

BASIC 43 TELEPRINTER
 430900 ANSWER-BACK MODIFICATION KIT WITH PROM

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1.06 Uncoded PROMs can be ordered from the Teletype Corporation Service Parts Department or can be obtained commercially. (See Page 4.) Coded PROMs or kits with coded PROMs can also be ordered, from a Service Center only, using the form on Page 9.

2. DETAILED DESCRIPTION

Kit Material and Location in Teleprinter

2.01 The 430900 answer-back kit consists of a circuit card assembly, an uncoded PROM, a (HERE IS - V) keytop, a wire strap, mounting hardware, and this specification. The physical location is shown in Fig. 1. (See Paragraph B for a parts list.)

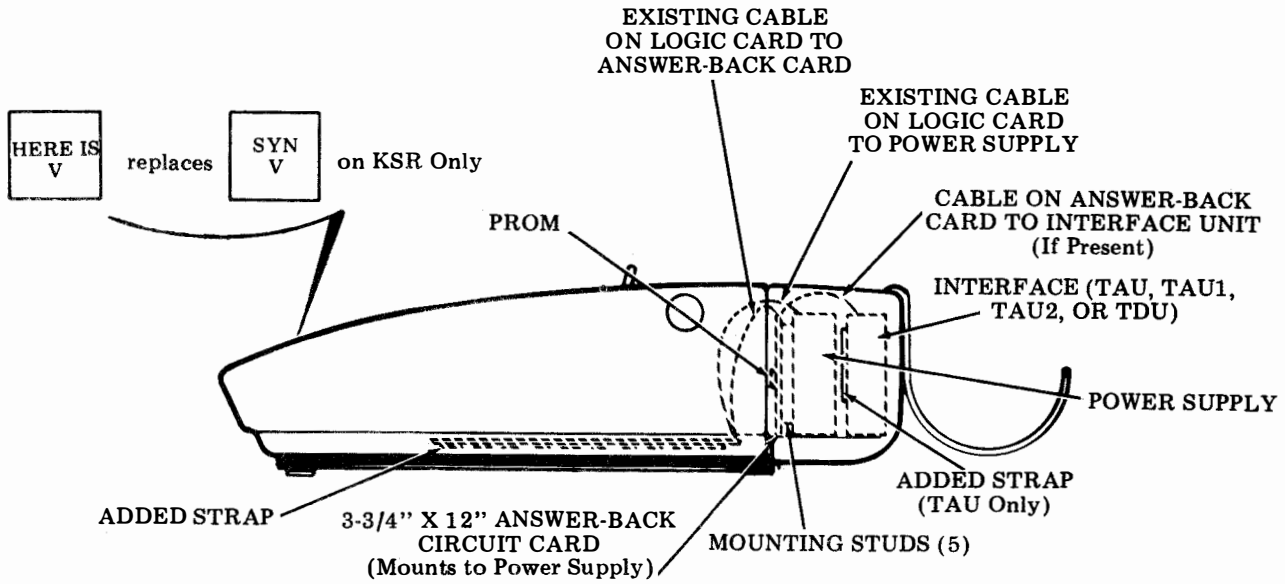


Fig. 1-43 Basic Teleprinter

2.02 The answer-back circuit card connects electrically between the logic card and the interface unit as shown on the teleprinter block diagram.

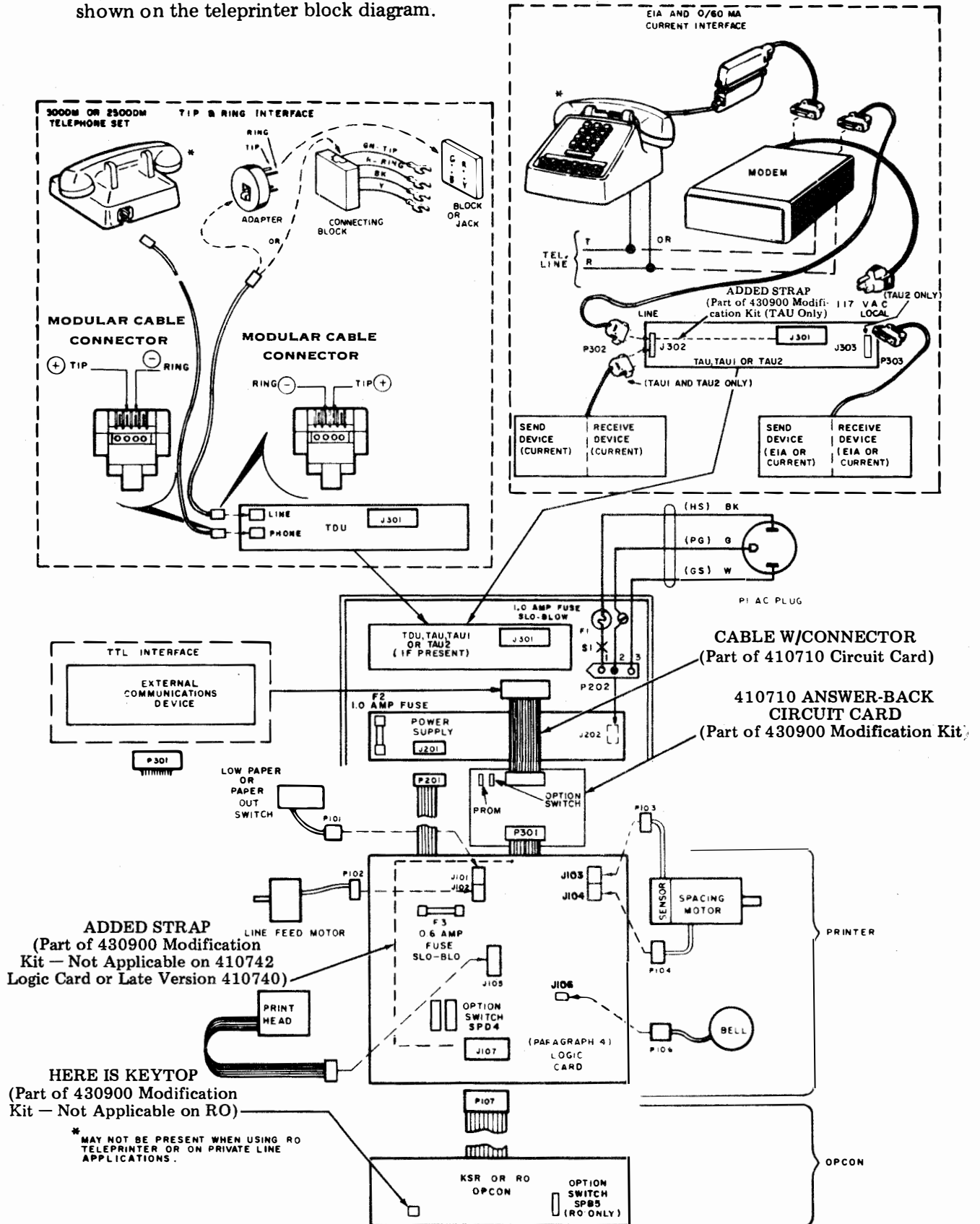


Fig. 2-Teleprinter Block Diagram

Answer-Back Message

2.03 The answer-back message can consist of up to 31 of the 128, 7 bit, ASCII 68 characters programmed into the 32 X 8 (256 bit) bipolar PROM. The first seven output bits for each input address of the PROM (ie Bits B₀ through B₆) correspond to the first seven bits in the ASCII codes. ASCII code bit state 1 equals PROM output bit state 1.

2.04 The 8th bit on the PROM is used internally and does not affect the 8th or parity bit of the transmitted answer-back message which is determined by a switch option. (See Engineering Options.)

Note: The internal use for the 8th bit of the PROM output is to indicate the last character of the message. Instructions for programming the PROM will indicate that the 8th output bit (B₇) must be set to the 1 state on each successive character starting with address 00000 up to and including the last character. Bit 8 should be left in the 0 state on any characters following the last character to end the answer-back cycle. Characters programmed in error may be overwritten with DEL (ALL BITS state 1) if sufficient unused space remains for the corrected message.

2.05 When ordering, characters should be specified for each of the desired positions, in order from 1 through the end of the message. This includes printing characters, spaces, and controls such as RETURN, LINE FEED, "X-ON" characters etc. Standard abbreviations may be used eg SP (Space) CR, LF, D₁.

2.06 The following control characters are functional in the 43 Teleprinter and will respond as follows unless the "no local copy" option is enabled (see Engineering Options).

- EOT May disconnect call (Standard Option 433).
- BEL Bell will ring.
- BS Print head will backspace.
- LF Paper advances one line.
- CR Print head returns to left margin.
- SUB ■ character will print.
- ESC Basic 43 escape sequences are functional. Character immediately following escape will not print.

Obtaining the Coded PROM

2.07 The uncoded 339600 PROM is furnished with the kit or can be ordered separately.

Several Methods are available for ordering from a Service Center or coding the answer-back message: (See B.)

- (a) Order kit with desired answer-back message already coded.
- (b) Order 339600 PROM programmed (or furnish PROM for coding) with desired message for installation by field service personnel.
- (c) Utilizing a locally available PROM programming device, program either the uncoded PROM from the kit or an uncoded 339600 PROM ordered separately. (See Local Coding Methods.)

Note: Service centers will be instructed to mark coded PROMs with a yellow dot and to include a copy of the answer-back message on the service order in addition to marking it on the outside of any shipping package for the terminal, kit, or PROM.

Local Coding Methods

2.08 Local coding of a PROM can be performed by use of one of the following commercially available programming devices or others that meet the programming specifications for the PROM. (See note.)

- PRO LOG Corporation
PM 900
- Data I/O
Model 9
- Curtiss
PM - 3000 S

Note: The appropriate "personality module" for the PROM must also be available with these devices. The 339600 PROM is a high reliability 256 Bit (32 x 8) Bipolar PROM. It is programmably equivalent to one of the following commercially available PROMs.

- Signetics 82S123
- Intersil IM5610

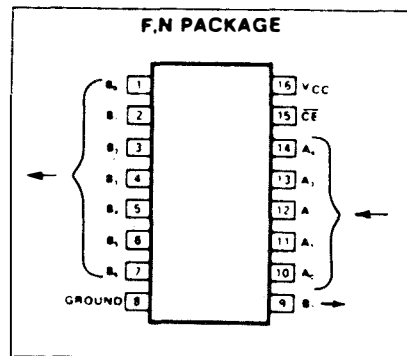


Fig. 3-Pin Configuration of Prom

2.09 During or after local programming, the proper fusing of each bit should be verified either in the programming device or by testing in an answer-back installed in a 43 Teleprinter. Locally programmed PROMs should also be marked with a yellow dot to identify that programming has been performed. A record of the actual message programmed should also be furnished with the coded PROM and on the outside of any shipping package until such time that the PROM is installed in an answer-back modification kit at the customer's location.

Engineering Options

2.10 Engineering options can be implemented in the field by means of switches on the 410710 circuit card using instructions provided with the answer-back kit. See Fig. 5 for location.

Options 431 through 437 applicable to the basic KSR and RO Teleprinters are described in standard documentation.

438 Answer-Back on HERE IS

- a. Yes* (SW 7 on)
- b. No (SW 7 off)

439 Answer-Back on ANSWER

- a. Yes* (SW 5 on)
- b. No (SW 5 off)

440 Answer-Back on ENQ

- a. Yes* (SW 8 on)
- b. No (SW 8 off)

441 Type of Interface Unit

- a. Terminal Data Unit (TDU)* (SW 6 on)
- b. TAU, TAU1, TAU2 or no Interface Unit (SW 6 off)
(See Page 8 for identification)

442 Local Copy of Answer-Back

- a. Yes* (SW 4 on)
- b. No (SW 4 off)

Note: Does not affect AUX receiver.

443 Character Parity Bit Sent from Answer-Back

- a. Even Parity* (SW 1 & SW 2 on)
- b. 8th Bit Mark (SW 1 & SW 2 off)

Note: Should be selected the same as option 434.a. or b. in the terminal.

444 Blinding of ENQ Recognition

- a. Auxiliary Sender Controls (RTS_A PIN 10)* (SW 3 on)
- b. Auxiliary Sender cannot blind (SW 3 off)

*Initially furnished state of option


Technical Data

2.11 The answer-back uses +5 V dc power at approximately 250 mA derived from the terminals' power supply.

2.12 Environmental requirements are the same as for the Basic 43 teleprinter.

Installation of Modification Kit

2.13 The modification can be performed by field craft personnel with proper tools, training and documentation. (See Paragraph C.)

2.14 Installation consists of removing the rear bustle, rear frame assembly, and TP410740 logic card used on single port terminals. The  keytop is replaced by the TP347095 HERE IS (V) keytop on KSRs.

2.15 The 21" wire strap (cut to 11" length) is soldered between 2 points as shown on the bottom of the 410740 circuit card (P301-4 and J107-17) and the card is reinstalled. (See Fig. 4.)

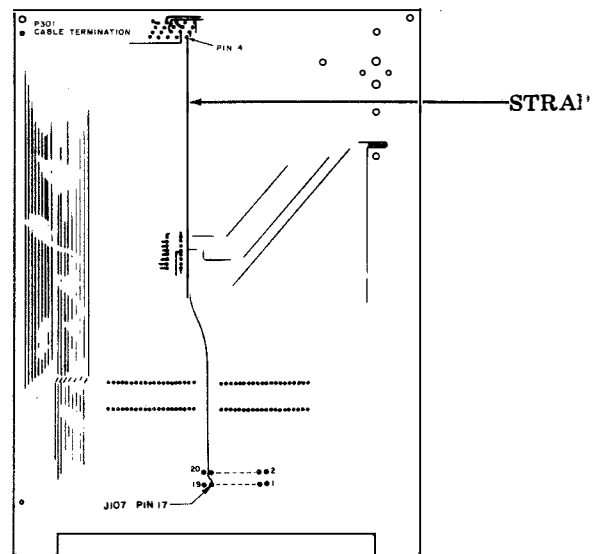


Fig. 4-Logic Card Strap

Bottom side of early version TP410740 circuit card — Late versions will have this strap already included.

2.16 The 410710 circuit card is fastened to the front face of the power supply using five mounting studs. Start screws in studs first then align with pins in power supply as shown before pressing into position. Tighten screws to permanently secure studs. (See Fig. 5.)

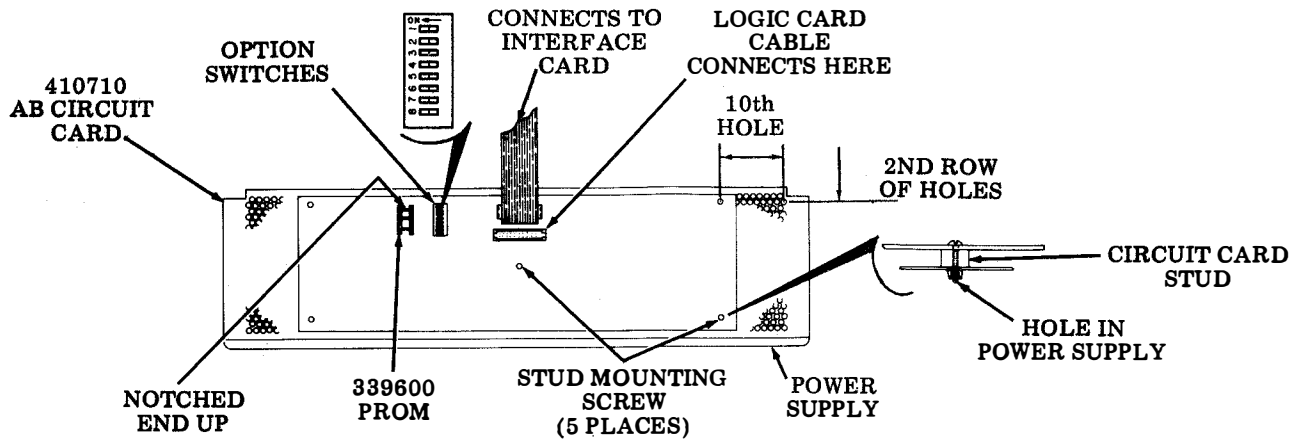


Fig. 5-Front View

2.17 The coded 339600 PROM is plugged in as shown. Coded PROMs will be identified by a yellow dot when programmed by the service center or following instructions in this specification.

2.18 If the terminal has a TAU, the remaining 10" strap should be added between J302-22 and J301-12. The TAU1 and TAU2 already have this strap to provide answer-back on RING Indication.

2.19 Set any option exceptions (See Engineering options) and replace the interface, connect cables, attach rear frame and install bustle.

Operation of the Answer-Back Feature

2.20 The following operational description is based on all Engineering Options in the state originally furnished except Option 441 which must match the type of interface unit.

(a) Transmitted Message

The answer-back message is initiated and sent on-line in the Data mode as follows:

RO or KSR

In DATAPHONE service only, when a call is answered with the AUTO ANSW or TERM READY key lit (call answered either manually or automatically - Internal or External Data Set) immediately after the DATA key lights.

Note: Subsequent transfer to talk and return to data following origination of a call may initiate answer-back on first station to return to data before other end goes to data.

RO or KSR

When the ASCII ENQ code is received on-line.

Note: Does not initiate when ENQ is generated from the keyboard or when an ENQ is received from an auxiliary sender connected to the TAU2 provided such sender turns on Request To Send Aux pin 10 (See Option 444.)

KSR Only

When the CTRL and HERE IS (V) keys are depressed together. The ASCII SYN will be sent on line.

The speed of transmission on-line is under control of the 10-30 CPS key on KSR terminals and Option 436 on RO terminals.

eg 10 CPS = 100 WPM w/2 stop bits = 110 Baud
30 CPS = 300 WPM w/1 stop bit = 300 Baud

(b) Local Copy

The answer-back message will be printed locally and on aux receiver connected to the TAU2 when the message is generated on-line (a) above. It will also be printed locally off-line in the Half-Duplex/Loopback mode only.

Note: Loopback is entered from the Automatic Answer (Terminal Ready) mode by depressing the ESC > (shifted period) sequence. Sending ENQ in this mode will also initiate and locally print the answer-back message on sets capable of loopback.

(c) Interface

The answer-back interface to the TDU, TAU, TAU1, TAU2 or to a matching connector (as described in associated field documents when no interface unit is present) is as shown in Fig. 6:

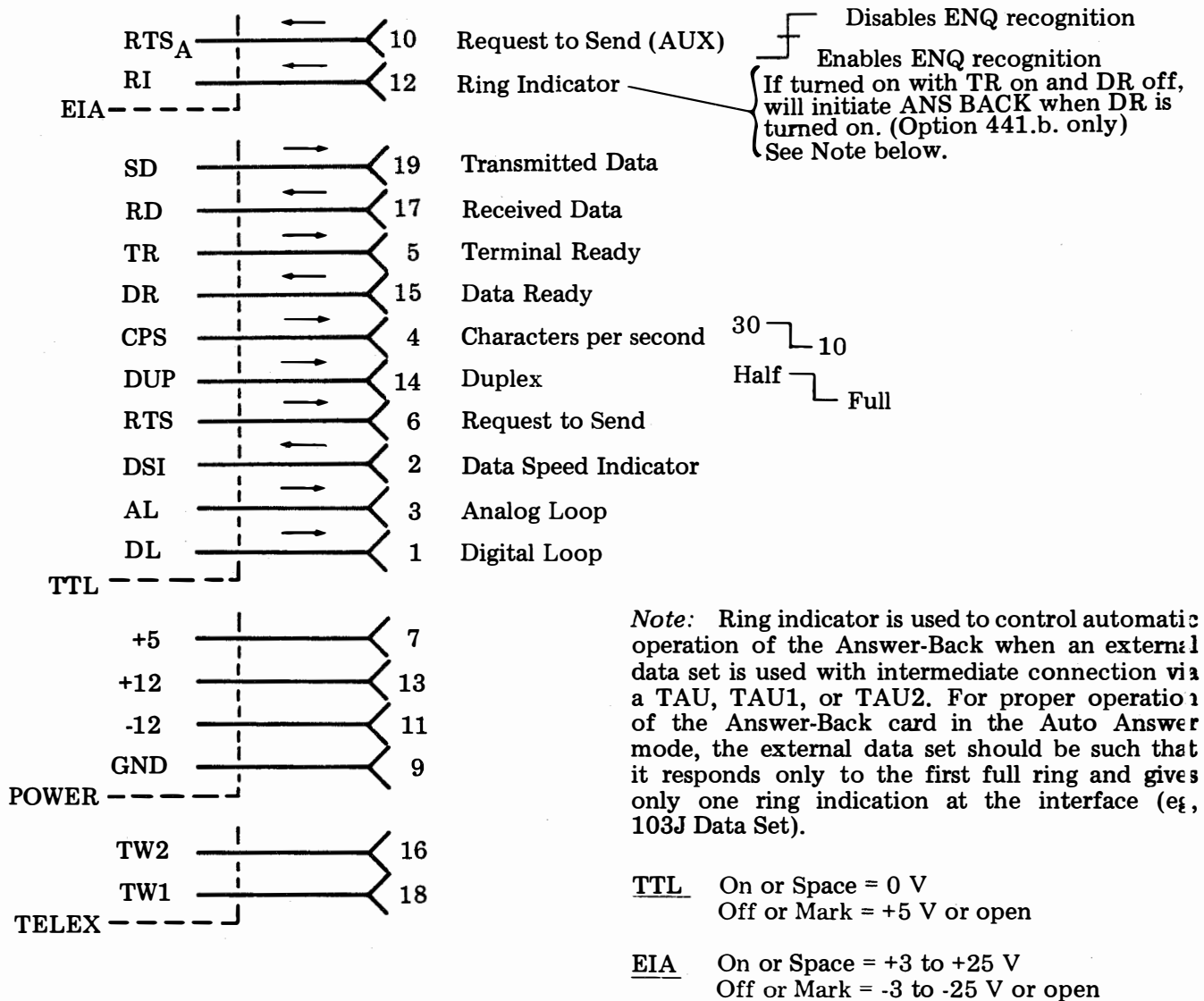


Fig. 6-Answer-Back Interface

B. KIT MATERIAL AND ORDERING

1.01 The 430900 Modification Kit* consists of the following parts:

Qty	Teletype Part Number	Description
5	154202	Screw, Round Head
1	339600	PROM *
1	347095	Keytop (HERE IS)
1	410710	Circuit Card
5	430901	Fastener, Stud
1	32536RM	Wire, Insulated 21" (26 ga)
1	50944S	SPECIFICATION

*The Kit with PROM and the PROM ordered separately are furnished from the factory with the answer-back message not coded (not programmed). When ordering coded PROMs or Kits with coded PROMs from a Service Center, a copy of the SUPPLIES REQUISITION shown on Page 9 can be used. Uncoded PROMs from the kit can also be sent along with the requisition for programming or can be programmed locally. (See paragraph A.)

SPECIFICATION 50944S

C. SUPPLEMENTAL SUPPORT INFORMATION

1. TOOLS

1.01 The answer-back modification kit can be readily installed by field service personnel. No special tools other than a small soldering iron for adding wire straps to the logic card and terminal auxiliary unit are required. A 407326 Extractor, IC, for replacing the PROM and a 346240 Extractor, Keytop, for replacing the "V" keytop may also be used. The coded answer-back PROM (ordered separately or coded locally if equipped with a programming device) can be installed at the time of installation or changed by removing the bustle and rear frame assembly. Normal care should be exercised to prevent damage to PROM.

2. SERVICING

2.01 No routine servicing is required. In the event of operational trouble with the answer-back kit, trouble can be readily isolated to the PROM by replacing a questionable PROM or the answer-back circuit card can be bypassed by reconnecting the original cables.

2.02 Except on RO TERMINALS or when programmed characters are nonfunctional in the 43 Teleprinter; the proper coding of the message can be verified by a "Here Is" self-test.

3. TRAINING

3.01 Service personnel should be properly trained on the basic 43 Teleprinter before attempting installation of the answer-back kit since dismantling of the terminal is involved. No special training for installing, testing, or servicing the kits is required.

4. DOCUMENTATION

4.01 The basic 43 Teleprinter Service Manual is available and provides information required for disassembly, standard options, and test procedures for the terminal. Later issues of all applicable service and how to operate manuals will include the answer-back feature.

5. INTERFACE CIRCUIT CARD IDENTIFICATION

<u>Abbreviation</u>	<u>Description</u>	<u>Teletype Part No.</u>
TDU	Terminal Data Unit	410750
TAU	Terminal Aux Unit (EIA)	410751
TAU1	Terminal Aux Unit Single Port (EIA/Current)	410755
TAU2	Terminal Aux Unit Dual Port (EIA/Current)	410754

**DO NOT SEND FORM
OR ORDER PROGRAMMING
FROM TELETYPE CORP
SERVICE PARTS DEPT**

SUPPLIES REQUISITION
(For Specifying Answer-Back Message—
Include form or equivalent Answer-Back
message information with any order for
kit or PROM if programming is desired)
(See Notes 7 and 8.)

DATE ORDERED

REQUISITION NO.

End User
Only to
Check
Single
Desired
Box

Box	PART NO.	MATERIAL DESCRIPTION
<input type="checkbox"/>	430900	Modification Kit, Answer-Back (Note 1) (Programmed) must specify (Note 2) message below. (Note 6)
<input type="checkbox"/>	339600	PROM, Answer-Back (Note 2) (Programmed) must specify (Note 6) message below.
<input type="checkbox"/>	339600	PROM, Answer-Back (from (Note 2) Kit) attached, for programming. (Note 6)

Program PROM with the answer-back message as follows (Notes 3, 4 and 5)

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	Character Position
17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	Character Position (Note 5)	

- Note 1: An unprogrammed PROM TP339600 is included with the TP430900 Modification Kit.
- Note 2: Programmed PROMs will be identified by a yellow dot on the body of the PROM chip.
- Note 3: Avoid using control functions such as EOT, VT, HT and others that could affect system operation. CR, LF may be desirable at end of sequence.
- Note 4: All characters are 7 bit ASCII and should be written or abbreviated in the character position boxes.
- Note 5: Answer-back sequence is terminated with the last character entered.
- Note 6: Copies of the supplies requisition or other written record with the PROM programming sequence will be provided with all programmed PROMs and/or answer-back modification kits.
- Note 7: PROMs can also be programmed on a local basis by using suitable programming equipment.
- Note 8: Do not use this form for ordering an uncoded PROM or kit with uncoded PROM. Send this form to your Service Center only. Call toll free (U.S. 800-323-4226) (Ill. 800-942-4192) for the Teletype Product Service Center location nearest you.

END USER: Company: _____
 Address: _____
 Phone: _____
 ATTN: _____

6. ADDENDUM TO HOW TO OPERATE MANUAL

6.01 Cut out on dotted line and insert in the How To Operate Manual associated with this teleprinter.

Operation of the Answer-Back Feature

The following operational description is based on all Engineering Options in the state originally furnished except Option 441 which must match the type of interface unit.

(a) Transmitted Message

The answer-back message is initiated and sent on-line in the Data mode as follows:

RO or KSR

In DATAPHONE service only, when a call is answered with the AUTO ANSW or TERM READY key lit (call answered either manually or automatically — Internal or external Data Set) immediately after the DATA key lights.

Note: Subsequent transfer to talk and return to data following origination of a call may initiate answer-back on first station to return to data before other end goes to data.

RO or KSR

When the ASCII ENQ code is received on-line.

Note: Does not initiate when ENQ is generated from the keyboard or when an ENQ is received from an auxiliary sender connected to the TAU2 provided such sender turns on Request To Send Aux pin 10. (See Option 444.)

KSR Only

When the CTRL and HERE IS (V) keys are depressed together. The ASCII SYN will be sent on-line.

The speed of transmission on-line is under control of the 10-30 CPS key on KSR terminals and Option 436 on RO terminals.

(b) Local Copy

The answer-back message will be printed locally and on aux receiver connected to the TAU2 when the message is generated on-line (a) above. It will also be printed locally off-line in the Half-Duplex/Loopback mode only.

Note: Loopback is entered from the Automatic Answer (Terminal Ready) mode by depressing the ESC > (Shifted period) sequence. Sending ENQ in this mode will also initiate and locally print the answer-back message on sets capable of loopback. On some data sets spurious characters may print before and after the answer-back message.
