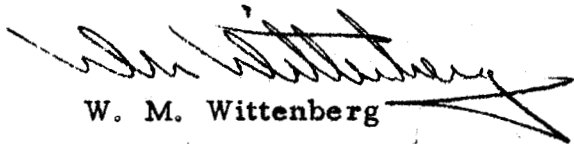Mr. W. Buchholz

February 14, 1957

Subject: Proposal #1 - Phone Line Operation of
a Single Inquiry Station

The accompanying proposal on a Remote Inquiry Station is

numbered to indicate that several other types of Stations are worth-

while writing up. This proposal is in fairly rough form, but there

is enough meat in it to insure a fair understanding of what is proposed.

Comments are invited from the distribution list and will be gratefully

acknowledged.

W. M. Wittenberg

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Proposal #1

Phone Line Operation of a Single Stretch Inquiry Station.

Physical Description

1. Inquiry Buffer

This buffer contains the necessary registers and controls to insure compatability with the Exchange.

Included are:

a) Receiver and scanner
b) Transmitter and scanner
c) Input Byte register
d) Output Byte register
e) Decoder
f) Encoder
g) Triggers

(1) Select Request
(2) End of Message
(3) Cancel
(4) Tel
(5) Input Service Request
(6) Transmission check
(7) Input Proceed
(8) Character No Good
(9) Printer Ready
(10) Input Error
(11) Output Service Request
(12) Output Proceed
(13) Output Error

h) Tel light
i) Error Alarm

2. Remote Inquiry Station

The Remote Inquiry Station contains all controls found in the Stretch Inquiry Station*. In addition, the following registers and controls are necessary.

a) Receiver and scanner
b) Transmitter and scanner
c) Input Byte Register
d) Output Byte Register
e) Decoder
f) Encoder
g) Triggers

(1) Input proceed
(2) Character No Good
(3) Tel

* See Stretch Inquiry Station Write-up

h) Transmission Error Light
i) Tel light
j) Proceed light
k) Transmission Check request key
l) Character no good alarm

Operation - Normal Mode

The Inquiry Station Operator requests Selection by depressing the SELECT button. The Select Request character is placed in the output byte buffer of the Remote Station (RIS) and is there scanned by the Transmitter and serially sent over the phone line. At the computer or Inquiry Buffer (IB) end of the line the character is collected in the Input byte buffer and decoded. T_1, the Select Request trigger is set. The Exchange proceeds in normal fashion to allow computer honoring of the Select Request. T_{71} is then set by the Exchange response signal. T_{71} is encoded and sent over the phone line to the RIS. There the T_{71} character lights the PROCEED light and unlocks the key board. The operator proceeds to type her inquiry and keys the END of MESSAGE button to signify completion of the inquiry. The first byte of data sent to the computer is the real address of the RIS. The message is transmitted to the IB on a character by character (4 of 8 code) basis.

The computer selects the IB as a typical output device. The first byte of data sent would be the address of the printer at the RIS desired. Operation proceeds as above in the input case with control and data information serialized, byte by byte on the line.

The RIS operator can, at any time, interrupt transmission and depress the TEL button, signaling the operator in attendance at the IB's (or close by) to pick up the telephone for aural communication.

Operation - Error Mode

The standard Inquiry Station has Error modes of CANCEL and ERASE. Since telephone lines can make errors, it is necessary to check transmission for correctness. The ideal way would be to check and respond for every character sent over the line, holding the next character until correct transmission is accomplished. Unfortunately, 300 msec are required to cause the phone line to reverse directions due to echo suppressors in the line. The next best thing is to check every character as it is transmitted and to set a trigger if an incorrect character is transmitted. The TRANSMISSION CHECK REQUEST button allows the operator to check for validity of transmission in a most flexible manner (i. e.) whenever she desires. In addition, the carriage return key, and the end of message
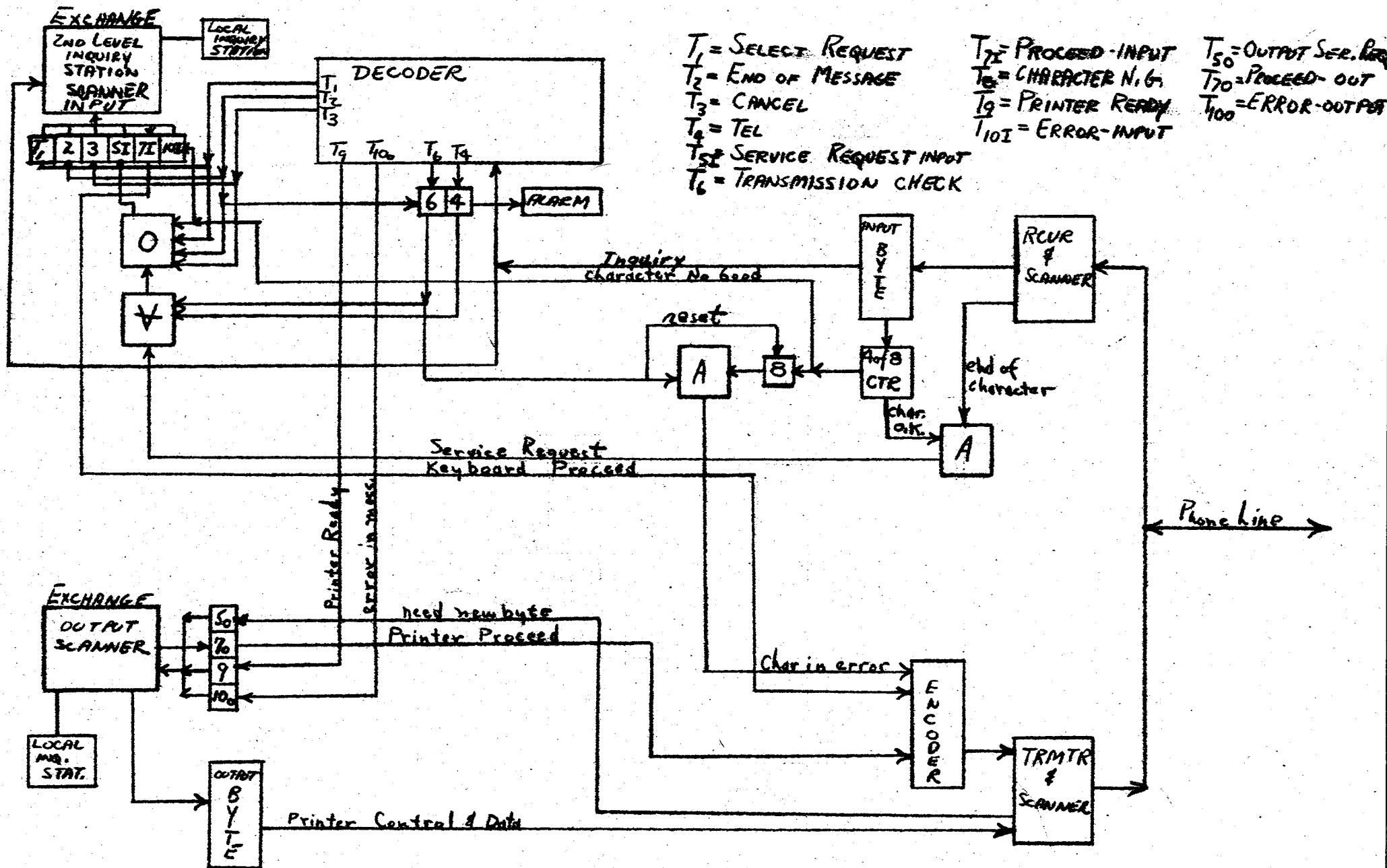
character will automatically cause a transmission check. In this manner, adequate protection is assured with minimum operator intervention.

In the case of an output message, the computer is notified of message errors automatically at end of message.
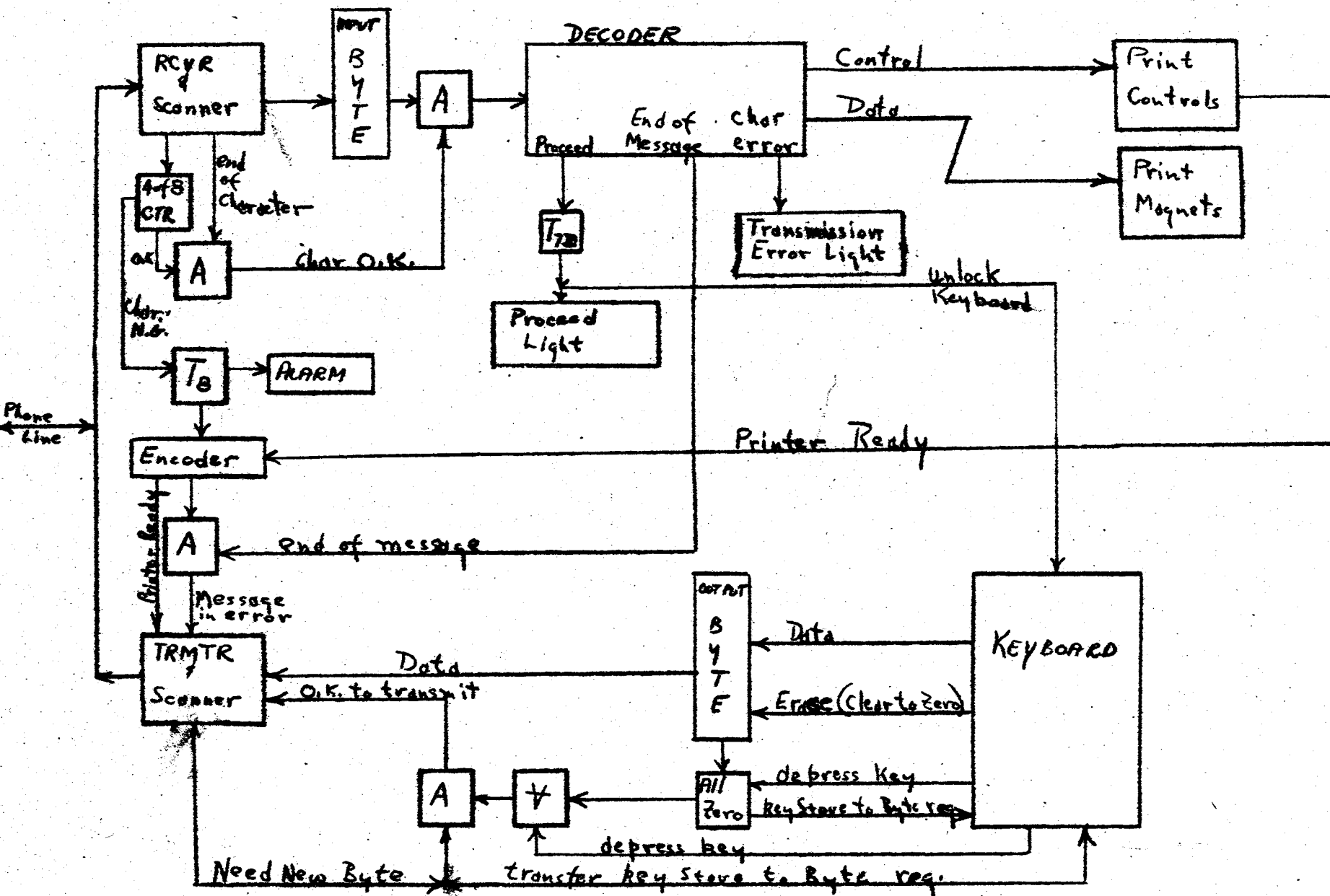
REMOTE INQUIRY STATION

2/12/57

Inquiry Buffer – Computer End of Line

2/12/57