



**MATHEMATICAL MODEL AND SYNTHESIS OF  
CONTROL SYSTEM TEST STAND FOR  
TRANSMISSION HELICOPTER**

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**Abstract**

The variant of the control system synthesis test apparatus for helicopter transmissions based on modal synthesis method. The mathematical model of the test rig and an algorithm for control of individual compensation zeros of the transfer matrix of the test stand. The resulting system provides a multi-dimensional: the desired location of the roots of the characteristic equation (setting individual channels of a standard linear form), the set of zeros in the compensation system, ASTATISM channel system and the ability to ensure the diagonal form of the transfer matrix of the test stand.

**Keywords and phrases:** mathematical model stand for testing helicopter transmissions, algorithm for calculating the matrix feedback compensation type, compensation of individual zeros of the system, decoupling the channels in the system, providing an arbitrary spectrum of poles.

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