

Figure 8. The stress nephogram of rod in rated condition

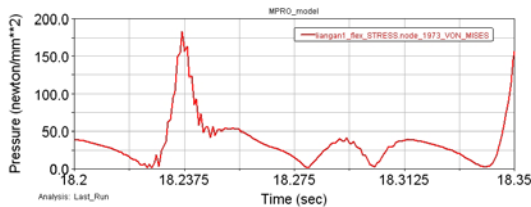


Figure 9. The stress curve of rod in an emergent speedup at diesel's warm-up state

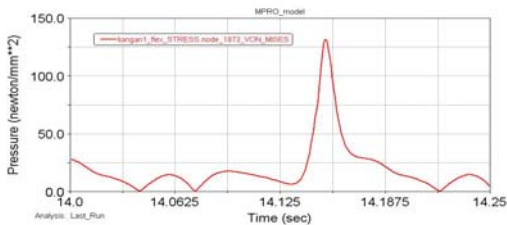


Figure 10. The stress curve of rod in circumgyration condition of full rudder

V. CONCLUSION

At present, the method of strength analysis on the rated working condition is popular and efficient; but at the operation management, it indicates by many accidents that the reliability of strength decreases a little; so it is more significant to study the strength of diesel on the unsteady working condition.

Certainly, the dynamic strength analysis at unsteady state is complex than that at rated state. The development of computer hardware and computer application technology makes the dynamic strength analysis possible. The authors combine the computational dynamics of multi-body systems method and

finite element method in this paper, and analyze the modeling and resolving of computational dynamics of multi-body systems, especially analyze the boundary conditions on unsteady state by the numbers. The results show that the amplitude of stress is big on speedup condition. There are many factors that we must pay attention to at unsteady state, such as the large change of power, the little stability of governor, the biggish acceleration and inertial force of power transfer subassembly, and many non-linear conditions. The further research work should be done about dynamic strength analysis on unsteady working condition.

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