

- OBJECTIVE**
- Familiarize the student with rapid deceleration procedure, use and technique. 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**
- Introduction, HV-diagram and purpose of maneuver
 - Effect, use and coordination of flight controls and RPM
 - Preparation and checks
 - Technique
 - Tenseness and over controlling
 - Crosswind adjustments
 - Common errors and hazards including SWP, low/high RPM
- SCHEDULE**
- | | |
|----------------------------|----|
| - Pre-flight Discussion | 20 |
| - Instructor Demonstration | 15 |
| - Student Practice | 30 |
| - Post-flight Critique | 15 |
- EQUIPMENT**
- Whiteboard + pens for pre- and post-flight discussions
 - Helicopter model
- INSTRUCTOR'S ACTIONS**
- Pre-flight - Discuss lesson objective
 - In-flight - Demonstrate maneuver in head wind conditions and coach student practice
 - Post-flight - Critique and evaluate student performance
- STUDENT'S ACTIONS**
- Pre-flight - Discuss lesson objective and ask questions
 - In-flight - Perform new maneuver as directed
 - Post-flight - Ask pertinent questions
- COMPLETION STANDARDS**
- Student should demonstrate knowledge of elements related to maneuver
 - Maintain RPM within limits
 - Properly coordinate all controls throughout maneuver
 - Maintain altitude for safe clearance between tail boom and surface
 - Decelerate and terminate in a hover at recommended altitude
 - Maintain heading throughout maneuver $\pm 10^\circ$

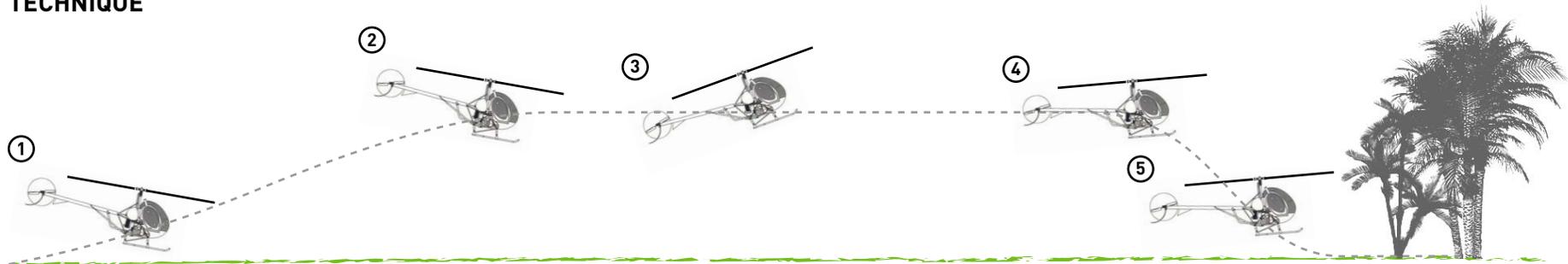
OBJECTIVE

- In normal operations it is used to slow the helicopter rapidly and bring it to a stationary hover
- Used to abort a takeoff or avoid flying into obstacles - Distance determines rate of the maneuver in real life
- Performance maneuver, that is practiced slowly and smoothly, with emphasis on coordination

CONTROLS

- CYCLIC Attitude, Airspeed
- COLLECTIVE Altitude
- PEDALS Heading
- THROTTLE RPM

TECHNIQUE



① Takeoff

- Check wind direction and speed
- Clearing turn
- Clear takeoff path
- Takeoff checks
- Make a normal takeoff

② Acceleration

- Accelerate to 45 knots
- Keep 30 feet AGL - tree top height
- Lower collective 1-2" to keep height
- Avoid H/V diagram

③ Flare

- Eyes outside, use horizon as reference
- We call the quickstop and start a flare
- Slowly apply aft cyclic to slow down
- Lower collective leading with the throttle to maintain altitude
- Right pedal to keep heading
- Maintain the same height
- Keep flaring until we slow down to an apparent brisk walking pace

④ Leveling

- Level the aircraft with forward cyclic
- Then allowing the helicopter to descend

⑤ Steep Approach

- Slowly come down with forward movement
- Raise collective and roll on throttle to maintain RPM in the green
- Left pedal to keep the heading
- Apply a little aft cyclic to stop forward movement
- Stop in a steady 3 feet hover

HAZARDS

- Tailstrike
- Settling With Power

ERRORS

- Balloning
- RPM control
- Rushing the maneuver
- Terminating tail low
- Applying collective too late
- Improper use of pedals

OBJECTIVE	<ul style="list-style-type: none">- Familiarize the student with straight in autorotation procedure, use, technique and effect of environmental factors. 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 purpose of maneuver- Preparation, wind and checks- Technique- Crosswind, undershoot and overshoot adjustments- Common errors and hazards								
SCHEDULE	<table><tr><td>- Pre-flight Discussion</td><td>20</td></tr><tr><td>- Instructor Demonstration</td><td>15</td></tr><tr><td>- Student Practice</td><td>30</td></tr><tr><td>- Post-flight Critique</td><td>15</td></tr></table>	- Pre-flight Discussion	20	- Instructor Demonstration	15	- Student Practice	30	- Post-flight Critique	15
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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 head 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- Post-flight - Ask pertinent questions								
COMPLETION STANDARDS	<ul style="list-style-type: none">- Student should demonstrate knowledge of elements related to maneuver terminating with a power recovery to a hover- Select suitable touchdown area- Enter maneuver at proper point- Establishes proper aircraft trim and speed +-5kts- Maintain RPM within limits- Compensates for wind speed and direction to avoid over/undershooting selected landing area- Uses proper deceleration, collective pitch application to a hover- Comes to a hover within 100 feet of designated point								

DEFINITION

- A state of flight where the main rotor is driven by the relative airflow
- The freewheeling unit allows the rotor to continue turning without the engine running

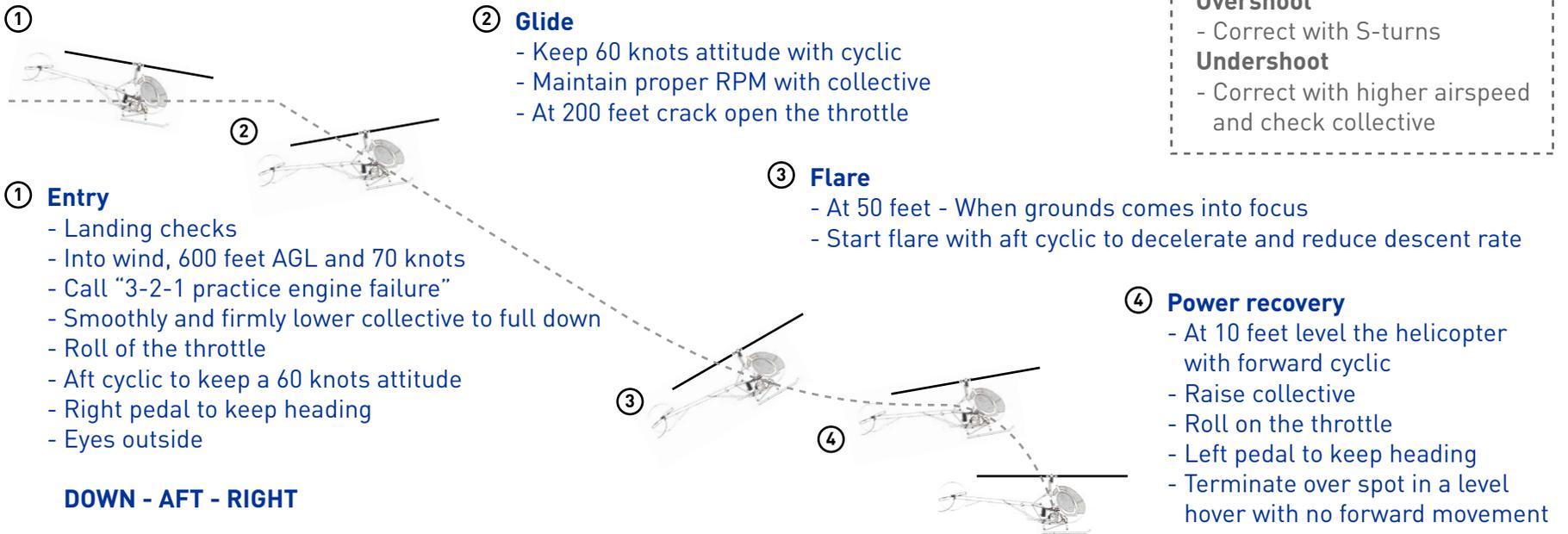
OBJECTIVE

- Controlled descent from altitude in case of an engine failure, focusing on coordination and making the spot

CONTROLS

- | | | | |
|--------------|--------------------|------------|---------|
| - CYCLIC | Attitude, Airspeed | - PEDALS | Heading |
| - COLLECTIVE | RPM | - THROTTLE | Closed |

TECHNIQUE



FACTORS

- | | | |
|------------|-----------|--------------------|
| - Wind | - Weight | - Density Altitude |
| - Airspeed | - Surface | - Wires |

HAZARDS

- | | |
|-----------------|---------------------|
| - Low rotor RPM | - Tail rotor strike |
|-----------------|---------------------|

ERRORS

- | | | |
|----------------------------|-----------------------------------|--------------------------------------|
| - Insufficient right pedal | - Rotor RPM during descent | - Power recovery too late |
| - No aft cyclic | - Failing to level the helicopter | - Coordination during power recovery |

OBJECTIVE	- Familiarize the student with 180° autorotation procedure, use, technique and effect of environmental factors. 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 purpose of maneuver- Preparation, wind and checks- Pattern and technique- Wind, undershoot, overshoot adjustments- Common errors and hazards								
SCHEDULE	<table><tr><td>- Pre-flight Discussion</td><td>20</td></tr><tr><td>- Instructor Demonstration</td><td>15</td></tr><tr><td>- Student Practice</td><td>40</td></tr><tr><td>- Post-flight Critique</td><td>15</td></tr></table>	- Pre-flight Discussion	20	- Instructor Demonstration	15	- Student Practice	40	- Post-flight Critique	15
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STUDENT'S ACTIONS	<ul style="list-style-type: none">- Pre-flight - Discuss lesson objective and ask questions- In-flight - Review straight in auto and perform new maneuver as directed- Post-flight - Ask pertinent questions								
COMPLETION STANDARDS	<ul style="list-style-type: none">- Student should demonstrate knowledge of elements related to maneuver terminating with a power recovery to a hover- Select suitable touchdown area- Enter maneuver at proper point- Establishes proper aircraft trim and speed +-5kts- Maintain RPM within limits- Compensates for wind speed and direction to avoid over/undershooting selected landing area- Uses proper deceleration, collective pitch application to a hover- Comes to a hover within 50 feet of designated point								

OBJECTIVE - Controlled descent from altitude in case of an engine failure, where the failure happens downwind

CONTROLS - CYCLIC Attitude, Airspeed, Rate of turn - PEDALS Trim, Heading
 - COLLECTIVE RPM - THROTTLE Closed

TECHNIQUE

① **Entry**

- Downwind, 600 feet, 60 knots and landing checks done
- Check wind direction and speed
- Call "3-2-1 Practice Engine Failure"
- Enter normal autorotation - Down, aft, right
- Stabilize aircraft in 60 knots attitude

② **Glide and turn**

- Roll into a 180° turn with 35° of bank
- Trim with pedals and hold the 60 knots attitude
- Check collective to keep RPM in the green

③ **Crosswind**

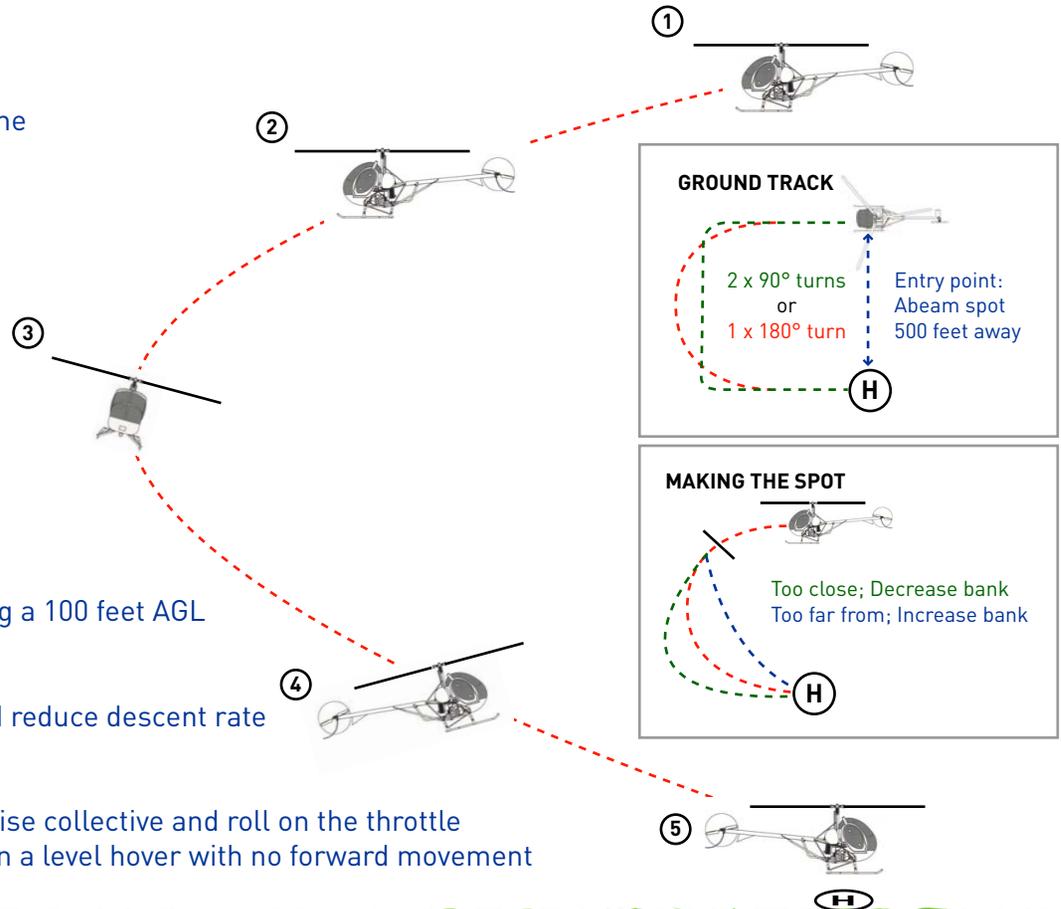
- At the 90° point look toward the spot
- Judge any corrections needed to make the spot
- The last 90° turn should be completed before passing a 100 feet AGL

④ **Flare**

- At 50 feet, start flare with aft cyclic to decelerate and reduce descent rate

⑤ **Power recovery**

- At 10 feet, level the helicopter with forward cyclic, raise collective and roll on the throttle
- Left pedal to keep heading and terminate over spot in a level hover with no forward movement



HAZARDS - Low rotor RPM - Tail rotor strike

ERRORS - Insufficient right pedal and aft cyclic - Rotor RPM during descent - Power recovery too late
 - Not trimming the helicopter - Failing to level the helicopter - Coordination on power recovery