

"DATASPEED®" TAPE RECEIVER
WITH ERROR DETECTION AND CORRECTION

TYPE 4B

SCHEMATIC WIRING DIAGRAMS

CONTENTS	PAGE
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2. WIRING DIAGRAM INDEX.	2

1. GENERAL

1.01 This section provides the schematic wiring diagrams, including circuit boards, for the DATASPEED Tape Receiver 4B. Refer to the appropriate related sections for descriptive information and diagrams concerning the

tape punch (DRPE type) or optional feature units used. It is reissued to include engineering changes and additions indicated by marginal arrows in the wiring diagram index.

1.02 The attached material consists of Teletype Corporation diagrams. Part 2 WIRING DIAGRAM INDEX lists the title in the first column, the number of control and diagram sheets in the second column, the diagram number in the third column, and the last column lists either the current issue number of the control sheet covering all sheets of the diagram or the issue number of any diagram that does not have a control sheet.

2. WIRING DIAGRAM INDEX

TITLE	TOTAL CONTROL AND DIAGRAM SHEETS	DIAGRAM NUMBER	CONTROL SHEET OR DIAGRAM ISSUE
SCHEMATIC WIRING DIAGRAMS			
→ HISPUC Power Supply No. 148850-52	1	6405WD	10
→ Tape Transport Assembly No. 320400 (Module R)	1	6989WD	2
Multivoltage Power Supply No. 302720	1	7058WD	2
→ Receiver Control Assembly No. 302762 (HSEDC Module B)	1 and 12	7063WD	5
Controls Assembly No. 302790, Sender and Receiver (Module N)	1	7070WD	1
Receiver Station Control Assembly No. 308463 (Module H)	1 and 3	7406WD	2
→ Receiver Distributor and Punch Driver Assembly No. 308502 (Module D)	1 and 6	7412WD	2
→ Send-Receive Terminal "Y" Cable Feature Assembly No. 308514 for Single Data Set Operation (Switch Installed in 4A Sender), (Module X)	1	7419WD	2
→ Discrete Calling Generator, Optional Feature, Assembly No. 308512 (Module V)	1 and 2	7420WD	2
→ High Speed Tape Punch DRPE600, 800, 802, 803, 805, 806 (Module M)	1 and 2	7565WD	5
CIRCUIT BOARDS			
TB186 Terminal Board	1	149186	3
→ EC320 Truncated-N Distributor	1	172320	13
→ EC327 Truncated-N Distributor with Reset Stop Element	1	172327	7
EC348 "INHS" (2) Common Emitter Amplifiers	1	172348	1
EC352 "FAN-OUT" ("OR" Gate without Biasing Resistor for Reset Pulses)	1	172352	3
→ EC353 Ring Driver Amplifier and Ring Driver Reset Amplifier	1	172353	3

TITLE	TOTAL CONTROL AND DIAGRAM SHEETS	DIAGRAM NUMBER	CONTROL SHEET OR DIAGRAM ISSUE
EC356 "INH" Gates (4)	1	172356	4
EC357 Inverters (4)	1	172357	1
EC364 Pulse Amplifier	1	172364	2
EC382 Signal Delay RC Integrator	1	172382	7
EC383 Pulse Amplifiers (2)	1	172383	5
EC406 Start-Stop Oscillator, 2100 Hz	1	172406	1
EC426 "AND" Gates (2)	1	172426	3
EC428 Filters, Capacitive (4)	1	172428	2
EC441 "IPS"	1	172441	2
EC457 Fixed One-Shot, 2 ms	1	172457	6
EC468 "IPS"	1	172468	3
EC501 "AND" Gate (1), "OR" Gates (2)	1	177501	3
EC502 "AND" Gate (1), "OR" Gates (2)	1	177502	4
EC503 "AND" Gates (4)	1	177503	4
EC504 "OR" Gates (4)	1	177504	3
EC516 "PP," 9 u sec Power Pulser	1	177516	9
EC546 Gated Osc. Amp., Adjustable from 4 to 45 ms	1	177546	5
EC581 Power Amplifiers (2)	1	177581	5
EC584 Fixed One-Shot 70 \pm 14 ms	1	177584	5
EC589 Fixed One-Shot 200 u sec	1	177589	5
EC597 Fixed One-Shot, 1 ms	1	177597	5
EC101 "IPS" and Inverter	1	303101	1
EC119 "FF"	1	303119	1
EC138 "IPS"	1	303138	1

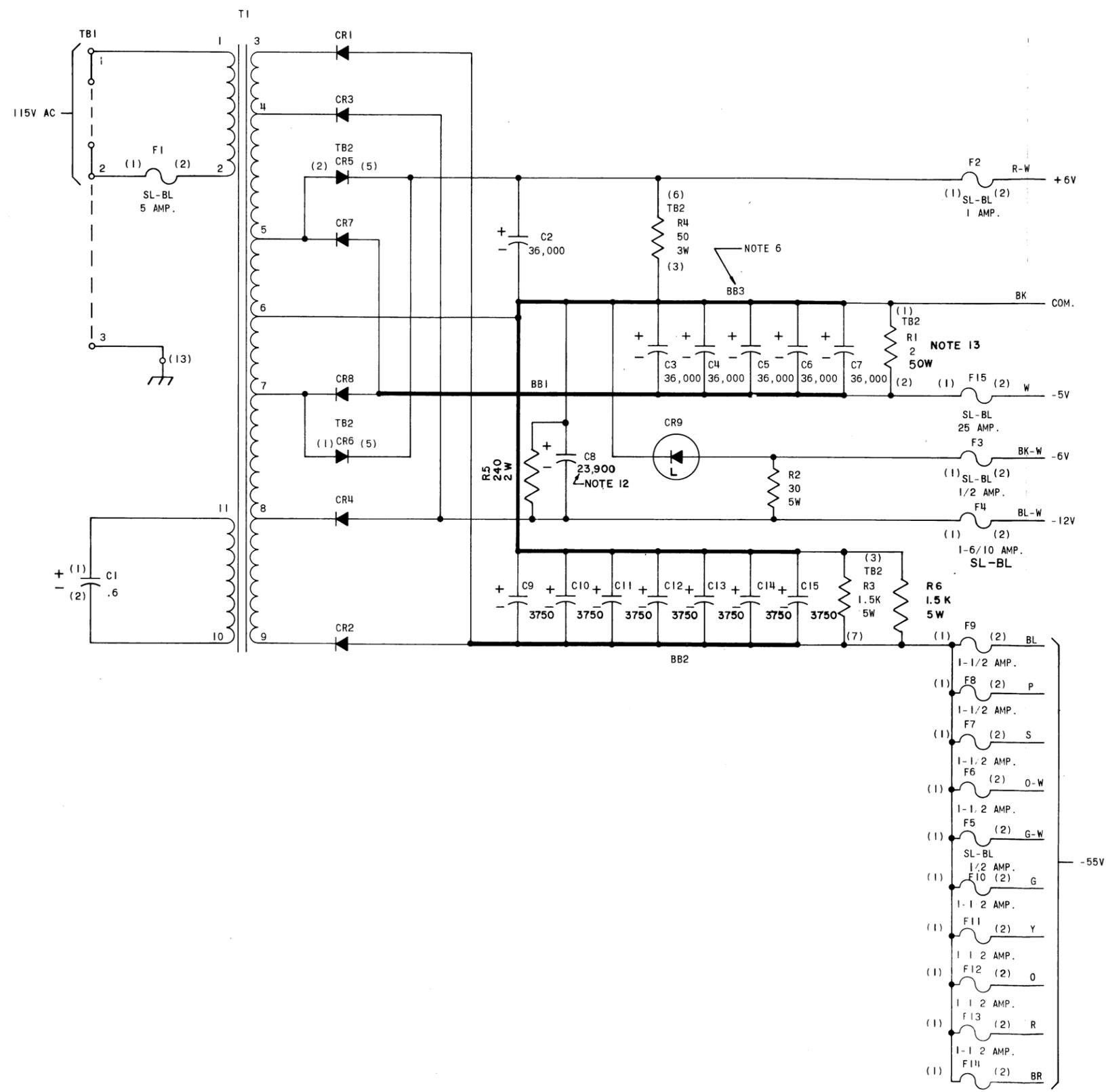
TITLE	TOTAL CONTROL AND DIAGRAM SHEETS	DIAGRAM NUMBER	CONTROL SHEET OR DIAGRAM ISSUE
EC601 Gate, 6 Input-3 Output Special	1	303601	3
EC603 "INH" Gates or Inverters (10)	1 and 1	303603	5
EC606 "EFs," NPN (8) and PNP (8)	1 and 1	303606	3
EC618 Resistors, 5.1 K each (31)	1 and 1	303618	1
EC635 Photo Amplifiers (9)	1 and 1	303635	4
EC640 "OR" Gates (5), 3 with 8 Inputs and 2 with 2 Inputs	1	303640	1
EC641 "AND" Gates (5), Detectors	1	303641	1
EC671 "FFs" (3), Regenerative Ring	1	303671	1
EC675 "IPS," "GATED OSCILLATOR" and "FEED-OUT GENERATOR"	1	303675	8
EC679 "PADs" (9)	1	303679	1
EC680 "OR" Gates (7), Vertical Parity Logic Tree (Optional Feature)	1	303680	1
EC681 Circuit B with "OR" Gates (2), 15 ms Delay Inverter, "FF" and "EF;" Circuit B with Pulse Amplifier and "FAN-OUT" Gate. Vertical Parity (Optional Feature)	1	303681	2
EC684 "AND" Gates (2), "OR" Gates (6)	1	303684	1
EC693 Two-Stage Amplifiers (2), "POR" Power-On Reset, Inverters (2), Inverters with "EF" Amplifier (2) and "EF" Amplifier	2	303693	2
EC695 Ten-Circuit Station Control Logic	2	303695	4
EC730 "DRIVER" Control Circuits for Punch (DRPE) Magnet Coils	1	303730	5

6405WD

REVISIONS

ISSUE	DATE	AUTH. NO.
2	11-24-64	84989
3	6-3-65	87445
4	2-4-66	89711
5	11-1-66	89034
6	11-23-66	92189-RC
7	11-8-67	94593-B
8	3-20-68	95401
9	7-29-68	94593-1
10	7-30-68	95098-2

- NO. NOTES
- REFER TO 6406WD FOR ACTUAL WIRING DIAGRAM.
 - ALL VOLTAGES DC UNLESS OTHERWISE SPECIFIED.
 - ALL RESISTANCE VALUES IN OHMS.
 - TERMINAL DESIGNATIONS ENCLOSED IN PARENTHESES ARE FOR REFERENCE AND ARE NOT MARKED ON COMPONENTS.
 - ALL CAPACITORS IN MICROFARADS.
 - BB1, BB2, & BB3 ARE THREE SHORTING PLATES WHICH CONNECT THE CAPACITOR TERMINALS.
 - REFER TO 148850-52 FOR ASSEMBLY DRAWING.
 - THE 15 OUTPUT LEADS COMPRISE A 3 FT. CABLE WHICH IS NOT TERMINATED.
 - SL-BL INDICATES SLOW BLOWING.
 - REFERENCE SPECIFICATION FOR TELETYPE CORPORATION EMPLOYEES ONLY
 - SOME UNITS DO NOT CONTAIN R5 & R6 BLEEDER RESISTORS.
 - SOME UNITS HAVE A 10,000 MFD. CAPACITOR. (C8)
 - SOME UNITS HAVE A 148857 2 OHM, 25 WATT RESISTOR.



SCHMATIC WIRING DIAGRAM FOR HISPUC POWER SUPPLY

308480
ASSEMBLY NO. 148850-52

APPROVALS

D AND R *[Signature]* E OF M

E-NUMBER

PROD. NO. 6405WD

DATE 11-25-65

P.D. FILE NO. 1-A143AA

DRAWN G.R.S. CHKD. *[Signature]*

ENGD. R.C.H. APPD. *[Signature]*

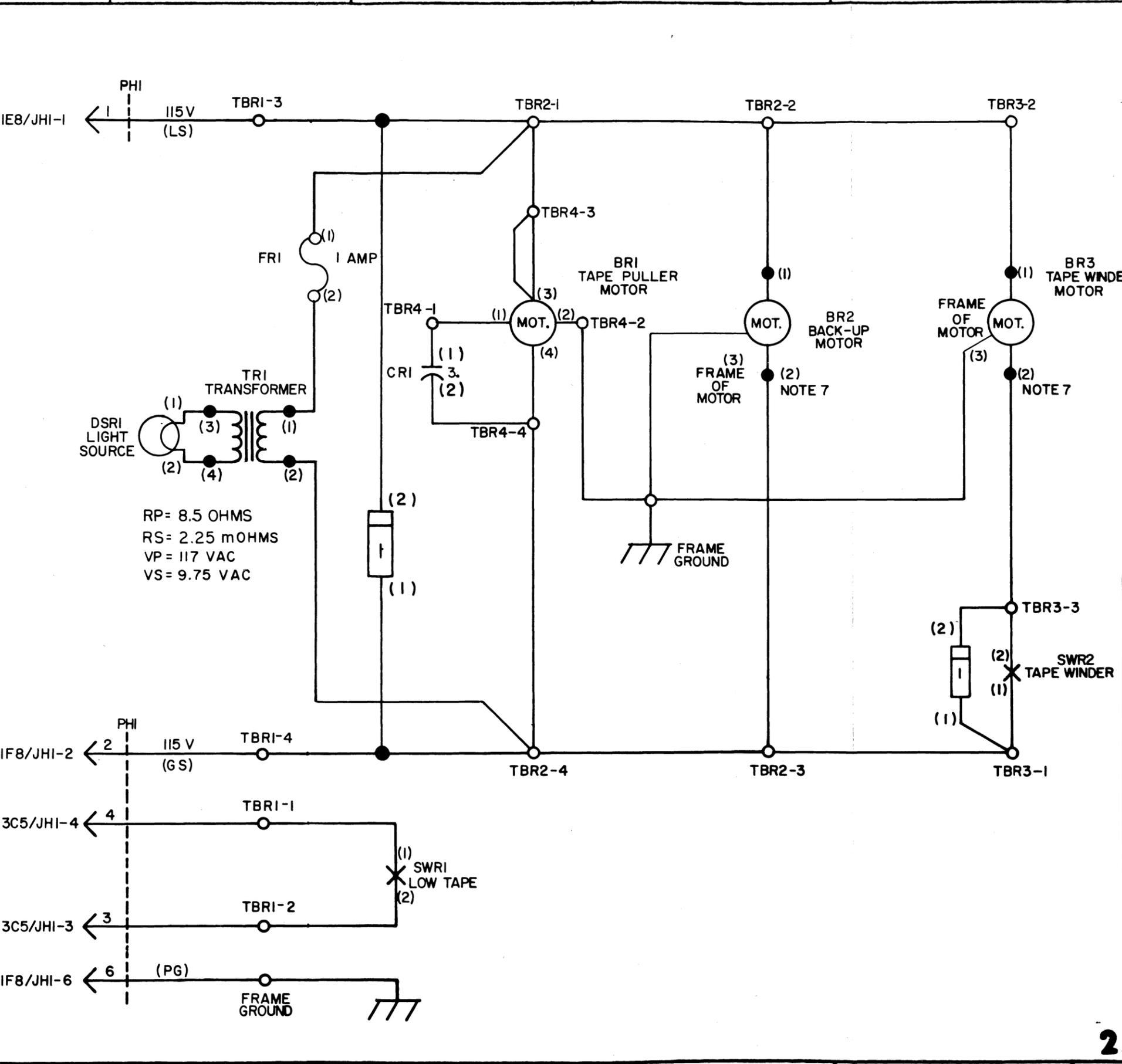
TELETYPE CORPORATION

6405WD

REVISIONS		
ISSUE	DATE	AUTH. NO.
1	6-27-67	18364-R
2	12-15-67	194943-D

- NOTES**
- REFER TO 6990 WD FOR ACTUAL WIRING DIAGRAM.
 - REF. SPEC. FOR TELETYPE CORP. EMP. ONLY:
 - ALL VOLTAGES AC UNLESS OTHERWISE SPECIFIED.
 - TERMINAL DESIGNATIONS ENCLOSED IN PARENTHESIS ARE FOR REFERENCE AND ARE NOT MARKED ON THE COMPONENT.
 - ASSOCIATED CABLE ASSEMBLIES:
312735 - TAPE PULLER MOTOR
312735 - TAPE WINDER MOTOR
 - ASSOCIATED LEADS:
304153 - (2) AA TERMINAL BLOCK
176163 - (3) GROUND STRAPS FOR TAPE PULLER MOTOR, WINDER MOTOR, AND BACK-UP DRIVE MOTOR.
 - 320397 & 321083 MOTORS HAVE TERMINALS PROVIDED TO WIRE FOR 50 CPS OR 60 CPS. THE MOTORS SHALL BE WIRED FOR 60 CPS UNLESS OTHERWISE SPECIFIED.
 - WHEN POWER IS TURNED OFF ON ASSOCIATED CABINET AC CURRENT IS REMOVED FROM THE TRANSPORT ASSEMBLY.
 - INDICATES MALE AND
 - ⤵ INDICATES FEMALE TERMINALS.
 - DESIGNATES TERM. ON TERMINAL BOARD
 - ⏏ DESIGNATES FRAME GRD.
 - CROSS REFERENCE AND CIRCUIT LOCATION:
IE8/JHI-1 → CONNECTOR PIN OR CIRCUIT ELEMENT COMP. POSITION MODULE LETTER COMP. DESIGNATION AREA OF SCHEMATIC SCHEMATIC SHEET NO.
 - | NETWORK NO. | TELETYPE NO. |
|-------------|--------------|
| 1 | 153631 |

470 0.11



SCHEMATIC WIRING DIAGRAM FOR DATASPEED IV RECEIVER TAPE TRANSPORT ASSEMBLY 320400

MODULE "R"

APPROVALS

D AND R	E OF M
<i>HOR</i>	<i>CS</i>

E-NUMBER

PROD. NO. 6989 WD

DATE: 11-10-66

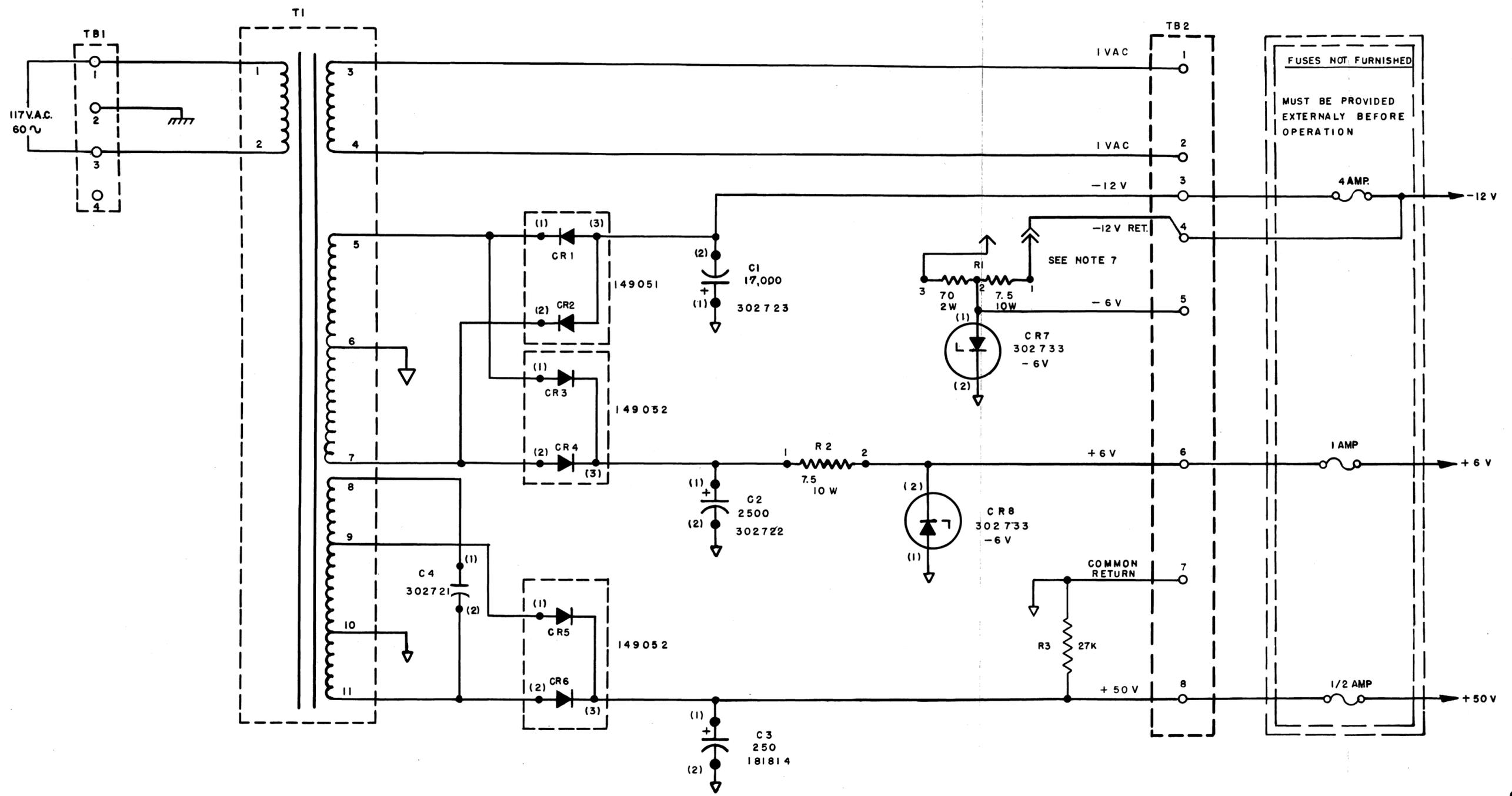
P.O. FILE NO. 1-55,148/136,184A

DRAWN TR	CHKD
ENGR. JEQ	APPD

TELETYPE CORPORATION

6989 WD

NO.	NOTES
1.	ALL VOLTAGES DC UNLESS OTHERWISE SPECIFIED.
2.	TERMINAL DESIGNATIONS ENCLOSED IN PARENTHESES ARE FOR REFERENCE AND NOT MARKED ON COMPONENT.
3.	ALL RESISTORS 1/2 WATT AND RESISTANCE VALUE IN OHMS UNLESS OTHERWISE SPECIFIED.
4.	ALL CAPACITANCE VALUES IN MICROFARADS UNLESS OTHERWISE SPECIFIED.
5.	REFER TO SPECIFICATION TO DETERMINE PROPER VALUE REQUIRED
6.	→ INDICATES MALE TERMINALS ON RESISTOR R1
7.	↘ INDICATES FEMALE TERMINALS.
8.	REFER TO 7059 WD FOR ACTUAL WIRING DIAGRAM.



7058 WD		
REVISIONS		
ISSUE	DATE	AUTH. NO.
1	6-25-64	15624-R
2	10-27-64	83267

SPEC. NO.	
SCHEMATIC WIRING DIAGRAM FOR MULTI-VOLTAGE POWER SUPPLY	
ASSEM. NO. 302720	
APPROVALS	
D AND R	E OF M
E - NUMBER	
PROD. NO. 7058 WD	
DATE 3-18-64	
P.D. FILE NO. 2-98134.184A	
DRAWN G.J.M.	APPD. <i>[Signature]</i>
ENGD. F.K.H.	CHKD. <i>[Signature]</i>
TELETYPE CORPORATION	
7058 WD	

REVISIONS

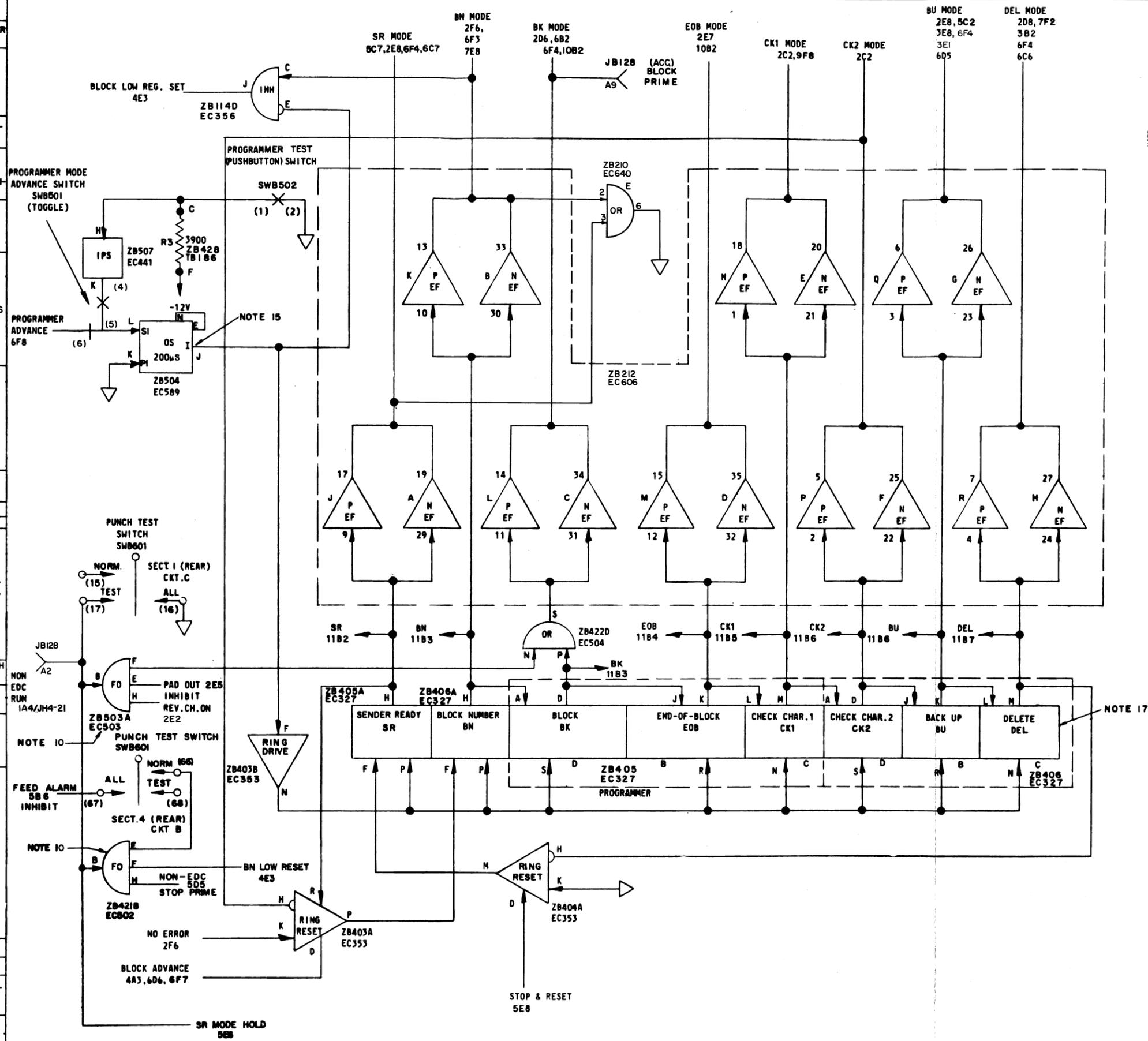
ISSUE	DATE	AUTH. NO.
1	7-6-67	18365-R
2	12-15-67	94943-D
3	5-3-68	96499

NOTE: REVISION INFORMATION MUST ALSO BE REFLECTED ON THE ISSUE CONTROL RECORD, WHICH IS A PART OF THIS DRAWING.

- NO. NOTES
- FOR ACTUAL WIRING DIAGRAM REFER TO 7064 WD.
 - REFERENCE SPECIFICATIONS FOR TELETYPE CORPORATION EMPLOYEES ONLY.
 - ALL VOLTAGES DC UNLESS OTHERWISE SPECIFIED.
 - TERMINAL DESIGNATIONS ENCLOSED IN PARENTHESIS ARE FOR REFERENCE AND NOT MARKED ON COMPONENTS.
 - ALL RESISTORS 1/2 WATT AND RESISTANCE VALUES IN OHMS. ALL CAPACITOR VALUES IN MICROFARADS UNLESS OTHERWISE SPECIFIED.
 - DESIGNATES FEMALE TERMINAL
 - DESIGNATES MALE TERMINAL ON CONNECTOR.
 - DESIGNATES TERMINALS ON SWITCHES
 - DESIGNATES GROUND
 - DESIGNATES FRAME GROUND
 - WIRING LEGEND:

 - CONNECTOR PIN OR CIRCUIT ELEMENT
 - HORIZONTAL POSITION
 - VERTICAL ROW POSITION
 - MODULE LETTER
 - COMPONENT DESIGNATION
 - AREA OF SCHEMATIC
 - SCHEMATIC SHEET NO.
 - INDICATES VOLTAGE POINT
 - INDICATES TEST POINT
 - SPARE CIRCUITS AVAILABLE:

POS.	EC NO.	CKT. IDENT.	LOGIC
ZB211	EC606	J,R	PMP E.F.
ZB223	EC608	F,G	NPN E.F.
ZB407	EC327	A	TRUN.-N DIST.
ZB412	EC320	B	TRUN.-N DIST.
ZB421	EC502	C	FAN OUT
ZB423	EC348	B	PULSE INHIBIT
 - EC502 AND EC503 USED AS FAN OUT WITH NO +5 VOLTAGE SUPPLIED.
 - DELETE CHARACTER RATE NOT TO EXCEED 1800 BAUD, 5.55MS PULSE RATE. EOB CHARACTER MUST BE DELAYED AT LEAST 6MS BY SENDING UNIT WHEN OPERATING AT SPEEDS ABOVE 1800BAUD.
 - WIRED FOR INVERTED OUTPUT.
 - WIRED FOR NORMAL OUTPUT.
 - EC 320 AND EC327 HAVE FUNCTIONAL IDENTIFICATION INCLUDED WITHIN SYMBOL.



SEE ISSUE CONTROL RECORD FOR COMPLETE LIST OF SHEETS COMPRISING THIS W.D. PAGE 1

PROGRAMMER AND ASSOCIATED DRIVE CONTROL
 RECEIVER CONTROL (HSEDC) (MODULE "B")
 MODULE ASSEM. NO. 302762

APPROVALS

D AND R: *[Signature]*
 E OF M: *[Signature]*

E-NUMBER
 PROD. NO. 7063WD
 DATE 9/28/64
 P.D. FILE NO. 2-96.134.184A
 DRAWN G.J.M. GND: *[Signature]*
 ENGD. J.C.T. APPD: *[Signature]*

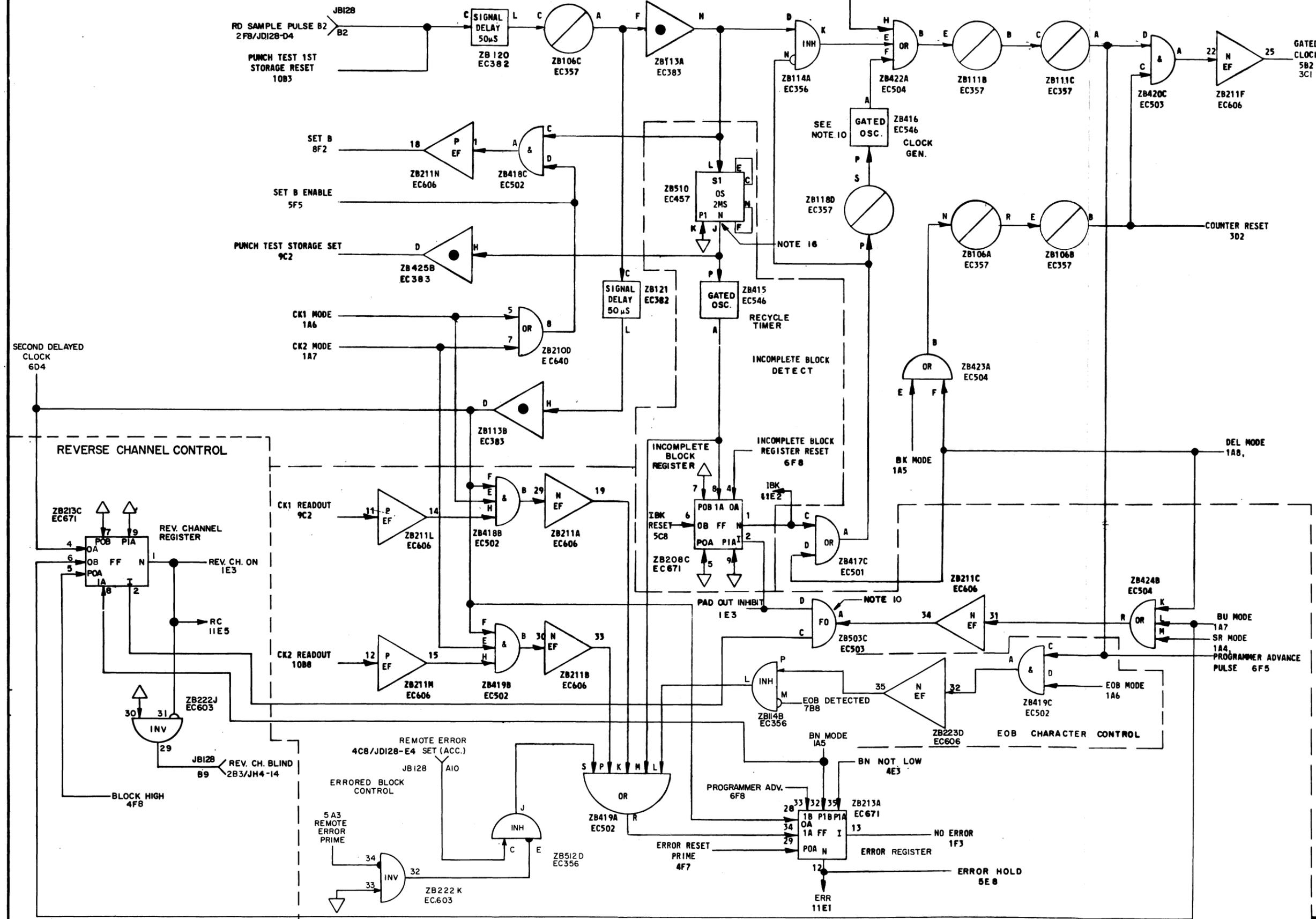
TELETYPE CORPORATION

NOTE: REVISION INFORMATION MUST ALSO BE REFLECTED ON THE ISSUE CONTROL RECORD, WHICH IS A PART OF THIS DRAWING.

REVISIONS		
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1	7-6-67	18365-R
2	11-14-67	94788-B
3	5-3-68	95499

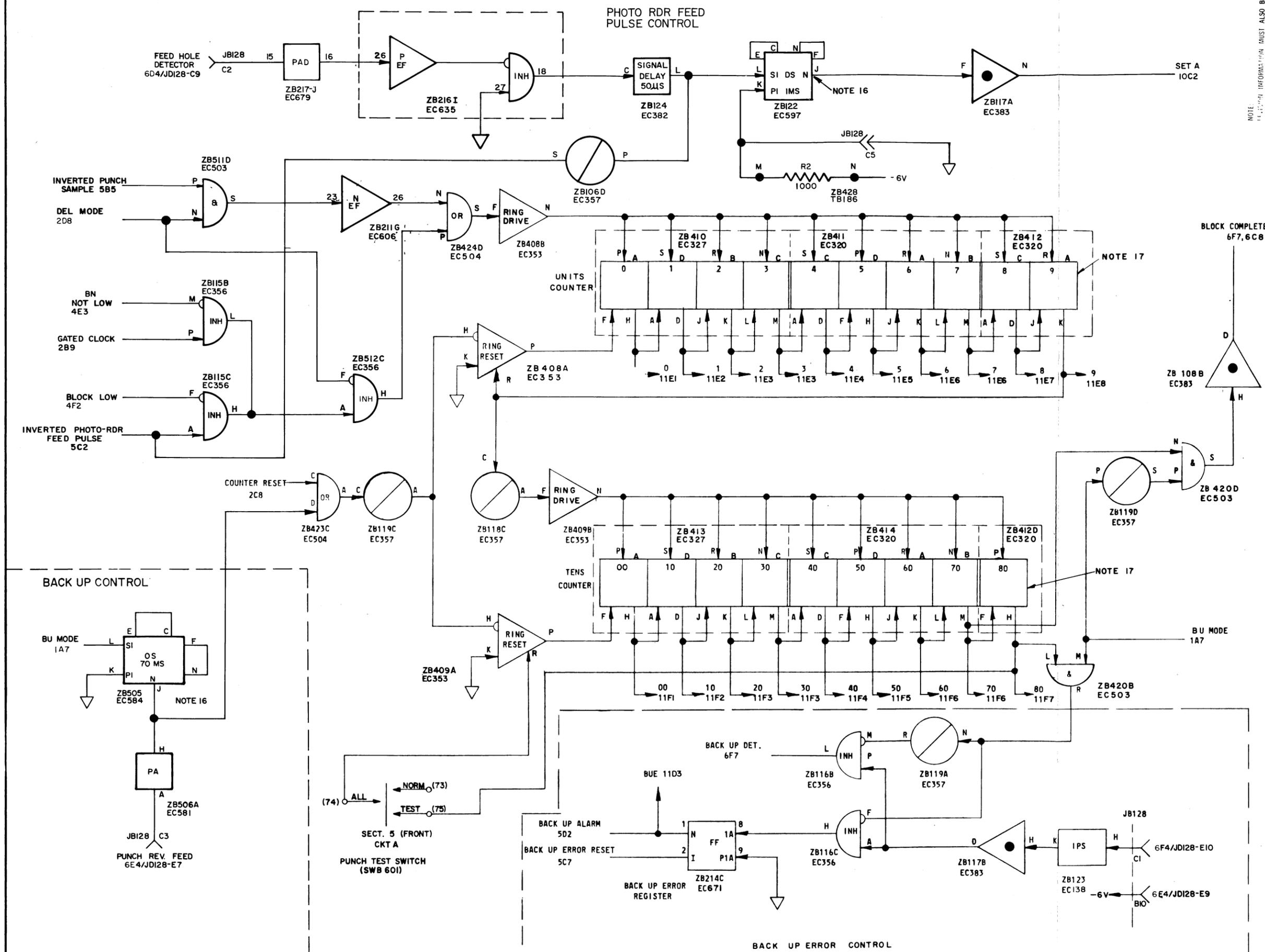
SAMPLE AND CLOCK PULSE CONTROL

PUNCH TEST STOP 5E2



7063WD		
REVISIONS		
ISSUE	DATE	AUTH. NO.
1	7-6-67	18365-R
2	12-15-67	94943-D

NOTE: ALL CHANGING INFORMATION MUST ALSO BE REFLECTED ON THE ISSUE CONTROL RECORD. THIS IS A PART OF THIS DRAWING.



BLOCK COMPLETE
6F7, 6C8

SEE ISSUE CONTROL RECORD FOR COMPLETE LIST OF SHEETS COMPRISING THIS W.D.
PAGE 3

CHARACTER COUNTER AND BACK UP CONTROL
RECEIVER CONTROL (HSECD) (MODULE B)
ASSEMBLY NO. 302762

APPROVALS

D AND R	E OF M
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E-NUMBER
PROD. NO. 7063WD
DATE 9/28/64
P.D. FILE NO. 2-96.134.184A
DRAWN G.J.M. CHKD. *[Signature]*
ENGD. J.C.T. APPD. *[Signature]*

TELETYPE CORPORATION

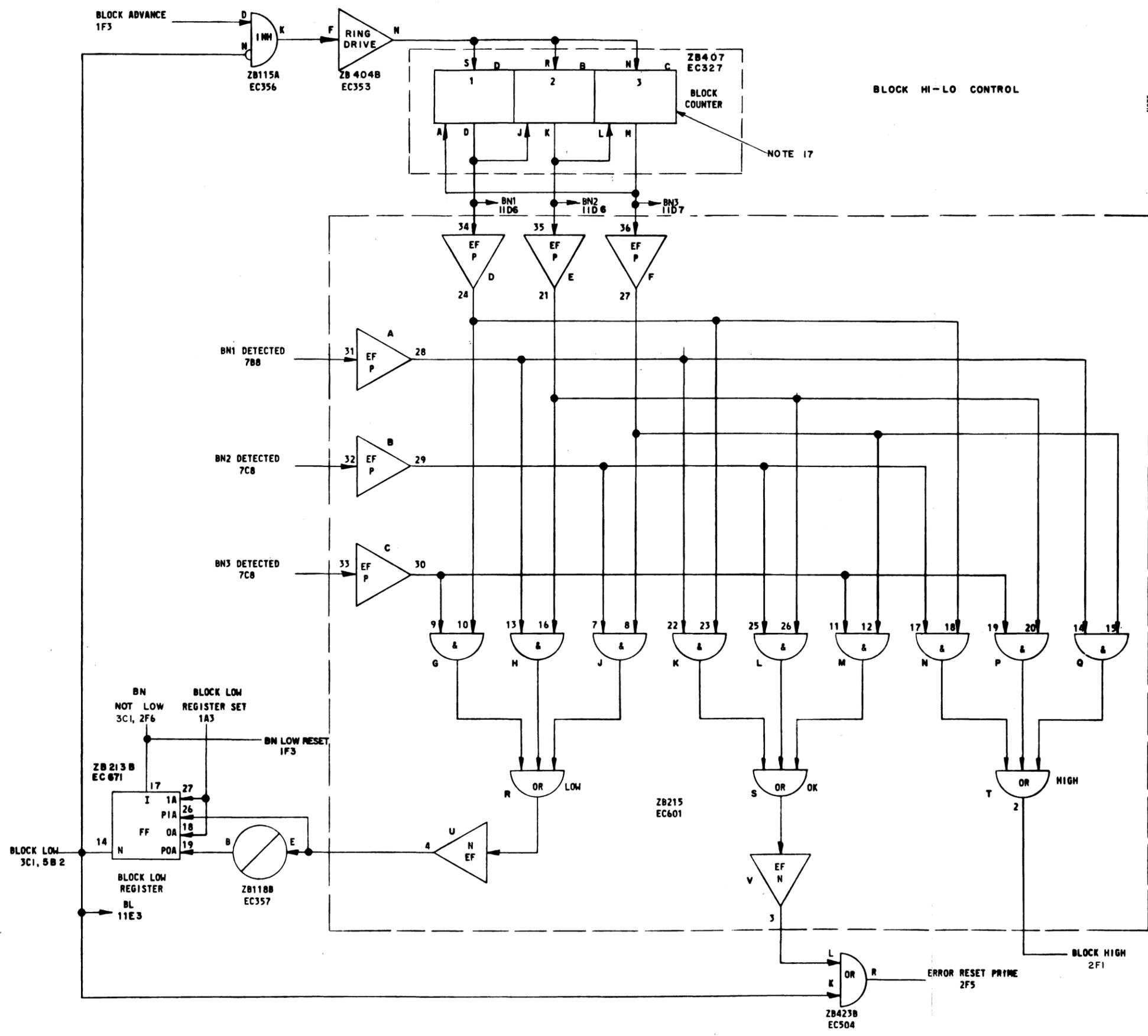
7063WD

7063WD

REVISIONS

ISSUE	DATE	AUTH. NO.
1	7-6-67	18368-R

NOTE: REVISION INFORMATION MUST ALSO BE REFLECTED ON THE ISSUE CONTROL RECORD, WHICH IS A PART OF THIS DRAWING.



BLOCK HI-LO CONTROL

NOTE 17

SEE ISSUE CONTROL RECORD FOR COMPLETE LIST OF SHEETS COMPRISING THIS W.D. PAGE 4

BLOCK HI-LO CONTROL
 RECEIVER CONTROL (HSEDC)
 (MODULE B)
 ASSEMBLY NO. 302762

APPROVALS

D AND R: *HJK*
 E OF M: *[Signature]*

E-NUMBER
 PROD. NO. 7063WD
 DATE 9/28/64
 P.D. FILE NO. 2-96.134.184A
 DRAWN G.J.R. CHKD. *[Signature]*
 ENGD. J.C.T. APPD. *[Signature]*

TELETYPE CORPORATION

7063WD

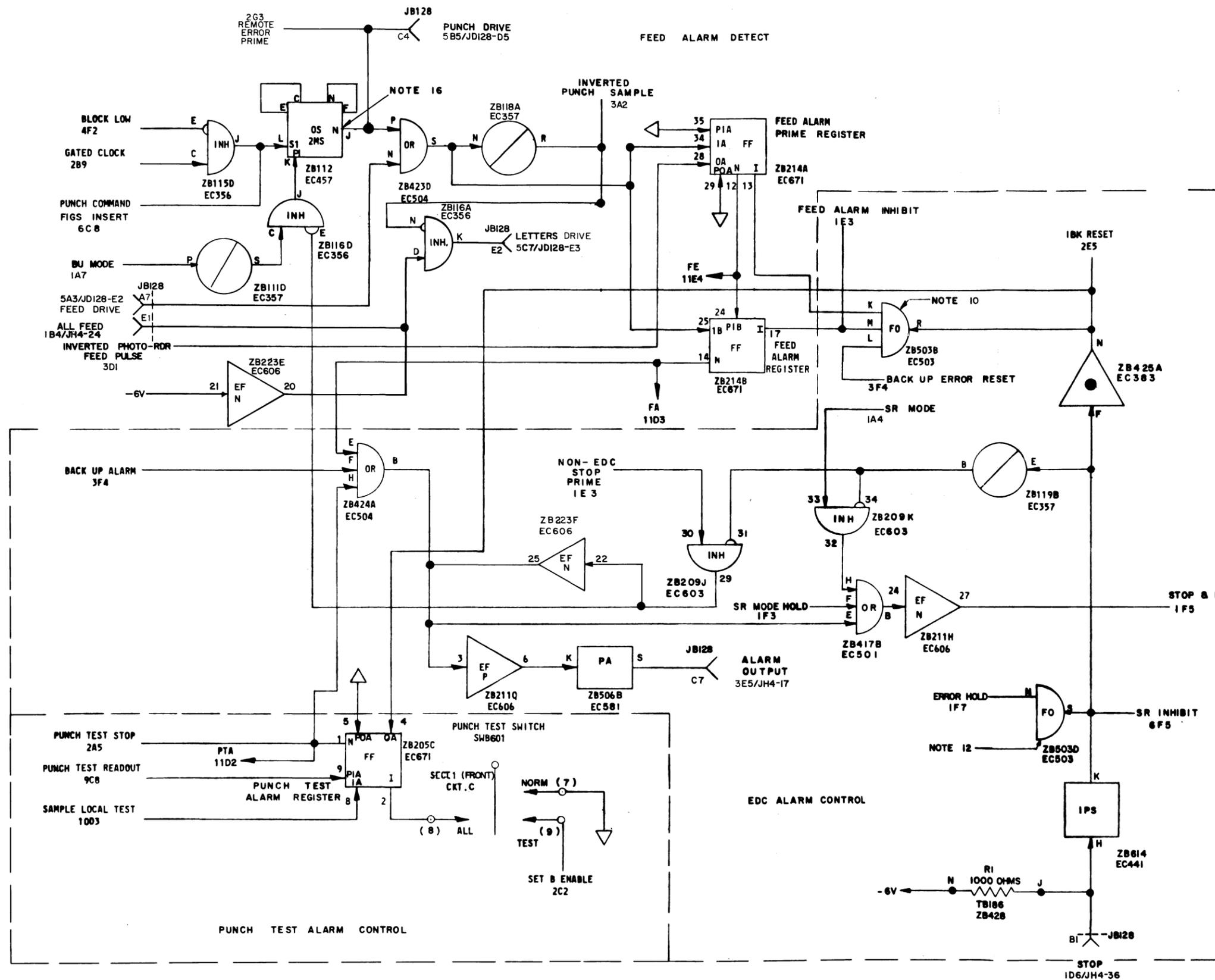
SHEET NOTE: WIRING IN AREA B5 CHANGED TO IMPROVE FEED ALARM CIRCUIT.

7063WD

REVISIONS

ISSUE	DATE	AUTH. NO.
2	3-28-68	95284

NOTE: REVISION INFORMATION MUST ALSO BE REFLECTED ON THE ISSUE CONTROL RECORD, WHICH IS A PART OF THIS DRAWING.



SEE ISSUE CONTROL RECORD FOR COMPLETE LIST OF SHEETS COMPRISING THIS W.D. PAGE 5A

FEED ALARM DETECT
EDC ALARM CONTROL
AND
PUNCH TEST ALARM CONTROL

RECEIVER CONTROL (HSEDC)
(MODULE B)

ASSEMBLY NO. 302762

APPROVALS

D AND R	E OF M
---------	--------

E-NUMBER

PROD. NO. 7063 WD

DATE 3-28-68

P.D. FILE NO. 2-96,134,184A

DRAWN _____ CHKD. _____

ENGD. J. C. T. APPD. _____

TELETYPE CORPORATION

7063WD

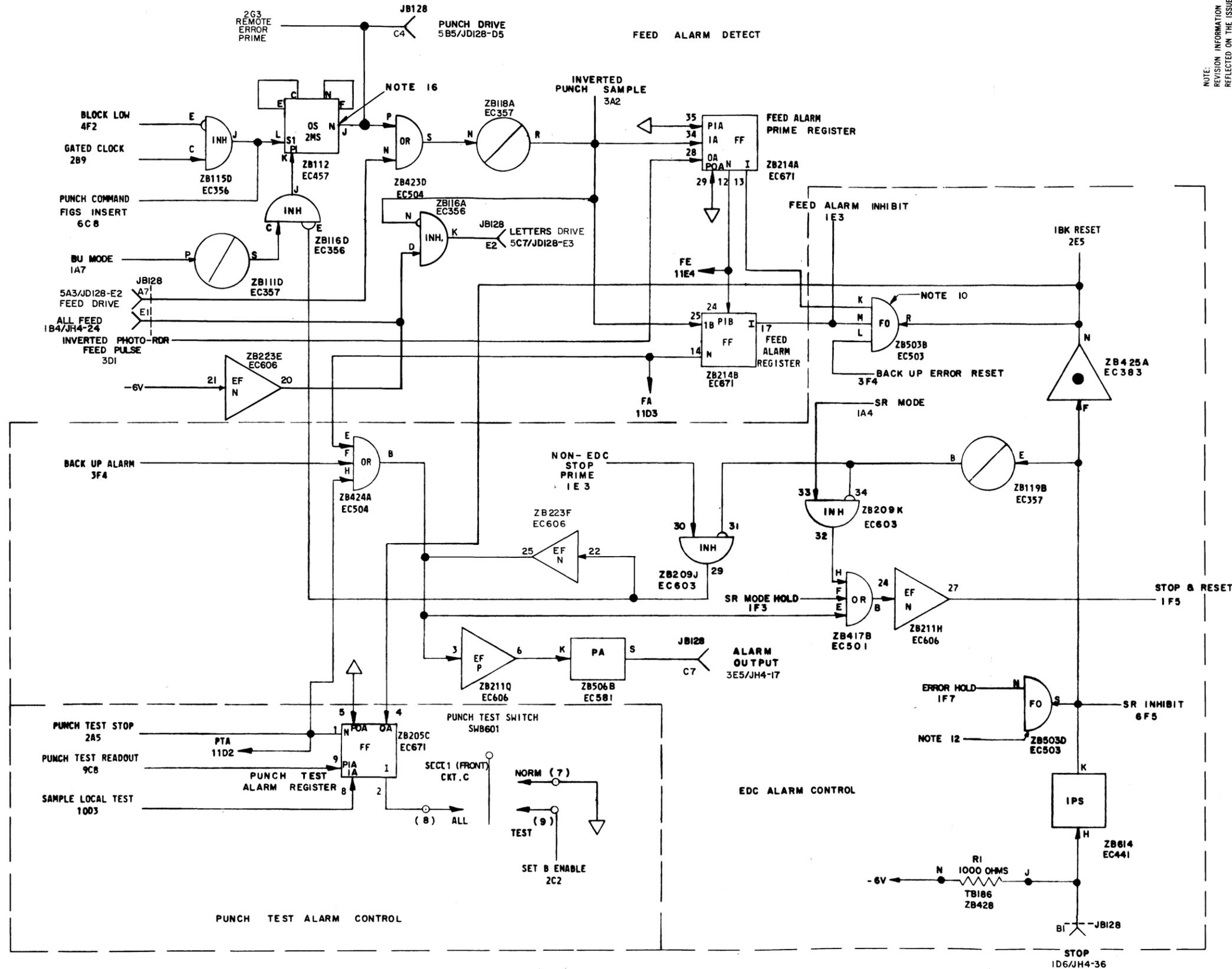
SHEET NOTE: AREA B5 SHOWS WIRING PRIOR TO CHANGE NOTED ON PAGE 5A.

NOTE: REVISION INFORMATION MUST ALSO BE REFLECTED ON THE ISSUE CONTROL RECORD, WHICH IS A PART OF THIS DRAWING.

7063WD

REVISIONS

ISSUE	DATE	AUTH. NO.
1	7-6-67	18365-R
2	3-28-68	95284



SEE ISSUE CONTROL RECORD FOR COMPLETE LIST OF SHEETS COMPRISING THIS W.D.

PAGE 5B
 FEED ALARM DETECT
 EDC ALARM CONTROL
 AND
 PUNCH TEST ALARM CONTROL
 RECEIVER CONTROL (HSEDC)
 (MODULE B)
 ASSEMBLY NO. 302762

APPROVALS

D AND R	E OF M
<i>[Signature]</i>	<i>[Signature]</i>
E-NUMBER	
PROD. NO. 7063WD	
DATE 9/28/64	
P.D. FILE NO. 2-96, 134, 184A	
DRAWN G.J.M.	CHKD. <i>[Signature]</i>
ENG. J.C.T.	APPD. <i>[Signature]</i>

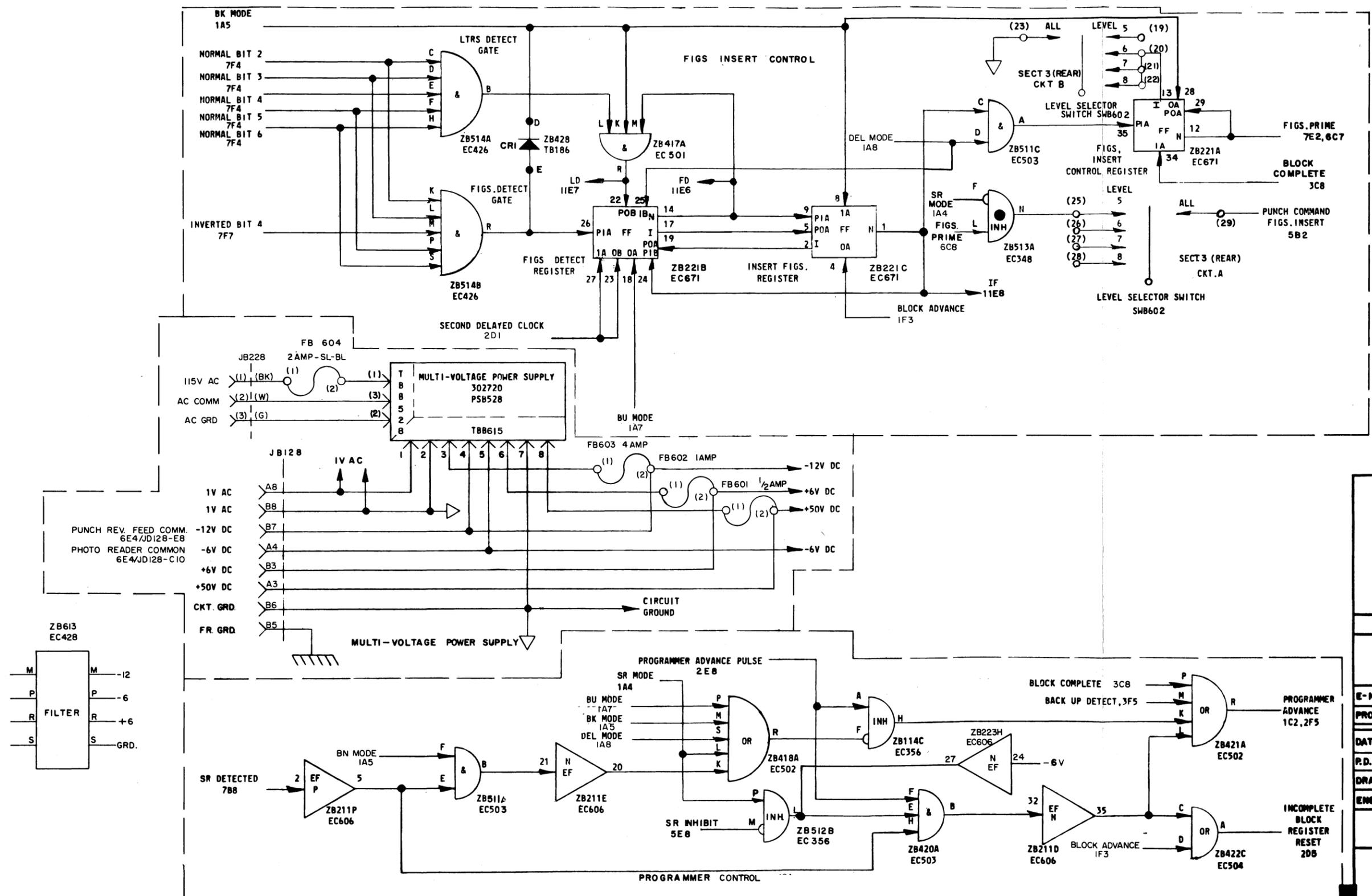
TELETYPE CORPORATION

7063WD

REVISIONS

ISSUE	DATE	AUTH. NO.
1	7-6-67	18365-R
2	12-15-67	94943-D

NOTE: REVISION INFORMATION MUST ALSO BE REFLECTED ON THE ISSUE CONTROL RECORD, WHICH IS A PART OF THIS DRAWING.



SEE ISSUE CONTROL RECORD FOR COMPLETE LIST OF SHEETS COMPRISING THIS W.D.
PAGE 6 OF 7

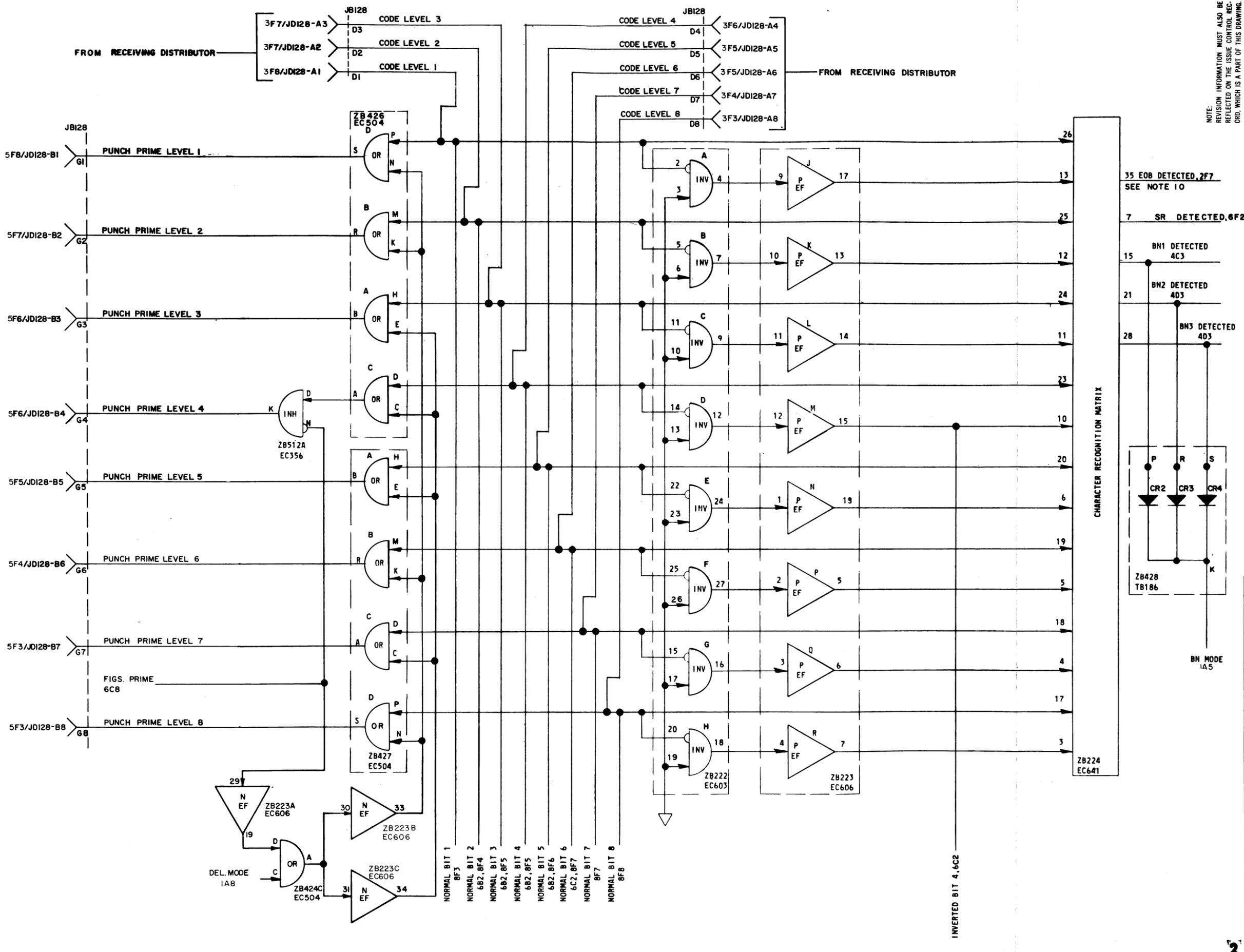
PROGRAMMER CONTROL AND FIGURES INSERT CONTROL
RECEIVER CONTROL (HSEDC) (MODULE B)
ASSEMBLY NO. 302762

APPROVALS
D AND R: [Signature]
E OF M: [Signature]
E-NUMBER
PROD. NO. 7063WD
DATE 9/24/64
P.D. FILE NO. 2-96.134.184A
DRAWN G.J.M. CHKD. [Signature]
ENDD. J.C.T. APPD. [Signature]
TELETYPE CORPORATION

REVISIONS

ISSUE	DATE	AUTH. NO.
1	7-6-67	18365-R
2	12-18-67	94943-D

NOTE: REVISION INFORMATION MUST ALSO BE REFLECTED ON THE ISSUE CONTROL RECORD, WHICH IS A PART OF THIS DRAWING.



SEE ISSUE CONTROL RECORD FOR COMPLETE LIST OF SHEETS COMPRISING THIS W.D. PAGE 7

CONTROL CHARACTERS DETECTION AND CODE LEVEL DISTRIBUTION
 RECEIVER CONTROL (HSEDC) (MODULE B)
 ASSEMBLY NO. 302762

APPROVALS
 D AND R: *HJR*
 E OF M: *[Signature]*

E-NUMBER
 PROD. NO. 7063WD
 DATE 9/28/64
 P.D. FILE NO. 2-96.134.184A
 DRAWN G.J.M. CHKD. *[Signature]*
 ENGD. J.C.T. APPD. *[Signature]*

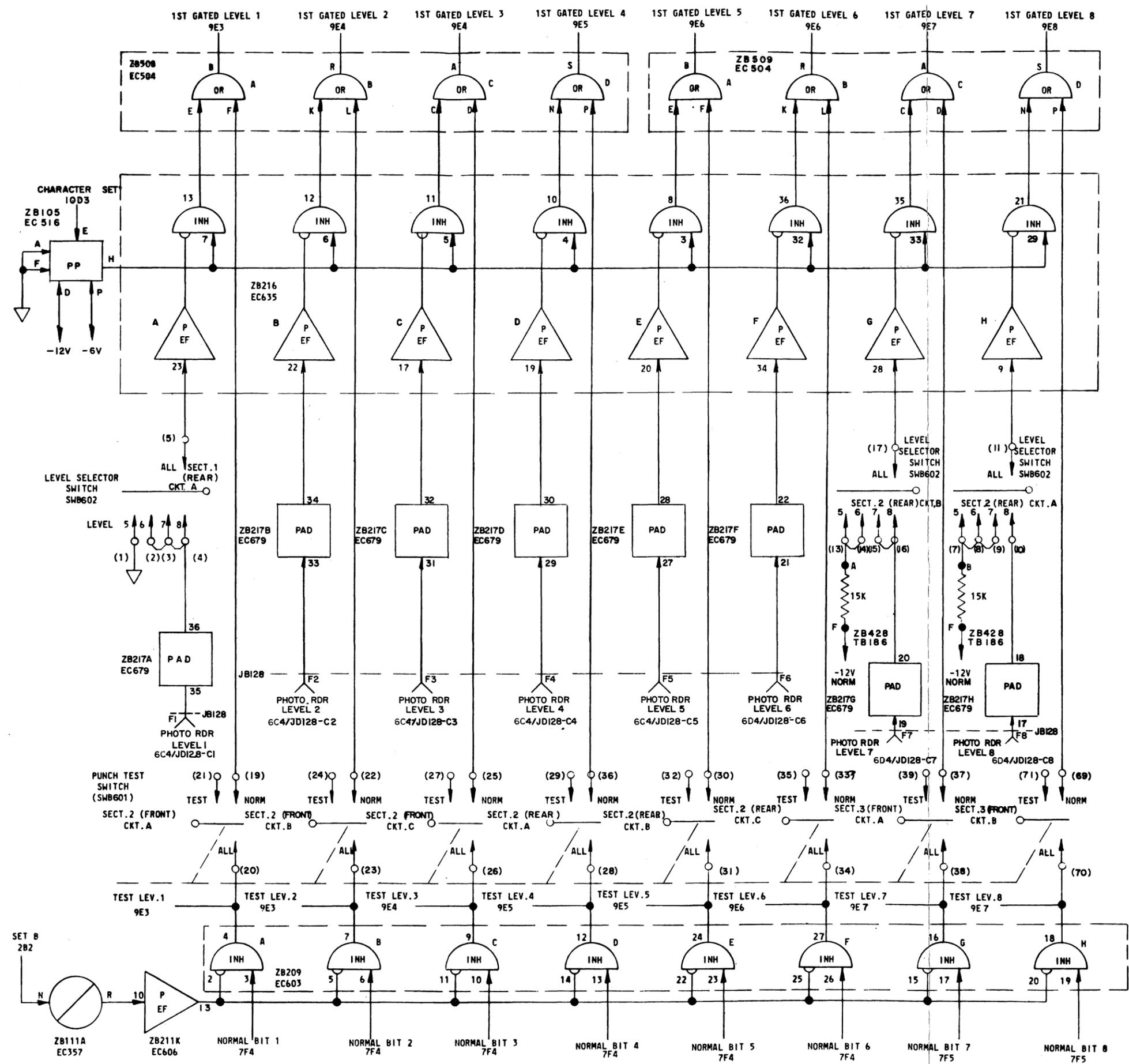
TELETYPE CORPORATION
 7063WD

7063WD

REVISIONS

ISSUE	DATE	AUTH. NO.
1	7-6-67	18365-R

NOTE: REVISION INFORMATION MUST ALSO BE REFLECTED ON THE ISSUE CONTROL RECORD, WHICH IS A PART OF THIS DRAWING.



SEE ISSUE CONTROL RECORD FOR COMPLETE LIST OF SHEETS COMPRISING THIS W.D. PAGE 8

CHECK CHARACTER AND PUNCH TEST GATING CONTROL RECEIVER CONTROL (HSEDC) (MODULE B) ASSEMBLY NO. 302762,2

APPROVALS

D AND R	E OF M
<i>HJR</i>	<i>L</i>

E-NUMBER

PROD. NO. 7063WD

DATE 9/28/64

P.D. FILE NO. 2-96.134.184A

DRAWN G.J.M. CHKD. *[Signature]*

ENG. J.C.T. APPD. *[Signature]*

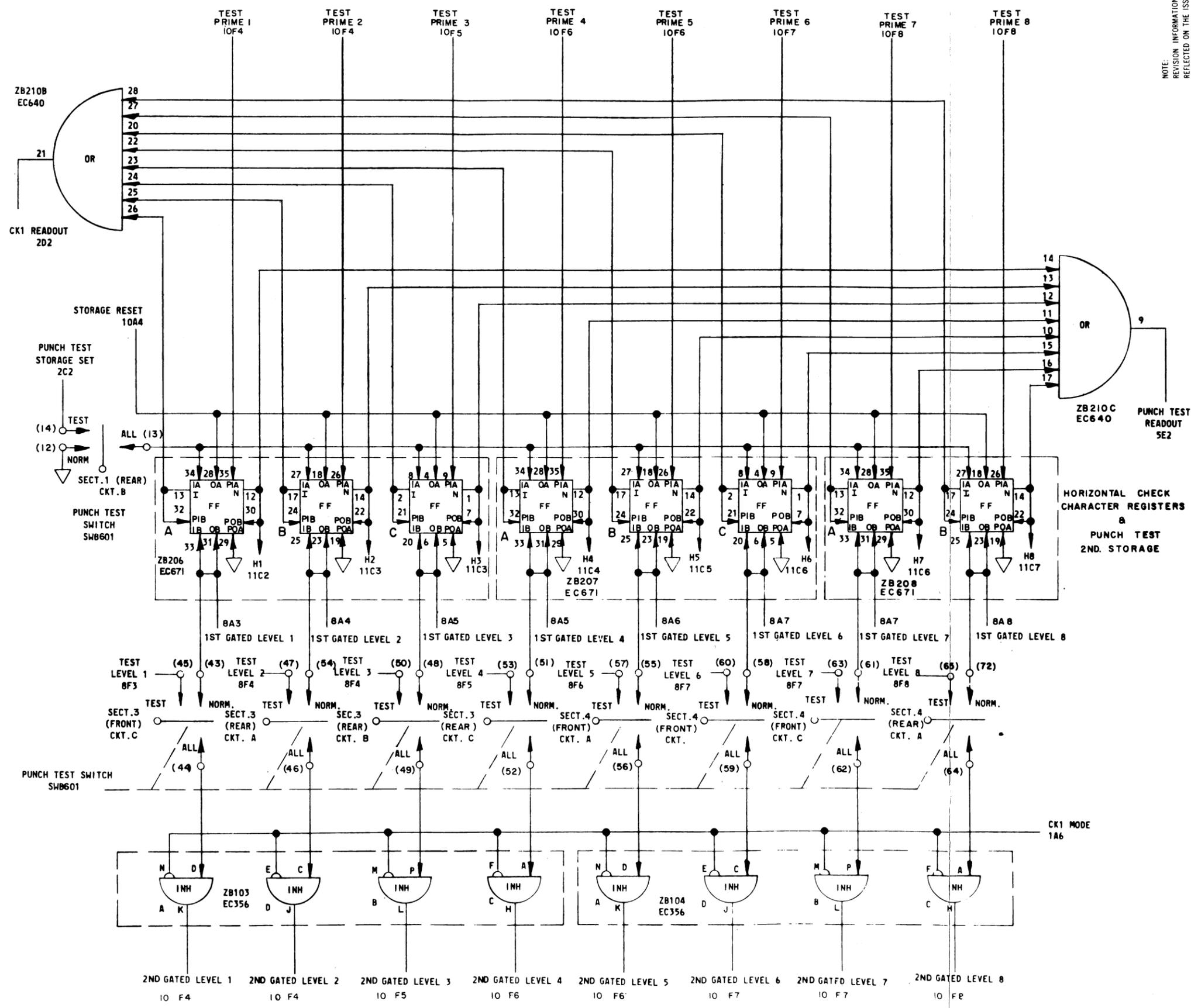
TELETYPE CORPORATION

7063WD

REVISIONS

ISSUE	DATE	AUTH. NO.
1	7-6-67	18365-R
2	12-18-67	94943-D

NOTE: REVISION INFORMATION MUST ALSO BE REFLECTED ON THE ISSUE CONTROL RECORD, WHICH IS A PART OF THIS DRAWING.



SEE ISSUE CONTROL RECORD FOR COMPLETE LIST OF SHEETS COMPRISING THIS W.D. PAGE 9

HORIZONTAL CHECK CHARACTER OR PUNCH TEST REGISTER
 RECEIVER CONTROL (HSEB6) (MODULE B)
 ASSEMBLY NO. 302762 762

APPROVALS
 D AND R E OF M
 E-NUMBER
 PROD. NO. 7063WD
 DATE 9/28/64
 P.D. FILE NO. 2-96, 134, 189A
 DRAWN G.J.H. CHKD. [Signature]
 ENGD. J.C.T. APPD. [Signature]

TELETYPE CORPORATION

SEE SHEET 1 FOR NOTES.

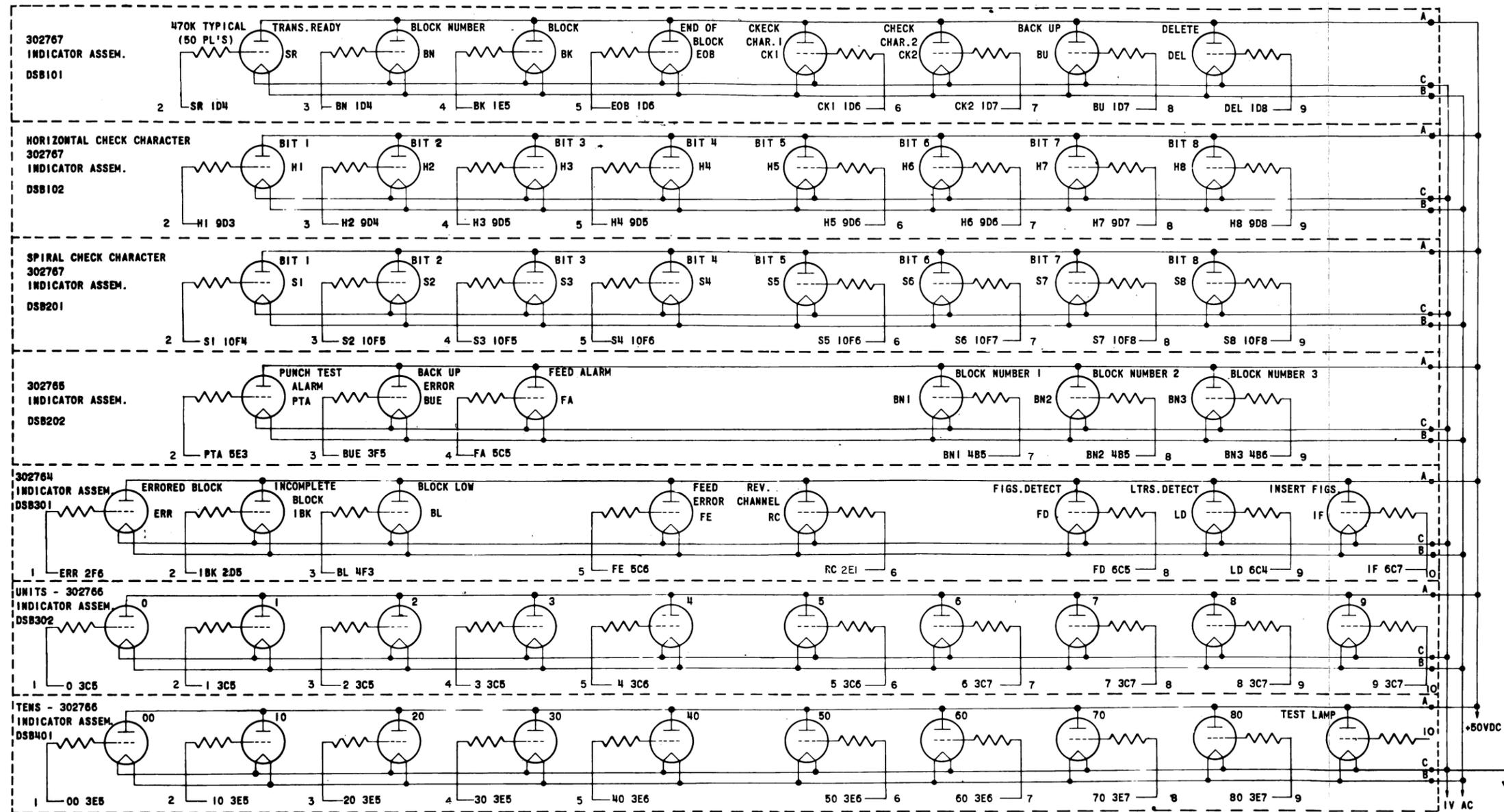
7063 WD

REVISIONS

ISSUE	DATE	AUTH. NO.
1	7-6-67	18365-R
2	12-18-67	94943-D

NOTE: REVISION INFORMATION MUST ALSO BE REFLECTED ON THE ISSUE CONTROL RECORD, WHICH IS A PART OF THIS DRAWING.

TRIODE INDICATORS



SEE ISSUE CONTROL RECORD FOR COMPLETE LIST OF SHEETS COMPRISING THIS W.D. SHEET 11

TRIODE INDICATORS

RECEIVER CONTROL (HSEDC)
(MODULE B)

ASSEMBLY NO. 302762

APPROVALS

D AND R <i>HJK</i>	E OF M <i>C-1</i>
-----------------------	----------------------

E-NUMBER

PROD. NO. 7063WD

DATE 6-16-64

P.D. FILE NO. 2-96.134.184A

DRAWN G.R.S. CHKD *JD 2/28*

ENGD. J.C.T. APPD. *TGW*

TELETYPE CORPORATION

7063 WD

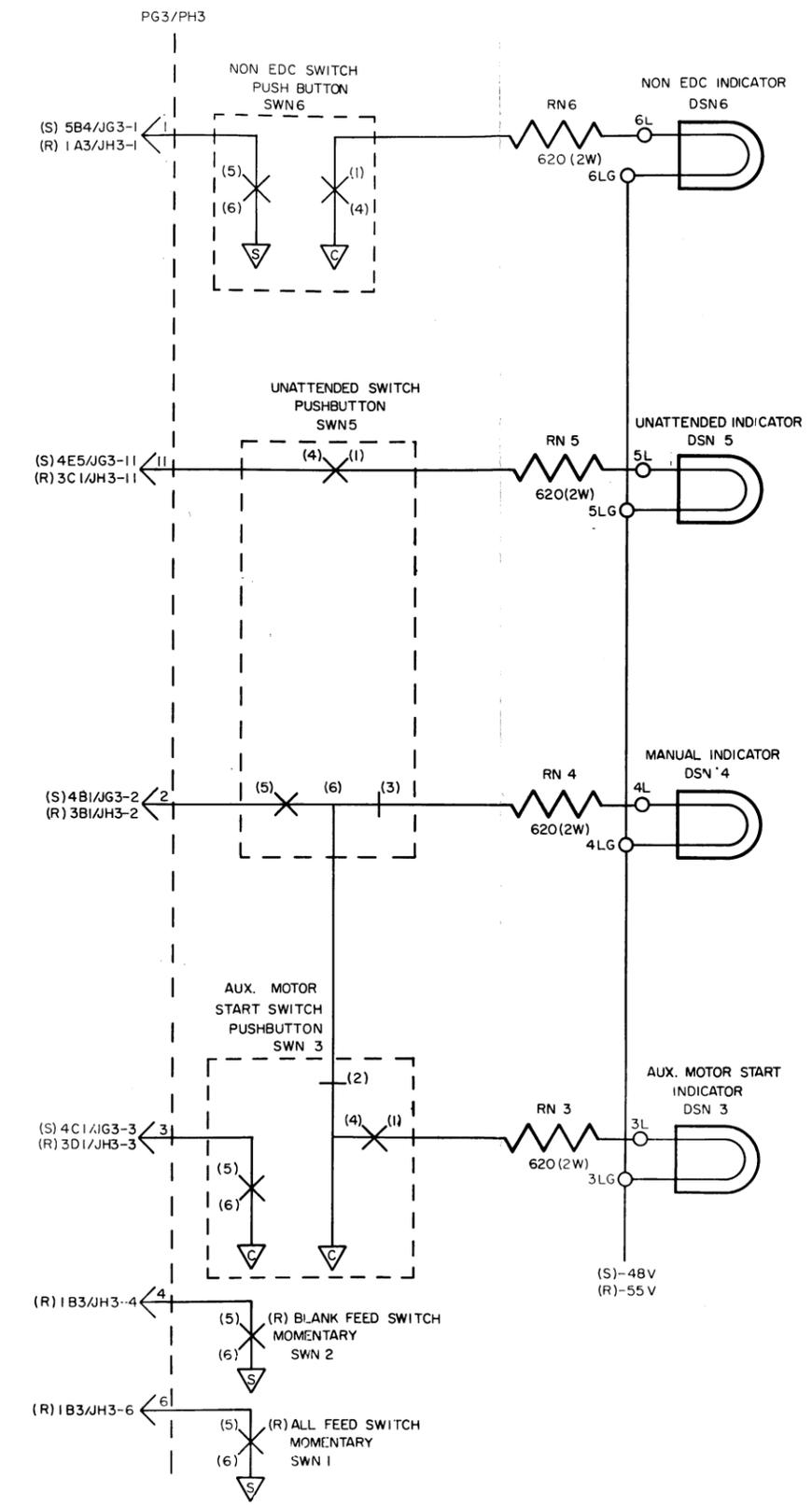
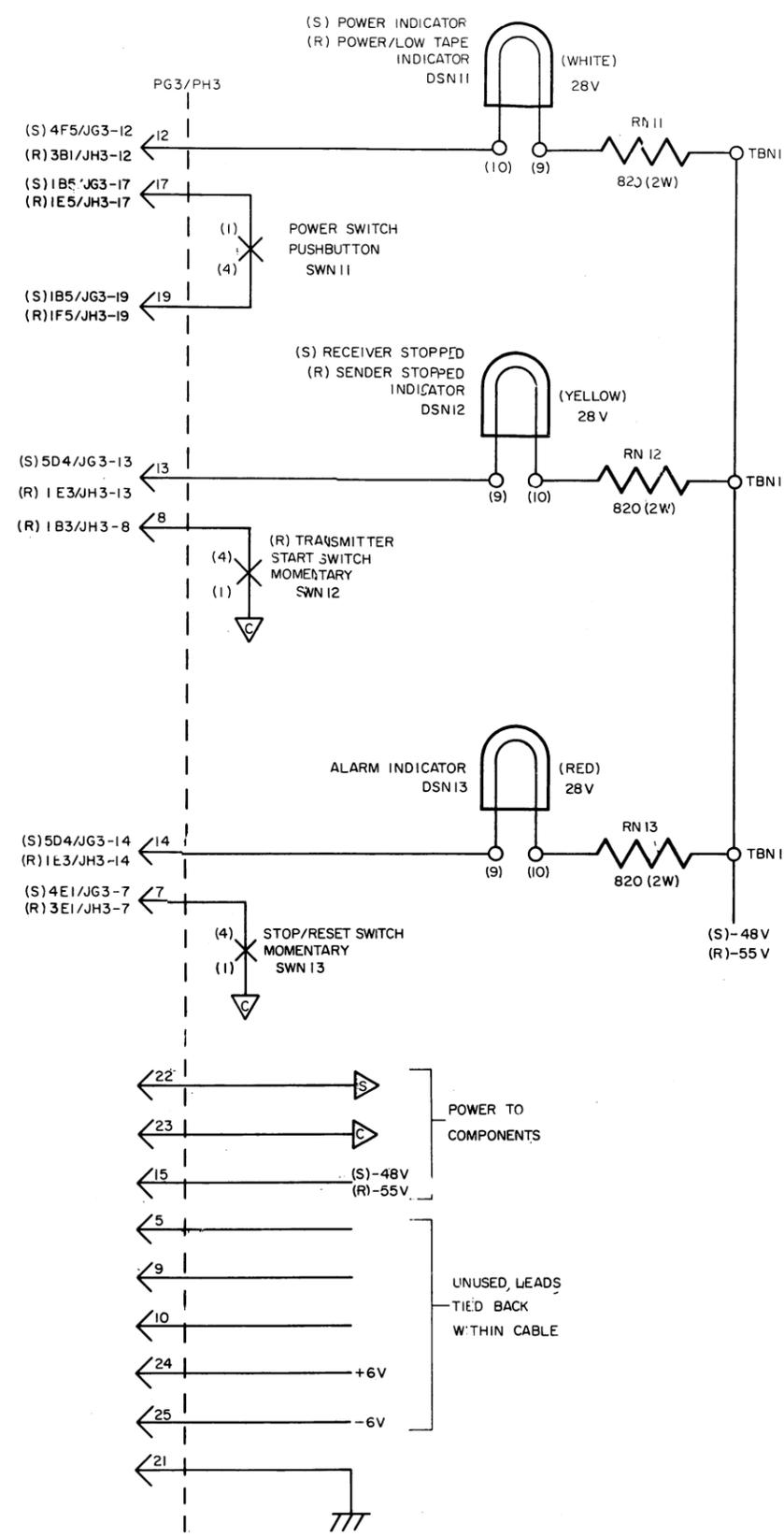
7070 WD

REVISIONS		
ISSUE	DATE	AUTH. NO.
1	6-27-67	18363-R

- NO. NOTES
- REFER TO 302790 FOR ACTUAL WIRING DIAGRAM.
 - CROSS REFERENCE AND CIRCUIT ELEMENT LOCATIONS:
 IB3/JH3 - 8
 CONNECTOR PIN
 COMPONENT POSITION
 MODULE LETTER
 COMPONENT DESIGNATION
 SCHEMATIC AREA
 SCHEMATIC SHEET AREA
 - ← DESIGNATES MALE TERMINALS ON CONNECTOR.
 ⚡ DESIGNATES SIGNAL GROUND
 ⚡ DESIGNATES CIRCUIT GROUND
 ⚡ DESIGNATES FRAME GROUND
 - TERMINAL DESIGNATIONS ENCLOSED IN PARENTHESES ARE FOR REFERENCE AND ARE NOT MARKED ON COMPONENT.
 - ALL VOLTAGES DC UNLESS OTHERWISE SPECIFIED.
 - ALL RESISTORS ARE 2 WATT AND IN OHMS.
 - ALL INDICATORS ARE WHITE UNLESS OTHERWISE SPECIFIED.
 - (S) PRECEDING A NAME, VOLTAGE, OR CROSS REFERENCE APPLIES USE ONLY WHEN MODULE N IS USED AS PART OF THE SENDER.

 (R) PRECEDING A NAME, VOLTAGE, OR CROSS REFERENCES APPLIES USE ONLY WHEN MODULE N IS USED AS PART OF THE RECEIVER.

 WHEN NEITHER (S) OR (R) APPEARS, NAME OR VOLTAGE IS COMMON TO BOTH SENDER AND RECEIVER.



CONTROLS ASSEMBLY
SENDER AND RECEIVER
ASSEMBLY NO 302790
(MODULE N)

APPROVALS

D AND R	E OF M
---------	--------

E-NUMBER

PROD. NO. 7070 WD

DATE

P.D. FILE NO. 5-A148/134AA

DRAWN D.B. CHKD. *[Signature]*

ENGD. W.R.F. APPD. *[Signature]*

TELETYPE CORPORATION

7070 WD

REVISIONS		
ISSUE	DATE	AUTH. NO.
1	6-27-67	18363-R
2	8-23-67	94405-A

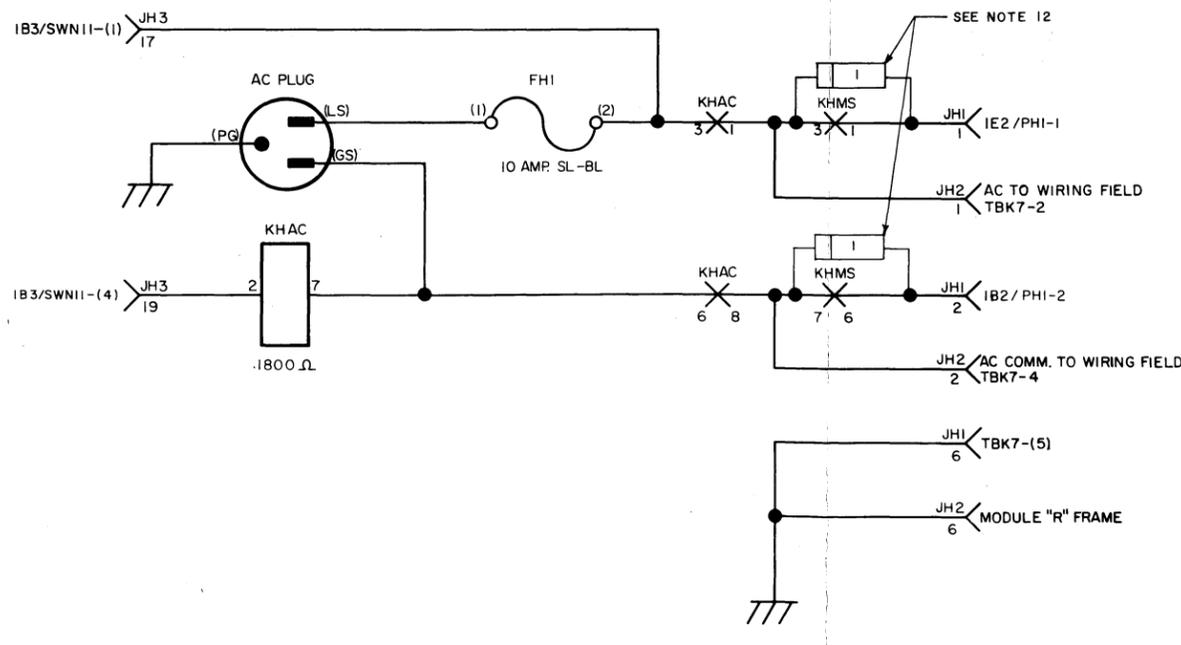
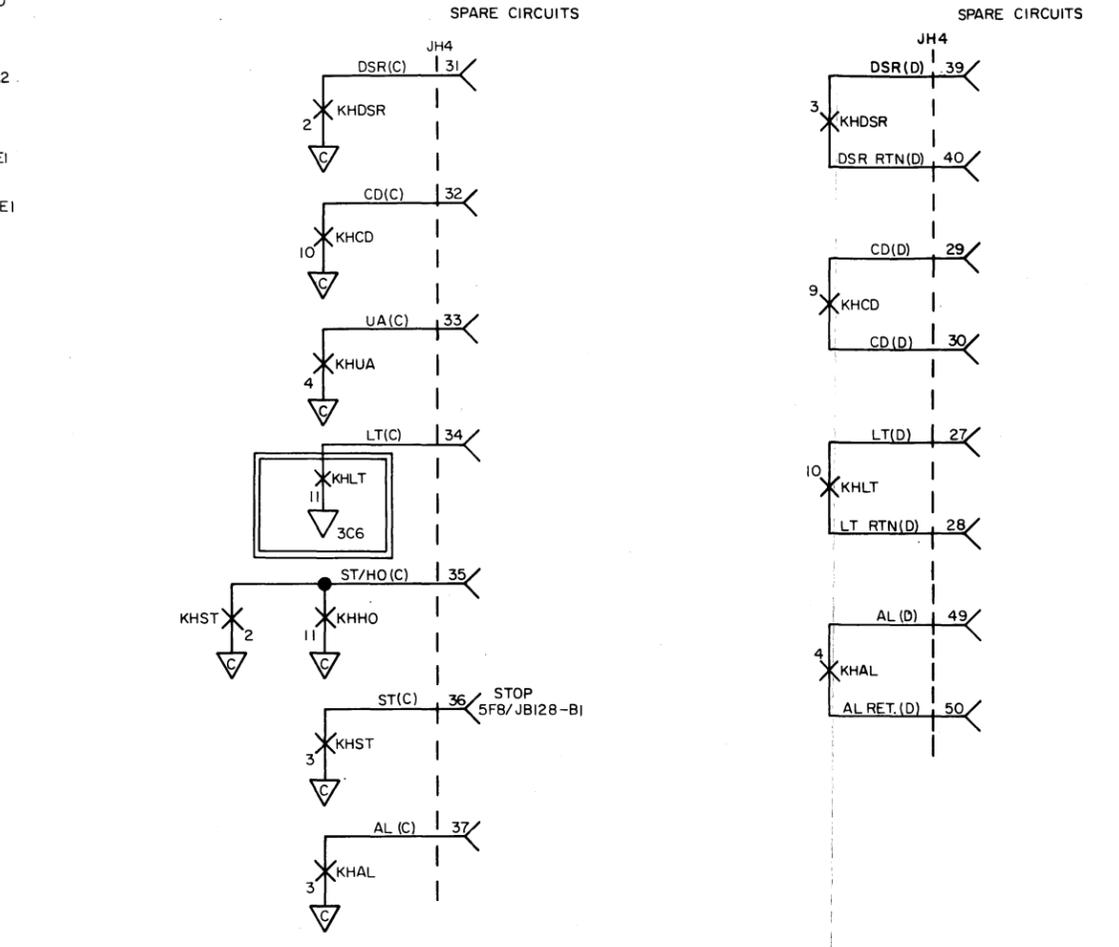
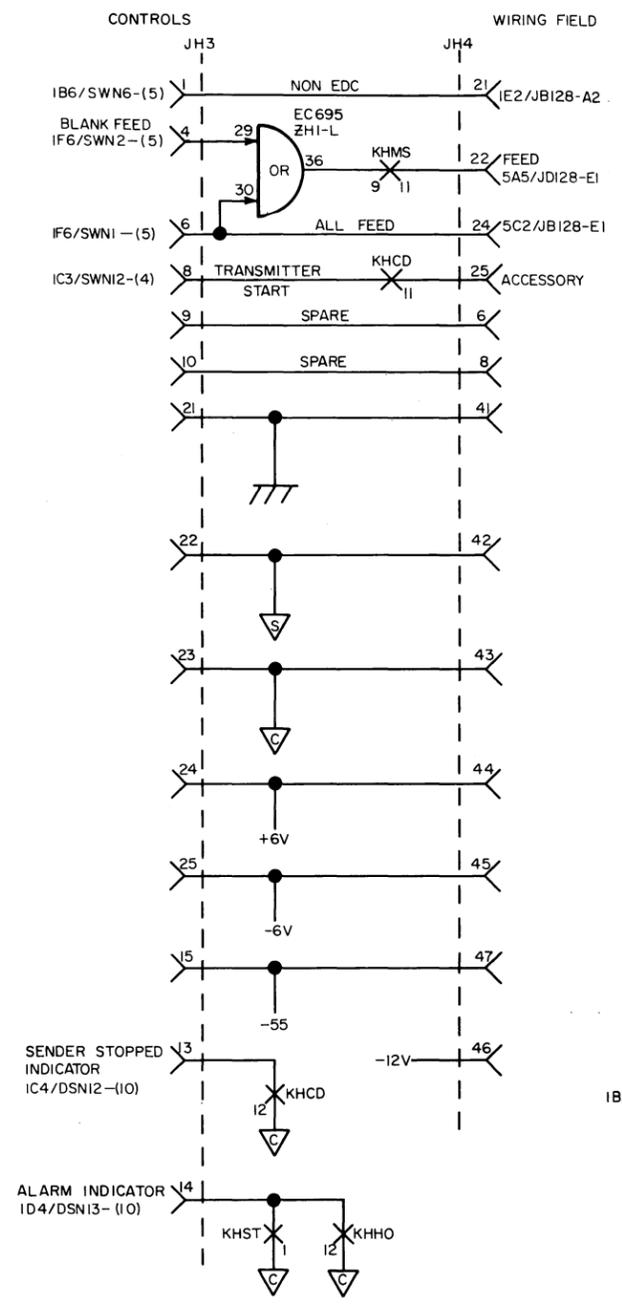
NOTE: REVISION INFORMATION MUST ALSO BE REFLECTED ON THE ISSUE CONTROL RECORD, WHICH IS A PART OF THIS DRAWING.

- NOTES
- REFER TO 7407WD FOR ACTUAL WIRING DIAGRAM.
 - CROSS REFERENCE AND CIRCUIT ELEMENT LOCATIONS:
 - DESIGNATES FEMALE AND DESIGNATES MALE TERMINALS.
 DESIGNATES TERMINALS ON TERM. BOARD TB2. FUSE F1, FLASHER FL, AND RELAYS LT, AL, AND DT.
 DESIGNATES SIGNAL GROUND.
 DESIGNATES CIRCUIT GROUND AND IS THE RETURN FOR THE -55V LEAD.
 DESIGNATES FRAME GROUND
 - TERMINAL DESIGNATIONS ENCLOSED IN PARENTHESES ARE FOR REFERENCE AND ARE NOT MARKED ON COMPONENT.
 - ALL VOLTAGES DC UNLESS OTHERWISE SPECIFIED.
 - ALL RESISTORS ARE 1/2 WATT AND IN OHMS UNLESS OTHERWISE SPECIFIED.
 - TOGGLE SWITCH IS SHOWN IN ITS UN-OPERATED STATE WHICH IS:
SW1 - OPERATE POSITION
 - (A) DESIGNATES SERVICE OPTIONS.
 - THIS UNIT CONTAINS FOUR STRAPPING OPTIONS. THESE OPTIONS ARE LOCATED ON TERMINAL BOARD TB1.
 OPTIONS

FEATURE	OPTION	SHT	DESIG	PROV
UNATTEND	KEY CONTROL	3	A1	1 PER
ANSWER	KEY, LOW TAPE	2,3	A2	STN.
	NONE		REMOVE A1 OR A2	
 - CIRCUITRY ON TERMINALS JH431,32,33,34,35,36 AND 37 WITH CONTACT INTERFACE ARE AVAILABLE FOR FUTURE APPLICATION WITH IN THE TERMINAL. CIRCUITRY ON TERMINALS JH427,28,29,30,39,40,49 AND 50 WITH DRY CONTACT INTERFACE ARE AVAILABLE FOR USE BY THE TELEPHONE CO.
 - INTERFACE DESIGNATIONS ON RECEPTACLES J3 AND J4 ENCLOSED IN PARENTHESES REFER TO INTERFACE DESIGNATIONS.

DESIG.	DESCRIPTION
(AC)	AC POWER
(V)	DC VOLTAGE
(P)	POLAR, E1A. +3 TO +25 V AND -3V TO -25 V
(N)	OV AND -6V, NOMINAL
(C)	CONTACT, GROUND AND OPEN CIRCUIT
(DC)	DRY CONTACT

 ALL DRY CONTACT CIRCUITS CONSIST OF TWO LEADS. THE SECOND LEAD IS THE RETURN (RTN) FOR THE CIRCUIT.
 - NETWORK NO. 1 TELETYPE NO. 165027



SEE ISSUE CONTROL RECORD FOR COMPLETE LIST OF SHEETS COMPRISING THIS W.D. SHEET 1

CONTROLS INTERFACE AND SPARE CIRCUITS
 RECEIVER STATION CONTROL ASSEMBLY NO. 308463 (MODULE H)

APPROVALS

D AND R: *[Signature]*
 E OF M: *[Signature]*

E-NUMBER
 PROD. NO. 7406 WD

DATE 10-24-66

P.D. FILE NO. 5-A148/134 AA

DRAWN D.B. CHKD. *[Signature]*
 ENGD. W.R.F. APPD. *[Signature]*

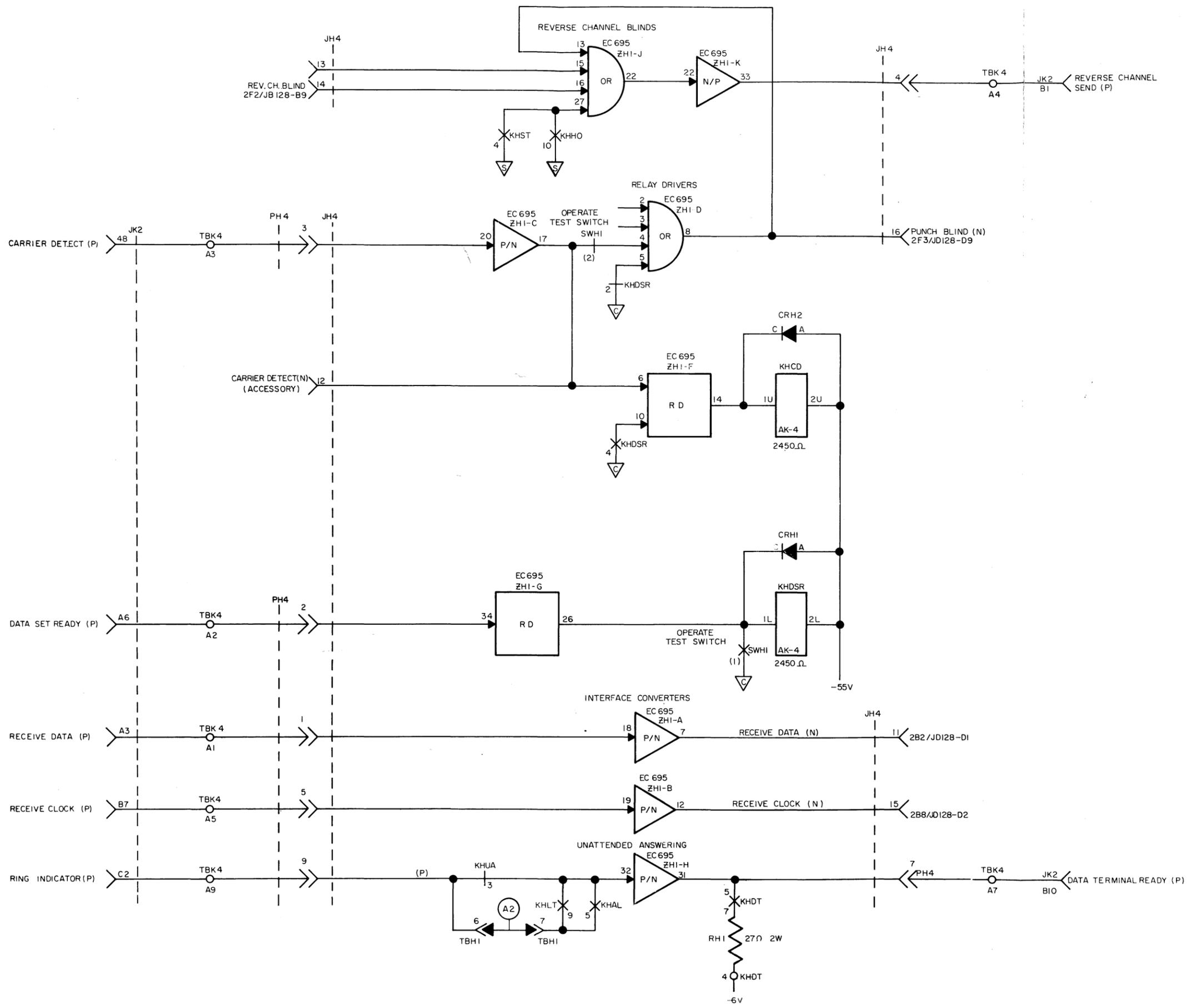
TELETYPE CORPORATION

7406 WD

REVISIONS

ISSUE	DATE	AUTH. NO.
1	6-27-67	18363-R

NOTE: REVISION INFORMATION MUST ALSO BE REFLECTED ON THE ISSUE CONTROL RECORD, WHICH IS A PART OF THIS DRAWING.



SEE ISSUE CONTROL RECORD FOR COMPLETE LIST OF SHEETS COMPRISING THIS SHEET 2

DATA SET INTERFACE

RECEIVER STATION CONTROL
ASSEMBLY NO. 308463
(MODULE H)

APPROVALS

D AND R	E OF M
<i>[Signature]</i>	<i>[Signature]</i>

E-NUMBER
 PROD. NO. 7406WD
 DATE 10-24-66
 P.D. FILE NO. 5-A148/134AA
 DRAWN D B CHKD. *[Signature]*
 ENGD. W R F APPD. *[Signature]*

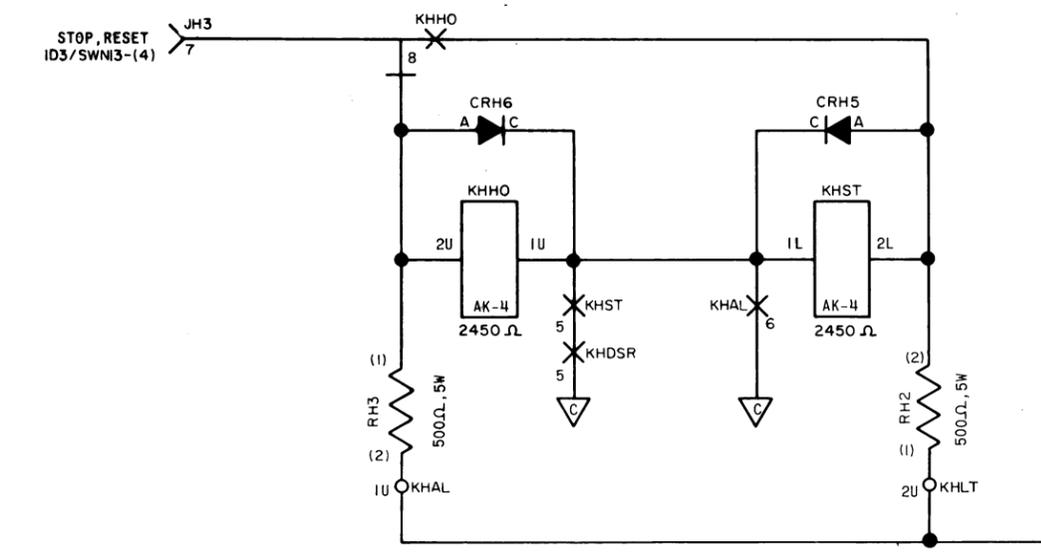
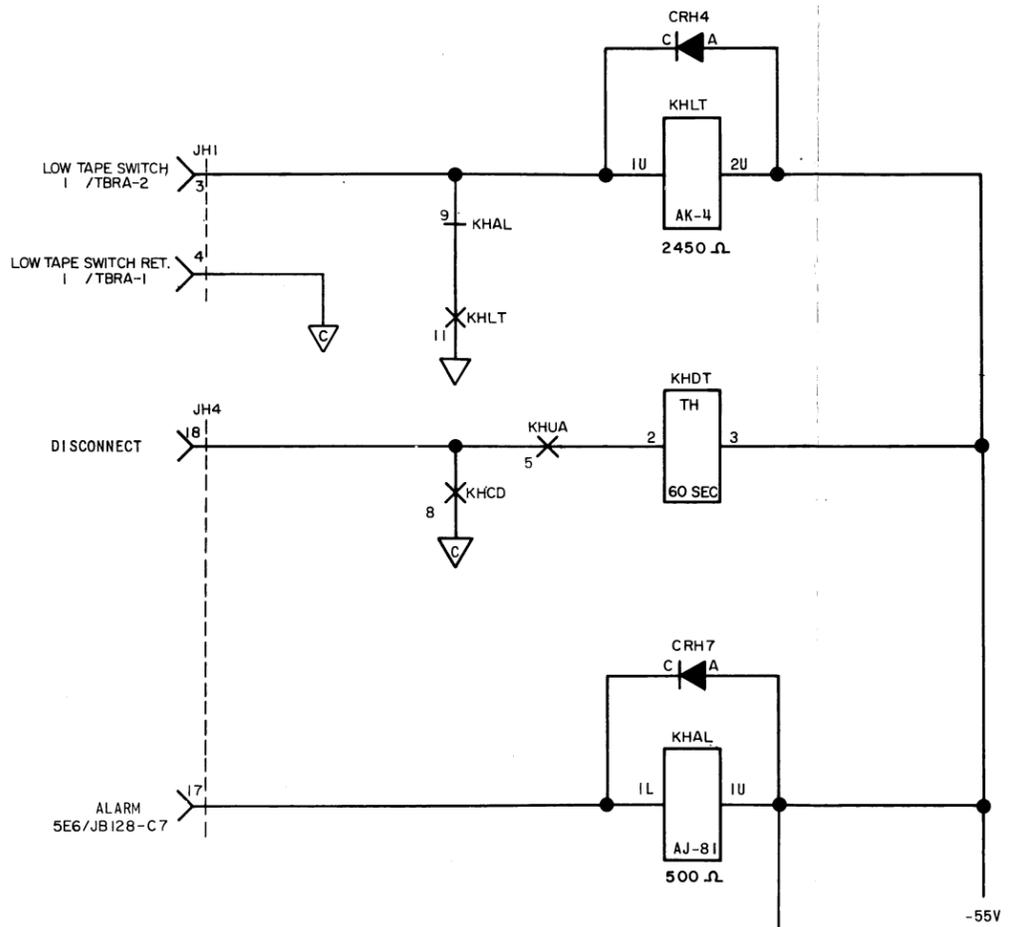
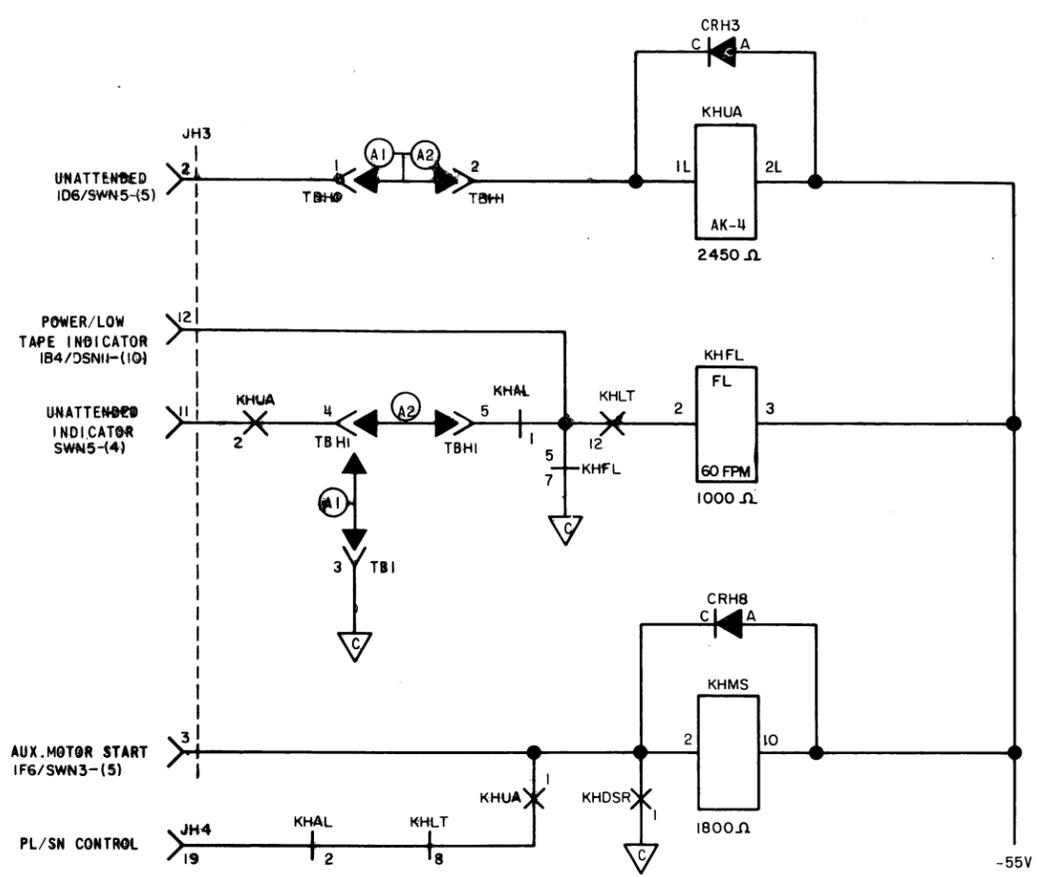
TELETYPE CORPORATION

7406 WD

REVISIONS

ISSUE	DATE	AUTH. NO.
1	6-27-67	18363-R

NOTE: REVISION INFORMATION MUST ALSO BE REFLECTED ON THE ISSUE CONTROL RECORD WHICH IS A PART OF THIS DRAWING.



SEE ISSUE CONTROL RECORD FOR COMPLETE LIST OF SHEETS COMPRISING THIS W.D. SHEET 3

CONTROL LOGIC

RECEIVER STATION CONTROL
ASSEMBLY NO. 308463
(MODULE H)

APPROVALS

D AND R	E OF M
<i>[Signature]</i>	<i>[Signature]</i>

E-NUMBER

PROD. NO. 7406WD

DATE 3/1/65

P.D. FILE NO. 5-A148/134AA

DRAWN E.A.R.	CHKD. <i>[Signature]</i>
ENG. W.R.F.	APPD. <i>[Signature]</i>

TELETYPE CORPORATION

NOTES

1. REFER TO 7413WD FOR ACTUAL WIRING DIAGRAM.
2. CROSS REFERENCE AND CIRCUIT ELEMENT LOCATIONS:
 - CONNECTOR PIN OR CIRCUIT ELEMENT
 - HORIZONTAL POSITION
 - VERTICAL POSITION
 - MODULE LETTER
 - COMPONENT DESIGNATION
 - AREA OF SCHEMATIC
 - SCHEMATIC SHEET NO.
3.
 - INDICATES FEMALE AND
 - INDICATES MALE TERMINAL ON CONNECTORS.
 - DESIGNATES TERMINALS ON SWITCHES SWD1 AND SWD2.
 - DESIGNATES SIGNAL GROUND.
 - DESIGNATES FRAME GROUND
4. TERMINAL DESIGNATIONS ENCLOSED IN PARENTHESES ARE FOR REFERENCE AND ARE NOT MARKED ON COMPONENT.
5. ALL VOLTAGES DC UNLESS OTHERWISE SPECIFIED.
6. ALL RESISTORS ARE 1/2 WATT AND IN OHMS, UNLESS OTHERWISE SPECIFIED.
7. THE TOGGLE SWITCH IS SHOWN IN THE FOLLOWING MODE:
SWD 103 - 1050 BAUD POSITION
8. SWITCH SWD2 AND TWO CARD CONNECTORS, XD209 AND XD210 ARE PROVIDED AND WIRED FOR THE VERTICAL PARITY FEATURE SHOWN ON SHEET 4. THE CIRCUIT CARD LOGIC FOR THESE FEATURES IS NOT INCLUDED IN THIS MODULE.
9. SPARE CIRCUIT
EC 684 - ZD 203-H OR GATE

7412 WD

REVISIONS

ISSUE	DATE	AUTH. NO.
1	6-27-67	18364-R

NOTE: REVISION INFORMATION MUST ALSO BE REFLECTED ON THE ISSUE CONTROL RECORD WHICH IS A PART OF THIS DRAWING.

SEE ISSUE CONTROL RECORD FOR COMPLETE LIST OF SHEETS COMPRISING THIS W.D.

SHEET 1

NOTES

RECEIVER DISTRIBUTOR
AND
PUNCH DRIVER
ASSEMBLY NO. 308502
(MODULE D)

APPROVALS

D AND R <i>HJR</i>	E OF M <i>[Signature]</i>
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E-NUMBER

PROD. NO. 7412 WD

DATE 6-1-67

R.D. FILE NO. 5-A148/134 AA

DRAWN PSD.	CHKD. <i>[Signature]</i>
ENGD. W.R.F.	APPD. <i>[Signature]</i>

TELETYPE CORPORATION

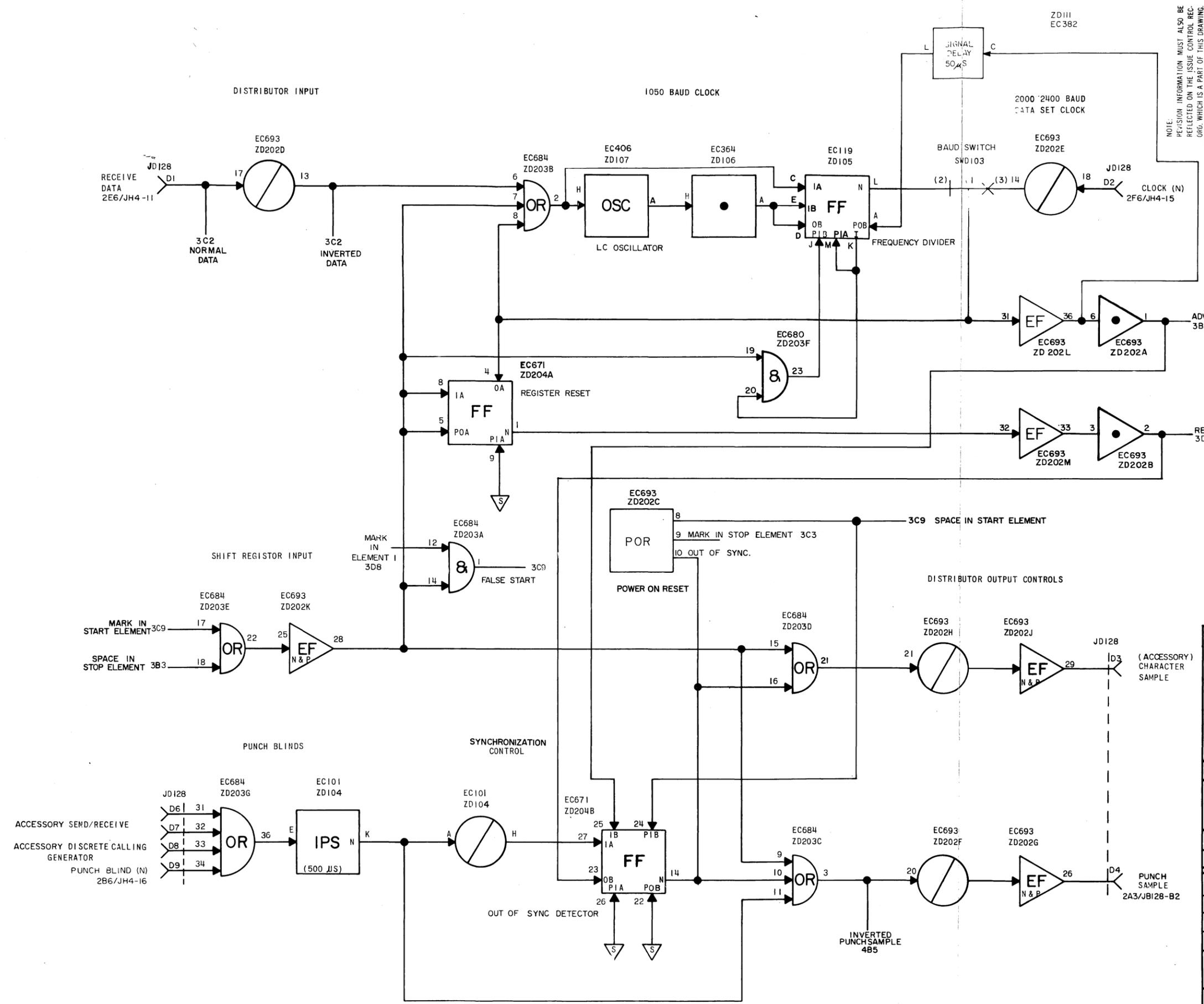
7412 WD

7412 WD

REVISIONS

ISSUE	DATE	AUTH. NO.
1	6-27-67	18364-R

NOTE: REVISION INFORMATION MUST ALSO BE REFLECTED ON THE ISSUE CONTROL RECORD WHICH IS A PART OF THIS DRAWING.



SEE ISSUE CONTROL RECORD FOR COMPLETE LIST OF SHEETS COMPRISING THIS W.D. SHEET 2

DISTRIBUTOR CONTROL

RECEIVER DISTRIBUTOR AND PUNCH DRIVE

ASSEMBLY NO. 308502 (MODULE D)

APPROVALS

D AND R	E OF M
<i>[Signature]</i>	<i>[Signature]</i>

E-NUMBER

PROD. NO. 7412WD

DATE 6/1/65

P.D. FILE NO. 5-A148-134AA

DRAWN E.A.R. CHKD. *[Signature]*

ENGD. W.R.F. APPD. *[Signature]*

TELETYPE CORPORATION

7412 WD

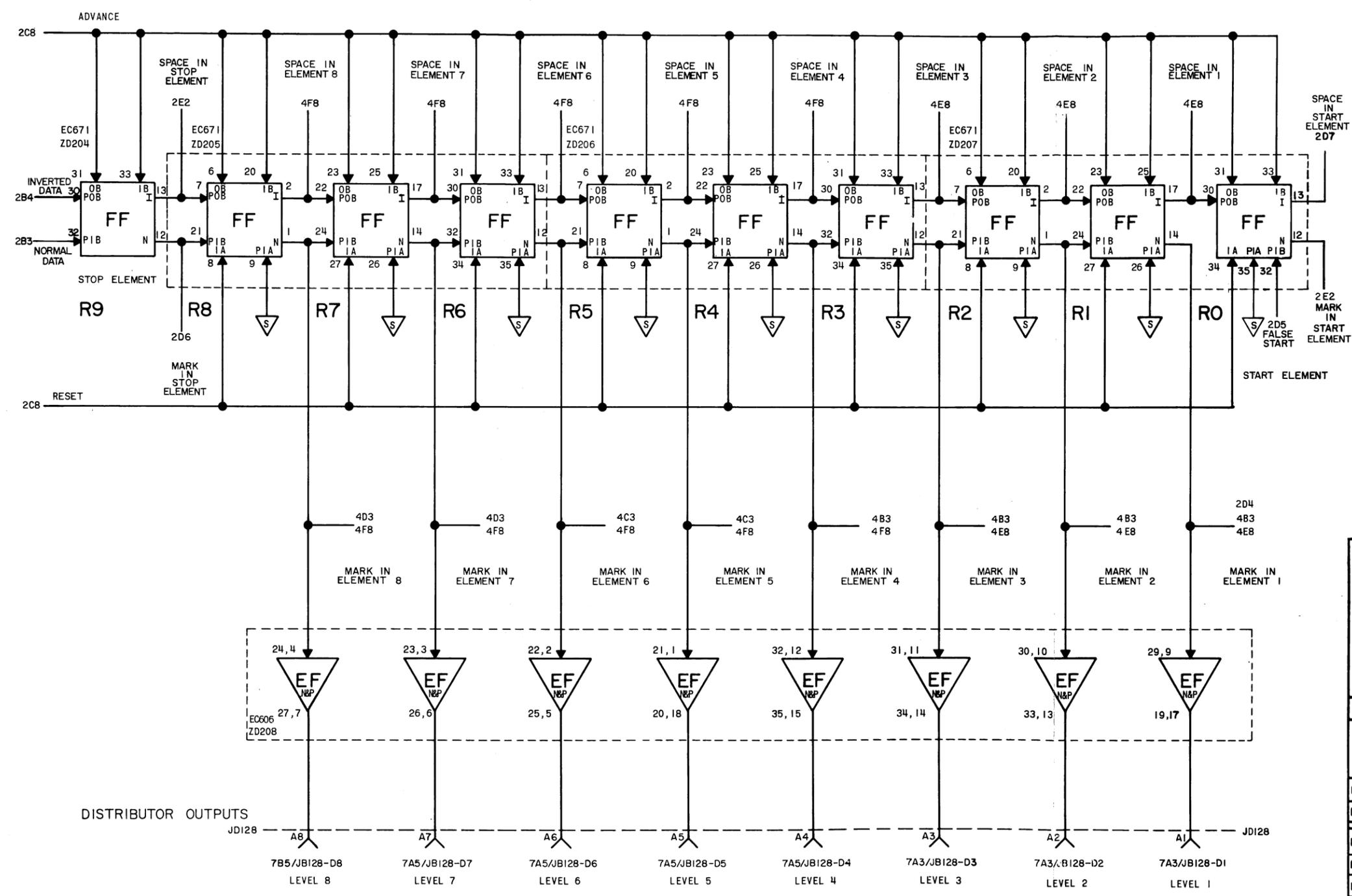
A
B
C
D
E
F

A
B
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D
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7412 WD

REVISIONS		
ISSUE	DATE	AUTH. NO.
1	6-27-67	18364-R

NOTE: REVISION INFORMATION MUST ALSO BE REFLECTED ON THE ISSUE CONTROL RECORD WHICH IS A PART OF THIS DRAWING.



SEE ISSUE CONTROL RECORD FOR COMPLETE LIST OF SHEETS COMPRISING THIS W.D.

SHEET 3

SHIFT REGISTER AND DISTRIBUTOR OUTPUTS RECEIVER DISTRIBUTOR AND PUNCH DRIVE ASSEMBLY NO. 308502 (MODULE D)

APPROVALS

D AND R	E OF M
<i>HAR</i>	<i>CR</i>

E-NUMBER

PROD. NO. 7412WD

DATE 6-1-65

R.D. FILE NO. 5-A148/134AA

DRAWN E.A.R.	CHKD. <i>[Signature]</i>
ENGD. W.R.F.	APPD. <i>[Signature]</i>

TELETYPE CORPORATION

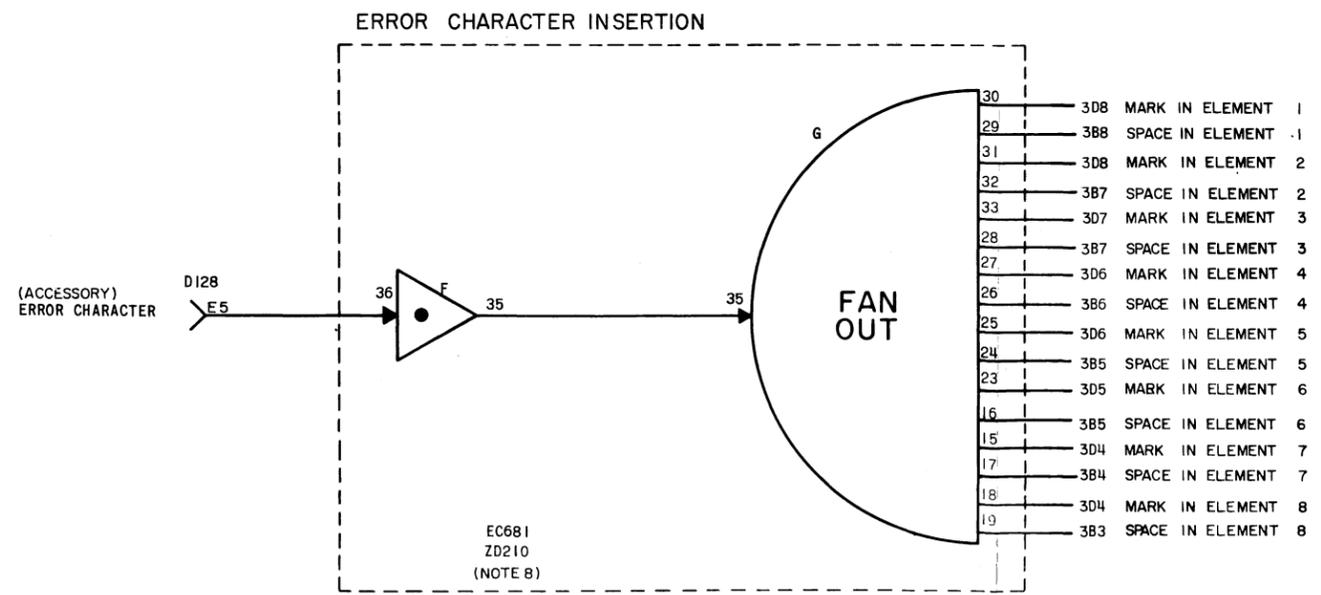
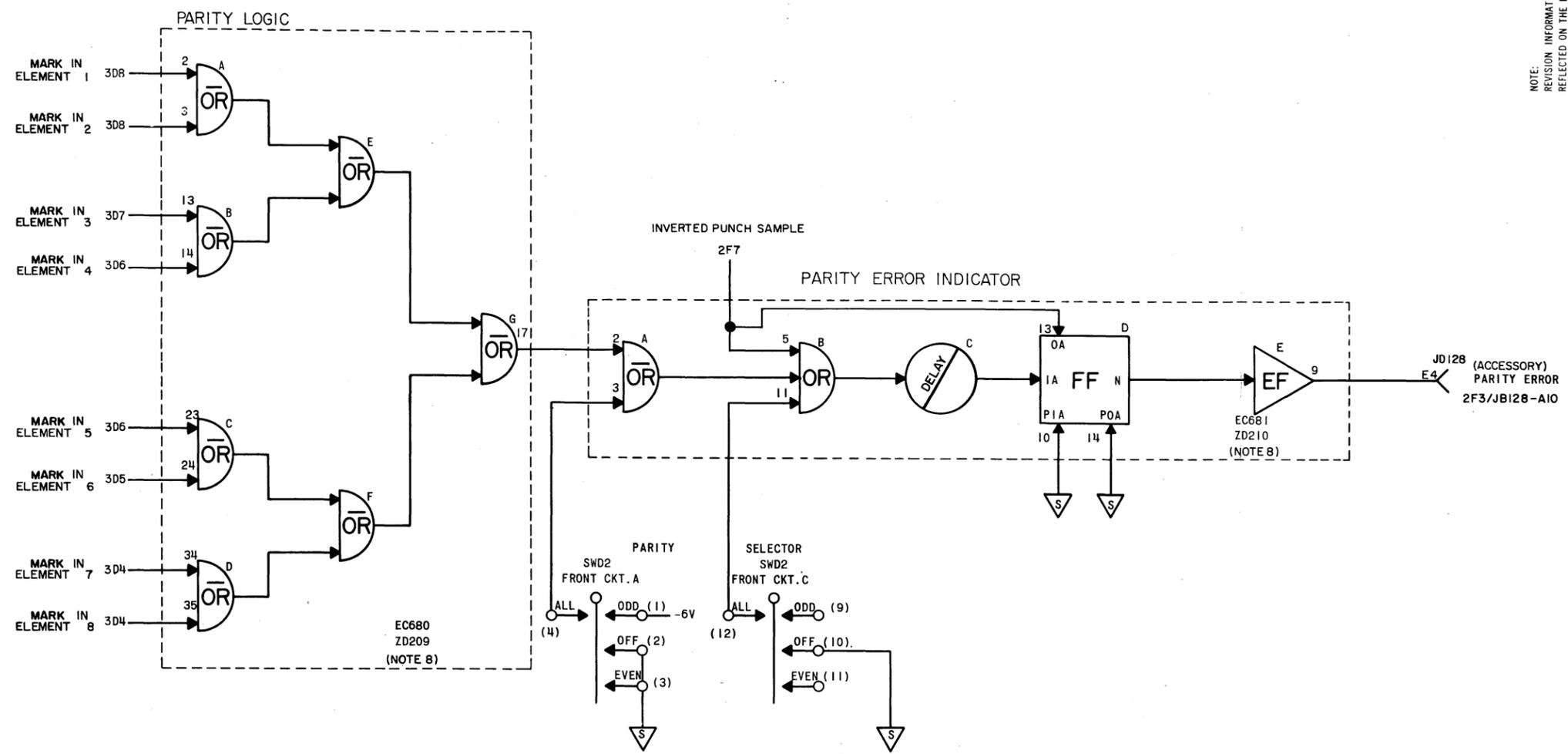
7412 WD

7412 WD

REVISIONS

ISSUE	DATE	AUTH. NO.
1	6-27-67	18364-R
2	11-14-67	94788-B

NOTE: REVISION INFORMATION MUST ALSO BE REFLECTED ON THE ISSUE CONTROL RECORD WHICH IS A PART OF THIS DRAWING.



SEE ISSUE CONTROL RECORD FOR COMPLETE LIST OF SHEETS COMPRISING THIS W.D.

SHEET 4

PARITY LOGIC
AND
ERROR CHARACTER INSERTION

RECEIVER DISTRIBUTOR
AND
PUNCH DRIVE
ASSEMBLY NO. 308502
(MODULE D)

APPROVALS

D AND R: *[Signature]* E OF M: *[Signature]*

E-NUMBER: _____
 PROD. NO. 7412WD
 DATE 6/1/65
 P.D. FILE NO. 5-148/134AA
 DRAWN E.A.R. CHKD. *[Signature]*
 ENGD. W.R.F. APPD. *[Signature]*

TELETYPE CORPORATION

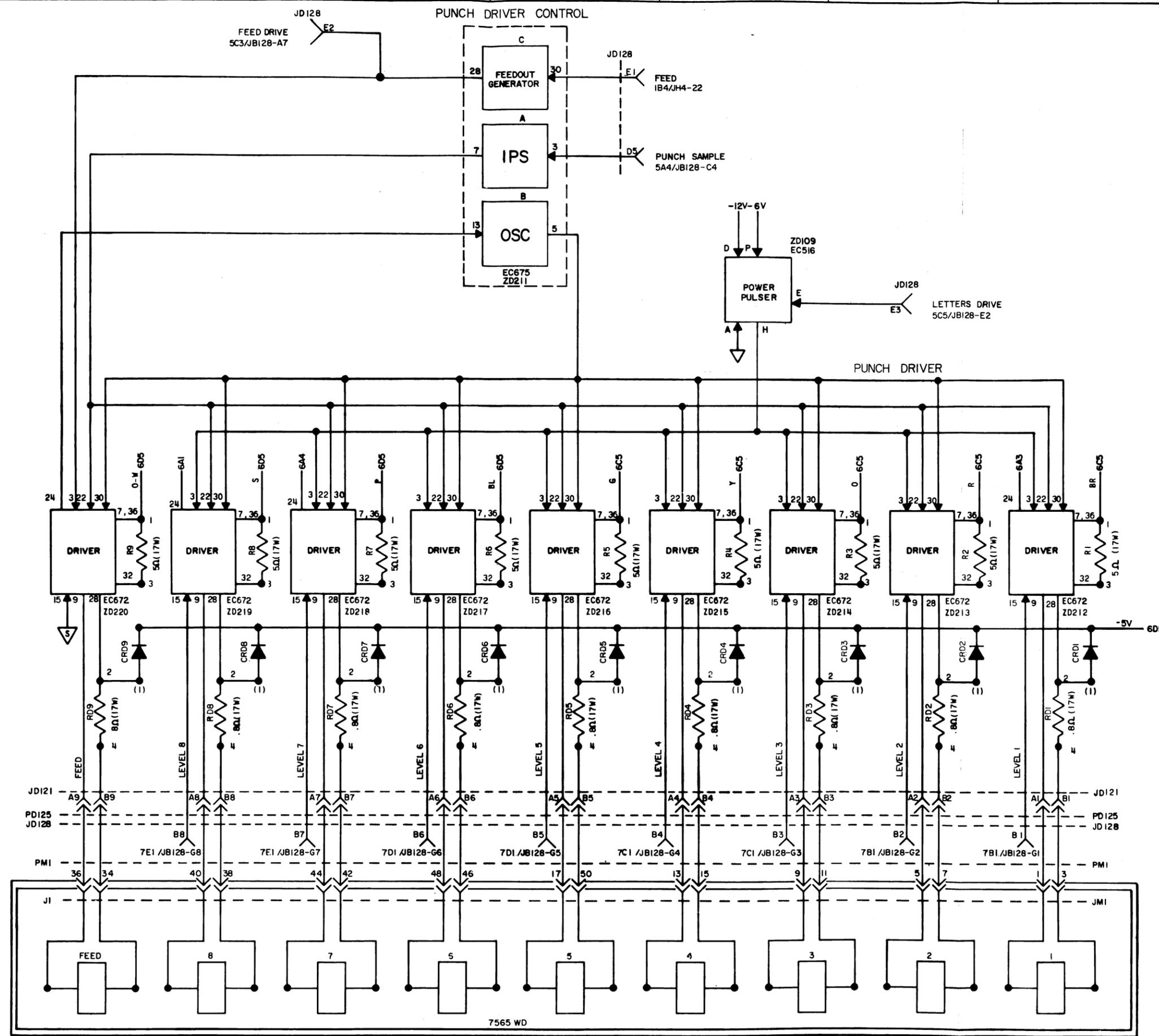
7412 WD

7412 WD

REVISIONS

ISSUE	DATE	AUTH. NO.
1	6-27-67	18364-R

NOTE: REVISION INFORMATION MUST ALSO BE REFLECTED ON THE ISSUE CONTROL RECORD WHICH IS A PART OF THIS DRAWING.



SEE ISSUE CONTROL RECORD FOR COMPLETE LIST OF SHEETS COMPRISING THIS W.D.

SHEET 5

DRPE DRIVERS
AND
PUNCH DRIVER CONTROL

RECEIVER DISTRIBUTOR
AND
PUNCH DRIVE
ASSEMBLY NO 308502
(MODULE D)

APPROVALS

D AND R	E OF M
<i>[Signature]</i>	<i>[Signature]</i>

E-NUMBER	
PROD. NO.	7412 WD
DATE	6-1-65
P.D. FILE NO.	5-A148/134AA
DRAWN PSD	CHKD. <i>[Signature]</i>
ENGD. WRF	APPD. <i>[Signature]</i>

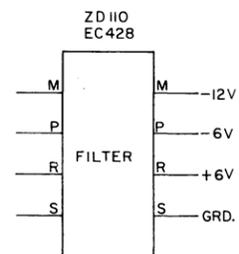
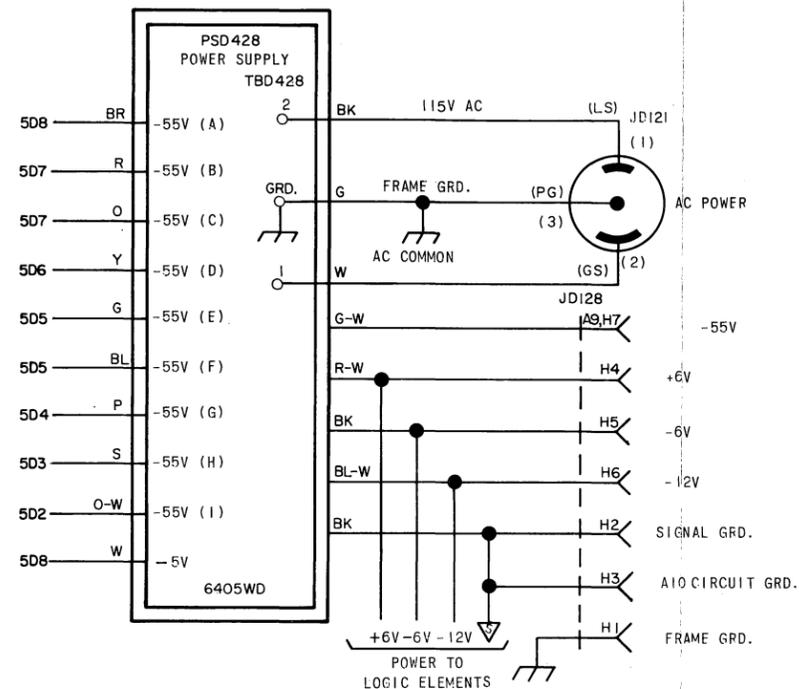
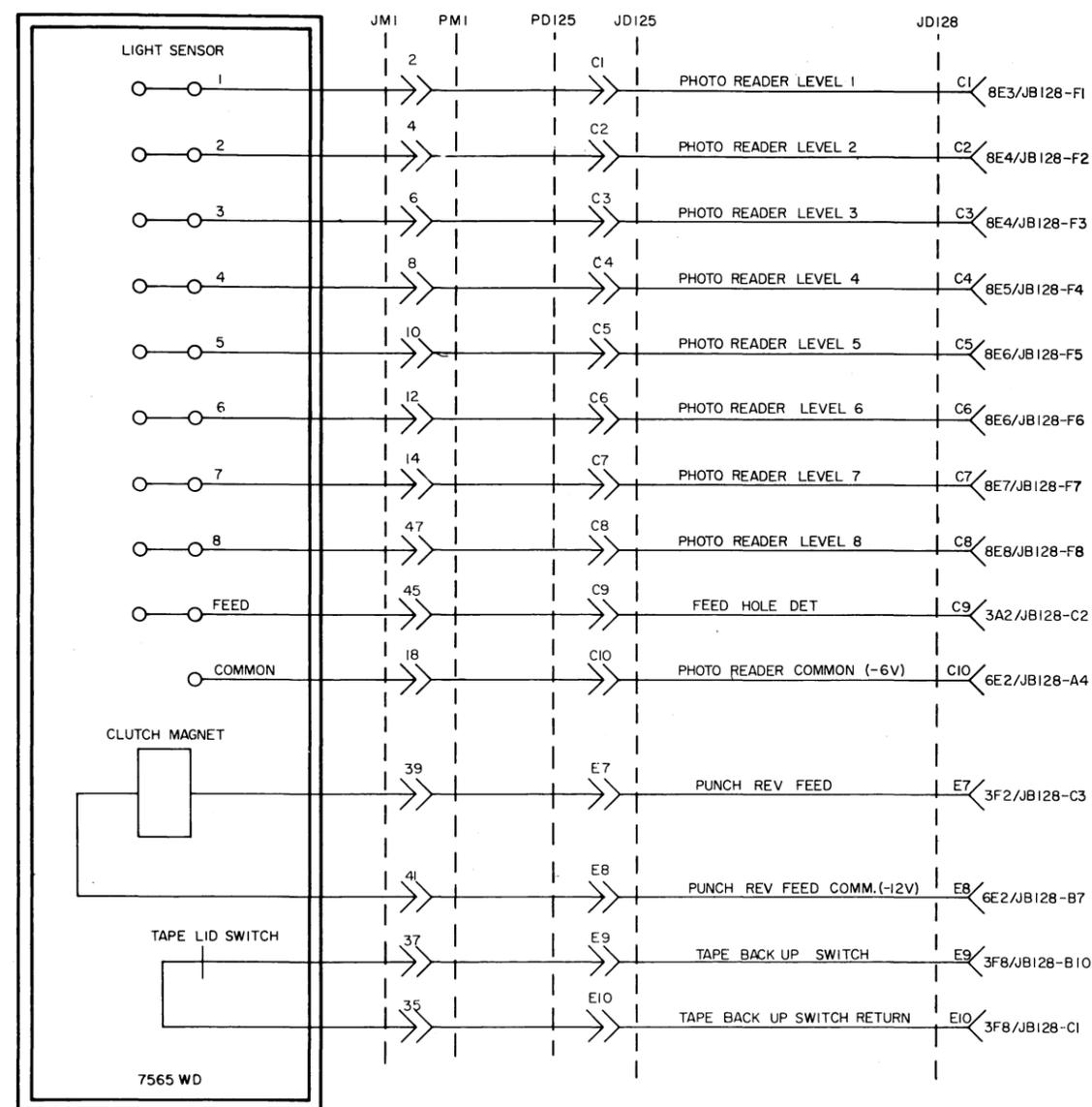
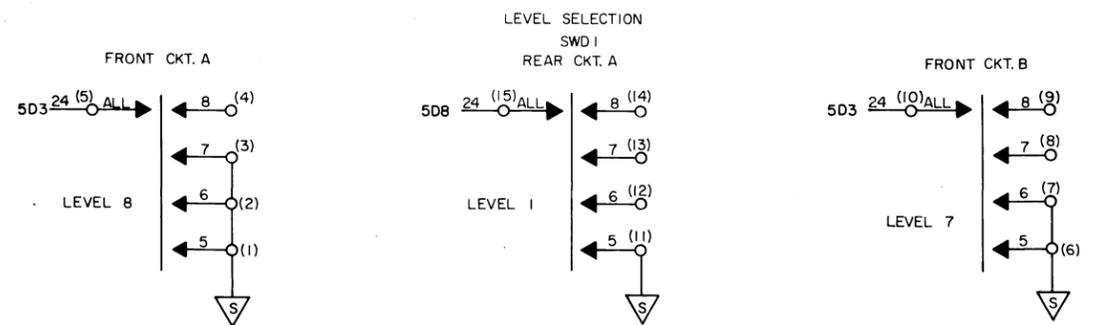
TELETYPE CORPORATION

7412 WD

REVISIONS

ISSUE	DATE	AUTH. NO.
1	6-27-67	18364-R

NOTE: REVISION INFORMATION MUST ALSO BE REFLECTED ON THE ISSUE CONTROL RECORD WHICH IS A PART OF THIS DRAWING.



SEE ISSUE CONTROL RECORD FOR COMPLETE LIST OF SHEETS COMPRISING THIS WD

SHEET 6

POWER TERMINATION AND DRPE INTERFACE

RECEIVER DISTRIBUTOR AND PUNCH DRIVE ASSEMBLY NO. 308502 (MODULE D)

APPROVALS

D AND R E OF M

E-NUMBER

PROD. NO. 7412WD

DATE 6 1 65

P.D. FILE NO. 5-A148/134AA

DRAWN P.S.D.

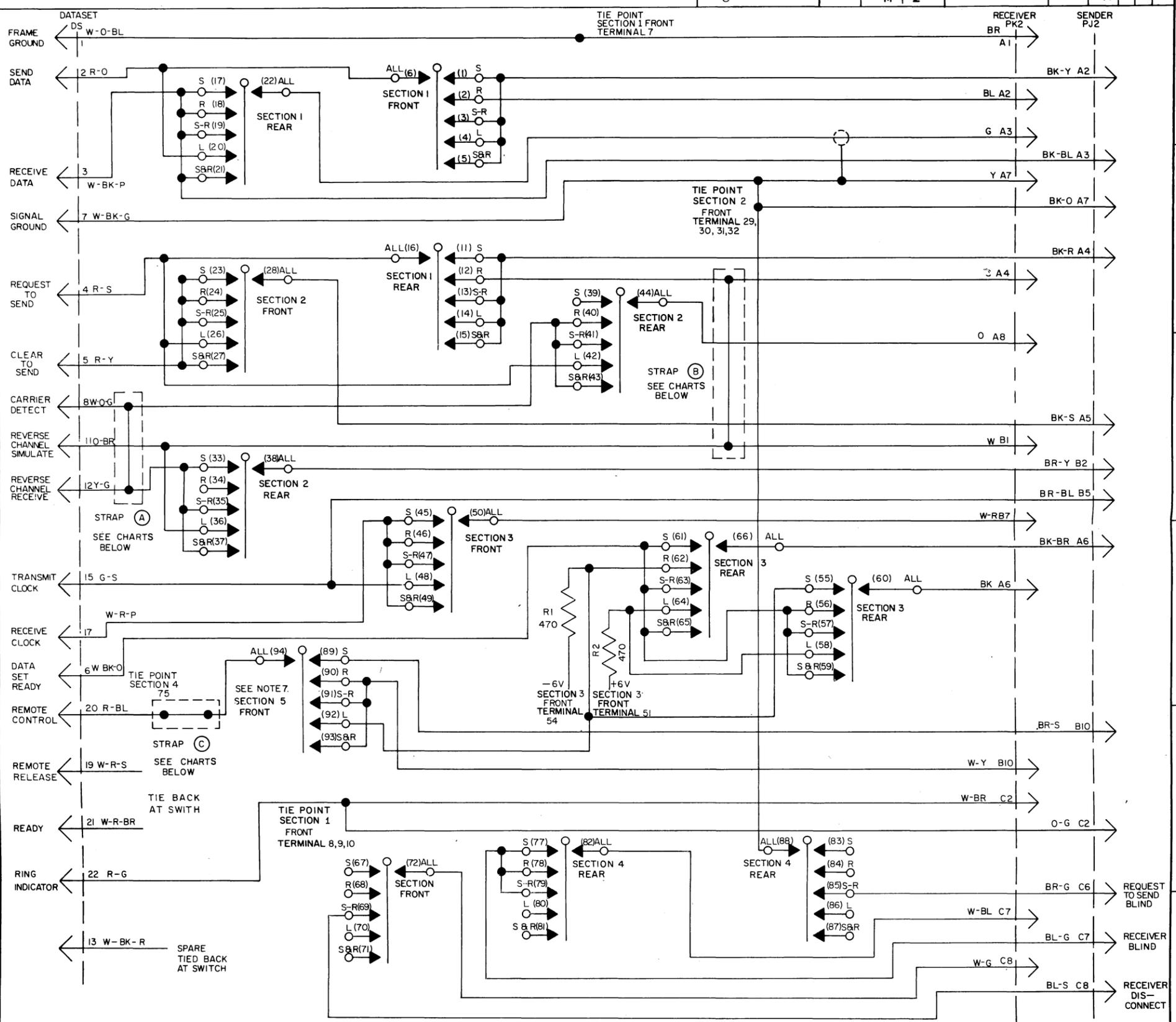
CHKD.

ENGD. WRF

APPD.

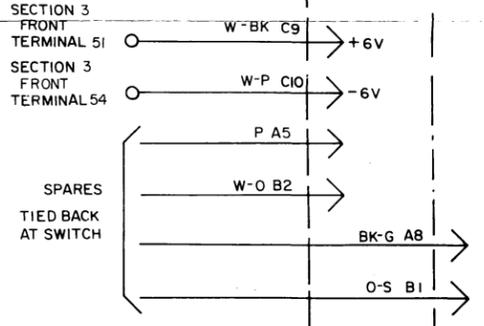
TELETYPE CORPORATION

- NOTES**
- REFER TO 30303 FOR ACTUAL WIRING.
 - ALL VOLTAGES DC.
 - ALL RESISTORS 1/2 WATT AND RESISTANCE VALUES IN OHMS.
 - INDICATE TERMINAL ON PLUG DS, PK2 AND RJ2
 - COLOR CODE:
 W - WHITE
 P - PURPLE
 O - ORANGE
 BL - BLUE
 BR - BROWN
 BK - BLACK
 S - SLATE
 R - RED
 G - GREEN
 Y - YELLOW
 - TERMINAL DESIGNATION ENCLOSED IN PARENTHESES REFER TO TERMINAL ON THE S-R SWITCH. THE TERMINAL DESIGNATIONS ARE FOR REFERENCE AND ARE NOT MARKED ON THE S-R SWITCH.
 - THIS SECTION REQUIRES SHORTING TYPE CONTACTS.
 - SWITCH POSITIONS:
 S - SEND ONLY
 R - RECEIVE ONLY
 S-R - SEND OR RECEIVE
 L - LOCAL (SEND & RECEIVE)
 S&R - SEND & RECEIVE (NOT USED)
 SWITCH POSITION S (SEND ONLY) AS VIEWED FROM FRONT OF SWITCH IN EXTREME COUNTER-CLOCKWISE POSITION.



DATASET	DESIGN
20IA3	(A) (B) (C)
202CIB 202C2B 202DIB 202D2B	(C)
20IAI 20IBI	(A) (B)

STRAP	TIE POINTS TERMINALS	COLOR
(A)	33 - 40	Y
(B)	52 - 12	G
(C)	94 - 75	O



SCHEMATIC
WIRING DIAGRAM
FOR
TELETYPE 1200
"Y" CABLE
ASSEMBLY

ASSEM. NO. _____

APPROVALS

D AND R _____ E OF M _____

E-NUMBER _____

PROD. NO. 7419 WD

DATE 3-29-67

P.D. FILE NO. _____

DRAWN T. R. _____ CHKD. _____

EMD. E.F.R. _____ APPD. _____

TELETYPE CORPORATION

7419 WD

7419 WD			
REVISIONS			
ISSUE	DATE	AUTH. NO.	
1	9-19-67	18818-R	
2	2-28-68	95381	

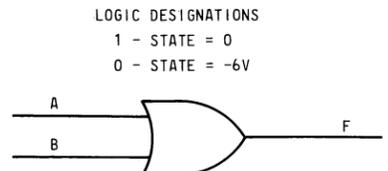
NOTE:
REVISION INFORMATION MUST ALSO BE
REFLECTED ON THE ISSUE CONTROL REC-
ORD, WHICH IS A PART OF THIS DRAWING.

7420 WD

REVISIONS

ISSUE	DATE	AUTH. NO.
1	8-14-68	18998-R

- | NO. | NOTES | | | | |
|-------------|--|-------------|--------------|---|--------|
| 1. | REFER TO 7422WD FOR ACTUAL WIRING DIAGRAM. | | | | |
| 2. | REF. SPECIFICATION FOR TELETYPE CORPORATION EMPLOYEES ONLY. | | | | |
| 3. | <p>→ INDICATES MALE TERMINAL ON CONNECTOR</p> <p>⤵ INDICATES FEMALE TERMINAL ON CONNECTOR</p> <p>○ DESIGNATES TERMINALS ON WIRE-WRAP FIELD ASSEMBLY AND TERMINAL BOARD.</p> <p>Ⓢ DESIGNATES SIGNAL GROUND</p> <p>ⓐ DESIGNATES CIRCUIT GROUND AND -55 VOLTS RETURN</p> <p>Ⓜ DESIGNATES FRAME GROUND</p> | | | | |
| 4. | TERMINAL DESIGNATIONS ARE FOR REFERENCE AND ARE NOT MARKED ON COMPONENTS. | | | | |
| 5. | ALL VOLTAGES DC, UNLESS OTHERWISE SPECIFIED. | | | | |
| 6. | ALL RESISTORS ARE 1/2 WATT AND IN OHMS UNLESS OTHERWISE SPECIFIED. | | | | |
| 7. | <table border="0"> <tr> <td>NETWORK NO.</td> <td>TELETYPE NO.</td> </tr> <tr> <td>1</td> <td>165027</td> </tr> </table>  | NETWORK NO. | TELETYPE NO. | 1 | 165027 |
| NETWORK NO. | TELETYPE NO. | | | | |
| 1 | 165027 | | | | |
| 8. | B1001, C1001 AND TB1001 ARE ASSOCIATED WITH PART NUMBER 199570, 7029WD AND 7030WD. | | | | |
| 9. | REF. WIRING DIAGRAMS:
RECEIVER STATION CONTROL MODULE 7406WD
RECEIVER DISTRIBUTOR MODULE 7412WD
RECEIVER WIRING FIELD 7072WD | | | | |
| 10. | PART OF THE 308559 CABLE ASSEMBLY. | | | | |



A	B	F
0	0	0
1	0	1
0	1	1
1	1	1

NOTE: THE SAME PRINCIPLE APPLIES TO "4" INPUT "OR" GATES

SEE ISSUE CONTROL RECORD FOR COMPLETE LIST OF SHEETS COMPRISING THIS W.D.

SHEET 1

SCHMATIC
WIRING DIAGRAM
FOR
DISCRETE CALLING GENERATOR
TYPE 4 DATASPEED
RECEIVER
ASSEMBLY NO. 308512 (MODULE V)

APPROVALS

D AND R <i>APK</i>	E OF M <i>LM</i>
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E-NUMBER
PROD. NO. 7420WD
DATE 6/24/68
P.D. FILE NO. 2 96.134.184A
DRAWN CJR/RS CHKD.
ENGD. EFR APPD.

TELETYPE CORPORATION

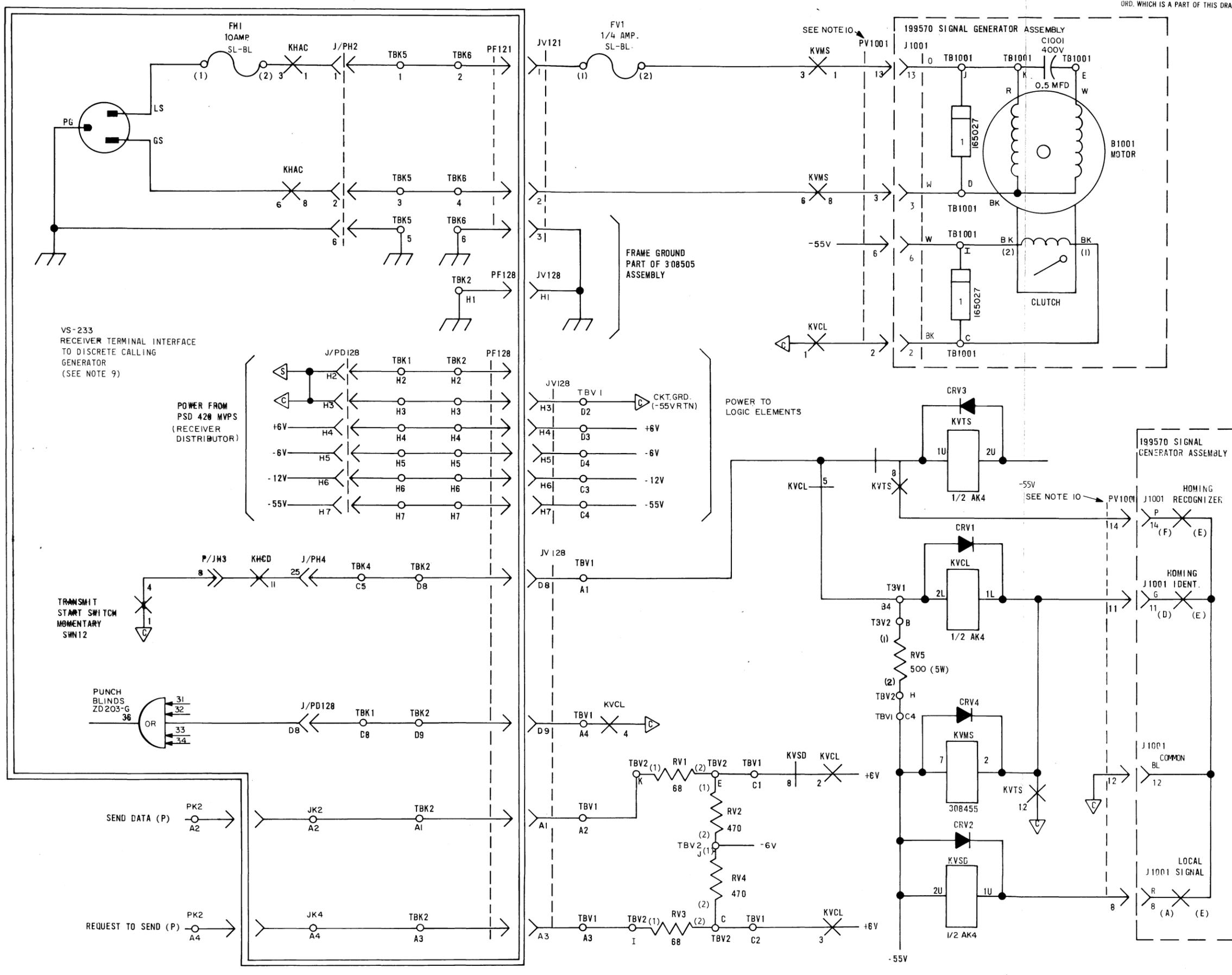
7420 WD

7420 WD

REVISIONS

ISSUE	DATE	AUTH. NO.
1	8-14-68	18998-R
2	4-14-69	99119

NOTE: REVISION INFORMATION MUST ALSO BE REFLECTED ON THE ISSUE CONTROL RECORD, WHICH IS A PART OF THIS DRAWING.



VS-233 RECEIVER TERMINAL INTERFACE TO DISCRETE CALLING GENERATOR (SEE NOTE 9)

POWER FROM PSD 420 MVPS (RECEIVER DISTRIBUTOR)

TRANSMIT START SWITCH MOMENTARY SWN12

PUNCH BLINDS ZD203-G

SEND DATA (P)

REQUEST TO SEND (P)

CKT. GRD. (-55V RTN)

POWER TO LOGIC ELEMENTS

199570 SIGNAL GENERATOR ASSEMBLY

HOMING RECOGNIZER

HOMING IDENT.

SEE NAME CONTROL RECORD FOR COMPLETE LIST OF SHEETS COMPRISING THIS WD SHEET 2

SCHEMATIC DIAGRAM DISCRETE CALLING GENERATOR TYPE 4 DATASPEED RECEIVER

ASSEMBLY NO. 308512 (MODULE V)

APPROVALS

D AND R	E OF M
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E-NUMBER

PROD. NO. 7420 WD

DATE 8-7-67

P.D. FILE NO. 2-96.134.184A

DRAWN CJR

CHKD. JFR

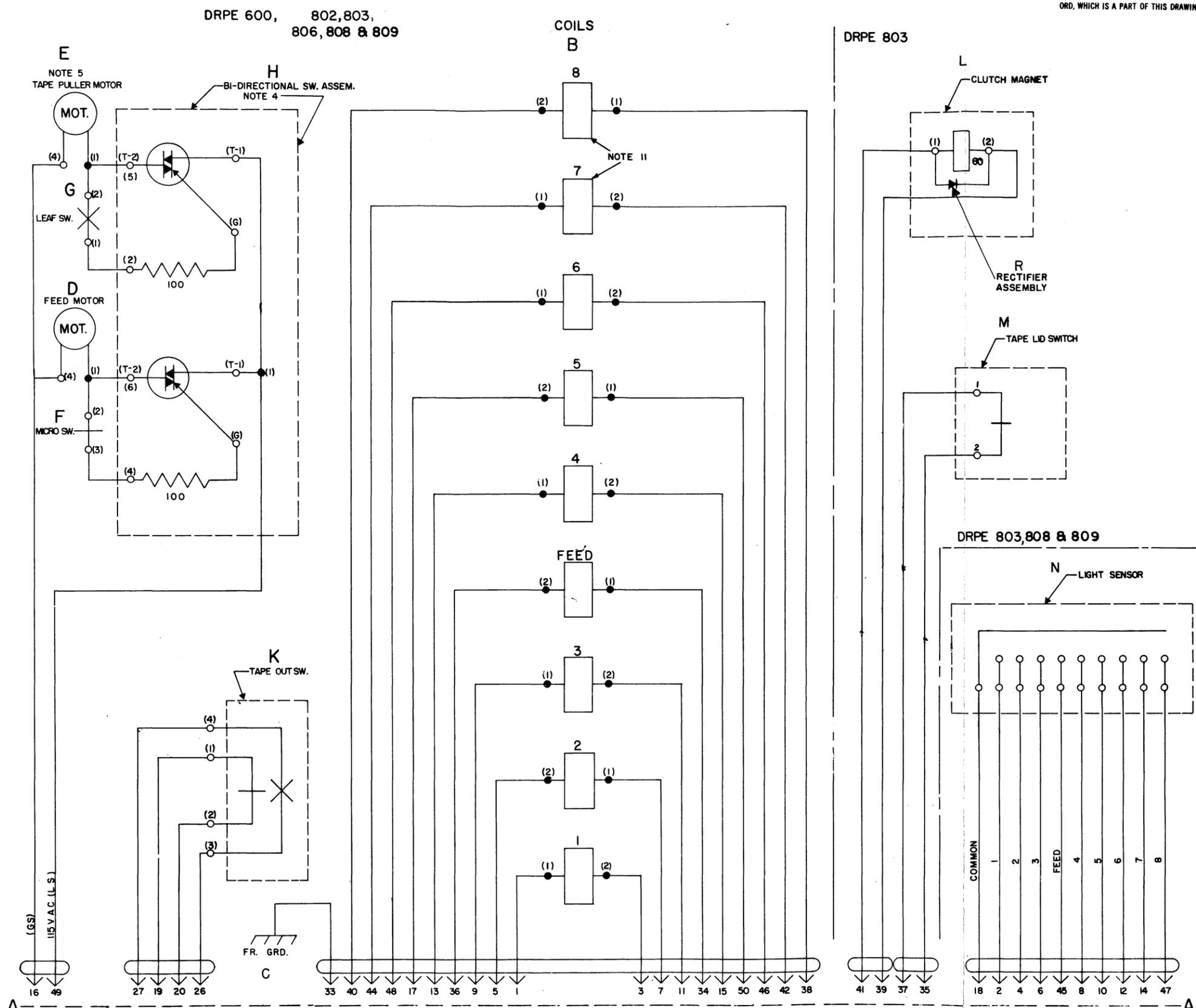
ENGD. EFR

APPD. JGU

TELETYPE CORPORATION

7420 WD

- NO. NOTES
- REFER TO 7558WD FOR ACTUAL WIRING DIAGRAM.
 - FOR TELETYPE PERSONNEL REFERENCE: SPECIFICATION
 - DRPE 800 HAS 273 M COIL 5 Ω RESISTANCE. DRPE 600, 802, 803, 806, 808 & 809 HAVE 283M COILS 1/2 Ω RESISTANCE.
 - REFER TO 7557WD FOR 147609 BI-DIRECTIONAL SWITCH ASSEMBLY.
 - DRPE 806 & 808 (50 CPS.) USES MOTORS 147615 (FEED) & 147616 (TAPE PULLER). ALL OTHER DRPE'S (60 CPS.) USE MOTORS 177869 (FEED) & 177870 (TAPE PULLER).
 - INDICATES MALE TERMINAL ON RECEPTACLE.
 - ALL RESISTORS 1/2 WATT AND RESISTANCE VALUES IN OHMS, UNLESS OTHERWISE SPECIFIED.
 - ALL VOLTAGES DC UNLESS OTHERWISE SPECIFIED.
 - TERMINAL DESIGNATIONS ENCLOSED IN PARENTHESES ARE FOR REFERENCE AND ARE NOT MARKED ON COMPONENT.
 - ASSOCIATED CABLE ASSEMBLY:
147607-(TAPE PULLER MOTOR)
147594-(TAPE OUT SWITCH-174570)
147606-(283 M COILS)
302863-(308M CLUTCH MAGNET COIL)
302450-(LIGHT SENSOR-302943)
 - DRPE COILS 7 & 8 ARE NOT ON DRPE 600



7565 WD

REVISIONS		
ISSUE	DATE	AUTH. NO.
1	12-7-65	17418-R
2	5-13-66	90793
3	6-30-66	90900
4	1-5-67	92546
5	2-13-67	93120
6	4-10-67	93135
7	7-31-68	96064

SEE ISSUE CONTROL RECORD FOR COMPLETE LIST OF SHEETS COMPRISING THIS W.D.

SHEET 1

SCHEMATIC WIRING DIAGRAM FOR DRPE 600, 800, 802, 803, 806, 808 & 809

APPROVALS

D AND R <i>HAK</i>	E OF M <i>[Signature]</i>
-----------------------	------------------------------

E-NUMBER
PROD. NO. 7565 WD

DATE 3-29-65

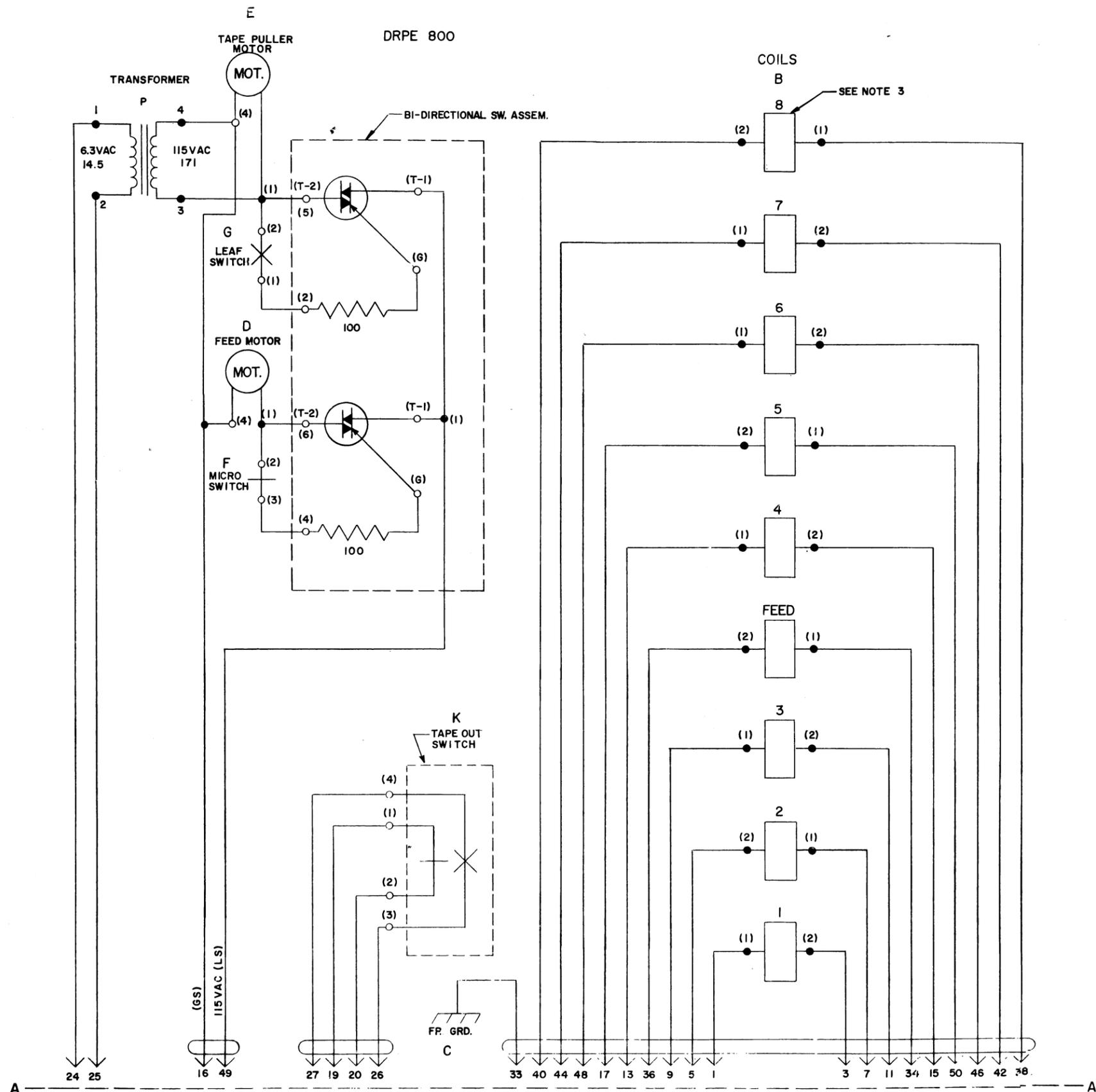
P.D. FILE NO. 2-35.136AA

DRAWN R.S. *[Signature]* **CHKD.** *[Signature]*

ENGD. K.R. *[Signature]* **APPD.** *[Signature]*

TELETYPE CORPORATION

7565 WD



NOTE:
REVISION INFORMATION MUST ALSO
BE REFLECTED ON THE ISSUE
CONTROL RECORD, WHICH IS PART
OF THIS W.D.

7565 WD

REVISIONS		
ISSUE	DATE	AUTH. NO.
2	6-30-66	90900

SEE ISSUE CONTROL RECORD FOR
COMPLETE LIST OF SHEETS
COMPRISING THIS W.D.
SHEET 2

SCHEMATIC
WIRING DIAGRAM
FOR
DRPE 800

APPROVALS	
D AND R	E OF M
E-NUMBER	
PROD. NO. 7565 WD	
DATE 6-1-66	
P.D. FILE NO. 2-35.136 AA	
DRAWN N.A.R.	CHKD.
ENGD. R.E.P.	APPD.

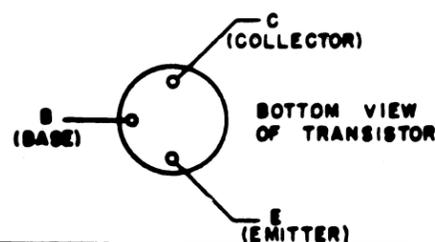
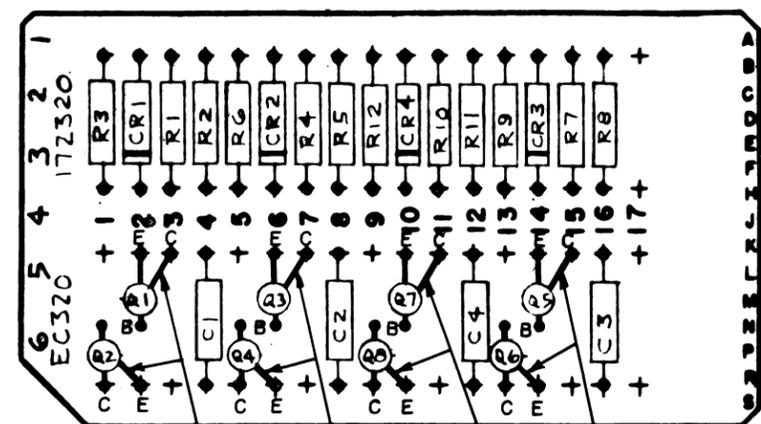
TELETYPE
CORPORATION

EC 320

TRUNCATED-N
DISTRIBUTOR

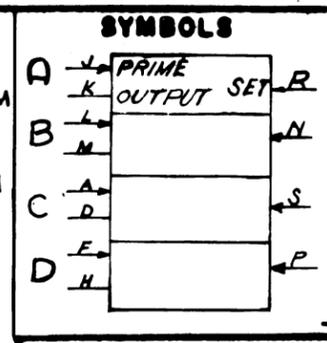
CIRCUIT BOARD EC 320

172320

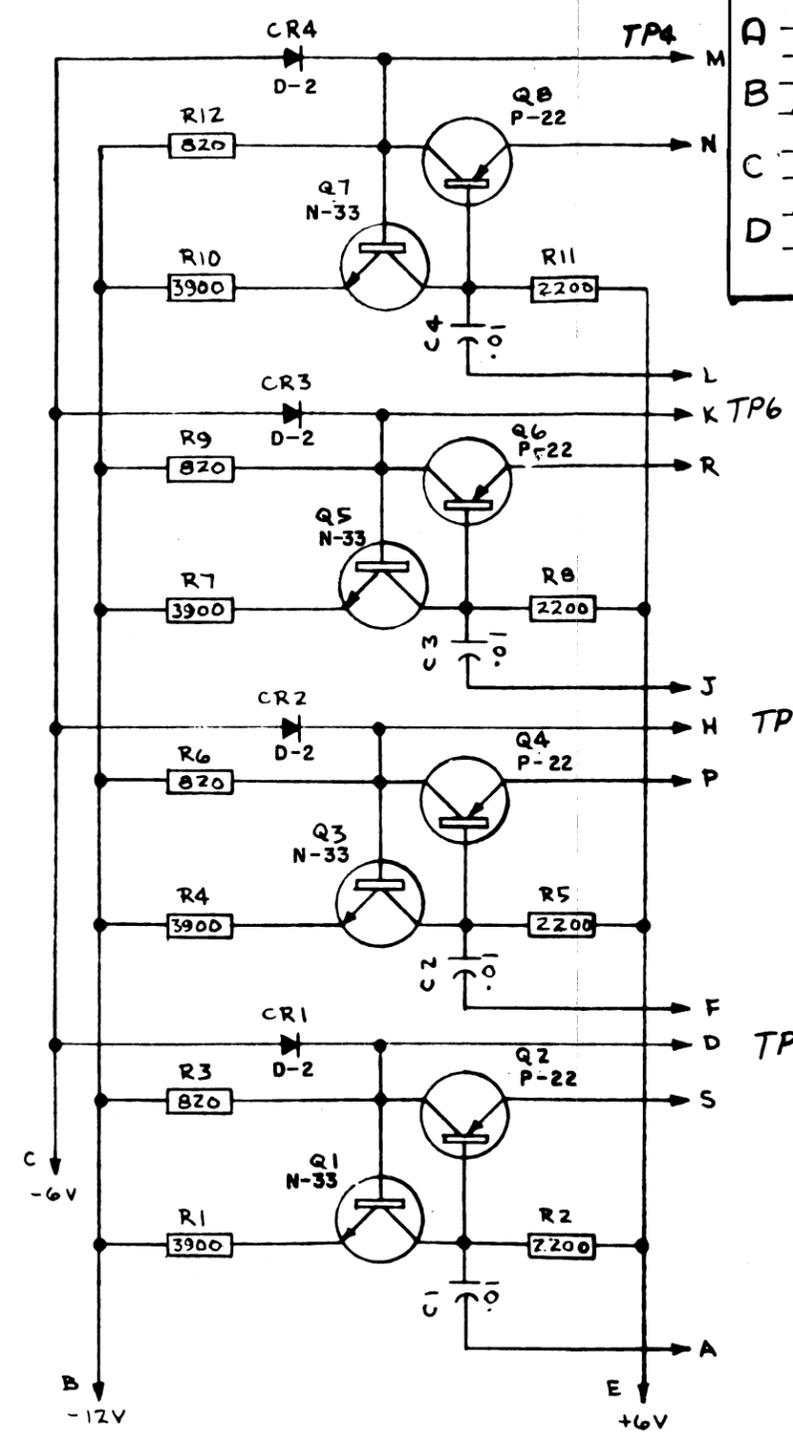


NOTE:
REFER TO 5016 FOR MARKING INFORMATION

REF. DESIGN.	TELETYPE PART NO.	TOTAL QTY.	NAME AND DESCRIPTION	LOCATING FUNCTION
C1	181618	4	Capacitor, TUBULAR .01 MF	Priming
C2			Same as C1	"
C3			Same as C1	"
C4			Same as C1	"
		24	INSULATED SLEEVING	
CR1	177108	4	Diode D-2	Clamp
CR2			Same as CR1	"
CR3			Same as CR1	"
CR4			Same as CR1	"
R1	113667	4	Resistor, Fixed 3900 Ohms	Emitter Load
R2	129852	4	" " 2200 Ohms	Collector Load
R3	137139	4	" " 820 Ohms	"
R4			Same as R1	Emitter Load
R5			Same as R2	Collector Load
R6			Same as R3	"
R7			Same as R1	Emitter Load
R8			Same as R2	Collector Load
R9			Same as R3	"
R10			Same as R1	Emitter Load
R11			Same as R2	Collector Load
R12			Same as R3	"
	144495	8	PAD, TRANSISTOR	
Q1	177106	4	Transistor N-33	Dxtr Element
Q2	177105	4	Transistor P-22	"
Q3			Same as Q1	"
Q4			Same as Q2	"
Q5			Same as Q1	"
Q6			Same as Q2	"
Q7			Same as Q1	"
Q8			Same as Q2	"
EC	172014	1	Circuit Card, Etched	



DATE	DATE	AUTH. NO.
1	8-26-53	HS-1116
2	7-1-54	HS-1119
3	11-16-54	HS-1121
4	11-16-54	HS-1121
5	8-22-57	HS-1121
6	5-28-61	69892
7	5-28-61	69892
8	1-4-62	72075
9	5-13-63	76845
10	1-15-64	79992
11	9-3-64	83680
12	5-27-66	91127
13	2-6-68	97266



NOTE:
CARD CONNECTIONS ARE REPRESENTED BY LETTERS
TEST POINTS ARE REPRESENTED BY NUMBERS

APPROVALS

DESIGNED BY: [Signature]

PROG. NO. 172320

DATE: 4-23-57

P.S. FILE NO. 70-A97/25AA

DRAWN BY: [Signature]

ENGR. AV. APPR. [Signature]

TELETYPE CORPORATION

172320

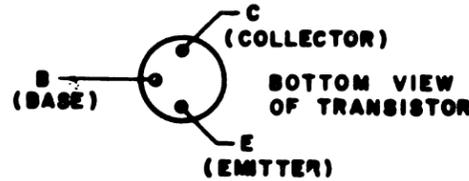
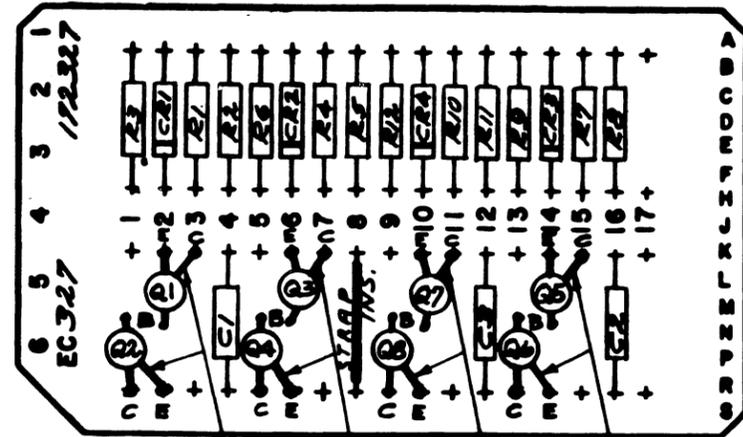
EC 327

172327

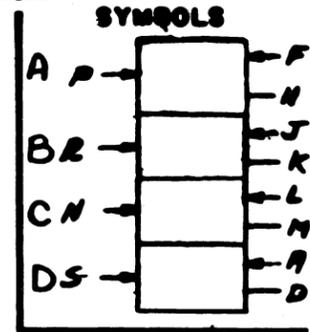
TRUNCATED-N DISTRIBUTOR
WITH RESET STOP ELEMENT

CIRCUIT BOARD EC 327

172327

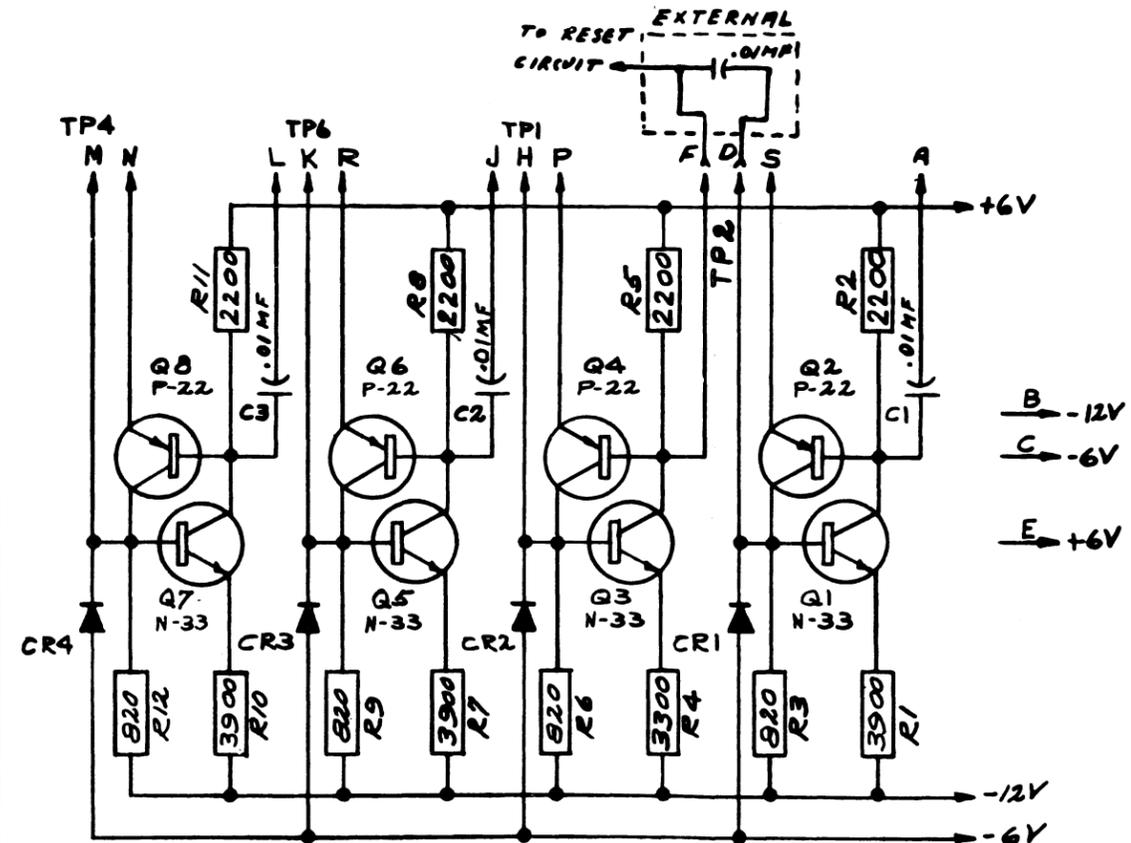


NOTE:
REFER TO 506WD FOR MARKING
INFORMATION



REVISIONS		
REV.	DATE	AUTH. NO.
2	12-26-61	75428
3	2-15-63	76006
4	4-23-63	76667
5	8-3-64	83880
6	8-27-66	91127
7	2-6-68	97266

REF. DESIGN.	TELETYPE PART NO.	TOTAL QTY	NAME AND DESCRIPTION	LOCATING	FUNCTION
C 1	181618	3	CAPACITOR, TUBULAR .01 MF	PRIMING	
C 2			SAME AS C1	"	
C 3			SAME AS C1	"	
		24	INSULATED SLEEVING		
CR1	177108	4	DIODE D2	CLAMP	
CR2			SAME AS CR1	"	
CR3			" " "	"	
CR4			" " "	"	
R1	143667	3	RESISTOR FIXED, 3900 OHMS	EMITTER LOAD	
R2	129852	4	" " " 2200 OHMS	COLLECTOR LOAD	
R3	137439	4	" " " 820 "	"	
R4	129851	1	" " " 3300 "	EMITTER LOAD	
R5			SAME AS R2	COLLECTOR LOAD	
R6			SAME AS R3	"	
R7			SAME AS R1	EMITTER LOAD	
R8			SAME AS R2	COLLECTOR LOAD	
R9			SAME AS R3	"	
R10			SAME AS R1	EMITTER LOAD	
R11			SAME AS R2	COLLECTOR LOAD	
R12			SAME AS R3	"	
	144138	31	EYELETS		
Q1	177106	4	TRANSISTOR N-33	DXTR ELEMENT	
Q2	177105	4	TRANSISTOR P-22	"	
Q3			SAME AS Q1	"	
Q4			SAME AS Q2	"	
Q5			SAME AS Q1	"	
Q6			SAME AS Q2	"	
Q7			SAME AS Q1	"	
Q8			SAME AS Q2	"	
EC	172074	1	CIRCUIT CARD, ETCHED		
			STRAP, 24AWG INSULATED WITH SLEEVE		
	144495	8	PAD, TRANSISTOR		



ALL DIODES D-2
ALL CAPACITORS .01 MF

NOTE:
CARD CONNECTIONS ARE REPRESENTED BY LETTERS
TEST POINTS ARE REPRESENTED BY NUMBERS.

APPROVALS	
R AND D	E OF M
<i>[Signature]</i>	<i>[Signature]</i>
E-NUMBER	
PART NO. 172327	
DATE 5-5-62	
FILE NO. I-A148/134-53A	
DRAWN. <i>[Signature]</i>	CHKD. <i>[Signature]</i>
ENGD. <i>[Signature]</i>	APPD. <i>[Signature]</i>
TELETYPE CORPORATION	
172327	

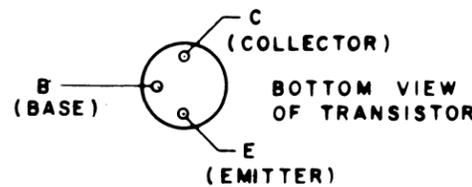
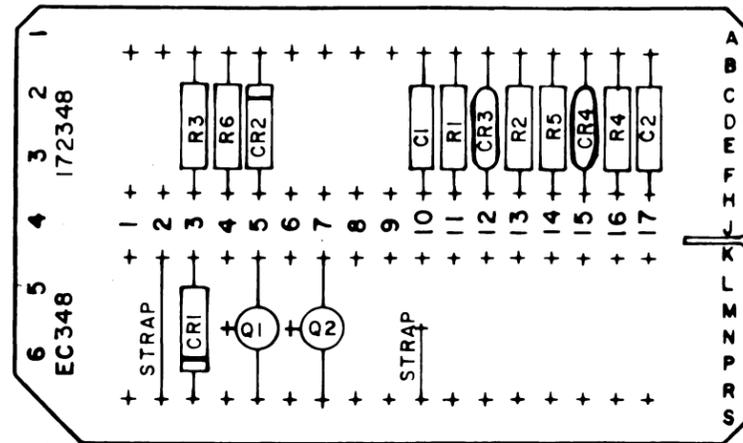
EC 348

172348

PULSE INHIBIT (2)

CIRCUIT BOARD EC348

172348



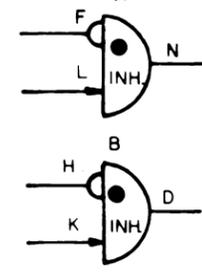
NOTE:
REFER TO 5016WD FOR MARKING INFORMATION

THIS CARD CONTAINS TWO IDENTICAL COMMON EMITTER AMPLIFIER CIRCUITS USED TO GENERATE A NARROW PULSE HAVING A RAPID RISE TIME IN RESPONSE TO A NEGATIVE TRANSITION AT THE BASE INPUT PROVIDED THE EMITTER GATING INPUT IS ENABLED.

WITH A -6 VOLTS BIAS ON THE EMITTER INPUT, PIN L, TRANSISTOR Q1 WILL NOT RESPOND TO ANY TYPE OF SIGNAL AT THE BASE INPUT. PIN F, WHEN 0 VOLTS IS APPLIED TO THE EMITTER INPUT, PIN L, THE CIRCUIT IS ENABLED AND A NEGATIVE GOING 6 VOLT TRANSITION AT PIN F WILL SATURATE THE TRANSISTOR FOR APPROXIMATELY 10 MICROSECONDS. THE AMPLITUDE OF THE NEGATIVE GOING TRANSITION AT F MUST BE GREATER THAN 4 VOLTS AND THE FALL TIME OF THE TRANSITION MUST BE LESS THAN 2 MICROSECONDS.

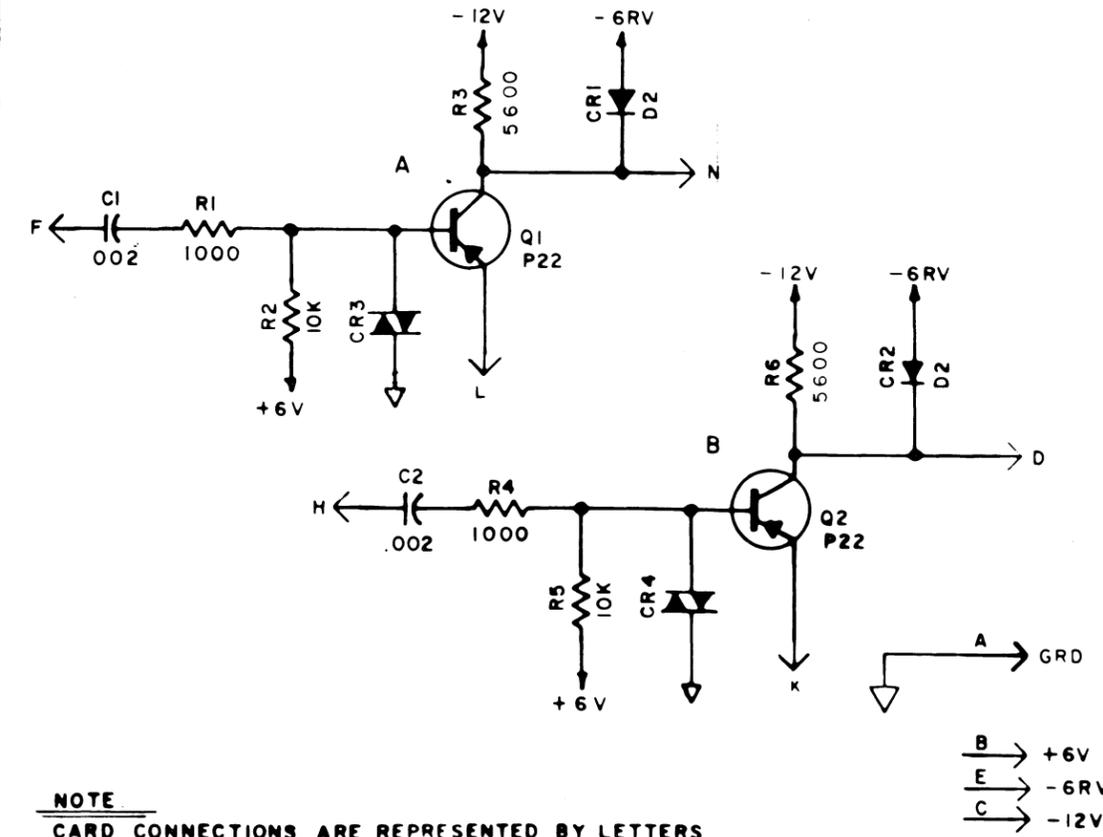
THE COLLECTOR OUTPUT, PIN N, IS NORMALLY CLAMPED TO -6 VOLTS. DURING THE TIME Q1 IS SATURATED, THE COLLECTOR POTENTIAL WILL SWITCH TO 0 VOLTS. THE RESULTING 6 VOLT POSITIVE GOING PULSE WILL BE APPROXIMATELY 10 MICROSECONDS LONG WITH A RISE TIME OF LESS THAN 2 MICROSECONDS.
THE THEORY OF OPERATION OF Q2 IS IDENTICAL TO Q1.

SYMBOLS



ISSUE	DATE	AUTH NO
1	7-7-65	16802-R

REF. DESIGN	TELETYPE PART NO.	TOTAL QTY.	NAME AND DESCRIPTION	LOCATING FUNCTION
C1	143688	2	Capacitor Ceramic, .002 mfd	Coupling
C2			Same as C1	"
CR1	177108	2	Diode D2	Clamp
CR2			Same as CR1	"
CR3	178844	2	Varistor 100A	Bias
CR4			Same as CR3	"
R1	137440	2	Resistor Fixed 1000ohms	Bias
R4			Same as R1	"
R2	118180	2	Resistor Fixed 10K ohm	"
R5			Same as R2	"
R3	118186	2	Resistor Fixed 5600 ohms	Collector Lead
R6			Same as R3	"
Q1	177105	2	Transistor P22	Amplifier
Q2			Same as Q1	"
EC	300001	1	Circuit Card Etched	
		2	Strap 24 AWG Bare	
	144495	2	Pad Transistor	



NOTE:
CARD CONNECTIONS ARE REPRESENTED BY LETTERS
TEST POINTS ARE REPRESENTED BY NUMBERS

APPROVALS

D AND R E OF M

E NUMBER

PROD NO 172348

DATE 3-19-65

PD FILE NO 2-96.134 184A

DRAWN GJM CHRD

ENGD IS K APPD

TELETYPE CORPORATION

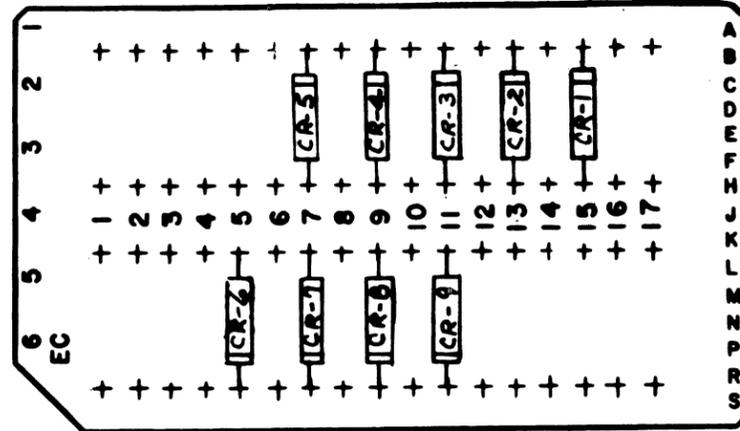
172348

EC 352

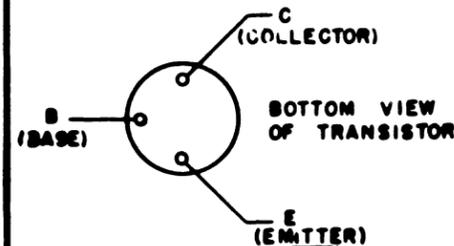
172352

CIRCUIT BOARD EC352

172352



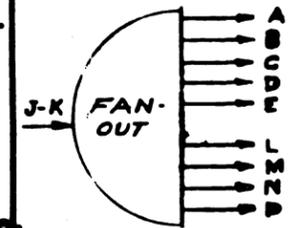
172070



NOTE
REFER TO 5016WD FOR MARKING INFORMATION.

REF. DESIGN.	TELETYPE PART NO.	TOTAL QTY	NAME AND DESCRIPTION	LOCATING FUNCTION
CR1	177108	9	DIODE D-2	GATE
CR2			SAME AS CR1	"
CR3			" " "	"
CR4			" " "	"
CR5			" " "	"
CR6			" " "	"
CR7			" " "	"
CR8			" " "	"
CR9			" " "	"
EC	172070		CIRCUIT CARD, ETCHED	

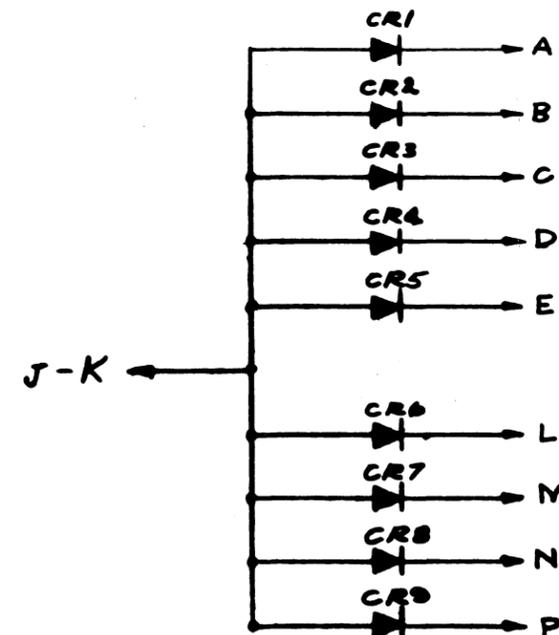
SYMBOLS



This circuit designated as fan-out is, in a sense, an "OR" gate without a biasing resistor.

The gate is used in this manner. When 0 or more positive voltage, i.e. +1.5 volts, is applied to terminal J and K the output terminals A, B, C, D, E, L, M, N and P will all go to +1.5 volts. When the switch is open the outputs A, B, C, etc. are floating unless J-K is clamped by an external source.

The circuit is used to apply reset pulse or signal to a number of circuits, the diodes provide isolation between these circuits.



ALL DIODES ARE D-2

NOTE:
CARD CONNECTIONS ARE REPRESENTED BY LETTERS
TEST POINTS ARE REPRESENTED BY NUMBERS.

REVISIONS

ISSUE	DATE	AUTH. NO.
2	10-16-61	59392-3
3	11-14-64	71604

APPROVALS

R and D E or M
[Signature] *[Signature]*

FIG. NO. 172352

DATE 10-MAR.-60
 FILE NO. 1-122,134AA
 DRAWN. S.W. CHD.
 ENGR. E.H.R. APPD.

TELETYPE CORPORATION

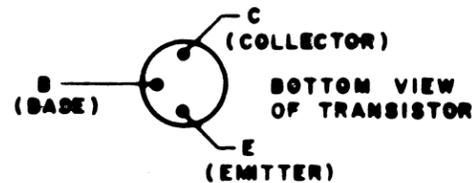
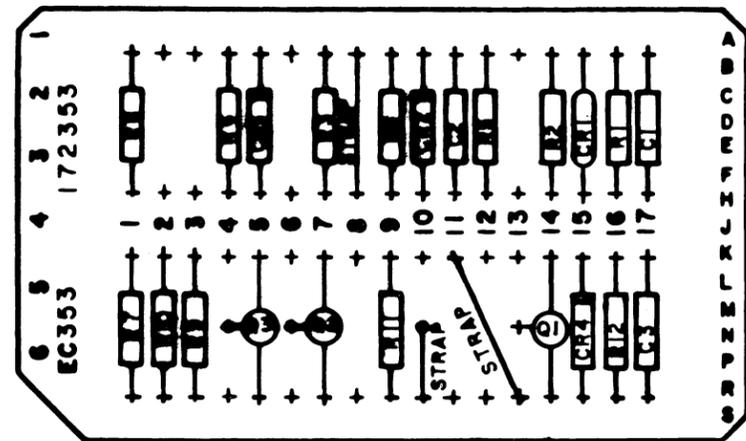
172352

EC353
172353

RING DRIVER (I) PLUS
RING DRIVER RESET
AMP (I)

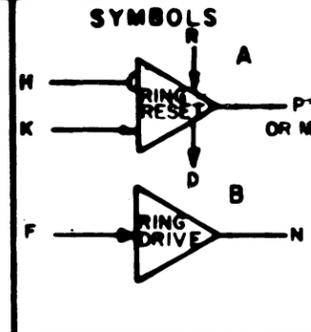
CIRCUIT BOARD EC 353

172353



NOTE:
REFER TO 5016WD FOR MARKING
INFORMATION

REF. DESIGN	TELETYPE PART NO.	TOTAL QTY.	NAME AND DESCRIPTION	LOCATING	FUNCTION
C1	18618	3	CAPACITOR, TUBULAR .01 MFD	COUPLING	
C2			SAME AS C1		
C3			" " "		
CR1	178844	1	VARIATOR, 100A	BIAS	
CR2	177108	3	DIODE D-2	COUPLING	
CR3			SAME AS CR2	CLAMP	
CR4			" " "	COUPLING	
R1	137440	1	RESISTOR, FIXED 1K OHM	LIMITING	
R2	118180	2	RESISTOR, FIXED 10K OHMS	BIAS	
R3			SAME AS R2		
R4	118153	1	RESISTOR, FIXED 33K OHMS	"	
R5	137441	1	RESISTOR, FIXED 1.2K OHMS	"	
R6	118186	2	RESISTOR, FIXED 5.6K OHMS	COLLECTOR LOAD	
R7	118144	1	RESISTOR, FIXED 2.7K OHMS	LIMITING	
R8	118147	1	RESISTOR, FIXED 6.8K OHMS	BIAS	
R9			SAME AS R6	COLLECTOR LOAD	
R10	118725	1	RESISTOR, FIXED 270 OHMS	LIMITING	
R11	137442	1	RESISTOR, FIXED 1.5K OHMS	"	
R12	118177	1	RESISTOR, FIXED 22K OHMS	PRIMING	
Q1	193134	1	TRANSISTOR, N-35	AMPLIFIER	
Q2	177105	2	TRANSISTOR, P-22	"	
Q3			SAME AS Q2	"	
EC	300001	1	CIRCUIT CARD, ETCHED		
		2	STRAP, BARE 24 AWG		
	144495	3	PAD, TRANSISTOR		



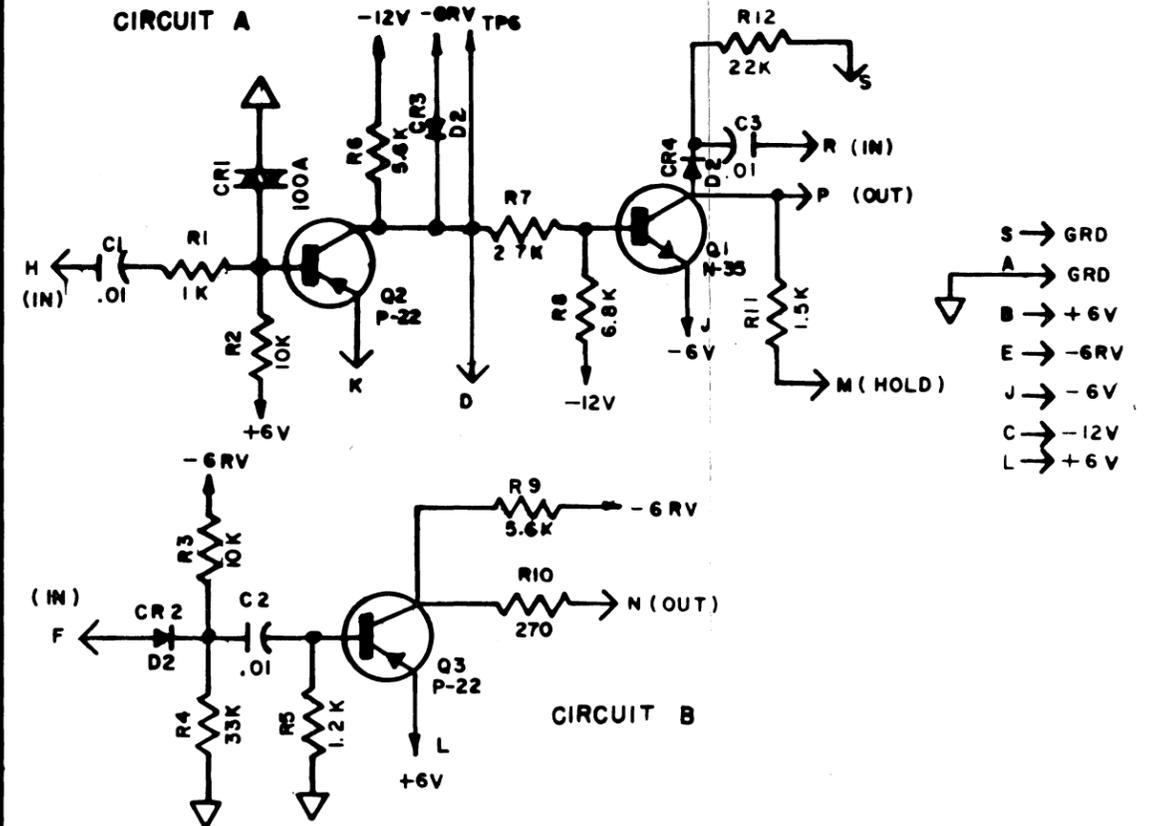
ISSUE	DATE	AUTH NO
1	6-2-64	621-R
2	11-5-66	91669
3	2-8-68	97288

THIS CARD CONSISTS OF TWO COMMON EMITTER AMPLIFIERS, ONE CONNECTED AS A RING DRIVER AND THE OTHER CONNECTED EITHER AS A RESET AMPLIFIER OR A HOLD AMPLIFIER.

Q2 IS CONNECTED TO OPERATE AS A PULSE INHIBIT GATE. WITH AN INCIDENCE OF 0 VOLTS AT THE EMITTER, PIN K, AND A NEGATIVE GOING 6V TRANSITION AT THE BASE, PIN H, Q2 IS SATURATED, PRODUCING A POSITIVE GOING 6V PULSE AT THE COLLECTOR.

WITH A POSITIVE 6V PULSE APPLIED TO THE BASE OF Q1, EITHER FROM THE COLLECTOR OF Q2 OR FROM THE INPUT, PIN D, Q1 IS DRIVEN INTO SATURATION, CAUSING THE COLLECTOR TO BE AT -6V FOR THE DURATION OF THE PULSE APPLIED TO THE BASE. WHEN CONNECTED AS A RESET AMPLIFIER, PIN P IS USED. WHEN CONNECTED AS A HOLD AMPLIFIER, PIN M IS USED. A NEGATIVE GOING TRANSITION AT PIN R WILL ALSO PRODUCE A NEGATIVE GOING PULSE AT PIN P OR PIN M.

WITH A POSITIVE GOING 6V TRANSITION AT PIN F, Q3 IS CUTOFF, PRODUCING A NEGATIVE GOING 6V PULSE AT PIN N.



NOTE:
CARD CONNECTIONS ARE REPRESENTED BY LETTERS
TEST POINTS ARE REPRESENTED BY NUMBERS

APPROVALS	
D AND R	E OF M
E-NUMBER	
PROD. NO. 172353	
DATE 8-26-63	
PD FILE NO	
DRAWN R.W.V.	CHKD <i>[Signature]</i>
ENGD J.M.G.	APPD <i>[Signature]</i>
TELETYPE CORPORATION	
172353	

ET 24-47
TC25516-541

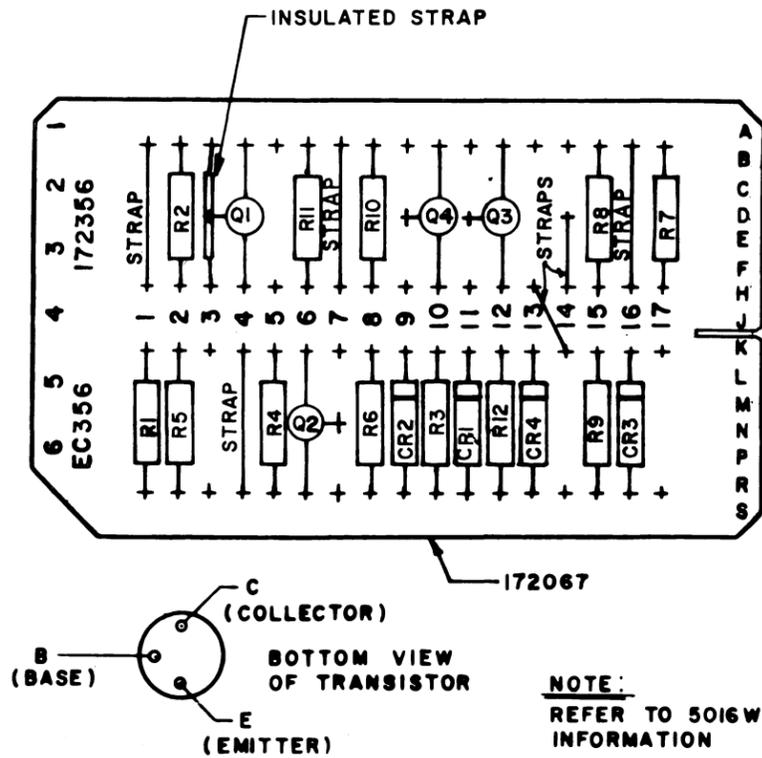
EC356

172356

INHIBIT GATE (4)

CIRCUIT BOARD EC356

172356



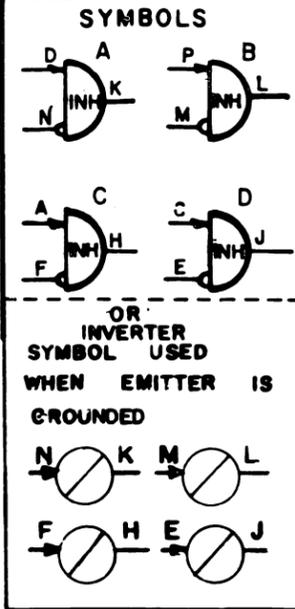
ALPHA NUMERIC CONVERSION CHART

STAMPING ON CIRCUIT BOARD	NUMERICAL CONVERSION FOR 15 PT. CARDS WHEN USED WITH 36 PT. CONNECTOR	
	WHEN INSERTED IN UPPER HALF OF CONNECTOR	WHEN INSERTED IN LOWER HALF OF CONNECTOR
A	1	22
B	2	23
C	3	24
D	4	25
E	5	26
F	6	27
G	7	28
H	8	29
I	9	30
J	10	31
K	11	32
L	12	33
M	13	34
N	14	35
S	15	36

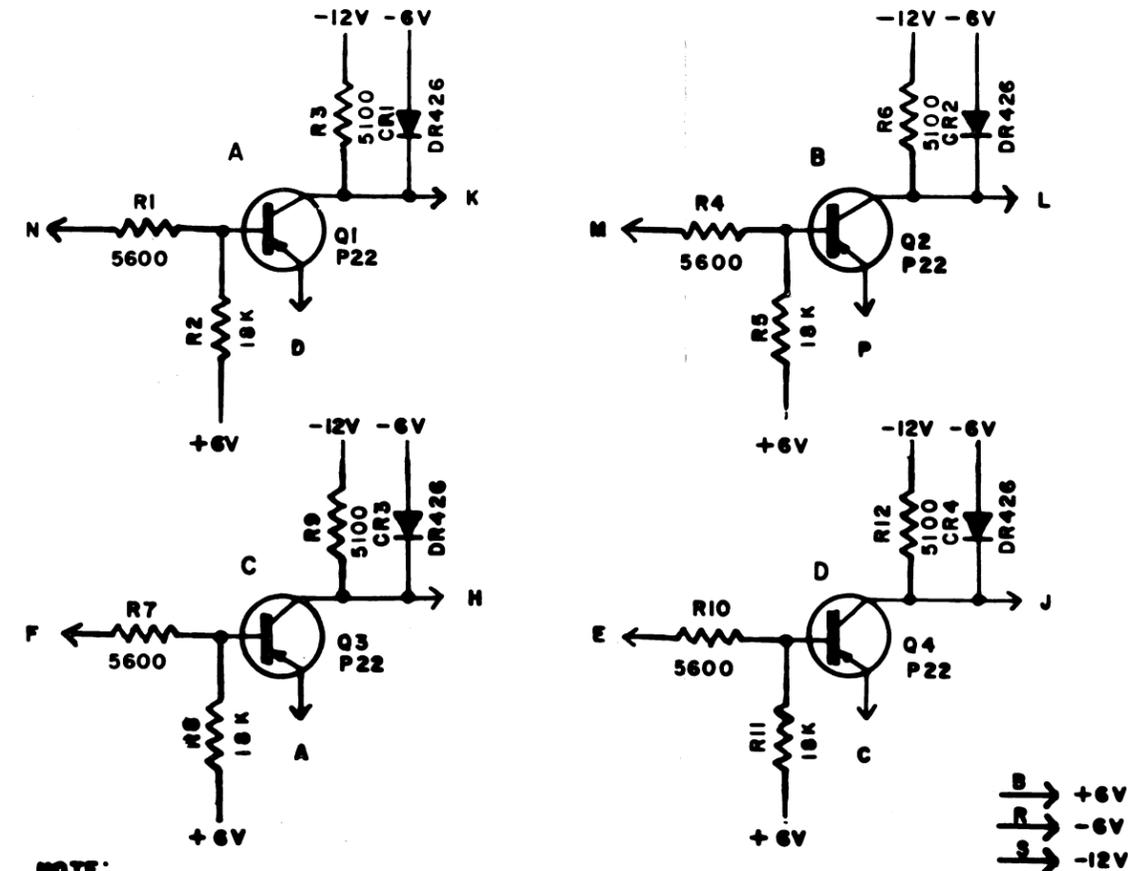
REF. DESIGN	TELETYPE PART NO.	TOTAL QTY.	NAME AND DESCRIPTION	LOCATING FUNCTION
R1	118186	4	Resistor Fixed 5600 Ohms	Base Current Limiting
R2	118151	4	Resistor Fixed 18K Ohms	Base Bias
R3	143665	4	RESISTOR FIXED 5100 OHMS	Collector Load
R4			Same as R1	Base Current Limiting
R5			Same as R2	Base Bias
R6			Same as R3	Collector Load
R7			Same as R1	Base Current Limiting
R8			Same as R2	Base Bias
R9			Same as R3	Collector Load
R10			Same as R1	Base Current Limiting
R11			Same as R2	Base Bias
R12			Same as R3	Collector Load
CR1	177102	4	Diode D2	Clamp
CR2			Same as CR1	"
CR3			Same as CR1	"
CR4			Same as CR1	"
Q1	177105	4	Transistor P22	Gate
Q2			Same as Q1	"
Q3			Same as Q1	"
Q4			Same as Q1	"
EC	172067	1	Circuit Card, Etched	
	144495	4	Pad, Transistor	
		4	Strap 24 AWG Bare	
		1	Strap 24 AWG Insulated	
	300116	4	TRANSISTOR CAPS	

THIS CARD PROVIDES FOUR IDENTICAL COMMON EMITTER AMPLIFIERS WHICH EACH MAY BE CONNECTED TO FUNCTION AS INHIBIT GATES.

THE BASE AND EMITTER POTENTIALS VARY FROM -6V TO 0V INDEPENDENTLY. IN ORDER FOR A TRANSISTOR TO CONDUCT, THERE MUST BE A COINCIDENCE OF -6V APPLIED AT ITS BASE INPUT AND 0V APPLIED AT THE EMITTER INPUT. WHEN THE TRANSISTOR CONDUCTS, THE COLLECTOR OUTPUT SWITCHES FROM -6V TO THE EMITTER POTENTIAL, 0V. THE DIODES CLAMP THE RESPECTIVE COLLECTOR OUTPUTS TO -6V WHEN THE TRANSISTOR IS NON-CONDUCTING.



ISSUE	DATE	AUTH NO
2	5-6-64	82085
3	2-10-65	90288
4	2-28-66	90219



APPROVALS

D AND R E OF M

E-NUMBER

PROD. NO. 172356

DATE 9-9-63

P.D. FILE NO 2-96134.184A

DRAWN S.W. CHKD

ENGD J.C.T. APPD

TELETYPE CORPORATION

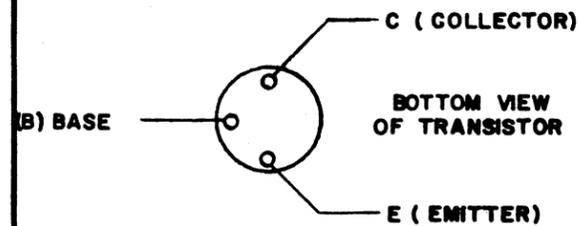
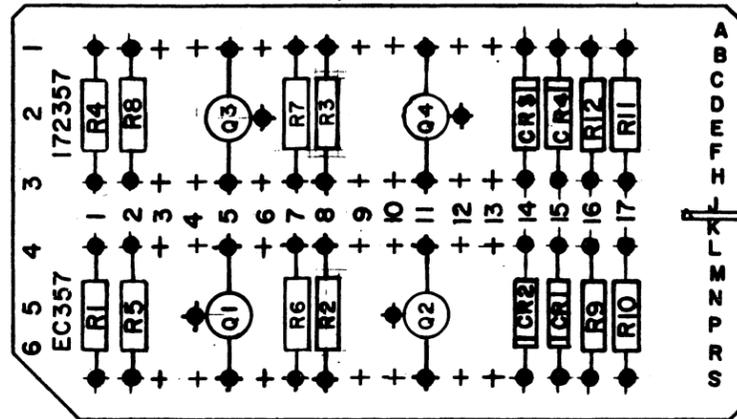
172356

EC357

172357

CIRCUIT BOARD EC357

172357



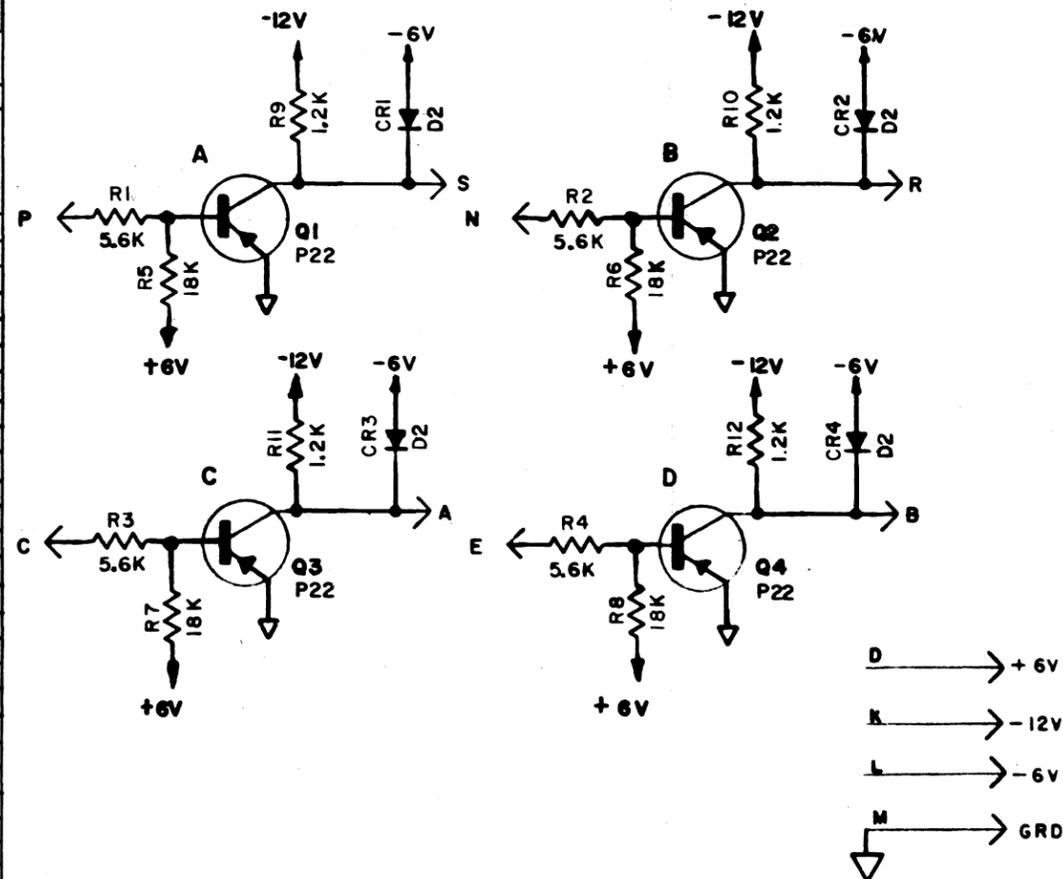
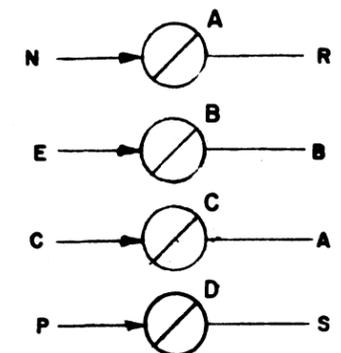
NOTE: REFER TO 5016WD FOR MARKING INFO.

REF. DESIGN.	TELETYPE PART NO.	TOTAL QTY.	NAME AND DESCRIPTION	LOCATING FUNCTION
R1	118186	4	RESISTOR, FIXED 5600 OHMS	INPUT
R2			SAME AS R1	"
R3			SAME AS R1	"
R4			SAME AS R1	"
R5	118151	4	RESISTOR, FIXED 18K OHMS	BIAS
R6			SAME AS R5	"
R7			SAME AS R5	"
R8			SAME AS R5	"
R9	137441	4	RESISTOR, FIXED 1.2K	COLLECTOR LOAD
R10			SAME AS R9	"
R11			SAME AS R9	"
R12			SAME AS R9	"
CR1	177108	4	DIODE, D-2	-6V CLAMP
CR2			SAME AS CR1	"
CR3			SAME AS CR1	"
CR4			SAME AS CR1	"
Q1	177105	4	TRANSISTOR P-22	INVERTER ACTIVE ELEMENT
Q2			SAME AS Q1	"
Q3			SAME AS Q1	"
Q4			SAME AS Q1	"
EC	302703	1	CIRCUIT CARD, ETCHED	
	144495	4	PAD, TRANSISTOR	

INVERTER (4)

THIS CARD CONSISTS OF FOUR IDENTICAL PNP COMMON EMITTER AMPLIFIERS WHICH PROVIDE INVERTED OUTPUTS.

WHEN THE INPUT TO A TRANSISTOR IS OPEN OR AT 0V, THE TRANSISTOR IS NON-CONDUCTING AND THE COLLECTOR OUTPUT POTENTIAL IS CLAMPED TO -6V BY THE ASSOCIATED DIODE. WITH A NEGATIVE 6 VOLT SIGNAL APPLIED AT THE INPUT, THE TRANSISTOR IS DRIVEN INTO SATURATION, CONDUCTS AND THE COLLECTOR POTENTIAL SWITCHES FROM -6V TO 0V REMAINING THERE FOR THE DURATION OF THE -6V INPUT SIGNAL.



ISSUE	DATE	AUTH. NO.
1	6-2-64	15621-R

APPROVALS	
D AND R	E OF M
E-NUMBER 132241	
PROD. NO. 172357	
DATE: 8-29-63	
P.D. FILE NO. 2-96.134.184A	
DRAWN S.W.	CHKD <i>rem</i>
ENGD. J.C.T.	APPD
TELETYPE CORPORATION	
172357	

ET10610 TC28 (6-64)

EFH

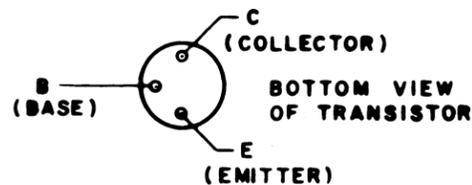
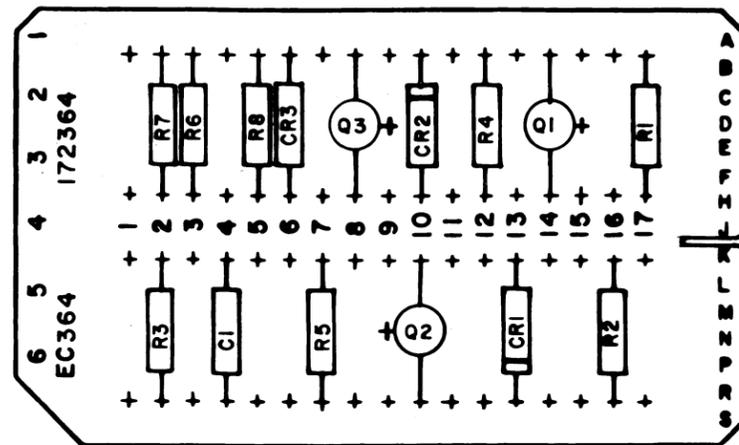
EC364

172364

PULSE AMPLIFIER

CIRCUIT BOARD EC364

172364

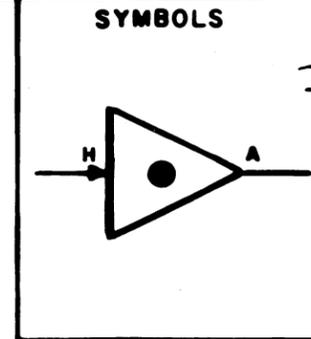


NOTE:
REFER TO 5016WD FOR MARKING
INFORMATION

This circuit is designed to operate in conjunction with the start-stop oscillator (172406). The circuit is basically a two-stage regenerative amplifier and a capacitively coupled pulse amplifier. The circuit converts the sinusoidal input into narrow output pulses.

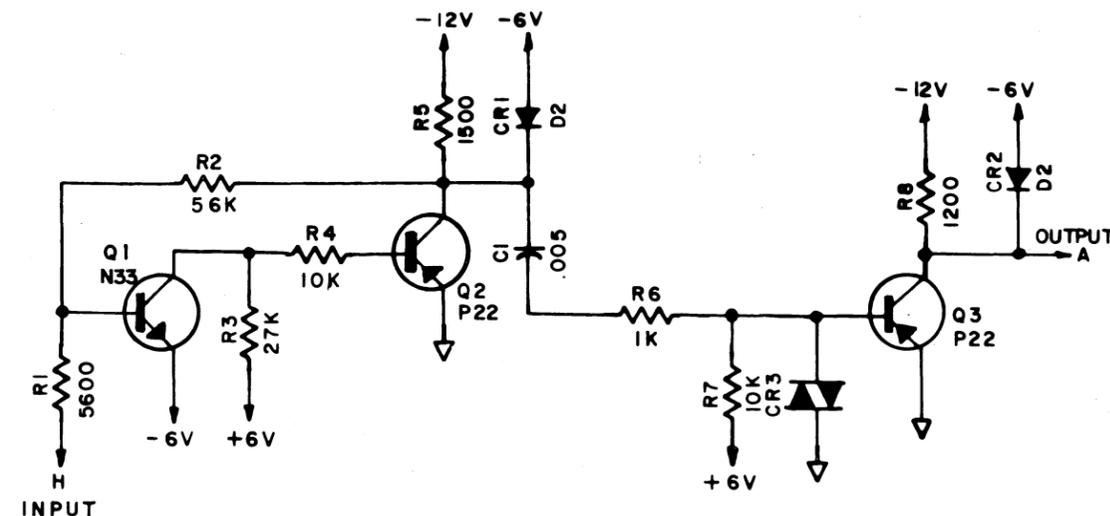
In the static condition -5.5 volts on Terminal H, Q1 and Q2 are conducting Q3 is off and the output on Terminal A is at -6 volts. With a sinusoidal input (0 to approximately -12 volts) applied to Terminal H, the following action takes place. When the signal reaches the -6 volt level, Q1 turns off and the collector goes to +6 volts which consequently reverse biases the emitter-base junction of Q2 and thus Q2 turns off. When transistor Q2 turns off its collector goes to -6 volts since its collector is clamped at -6 volts by CR2. With a negative going transition applied to C1, a differentiating capacitor, the base potential of Q3 will go negative for a short duration of time. This causes Q3 to conduct and its collector potential will go to 0 volts during this time. A narrow positive pulse will be produced once for every cycle of operation of the oscillator.

When the input goes positive and reaches a voltage level slightly higher than -6 V, Q1 will conduct and its collector will go to -6 V which will turn Q2 on and its collector will go to 0 volts. Since this is a positive transition, Q3 will not conduct and no pulse will appear at output Terminal A.

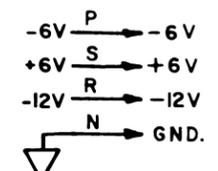


ISSUE	DATE	AUTH NO
1	8-23-67	18728-R
2	10-25-68	96269

REF. DESIGN	TELETYPE PART NO.	TOTAL QTY.	NAME AND DESCRIPTION	LOCATING FUNCTION
C1	171567	1	Capacitor Ceramic .005 MFD.	DIFFERENTIATING
CR1	177108	2	Diode .D2	Clamp
CR2			Same as CR1	"
CR3	178844	1	Varistor	Bias
R1	118186	1	Resistor fixed 5600 ohms	Signal
R2	118156	1	" " 56000 ohms	Feed Back
R3	118187	1	" " 27000 ohms	Collector Load
R4	118180	2	" " 10000 ohms	Coupling
R7			Same as R4	Bias
R5	137442	1	Resistor Fixed 1500 ohms	Collector Load
R6	137440	1	Resistor Fixed 1000 ohms	COUPLING
R8	137443	1	Resistor Fixed 1200 ohms	Collector Load
Q1	177106	1	Transistor N33	Amplifier
Q2	177105	2	" P22	"
Q3			Same as Q2	"
EC	302706	1	Circuit Card Etched	
	144495	3	Pad, Transistor	



NOTE
CARD CONNECTIONS ARE REPRESENTED BY LETTERS
TEST POINTS ARE REPRESENTED BY NUMBERS



APPROVALS

D AND R E OF M
[Signature]

E-NUMBER

PROD. NO. 172364

DATE 2-15-65

P.D. FILE NO 5-A148/134AA

DRAWN S.W. CHKD *[Signature]*

ENGD F.K.H. APPD *[Signature]*

TELETYPE CORPORATION

172364

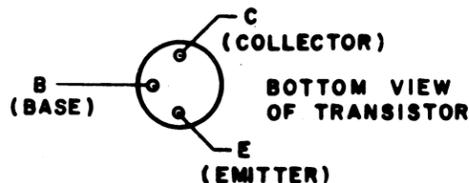
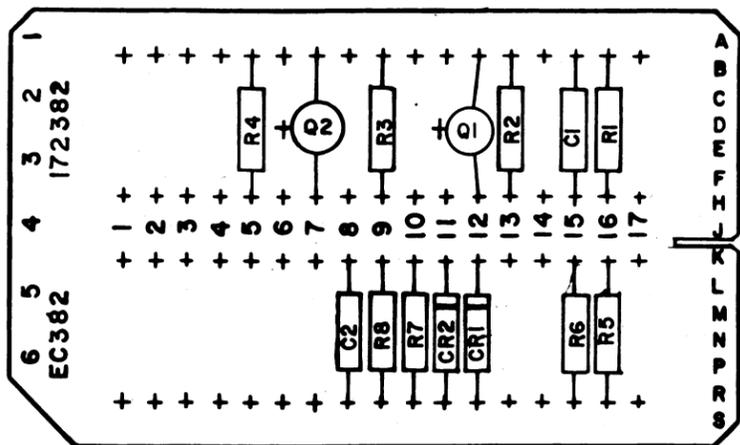
EC382

172382

SIGNAL DELAY
50 MICROSECONDS

CIRCUIT BOARD EC382

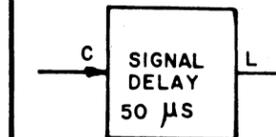
172382



NOTE:
REFER TO 5016WD FOR MARKING
INFORMATION

REF. DESIGN	TELETYPE PART NO.	TOTAL QTY.	NAME AND DESCRIPTION	LOCATING FUNCTION
C1	137306	1	Capacitor, Ceramic .05 MF	Integration Cap.
C2	177331	1	" " .001 MF	Feed Back Cap.
CR1	177108	2	Diode, D2	Clamping Diode
CR2			Same as CR1	" "
R1	129851	2	Resistor, Fixed 3300 Ohms	Base Bias
R2	137440	1	" " 1000 "	" "
R3	118186	1	" " 5600 "	" "
R4	118151	1	" " 18K "	" "
R5			Same as R1	Collector Load
R6	137441	1	Resistor, Fixed 1200 Ohms	" "
R7	118180	1	" " 10 K "	Feed Back Resistor
R8	118150	1	" " 15 K "	Base Bias
Q1	177105	2	Transistor, P22	Amplifier
Q2			Same as Q1	"
PC	172075	1	Circuit Card, Etched	
	144495	2	Pad, Transistor	

SYMBOLS

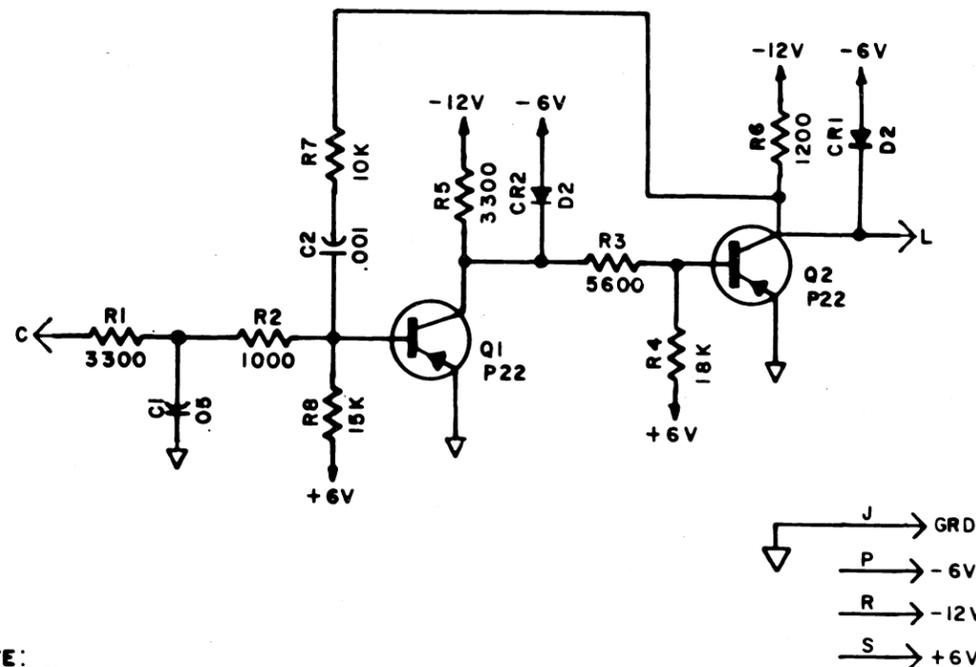


ISSUE	DATE	AUTH NO
5	6-5-64	82454
6	5-7-65	116708
7	5-27-66	91127

This circuit consists of a RC integrator comprised of R1, R2 and C1, and a two stage regenerative amplifier comprised of Q1 and Q2. There is no polarity reversal between input and output signal, however there is a time delay between transitions. The integrator circuit will only permit pulses of relatively long duration to be applied at Q1 base.

With a negative 6 V potential applied at point C, Q1 is biased in a forward direction, causing Q2 to be biased at cut-off. Q1 and Q2 collector potentials are clamped at -6 V by CR1 and CR2.

With a positive 6 V transition applied Q1 will cut-off after a time delay of 50 microseconds driving Q2 into conduction, causing Q2 collector potential to rise from -6 V to 0 V. C2 and R7 provide regenerative feedback.



NOTE:
CARD CONNECTIONS ARE REPRESENTED BY LETTERS
TEST POINTS ARE REPRESENTED BY NUMBERS

APPROVALS

D AND R E OF M

E-NUMBER

PROD. NO. 172382

DATE 9-17-63

PD. FILE NO 2-96J34.184A

DRAWN S.W. CHKD *WDR*

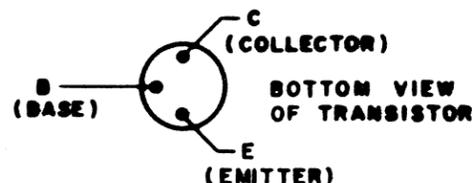
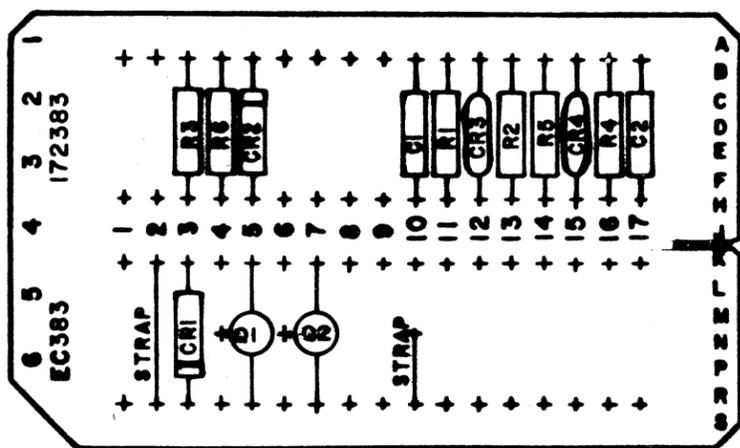
ENGD F.K.H. APPD

TELETYPE CORPORATION

172382

EC383

172383



NOTE:
REFER TO SOHSWD FOR MARKING
INFORMATION

REF. DESIGN	TELETYPE PART NO.	TOTAL QTY.	NAME AND DESCRIPTION	LOCATING	FUNCTION
C1	143688	2	Capacitor Ceramic, .002 mfd	Coupling	
C2			Same as C1	"	
CR1	177108	2	Diode D2	Clamp	
CR2			Same as CR1	"	
CR3	178844	2	Varistor 100A	Bias	
CR4			Same as CR3	"	
R1	137440	2	Resistor Fixed 1000ohms	Bias	
R4			Same as R1	"	
R2	118180	2	Resistor Fixed 10K ohm	"	
R5			Same as R2	"	
R3	137441	2	Resistor Fixed 1200 ohms	Collector Lead	
R6			Same as R3	"	
Q1	177105	2	Transistor P22	Amplifier	
Q2			Same as Q1	"	
EC	300001	1	Circuit Card Etched		
		2	Strap 24 AWG Bare		
	144495	2	Pad Transistor		

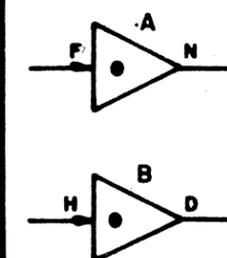
PULSE AMPLIFIER (2)

CIRCUIT BOARD EC383

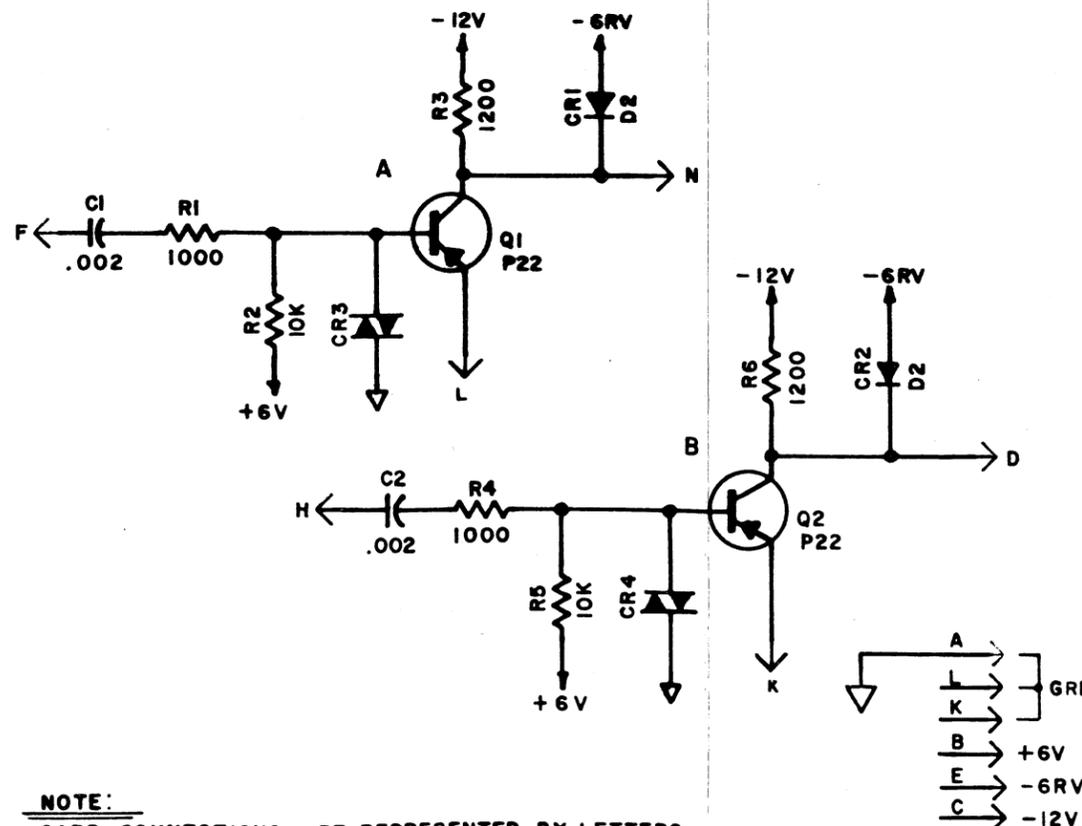
172383

This card consists of two common emitter amplifier circuits used to generate narrow pulses having a rapid rise time. The +6V at the base applied through R2 holds Q1 normally cut-off. CR1 clamps the collector at -6V. With a negative going 6V transition applied at F, base current flows driving Q1 into saturation, causing the collector potential to be at 0 V for the duration of the pulse applied at the base. The theory of operation for Q2 is identical to Q1.

SYMBOLS



ISSUE	DATE	AUTH NO
5	6-5-64	82454



NOTE:
CARD CONNECTIONS ARE REPRESENTED BY LETTERS
TEST POINTS ARE REPRESENTED BY NUMBERS

APPROVALS

D AND R E OF M

HAK *[Signature]*

E-NUMBER

PROD. NO. 172383

DATE 9-17-63

PD. FILE NO 2-96.134.184A

DRAWN S.W. CHKD *[Signature]*

ENGD F.K.H. APPD *[Signature]*

TELETYPE CORPORATION

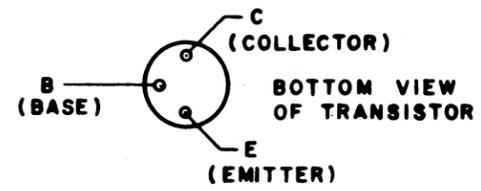
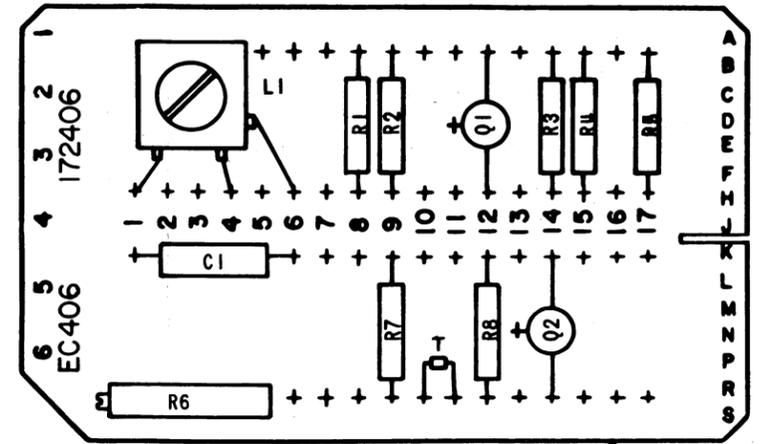
172383

EC 406
172406

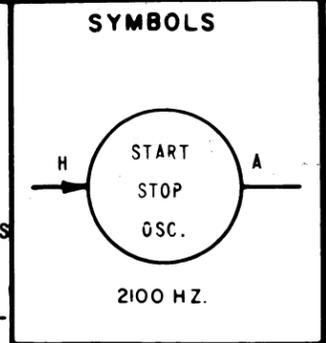
START-STOP OSCILATOR
2F-1050 BAUD
(2100 HZ)

CIRCUIT BOARD EC 406

172406



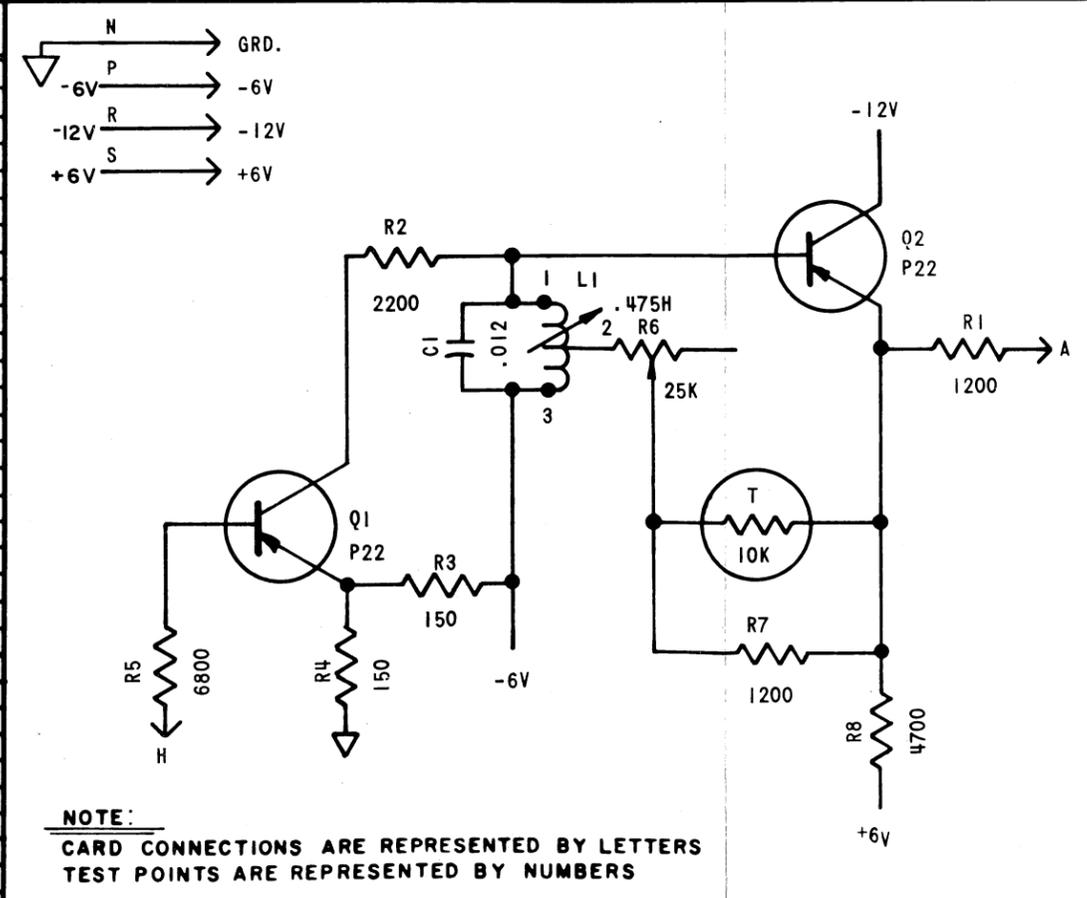
NOTE:
REFER TO 5016WD FOR MARKING INFORMATION



ISSUE	DATE	AUTH NO
1	8-23-67	18728-R

THIS CIRCUIT IS A SINE WAVE OSCILATOR ARRANGED TO START OR STOP UNDER CONTROL OF AN EXTERNAL SIGNAL AND TO OSCILATE AT A FREQUENCY OF 2100 HZ. THE NEGATIVE HALF CYCLE OF THE SINE WAVE IS PRODUCED IMMEDIATELY WHEN 0 VOLTS (GROUND) IS APPLIED AT THE INPUT. THE CIRCUIT EMPLOYS TWO PNP JUNCTION TRANSISTORS. Q2 IS CONNECTED AS A HARTLEY OSCILATOR WITH THE OUTPUT TAKEN FROM ITS EMITTER. Q1 IS ARRANGED TO ACT AS A DAMPER ACROSS THE RESONANT CIRCUIT LI-CI. WHEN THE INPUT IS AT -6V, Q1 IS CONDUCTING AND THE CIRCUIT IS PREVENTED FROM OSCILATING DUE TO LOW RESISTANCE IN PARALLEL WITH RESONANT CIRCUIT (ITS Q DOWN TO A VALUE TOO LOW TO SUSTAIN OSCILATION). IN THE STATIC CONDITION THE OUTPUT IS CLAMPED AT APPROXIMATELY -5.5V. DURING SUSTAINED OSCILATION, THE OUTPUT SWINGS BETWEEN -1 AND -9 VOLTS. A SMALL RANGE OF ADJUSTMENT FOR FREQUENCY IS PROVIDED BY MEANS OF A VARIABLE INDUCTOR. A VARIABLE RESISTOR IS PROVIDED TO ADJUST FEEDBACK CURRENT TO SUSTAIN OSCILATION.

REF. DESIGN	TELETYPE PART NO.	TOTAL QTY.	NAME AND DESCRIPTION	LOCATING FUNCTION
C1	308541	1	CAPACITOR, SYNTHAR .012 MFD.	TANK CAPACITANCE
L1	171686	1	ADJUSTROID .475H	TANK INDUCTANCE
R1	137441	2	RESISTOR, FIXED 1200 OHMS	OUTPUT
R2	129852	1	RESISTOR, FIXED 2200 OHMS	COLLECTOR LOAD
R3	143658	2	RESISTOR, FIXED 150 OHMS	EMITTER BIAS
R4			SAME AS R3	EMITTER BIAS
R5	118147	1	RESISTOR, FIXED 6800 OHMS	INPUT
R6	171145	1	RESISTOR, VARIABLE 25K	FEEDBACK
R7			SAME AS R1	FEEDBACK SHUNT
R8	118146	1	RESISTOR, FIXED 4700 OHMS	EMITTER LOAD
T	171830	1	THERMISTER 10,000 OHMS	FEED BACK COMP.
Q1	177105	2	TRANSISTOR. P22	CONTROL
Q2			SAME AS Q1	AMPLIFIER
	144495	2	PAD. TRANSISTOR	
		3	STRAPS, BARE 24 AWG	
	90951	2	WASHER, LOCK	
	121018	2	NUT 4-40 HEX.	
EC	308479	1	CIRCUIT CARD, ETCHED	



NOTE:
CARD CONNECTIONS ARE REPRESENTED BY LETTERS
TEST POINTS ARE REPRESENTED BY NUMBERS

APPROVALS

D AND R	E OF M
<i>HAK</i>	<i>LI</i>

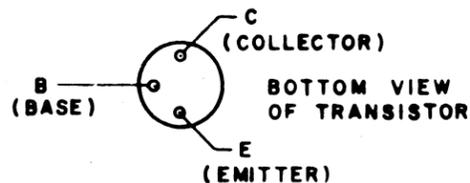
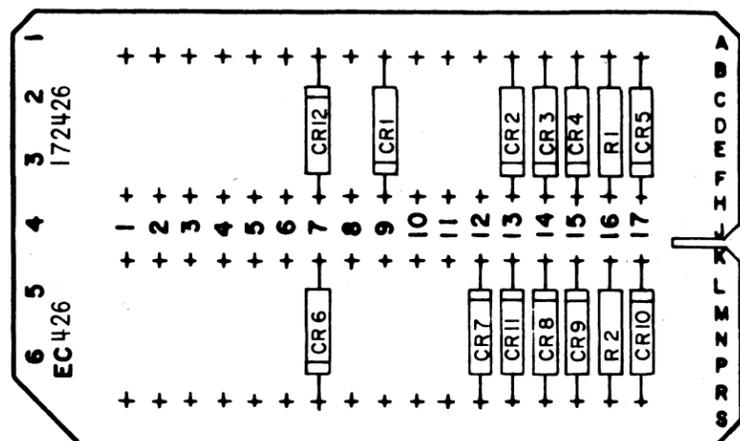
E-NUMBER
PROD. NO. 172406
DATE 2-15-65
PD. FILE NO 5-A148/134AA
DRAWN G.R.S. CHKD.
ENGD W.R.F. APPD. *WU*
TELETYPE CORPORATION
172406

EC 426

172426

CIRCUIT BOARD EC426

172426



NOTE:
REFER TO 5016WD FOR MARKING
INFORMATION

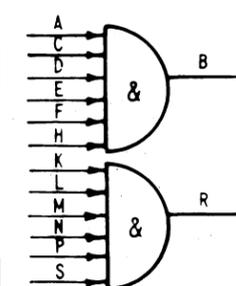
REF. DESIGN	TELETYPE PART NO.	TOTAL QTY.	NAME AND DESCRIPTION	LOCATING FUNCTION
CR1	177108	12	DIODE, D2	GATE
CR2			SAME AS CR1	"
CR3			" " "	"
CR4			" " "	"
CR5			" " "	"
CR6			" " "	"
CR7			" " "	"
CR8			" " "	"
CR9			" " "	"
CR10			" " "	"
CR11			" " "	"
CR12			" " "	"
R1	118180	2	RESISTOR, FIXED 10K OHMS	BIAS RESISTOR
R2			SAME AS R1	" "
	177499	1	CIRCUIT CARD, ETCHED	

DIODE GATES

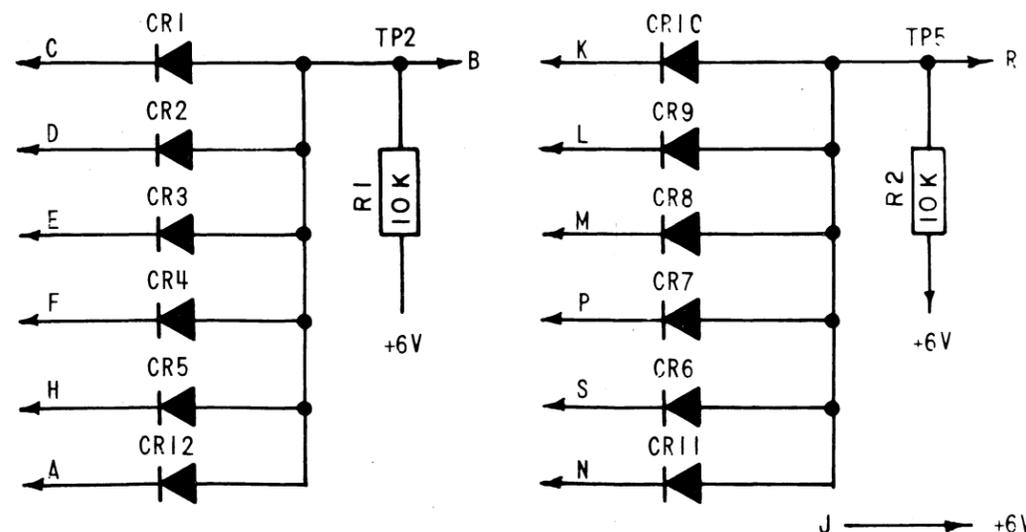
THIS CARD CONSISTS OF TWO "AND" GATES. DIODES CR1-CR5 AND CR12 COMBINE WITH R1, AND DIODES CR6 THROUGH CR11 COMBINE WITH R2 TO FORM TWO SIX INPUT "AND" GATES.

WHEN -6 VOLTS IS APPLIED TO ANY OF THE INPUTS OF AN "AND" GATE (A, C, D, E, F, OR H) THE OUTPUT (B) WILL BE -6 VOLTS. WHEN 0 VOLTS IS APPLIED TO ALL OF THE INPUTS, THE OUTPUT WILL BE 0 VOLTS.

SYMBOLS



ISSUE	DATE	AUTH NO
2	10-23-63	77918
3	10-15-64	83657



NOTE:
CARD CONNECTIONS ARE REPRESENTED BY LETTERS
TEST POINTS ARE REPRESENTED BY NUMBERS

APPROVALS

D AND R E OF M

E-NUMBER
PROD. NO. 172426

DATE 2-22-62

PD. FILE NO

DRAWN T.R. CHKD W.C.J.

ENGD E.J.T. APPD R.J.R.

TELETYPE CORPORATION

172426

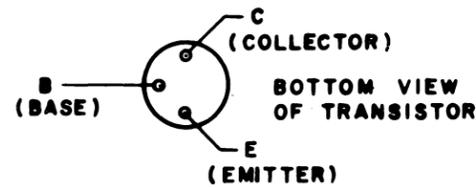
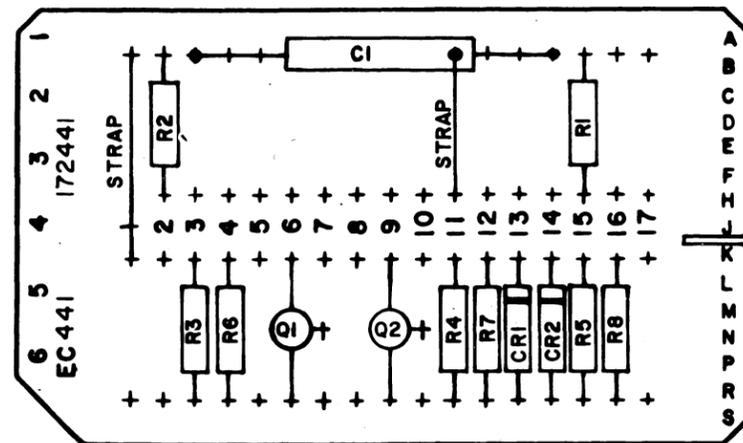
EC441

172441

INTEGRATED PULSE SHAPER

CIRCUIT BOARD EC441

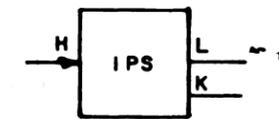
172441



NOTE:
REFER TO 5016WD FOR MARKING INFORMATION

REF. DESIGN	TELETYPE PART NO.	TOTAL QTY.	NAME AND DESCRIPTION	LOCATING FUNCTION
C1	171579	1	Capacitor, Mylar .47 MF	Integration Cap.
CR1	177108	2	Diode, Si	Clamp
CR2			Same as CR1	Clamp
R1	137442	1	Resistor, Fixed 1500 Ohms	Base Bias
R2	118144	1	Resistor, Fixed 2700 Ohms	" "
R3	118180	2	Resistor, Fixed 10K Ohms	" "
R4	118177	1	Resistor, Fixed 22K Ohm	" "
R5	137441	2	Resistor, Fixed 1200 Ohm	Collector Load
R6			Same as R3	Base Bias
R7	129851	1	Resistor, Fixed 3300 Ohm	" "
R8			Same as R5	Collector Load
Q1	177105	2	Transistor, P22	Amplifier
Q2			Same as Q1	"
EC	172062	1	Circuit Card, Etched	
	144495	2	Strap, Bare 24 AWG, PAD. TRANSISTOR	

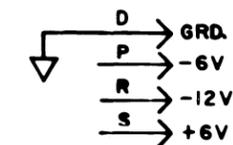
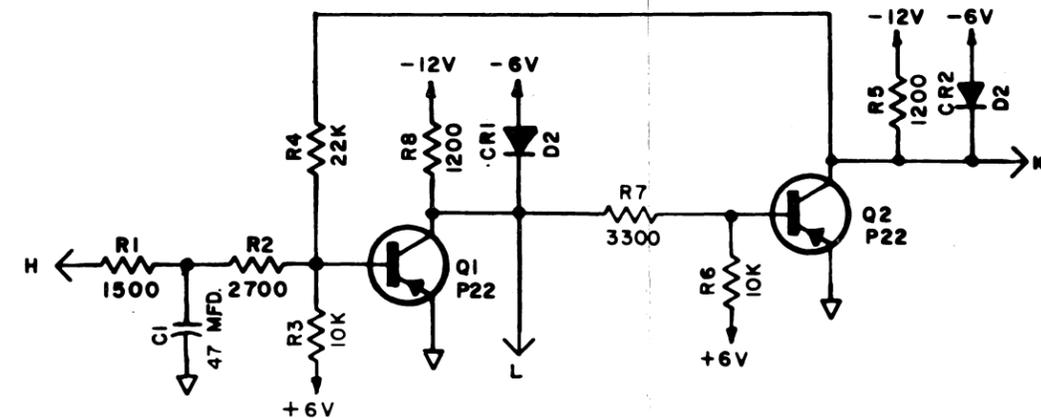
SYMBOLS



ISSUE	DATE	AUTH NO
1	6-2-64	15621-R
2	5-19-65	8152

The purpose of this circuit is to reject noise pulses of 500 microseconds or less in time duration, and to pass pulses having longer time duration. The circuit produces a normal or inverted output which is delayed approximately 500 microseconds.

R1, R2 and C1 are connected to function as an integration circuit, while Q1, Q2 and associated circuitry reshape signals which are passed by the integration circuit. Normally the input at H is either 0 or -6 volts. If zero, Q1 is non-conducting, and if -6 V, Q1 is saturated, bias current supplied through R1 and R2. Q1 and Q2 form a regenerative amplifier which sharpens up the integrated input signal. Normal and inverted outputs are available at "K" and "L", HOWEVER ONLY "K", THE NORMAL OUTPUT SHOULD BE USED WHEN A FAST RISE TIME IS DESIRED.



NOTE:
CARD CONNECTIONS ARE REPRESENTED BY LETTERS
TEST POINTS ARE REPRESENTED BY NUMBERS

APPROVALS

D AND R E OF M

E-NUMBER

PROD. NO. 172441

DATE 10-14-63

P.D. FILE NO2-96.134.184A

DRAWN S.W. CHKD *[Signature]*

ENGD F.K.H. APPD *[Signature]*

TELETYPE CORPORATION

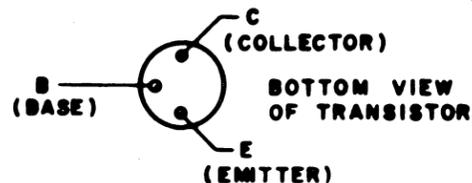
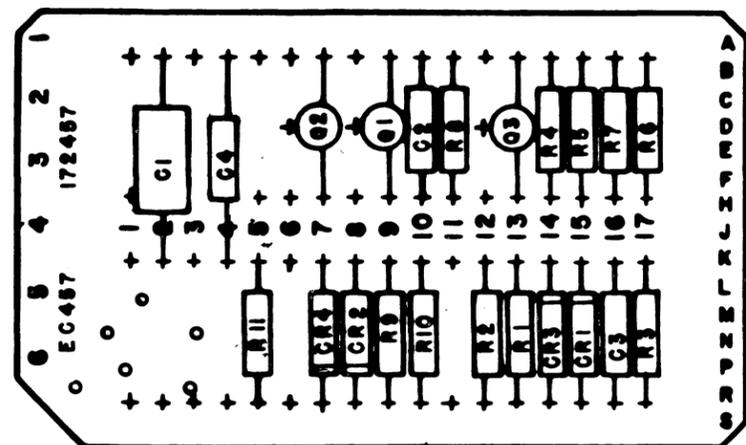
172441

EC 457

172457

CIRCUIT BOARD EC457

172457



NOTE:
REFER TO 5016WD FOR MARKING AND MFG.
INFORMATION

REF. DESIGN	TELETYPE PART NO.	TOTAL QTY.	NAME AND DESCRIPTION	LOCATING FUNCTION
R1	137441	2	Resistor 1200 ohms	Collector Load
R2			Resistor 1200 ohms	Collector Load
R3	118177	3	Resistor 22K ohms	Gate
R4			Resistor 22K ohms	Base Bias
R5			Resistor 22K ohms	Base Bias
R6	129851	3	Resistor 3300 ohms	Collector Load
R7			Resistor 3300 ohms	Inverter Input
R8			Resistor 3300 ohms	Crossover
R9	129852	2	Resistor 2200 ohms	Capacitor Recharge
R10			Resistor 2200 ohms	Collector Load
R11	118150	1	Resistor 15K ohms	Timing
Q1	177105	3	Transistor P22	Switch
Q2			Transistor P22	Switch
Q3			Transistor P22	Inverter
C1	171585	1	Capacitor .22 mfd.	Timing
C2	177332	2	Capacitor .002 mfd.	Speedup
C3			Capacitor .002 mfd.	Coupling
C4	181617	1	Capacitor 1.0 mfd.	Filter
CR1	300102	1	Diode D4	Coupling
CR2	177108	2	Diode D2	Gate
CR3			Diode D2	Clamp
CR4	177611	1	Diode 1N682	Noise Blocking
	111195	3	Transistor Pad	
EC	148804	1	Circuit Card, Etched	

FIXED ONE-SHOT - 2 MS

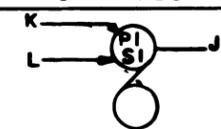
This circuit provides a two millisecond output in response to a positive going pulse. In the quiescent state Q1 is ON and Q2 is OFF. If pin K is 0 volt, a positive input signal at pin L will turn off Q1, making its collector go to -6 volts. This will turn on Q2. The collector of Q2 then goes from -6 volts to 0 volts. This positive transition is coupled to the base of Q1, keeping it off for a time period determined by R11 and C1. If pin K is -6 volts, the circuit will not respond to a positive transition at pin L.

The output of the one shot should be isolated by the inverter formed with transistor Q3. A 0 volt input at pin E will make pin J -6 volts. A -6 volt input will make pin J go to 0 volts.

Resistor R6 is used as a collector load for Q2 when it is not loaded by the input resistor R7. This keeps the time out of the circuit two milliseconds regardless of which side of the one shot is used for an output signal.

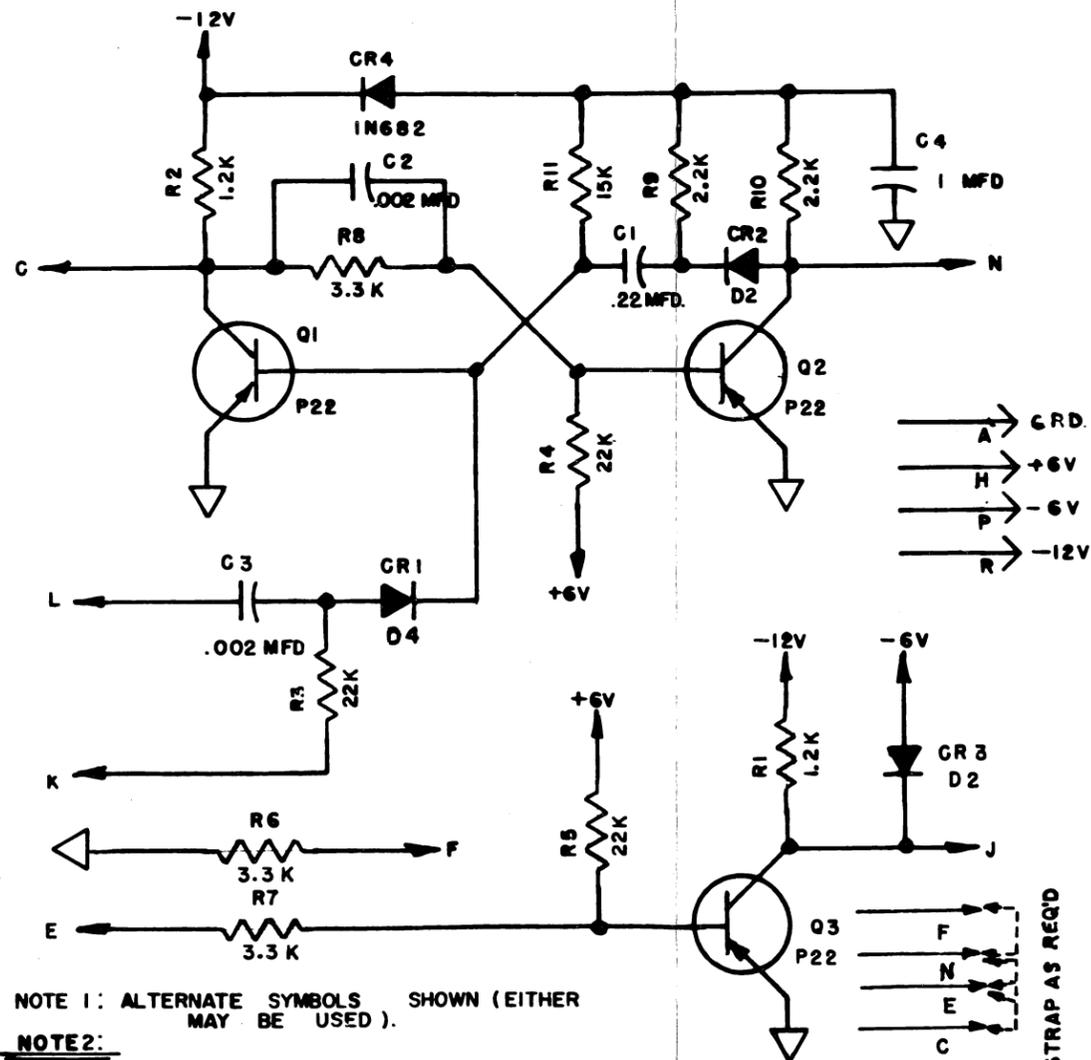
The input is always at pin L, the output is at pin J. For a normal (0 volt) output pulse, pin E is strapped to pin C and pin F is strapped to pin M. For an inverted (-6 volt) output pulse, pin N is strapped to pin E.

SYMBOLS (NOTE 1)



NOTE 3

ISSUE	DATE	AUTH NO
2	1-31-64	80194
3	2-6-64	80243
4	3-28-65	83968
5	5-21-65	81121
6	4-20-67	93138



NOTE 1: ALTERNATE SYMBOLS SHOWN (EITHER MAY BE USED).

NOTE 2:

CARD CONNECTIONS ARE REPRESENTED BY LETTERS

TEST POINTS ARE REPRESENTED BY NUMBERS

NOTE 3: LABEL OUTPUT N OR I (NORMAL OR INVERTED) TO SHOW OUTPUT STRAPPING COMBINATION USED.

APPROVALS

D AND R E OF M

E-NUMBER

PROD. NO. 172457

DATE: 11-5-63

P.D. FILE NO. 2-35.136AA

DRAWN G.J.M. CHKD

ENGD E.W.S. APPD ROR

TELETYPE CORPORATION

172457

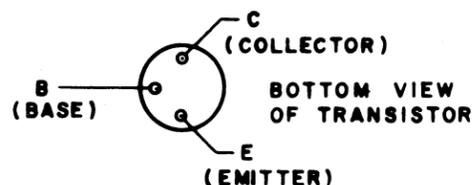
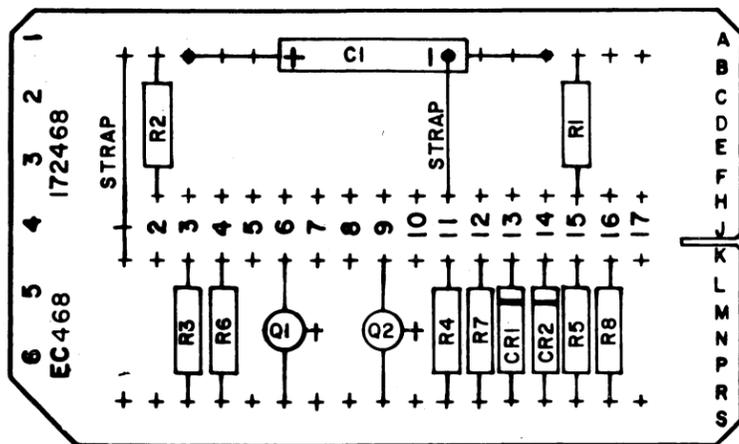
EC468

172468

INTEGRATED PULSE SHAPER

CIRCUIT BOARD EC468

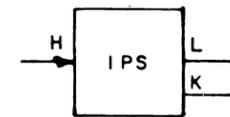
172468



NOTE:
REFER TO 5016WD FOR MARKING INFORMATION

The purpose of this circuit is to reject noise pulses of 300 MILLISECONDS or less in time duration, and to pass pulses having longer time duration. The circuit produces a normal or inverted output which is delayed approximately 300 MILLISECONDS.

SYMBOLS

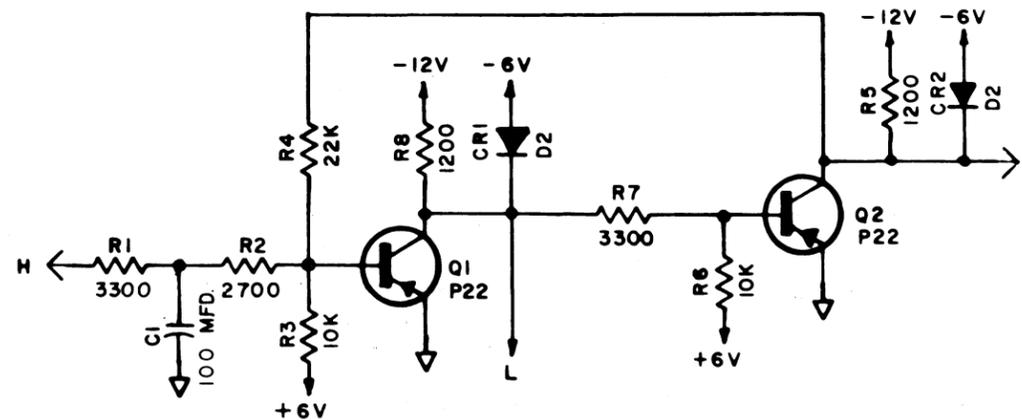


R1, R2 and C1 are connected to function as an integration circuit, while Q1, Q2 and associated circuitry reshape signals which are passed by the integration circuit. Normally the input at H is either 0 or -6 volts. If zero, Q1 is non-conducting, and if -6 V, Q1 is saturated, bias current supplied through R1 and R2. Q1 and Q2 form a regenerative amplifier which sharpens up the integrated input signal. Normal and inverted outputs are available at "K" and "L".

THE NORMAL OUTPUT, K, HAS A RISE TIME OF LESS THAN 8 MICROSECOND. THE INVERTED OUTPUT IS NOT USEABLE BECAUSE OF ITS LONG RISE TIME.

ISSUE	DATE	AUTH NO
1	5-20-64	15620-R
2	2-24-65	83975
3	5-19-65	87529

REF. DESIGN	TELETYPE PART NO.	TOTAL QTY.	NAME AND DESCRIPTION	LOCATING FUNCTION
C1	171536	1	Capacitor, TANTALUM - 100 MFD.	Integration Cap.
CR1	177108	2	Diode, D2	Clamp
CR2			Same as CR1	Clamp
R1	129851	2	Resistor, Fixed 3300 Ohms	Base Bias
R2	118144	1	Resistor, Fixed 2700 Ohms	" "
R3	118180	2	Resistor, Fixed 10K Ohms	" "
R4	118177	1	Resistor, Fixed 22K Ohm	" "
R5	137661	2	Resistor, Fixed 1200 Ohm	Collector Load
R6			Same as R3	Base Bias
R7			SAME AS R1	" "
R8			Same as R5	Collector Load
Q1	177105	2	Transistor, P22	Amplifier
Q2			Same as Q1	"
EC	172062	1	Circuit Card, Etched	
	144495	2	Strap, Bare 24 AWG, PAD, TRANSISTOR	



NOTE:
CARD CONNECTIONS ARE REPRESENTED BY LETTERS
TEST POINTS ARE REPRESENTED BY NUMBERS

APPROVALS

D AND R E OF M

E-NUMBER

PROD NO 172468

DATE 10-14-63

PD FILE NO2-96.134.184A

DRAWN S.W. CHKD *[Signature]*

ENGD F.K.H. APPD *[Signature]*

TELETYPE CORPORATION

172468

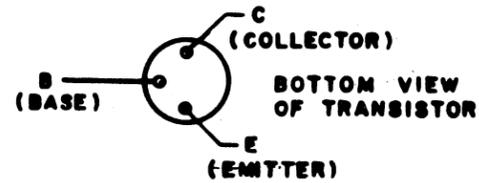
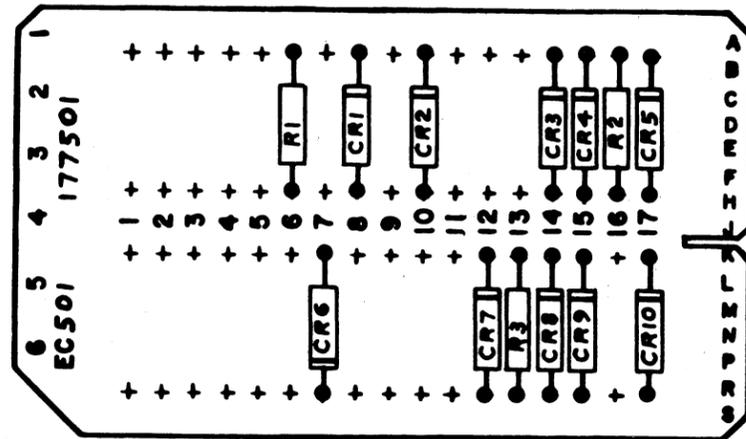
EC 501

177501

DIODE GATES

CIRCUIT BOARD EC 501

177501



NOTE:
REFER TO SO16WD FOR MARKING INFORMATION

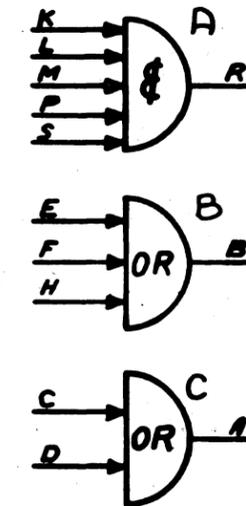
REF. DESIGN.	TELETYPE PART NO.	TOTAL QTY	NAME AND DESCRIPTION	LOCATING	FUNCTION
CR1	177108	10	DIODE D2		GATE
CR2			SAME AS CR1		
CR3			" " "		
CR4			" " "		
CR5			" " "		
CR6			" " "		
CR7			" " "		
CR8			" " "		
CR9			" " "		
CR10			" " "		
R1	129851	2	RESISTOR FIXED 3300 OHMS		BIAS RESISTOR
R2			SAME AS R1		
R3	118190	1	RESISTOR FIXED 10K OHMS		
EC	177499	1	CIRCUIT CARD, ETCHED		

This card consists of one "AND" gate and two "OR" gates. Diodes CR6 through CR10 combine together with R3 to form a five input "AND" gate. CR1 and CR2 combine with R1 to form a two input "OR" gate while CR3, CR4 and CR5 combine with R2 to form a three input "OR" gate.

When 0 volts is applied to any of the inputs of an or gate (C or D), the output (A) will be 0 volts. When -6 volts is applied to all of the inputs, the output will be -6 volts.

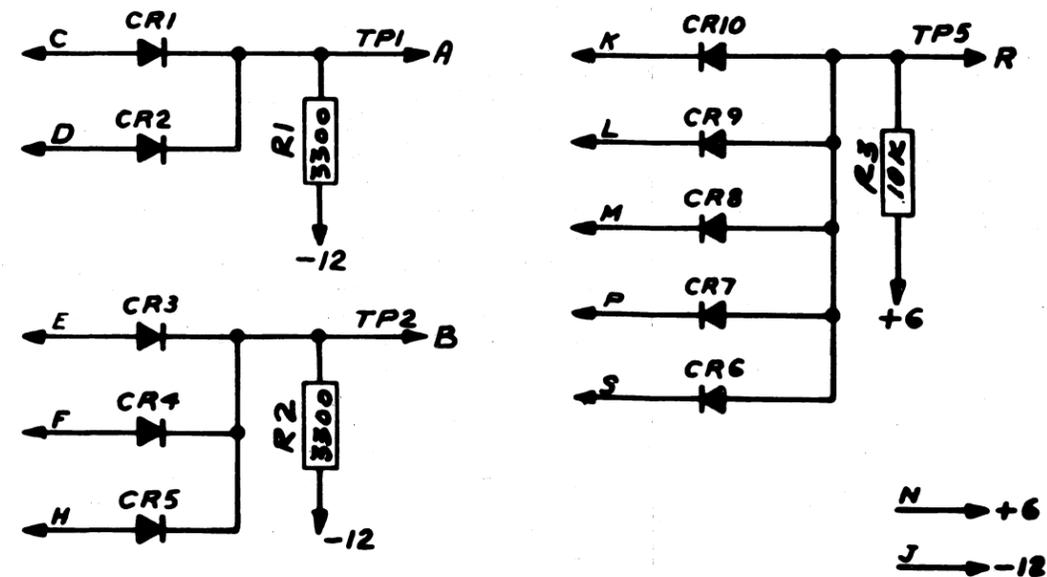
When -6 volts is applied to any of the inputs of an "AND" gate (K,L,M,P or S) the output (R) will be -6 volts. When 0 volts is applied to all of the inputs, the output will be 0 volts.

SYMBOLS



REVISIONS

ISSUE	DATE	AUTH. NO.
2	10-23-63	77918
3	5-27-67	91127



NOTE:
CARD CONNECTIONS ARE REPRESENTED BY LETTERS
TEST POINTS ARE REPRESENTED BY NUMBERS.

APPROVALS

By *[Signature]* E or M

FIG. NO. 177501

DATE 1-11-61
FILE NO. 24-A25/34 AA
DRAWN *[Signature]* CHD *[Signature]*
ENG. *[Signature]* APP. *[Signature]*

TELETYPE CORPORATION

177501

EC 502

177502

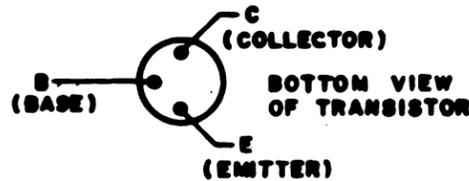
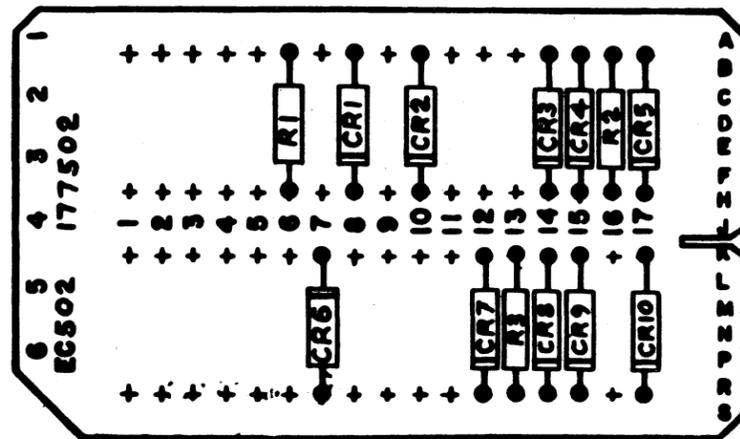
DIODE GATES

CIRCUIT BOARD EC502

177502

REVISIONS

ISSUE	DATE	AUTH. NO.
2	10-31-61	71472
3	10-23-63	77918
4	5-27-66	91127

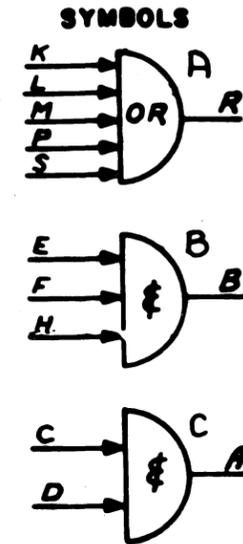


NOTE:
REFER TO 5016WD FOR MARKING
INFORMATION

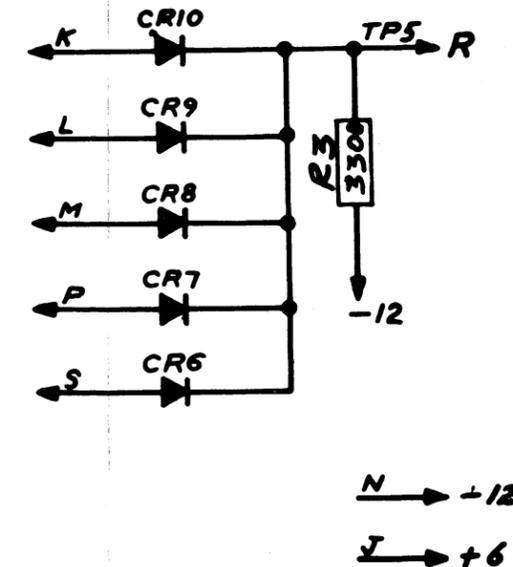
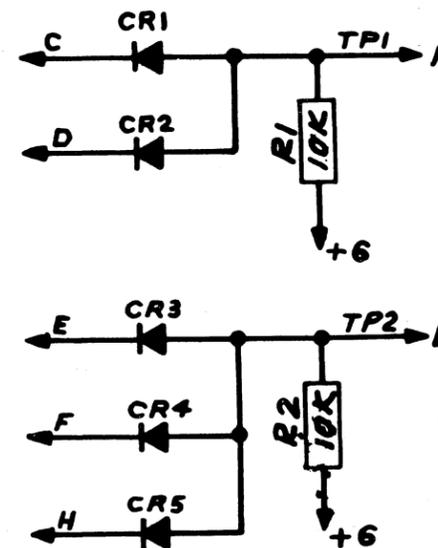
This card consists of one "OR" gate and two "AND" gates. Diodes CR6 through CR10 combine together with R3 to form a five input "OR" gate. CR1 and CR2 combine with R1 to form a two input "AND" gate while CR3, CR4, and CR5 combine with R2 to form a three input "OR" gate.

When 0 volts is applied to all of the inputs of an "AND" gate (C and D), the output (A) will be 0 volts. When -6 volts is applied to any of the inputs, the output will be -6 volts.

When -6 volts is applied to all of the inputs of an "OR" gate (K,L,M,P or S) the output (R) will be -6 volts. When 0 volts is applied to any of the inputs, the output will be 0 volts.



REF. DESIGN.	TELETYPE PART NO.	TOTAL QTY.	NAME AND DESCRIPTION	LOCATING	FUNCTION
CR1	177108	10	DIODE D2		GATE
CR2			SAME AS CR1		"
CR3			" " "		"
CR4			" " "		"
CR5			" " "		"
CR6			" " "		"
CR7			" " "		"
CR8			" " "		"
CR9			" " "		"
CR10			" " "		"
R1	118180	2	RESISTOR, FIXED 10K OHMS		BIAS RESISTOR
R2			SAME AS R1		"
R3	129851	1	RESISTOR, FIXED 3300 OHMS		"
EC	177499	1	CIRCUIT CARD, ETCHED		



NOTE:
CARD CONNECTIONS ARE REPRESENTED BY LETTERS
TEST POINTS ARE REPRESENTED BY NUMBERS.

APPROVALS

R AND D E OF M
[Signature] *[Signature]*

PROG. NO. 177502

DATE 1-11-61
FILE NO. 24-A25A34AA
DRAWN. *[Signature]* CHKD. M.G.
ENG. A.R. APPD. *[Signature]*

TELETYPE CORPORATION

177502

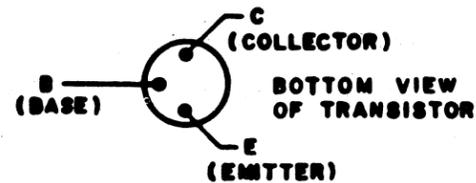
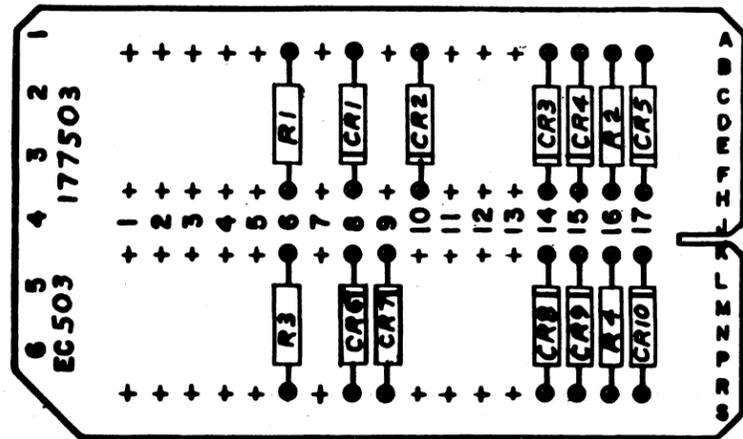
EC 503

177503

DIODE GATES

CIRCUIT BOARD EC503

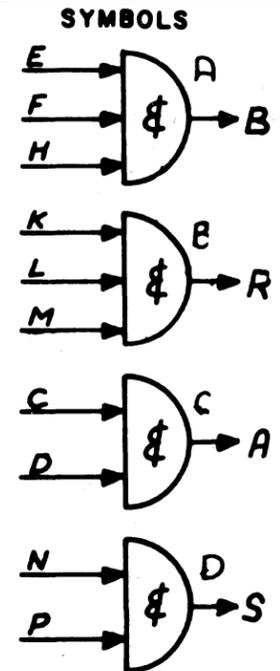
177503



NOTE:
REFER TO SOISWD FOR MARKING
INFORMATION

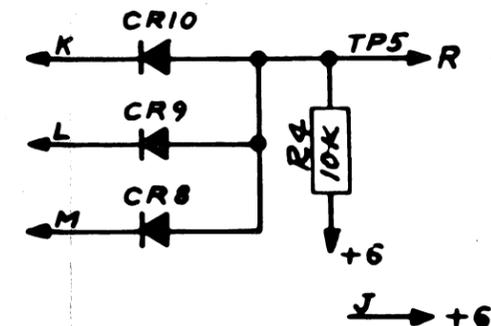
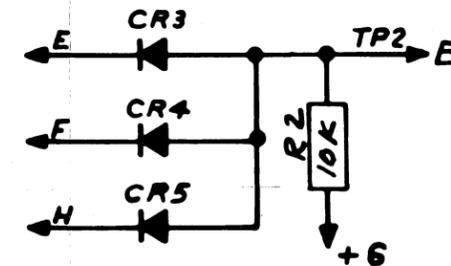
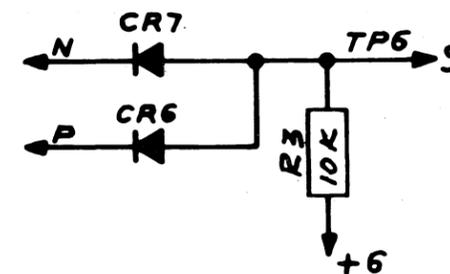
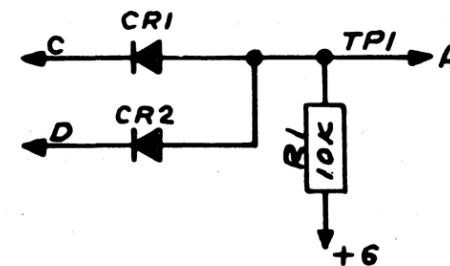
This card consists of four "AND" gates. CR3 through CR5 combine with R2 and CR8 through CR10 combine with R4 to form two separate three input "AND" gates. CR1 and CR2 combine with R1 while CR6 and CR7 combine with R3 to form two separate two input "AND" gates.

When -6 volts is applied to any of the inputs of an "AND" gate (E, F or H), the output (B) will be -6 volts. When 0 volts is applied to all of the inputs, the output will be 0 volts.



REVISIONS		
ISSUE	DATE	AUTH. NO.
2	1-17-62	72205
3	10-23-63	77918
4	5-27-66	91127

REF. DESIGN.	TELETYPE PART NO.	TOTAL QTY	NAME AND DESCRIPTION	LOCATING FUNCTION
CR1	177108	10	DIODE, D2	GATE
CR2			SAME AS CR1	"
CR3			" " "	"
CR4			" " "	"
CR5			" " "	"
CR6			" " "	"
CR7			" " "	"
CR8			" " "	"
CR9			" " "	"
CR10			" " "	"
R1	118180	4	RESISTOR FIXED 10K OHMS	BIAS RESISTOR
R2			SAME AS R1	"
R3			" " "	"
R4			" " "	"
EC	177499	1	CIRCUIT CARD, ETCHED	



NOTE:
CARD CONNECTIONS ARE REPRESENTED BY LETTERS
TEST POINTS ARE REPRESENTED BY NUMBERS.

APPROVALS	
DESIGNED BY	CHECKED BY
<i>JDK</i>	<i>MA</i>
E-NUMBER	
PROD. NO. 177503	
DATE 1-11-61	
FILE NO. 24-A25134 AA	
DRAWN <i>MA</i>	CHKD <i>MA</i>
ENGD. <i>AA</i>	APPD <i>JDK</i>
TELETYPE CORPORATION	
177503	

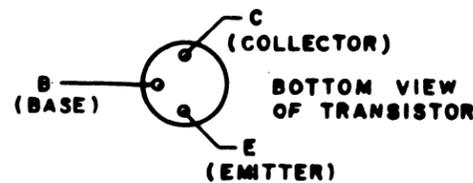
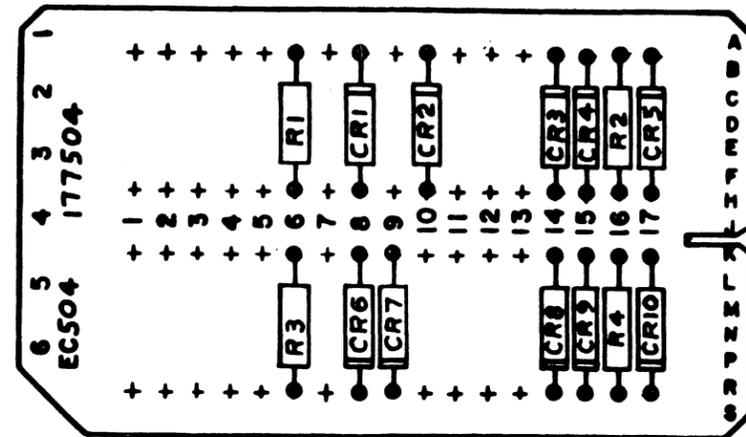
EC 504

177504

DIODE GATES

CIRCUIT BOARD EC 504

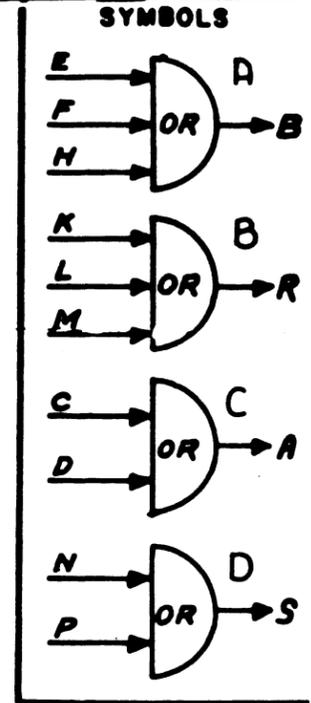
177504



NOTE:
REFER TO 5016WD FOR MARKING INFORMATION

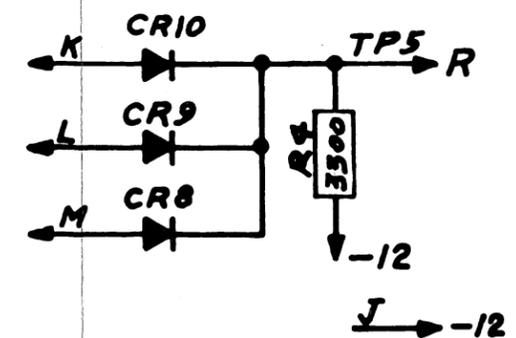
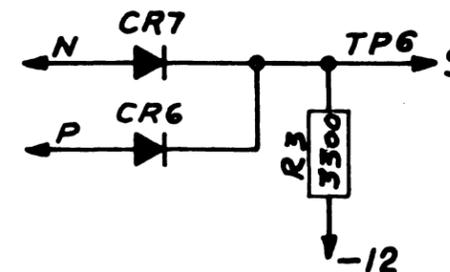
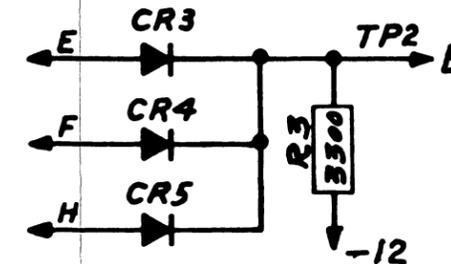
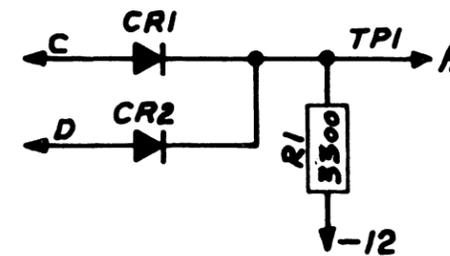
This card consists of four "OR" gates. CR3 through CR5 combine with R2 and CR8 through CR10 combine with R4 to form two separate three input "OR" gates. CR1 and CR2 combine with R1 while CR6 and CR7 combine with R3 to form two separate two input "OR" gates.

When 0 volts is applied to any of the inputs of an "OR" gate (E, F or H), the output (B) will be 0 volts. When -6 volts is applied to all of the inputs, the output will be -6 volts.



REVISIONS		
ISSUE	DATE	AUTH. NO.
2	10-23-63	77918
3	5-27-66	91127

REF. DESIGN.	TELETYPE PART NO.	TOTAL QTY	NAME AND DESCRIPTION	LOCATING	FUNCTION
CR1	177108	10	DIODE D2	GATE	
CR2			SAME AS CR1	"	
CR3			" " "	"	
CR4			" " "	"	
CR5			" " "	"	
CR6			" " "	"	
CR7			" " "	"	
CR8			" " "	"	
CR9			" " "	"	
CR10			" " "	"	
R1	129851	4	RESISTOR FIXED 3300 OHMS	BIAS RESISTOR	
R2			SAME AS R1	"	
R3			" " "	"	
R4			" " "	"	
EC	177499	1	CIRCUIT CARD, ETCHED		



NOTE:
CARD CONNECTIONS ARE REPRESENTED BY LETTERS
TEST POINTS ARE REPRESENTED BY NUMBERS.

APPROVALS	
R AND D	E OF M
<i>JOB</i>	<i>✓</i>
E-NUMBER	
PROD. NO. 177504	
DATE 1-12-61	
FILE NO. 24-A125/134AA	
DRAWN. <i>AR</i>	CHKD. <i>ML</i>
ENGD. <i>AR</i>	APPD. <i>FR</i>

TELETYPE CORPORATION
177504

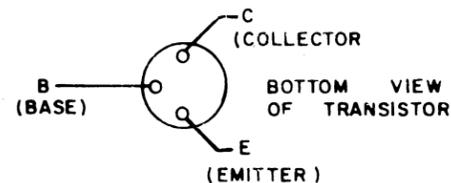
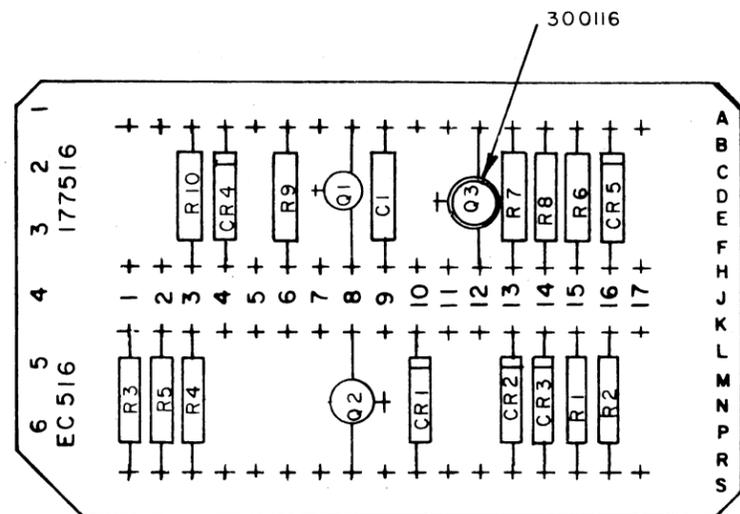
EC 516

177516

POWER PULSER

CIRCUIT BOARD EC 516

177516



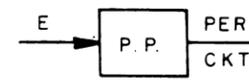
NOTE:
REFER TO 5016 WD FOR MARKING INFORMATION.

REF. DESIGN.	TELETYPE PART NO.	TOTAL QTY.	NAME AND DESCRIPTION	LOCATING FUNCTION
R1	118180	1	RESISTOR FIXED 10K OHMS	BASE BIAS
R2	143659	3	RESISTOR FIXED 560 OHMS	COLLECTOR DROPPING
R3	129851	1	RESISTOR FIXED 3300 OHMS	BASE BIAS
R4	177122	1	RESISTOR FIXED 56 OHMS	BASE INPUT
R5		-	SAME AS R2	BASE BIAS
R6	118186	1	RESISTOR FIXED 5600 OHMS	DIODE BIAS
R7		-	SAME AS R2	COLLECTOR DROPPING
R8	137601	1	RESISTOR FIXED 68 OHMS	COLLECTOR DROPPING
R9	129854	1	RESISTOR FIXED 10K OHMS	DIODE BIAS
C1	181618	1	CAPACITOR FIXED .01	INPUT CAPACITOR
Q1	177105	2	TRANSISTOR P-22	INVERTER
Q2		-	SAME AS Q1	EMITTER FOLLOWER
Q3	300052	1	TRANSISTOR 2N2001	AMPLIFIER
CR1	177109	2	DIODE SG1308	COUPLING DIODE
CR2	177108	3	DIODE D-2	CLAMP DIODE
CR3		-	SAME AS CR1	CLAMP DIODE
CR4		-	SAME AS CR2	GATE
EC	177494	1	CIRCUIT CARD ETCHED	
	144495	3	PAD TRANSISTOR	
R10	118177	1	RESISTOR, FIXED 22K OHMS	DIODE BIAS
CR5		-	SAME AS CR2	GATE
	300116	1	COVER, INSULATING	

REVISIONS

ISSUE	DATE	AUTH. NO.
2	3-15-62	72786
3	10-14-64	84270
4	8-11-65	84543
5	4-4-67	93089
6	5-8-67	93136
7	11-27-67	94692-B
8	12-28-67	94692-1
9	2-6-68	97266

SYMBOLS

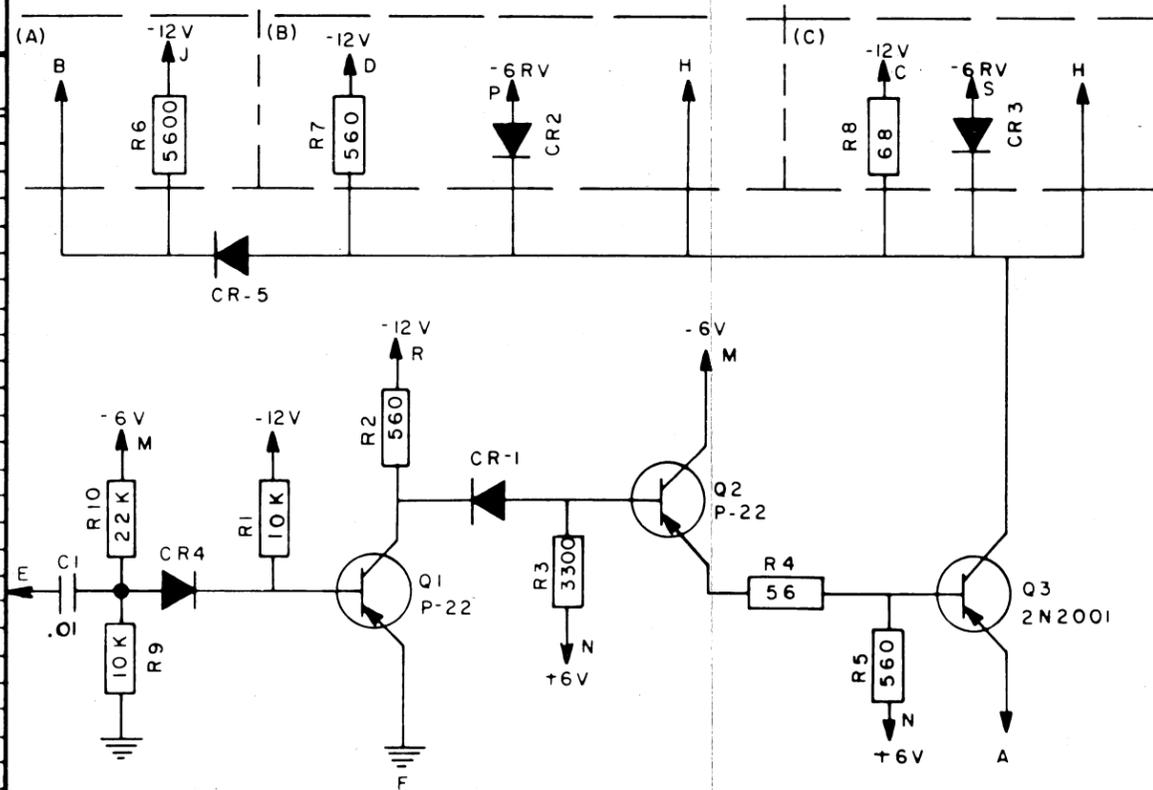


THIS CIRCUIT IS USED TO PROVIDE A HIGH CURRENT 15-35 μ SEC. PULSE UPON RECEIPT OF A 6 VOLT POSITIVE TRANSITION AT PIN E.

NORMALLY Q1 IS ON AND Q3 IS OFF AND THE EMITTER OF Q2 IS SLIGHTLY POSITIVE WITH RESPECT TO GROUND. WHEN A -6V TO 0V TRANSITION OCCURS AT PIN E, Q1 IS TURNED OFF MAKING ITS COLLECTOR GO TO -6 VOLTS. THIS CAUSES THE EMITTER OF Q2 TO BECOME -6 VOLTS, TURNING ON Q3.

THREE ALTERNATE OUTPUTS ARE AVAILABLE FROM Q3.

- A. WHEN THE OUTPUT IS TAKEN FROM PIN B, DIODE CR-5 PREVENTS ANY POSITIVE PULSES ON THE LINE FROM APPEARING ON PIN H. THE TIME AND AMPLITUDE OF THE OUTPUT PULSE WILL BE IN ACCORDANCE WITH CASES B OR C.
- B. IF CONNECTED AS SHOWN IN B, THE OUTPUT AT H IS A 6 VOLT POSITIVE PULSE THAT CAN BE USED TO TRIGGER 40 FLIP-FLOPS AT A REPETITION RATE OF 3 KC.
- C. THE THIRD ALTERNATIVE PROVIDES A 6 VOLT POSITIVE PULSE AT A REPETITION RATE OF 3 KC WHEN OPERATING INTO A 2 MFD CAPACITIVE INPUT.



NOTE:
CARD CONNECTIONS ARE REPRESENTED BY LETTERS
TEST POINTS ARE REPRESENTED BY NUMBERS.

APPROVALS

R AND D: HJK
E OF M: ~

E-NUMBER:

PROB. NO. 177516

DATE 4-18-61

FILE NO. 24-A25/124 AA

DRAWN. D P CHKD. M G

ENGD. E W S APPD. F D B

TELETYPE CORPORATION

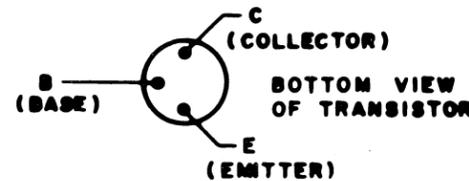
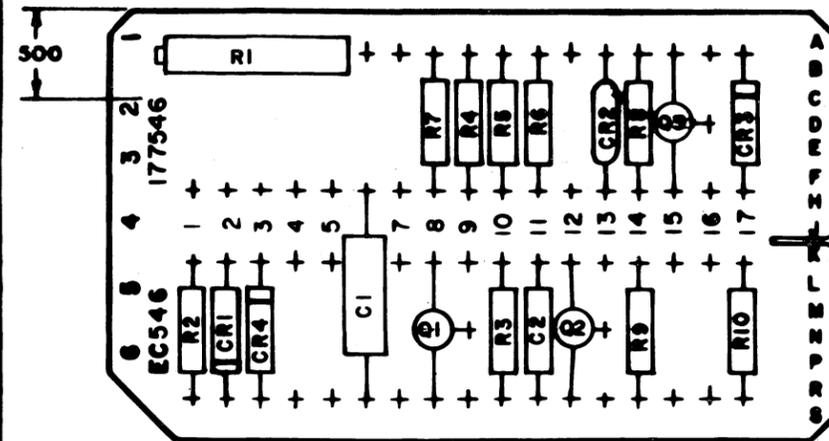
177516

EC546
177546

GATED OSCILLATOR

CIRCUIT BOARD EC546

177546



NOTE
REFER TO 506WD FOR MARKING
INFORMATION, EXCEPT FOR POSITION
OF PART NUMBER.

REF. DESIGN	TELETYPE PART NO.	TOTAL QTY.	NAME AND DESCRIPTION	LOCATING FUNCTION
R1	300022	1	RESISTOR, VARIABLE 500K OHMS	TIMING
R2	118177	1	RESISTOR, FIXED 22K OHMS	TIMING
R3	143669	1	" " 360 OHMS	VOLTAGE DROPPING
R4	137441	2	" " 1.2K OHMS	COLLECTOR LOAD
R5	118156	2	" " 5.6K OHMS	BASE BIAS
R6	118144	1	" " 2.7K OHMS	CURRENT LIMIT
R7			SAME AS R4	COLLECTOR LOAD
R8			SAME AS R5	BASE BIAS
R9	118186	1	RESISTOR, FIXED 5.6K OHMS	CURRENT LIMIT
R10	137602	1	" " 470 OHMS	TEMP. COMPENSATION
C1	171829	1	CAPACITOR, MYLAR .15MF	TIMING
C2	181618	1	" " .01MF	CLAMP
CR1	177404	1	DIODE, ZENER 15V	REGULATOR
CR2	178844	1	VARISTOR 100A	BASE BIAS
CR3	177108	1	DIODE, D2	CLAMP
CR4	177611	1	DIODE, IN682	COUPLING
Q1	177105	2	TRANSISTOR P22	CONTROL
Q2	177610	1	UNIUNJUNCTION	OSCILLATOR
Q3			SAME AS Q1	
	177490	1	BOARD, ETCHED CIRCUIT	
	144495	3	PAD, TRANSISTOR	

SYMBOLS



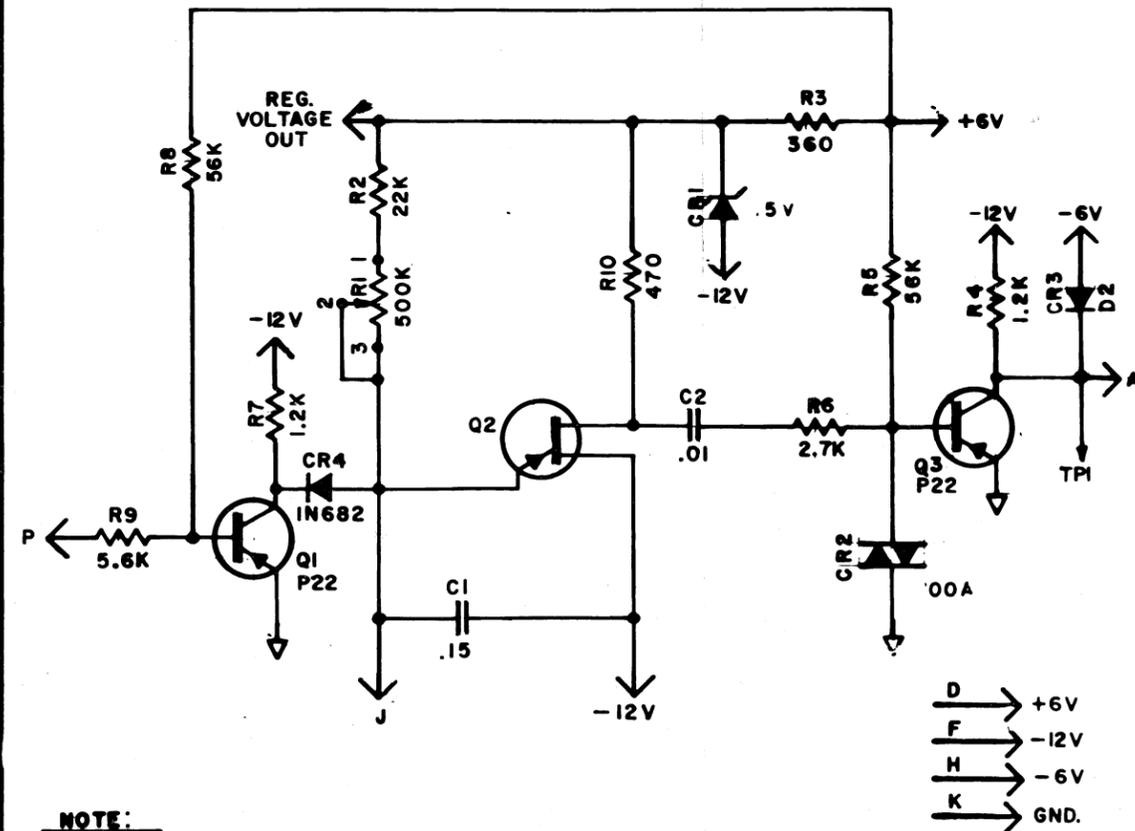
ISSUE	DATE	AUTH NO
1	5-20-64	5620-R
2	5-7-65	36758
3	11-23-65	89780
4	7-3-67	94182
	2-6-68	57266

THIS CARD CONSISTS OF A CONTROL, OSCILLATOR, AND AMPLIFIER CIRCUIT.

WITH ZERO VOLTS AT "P" CONTROL CIRCUIT Q1 IS BACK BIASED AND NON CONDUCTING. CR4 IS FORWARD BIASED PUTTING C1 AT -12V AND CLAMPING THE EMITTER OF Q2 SO THE CIRCUIT WILL NOT OSCILLATE. THEREFORE, THE OUTPUT AT "A" IS A CONSTANT -6 VOLTS.

WITH -6V AT "P", Q1 IS FORWARD BIASED ALLOWING CONDUCTION, THEREFORE, CR4 IS BACK BIASED. Q2 CIRCUIT WILL NOW OSCILLATE, THE OUTPUT OF Q2 IS FED TO THE AMPLIFIER WHICH HAS AN OUTPUT OF -6 TO 0 VOLT PULSES.

TMS CIRCUIT HAS AN OUTPUT ADJUSTABLE FROM 4 TO 45 M.S.



NOTE:
CARD CONNECTIONS ARE REPRESENTED BY LETTERS
TEST POINTS ARE REPRESENTED BY NUMBERS

APPROVALS

D AND R	E OF M
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E-NUMBER
PROD. NO. 177546

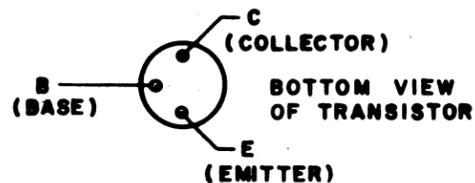
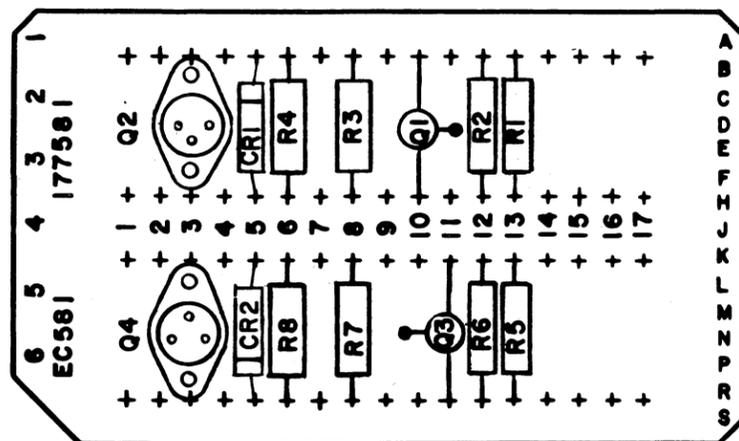
DATE: 11-19-63
P.D. FILE NO 2-96.134.184A
DRAWN S.W. CHKD. [Signature]
ENGD I.S.K. APPD. [Signature]

TELETYPE CORPORATION

177546

EC 581

177581



193217

NOTE:
REFER TO 5016WD FOR MARKING
INFORMATION

REF. DESIGN	TELETYPE PART NO.	TOTAL QTY.	NAME AND DESCRIPTION	LOCATING FUNCTION
R1	137442	2	RESISTOR FIXED, 1500 OHMS	CURRENT LIMIT
R2	118146	2	RESISTOR FIXED, 4700 OHMS	BIAS RESISTOR
R3	129852	2	RESISTOR FIXED, 2200 OHMS	COLLECTOR LOAD
R4	118725	2	RESISTOR FIXED, 270 OHMS	CURRENT LIMIT
R5			SAME AS R1	
R6			SAME AS R2	
R7			SAME AS R3	
R8			SAME AS R4	
Q1	177106	2	TRANSISTOR N-33	AMPLIFIER
Q2	193250	2	TRANSISTOR 2N3213	AMPLIFIER
Q3			SAME AS Q1	
Q4			SAME AS Q2	
	144495	2	PAD, TRANSISTOR	
	193217	1	CIRCUIT CARD, ETCHED	
CR1	181619	2	DIODE, 1N482	CLAMP
CR2			SAME AS CR1	"

CIRCUIT BOARD EC 581

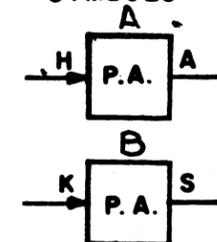
177581

POWER AMPLIFIER (2)

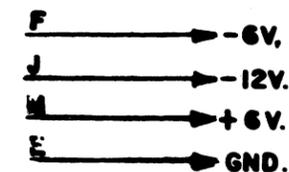
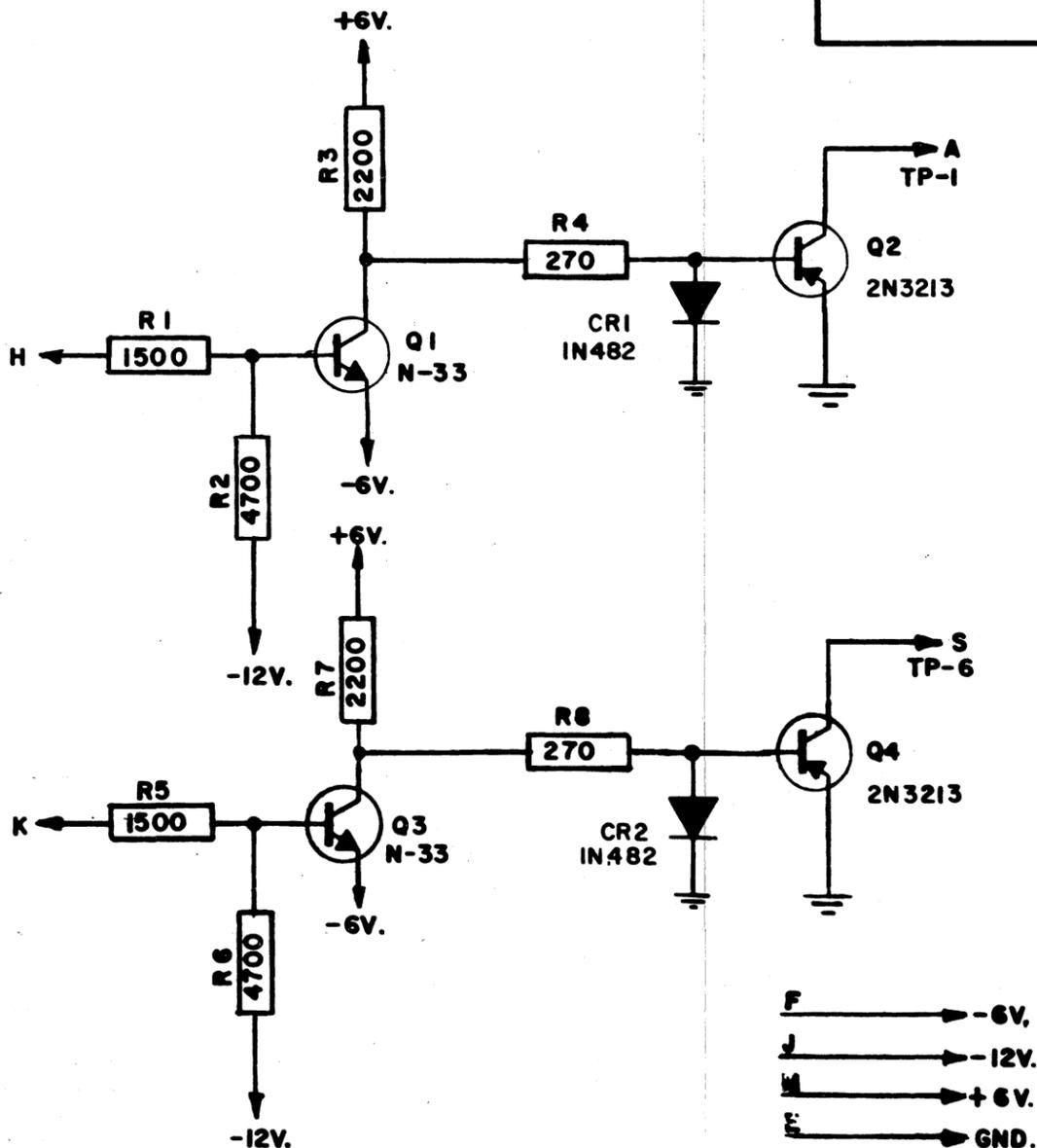
THIS CARD CONSISTS OF TWO IDENTICAL TWO-STAGE COMMON EMITTER AMPLIFIERS. THE OUTPUT TRANSISTOR IS A MEDIUM POWER TYPE CAPABLE OF DELIVERING A LOAD CURRENT OF UP TO .25 AMPERES.

WITH -6 VOLTS APPLIED AT THE INPUT (H,K), THE INPUT TRANSISTOR (Q1,3) IS CUT OFF APPLYING A +6 VOLT TO CUT OFF THE OUTPUT TRANSISTOR (Q2,4). WHEN 0 VOLTS IS APPLIED TO THE INPUT, THE INPUT TRANSISTOR IS FORWARD BIASED DRIVING THE INPUT OF THE OUTPUT TRANSISTOR NEGATIVE TO SATURATE IT. THIS CARD CAN BE USED WITH LOADS CONNECTED TO POWER SUPPLY VOLTAGES UP TO A NOMINAL 48 VOLTS.

SYMBOLS



ISSUE	DATE	AUTH. NO.
2	10-28-63	78979
3	12-30-63	79876
4	5-14-64	79847
5	5-27-66	81127



NOTE:
CARD CONNECTIONS ARE REPRESENTED BY LETTERS
TEST POINTS ARE REPRESENTED BY NUMBERS

APPROVALS

D AND R E OF M
[Signature]

ENG. NO. 177581

DATE: 8-15-63
P.D. FILE NO. 33-A25AA
DRAWN N.A.R. CHKD. *[Signature]*
ENG. R.E.P. APPD. *[Signature]*

TELETYPE CORPORATION

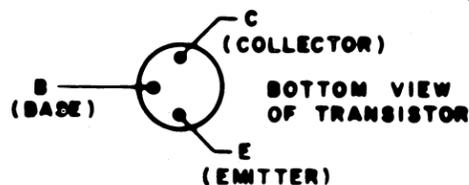
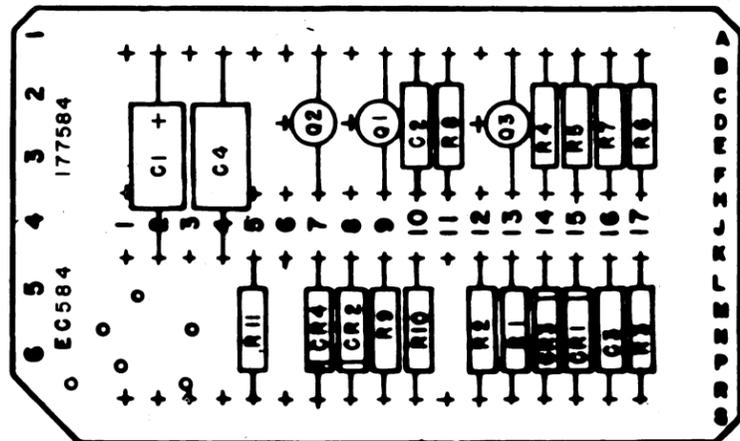
177581

EC584

177584

CIRCUIT BOARD EC584

177584



NOTE:
REFER TO SOHSWD FOR MARKING AND MFG. INFORMATION

REF. DESIGN	TELETYPE PART NO.	TOTAL QTY.	NAME AND DESCRIPTION	LOCATING FUNCTION
R1	137441	2	Resistor 1200 ohms	Collector Load
R2			SAME AS R1	Collector Load
R3	118177	3	Resistor 22K ohms	Gate
R4			SAME AS R3	Base Bias
R5			SAME AS R3	Base Bias
R6	129851	3	Resistor 3300 ohms	Collector Load
R7			SAME AS R6	Inverter Input
R8			SAME AS R6	Crossover
R9	129852	2	Resistor 2200 ohms	Capacitor Recharge
R10			SAME AS R9	Collector Load
R11	118180	1	Resistor 10K ohms	Timing
Q1	177105	3	Transistor P22	Switch
Q2			SAME AS Q1	Switch
Q3			SAME AS Q1	Inverter
C1	171458	1	Capacitor 12 mfd.	Timing
C2	177332	2	Capacitor .002 mfd.	Speedup
C3			SAME AS C2	Coupling
C4	148831	1	Capacitor 1.0 mfd.	Filter
CR1	300102	1	Diode D4	Coupling
CR2	177108	2	DIODE D2	Gate
CR3			SAME AS CR2	Clamp
CR4	177611	1	Diode 1N682	Noise Blocking
	144495	3	Transistor Pad	
EC	148804	1	Circuit Card, Etched	

FIXED ONE-SHOT - 70 ± 14 MS

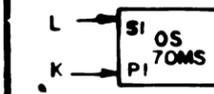
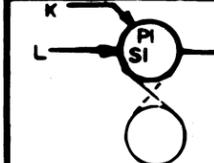
This circuit provides a 70 ± 14 MILLISECOND output in response to a positive going pulse. In the quiescent state Q1 is ON and Q2 is OFF. If pin g is 0 volts, a positive input signal at pin L will turn off Q1, allowing its collector to go to -6 volts. This will turn on Q2. The collector of Q2 then goes from -6 volts to 0 volts. This positive transition is coupled to the base of Q1, keeping it off for a time period determined by R11 and C1. If pin K is -6 volts, the circuit will not respond to a positive transition at pin L.

The output of the one shot should be isolated by the inverter formed with transistor Q3. A 0 volt input at pin E will make pin J -6 volts. A -6 volt input will make pin J go to 0 volts.

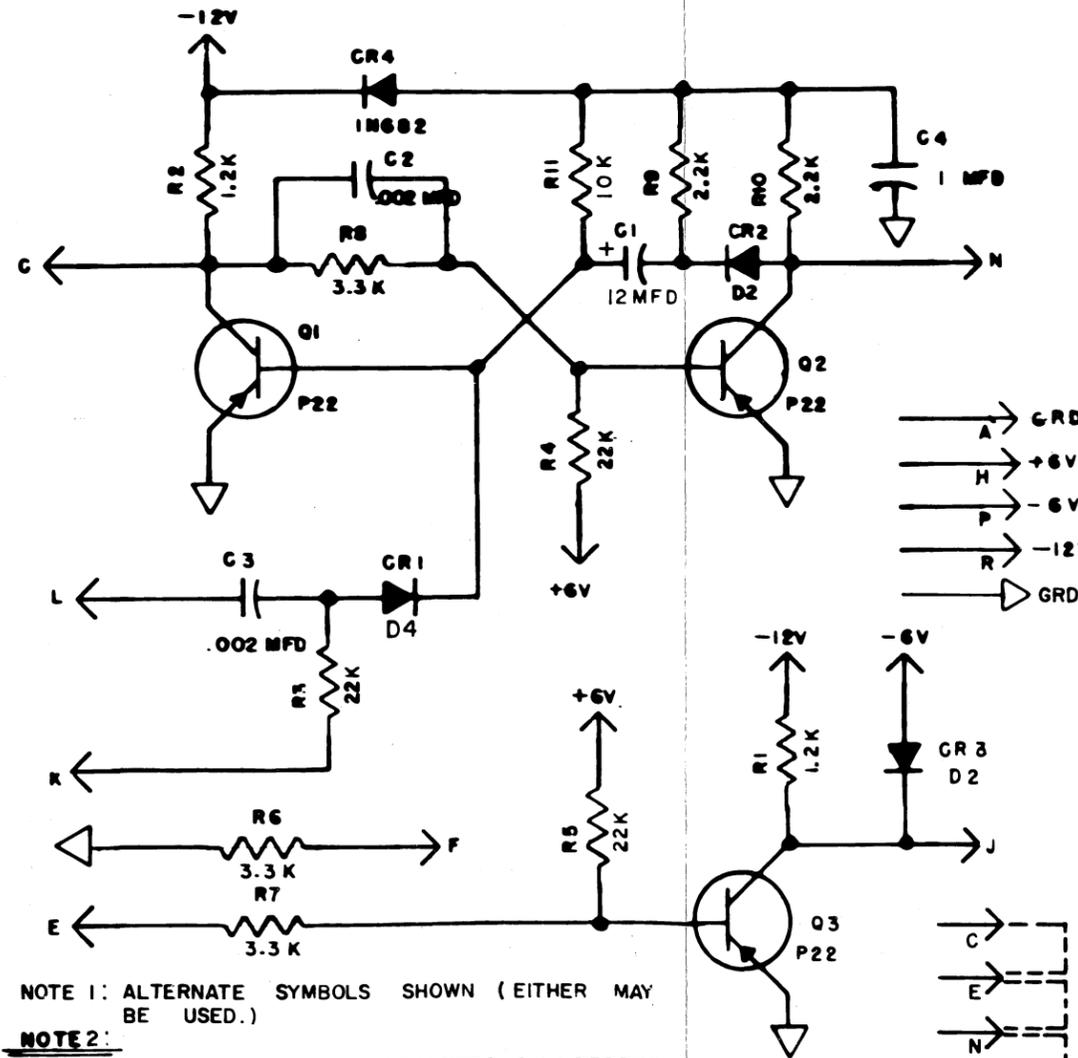
Resistor R6 is used as a collector load for Q2 when it is not loaded by the input resistor R7. This keeps the time-out of the circuit 70 ± 14 MILLISECOND regardless of which side of the one shot is used for an output signal.

The input is always at pin L, the output is at pin J. For a normal (0 volt) output pulse, pin E is strapped to pin C and pin F is strapped to pin H. For an inverted (-6 volt) output pulse, pin H is strapped to pin E.

SYMBOLS (NOTE 1)



ISSUE	DATE	AUTH NO
2	3-26-65	03909
3	7-30-65	88510
4	5-27-66	91127
5	9-14-67	93648-A



NOTE 1: ALTERNATE SYMBOLS SHOWN (EITHER MAY BE USED.)

NOTE 2:

CARD CONNECTIONS ARE REPRESENTED BY LETTERS

TEST POINTS ARE REPRESENTED BY NUMBERS

NOTE 3: LABEL OUTPUT N OR I (NORMAL OR INVERTED) TO SHOW OUTPUT STRAPPING COMBINATION USED.

STRAP AS REQUIRED

APPROVALS

D AND R E OF M

S. NUMBER

PROD NO. 177584

DATE 2-7-64

P.D. FILE NO 2-96134.184A

DRAWN S.W. CHKD *W.H.*

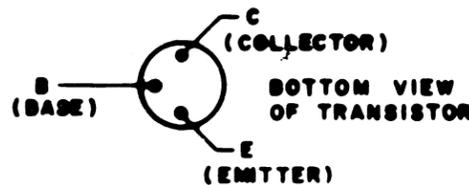
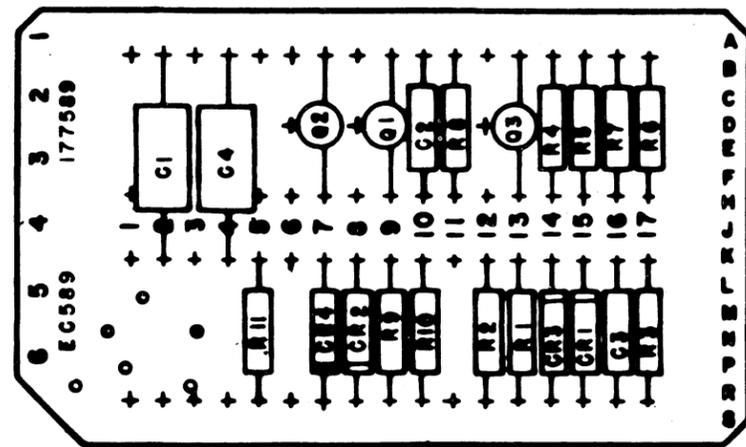
ENGD / F.K.H. APPD

TELETYPE CORPORATION

177584

EC 589

177589



NOTE:
REFER TO SOI5WD FOR MARKINGS AND MFG. INFORMATION

REF. DESIGN	TELETYPE PART NO.	TOTAL QTY.	NAME AND DESCRIPTION	LOCATING FUNCTION
R1	137441	2	Resistor 1200 ohms	Collector Load
R2			SAME AS R1	Collector Load
R3	118177	3	Resistor 22K ohms	Gate
R4			SAME AS R3	Base Bias
R5			SAME AS R3	Base Bias
R6	129851	3	Resistor 3300 ohms	Collector Load
R7			SAME AS R6	Inverter Input
R8			SAME AS R6	Crossover
R9	129852	2	Resistor 2200 ohms	Capacitor Recharge
R10			SAME AS R9	Collector Load
R11	118150	1	Resistor 15K ohms	Timing
Q1	177105	3	Transistor P22	Switch
Q2			SAME AS Q1	Switch
Q3			SAME AS Q1	Inverter
C1	305371	1	Capacitor .022 MFD.	Timing
C2	177332	2	Capacitor .002 mfd.	Speedup
C3			SAME AS C2	Coupling
C4	148831	1	Capacitor 1.0 mfd.	Filter
CR1	300102	1	DIODE, D4	Coupling
CR2	177108	2	DIODE, D2	Gate
CR3			SAME AS CR2	Clamp
CR4	177611	1	Diode 1N682	Noise Blocking
	144495	3	Transistor Pad	
EC	148804	1	Circuit Card, Etched	

CIRCUIT BOARD EC589

177589

FIXED ONE-SHOT - 200μS

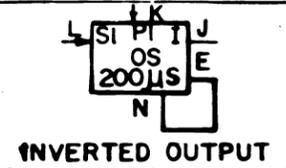
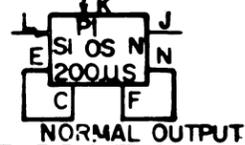
This circuit provides a 200 MICROSECOND output in response to a positive going pulse. In the quiescent state Q1 is ON and Q2 is OFF. If pin G is 0 volt, a positive input signal at pin L will turn off Q1, making its collector go to -6 volts. This will turn on Q2. The collector of Q2 then goes from -6 volts to 0 volts. This positive transition is coupled to the base of Q1, keeping it off for a time period determined by R11 and C1. If pin K is -6 volts, the circuit will not respond to a positive transition at pin L.

The output of the one shot should be isolated by the inverter formed with transistor Q3. A 0 volt input at pin E will make pin J -6 volts. A -6 volt input will make pin J go to 0 volts.

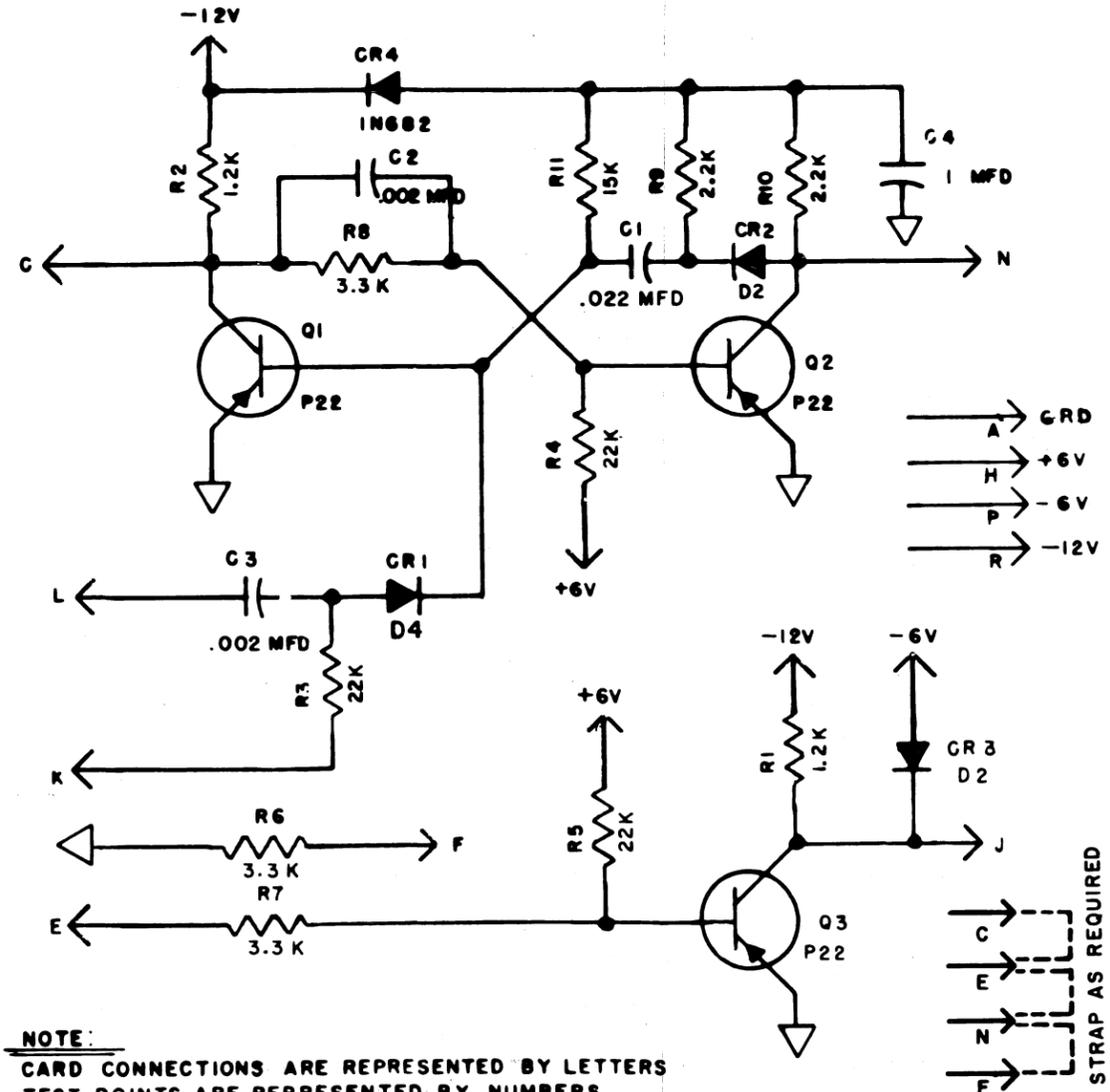
Resistor R6 is used as a collector load for Q2 when it is not loaded by the input resistor R7. This keeps the time-out of the circuit 200 MICROSECONDS regardless of which side of the one shot is used for an output signal.

The input is always at pin L, the output is at pin J. For a normal (0 volt) output pulse, pin E is strapped to pin C and pin F is strapped to pin N. For an inverted (-6 volt) output pulse, pin N is strapped to pin E.

SYMBOLS



ISSUE	DATE	AUTH NO
1	5-20-64	16620-R
2	3-26-65	83969
3	5-7-65	86758
4	5-14-65	86533
5	7-3-67	94162



NOTE:
CARD CONNECTIONS ARE REPRESENTED BY LETTERS
TEST POINTS ARE REPRESENTED BY NUMBERS

APPROVALS

D AND R E OF M

E-NUMBER

PROD NO 177589

DATE 2-7-64

PD FILE NO 2-96.134.184A

DRAWN S.W. CHKD *[Signature]*

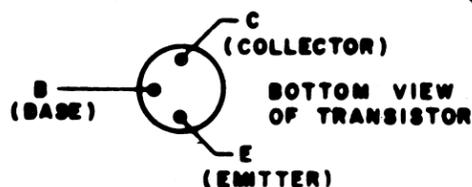
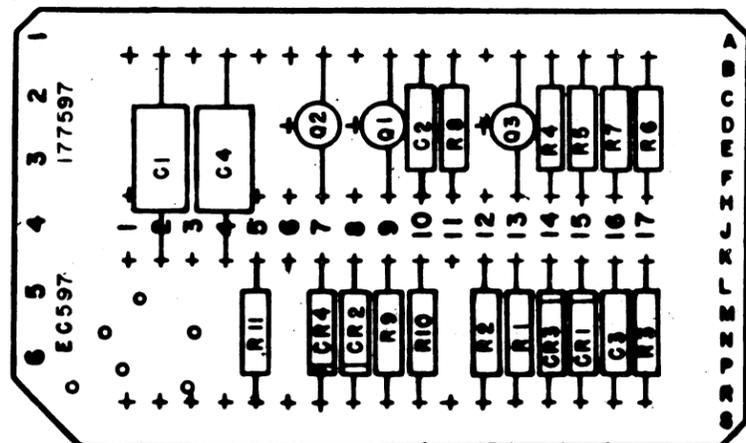
ENGR 'F.K.H. APPD *[Signature]*

TELETYPE CORPORATION

177589

EC597

177597



NOTE:
REFER TO SOIWD FOR MARKING AND MFG.
INFORMATION

REF. DESIGN	TELETYPE PART NO.	TOTAL QTY.	NAME AND DESCRIPTION	LOCATING FUNCTION
R1	137441	2	Resistor 1200 ohms	Collector Load
R2			Resistor 1200 ohms	Collector Load
R3	118177	3	Resistor 22K ohms	Gate
R4			Resistor 22K ohms	Base Bias
R5			Resistor 22K ohms	Base Bias
R6	129851	3	Resistor 3300 ohms	Collector Load
R7			Resistor 3300 ohms	Inverter Input
R8			Resistor 3300 ohms	Crossover
R9	129852	2	Resistor 2200 ohms	Capacitor Recharge
R10			Resistor 2200 ohms	Collector Load
R11	118149	1	Resistor 12K ohms	Timing
Q1	177105	3	Transistor P22	Switch
Q2			Transistor P22	Switch
Q3			Transistor P22	Inverter
C1	192938	1	Capacitor .15 MFD	Timing
C2	177332	2	Capacitor .002 mfd.	Speedup
C3			Capacitor .002 mfd.	Coupling
C4	148831	1	Capacitor 1.0 mfd.	Filter
CR1	300102	1	Diode D4	Coupling
CR2	177108	2	Diode D2	Gate
CR3			Diode D2	Clamp
CR4	177611	1	Diode 1N682	Noise Blocking
	144495	3	Transistor Pad	
EC	148804	1	Circuit Card, Etched	

CIRCUIT BOARD EC597

177597

FIXED ONE-SHOT -1MS

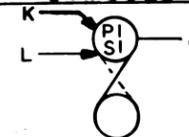
This circuit provides a 1 MILLISECOND output in response to a positive going pulse. In the quiescent state Q1 is ON and Q2 is OFF. If pin K is 0 volts, a positive input signal at pin L will turn off Q1, making its collector go to -6 volts. This will turn on Q2. The collector of Q2 then goes from -6 volts to 0 volts. This positive transition is coupled to the base of Q1, keeping it off for a time period determined by R11 and C1. If pin K is -6 volts, the circuit will not respond to a positive transition at pin L.

The output of the one shot should be isolated by the inverter formed with transistor Q3. A 0 volt input at pin E will make pin J -6 volts. A -6 volt input will make pin J go to 0 volts.

Resistor R6 is used as a collector load for Q2 when it is not loaded by the input resistor R7. This keeps the time out of the circuit 1MILLISECOND regardless of which side of the one shot is used for an output signal.

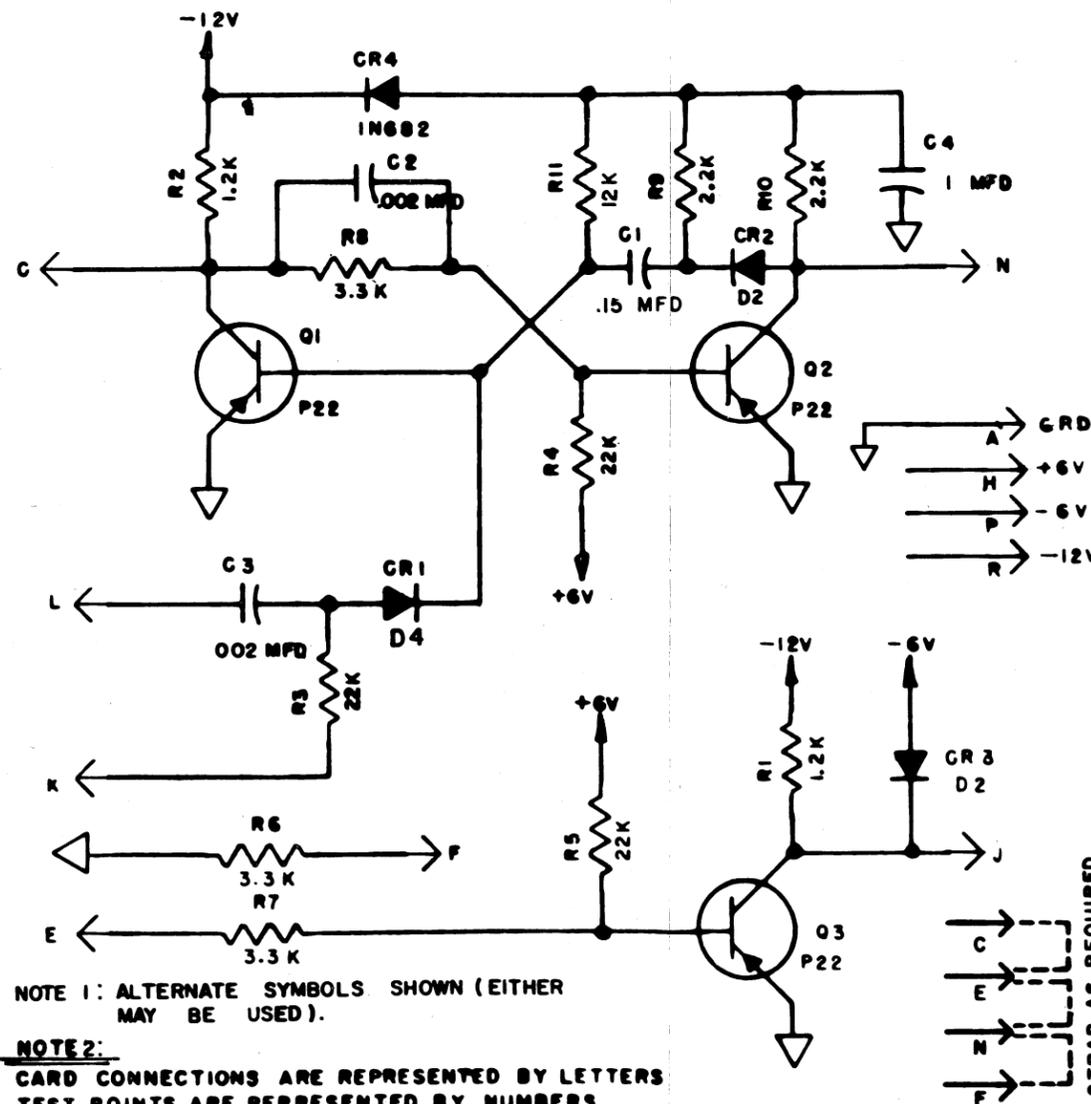
The input is always at pin L, the output is at pin J. For a normal (0 volt) output pulse, pin E is strapped to pin C and pin F is strapped to pin N. For an inverted (-6 volt) output pulse, pin N is strapped to pin E.

SYMBOLS (NOTE 1)



NOTE 3

ISSUE	DATE	AUTH NO
1	6-10-64	15626-R
2	3-26-65	83969
3	6-18-65	88175
4	5-27-66	91127
5	5-21-68	97625



NOTE 1: ALTERNATE SYMBOLS SHOWN (EITHER MAY BE USED).

NOTE 2:
CARD CONNECTIONS ARE REPRESENTED BY LETTERS
TEST POINTS ARE REPRESENTED BY NUMBERS
NOTE 3: LABEL OUTPUT N OR I (NORMAL OR INVERTED) TO SHOW
OUTPUT STRAPPING COMBINATION USED.

APPROVALS

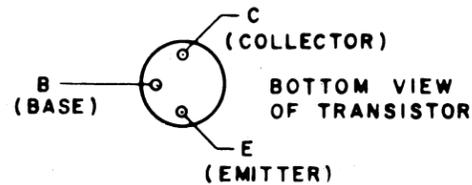
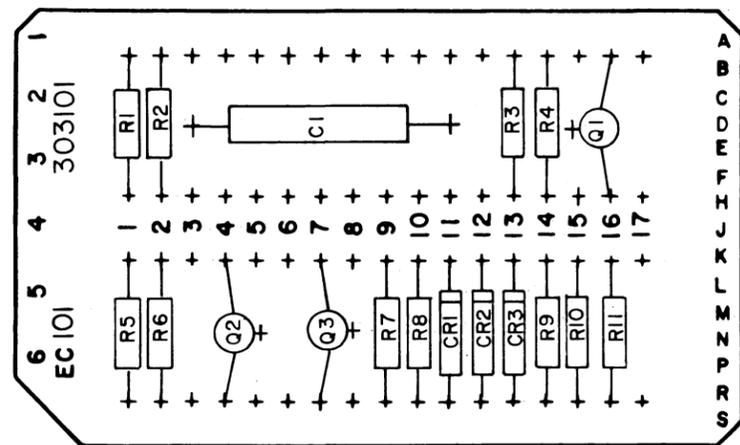
DESIGNED BY	CHECKED BY
DRAWN BY	APPROVED BY
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PROD NO 177597	
DATE 4-17-63	
PD FILE NO 2-96.134.184A	
DRAWN G.R.S.	CHKD W.D.M.
ENGR F.K.M.	APPD J.M.D.

TELETYPE CORPORATION

177597

EC 101

303101



NOTE:
REFER TO 5016WD FOR MARKING
INFORMATION

REF. DESIGN	TELETYPE PART NO.	TOTAL QTY.	NAME AND DESCRIPTION	LOCATING FUNCTION
R1	118144	1	RESISTOR, FIXED 2700Ω	BASE BIAS
R2	137442	1	RESISTOR, FIXED 1500Ω	BASE BIAS
R3	118186	1	RESISTOR, FIXED 5600Ω	BASE INPUT
R4	118177	2	RESISTOR, FIXED 22K	BASE BIAS
R5	129854	2	RESISTOR, FIXED 10K	BASE BIAS
R6			SAME AS R5	BASE BIAS
R7			SAME AS R4	BASE BIAS
R8	129851	1	RESISTOR, FIXED 3300Ω	BASE BIAS
R9	137441	3	RESISTOR, FIXED 1200Ω	COLLECTOR LOAD
R10			SAME AS R9	COLLECTOR LOAD
R11			SAME AS R10	COLLECTOR LOAD
C1	171579	1	CAPACITOR, .47MFD	INTEGRATION CAPACITOR
CR1	177108	3	DIODE, D2	CLAMP
CR2			SAME AS CR1	CLAMP
CR3			SAME AS CR1	CLAMP
Q1	177105	3	TRANSISTOR, P22	ACTIVE AMPLIFIER
Q2			SAME AS Q1	ACTIVE AMPLIFIER
Q3			SAME AS Q1	ACTIVE INVERTER
EC	308530	1	ETCHED CIRCUIT BOARD	
	144495	3	PAD, TRANSISTOR	

CIRCUIT BOARD EC 101

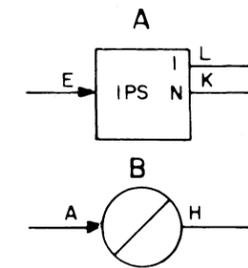
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INTERGRATED PULSE SHAPER
AND INVERTER

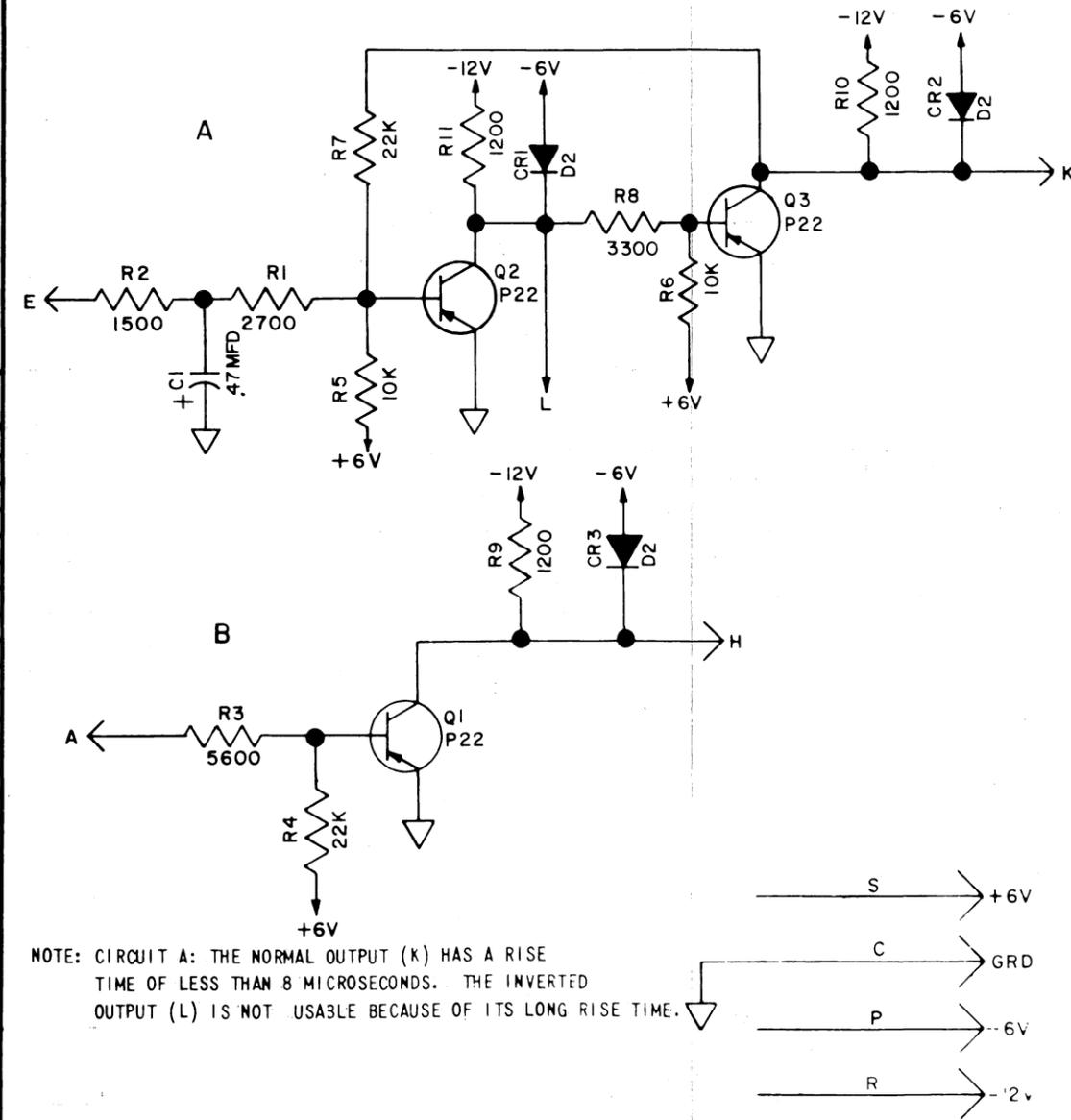
CIRCUIT A: THE PURPOSE OF THIS CIRCUIT IS TO REJECT NOISE PULSES OF 500 MICROSECONDS OR LESS IN DURATION AND TO PASS PULSES OF LONGER DURATION. THE CIRCUIT PRODUCES A NORMAL OR INVERTED OUTPUT. R1, R2, AND C1 FUNCTION AS AN INTEGRATION CIRCUIT WHILE Q2 AND Q3 FORM A REGENERATIVE AMPLIFIER WHICH SHARPENS UP THE INTEGRATED INPUT SIGNAL. IF INPUT (E) IS 0V, Q2 IS NON-CONDUCTING AND OUTPUT (K) IS 0V. IF INPUT (E) IS -6V, Q2 WILL CONDUCT AFTER 500 MICROSECOND DELAY AND OUTPUT (K) WILL GO TO -6V.

CIRCUIT B: WHEN INPUT (A) IS OPEN OR AT 0V, Q1 IS NON-CONDUCTING AND THE OUTPUT (H) IS CLAMPED AT -6V BY CR3. WHEN INPUT (A) IS AT -6V, Q1 IS CONDUCTING AND THE OUTPUT (H) IS AT 0V FOR THE DURATION OF THE -6V INPUT.

SYMBOLS

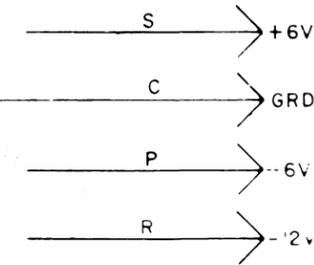


ISSUE DATE 8-23-67 18728-R



NOTE: CIRCUIT A: THE NORMAL OUTPUT (K) HAS A RISE TIME OF LESS THAN 8 MICROSECONDS. THE INVERTED OUTPUT (L) IS NOT USABLE BECAUSE OF ITS LONG RISE TIME.

NOTE:
CARD CONNECTIONS ARE REPRESENTED BY LETTERS
TEST POINTS ARE REPRESENTED BY NUMBERS



APPROVALS
D AND R F OF M

EN NUMBER
PROD NO 303101

DATE 12-5-65
PD FILE NO 2-96,134,184A
DRAWN PSD TCHKC
ENGR WRF APPC

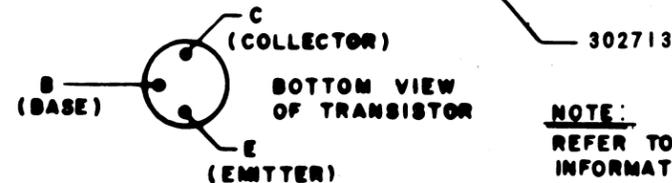
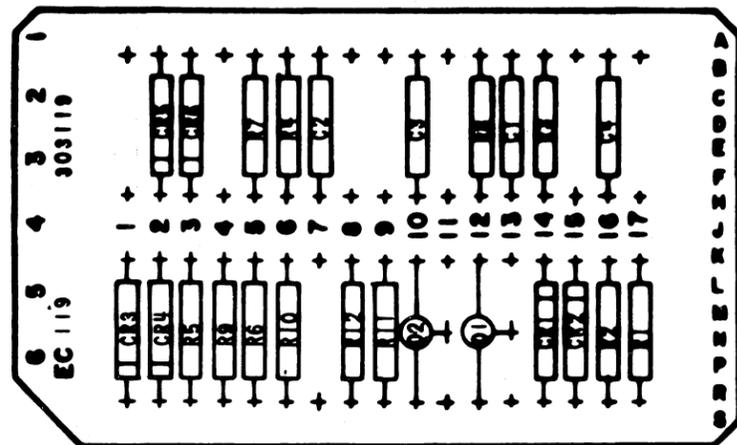
TELETYPE CORPORATION

303101

EC119
303119

CIRCUIT BOARD EC 119

303119



NOTE:
REFER TO 505WD FOR MARKING
INFORMATION

REF. DESIGN	TELETYPE PART NO.	TOTAL QTY.	NAME AND DESCRIPTION	LOCATING FUNCTION
CI TO CM	177332	4	CAPACITOR, CERAMIC .002 MFD	DIFFERENTIATING COUPLING
CR1 TO CR6	177106	6	DIODE, D2	CLAMP AND GATING
R1 TO R2	137441	2	RESISTOR, FIXED 1.2K	COLLECTOR LOAD
R3 TO R8	118177	6	RESISTOR, FIXED 2.2K	PRIME AND BIAS
R9 TO R10	137604	2	RESISTOR, FIXED 620	BASE BIAS
R11 TO R12	129851	2	RESISTOR, FIXED 3.3K	CROSS COUPLING
Q1 TO Q2	177105	2	TRANSISTOR, P22	SWITCH
	144485	2	PAD, TRANSISTOR	
EC	302713	1	CIRCUIT CARD, ETCHED	

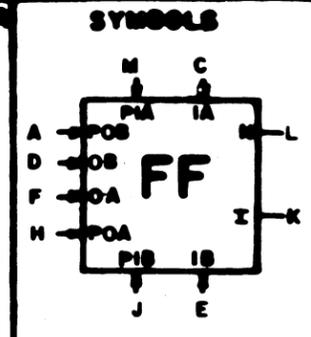
FLIP-FLOP

THE FLIP-FLOP CONSISTS OF A REGENERATIVE RING OF TWO TRANSISTORS WITH THE OUTPUT OF THE FIRST CONNECTED TO THE INPUT OF THE SECOND, AND VICE VERSA. WITH THIS ARRANGEMENT WHEN ONE TRANSISTOR IS CONDUCTING, THE OTHER IS CUT OFF. THE COLLECTOR VOLTAGE OF THE "OFF" TRANSISTOR IS CLAMPED TO -6V BY THE CLAMP DIODE AND THE COLLECTOR OF THE "ON" TRANSISTOR WILL HAVE A POTENTIAL OF -.3V.

THE STATE OF THE FLIP-FLOP IS CHANGED BY APPLYING A POSITIVE PULSE TO A SET INPUT OF THE CONDUCTING TRANSISTOR, PROVIDING A PRIMING VOLTAGE IS PRESENT. THIS POSITIVE PULSE IS DIFFERENTIATED AND USED TO TURN THE "ON" TRANSISTOR OFF. A -6V APPLIED TO THE PRIMING RESISTOR WILL INHIBIT THE POSITIVE PULSE FROM REACHING THE BASE OF THE TRANSISTOR, BY PREVENTING THE CONDUCTION OF THE GATING DIODE.

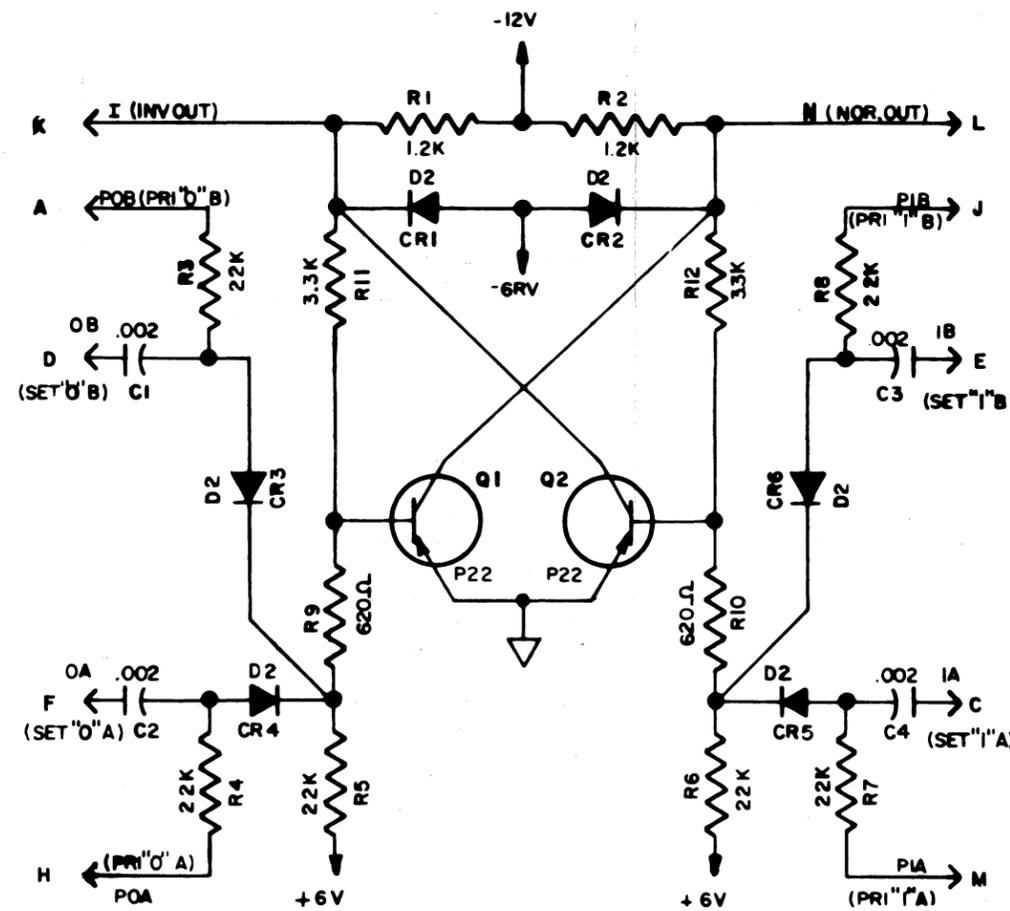
OPERATING CHARACTERISTICS

CONDITIONS: VOLTAGE NOMINAL, PRIME INPUTS GROUNDED. ONE MICRO-SECOND RISE TIME FOR THE INPUT SET PULSE AND A 2000 OHM LOAD RESISTOR FROM THE COLLECTORS TO GROUND.
RESULTS: THE MINIMUM SET PULSE FOR OPERATION WILL BE IN THE RANGE FROM 2 TO 3.5 VOLTS.
CONDITIONS: VOLTAGE NOMINAL, SET PULSE 6 VOLTS (-6 TO 0), ONE MICRO-SECOND RISE TIME FOR THE SET PULSE AND A 2000 OHM LOAD RESISTOR FROM THE COLLECTORS TO GROUND.
RESULTS: THE MINIMUM PRIME VOLTAGE WILL BE IN THE RANGE FROM -2 TO -3.5 VOLTS.



REVISIONS

REV	DATE	AUTH NO
1	4-8-65	16795-R



NOTE:
CARD CONNECTIONS ARE REPRESENTED BY LETTERS



APPROVALS

D AND R E OF M

E-NUMBER

PROD. NO. 303119

DATE 1-21-65

P.O. FILE NO I-A134/132AA

DRAWN G.R.S CHKD *[Signature]*

ENGD FHK APP'D *[Signature]*

TELETYPE CORPORATION

303119

NOTE:
X-HOLE
TO BE REDRILLED TO
.068 DIA. (2 PLS)

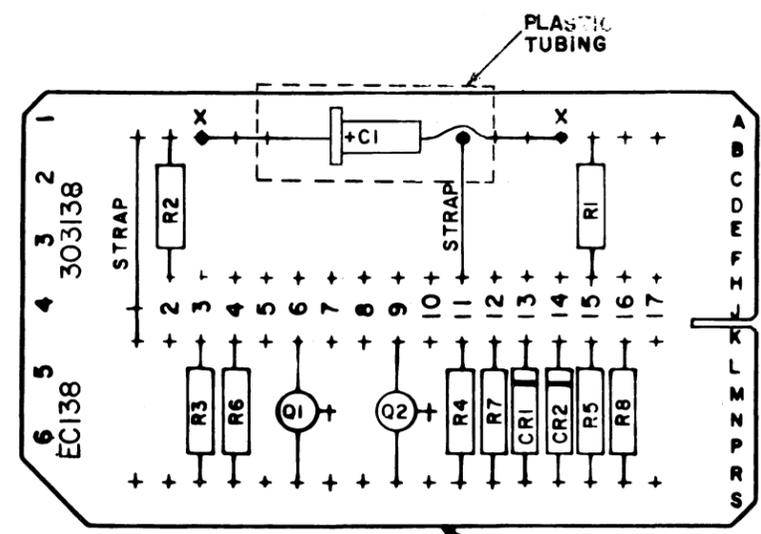
EC 138

303138

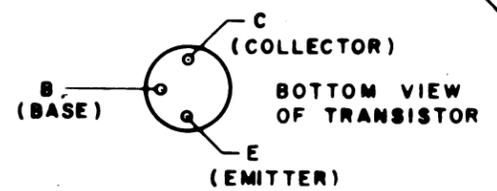
INTEGRATED PULSE
SHAPER

CIRCUIT BOARD EC 138

303138



STAMPING ON CIRCUIT BOARD	ALPHA NUMERIC CONVERSION CHART	
	NUMERICAL CONVERSION FOR 15 PT. CARDS WHEN USED WITH 36 PT. CONNECTOR	NUMERICAL CONVERSION FOR 15 PT. CARDS WHEN USED WITH 36 PT. CONNECTOR
A	1	22
B	2	23
C	3	24
D	4	25
E	5	26
F	6	27
G	7	28
H	8	29
I	9	30
J	10	31
K	11	32
L	12	33
M	13	34
N	14	35
O	15	36

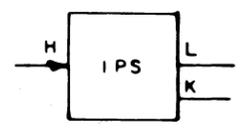


NOTE:
REFER TO 5016WD FOR MARKING INFORMATION

The purpose of this circuit is to reject noise pulses of 20 MILLISECONDS or less in time duration, and to pass pulses having longer time duration. The circuit produces a normal or inverted output which is delayed approximately 20 MILLISECONDS

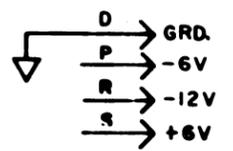
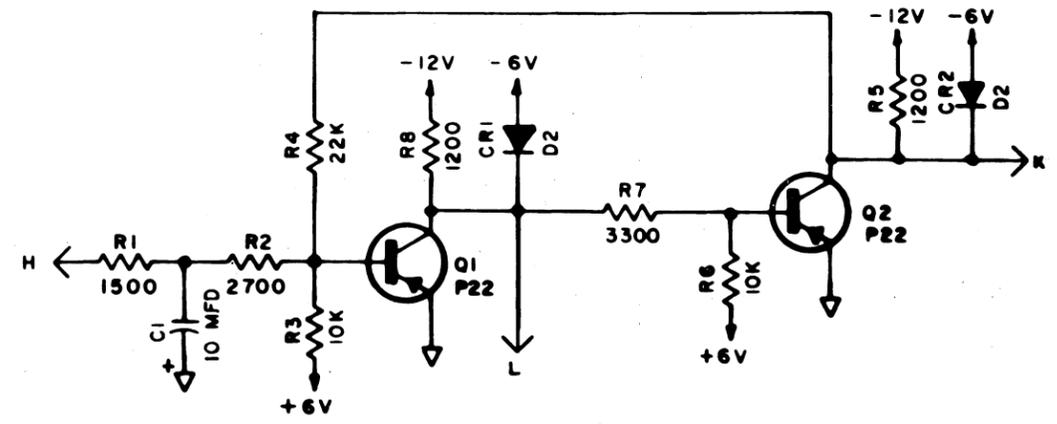
R1, R2 and C1 are connected to function as an integration circuit, while Q1, Q2 and associated circuitry reshape signals which are passed by the integration circuit. Normally the input at H is either 0 or -6 volts. If zero, Q1 is non-conducting, and if -6 V, Q1 is saturated, bias current supplied through R1 and R2. Q1 and Q2 form a regenerative amplifier which sharpens up the integrated input signal. Normal and inverted outputs are available at "K" and "L", HOWEVER ONLY "K", THE NORMAL OUTPUT SHOULD BE USED WHEN A FAST RISE TIME IS DESIRED.

SYMBOLS



ISSUE	DATE	AUTH NO.
1	1-6-66	17002-R

REF. DESIGN	TELETYPE PART NO.	TOTAL QTY	NAME AND DESCRIPTION	LOCATING FUNCTION
C1	137312	1	Capacitor, 10MF POLARIZED TANTALUM	Integration Cap.
CR1	177108	2	Diode, D2	Clamp
CR2			Same as CR1	Clamp
R1	137442	1	Resistor, Fixed 1500 Ohms	Base Bias
R2	118144	1	Resistor, Fixed 2700 Ohms	" "
R3	118180	2	Resistor, Fixed 10K Ohms	" "
R4	118177	1	Resistor, Fixed 22K Ohm	" "
R5	137441	2	Resistor, Fixed 1200 Ohm	Collector Load
R6			Same as R3	Base Bias
R7	129851	1	Resistor, Fixed 3300 Ohm	" "
R8			Same as R5	Collector Load
Q1	177105	2	Transistor, P22	Amplifier
Q2			Same as Q1	"
EC	172062	1	Circuit Card, Etched	
	144495	2	Strap, Bare 24 AWG, PAD, TRANSISTOR	



NOTE:
CARD CONNECTIONS ARE REPRESENTED BY LETTERS
TEST POINTS ARE REPRESENTED BY NUMBERS

APPROVALS

D AND B: [Signature]
E OF M: [Signature]

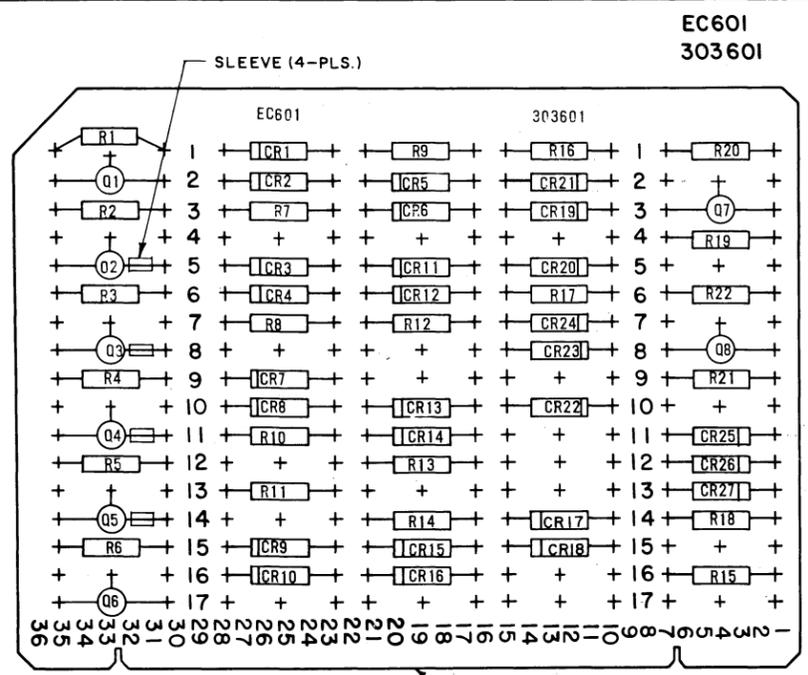
E-NUMBER
PROJ. NO. 303138

DATE 11-11-65
P.D. FILE NO 2-96.134.184A

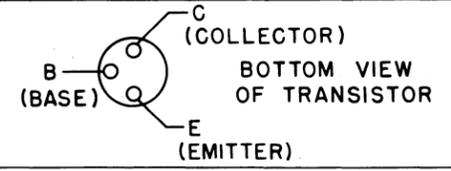
DRAWN GRS CHKD
ENGD ISK APPD

TELETYPE CORPORATION

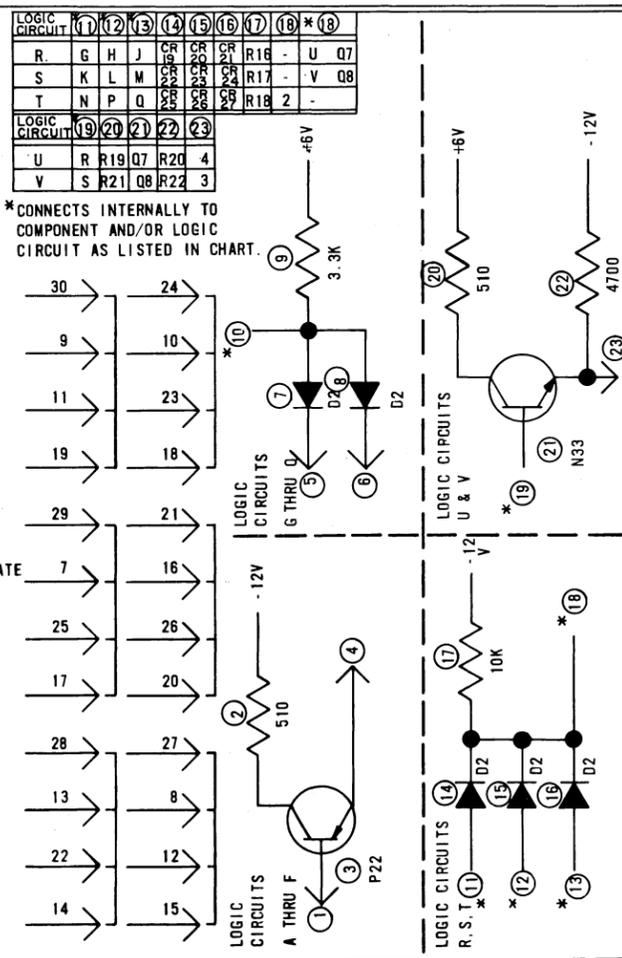
303138



NOTE:
REFER TO 6050WD FOR BASIC MARKING INFORMATION



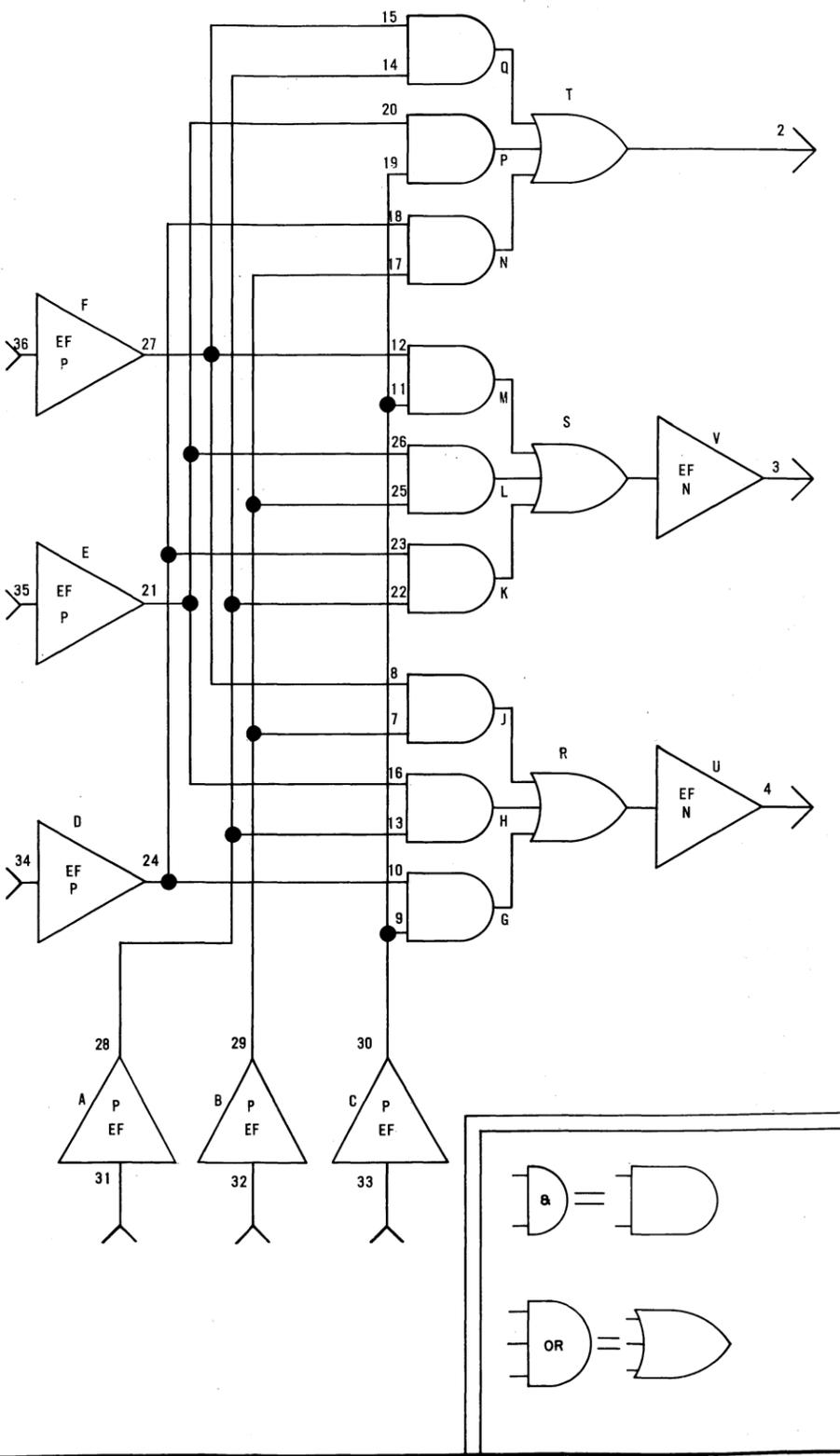
LOGIC CIRCUIT	(5)	(6)	(7)	(8)	(9)	(10)
G	9	10	CR1	CR2	R7	R CR19
H	13	16	CR3	CR4	R8	R CR20
J	7	8	CR5	CR6	R9	R CR21
K	22	23	CR7	CR8	R10	S CR22
L	25	26	CR9	CR10	R11	S CR23
M	11	12	CR11	CR12	R12	S CR24
N	17	18	CR13	CR14	R13	T CR25
P	19	20	CR15	CR16	R14	T CR26
Q	14	15	CR17	CR18	R15	T CR27



- NOTES:
1. CIRCLED NUMERALS INDICATE COMPONENT OR INPUT/OUTPUT DESIGNATIONS.
 2. NUMBERS NOT CIRCLED INDICATE PIN NUMBERS
 3. LETTERS INDICATE LOGIC CIRCUIT DESIGNATION.

6 INPUT, 3 OUTPUT SPECIAL PURPOSE GATE

THIS CIRCUIT COMPARES TWO 0 VOLT SIGNALS, ONE APPLIED TO A, B, OR C AND THE OTHER APPLIED TO D, E, OR F, AND GIVES A 0 VOLT OUTPUT AT T, U, OR V, DEPENDING ON THE COMBINATION OF INPUT SIGNALS. FOR MORE DETAILED DESCRIPTION, SEE SPECIFICATION OF HIGH SPEED, EDC, TYPE 4 RECEIVER.



CIRCUIT BOARD EC

REF. DESIG.	TELETYPE PART NO.	TOTAL QTY.	NAME AND DESCRIPTION	LOCATING FUNCTION
R1	137603	8	RESISTOR, FIXED 510 OHMS	COLLECTOR LOAD
R2			SAME AS R1	COLLECTOR LOAD
R3			SAME AS R1	COLLECTOR LOAD
R4			SAME AS R1	COLLECTOR LOAD
R5			SAME AS R1	COLLECTOR LOAD
R6			SAME AS R1	COLLECTOR LOAD
R7	129851	9	RESISTOR, FIXED 3.3K OHMS	BIAS
R8			SAME AS R7	BIAS
R9			SAME AS R7	BIAS
R10			SAME AS R7	BIAS
R11			SAME AS R7	BIAS
R12			SAME AS R7	BIAS
R13			SAME AS R7	BIAS
R14			SAME AS R7	BIAS
R15			SAME AS R7	BIAS
R16	118180	3	RESISTOR, FIXED 10K OHMS	
R17			SAME AS R16	
R18			SAME AS R16	
R19			SAME AS R1	COLLECTOR LOAD
R20	118146	2	RESISTOR, FIXED 4.7K OHMS	EMITTER LOAD
R21			SAME AS R1	COLLECTOR LOAD
R22			SAME AS R20	EMITTER LOAD
CR1	177108	27	DIODE, D2	GATE
CR2			SAME AS CR1	
CR3			SAME AS CR1	
CR4			SAME AS CR1	
CR5			SAME AS CR1	
CR6			SAME AS CR1	
CR7			SAME AS CR1	
CR8			SAME AS CR1	
CR9			SAME AS CR1	
CR10			SAME AS CR1	
CR11			SAME AS CR1	GATE
CR12			SAME AS CR1	GATE
CR13			SAME AS CR1	GATE
CR14			SAME AS CR1	GATE
CR15			SAME AS CR1	GATE
CR16			SAME AS CR1	GATE
CR17			SAME AS CR1	GATE
CR18			SAME AS CR1	GATE
CR19			SAME AS CR1	GATE
CR20			SAME AS CR1	GATE
CR21			SAME AS CR1	GATE
CR22			SAME AS CR1	GATE
CR23			SAME AS CR1	GATE
CR24			SAME AS CR1	GATE
CR25			SAME AS CR1	GATE
CR26			SAME AS CR1	GATE
CR27			SAME AS CR1	GATE
Q1	177105	6	TRANSISTOR P22	PNP EMITTER FOLLOWER
Q2			SAME AS Q1	PNP EMITTER FOLLOWER
Q3			SAME AS Q1	PNP EMITTER FOLLOWER
Q4			SAME AS Q1	PNP EMITTER FOLLOWER
Q5			SAME AS Q1	PNP EMITTER FOLLOWER
Q6			SAME AS Q1	PNP EMITTER FOLLOWER
Q7	177106	2	TRANSISTOR N33	NPN EMITTER FOLLOWER
Q8			SAME AS Q7	NPN EMITTER FOLLOWER
EC	302701	1	BOARD, ETCHED CIRCUIT	
	144495	8	PAD TRANSISTOR	
	144138	14	EYELETS	
	60340RM	4	SLEEVING	

303601

REVISIONS		
ISSUE	DATE	AUTH. NO.
1	6-10-64	15626-R
2	4-20-65	86757
3	3-6-69	98516

APPROVALS

R AND D	E OF M
<i>HJK</i>	<i>U</i>

E-NUMBER

PROD NO. 303601

DATE 9-6-63

R&D FILE 2-96.134.184AA

DRAWN S.W. R.H.J. CHKD. W.B. MC.

ENGD. J.C.T. APPD. B.G.G.

TELETYPE CORPORATION

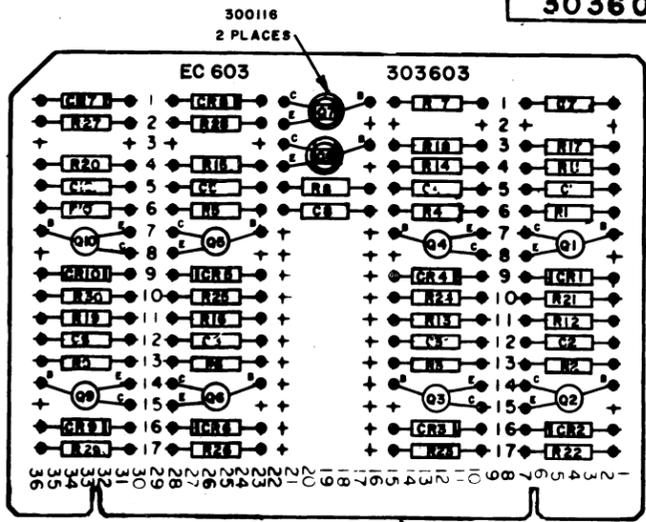
303601

EC 603
303603

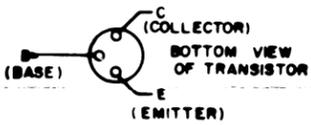
INHIBIT GATE OR
INVERTER (10)

CIRCUIT BOARD EC603

303603



NOTE:
REFER TO 8050 WD FOR BASIC MARKING INFORMATION.



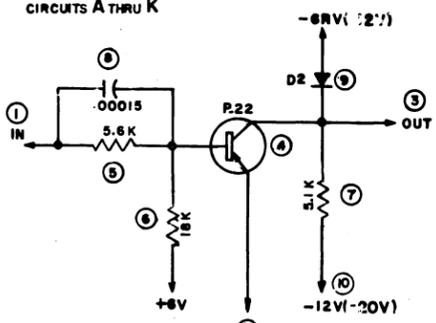
THIS CARD CONSISTS OF TEN IDENTICAL CIRCUITS. WHEN TERMINALS ② ARE TIED TO 0 VOLTS, THE CIRCUIT ACTS AS AN INVERTER. WHEN TERMINALS ② ARE USED AS INPUTS, THE CIRCUIT ACTS AS AN INHIBIT GATE.

INVERTER OPERATION WHEN 0 VOLTS IS APPLIED AT INPUT TERMINAL ① TRANSISTOR ④ IS IN CUT-OFF CAUSING OUTPUT TERMINAL ③ TO BE CLAMPED AT -6 VOLTS. WHEN -6 VOLTS IS APPLIED AT INPUT TERMINAL ①, TRANSISTOR ④ SATURATES CAUSING OUTPUT TERMINAL ③ TO BE APPROXIMATELY -0.3 VOLTS. SPEED-UP CAPACITOR ⑥ IMPROVES OUTPUT SIGNAL RISE TIME.

INHIBIT GATE OPERATION INPUT TERMINALS ① AND ② VARY BETWEEN 0 VOLTS AND -6 VOLTS. WHEN INPUT TERMINAL ② IS AT -6 VOLTS, TRANSISTOR ④ IS IN CUT-OFF CAUSING TERMINAL ③ TO BE CLAMPED AT -6 VOLTS. INDEPENDENT OF VOLTAGE AT INPUT TERMINAL ①. WHEN INPUT TERMINAL ② IS AT 0 VOLTS, THE CIRCUIT DESCRIPTION IS THE SAME AS THE INVERTER DESCRIBED ABOVE.

THE COLLECTOR VOLTAGE (-12V) IS BROUGHT OUT AT THREE SEPARATE TERMINALS AS SHOWN TO THE RIGHT. THIS WILL ENABLE DELETING COLLECTOR VOLTAGES ON CERTAIN INVERTERS OR INHIBIT GATES, SO THAT MULTIPLE CIRCUITS CAN BE TIED TOGETHER AT THEIR OUTPUTS WITHOUT EXCESSIVE LOADING.

CIRCUITS A THRU K



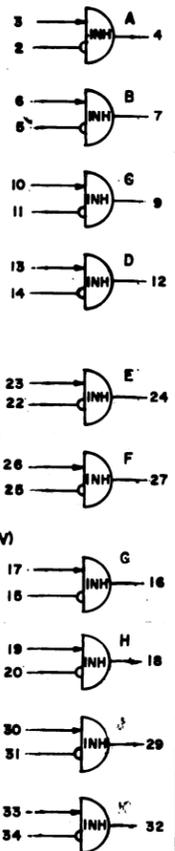
NOTE:
CIRCLED NUMBERS DESIGNATE COMPONENTS OR INPUT AND OUTPUT TERMINALS ON MULTIPLE CIRCUITS.

TABLE

	①	②	③	④	⑤	⑥	⑦	⑧	⑨	⑩
A	2	3	4	Q1	R1	R11	R21	C1	CR1	1
B	5	6	7	Q2	R2	R12	R22	C2	CR2	1
C	11	10	9	Q3	R3	R13	R23	C3	CR3	1
D	14	13	12	Q4	R4	R14	R24	C4	CR4	1
E	22	23	24	Q5	R5	R15	R25	C5	CR5	21
F	25	26	27	Q6	R6	R16	R26	C6	CR6	21
G	16	17	18	Q7	R7	R17	R27	C7	CR7	35
H	20	19	18	Q8	R8	R18	R28	C8	CR8	35
J	31	30	29	Q9	R9	R19	R29	C9	CR9	35
K	34	33	32	Q10	R10	R20	R30	C10	CR10	35

FOR USE ON 12 VOLT LOGIC, THE VOLTAGES SHOWN IN PARENTHESIS SHALL BE USED IN PLACE OF THE USUAL CLAMP AND COLLECTOR VOLTAGES.

SYMBOLS



ISSUE	DATE	AUTH. NO.
2	5-12-64	80818
3	5-27-64	80647
4	12-16-64	85537
5	2-17-65	85293

REF DESIGN	TELETYPE PART NO	TOTAL QTY	NAME AND DESCRIPTION	LOCATING FUNCTION	REF DESIGN	TELETYPE PART NO	TOTAL QTY	NAME AND DESCRIPTION	LOCATING FUNCTION
C1-C10	300010	10	CAPACITOR, .00015 MFD	SPEED-UP					
CR1-CR10	177108	10	DIODE, D-2	CLAMP					
Q1-Q10	177105	10	TRANSISTOR, P-22	AMPLIFIER					
R1-R10	118186	10	RESISTOR 5.6K OHMS	LIMITING					
R11-R20	118151	10	RESISTOR 18K OHMS	BIAS					
R21-R20	142865	10	RESISTOR 5.1K OHMS	COLLECTOR LOAD					
	300116	2	COVER, INSULATING						
EC	300002	1	ETCHED CIRCUIT BOARD						
	144495	10	PAD, TRANSISTOR						

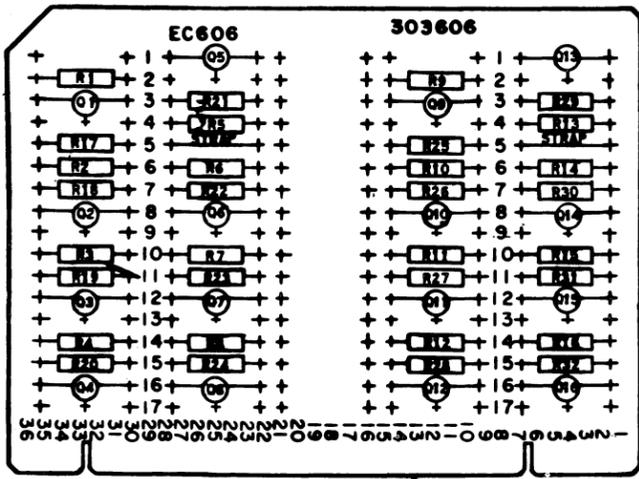
APPROVALS
AND R E D W
I NUMBER
PROJ NO 303603
DATE 9-11-63
DWG NO 6-A-353.129A
DRAWN R.W.V. CHK W.E.B.
ENGR J.M.G. APP A.K.
TELETYPE CORPORATION
303603

EC606

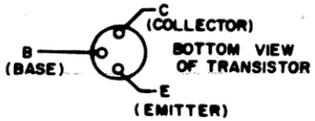
EMITTER FOLLOWER
8 NPN PLUS 8 PNP

CIRCUIT BOARD EC606

303606

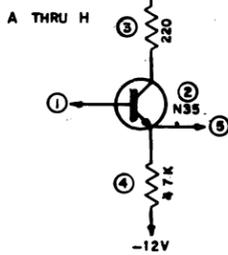


NOTE
REF. TO 6050WD FOR BASIC MARKING INFORMATION

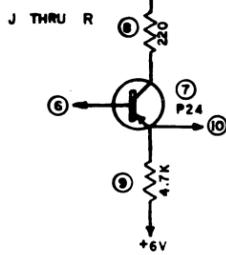


THIS CARD CONTAINS EIGHT NPN AND EIGHT PNP MEDIUM POWER EMITTER FOLLOWERS USED TO PROVIDE CURRENT GAIN WITH NO INVERSION OR CHANGE IN THE INPUT SIGNAL LEVEL. WITH ZERO VOLTS APPLIED AT THE BASE, ZERO VOLTS APPEARS AT THE EMITTER. WITH -6V APPLIED AT THE BASE, -6V APPEARS AT THE EMITTER. THE NPN EMITTER FOLLOWER IS USED TO PROVIDE LOW OUTPUT IMPEDANCE (HIGH CURRENT GAIN) ON THE POSITIVE GOING VOLTAGE TRANSITION (-6 TO 0 VOLTS) AND THE PNP EMITTER FOLLOWER IS USED TO PROVIDE LOW OUTPUT IMPEDANCE (HIGH CURRENT GAIN) ON THE NEGATIVE GOING TRANSITION (0 TO -6 VOLTS).

CIRCUITS



CIRCUITS

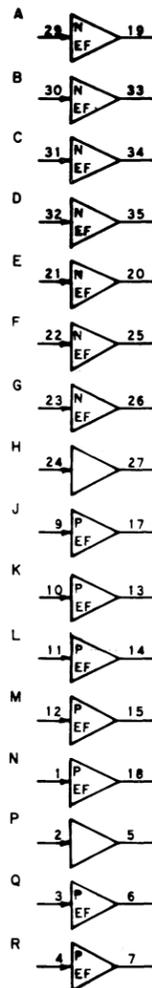


NOTE:
CIRCLED NUMBERS DESIGNATE COMPONENTS OR INPUT AND OUTPUT TERMINALS ON MULTIPLE CIRCUITS.

	①	②	③	④	⑤
A	29	Q1	R1	R17	19
B	30	Q2	R2	R18	33
C	31	Q3	R3	R19	34
D	32	Q4	R4	R20	35
E	21	Q5	R5	R21	20
F	22	Q6	R6	R22	25
G	23	Q7	R7	R23	26
H	24	Q8	R8	R24	27

	⑥	⑦	⑧	⑨	⑩
J	9	Q9	R9	R25	17
K	10	Q10	R10	R26	13
L	11	Q11	R11	R27	14
M	12	Q12	R12	R28	15
N	1	Q13	R13	R29	18
P	2	Q14	R14	R30	5
Q	3	Q15	R15	R31	6
R	4	Q16	R16	R32	7

SYMBOL

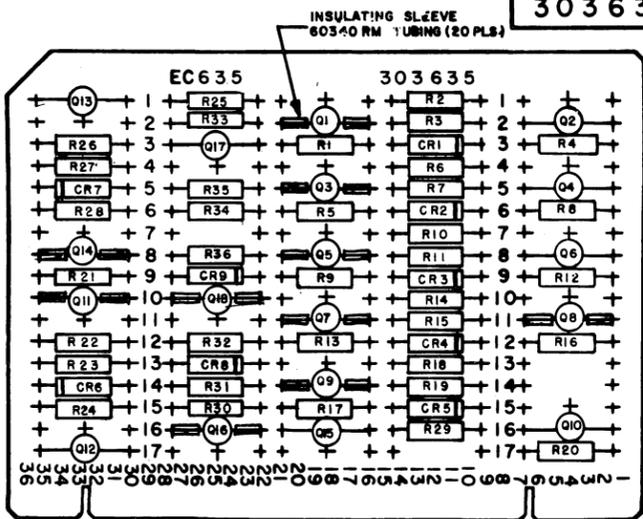


REVISIONS		
ISSUE	DATE	AUTH NO
2	1-3-64	78393
3	2-14-64	176-113

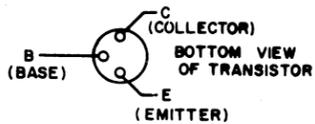
REF DESIGN	TELETYPE PART NO	TOTAL QTY	NAME AND DESCRIPTION	LOCATING FUNCTION	REF DESIGN	TELETYPE PART NO	TOTAL QTY	NAME AND DESCRIPTION	LOCATING FUNCTION
R1	118724	16	RESISTOR, FIXED 220 OHMS	COLLECTOR LOAD	Q8			SAME AS Q1	EMITTER FOLLOWER
R2			SAME AS R1	"	Q9	193135	8	TRANSISTOR (PNP) P24	EMITTER FOLLOWER
R3			"	"	Q10			SAME AS Q9	"
R4			"	"	Q11			"	"
R5			"	"	Q12			"	"
R6			"	"	Q13			"	"
R7			"	"	Q14			"	"
R8			"	"	Q15			"	"
R9			"	"	Q16			"	"
R10			"	"	EC	302704	1	BOARD, ETCHED CIRCUIT	
R11			"	"		144495	16	PAD, TRANSISTOR	
R12			"	"			2	STRAP, 24 AWG BARE	
R13			"	"					
R14			"	"					
R15			"	"					
R16			"	"					
R17	118146	16	RESISTOR, FIXED 4700 OHMS	EMITTER LOAD					
R18			SAME AS R17	"					
R19			"	"					
R20			"	"					
R21			"	"					
R22			"	"					
R23			"	"					
R24			"	"					
R25			"	"					
R26			"	"					
R27			"	"					
R28			"	"					
R29			"	"					
R30			"	"					
R31			"	"					
R32			"	"					
Q1	193134	8	TRANSISTOR (NPN) N35	EMITTER FOLLOWER					
Q2			SAME AS Q1	"					
Q3			"	"					
Q4			"	"					
Q5			"	"					
Q6			"	"					
Q7			"	"					

APPROVALS	
D AND R	E OF M
E-NUMBER	
PROD NO 303606	
DATE 10-25-63	
PD FILE MCG-A.353.219A	
DRAWN S.W.	CHKD J.M.G.
ENGD J.C.T.	APPD J.K.
TELETYPE CORPORATION	
303606	

EC 635
303635



REFER TO 6050 WD FOR MARKING INFORMATION



THIS CARD CONTAINS NINE IDENTICAL TWO STAGE AMPLIFIERS. EACH HAS A HIGH IMPEDANCE INPUT WITH CURRENT GAIN. THE OUTPUT VARIES FROM 0_v TO -6V.

THE EMITTER FOLLOWER CONDUCTS WITH A NEGATIVE BIAS ON INPUT 1. THE SECOND STAGE WILL BE TURNED OFF WHEN THE INPUT SOURCE CURRENT IS LESS THAN 80 μA AND SATURATION IS ASSURED WHEN SOURCE CURRENT EXCEEDS 335 μA. OR MORE FOR TEMPERATURE RANGE FROM 4°C TO 75°C. THE OUTPUT OF THE INHIBIT GATE IS CLAMPED TO -6V WHEN IT IS NOT CONDUCTING. A COINCIDENCE OF 335 μA OR MORE INPUT TO ① AND 0_v ON ⑩ DRIVES SECOND STAGE INTO CONDUCTION.

TEST REQUIREMENTS AT ROOM AMBIENT FOR EACH CIRCUIT:
 -CONNECT EMITTER OUTPUT (10) TO 0V.
 -APPLY 22MA LOAD TO COLLECTOR OUTPUT (9) OF CIRCUIT BEING TESTED (300 OHMS TO -6V)

TEST ACCEPTABLE RESULTS

1. APPLY -80μA TO INPUT OF CIRCUIT COLLECTOR OUTPUT SWITCHES TO -6.3±.3V
 2. APPLY -300μA TO INPUT OF CIRCUIT COLLECTOR OUTPUT SWITCHES TO -0.2±.3V
 3. APPLY MINIMUM INPUT CURRENT NECESSARY FOR OUTPUT (9) TO SWITCH TO -0.3±.3V
 B. DECREASE INPUT CURRENT BY 20μA. COLLECTOR OUTPUT MUST SWITCH TO -6.3±.3V

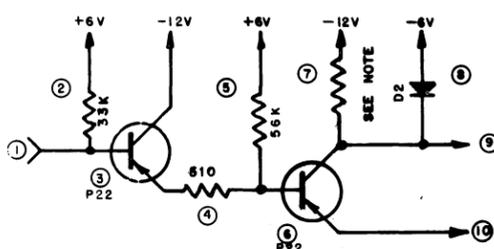
PHOTO-AMPLIFIERS (9)

CIRCUIT BOARD EC635

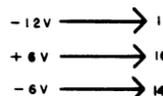
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SYMBOL

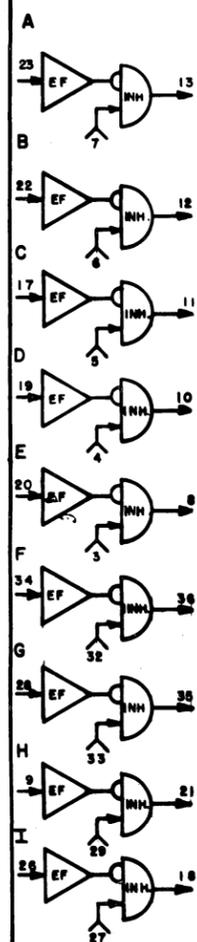
REVISIONS		
ISSUE	DATE	AUTH. NO.
1	5-15-64	83971
2	6-24-64	80749
3	4-5-65	83877



NOTE
ALL LOCATIONS 56K EXCEPT R36 WHICH IS 3.9K

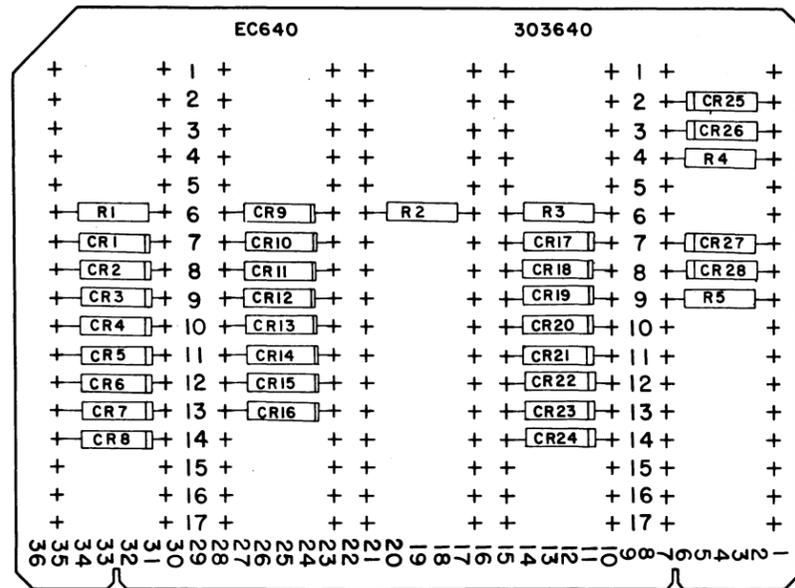


	①	②	③	④	⑤	⑥	⑦	⑧	⑨	⑩
A	23	R1	Q1	R2	R3	Q2	R4	CR1	13	7
B	22	R5	Q3	R6	R7	Q4	R8	CR2	12	6
C	17	R9	Q5	R10	R11	Q6	R12	CR3	11	5
D	19	R13	Q7	R14	R15	Q8	R16	CR4	10	4
E	20	R17	Q9	R18	R19	Q10	R20	CR5	8	3
F	34	R21	Q11	R22	R23	Q12	R24	CR6	36	32
G	28	R25	Q13	R26	R27	Q14	R28	CR7	35	33
H	9	R29	Q15	R30	R31	Q16	R32	CR8	21	29
I	26	R33	Q17	R34	R35	Q18	R36	CR9	18	27

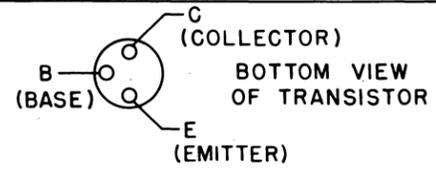


REF. DESIGN.	TELETYPE PART NO.	TOTAL QTY.	NAME AND DESCRIPTION	LOCATING FUNCTION	REF. DESIGN.	TELETYPE PART NO.	TOTAL QTY.	NAME AND DESCRIPTION	LOCATING FUNCTION
R1	118153	9	RESISTOR, FIXED 33 K	BIAS	Q1	177105	18	TRANSISTOR P22	AMPLIFIER
R5	"	"	"	"	THRU	"	"	"	"
R9	"	"	"	"	Q18	"	"	"	"
R13	"	"	"	"					
R17	"	"	"	"	CR1	177108	5	DIODE D2	CLAMP
R21	"	"	"	"	THRU	"	"	"	"
R25	"	"	"	"	CR9	"	"	"	"
R29	"	"	"	"					
R33	"	"	"	"	EC	302709	1	BOARD ETCHED CIRCUIT	
R2	137603	9	RESISTOR, FIXED 510	CURRENT LIMITING		144495	18	PAD, TRANSISTOR	
R6	"	"	"	"		144138	41	EYELET, METALLIC	
R10	"	"	"	"		60340 RM		TUBING	
R14	"	"	"	"					
R18	"	"	"	"					
R22	"	"	"	"					
R26	"	"	"	"					
R30	"	"	"	"					
R34	"	"	"	"					
R3	118153	9	RESISTOR FIXED 56 K	B.A.S					
R7	"	"	"	"					
R11	"	"	"	"					
R15	"	"	"	"					
R19	"	"	"	"					
R23	"	"	"	"					
R27	"	"	"	"					
R31	"	"	"	"					
R35	"	"	"	"					
R4	118186	8	RESISTOR, FIXED 56 K	COLLECTOR LOAD					
R8	"	"	"	"					
R12	"	"	"	"					
R16	"	"	"	"					
R20	"	"	"	"					
R24	"	"	"	"					
R28	"	"	"	"					
R32	"	"	"	"					
P36	143667		3.9K	"					

APPROVALS
 DATE 1-24-64
 DRAWING J.M. GARDNER
 ENGR J.C.T. 1964
 TELETYPE CORPORATION
 303635

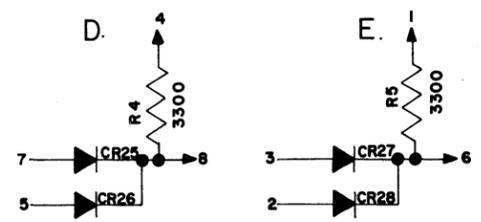
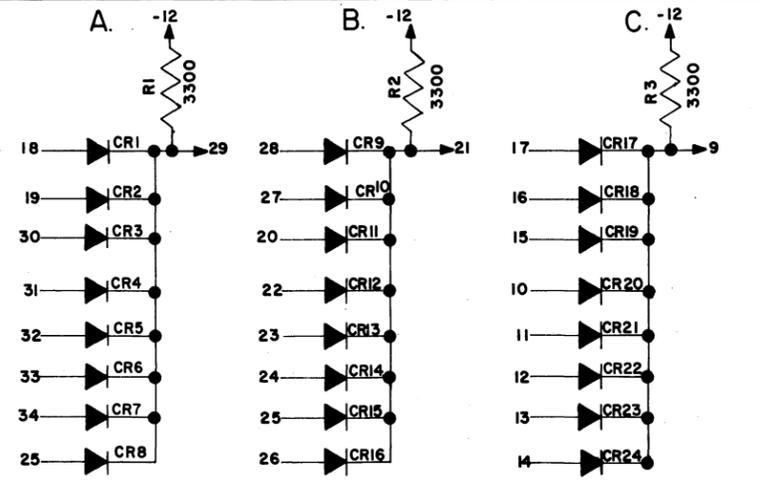
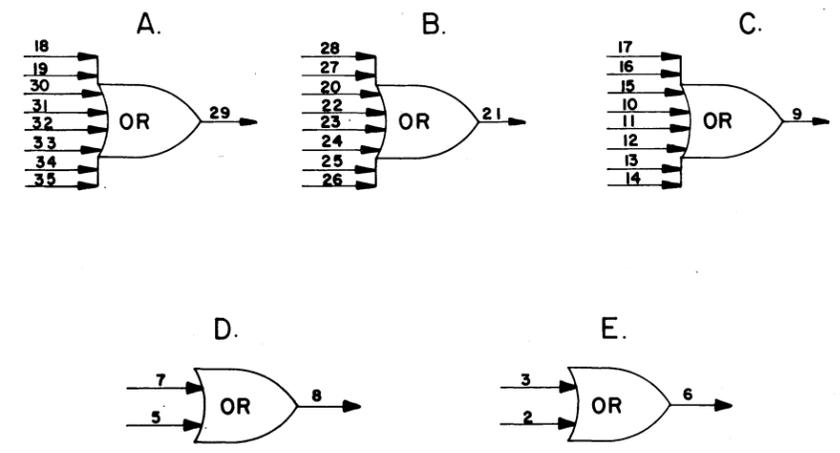


NOTE:
REFER TO 6050WD FOR BASIC MARKING INFORMATION

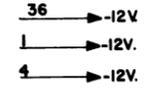


FIVE "OR" GATES ARE PROVIDED. THREE HAVE 8 INPUTS, TWO HAVE 2 INPUTS. ALL GATES FUNCTION IDENTICALLY. A ZERO VOLT LEVEL ON ANY INPUT RESULTS IN A ZERO VOLT OUTPUT FROM THE CORRESPONDING GATE. WHEN ALL INPUTS TO A PARTICULAR GATE ARE AT -6 VOLTS, THE CORRESPONDING OUTPUT IS -6 VOLTS.

8 INPUT OR GATE (3)
2 INPUT OR GATE (2)



ALL DIODES ARE D2.



CIRCUIT BOARD EC640

REF. DESIG.	TELETYPE PART NO.	TOTAL QTY.	NAME AND DESCRIPTION	LOCATING FUNCTION
R1	129851	5	RESISTOR, FIXED 3.3K OHMS	BIAS RESISTOR
R2	"	"	"	"
R3	"	"	"	"
R4	"	"	"	"
R5	"	"	"	"
CR1	177108	28	DIODE D2	GATE
CR2	"	"	"	"
CR3	"	"	"	"
CR4	"	"	"	"
CR5	"	"	"	"
CR6	"	"	"	"
CR7	"	"	"	"
CR8	"	"	"	"
CR9	"	"	"	"
CR10	"	"	"	"
CR11	"	"	"	"
CR12	"	"	"	"
CR13	"	"	"	"
CR14	"	"	"	"
CR15	"	"	"	"
CR16	"	"	"	"
CR17	"	"	"	"
CR18	"	"	"	"
CR19	"	"	"	"
CR20	"	"	"	"
CR21	"	"	"	"
CR22	"	"	"	"
CR23	"	"	"	"
CR24	"	"	"	"
CR25	"	"	"	"
CR26	"	"	"	"
CR27	"	"	"	"
CR28	"	"	"	"
EC	302702	1	CIRCUIT CARD, ETCHED	

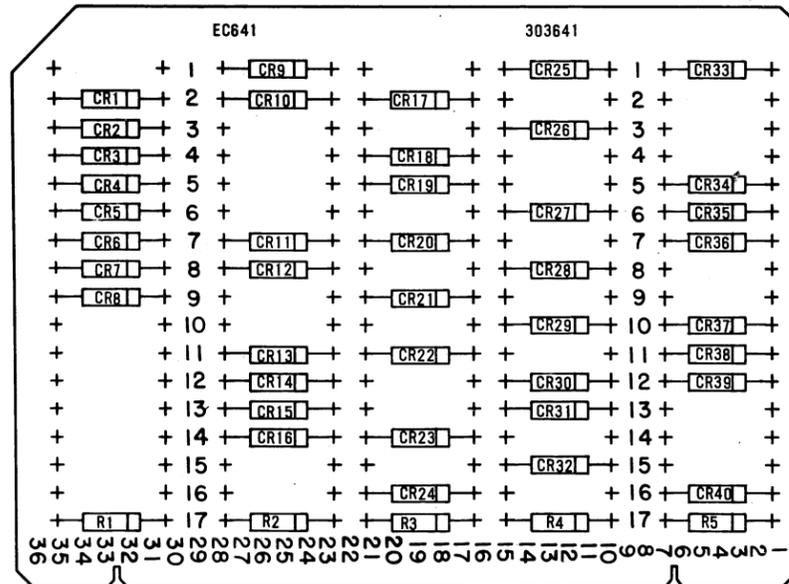
303640

REVISIONS		
ISSUE	DATE	AUTH. NO.
1	7-7-65	16802-R

APPROVALS	
R AND D <i>HJK</i>	E OF M <i>[Signature]</i>
E-NUMBER	
PROD NO. 303640	
DATE 10-17-63	
RBD FILE 2-96.134.184A	
DRAWN SW WPB	CHKD. <i>[Signature]</i>
ENG. J.C.T.	APPD. <i>Pgw</i>

TELETYPE CORPORATION

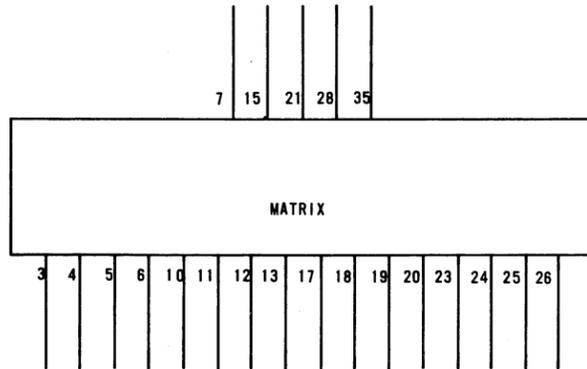
303640



NOTE:
REFER TO 6050WD FOR BASIC MARKING INFORMATION

THIS CARD CONTAINS FIVE "AND" GATES ARRANGED TO DETECT 5 OF THE 256 POSSIBLE CHARACTERS IN AN EIGHT LEVEL CODE. IT IS USED IN THE DATASPEED TYPE 4 SYSTEM TO DETECT THE FIVE REPEATED INTERBLOCK CHARACTERS

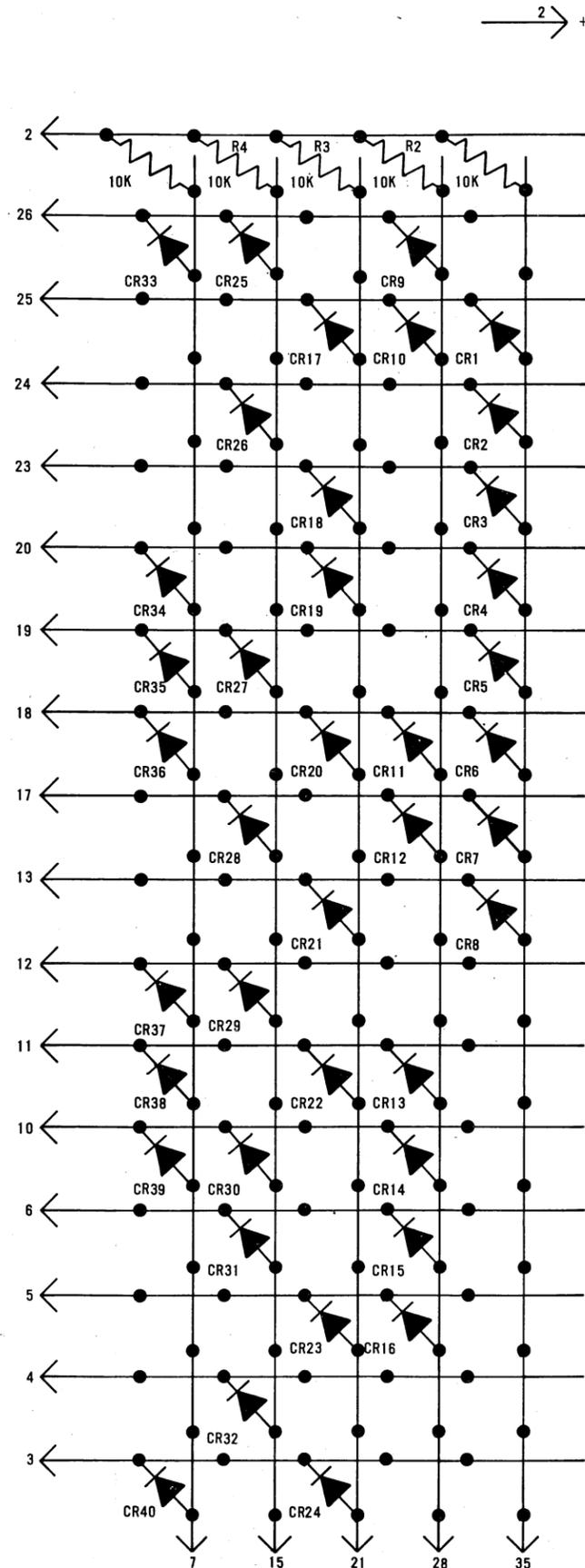
- PIN 7 DETECTS THE XR (TRANSMITTER READY) CHARACTER.
- PIN 15 DETECTS THE BN1 (BLOCK NUMBER 1) CHARACTER
- PIN 21 DETECTS THE BN2 (BLOCK NUMBER 2) CHARACTER
- PIN 28 DETECTS THE BN3 (BLOCK NUMBER 3) CHARACTER
- PIN 35 DETECTS THE EOB (END OF BLOCK) CHARACTER



SYMBOL

DIODE MATRIX

ALL DIODES D2



CIRCUIT BOARD EC 641

REF. DESIG.	TELETYPE PART NO.	TOTAL QTY.	NAME AND DESCRIPTION	LOCATING FUNCTION
R1	118180	5	RESISTOR, FIXED 10K OHMS	BIAS RESISTOR
R2			SAME AS R1	BIAS RESISTOR
R3			SAME AS R1	BIAS RESISTOR
R4			SAME AS R1	BIAS RESISTOR
R5			SAME AS R1	BIAS RESISTOR
CR1	177108	40	DIODE, D2	GATE
CR2			SAME AS CR1	GATE
CR3			SAME AS CR1	GATE
CR4			SAME AS CR1	GATE
CR5			SAME AS CR1	GATE
CR6			SAME AS CR1	GATE
CR7			SAME AS CR1	GATE
CR8			SAME AS CR1	GATE
CR9			SAME AS CR1	GATE
CR10			SAME AS CR1	GATE
CR11			SAME AS CR1	GATE
CR12			SAME AS CR1	GATE
CR13			SAME AS CR1	GATE
CR14			SAME AS CR1	GATE
CR15			SAME AS CR1	GATE
CR16			SAME AS CR1	GATE
CR17			SAME AS CR1	GATE
CR18			SAME AS CR1	GATE
CR19			SAME AS CR1	GATE
CR20			SAME AS CR1	GATE
CR21			SAME AS CR1	GATE
CR22			SAME AS CR1	GATE
CR23			SAME AS CR1	GATE
CR24			SAME AS CR1	GATE
CR25			SAME AS CR1	GATE
CR26			SAME AS CR1	GATE
CR27			SAME AS CR1	GATE
CR28			SAME AS CR1	GATE
CR29			SAME AS CR1	GATE
CR30			SAME AS CR1	GATE
CR31			SAME AS CR1	GATE
CR32			SAME AS CR1	GATE
CR33			SAME AS CR1	GATE
CR34			SAME AS CR1	GATE
CR35			SAME AS CR1	GATE
CR36			SAME AS CR1	GATE
CR37			SAME AS CR1	GATE
CR38			SAME AS CR1	GATE
CR39			SAME AS CR1	GATE
CR40			SAME AS CR1	GATE
EC	302705	1	CIRCUIT CARD, ETCHED	
	144138	85	EYELETS	

303641

REVISIONS

ISSUE	DATE	AUTH. NO.
1	5-20-64	15620-R

APPROVALS

R AND D: *HAK* E OF M: *[Signature]*

E-NUMBER

PROD NO. 303641

DATE 7-6-67

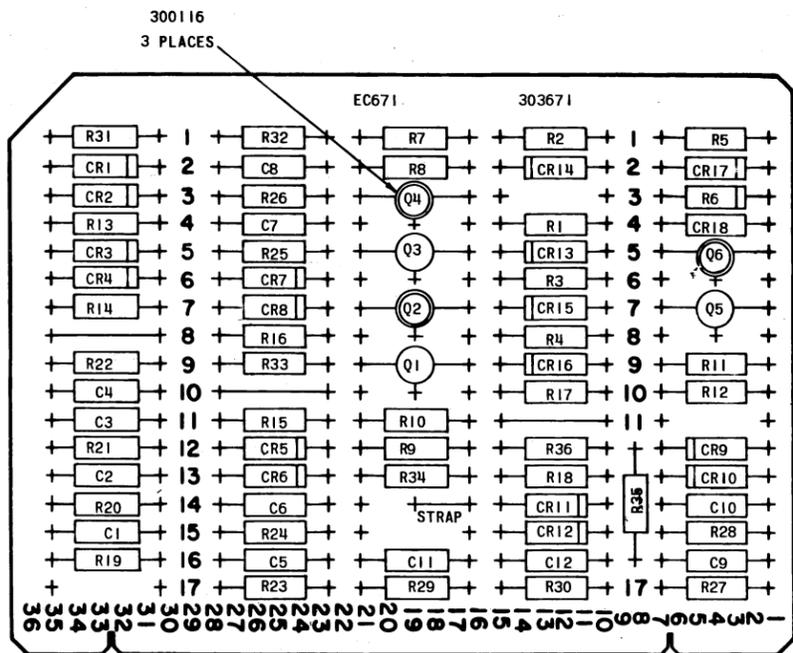
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DRAWN SW. D.S. CHKD. W.B.MC.

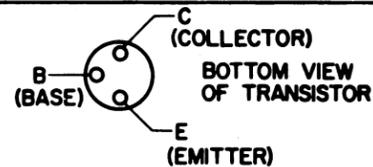
ENG. I.S.K. APPD. B.G.G.

TELETYPE CORPORATION

303641



NOTE:
REFER TO 6050WD FOR BASIC MARKING INFORMATION



FLIP-FLOP

THE FLIP-FLOP CONSISTS OF A REGENERATIVE RING OF TWO TRANSISTORS, WITH THE OUTPUT OF THE FIRST CONNECTED TO THE INPUT OF THE SECOND, AND VICE VERSA. WITH THIS ARRANGEMENT WHEN ONE TRANSISTOR IS CONDUCTING, THE OTHER IS CUT OFF. THE COLLECTOR VOLTAGE OF THE "OFF" TRANSISTOR IS CLAMPED TO -6V BY THE CLAMP DIODE AND THE COLLECTOR OF THE "ON" TRANSISTOR WILL HAVE A POTENTIAL OF -.3V.

THE STATE OF THE FLIP-FLOP IS CHANGED BY APPLYING A POSITIVE PULSE TO A SET INPUT OF THE CONDUCTING TRANSISTOR, PROVIDING A PRIMING VOLTAGE IS PRESENT. THIS POSITIVE PULSE IS DIFFERENTIATED AND USED TO TURN THE "ON" TRANSISTOR OFF. A -6V APPLIED TO THE PRIMING RESISTOR WILL INHIBIT THE POSITIVE PULSE FROM REACHING THE BASE OF THE TRANSISTOR, BY PREVENTING THE CONDUCTION OF THE GATING DIODE.

OPERATING CHARACTERISTICS

CONDITIONS: VOLTAGE NOMINAL, PRIME INPUTS GROUND, ONE MICRO-SECOND RISE TIME FOR THE INPUT SET PULSE AND A 2000 OHM LOAD RESISTOR FROM THE COLLECTORS TO GROUND.

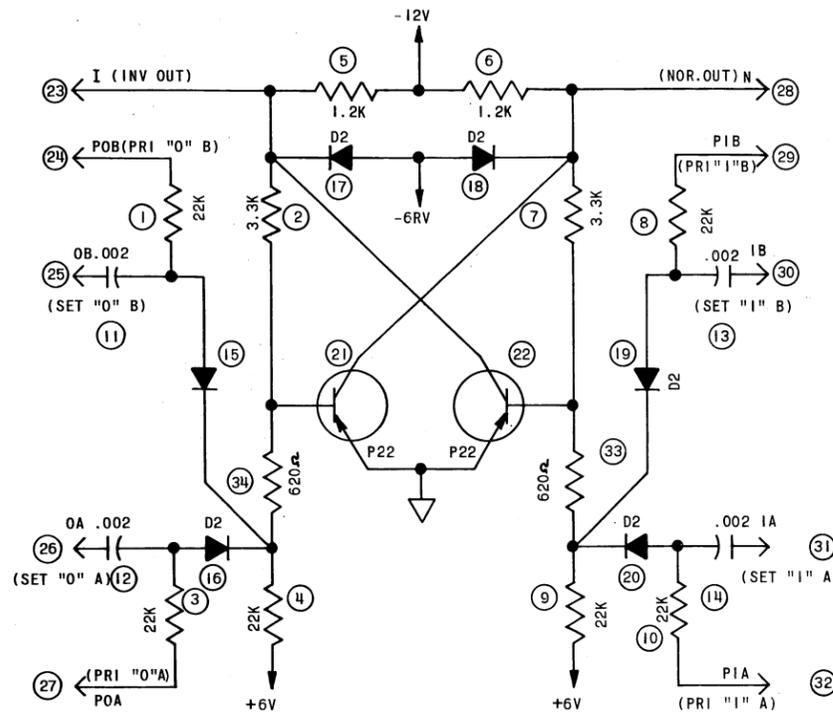
RESULTS: THE MINIMUM SET PULSE FOR OPERATION WILL BE IN THE RANGE FROM 2 TO 3.5 VOLTS.

CONDITIONS: VOLTAGE NOMINAL, SET PULSE 6 VOLTS (-6 TO 0), ONE MICRO-SECOND RISE TIME FOR THE SET PULSE AND A 2000 OHM LOAD RESISTOR FROM THE COLLECTORS TO GROUND.

RESULTS: THE MINIMUM PRIME VOLTAGE WILL BE IN THE RANGE FROM -2 TO -3.5 VOLTS.

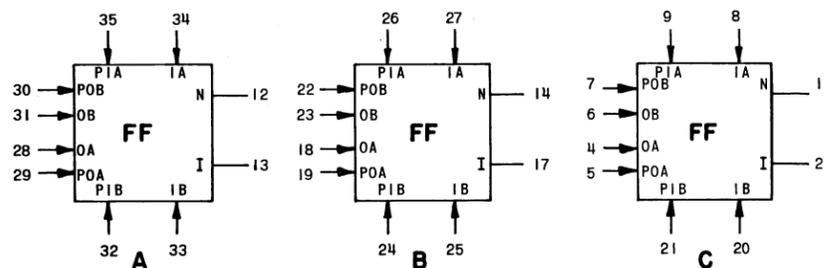
**FLIP-FLOP (3)
CIRCUITS A, B & C**

NOTE:
CIRCLED NUMBERS DESIGNATE COMPONENTS OR INPUT AND OUTPUT TERMINALS ON MULTIPLE CIRCUITS. SEE TABLE BELOW.



NOTE:
INPUT AND OUTPUT TERMINALS NEED NOT APPEAR IN ORDER SHOWN. UNUSED TERMINALS MAY BE OMITTED.

SYMBOLS



TABLE

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19
A	R19	R7	R20	R13	R1	R2	R8	R21	R14	R22	C1	C2	C3	C4	CR1	CR2	CR13	CR14	CR3
B	R23	R9	R24	R15	R3	R4	R10	R25	R16	R26	C5	C6	C7	C8	CR5	CR6	CR15	CR16	CR7
C	R27	R11	R28	R17	R5	R6	R12	R29	R18	R30	C9	C10	C11	C12	CR9	CR10	CR17	CR18	CR11

	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34					
A	CR4	Q4	Q3	13	30	31	28	29	12	32	33	34	35	R31	R32					
B	CR8	Q1	Q2	17	22	23	18	19	14	24	25	27	26	R33	R34					
C	CR12	Q6	Q5	2	7	6	4	5	1	21	20	8	9	R35	R36					

CIRCUIT BOARD EC 671

REF DESIG	TELETYPE PART NO.	TOTAL QTY.	NAME AND DESCRIPTION	LOCATING FUNCTION
C1-C12	177332	12	CAPACITOR, .002 MFD	DIFFERENTIATING & COUPLING
CR1-				
CR18	177108	18	DIODE, D2	GATING AND CLAMP
R1-R6	137441	6	RESISTOR, FIXED 1200 OHMS	COLLECTOR LOAD
R7-R12	129851	6	RESISTOR, FIXED 3300 OHMS	CROSS COUPLING
R13-R30	118177	18	RESISTOR, FIXED 22K OHMS	BIAS AND PRIMING
R31-R36	137604	6	RESISTOR, FIXED 620 OHMS	BIAS

Q1-Q6	177105	6	TRANSISTOR P22	SWITCH
	144495	6	PAD, TRANSISTOR	

EC	302712	1	CIRCUIT CARD, ETCHED	
	300116	3	COVER, INSULATING	
		4	STRAP, BARE 24 AWG	

303671

REVISIONS

ISSUE	DATE	AUTH. NO.
1	4-8-65	16795-R

APPROVALS

R AND D: *[Signature]* E OF M: *[Signature]*

E-NUMBER

PROD. NO. 303671

DATE 1-20-65

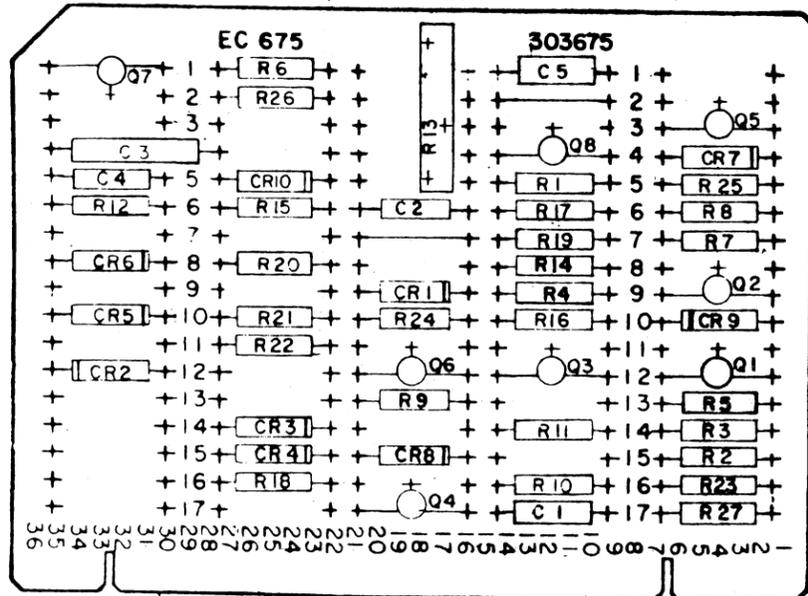
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DRAWN G.R.S. CHKD. C.T.

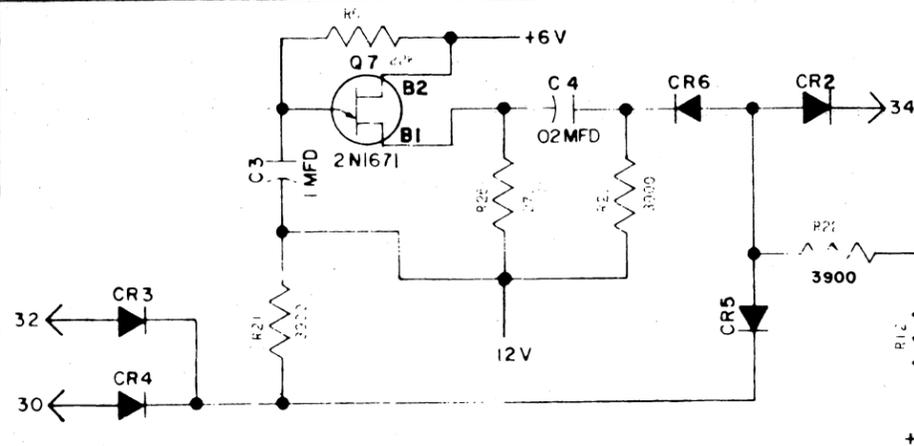
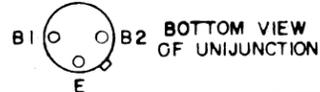
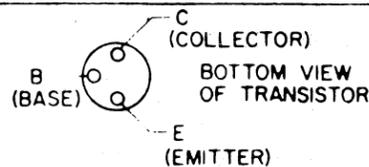
ENGD. F.E.M. APPD. C.T.

TELETYPE CORPORATION

303671

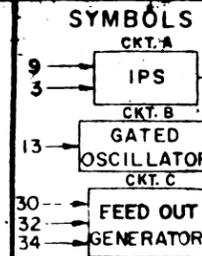
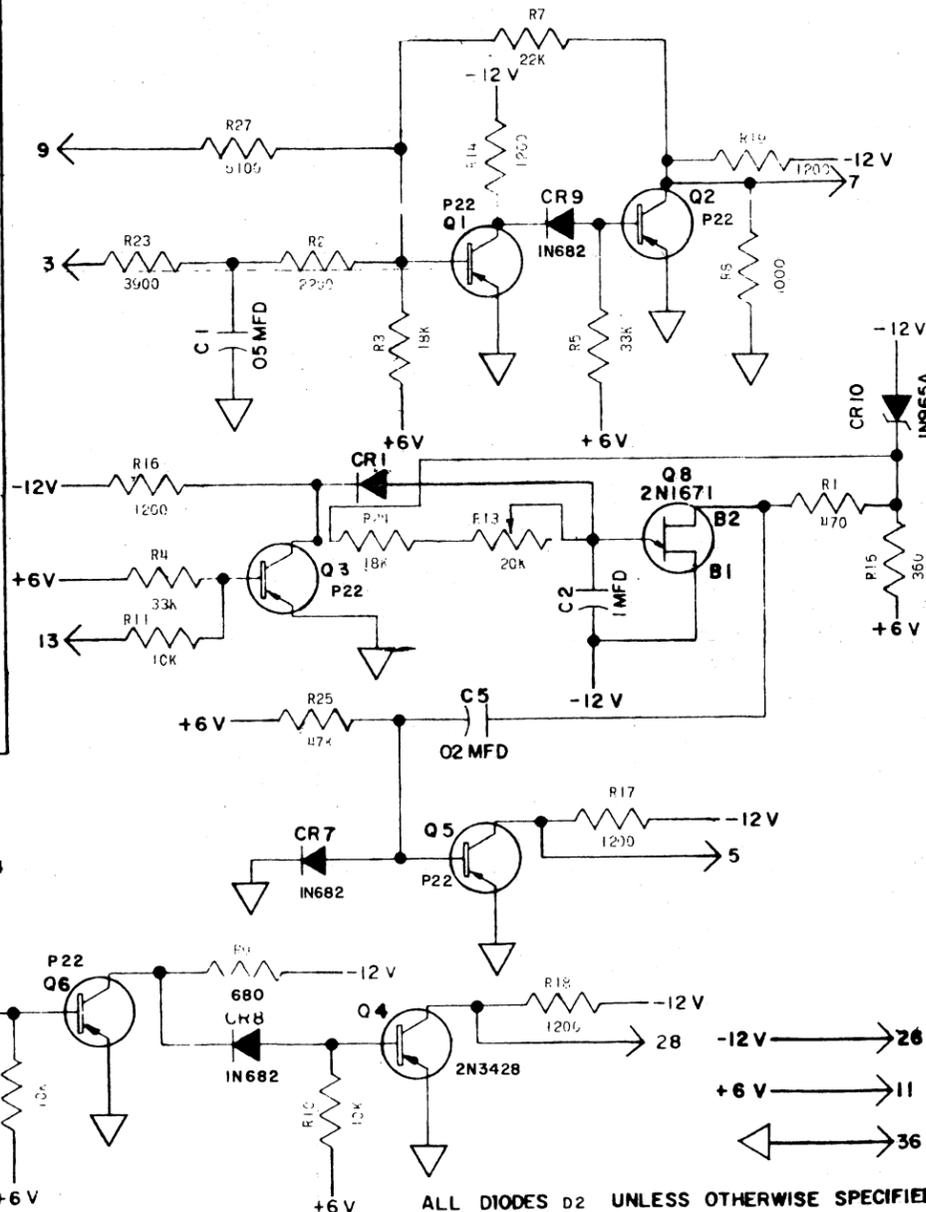


NOTE: REFER TO 6050WD FOR BASIC MARKING INFORMATION



LOGIC CARD

THIS CARD PERFORMS THREE INDEPENDENT LOGIC FUNCTIONS. THE FIRST IS AN INTEGRATOR PULSE SHAPER USING Q1 AND Q2. THE SECOND CIRCUIT USES Q3, Q8 AND Q9 TO FORM A GATED OSCILLATOR. TRANSISTORS Q4, Q6 AND Q7 FORM A FEEDOUT GENERATOR. FOR THE THEORY OF OPERATION, SEE SPECIFICATION



CIRCUIT BOARD EC 675				
REF DESIG	TELETYPE PART NO.	TOTAL QTY.	NAME AND DESCRIPTION	LOCATING FUNCTION
R1	137602	1	RESISTOR 470 OHMS	BASE 2 LOAD
R2	129852	1	RESISTOR 2200 OHMS	BASE INPUT
R3	118151	2	RESISTOR 18K OHMS	BASE BIAS
R4	118153	2	RESISTOR 33K OHMS	BASE BIAS
R5			RESISTOR 33K OHMS	BASE BIAS
R6	118177	2	RESISTOR 22K OHMS	TIMING
R7			RESISTOR 22K OHMS	FEEDBACK
R8	137440	1	RESISTOR 1000 OHMS	VOLTAGE DIVIDER
R9	129850	1	RESISTOR 680 OHMS	COLLECTOR LOAD
R10	118180	3	RESISTOR 10K OHMS	BASE BIAS
R11			RESISTOR 10K OHMS	BASE INPUT
R12			RESISTOR 10K OHMS	BASE BIAS
R13	118836	1	POTENTIOMETER 20K OHMS	TIMING ADJUST
R14	137141	5	RESISTOR 1200 OHMS	COLLECTOR LOAD
R15	113669	1	RESISTOR 360 OHMS	VOLTAGE DROPPING
R16			RESISTOR 1200 OHMS	COLLECTOR LOAD
R17			RESISTOR 1200 OHMS	COLLECTOR LOAD
R18			RESISTOR 1200 OHMS	COLLECTOR LOAD
R19			RESISTOR 1200 OHMS	COLLECTOR LOAD
R20	113667	4	RESISTOR 3900 OHMS	CAPACITOR DISCHARGE
R21			RESISTOR 3900 OHMS	BIAS
R22			RESISTOR 3900 OHMS	BASE INPUT
R23			RESISTOR 3900 OHMS	INTEGRATION
R24	118151		RESISTOR 18K OHMS	CURRENT LIMITER
R25	118154	1	RESISTOR 47K OHMS	BASE BIAS
P26	18725	1	POTENTIOMETER 270 OHMS	BASE 1 LOAD
R27	143665	1	RESISTOR 5100 OHMS	INHIBIT INPUT
C1	137306	1	CAPACITOR .05 MFD	INTEGRATION
C2	148833	1	CAPACITOR 1 MFD	TIMING
C3	118831	1	CAPACITOR 1 MFD	TIMING
C4	137311	2	CAPACITOR .02 MFD	COUPLING
C5			CAPACITOR .02 MFD	COUPLING
CR1	177108	6	DIODE D2	CAPACITOR DISCHARGE
CR2			DIODE D2	AND GATE
CR3			DIODE D2	OR GATE
CR4			DIODE D2	OR GATE
CR5			DIODE D2	AND GATE
CR6			DIODE D2	AND GATE
CR7	177611	3	DIODE IN682	BIAS
CR8			DIODE IN682	COUPLING
CR9			DIODE IN682	COUPLING
CR10	177104	1	DIODE ZENER 100V A	VOLTAGE REGULATION
Q1	177105	5	TRANSISTOR P22	AMPLIFIER
Q2			TRANSISTOR P22	AMPLIFIER
Q3			TRANSISTOR P22	OSCILLATOR CONTROL
Q4	323928		TRANSISTOR 2N3428	AMPLIFIER
Q5			TRANSISTOR P22	AMPLIFIER
Q6			TRANSISTOR P22	AMPLIFIER
Q7	177510	2	TRANSISTOR 2N1671	OSCILLATOR
Q8			TRANSISTOR 2N1671	OSCILLATOR
	118495	3	TRANSISTOR PAD	
FC	148801		ETCHED CIRCUIT CARD	
		2	24 AWG BARE WIRE STRAP	

303675

REVISIONS

ISSUE	DATE	AUTH.	APP.
2	4-1-64	80037	
3	6-23-64	80734	
4	10-22-64	80979	
5	2-8-65	85287	
6	8-31-66	91786-RC	
7	5-12-67	94062	
8	9-14-67	93896B	

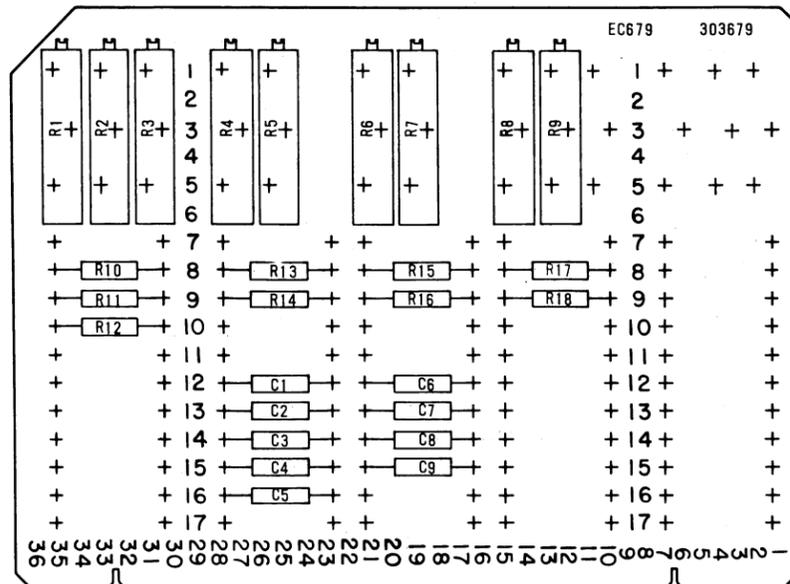
APPROVALS

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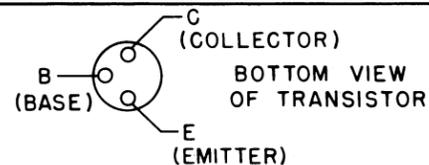
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 DRAWN A.H.P. CHKD.
 ENGD. E.W.S. APPD.

TELETYPE CORPORATION

303675



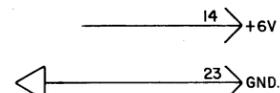
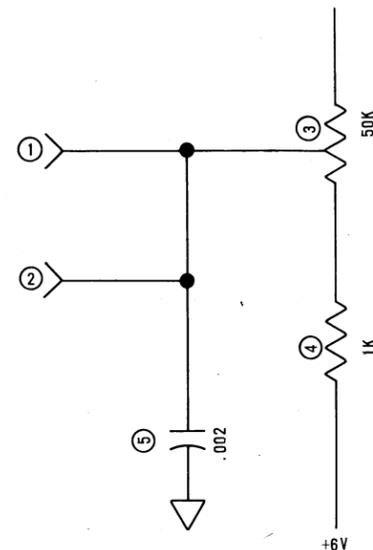
NOTE:
REFER TO 6050WD FOR BASIC MARKING INFORMATION



THIS CARD CONSISTS OF NINE "PAD-OUT" CIRCUITS WHICH CHANGE THE OUTPUT FROM THE PHOTO-TRANSISTORS OF THE DRPE PUNCH PHOTO-READER SO THAT THEY CONFORM TO THE INPUT REQUIREMENTS OF THE AMPLIFIER CIRCUITS ON CIRCUIT CARD 303635.

EACH "PAD-OUT" CIRCUIT IS CONNECTED TO ONE OF THE NINE OUTPUTS FROM THE PHOTO-READER. THE 50K OHM VARIABLE RESISTOR IS ADJUSTED TO SHUNT THE PHOTO-TRANSISTOR OUTPUT CURRENT. THE 1K OHM RESISTOR PROVIDES A MINIMUM SHUNT RESISTANCE. THE .002 MFD CAPACITOR PROVIDES A LOW IMPEDANCE PATH TO GROUND FOR HIGH FREQUENCY NOISE PULSES.

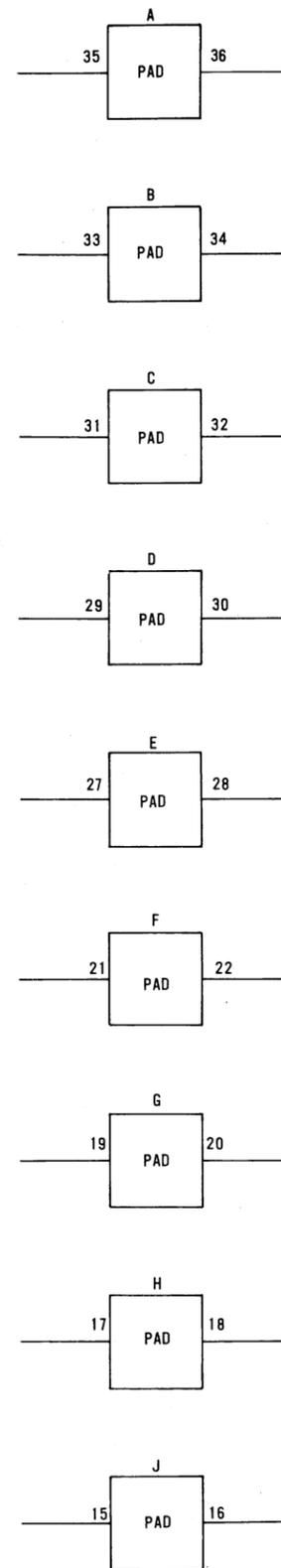
PAD-OUT CIRCUIT (9)



NOTE: CIRCLED NUMBERS DESIGNATE COMPONENTS OR INPUT AND OUTPUT TERMINALS OF CIRCUITS.

	①	②	③	④	⑤
A	35	36	R1	R10	C1
B	33	34	R2	R11	C2
C	31	32	R3	R12	C3
D	29	30	R4	R13	C4
E	27	28	R5	R14	C5
F	21	22	R6	R15	C6
G	19	20	R7	R16	C7
H	17	18	R8	R17	C8
J	15	16	R9	R18	C9

SYMBOLS



CIRCUIT BOARD EC 679

REF. DESIG.	TELETYPE PART NO.	TOTAL QTY.	NAME AND DESCRIPTION	LOCATING FUNCTION
R1-R9	177403	9	RESISTOR, VARIABLE, 50K	SHUNT
R10-18	137440	9	RESISTOR, FIXED, 1K OHMS	CURRENT LIMITER
C1-C9	177332	9	CAPACITOR, .002 MFD	NOISE FILTER
EC	302714	1	BOARD, ETCHED CIRCUIT	

303679

REVISIONS

ISSUE	DATE	AUTH. NO.
1	3-30-65	16133-R

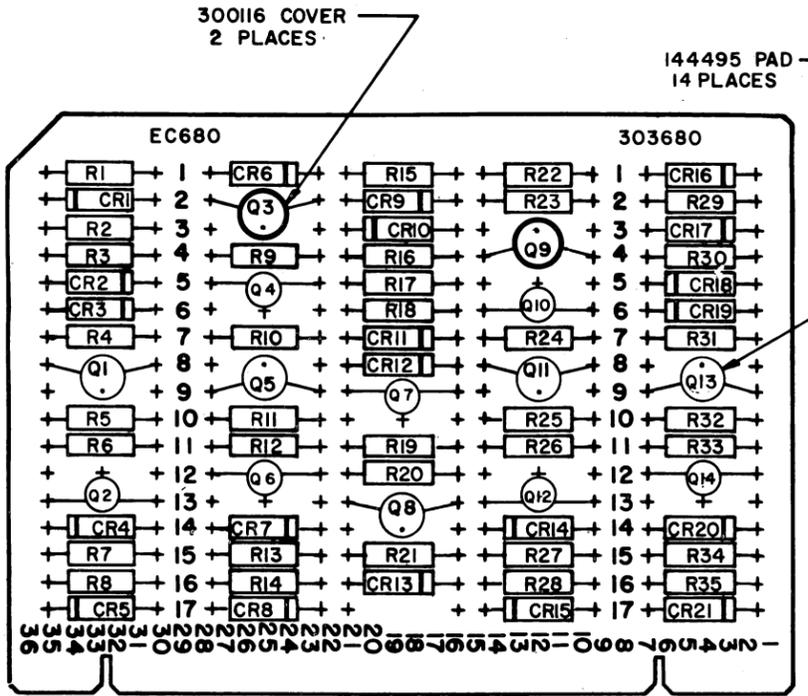
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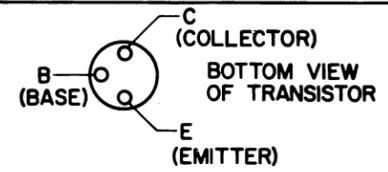
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 DRAWN W.P. CHKD. WBM^c
 ENGD. J.C.T. APPD. PGW

TELETYPE CORPORATION

303679



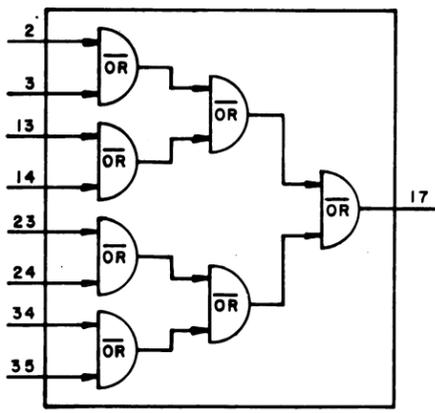
NOTE:
REFER TO 6050WD FOR BASIC MARKING INFORMATION



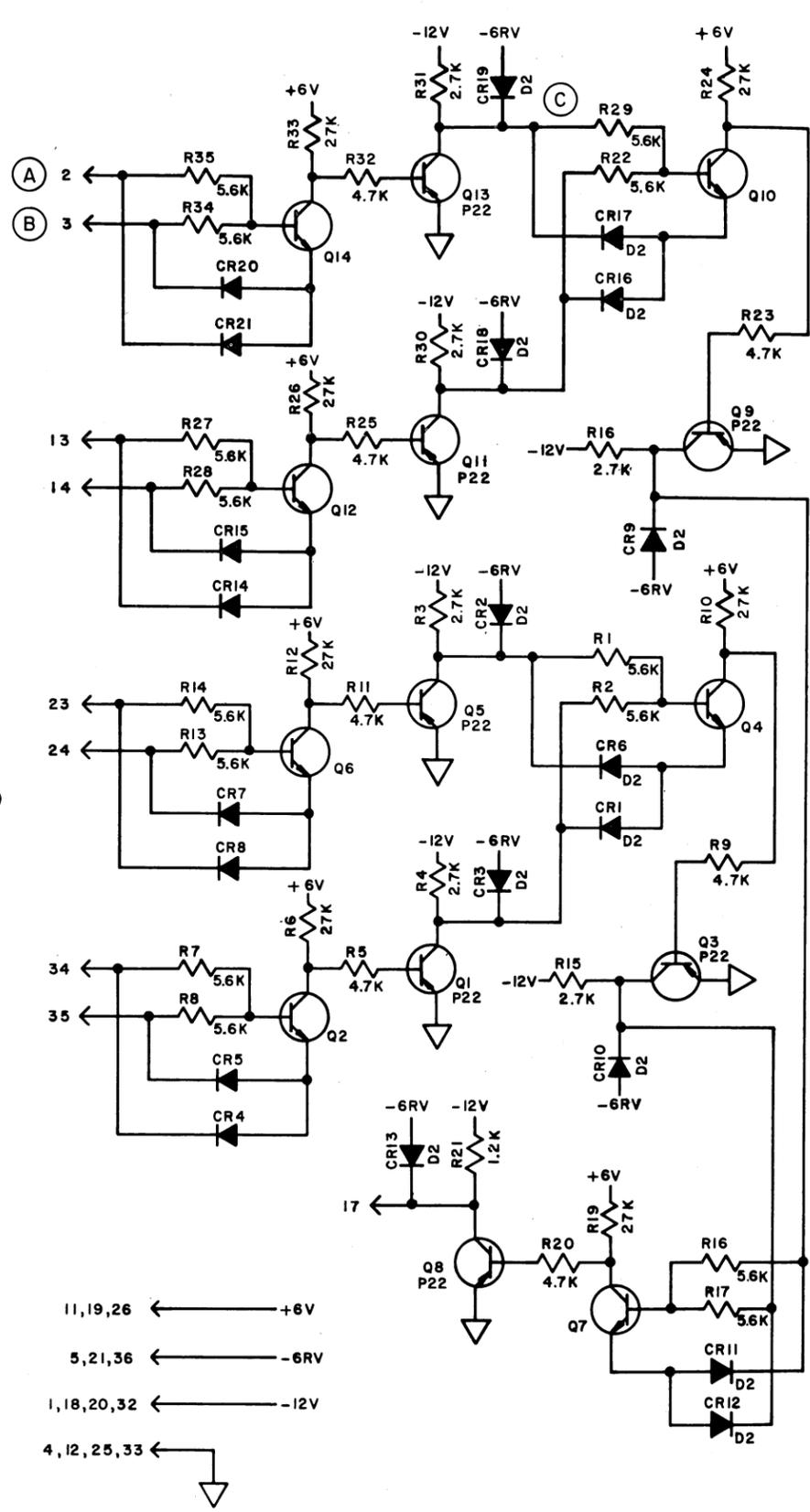
THIS CARD CONTAINS SEVEN EXCLUSIVE "OR" GATES CONNECTED TOGETHER TO FORM A PARITY TREE. A TYPICAL EXCLUSIVE "OR" GATE HAS THE FOLLOWING TRUTH TABLE (SEE TABLE BELOW) WITH INPUTS A & B BOTH AT 0 VOLTS OR AT -6 VOLTS, TRANSISTOR Q14 IS BIASED "OFF" AND THE COLLECTOR OF Q14 IS CLAMPED AT +6 VOLTS TO BIAS TRANSISTOR Q13 "OFF". THE OUTPUT C IS CLAMPED AT -6 VOLTS. WITH INPUT A AT 0 VOLTS AND INPUT B AT -6 VOLTS OR INPUT A AT -6 VOLTS AND INPUT B AT 0 VOLTS, TRANSISTOR Q14 IS BIASED "ON". THE COLLECTOR OF Q14 WILL BE CLAMPED AT -6 VOLTS AND BIAS TRANSISTOR Q13 "ON". THE OUTPUT C WILL BE CLAMPED AT 0 VOLTS. THE PARITY TREE CIRCUIT CONTAINS EIGHT INPUTS AND ONE OUTPUT. IF AN ODD NUMBER OF INPUTS IS AT 0 VOLTS, THE OUTPUT WILL BE CLAMPED AT 0 VOLTS. IF AN EVEN NUMBER OF INPUTS IS AT 0 VOLTS OR -6 VOLTS, THE OUTPUT WILL BE CLAMPED AT -6 VOLTS.

INPUTS		OUTPUT
A	B	C
0V	0V	-6V
-6V	-6V	-6V
0V	-6V	0V
-6V	0V	0V

LOGIC SYMBOL



PARITY LOGIC



CIRCUIT BOARD

REF. DESIG.	TELETYPE PART NO.	TOTAL QTY.	NAME AND DESCRIPTION	LOCATING FUNCTION
R1-R2	118186	14	RESISTOR, 5,600 OHMS	GATE INPUT
R3-R4	118144	6	RESISTOR, 2,700 OHMS	COLLECTOR LOAD
R5	118146	7	RESISTOR, 4,700 OHMS	BASE INPUT
R6	118187	7	RESISTOR, 27000 OHMS	COLLECTOR LOAD
R7-R8			SAME AS R1	GATE INPUT
R9			SAME AS R5	BASE INPUT
R10			SAME AS R6	COLLECTOR LOAD
R11			SAME AS R5	BASE INPUT
R12			SAME AS R6	COLLECTOR LOAD
R13-R14			SAME AS R1	GATE INPUT
R15-R16			SAME AS R3	COLLECTOR LOAD
R17-R18			SAME AS R1	GATE INPUT
R19			SAME AS R6	COLLECTOR LOAD
R20			SAME AS R5	BASE INPUT
R21	137441	1	RESISTOR, 1,200 OHMS	COLLECTOR LOAD
R22			SAME AS R1	GATE INPUT
R23			SAME AS R5	BASE INPUT
R24			SAME AS R6	COLLECTOR LOAD
R25			SAME AS R5	BASE INPUT
R26			SAME AS R6	COLLECTOR LOAD
R27-R28			SAME AS R1	GATE INPUT
R30-R31			SAME AS R3	COLLECTOR LOAD
R32			SAME AS R5	BASE INPUT
R33			SAME AS R6	COLLECTOR LOAD
R34-R35			SAME AS R1	GATE INPUT
CR1-CR3	177108	13	DIODE, D2	CLAMP
CR4-CR6	181619	8	DIODE, 1N482	GATE
CR6			SAME AS CR1	CLAMP
CR7-CR8			SAME AS CR4	GATE
CR9-CR13			SAME AS CR1	CLAMP
CR14-CR15			SAME AS CR4	GATE
CR16-CR19			SAME AS CR1	CLAMP
CR20-CR21			SAME AS CR4	GATE
Q1	177105	7	TRANSISTOR, P22	SWITCH
Q2	300455	7	TRANSISTOR, 2N697	SWITCH
Q3			SAME AS Q1	SWITCH
Q4			SAME AS Q2	SWITCH
Q5			SAME AS Q1	SWITCH
Q6-Q7			SAME AS Q2	SWITCH
Q8-Q9			SAME AS Q1	SWITCH
Q10			SAME AS Q2	SWITCH
Q11			SAME AS Q1	SWITCH
Q12			SAME AS Q2	SWITCH
Q13			SAME AS Q1	SWITCH
Q14			SAME AS Q2	SWITCH

308474	1	CIRCUIT CARD, ETCHED
144495	14	PAD, TRANSISTOR
300116	2	COVER, INSULATING

303680

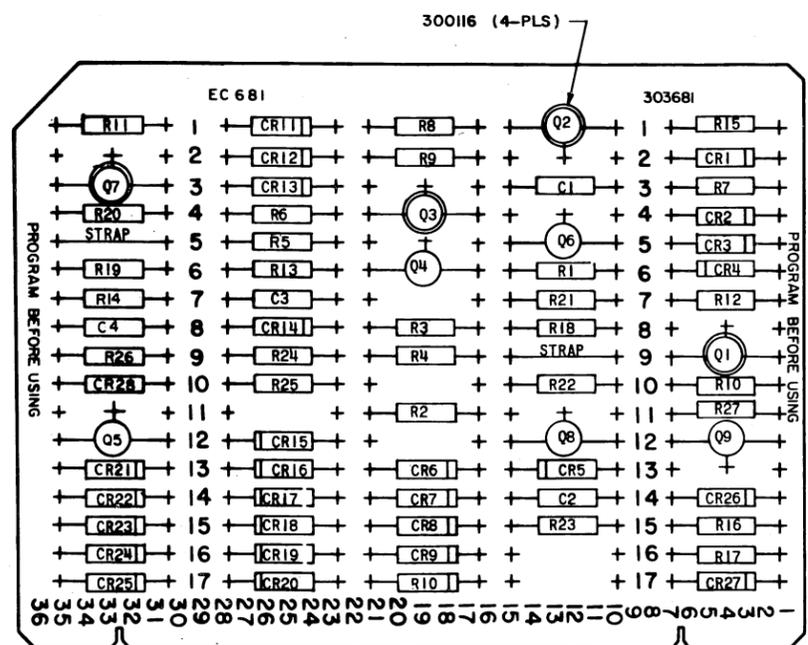
REVISIONS

ISSUE	DATE	AUTH. NO.
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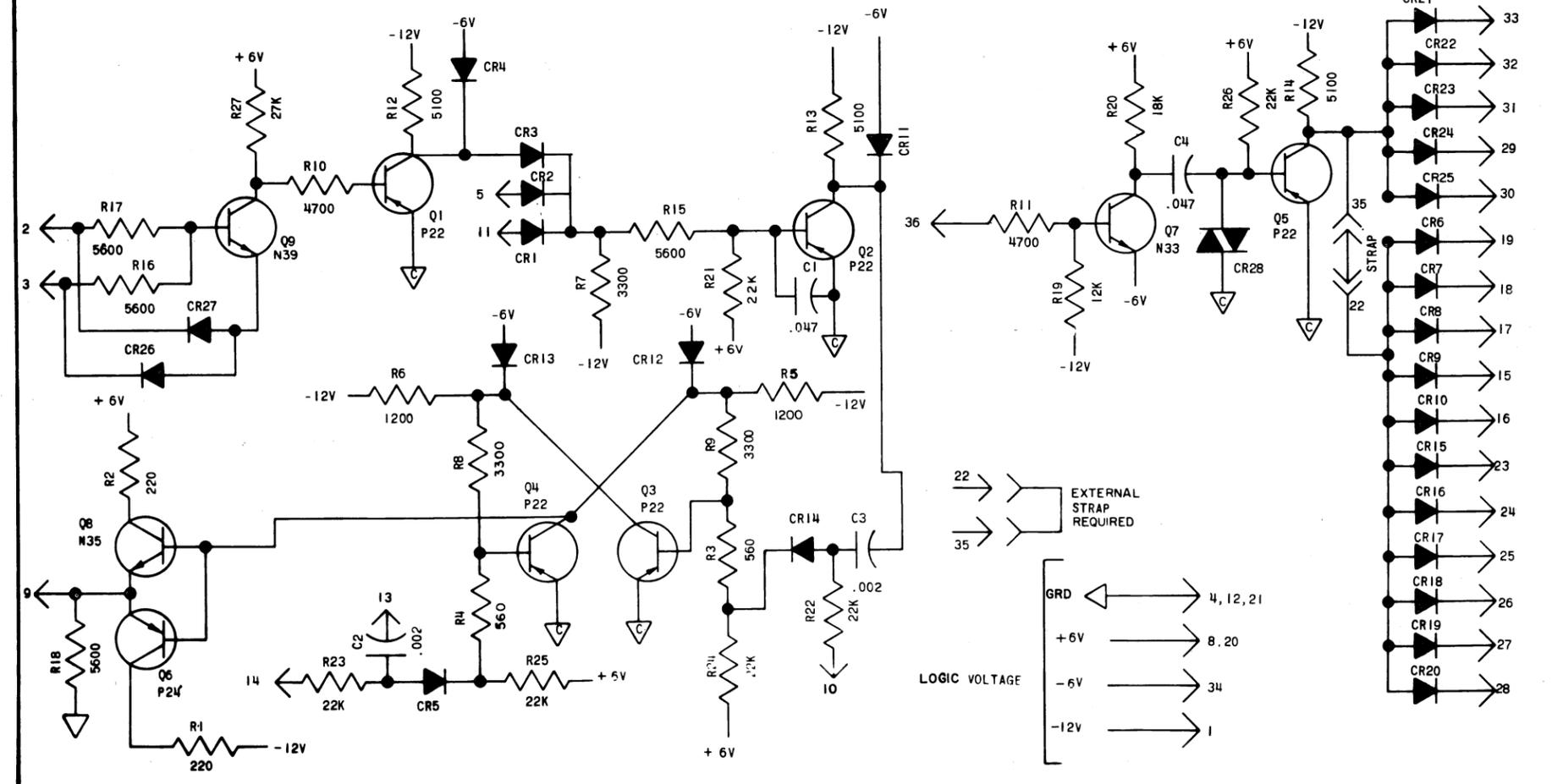
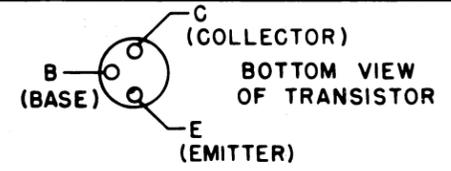
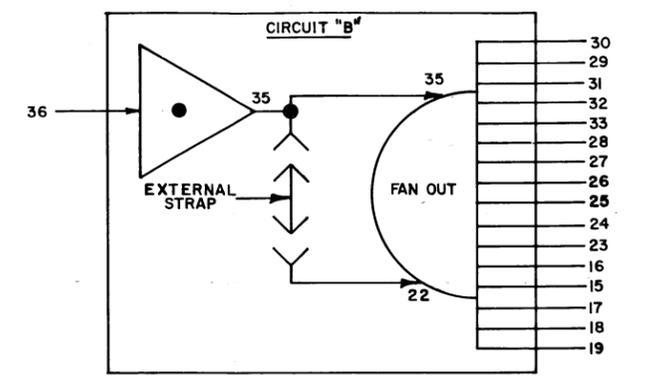
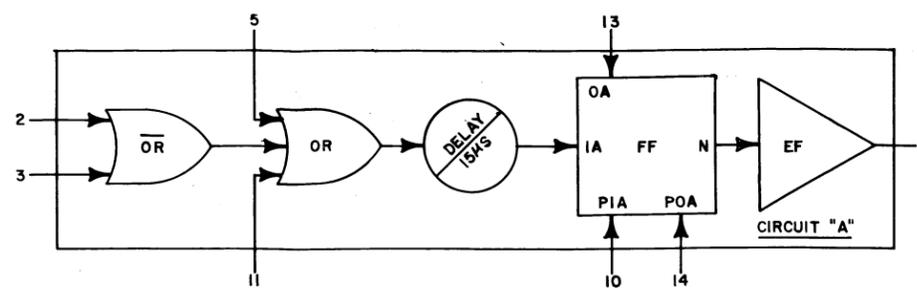
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E-NUMBER			
PROD. NO. 303680			
DATE 8-17-67			
P.D. FILE NO. 4-A156.237A			
DRAWN M. J. N.	CHKD		
ENGD. W. R. F.	APPD.		

TELETYPE CORPORATION

303680



NOTE:
REFER TO 6050WD FOR BASIC MARKING INFORMATION



CIRCUIT BOARD				
REF. DESIG.	TELETYPE PART NO.	TOTAL QTY.	NAME AND DESCRIPTION	LOCATING FUNCTION
C1-C4	192931	2	CAPACITOR .047	PULSE AMP.
C2-C3	177332	2	CAPACITOR .002	COUPLING
CR1-25	177108	25	DIODE, D2	GATE, CLAMP
CR26-27	177611	2	DIODE, 1N682	COUPLING
CR28	178844	1	VARIATOR	BIAS
R1-2	118724	2	RESISTOR 220	BIAS
R3-4	143659	2	RESISTOR 560	BIAS
R5-6	137441	2	RESISTOR 1200	COLLECTOR LOAD
R7-9	129851	3	RESISTOR 3300	BIAS
R10-11	118146	2	RESISTOR 4700	COUPLING
R12-14	143665	3	RESISTOR 5100	LOAD
R15-18	118186	4	RESISTOR 5600	COUPLING
R19	118149	1	RESISTOR 12,000	BIAS
R20	118151	1	RESISTOR 18000	COLLECTOR LOAD
R21-26	118177	6	RESISTOR 22000	BIAS
R27	118187	1	RESISTOR 27000	BIAS
Q1-5	177105	5	TRANSISTOR P22	FLIP-FLOP AMP.
Q6	193135	1	TRANSISTOR P24	EMITTER FOLLOWER
Q7	177106	1	TRANSISTOR N33	AMPLIFIER
Q8	193134	1	TRANSISTOR N35	EMITTER-FOLLOWER
Q9	177422	1	TRANSISTOR N39	GATE
	308535	1	CIRCUIT CARD ETCHED	
	144495	9	PAD. TRANSISTOR	
	300116	4	HAT. TRANSISTOR	
		2	24 AWG STRAP BARE	

THIS CARD CONTAINS TWO SPECIAL PURPOSE CIRCUITS USED IN TYPE 4 DATASPEED.

CIRCUIT A
THIS CIRCUIT CONSISTS OF AN EXCLUSIVE "OR", AN "OR" GATE, A DELAY INVERTER, A FLIP-FLOP AND A SYMMETRICAL EMITTER FOLLOWER. WITH BOTH INPUTS (2 & 3) AT 0 VOLTS OR -6 VOLTS, TRANSISTORS Q9 AND Q1 ARE BIASED "OFF". THE COLLECTOR OF Q1 WILL BE CLAMPED AT -6 VOLTS. WHEN ONE OF THE INPUTS IS AT 0 VOLTS AND THE OTHER IS AT -6 VOLTS, TRANSISTORS Q9 AND Q1 BIASED "ON" AND THE COLLECTOR OF Q1 WILL BE CLAMPED AT 0 VOLTS. THE COLLECTOR OUTPUT OF THE EXCLUSIVE "OR" IS CONNECTED TO ONE OF THE INPUTS OF THE "OR" GATE. THE OTHER TWO INPUTS ARE 5 AND 11. WITH ALL INPUTS AT -6 VOLTS, THE OUTPUT OF THE "OR" GATE WILL BE CLAMPED AT -6 VOLTS, WHEN ANY ONE OR ALL INPUTS ARE AT 0 VOLTS, THE OUTPUT WILL BE CLAMPED AT 0 VOLTS. THE OUTPUT OF THE "OR" GATE IS CONNECTED TO THE INPUT OF THE DELAY INVERTER AT R15. WITH THE INPUT AT 0 VOLTS, TRANSISTOR Q2 IS BIASED "OFF" AND THE COLLECTOR OF Q2 IS CLAMPED AT -6 VOLTS, WHEN THE INPUT TO THE DELAY INVERTER IS SWITCHED TO -6 VOLTS, THE OUTPUT WILL BE SWITCHED TO 0 VOLTS AFTER A 15µS DELAY DUE TO THE TIMING CAPACITOR C1.

THE OUTPUT OF THE DELAY INVERTER IS CONNECTED TO THE SET IA INPUT OF THE FLIP-FLOP AT C3. THE PIA INPUT IS AT PIN 10. IN THE STEADY-STATE CONDITION TRANSISTOR Q3 IS "ON" AND TRANSISTOR Q4 IS "OFF". WITH PIA, PIN 10, AT -6 VOLTS, A POSITIVE PULSE AT C3 WILL BE INHIBITED FROM TURNING Q3 "OFF" WITH PIA AT 0 VOLTS, A POSITIVE PULSE AT C3 WILL CAUSE Q3 TO TURN "OFF" AND TRANSISTOR Q4 TO TURN "ON". THE COLLECTOR OF Q4 WILL THEN SWITCH FROM -6 VOLTS TO 0 VOLTS. TO RESET THE FLIP-FLOP, 0 VOLTS MUST BE PRESENT ON POA, PIN 14 AND A POSITIVE PULSE PRESENTED TO SET OA ON PIN 13. THIS WILL CAUSE TRANSISTOR Q4 TO TURN "OFF" AND TRANSISTOR Q3 TO TURN "ON". THE COLLECTOR OF Q4 WILL THEN SWITCH FROM 0 VOLTS TO -6 VOLTS. THE COLLECTOR OUTPUT OF Q4 IS CONNECTED TO THE INPUTS OF THE SYMMETRICAL EMITTER FOLLOWER AT Q6 AND Q8. WITH 0 VOLTS INPUT, THE OUTPUT PIN 9 WILL BE AT 0 VOLTS. WITH -6 VOLTS INPUT, THE OUTPUT WILL BE AT -6 VOLTS.

CIRCUIT B
THIS CIRCUIT CONSISTS OF A TWO-STAGE PULSE AMPLIFIER AND A FAN-OUT GATE. WITH THE INPUT PIN 36 OPEN-CIRCUITED OR AT -6 VOLTS, TRANSISTORS Q7 AND Q5 ARE BIASED "OFF" AND THE COLLECTOR OUTPUT OF Q5 WILL BE CLAMPED AT -6 VOLTS. ALL THE OUTPUTS OF THE FAN-OUT GATE WILL BE CLAMPED AT -6 VOLTS. WITH 0 VOLTS APPLIED TO THE INPUT PIN 36, TRANSISTORS Q7 AND Q5 WILL BE BIASED "ON". THE COLLECTOR OUTPUT OF Q5 WILL SWITCH TO 0 VOLTS, AND ALL THE OUTPUTS OF THE FAN-OUT GATE WILL ALSO SWITCH TO 0 VOLTS. DUE TO THE TIMING CAPACITOR C4, TRANSISTOR Q5 WILL REMAIN "ON" FOR A SHORT PERIOD OF TIME, APPROXIMATELY 25-40µS, AFTER WHICH TIME Q5 WILL TURN "OFF" AND THE COLLECTOR OUTPUT OF Q5 WILL SWITCH TO -6 VOLTS AND ALL OUTPUTS OF THE FAN-OUT WILL SWITCH TO -6 VOLTS. THE OUTPUT PULSES WILL HAVE A RISE TIME, APPROXIMATELY 5-7µS, IN DURATION. THE FAN-OUT GATE MAY BE PROGRAMMED BY REMOVING APPROPRIATE DIODES.

303681

REVISIONS

ISSUE	DATE	AUTH. NO.
1	10-18-67	18769-R
2	6-18-68	95654

PARITY ERROR INDICATOR AND ERROR CHARACTER INSERTER

APPROVALS

R AND D: *ARK* E OF M: *[Signature]*

S-NUMBER: PROD NO. 303681

DATE: 8/1/65

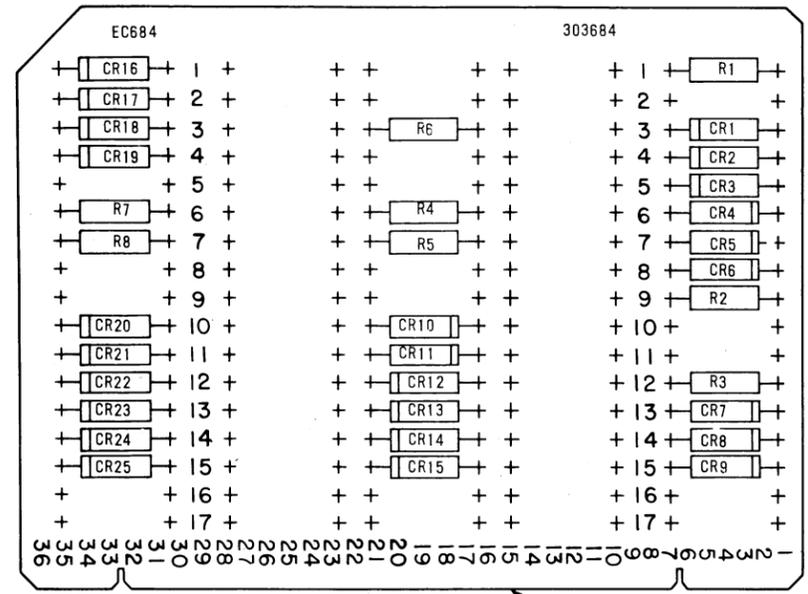
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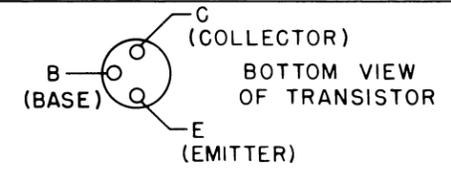
TELETYPE CORPORATION

303681

EC684
303684



NOTE:
REFER TO 6050WD FOR BASIC MARKING INFORMATION

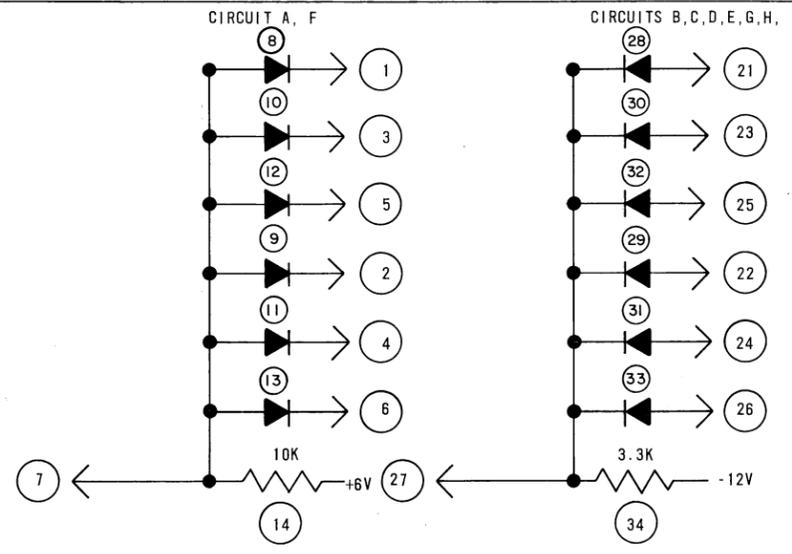
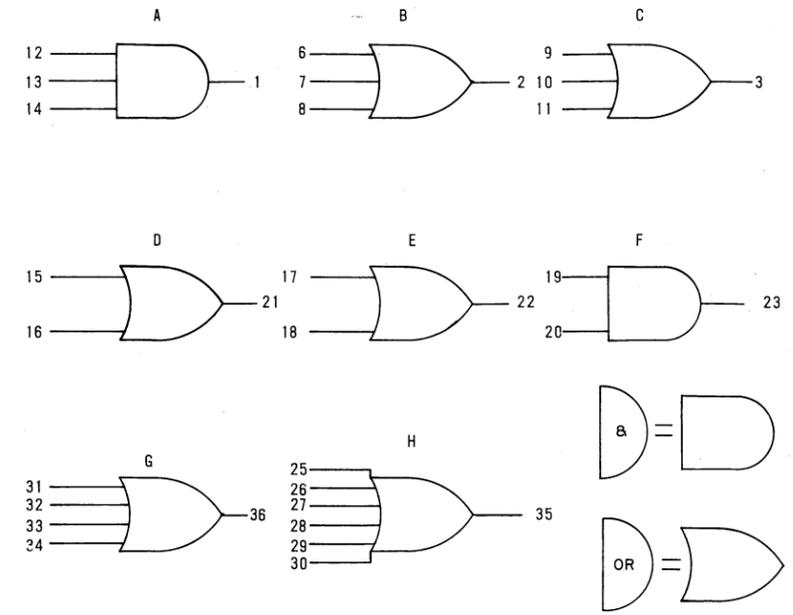


THIS CARD CONSISTS OF SIX "OR" GATES AND TWO "AND" GATES.
WHEN 0 VOLTS IS APPLIED TO ALL OF THE INPUTS OF AN "AND" GATE, THE OUTPUT WILL BE 0 VOLTS. WHEN -6 VOLTS IS APPLIED TO ANY OF THE INPUTS, THE OUTPUT WILL BE -6 VOLTS.
WHEN -6 VOLTS IS APPLIED TO ALL OF THE INPUTS OF AN "OR" GATE, THE OUTPUT WILL BE -6 VOLTS. WHEN 0 VOLTS IS APPLIED TO ANY OF THE INPUTS, THE OUTPUT WILL BE 0 VOLTS.

"AND" GATE

CIR.	1	2	3	4	5	6	7	8	9	10	11	12	13	14
A	12	13	14				1	CR3	CR2	CR1				R1
F	19	20					23	CR11	CR10					RE

AND GATE (2)
OR GATE (6)



NOTE. CIRCLED NUMBERS DESIGNATE COMPONENTS OR INPUT AND OUTPUT TERMINALS ON MULTIPLE CIRCUITS AS FOLLOWS:

"OR" GATE

CIR.	21	22	23	24	25	26	27	28	29	30	31	32	33	34
B	6	7	8				2	CR7	CR8	CR9				R3
C	9	10	11				3	CR6	CR5	CR4				R2
D	15	16					21	CR14	CR15					R4
E	17	18					22	CR13	CR12					R5
G	31	32	33	34			36	CR19	CR18	CR17	CR16			R7
H	25	26	27	28	29	30	35	CR20	CR21	CR22	CR23	CR24	CR25	R8

CIRCUIT BOARD EC 684

REF. DESIG.	TELETYPE PART NO.	TOTAL QTY.	NAME AND DESCRIPTION	LOCATING FUNCTION
R1	129854	2	RESISTOR 10K	BIAS
R2	129851	6	RESISTOR 3.3K	BIAS
R3	129851		SAME AS R2	BIAS
R4	129851		SAME AS R2	BIAS
R5	129851		SAME AS R2	BIAS
R6	129854		SAME AS R1	BIAS
R7	129851		SAME AS R2	BIAS
R8	129851		SAME AS R2	BIAS

REF. DESIG.	TELETYPE PART NO.	TOTAL QTY.	NAME AND DESCRIPTION	LOCATING FUNCTION
CR1-25	177108	25	DIODE, D2	GATE
EC	308468	1	ETCHED CIRCUIT BOARD	

303684

REVISIONS

ISSUE	DATE	AUTH. NO.
1	8-23-67	18728-R

APPROVALS

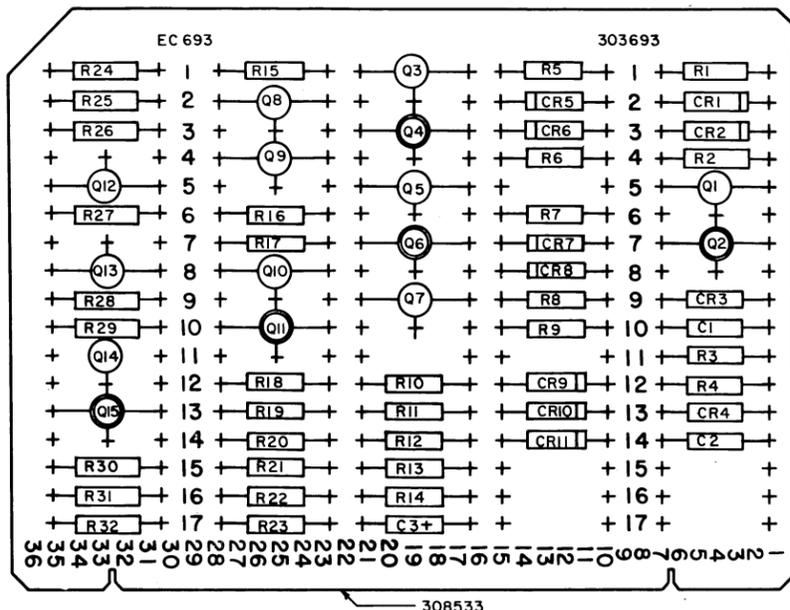
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E-NUMBER
PROD NO. 303684
DATE 6-16-67
R&D FILE 2-96.134.184A
DRAWN J.R. CHKD. J.R.
ENGD. W.R.F. APPD. J.R.

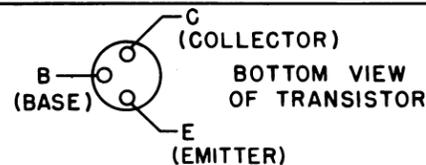
TELETYPE CORPORATION

303684

EC693
303693



NOTE:
REFER TO 6050WD FOR BASIC MARKING INFORMATION



CIRCUITS A AND B: THESE CIRCUITS CONSIST OF TWO IDENTICAL TWO STAGE AMPLIFIERS. THE FIRST STAGE IS A MEDIUM POWER PNP EMITTER FOLLOWER USED TO PROVIDE ISOLATION AND CURRENT GAIN WITH NO INVERSION OR CHANGE IN AMPLITUDE OF THE INCOMING SIGNAL. THE SECOND STAGE IS A CAPACITIVE COUPLED PULSE AMPLIFIER WHICH CONVERTS A NEGATIVE GOING TRANSITION APPLIED TO THE INPUT INTO A NARROW POSITIVE GOING OUTPUT PULSE (10 U SEC. MIN. DURATION). IN THE STATIC CONDITION, WITH 0 VOLTS APPLIED TO THE INPUT, THE OUTPUT IS CLAMPED AT -6 VOLTS.

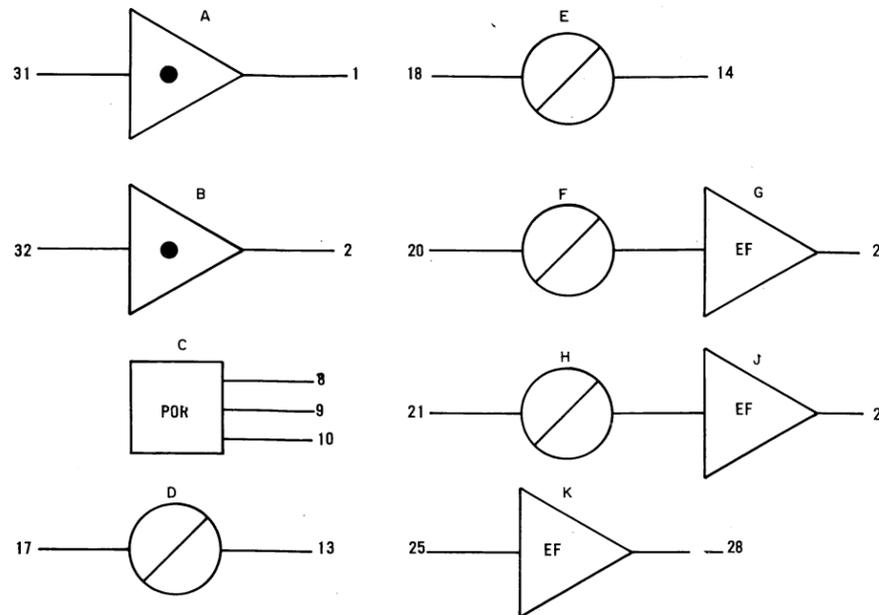
CIRCUIT C: POWER ON RESET: WHEN POWER TO THE CIRCUIT CARD IS FIRST TURNED ON, THE VOLTAGE AT THE BASE OF Q7 WILL BE NEGATIVE UNTIL RESPECT TO THE EMITTER BECAUSE OF THE CHARGING EFFECT ON C3. THE OUTPUT OF CIRCUIT C, LEADS 8, 9 AND 10, WILL BE CLAMPED TO 0 VOLTS UNTIL THE VOLTAGE ON THE BASE OF Q7 IS POSITIVE WITH RESPECT TO THE EMITTER. AT THAT TIME THE OUTPUT LEADS GO TO -12 VOLTS. WITH C3 FULLY CHARGED THE OUTPUT WILL REMAIN AT -12 VOLTS.

CIRCUITS D AND E: TWO IDENTICAL INVERTERS. THESE CIRCUITS PROVIDE TWO IDENTICAL PNP COMMON EMITTER AMPLIFIERS WHICH PROVIDE INVERTED OUTPUTS. WHEN THE INPUT TO A TRANSISTOR IS OPEN OR AT 0 VOLTS, THE TRANSISTOR IS NON-CONDUCTING AND THE COLLECTOR OUTPUT POTENTIAL IS CLAMPED TO -6 VOLTS BY THE ASSOCIATED DIODE. WITH A -6 VOLT INPUT SIGNAL, THE TRANSISTOR WILL CONDUCT AND THE OUTPUT POTENTIAL WILL BE 0 VOLTS FOR THE DURATION OF THE -6 VOLT INPUT.

CIRCUITS F & G AND H & J: TWO IDENTICAL INVERTER AND SYMMETRICAL EMITTER FOLLOWER CIRCUITS. WHEN THE INPUT TO THE INVERTER IS OPEN OR AT 0 VOLTS, THE TRANSISTOR IS NON-CONDUCTING AND THE COLLECTOR POTENTIAL IS CLAMPED TO -6 VOLTS BY THE ASSOCIATED DIODE. THE -6 VOLT POTENTIAL APPLIED TO THE COMMON BASES OF THE SYMMETRICAL EMITTER FOLLOWERS PROVIDES A -6 VOLT OUTPUT AT THE COMMON EMITTERS. A 0 VOLT INPUT AT THE COMMON BASES PROVIDES A 0 VOLT OUTPUT AT THE COMMON EMITTERS. THE SYMMETRICAL CIRCUITRY PROVIDES A HIGH CURRENT GAIN FOR POSITIVE OR NEGATIVE TRANSITION.

CIRCUIT K: THIS CIRCUIT IS A SYMMETRICAL EMITTER FOLLOWER AMPLIFIER. A -6 VOLT POTENTIAL APPLIED TO THE COMMON BASES OF THE SYMMETRICAL EMITTER FOLLOWERS PROVIDES A -6 VOLT OUTPUT AT THE COMMON EMITTERS. A 0 VOLT INPUT AT THE COMMON BASES PROVIDES A 0 VOLT OUTPUT AT THE COMMON EMITTERS. THE SYMMETRICAL CIRCUITRY PROVIDES A HIGH CURRENT GAIN FOR POSITIVE AND NEGATIVE TRANSITIONS.

SPECIAL LOGIC FOR TYPE IV RECEIVER



CIRCUIT BOARD EC 693

REF. DESIG.	TELETYPE PART NO.	TOTAL QTY.	NAME AND DESCRIPTION	LOCATING FUNCTION
R1	137441	4	RESISTOR 1200 OHMS	LOAD
R2			RESISTOR 1200 OHMS	LOAD
R3	118177	7	RESISTOR 22000 OHMS	BIAS
R4			RESISTOR 22000 OHMS	BIAS
R5	143665	3	RESISTOR 5100 OHMS	LOAD
R6			RESISTOR 5100 OHMS	LOAD
R7			RESISTOR 1200 OHMS	LOAD
R8			RESISTOR 1200 OHMS	LOAD
R9			RESISTOR 5100 OHMS	LOAD
R10	118186	8	RESISTOR 5600 OHMS	INPUT
R11			RESISTOR 5600 OHMS	INPUT
R12			RESISTOR 5600 OHMS	INPUT
R13			RESISTOR 5600 OHMS	INPUT
R14			RESISTOR 5600 OHMS	INPUT
R15	118724	8	RESISTOR 220 OHMS	BIAS
R16			RESISTOR 220 OHMS	BIAS
R17			RESISTOR, 220 OHMS	BIAS
R18			RESISTOR, 22000 OHMS	BIAS
R19			RESISTOR, 22000 OHMS	BIAS
R20			RESISTOR 22000 OHMS	BIAS
R21			RESISTOR, 22000 OHMS	BIAS
R22			RESISTOR 22000 OHMS	BIAS
R23			RESISTOR 220 OHMS	BIAS
R24			RESISTOR 220 OHMS	BIAS
R25			RESISTOR 5600 OHMS	LOAD
R26			RESISTOR 220 OHMS	BIAS
R27			RESISTOR 5600 OHMS	LOAD
R28			RESISTOR 5600 OHMS	LOAD
R29	118146	2	RESISTOR 4700 OHMS	LOAD
R30			RESISTOR 220 OHMS	BIAS
R31			RESISTOR 220 OHMS	BIAS
R32			RESISTOR 4700 OHMS	LOAD
C1	137306	2	CAPACITOR .05 MFD	COUPLING
C2			CAPACITOR .05 MFD	COUPLING
C3	306088	1	CAP. (+) TANTALUM 68MFD	TIMING
CR1	177108	9	DIODE D2	CLAMP
CR2			DIODE D2	CLAMP
CR3	178844	2	VARIABLE 100A	BIAS
CR4			VARIABLE 100A	BIAS
CR5			DIODE D2	CLAMP
CR6			DIODE D2	CLAMP
CR7			DIODE D2	CLAMP
CR8			DIODE D2	CLAMP
CR9			DIODE D2	GATE
CR10			DIODE D2	GATE
CR11			DIODE D2	GATE
Q1	177105	7	TRANSISTOR P22	AMPLIFIER
Q2			TRANSISTOR P22	AMPLIFIER
Q3			TRANSISTOR P22	INVERTER
Q4			TRANSISTOR P22	INVERTER
Q5			TRANSISTOR P22	INVERTER
Q6			TRANSISTOR P22	INVERTER
Q7			TRANSISTOR P22	AMPLIFIER
Q8	193135	5	TRANSISTOR P24	EMITTER FOLLOWER
Q9	193134	3	TRANSISTOR N35	EMITTER FOLLOWER
Q10			TRANSISTOR P24	EMITTER FOLLOWER
Q11			TRANSISTOR N35	EMITTER FOLLOWER
Q12			TRANSISTOR N35	EMITTER FOLLOWER
Q13			TRANSISTOR P24	EMITTER FOLLOWER
Q14			TRANSISTOR P24	EMITTER FOLLOWER
Q15			TRANSISTOR P24	EMITTER FOLLOWER
EC	308533	1	ETCHED CIRCUIT BOARD	
	144495	15	PAD TRANSISTOR	
	300116	6	HAT, TRANSISTOR	

303693

REVISIONS

ISSUE	DATE	AUTH. NO.
1	8-23-67	18728-R
2	7-12-68	97637

SHEET 1

APPROVALS

R AND D: *HJK* E OF M: *[Signature]*

E-NUMBER

PROD NO. 303693

DATE 6-30-67

R&D FILE 2-96.134.184

DRAWN CJR CHKD *[Signature]*
ENGD. WRF APPD. *[Signature]*

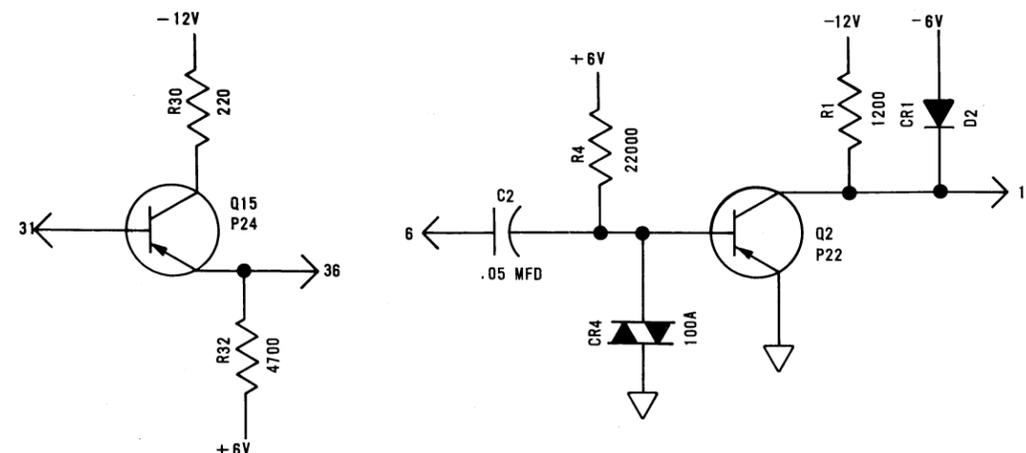
TELETYPE CORPORATION

303693

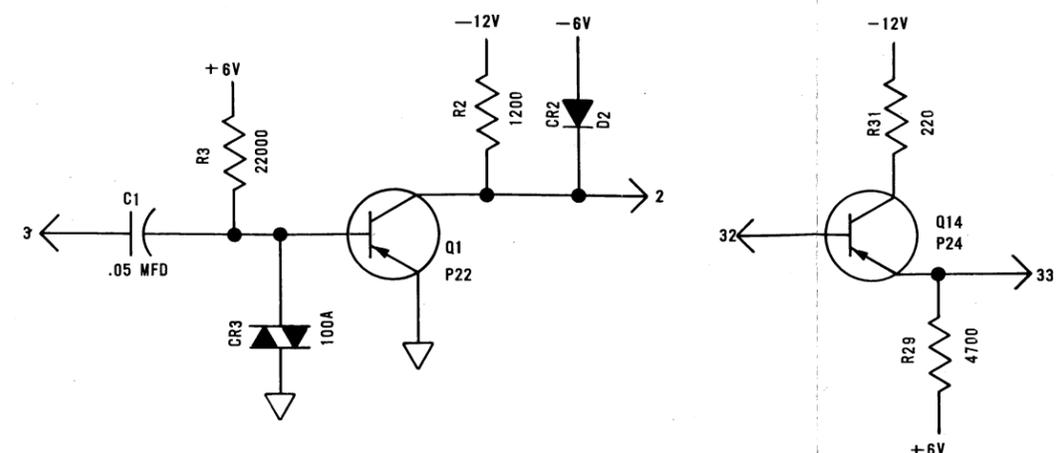
REVISIONS

ISSUE	DATE	AUTH. NO.
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2	7-12-68	97637

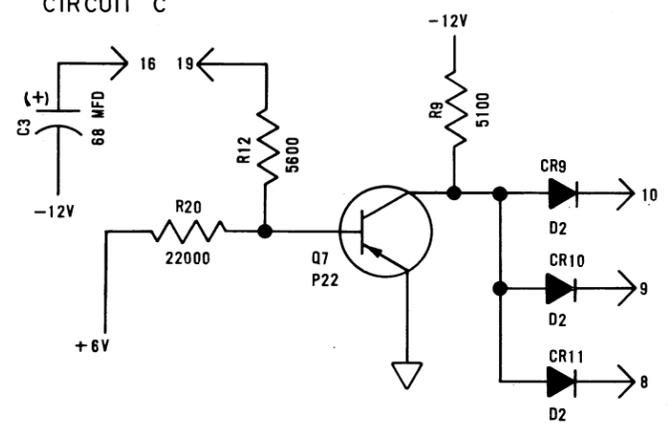
CIRCUIT A



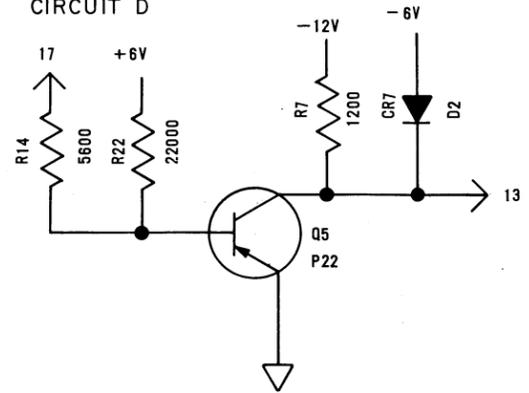
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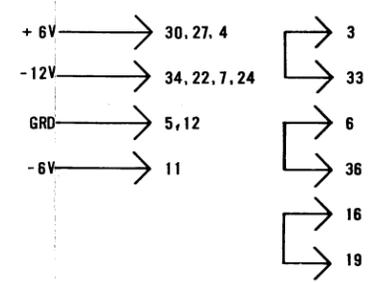
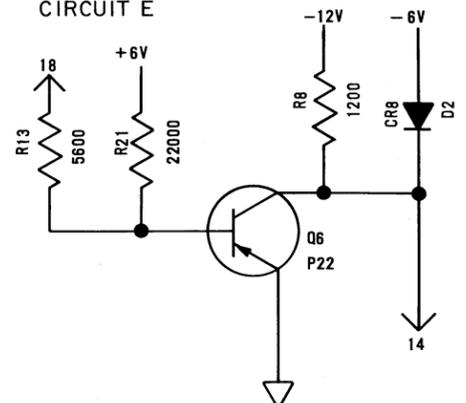
CIRCUIT C



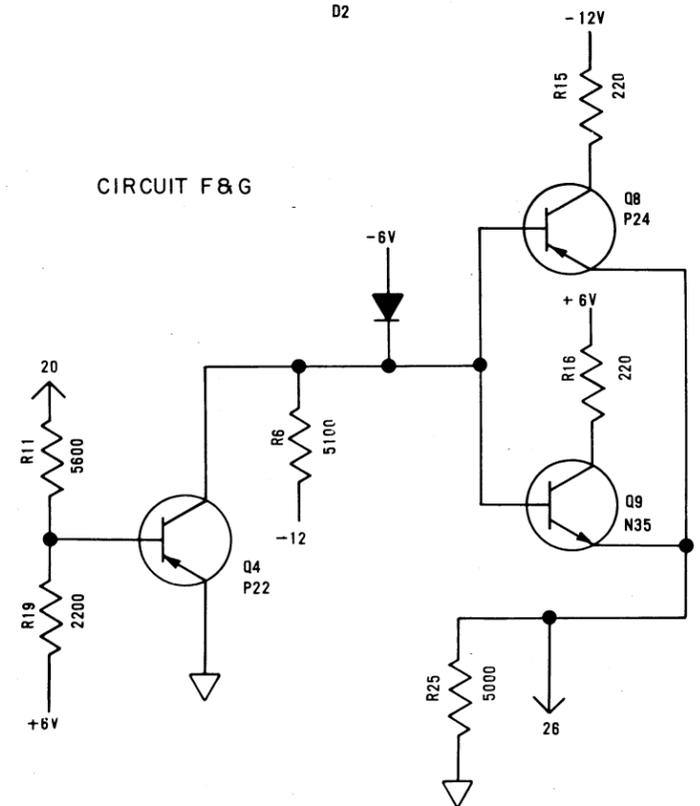
CIRCUIT D



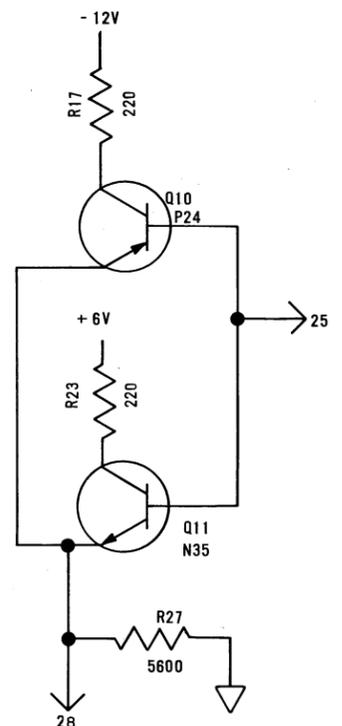
CIRCUIT E



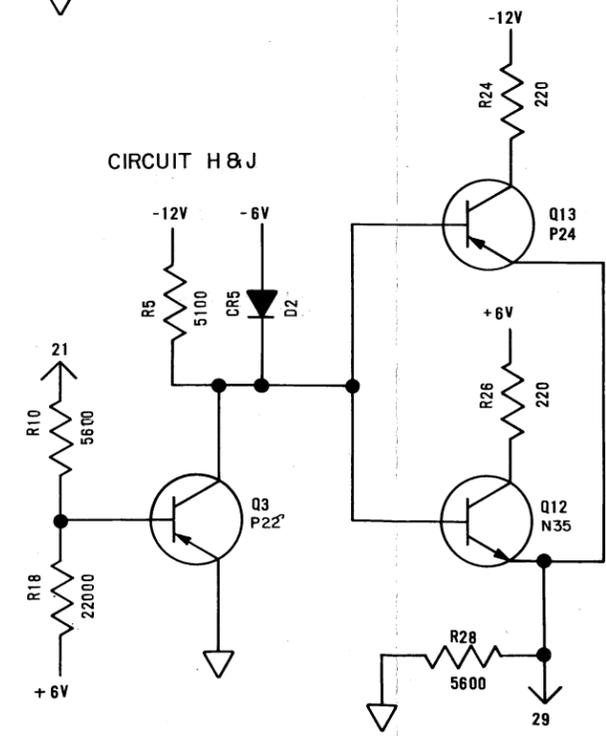
CIRCUIT F&G



CIRCUIT K



CIRCUIT H&J



SHEET 2

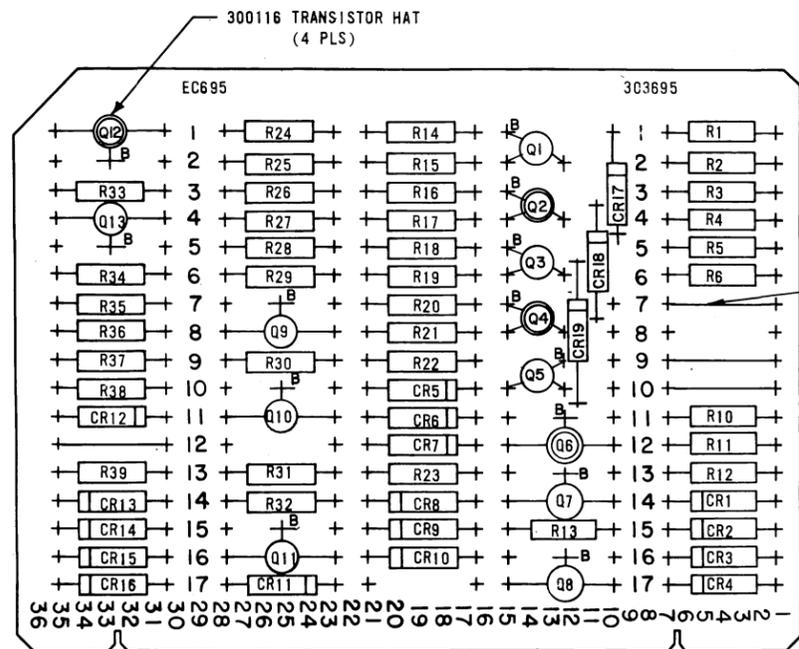
SPECIAL LOGIC FOR TYPE IV DATASPEED

APPROVALS

D AND R *ABX* E OF M *[Signature]*

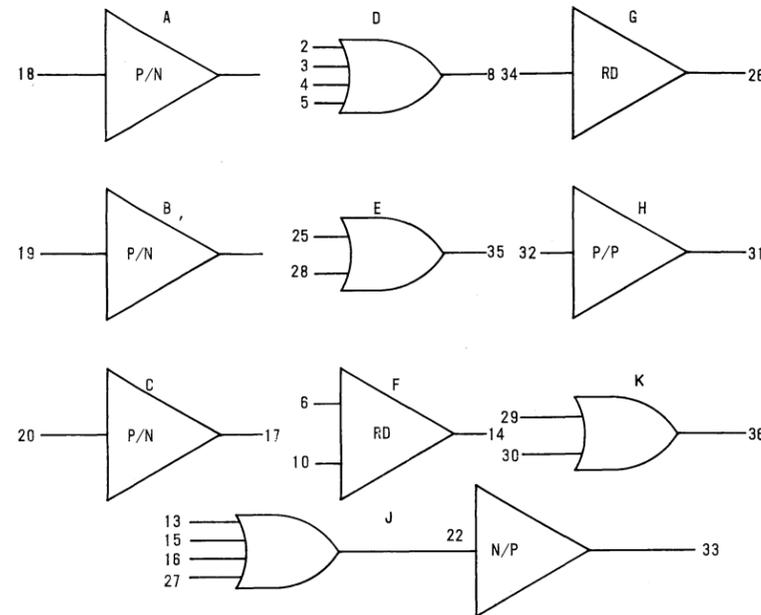
E-NUMBER
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 DATE 6-16-67
 P.D. FILE NO. 2-96.134.184A
 DRAWN C. J. R. CHKD *[Signature]*
 ENGD. W. R. F. APRD. *[Signature]*

TELETYPE CORPORATION



EC695
303695

SPECIAL LOGIC FOR HIGH SPEED
TYPE IV STATION CONTROL ASSEMBLY



CIRCUIT BOARD EC 695

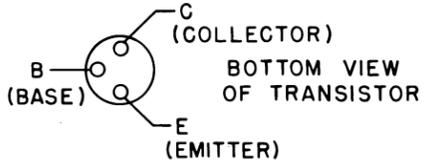
REF. DESIG.	TELETYPE PART NO.	TOTAL QTY.	NAME AND DESCRIPTION	LOCATING FUNCTION
CR1	177108	13	DIODE, D2	GATE
CR2			DIODE, D2	GATE
CR3			DIODE, D2	GATE
CR4			DIODE, D2	GATE
CR5			DIODE, D2	CLAMP
CR6			DIODE, D2	CLAMP
CR7			DIODE, D2	CLAMP
CR8			DIODE, D2	GATE
CR9			DIODE, D2	GATE
CR10			DIODE, D2	GATE
CR11			DIODE, D2	GATE
CR12	177611	6	DIODE, IN682	COUPLING
CR13			DIODE, D2	GATE
CR14			DIODE, D2	GATE
CR15			DIODE, IN682	GATE
CR16			DIODE, IN682	GATE
CR17			DIODE, IN682	CLAMP
CR18			DIODE, IN682	CLAMP
CR19			DIODE, IN682	CLAMP
R1	118159	4	RESISTOR, 150K	BIAS
R2	119146	4	RESISTOR, 4700	LOAD
R3			RESISTOR, 150K	BIAS
R4			RESISTOR, 4700	LOAD
R5			RESISTOR, 150K	BIAS
R6			RESISTOR, 4700	LOAD
R7	129851	7	RESISTOR, 3300	COUPLING
R8			RESISTOR, 3300	COUPLING
R9			RESISTOR, 3300	COUPLING
R10	118149	1	RESISTOR, 12000	BIAS
R11			RESISTOR, 4700	INPUT
R12			RESISTOR, 3300	BIAS
R13	137443	1	RESISTOR, 1800	COUPLING
R14	118180	3	RESISTOR, 10000	COUPLING
R15	118724	4	RESISTOR, 220	BIAS
R16			RESISTOR, 10000	COUPLING
R17			RESISTOR, 220	BIAS
R18			RESISTOR, 10000	COUPLING
R19			RESISTOR, 220	BIAS
R20	137441	4	RESISTOR, 1200	LOAD
R21			RESISTOR, 1200	LOAD
R22			RESISTOR, 1200	LOAD
R23	118151	1	RESISTOR, 18000	BIAS
R24			RESISTOR, 150K	BIAS
R25	129852	1	RESISTOR, 2200	BIAS
R26			RESISTOR, 220	BIAS
R27	137602	2	RESISTOR, 470	LOAD
R28			RESISTOR, 470	LOAD
R29	143667	1	RESISTOR, 3900	BIAS
R30	139143	1	RESISTOR, 43000	BIAS
R31	118187	1	RESISTOR, 27000	BIAS
R32			RESISTOR, 1200	COUPLING
R33	137442	1	RESISTOR, 1500	COUPLING
R34	137601	2	RESISTOR 68	OUTPUT
R35			RESISTOR, 3300	INPUT
R36			RESISTOR, 68	OUTPUT
R37	118147	1	RESISTOR, 6800	INPUT
R38			RESISTOR, 3300	BIAS
R39			RESISTOR, 3300	BIAS
Q1	177422	4	TRANSISTOR, N39	EMITTER FOLLOWER
Q2			TRANSISTOR, N39	EMITTER FOLLOWER
Q3			TRANSISTOR, N39	EMITTER FOLLOWER
Q4	177105	4	TRANSISTOR, P22	CONVERTER
Q5			TRANSISTOR, P22	CONVERTER
Q6			TRANSISTOR, P22	CONVERTER
Q7	177106	3	TRANSISTOR, N33	RELAY DRIVER
Q8	177224	2	TRANSISTOR, P41	RELAY DRIVER
Q9			TRANSISTOR, N33	CONVERTER
Q10			TRANSISTOR, P22	RELAY DRIVER
Q11			TRANSISTOR, P41	RELAY DRIVER
Q12			TRANSISTOR, N39	EMITTER FOLLOWER
Q13			TRANSISTOR, N33	CONVERTER
308452	1		CIRCUIT CARD, ETCHED	
144495	13		PAD TRANSISTOR	
300116	4		HAT, TRANSISTOR	

303695

REVISIONS

ISSUE	DATE	AUTH. NO.
1	8-23-67	18728-R
2	3-26-68	95435
3	8-8-68	97642
4	10-25-68	96269

NOTE:
REFER TO 6050WD FOR BASIC MARKING INFORMATION



THIS CARD CONSISTS OF TEN CIRCUITS.

CIRCUITS A, B & C: POLAR TO NORMAL SIGNAL CONVERTER. THE INPUTS ① WILL CONVERT POSITIVE AND NEGATIVE EIA RS232B INTERFACE SIGNALS TO -6V AND 0V OUTPUT ①① RESPECTIVELY. TRANSISTOR ④ IS USED TO AMPLIFY POSITIVE SIGNALS WHICH CUT OFF SIGNAL INVERTER AMPLIFIER TRANSISTOR ⑨. RESISTOR ⑥ BIASED TO -12V WILL SUPPLY BASE CURRENT IN ORDER TO SATURATE TRANSISTOR ⑨ WHEN NEGATIVE SIGNALS ARE APPLIED TO THE INPUTS ①. AN OPEN CIRCUITED INPUT ① WILL CAUSE TRANSISTOR ⑨ TO CONDUCT, THEREBY GENERATING A 0V OUTPUT SIGNAL AT ①①.

CIRCUIT D: FOUR INPUT OR GATE. THE OUTPUT 8 WILL BE AT 0V WHEN ANY OF THE INPUTS ARE 0V. THE OUTPUT WILL BE -6V ONLY WHEN ALL OF THE INPUTS ARE -6V. EACH INPUT IS ISOLATED WITH A DIODE. THE CATHODES OF THE DIODES ARE BIASED TO -12V THROUGH RESISTOR R12

CIRCUIT E: TWO INPUT OR GATE. THE OUTPUT 35 WILL BE AT 0V WHEN ANY OF THE INPUTS ARE 0V. THE OUTPUT WILL BE -6V ONLY WHEN BOTH INPUTS ARE -6V. EACH INPUT IS ISOLATED WITH A DIODE. THE CATHODES OF THE DIODES ARE BIASED TO -12V THROUGH RESISTOR R39.

CIRCUIT F: POLAR RELAY DRIVER. THE RELAY DRIVER OPERATES ON POSITIVE AND NEGATIVE EIA INPUT RS232B INTERFACE SIGNALS. A POSITIVE SIGNAL ON 6 WILL CAUSE BOTH Q7 AND Q8 TO CONDUCT. THE COLLECTOR OUTPUT 14 WILL BE 0V. TRANSISTOR Q8 IS CAPABLE OF WORKING WITH A 50 MA, -70V RELAY LOAD. A NEGATIVE INPUT SIGNAL WILL CUT OFF BOTH Q7 AND Q8. AN OPEN CIRCUITED INPUT WILL RESPOND SIMILARLY. IN ORDER TO ENABLE THE RELAY DRIVER, INPUT 10 MUST BE GROUNDED. THE DRIVER IS DISABLED IF INPUT 10 IS OPEN CIRCUITED. AN OPEN CIRCUITED INPUT WILL CAUSE THE RELAY DRIVER NOT TO OPERATE.

CIRCUIT G: POLAR RELAY DRIVER. THE RELAY DRIVER OPERATES ON POSITIVE AND NEGATIVE EIA RS232 B INTERFACE SIGNALS. A POSITIVE INPUT 34 WILL CUT OFF TRANSISTOR Q10 CAUSING 11 TO CONDUCT. THE COLLECTOR OUTPUT OF Q11 WILL BE 0V. TRANSISTOR Q11 IS CAPABLE OF WORKING WITH A 50 MA, -70V RELAY LOAD. A NEGATIVE INPUT SIGNAL WILL CAUSE TRANSISTOR Q10 TO CONDUCT, TURNING OFF Q11, TURNING OFF THE RELAY DRIVER. A GROUNDED 0V INPUT AND AN OPEN CIRCUITED INPUT WILL CAUSE THE RELAY DRIVER TO RESPOND IN A SIMILAR MANNER.

CIRCUIT H: POLAR SIGNAL INVERTER: EIA RS232B INTERFACE SIGNALS ON 32 ARE INVERTED. OUTPUT 31 IS CAPABLE OF GENERATING EIA RS232B INTERFACE SIGNALS. A POSITIVE SIGNAL IS AMPLIFIED BY THE EMITTER FOLLOWER TRANSISTOR Q12, AND WILL CAUSE SIGNAL INVERTER TRANSISTOR Q13 TO CONDUCT. THE COLLECTOR OUTPUT OF Q13 WILL BE NEGATIVE. WITH A NEGATIVE INPUT 32, TRANSISTOR Q13 WILL NOT CONDUCT, MAKING THE OUTPUT 31 POSITIVE. RESISTOR 34 IS USED TO PROTECT TRANSISTOR Q13 AGAINST SHORT CIRCUITED OUTPUTS.

CIRCUIT J: FOUR INPUT OR GATE AND NORMAL TO POLAR SIGNAL CONVERTER. THE OUTPUT CONVERTER GENERATES EIA RS232B INTERFACE SIGNALS. ANY 0V INPUT TO THE OR GATE WILL CAUSE TRANSISTOR Q9 TO CONDUCT. THE COLLECTOR OUTPUT OF Q9 WILL BE NEGATIVE WHEN ALL OF THE OR GATE INPUTS ARE AT -6V, TRANSISTOR Q9 WILL BE CUT OFF MAKING THE OUTPUT POSITIVE. RESISTOR R36 PROTECTS TRANSISTOR Q4 AGAINST SHORT CIRCUITED OUTPUTS. THE INPUTS OF THE OR GATE ARE ISOLATED BY DIODES; THE CATHODES OF THE DIODES ARE BIASED TO -12V THROUGH RESISTOR R29

CIRCUIT K: TWO INPUT OR GATE. THE OUTPUT OF THE GATE 36 WILL BE AT 0V WHEN ANY OF THE INPUTS ARE 0V. THE INPUTS ARE ISOLATED BY DIODES. THE CATHODES OF THE DIODES ARE BIASED BY THEIR NEGATIVE EXTERNAL LOAD

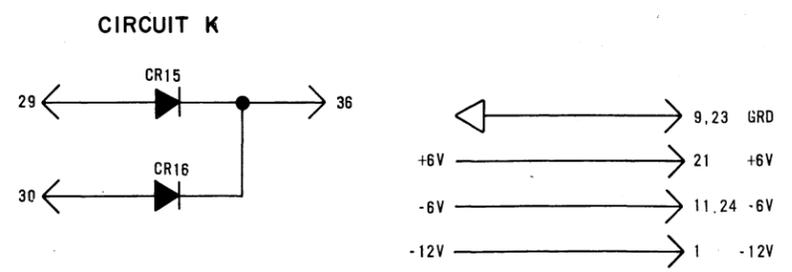
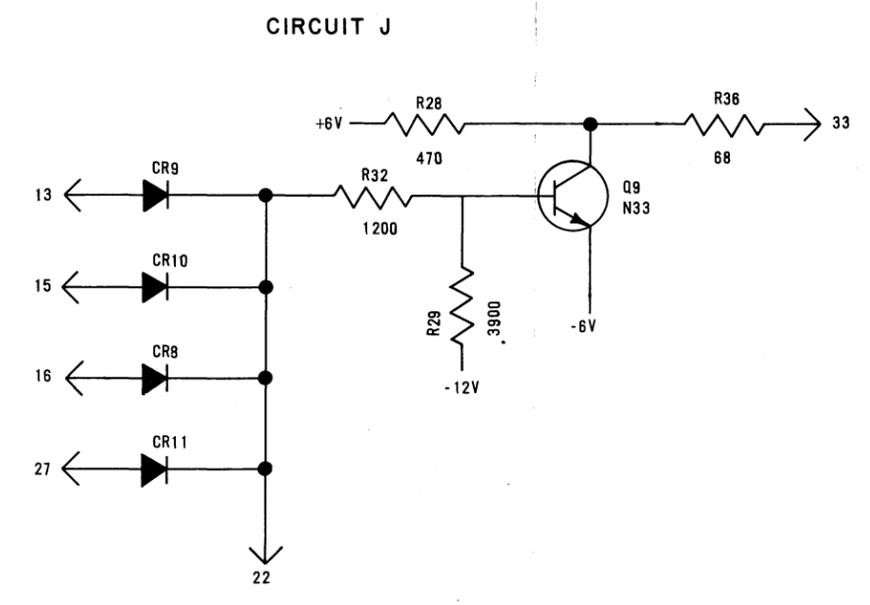
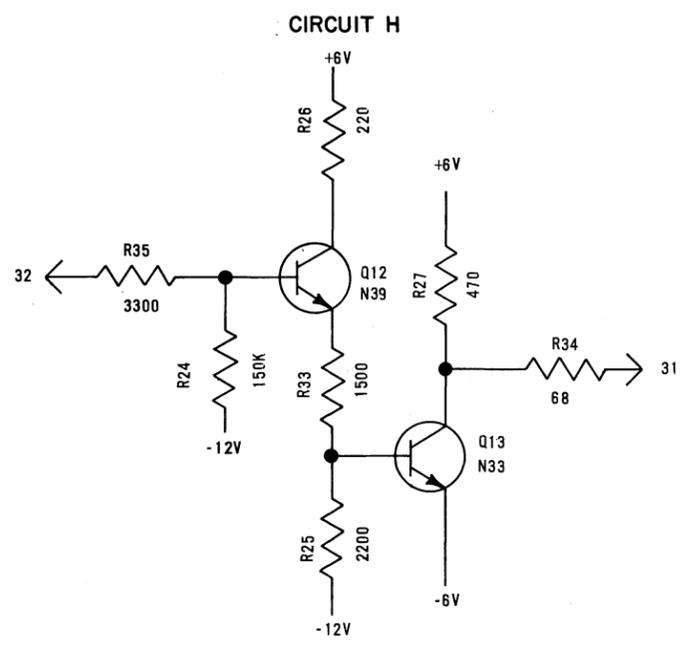
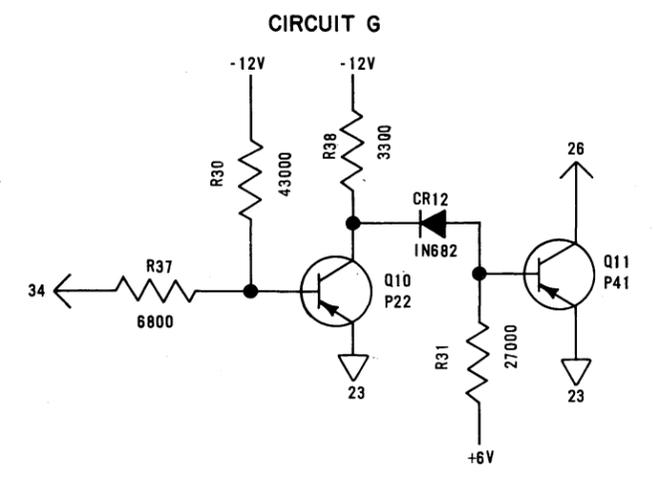
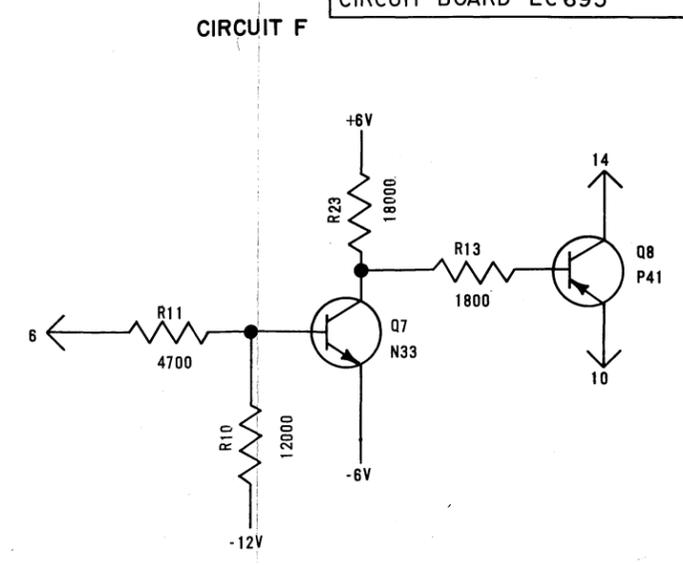
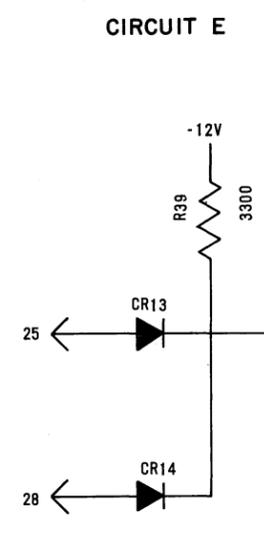
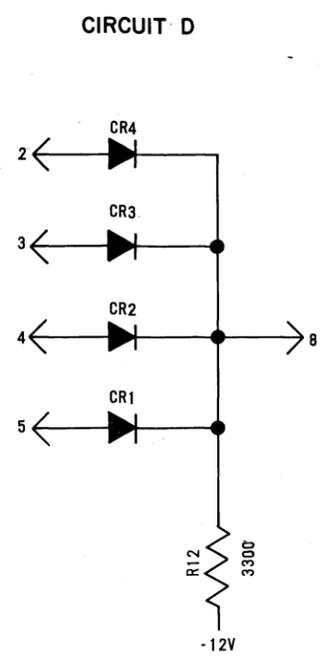
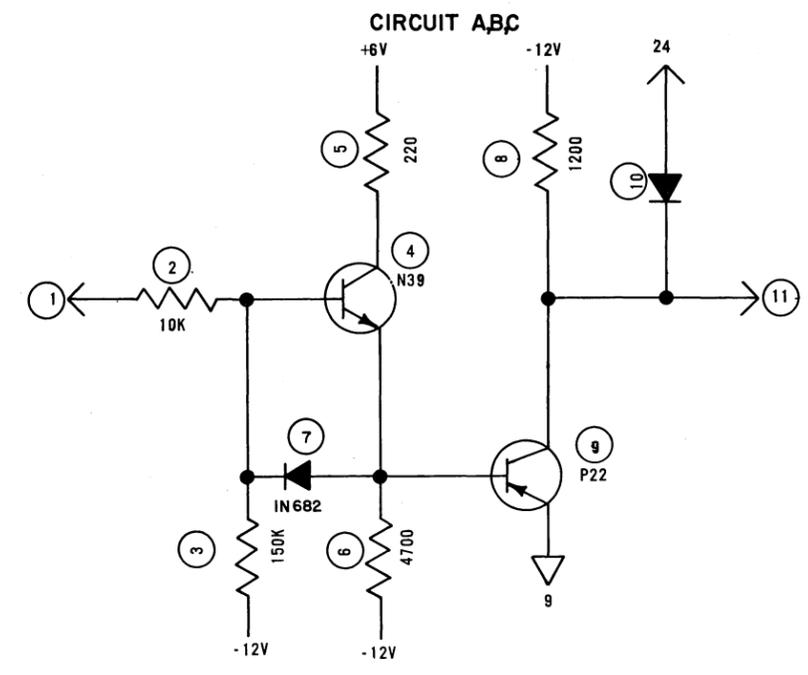
APPROVALS

R AND D	E OF M
E-NUMBER	
PROD NO. 303695	
DATE 6-1-65	
R&D FILE 5-A148/1344A	
DRAWN JER	CHKD [Signature]
ENG. W.R.F.	APPD. [Signature]

TELETYPE CORPORATION

303695

REVISIONS		
ISSUE	DATE	AUTH. NO.
1	8-23-67	18728-R



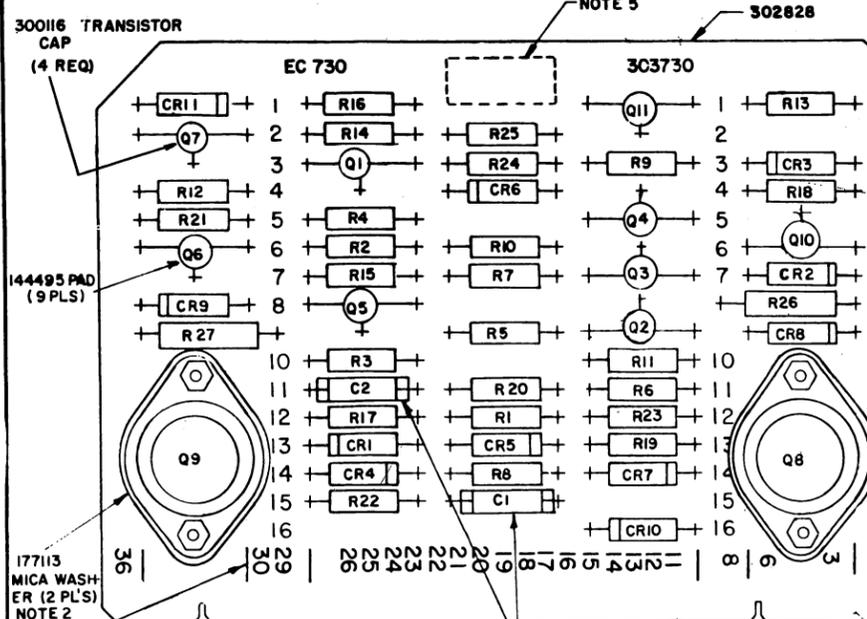
NOTE: CIRCLED NUMBERS DESIGNATE COMPONENTS OR INPUT AND OUTPUT TERMINALS ON MULTIPLE CIRCUITS.

	1	2	3	4	5	6	7	8	9	10	11
A	18	R14	R1	Q1	R15	R2	CR17	R21	Q4	CR6	7
B	19	R16	R3	Q2	R17	R4	CR18	R22	Q5	CR5	12
C	20	R18	R5	Q3	R19	R6	CR19	R20	Q6	CR7	17

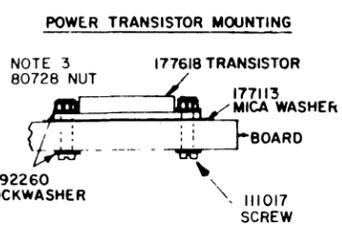
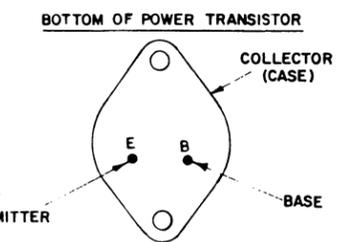
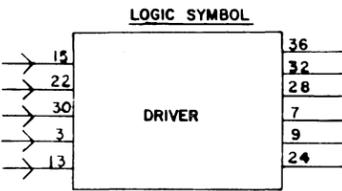
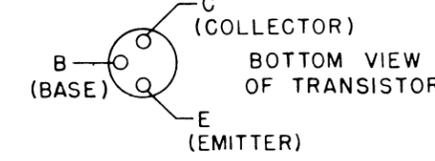
SHEET 2

APPROVALS	
D AND R <i>HRK</i>	E OF M <i>[Signature]</i>
E-NUMBER	
PROD. NO. 303695	
DATE 6-12-67	
P.D. FILE NO. 5-A148/134AA	
DRAWN J. R.	CHKD. <i>[Signature]</i>
ENGD. W. R. F.	APPD. <i>[Signature]</i>
TELETYPE CORPORATION	

NOTE: RESISTORS R26 & R27 ARE MOUNTED 1/8 INCH ABOVE CIRCUIT BOARD.



NOTE: (60358RM) 3/16" ID X 11/16" LONG TUBING 2 PLS REFER TO 6050WD FOR BASIC MARKING INFORMATION (EXCEPT FOR POSITION OF CONTACT NUMBERS)



CIRCUIT DESCRIPTION

THIS CARD CONTROLS THE MAGNET COIL OF A DRPE PUNCH. TRANSISTOR Q8 TURNS THE MAGNET COIL ON AND OFF TRANSISTOR Q9 TURNS ON 55 VOLTS TO RAPIDLY ENERGIZE THE COIL.

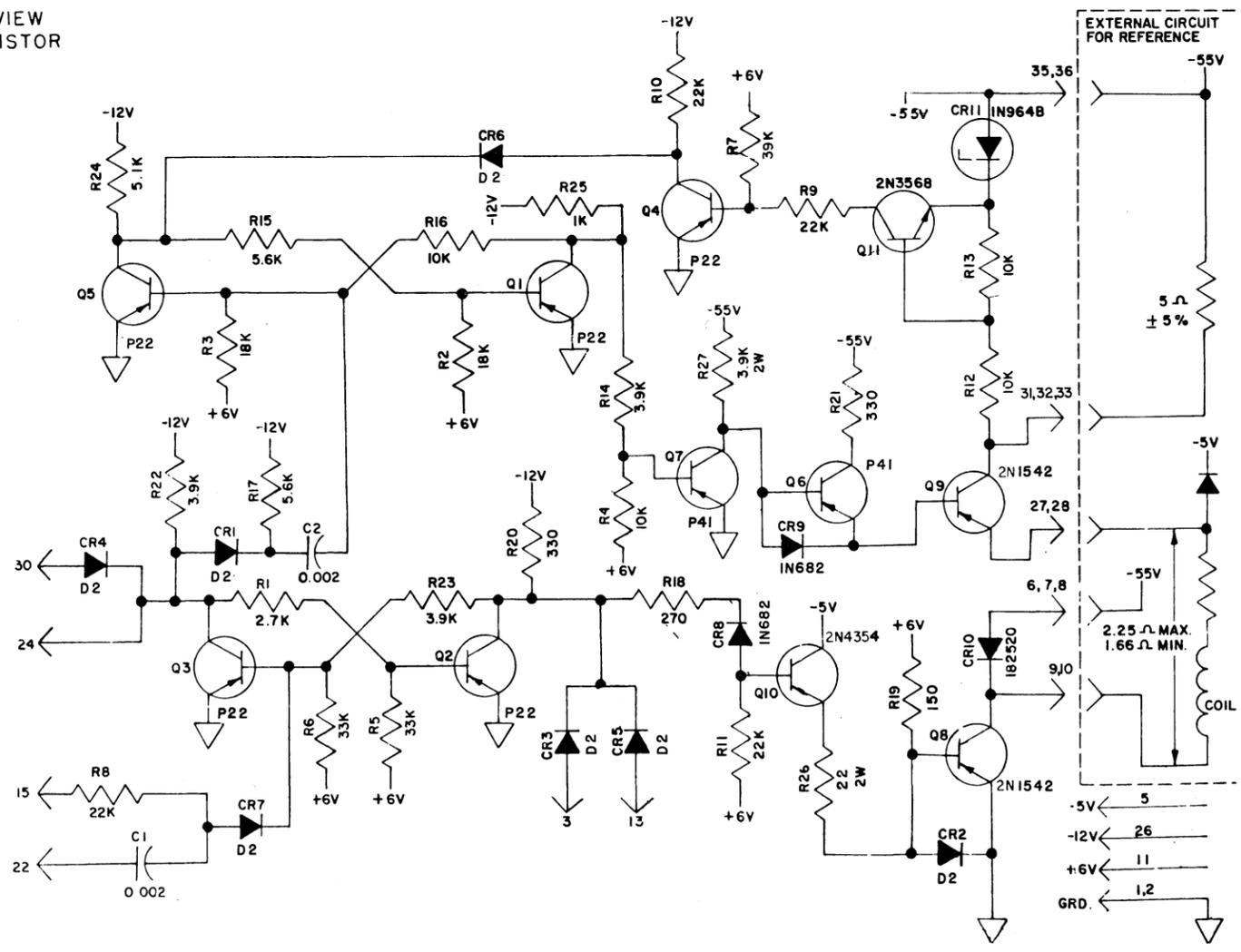
TO PUNCH A HOLE, 0 VOLTS IS APPLIED TO A PRIME INPUT 15 BEING FOLLOWED BY A 5 VOLT POSITIVE PULSE (PUNCH SAMPLE) ON INPUT 22. THIS PUTS A POSITIVE PULSE ON THE BASE OF Q3, SHUTTING IT OFF. THE COLLECTOR OF Q3 GOES NEGATIVE, TURNING Q2 ON, AND 0 VOLTS APPEARS ON THE COLLECTOR OF Q2. THIS HOLDS Q3 OFF AND TURNS OFF Q10, PUTTING 0 VOLTS ON THE EMITTER OF Q10, WHICH TURNS OFF Q8 AND THE MAGNET IS DE-ENERGIZED.

1.9 MS ± 0.05 MS AFTER THE TIME PIN 24 GOES NEGATIVE, A POSITIVE PULSE IS GENERATED IN THE DRPE CONTROL CARD AND IS APPLIED TO PIN 30 TO RESET THE FLIP-FLOP AND TURN Q8 BACK ON. THIS POSITIVE PULSE IS COUPLED THROUGH C2 TO TURN Q5 OFF, WHICH TURNS Q1 ON, APPLYING POSITIVE BIAS TO THE BASE OF Q7. Q7 TURNS OFF AND EMITTER FOLLOWER Q6 APPLIES NEGATIVE BIAS TO THE BASE OF Q9. Q9 TURNS ON APPLYING 55 VOLTS TO THE MAGNET COIL.

WHEN THE CURRENT IN THE MAGNET COIL HAS REACHED THE CORRECT LEVEL, THE VOLTAGE BETWEEN TERMINALS 35 (36) AND 31 (32,33) REACHES 13 VOLTS. THIS IS THE ZENER POINT FOR CR11 SO IT STARTS TO CONDUCT, ALLOWING A FORWARD BIAS ON Q11 TO BE DEVELOPED ACROSS R13. Q11 TURNS ON, PUTTING NEGATIVE BIAS ON THE BASE OF Q4, TURNING Q4 ON. THE COLLECTOR OF Q4 GOES TO 0 VOLTS WHICH IS APPLIED THROUGH CR6 TO THE COLLECTOR OF Q5, TURNING Q5 ON. THIS TURNS Q1 OFF, PUTTING NEGATIVE BIAS TO THE BASE OF Q7, TURNING IT ON. THIS PUTS 0 VOLTS ON THE BASE OF Q9, TURNING IT OFF TO REMOVE THE 55 VOLTS FROM THE MAGNET COIL.

INPUTS 3 AND 13 ALLOW THE PUNCHING CYCLE TO BE STARTED BY A POSITIVE PULSE TURNING Q2 ON AT THE COLLECTOR. NO PRIME IS NECESSARY WHEN THIS INPUT IS USED.

- NOTES:
1. THIS IS A DOUBLE SIDED BOARD; THE COMPONENT SIDE IS USED AS A HEAT SINK.
 2. MICA WASHER MUST BE CENTERED UNDER TRANSISTOR WITH THE ENTIRE EDGE VISIBLE.
 3. APPLY 80728 NUT WITH 11-13 IN.-LB. TORQUE.
 4. SILK SCREEN ALL CHARACTERS 1/8 HIGH WITH BLACK ENAMEL AFTER SOLDER PLATING.
 5. TRADEMARK TO BE REDUCED TO SPECIFIED SIZE FROM APPROVED ART WORK R & D PHOTO NO.661015-10.



CIRCUIT BOARD EC

REF. DESIG.	TELETYPE PART NO.	TOTAL QTY.	NAME AND DESCRIPTION	LOCATING FUNCTION
R1	118144	1	RESISTOR, 2.7K OHMS	CROSS OVER
R2	118151	1	RESISTOR, 18K OHMS	BASE BIAS
R3			SAME AS R2	BASE BIAS
R4	118180	4	RESISTOR, 10K OHMS	COUPLING
R5	118153	2	RESISTOR, 33K OHMS	BASE BIAS
R6			SAME AS R5	BASE BIAS
R7	118188	1	RESISTOR, 39K OHMS	BASE BIAS
R8	118177	4	RESISTOR, 22K OHMS	PRIME
R9			SAME AS R8	COLLECTOR LOAD
R10			SAME AS R8	COLLECTOR LOAD
R11			SAME AS R8	BASE BIAS
R12			SAME AS R4	COUPLING
R13			SAME AS R4	BASE BIAS
R14	143667	3	RESISTOR, 3.9K OHMS	COUPLING
R15	118186	2	RESISTOR, 5.6K OHMS	CROSS OVER
R16			SAME AS R4	CROSS OVER
R17			SAME AS R15	BIAS
R18	118725	1	RESISTOR, 270 OHMS	COUPLING
R19	143658	1	RESISTOR, 150 OHMS	BASE BIAS
R20	143661	2	RESISTOR, 330 OHMS	COLLECTOR LOAD
R21			SAME AS R20	COLLECTOR LOAD
R22			SAME AS R14	COLLECTOR LOAD
R23			SAME AS R14	CROSS OVER
R24	143665	1	RESISTOR, 5.1K OHMS	COLLECTOR LOAD
R25	137440	1	RESISTOR, 1K OHM	COLLECTOR LOAD
R26	148835	1	RESISTOR, 22 OHMS, 2W	COUPLING
R27	170314	1	RESISTOR, 3.9K OHMS, 2W	COLLECTOR LOAD
C1	177332	2	CAPACITOR, 0.002 MFD	DIFFERENTIATING
C2			SAME AS C1	COUPLING
CR1	177108	7	DIODE, D2	COUPLING
CR2			SAME AS CR1	BASE BIAS
CR3			SAME AS CR1	INPUT
CR4			SAME AS CR1	COUPLING
CR5			SAME AS CR1	INPUT
CR6			SAME AS CR1	COUPLING
CR7			SAME AS CR1	INPUT
CR8	177611	2	DIODE, IN682	COUPLING
CR9			SAME AS CR8	BASE BIAS
CR10	182520	1	DIODE	CLAMP
CR11	302844	1	DIODE, ZENER, IN964B	REFERENCE
Q1	177105	5	TRANSISTOR, P22	FLIP-FLOP
Q2			SAME AS Q1	FLIP-FLOP
Q3			SAME AS Q1	FLIP-FLOP
Q4			SAME AS Q1	INVERTER
Q5			SAME AS Q1	FLIP-FLOP
Q6	177224	2	TRANSISTOR, P41	EMITTER FOLLOWER
Q7			SAME AS Q6	AMPLIFIER
Q8	177618	2	TRANSISTOR, 2N1542	AMPLIFIER
Q9			SAME AS Q8	EMITTER FOLLOWER
Q10	302865	1	TRANSISTOR, 2N4354	EMITTER FOLLOWER
Q11	315930	1	TRANSISTOR, 2N3568	VOLTAGE SENSOR
	144495	9	TRANSISTOR PADS	
EC	302828	1	CIRCUIT CARD, ETCHED	
	111017	4	SCREW, 6-40	
	92260	8	WASHER, LOCK	
	80728	4	NUT, 6-40 HEX.	
	177113	2	MICA WASHER	
		6	CLINCH THRU CONNECTIONS	
	60358RM	2	11/16" LONG TUBING	
	300116	4	TRANSISTOR CAPS	

303730

REVISIONS

ISSUE	DATE	AUTH. NO.
1	6-2-67	16655-R
2	8-15-67	94191-B
3	9-1-67	94492-A
4	11-9-67	95413-D
5	12-4-67	94912-D

P

SHEET 1 OF 2

APPROVALS

R AND D	E OF M
E-NUMBER	
PROD NO. 303730	
DATE 6-1-67	
R&D FILE 5-A148/134AA	
DRAWN R.J.P.	CHKD.
ENGD. R.K.S.	APPD.

TELETYPE CORPORATION

303730

CIRCUIT CARD SPECIFICATION

303730

ALL DIMENSIONS IN UNLESS OTHERWISE SPECIFIED.

TEMPERATURE RANGE. OPERATION 40 OF TO 150 OF STORAGE -50 OF TO 212 OF AIR FLOW REQ'D. YES X NO
 HUMIDITY RANGE 0 % TO 95 % R.H.

DATE	BY	USE	REVISION
11-9-67	REDA		1

SUPPLY VOLTAGES

VOLTAGE	PIN	MIN	MAX	MAX CURRENT	MAX RIPPLE	COMMENTS
-5V	5	-4.5V	-5.5V	250 MA	5%	
-55V	7 36	-50V	-60V	200 MA	2%	
-12V	26	-10.8V	-13.2V	50 MA	2%	
+6V	11	+5.4V	+6.6V	50 MA	2%	
GROUND	1	-0.1V	+0.1V	3 AMP.		

INPUTS

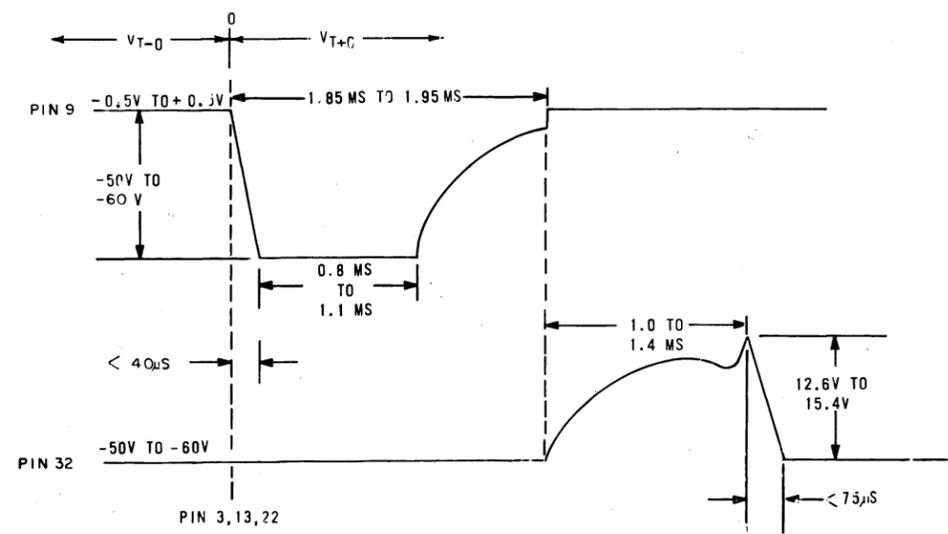
NAME	PIN	V _{T-0}	V _{T+0}	T _{RISE}	T _{FALL}	WIDTH	RELATIONSHIP TO INPUTS	INPUT IMPEDANCE	WHEN NOT USED	REPETITION RATE	COMMENTS
FEED OUT	3 13	-10.8V TO -13.2V	-0.5V TO +0.5V	< 10 μS	< 20 μS	10 μS TO 1.7 MS	ALL OTHER INPUTS IDLE (EXCEPT RESET)	300Ω TO -12V	OPEN OR -10.8V TO -13.2V	TYP. 12 MS MAX. 4.17 MS	USUALLY FROM EC675
PRIME	15	-5.4V TO -13.2V	-0.5V TO +0.1V	< 4 μS	< 4 μS	> 100 μS	> 100 μS BEFORE PUNCH SAMPLE, REMOVE 1 μS AFTER PUNCH SAMPLE IS REMOVED	22K TO -6V	-0.8V TO -13.2V	MAX. 4.17 MS	HOLE= -0.5V TO +0.1V; NO HOLE= -5.4V TO -13.2V
PUNCH SAMPLE	22	-4.5V TO -5.5V	-0.5V TO +0.1V	< 1 μS	< 10 μS	> 10 μS	> 100 μS AFTER P. TIME CHANGES, 75 μS BEFORE PRIME 1: REMOVED	.002 MFD & 22K TO CRD.	OPEN OR -0.8V TO -13.2V	MAX. 4.17 MS	USUALLY FROM EC675 OR EC690
PUNCH INHIBIT	24	OPEN	-1.0V TO +1.0V	< 10 μS	< 10 μS	> 15 μS	> 10 μS BEFORE PIN 3, 13, OR 22 GOES TO V _{T+0} ; REMOVE 1 μS AFTER PIN 3, 13, 22 GOES TO V _{T-0}	3.3K TO -12V	OPEN	MAX. 4.17 MS	USUALLY AN OUTPUT FOR FEED LEVEL
RESET	30	-10.8V TO -13.2V	-0.5V TO +0.5V	< 1 μS	< 10 μS	> 5 μS	1.85 MS, TO 1.95 MS AFTER PIN 3, 13, OR 22 GOES TO V _{T+0}	3K TO -12V		MAX. 4.17 MS	USUALLY FROM EC675 OR EC690

OUTPUTS

NAME	PIN	V _{T-0}	V _{T+0}	T _{RISE}	T _{FALL}	WIDTH	RELATIONSHIP TO INPUTS/OUTPUTS	LOADING	WHEN NOT USED	COMMENTS
COIL CONTROL	9 10	NOTE 1	NOTE 1	NOTE 1	NOTE 1	1.85 MS TO 1.95 MS	< 10 μS AFTER PIN 3, 13, 22	SEE SHEET 1		
CONTROL SIGNAL	24	-0.5V TO +0.5V	12K TO -12V	< 10 μS	< 10 μS	1.85 MS TO 1.95 MS	< 10 μS AFTER PIN 3, 13, 22	3K TO -12V	OPEN	USUALLY USED AS AN INPUT TO EC675, PIN 13
55V CONTROL	31 32 33	NOTE 2	NOTE 2	NOTE 2	NOTE 2	1.0 MS TO 1.4 MS	< 10 μS AFTER PIN 30	SEE SHEET 1		

NOTES

- 1: REQUIRED WAVEFORM (PIN 9)
- 2: REQUIRED WAVEFORM (PIN 32)
(WAVEFORM WILL VARY DEPENDENT ON THE LOAD. IF CHARACTERISTIC SHAPE IS NOT PRESENT CHECK ADJUSTMENTS OF COIL LOAD.)
- 3: V_{T-0} = VOLTAGE BEFORE ACTIVATION
V_{T+0} = VOLTAGE AFTER ACTIVATION



SHFT 2 OF 2

APPROVALS

DESIGNED BY H.K.

ENGINEER

CHECKED

APPROVED

DATE 8-10-67

STOCK SPECIFICATION

SIZE

KIND

SHAPE

TEMPER

TELETYPE CORPORATION

303730

SCALE	P.D. FILE NO	DATE
	5 AMS/13447	8-10-67