

OBJECTIVE	- Familiarize the student with vertical takeoff and landing to/from a hover, the preparation and techniques. Demonstrate maneuver and have student safely execute the maneuvers 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"> - Control function and RPM control - Preparation and correct hover height - Technique - Crosswind and tailwind adjustments and LTE conditions - Common errors and hazards 								
SCHEDULE	<table border="0" style="width: 100%;"> <tr> <td>- Pre-flight Discussion</td> <td style="text-align: right;">20</td> </tr> <tr> <td>- Instructor Demonstration</td> <td style="text-align: right;">10</td> </tr> <tr> <td>- Student Practice</td> <td style="text-align: right;">30</td> </tr> <tr> <td>- Post-flight Critique</td> <td style="text-align: right;">10</td> </tr> </table>	- Pre-flight Discussion	20	- Instructor Demonstration	10	- Student Practice	30	- Post-flight Critique	10
- Pre-flight Discussion	20								
- Instructor Demonstration	10								
- Student Practice	30								
- Post-flight Critique	10								
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 with different 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 - Review the hovering maneuver and 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 - Be able to ascend to and maintain hover altitude and make descends from a hover in headwind, crosswind and tailwind conditions. - Maintain RPM within limits - Keeping a hover altitude +- 1½ feet - Avoid LTE conditions - Keep forward and side movement within 4 feet of spot with no aft movement - Maintain heading within +-10° 								

OBJECTIVE

- Lifting from the ground vertically to a skid height of two to five feet, while maintaining a constant heading
- Once the desired skid height is achieved, the helicopter should remain nearly motionless over a reference point at a constant height and on a constant heading
- The maneuver requires a high degree of concentration and coordination

CONTROLS

- CYCLIC Movement
- COLLECTIVE Height
- PEDALS Heading
- THROTTLE RPM

TECHNIQUE



① On ground

- Controls neutral and frictions off
- Note wind direction and speed
- Takeoff checks
- Clear skids
- Clear all around
- RPM in the middle of the green
- Raise collective slowly to 18" MAP
- Eyes outside, reference point

② Pick-up

- Continue to raise collective
- Maintain RPM with throttle
- Neutralize all movements with cyclic and pedals
- Anticipate left pedal
- Anticipate right and aft cyclic - 7
- Continue raising collective to normal hovering height, 3-5 feet

③ Hover

- Check Centre of Gravity
- Takeoff checks
- Note hover power
- Check spot for leaks or parts

ERRORS

- Focusing on instruments
- RPM control
- Vertical speed
- Not neutralizing movements
- Over controlling

HAZARDS

- Dynamic rollover

OBJECTIVE

- The helicopter is stabilized in a hover directly over the landing spot, then gently lowered onto the ground
- It should not be drifting in any direction at the point of touchdown

CONTROLS

- CYCLIC Movement
- COLLECTIVE Height
- PEDALS Heading
- THROTTLE RPM

TECHNIQUE



① Hover

- Steady 3-5 feet hover
- Check wind direction and speed
- Check surface
- Eyes outside, reference point

② Set-down

- Slowly and smoothly lower collective
- Maintain RPM in the middle of the green
- Maintain heading with pedals
- Maintain position with cyclic
- No aft movement

③ On ground

- Collective fully down
- Collective friction on

ERRORS

- Focusing on spot
- RPM control
- Over controlling
- Hard touchdown

HAZARDS

- Ground resonance
- Dynamic rollover

OBJECTIVE	- Familiarize the student with elements related to surface taxiing, when it is required and the preparation and technique. Demonstrate maneuver and have student safely execute the maneuver 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 when to use maneuver - Control function and RPM control - Preparation - Technique and speed - Crosswind and tailwind adjustments and LTE conditions - Common errors and hazards 								
SCHEDULE	<table border="0" style="width: 100%;"> <tr> <td style="width: 80%;">- Pre-flight Discussion</td> <td style="text-align: right;">15</td> </tr> <tr> <td>- Instructor Demonstration</td> <td style="text-align: right;">10</td> </tr> <tr> <td>- Student Practice</td> <td style="text-align: right;">30</td> </tr> <tr> <td>- Post-flight Critique</td> <td style="text-align: right;">10</td> </tr> </table>	- Pre-flight Discussion	15	- Instructor Demonstration	10	- Student Practice	30	- Post-flight Critique	10
- Pre-flight Discussion	15								
- Instructor Demonstration	10								
- Student Practice	30								
- Post-flight Critique	10								
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 with different 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 maneuver as directed with assistance - Post-flight - Ask pertinent questions 								
COMPLETION STANDARDS	<ul style="list-style-type: none"> - Student should demonstrate knowledge of elements related to maneuver - Be able to surface taxi from one point to another under headwind, crosswind and tailwind conditions with landing gear in contact with surface avoiding LTE conditions - Proper use of cyclic and collective controls to control speed - Maintain RPM within limits - Keeping appropriate speed for existing conditions - Stop helicopter within 4 feet of spot - Maintain track within 4 feet 								

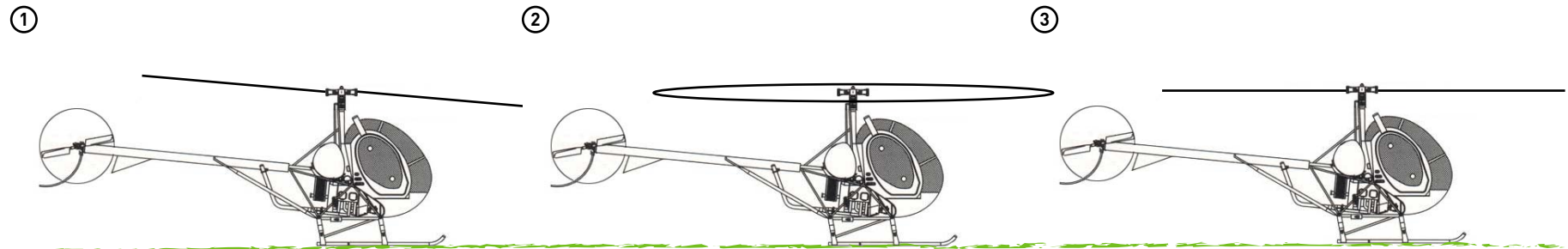
OBJECTIVE

- Taxing with partial power due to high density altitude or high gross weight
- Strong winds
- Reduce downwash from main rotor

CONTROLS

- CYCLIC Ground track, Correct for drift
- COLLECTIVE Starting, Stopping, and Speed
- PEDALS Heading
- THROTTLE RPM

TECHNIQUE



① Start

- RPM in the middle of the green
- Move the cyclic gently forward
- Slowly raise collective to start
- If stuck; wicle the pedals to rock free
- Maintain heading with pedals
- Maintain ground track with cyclic
- Adjust speed with collective

② Turn

- Use pedals to turn
- Maintain ground track with cyclic
- Adjust speed with collective

③ Stop

- Slowly lower collective
- Neutralize control inputs
- When stopped; lower collective fully
- Collective friction on

ERRORS

- Improper use of cyclic
- Improper use of pedals
- Taxing too fast
- RPM control
- Over controlling

HAZARDS

- Ground resonance
- Dynamic rollover

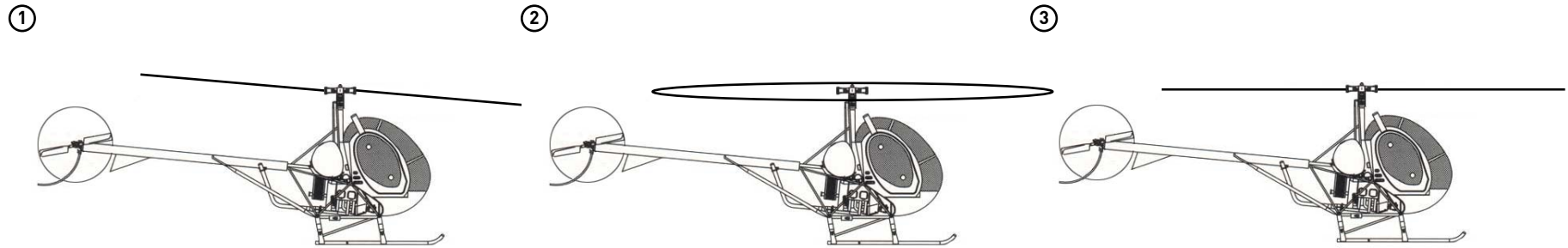
OBJECTIVE	- Familiarize the student with elements related to hover taxiing and hovering turns, the preparation and technique. Demonstrate maneuver and have student safely execute the maneuver with help from instructor. In the end with as little help as possible from instructor								
CONTENT	<ul style="list-style-type: none"> - Introduction and when to use maneuver - Control function and RPM control - Preparation and correct hover height - Technique and speed for forward, sideward and rearward hovering and turns - Crosswind and tailwind adjustments and LTE conditions - Common errors and hazards 								
SCHEDULE	<table border="0" style="width: 100%;"> <tr> <td style="width: 80%;">- Pre-flight Discussion</td> <td style="text-align: right;">15</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;">30</td> </tr> <tr> <td>- Post-flight Critique</td> <td style="text-align: right;">10</td> </tr> </table>	- Pre-flight Discussion	15	- Instructor Demonstration	15	- Student Practice	30	- Post-flight Critique	10
- Pre-flight Discussion	15								
- Instructor Demonstration	15								
- Student Practice	30								
- Post-flight Critique	10								
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 with different 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 - Review previous hover maneuver, perform new maneuver as directed with assistance - Post-flight - Ask pertinent questions 								
COMPLETION STANDARDS	<ul style="list-style-type: none"> - Student should demonstrate knowledge of elements related to maneuver and be able to hover taxi over specific ground references forward, sideward and rearward and perform hovering turns - Maintain RPM within limits - Keeping appropriate speed for existing conditions - Maintain constant rate of turn - Make 90, 180, 360° turns and stop within 10° - Maintain position within 4 feet of centre of spot in turns - Maintain track within 4 feet on straight legs - Keeping hover altitude +- 1½ feet depending on surface and dir. 								

OBJECTIVE - Used to move the helicopter a short distance when close to the ground

CONTROLS

- CYCLIC Ground track, Correct for drift
- COLLECTIVE Height
- PEDALS Heading
- THROTTLE RPM

TECHNIQUE



① Start and forward hover

- Clear the taxi path
- Clear tail
- Push cyclic gently forward to start
- Accelerate to slow walking pace
- Maintain 3 feet height with collective
- Maintain heading with pedals
- Ground track and speed with cyclic
- Cyclic into wind to prevent drift

② Turn

- Clear tail
- Use pedals to turn
- Maintain ground track with cyclic
- Maintain 3 feet height with collective

③ Stop

- Gently aft on cyclic
- Maintain 3 feet height with collective
- Maintain heading with pedals

ERRORS

- Taxing too fast
- Drifting in crosswind
- RPM control
- Over controlling

HAZARDS

- Dynamic rollover (hitting obstacles on the ground)
- Tail rotor strike

OBJECTIVE	- Familiarize the student with elements related to air taxiing including preparation and technique. Demonstrate maneuver and have student safely execute the maneuver in headwind and crosswind with help from instructor. In the end with as little help as possible from instructor								
CONTENT	<ul style="list-style-type: none"> - Introduction and when to use maneuver - Control function and RPM control - Preparation - Technique and safe maneuver height and speed - Crosswind adjustments and LTE conditions - Common errors and hazards 								
SCHEDULE	<table border="0" style="width: 100%;"> <tr> <td style="width: 80%;">- Pre-flight Discussion</td> <td style="text-align: right;">15</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;">30</td> </tr> <tr> <td>- Post-flight Critique</td> <td style="text-align: right;">10</td> </tr> </table>	- Pre-flight Discussion	15	- Instructor Demonstration	15	- Student Practice	30	- Post-flight Critique	10
- Pre-flight Discussion	15								
- Instructor Demonstration	15								
- Student Practice	30								
- Post-flight Critique	10								
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 maneuver in different height and speed in headwind and crosswind 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 maneuver as directed with assistance - Post-flight - Ask pertinent questions 								
COMPLETION STANDARDS	<ul style="list-style-type: none"> - Student should demonstrate knowledge of elements related to maneuver and be able to air taxi from one point to another under head and crosswind conditions - Maintain RPM within limits - Select a safe airspeed and altitude for existing conditions considering engine failure - Maintain desired track and groundspeed in head and crosswind conditions avoiding LTE conditions - Keeping altitude +/- 10 feet 								

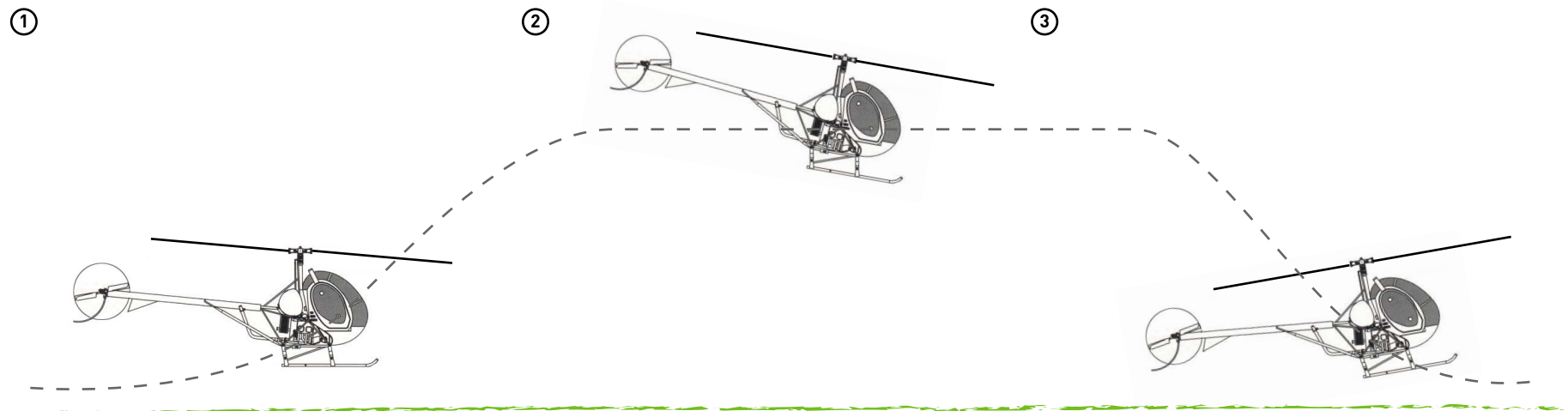
OBJECTIVE - Used to reposition the helicopter over a greater distance quickly and efficient

CONTROLS

- CYCLIC
- COLLECTIVE
- PEDALS
- THROTTLE

Ground track, Correct for drift
Height
Heading
RPM

TECHNIQUE



- ① **Accelerate**
- Check wind direction and speed
 - Decide and clear taxi path
 - Clearing turn
 - Takeoff checks
 - Always request it if in an airport
 - Normal takeoff

- ② **Taxi**
- Reduce power 1-2"
 - 60 knots
 - 50-100 feet
 - Keep heading aligned with ground track
 - Follow the desired ground track
 - NEVER DOWNWIND

- ③ **Decelerate**
- Turn into wind
 - Aft cyclic to decelerate to fast walking pace
 - Wait for normal approach angle
 - Normal approach

ERRORS

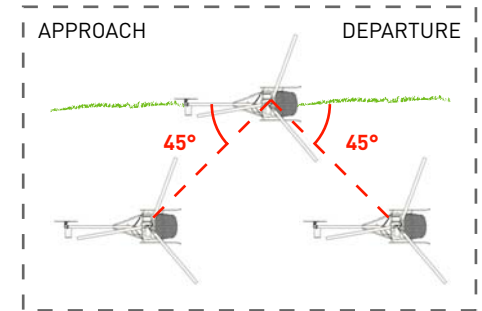
- Altitude / Airspeed
- RPM control
- Not keeping ground track
- Overflying aircraft and personnel

HAZARDS

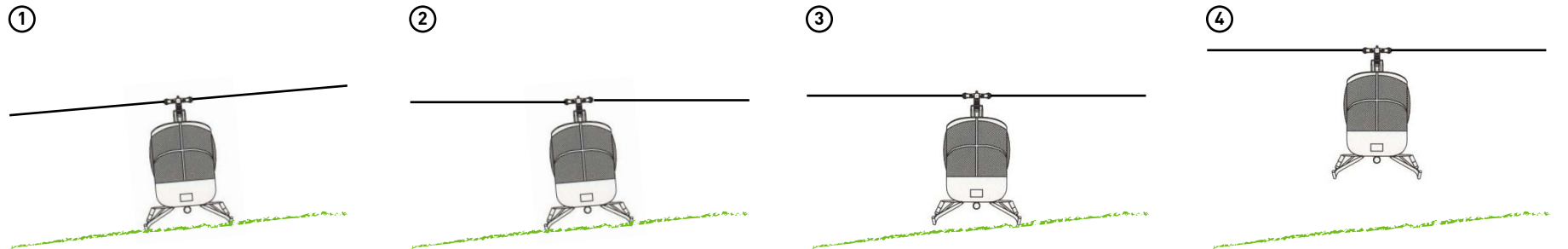
- Other traffic
- Flying inside the H/V diagram

OBJECTIVE	- Familiarize the student with vertical takeoff and landing to/from a hover onto a sloping surface, including how to enter and exit the area, the preparation and techniques. Demonstrate maneuver 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 - Control function and RPM control - Preparation and correct hover height and entry procedure - Technique - Crosswind and tailwind adjustments and LTE conditions - Right or left skid downward discussion - Exit procedure - Common errors and hazards including dynamic rollover 								
SCHEDULE	<table border="0" style="width: 100%;"> <tr> <td>- Pre-flight Discussion</td> <td style="text-align: right;">20</td> </tr> <tr> <td>- Instructor Demonstration</td> <td style="text-align: right;">10</td> </tr> <tr> <td>- Student Practice</td> <td style="text-align: right;">30</td> </tr> <tr> <td>- Post-flight Critique</td> <td style="text-align: right;">10</td> </tr> </table>	- Pre-flight Discussion	20	- Instructor Demonstration	10	- Student Practice	30	- Post-flight Critique	10
- Pre-flight Discussion	20								
- Instructor Demonstration	10								
- Student Practice	30								
- Post-flight Critique	10								
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 with different wind conditions and skids down 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 - Review pick up and set down maneuvers and 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 maneuver including selecting slope, entry, exit, direction considering wind, obstacles, dynamic rollover and passenger discharging - Maintain RPM within limits - Make smooth positive descent to touch upslope skid first - Maintain positive control while lowering down slope skid - Feel when slope to steep before reaching cyclic stop - abort - Make smooth transition from slope to a hover parallel to slope - Maintain heading within $\pm 10^\circ$ 								

- OBJECTIVE** - Safely lifting the helicopter into a hover from a slope
- CONTROLS**
- CYCLIC Maintain position, Correct for drift
 - COLLECTIVE Descend rate
 - PEDALS Heading
 - THROTTLE RPM



TECHNIQUE



- ① **On the slope**
- Wind direction and speed
 - Clear all around
 - Clear skids
 - Takeoff checks
 - RPM in the top of the green
 - Eyes outside, reference point

- ② **Level rotor disk**
- Level rotor disc with horizon
 - Gently raise collective
 - Downslope skid starts to rise

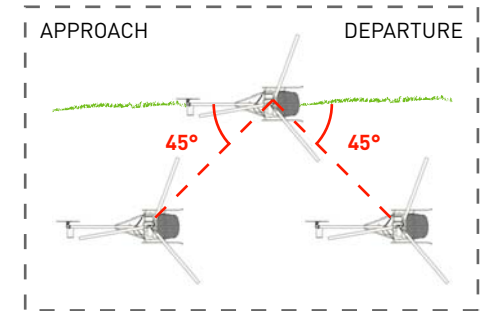
- ③ **Pick-up**
- Continue to raise collective
 - Maintain RPM with throttle
 - Maintain heading with pedals
 - As the skid comes up, move cyclic toward neutral position
 - Helicopter in level attitude
 - Hesitate momentarily
 - Slowly raise collective to liftoff

- ④ **Hover**
- Stop in a 3 feet hover
 - Check Center of Gravity
 - Takeoff checks
 - Note hover power
 - Check spot for leaks/parts
 - Depart at 45° angle

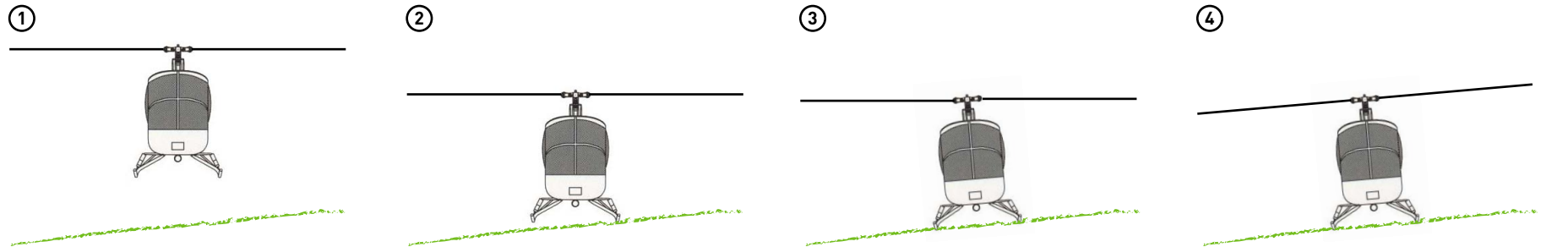
- ERRORS**
- Focusing on slope
 - Over controlling
 - Not considering wind
 - RPM control
 - Ascending too quickly
 - Sliding
 - Excessive cyclic into slope
 - Turning tail into slope
 - Approach angle

- HAZARDS**
- Dynamic rollover
 - Mast bumping
 - Droop stop pounding
 - Tail rotor strike

- OBJECTIVE** - Safely land the helicopter on a slope
- CONTROLS**
- CYCLIC
 - COLLECTIVE
 - PEDALS
 - THROTTLE
- Maintain position, Correct for drift
 Descend rate
 Heading
 RPM



TECHNIQUE



- ① **Position over slope**
- Wind direction and speed
 - Approach at 45° angle
 - Steady hover, parallel to slope
 - Check suitability for landing
 - RPM in the top of the green
 - Eyes outside, reference point
- ② **Descend**
- Gently lower collective
 - Touch down upslope skid
 - Hesitate momentarily
 - A little cyclic into the slope to hold the skid into the slope
- ③ **Landing**
- Continue to lower collective
 - Cyclic into slope to keep the rotor disc parallel to horizon
 - Do not allow any sliding
 - If vibrations or mast bumping occur abandon the landing
- ④ **Parking**
- Downslope skid on surface
 - Lower collective fully
 - Maintain RPM in the green
 - Neutralize cyclic
 - Rotor disc is level with slope
 - Passengers exit down slope

- ERRORS**
- Approach angle
 - Too steep a slope
 - Focusing on slope
 - Over controlling
 - Not considering wind
 - RPM control
 - Turning tail into slope
 - Descending to quickly
 - Excessive cyclic into slope
 - Sliding

- HAZARDS**
- Dynamic rollover
 - Tail rotor strike
 - Mast bumping
 - Droop stop pounding
 - People exiting and entering

- TIPS & TRICKS**
- Maximum of 5° slope for most helicopters
 - Choose slope as much into wind as possible
 - Never downslope, but can be upslope
 - Right skid upslope gives more cyclic travel