**Charles Industries, Ltd.**
**Industrial Charger Group**
5600 Apollo Drive
Rolling Meadows, IL 60008-4049
Phone: 847-806-6300
Fax: 847-806-6352
www.charlesindustries.com

# ***SIZING A BATTERY CHARGER***

1) Total the number of amp hours in the battery bank. (group 24,27 & 31 batteries are @ 100 –120 amp hours each)

2) Battery companies recommend that the batteries be brought down no more than 50%, so divide the total number of amp hours by 50%

.

3) Decide how much time (the number of hours) you want the recovery to take. Divide by 50% of the total amp hours by the number of hours.

4) The final number you are left with is the amperage of the battery charger needed to bring your battery bank back in the required time.

5) Here is an example:

| | |
|---|---|
| 4 batteries x 100 amp hours each | = 400 |
| 50% of the 400 amp hours | = 200 |
| Divide by 8 hours (time wanted to recover) | = 25 |

The size of the battery charger should be 25 amps.

**Charles Industries, Ltd.**
**Industrial Charger Group**
5600 Apollo Drive
Rolling Meadows, IL 60008-4049
Phone: 847-806-6300
Fax: 847-806-6352
www.charlesindustries.com

# ***BATTERY CHARGER SELECTION***

1) To specify a charger, you need to know :
   a) The ac input voltage
   b) The dc output voltage
   c) The dc output amps

2) Engine-starting battery chargers are usually: 120 v 60 Hz or 220 v 50 Hz single phase.

3) The battery type dictates the charger output voltage rating & number of cells being charged. For this reason, it is preferable to specify dc output voltage as a specified number of cells of a particular battery type, such as 12 cells of lead acid instead of 24 vdc.

   The dc output (amps) is determined by:

$$A=\frac{(k)(AH)}{R}+L$$

   Where:

   A = ampere capacity of the charger
   K = 1.1 for lead acid or 1.2 for nicad
   AH = amp hours removed for the battery
   R = recharge time (hours)
   L = continuous load on the charger & battery during charging

4) It is important that the charger rating be set by the battery charger & the continuous load. Oversizing the charger is not desirable since excessive charging current will overheat the battery. Undersizing is equally undesirable. If the charging current is too low, it will not drive off the crystalline lead sulphate adhering to the plate and capacity will be reduced.