THE FUTURE FOR TOTAL ELECTRIC VEHICLES . . .

NICKEL-IRON POWER
**NOW!** There is a reliable, Nickel-Iron battery that weighs less and stores more energy than a conventional lead-acid battery.

Long-life, deep-cycle Nickel-Iron technology can extend the range of any electric vehicle!
A technology that will power both present and future total electric vehicles is being brought to production by Eagle-Picher. Design innovation has substantially improved the performance of the historically rugged and reliable electrochemical couple. Now, there is a Nickel-Iron battery with greater specific energy and power.

Designated the NIF-200-5 module, it is the most recent addition to the family of Nickel-Iron batteries developed by Eagle-Picher. This configuration is compatible with BCI Group GC-2 applications.

It weighs up to 20% less, stores up to 50% more energy and can last up to four times longer than conventional lead-acid batteries. And it has a deeper cycle capability to assure problem-free operation in the field.

Routine water addition has been made simple with an especially designed, single-point, watering system. It makes routine battery maintenance fast and error free.

The Nickel-Iron battery can be charged with your current lead-acid battery charger with only minor modifications. Or you may be interested in the quick charging capabilities available with a new charger manufactured especially for Nickel-Iron batteries.

If your present electric vehicles spend too much time plugged into electrical outlets, run out of energy before the work shift ends, or require battery replacements too often . . . consider the future, today.

Give us a phone call. We will be glad to discuss the benefits of an Eagle-Picher Nickel-Iron battery made to meet your specific application.

Your call will be answered by a technical engineer, not a salesman. Together, we can determine how this innovative power plant might serve you.

Phone 417-623-8000 or 417-623-8333

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**SPECIFIC ENERGY VS CYCLE LIFE** of typical BCI Group GC-2 battery types

In comparable applications, you may receive from 50% to 100% improvement in your electric vehicle's range when replacing lead-acid batteries with a set of Eagle-Picher Nickel-Iron batteries.

<table>
<thead>
<tr>
<th>Rate (A)</th>
<th>Cut-Off (V)</th>
<th>Capacity (A-Hr)</th>
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<tr>
<td>200</td>
<td>4.2</td>
<td>195</td>
</tr>
<tr>
<td>100</td>
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<td>199</td>
</tr>
<tr>
<td>67</td>
<td>5.0</td>
<td>204</td>
</tr>
<tr>
<td>40</td>
<td>5.0</td>
<td>209</td>
</tr>
</tbody>
</table>

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**CONSTANT RATE DISCHARGE VOLTAGE and CAPACITY**

<table>
<thead>
<tr>
<th>Rate (A)</th>
<th>Cut-Off (V)</th>
<th>Capacity (A-Hr)</th>
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</thead>
<tbody>
<tr>
<td>195A</td>
<td>4.2</td>
<td>195</td>
</tr>
<tr>
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<tr>
<td>50A</td>
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</table>

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**NIF-200-5 NICKEL IRON MODULE**

`[Diagram of NIF-200-5 module dimensions with measurements]`
Nickel-Iron... a vehicle battery that meets all major demands... High Energy, High Power, Deep Cycles and Long, LONG Life

Developed by Eagle-Picher, the company that’s at home in the future and founder of many advancements for electric vehicles.

- Designed and built batteries for the Lunar Rover.
- Designed and built the batteries for Skylab and many deep space probes for NASA.
- Designed and built batteries for electric vehicles that captured 21 land speed records.
- Designed and built batteries for the electric vehicle that held the land distance record for six years.
- Designed and built batteries for speed boats that have held many speed and distance records.
TECHNICAL DATA SHEET
Battery No. NIF-200-5
Nickel-Iron Module

Electrochemistry:
- Nickel/KOH/Iron

Physical Data:
- Length .......................... 10.3 max. in.
- Width .......................... 7.1 max. in.
- Height ......................... 9.8 max. in.
- Volume ............................ 660 in^3
- Weight ......................... Dry 42 lbs.
- .................................. Activated 54 lbs.

Electrical Information
Nominal Discharge Voltage(C/2):...... 6.0 Volts
Voltage Limits:
- End of Discharge (C/3) .......... 5.0 Volts
- End of Discharge (C/2) .......... 4.5 Volts
- End of Charge (C/5) ............. 8.6 Volts
- End of Charge (C/10) ........... 8.3 Volts
Open Circuit Voltage:
- 0% S.O.C. (1 Hr. after discharge) 6.1 Volts
- 100% S.O.C. (1 Hr. after charge) 7.2 Volts
Discharge Capacity:
- C/2 .......................... 199 Ah to 4.5 Volts
- C/3 .......................... 204 Ah to 5.0 Volts
Percentage Overcharge Recommended:
- 35-40%

Thermal Characteristics:
- Operating temperature ...... 0-60°C
- Temperature compensated charge voltage required (8.3 V at 25°C nominal)

Unique Operating Characteristic:
- Hardware has been designed for single point watering and gas management
- Chargers have been developed for 24V, 36V and 48V battery configurations

Case Material:
- Polypropylene plastic, heat sealed cover to case

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RANGELINE FACILITY
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SEP 15, 1993