal to compensate for the increased torque

Climbing turns
 - Combine the techniques of the turn and the climb

③



Level of from the climb
 - 10% rule - 500 ft/min = 50 feet before
 - Forward cyclic to a two finger attitude
 - Maintain climb power until cruise speed is obtained
 - Lower collective, leading with the throttle to maintain RPM, to reduce to cruise power
 - Add right pedal to compensate for the decreased torque

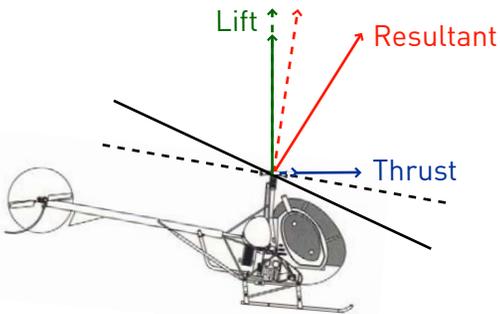
ERRORS - Over controlling - Not scanning - Not maintaining trim
 - RPM control - Leveling out in time

OBJECTIVE - A maneuver used to lose altitude from straight-and-level flight

CONTROLS - CYCLIC Attitude, Airspeed - PEDALS Trim
 - COLLECTIVE Altitude, Power setting - THROTTLE RPM

TECHNIQUE

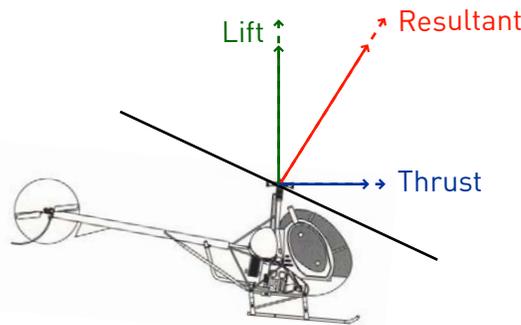
①



① **Speed descent**
 - Apply forward cyclic to transfer some lift into thrust

② **Power descent**
 - Lower collective to produce a smaller amount of resultant force

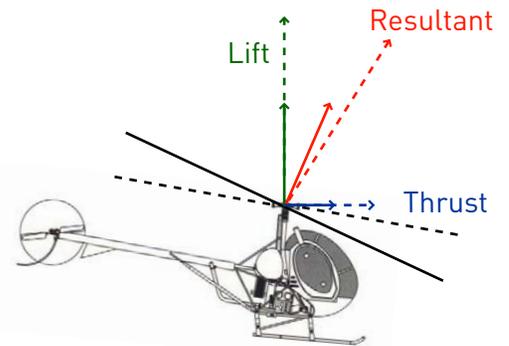
②



③ **Normal descent**
 - Lower collective, leading with the throttle to maintain RPM, to approximately 18" MAP
 - Aft cyclic to a three finger attitude, 60 knots
 - Add right pedal to compensate for the decreased torque

Descending turns
 - Combine the techniques of the turn and the descents

③



Level of from the descent
 - 10% rule - 500 ft/min = 50 feet before
 - Raise collective, leading with the throttle to maintain RPM, to increase to cruise power
 - Add left pedal to compensate for the increased torque
 - Forward cyclic to a two finger attitude, 70 knots

ERRORS - Over controlling - Not scanning - Not maintaining trim
 - RPM control - Leveling out in time