1. Location of Turbulence Conditions. The general location of turbulence should be anticipated in the following areas:

• Thunderstorms.

• Areas of strong thermal advection, such as:

•• Cold-air advection.

•• Warm-air advection.

•• Strong upper-level fronts.

•• Rapid surface cyclogenesis.

•• Outflow area of cold digging jet.

• Areas of large vertical shear, particularly below strong stable layers in:
•• Tilted ridges.

•• Sharp ridges.

•• Tilted troughs.

•• Confluent jet streams.

• Areas of considerable horizontal directional and/or speed shear, such as in:

•• Mountain areas.

•• Diffluent upper flow.

•• Developing cut-off lows.

•• Sharp anticyclonic curvature.

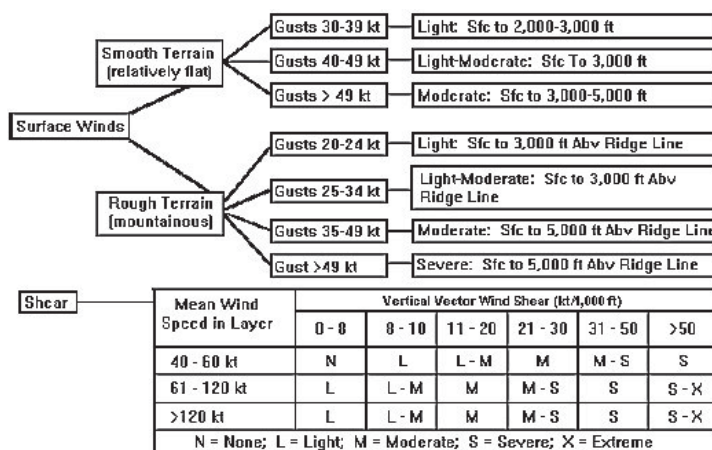**2. Basic Forecasting Checklist for Predicting Low-level (Surface To 10,000 Feet)**

Turbulence. Low-level turbulence can dramatically impact flight operations. Aircrews operating in high speed, low altitude training routes must be prepared to make quick corrections to avoid catastrophic accidents (see Figure 2-51). (For additional assistance with forecasting turbulence at these levels and above, you can visit http://adds.aviationweather.noaa.gov/turbulence/)

Note: Checklist is based on category II aircraft. Adjust turbulence values for supported aircraft using Tables 2-5 and 2-6.

3. Forecasting Turbulence in Convective Clouds. This section describes a method for forecasting turbulence in convective clouds using a Skew-T. The method considers two layers of the atmosphere: Surface to 9,000 feet MSL and above 9,000 feet MSL (see Figure 2-52). The forecast is designed for Category II aircraft and must be modified for other types of aircraft.

a. Layers from Surface to 9,000 feet. Use the steps below to estimate the buoyant potential in the lower atmosphere. Use the results obtained by this method to estimate turbulence in thunderstorms.

Figure 2-51. Forecasting Checklist for Low-Level Turbulence. This checklist is designed for category II aircraft.