

REPORTS ON CONSTRUCTIONAL WORK

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1. Improvements to the segmentator

In the past year the segmentator has been improved. A new gate with field-effect transistors working in the non-pinchoff region (variable impedance) has been constructed to replace the old one with a diode-bridge.

Instead of clipping the speech signal when using envelope shaping the new gate damps the signal. The damping function is approximately a Gaussian function for a trapezoidal input to the gate. At the same time the maximum damping is raised from 45 dB to 70 dB. (PT)

2. Construction of a four-channel electromyograph

A four-channel electromyograph suitable for use with needle or surface electrodes has recently been constructed. The signal is led to a high input-impedance pre-amplifier with a gain of 20 dB. The input mode can be either DC or AC (0.1 Hz). The pre-amplifier is followed by a general-purpose amplifier with gain adjustable from -60 dB to +40 dB. Thereafter the system allows for signal processing via high-pass and low-pass filtering, rectification and integration. Rectification is linear, and filter cut-off frequencies and integration time-constants are selectable. The bandwidth of the system is 0 - 20 kHz.

Further specifications relating to noise levels and CMRR are not given here, since we are at present conducting experiments to determine the effect of these values of coupling electrodes into the system. These experiments will be reported later. (PT)

3. Speech synthesizer

The synthesizer of the Institute of Phonetics has been modified so that it now includes 8 formant circuits for the synthesis of vowels and consonants. The control system (function generator) has been constructed according to the principles outlined in ARIPUC 3/1968 (1969), p. 17 ff. It is presently possible to control 12 varying parameters simultaneously. Specimens of speech have been synthesized with fairly good quality. (JR)