Annihilating class groups by means of units

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For an abelian extension K/F of number fields, the machinery of F. Thaine and K. Rubin constructs annihilators of the ideal class group of K as images of so-called special units of K in suitable G-linear maps to $\mathbb{Z}[G]$, where $G = \mathrm{Gal}(K/F)$. If $F = \mathbb{Q}$ or F is an imaginary quadratic field, there is a standard source of special units: circular units or elliptic units, respectively. This talk is devoted to a particular case when $F = \mathbb{Q}$ or F is an imaginary quadratic field and the extension K/F is cyclic of p-power degree, p being an odd prime. For some fields K of this type we obtain a stronger annihilation result than the standard application of Thaine-Rubin machinery produces. This gain is obtained by an explicit construction of a unit which is not known to be special, but which can still be used under a slight modification of the machinery.