crease in nose up attitude without the appropriate power change only controls the airplane to a lower speed.

REGION OF REVERSED COMMAND

The variation of power or thrust required with velocity defines the power settings necessary to maintain steady level flight at various airspeeds. To simplify the situation, a generality could be assumed that the airplane configuration and altitude define a variation of *power setting* required (jet thrust required or prop power required) versus velocity. This general variation of required power setting versus velocity is illustrated by the first graph of figure 6.2. This curve illustrates the fact that at low speeds near the stall or minimum control speed the power setting required for steady level flight is quite high. However, at low speeds, an increase in speed reduces the required power setting until some minimum value is reached at the conditions for maximum endurance. Increased speed beyond the conditions for maximum endurance will then increase the power setting required for steady level flight.

REGIONS OF NORMAL AND REVERSED COMMAND. This typical variation of required power setting with speed allows a sort of terminology to be assigned to specific regimes of velocity. Speeds greater than the speed for maximum endurance require increasingly greater power settings to achieve steady, level flight. Since the normal command of flight assumes a higher power setting will achieve a greater speed, the regime of flight speeds greater than the speed for minimum required power setting is termed the "region of normal command." Obviously, parasite drag or parasite power predominates in this regime to produce the increased power setting required with increased velocity. Of course, the major items of airplane flight performance take place in the region of normal command.

Flight speeds below the speed for maximum endurance produce required power settings which increase with a *decrease* in speed. Since the increase in required power setting with decreased velocity is contrary to the normal command of flight, the regime of flight speeds between the speed for minimum required power setting and the stall speed (or minimum control speed) is termed the "region of reversed command." In this regime of flight, a decrease in airspeed must be accompanied by an increased power setting in order to maintain steady flight. Obviously, induced drag or induced power required predominates in this regime to produce the increased power setting required with decreased velocity. One fact should be made clear about the region of reversed command: flight in the "reversed" region of command does *not* imply that a decreased power setting will bring about a higher airspeed or an increased power setting will produce a lower airspeed. To be sure, the primary control of airspeed is not the power setting. Flight in the region of reversed command only implies that a higher airspeed will *require* a lower power setting and a lower airspeed will *require* a higher power setting to hold altitude.

Because of the variation of required power setting throughout the range of flight speeds, it is possible that one particular power setting may be capable of achieving steady, level flight at two different airspeeds. As shown on the first curve of figure 6.2, one given power setting would meet the power requirements and allow steady, level flight at both points *1* and 2. At speeds lower than point 2, a deficiency of power would exist and a rate of descent would be incurred. Similarly, at speeds greater than point *1*, a deficiency of power would exist and the airplane would descend. The speed range between points *1* and 2 would provide an excess of power and climbing flight would be produced.

FEATURES OF FLIGHT IN THE NORMAL AND REVERSED REGIONS OF COMMAND. The majority of all airplane flight is conducted in the region of normal command,