· Now set eqtn (2) and modified eqtn (4) equal to another, eliminating their left hand terms,

$$B(q)u - C(q,\dot{q})\dot{q} - G(q) = T^T(-\tilde{C}(T\dot{q}) - \tilde{G} + \tilde{B}u)$$

· Multiply by $(T^T)^{-1}$ and distribute,

$$(T^T)^{-1}B(q)u - (T^T)^{-1}\cdot C(q,\dot{q})\dot{q} - (T^T)^{-1}\cdot G(q) = -\tilde{C}(T\dot{q}) - \tilde{G} + \tilde{B}u$$

· By setting $\dot{q}$ terms equal, we get,

$$-(T^T)^{-1}C\dot{q} = -\tilde{C}T\dot{q}$$

or equivalently,

$$\boxed{\tilde{C} = (T^T)^{-1}\cdot C\cdot T^{-1}}$$

· By setting singular (G) terms equal, we get,

$$-(T^T)^{-1}G(q) = -\tilde{G}$$

or equivalently,

$$\boxed{\tilde{G} = (T^T)^{-1}\cdot G}$$

· By setting u terms equal, we get,

$$(T^T)^{-1}\cdot B\cdot u = \tilde{B}u$$

or equivalently,

$$\boxed{\tilde{B} = (T^T)^{-1}\cdot B}$$