Westinghouse

BASIC FEEDBACK CONTROL SYSTEM THEORY

Whenever it is necessary to maintain the preset operating point of a controlled variable such as voltage, speed current, tension, position, etc., a feedback control system is required. Such a system is illustrated in the block diagram of Figure 1.

The reference is the command signal for the system and is used to establish the desired operating point of the controlled variable. Normally, the reference signal is a D.C. voltage, made variable by means of a potentiometer or rheostat.

The feedback signal, obtained from the controlled variable, provides the system with information as to the actual operating point of the controlled variable.

By comparing or adding the reference and feedback signals, the existing error between the desired and actual operating point can be determined.

The error signal is applied to the amplifier where it is magnified and used to change the operating point of the controlled variable so as to make the error as small as possible.

NOTE: The error may either be the sum of two or more voltage signals, two or more current signals or the sum of the ampere turns of two or more control windings.

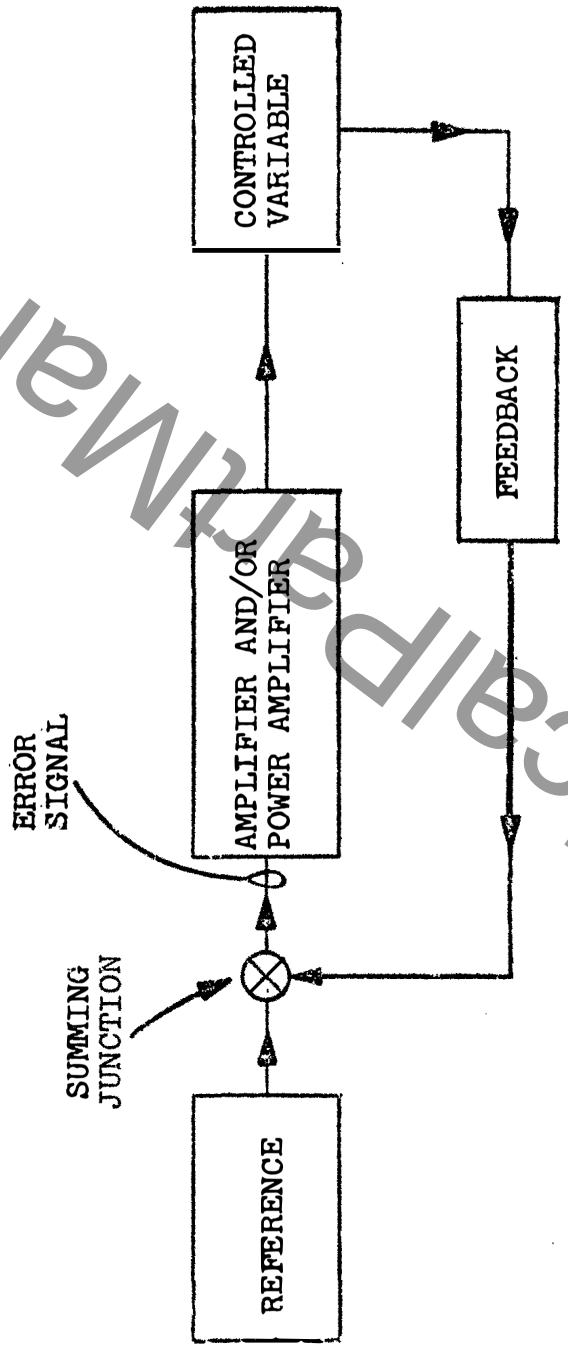

FIGURE 1 BASIC FEEDBACK CONTROL SYSTEM BLOCK DIAGRAM