ON DISTRIBUTION IMPULSE RESPONSE

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The equation $F\dot{x} = Gx + f$ is investigated. The operators F and G may be not invertible and unbounded. The impulse characteristic is the solution that corresponds to $f = 1\delta$. If the coefficient F has non-zero kernel, the impulse characteristic is a distribution. Conditions for the existence (theorem 5) of the distribution impulse characteristic are described. The impulse characteristic may exist even in the case when the semi-group corresponding to the equation is not strongly continuous.