READING ELECTRIC

Technical Bulletin

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MARINE DEEP-CYCLE BATTERY RATINGS

Amp-hour and Reserve Minutes

READING ELECTRIC, a leading supplier of electro-mechanical equipment, services, and problem solver for Industrial and Commercial customers for over 45 years provides technical information to the Region's Residential, Commercial and Industrial Community. This Bulletin addresses how to rate a Marine Deep Cycle Battery for Capacity and Sizing of Battery Banks for Deep Cycle Applications.

Historically, there have been two ratings that have been the most popular among the Marine Community to determine the rating and application of a battery for non-starting purposes. These ratings are Amp-Hours and Reserve Minutes and definitions are provided below. While both ratings give insight to a battery's capacity, you should use the rating that best fits your service application. It has been our experience that the Amp-Hour Rating is the most popular among mariners because the expected loads can be summed up and directly related to the Amp-Hour Rating of the battery.

When determining the size and number of batteries to have in your "house battery bank" there are varying opinions. A popular method is to size your battery bank by doubling the calculated expected amp-hours discharged between charging cycles. This assumes a 50% discharge of the batteries before re-charging. The "life cycles" of a battery are an important consideration. Battery life is directly proportional to the depth of the discharge. In general, any increases or decreases in the capacity of the battery bank will result in disproportionate increase or decrease in battery life. Example: Battery bank size is 200 amp-hours and daily discharge is 40 amp-hours (discharge is 20%); battery life is approximately 800 cycles. If the battery bank size is 400 amp-hours and the daily discharge is 40 amp-hours (discharge is 10%); battery life is increased to approximately 2,000 cycles. It is important to note that if the 200 amp-hour battery bank is discharged by approximately 40%; the battery life is approximately 380 cycles.

Amp-Hours: The Amp-Hour rating tells you how much amperage is available when discharged evenly over a 20 hour period. The amp hour rating is cumulative, so in order to know how many constant amps the battery will putout for 20 hours; you have to divide the amp hour rating by 20. Example: If a battery has an amp hour rating of 75, dividing by 20 = 3.75. Such a battery can carry a 3.75 amp load for 20 hours before dropping to 10.5 volts. (10.5 volts is the fully discharged level, at which point the battery needs to be recharged.)

Reserve Minutes: The 'Reserve Minutes' are the number of minutes a battery will carry a 25 amp load before dropping to 10.5 volts.

READING ELECTRIC is a leading **Authorized Full Service Distributor** and offers a complete line of Deka Batteries. For additional information on Battery Power Systems, contact READING ELECTRIC. Phone: 610-929-5777; Fax: 610-929-1670; Visit our Website at www.readingelectric.com or email us for additional information at info@readingelectric.com {TB515-111505}