$\boxed{i \neq j}$

$$\mathbb{E}\left[\frac{\partial f}{\partial t_i}\frac{\partial f}{\partial t_j}\right] = 0 \implies \frac{\partial f}{\partial t_i}, \frac{\partial f}{\partial t_j} \text{ are indep (as Gaussian)}$$

$\Rightarrow \frac{\partial}{\partial t_k}$ for $k \neq i$

that $\frac{\partial f}{\partial t_i}, \frac{\partial f}{\partial t_j \partial t_k}$ are <u>indep</u>.

Here $\mathbb{E}\left[\frac{\partial}{\partial t_i}\frac{\partial^2}{\partial t_i \partial t_j}\right] = 0$. $\boxed{\text{So } \mathbb{E}\, \frac{\partial}{\partial t_i}^2 = 0}$

$\mathbb{E}\left[\cancel{\frac{\partial^2 \partial}{\partial t_i \partial t_j}}\right.$ $\mathbb{E}\left[\frac{\partial^2}{\partial t_i}\frac{\partial}{\partial t_j}\right] = 0$ as $\mathbb{E}\left[\frac{\partial}{\partial t_i}\frac{\partial}{\partial t_j}\right] = 0$

and $\mathbb{E}\left[\frac{\partial}{\partial t_i \partial t_k \partial t_j} + \frac{\partial}{\partial t_i}\frac{\partial}{\partial t_j \partial t_k}\right] = 0$

$g(t) = C_{tt}^{-1/2} f(t)$.

then $\nabla^T g(t) = C_{tt}^{-1/2} \nabla^T f(t)$

$\boxed{= C_{tt}^{-1/2} \nabla f}$ rather

g is a process s.t.

$$\boxed{\mathbb{E}\, g^T g = I}$$