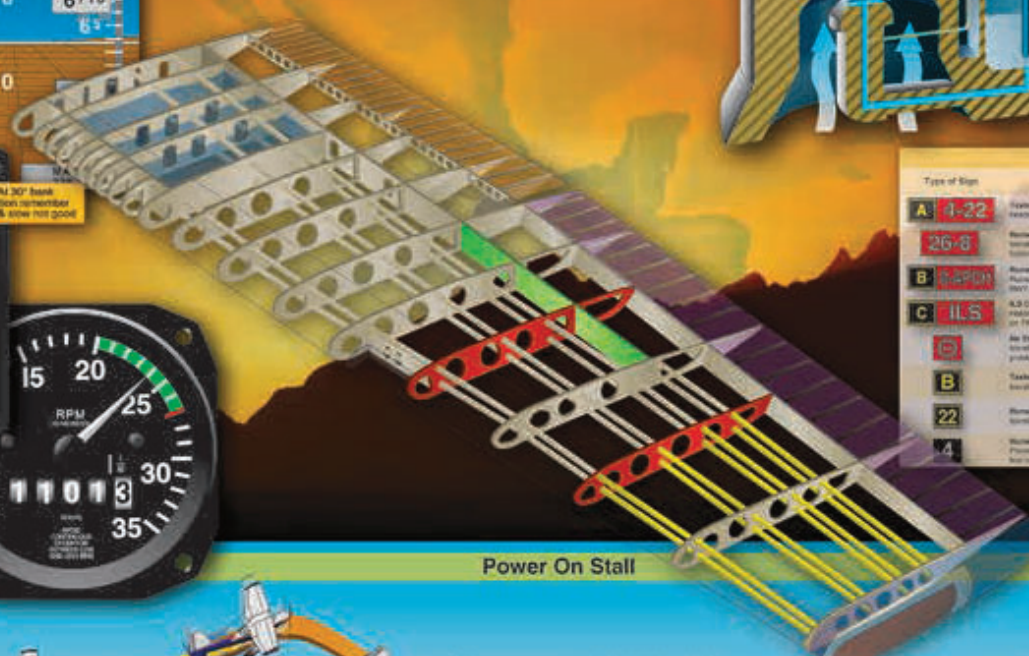
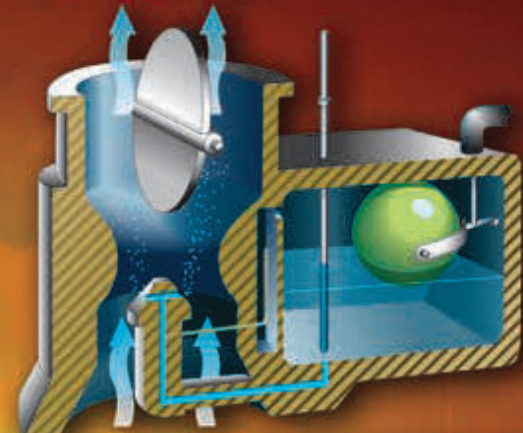
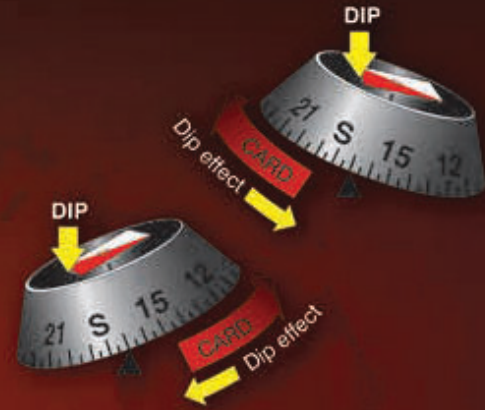


# Pilot's Handbook of Aeronautical Knowledge



U.S. Department of Transportation  
Federal Aviation Administration



Type of Sign	Action or Purpose	Type of Sign
<b>A 1-22</b>	Obstacle Clearance Height (OCH) or Minimum Obstacle Clearance (MOC) for a Class A or Class B airspace.	
<b>26-8</b>	Obstacle Clearance Height (OCH) or Minimum Obstacle Clearance (MOC) for a Class C or Class D airspace.	
<b>B 1-20</b>	Obstacle Clearance Height (OCH) or Minimum Obstacle Clearance (MOC) for a Class E or Class G airspace.	
<b>C ILS</b>	ILS Critical Area Hold Position. Holding position for the ILS critical area and Class C.	
	No Entry. No entry point where entry is prohibited.	
<b>B</b>	Taxiway Location. Location of taxiway or other aircraft holding.	
<b>22</b>	Runway Location. Holding position for the runway or other aircraft holding.	
<b>4</b>	Obstacle Clearance Height (OCH) or Minimum Obstacle Clearance (MOC) for a Class E or Class G airspace.	



## **Fatigue**

Fatigue is frequently associated with pilot error. Some of the effects of fatigue include degradation of attention and concentration, impaired coordination, and decreased ability to communicate. These factors seriously influence the ability to make effective decisions. Physical fatigue results from sleep loss, exercise, or physical work. Factors such as stress and prolonged performance of cognitive work result in mental fatigue.

Like stress, fatigue falls into two broad categories: acute and chronic. Acute fatigue is short term and is a normal occurrence in everyday living. It is the kind of tiredness people feel after a period of strenuous effort, excitement, or lack of sleep. Rest after exertion and 8 hours of sound sleep ordinarily cures this condition.

A special type of acute fatigue is skill fatigue. This type of fatigue has two main effects on performance:

- Timing disruption—appearing to perform a task as usual, but the timing of each component is slightly off. This makes the pattern of the operation less smooth because the pilot performs each component as though it were separate, instead of part of an integrated activity.
- Disruption of the perceptual field—concentrating attention upon movements or objects in the center of vision and neglecting those in the periphery. This is accompanied by loss of accuracy and smoothness in control movements.

Acute fatigue has many causes, but the following are among the most important for the pilot:

- Mild hypoxia (oxygen deficiency)
- Physical stress
- Psychological stress
- Depletion of physical energy resulting from psychological stress
- Sustained psychological stress

Sustained psychological stress accelerates the glandular secretions that prepare the body for quick reactions during an emergency. These secretions make the circulatory and respiratory systems work harder, and the liver releases energy to provide the extra fuel needed for brain and muscle work. When this reserve energy supply is depleted, the body lapses into generalized and severe fatigue.

Acute fatigue can be prevented by proper diet and adequate rest and sleep. A well-balanced diet prevents the body from needing to consume its own tissues as an energy source. Adequate rest maintains the body's store of vital energy.

Chronic fatigue, extending over a long period of time, usually has psychological roots, although an underlying disease is sometimes responsible. Continuous high-stress levels produce chronic fatigue. Chronic fatigue is not relieved by proper diet and adequate rest and sleep and usually requires treatment by a physician. An individual may experience this condition in the form of weakness, tiredness, palpitations of the heart, breathlessness, headaches, or irritability. Sometimes chronic fatigue even creates stomach or intestinal problems and generalized aches and pains throughout the body. When the condition becomes serious enough, it leads to emotional illness.

If suffering from acute fatigue, stay on the ground. If fatigue occurs in the flight deck, no amount of training or experience can overcome the detrimental effects. Getting adequate rest is the only way to prevent fatigue from occurring. Avoid flying without a full night's rest, after working excessive hours, or after an especially exhausting or stressful day. Pilots who suspect they are suffering from chronic fatigue should consult a physician.

## **Exposure to Chemicals**

When conducting preflight and post-flight inspections, pilots must verify that the fluid levels in their aircraft meet the levels specified for safe operations as stated in the Pilot's Operating Handbook. These fluids include, but are not limited to hydraulic fluid, engine oil, and fuel.

It is important that every pilot recognize the potential hazards of working with these fluids as well as the recommended first aid measures to follow should any of these fluids come in contact with their eyes, skin, and/or respiratory system. As the specific first aid measures for dealing with exposure to these chemicals can vary by chemical type, it is important that every pilot be familiar with the location and use of the Material Safety Data Sheet (MSDS) for each chemical they encounter.

The procedures described in the following sections are minimum guideline for first aid for each of the indicated scenarios. Ultimately, the pilot should consult the MSDS for first aid procedures specific to the type of chemical and exposure scenario.

### ***Hydraulic Fluid***

- Eye Contact—immediately flush the eyes with clean water and seek medical attention if irritation occurs.
- Skin Contact—remove all contaminated clothing and thoroughly cleanse the affected areas with mild soap and water or a waterless hand cleaner. If irritation or redness develops and persists, seek medical attention. Should the hydraulic fluid get into or under the skin, or into any other part of the body, regardless of the