

# ADF and GPS

G. White

# ADF

- Automatic Direction Finding
  - Rapidly Being Phased Out of Use, But
  - Still Many Instrument Approaches
  - Useful for Navigation
  - Uses On The Ground Transmitter Called a NDB
- *A non-directional radio beacon (NDB)* is classed according to its power output and usage:
  - the L radio beacon has a power of less than 50 watts (W),
  - the M classification of radio, beacon has a power of 50 watts up to 2,000 W;
  - the H radio beacon has a power output of 2,000 W or more;
  - the ILS radio beacon is a beacon which is placed at the same position as the outer marker of an ILS system (or replaces the OM).

# ADF (cont.)

- The NDBs transmit in the frequency band of 200 to 415 kHz. The signal is *not* transmitted in a line of sight as VHF or UHF, but rather follows the curvature of the earth; this permits reception at low altitudes over great distances.
- Limitations
  - WX
  - Reflections

# ADF (cont.)

- Indicator Provides a 'Relative Bearing' to the Station
- Relative to Magnetic Heading of Acft.
- Therefore

$$\text{Bearing} = \text{RB} + \text{MH}$$

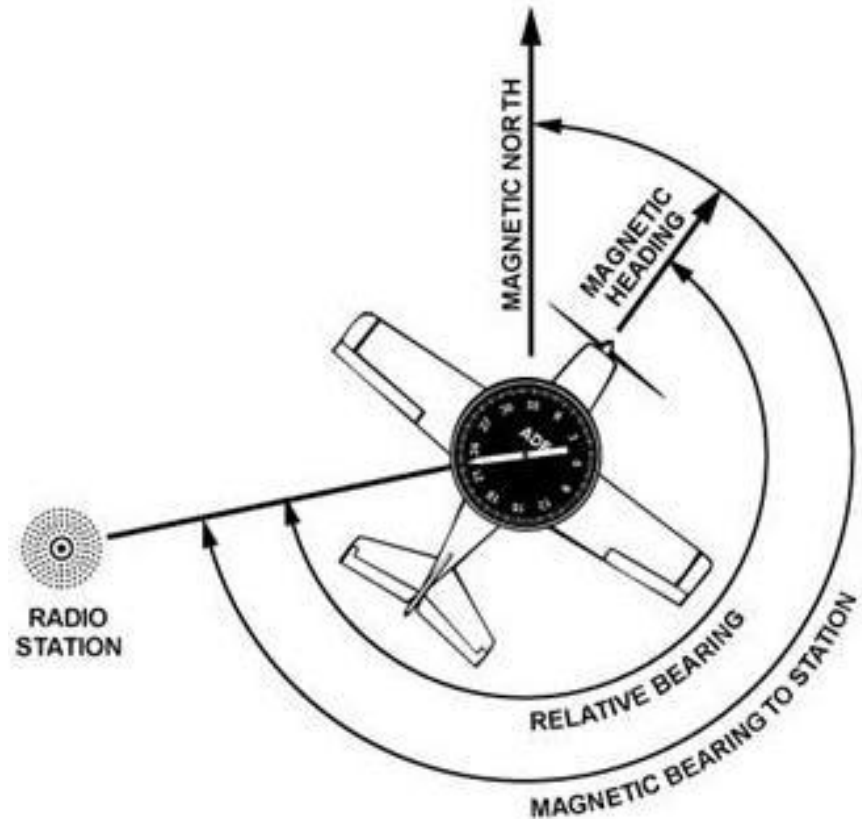


Figure 8-29.—ADF terms.

# ADF (cont.)

- MH = 45 degrees
- Which Figure Gives a Bearing of 135 degrees to the Station?

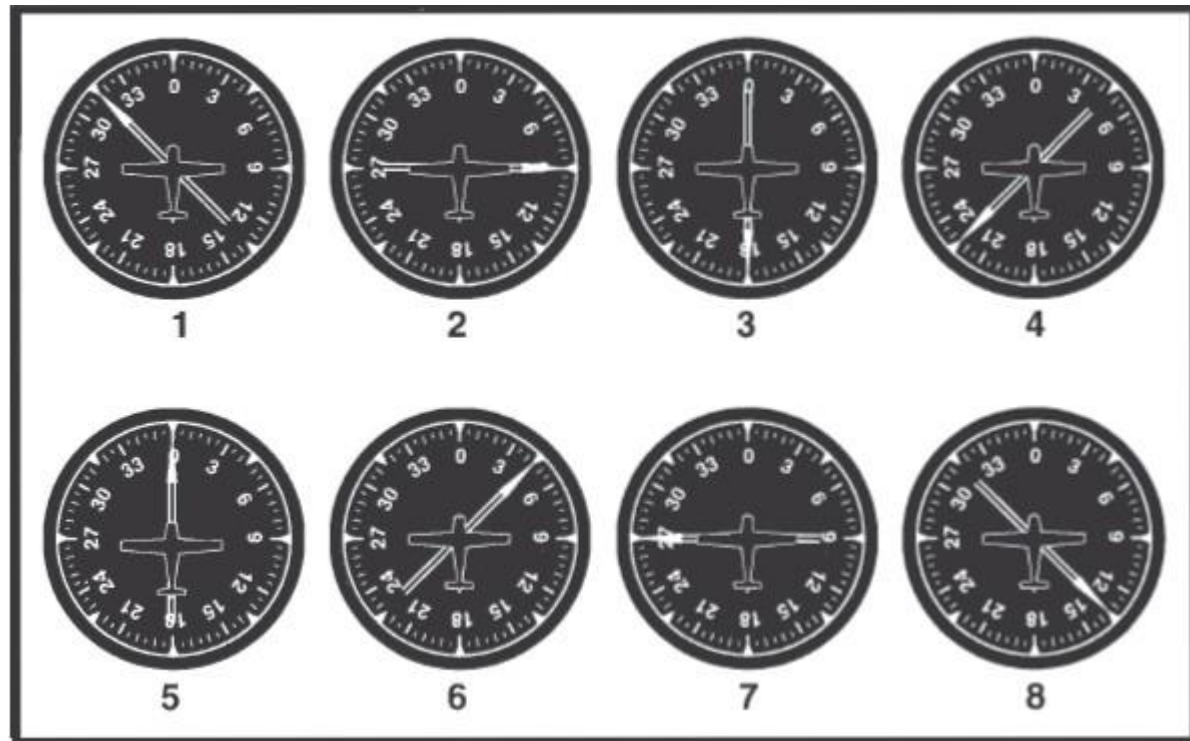


FIGURE 31.—ADF (Fixed Card).

# GPS

## About GPS



Learn  
About GPS

### Introduction to GPS

The Global Positioning System (GPS) is a space-based radio-navigation system consisting of a constellation of satellites and a network of ground stations used for monitoring and control. A minimum of 24 GPS satellites orbit the Earth at an altitude of approximately 11,000 miles, providing users with means to accurately determine their position, velocity, and time while anywhere in the world irrespective of weather conditions.

GPS is operated and maintained by the Department of Defense (DoD). The Interagency GPS Executive Board (IGEB) manages GPS, while the U.S. Coast Guard acts as the civil interface to the public for GPS matters. The Federal Aviation Administration continues to investigate and apply GPS as it pertains to aviation in the United States. In other parts of the world, this same function is performed by similar regulatory bodies, often in collaboration with the FAA.

# WAAS

wide area augmentation system

GPS Satellites



GEO Satellite

GEO Satellite

# GPS (cont.)

- Very Accurate Navigation
- Wide Variety of Displays

