Models for non-negative time series find their usefulness in many diverse areas of applications (hydrology, medicine, finance). The non-negative nature of the observations has been utilized for deriving estimators with superior asymptotic properties. For the purposes of estimation, it is necessary to recognize the situations when the estimated model indeed defines a non-negative time series. Such non-negativity conditions can then be used as a basis for constrained optimization. The main thrust of this work is to review the non-negativity conditions currently available for ARMA models and, more importantly, to generalize the existing results for some models for which the explicit result was missing. We center our discussion mainly on univariate models. However, we note that the pursued ideas are directly applicable also for multivariate time series. This observation enables determination of some readily obtainable conditions for lower order vector valued Autoregressive Moving Average models.