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## Automatic Control of Winch for Mooring -Part 3, Control of Electric Winch-

[Masahiko Nakamura](#), [Hiroyuki Kajirawa](#), [Shoichi Hara](#), [Mitsuo Manabe](#) and [Hidetoshi Saiki](#)

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**Summary:** Recently, in domestic shipping, a shortage of crew members resulting from the severe labor environment and the aging of members are serious problems, and there is concern about stable transportation becoming difficult because of this. The hiring of younger crew members by improving the labor environment and reducing the labor load is therefore an important target. The automatic mooring is one means of mitigating the labor load of standby operations. If the shift of the mooring tension induced by tide level change and the draft change while loading can be prevented, and moreover, if the hull position can be kept automatic within the allowable limit, the labor load can be reduced. In the first paper, the feedforward controller for automatic mooring which outputs the amount of adjustments of line length was proposed, and it was shown that the controller worked effectively by the simulations and the experiments with the model. In order to put this controller in practical use, it is indispensable that mooring line length can be adjusted with sufficient accuracy by winch control irrespective of change of tension. In this paper, the controller which controls line length was designed, and the performance was verified by the experiments. The good results are shown.

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