Battery Model: D51
Part Number: 8071-167
Nominal Voltage: 12 volts
NSN: 6140 01 523 6288
Description: High power, dual purpose engine start and deep cycle, sealed lead acid battery

Battery Model: D51R
Part Number: 8073-167
Nominal Voltage: 12 volts
NSN: Number applied for, product currently available
Description: High power, dual purpose engine start and deep cycle, sealed lead acid battery

Physical Characteristics:

Plate Design: High purity lead-tin alloy. Wound cell configuration utilizing proprietary SPIRALCELL® technology.
Electrolyte: Sulfuric acid, $H_2SO_4$
Case: Polypropylene
Color: Case: Light Gray
        Cover: "OPTIMA" Yellow
Group Size: BCI: 51

<table>
<thead>
<tr>
<th>Standard</th>
<th>Metric</th>
</tr>
</thead>
<tbody>
<tr>
<td>Length:</td>
<td>9.272&quot;</td>
</tr>
<tr>
<td>Width:</td>
<td>5.024&quot;</td>
</tr>
<tr>
<td>Height:</td>
<td>8.885&quot;</td>
</tr>
<tr>
<td>Weight:</td>
<td>26.0 lb</td>
</tr>
</tbody>
</table>

Terminal Configuration: SAE / BCI automotive.

Performance Data:

- Open Circuit Voltage (Fully charged): 13.1 volts
- Internal Resistance (Fully charged): 0.0046 ohms
- Capacity: 38 Ah (C/20)
- Reserve Capacity: BCI: 66 minutes
  (25 amp discharge, 80°F (26.7°C), to 10.5 volts cut-off)

Power:

- CCA (BCI 0°F): 460 amps
- MCA (BCI 32°F): 575 amps
Recommended Charging:

The following charging methods are recommended to ensure a long battery life: (Always use a voltage regulated charger with voltage limits set as described below.)

Model: D51 and D51R
These batteries are designed for starting and deep cycle applications and for use in vehicles with large accessory loads.

Recommended Charging Information:

<table>
<thead>
<tr>
<th>Charge Type</th>
<th>Voltage Range</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Alternator</strong></td>
<td>13.65 to 15.0 volts</td>
</tr>
<tr>
<td><strong>Battery Charger (Constant Voltage)</strong></td>
<td>13.8 to 15.0 volts; 10 amps maximum; 6-12 hours approximate</td>
</tr>
<tr>
<td><strong>Float Charge</strong></td>
<td>13.2 to 13.8 volts; 1 amp maximum; (indefinite time at lower voltages)</td>
</tr>
<tr>
<td><strong>Rapid Recharge</strong></td>
<td>Maximum voltage 15.6 volts. No current limit as long as battery temperature remains below 125°F (51.7°C). Charge until current drops below 1 amp.</td>
</tr>
<tr>
<td><strong>Cyclic or Series String Applications</strong></td>
<td>14.7 volts. No current limit as long as battery temperature remains below 125°F (51.7°C). When current falls below 1 amp, finish with 2 amp constant current for 1 hour.</td>
</tr>
</tbody>
</table>

**Recharge Time:** (example assuming 100% discharge – 10.5 volts)

<table>
<thead>
<tr>
<th>Current</th>
<th>Approximate time to 90% charge</th>
</tr>
</thead>
<tbody>
<tr>
<td>100 amps</td>
<td>25 minutes</td>
</tr>
<tr>
<td>50 amps</td>
<td>65 minutes</td>
</tr>
<tr>
<td>25 amps</td>
<td>130 minutes</td>
</tr>
</tbody>
</table>

Recharge time will vary according to temperature and charger characteristics. When using Constant Voltage chargers, amperage will taper down as the battery becomes recharged. When amperage drops below 1 amp, the battery will be close to a full state of charge.

(All charge recommendations assume an average room temperature of 77°F (25°C).

Always wear safety glasses when working with batteries.

Always use a voltage regulated battery charger with limits set to the above ratings. Overcharging can cause the safety valves to open and battery gases to escape, causing premature end of life. These gases are flammable! You cannot replace water in sealed batteries that have been overcharged. Any battery that becomes very hot while charging should be disconnected immediately.

Not fully charging a battery can result in poor performance and a reduction in capacity.
Shipping and Transportation Information:

OPTIMA batteries can be shipped by AIR. The battery is nonspillable and is tested according to ICAO Technical Instructions DOC. 9284-AN/905 to meet the requirements of Packing Instructions No. 806 and is classified as non-regulated by IATA Special Provision A-48 and A-67 for UN2800. Terminals must be protected from short circuit.

Manufacturing Location:

Enertec Exports S. de R.L. de C.V.
RFC: EEX020516KU2
Avenida. del Parque No. 2155
Monterrey Technology Park
Cienega de Flores, N.L. 65550
MEXICO
Phone: 52 (81) 81542300
Fax: 52 (81) 81542301

BCI = Battery Council International

OPTIMA Batteries
Product Specifications: Model D51 and d51R
December 2008