For which kinds of specifications $P$ and $Q$ is the following a theorem:

§ First, rewrite the two sides.
\[ \neg(P \land \neg Q) = \forall \sigma'' \cdot (\sigma' \cdot P) \sigma'' \Rightarrow (\sigma' \cdot Q) \sigma'' \]
\[ P \land Q = \exists \sigma'' \cdot (\sigma' \cdot P) \sigma'' \land (\sigma' \cdot Q) \sigma'' \]

(a) \[ \neg(P \land Q) \iff P \land Q \]
§ If, for all prestates, $P$ is deterministic, then (a) is a theorem. (That's sufficient, but not necessary.)

(b) \[ P \land Q \iff \neg(P \land \neg Q) \]
§ If, for all prestates, $P$ is satisfiable ($P$ is implementable), then (b) is a theorem.

(c) \[ P \land Q = \neg(P \land \neg Q) \]
§ If, for all prestates, $P$ is satisfiable and deterministic, then (c) is a theorem.