

Bm # 778B

SAGE DATA TRANSMISSION SYSTEMS
DESCRIPTION — GROUND-TO-AIR DATA SYSTEMS

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1. GENERAL

1.01 Ground-to-air data systems are used in the SAGE System primarily to transmit directive information to aircraft or other weapons that are being controlled from the direction center.

2. GROUND-TO-AIR DATA SYSTEMS

2.01 The data used in the ground-to-air systems is generated at the direction center. The complete transmission path to the aircraft includes data circuits between the direction center and the ground-air transmitter sites and radio links between these points and the aircraft. These end radio links will be customer-owned and maintained; the material given below applies only to the data links between the direction center and the ground-air sites.

2.02 The basic characteristics of the data generated in ground-to-air data systems are as follows:

- (a) Information is transmitted at the rate of 1300 bits per second. The data is arranged in messages approximately 300 bits long and the message rate is about four per minute.

(b) Each message is divided into data words and each word has an associated parity check. Failure of the parity check results in a loss of the word associated with it but not the whole message.

(c) The ground-to-air data is composed of the usual three components, a start or synchronizing component, a data component and a timing component. The start component only indicates the start of each message, indications of the starting points of the words in each message are not sent.

(d) Successive messages will bear an informational relation to one another since the directive information generated by the data system is progressive in nature.

2.03 Fig. 1 shows a typical data message in idealized form. It should be noted that the information is contained in about the first 70% of the message directly following the start pulse. Following the last word, the remaining 30% of the message carries no real directive information but is devoted to timing. Since the timing component may or may not be transmitted depending on the data transmission system used, the timing is not shown in Fig. 1.

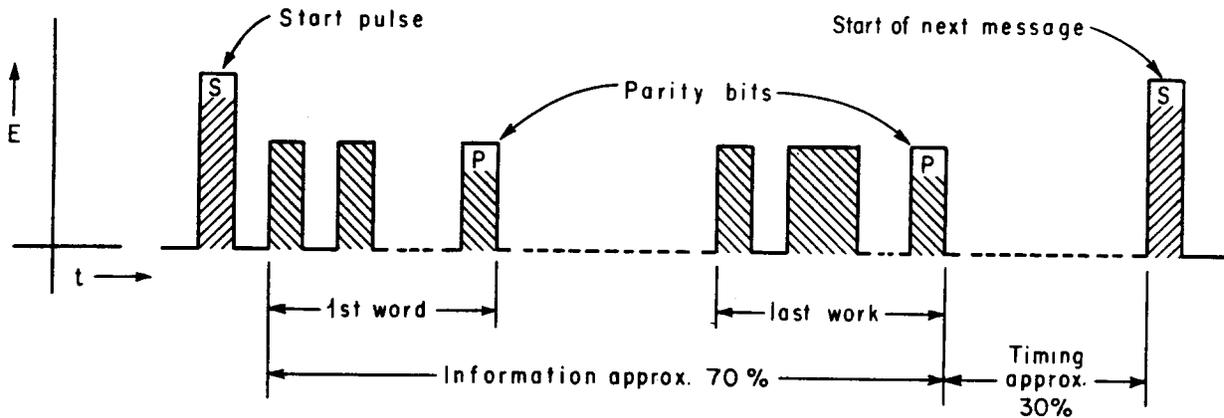


Fig. 1 - Idealized Ground - Air Message