83B2 TELETYPEWRITER
SELECTIVE CALLING SYSTEM
SINGLE LINE INTERCEPT CIRCUIT
PSD-70032-01
GENERAL DESCRIPTION

1.01 This section is the first in a series of sections dealing with a single line intercept unit for use with 83B2 station equipment.

1.02 This arrangement is compact and offers operating features not in similar equipment.

2. PURPOSE

2.01 The intercept unit:

(a) Provides a single typing reperforator for miscellaneous intercept, manual cross-office for relaying messages, and a line monitor.

(b) Intercepts a message that has in improper format, including a carriage return (CR) ahead of the first CDC.

(c) Eliminates the 28 sequence selector required with the automatic cross-office intercept and utilizes the stunt box of the station teletypewriter equipment.

(d) Prints the call directing characters (CDCs).

(e) Marks intercepted messages to distinguish them from the cross-office manual relay by inserting a TT in the tape.

3. EQUIPMENT ARRANGEMENT

3.01 Relay circuitry is contained on one 23 by 4 inch mounting plate.

3.02 The cord connectors are attached to a 19 by 2 inch mounting plate, outboarded on the rear of the 23 by 4 inch plate as in normal 83B2 equipment.

3.03 Connections to and from this unit are made by the standard "B, E1 or E2, E3 and F" cords.

3.04 A special 25 foot "R" cord is required to connect the 28RO typing reperforator (28 ROTR) to the intercept unit. This cord is connected at the relay unit end.

3.05 An additional cord, "M" and 6017 type key are required to provide the manual tape feed out (interfering) and monitor features.

3.06 The intercept relay equipment is mounted in the 4 foot apparatus cabinet per ED-92185-01 along with the J70125A station control unit, J70125B transmitter start unit, KS-15620 48 volt rectifier, KS-15898 120 volt rectifier, and the J70125D pushbutton control unit if required. The 28 type distributor for the transmitter start unit may be mounted either in the 28 teletypewriter by using the standard mounting accessories, or in the ED-92185-01 apparatus cabinet by using the mounting accessories shown on The Pacific Telephone and Telegraph Company Drawing PED-90004-10.

3.07 Wiring modifications are not required in the transmitter start unit.

3.08 The J70125D pushbutton units for all stations, when used, must be modified. (Drawing PSD-70032-01, Note 303).

(a) The modification results in three LTRS signals being sent to the line before the first CDC is transmitted.

(b) The removal of two soldered straps returns the unit to normal without removing the entire modification.

3.09 The J70125A station control unit at the intercept location only, must be modified to this extent: (Drawing PSD-70032-01, Note 302).

(a) Two wires removed from the "D" connector and taped separately.

(b) Add eight wires or straps between the B, C, and D connectors.

NOTE: These eight wires have no effect on the unit if operated as an 83B2 unit without intercept.

3.10 The J70125F, List 1, 3, & 4 station control and transmitter start key and lamp cabinet or the J70125G, List 1, 3, & 4 station control and pushbutton key and lamp cabinet, must be modified: (Drawing PSD-70032-01, Note 301).

(a) The "MR" key is replaced with a pushbutton type key and designated intercept alarm release "IAR".

(b) A new lamp is added above the "IAR" key and designated intercept "IC".

(c) If the transmitter start or pushbutton key and lamp cabinet is to be reused on an 83B1 with a No. 19 TTY, the normal "MR" key must be replaced, the two wires removed in paragraph 3.09 (a) replaced and two of the eight wires added in 3.09 (b), removed.

3.11 The intercept unit must be installed at the station having the transmitter start unit.

3.12 The station control, pushbutton, and transmitter start units are normally connected together as in FIG. 1. When the intercept unit is installed, it connects per FIG. 2.

4. FEATURES

4.01 The transmitter start characters (TSC) and the "no traffic response, V" are not copied by the intercept 28 ROTR.

4.02 The failure to receive an answer-back following a TSC is <u>not</u> acted upon by the intercept circuit.

4.03 The call directing characters (CDCs) are copied by the 28 ROTR.

4.04 The failure to receive a V answer-back following a CDC causes the message to be intercepted.

4.05 The tape in the 28 ROTR intercept unit is marked following an incorrect CDC by a "TT".

4.06 The mark is also printed at the sending station if it is selected. Example: AB↓TT.

4.07 The intercept unit actually transmits "TTV" as the mark, but the "V" is not printed by the 28 ROTR. The "V" is sent to the line to restart the selected transmitter.

4.08 The 28 ROTR intercept unit may also be used to receive messages for manual cross-office operation. This is accomplished by assigning a CDC for its selection. The first or second character of its CDC shall be "Y". For example: "YA or AY".

4.09 A maximum 1.4 second tape feed-out will take place any time TSCs are being transmitted. This separates each group of CDCs on the tape.

4.10 If a carriage return - line feed (CR LF) combination is sent preceding the CDCs with no LTRS combinations ahead of the CRLF, the message will be intercepted, alarmed, but <u>not</u> marked. The message will <u>not</u> be delivered to the called stations even though the CDCs are all valid. The tape in the intercept ROTR will appear to be valid. The alarm in this case is the only indication something was wrong with the transmission.

4.11 If a tape containing at least three LTRS, CR LF is received before the first CDC, the message will be intercepted, alarmed, but <u>not</u> marked. The message will <u>not</u> be delivered to the called stations even though the CDCs are valid. The CR LF in this case will be printed before the CDCs on the intercepted tape.

4.12 If a tape containing CR AA LTRS is received, the message will be intercepted, alarmed, not marked, and delivered to the station if the CDC is valid.

4.13 If a tape containing at least three LTRS CR LF LTRS AA is received, the message will be intercepted, alarmed, marked with a TT, but <u>not</u> delivered to the called station.

4.14 In paragraphs 4.10, 4.11, 4.12, and 4.13 note that any combination of a CR before a CDC will be intercepted and not lost.

NOTE: The format of these intercepted tapes can not be similar due to a fundamental characteristic of the 83B2 equipment, in that the sending transmitter sends three characters or functions to the line and stops. If any two of these three characters are CR LF sequential, the sending transmitter will not stop. This prevents the intercept unit from marking that tape with the TT.

5. OPERATION

5.01 TSCs are being sent to the line.

(a) Intercept ROTR blinded by transmitter-start unit.

(b) Intercept ROTR feeding out about one inch of LTRS tape.

5.02 The transmitter at some station starts sending several LTRS signals to the line:

(a) The first LTRS signal received releases the transmitter start circuit.

(b) Transmitter start unit releasing, unblinds the intercept ROTR, and stops tape feed-out if in progress.

5.03 The first character of CDC sent to the line:

(a) Prepares to stop the sending transmitter in the normal manner.

(b) Prints on intercept ROTR.

5.04 Second character of CDC sent to line:

(a) Prints on intercept ROTR.

5.05 One LTR signal sent to the line, and sending transmitter stops:

(a) Prints on intercept ROTR.

5.06 The line action in paragraphs 5.03, 04, and 05 are intercepted by the "L" relay of the transmitter start unit.

(a) The operation of the "L" relay stops the timing circuit in the intercept.

(b) When the sending station stops, the "L" relay remains in the mark condition, allowing the intercept circuit to start timing for approximately 4 seconds.

5.07 A "V" answer-back sent to the line by the selected station.

(a) Restarts the sending station's transmitter in the normal manner.

(b) Stops the timing of the intercept circuit.

(c) Is not printed by intercept ROTR.

5.08 CR sent to the line by sending transmitter.

(a) Prints on intercept ROTR.

5.09 LF sent to the line by the sending transmitter.

(a) Conditions sending station transmitter circuit to send balance of message as text.

(b) Prints on intercept ROTR.

(c) Prepares to blind intercept ROTR.

5.10 LTRS sent to line by sending transmitter.

(a) Prints on intercept ROTR.

NOTE: The CR LF contacts in the 28L typing unit close, while this LTRS signal is being received. This operates and locks the MV relay of the intercept unit. The operating MV relay blinds the intercept ROTR.

5.11 The FIGS H LTRS at the end-of-message releases the MV relay in the intercept unit and allows the transmitter start unit to take over. (See paragraphs 5.01 and 5.02).

5.12 The following covers an incorrect CDC sent to the line or the receiving station's AC power turned off, resulting in the message being intercepted.

5.13 Repeat paragraphs 5.03 through 5.06. In paragraph 5.06 (b), the line went idle and the intercept unit starts timing for approximately 4 seconds.

5.14 A "V" answer-back is not received.

(a) In 4 seconds, the intercept timing circuit operates.

(b) Operates the "RC" relay of the station control unit.

(c) Lights the "IC" lamp, and operates the buzzer in the control key box.

(d) Picks up the control circuit of the 28 distributor in the transmitter start unit and sends "TTV" to the line.

(e) The "TT" marks the CDC that caused the message to be intercepted.

(f) The "V" restarts the sending transmitter.

5.15 The attendant may operate the "IAR" key which puts out the "IC" lamp and retires the buzzer.

5.16 If this were a multi-address message and another station failed to send its "V" answer-back, paragraph 5.14(a) through (f) would repeat again.

5.17 The CR LF following the CDCs will not blind the intercept ROTR under this condition.

5.18 The FIGS H LTRS at the end-of-message will return the intercept circuit to normal.

5.19 If the intercept ROTR is also being used for manual cross-office, the "UE" contacts of the 28L typing units stunt box would be coded per paragraph 4.08.

(a) When this code is received, it closes the "UE" contacts and operates the "RC" relay of the station control unit locking the 28 ROTR in a print condition.

(b) The station control unit sends the "V" answer-back signal, as usual, restarting the sending station.

5.20 If a multi-address message is sent including cross-office coding, the CDC for the sending station's line must precede the cross-office CDC.

5.21 If during the transmission of a message (as in par. 5.20), a station on the sending line does not answer-back, the CDC format received by the 28 ROTR will look like this:

(a) LTRS LTRS LTRS BA LTRS BD LTRS TT BF LTRS BY LTRS CA LTRS CF LTRS CR LF TEXT FIGS H LTRS.

Explanation of Format:
BA LTRS - Sending station's CDC.
BD LTRS - Station on sending line, which for some reason did not answer-back.
TT - Marker indicating that the station BD is not connected.
BF LTRS - Another station on sending station's line which did give its "V" answer-back.
BY LTRS - Cross-office connect code. (Also can be used as end-of-address lockout code).
CA LTRS CF LTRS-CDCs for stations on line "C".
CR LF - End of CDCs (end-of-address).

NOTE: The V answer-backs will not print on the 28 ROTR.

6. LIMITATIONS

6.01 The intercept equipment and transmitter start unit must be at the same station.

6.02 Any pushbutton unit associated with the circuit must be modified.

6.03 At stations where the pushbutton unit is not provided, the tape to be sent must include a minimum of three LTRS signals before the first CDC.

6.04 The selection of the first CDCs available depends on the following:

(a) If pushbutton and manual cross-office are not used, four first CDCs are available.

(b) If pushbutton without manual cross-office is used, three first CDCs are available.

(c) If pushbutton and manual cross-office are both used, two first CDCs are available.

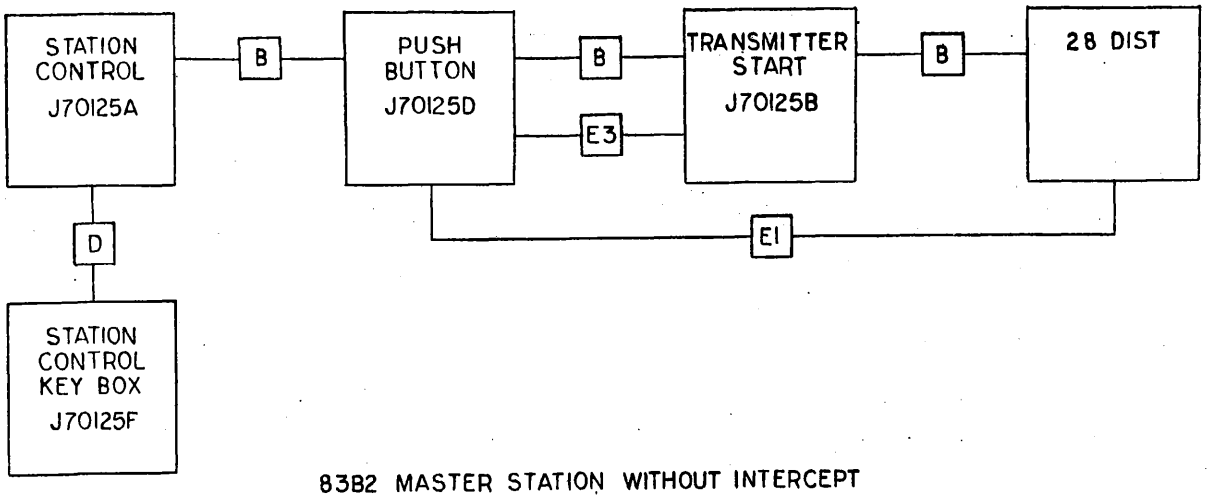
7. DRAWINGS

7.01 Intercept Drawings

PSD-70032-01	(Schematic) 83B2 Teletypewriter Selective Calling System - Single Line Intercept Circuit. The modification information for the J70125A, J70125D, and J70125F units is included in this drawing in note form.
PJ70032A -	(Manufacturing information) 83B2 Teletypewriter Selective Calling System - Single Line Intercept Circuit.

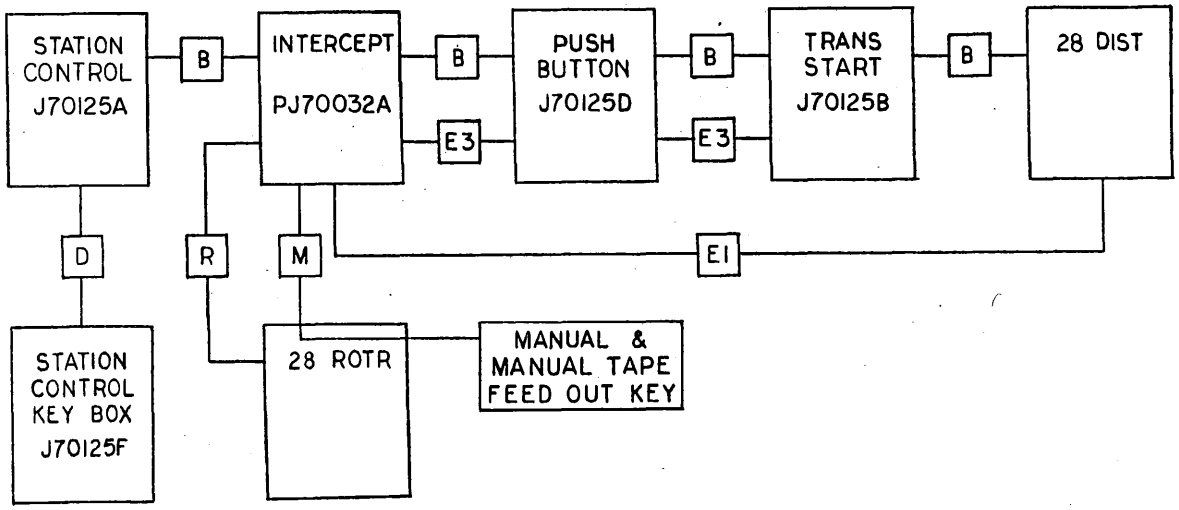
7.02 Related System Drawings

SD-70831-01	(Schematic) 83B1, 83B2 Transmitter Start Circuit
T-70831-80-82	(Wiring) 83B1, 83B2 Transmitter Start Circuit
SD-70832-01	(Schematic) 83B1, 83B2 Station Control Circuit
T-70832-80-81	(Wiring) 83B1, 83B2 Station Control Circuit
SD-70835-01	(Schematic) 83B1, 83B2 Pushbotton Calling Circuit
T-70835-80-83	(Wiring) 83B1, 83B2 Pushbutton Calling Circuit
PED-90004-10	(Engineering) Alternate - Rack-Mounted 28 Type Distributor



83B2 MASTER STATION WITHOUT INTERCEPT

FIG. 1



83B2 MASTER STATION WITH INTERCEPT

FIG. 2