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# THE WILSON VERSION OF D'ALEMBERT'S FUNCTIONAL EQUATION ON A CLASS OF 2-DIVISIBLE NILPOTENT GROUPS

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**Abstract.** Consider the functional equation

$$f, g, h, k\colon G \to K, \quad f(xy) + g(xy^{-1}) = h(x)k(y) \qquad (*)$$

where $G$ is a group and $K$ a field with $charK \neq 2$.

Wilson [13] and Aczél [1] have solved the equation $(*)$ where $G$ is the additive group of real numbers $\mathbb{R}$ and $K = \mathbb{R}$.

In the present paper we obtain the general solution of the equation $(*)$ when $G$ belongs to a special class of nilpotent or generalized nilpotent groups.

**MSC 2000.** 39B52, 20B99.

**Key words.** Functional equation, nilpotent group, Lie group.

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