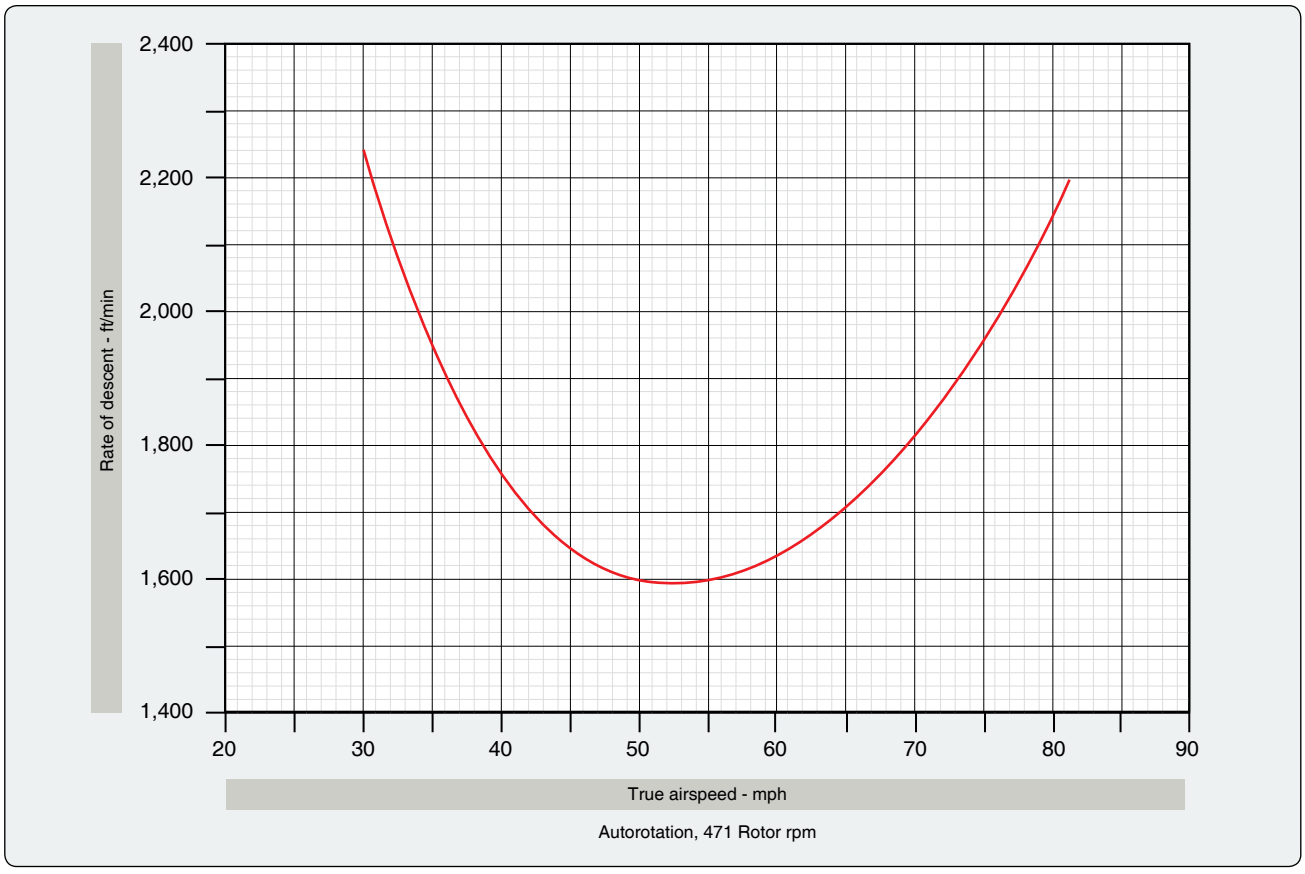

Figure 7-3. *An autorotation curve for the S-300 shows the various combinations of horizontal and vertical speeds that supply the required energy to keep the rotor turning at a constant 471 rpm.*

gross weight, altitude, temperature, and power. The IGE hover ceiling is usually higher than the OGE hover ceiling because of the added lift benefit produced by ground effect. See Chapter 2, Aerodynamics of Flight, for more details on IGE and OGE hover. A pilot should always plan an OGE hover when landing in an area that is uncertain or unverified. As density altitude increases, more power is required to hover. At some point, the power required is equal to the power available. This establishes the hovering ceiling under the existing conditions. Any adjustment to the gross weight by varying fuel, payload, or both, affects the hovering ceiling. The heavier the gross weight, the lower the hovering ceiling. As gross weight is decreased, the hover ceiling increases.

Sample Hover Problem 1

You are to fly a photographer to a remote location to take pictures of the local wildlife. Using *Figure 7-4*, can you safely hover in ground effect at your departure point with the following conditions?

A. Pressure Altitude.....8,000 feet
B. Temperature.....+15 °C
C. Takeoff Gross Weight.....1,250 lb
rpm.....104 percent

First enter the chart at 8,000 feet pressure altitude (point A), then move right until reaching a point midway between the +10 °C and +20 °C lines (point B). From that point, proceed down to find the maximum gross weight where a 2 foot hover can be achieved. In this case, it is approximately 1,280 pounds (point C).

Since the gross weight of your helicopter is less than this, you can safely hover with these conditions.

Sample Hover Problem 2

Once you reach the remote location in the previous problem, you will need to hover OGE for some of the pictures. The pressure altitude at the remote site is 9,000 feet, and you will use 50 pounds of fuel getting there. (The new gross weight is now 1,200 pounds.) The temperature will remain at +15 °C. Using *Figure 7-5*, can you accomplish the mission?

Enter the chart at 9,000 feet (point A) and proceed to point B (+15 °C). From there, determine that the maximum gross