Let G be a graph with vertex set $V(G)$ and edge set $E(G)$, and let A be an abelian group. A labeling $f : V(G) \to A$ induces an edge labeling $f^* : E(G) \to A$ defined by $f^*(xy) = f(x) + f(y)$ for each $xy \in E(G)$. For each $i \in A$, let $v_f(i) = card\{v \in V(G) : f(v) = i\}$ and $e_f(i) = card\{e \in E(G) : f^*(e) = i\}$. Let $c(f) = \{|e_f(i) - e_f(j)| : (i,j) \in A \times A\}$. A labeling f of a graph G is said to be A-friendly if $|v_f(i) - v_f(j)| \leq 1$ for all $(i,j) \in A \times A$. If $c(f)$ is a $(0,1)$-matrix for an A-friendly labeling f, then f is said to be A-cordial. When $A = \mathbb{Z}_2$, the friendly index set of the graph G, $FI(G)$, is defined as $\{|e_f(0) - e_f(1)| : \text{the vertex labeling } f \text{ is } \mathbb{Z}_2\text{-friendly}\}$. In [15] the friendly index set of a cycle is completely determined. We consider the friendly index sets of broken wheels with three spokes.