

UNITED STATES ARMY
PRIMARY HELICOPTER SCHOOL
FORT WOLTERS, TEXAS

Student Handout - Autorotations, AM-42

Performance objectives: Without the aid of references you will be able to:

1. List the four conditions that occur when the collective is initially lowered for autorotation.
2. List the three major conditions that exist in the rotor system during the autorotative descent.
3. Interpret the effect of airspeed on rate of descent and maximum and minimum descent.
4. Interpret the effect of a flare.
5. Interpret the forces affecting the rotor system at the termination of autorotation.

1. This student handout is designed to be used with an ETV tape covering autorotation. While viewing the TV tape, you will be asked several questions.
2. Use this handout to answer specific questions presented in the TV tape.

QUESTIONS

1. If the flow of air is upward and pitch is left in the blade (collective pitch is not lowered), the angle of attack will:
 - a. increase.
 - b. decrease.
2. Will the rotor blades, in autorotation with a decreased angle of attack, an autorotative flow of air, and stabilized RPM, have the same torque as blades in powered flight?
 - a. Yes
 - b. No
3. Consider a helicopter with a single main rotor system with counterclockwise revolution. The engine quits, you lower the collective pitch, and enter autorotation. When you lower the collective pitch the fuselage would:
 - a. Turn to the right.
 - b. Turn to the left.
 - c. Remain headed in the direction of flight.

Why? _____

30 knots 1300 ftm
50 knots 1800 ftm

4. Which of the below DOES NOT occur upon the initial lowering of the collective pitch to enter autorotation?

- a. Loss of engine and rotor torque
- b. Angle of attack decreases
- c. Autorotative flow of air
- d. RPM stabilizes
- e. Angle of attack increases

5. Which section of the rotor disc area produces the least amount of lift?

- a. Outboard
- b. Inboard
- c. Middle

6. Are zero airspeed autorotations dangerous?

- a. Yes
- b. No

7. Two important rules to remember are:

- a. Slower airspeed causes shorter rate of descent and longer glide
- b. Faster airspeed causes more of a p