

CCITT/EIA INTERFACE

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Products : Teletype 30 Series
Category : TG
Kit No. : MKT/ITF/06
Modification : Interface to adapt EIA/CCITT-V24 signals to Teletype Model 33
with UCC 6.

1. GENERAL

This modification provides the possibility to connect Teletype Model 33 to equipment with standardized EIA/CCITT-V24 input/output levels. The Teletype Model 33 is equipped with call control unit UCC 6.

In contradiction to CCITT/EIA interface MKT/ITF/03, the interface MKT/ITF/06 is a more comprehensive one. Besides interfacing the input/output data, the ITF/06 interface provides the usual CCITT/EIA function signals like "Connect dataset to line", "Request to send" and "Frequency select".

The modification MKT/ITF/06 is used for CCITT-V24 modems normally and may be used in combination with "Combined Modification Version" MST/CMV/01.

2. DOCUMENTATION REQUIRED

For standard wiring operation : see Teletype diagram set WDP 0316.

3. THEORY OF OPERATION (see figure MKT/ITF/06/1 and MKT/ITF/06/3)

The Teletype Model 33 has been wired for full-duplex operation and 20 mA input current SMD. The call control unit UCC 6 supplies power-voltage (approx. 60VDC) to the input- and output current loops.

Transmitted data:

With the distributor in rest-position (= MARK) +60 VDC is supplied to voltage divider R2 - R3. The total resistance causes a current flow of approx. 20 mA. Because of the voltage over R3 (approx. 4 VDC) T2 is turned on. Output pin 11 of IC1 turns high and output pin 11 of IC2 turns low to approx. -7 VDC (= MARK). With the distributor contact opened (= SPACE) T2 turns off and the output pin 11 of IC2 is high (= SPACE).

Received data:

The CCITT/EIA is detected by input 10 of IC1. A MARK means a logical 0 and the input 10 of IC1 is low. Output pin 8 of IC1 is high and T1 is turned on. By means of R1 a 20 mA current is supplied to the SMD.

A SPACE means a logical 1 and then T1 is turned off and no current is supplied to the SMD.

If a resistance is provided externally the output Y may be used.

A link from IC1 - 11 to D4 supplies transmitted data to the own receiving-circuit (half-duplex operation).

"Dataset ready" / "Carrier detect":

These signals indicate the modem has been switched on line and incoming carrier has been detected. Circuits IC1/T4 resp. IC1/T3 provide control of lamps.

If DSR is high, lamp "Modem ready" is on.

If CD is high, lamp "Carrier detect" is on.

By strapping the link from IC1-3 to pin W the DSR signal provides a "Motor start" signal. For example: see the "Combined Modification Version" (MST/CMV/01).

"Connect dataset to line" / "Request to send":

With the talk/data-switch in open position the input pins 9/10 and 4/5 of IC2 are kept high and the output pins 11 and 6 low. Closing the talk/data-switch turns the outputs "Connect dataset to line" (CDL) and "Request to send" (RTS) high.

"Frequency select":

The input pin 2 of IC2 may be strapped to +Vb or to ground. This provides a low output of "Frequency select" (originate) or a high output (answer). The "Frequency select"-signal (FS) is used to select high or low transmit/receive-frequencies of the modem. This signal may be controlled from the Teletype by connecting pin J to IC2-2.

Note:

The inputs and outputs for transmitted data, received data, DSR, CD, CDL, RTS and FS meet the CCITT-V24 specifications.

4. MODIFICATION KIT CONTENTS

Note:

The talk/data-switch and both lamps (with lampholders) are no part of the kit contents. Switch and lamps may be ordered separately. If this modification is used in combination with the "Combined Modification Version" (MST/CMV/01) the switch is provided in the MST/CMV/01.

<u>Quantity</u>	<u>Part No.</u>	<u>Description</u>
1	GEA 344	circuit card
1		bracket assembly, with mounted:
(1	143-022-01-110	card connector, Amphenol, 22 pins)
(1		cable, 9 wire, length 350 cm)
(1		cable, 8 wire, length 100 cm)
(1	182540 TTY	Molex connector, 15 pins, marked "2")
((mounted to 100 cm cable))
(1	DB 25 P	connector, 25 pins, provided with)
(cover ITT Cannon DB 51226-1 (mounted)
(to 350 cm cable))
(3		wire, length 40 cm)
(1		insulation, transp., length 30 cm)
((int. diameter 3 mm) (this insulation)
(has been put around the 3 wires))
1		wire, length 10 cm (provided with a)
		female pin and an Amp terminal.

5. INSTALLATION

- 5.1 Disconnect the mains supply.
- 5.2 Remove the Teletype cover and the rear panel of the Teletype stand.
- 5.3 Wire Teletype 33 for full-duplex operation (see Teletype diagram set WDP 0316, sheet 1180 SD-B4).

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- 5.4 Wire Teletype 33 for 20 mA input current SMD (see Teletype diagram set WDP 0316, sheet 1180 SD-B1).
 - 5.5 Mount the bracket assembly into the Teletype stand.
A suitable position at the bottom of the stand has to be selected.
 - 5.6 Connect the two wires from D and C of the card connector to the 9 VAC supply of the mains transformer.
If no 9 VAC is available, the resistors R6 and R7 on circuit card GEA 344 must be adapted to the new voltage.
 - 5.7 Connect wire from A of the card connector to ground of the Teletype stand.
 - 5.8 Connect the 10 cm wire with the Amp terminal to pin 8 of transformer "U", located in call control unit UCC 6, and with the female pin to Molex connector P2, position 10.
 - 5.9 Insert Molex connector marked "2" into Molex connector P2 of the UCC 6.
 - 5.10 Provide a strap on card GEA 344 for "half-duplex" or delete the strap for "full-duplex" or "echo-operation".
 - 5.11 Provide, if advisable, a strap on card GEA 344 for "Originate"- or "Answer"-mode.
 - 5.12 Insert circuit card GEA 344 into the card connector. The print key has to be between F and E.
 - 5.13 Replace the rear panel of the Teletype stand and the Teletype cover.

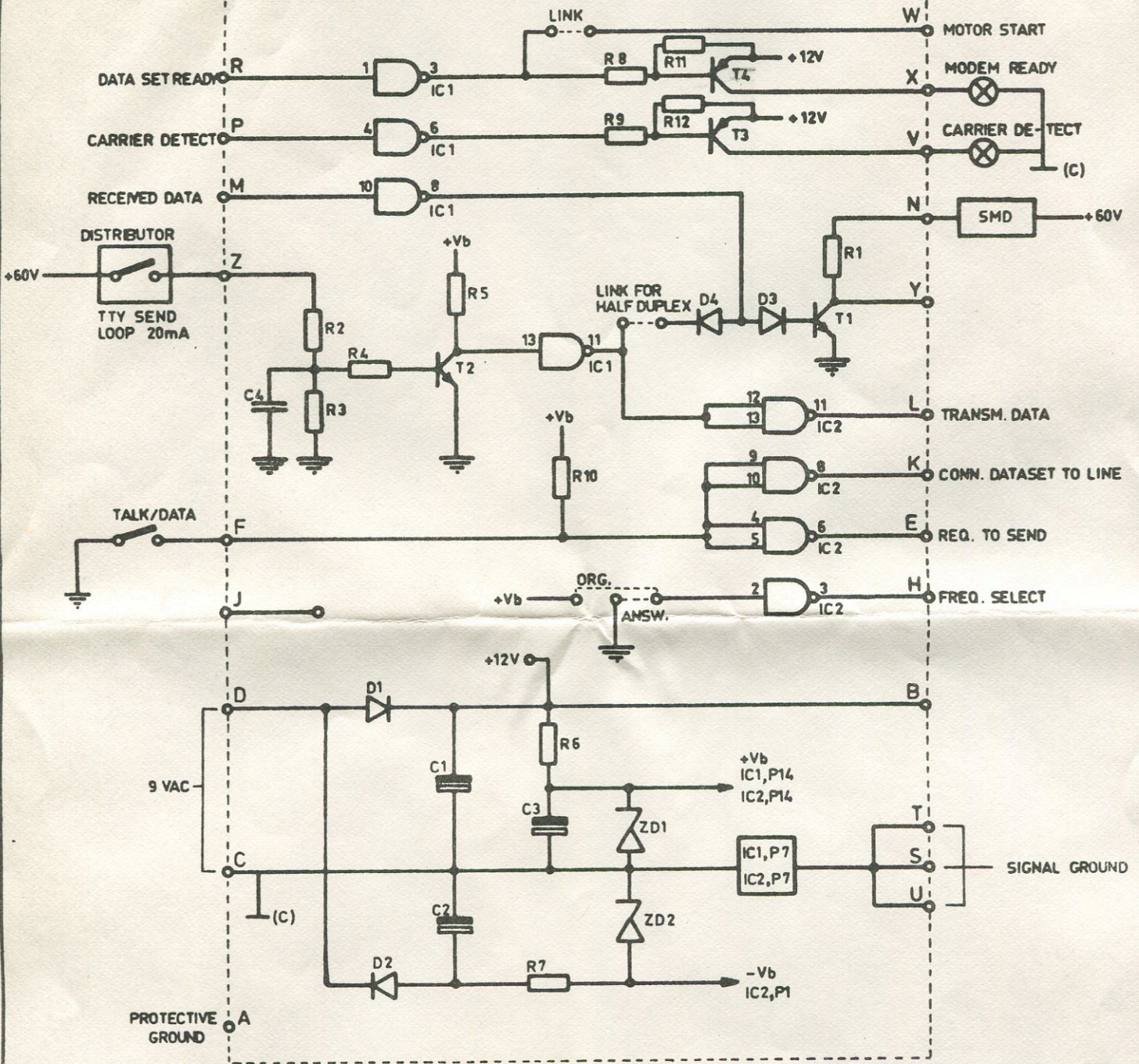
6. ADJUSTMENTS

None.

7. TEST

Circuit card GEA 344 may be tested in the situation as it is used normally, i.e. as interface between Teletype Model 33 and modem.
Also it may be tested by connecting the transmitted data to the received data (link for half-duplex removed).
Signals CDL and RTS can be checked by connecting pin F to signal ground.
Signal FS can be checked by simulating straps for "Originate" and "Answer".
Signals DSR and CD can be checked by connecting a CCITT-signal (e.g. CDL) to their inputs.
All outputs can be measured by means of an oscilloscope or a voltagemeter.
Transmitted data by means of an oscilloscope.

GEA 344



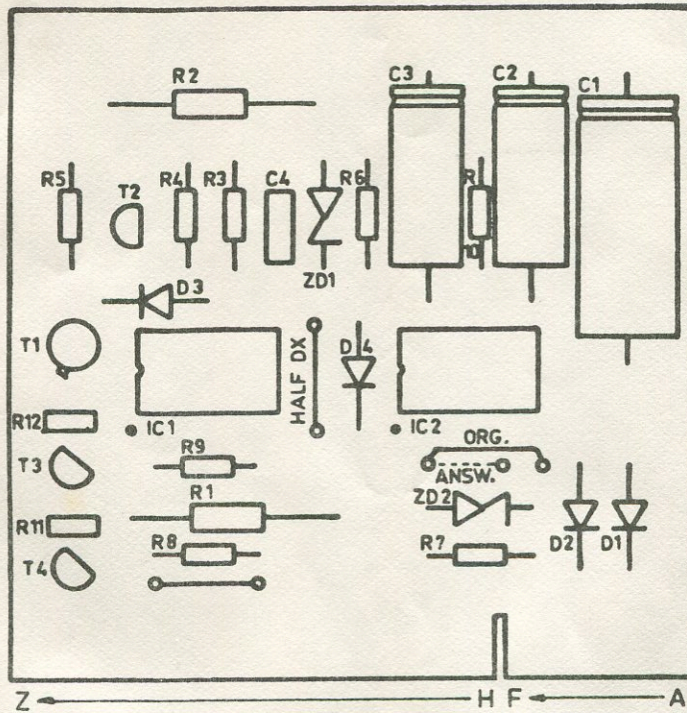
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CCITT V24/EIA INTERFACE

Datum	Wijz.	Par.	Opm.
13/12/74		T.R.	

Tek.nr.
MKT/ITF/06/1

GEA 344



COMPONENT LAY OUT GEA 344

- | | | |
|--------------------|------|---------------------|
| R1 - 2k7 | 4W | D1 - 1N5060 |
| R2 - 2k7 | 4W | D2 - 1N5060 |
| R3 - 220 Ω | 1/8W | D3 - 1N914 |
| R4 - 10k | 1/8W | D4 - 1N914 |
| R5 - 2k7 | 1/8W | IC1 - MC 1489 |
| R6 - 27 Ω | 1/8W | IC2 - MC 1488 |
| R7 - 100 Ω | 1/8W | T1 - 40408 (BFY 57) |
| R8 - 5k6 | 1/8W | T2 - BC 172 |
| R9 - 5k6 | 1/8W | T3 - BC 252 B |
| R10 - 5k6 | 1/8W | T4 - BC 252 B |
| R11 - 1k | Ubt | ZD1 - 9V 1/3W |
| R12 - 1k | Ubt | ZD2 - 9V 1/3W |
| C1 - 470 μ F | 16V | |
| C2 - 470 μ F | 16V | |
| C3 - 470 μ F | 16V | |
| C4 - 0,047 μ F | 100V | |

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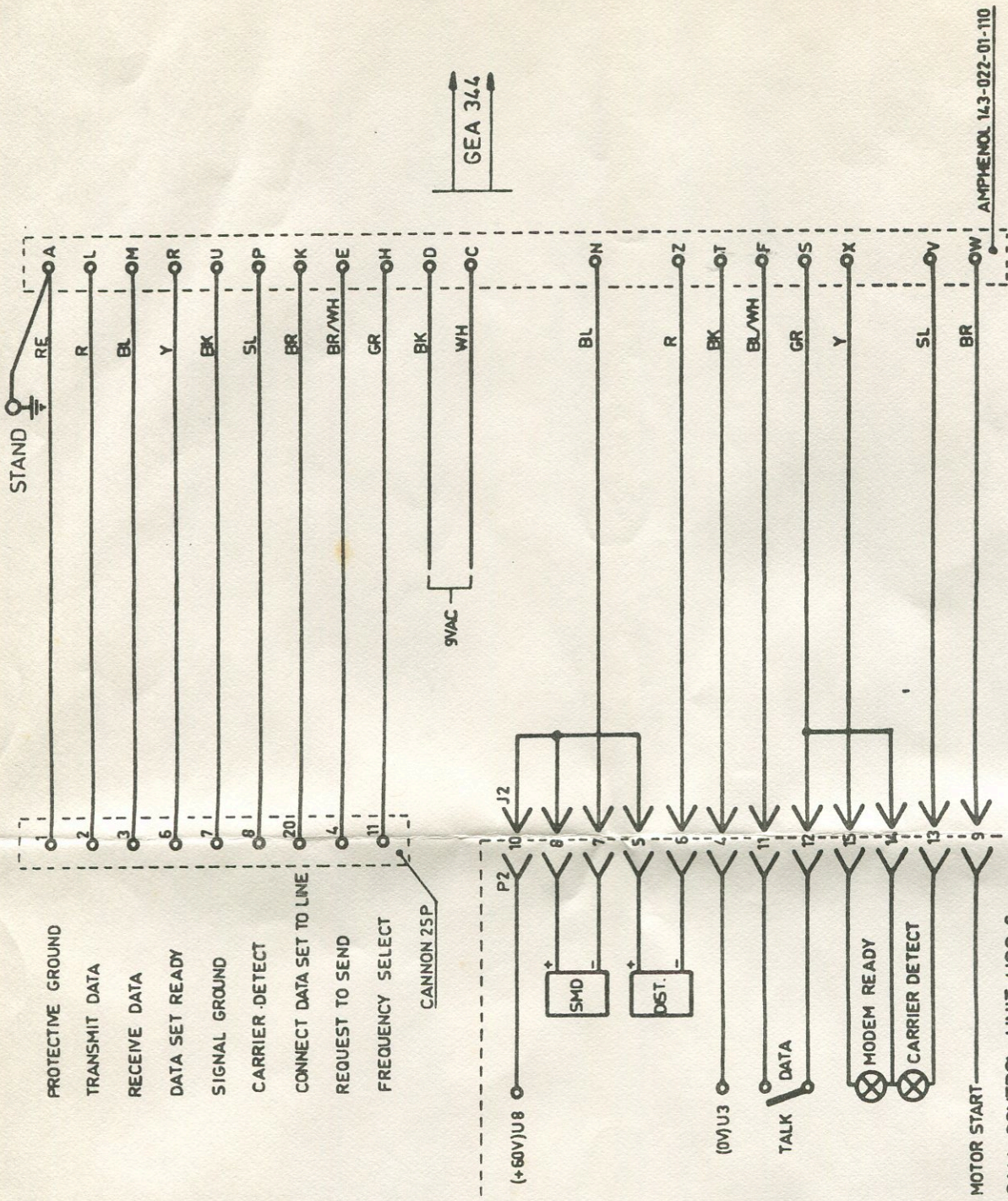
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20/12/74		T.R.	

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AMPHENOL 14-3-022-01-110



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Datum	Wijz.	Par.	Opm.
19/12/74		T.R.	

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MKT/ITF/06/3