### Track 1 Character Set

<table>
<thead>
<tr>
<th>Character</th>
<th>Card Data</th>
<th>ASCII</th>
</tr>
</thead>
<tbody>
<tr>
<td>Space</td>
<td>P B0 B1 B2 B3 B4 B5 B6</td>
<td></td>
</tr>
<tr>
<td>@</td>
<td>- - - - - - - -</td>
<td>20 A0 A0</td>
</tr>
<tr>
<td>@</td>
<td>- - - - - - - -</td>
<td>21 A1 A1</td>
</tr>
<tr>
<td>@</td>
<td>- - - - - - - -</td>
<td>22 A2 A2</td>
</tr>
<tr>
<td>(OG)</td>
<td>1 0 0 0 0 0 0 1</td>
<td>23 A3 A3</td>
</tr>
<tr>
<td>S</td>
<td>0 0 0 0 0 1 0 0</td>
<td>24 A4 A4</td>
</tr>
<tr>
<td>% (SS)</td>
<td>1 0 0 0 0 1 0 1</td>
<td>25 A5 A5</td>
</tr>
<tr>
<td>@</td>
<td>- - - - - - - -</td>
<td>26 A6 A6</td>
</tr>
<tr>
<td>@</td>
<td>- - - - - - - -</td>
<td>27 A7 A7</td>
</tr>
<tr>
<td>0</td>
<td>0 0 0 1 0 0 0 2</td>
<td>28 AA A2</td>
</tr>
<tr>
<td>@</td>
<td>- - - - - - - -</td>
<td>29 AB AB</td>
</tr>
<tr>
<td>@</td>
<td>- - - - - - - -</td>
<td>2B AC AC</td>
</tr>
<tr>
<td>@</td>
<td>- - - - - - - -</td>
<td>2C AE AE</td>
</tr>
<tr>
<td>@</td>
<td>- - - - - - - -</td>
<td>2D ED ED</td>
</tr>
<tr>
<td>0</td>
<td>0 0 0 1 1 1 0 2</td>
<td>2E AE AE</td>
</tr>
<tr>
<td>/</td>
<td>1 0 0 1 1 1 1</td>
<td>2F AF AF</td>
</tr>
<tr>
<td>0</td>
<td>0 0 1 0 0 0 0</td>
<td>30 B0 B0</td>
</tr>
<tr>
<td>1</td>
<td>0 0 1 0 0 0 1</td>
<td>31 B1 B1</td>
</tr>
<tr>
<td>2</td>
<td>0 0 1 0 0 1 0</td>
<td>32 B2 B2</td>
</tr>
<tr>
<td>3</td>
<td>0 0 1 0 1 1</td>
<td>33 B3 B3</td>
</tr>
<tr>
<td>4</td>
<td>0 0 1 0 1 1</td>
<td>34 B4 B4</td>
</tr>
<tr>
<td>6</td>
<td>0 0 1 1 0 1</td>
<td>35 B5 B5</td>
</tr>
<tr>
<td>7</td>
<td>0 0 1 1 1 0</td>
<td>36 B6 B6</td>
</tr>
<tr>
<td>8</td>
<td>0 0 1 1 1 1</td>
<td>37 B7 B7</td>
</tr>
<tr>
<td>9</td>
<td>0 0 1 1 0 0</td>
<td>38 B8 B8</td>
</tr>
<tr>
<td>@</td>
<td>- - - - - - - -</td>
<td>3A BA BA</td>
</tr>
<tr>
<td>@</td>
<td>- - - - - - - -</td>
<td>3B BB BB</td>
</tr>
<tr>
<td>@</td>
<td>- - - - - - - -</td>
<td>3C BC BC</td>
</tr>
<tr>
<td>@</td>
<td>0 1 1 1 1 1</td>
<td>3D BD BD</td>
</tr>
<tr>
<td>? (ES)</td>
<td>0 0 1 1 1 0</td>
<td>3E BE BE</td>
</tr>
</tbody>
</table>

### Track 2 and 3 Character Set

Forward shift 1st bit comes at 1st

<table>
<thead>
<tr>
<th>Character</th>
<th>Card Data</th>
<th>ASCII</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>1 0 0 0 0</td>
<td>30 B0 B0</td>
</tr>
<tr>
<td>1</td>
<td>0 0 0 0 1</td>
<td>31 B1 B1</td>
</tr>
<tr>
<td>2</td>
<td>0 0 0 1 0</td>
<td>32 B2 B2</td>
</tr>
<tr>
<td>3</td>
<td>0 0 1 0 0</td>
<td>33 B3 B3</td>
</tr>
<tr>
<td>4</td>
<td>0 0 1 0 0</td>
<td>34 B4 B4</td>
</tr>
<tr>
<td>5</td>
<td>0 1 0 0 1</td>
<td>35 B5 B5</td>
</tr>
<tr>
<td>6</td>
<td>0 1 0 1 0</td>
<td>36 B6 B6</td>
</tr>
<tr>
<td>7</td>
<td>0 1 1 1 0</td>
<td>37 B7 B7</td>
</tr>
</tbody>
</table>

### Character Set Notes
- **P** = Parity
- **EP** = Even Parity
- **OP** = Odd Parity
- **P0** = Parity bit set to 0
- **P1** = Parity bit set to 1
- **SS** = Start Sentinel
- **ES** = End Sentinel
- **FS** = Field Separator
- **AS** = Account Separator (Track 3 only)
- **OG** = Optional Graphic

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**MAGTEK**

Application Note - Character Conversion

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