Taking laplace stieltjes transform of the above equations (120-126) and the solution of $\tilde{V}_0(s)$ may be expressed as by omitting the argument 's' for brevity is

$$\tilde{V}_0(s) = N_5(s)/D_5(s) \quad \ldots.(127)$$

where

$$N_5(s) = (1 - \tilde{Q}_{46}\tilde{Q}_{64})(1 - \tilde{Q}^{(1)}_{33} - \tilde{Q}_{35}\tilde{Q}_{53})\tilde{Q}_{02}\tilde{Q}_{21} \quad \ldots.(128)$$

and $D_5(s)$ is same as in $D_4(s)$ in (117).

Now,

$$N_5(0) = p_{60}p_{02}(1 - p^{(1)}_{33} - p_{35}p_{53}) \quad \ldots.(129)$$

Therefore, in steady state the expected number of repairs of automatic switch is

$$V_0 = \lim_{t \to \infty} [V_0(t)/t] = \lim_{s \to 0} s\,\tilde{V}_0(s) = N_5/D_5 \quad \ldots.(130)$$

where N_5 is same as (129) and D_4 is same as D_2 in (86).

11. Conclusion

The paper provides the reliability characteristics such as MTSF, Availability, Busy Period Analysis, etc. by using regenerative point technique with Markov renewal process, of a fuel supply system in an automobile engine of a four wheeler which is having both the option of fuel i.e. PETROL and CNG.

12. References

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