

**33 AUTOMATIC SEND-RECEIVE (ASR),
KEYBOARD SEND-RECEIVE (KSR), RECEIVE-ONLY (RO) SETS
WIRING DIAGRAMS**

1. GENERAL

1.01 This section contains the actual and schematic wiring diagrams and circuit cards for the 33 Automatic Send-Receive (ASR), Keyboard Send-Receive (KSR), and Receive-Only (RO) Sets. It is reissued to include WDP0237

which provides schematic and actual wiring diagrams for the TP186670 modification kit for Point-to-Point, Private Line Service, and also to change the title.

1.02 Notes on diagrams explain symbols and special conditions.

2. WIRING DIAGRAM INDEX

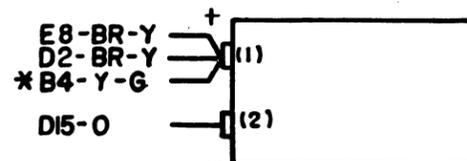
TITLE	DRAWING NUMBER
ACTUALS	
Selector Magnet Driver TP182695	4970WD
Numeric Keyboards UK809 and UK811	7111WD
33 Receive-Only Page Printer	7883WD
33 Automatic Send-Receive and Keyboard Send-Receive Page Printer	7884WD
33 Keyboard	7885WD
33 Motor	7886WD
33 Manual or Automatic Tape Reader	7887WD
33 Automatic Send-Receive and Keyboard Send-Receive Call Control Unit	7888WD
33 Receive-Only Call Control Unit	7889WD
SCHEMATICS	
UK809 and UK811 Numeric Keyboards	7112WD
33 Receive-Only Sets for Switched Network	7881WD
33 Automatic Send-Receive and Keyboard Send-Receive Sets for Switched Network	7882WD
Set Logic Assembly (TP186627)	WDP0238
Modification Kit (TP186670)	WDP0237
CIRCUIT CARDS	
Constant Current 0.500 Selector Magnet Driver	182630-35
Amplifier Card Assembly	182750
Power Pack Circuit Card With One Relay	183079
Power Pack Circuit Card	183087
Answer-Back Trip Magnet Driver	303834
33 Sets for Data Line Concentrator Service, DATA-PHONE® and Private Line (Actuals, Schematics, and Circuit Cards).	WDP0152

4970 WD

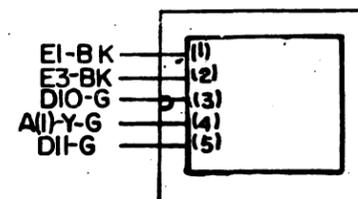
ISSUE	DATE	AUTH. NO.
2	8-15-62	30-1265
3	8-15-63	77081
4	1-31-64	79903
5	5-10-68	95523-4
6	1-14-71	736

- NO. NOTES
- WIRING CODE
 - SEE 4979WD FOR SCHEMATIC WIRING DIAGRAM
 - USE CABLE 181818
 - * DENOTES #20 AWG WIRE. ALL OTHERS #24AWG
 - SOME 182695 UNITS CONTAIN 330793 OR 182722 TRANSFORMER AND 182696 CABLE WITH 182536 CONNECTOR.
SOME 181815 UNITS CONTAIN 330793 OR 182722 TRANSFORMER

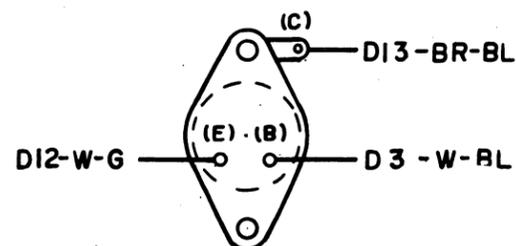
A
CAPACITOR FILTER
(182501)



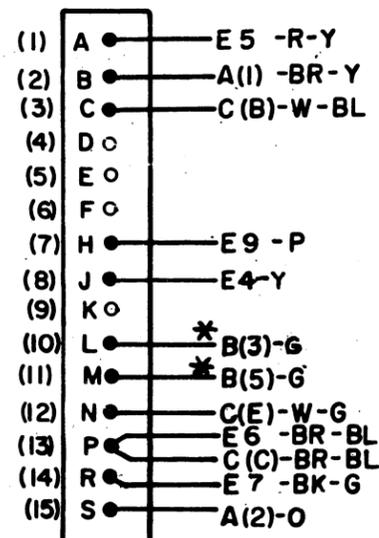
B
TRANSFORMER, POWER
(337992) 50/60 Hz
NOTE 5



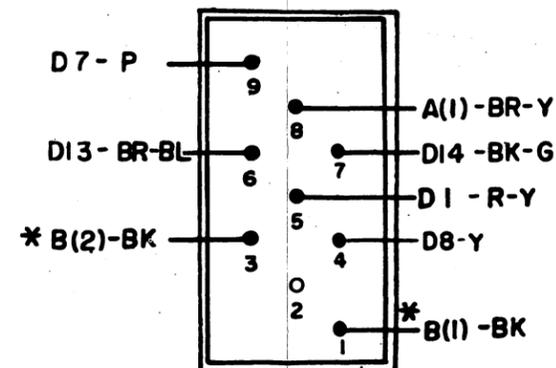
C
TRANSISTOR, POWER
(181675)



D
CONNECTOR, CARD
(181819)
NOTE 5



E
CONNECTOR, RECEPTACLE
(182716)



WDP

ACTUAL WIRING DIAGRAM FOR 182695 & 181815 SELECTOR MAGNET DRIVER

APPROVALS

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

E-NUMBER
PROD. NO. 4970 WD

DATE: 6-22-62

P.D. FILE NO. 1-165.153AA

DRAWN: C.A. CHKD: [Signature]

ENG. P.R.S. APPD. [Signature]

TELETYPE CORPORATION

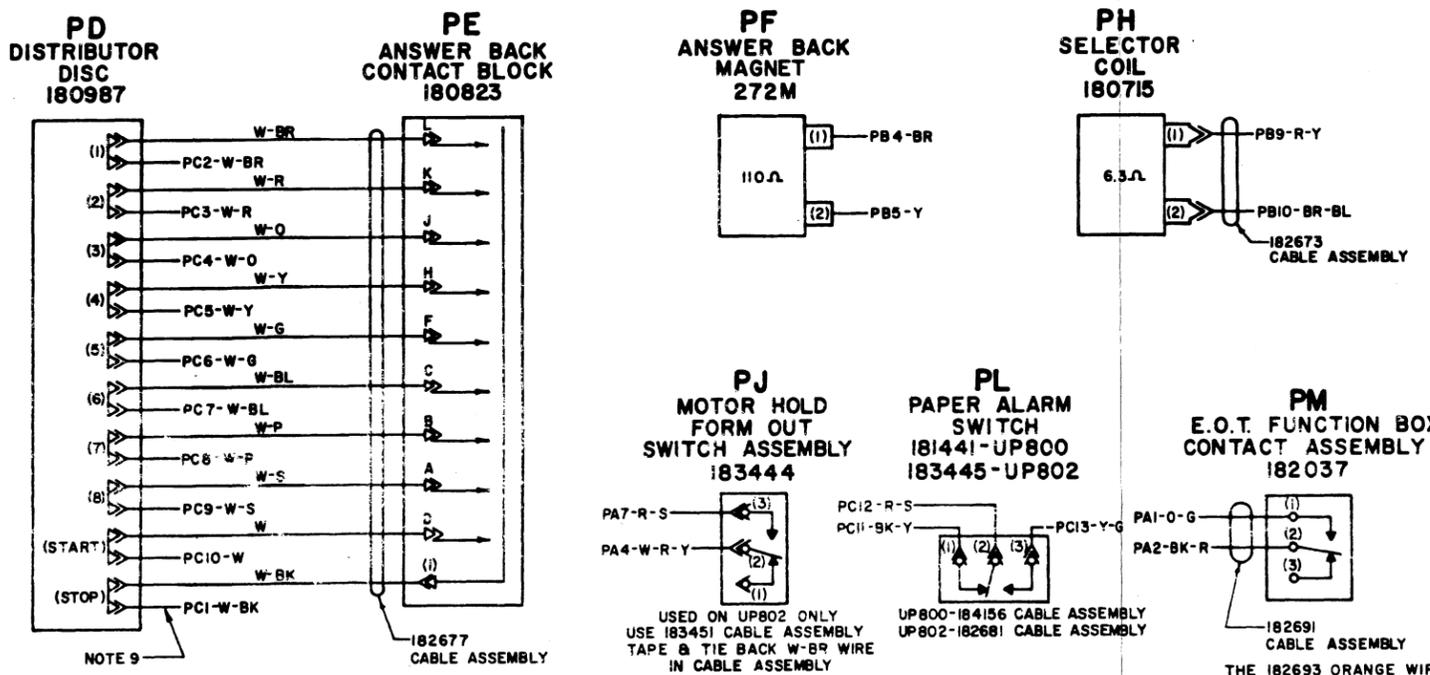
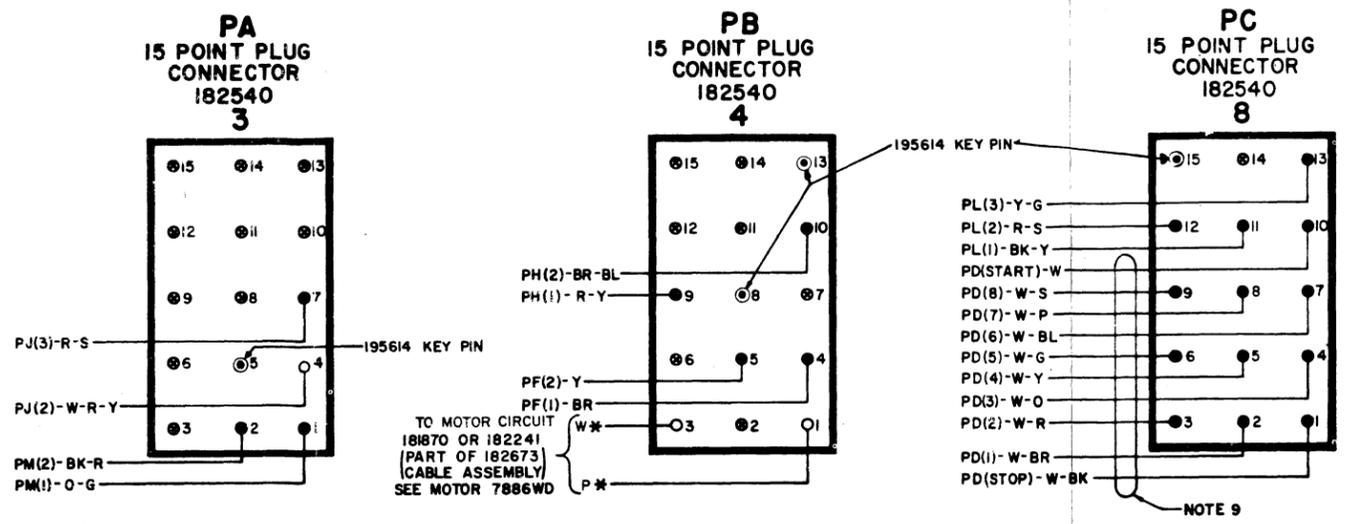
4970 WD

7883 WD

REVISIONS

ISSUE	DATE	AUTH. NO.
1	2-23-66	17470-R
2	3-29-66	90790
3	5-13-66	90169
4	11-3-66	92300 RC
5	6-19-67	93539
6	11-14-67	94941-RC

- NO. NOTES**
- WIRING LEGEND:**
 DISTANT TERMINATING AREA
 DISTANT TERMINATING DESIGNATION
 COLOR CODE
 PB5-Y
 - WIRE COLOR CODE:**
 W-WHITE BL-BLUE
 BK-BLACK BR-BROWN
 O-ORANGE P-PURPLE
 Y-YELLOW S-SLATE
 G-GREEN R-RED
 - TERMINALS DESIGNATED () DO NOT APPEAR ON COMPONENT.
 - CONNECTORS VIEWED FROM WIRED END.
 - * DENOTES 18AWG WIRE. ALL OTHER WIRING 24AWG.
 - FOR SCHEMATIC WIRING DIAGRAM SEE 7881WD.
 - ASSOCIATED UNIT ACTUAL WIRING DIAGRAMS:**
 7886WD MOTOR
 7889WD CALL CONTROL - UCC-4
 4970WD SELECTOR MAGNET DRIVER
 - FOR TELETYPE PERSONNEL REFERENCE:**
 SPECIFICATION 673S - FRICTION FEED
 SPECIFICATION 60,767S - SPROCKET FEED
 - 182678 CABLE ASSEMBLY IS USED ON UP-800 PRINTER ASSEMBLY. 182681 CABLE ASSEMBLY IS USED ON UP-802 PRINTER ASSEMBLY.
 - REVISION SYMBOLS:**
 RECTANGULAR BOX INDICATES HISTORY OF WIRING CHANGES
 D - DENOTES CHANGES BEFORE THE CHANGE SUBMITTED BY THE DESIGNATED NOTE ENTERED THE PRODUCT.
 NOTE NUMBER
 A - DENOTES WIRING AFTER THE CHANGE SUBMITTED BY THE DESIGNATED NOTE ENTERED THE PRODUCT.



ACTUAL WIRING DIAGRAM FOR MODEL 33 8 LEVEL RECEIVE ONLY PRINTER UP800-R.O. FRICTION FEED UP802-R.O. SPROCKET FEED

APPROVALS

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

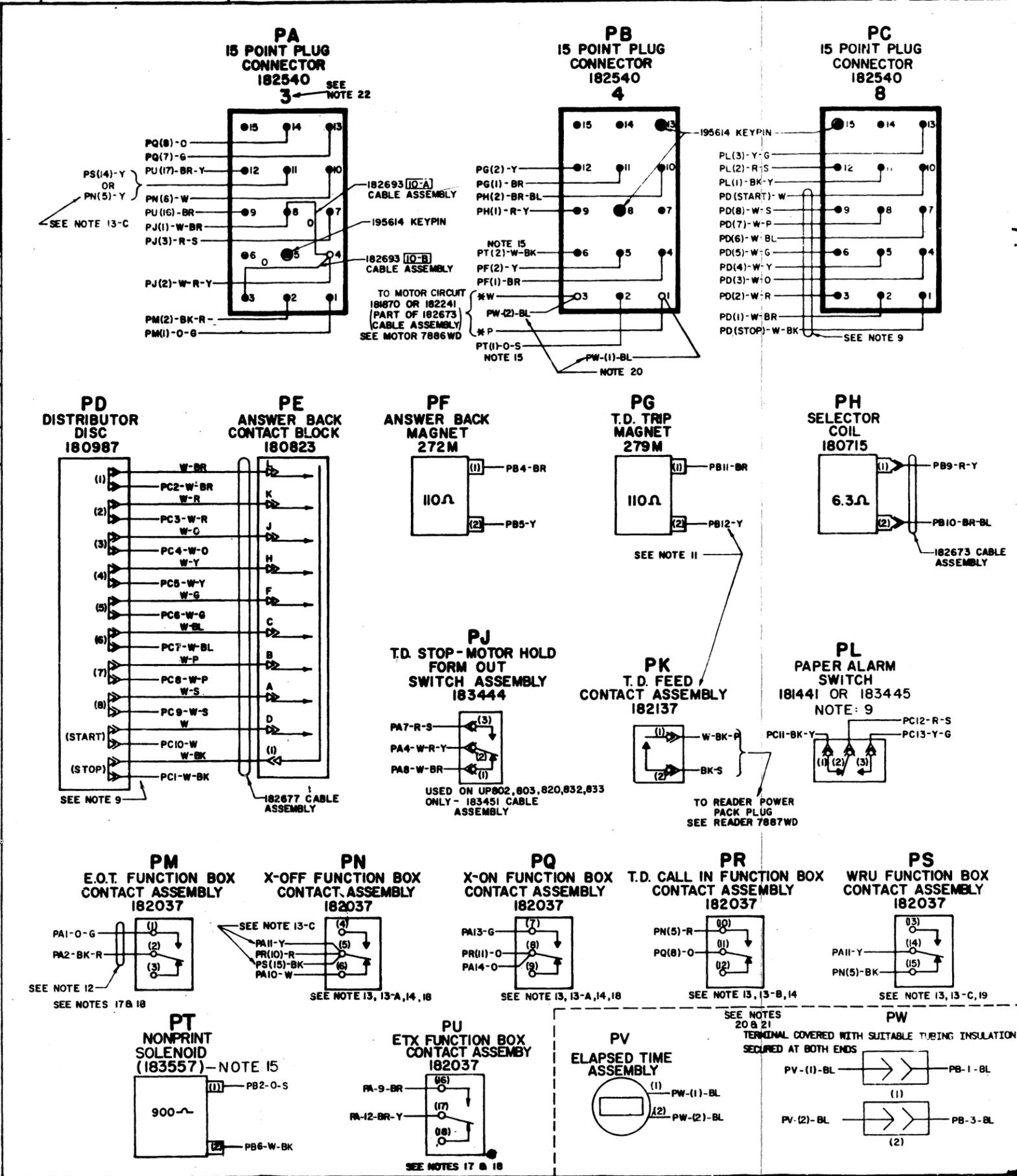
E-NUMBER
 PROD. NO. 7883WD
 DATE 10-11-65
 P.D. FILE NO. G-A152AA
 DRAWN R.H.B. CHKD *[Signature]*
 ENGD. J.W.S. APPD. *[Signature]*

TELETYPE CORPORATION

7883 WD

NO.	NOTES										
1	<p>WIRING LEGEND:</p> <p>DISTANT TERMINATING AREA DISTANT TERMINATING DESIGNATION COLOR CODE</p> <p>PQ(8)-O [00-A] ← SEE NOTE 16</p>										
2	<p>WIRE COLOR CODE:</p> <table border="0"> <tr> <td>W-WHITE</td> <td>BL-BLUE</td> </tr> <tr> <td>BK-BLACK</td> <td>BR-BROWN</td> </tr> <tr> <td>O-ORANGE</td> <td>P-PURPLE</td> </tr> <tr> <td>Y-YELLOW</td> <td>S-SLATE</td> </tr> <tr> <td>G-GREEN</td> <td>R-RED</td> </tr> </table>	W-WHITE	BL-BLUE	BK-BLACK	BR-BROWN	O-ORANGE	P-PURPLE	Y-YELLOW	S-SLATE	G-GREEN	R-RED
W-WHITE	BL-BLUE										
BK-BLACK	BR-BROWN										
O-ORANGE	P-PURPLE										
Y-YELLOW	S-SLATE										
G-GREEN	R-RED										
3	TERMINALS DESIGNATED () DO NOT APPEAR ON COMPONENT										
4	CONNECTORS VIEWED FROM WIRED END.										
5	* DENOTES 18AWG WIRE. ALL OTHER WIRING 24AWG.										
6	FOR SCHEMATIC WIRING DIAGRAM SEE 7882WD.										
7	ASSOCIATED UNIT ACTUAL WIRING DIAGRAMS 7885 WD KEYBOARD-UK800,804 7886WD MOTOR 7887WD TAPE READER-UX800,801 7888WD CALL CONTROL UNIT-UCC-3 4970WD SELECTOR MAGNET DRIVER										
8	S-NUMBERS 6713 S-FRICTION FEED 60,767 S-SPROCKET FEED										
9	USE 182678 AND 184156 CABLE ASSEMBLIES FOR UP800, 801, 831, 834, 841, 847, 849, 854, 855. USE 182681 CABLE ASSEMBLY FOR UP 802, 803, 820, 832, 833										
10	WIRING OF MATING CONNECTOR RECEPTACLE-3 ON THE UCC-3 CALL CONTROL UNIT CHANGED TO ACCOMMODATE UX-801 AUTOMATIC READER CONTROL FACILITIES CABLE ASSEMBLY (STRAP) USED ON UP-800,801,831,834,838 ONLY ON EARLY UNITS IF STRAP IS USED, CONNECTOR POSITION 3 WILL CONTAIN A MALE TERMINAL										
11	THESE COMPONENTS USED ON UP801, 803, 820 PRINTER ASSEMBLIES ONLY FOR UX800 (MANUAL) OR UX-801 (AUTOMATIC) READER OPERATION. (ALSO SHOWN ON READER 7887WD.)										
12	182691 CABLE ASSEMBLY IS USED ON ALL PRINTER ASSEMBLIES EXCEPT WHEN EQUIPPED WITH AUTOMATIC READER OPTION WHICH REQUIRES USE OF 183123 CABLE ASSEMBLY. SEE NOTE 13-A, 14.										
13	<p>MODIFICATIONS TO UP801, 803 PRINTER ASSEMBLIES TO PROVIDE AUTOMATIC READER CONTROL OPTIONS:</p> <p>13-A - USE 183128 MODIFICATION KIT TO ADD ASSOCIATED PARTS AND X-ON, X-OFF FUNCTION BOX CONTACT ASSEMBLIES TO PROVIDE AUTOMATIC READER (183123 CABLE ASSEMBLY IS USED)</p> <p>13-B - USE 182290 MODIFICATION KIT TO ADD ASSOCIATED PARTS AND TD CALL IN FUNCTION BOX CONTACT ASSEMBLY MODIFIED AS PER 183128 MODIFICATION KIT-NOTE-13-A</p> <p>13-C - USE 182291 MODIFICATION KIT TO ADD ASSOCIATED PARTS AND WRU FUNCTION BOX CONTACT ASSEMBLY MODIFIED AS PER 183128 MODIFICATION KIT-NOTE-13-A</p> <p>ON PRINTER ASSEMBLIES WITHOUT THE WRU CONTACT ASSEMBLY THE Y WIRE FROM CONNECTOR PLUG NC.3 TERMINAL II WILL BE ASSEMBLED TO X-OFF CONTACT TERMINAL (5) AND THE BK WIRE FROM WRU CONTACT TERMINAL (15) TO X-OFF CONTACT TERMINAL (5) IS NOT USED.</p>										

NO.	NOTES
14	THESE COMPONENTS ARE STANDARD EQUIPMENT ON THE UP820 PRINTER UNIT.
15	APPLIES TO UNITS CONTAINING PRINT NONPRINT OPTION. 183986 MODIFICATION KIT.
16	<p>WIRING LEGEND:</p> <p>DISTANT TERMINATING AREA DISTANT TERMINATING DESIGNATION COLOR CODE</p> <p>PQ(8)-O [00-A] ← SEE NOTE 16</p> <p>NOTE: A - DENOTES WIRING OTHER THAN THE ORIGINAL WIRING BY THE DESIGNATOR ENTERED THE PRODUCT.</p>
17	THE 186546 CABLE ASSEMBLY IS USED ON UP 855.
18	THE 186543 CABLE ASSEMBLY IS USED ON UP847.
19	THE WRU CONTACT IS NOT WIRED ON UP847.
20	THE 186554 CABLE ASSEMBLY IS USED ON UP 847 AND UP 855.
21	THE 186556 ELAPSED TIMER ASSEMBLY IS USED ON UP 847 AND UP 855.
22	CONNECTOR 3 NOT USED ON UP841, UP849, UP854.



7884 WD

REVISIONS

ISSUE	DATE	AUTH. NO.
1	2-23-66	17470-R
2	3-29-66	90790
3	6-7-66	89162
4	11-3-66	92300 RC
5	12-11-67	9452-D
6	1-24-69	96776
7	2-18-69	96829
8	3-25-69	96982
9	5-5-69	99135
10	10-16-69	99716
11	2-18-70	99947-4
12	3-13-70	153
13	12-9-70	2145

ACTUAL WIRING DIAGRAM FOR M33 8 LEVEL PRINTER

FRICTION FEED
UP-800-KSR, 801-ASR, 831-ASR
834-KSR, 841-ASR, 847-ASR
849-ASR, 854-ASR, 855-KSR
857-ASR

SPROCKET FEED
UP-802-KSR, 803-ASR, 820-ASR,
832-KSR, 833-ASR
858-ASR

APPROVALS	
D AND R	E OF M
<i>abl</i>	

E-NUMBER

PROD. NO. 7884 WD

DATE 9-20-65

P.D. FILE NO. G.A152AA

DRAWN R.H.B.	CHKD. <i>abl</i>
ENGD. J.W.S.	APPD. <i>abl</i>

TELETYPE CORPORATION

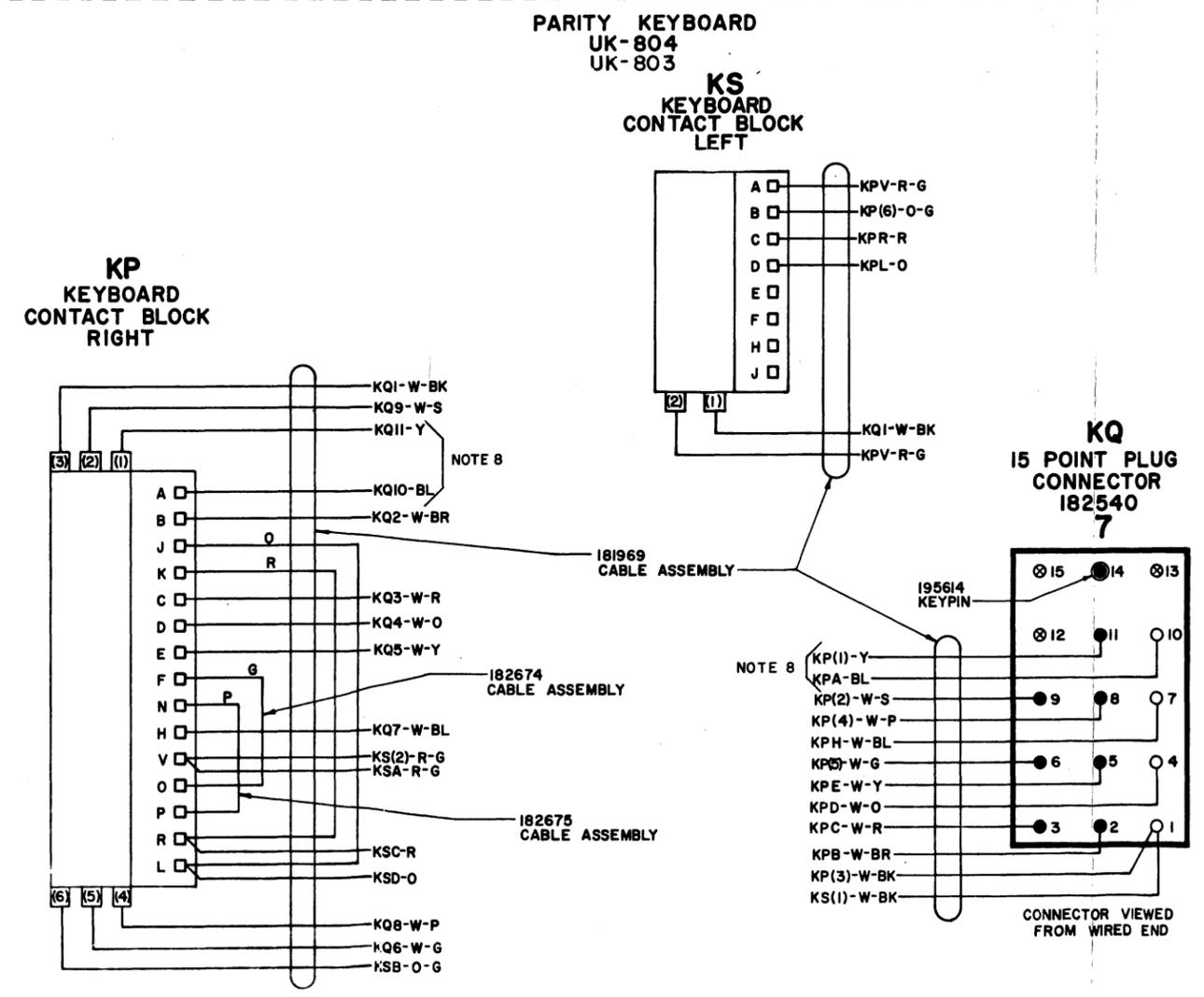
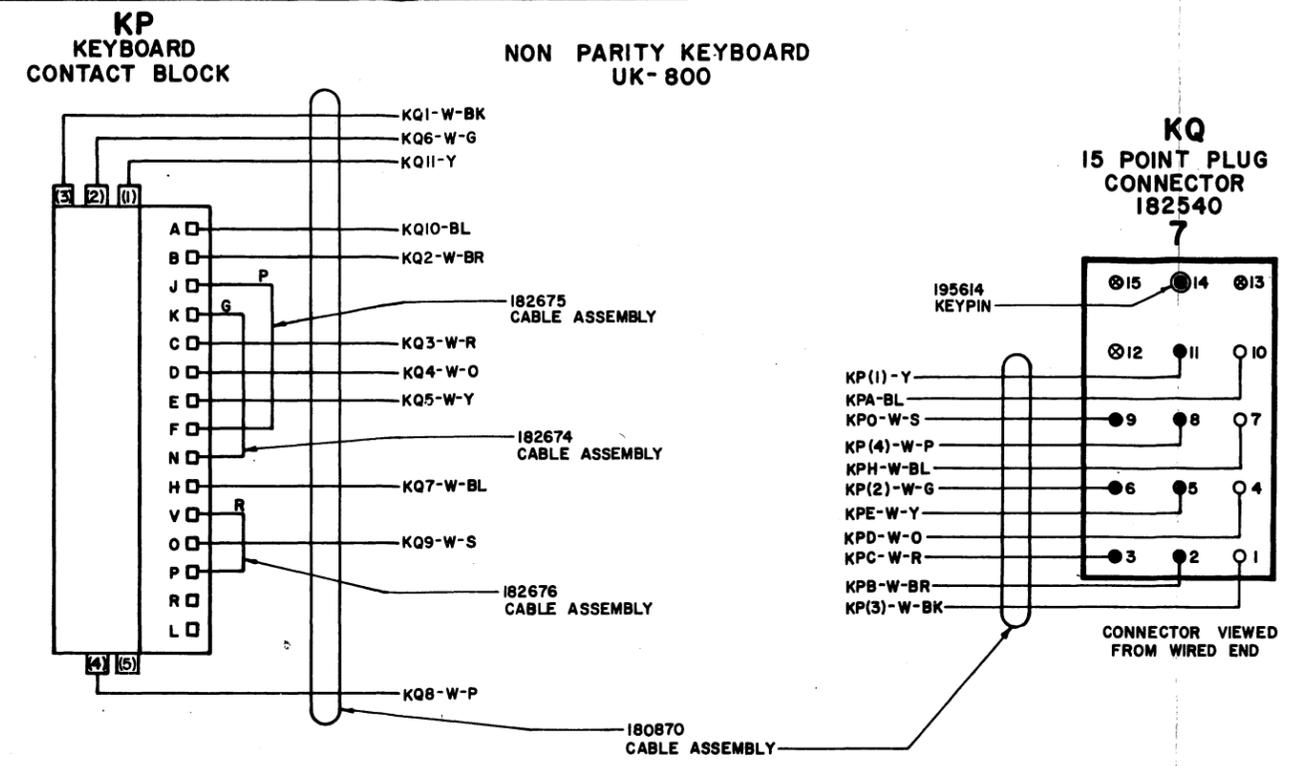
7884 WD

7885 WD

REVISIONS

ISSUE	DATE	AUTH. NO.
1	2-23-66	17470-R
2	11-3-66	92300 RC
3	8-8-67	94091-B
4	1-30-68	95171
5	12-13-68	96625

- NO. NOTES**
- WIRING LEGEND:**
 DISTANT TERMINATING AREA
 DISTANT TERMINATING DESIGNATION
 COLOR CODE
 KQ1-W-BK
 - WIRE COLOR CODE:**
 W-WHITE BL-BLUE
 BK-BLACK BR-BROWN
 O-ORANGE P-PURPLE
 Y-YELLOW S-SLATE
 G-GREEN R-RED
 - TERMINALS DESIGNATED () DO NOT APPEAR ON COMPONENT.**
 - FOR TELETYPE PERSONNEL REFERENCE: SPECIFICATION 6713S**
 - FOR SCHEMATIC WIRING DIAGRAM SEE 7882WD OR 8159WD.**
 - ASSOCIATED UNIT ACTUAL WIRING DIAGRAMS:**
 7884WD PRINTER - UP800,801,802,803,820
 7886WD MOTOR
 7887WD TAPE READER - UX800,801
 7888WD CALL CONTROL - UCC-3
 4970WD SELECTOR MAGNET DRIVER
 8158WD CALLCONTROL-UCC26
 8160WD PRINTER - UP836
 - WIRING STATUS:**
 RECTANGULAR BOX INDICATES HISTORY OF WIRING CHANGES
 (2-1) B - DENOTES WIRING BEFORE THE CHANGE DESCRIBED BY THE DESIGNATED NOTE ENTERED THE PRODUCT.
 (2-A) A - DENOTES WIRING AFTER THE CHANGE DESCRIBED BY THE DESIGNATED NOTE ENTERED THE PRODUCT.
 - THESE WIRES ARE NOT FOUND ON UK803.**



ACTUAL WIRING DIAGRAM FOR MODEL 33 B LEVEL KEYBOARD NON PARITY-UK800 PARITY-UK804, UK803

APPROVALS

D AND R	E OF M
<i>oak</i>	<i>L.T.</i>

E-NUMBER

PROD. NO. 7885WD

DATE 7-1-65

P.D. FILE NO. 1-165.153AA

DRAWN R.H.B. CHKD. *oak*

ENGD. J.W.S. APPD. *oak*

TELETYPE CORPORATION

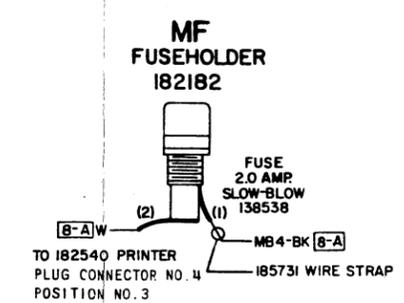
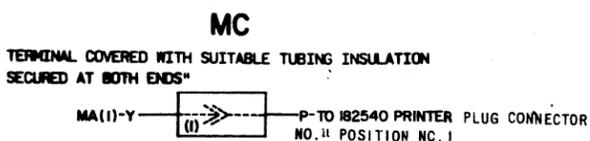
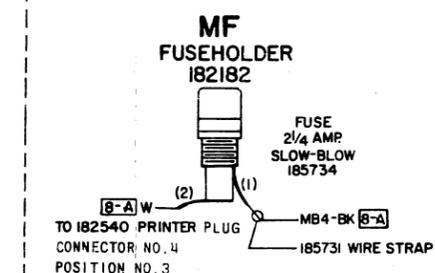
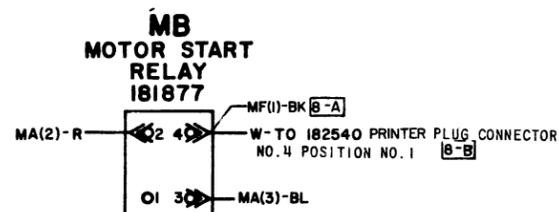
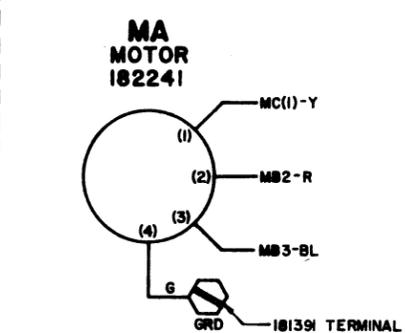
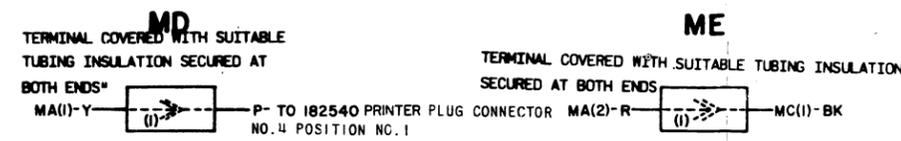
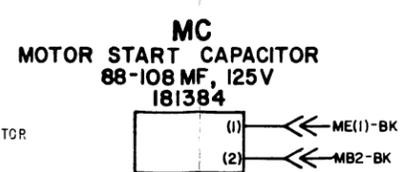
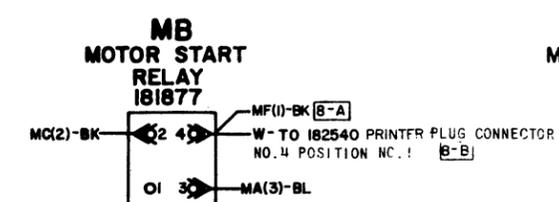
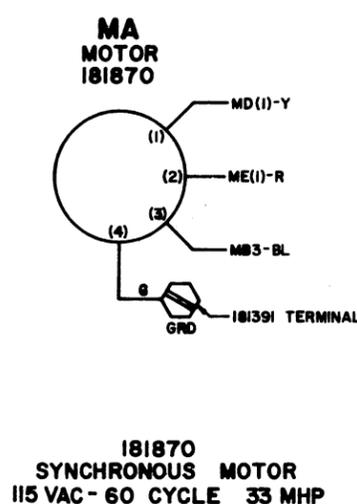
7885 WD

7886 WD

REVISIONS

ISSUE	DATE	AUTH. NO.
1	2-23-66	17470-R
2	3-29-66	90790
3	11-3-66	92300 PC
4	1-30-68	95171
5	2-18-70	99947-4
6	12-9-12	2145

- NOTES**
- WIRING LEGEND:**
 - WIRE COLOR CODE:**
 W- WHITE BL-BLUE
 BK-BLACK BR-BROWN
 O-ORANGE P-PURPLE
 Y-YELLOW S-SLATE
 G-GREEN R-RED
 - TERMINALS DESIGNATED () DO NOT APPEAR ON COMPONENT**
 - FOR TELETYPE PERSONNEL REFERENCE:**
 SPECIFICATION 904S FOR 181870 MOTOR
 SPECIFICATION 9120S FOR 182241 MOTOR
 SPECIFICATION 8718S
 - ASSOCIATED UNIT ACTUAL WIRING DIAGRAMS:**
 7883 WD PRINTER-RECEIVE ONLY-UP800
 7884 WD PRINTER-UP800, 801, 802, 803, 820
 7885 WD KEYBOARD-UK800, 804
 7887 WD TAPE READER-UX800, 801
 7888 WD CALL CONTROL-UCC-3
 7889 WD CALL CONTROL-UCC-4(R.O.)
 4970 WD SELECTOR MAGNET DRIVER
 8158 WD CALL CONTROL-UCC 26
 8160 WD PRINTER-UP 836
 - USE 182673 CABLE ASSEMBLY**
 - FOR SCHEMATIC WIRING DIAGRAMS SEE:**
 7882 WD KSR-ASR. 8159 WD 33TCC
 7881 WD R.O.
 - FUSEHOLDER ADDED TO PROVIDE FUSE PROTECTION FOR MOTOR CIRCUIT**
 - WIRING STATUS:**
 RECTANGULAR BOX INDICATES HISTORY OF WIRING CHANGES
 B - DENOTES WIRING BEFORE THE CHANGE DESCRIBED BY THE DESIGNATED NOTE
 NOTE NUMBER ENTERED THE PRODUCT.
 A - DENOTES WIRING AFTER THE CHANGE DESCRIBED BY THE DESIGNATED NOTE ENTERED THE PRODUCT.



ACTUAL WIRING DIAGRAM FOR MODEL 33 8 LEVEL MOTORS 181870 182241

APPROVALS

D AND R *oak* E OF M

E-NUMBER

PROD. NO. 7886 WD

DATE 8-6-65

P.D. FILE NO. GA152AA

DRAWN R.H.B. CHKD *SR*

ENGD. J.W.S. APPD. *oak*

TELETYPE CORPORATION

7886 WD

7888 WD

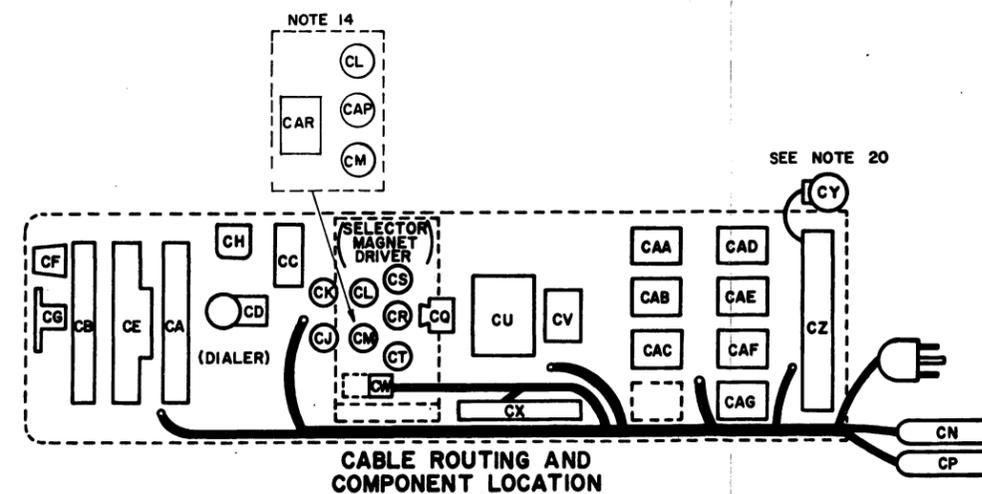
REVISIONS

ISSUE	DATE	AUTH. NO.
1	2-23-66	17470-R
2	6-7-66	89162
3	6-10-66	89476-1
4	9-8-66	91193
5	11-4-66	91413
6	1-30-67	93113 RC
7	12-16-68	96463
8	1-27-69	96776
9	3-4-70	99947-1

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

1. **WIRING LEGEND**
DISTANT TERMINATING AREA
DISTANT TERMINATING DESIGNATION
COLOR CODE
CN6-BK
2. **WIRE COLOR CODE:**
BK-BLACK BR-BROWN W-WHITE
O-ORANGE P-PURPLE BL-BLUE
Y-YELLOW S-SLATE
G-GREEN R-RED
3. TERMINALS DESIGNATED () DO NOT APPEAR ON COMPONENT.
4. CONNECTORS ARE VIEWED FROM WIRED END.
5. * DENOTES 20 AWG WIRE. ALL OTHER WIRING 24 AWG. ^ DENOTES 18 AWG WIRE.
6. FOR SCHEMATIC WIRING DIAGRAM SEE 7882 WD.
7. ASSOCIATED UNIT ACTUAL WIRING DIAGRAMS:
7884 WD PRINTER-UP800,801,802,803,820
7885 WD KEYBOARD-UK800,804
7886 WD MOTOR
7887 WD TAPE READER-UX800,801
4970 WD SELECTOR MAGNET DRIVER
8. FOR TELETYPE PERSONNEL REFERENCE:
SPECIFICATION 60,531S - MODEL 33 ASR
SPECIFICATION 60,532S - MODEL 33 KSR
9. MAIN CABLE ASSEMBLY - 182671
10. THESE WIRES ARE SPARES. EACH IS TERMINATED NEAR THE 182717 TERMINAL STRIP, TAPED AND TIED BACK.
11. 182539 CONNECTOR RECEPTACLE NO.5 AND ASSOCIATED WIRING ADDED TO PROVIDE FACILITIES FOR OPTIONAL AUTOMATIC READER CONTROL. (182491 MODIFICATION KIT IS USED TO UPDATE EARLIER STYLE CALL CONTROL FOR AUTOMATIC READER CONTROL.) ON EARLY UNITS CONNECTOR 3 WILL CONTAIN MALE TERMINALS IN POSITIONS 5 AND 6 AND A FEMALE TERMINAL IN POSITION 3
12. 182287 WIRE STRAP ADDED TO FACILITATE INSTALLATION OR REMOVAL OF 181265 ELAPSED TIME INDICATOR.
13. FUSEHOLDER ADDED TO PROVIDE FUSE PROTECTION FOR POWER TRANSFORMER.
- | TRANSFORMER | FUSE | FUSE PART NO. |
|-------------|------------------------|---------------|
| 181879 | 1/2 AMP.
SLOW-BLOW | 117176 |
| 182657 | 8/10 AMP.
SLOW-BLOW | 182360 |
- SOME UNITS MAY HAVE A BROWN LEAD OF 20 AWG INSTEAD OF 24AWG FROM CS (1) TO CU2 AND A BLACK LEAD OF 20AWG INSTEAD OF 18 AWG FROM CT (1) TO CV2.
14. APPLIES TO UNITS CONTAINING PRINT NONPRINT OPTION. 183986 MODIFICATION KIT.
15. WIRE CHANGE ADDED TO MAKE AUTOMATIC READER OPERATABLE IN THE LOCAL "OUT OF SERVICE" MODE WHEN SET IS USED WITH EITHER THE 101-C OR 105-A DATA SETS.
16. UNUSED SPARK SUPPRESSOR REMOVED AND ASSOCIATED WIRING REMOVED OR CHANGED TO SUIT. ON SOME UNITS CONNECTOR NO. 4 WILL CONTAIN FEMALE TERMINALS IN POSITION 14 & 15
17. SOME UNITS MAY HAVE A SLATE LEAD OF 20 AWG. INSTEAD OF 18 AWG. FROM CQ (3) TO CZ1.

18. **WIRING STATUS:**
RECTANGULAR BOX INDICATES HISTORY OF WIRING CHANGES
NOTE NUMBER
00-B B - DENOTES WIRING BEFORE THE CHANGE DESCRIBED BY THE DESIGNATED NOTE ENTERED THE PRODUCT.
00-A A - DENOTES WIRING AFTER THE CHANGE DESCRIBED BY THE DESIGNATED NOTE ENTERED THE PRODUCT.
19. SOME UNITS DO NOT HAVE THIS NETWORK.
20. THE UCC32 CALL CONTROL UNIT DOES NOT INCLUDE THE 181265 ELAPSED TIMER ASSEMBLY.
21. OLDER STYLE CONVENIENCE OUTLET MECHANICALLY GROUND.
22. OLDER SETS NOT EQUIPPED WITH PEDESTAL GROUND STRAP.



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

ACTUAL WIRING DIAGRAM FOR CALL CONTROL UNIT UCC-3 & UCC32 MODEL 33 8 LEVEL AUTOMATIC SEND-RECEIVE (ASR) SEND-RECEIVE (KSR)

APPROVALS

D AND R E OF M

E-NUMBER
PROD. NO. 7888WD

DATE 10-12-65

P.D. FILE NO. G-A152AA

DRAWN R.H.B. CHKD. JLE

ENGD. J.W.S. APPD. JLE

TELETYPE CORPORATION

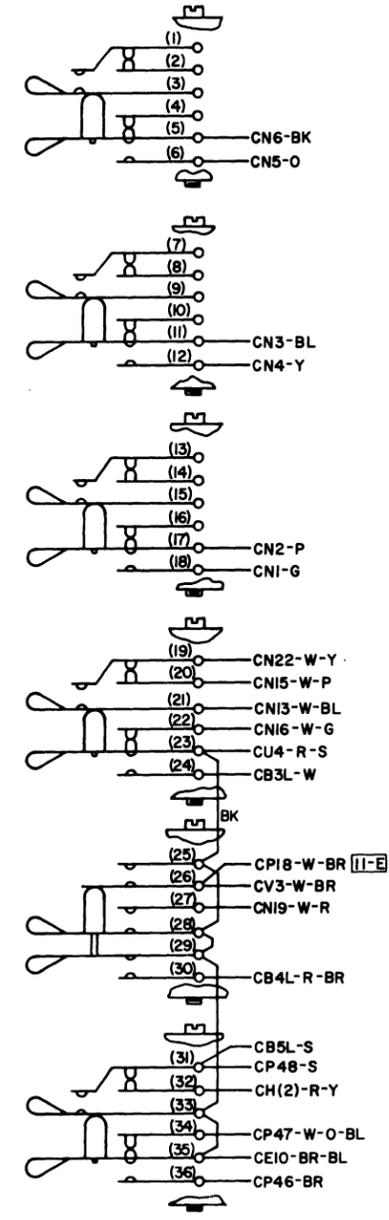
7888 WD

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

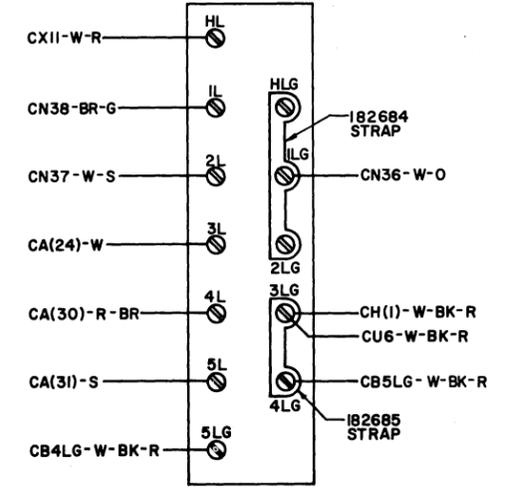
7888 WD

REVISIONS		
ISSUE	DATE	AUTH. NO.
1	2-23-66	17470-R
2	1-27-69	96776

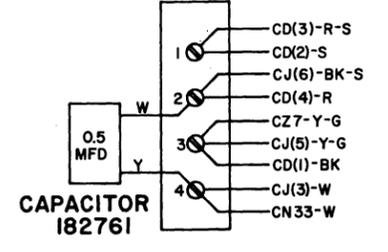
CA
KEY ASSEMBLY
182582



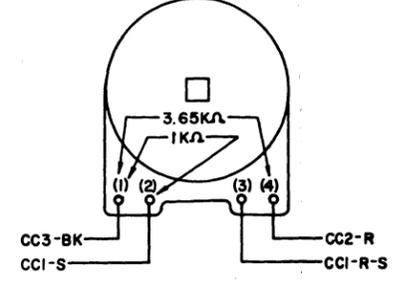
CB
LAMP STRIP
193438



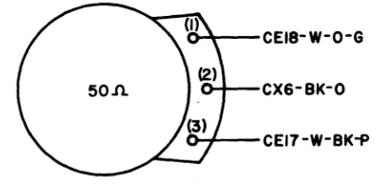
CC
TERMINAL BLOCK
151415



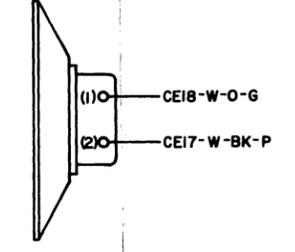
CD
RINGER
182503



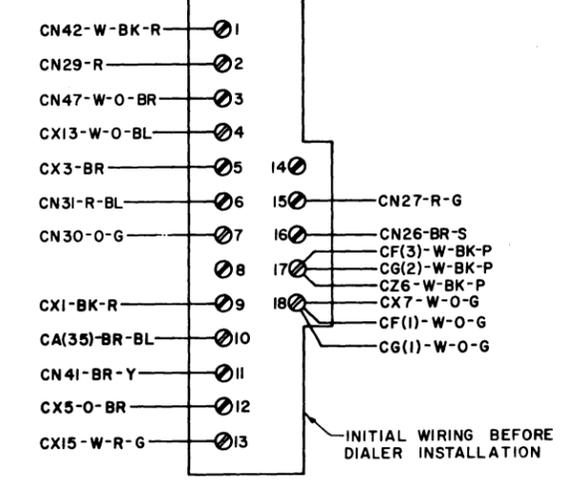
CF
VOLUME CONTROL
182683



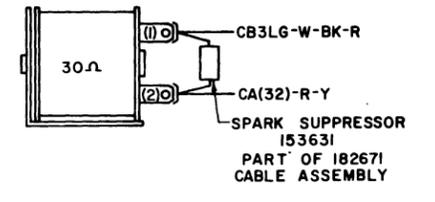
CG
SPEAKER
182682



CE
DIAL TERMINAL STRIP
182717



CH
BUZZER
182718



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

NOTES ON SHEET 1
SHEET 2

ACTUAL WIRING DIAGRAM FOR CALL CONTROL UNIT UCC-3 & UCC32 MODEL 33 8 LEVEL AUTOMATIC-SEND RECEIVE (ASR) SEND-RECEIVE (KSR)

APPROVALS	
D AND R <i>oal</i>	E OF M <i>ll</i>
E-NUMBER	
PROD. NO. 7888WD	
DATE 10-15-65	
P.D. FILE NO. G-A152AA	
DRAWN R.H.B.	CHKD. <i>lll</i>
ENGD. J.W.S.	APPD. <i>oal</i>
TELETYPE CORPORATION	

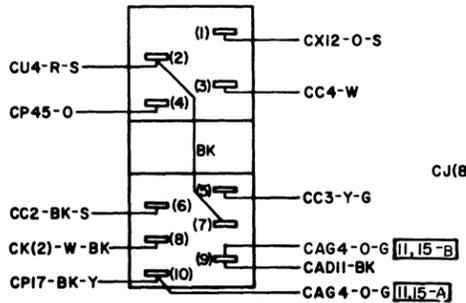
7888 WD

REVISIONS

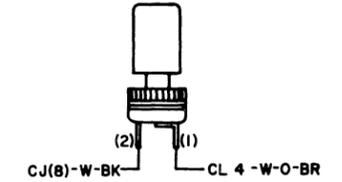
ISSUE	DATE	AUTH. NO.
1	2-23-66	17470-R
2	6-7-66	89162
3	6-10-66	89476-1
4	6-29-66	90965
5	9-8-66	91193
6	11-4-66	91413
7	3-28-68	95607
8	1-27-69	96776
9	3-4-70	99947-1

NOTE:
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REFLECTED ON THE ISSUE CONTROL REC-
ORD, WHICH IS A PART OF THIS DRAWING.

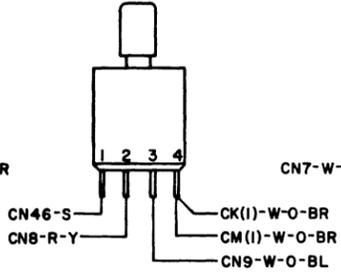
CJ
OUT OF SERVICE SWITCH
182688



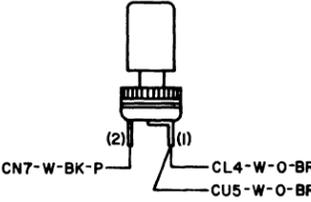
CK
OUT OF SERVICE LAMP
BREAK RELEASE SWITCH
182658



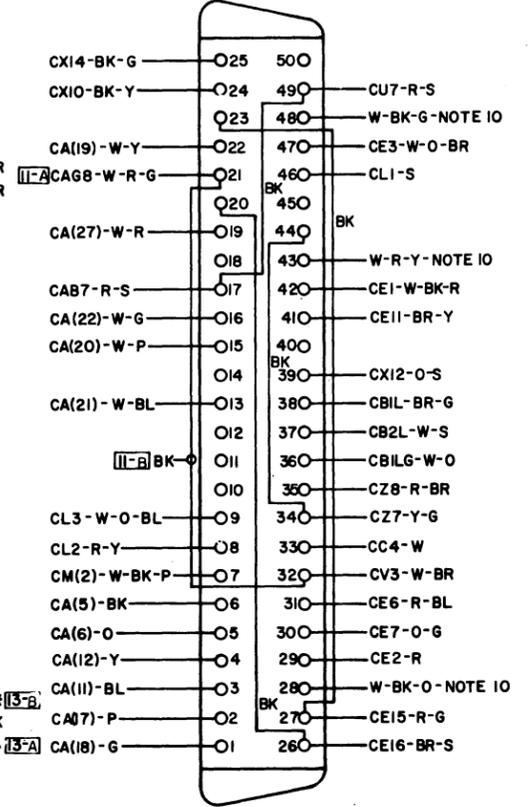
CL
BREAK RELEASE SWITCH
182660



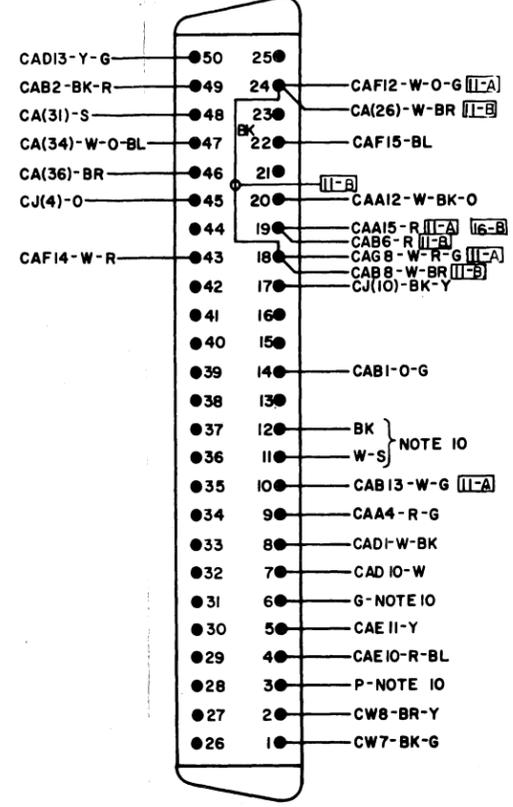
CM
RESTRAIN LAMP
182658



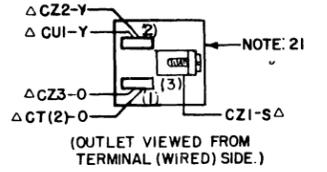
CN
CONNECTOR RECEPTACLE - 50 PT.
182733



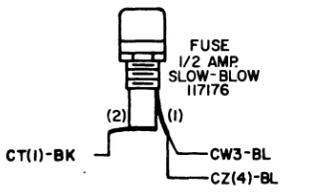
CP
CONNECTOR PLUG 50 PT.
182732



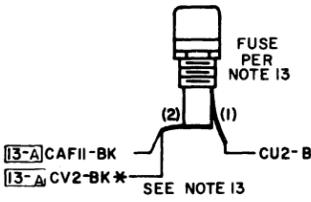
CQ
CONVENIENCE OUTLET
301713



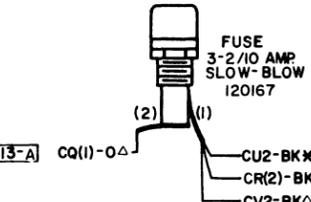
CR
FUSEHOLDER (S.M.D.)
182182



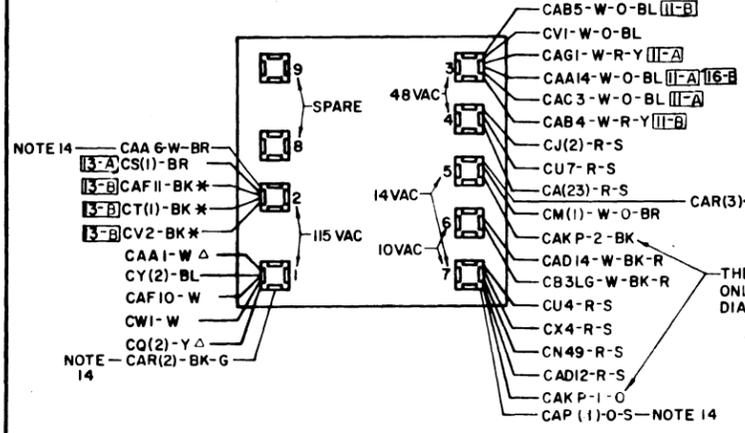
CS
FUSEHOLDER (TRANSF.)
182182



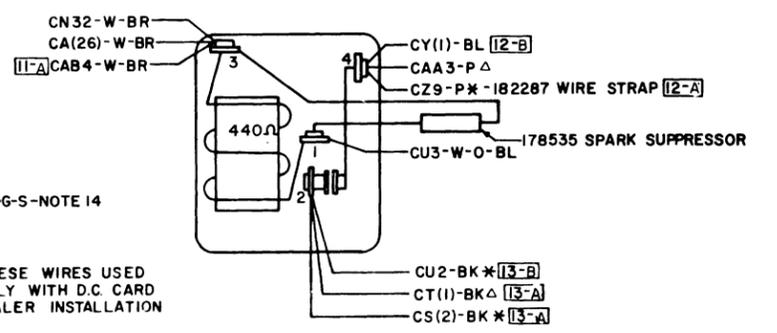
CT
FUSEHOLDER (SET)
182182



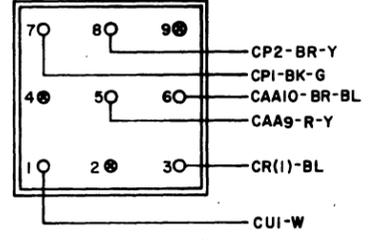
CU
POWER TRANSFORMER
181879 OR 182657 - NOTE 13



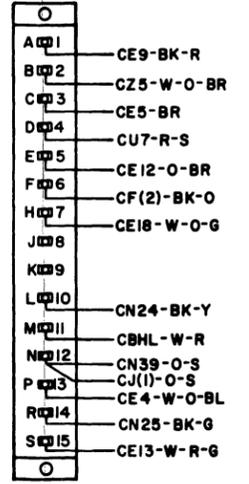
CV
MOTOR CONTROL RELAY
182669



CW
9 POINT CONNECTOR
RECEPTACLE (S.M.D.)
182645



CX
CIRCUIT CARD
CONNECTOR (AMPL.)
182536



SEE ISSUE CONTROL RECORD FOR COM-
PLETE LIST OF SHEETS COMPRISING THIS
W.D.

NOTES ON SHEET 1
SHEET 3

ACTUAL
WIRING DIAGRAM
FOR
CALL CONTROL UNIT
UCC-3 & UCC32
MODEL 33
8 LEVEL
AUTOMATIC SEND-RECEIVE (ASR)
SEND-RECEIVE (KSR)

APPROVALS

D AND R	E OF M
<i>oal</i>	

E-NUMBER
PROD. NO. 7888WD
DATE 10-19-65
P.D. FILE NO. G-A152AA
DRAWN R.H.B. CHKD *oal*
ENGD. J.W.S. APPD. *oal*

TELETYPE
CORPORATION

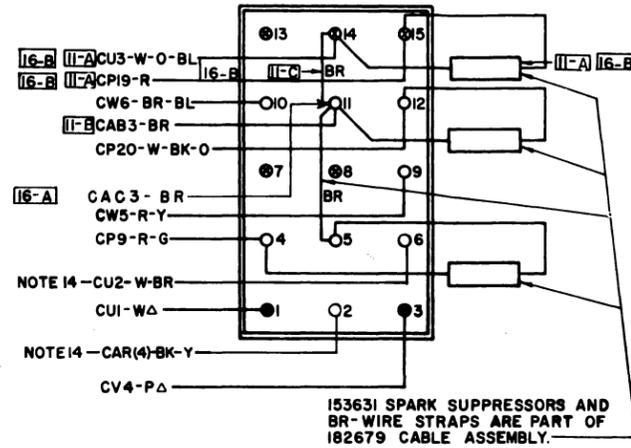
7888 WD

REVISIONS

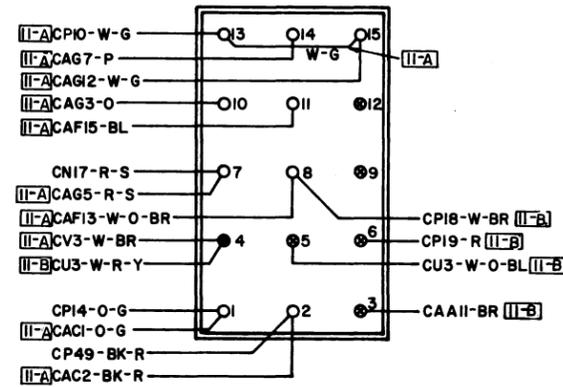
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2	6-7-66	89182
3	6-10-66	89476-1
4	9-8-66	91193
5	11-4-66	91413
6	3-28-68	95607
7	1-27-69	96776
8	4-2-69	96932
9	3-4-70	99947-1

NOTE:
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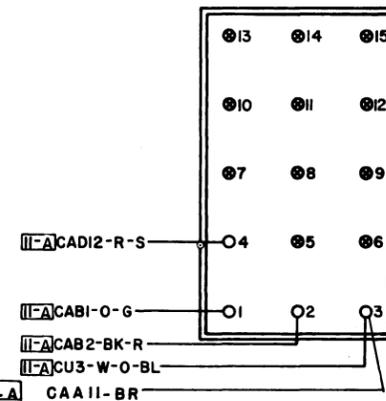
CAA
15 POINT RECEPTACLE CONNECTOR
182539
4



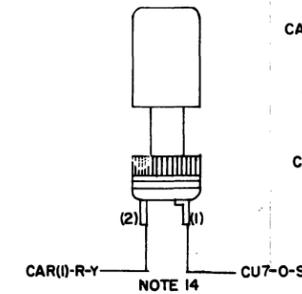
CAB
15 POINT RECEPTACLE CONNECTOR
182539
3



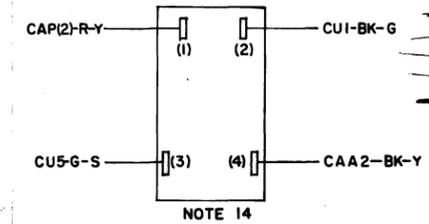
CAC
15 POINT RECEPTACLE CONNECTOR
182539
2



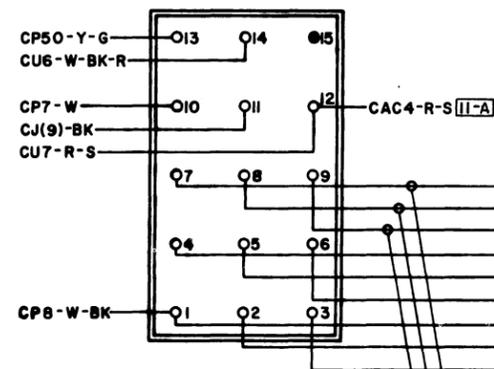
CAP
NONPRINT LAMP
182658



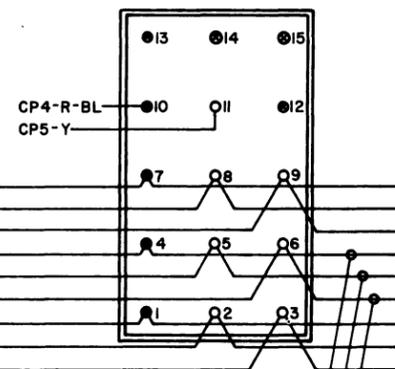
CAR
NONPRINT TOGGLE SWITCH
105803



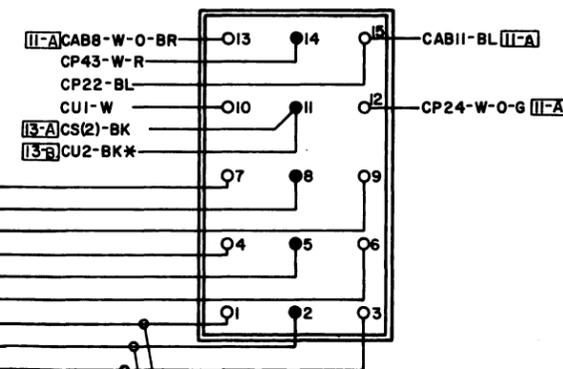
CAD
15 POINT RECEPTACLE CONNECTOR
182539
8



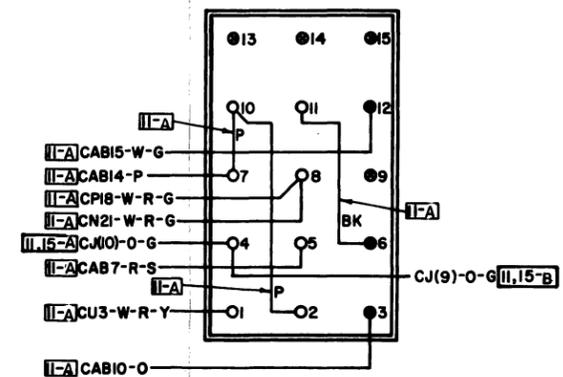
CAE
15 POINT RECEPTACLE CONNECTOR
182539
7



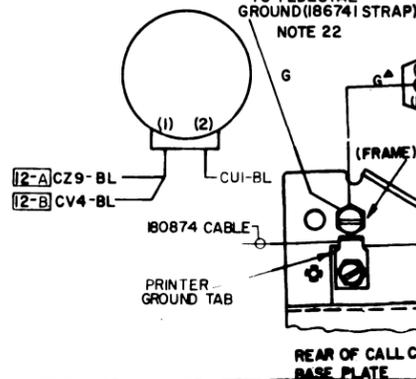
CAF
15 POINT RECEPTACLE CONNECTOR
182539
6



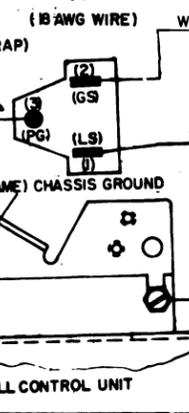
CAG
15 POINT RECEPTACLE CONNECTOR
182539
5-(NOTE 11)



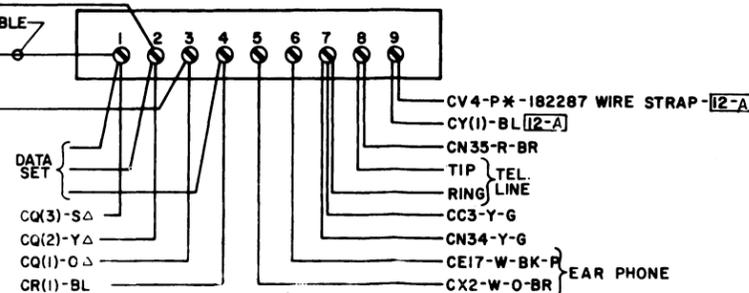
CY
ELAPSED TIME INDICATOR
181265



POWER CABLE
182510



CZ
POWER TERMINAL BLOCK
151411



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

NOTES ON SHEET 1
SHEET 4

ACTUAL WIRING DIAGRAM FOR CALL CONTROL UNIT UCC-3 & UCC32 MODEL 33 8 LEVEL AUTOMATIC SEND-RECEIVE (ASR) SEND-RECEIVE (KSR)

APPROVALS
D AND R: [Signature]
E OF M: [Signature]
E-NUMBER: PROD. NO. 7888 WD
DATE: 10-22-65
R.D. FILE NO. G-A152AA
DRAWN R.H.B. CHKD. [Signature]
ENGD. J.W.S. APPD. [Signature]

TELETYPE CORPORATION

7888 WD

NOTE:
REVISION: INFORMATION MUST ALSO BE
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ORD. WHICH IS A PART OF THIS DRAWING.

REVISIONS		
ISSUE	DATE	AUTH. NO.
1	2-23-66	17470-R
2	11-12-66	92184 RC
3	2-22-67	93003-1
4	5-2-68	95802-RC
5	12-16-68	96463
6	1-27-69	96776
7	5-15-69	99164

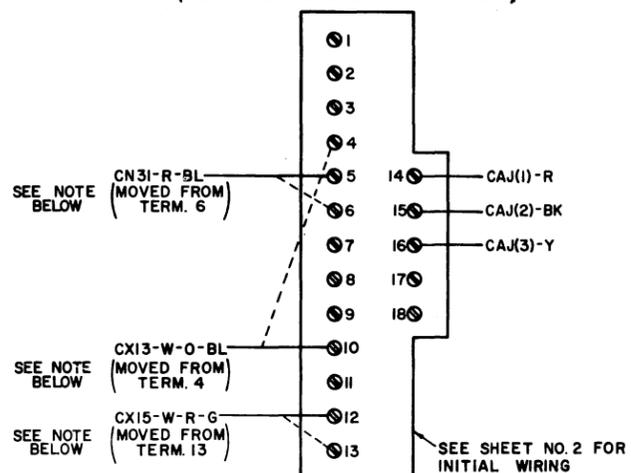
DC ROTARY DIALER DC PULSING CARD DIALER

DIALER WIRING TABLE

CE TERMINAL STRIP TERMINATION	ROTARY DIALER 182500 ONLY	ROTARY DIALER-182500 & DC CARD DIALER-182622
	CAH WIRE CODE DESIGNATIONS	CAH, CAK WIRE CODE DESIGNATIONS
8		CAH(1)-BL, CAK3-BL, CAK6-BL
14	CAH(2)-G	CAH(2)-G, CAK4-R
15	CAH(1)-BL	CAK5-G
17	CAH(3)-W	CAH(3)-W, CAK1-W
18	CAH(4)-W	CAH(4)-W, CAK2-W

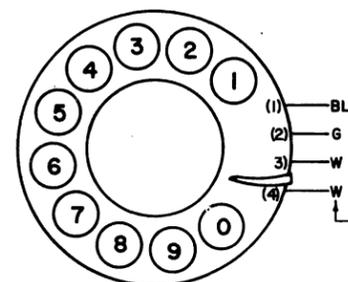
CE TERMINAL STRIP 182717

(CE TO CAH, CAK WIRE TERMINATIONS ARE FOUND ON DIALER WIRING TABLE)

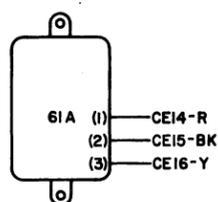


NOTE
WIRING CHANGE REQUIREMENTS ON 182717 TERMINAL STRIP FOR DIALER OPERATION
REMOVE R-BL WIRE FROM TERM. 6 AND CONNECT TO TERM. 5
REMOVE W-O-BL WIRE FROM TERM. 4 AND CONNECT TO TERM. 10
REMOVE W-R-G WIRE FROM TERM. 13 AND CONNECT TO TERM. 12

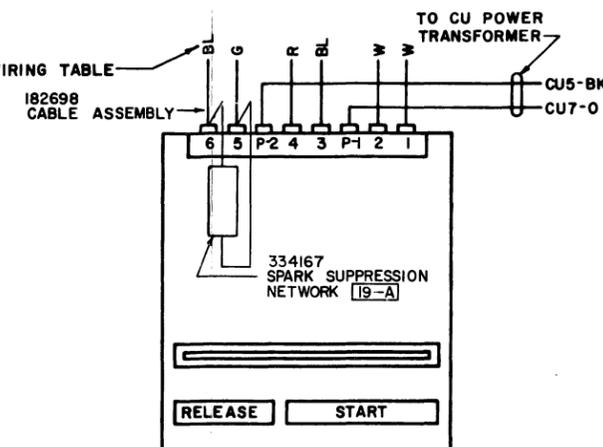
CAH ROTARY DIALER 182500



CAJ FILTER 182532



CAK DC CARD DIALER 182622



TOUCH TONE DIALER TOUCH TONE CARD DIALER

DIALER WIRING TABLE

CE TERMINAL STRIP TERMINATION	TOUCH TONE MANUAL DIALER 186595 OR 182620			
	TOUCH TONE CARD DIALER 186596 OR 182621			
	CAM			
	OLD STYLE WIRE TERMINAL & COLOR CODE		NEW STYLE * WIRE TERMINAL & COLOR CODE	
	M	N	M	N
1		7-W-P-G		7-O
2		8-P		8-BL-BK
3	9-W-P-P	9-W-P-P	9-P-BL	9-P-BL
4	13-W-R-R 8-P	13-W-R-R	8-BL-BK 13-G-W	13-G-W
5	4-R	4-R	4-R	4-R
6	12-Y	12-Y	12-R-G	12-R-G
8	1-G	1-G	1-G	1-G
10	7-W-P-G		7-O	
11	6-W-O-BK	6-W-O-BK	6-O-BK	6-O-BK
12	2-W	2-W	2-W	2-W
13	11-BL	11-BL	11-W-BL	11-W-BL
14	11-BL-W 10-W-BK-BK	11-BL-W 10-W-BK-BK	11-BL-W 10-BK	11-BL-W 10-BK

THESE TWO WIRES MUST BE TWISTED TOGETHER, 3 TWISTS PER INCH.

THESE TWO WIRES ARE CONTAINED ON THE TOUCH TONE CARD DIALER ONLY.

M-COLUMN- CONNECTIONS WITHOUT DIAL TONE DETECTION (DATA SET)

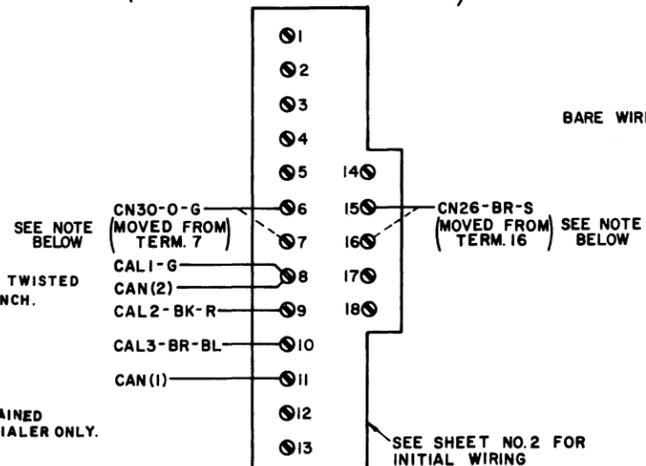
N-COLUMN- CONNECTIONS WITH DIAL TONE DETECTION (DATA SET)

WHITE COLOR MAY OR MAY NOT BE PRESENT IN MULTIPLE COLOR CODED WIRES.

*CURRENT STYLE DIALERS MAY NOT CONTAIN WIRE TERMINATION NUMBERS.

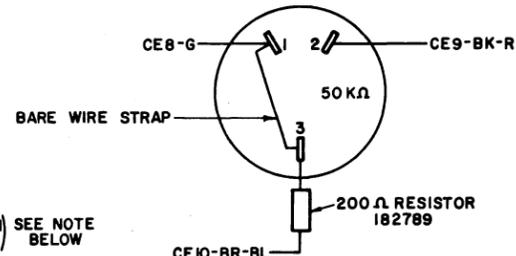
CE TERMINAL STRIP 182717

(CE TO CAM WIRE TERMINATIONS ARE FOUND ON DIALER WIRING TABLE)

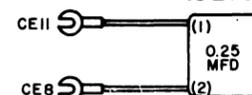


NOTE
WIRING CHANGE REQUIREMENTS ON 182717 TERMINAL STRIP FOR DIALER OPERATION
REMOVE O-G WIRE FROM TERM. 7 AND CONNECT TO TERM. 6
REMOVE BR-S WIRE FROM TERM. 16 AND CONNECT TO TERM. 15

CAL VOLUME CONTROL ASSEMBLY 182686

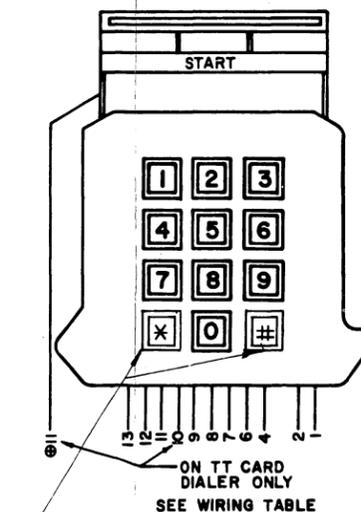


CAN CAPACITOR 182799



CAM TOUCH TONE DIALER TOUCH TONE CARD DIALER

186595-12 BUTTON - 182620-10 BUTTON
186596-12 BUTTON - 182621-10 BUTTON



ON TT CARD DIALER ONLY
SEE WIRING TABLE

BUTTONS * AND # NOT PRESENT ON 10 BUTTON DIALERS 182620 OR 182621

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

NOTES ON SHEET 1 SHEET 5

ACTUAL WIRING DIAGRAM FOR CALL CONTROL UNIT UCC-3 & UCC32 MODEL 33 8 LEVEL AUTOMATIC SEND-RECEIVE (ASR) SEND-RECEIVE (KSR)

APPROVALS

D AND R E OF M
OAL L

E-NUMBER
PROD. NO. 7888 WD

DATE 10-25-65

P.D. FILE NO. G-A152AA

DRAWN R.H.B.

CHKD. JAR

ENGD. J.W.S.

APPD. OAL

TELETYPE CORPORATION

ISSUE CONTROL RECORD

7889 WD

NO.

NOTES

SUPPORTING INFORMATION

CONTENTS

SHEET NO.

ISSUE

REVISIONS APPLYING TO THIS CONTROL RECORD

CATEGORY

NO.

2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19
---	---	---	---	---	---	---	---	----	----	----	----	----	----	----	----	----	----

ISSUE	DATE	AUTH. NO.
1	2-23-66	17470-R
2	6-29-66	90965
3	9-15-66	91293-RC
4	11-4-66	91413
5	6-19-67	95539
6	3-28-68	95607
7	4-2-69	96932
8	3-4-70	99947-1

1	X	X																
2	X	X	X	X	X													
3	X	X	X	X	X													

ISSUE CONTROL SHEET 1 OF 1

ACTUAL WIRING DIAGRAM FOR CALL CONTROL UNIT UCC-N MODEL 33 8 LEVEL RECEIVE ONLY (R.O.)

V.D. NUMBER 7889WD

DRAWN *CHKD. J.R.*

ENGD. J.W.S. APPD.

TELETYPE CORPORATION

7889WD

7889 WD

REVISIONS

ISSUE	DATE	AUTH. NO.
1	2-23-66	17470-R
2	11-4-66	91413
3	3-4-70	99947-1

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

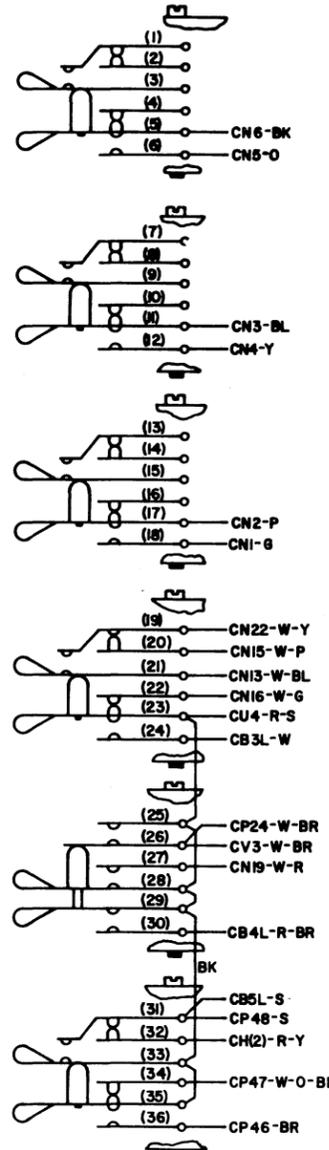
- NO. NOTES
1. WIRING LEGEND:
DISTANT TERMINATING AREA
DISTANT TERMINATING DESIGNATION
COLOR CODE
CND-W-R
 2. WIRE COLOR CODE:
W-WHITE BL-BLUE
BK-BLACK BR-BROWN
O-ORANGE P-PURPLE
Y-YELLOW S-SLATE
G-GREEN R-RED
 3. TERMINALS DESIGNATED () DO NOT APPEAR ON COMPONENT.
 4. CONNECTORS ARE VIEWED FROM WIRED END.
 5. * DENOTES 20AWG WIRE. ALL OTHER WIRING 24 AWG.
 6. FOR SCHEMATIC WIRING DIAGRAM SEE 7881WD.
 7. ASSOCIATED UNIT ACTUAL WIRING DIAGRAMS:
7883WD-PRINTER-RECEIVE ONLY-UP800,802
7886WD-MOTOR
4970WD-SELECTOR MAGNET DRIVER
 8. FOR TELETYPE PERSONNEL REFERENCE SPECIFICATION 60,533S.
 9. MAIN CABLE ASSEMBLY 182680.
 10. WIRES ON TERMINALS 15 AND 16 ARE CONNECTED TOGETHER FOR NORMAL OPERATION. IF DIALING IS NECESSARY DURING SERVICING, PLACE DIAL PULSING CONTACTS ACROSS WIRES ON TERMINALS 15 AND 16.
 11. THESE WIRES ARE SPARES. EACH IS TERMINATED NEAR THE 182717 TERMINAL STRIP, TAPED AND TIED BACK.
 12. WIRES ON TERMINALS 5 AND 6 SHOULD BE CONNECTED TOGETHER FOR NORMAL OPERATION. WHEN USING OPTIONAL EAR PHONE DURING SERVICING PLACE WHITE LEADS FROM EAR PHONE ACROSS WIRES ON TERMINALS 3 AND 6.
 13. 182287 WIRE STRAP ADDED TO FACILITATE INSTALLATION AND REMOVAL OF ELAPSED TIME INDICATOR.
 14. FUSEHOLDER ADDED TO PROVIDE FUSE PROTECTION FOR POWER TRANSFORMER

TRANSFORMER	FUSE	FUSE PART NO.
181879	1/2 AMP SLOW-BLOW	117176
182657	8/10 AMP SLOW-BLOW	162360
 15. UNUSED SPARK SUPPRESSOR AND ASSOCIATED WIRING REMOVED ON SOME UNITS CONNECTOR NO-4 WILL CONTAIN FEMALE TERMINALS IN POSITIONS 14 AND 15.
 16. WIRING STATUS:
RECTANGULAR BOX INDICATES HISTORY OF WIRING CHANGES

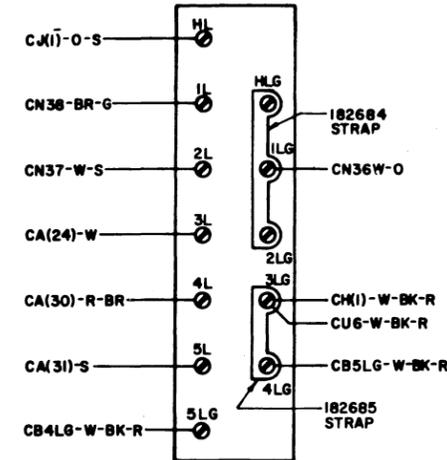
	B - DENOTES WIRING BEFORE THE CHANGE DESCRIBED BY THE DESIGNATED NOTE ENTERED THE PRODUCT.
	A - DENOTES WIRING AFTER THE CHANGE DESCRIBED BY THE DESIGNATED NOTE ENTERED THE PRODUCT.

17. OLDER STYLE CONVENIENCE OUTLET MECHANICALLY GROUND.
18. OLDER SETS NOT EQUIPPED WITH PEDESTAL GROUND STRAP.

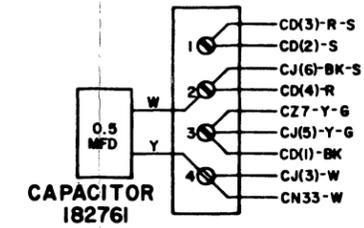
CA
KEY ASSEMBLY
182582



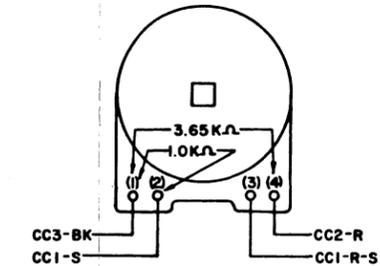
CB
LAMP STRIP
193438



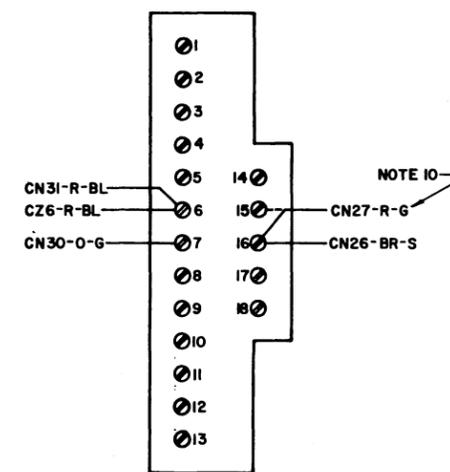
CC
TERMINAL BLOCK
151415



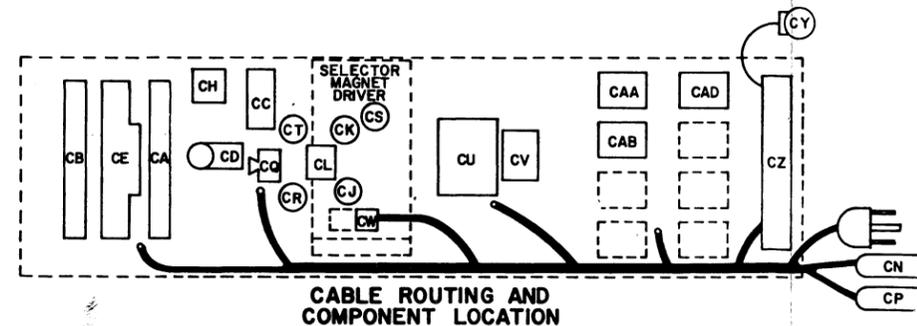
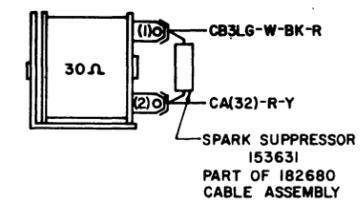
CD
RINGER
182503



CE
DIAL TERMINAL STRIP
182717



CH
BUZZER
182718



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

SHEET 1

ACTUAL WIRING DIAGRAM FOR CALL CONTROL UNIT UCC-4 MODEL 33 8 LEVEL RECEIVE ONLY

APPROVALS

D AND R <i>oal</i>	E OF M <i>cl</i>
-----------------------	---------------------

E-NUMBER
PROD. NO. 7889 WD
DATE 10-1-65
P.D. FILE NO. G-A152AA
DRAWN R.H.B. CHKD *oal*
ENGD. J.W.S. APPD. *oal*

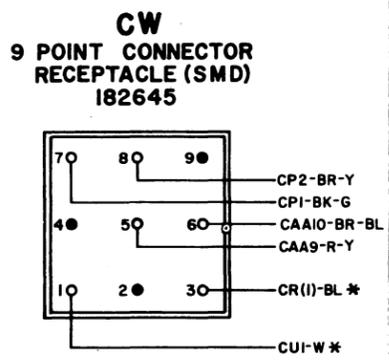
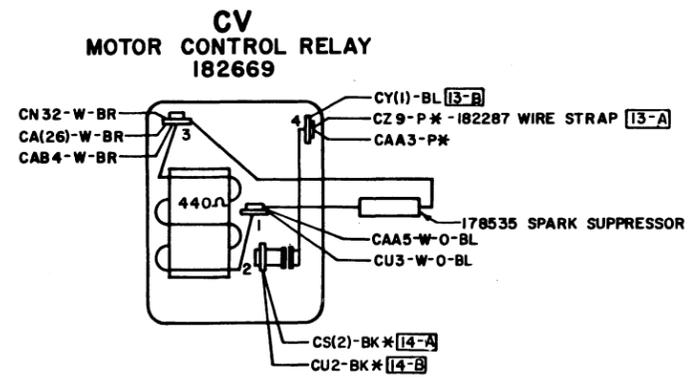
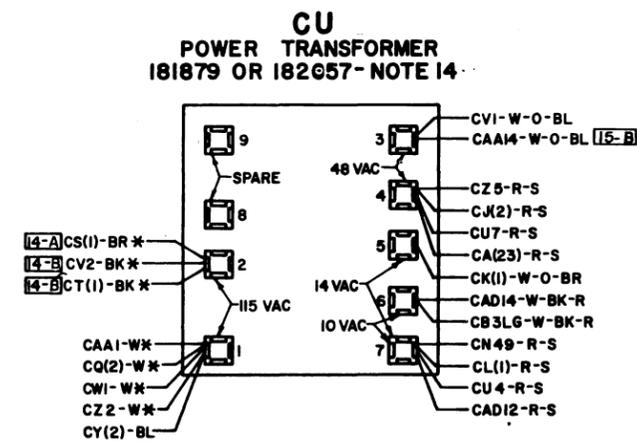
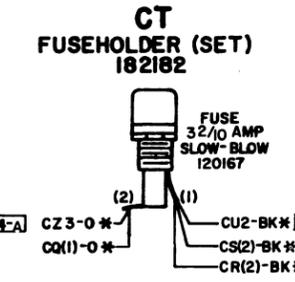
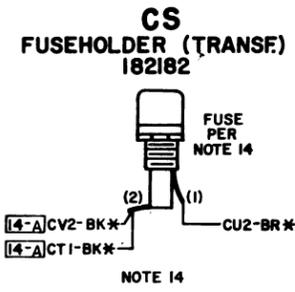
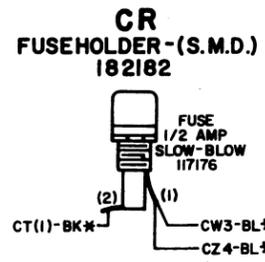
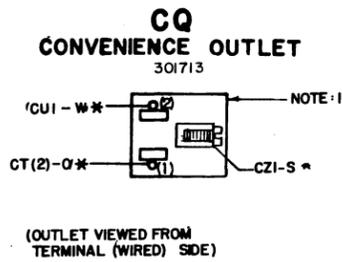
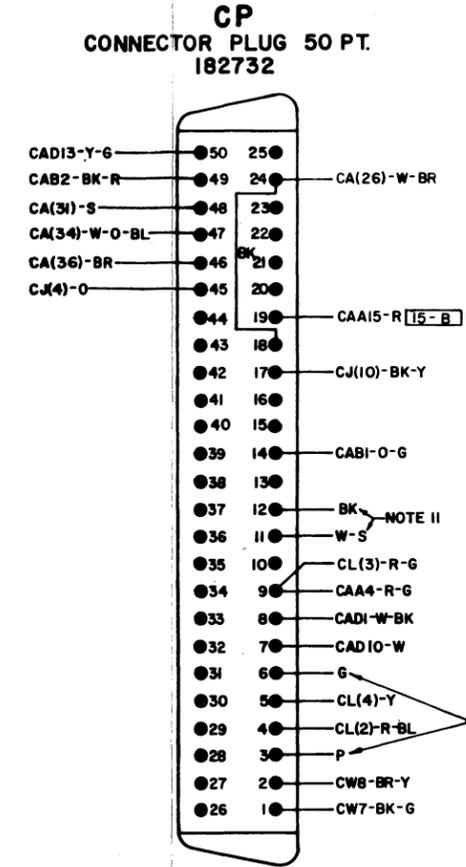
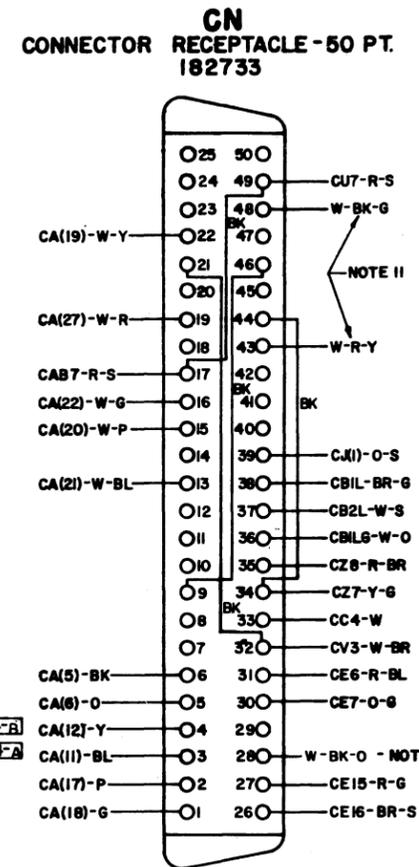
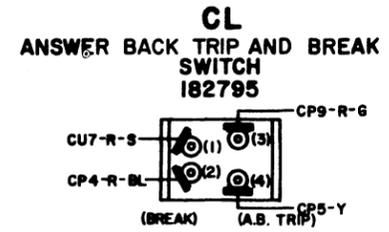
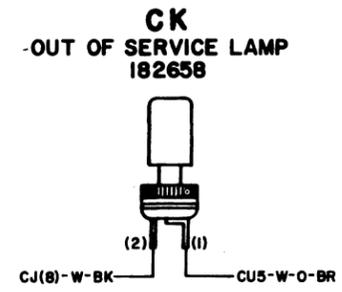
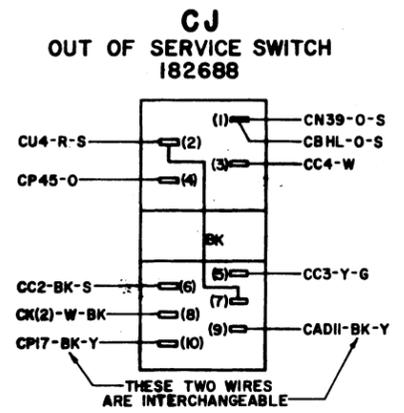
TELETYPE CORPORATION

7889 WD

7889 WD

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

REVISIONS		
ISSUE	DATE	AUTH. NO.
- 1	2-23-66	17470-R
- 2	6-29-66	90965
- 3	9-15-66	91293-RC
- 4	11-4-66	91413
- 5	3-28-68	95607
- 6	3-3-70	99947-1



SEE ISSUE CONTROL RECORD FOR COM-
PLETE LIST OF SHEETS COMPRISING THIS
W.D.

NOTES ON SHEET 1

SHEET 2

ACTUAL
WIRING DIAGRAM
FOR
CALL CONTROL UNIT
UCC-4
MODEL 33
8 LEVEL
RECEIVE ONLY

APPROVALS

D AND R <i>a.A.L.</i>	E OF M <i>L</i>
E-NUMBER	
PROD. NO. 7889 WD	
DATE 10-4-65	
P.D. FILE NO. G-A152AA	
DRAWN R.H.B.	CHKD. <i>J.R.</i>
ENGD. J.W.S.	APPD. <i>a.A.L.</i>

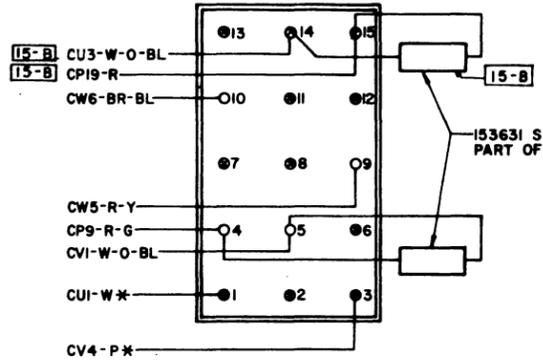
TELETYPE
CORPORATION
7889 WD

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

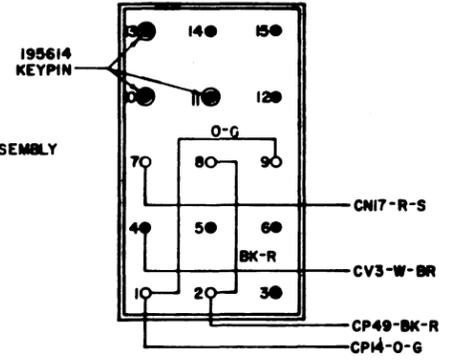
7889 WD

REVISIONS		
ISSUE	DATE	AUTH. NO.
1	2-23-66	17470-R
2	11-4-66	91413
3	6-19-67	93539
4	3-28-68	95607
5	4-2-69	96932
6	3-3-70	99947-1

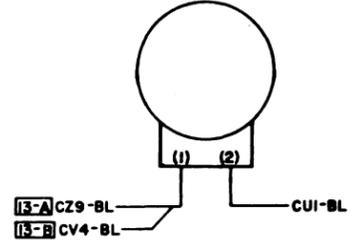
CAA
15 POINT RECEPTACLE
CONNECTOR
182539
4



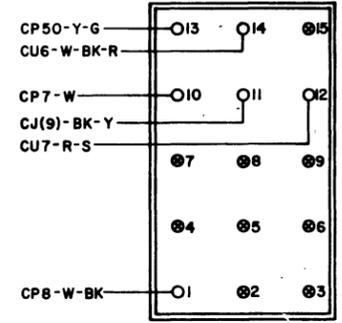
CAB
15 POINT RECEPTACLE
CONNECTOR
182539
3



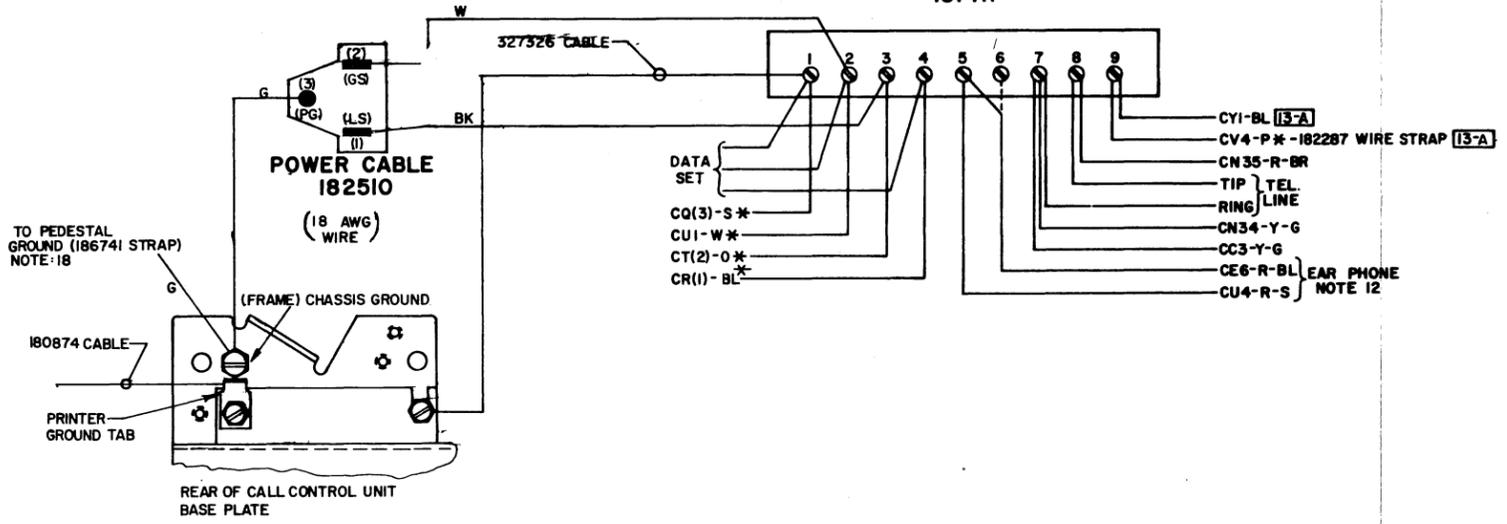
CY
ELAPSED TIME INDICATOR
181265



CAD
15 POINT RECEPTACLE
CONNECTOR
182539
8



CZ
POWER TERMINAL BLOCK
151411



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

NOTES ON SHEET 1

SHEET 3

ACTUAL
WIRING DIAGRAM
FOR
CALL CONTROL UNIT
UCC-4
MODEL 33
8 LEVEL
RECEIVE ONLY

APPROVALS
D AND R *dal* E OF M *EM*

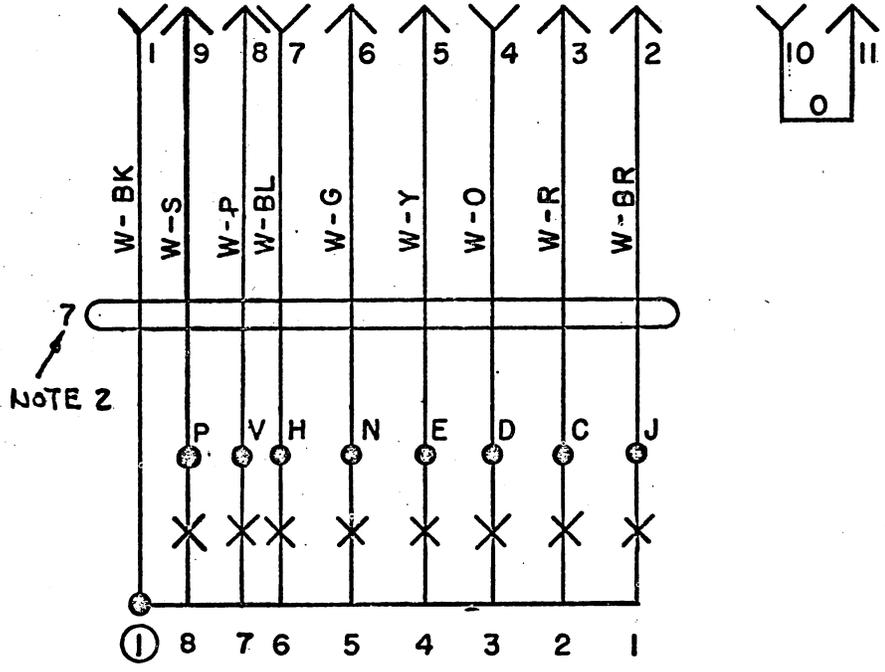
E-NUMBER
PROD. NO. 7889 WD
DATE 10-5-65
P.D. FILE NO. G-A152AA
DRAWN R.H.B. CHKD. *HE*
ENGD. J.W.S. APPD. *JWS*

TELETYPE CORPORATION

7889 WD

NO	NOTE
1	FOR ACTUAL WIRING DIAGRAM SEE 7111WD
2	THE SYMBOL  MEANS THAT THE LEADS GO TO A CONNECTOR WHICH PLUGS INTO THE CALL CONTROL UNIT AND IS MARKED WITH A NUMERAL 7

7112 WD		
REVISIONS		
ISSUE	DATE	AUTH. NO.
1	9-21-64	15981-R
2	6-14-65	87670
3	9-13-65	88786



KEYBOARD CONTACTS

SCHEMATIC WIRING DIAGRAM FOR UK809 & UK811 NUMERIC KEYBOARDS

APPROVALS	
D AND R 	E OF M 
E-NUMBER	
PROD. NO. 7112WD	
DATE: 12-26-63	
RD. FILE NO 1-18.152.219 A	
DRAWN. C G	CHKD.
ENGD. ALC	APPD.
TELETYPE CORPORATION	

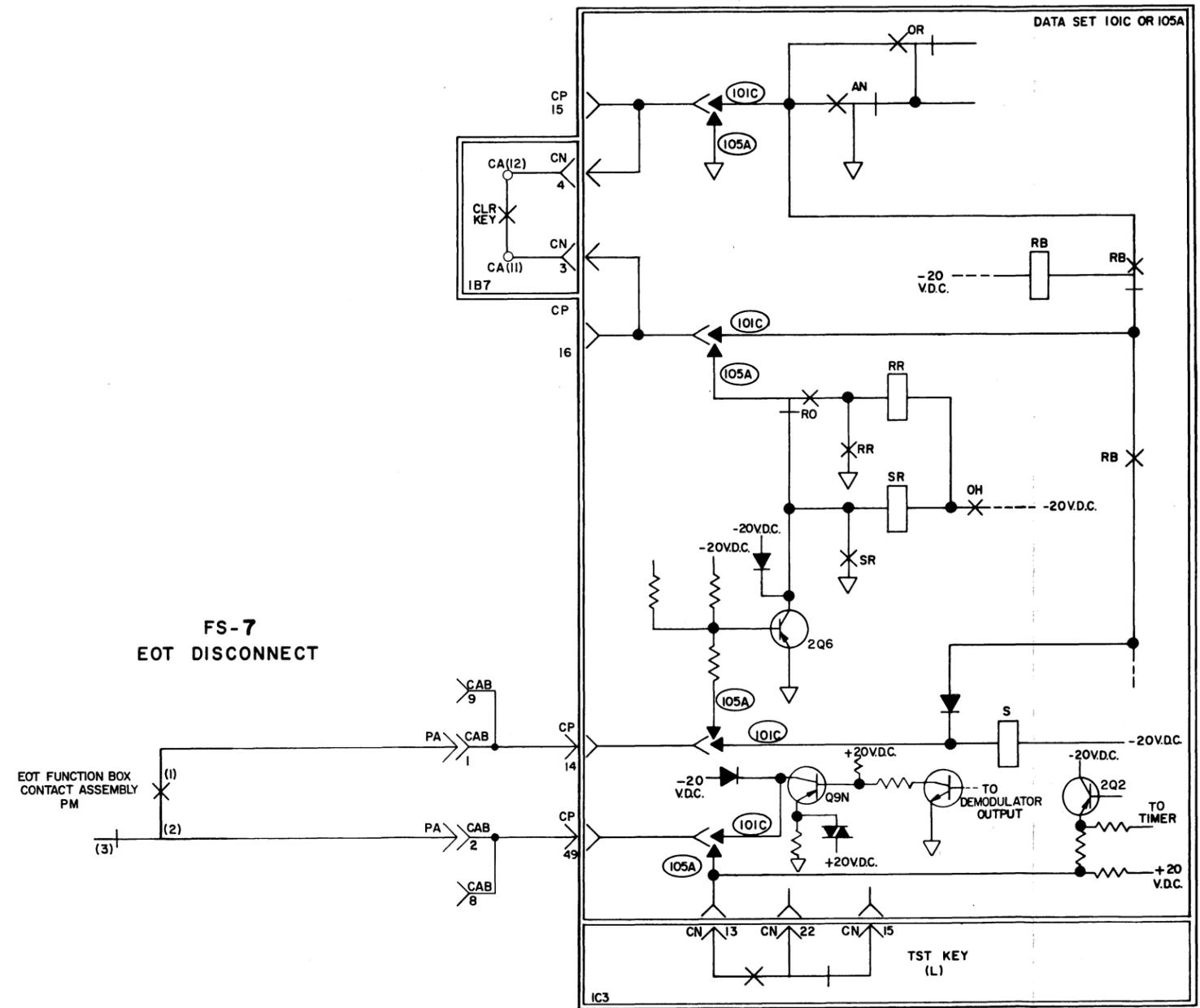
SEE SHEET B1 FOR NOTES.

7881 WD

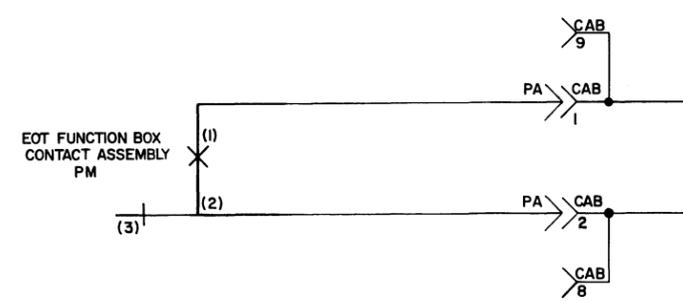
REVISIONS

ISSUE	DATE	AUTH. NO.
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2	11-4-66	91413
3	6-10-68	95947

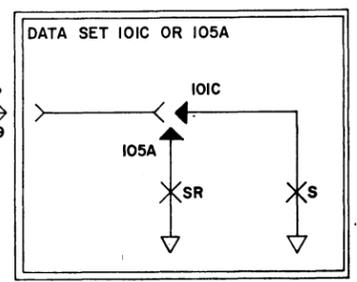
NOTE: REVISION INFORMATION MUST ALSO BE REFLECTED ON THE ISSUE CONTROL RECORD, WHICH IS A PART OF THIS DRAWING.



FS-7
EOT DISCONNECT



UNUSED ARC SUPPRESSOR AND ASSOCIATED WIRING NOT CONTAINED IN SOME UNITS



SEE ISSUE CONTROL RECORD FOR COMPLETE LIST OF SHEETS COMPRISING THIS W.D. SHEET B4

MODEL 33
RECEIVE ONLY SETS
FOR TWX

APPROVALS

D AND R <i>o.a.</i>	E OF M <i>l</i>
------------------------	--------------------

E-NUMBER
PROD. NO. 7881 WD-B4
DATE 10-6-65
P.D. FILE NO. G-A152AA
DRAWN R.H.B. CHKD. *jle*
ENGD. G.E.W. APPD. *o.a.*

TELETYPE CORPORATION

7881 WD

SEE SHEET B1 FOR NOTES.

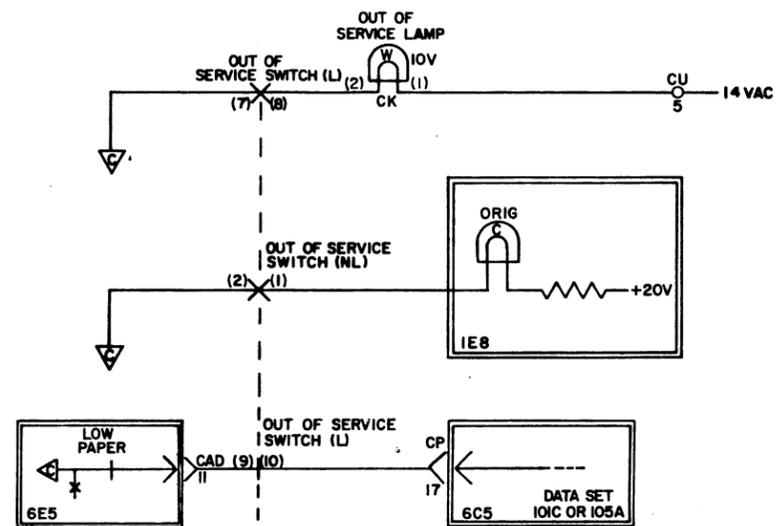
NOTE:
REVISION INFORMATION MUST
ALSO BE REFLECTED IN THE
ISSUE CONTROL RECORD, WHICH
IS A PART OF THIS DRAWING.

7881 WD

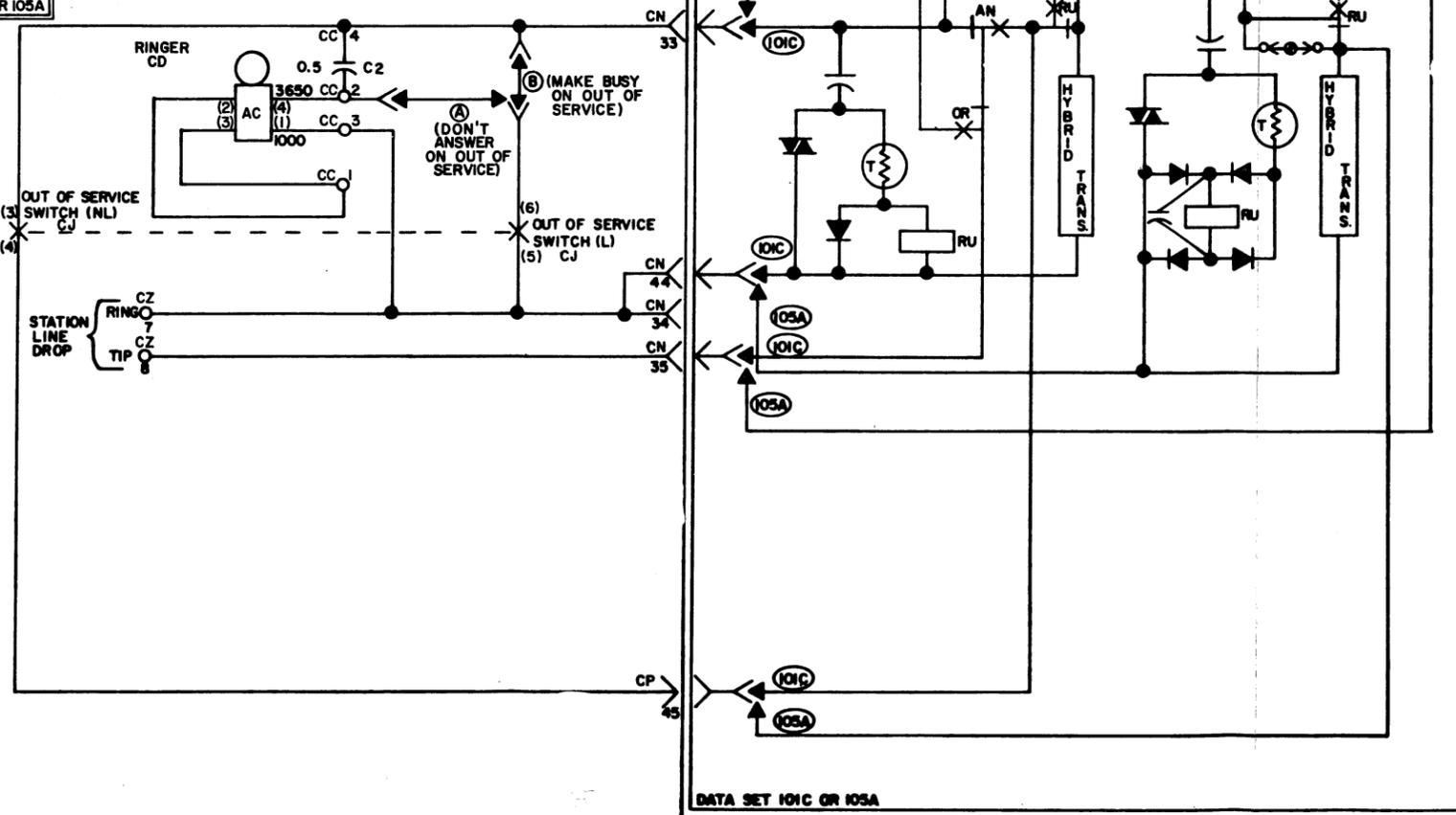
REVISIONS

ISSUE	DATE	AUTH. NO.
1	2-23-66	17475-R

FS - 8
OUT OF SERVICE



FS - 9
RINGER CIRCUIT
& OFF HOOK CIRCUIT



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

SHEET B5

MODEL 33
RECEIVE ONLY SETS
FOR TWX

APPROVALS

D AND R: *OAL* E OF M: *U*

E-NUMBER
PROD. NO. 7881 WD-B5
DATE 10-7-65
P.D. FILE NO. G-A152AA
DRAWN R.H.B. CHKD. *gic*
ENGD. G.E.W. APPD. *OAL*

TELETYPE
CORPORATION

7881 WD

SEE SHEET B1 FOR NOTES.

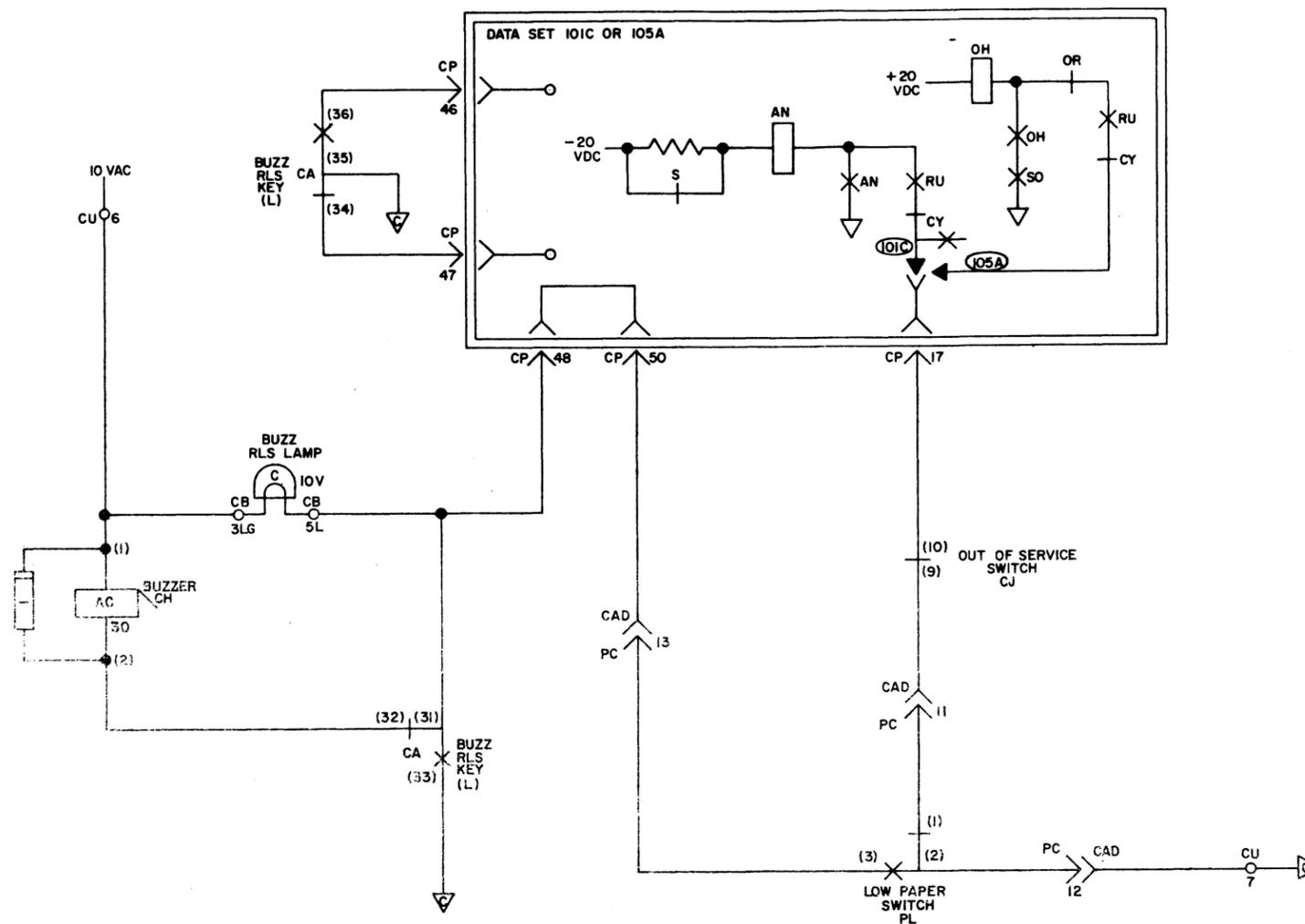
FS-10 PAPER ALARM

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

7881 WD

REVISIONS

ISSUE	DATE	AUTH. NO.
1	2-23-66	17475-R



SEE ISSUE CONTROL RECORD FOR COMPLETE
LIST OF SHEETS COMPRISING THIS WD.
SHEET B6

MODEL 33
RECEIVE ONLY SETS
FOR TWX

APPROVALS

D AND R

[Signature]

E OF M

[Signature]

E-NUMBER

PROD. NO. 7881 WD-B6

DATE 10-25-65

P.D. FILE NO. G-A152AA

DRAWN R.S.S.

CHKD. *[Signature]*

ENG. G.E.W.

APPD. *[Signature]*

TELETYPE
CORPORATION

7881 WD

SEE SHEET R1 FOR NOTES.

FS-II POWER CIRCUITS

REVISION INFORMATION MUST ALSO BE REFLECTED ON THE WIRING CONTROL RECORD, WHICH IS PART OF THE DRAWING.

7881 WD

REVISIONS

ISSUE	DATE	AUTH. NO.
1	2-23-66	17475-R
2	3-29-66	90790

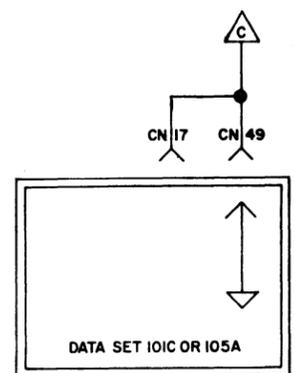
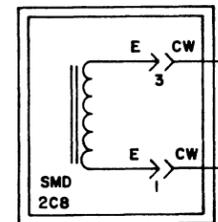
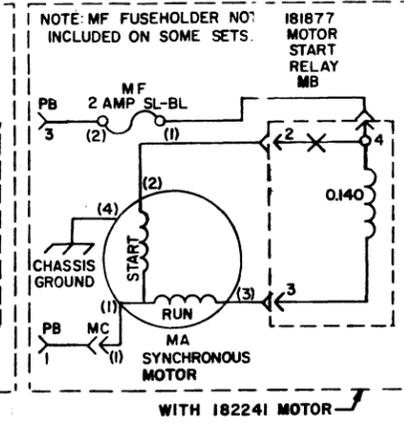
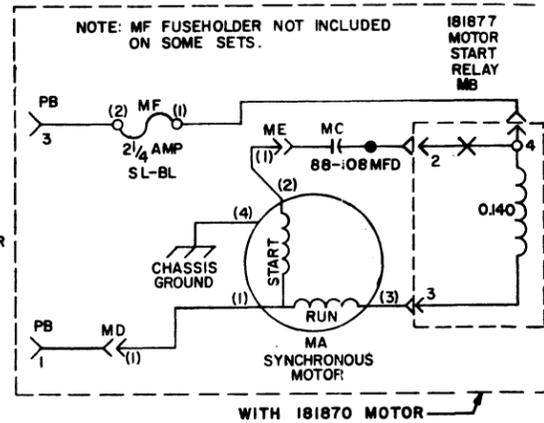
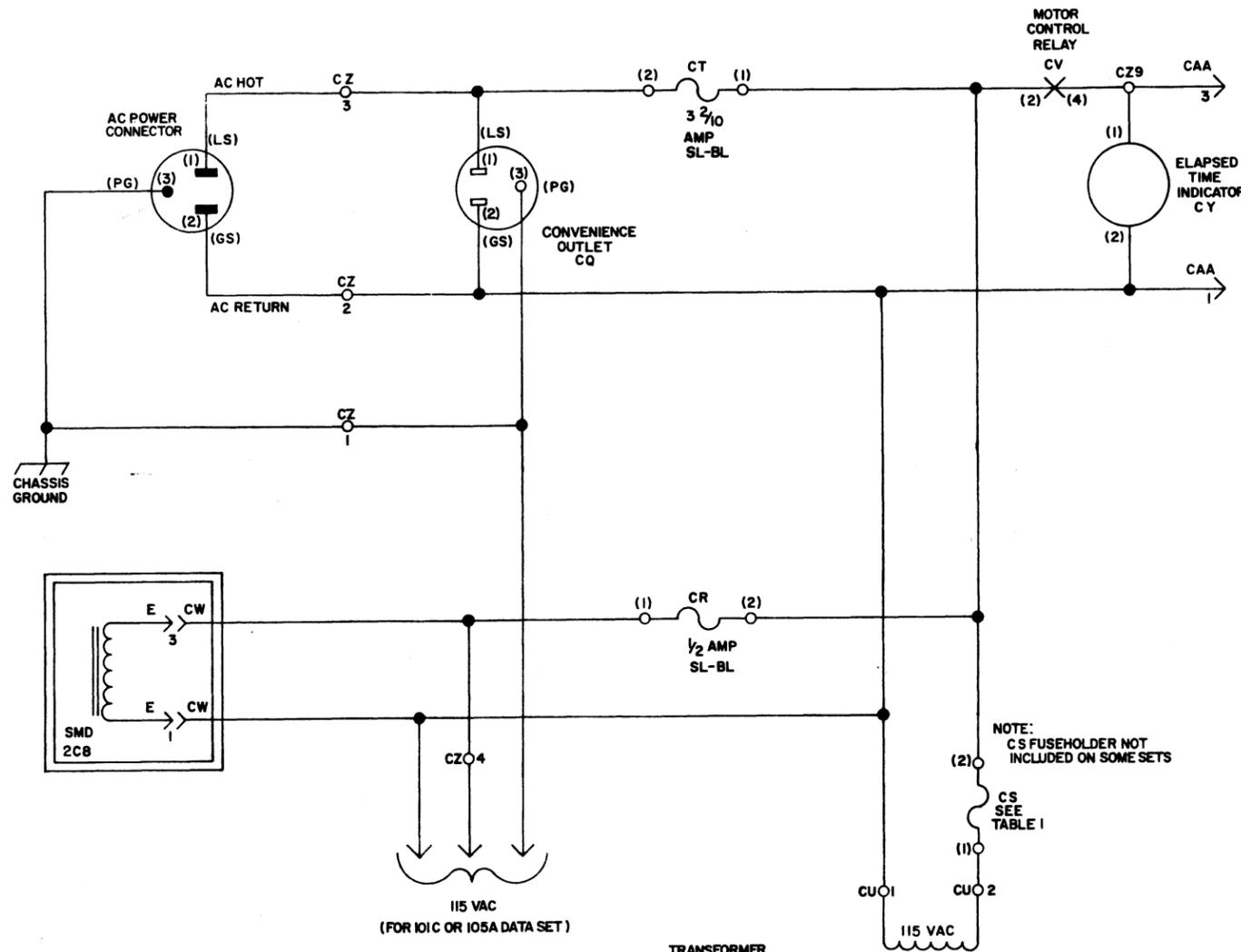


TABLE I

TRANSFORMER CU	FUSE CS	PART NO.
181879	1/2 AMP SL-BL	117176
182657	3/10 AMP SL-BL	162360

WIRING CONTROL RECORD SHEET NO. 7881 WD-87

SHEET B7

MODEL 33
RECEIVE ONLY SETS
FOR TWX

APPROVALS
D AND R: *oal* E OF M: *U*

E-NUMBER
PROD. NO. 7881 WD-87

DATE 10-26-65
P.D. FILE NO. G-A152AA
DRAWN T.L.S. CHKD.
ENGD. G.E.W. APPD. *oal*

TELETYPE CORPORATION

7881 WD

ISSUE CONTROL RECORD

7882 WD

NO. NOTES

SUPPORTING INFORMATION

CONTENTS

SHEET NO. ISSUE

REVISIONS APPLYING TO THIS CONTROL RECORD

1. THE 186556 ELAPSED TIMER ASSEMBLY IS USED ON UP 847 AND UP 855.

CATEGORY NO.

FS-1 TEST
FS-2 BREAK RELEASE
FS-3 RESTRAIN
FS-4 CLEAR
FS-5 ANSWER
FS-6 ORIGINATE

B1

ISSUE	DATE	AUTH. NO.
1	2-22-66	17476-R
2	3-29-66	90790
3	6-7-66	89162
4	6-10-66	89476-1
5	11-4-66	91413
6	4-20-67	93285
7	9-21-67	94559-D
8	12-11-67	94521-D
9	5-8-68	95523-4
10	6-10-68	95947
11	12-16-68	96463
12	1-24-69	96776
13	2-18-69	96829
14	5-19-69	99164
15	9-19-69	99187
16	2-11-70	99187-2
17	5-7-70	8

2. THE UCC32 CALL CONTROL UNIT DOES NOT INCLUDE THE 181265 ELAPSED TIMER ASSEMBLY.

TECHNICAL MANUAL 32 AND 33 TELETYPEWRITER SETS

FS-7 ROTARY DIAL AND PULSING CARD DIALER
FS-8 AMPLIFIER

B2

DATA SET 101C

FS-9 TOUCH TONE DIALER AND AMPLIFIER CIRCUIT

B3

DATA SET 105A

FS-10 SIGNAL GENERATORS AND SELECTOR MAGNET DRIVER

B4

DIALER (CONTINUED-BELOW) 8G

FS-11 LOCAL, READER CONTROL, MOTOR CONTROL, AND ANSWER BACK CIRCUITS

B5

DIALER (CONTINUED-BELOW) 25F1

FS-12 EOT DISCONNECT

B6

DIALER (CONTINUED-BELOW) 26C

FS-13 OUT OF SERVICE
FS-14 RINGER CIRCUIT AND OFF HOOK CIRCUIT

B7

DIALER (CONTINUED-BELOW) 41A

FS-17 PRINT-NONPRINT OPTION
FS-15 PAPER ALARM

B8

DATA SYSTEMS ATTENDANT CIRCUIT SD-3D009-01

FS-16 POWER CIRCUITS

B9

RELATED ACTUAL WIRING DIAGRAMS AND DRAWINGS:

SC-1 AUTOMATIC ANSWER BACK
SC-2 HERE IS OR WRU ANSWER BACK
SC-3 MOTOR CONTROL
SC-4 AUTOMATIC READER CONTROL (ASR ONLY)

E1

(182695 SELECTOR MAGNET DRIVER) 4970WD

(UK800, -804 KEYBOARD) 7885WD

(181870 AND 182241 MOTORS) 7886WD

(UX800, -801 READER) 7887WD

(UCC3 CALL CONTROL UNIT) 7888WD

CIRCUIT CARD ASSEMBLY (SELECTOR MAGNET DRIVER) 182630

CIRCUIT CARD ASSEMBLY (AMPLIFIER) 182750

CIRCUIT CARD ASSEMBLY (AUTOMATIC READER POWER PACK) 183079

CIRCUIT CARD ASSEMBLY (MANUAL READER POWER PACK) 183087

UK811 KEYBOARD, NUMERIC (ACTUAL WD) 7111WD

UK811 KEYBOARD, NUMERIC (SCHEMATIC WD) 7112WD

(UP 800, 801, 802, 803, 831, 832, 833, 834 PRINTER) 7884 WD

DIALER (CONTINUED) 35NIA

DIALER (CONTINUED) 36J

ISSUE CONTROL SHEET 1 OF 1

DETACHED SCHEMATIC WIRING DIAGRAM FOR
33A1 THROUGH A5
33D1 THROUGH D5
33A-X3/1 THROUGH /5
33D-X3/1 THROUGH /5
33S-1 THROUGH /5
33W-1 THROUGH /5
TELETYPEWRITER SETS (KSR)
33C1 THROUGH C5
33C-X3/1 THROUGH /5
33F1 THROUGH /5
33F-X3/1 THROUGH /5
33G1 THROUGH G5
33TAE1 THROUGH TAE5
33TR, 33TR2
33TW-1 THROUGH-5
33TBD 1 THROUGH-5
33Y 1 THROUGH-5
33U 1 THROUGH-5
33TCV
33TCW
TELETYPEWRITER SETS (ASR)

WD NUMBER 7882WD
DRAWN M.A.E. CHKD. JSE
ENGD. G.E.W. APPD.

TELETYPE CORPORATION

7882 WD

SEE SHEET B1 FOR NOTES

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

7882 WD

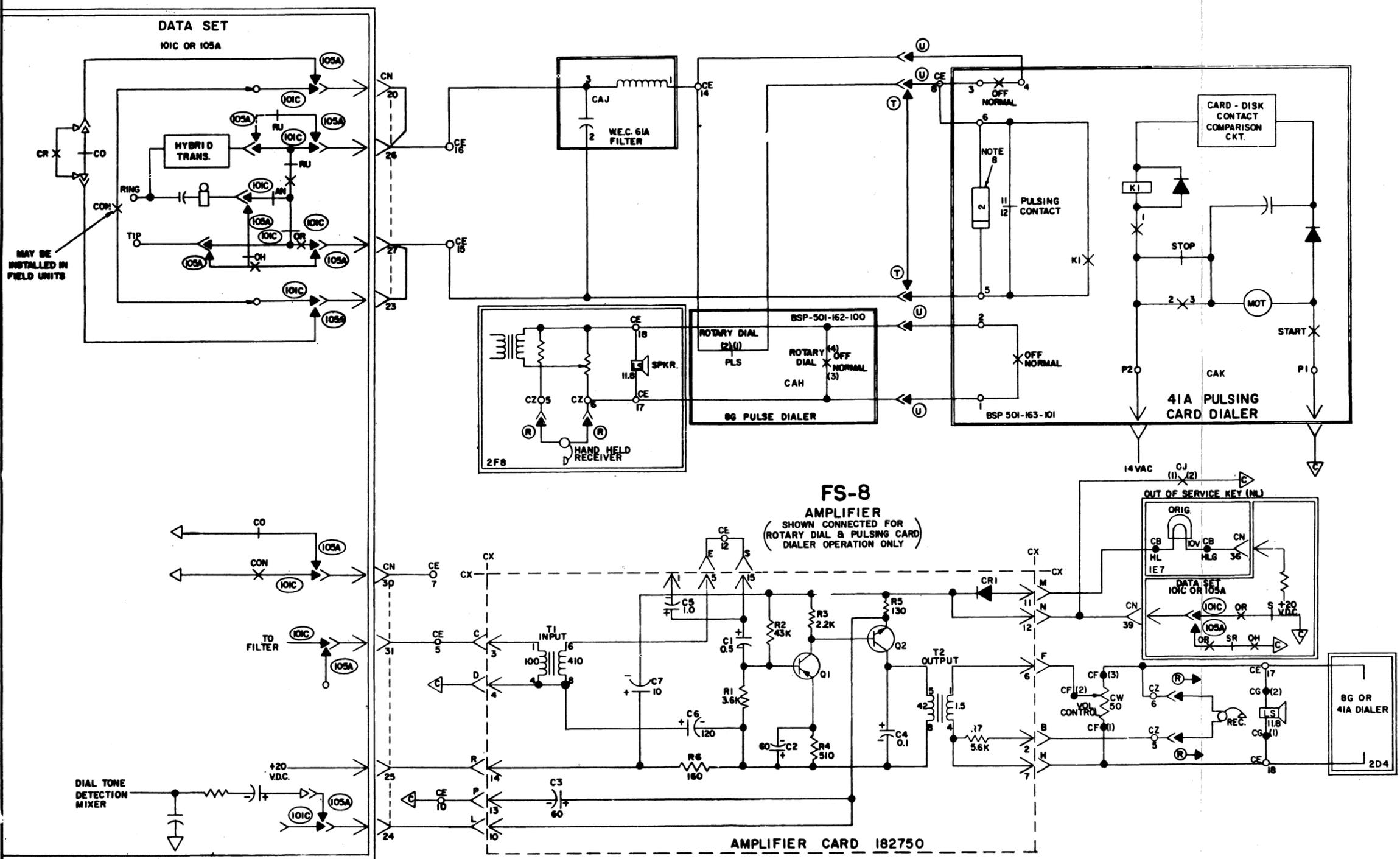
REVISIONS

ISSUE	DATE	AUTH. NO.
-1	2-22-66	17476-R
-2	12-16-68	96463
3	5-7-70	8

FS-7

ROTARY DIAL & PULSING CARD DIALER

Ⓣ SHOWS CONNECTIONS WITH ROTARY DIAL ONLY.
Ⓤ SHOWS CONNECTIONS WITH ROTARY DIAL AND PULSING
CARD DIALER.



SEE ISSUE CONTROL RECORD FOR COM-
PLETE LIST OF SHEETS COMPRISING THIS
W.D. SHEET B2

MODEL 33
AUTOMATIC SEND-RECEIVE AND
KEYBOARD SEND-RECEIVE SETS
FOR TWX

APPROVALS

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

E-NUMBER

PROD. NO. 7882 WD-B2

DATE 10-27-65

P.D. FILE NO. G-A152AA

DRAWN J.A.P. CHKD *[Signature]*

ENGD. G.E.W. APPD. *[Signature]*

TELETYPE CORPORATION

7882 WD

SEE SHEET B1 FOR NOTES

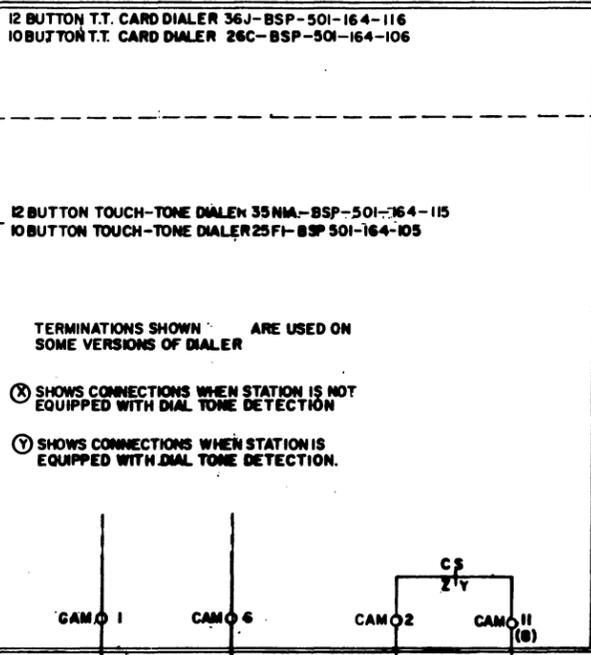
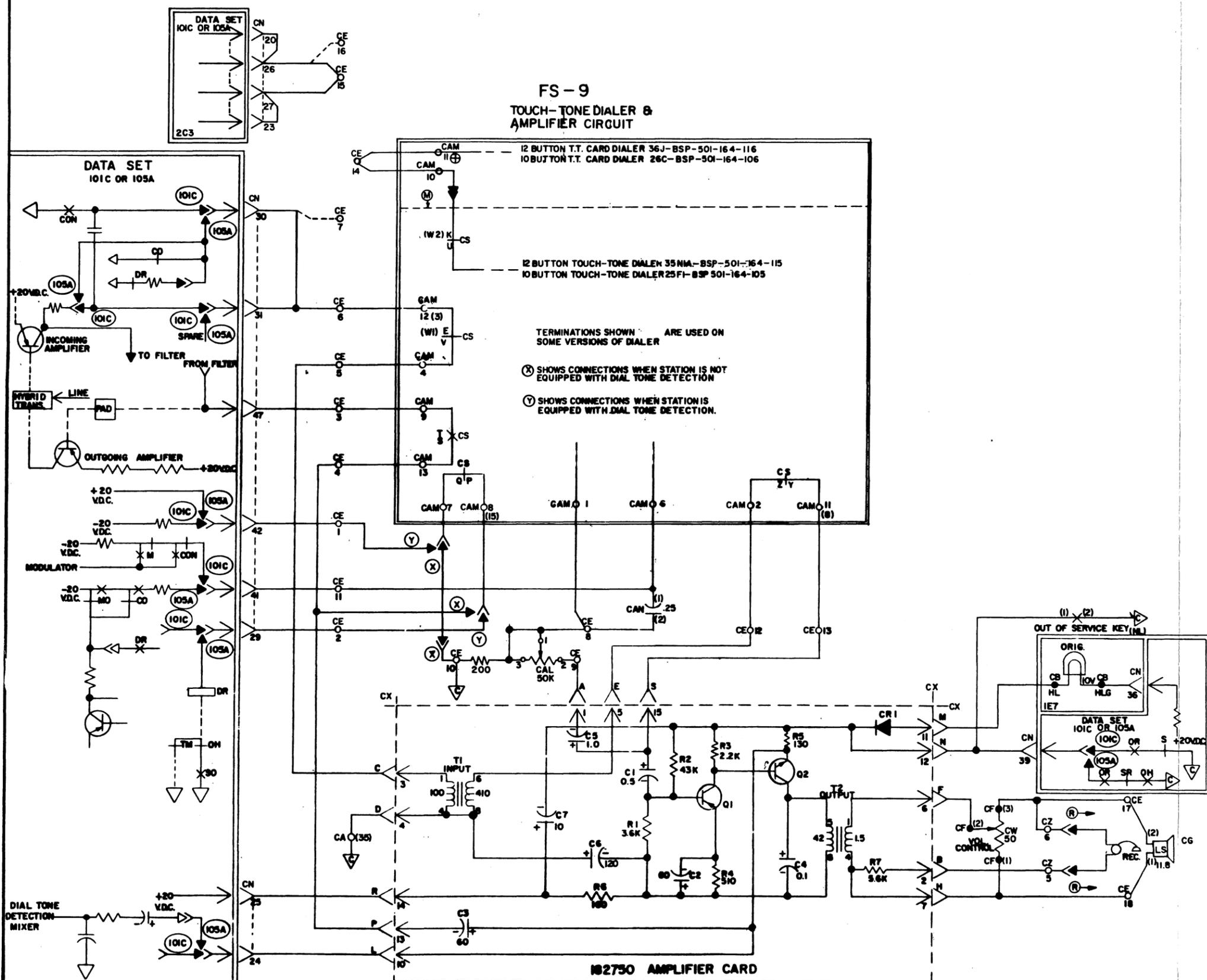
NOTE:
REVISION INFORMATION MUST ALSO BE
REFLECTED ON THE ISSUE CONTROL REC-
ORD, WHICH IS A PART OF THIS DRAWING.

7882 WD

REVISIONS

ISSUE	DATE	AUTH. NO.
1	2-22-66	17476-R
2	5-19-69	99164
3	5-7-70	8

FS-9
TOUCH-TONE DIALER &
AMPLIFIER CIRCUIT



TERMINATIONS SHOWN ARE USED ON
SOME VERSIONS OF DIALER

(X) SHOWS CONNECTIONS WHEN STATION IS NOT
EQUIPPED WITH DIAL TONE DETECTION

(Y) SHOWS CONNECTIONS WHEN STATION IS
EQUIPPED WITH DIAL TONE DETECTION.

SEE ISSUE CONTROL RECORD FOR COM-
PLETE LIST OF SHEETS COMPRISING THIS
W.D.

SHEET B3

MODEL 33
AUTOMATIC SEND-RECEIVE AND
KEYBOARD SEND-RECEIVE SETS
FOR TWX

APPROVALS

D AND R E OF M
[Signatures]

E-NUMBER
PROD. NO. 7882 WD-B3
DATE 10-27-65
P.D. FILE NO. G-A152AA
DRAWN J.A.P. CHD. *[Signature]*
ENGR. G.E.W. APPR. *[Signature]*

TELETYPE
CORPORATION

7882 WD

SEE SHEET B1 FOR NOTES

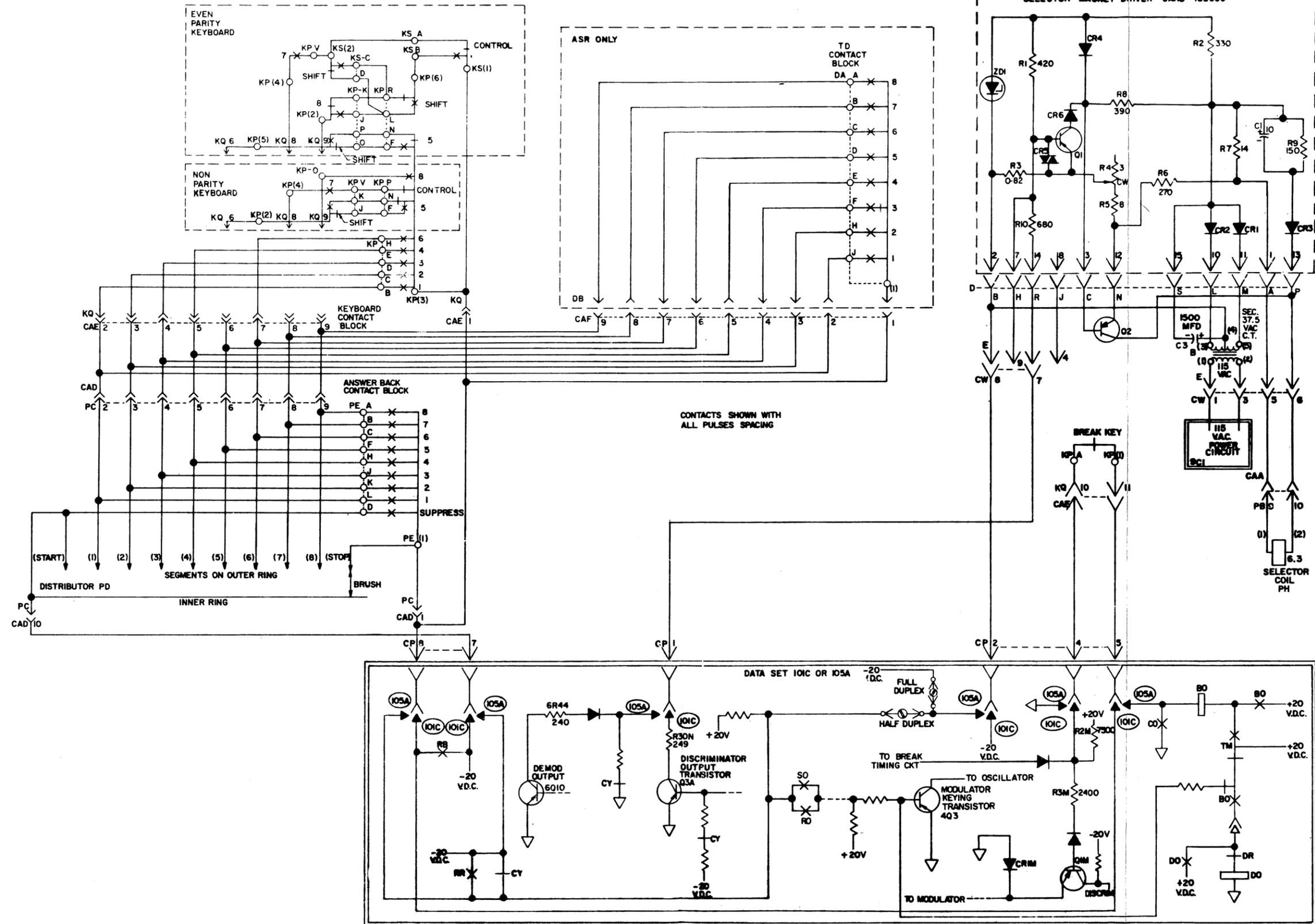
FS-10 SIGNAL GENERATORS AND SELECTOR MAGNET DRIVER

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

7882 WD

REVISIONS

ISSUE	DATE	AUTH. NO
1	2-22-66	17476-R
2	5-7-68	95523-4



CONTACTS SHOWN WITH
ALL PULSES SPACING

SEE ISSUE CONTROL RECORD FOR COMPLETE LIST OF SHEETS COMPRISING THIS W.D. SHEET B4

MODEL 33
AUTOMATIC SEND-RECEIVE AND
KEYBOARD SEND-RECEIVE SETS
FOR TWX

APPROVALS

D AND R E OF M

E-NUMBER
PROD. NO. 7882 WD-B4

DATE 10-12-65

P.D. FILE NO. G-A152AA

DRAWN R.H.B. CHKD J.J.L

ENGD. G.E.W. APPD. [Signature]

TELETYPE CORPORATION

7882 WD

SEE SHEET B1 FOR NOTES.

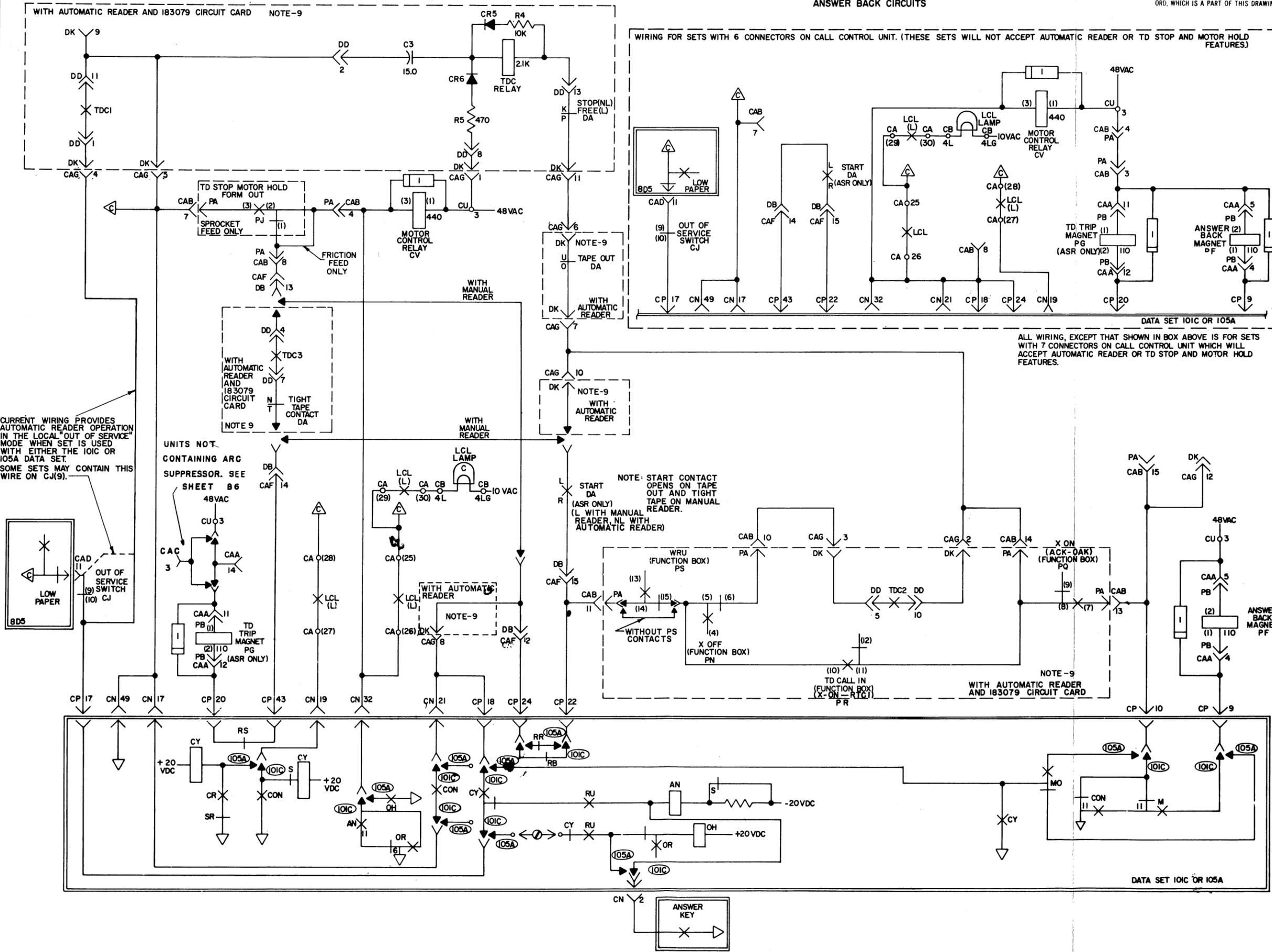
FS-II LOCAL, READER CONTROL, MOTOR CONTROL, AND ANSWER BACK CIRCUITS

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

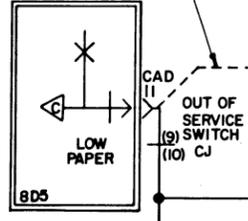
7882 WD

REVISIONS

ISSUE	DATE	AUTH. NO.
1	2-22-66	17476-R
2	6-10-66	89476-1
3	11-4-66	91413
4	12-8-67	94521-D
5	2-18-69	96829



CURRENT WIRING PROVIDES AUTOMATIC READER OPERATION IN THE LOCAL "OUT OF SERVICE" MODE WHEN SET IS USED WITH EITHER THE IOIC OR IO5A DATA SET. SOME SETS MAY CONTAIN THIS WIRE ON CJ(9).



UNITS NOT CONTAINING ARC SUPPRESSOR. SEE SHEET B6

NOTE: START CONTACT OPENS ON TAPE OUT AND TIGHT TAPE ON MANUAL READER.
(L WITH MANUAL READER, NL WITH AUTOMATIC READER)

ALL WIRING, EXCEPT THAT SHOWN IN BOX ABOVE IS FOR SETS WITH 7 CONNECTORS ON CALL CONTROL UNIT WHICH WILL ACCEPT AUTOMATIC READER OR TD STOP AND MOTOR HOLD FEATURES.

SEE ISSUE CONTROL RECORD FOR COMPLETE LIST OF SHEETS COMPRISING THIS W.D. SHEET B5

MODEL 33
AUTOMATIC SEND-RECEIVE AND
KEYBOARD SEND-RECEIVE SETS
FOR TWX

APPROVALS

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

E-NUMBER

PROD. NO. 7882WD-B5

DATE 10-6-65

P.D. FILE NO. G-A152AA

DRAWN JAP CHKD. *[Signature]*

ENGD. GEW APPD. *[Signature]*

TELETYPE CORPORATION

7882 WD

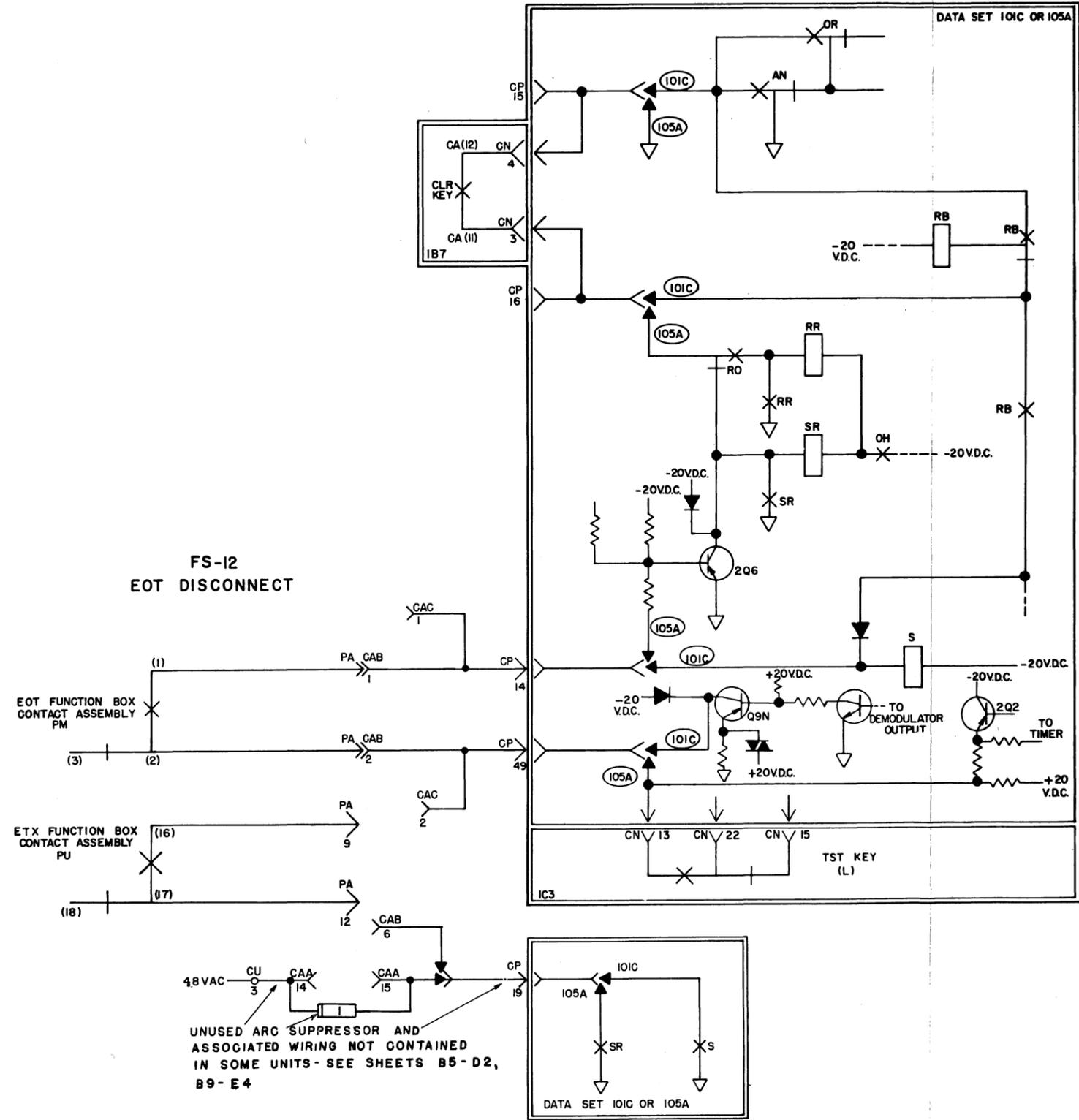
SEE SHEET B1 FOR NOTES

7882 WD

REVISIONS

ISSUE	DATE	AUTH. NO.
1	2-22-66	17476-R
2	11-4-66	91413
3	6-10-68	95947
4	1-27-69	96776

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



FS-12
EOT DISCONNECT

SEE ISSUE CONTROL RECORD FOR COMPLETE LIST OF SHEETS COMPRISING THIS W.D.
SHEET B6

MODEL 33
AUTOMATIC SEND-RECEIVE AND
KEYBOARD SEND-RECEIVE SETS
FOR TWX

APPROVALS

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

E-NUMBER

PROD. NO. 7882 WD-B6

DATE 10-5-65

P.D. FILE NO. G-A152AA

DRAWN R.H.B.

CHKD. *[Signature]*

ENGD. GEW.

APPD. *[Signature]*

TELETYPE
CORPORATION

7882 WD

SEE SHEET B1 FOR NOTES

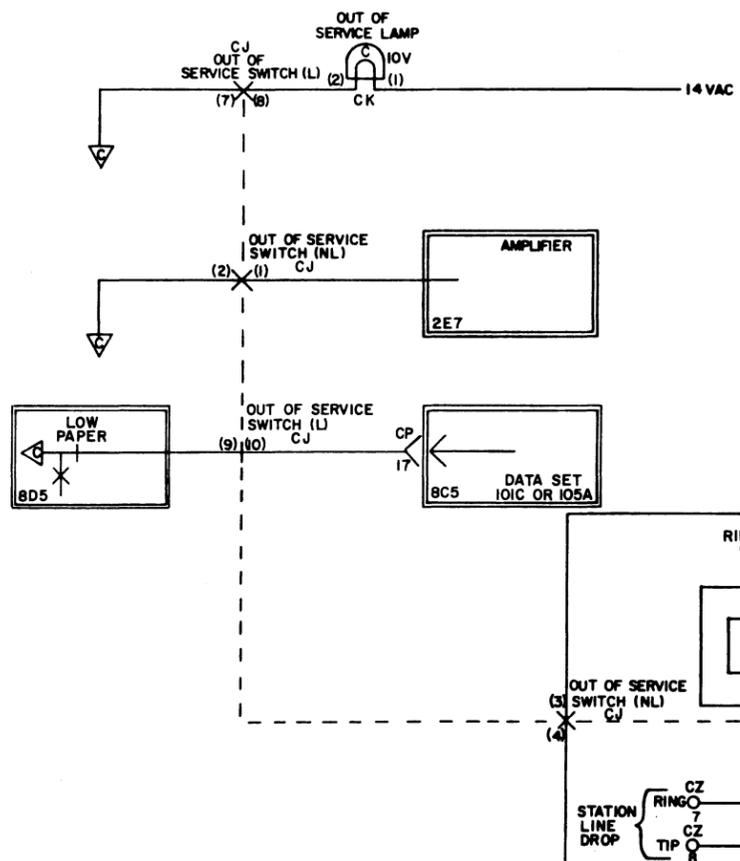
7882 WD

REVISIONS

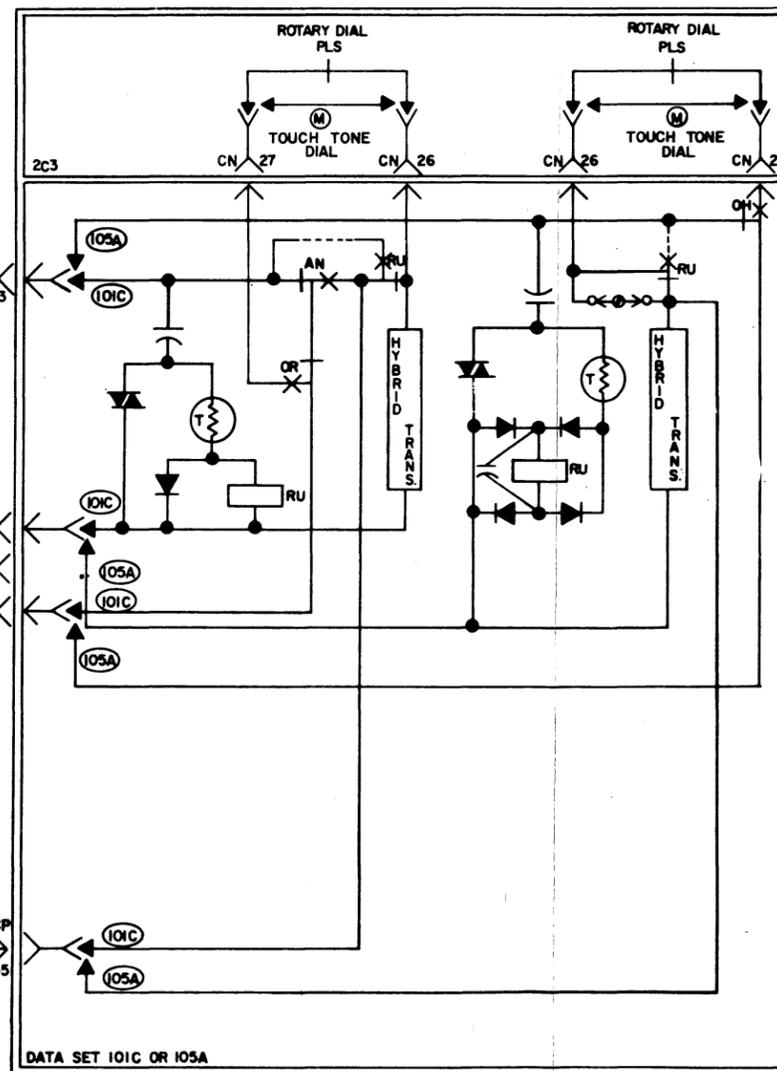
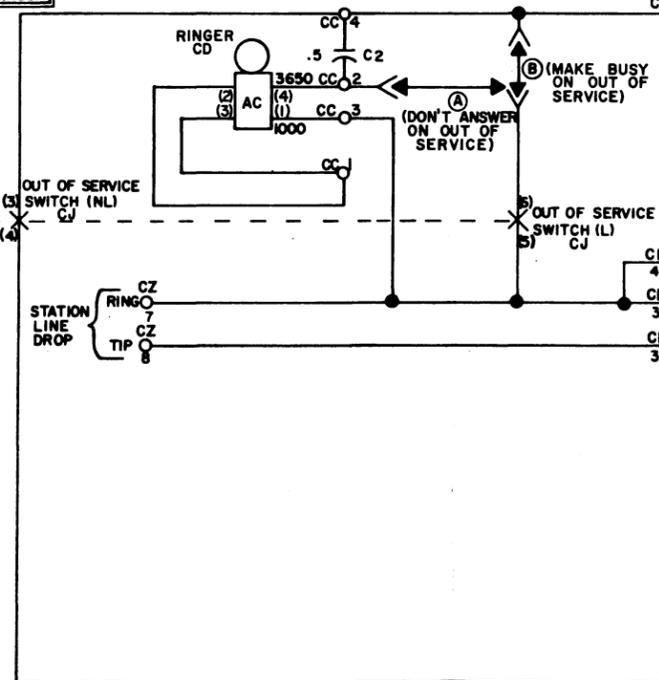
ISSUE	DATE	AUTH. NO.
1	2-22-66	17476-R

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

FS -13
OUT OF SERVICE



FS-14
RINGER CIRCUIT
& OFF HOOK CIRCUIT



OUT OF SERVICE IS A THREE POSITION TWIST UNIT.
NORMAL - AS SHOWN
LOCKING - CCW TWIST FROM NORMAL
NON-LOCKING - CW TWIST FROM NORMAL.

SEE ISSUE CONTROL RECORD FOR COMPLETE LIST OF SHEETS COMPRISING THIS W.D. SHEET B7

MODEL 33
AUTOMATIC SEND-RECEIVE AND
KEYBOARD SEND-RECEIVE SETS
FOR TWX

APPROVALS

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

E-NUMBER
PROD. NO. 7882WD-B7

DATE 10-26-65
P.D. FILE NO. G-A152AA

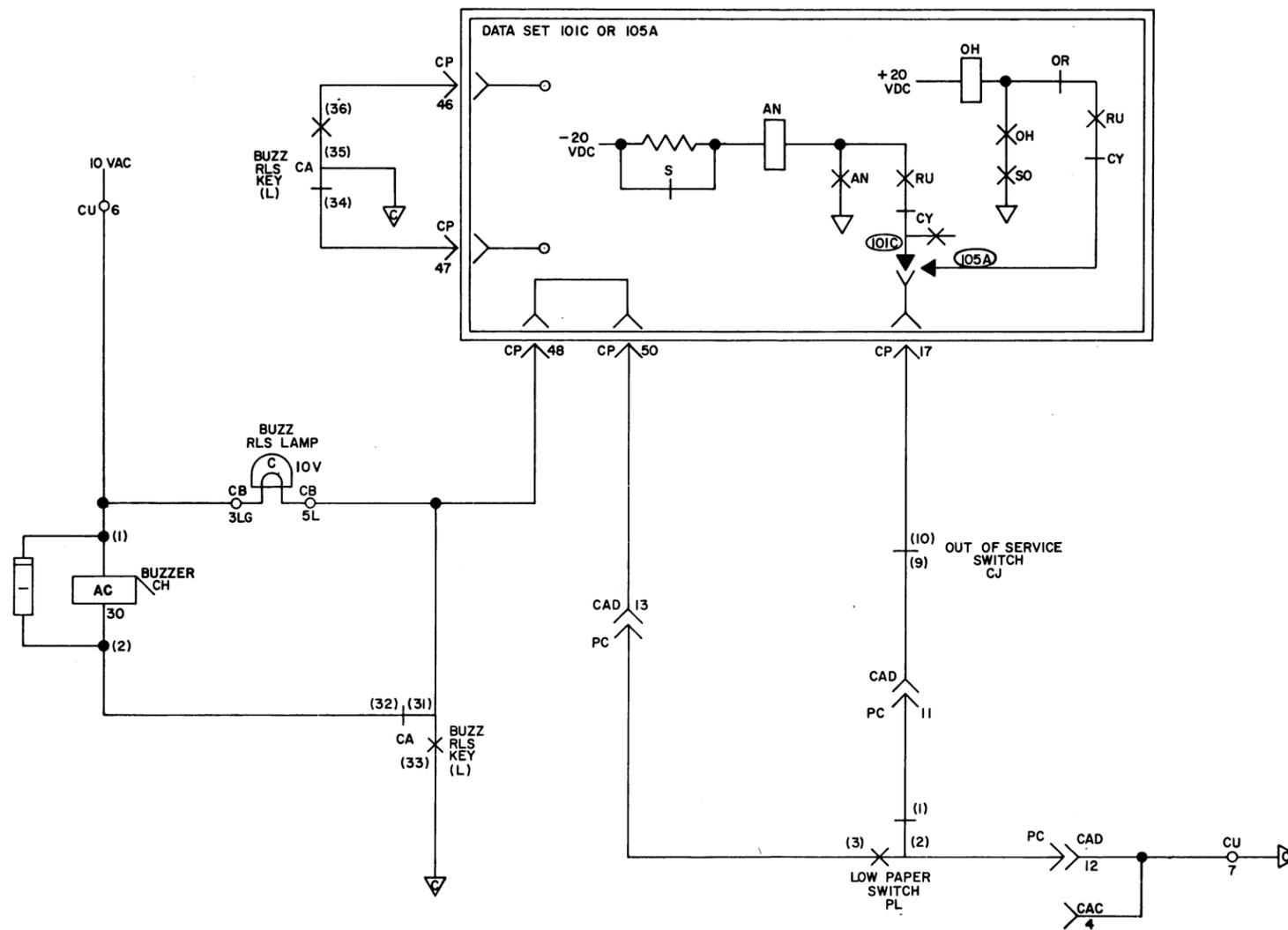
DRAWN R.H.B. CHKD. [Signature]
ENGD. G.E.W. APPD.

TELETYPE CORPORATION

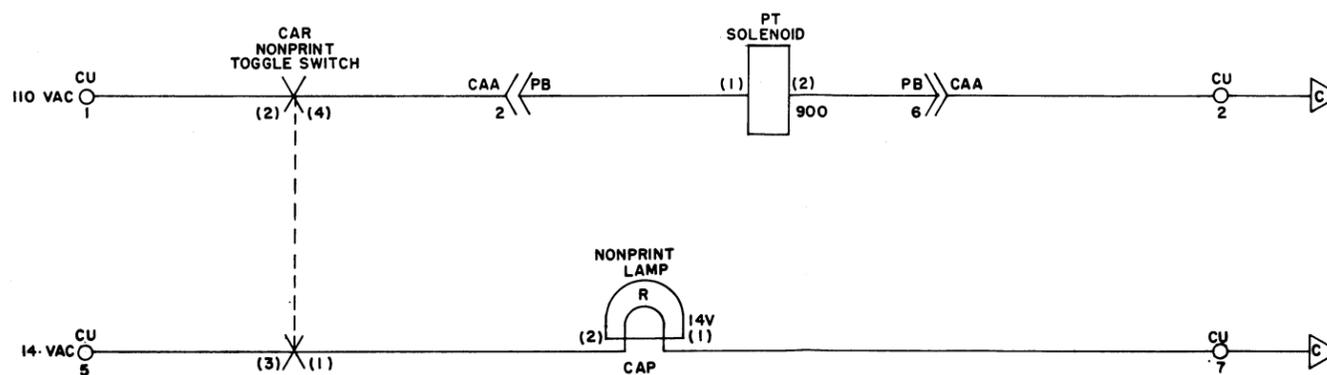
7882 WD

SEE SHEET B1 FOR NOTES

FS-15 PAPER ALARM



FS-17 PRINT-NONPRINT OPTION (PRINT IN OFF CONDITION)



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

7882 WD		
REVISIONS		
ISSUE	DATE	AUTH. NO.
1	2-22-66	17476-R
2	6-7-66	89162

SEE ISSUE CONTROL RECORD FOR COMPLETE LIST OF SHEETS COMPRISING THIS W.D. SHEET B8

MODEL 33
AUTOMATIC SEND-RECEIVE AND
KEYBOARD SEND-RECEIVE SETS
FOR TWX

APPROVALS	
D AND R <i>R.M.H.</i>	E OF M <i>W</i>
E-NUMBER	
PROD. NO. 7882 WD-B8	
DATE 10-28-65	
P.D. FILE NO. G-A152AA	
DRAWN R.S.S.	CHKD. <i>J.E.</i>
ENGD. G.E.W.	APPD.
TELETYPE CORPORATION	

7882 WD

SEE SHEET B1 FOR NOTES

FS-16 POWER CIRCUITS

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

7882 WD

REVISIONS

ISSUE	DATE	AUTH. NO.
1	2-22-66	17476-R
2	3-29-66	90790
3	11-4-66	91413
4	12-16-68	95993-2
5	1-27-69	96776
6	9-19-69	99187
7	2-10-70	99187-2

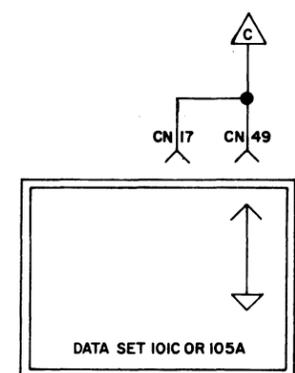
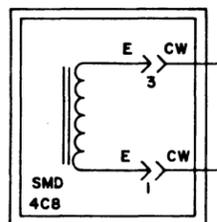
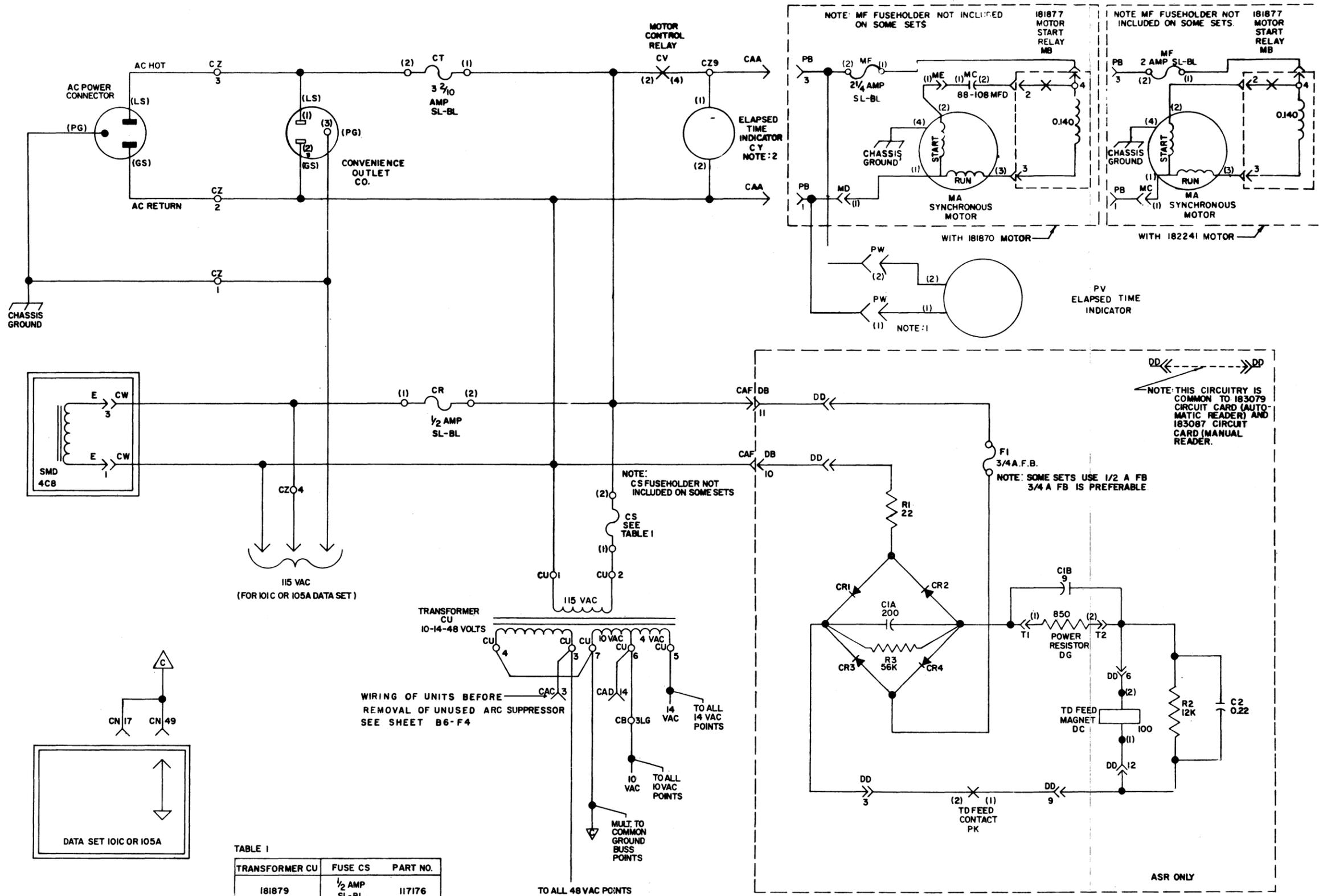
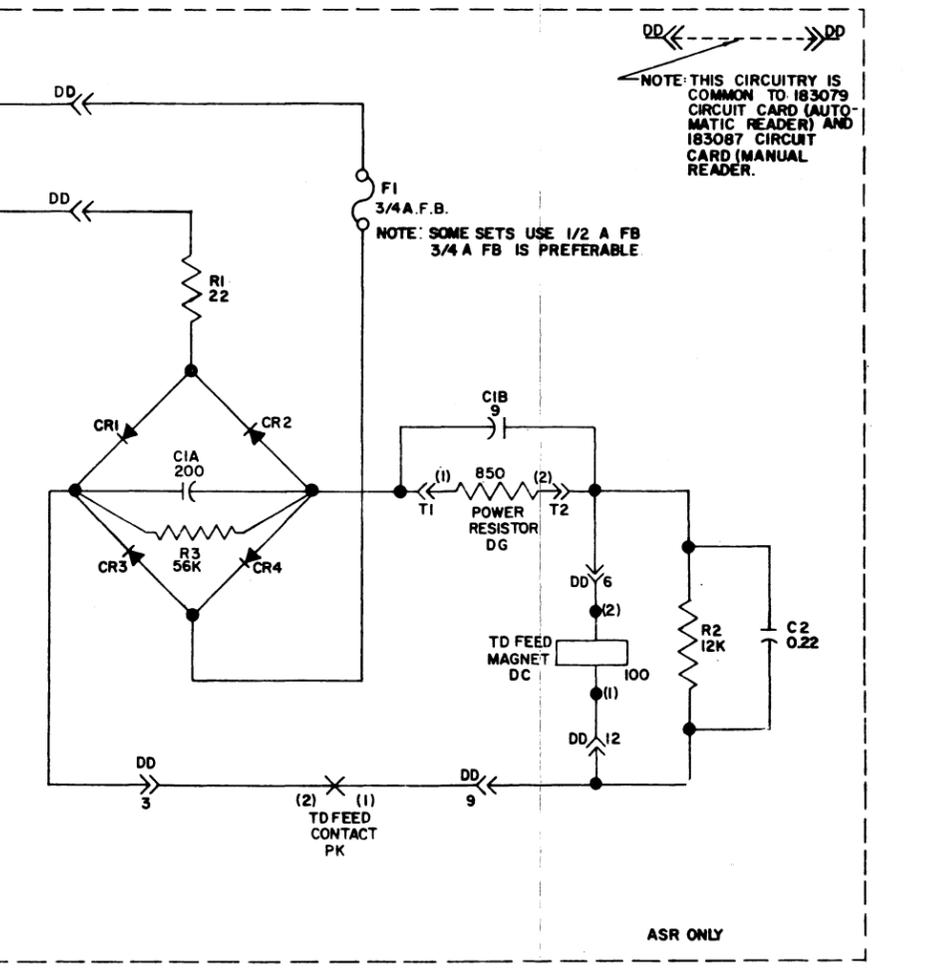
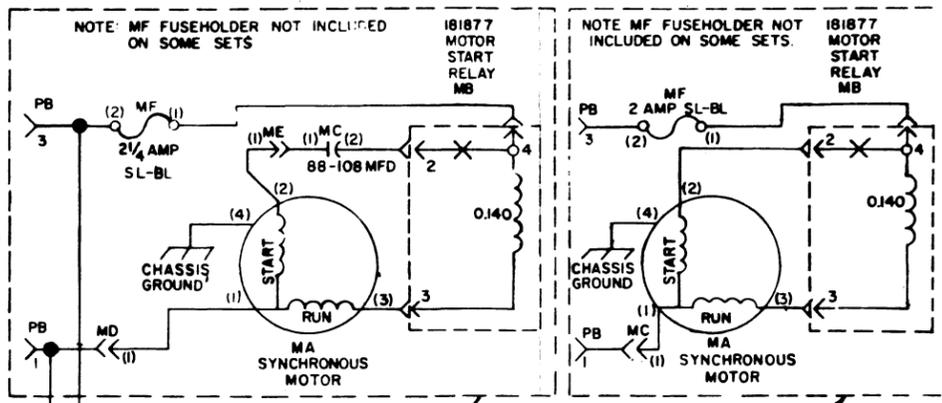


TABLE I

TRANSFORMER CU	FUSE CS	PART NO.
181879	1/2 AMP SL-BL	117176
182657	3/10 AMP SL-BL	162360

WIRING OF UNITS BEFORE REMOVAL OF UNUSED ARC SUPPRESSOR SEE SHEET B6-F4

TO ALL 48 VAC POINTS



NOTE: THIS CIRCUITRY IS COMMON TO 183079 CIRCUIT CARD (AUTOMATIC READER) AND 183087 CIRCUIT CARD (MANUAL READER).

NOTE: SOME SETS USE 1/2 A FB 3/4 A FB IS PREFERABLE

ASR ONLY

SEE ISSUE CONTROL RECORD FOR COMPLETE LIST OF SHEETS COMPRISING THIS W.D. SHEET B9

MODEL 33
AUTOMATIC SEND-RECEIVE AND
KEYBOARD SEND-RECEIVE SETS
FOR TWX

APPROVALS
D AND R E OF M
L7

E-NUMBER
PROD. NO. 7882 WD-B9
DATE 10-28-65
P.D. FILE NO. G-A152AA
DRAWN T.L.S. CHKD.
ENGD. G.E.W. APPD.

TELETYPE CORPORATION
7882 WD

WIRING DIAGRAM PACKAGE FOR THE 186627 SET LOGIC ASSEMBLY

WDPO238

DRAWING NO.	SHEET NO.	DESCRIPTION	ISSUE NUMBER																														
			1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	
1051SD	ALL	186627 SET LOGIC ASSEMBLY (SCHEMATIC DIAGRAM)	1	2	2	2	2	2	2	3																							
186627	-	SET LOGIC ASSEMBLY	1	1	2	3	4	4	4	4																							
186637	-	CIRCUIT CARD ASSEMBLY	1	1	1	1	1	1	2	2																							
303826	-	CIRCUIT CARD ASSEMBLY	1	1	2	3	4	5	6	7																							
1051CD	ALL	186627 SET LOGIC ASSEMBLY (CIRCUIT DESCRIPTION)	1	1	1	1	1	1	1	1																							

SHEET INDEX

CONTENTS	SHEET NO.	ISSUE NO.																												SHEET NO.
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	
SHEET INDEX SUPPORTING INFORMATION	A1	1	2	3																										A1
FS-1 SIGNAL LINE CIRCUITRY	B1	1	1	1																										B1
FS-2 CONTROL CIRCUITRY ON-DATA SET READY-OFF	B2	1	2	3																										B2
FS-3 CONTROL CIRCUITRY DATA TERMINAL READY-LOCAL	B3	1	1	3																										B3
FS-4 BREAK DETECTOR CIRCUITRY	B4	1	1	1																										B4
FS-5 DISTRIBUTOR CIRCUITRY	B4	1	1	1																										B4
FS-6 POWER SUPPLY DISTRIBUTION	B5	1	1	1																										B5
FS-7 TEST CIRCUITRY	B5	1	1	1																										B5
FS-8 ANSWER BACK CIRCUITRY	B5	1	1	1																										B5
APP. FIG. 1, 2, 3, 4	C1	1	1	1																										C1
APP. FIG. 5	C2	1	1	1																										C2
APP. FIG. 6, 7, 8, 9	C3	1	2	2																										C3
CIRCUIT NOTES EQUIPMENT NOTES INFORMATION NOTES	D1	1	1	1																										D1
SC1 ORIGINATING STATION	E1	1	1	1																										E1
SC2 ANSWERING STATION	E1	1	1	1																										E1
SC3 TERMINATE	E1	1	1	1																										E1
SC4 LOCAL	E2	1	1	1																										E2
SC5 OUT OF SERVICE	E2	1	1	1																										E2
SC6 BREAK DETECTION	E2	1	1	1																										E2

SUPPORTING INFORMATION

CATEGORY	NO.
WIRING DIAGRAM PACKAGE FOR THE 186627 SET LOGIC ASSEMBLY	WDP 0238
SCHEMATIC WIRING DIAGRAM FOR FOR MODEL 33 ASR & KSR SETS USING THE UCC29	8163 WD
BREAK DETECTION AND INDICATION MODIFICATION KIT	186630

SHEET INDEX NOTES

1. WHEN CHANGES ARE MADE IN THIS DRAWING ONLY THOSE SHEETS AFFECTED WILL BE REISSUED.
2. THIS SHEET INDEX WILL BE REISSUED AND UPDATED EACH TIME ANY SHEET OF THE DRAWING IS REISSUED OR A NEW SHEET IS ADDED.
3. THE LAST COMPLETED COLUMN INDICATES THE LATEST ISSUE NUMBER OF THE SHEET INDEX.
4. SHEETS THAT ARE NOT CHANGED WILL RETAIN THEIR EXISTING ISSUE NO.
5. ISSUE DATES WILL BE SHOWN ON THE SHEET INDEX ONLY.

REVISIONS		
ISSUE	DATE	AUTH. NO.
1	6-26-70	2063-R
2	9-22-70	912
3	4-26-71	2804

186627
SET LOGIC
ASSEMBLY

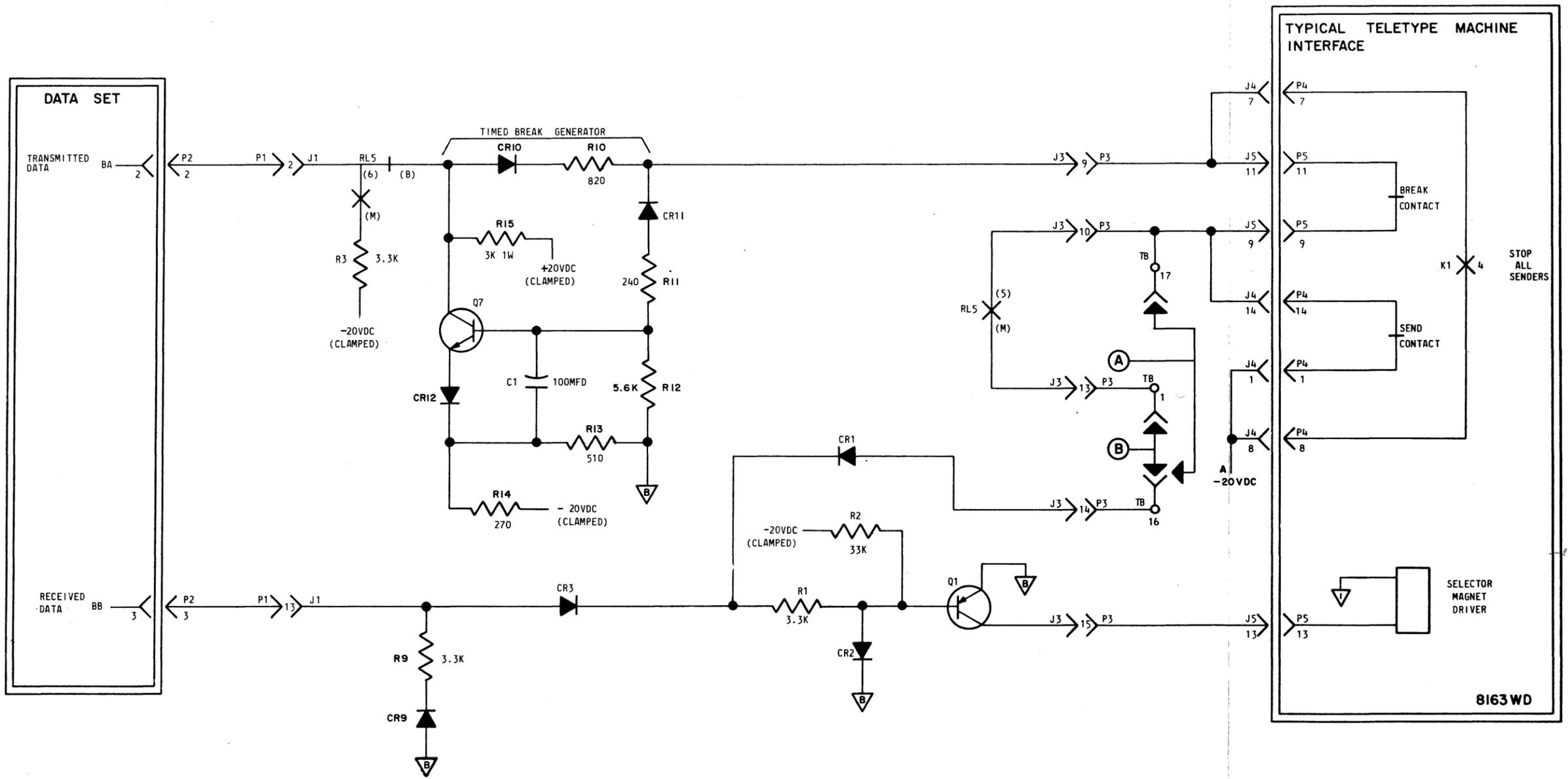
APPROVALS		
PROJ. SUPV.	PROJ. DIR.	MFG. REL. COMPL.
<i>TR</i>	<i>RRS</i>	
ENGR. A. S.	DSGNR. A. S.	
DRN. C. E. C. DATE 10-27-69		
R & D FILE 2-165.152AA		
S-NUMBER 61,773S		



1051 SD - A1

WIP

FS-1 SIGNAL LINE CIRCUITRY



SHEET NOTES:
I. CONNECTOR CROSS-REFERENCE

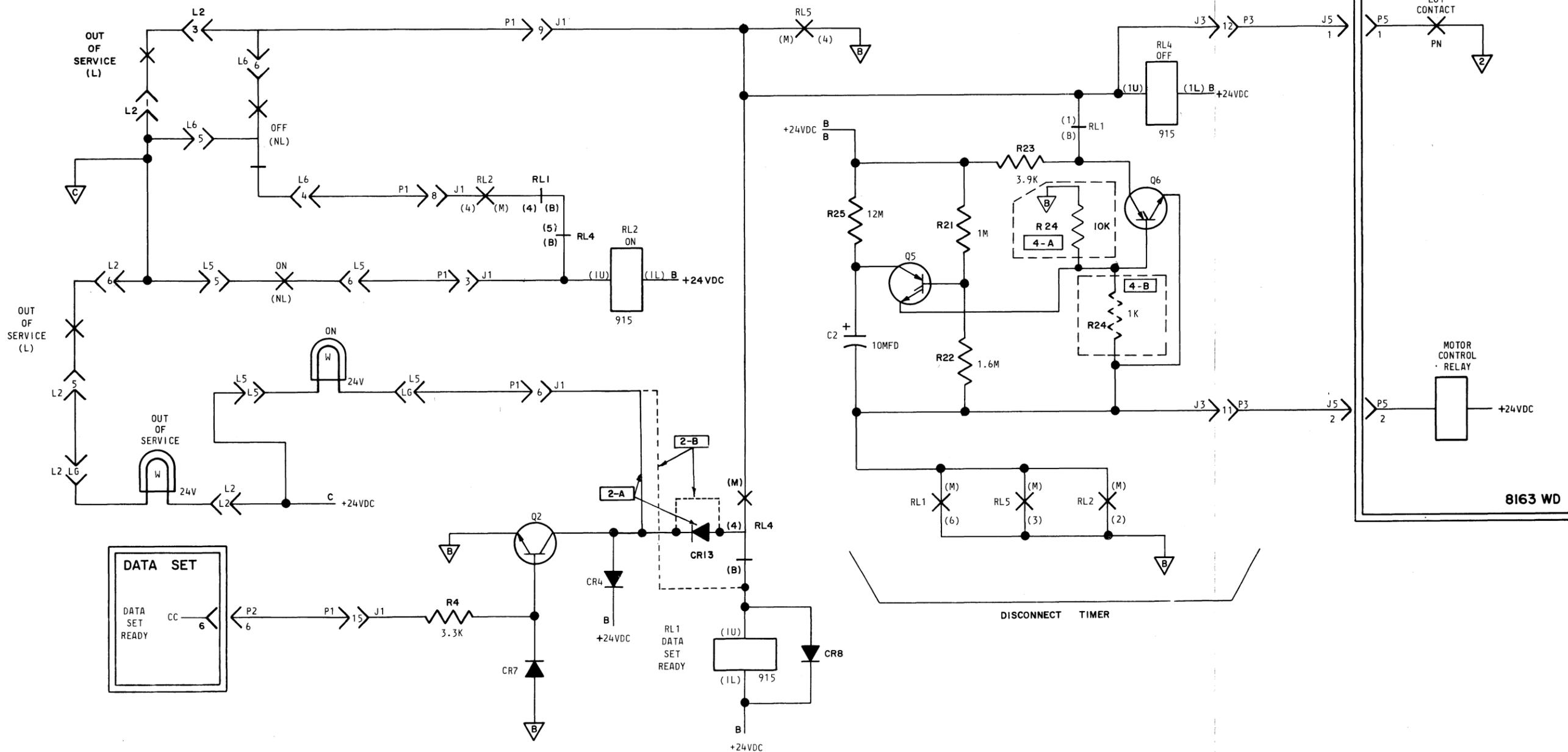
1051SD	8163WD
P4	CAJ
P5	CAH

186627 SET LOGIC ASSEMBLY	
	1051SD - B1

FS-2

CONTROL CIRCUITRY

ON - DATA SET READY - OFF



SHEET NOTES:

1. CONNECTOR CROSS-REFERENCE

IO51SD	8163WD
P4	CAJ
P5	CAH

2. TO PROVIDE DIRECT CONTROL OF THE "ON" LIGHT BY THE "CC" LEAD

3. WIRING STATUS:

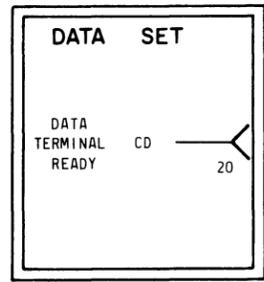
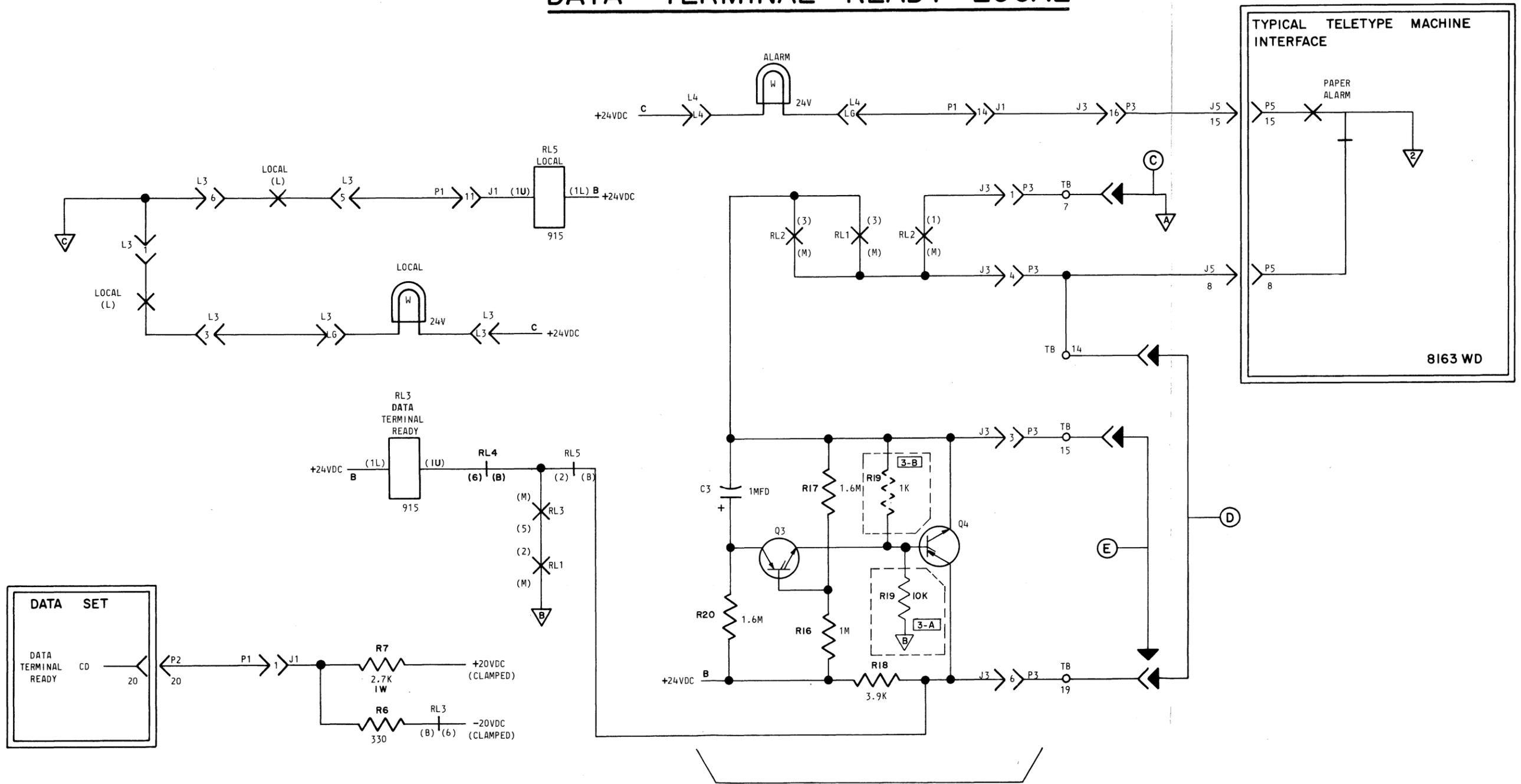
RECTANGULAR BOX INDICATES HISTORY OF WIRING CHANGES
 B - DENOTES WIRING BEFORE CHANGE

NOTE NUMBER
 A - DENOTES WIRING AFTER CHANGE

4. ON ISSUE 2, R24 WAS 1K OHMS AND NOT CONNECTED DIRECTLY TO GROUND.

186627 SET LOGIC ASSEMBLY	 1051 SD - B2
---------------------------------	-------------------------------------------------------------------------------------------------------

FS-3 CONTROL CIRCUITRY DATA TERMINAL READY-LOCAL



2. WIRING STATUS:
 RECTANGULAR BOX INDICATES HISTORY OF WIRING CHANGES

NOTE NUMBER B - DENOTES WIRING BEFORE THE CHANGE DESCRIBED BY THE DESIGNATED NOTE ENTERED THE PRODUCT.
 NOTE NUMBER A - DENOTES WIRING AFTER THE CHANGE DESCRIBED BY THE DESIGNATED NOTE ENTERED THE PRODUCT.

3. ON ISSUE 1, R19 WAS 1K OHMS AND NOT CONNECTED DIRECTLY TO GROUND.

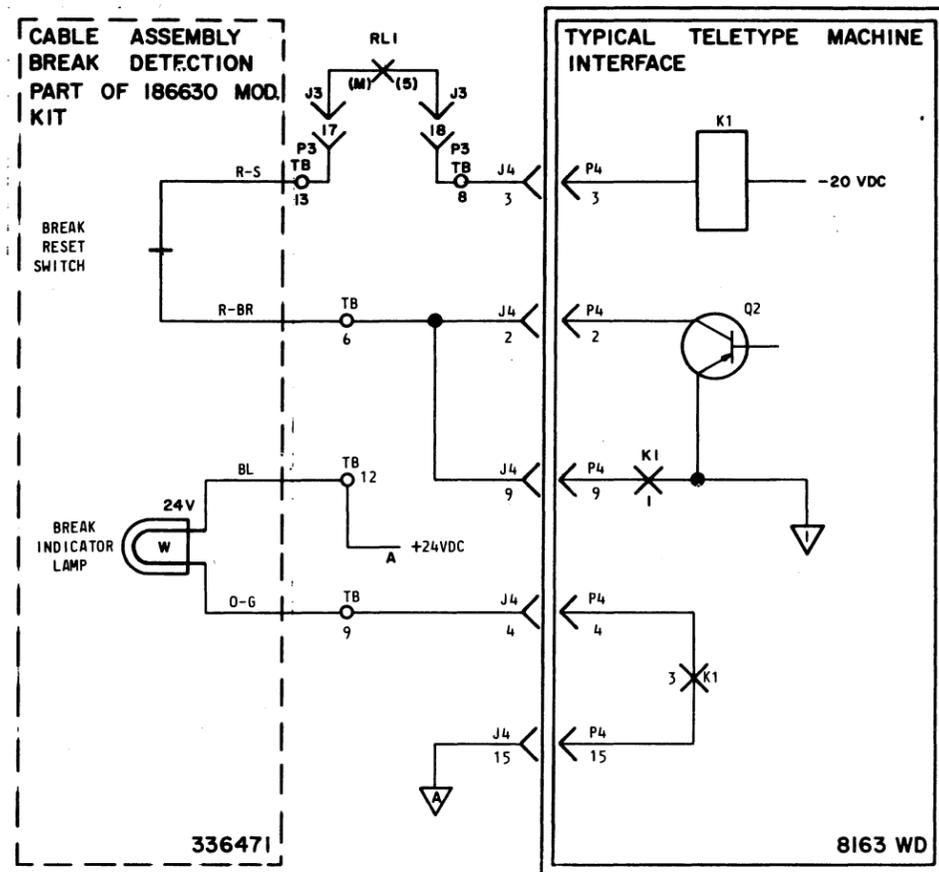
SHEET NOTES:

1. CONNECTOR CROSS-REFERENCE

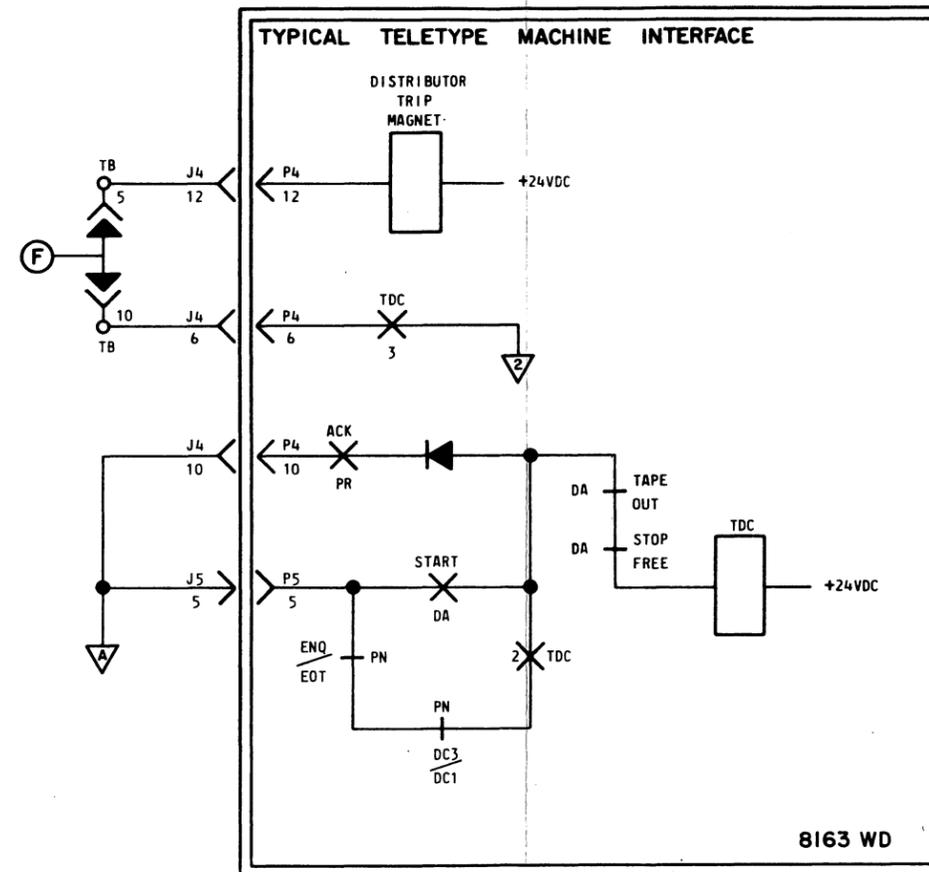
1051SD	8163WD
P4	CAJ
P5	CAH

186627 SET LOGIC ASSEMBLY	 1051 SD-B3
------------------------------------------	-----------------------

FS-4 BREAK DETECTOR CIRCUITRY



FS-5 DISTRIBUTOR CIRCUITRY



SHEET NOTES:
I. CONNECTOR CROSS-REFERENCE

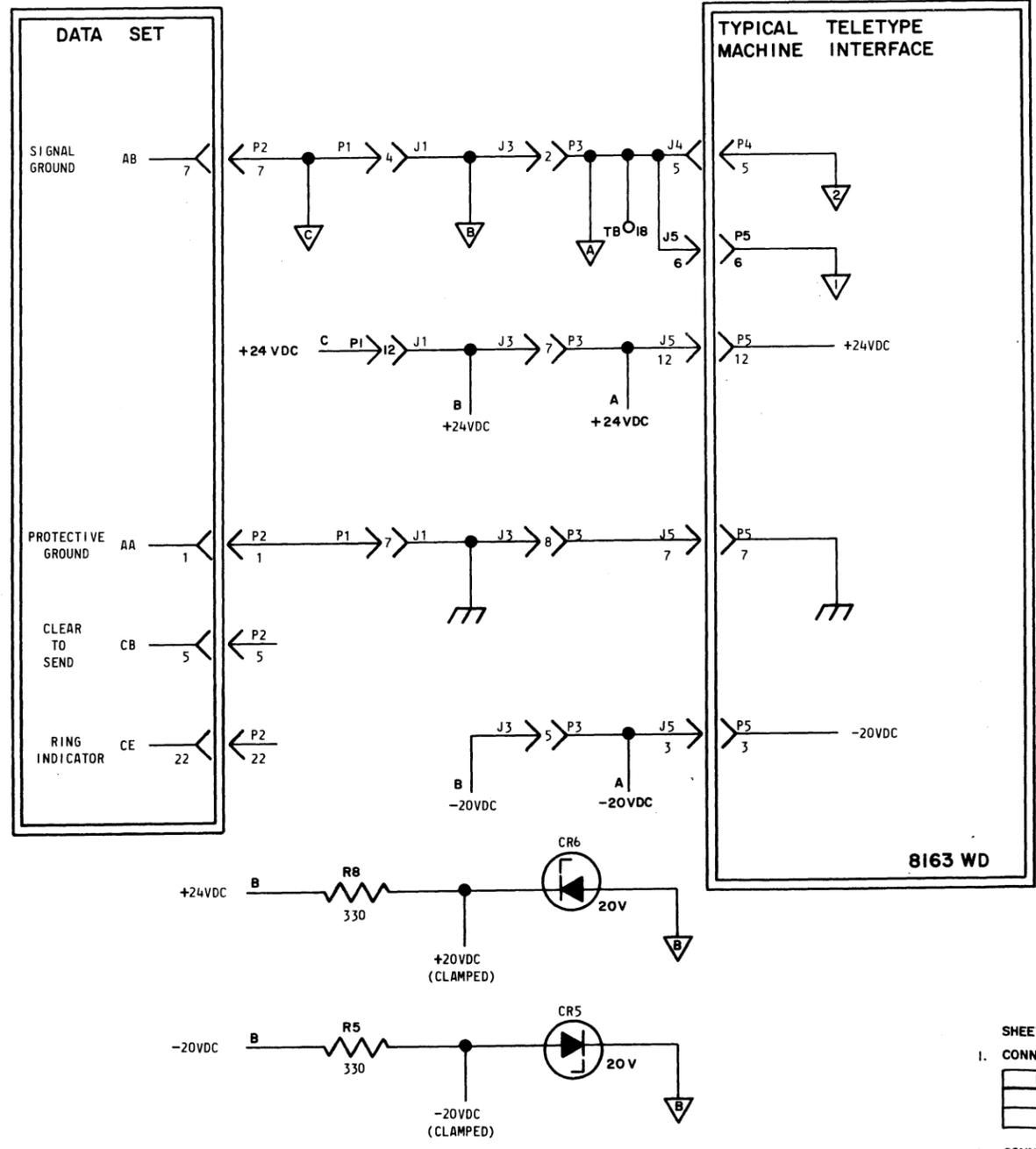
1051SD	8163WD
P4	CAJ
P5	CAH

186627
SET LOGIC
ASSEMBLY

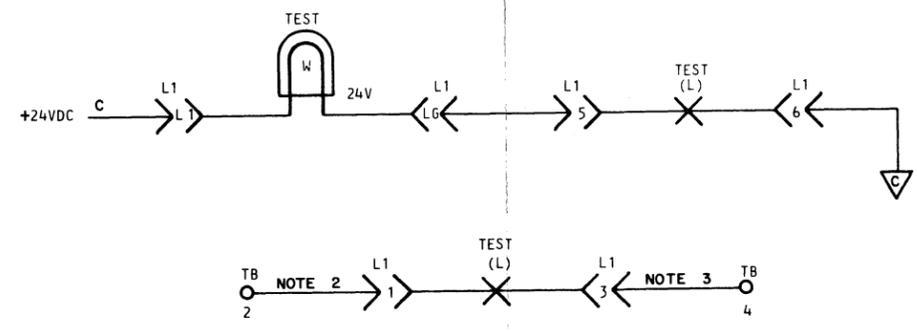
TELETYPE

1051 SD - B4

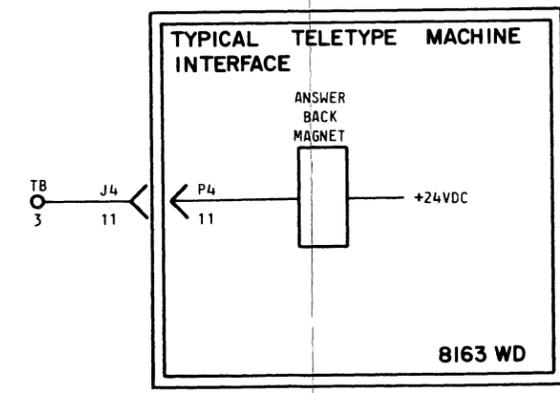
FS-6 POWER SUPPLY DISTRIBUTION



FS-7 TEST CIRCUITRY



FS-8 ANSWER BACK CIRCUITRY



- SHEET NOTES:
- CONNECTOR CROSS-REFERENCE
- | | |
|---------|---------|
| 1051 SD | 8163 WD |
| P4 | CAJ |
| P5 | CAH |
- CONNECT THE PURPLE WIRE OF THE 336601 CABLE ASSEMBLY TO TB 2.
 - CONNECT THE SLATE WIRE OF THE 336601 CABLE ASSEMBLY TO TB 4.

APP. FIG. 1

RELAY

DESIG	RL1		RL2		RL3		RL4		RL5		DESIG
CODE	336953		336953		336953		336953		336953		CODE
OPTION											OPTION
	CONT ARR	LOC									
6	EBM	2D5	EBM		EBM	3D3	EBM	3C3	EBM	1B3	6
5	EBM	4B2	EBM		EBM	3C3	EBM	2B3	EBM	1C5	5
4	EBM	2B3	EBM	2B3	EBM		EBM	2D4	EBM	2A4	4
3	EBM	3B5	EBM	3B4	EBM		EBM		EBM	2D5	3
2	EBM	3D3	EBM	2D5	EBM		EBM		EBM	3C3	2
1	EBM	2B5	EBM	3B5	EBM		EBM	4B2	EBM		1
COIL		2D4		2C3		3C3		2B6		3B3	COIL

APP. FIG. 2

CAPACITOR

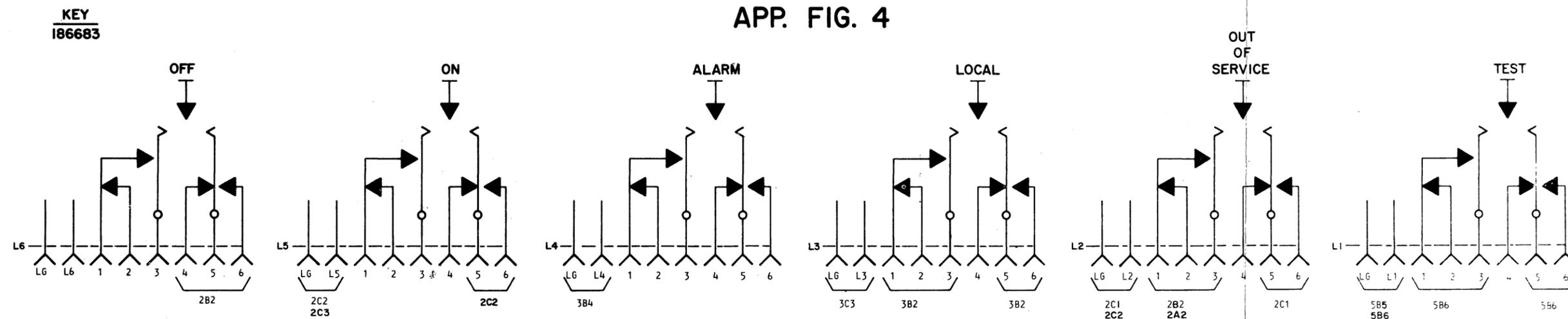
DESIG	LOC	CODE
C1	1C3	336946
C2	2C4	336947
C3	3C4	336948

APP. FIG. 3

CORD - OPTION

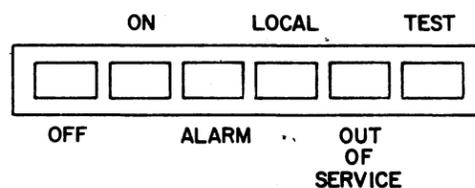
OPTION	LOC	CODE
B	1C5	156880
C	3B6	156880
F	4B5	156880

APP. FIG. 4



KEY
186683

KEYTOP
186683



LAMPS

DESIG	LOC	CODE	DESIG	LOC	CODE
OFF	—	—	LOCAL	3C3	327061
ON	2C2	327061	OUT OF SERVICE	2C2	327061
ALARM	3B4	327061	TEST	5B5	327061

186627
SET LOGIC
ASSEMBLY



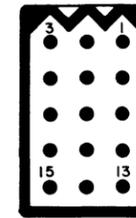
1051 SD - CI

APP. FIG. 5

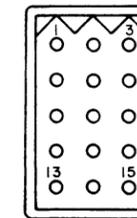
CONNECTOR

DESIG.	J1	P1	P2	J3	P3	J4	J5
CODE	RECPT.	PLUG	PLUG	PLUG	RECPT.	RECPT.	PLUG
	328733	182540	145914	325161 325163	315946	328733	328727
TERM.	LOCATION						
1	3D2	3D2	5C2	3B5	3B5	1C6	2B6
2	1B2	1B2	1B2	5B3	5B3	4C3	2C6
3	2C3	2C3	1D2	3C5	3C5	4B3	5D3
4	5B2	5B2		3B5	3B5	4C3	
5			5C2	5D3	5D3	5B3	4C5
6	2C3	2C3	2D2	3D5	3D5	4B5	5B3
7	5C2	5C2	5B2	5B3	5B3	1B6	5C3
8	2B3	2B3		5C3	5C3	1C6	3B6
9	2B3	2B3		1B5	1B5	4C3	1B6
10				1B5	1B5	4C5	
11	3B3	3B3		2C6	2C6	5D5	1B6
12	5B2	5B2		2B6	2B6	4B5	5B3
13	1D2	1D2		1C5	1C5		1D6
14	3B5	3B5		1C5	1C5	1C6	
15	2D2	2D2		1D5	1D5	4D3	3B6
16				3B6	3B6		
17				4B2	4B2		
18				4B2	4B2		
19							
20			3D2				
21							
22			5D2				
23							
24							
25							

328727
PLUG



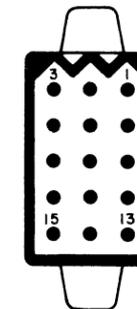
328733
RECEPTACLE



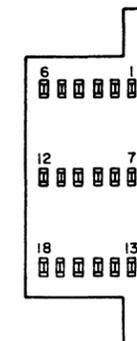
145914
PLUG



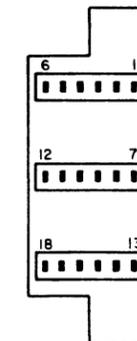
182540
PLUG



315946
RECEPTACLE



325161 & 325163
PLUG



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1051 SD-C2

APP. FIG. 6

DIODE

DESIG.	LOC	CODE
CR1	1C4	181653
CR2	1D4	177108
CR3	1D3	181653
CR4	2D3	177108
CR5	5E3	323606
CR6	5D3	323606
CR7	2D3	177108
CR8	2D4	181653
CR9	1D3	181653
CR10	1B3	181653
CR11	1B4	181653
CR12	1C3	181653
CR13	2D4	181653

APP. FIG. 7

RESISTOR

DESIG.	LOC	CODE
R1	1D4	129851
R2	1D4	118153
R3	1B3	129851
R4	2D3	129851
R5	5E2	143661
R6	3D3	143661
R7	3D3	117729
R8	5D2	143661
R9	1D3	129851
R10	1B3	137439
R11	1B4	320440
R12	1C4	137444
R13	1C3	137603
R14	1C3	118725
R15	1B3	165867
R16	3D4	118169
R17	3C4	336950
R18	3D5	143667
R19	3C5	137440
R20	3D4	336950
R21	2B5	118169
R22	2C5	336950
R23	2B5	143667
R24	2C5	137440
R25	2B4	336951

APP. FIG. 8

TERMINAL

DESIG.	LOC	CODE
TB1	1C6	336952
TB2	5B5	336952
TB3	5D5	336952
TB4	5B6	336952
TB5	4B5	336952
TB6	4B2	336952
TB7	3B5	336952
TB8	4B2	336952
TB9	4C2	336952
TB10	4B5	336952
TB11		336952
TB12	4C2	336952
TB13	4B2	336952
TB14	3C5	336952
TB15	3C5	336952
TB16	1C6	336952
TB17	1B6	336952
TB18	5B3	336952
TB19	3D5	336952

APP. FIG. 9

TRANSISTOR - SCR - PUT

DESIG	LOC	CODE
Q1	1D5	319304
Q2	2D3	315930
Q3	3D4	333248
Q4	3D5	336949
Q5	2C5	327946
Q6	2B6	336949
Q7	1C3	300455

CIRCUIT NOTES:

101.

DESIG.	FUSE AMP	POTENTIAL	ONE PER
BATTERY SYMBOL		VOLTAGE RANGE	
+24 VDC		20-32	
-20 VDC		18-30	
+20 VDC (CLAMPED)		18-20	
-20 VDC (CLAMPED)		12-20	

102.

FEATURE OR OPTION	LOC	PROVIDE
A	1C5	HALF DUPLEX OPERATION. STRAP TB-16 TO TB-17
B	1C5	FULL DUPLEX OPERATION. STRAP TB-1 TO TB-16
C	3B6	ORIGINATION OF A CALL IN A LOW PAPER OR PAPER OUT CONDITION. STRAP TB-7 TO TB-18
D	3C6	DATA TERMINAL READY (CD) ON FOR DATAPHONE OPERATION. STRAP TB-14 TO TB-19
E	3D6	DISABLES THE DATA TERMINAL READY TIMING CIRCUIT. STRAP TB-15 TO TB-19
F	4B5	DISTRIBUTOR CONTROL. STRAP TB-5 TO TB-10

103.

NETWORK VALUES		
NET NO.	RESISTANCE (OHMS)	CAPACITANCE (MFD)

EQUIPMENT NOTES:

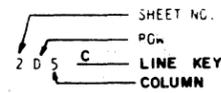
201. TERMINAL BOARD "TB" IS STRAPPED BY THE FACTORY AS SHOWN IN NOTE 202.

202.

OPTION	STRAPPING TERMINALS	
	FROM	TO
B	TB-1	TB-16
C	TB-7	TB-18
F	TB-5	TB-10

INFORMATION NOTES:

301. SHEET COORDINATE LOCATION LEGEND:



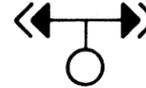
302. TERMINAL DESIGNATIONS ENCLOSED IN PARENTHESES ARE FOR REFERENCE AND ARE NOT MARKED ON COMPONENTS.

303. ALL RESISTANCE VALUES IN OHMS UNLESS OTHERWISE SPECIFIED.

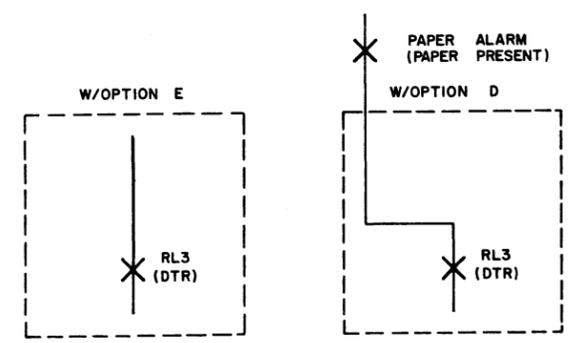
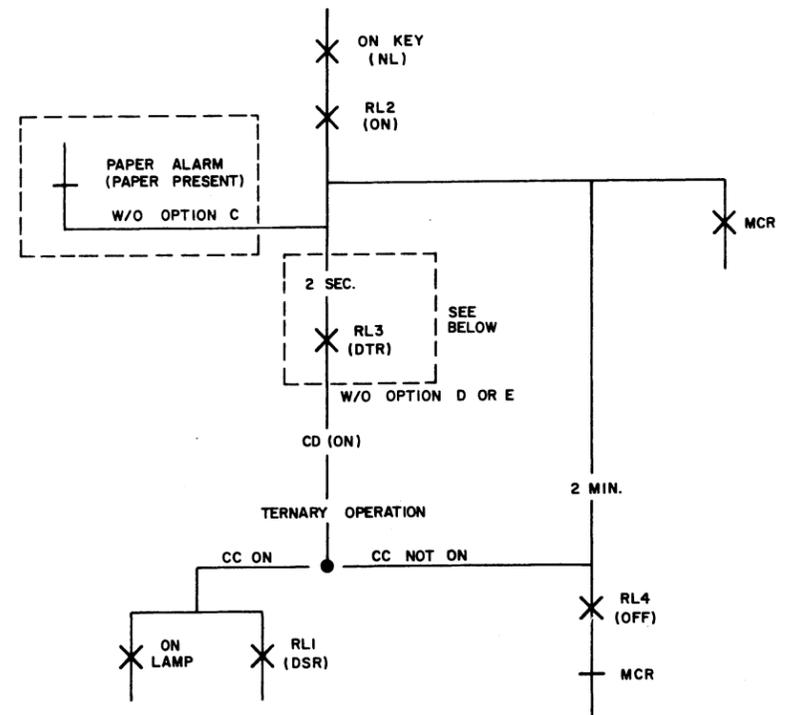
304. ALL RESISTORS ARE 1/2 WATT UNLESS OTHERWISE SPECIFIED.

305. ALL CAPACITANCE VALUES IN MICROFARADS UNLESS OTHERWISE SPECIFIED.

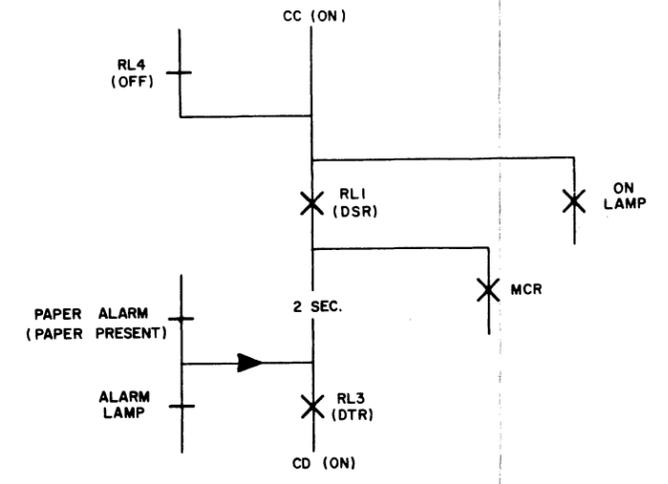
306. OPTION SYMBOL.



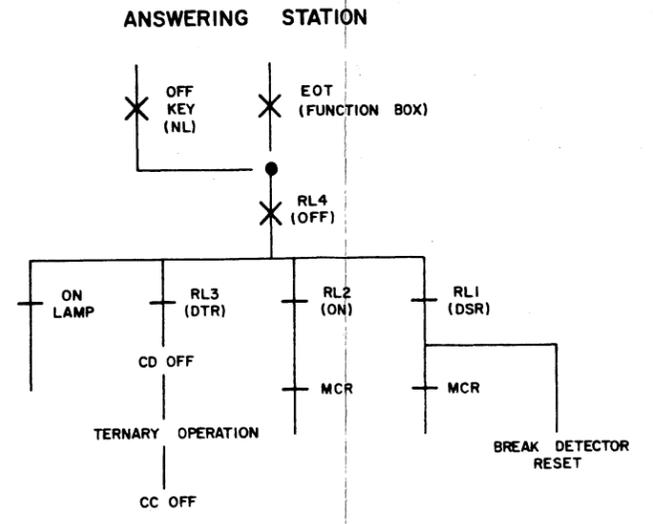
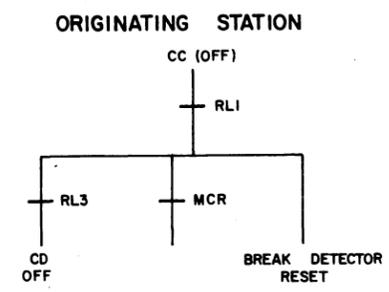
SC1 ORIGINATING STATION



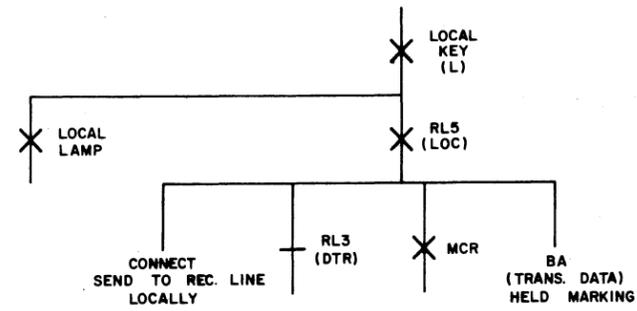
SC2 ANSWERING STATION



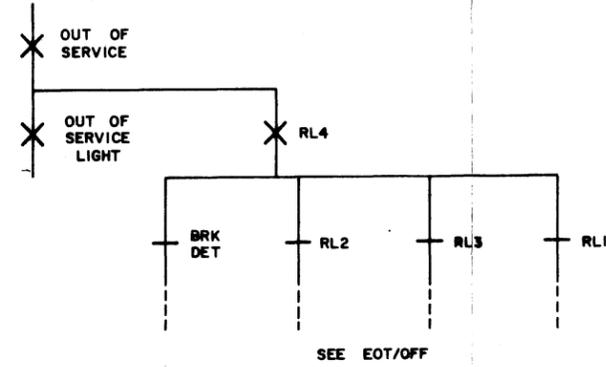
SC3 TERMINATE



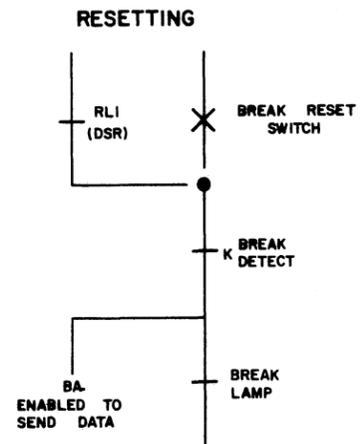
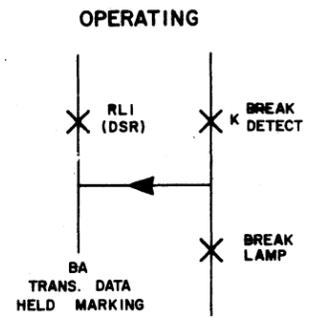
SC4 LOCAL



SC5 OUT OF SERVICE



SC6 BREAK DETECTION



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SET LOGIC
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SET LOGIC
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SECTION I - GENERAL TECHNICAL DATA

1. Purpose of Circuit

1.01 The 186627 Set Logic Assembly is a basic module designed to provide facilities for the interconnection of Teletype terminal equipment and data sets which conform to the standards of the Electronics Industries Association. In accordance with these standards, all data and control leads of the data set carry polar voltage signals.

1.02 The 186627 Set Logic Assembly accepts current-no-current data and control signals from the teletypewriter and converts them into suitable polar signals for use by the data set. In addition, it accepts polar data and control signals from the data set and converts them into current-no-current signals for use by the teletypewriter.

2. General Description of Operation

2.01 The 186627 Set Logic Assembly, consisting of a main circuit card, a customer interface and connector circuit card, and a pushbutton assembly, is mounted in the front right hand corner of an M33 or M35 terminal.

2.02 The pushbutton assembly consists of six pushbuttons, these are: OFF (non-locking, releasing), ON (non-locking, releasing), ALARM (non-locking, non-releasing), LOCAL (locking, releasing), OUT OF SERVICE (locking, releasing), and TEST (locking, releasing).

2.03 The electronic circuitry required to perform the various set functions is mounted on the main circuit card. The customer interface and connector card is fastened to the main circuit card and is accessible at the rear of the set logic assembly for customer programming.

2.04 The 186627 Set Logic Assembly obtains its operating power from the call control unit in the teletype terminal.

2.05 Data Set Interface Leads

2.05 1 AA - Protective Ground - This conductor shall be electrically bonded to the frame of the terminal apparatus. It may be further connected to external grounds as required by applicable regulations.

2.05 2 AB - Signal Ground - This conductor establishes the common-ground reference potential for all interchange circuits except Circuit AA (Protective Ground). It may be connected to Circuit AA or the frame, as required by applicable regulations, and is available at TB - 18.

2.05 3 BA - Transmitted Data - Signals on this circuit are generated by the terminal apparatus for transmission to remote data sets.

SECTION I (CONTINUED)

2.05 4 BB - Received Data - Signals on this circuit are generated by the data set in response to data signal received from remote data sets.

2.05 5 CB - Clear to Send - Signals on this circuit are generated by the data set to indicate that the data set is ready to transmit data when in the ON condition.

2.05 6 CC - Data Set Ready - Signals on this circuit are generated by the data set to indicate that it is ready to operate (ON condition). The OFF condition indicates either:

- a. Any abnormal or test condition which disables or impairs normal operation.
- b. That the communication channel is switched to an alternate means of communication.
- c. That the data set is not connected to the communication channel.

2.05 7 CD - Data Terminal Ready - Signals on this circuit are generated by the terminal apparatus to control switching of the data set to a communications channel. The ON condition causes the data set to be connected to a communications channel. The OFF condition removes the data set from a communications channel for such reasons as terminating a call, freeing the line for alternate use, or permitting the use of the terminal apparatus for an alternate function.

2.05 8 CE - Ring Indicator - Signals on this circuit are generated by the data set to indicate that ringing current is being received from a remote station. The ON condition indicates that a ringing signal is being received with the OFF condition maintained at all other times.

2.06 Modes of Operation

2.06 1 The control circuits provide for the following modes of operation.

- a. Call Origination
- b. Unattended Answering
- c. Local
- d. Out of Service
- e. Alarm
- f. Test
- g. Terminating a Call

SECTION I (CONTINUED)

2.07 Call Origination

2.07 1 The attendant must depress the ON pushbutton of the set logic assembly. (Refer to the appropriate data set circuit description for the correct dialing procedure, if applicable).

2.07 2 When the ON pushbutton is depressed, the Data Terminal Ready and the Disconnect Timers are activated, if the terminal is equipped with break detection circuitry, this circuitry is enabled at this time.

2.07 3 Approximately 2 seconds after the Data Terminal Ready Timer is activated, the set logic assembly transmits a Data Terminal Ready (CD) signal to the Data Set.

2.07 4 A connection must be made and the data set must have sent a Data Set Ready (CC) signal to the terminal within 2 minutes or the terminals disconnect circuitry will terminate the call.

2.08 Unattended Answering

2.08 1 If the remote terminal data set is equipped to answer a call automatically, that terminal can answer a call automatically and without an attendant being present.

2.09 Local

2.09 1 To enter the LOCAL mode, the attendant must depress the LOCAL pushbutton of the set logic assembly. This will energize the LOCAL relay which in turn puts a marking signal on the Transmit Data (BA) lead and the Data Terminal Ready (CD) lead is held in the off condition.

2.10 Out of Service

2.10 1 An OUT OF SERVICE pushbutton has been provided on the set logic assembly. When this key is depressed, such as for maintenance, a call cannot be answered automatically.

2.11 Alarm

2.11 1 An ALARM indication lamp has been provided that indicates a low paper condition.

2.12 Test

2.12 1 A TEST pushbutton has been provided on the set logic assembly, this pushbutton will activate external circuitry.

2.13 Terminating a Call

2.13 1 A call can be terminated in one of two ways, both of these procedures are recognized by the set logic assembly identically.

SECTION I (CONTINUED)

- a. Transmission of an EOT code from a teletypewriter terminal.
- b. Depressing the OFF pushbutton.

3. Support Information

3.01 The following documents are offered as support information for the 186627 Set Logic Assembly:

WDPO238 Wiring Diagram Package for the 186627 Set Logic Assembly.

8163WD Model 33 Automatic Send-Receive Keyboard Send-Receive and Receive only sets using the UCC29.

SECTION II - DETAILED DESCRIPTION

1. Originating a Call (FS-2)

1.01 The operator must depress the non-locking ON pushbutton. The RL2 relay energizes through the ON pushbutton. The RL2 relay is held energized through RL4-5B, RL1-4B, RL2-4M and the normally closed OFF pushbutton. When the RL2 relay energized, the RL2-2M contact closed, thus energizing the motor control relay, starting the motor and the Disconnect Timing Circuit.

1.02 When the RL2 relay energized, RL2-3M closed which started the Data Terminal Ready Timing Circuit. After 2 seconds the Data Terminal Ready Timing Circuit activated, energizing the RL3 relay through RL4-6B, RL5-2B, RL2-3M, and either the normally closed paper alarm contact or RL2-1M contact. The RL2-1M contact is an option that is provided by strapping TB-7 to TB-18, this will allow a station to originate a call in a low paper or paper out condition. The CC lead (P2-6) must go positive within 2 minutes after the ON key is depressed. The RL3 relay is now held energized through RL3-5M and RL1-2M. Normally, J1-1 is at -10 volts which indicates Data Terminal is not ready. When RL3 energizes RL3-6B opens, putting a +20V DC on J1-1 which indicates Data Terminal Ready.

1.03 When the CC lead goes positive the Q2 transistor turns on which energizes the RL1 Relay through RL4-4B, and the ON pushbutton is illuminated. Two minutes after depressing the ON pushbutton the Disconnect Timing Circuit activates and attempts to energize the RL4 Relay through RL1-1B, since the CC lead is on, the RL1 Relay would be energized opening the RL1-1B, thus preventing the RL4 Relay from being energized. If the CC lead did not turn on within 2 minutes, the RL1 Relay would not energize, thus the RL1-1B contact would be closed and the RL4 Relay would be energized which would terminate the call and turn off the motor.

1.04 If the CC lead did come up then the motor is running and the terminal is ready to transmit or receive data. At the conclusion of transmission, the call can be terminated by receiving an EOT character which causes operation of the RL4 Relay or by the operator pushing the OFF pushbutton which also operates the RL4 Relay. This causes the RL3 Relay to drop out by opening the RL4-6B contact which turns off the CC lead and transferring the RL4-4 contact which causes RL1 to drop

SECTION II (CONTINUED)

out. RL4-4M locks RL4 to ground through the Q2 transistor. When the CD lead turns off, the data set takes down the CC lead and RL4 drops out. The ON lamp is extinguished.

2. Receiving a Call (FS-2)

2.01 The Teletype terminal can answer a call unattended, as follows: the CC lead comes up turning on Q2 which energizes the RL1 Relay. With the RL1 Relay energized, RL1-5M closes which enables the break detection circuit. Once RL1 energizes, the sequence is the same as a manual start except the motor is started by the RL1-6M contact and Data Terminal Ready Timing Circuit is started by the RL1-3M contact. The CD lead (P2-20) going on indicates to the data set that the terminal is ready and the call should be maintained. If CD doesn't come up, CC will go down thus removing power from the RL1 relay and turning the motor off.

3. Send Circuit Operation (FS-1)

3.01 Half Duplex

3.01 1 When the send and break contacts are closed, -20 volts is applied to the junction R10 and CR11. Diode CR11 conducts causing the positive terminal of capacitor C1 to charge rapidly to about -15 volts from the voltage divider formed by CR11, R11 and R12 turning transistor Q7 off due to the application of this negative voltage to its base. A voltage of -8 volts is applied to the BA lead (P2-2) through the voltage divider consisting of R10, CR10, and the data set impedance indicating a mark. At the same time, a -20 volts is applied to the anode of CR1 which turns Q1 on, energizing the selector magnet driver. When either the send or break contact opens, +20 volts is applied to the BA lead (P2-2) indicating a space. The send contact opening will cause +20 volts to be applied to the anode of CR1 which turns off Q1, dropping out the selector magnet driver. The break contact opening will have no effect on CR1, therefore, it will not be recognized by the selector magnet driver. If this open contact condition lasts for more than 500 milliseconds, as would be caused by holding the BREAK key operated, capacitor C1 discharges through R12 to ground. After about 500 milliseconds of discharge, Q7 conducts and remains conducting until the open contact condition ceases. With Q7 conducting -6 volts is applied to the BA lead (P2-2) through R14, CR12 and Q7 which forms a voltage divider with the data set impedance.

3.02 Full Duplex

3.02 1 Full duplex operation would be the same as for half duplex operation, except that the path to the anode of CR1 is now open, therefore, the local selector magnet driver will not respond to incoming signals and no local copy will be received.

4. Receive Circuit Operation (FS-1)

4.01 A negative voltage of -20 volts maximum at BB (P2-3) will cause Q1 to be on, which indicates mark, causing the selector magnet driver to be energized. A positive voltage of +20 volts maximum will cause Q1 to be off, indicating space, and de-energizing the selector magnet driver.

SECTION II (CONTINUED)

5. Local Operation (FS-1 & 3)

5.01 The LOCAL locking pushbutton will energize the RL5 Relay. This closes RL5-6M which will keep the BA lead at a -20 volts. The RL5-2B contact opens the operate path for the RL3 Relay, thus maintaining the CD lead at a -10 volts indicating that the data terminal is not ready. The RL5-3M contact also closes which operates the Motor Control relay starting the station's motor. The terminal now operates locally. To get out of local and in an off condition, the OFF pushbutton is depressed which mechanically releases the LOCAL pushbutton, dropping out the RL5 Relay. When the LOCAL pushbutton is depressed, the lamp under the pushbutton is on.

6. Strapping Options

6.01 Option A - Half Duplex (FS-1)

6.01 1 By strapping TB-16 to TB-17, the send circuit signals are fed into the receive circuit and the set is in half duplex.

6.02 Option B - Full Duplex (FS-1)

6.02 1 By strapping TB-1 to TB-16, the send circuit signals are isolated from the receive circuit in an on line mode, and the set is in full duplex. (Factory wired).

6.03 Option C - Low Paper Originating (FS-3)

6.03 1 By strapping TB-7 to TB-18 (circuit common) the set will be able to originate a call in a low paper condition.

6.04 Option D - DATA-PHONE ® (FS-3)

6.04 1 By strapping TB-14 to TB-19 the data terminal ready relay will be held energized, thus indicating to the data set that the terminal is ready. This is required in automatic answer DATA-PHONE ® applications.

6.05 Option E - Data Terminal Ready Timer Bypass (FS-3)

6.05 1 By strapping TB-15 to TB-19 the data terminal ready timing circuit would be bypassed.

6.06 Option F - Distributor Control (FS-5)

6.06 1 By strapping TB-5 to TB-10 the set's distributor would be enabled.

7. Controls

7.01 Off

7.01 1 The OFF pushbutton does not contain an indicator lamp.

SECTION II (CONTINUED)

7.01 2 Depressing the OFF pushbutton operates the RL4 Relay, thus placing the terminal in the off condition. The OFF pushbutton overrides any remote start-up command and the terminal will be off as long as the pushbutton is depressed.

7.01 3 Operating the OFF pushbutton will release any locking pushbutton that had been depressed. (LOCAL, OUT OF SERVICE OR TEST).

7.02 On

7.02 1 The ON pushbutton contains an indicator lamp. The lamp is on whenever the terminal receives a Data Set Ready (CC) from the data set.

7.02 2 Depressing the ON pushbutton operates the RL2 Relay, the procedure that would follow is fully described in paragraph 1 of this section.

7.02 3 Operating the ON pushbutton will release any locking pushbutton that had been depressed.

7.03 Local

7.03 1 The LOCAL pushbutton contains an indicator lamp. The lamp is on whenever the terminal is in the Local mode.

7.03 2 Depressing the LOCAL pushbutton operates the RL5 Relay, the procedure that would follow is fully described in paragraph 5 of this section.

7.03 3 Operating the LOCAL pushbutton will release any other locking pushbutton that had been depressed.

7.04 Out of Service

7.04 1 The OUT OF SERVICE pushbutton contains an indicator lamp. The lamp is on whenever the terminal is placed in the Out of Service mode.

7.04 2 Depressing the OUT OF SERVICE pushbutton holds the RL4 Relay operated, thus placing the terminal in the Off mode.

7.04 3 Operating the OUT OF SERVICE pushbutton will release any other locking pushbutton that had been depressed.

7.05 Test

7.05 1 The TEST pushbutton contains an indicator lamp. The lamp is on whenever the TEST pushbutton is depressed.

7.05 2 Depressing the TEST pushbutton closes the L1-1/3 contact of the pushbutton assembly. This contact is presented at TB-2 and TB-4 and is intended to activate external test circuitry.

7.05 3 Operating the TEST pushbutton will not prevent the terminal from receiving a call as described in paragraph 2 of this section.

SECTION II (CONTINUED)

7.05 4 Operating the TEST pushbutton will release any other locking pushbutton that has been depressed.

3. Indicators

8.01 Alarm

8.01 1 The ALARM lamp is turned on when the terminal goes into a low paper (or paper out with sprocket feed) condition. If a message is being transmitted when a low paper condition is sensed, the operation of the terminal will remain unaffected. After the terminal is turned off, a call may be originated only if Option C (see paragraph 6.03 of this section) has been implemented, but a call cannot be received.

9. Power (FS-6)

9.01 +24 VDC and -20 VDC are supplied to the logic assembly from the call control unit (UCC29) contained in the teletypewriter.

9.02 The +24 VDC and -20 VDC together with zener diodes CR5 and CR6 and resistors R5 and R8 are used to supply -20 VDC clamped and +20 VDC clamped for EIA output leads.

10. Timing Circuit Operation (FS-2 & 3)

10.01 Component cross reference:

<u>Designation</u>	<u>Disconnect Timer (2 min.)</u>	<u>Data Terminal Ready Timer (2 sec.)</u>
Ra	R21	R17
Rb	R22	R16
Rc	R25	R20
C	C2	C3
Qa	Q5	Q3
Qb	Q6	Q4

10.02 When Relay RL1 or RL2 are operated, +24 VDC is applied across the RC Timing components Rc and C when the voltage at the junction of Rc and C is approximately 12.5 VDC, Qa is turned on. The turn on time is determined by time constant multiplier which is provided by the gate voltage divider Ra and R6. When Qa turns on it pulses the gate of Qb thus turning Qb on.

SECTION III - REFERENCE DATA

1. Working Limits

1.01 Ambient Temperature Range - 40°F to 110°F.

1.02 Relative Humidity Range - 0 to 95 percent.

SECTION III - (CONTINUED)

2. Abbreviations and Functional Designations

2.01 Abbreviations Used:

AA	Protective Ground
AB	Signal Ground
BA	Transmitted Data
BB	Received Data
CB	Clear to Send
CC	Data Set Ready
CD	Data Terminal Ready
CE	Ring Indicator

2.02 Functional Designations

<u>Designation</u>	<u>Meaning</u>
C	Capacitor
Ck	Diode
J1	Receptacle, Pushbutton Assembly
J3	Receptacle, "Piggyback" Card
J4	Receptacle, Call Control Unit
J5	Plug, Call Control Unit
L	Plug, Pushbutton Assembly
P1	Plug, Pushbutton Assembly cable
P2	Plug, EIA, Data Set
P3	Plug, "Piggyback" Card
Q	Transistor, SCR or PUT
R	Resistor
RL1	Relay, Data Set Ready
RL2	Relay, On
RL3	Relay, Data Terminal Ready
RL4	Relay, Off
RL5	Relay, Local
TB	Terminal Board

3. Connecting Circuits

3.01 Data sets or stations conforming to EIA RS-232-B Standard.

3.02 Teletype machines equipped with a UCC29.

SET LOGIC ASSEMBLY

186627

ORIGINAL USE
M33/35 FINAL
DIRECT

PARTS REQUIRED		
PART NO.	DESCRIPTION	QTY.
336954	SCREW	19
6347	SCREW	4
151685	SCREW	4
198670	SCREW	4
186637	CARD ASSEM.	1
186681	BRACKET	1
186682	BRACKET	1
186683	KEY ASSEM.	1
303826	CARD ASSEM.	1
327061	LAMP	5
330906	LABEL	1
330923	LABEL	1
336333	PLATE	1
336334	COLLAR	1
336464	CABLE	1
336601	CABLE	1
336631	LABEL	1
336632	LABEL	1
336633	LABEL	1
336635	LABEL	1
156880	STRAP	3
336957	LABEL	1
121244	CLAMP	1
336959	COVER	1

NOTES:

1. KEY ASSEMBLY POSITION IDENTIFICATION.

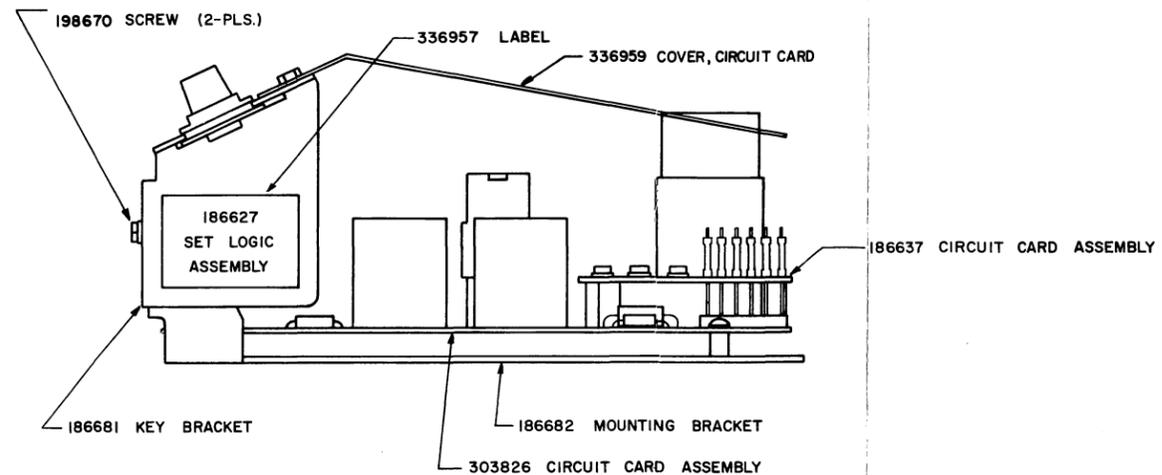
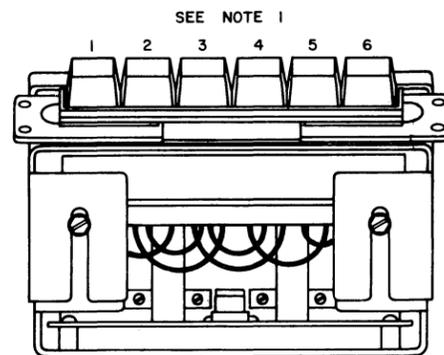
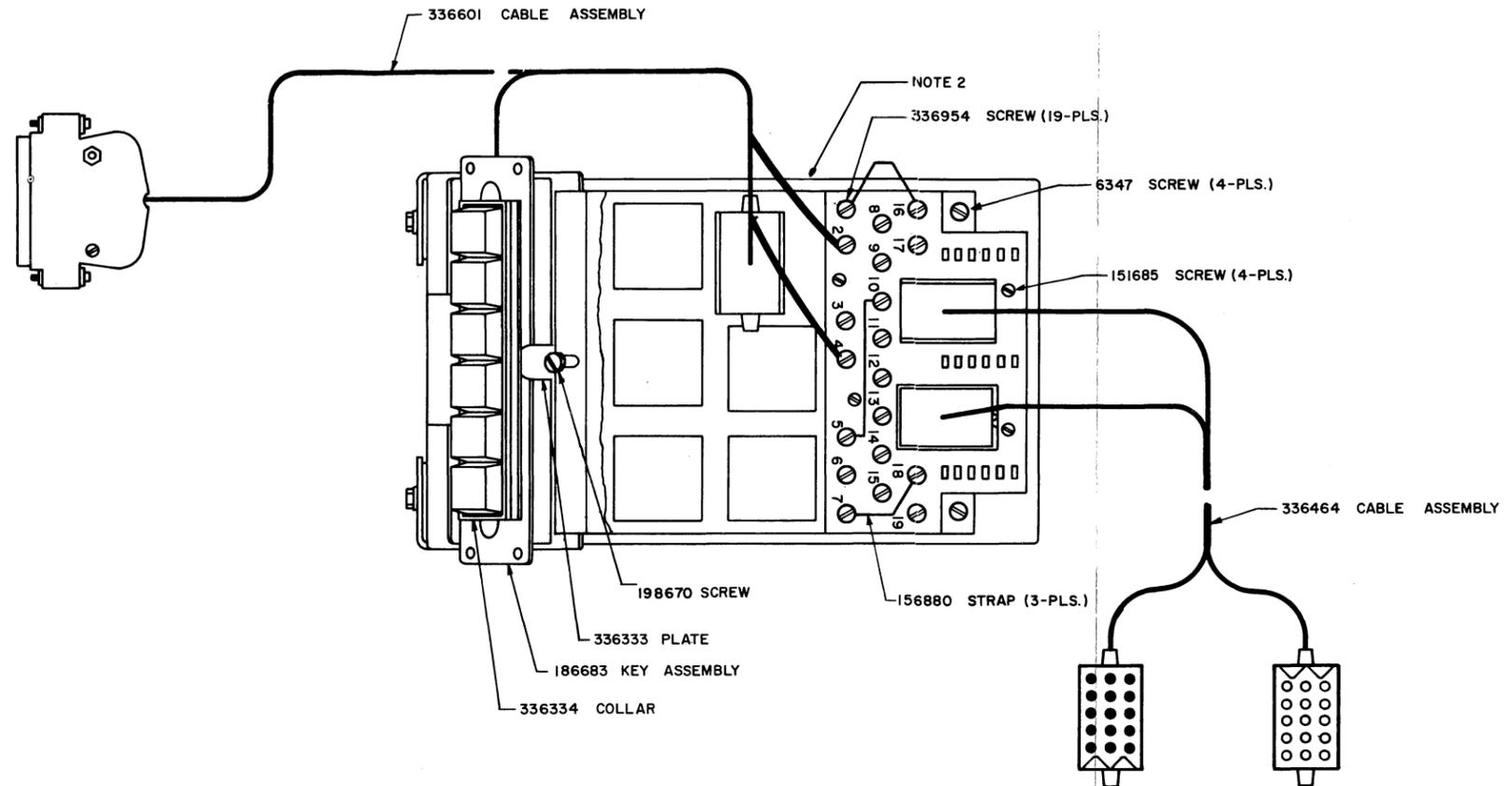
POSITION	1	2	3	4	5	6
LABEL DESIGNATION	OFF	ON	ALARM	LOCAL	OUT OF SERVICE	TEST
LABEL PART NUMBER	336631	336635	330923	336633	330906	336632
LAMP PART NUMBER	NOT REQUIRED	327061	327061	327061	327061	327061

2. ATTACH PURPLE (P) WIRE OF THE 336601 CABLE ASSEMBLY TO TERMINAL NO. 2 OF THE 186637 CIRCUIT CARD ASSEMBLY.

ATTACH SLATE (S) WIRE OF THE 336601 CABLE ASSEMBLY TO TERMINAL NO. 4 OF THE 186637 CIRCUIT CARD ASSEMBLY.

3. WIRE PER AND INCLUDE ONE COPY OF WDP 0238 WITH EACH UNIT.

4. FOR SALES ORDERS ONLY FURNISH A COPY OF 50,694S.



198670 SCREW AND 121244 CABLE CLAMP TO BE ATTACHED AND SHIPPED WITH ASSEMBLY

REFER TO 1051SD FOR SCHEMATIC WIRING

REV.	DATE	AUTH. NO.
5	4-21-71	3794
4	8-18-70	786
3	6-23-70	635
2	5-15-70	508
1	3-3-70	20630R

REVISIONS

APPROVALS

PROJ. SUPV.	PROJ. DIR.	MFG. REL. COMPL.
TDC	RRS	LDM

ENGR. A.S. DSGNR. A.S.

DRN. C.E.C. DATE 10-15-69

S-NUMBER 61,733

PROD. NO. 186627

R & D FILE 2-165.152AA

TELETYPE CORPORATION - COMPANY PRIVATE

SCALE 1/1

FINISH	HEAT TREAT	MATERIAL SPECIFICATION



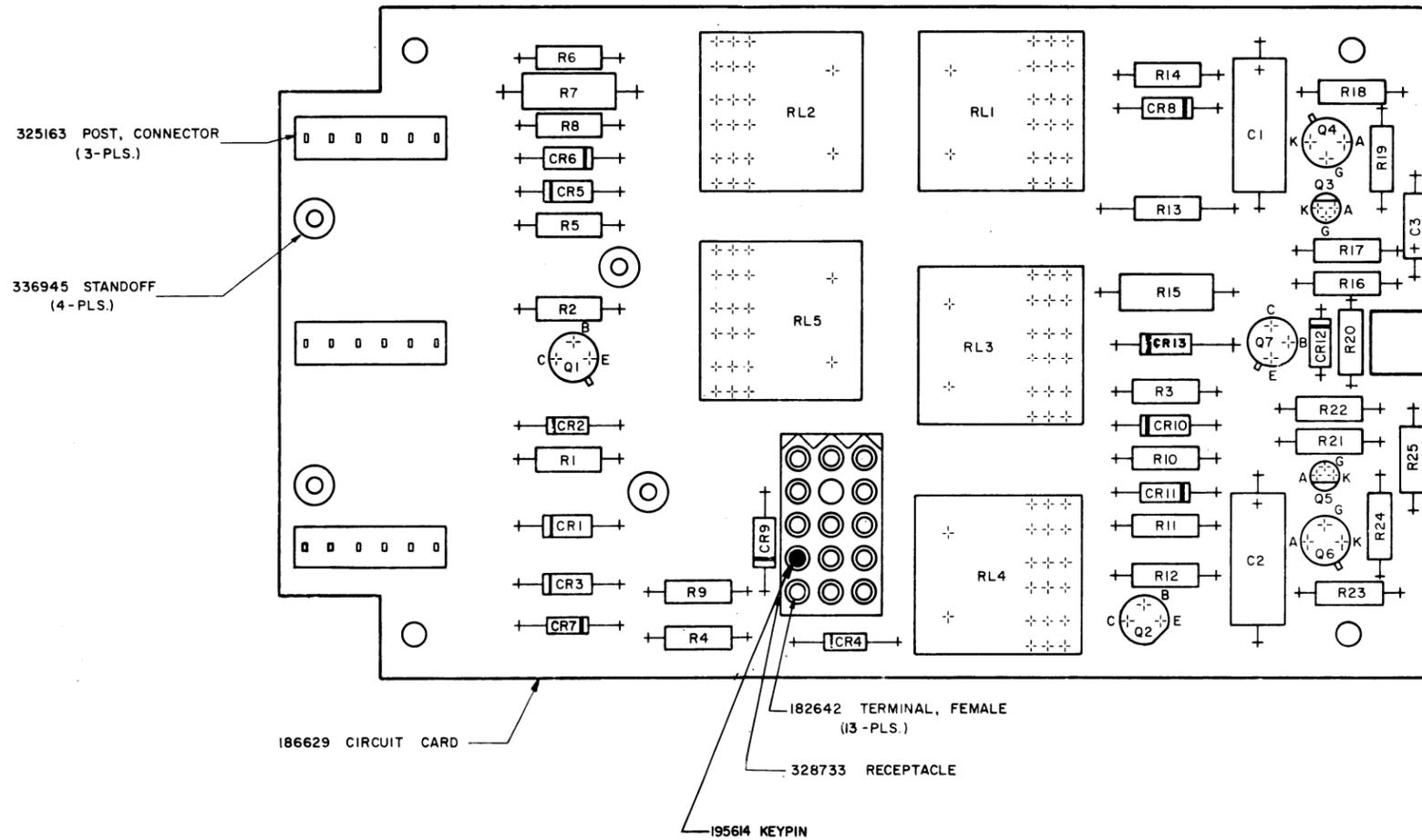
186627

SIMILAR TO

REF. DESIG.	PART NO. REQ.	QTY	DESCRIPTION
C1	336946	1	CAPACITOR, 100MFD, 20V
C2	336947	1	CAPACITOR, 10 MFD, 35V
C3	336948	1	CAPACITOR, 1 MFD, 35V
CR1	181653	8	DIODE, 1N645
CR2	177108	3	DIODE, D2
CR3			SAME AS CR1
CR4			SAME AS CR2
CR5	323606	2	DIODE, 1N4747A
CR6			SAME AS CR5
CR7			SAME AS CR2
CR8			SAME AS CR1
CR9			SAME AS CR1
CR10			SAME AS CR1
CR11			SAME AS CR1
CR12			SAME AS CR1
CR13			SAME AS CR1
Q1	319304	1	TRANSISTOR
Q2	315930	1	TRANSISTOR 2N3568
Q3	333248	1	PUT D13T1
Q4	336949	2	SCR 2N2323
Q5	327946	1	PUT D13T2
Q6			SAME AS Q4
Q7	300455	1	TRANSISTOR 2N697
R1	129851	4	RESISTOR 3.3K, 1/2W
R2	118153	1	RESISTOR 33K, 1/2W
R3			SAME AS R1
R4			SAME AS R1
R5	143661	3	RESISTOR, 330 Ω, 1/2W
R6			SAME AS R5
R7	117729	1	RESISTOR, 2.7K 1W
R8			SAME AS R5
R9			SAME AS R1
R10	37439	1	RESISTOR, 820 Ω, 1/2W
R11	320442	1	RESISTOR, 240 Ω, 1/2W
R12	118186	1	RESISTOR, 5.6K, 1/2W
R13	137603	1	RESISTOR, 510 Ω, 1/2W
R14	118725	1	RESISTOR, 270 Ω, 1/2W
R15	165867	1	RESISTOR 3K, 1W
R16	118169	2	RESISTOR 1M, 1/2W
R17	336950	3	RESISTOR 1.6M, 1/2W
R18	143667	2	RESISTOR 3.9K, 1/2W
R19	118180	2	RESISTOR 10K, 1/2W
R20			SAME AS R17
R21			SAME AS R16
R22			SAME AS R17
R23			SAME AS R18
R24			SAME AS R19
R25	336951	1	RESISTOR 12M, 1/2W
336945	4		STANDOFF
325163	3		POST, CONNECTOR
328733	1		RECEPTACLE, 15 CIRCUIT
182642	13		TERMINAL, FEMALE
144495	5		TRANSISTOR PAD
195614	1		KEYPIN
186629	1		CIRCUIT BOARD
RL1	336953	5	RELAY
RL2			SAME AS RL1
RL3			SAME AS RL1
RL4			SAME AS RL1
RL5			SAME AS RL1

NOTE: PRINTING SCREEN TO BE MADE FROM MASTER ARTWORK NO. 303826 AW ARTWORK AVAILABLE IN R & D OFFICE SERVICE SECTION.

- UL RECOGNITION SYMBOL REQUIRED PER MR 2001.
- ON ISSUE 6, R19 AND R24 WERE 1K OHMS.

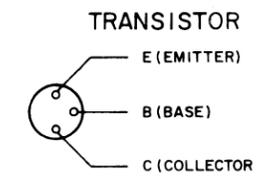


REFER TO 1051 SD FOR SCHEMATIC WIRING

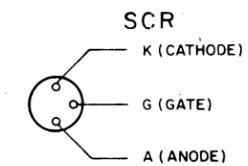
SIMILAR TO:

REVISIONS		
ISSUE	DATE	AUTH NO.
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2	5-18-70	508
3	9-21-70	912
4	11-2-70	912-11
5	1-26-71	3768
6	3-3-71	2320
7	4-26-71	2804

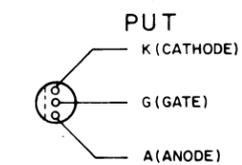
BOTTOM VIEWS



Q1, Q2, Q7



Q4, Q6



Q3, Q5

NDP

CIRCUIT CARD
EC 826
303826
CIRCUIT CARD
ASSEMBLY

APPROVALS		
PROJ. SUPV.	PROJ. DIR.	MFG. REL. COMPL.
TRC	RRS	
ENGR. A.S.	DSGMR. A.S.	
DRN. C.E.C.	DATE 10-7-69	
E-NUMBER		
SD-CD NO. 1051		
R & D FILE 2-165.152AA		



303826

A

B

C

D

E

SHEET INDEX

CONTENTS	SHEET NO.	ISSUE NO.																												SHEET NO.
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	
SHEET INDEX SUPPORTING INFORMATION	A1	X	2																											A1
FS1 CONTROL CIRCUIT	B1	X	1																											B1
FS2 PROCEED CIRCUIT	B2	X	2																											B2
FS3 SEND RECEIVE CIRCUIT	B3	X	1																											B3
APP. FIG. 1,2,3,4,5,6,7,8	C1	X	1																											C1
CIRCUIT NOTES INFORMATION NOTES	D1	X	1																											D1
BD1	H1	X	1																											H1

SUPPORTING INFORMATION		
CATEGORY		NO.
CIRCUIT DESCRIPTION		1040CD
WIRING DIAGRAM PACKAGE		WDP 0237
LOGIC CARD		303831
LOGIC CARD		303832
BREAK DETECTOR CARD		303833

REVISIONS		
ISSUE	DATE	AUTH. NO.
1	5-28-70	0784-R
2	1-16-71	2377

- SHEET INDEX NOTES**
1. WHEN CHANGES ARE MADE IN THIS DRAWING ONLY THOSE SHEETS AFFECTED WILL BE REISSUED.
 2. THIS SHEET INDEX WILL BE REISSUED AND UPDATED EACH TIME ANY SHEET OF THE DRAWING IS REISSUED OR A NEW SHEET IS ADDED.
 3. THE LAST COMPLETED COLUMN INDICATES THE LATEST ISSUE NUMBER OF THE SHEET INDEX.
 4. SHEETS THAT ARE NOT CHANGED WILL RETAIN THEIR EXISTING ISSUE NO.
 5. ISSUE DATES WILL BE SHOWN ON THE SHEET INDEX ONLY.

PRIVATE LINE LOGIC PACKAGE FOR MODEL 33

APPROVALS

PROJ. SUPV. J.S.R.	PROJ. DIR. R.A.S.	MFG. REL. COMPL. L.M.
-----------------------	----------------------	--------------------------

ENGR. H. J. G. DSGNR. H. J. G.
DRNL J. J. A. DATE 10/7/67
R & D FILE 2-165.152AA
S-NUMBER 61753 A

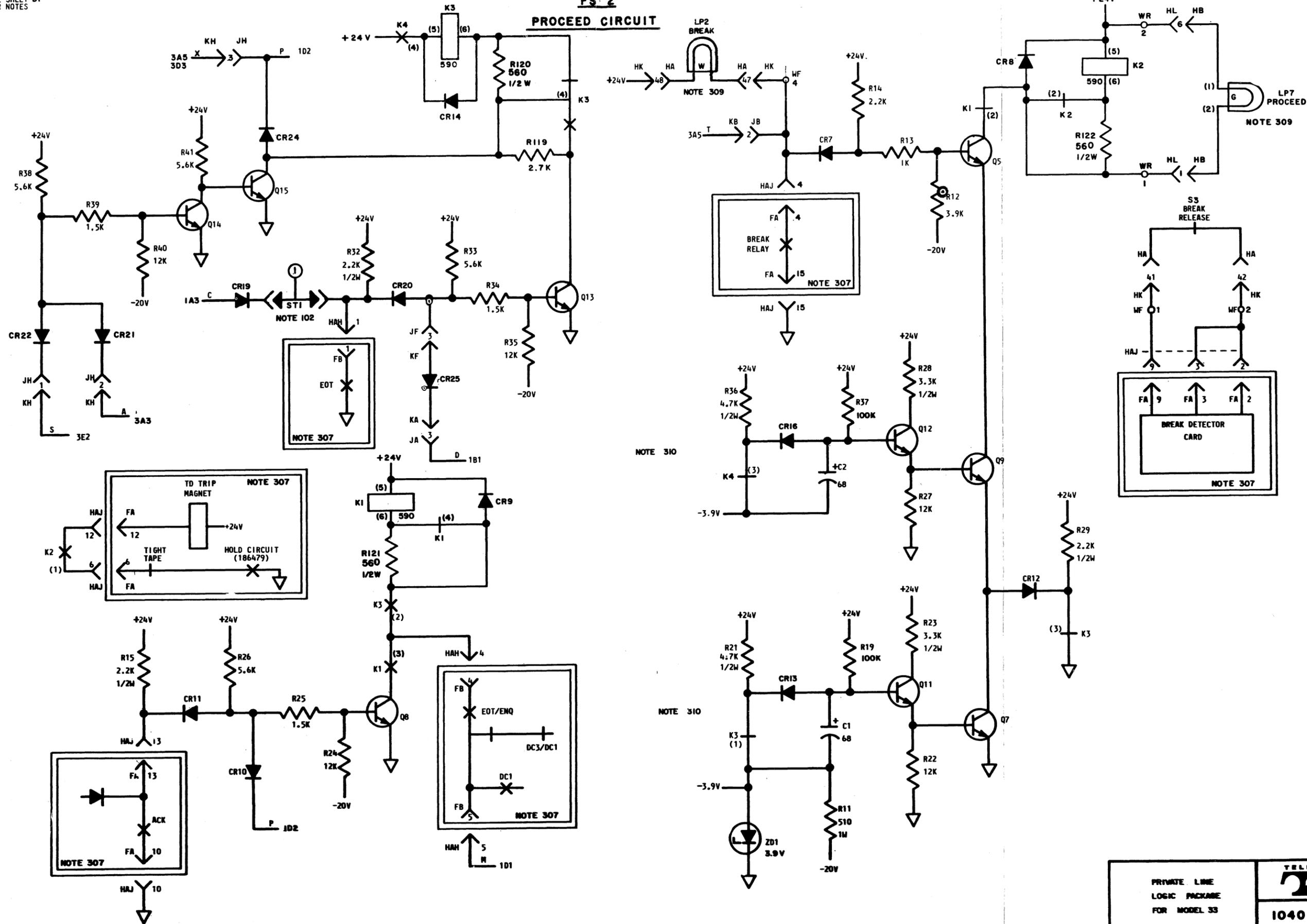
TELETYPE

1040 SD-A1

FS 2

PROCEED CIRCUIT

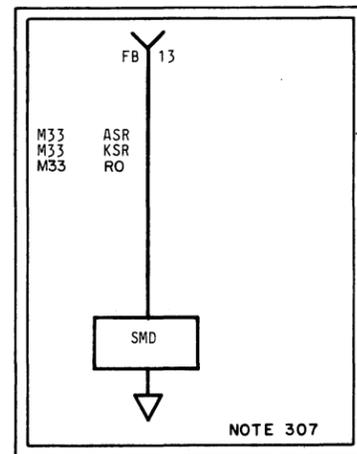
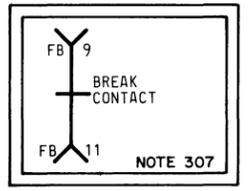
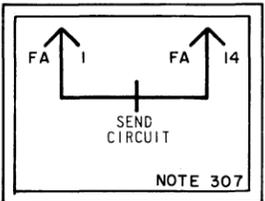
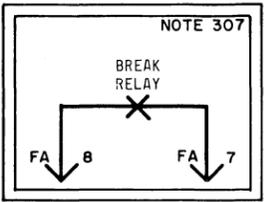
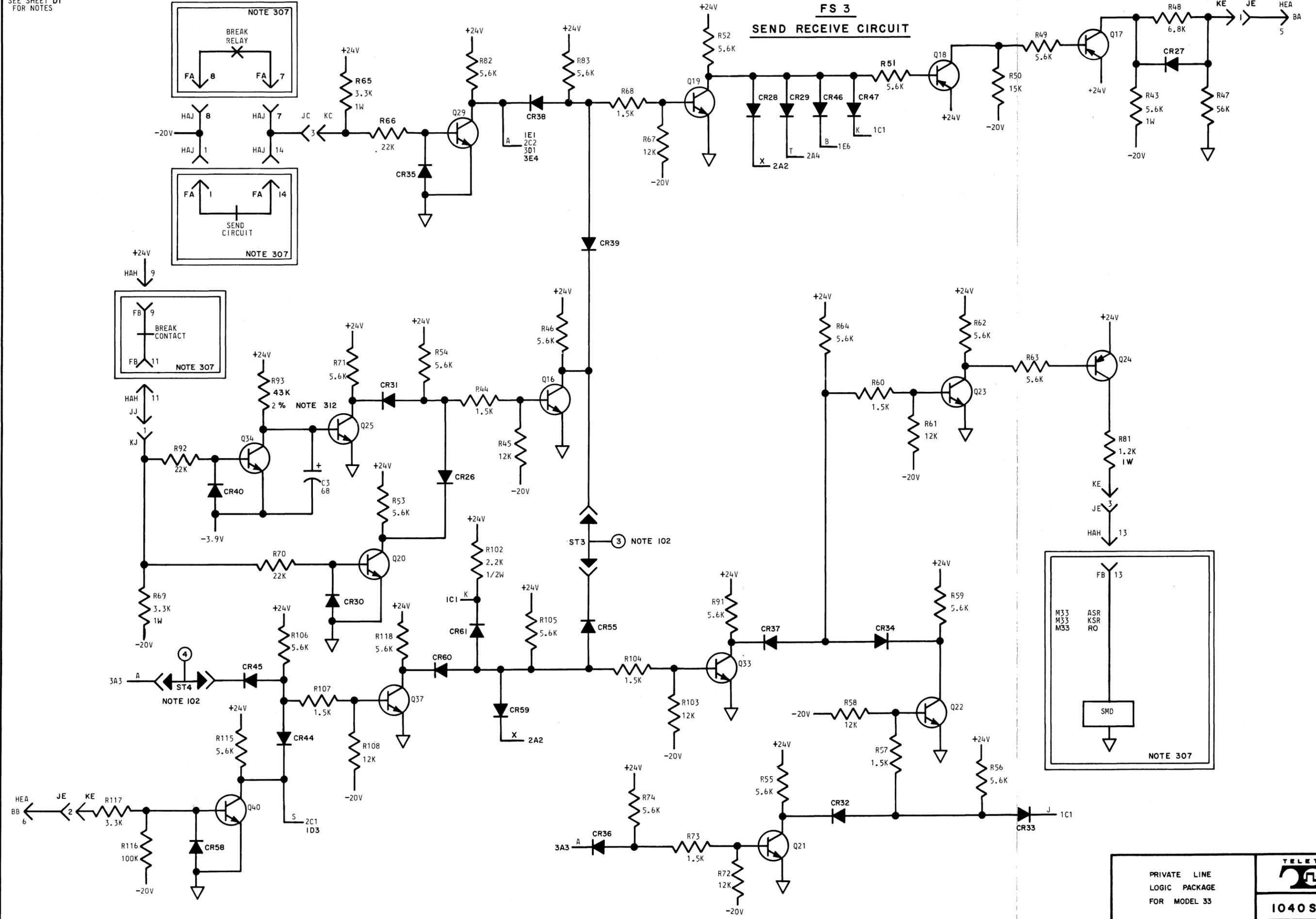
SEE SHEET D1 FOR NOTES



SEE SHEET D1 FOR NOTES

ISSUE
1

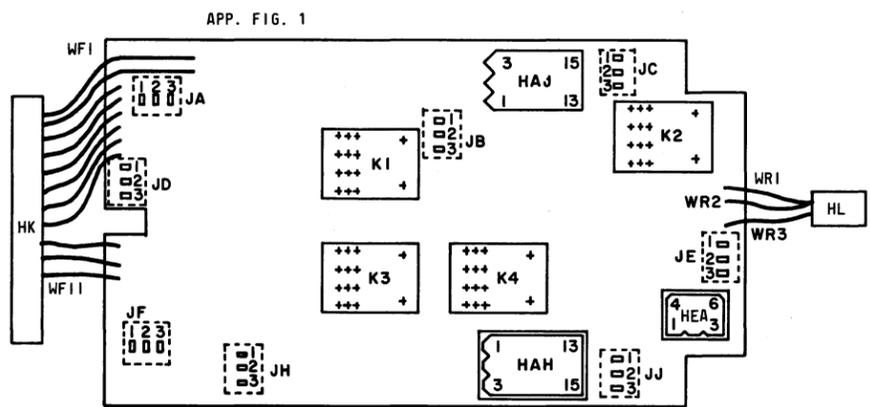
FS 3 SEND RECEIVE CIRCUIT



PRIVATE LINE LOGIC PACKAGE FOR MODEL 33

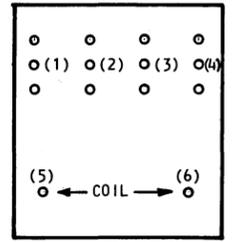


NDP



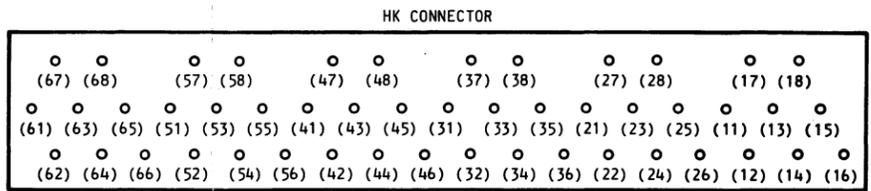
APP. FIG. 3 RELAY

DESIGNATION		K1	K2	K3	K4
PART NO.		305456			
CONTACT NO.	CONT. ARR.	LOCATION			
1	EBM	-	2C1	2E5	1C6
2	EBM	2A6	2A6	2D3	1D2
3	EBM	-	-	2D6	2C5
4	EBM	2D3	-	2B4	2A3
COIL	-	2C3	2A6	2A3	1C6



APP. FIG. 7 SWITCH ASSEMBLY

CONT. ARR.	EMB			EBM					
	C	NC	NO	NC	C	NO	LAMP	-	-
KEY STRIP NO.	1	2	3	4	5	6	7	8	
NAME	PREFIX	LOCATION							
OFF	6	1B3	-	1C3	-	-	-	-	-
ON	5	1C2	-	1C2	-	-	-	1B2	1B1
BK RL	4	2B6	2B7	-	-	-	-	2A5	2A4
LOCAL	3	-	-	-	1C2	1C2	1D2	1D2	1D3
OOS	2	-	-	-	-	1B5	1C5	1B5	1B5
SPARE	1	1B2	1C2	1C2	-	-	-	1C3	1C3
DESIGNATION									
OFF	6	S1							
ON	5	S2						LP1	
BK RL	4	S3						LP2	
LOCAL	3			S4				LP3	
OOS	2					S5		LP4	
SPARE	1	S6						LP5	



APP. FIG. 2 BOARD CONNECTORS

DESIGNATION	HAH	HAI	HEA
PART NO.	328727	328733	82650
TERMINAL	LOCATION		
1	2B3	3A2	1C6
2	1D1	2C7	1B1
3	1A6	2C7	1A1
4	2D3	2B5	1B7
5	2E3	1B6	3A7
6	1B6	2D1	3E1
7	1C6	3A2	-
8	-	3A2	-
9	3B2	2C7	-
10	-	2E2	-
11	3C2	-	-
12	1A6	2C1	-
13	3C6	2D2	-
14	-	3A2	-
15	1D4	2B5	-

APP. FIG. 4 BOARD TO BOARD CONNECTIONS

DESIGNATION	POSITION	1	2	3	MATES WITH
JA	315946	1B4	1C1	2C3	KA 315967
JB	315946	1A7	2A5	1A7	KB 315967
JC	315946	1B7	1B7	3A2	KC 315967
JD	315946	1B1	1D1	1B3	KD 315967
JE	315946	3A7	3E1	3C6	KE 315967
JF	315946	1C5	1B4	2B3	KF 315967
JH	315946	2C1	2C1	2A2	KH 315967
JJ	315946	3C2	1A7	1D4	KJ 315967

APP. FIG. 5 BOARD CONNECTIONS FOR CABLE WIRES

DESIGNATION	WF	WR		
CONNECTION NO.	LOCATION	LOCATION	COLOR	COLOR
1	2B7	2A6	P	W
2	2B7	2A6	R-S	S
3	1A6	1D4	R-BR	BL
4	2A5		R	
5	1B4		BL	
6	1C2		Y	
7	1C2		BR	
8	1B2		BK	
9	1C3		W-Y	
10	1C5		G	
11	1D2		W	

APP. FIG. 6 CABLE CONNECTOR

DESIGNATION	HL
TERMINAL NO.	LOCATION
1	2A7
2	-
3	1D4
4	-
5	-
6	2A7

APP. FIG. 8 CONNECTOR

CONNECTOR	SWITCH ASSEMBLY	LAMP ASSEMBLY
DESIGNATION	HK, HA	HL, HB
LOCATION		
1		2A7
3		1D4
6		2A7
11	1B2	
12	1C2	
13	1C2	
17	1C3	
18	1C3	
25	1B5	
26	1C5	
27	1B5	
28	1B5	
34	1C2	
35	1C2	
36	1D2	
37	1D2	
38	1D3	
41	2B6	
42	2B7	
47	2A5	
48	2A4	
51	1C2	
53	1C2	
57	1B2	
58	1B1	
61	1B3	
63	1C3	

PRIVATE LINE LOGIC PACKAGE FOR MODEL 33

TELETYPE

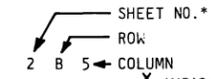
1040SD-C1

CIRCUIT NOTES:

STRAP OPTION	DRAWING LOCATION	FUNCTION OF STRAP
2	B1E6	WITH - IDLE LINE DETECTOR WILL SHUT OFF SYSTEM. WITHOUT - IDLE LINE DETECTOR WILL NOT EFFECT SYSTEM.
1	B2B2	WITH - DISCONNECT ON EOT CHARACTER. WITHOUT - WILL NOT DISCONNECT ON EOT CHARACTER.
4	B3D2	WITH - HALF DUPLEX OPERATION WITHOUT - FULL DUPLEX OPERATION
3	B3D4	WITH - LOCAL BREAK SIGNAL WILL FORCE RECEIVE CIRCUIT MARKING. WITHOUT - LOCAL BREAK SIGNAL WILL HAVE NO EFFECT.

INFORMATION NOTES:

301. SHEET COORDINATE LOCATION LEGEND:



X INDICATES LINE KEY

*SECTION LETTERS ARE NOT REQUIRED UNLESS REFERENCE IS TO OTHER SECTIONS OF DRAWING. WHEN SECTION LETTERS ARE REQUIRED, THE SECTION LETTER SHALL PRECEDE THE SHEET NO. (EG. G2B5).

302. TERMINAL DESIGNATIONS ENCLOSED IN PARENTHESES ARE FOR REFERENCE AND ARE NOT MARKED ON COMPONENT.

303. ALL RESISTORS 1/4 WATT AND RESISTANCE VALUES IN OHMS, UNLESS OTHERWISE SPECIFIED.

304. ALL CAPACITANCE VALUES IN MICROFARADS, UNLESS OTHERWISE SPECIFIED.

305. ALL VOLTAGES D.C. UNLESS OTHERWISE SPECIFIED.

306.  INDICATES FEMALE TERMINAL

 INDICATES MALE TERMINAL

307. REFER TO:
8163SD FOR MODEL 33 ASR, KSR AND RO.

308. **303831** CIRCUIT CARD ASSEMBLY CONTAINS:
RESISTORS R1 THROUGH R42 & R119 THROUGH R122
CAPACITORS C1 AND C2
DIODES CR1 THROUGH CR22 & CR24
TRANSISTORS Q1 THROUGH Q15
ZENER ZD1 & ZD2
STRAP ST1

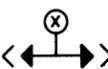
303832 CIRCUIT CARD ASSEMBLY CONTAINS:
RESISTORS R43 THROUGH R118
CAPACITORS C3 THROUGH C6
DIODES CR25 THROUGH CR 6I
TRANSISTORS Q16 THROUGH Q40
STRAP ST2, ST3, AND ST4

309. ALL LAMPS ARE 24 VOLTS.

310. 1 SECOND TIME DELAY (0.8-1.8 SEC.)

311. 4 MINUTE IDLE LINE TIMER (2 TO 8 MIN.)

312. BREAK TIMER 590 ±160 MSEC.

313.  INDICATES OPTION

314. ST INDICATES STRAP

ISSUE

1

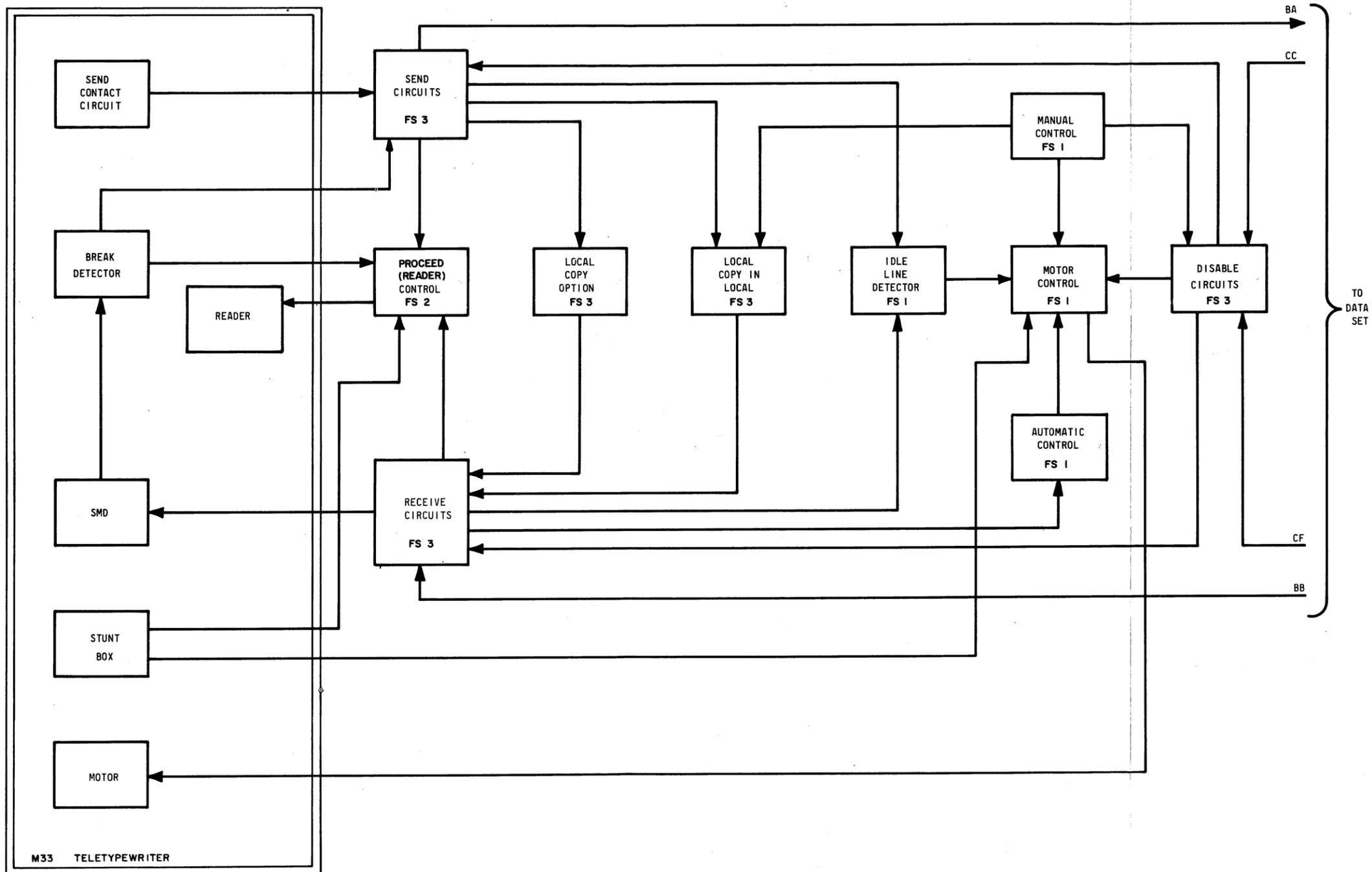
WDP

PRIVATE LINE
LOGIC PACKAGE
FOR MODEL 33



1040 SD-DI

BDI
FS BLOCK DIAGRAM



PRIVATE LINE LOGIC PACKAGE
FOR MODEL 33
(186670)

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PRIVATE LINE LOGIC PACKAGE
FOR MODEL 33
(186670)

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PRIVATE LINE LOGIC PACKAGE
FOR MODEL 33
(186670)

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4. ALARM INFORMATION.	1
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4.02 Out of Service	1

SECTION I - GENERAL DESCRIPTION

1. PURPOSE

1.01 The 186670 Modification Kit consists of a self contained logic package with control keys and lamps, a control lamp assembly, and a break detector circuit card. In addition to the standard set features, items such as idle line motor control, Data Communication Control Procedures X3.3.4 category 2.3/A1 and an EIA RS-232-C interface are provided.

2. GENERAL DESCRIPTION OF OPERATION

2.01 APPLICATION

- (a) The Model 33 Private Line Terminal consists of a 33 TDA, 33 TDB, 33 TDE, 33 TDF, 33 TED or 33 TEE, in conjunction with the 186670 Modification Kit for point-to-point communication link in a terminal-to-terminal or terminal-to-computer configuration. A detailed description covering the application of the logic package and its associated equipment is contained in the memorandum Accompanying TDL 29.

2.02 CONTROLS

(a) Pushbutton

- (1) The 186680 Logic Package Assembly has a mounting bracket containing a six position pushbutton assembly. Starting from the left, and going towards the right are the OFF, ON, BREAK RELEASE, LOCAL, OUT OF SERVICE and SPARE TEST pushbuttons. All but the OFF pushbutton contain an indicator lamp. All but the BREAK RELEASE pushbutton are mechanically interlocked to prevent more than one pushbutton from being depressed and will release any of the locking pushbuttons. The OFF and ON will not lock when depressed but return when released. The BREAK RELEASE pushbutton is momentary and independent of any of the other pushbuttons.

(b) Function Box

- (1) The 186680 Logic Package utilizes the printer's function box to provide the necessary commands for automatic operation. The function box contact arrangement is as follows:

<u>Code</u>	<u>Contact Type</u>	<u>Function</u>
DC1	Normally Open	Reader Control
ACK	Normally Open	Logic Control
ENQ/EOT	Transfer	Logic Control
DC1/DC3	Normally Closed	Reader Control
EOT	Normally Open	Logic Control

A delete character should be transmitted after the control codes DC1, DC3, ENQ, ACK or EOT.

2.03 INDICATORS

- (a) Two indicators, the PROCEED lamp and PAPER ALARM lamp, are attached to separate bracket which mounts at the rear of the 186680 Logic Package Assembly. The lamp power and control is derived from the 303831 circuit card through a cable and Molex connector. The PROCEED lamp has a green lens and is the right indicator. The PAPER ALARM lamp has a red lens and is the remaining indicator

2.04 INTERFACE

- (a) The equipment terminates in an EIA interface as per RS-232-C. The control leads required are:

<u>Leads</u>	<u>Pin</u>	<u>Function</u>
AA	1	Protective Ground
AB	7	Signal Ground
BA	2	Transmitted Data
BB	3	Received Data
CC	6	Data Set Ready
CF	8	Data Carrier Detector

AA This lead is connected to the equipment frame and metal chassis parts. This in turn is connected to the third wire of the a.c. power cord.

AB This lead is the common or ground return for all the signal leads. It is also the connection for all the logic package power supply grounds. The AA and AB leads are not connected together.

BA This lead contains the transmitted data whether generated by the keyboard, reader, answerback or the break key.

BB This lead contains the received data from the distant station.

- CC The data set ready lead will be positive when the data set has power and is in a ready condition to transmit or receive data. A negative potential will be present which indicates the data set is not ready. When the data set loses power, this lead goes to zero volts. At any time the last two states (negative or zero volts) exist, the terminal will place the set in the out of service state and light the Out of Service Lamp.
- CF The data carrier detector lead gives the status of the data sets and the means of connecting them together. Under normal operating conditions this lead will be positive. If at any time the carrier is not detected by either a data set failure or a loss of the data link the lead will become negative. At any time this lead becomes negative it will place the set in the out-of-service state and light the Out of Service Lamp.

3. SUPPORTING INFORMATION

- 3.01 The following documents apply to the 186670 Modification Kit or various components of it:

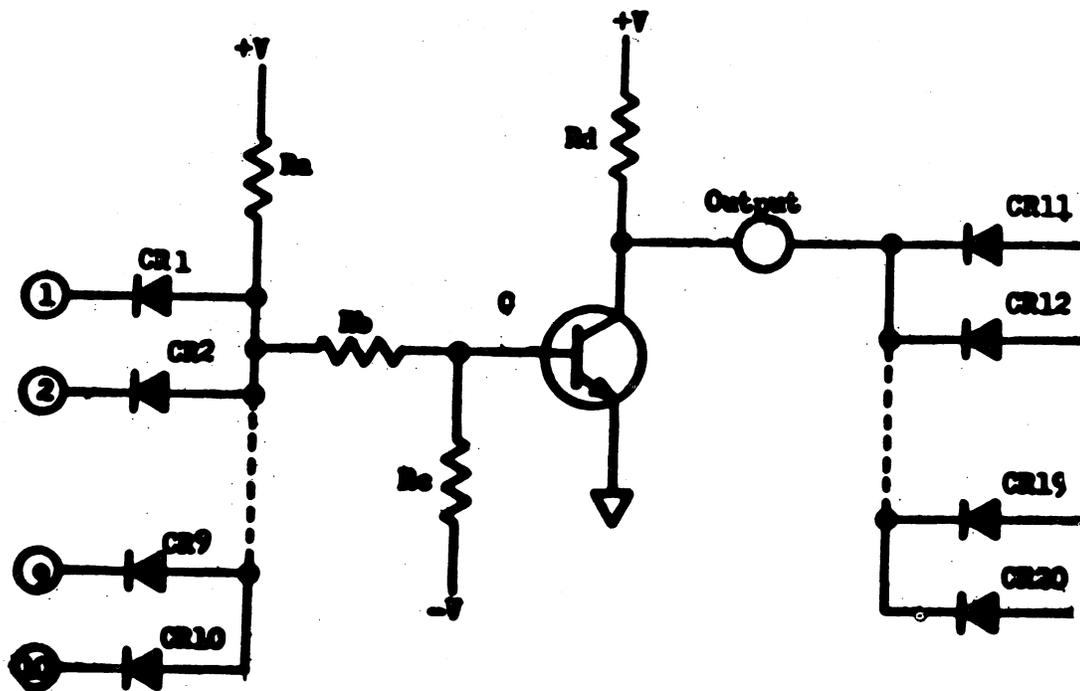
1040 SD	Private Line Logic Package for Model 33
303833	Break Detector Card
	Memorandum Accompanying TDL29



SECTION II - DETAILED DESCRIPTION

1. BASIC CIRCUITRY (Fig. 1)

1.01 The logic package circuitry is comprised of discrete components (transistors, diodes, resistors, etc.) Approximately 60 per cent of the circuitry is arranged into "nand logic" type building blocks. The circuitry requires a +24 volt and a -20 volt power supply.



Ra 5,600 ohms

Rb 1,500 ohms

Rc 12,000 ohms

Rd 5,600 ohms

Nand Logic Circuit

Figure 1

- 1.02 The circuit can be divided into three sections, the input, the amplifier and the output. The input components are diodes CR1 through CR10. The actual number of diodes varies with the application but must not exceed 10. The amplifier consists of Qa and resistors Ra, Rb, and Rc. The output is the junction of Rd and the collector of Qa. Rd is considered as part of the output circuit. The output should never drive more than 10 logic stages or a maximum load current of 45 ma.
- 1.03 Approaching the circuit using logic terms, a high state (+24 volts) is a 1 (ONE) and a low state (between 0 and +1 volt) is a 0 (ZERO). By definition the nand output will be ZERO when all of the inputs are ONE. Any input which is ZERO will cause the output to be ONE. Any unused input is considered to be a ONE. The following is a truth table for the logic stage. An X can be either a ONE or a ZERO to produce the indicated output; it is a "don't care" case.

<u>Inputs</u>										<u>Output</u>
1	2	3	9	10					
0	X	X		X	X					1
X	0	X		X	X					1
X	X	0		X	X					1

X	X	X		0	X					1
X	X	X		X	0					1
1	1	1		1	1					0

Truth Table

Figure 2

- 1.04 To describe how the circuit functions, consider the case where all of the inputs are ONE. The cathodes of the input diodes are at +24 volts and do not effect the input circuitry of the transistor amplifier. The transistor Qa is turned on due to the base current supplied by resistors Ra and Rb. A slight amount of current is drawn off by Rc to the -20 supply but this is insignificant. Ra and Rb form a voltage divider

and cause the anodes of the input diodes to be at a nominal +5.6 volts. With the diode cathodes at +24 volts, they are reversed biased and have no effect on the circuit.

- 1.05 The nand circuit which has all of its inputs at ONE has a ZERO output. This is shown as the bottom line of the truth table. (Figure 2)
- 1.06 Whenever an input becomes 0 to +1 volts, this input is considered a ZERO. The current flowing through Ra is diverted from Rb and the base of Qa into the diode whose cathode is low. Whenever an input becomes 0 volts, the device causing this must be capable of passing or "sinking" the input current. In this case it is nominally 4.3 ma.
- 1.07 The ZERO input causes the junction of Ra, Rb, and the anode of the input diodes to be approximately +1 volt. Rb and Rc form a voltage divider from the -20 volt supply. The base is approximately -1.3 volts with one input at ZERO causing the transistor to turn off generating a ONE on the output.
- 1.08 The nand circuit which has one of its input at ZERO will cause its output to be ONE. More than one input may be a ZERO but only one is necessary to cause the output to be a ONE. This is shown by all the lines but the bottom one of the truth table. (Figure 2)

2. SEND CIRCUITS (3A5)

- 2.01 The send circuits comprise the circuits which interface with the character generating contacts of the teletypewriter, the break generating contacts, and the common output circuits.
- 2.02 SEND CONTACT CIRCUITRY (3A3)

(a) The send contacts drive a single transistor stage Q29, before combining into the common output circuitry. A 44 volt, 13 ma. wetting circuit is provided by the logic package. The contacts are connected between the -20 volt and +24 volt supplies with a 3300 ohm current limiting resistor. The contacts are normally closed or marking. One send contact terminal is connected directly to -20 volts and the other is connected to the junction of R65 and R66. The wetting current flows through R65. R66 is connected to the base of Q29 and diode CR35. When the contacts are closed, -20 volts is impressed across R66. CR35 conducts limiting the reverse bias to Q29 to -0.7 volts.

(b) When data is being transmitted, the send contacts are changing between marking and spacing. The spacing condition is when the contacts are open and R66 does not contain -20 volts across it. The open contacts permit a series connection between R65 and R66. This path provides the connection of Q29's base to the +24

volts supply. Sufficient base current flows causing Q29 to conduct.

- (c) With Q29 conducting or turned off, logic values can be assigned to the output state. When the send contacts of the teletypewriter are marking, the output of this stage is ONE and when spacing, the output is ZERO.

2.03 BREAK CONTACT CIRCUITRY (3C3)

- (a) The normally closed break contacts drive two separate stages, Q20 and Q34. The additional circuitry of these stages is later combined in the Q16 stage which is the output stage of the break timer. The break signal will be generated as long as the break key is depressed and until the timer times out. The timer is designed for 590 msec \pm 160 msec break signals.
- (b) The break contacts are in a 44 volt, 13 ma wetting circuit. In this application the contacts are connected directly to the +24 volt supply and have the wetting current resistor, R69, tied to the -20 volt supply. With the contacts closed (break key not operated), the wetting current flows, in addition to the current flowing through R70 and R92 into the bases of Q20 and Q34, respectively. Thus, when the break key is not operated, Q34 is turned on, shorting out C3, and there is a ZERO output from Q20.
- (c) Depressing the break key will remove the conducting bias from Q20 and Q34. Their bases are returned to -0.7 volts compared to their respective emitters with CR30 and CR40 protecting the transistors from over reverse voltage. The bases are returned to -20 volts through R70 and R92 which in turn is connected to R69 and the -20 volt supply.
- (d) When the break key is not operated, the output of Q20 stage is a ZERO. Operating the break key will produce a ONE output as long as the key is depressed.
- (e) When the break key is not operated, Q34 is turned on. This shorts out C3 and ties the base of Q25 to -3.9 volts. This reverse biases Q25 producing a ONE at its output. Operating the break key causes Q34 to turn off which removes the short from C3. Thus the current flowing from R93 will start to charge up C3. When 4.6 volts builds up across C3, Q25 will turn on causing a ZERO on its output. The variations in the reference voltage (-3.9V), R93, C3 and Vbe of Q25 permit a time-out of 590 msec \pm 160 msec.

- (f) The Q16 stage is a standard 2 input nand circuit and behaves as described in paragraph 1 of this section. When the break key is not operated, the break contacts are closed which produces a ZERO on the CR26 input. The CR31 input is a ONE. With one of the inputs a ZERO, the output will be ONE.
- (g) Operating the break key will cause the CR26 input to become a ONE. The Q25 stage has not timed out yet and the CR31 input is also a ONE. With both inputs a ONE, the Q16 output will be a ZERO. After a sufficient period of time, Q25 will conduct putting a ZERO on the CR31 input. This ZERO will then cause the stage's output to change to a ONE.
- (h) Releasing the break key will not cause a change in output after a break time-out has occurred. This is because of a double change of state. On releasing the break key, the Q25 output will change from a ZERO to a ONE while the Q20 output is changing from a ONE to a ZERO. Thus one of the inputs to Q16 remains a ZERO.
- (i) Summarizing the operation, the Q16 output will be a ONE when the break key is not depressed. Depressing it will cause the output to become a ZERO until C3 charges up and then the output will revert to ONE and stay a ONE. Releasing the break key will not have any effect upon the stage's ONE output.

2.04 COMMON SEND CIRCUIT (3A4)

- (a) The common portion of the send circuit is the Q17 stage which is the EIA output stage, Q18 which is the Q17 driver stage and Q19 which combines the data signal with the break signal.
- (b) With neither a BREAK being generated nor data being sent, both CR38 and CR39 inputs to the Q19 stage will be a ONE. When either or both become ZERO, the stage's output will be a ONE. Thus, for a MARK a ZERO is generated and for a SPACE, a ONE is generated. This makes it convenient to return this point to common for blinding; this is the function of CR28, CR29, CR46, and CR47.
 - (1) CR28 is used to blind the BA lead when the terminal is in Local.
 - (2) CR29 is used to blind the BA lead when the terminal has detected a BREAK signal from

the distant terminal.

- (3) CR46 will blind the BA lead when the idle line detector turns the terminal off.
 - (4) CR47 will blind the terminal whenever the K4 relay is unoperated and SPARE (TEST) push-button is not depressed.
- (c) Q18 is a PNP transistor with its emitter returned to +24 volts. The transistor's base is protected from excessive current by R51. One end of R51 is connected to the Q18 base and the other end functions as the input for this stage. When a ONE is present, the base and emitter of Q18 are at the same potential and the transistor is off. A ZERO input will turn the transistor on making the collector just a few tenths of a volt under the +24 volt supply voltage. Thus on MARK (or blinded) Q18 is turned on and for SPACE is turned off.
- (d) Q17 is also a PNP transistor and is the stage which generates the EIA output signal. With Q18 turned off (or in SPACE) there is an absence of input signal, therefore, Q17 is turned on. The base drive is derived from R49 and R50 connected in series and returned to -20 volts. With Q18 turned on (or in MARK) the junction of R49 and R50 is returned to the +24 volt supply voltage. This places the emitter and base of Q17 at the same potential which means Q17 is turned off.
- (e) The EIA output is derived by the state of Q17 and the R43, R47, R48, and CR27 network. The EIA state for a MARK output is from -3 to -25 volts. Q17 is off during a MARK and the negative signal is derived from the R43 and CR27 connection to the negative supply. CR27 by-passes R48 reducing the driving impedance of the circuit. Any short on the EIA lead will not damage the circuit.
- (f) The EIA state for a SPACE is from +3 to +25 volts. Q17 is on during SPACE and the positive voltage is derived from the +24 volt supply through Q17. R48 protects the output circuitry from an accidental short circuit. With the collector of Q18 at +24 volts, CR27 is reversed bias and does not short out R48. R47 is a permanent load on the output to limit the open circuit voltage swings so as not to exceed +25 volts nor -25 volts.

(g) The EIA output rating is shown in the table below:

	<u>Open</u> <u>Circuit Voltage</u>	<u>Short</u> <u>Circuit Current</u>	<u>Rated</u> <u>Load Limits</u>	
			3000 Ohms	7000 Ohms
MARK	-18.2	-3.44 ma	-6.75V	-10.5v
SPACE	+21.4	+3.48 ma	+6.4v	+11.5v

NOTE: All component values and supply voltages at nominal.

EIA Output Values

FIGURE 3

3. RECEIVE CIRCUITRY (3D4)

- 3.01 The logic package receives data from a distant point on the BB lead. The input transistor, Q40, receives its drive from this lead. The positive voltage for a SPACE signal will turn the transistor on. The negative voltage for a MARK signal will turn the transistor off. When the input is negative, the voltage could be sufficiently high to damage Q40. The cathode of CR58 is tied to the base of Q40 which clamps the reverse base voltage to approximately -0.7 volts thus limiting it to a safe reverse base voltage. The output of Q40 will be a ONE for a negative (MARK) signal and will be a ZERO for a positive (SPACE) signal.
- 3.02 The logic package has a built-in mark hold scheme. The Q40 base is returned to the -20 volt supply through a 100,000 ohm resistor, R116. Whenever the BB lead is opened, a self-generated negative voltage appears on the base of Q40 insuring the system will seem to have a MARK signal on the input. Thus, there will be ONE out of this stage when the BB lead is opened.
- 3.03 The Q40 stage drives the Q37 stage. A ONE on any input is a MARK. The other input (CR45) to Q37 derives its signal from the send contact stage (Q29). Thus, any keyboard activity is fed to the receive circuits through this connection. It is possible to prevent this from occurring by opening the Strap 4 option. With the strap in place, the Logic Package is connected for half duplex operation. Cutting the strap then isolates the send/receive circuits and the logic package works full duplex. (Ref. par. 11.04)
- 3.04 Q37 drives the Q33 stage which has 3 other inputs. Any ZERO input is a MARK signal. Two of the inputs (CR59 and CR61) are returned to common for blinding purposes. The third input CR55, provides a special function which will be described in paragraph under strap options. (Ref. par. 11.03)
- 3.05 The Q33 stage drives the Q23 stage with a ONE for MARK. The other input (CR34) comes from the local signal circuit. (Ref. par. 6) a ONE is always present on this input unless the terminal is in Local and the terminal's send circuit is being used.

3.06 The output of the Q23 stage drives Q24 through a 5600 ohm resistor (R63). Q24 is a PNP transistor with its emitter connected to +24 volts. Thus, when the receive circuit is at MARK, Q23's output is a ZERO and Q24's base is returned to common through R63. This condition forward biases Q24 turning it on. When Q23 is at SPACE, the output is a ONE. Q24's base and emitter are both returned to the +24 volt supply and Q24 is not conducting. The base resistance R62 plus R63 is sufficiently low to keep Q24 off at elevated temperatures. The SMD is driven from the collector of Q24 through a current limiting resistor, R81. The loop current is nominally 20 ma.

4. MOTOR CONTROL

4.01 The set cannot be "on line" unless both CC and CF are present. If while part way through a message, the set logic detects a loss or absence of CC or CF, the set will disconnect and the OUT OF SERVICE lamp will light. If the set is off when CC or CF is lost, it will be impossible for the set to be placed "on line". Depressing the ON button will cause only the ON lamp to light and nothing else will occur. The ON lamp will extinguish when the ON button is released.

4.02 Q4 is normally biased off by resistor R10 (100K) returned to -20 volts. CR4 limits the voltage on the base of Q4 to a safe value. R9 connects the base of Q4 to the EIA interface connector. This resistor limits the current from the data set to a safe value and provides for proper isolation between data set and the private line package.

4.03 The input which drives the Q4 stage is CC, Data Set Ready. A positive voltage, from 3 to 25 volts, indicates the data set is connected and in a ready state. If the data set were connected but not ready, the input would be from -3 to -25 volts. At any time the connection is open or the data set does not have power, the internal negative bias on Q4 will simulate a data set not ready condition.

4.04 The Q6 stage functions similarly to the Q4 stage except the input connection is the CF lead or Data Carrier Detector. Positive voltage indicates the carrier is present and negative voltage indicates the carrier is not present. An open circuit permits the internal bias to simulate loss of carrier. Q6's base is returned to common through zener diode, ZD2. Thus, when Q4 is biased off and the CF input remains positive, the zener diode conducts permitting the CF input to conform to EIA standard RS-232-C.

4.05 Q4 and Q6 are connected in series to form an "nand" gate. The collector load resistor is connected between +24 volts and the collector of Q6. The emitter of Q6 is connected to the collector

of Q4 and Q4's emitter is returned to common. With both CC and CF in a ready state, both Q4 and Q6 are turned on. Q6's collector will be at approximately 0.5 volts. An input that will cause either transistor to turn off will stop the current flow and Q6's collector will be at approximately 5.5 volts.

- 4.06 With both CC and CF leads in the ready and on state, the collector of Q6 will be at approximately 0.5 volts. R30 and R31 form a voltage divider from -20 volts into the base of Q10. The base will be at approximately -1.7 volts biasing Q10 off.
- 4.07 When Q4 and/or Q6 is turned off, the current flowing through R18 will pass through R30 and cause Q10 to turn on which causes an out of service condition. This is indicated by the OUT OF SERVICE lamp glowing without the switch being depressed. The resulting action is the same as if the OUT OF SERVICE switch was depressed. See paragraph 12.06 for explanation of what occurs.
- 4.08 When the terminal is not in use, Q1 is turned on. The base current flows through R1 and R2. Depressing the ON switch (S2) returns the junction of R1 and R2 common through CR1 and CR3. The voltage divider formed by R2 and R3 will reverse bias Q1 causing it to turn off.
- 4.09 The set in the off state has Q2 off. To turn on, all of the inputs must be one (CR19, CR48, CR50, and collector of Q1). The off state of Q2 is dominant and by returning CR19, CR48, CR50, or collector of Q1 to common, Q2 will be turned off.
- (a) CR19, through a strap option, is connected to an EOT stunt box contact. Receipt of this code will operate the contact returning the cathode of CR19 to common which will turn off Q2. With the strap open, the set will not turn off on receipt of EOT.
 - (b) CR48's cathode can be returned to common by either operating the OFF switch (S1) or the idle line timer output transistor (Q30) conducting. It is a strap option that connects the Q30 collector to the CR48 cathode. Opening the strap prevents the set from disconnecting after a period of inactivity; the only way to turn the set off is by the OFF switch (S1) or by the EOT stunt box contact if the EOT option is installed.
 - (c) CR50's cathode is connected to the OUT OF SERVICE switch (S5). Depressing the switch will hold the Q2 stage in the off mode until another key is operated releasing the OUT OF SERVICE pushbutton. This contact also completes the common path of the OUT OF SERVICE lamp (LP4) which is illuminated while the switch is depressed.
 - (d) CR50's cathode is connected to the collector of Q10. When CC and CF are present and on, Q10 is reversed biased

and off having no effect upon circuit. At any time the CC and/or CF is turned off or is lost, C10 will turn on returning the cathode of CR50 to common. This will cause Q2 to turn off and the OUT OF SERVICE lamp (LP4) to be illuminated. This will inhibit the set from being turned on by operating the ON switch (S2), if the terminal is on, it will be turned off.

- 4.10 The K4 relay will pick up whenever the terminal goes "on line". Q3, a PNP transistor, is used to drive K4. The emitter of Q3 is connected to the +24 volt supply. The base is connected to the collector of Q2 and Q38 and to the anode of CR17 through R7. With a ONE input to Q3's base, the transistor is biased off. Whenever there is a ZERO on the R7 junction with Q2, Q38, and CR17, Q3 will be turned on.
- 4.11 R16, a 820 ohm resistor, is in series with K4. The one end of R16 is tied to the collector of Q3 and the other is tied to the K4 relay. A normally closed contact of K4 is connected across R16. When Q3 turns on, 44 volts is impressed across K4. When the relay energizes, the contact shorting R16 opens reducing the voltage across the relay coil to approximately 18 volts. K4 is a 24 volt relay and the higher voltage is impressed across the coil until the relay picks up. This increased voltage causes K4 to pick up within 5.5 msec. K4 will not energize unless the SPACE signal is longer than 3 msec.
- 4.12 With K4 operated, Q1 will remain biased off due to the junction of R1 and R2 returned to common through CR1, CR6, and closure of K4-2. The circuit is self-locking and K4 will remain energized as long as Q1 is off, Q2 is on and Q3 is on. The on state is not dominant for Q2, therefore, it is possible to turn it off by returning one of the inputs of Q2 to common.
- 4.13 The receive signal comes in on the BB lead. On MARK, the negative signal turns Q40 off causing a ONE to appear at the cathode of CR57. On SPACE, the positive signal turns Q40 on causing a ZERO on the cathode of CR57.
- 4.14 A ONE on the input to the Q39 stage a MARK signal will cause this stage to be on. Without any spacing signals on the Received Data Lead, this stage will stay on. Whenever the received data is spacing, the stage is turned off.
- 4.15 A ZERO input is dominant on any of the inputs to stage Q38. Under normal conditions, all the other inputs to this stage are ONE, therefore, the Q39 input is the only input keeping Q38 turned off. Q38 off will not cause Q3 to turn on which in turn will energize K4.
- 4.16 Upon receipt of a spacing signal will cause Q40 to be turned on. Propagating on through the circuitry, Q39 will be turned off, Q38 turned on causing Q39 to turn on causing K4 to energize.

- 4.17 The K4 relay is held up by its holding contact (K4-2) and stages Q1, Q2, and Q3. The K4 relay remains energized regardless of the state of the signal line, it can now be either marking or spacing and the relay will remain operated.
- 4.18 The Q38 stage has several inputs, CR49, CR51, CR56, and the collector of Q39. The dominant state of the input to the Q38 stage is ZERO. Having a diode (CR49, CR51, or CR56) returned at ZERO will inhibit any spacing signal from passing through this branch of circuitry. K4 is inhibited from being energized by the received signal.
- (a) The OFF switch (S1) is normally open and Q30 is normally turned off. The cathode of CR49 is therefore returned to a ONE. When either are activated, CR49's cathode is returned to ZERO thereby inhibiting any action by the received data lead.
 - (b) Without the OUT OF SERVICE switch (S5) operated and CC and CF present and on, a ONE is present on the cathode of CR51. This condition does not inhibit the action of any of the other inputs to Q38. If S5 is operated, or Q10 is conducting, or the cathode of CR51 is returned to a ZERO, Q38 is inhibited from functioning.
 - (c) Without a paper alarm indication, the cathode of CR56 is a ONE. With a paper alarm indication, the PAPER ALARM lamp (LP6) is illuminated and CR56's cathode is a ZERO. Q38 is inhibited from responding to the Received Data Lead containing a SPACE signal.

5. IDLE LINE DETECTOR (1E4)

- 5.01 The Idle Line Detector monitors both the send and receive circuits. The signals are differentiated and combined into a single channel which controls the discharge the timing capacitor (C5). This will only occur on a MARK to SPACE signal transition; a steady MARK or a steady SPACE will not have any effect on the idle line timer.
- 5.02 When the BB lead contains a steady MARK, a ONE appears on CR52's cathode. This places a ZERO on the output of the Q35 stage. Similarly, when the send contacts are closed (a MARK state), a ONE appears on CR41's cathode. This places a ZERO on the output of the Q31 stage.
- 5.03 A voltage of just a few tenths of a volt is developed across C6. When the input to the circuit becomes a ONE due to a SPACE signal, C6 begins to charge through R98 and the base path of Q36. After a few milliseconds C6 is charged up to the supply voltage and current will cease to flow in the Q36 base circuit. Any base leakage current will be drained off by R99 Q36 will remain off. When the MARK signal is received, the output becomes a ZERO. The voltage cannot speedily change across the capacitor C6 and a large negative transient would

appear on the base of Q36 which would destroy the transistor. CR53 was added to clamp the Q36's base voltage to a safe value.

5.04 The send circuit's differentiating circuit works identically to the receive circuit's differentiating circuit as described in paragraph 5.03. The difference being in the component numbering.

5.05 The inputs to the Q28 stage are normally ONE except on MARK to SPACE transitions. When receiving data, CR54's cathode is briefly switching to a ZERO; when transmitting data, CR43's cathode is briefly switching to a ZERO. Q28's output normally will be a ZERO when both inputs are ONE. Q27's base is tied directly to the collector of Q28, thus, when Q28 turns off, the current flows into the base of Q27. The base to emitter voltage drop is approximately 0.7 volts and the collector to emitter drop is about 0.25 volts. There is only a small voltage change from when measuring the drop at Q27's base.

5.06 Q27 normally is biased off permitting the charge to build up on C5. The activity from either the send or the receive circuits will cause Q27 to conduct discharging C5. The lack of activity will allow the charge to build up on C5 until the firing point of the unijunction (Q26) is reached. When it fires, C5 is discharged through the unijunction and R76. Some of the current is fed (via R75) to the base of Q30. Q30 is normally off without any base drive. The C5 current will turn Q30 on which causes the terminal to turn off. This occurs when strap 1 remains connected and is not cut.

6. LOCAL COPY IN LOCAL (3E5)

6.01 Stages Q21 and Q22 complete the circuit from the send contacts to the SMD when the terminal is placed in Local. Because the receive circuit is blinded at the input to the Q33 stage, the data being generated by the terminal would be prevented from reaching the SMD. This circuit completes the local signal path in Local regardless of the strapping option for half or full duplex operation.

6.02 The MARK input to the Q21 stage is a ONE. The MARK output from Q21, therefore, is a ZERO. Any ZERO, into the Q22 stage, will cause the output to be a ONE. The first transistor stage causes a 180° phase inversion, and likewise, so does the second. The signal coming from the send contact circuit is fed into the receive circuits in the same phase relationship as transmitted.

6.03 Whenever the terminal is not in Local, the CR33's cathode has a ZERO on it forcing the Q22 into a steady marking state. No data generated will be fed into the receive circuits via the Q21 and Q22 stages.

- 6.04 Whenever the terminal is in Local, the CR33's cathode has a ONE on it which removes any blocking action. The MARK signal on CR36's cathode is a ONE. The Q21 stage has a ZERO output. This causes the Q22 output to be a ONE. Any SPACE signals will be a ZERO on CR36's cathode. This produces a ONE on Q21's output. With both CR32 and CR33 cathodes at ONE, Q22's output will be a ZERO. Data is permitted to be transmitted from the send contacts to the SMD via Q21 and Q22.
7. PROCEED CIRCUIT (206)
- 7.01 The proceed circuit is used to indicate to the operator when transmission is permitted. Whenever the PROCEED lamp (LP7) is illuminated, the operator may send, when it is not, the operator should not send. A relay (K2) is connected in parallel with the lamp. This relay is used to control the reader magnet by a contact (K1-2) so the reader can operate only when the PROCEED lamp is illuminated. This is automatic and the operator need not try to operate the reader control to follow the action of the PROCEED lamp.
- 7.02 The proceed circuit is controlled by a circuit consisting of relay contacts (K1-2 and K3-3) and three transistors. All the transistors must be on and the relays energized before there is an indication to proceed.
- 7.03 When the terminal is not in use, the K1 relay is de-energized, Q5 is turned on, Q9 is turned off and Q7 is off. The fact that Q7 is turned off is not significant at this time because the transistor is by-passed with CR12 and the normally closed contact K3-3. Q9 will keep LP7 and K2 de-energized.
- 7.04 Prior to energizing, the K4-3 relay contact discharges C2 and returns the base of Q12 to -3.9 volts less the drop across CR16. The emitter of Q12 is returned to common. With the base of Q12 more negative than the emitter, Q12 will not be conducting, therefore, Q9 does not have any base current. Q9 is turned off and the leakage current is returned to common through R27.
- 7.05 Depressing the ON switch (S2) energizes K4 removing the short across C2. The current through R37 will charge C2. After about 1.2 (0.8 to 1.8) seconds, the voltage at the base of Q12 is sufficiently positive to cause Q12 to conduct and then causes Q9 to conduct. The PROCEED lamp and the K2 relay are energized indicating it is permissible to transmit.
- 7.06 A second time delay is used when a station is sending a character to activate a distant terminal. This is necessary to insure the remote station has its motors up to speed prior to the transmission of any data. The K3 relay provides this function.

- 7.07 The **K3-1** contact returns the base of Q11 to -3.9 volts which reverse biases Q11. With Q11 off, Q7 is off. The effect of Q7 being off due to the **K3-1** contact is nullified by another K3 contact. The **K3-3** contact returns the collector of Q7 to common through CR12.
- 7.08 K3 operates as a result of activity on the signal line. (Ref. par. 8.) Both **K3-1** and **K3-3** contacts open causing the PROCEED lamp and K2 to de-energize. C1 charges up through R19. When the base of Q11 becomes sufficiently positive, Q11 turns on which causes Q7 to turn on. Turning Q7 on will energize K2 and the PROCEED lamp. The circuit will be de-energized for 1.2 (0.8 to 1.8) seconds. When the circuit is reenergized, it is permissible to keyboard information or transmit from the tape reader.
- 7.09 A BREAK signal will be detected in the UCC29. Two sets of normally open contacts from the break relay are used by the logic package. One set of contacts shunt the keyboard and the other set is used to illuminate the BREAK lamp, cause Q5 to turn off and blind the Send Data Lead (BA). The break detector circuit has an internal holding circuit so when once operated, it will remain energized until the BREAK RELEASE switch (S3) is operated. When Q5 is off, the PROCEED lamp is not illuminated and the K2 relay is de-energized. Resetting of the break circuit will enable the PROCEED lamp and K2 to energize.
- 7.10 The **K1-2** relay contact will enable the proceed circuit when the ENG/ACK circuit (Ref. par. 9) is de-energized.

8. ACTIVITY CIRCUIT (2B3)

- 8.1 The K3 relay is energized as a result of initial activity from the send or receive circuits. When the terminal is activated, the **K4-4** contact closes applying D.C. power to the K3 relay circuit.
- 8.02 The terminal is activated closing 4K4 which enables the K3 relay circuit. Both send and receive circuits are at MARK, therefore, the cathodes of CR22 and CR23 have a ONE input. With both inputs ONE, the Q14 output is a ZERO. The base of Q15 is connected to the Q14 collector, thereby, keeping Q15 off.
- 8.03 A SPACE signal will put a ZERO into the Q14 stage thus turning off the transistor. The current flow through Q14 is turned off and current through R41 will flow into the base of Q15 turning it on. R119 permits 7.5 ma of bias current to flow through K3 reducing the operate time of the relay.

With Q15 on, relay K3 will energize and remain held up by a holding circuit of the K3-4 contact and Q13.

8.04 The ONE inputs to the Q13 stage turn the transistor on completing the holding path for the K3 relay. Whenever a ZERO is inserted as a result of the ECT contact operating, Q13 turns off releasing K3. Depressing the ON pushbutton will also drop out K3 by putting a ZERO on CR25's cathode.

9. ENQ/ACK CIRCUIT (2D3)

9.01 The K1 relay cannot be operated until K3 operates. When K3 picks up, the K3-2 contact closes completing the circuit from K1 relay to the pick up and holding path of K1.

9.02 The Q8 stage normally has ONE's on the cathodes of CR10 and CR11. This turns Q8 on and will cause the K1 relay to remain energized once operated. The K1-4 contact is tied to the collector of Q8.

9.03 When the receipt of the ENQ or EOT code by the teletypewriter occurs, the ENQ/EOT contact closes causing the K1 relay to energize. Once energized the holding circuit keeps it energized.

9.04 The detection of the ACK code by the teletypewriter's function box will generate a ZERO on CR11's cathode causing Q8 to turn off releasing K1. The operation of the LOCAL pushbutton puts a ZERO on CR10's cathode which also causes K1 to release.

9.05 It should be noted that the ENQ/EOT contact responds to both codes, only ENQ will cause the relay to energize. The EOT code drops out K3 which in turn breaks the K1 relay current by opening the 2K3 relay contact.

9.06 The circuit driving K2 and the PROCEED lamp is only broken by 2K1 when ENQ is detected and closed again on receipt of ACK or EOT and when the terminal is in LOCAL.

10. BREAK DETECTOR

10.01 The 303833 Break Detector card is installed in the UCC29 connector. There are two sets of normally open relay contacts that are brought out and made use of by the Logic Package. (Ref. par. 7.09).

10.02 The third contact of the break detector relay is normally closed and is used to control the reader in ASR sets. This entire wiring is contained in the UCC29 and is not brought out to the Logic Package.

- 10.03 The last contact on the relay is used as a holding contact for the break relay so that when once operated the relay will remain energized until released.
- 10.04 The collector of the transistor which turns on is brought into the Logic Package. Its emitter is connected to circuit common. The holding contact is brought to the Logic Package with the other side tied to circuit common. The break detector relay coil lead is brought to the Logic Package with the other end of the coil tied to -20 volts.
- 10.04 The Logic Package ties the collector of the transistor to the break detector relay. Whenever and as long as the break signal lasts the transistor will conduct, pick up and hold the break detector relay operated.
- 10.05 The BREAK RELEASE switch is a normally closed contact. One side is connected to the holding contact of the relay and the other side is connected to the transistor/relay connection. The BREAK RELEASE switch will release the break detector relay by opening the holding circuit of relay. Thus, if the break signal is extremely long, the relay can only be released when the signal has returned to marking.
- 10.06 The BREAK lamp is located in the BREAK RELEASE pushbutton. Whenever a BREAK signal is received, the BREAK lamp will be lit.
11. STRAP OPTIONS
- 11.01 STRAP 1 - EOT DISCONNECT (2B2)
- (a) The EOT code is detected by the function box and drives the activity circuit. When the strap is installed (installed when manufactured), the EOT contact gives an off indication to Q2 causing the K4 relay to turn off on a valid EOT code. If there is a garble and EOT is received but not transmitted, the transmitting terminal will continue to send data. The SPACE signals in the data will keep the terminal on.
 - (b) Cutting the strap will keep the terminal on when the EOT code is received but causing the K3 relay to drop out.
- 11.02 STRAP 2 - IDLE LINE DISCONNECT (1E6)
- (a) The firing of the unijunction will cause Q30 to conduct. The collector of Q30 is connected to

the OFF pushbutton through ST2 (installed when manufactured). Whenever there is a sufficient pause in the sending or receiving of data to permit the timer to fire, the terminal will automatically disconnect.

- (b) Cutting the strap will open the Q30 collector circuit and the terminal will never turn off from the idle line timer. It will take the operator depressing the OFF pushbutton or the EOT function box contact (with EOT option) operating to turn the terminal off.

11.03 STRAP 3 - LOCAL BREAK OVERRIDE (3D4)

- (a) The generation of break should be non-interfering. If the Logic Package is connected to a data set which when in the half duplex mode causes a BREAK on the BB lead, the terminal's break detector will operate. When this occurs, the BA lead will be forced marking and the terminal's BREAK signal will be shortened.
- (b) With the strap installed (as manufactured), the BREAK signal is fed into the receive circuit not as a spacing signal but as a marking signal. The MARK is dominant and will blind the printer marking thus preventing any spacing signal from operating the break detector.
- (c) Cutting the strap will eliminate this feature and the Logic Package will not internally block any BREAK signal generation on the receiving circuits.

11.04 STRAP 4 - HALF/FULL DUPLEX (3D2)

- (a) The Logic Package has the capability of half or full duplex operation. With the strap installed (as manufactured), the send circuit signals are fed into the receive circuits and the set is in half duplex.
- (b) Cutting the strap will isolate the two circuits making the terminal full duplex. When operating the terminal in full duplex, local operation of the function box is lost. This is a limitation on the operating procedures.

12. CONTROLS

12.01 OFF

- (a) The OFF pushbutton does not contain an indicator lamp.
- (b) This is a non-locking, releasing pushbutton. Depressing it will cause any of the locking pushbuttons to be released. Excluding the BREAK RELEASE pushbutton, there is a mechanical interlock which prevents this pushbutton from being depressed simultaneously with any of the other pushbuttons.
- (c) Depressing the OFF pushbutton will place a ZERC on the input to stages Q2 and Q38. Both transistors will be turned off thereby turning Q3 off. With Q3 off, the K4 relay drops out turning the terminal off. The OFF pushbutton overrides any remote start-up command and the terminal will remain off as long as the control is depressed.
- (d) Operating the OFF pushbutton will release the LOCAL pushbutton (if depressed). The ZERC on the cathode of CR17 is removed when the LOCAL pushbutton is released. This removes the base drive for Q3 turning it off. This releases K4 and the terminal turns off.

12.02 ON

- (a) The ON pushbutton contains an indicator lamp. The lamp is on whenever the terminal is "on line" or when the ON pushbutton is depressed.
- (b) This is a non-locking, releasing pushbutton. Depressing it will cause any of the locking pushbuttons to be released. Excluding the BREAK RELEASE pushbutton, there is a mechanical interlock which prevents this pushbutton from being depressed simultaneously with any of the other pushbuttons.
- (c) Depressing the ON pushbutton will place a ZERC on the input to the Q1 stage forcing its output to be a ONE. With everything normal, this ONE combines with all of the other ONE's on the inputs to the Q2 stage which will cause Q2 to turn on. Q2 on causes Q3 to be on and relay K4 energized. With K4 energized the terminal will be on.
- (d) There is an exception to this procedure. Whenever the CC and/or CF signal is off or not present, the terminal will not turn on. The off state or

the lack of a CC and/or CF signal causes Q4 or Q6 to turn off which causes Q10 to turn on. Q10 on puts a ZERO on the input to Q2 keeping it off. Thus, depressing the ON pushbutton will not turn on the terminal. The ON pushbutton will light with the switch contacts (S2) providing the return to common; the ON lamp will only be lit as long as the pushbutton is depressed. The loss of CC and/or CF will cause the OUT OF SERVICE lamp to be on without the pushbutton being depressed.

12.03 BREAK RELEASE

- (a) The BREAK RELEASE pushbutton contains an indicator lamp. The lamp is on whenever the 303833 Break Detector Card (in the UCC29) has detected a BREAK signal and the circuit has not been reset.
- (b) This is a non-locking, non-releasing pushbutton. Depressing it will not cause any of the locking pushbuttons to release. This pushbutton does not contain a mechanical interlock; it can be depressed while other pushbuttons are depressed.
- (c) Depressing the BREAK RELEASE pushbutton will reset the break detector circuitry only after the transmission of a BREAK signal has ceased. The 186680 Logic Package provides the 303833 Break Detector Card with the following connections:
 - (1) A wire connection between the relay drive transistor and the break detector relay.
 - (2) A wire connection between the BREAK RELEASE pushbutton and above listed connection.
 - (3) A wire connection between the BREAK RELEASE pushbutton and the holding path for the break detector relay.
- (d) The BREAK RELEASE pushbutton contains a normally closed switch contact (S3). A BREAK signal is detected by the card and the output transistor causes break relay to energize. At the conclusion of the BREAK signal, the output transistor turns off but the relay remains energized via the holding contact and the BREAK RELEASE switch. Depressing the pushbutton releases the relay and the circuit is reset.

- (e) If the BREAK signal is still present when the BREAK RELEASE pushbutton is depressed, the circuit will remain energized. The BREAK RELEASE switch only effects the holding circuit and has no effect when the transistor is causing the relay to remain energized.

12.04 LOCAL

- (a) The LOCAL pushbutton contains an indicator lamp. The lamp is on whenever the terminal is in Local.
- (b) This is a locking, releasing pushbutton. Depressing it will cause any of the locking pushbuttons to release. Excluding the BREAK RELEASE pushbutton, there is a mechanical interlock which prevents this pushbutton from being depressed simultaneously with any of the other pushbuttons.
- (c) Depressing the LOCAL pushbutton will cause the terminal to come on but remain isolated from the transmission or reception of data. The following occurs:
 - (1) The LOCAL lamp turns on.
 - (2) The K4 relay is energized by placing a ZERO on CR17's cathode which turns Q3 on.
 - (3) The UCC29 Motor Control Relay is energized via CR18.
 - (4) The automatic reader circuitry is enabled via CR18.
 - (5) The K3 relay is energized via CR24.
 - (6) The ACK logic is nullified by CR10 being returned to common.
 - (7) The BA lead contains a steady MARK because of CR28's cathode returned to common.
 - (8) Any activity on the BB lead is blinded via CR59.

12.05 OUT OF SERVICE

- (a) The OUT OF SERVICE pushbutton contains an indicator lamp. The lamp is on whenever the OUT OF SERVICE pushbutton is depressed or the CC and/or CF lead

is not on.

- (b) This is a locking, releasing pushbutton. Depressing it will cause any of the locking pushbuttons to release. Excluding the BREAK RELEASE pushbutton, there is a mechanical interlock which prevents this pushbutton from being depressed simultaneously with any of the other pushbuttons.
- (c) Depressing the OUT OF SERVICE pushbutton will turn its lamp on and return CR50 and CR51 to common. This insures Q2 and Q38 are turned off which keeps Q3 turned off. With Q3 off, the K4 relay will remain de-energized and the terminal unable to turn on. The receive circuitry is blinded by CR61 being returned to common through a normally closed contact of K4. The send circuitry is blinded via CR47.
- (d) The OUT OF SERVICE lamp may also be on when the pushbutton is not depressed. The case is described in paragraph 12.02 (d).

12.06 SPARE (TEST)

- (a) The SPARE (TEST) pushbutton contains an indicator lamp. The lamp is on whenever the SPARE (TEST) pushbutton is depressed.
- (b) This is a locking, releasing pushbutton. Depressing it will cause any of the locking pushbuttons to release. Excluding the BREAK RELEASE pushbutton, there is a mechanical interlock which prevents this pushbutton from being depressed simultaneously with with any of the other pushbuttons.
- (c) Depressing the SPARE (TEST) pushbutton will prevent the terminal from being on. The terminal's motor is off and the BA and BB leads remain unblinded. Because of the motor being off, the only transmission on the BA lead which can occur is a BREAK signal; all other characters require the terminal's motor for generation. With the BB lead unblinded, the selector magnets will chatter in response to BB activity. Any received BREAK signal will cause the 303833 Break Detector to operate in a normal fashion.

13. INDICATORS

13.01 PROCEED

- (a) The PROCEED lamp is used as an indicator

to tell the operator when transmission by the terminal is permitted. The PROCEED lamp and the K2 relay are connected in parallel. Whenever the lamp is on the relay is energized and vice versa. A set of normally open contacts of the K2 relay are in series with the reader trip magnet circuit. Whenever the PROCEED lamp is on, the reader may be activated and whenever the lamp is off, the reader will be turned off and/or disabled until the circuit is restored. When the circuit again turns the PROCEED lamp on, the reader is enabled.

- (b) For a detailed description of the circuit operation see paragraph 7 of this section.

13.02 PAPER ALARM

- (a) The PAPER ALARM lamp is turned on when the terminal goes into a low paper (or paper out with sprocket feed) condition. The operation of the terminal remains unaffected. After the terminal is turned off, the activity on the BB lead which would normally turn the terminal on will have no effect. When the PAPER ALARM lamp is on, the only way for the terminal to turn on is by the operator depressing the ON pushbutton.
- (b) The Low Paper switch in the teletypewriter causes the PAPER ALARM lamp to light and causes the cathode of CR56 to be returned to common. A ZERO on the input to the Q38 stage will always keep the transistor turned off. Thus, any activity by the Q39 stage, which responds to the BB lead activity, will not have any effect on the Q38 stage thus inhibiting the terminal from turning on.

SECTION III - REFERENCE DATA

1. WORKING LIMITS

1.01 Voltage limits on the power supply:

+24 Volts: +20 volts min.
 +29 volts max.

-20 Volts: -16 volts min.
 -24 volts max.

1.02 Load currents:

+24 volt supply: 500 ma max.

-20 volt supply: 200 ma max.

2. ABBREVIATIONS AND FUNCTIONAL DESIGNATIONS

2.01 Not applicable.

3. CONNECTING CIRCUITS

3.01 Not applicable.

4. ALARM INFORMATION

4.01 PAPER ALARM

(a) When the terminal's paper supply is reduced to a low level or depleted, the PAPER ALARM lamp will turn on indicating that the paper supply for the printer is running low. Replacing the paper with a fresh paper supply will cause the lamp to turn off.

(b) The terminal will not automatically turn on when the PAPER ALARM lamp is on.

4.02 OUT OF SERVICE

(a) The OUT OF SERVICE lamp will turn on whenever the CC and CF leads from the data set are not present and on. Whenever the signal line or data set problem which caused the OUT OF SERVICE lamp to turn on is cleared, the lamp will turn off. The terminal cannot go "on line", or if "on line", will be turned off when this condition exists.

(b) The OUT OF SERVICE lamp being on is only an alarm indication if the OUT OF SERVICE pushbutton is not depressed.

UNTOLERANCED DIMENSIONS PER MR2003

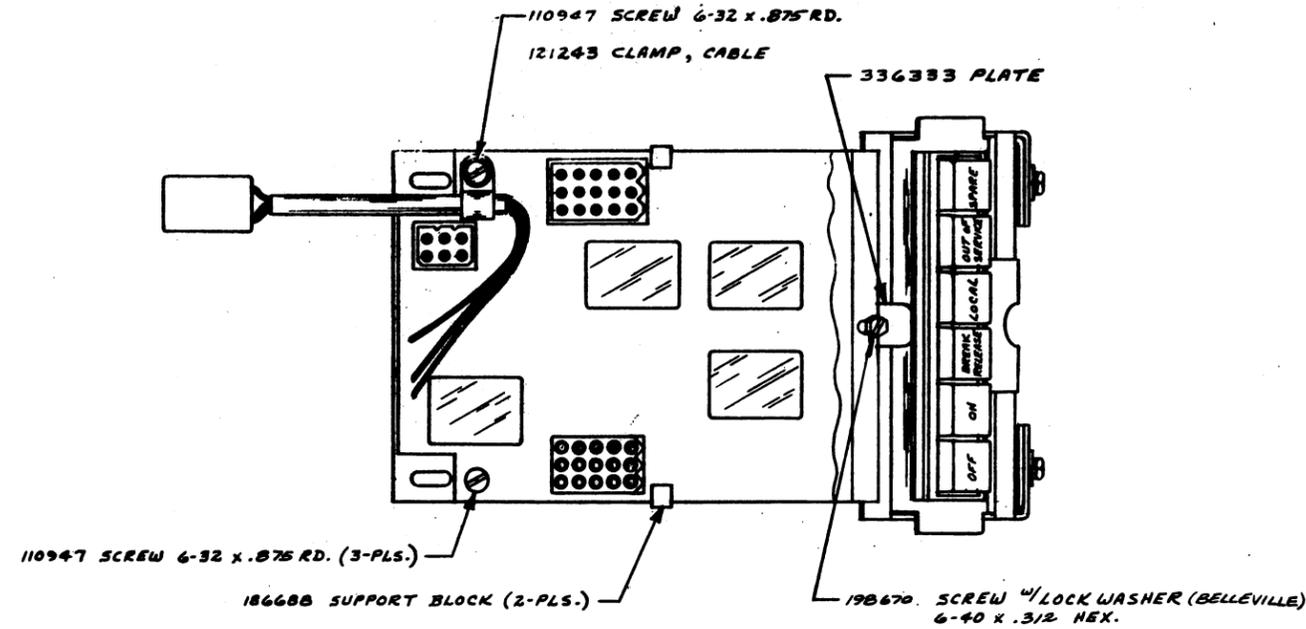
LOGIC PACKAGE ASSEMBLY

186680

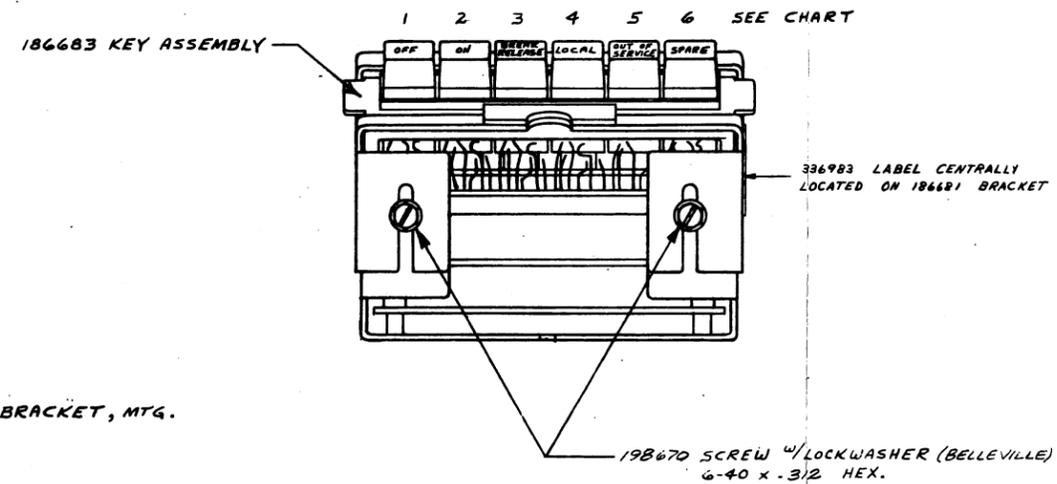
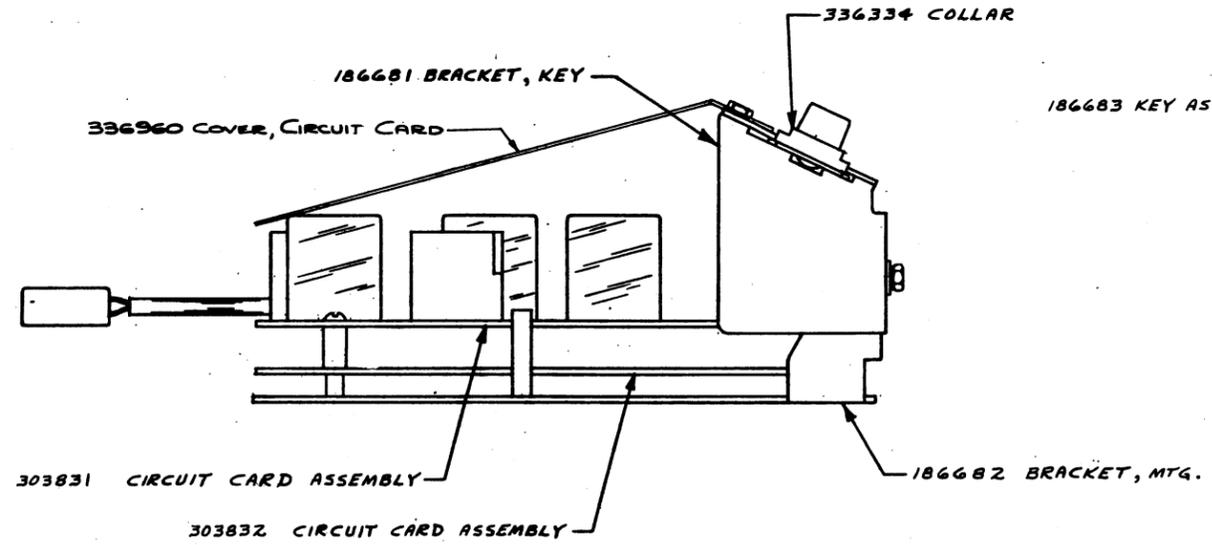
ORIGINAL USE
186670 FINAL
186670 DIRECT

PARTS REQUIRED

PART NO.	DESCRIPTION	QTY.
110947	SCREW	4
121243	CLAMP, CABLE	1
198670	SCREW	3
186681	BRACKET	1
186682	BRACKET	1
186683	KEY ASSEMBLY	1
303831	CIRCUIT CARD	1
303832	CIRCUIT CARD	1
186688	SUPPORT	2
327061	LAMP	5
330906	LABEL	1
336333	PLATE	1
336334	COLLAR	1
336431	LABEL	1
336433	LABEL	1
336435	LABEL	1
336436	LABEL	1
336440	LABEL	1
336983	LABEL	1
336960	COVER	1



POSITION	1	2	3	4	5	6
LABEL DESCRIPTION	OFF	ON	BREAK RELEASE	LOCAL	OUT OF SERVICE	SPARE
LABEL NO.	336431	336435	336440	336433	330906	336436
LAMP NO.	-	327061	327061	327061	327061	327061



2	2-1-71	3782
1	5-28-70	20659-R

ISSUE	DATE	AUTH. NO.

REVISIONS

PROJ. SUPV.	PROJ. DIR.	MFG. REL. COMPL.
ENGR. H.J.G.	DSGMR. J.J.A.	
DRN. J.J.A.	DATE 10-29-69	
E-NUMBER		
PROD. NO. 186680		
R & D FILE 2-165.152AA		

TELETYPE CORPORATION - COMPANY PRIVATE

SCALE 1

FINISH	HEAT TREAT	MATERIAL SPECIFICATION

TELETYPE

 186680

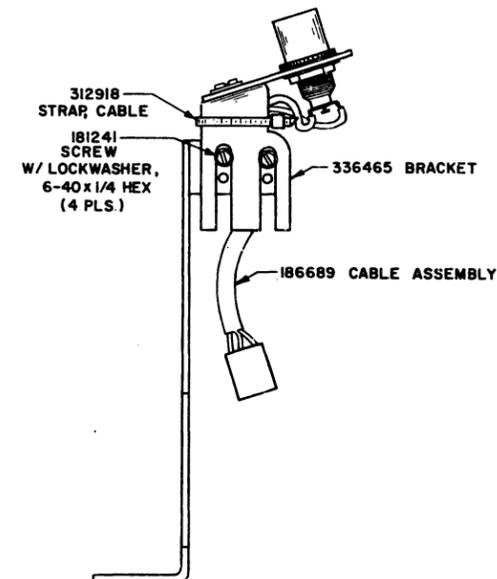
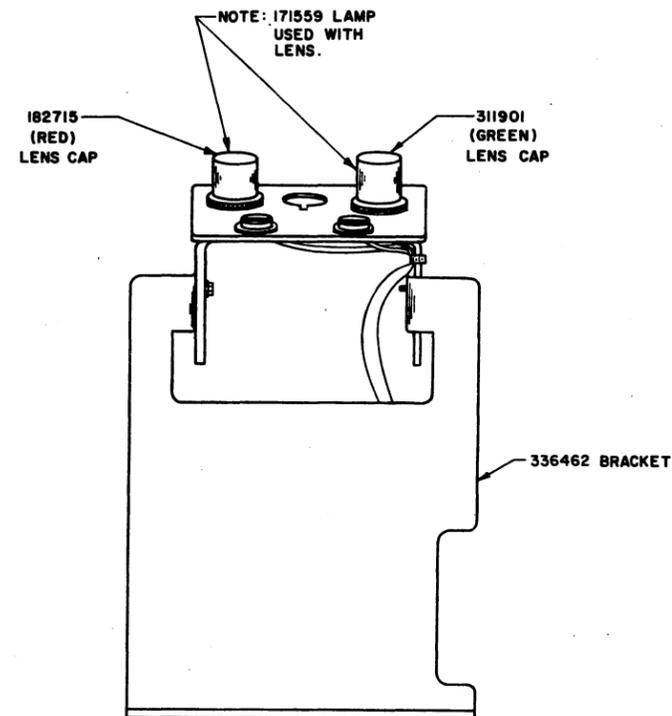
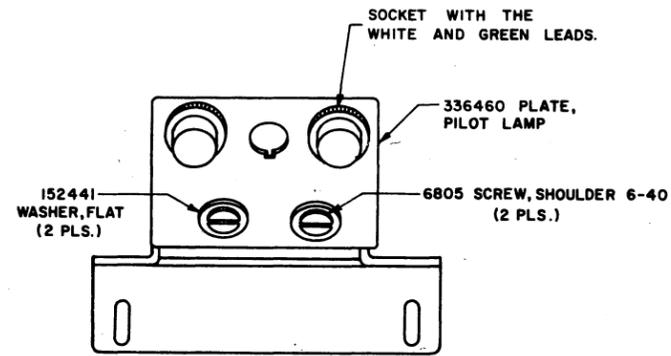
SIMILAR TO:

UNTOLERANCED DIMENSIONS PER MR2003

LAMP BRACKET ASSEMBLY

186690

ORIGINAL USE		PARTS REQUIRED	
PART NO.	DESCRIPTION	QTY.	
186670 FINAL			
186670 DIRECT			
336462	BRACKET	1	
336465	BRACKET	1	
181241	SCREW	4	
336460	PLATE	1	
6805	SCREW	2	
152441	WASHER	2	
186689	CABLE	1	
171559	LAMP	2	
182715	CAP, RED	1	
311901	CAP, GREEN	1	
312918	STRAP	1	



ISSUE	DATE	AUTH. NO.
1	5-28-70	20659-R

REVISIONS

APPROVALS

PROJ. DIR.	PROJ. DIR. COMPL.	MFG. REL.
	RRS	LDM

ENGR. H. J. G. DSGNR. H. J. G.

DRN. M. A. A. DATE 12-15-69

E-NUMBER

PROD. NO. 186690

R & D FILE 2-165.152AA

TELETYPE CORPORATION - COMPANY PRIVATE

SCALE 7/8

FINISH	HEAT TREAT	MATERIAL SPECIFICATION



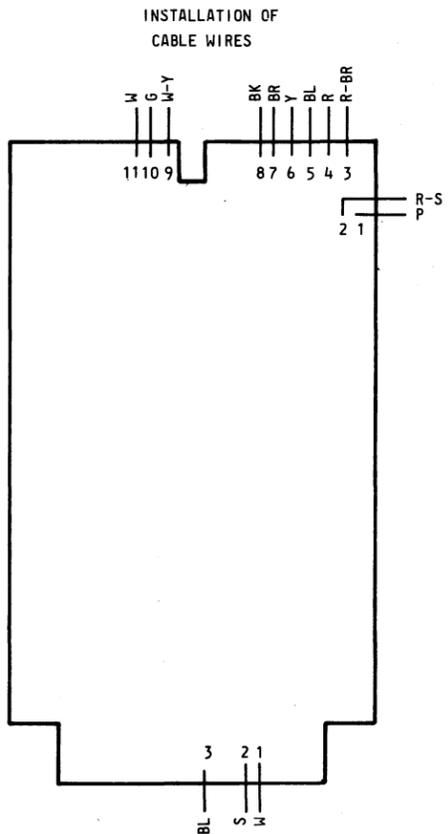
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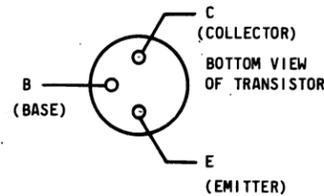
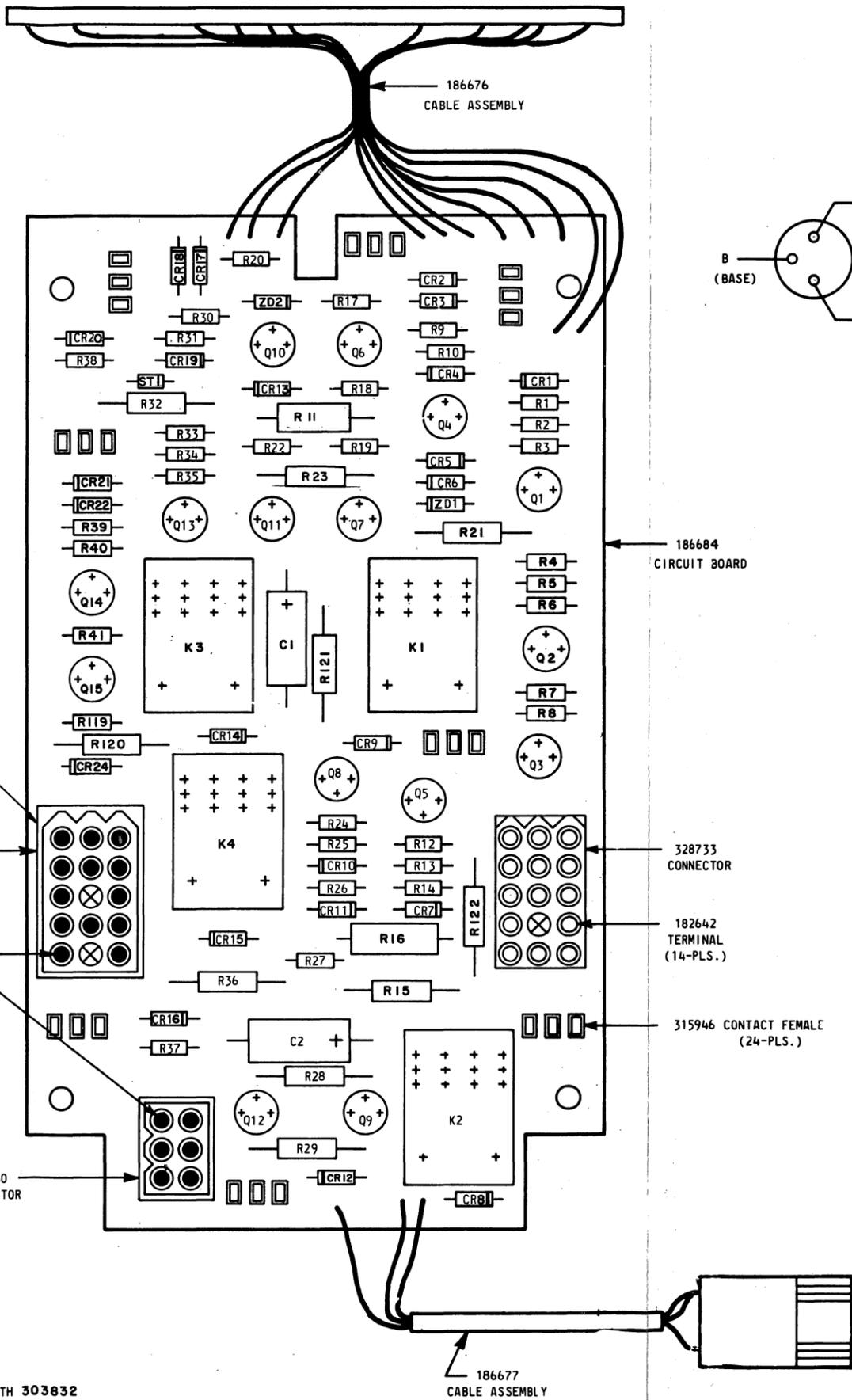
REF. DESIG.	PART NO. REQ.	QTY.	DESCRIPTION
C1	306088	2	CAPACITOR 68MFD 15V 10%
C2	306088		CAPACITOR 68MFD 15V 10%
CR1	197464	23	DIODE IN914
CR2	197464		DIODE IN914
CR3	197464		DIODE IN914
CR4	197464		DIODE IN914
CR5	197464		DIODE IN914
CR6	197464		DIODE IN914
CR7	197464		DIODE IN914
CR8	197464		DIODE IN914
CR9	197464		DIODE IN914
CR10	197464		DIODE IN914
CR11	197464		DIODE IN914
CR12	197464		DIODE IN914
CR13	197464		DIODE IN914
CR14	197464		DIODE IN914
CR15	197464		DIODE IN914
CR16	197464		DIODE IN914
CR17	197464		DIODE IN914
CR18	197464		DIODE IN914
CR19	197464		DIODE IN914
CR20	197464		DIODE IN914
CR21	197464		DIODE IN914
CR22	197464		DIODE IN914
CR24	197464		DIODE IN914
R120	143659	3	RESISTOR 560 OHM 1/2W
R121	143659		RESISTOR 560 OHM 1/2W
R122	143659		RESISTOR 560 OHM 1/2W
R1	315960	9	RESISTOR 5600 OHM 1/4W
R2	315955	2	RESISTOR 2200 OHM 1/4W
R3	321545	8	RESISTOR 12K OHM 1/4W
R4	315960		RESISTOR 5600 OHM 1/4W
R5	315954	5	RESISTOR 1500 OHM 1/4W
R6	321545		RESISTOR 12K OHM 1/4W
R7	315960		RESISTOR 5600 OHM 1/4W
R8	315960		RESISTOR 5600 OHM 1/4W
R9	315959	2	RESISTOR 4700 OHM 1/4W
R10	321508	4	RESISTOR 100K OHM 1/4W
R11	145048	1	RESISTOR 510 OHM 1W
R12	320026	1	RESISTOR 3900 OHM 1/4W
R13	321213	1	RESISTOR 1K OHM 1/4W
R14	315955		RESISTOR 2200 OHM 1/4W
R15	129852	3	RESISTOR 2200 OHM 1/2W
R16	104216	1	RESISTOR 820 OHM 2W
R17	321508		RESISTOR 100K OHM 1/4W
R18	315960		RESISTOR 5600 OHM 1/4W
R19	321508		RESISTOR 100K OHM 1/4W
R20	315959		RESISTOR 4700 OHM 1/4W
R21	118146	2	RESISTOR 4700 OHM 1/2W
R22	321545		RESISTOR 12K OHM 1/4W
R23	129851	2	RESISTOR 3300 OHM 1/2W
R24	321545		RESISTOR 12K OHM 1/4W
R25	315954		RESISTOR 1500 OHM 1/4W
R26	315960		RESISTOR 5600 OHM 1/4W
R27	321545		RESISTOR 12K OHM 1/4W
R28	129851		RESISTOR 3300 OHM 1/2W
R29	129852		RESISTOR 2200 OHM 1/2W
R30	315954		RESISTOR 1500 OHM 1/4W
R31	321545		RESISTOR 12K OHM 1/4W
R32	129852		RESISTOR 2200 OHM 1/2W
R33	315960		RESISTOR 5600 OHM 1/4W
R34	315954		RESISTOR 1500 OHM 1/4W
R35	321545		RESISTOR 12K OHM 1/4W
R36	118146		RESISTOR 4700 OHM 1/2W
R37	321508		RESISTOR 100K OHM 1/4W
R38	315960		RESISTOR 5600 OHM 1/4W
R39	315954		RESISTOR 1500 OHM 1/4W
R40	321545		RESISTOR 12K OHM 1/4W
R41	315960		RESISTOR 5600 OHM 1/4W
R119	315956	1	RESISTOR 2700 OHM 1/4W
Q1	315930	14	TRANSISTOR NPN
Q2	315930		TRANSISTOR NPN
Q3	302865	1	TRANSISTOR PNP
Q4	315930		TRANSISTOR NPN
Q5	315930		TRANSISTOR NPN
Q6	315930		TRANSISTOR NPN
Q7	315930		TRANSISTOR NPN
Q8	315930		TRANSISTOR NPN
Q9	315930		TRANSISTOR NPN
Q10	315930		TRANSISTOR NPN

REF. DESIG.	PART NO. REQ.	QTY.	DESCRIPTION
Q11	315930		TRANSISTOR NPN
Q12	315930		TRANSISTOR NPN
Q13	315930		TRANSISTOR NPN
Q14	315930		TRANSISTOR NPN
Q15	315930		TRANSISTOR NPN
ZD1	321161	1	ZENER DIODE 3.9 V
ZD2	337877	1	ZENER DIODE 1.8 V
K1	305456	4	RELAY
K2	305456		RELAY
K3	305456		RELAY
K4	305456		RELAY
	182650	1	CONNECTOR
	315946	24	CONTACT, FEMALE
	328727	1	CONNECTOR
	328733	1	CONNECTOR
	182641	19	TERMINAL
	182642	14	TERMINAL
	186684	1	CIRCUIT BOARD
ST1	336470	1	STRAP
	186676	1	CABLE ASSEMBLY
	186677	1	CABLE ASSEMBLY
		112	STAKE WIRE CONNECTION

UL RECOGNITION SYMBOL
REQUIRED PER MR 2001.



182641 TERMINAL OF 328727
CONNECTOR TO BE BENT OVER
FLUSH WITH THE CIRCUIT BOARD
BEFORE SOLDERING



MATES WITH 303832

SIMILAR TO:

REVISIONS		
ISSUE	DATE	AUTH. NO.
1	6-10-70	20659-R
2	10-19-70	2073
3	1-12-71	2377
4	3-3-71	2320

CIRCUIT CARD
EC 831
LOGIC CARD
FOR
PRIVATE LINE
SET

APPROVALS

PROJ. SUPV. J.S.R.	PROJ. DIR. RRS	MFG. REL. COMPL.
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ENGR. H. J. G. DSONR.
DRN. J. J. A. DATE 11/7/69

E-NUMBER
SD-CD NO. 1040 SD
R & D FILE 2-165.152AA

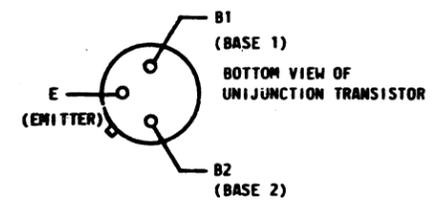
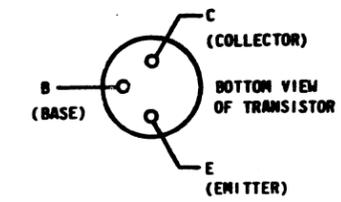
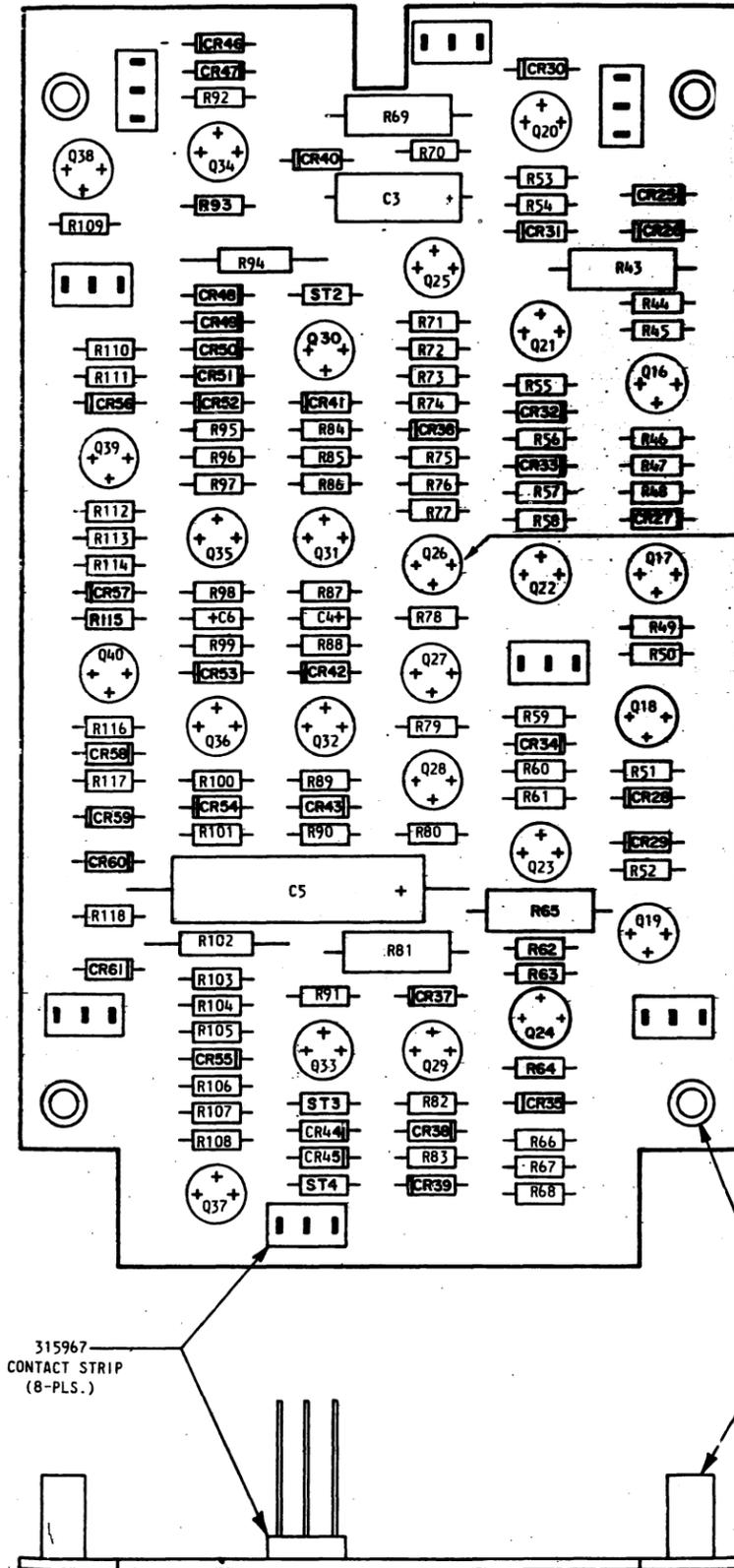
TELETYPE

303831

REF. DESIG.	PART NO. REC.	QTY.	DESCRIPTION
C3	306088	1	CAPACITOR 68 MFD. 15V
C4	310925	2	CAPACITOR 0.56 MFD. 35V
C5	186686	1	CAPACITOR 430 MFD. 25V
C6	310925	1	CAPACITOR 0.56 MFD. 35V
CR25	197464	37	DIODE IN914
CR26	197464		DIODE IN914
CR27	197464		DIODE IN914
CR28	197464		DIODE IN914
CR29	197464		DIODE IN914
CR30	197464		DIODE IN914
CR31	197464		DIODE IN914
CR32	197464		DIODE IN914
CR33	197464		DIODE IN914
CR34	197464		DIODE IN914
CR35	197464		DIODE IN914
CR36	197464		DIODE IN914
CR37	197464		DIODE IN914
CR38	197464		DIODE IN914
CR39	197464		DIODE IN914
CR40	197464		DIODE IN914
CR41	197464		DIODE IN914
CR42	197464		DIODE IN914
CR43	197464		DIODE IN914
CR44	197464		DIODE IN914
CR45	197464		DIODE IN914
CR46	197464		DIODE IN914
CR47	197464		DIODE IN914
CR48	197464		DIODE IN914
CR49	197464		DIODE IN914
CR50	197464		DIODE IN914
CR51	197464		DIODE IN914
CR52	197464		DIODE IN914
CR53	197464		DIODE IN914
CR54	197464		DIODE IN914
CR55	197464		DIODE IN914
CR56	197464		DIODE IN914
CR57	197464		DIODE IN914
CR58	197464		DIODE IN914
CR59	197464		DIODE IN914
CR60	197464		DIODE IN914
CR61	197464		DIODE IN914
R43	118192	1	RESISTOR 5600 OHM 1W
R44	315954	12	RESISTOR 1500 OHM 1/4W
R45	321545	12	RESISTOR 12K OHM 1/4W
R46	315960	33	RESISTOR 5600 OHM 1/4W
R47	330643	1	RESISTOR 56K OHM 1/4W
R48	300092	1	RESISTOR 6800 OHM 1/4W
R49	315960		RESISTOR 5600 OHM 1/4W
R50	333408	1	RESISTOR 15K OHM 1/4W
R51	315960		RESISTOR 5600 OHM 1/4W
R52	315960		RESISTOR 5600 OHM 1/4W
R53	315960		RESISTOR 5600 OHM 1/4W
R54	315960		RESISTOR 5600 OHM 1/4W
R55	315960		RESISTOR 5600 OHM 1/4W
R56	315960		RESISTOR 5600 OHM 1/4W
R57	315954		RESISTOR 1500 OHM 1/4W
R58	321545		RESISTOR 12K OHM 1/4W
R59	315960		RESISTOR 5600 OHM 1/4W
R60	315954		RESISTOR 1500 OHM 1/4W
R61	321545		RESISTOR 12K OHM 1/4W
R62	315960		RESISTOR 5600 OHM 1/4W
R63	315960		RESISTOR 5600 OHM 1/4W
R64	315960		RESISTOR 5600 OHM 1/4W
R65	178863	2	RESISTOR 3300 OHM 1W
R66	315972	3	RESISTOR 22K OHM 1/4W
R67	321545		RESISTOR 12K OHM 1/4W
R68	315954		RESISTOR 1500 OHM 1/4W
R69	178863		RESISTOR 3300 OHM 1W
R70	315972		RESISTOR 22K OHM 1/4W
R71	315960		RESISTOR 5600 OHM 1/4W
R72	321545		RESISTOR 12K OHM 1/4W
R73	315954		RESISTOR 1500 OHM 1/4W
R74	315960		RESISTOR 5600 OHM 1/4W
R75	321213	1	RESISTOR 1000 OHM 1/4W
R76	326598	1	RESISTOR 56 OHM 1/4W
R77	320276	1	RESISTOR 470 OHM 1/4W
R78	324860	1	RESISTOR 510K OHM 1/4W
R79	315960		RESISTOR 5600 OHM 1/4W
R80	321545		RESISTOR 12K OHM 1/4W
R81	120217	1	RESISTOR 1200 OHM 1W

REF. DESIG.	PART NO. REC.	QTY.	DESCRIPTION
R82	315960		RESISTOR 5600 OHM 1/4W
R83	315960		RESISTOR 5600 OHM 1/4W
R84	315960		RESISTOR 5600 OHM 1/4W
R85	315954		RESISTOR 1500 OHM 1/4W
R86	321545		RESISTOR 12K OHM 1/4W
R87	315960		RESISTOR 5600 OHM 1/4W
R88	315960		RESISTOR 5600 OHM 1/4W
R89	315960		RESISTOR 5600 OHM 1/4W
R90	315954		RESISTOR 1500 OHM 1/4W
R91	315960		RESISTOR 5600 OHM 1/4W
R92	315972		RESISTOR 22K OHM 1/4W
R93	186678	1	RESISTOR 43K OHM 2% 1/4W
R94	129852	2	RESISTOR 2200 OHM 1/2W
R95	315960		RESISTOR 5600 OHM 1/4W
R96	315954		RESISTOR 1500 OHM 1/4W
R97	321545		RESISTOR 12K OHM 1/4W
R98	315960		RESISTOR 5600 OHM 1/4W
R99	315960		RESISTOR 5600 OHM 1/4W
R100	315960		RESISTOR 5600 OHM 1/4W
R101	315960		RESISTOR 5600 OHM 1/4W
R102	129852		RESISTOR 2200 OHM 1/2W
R103	321545		RESISTOR 12K OHM 1/4W
R104	315954		RESISTOR 1500 OHM 1/4W
R105	315960		RESISTOR 5600 OHM 1/4W
R106	315960		RESISTOR 5600 OHM 1/4W
R107	315954		RESISTOR 1500 OHM 1/4W
R108	321545		RESISTOR 12K OHM 1/4W
R109	321545		RESISTOR 12K OHM 1/4W
R110	315954		RESISTOR 1500 OHM 1/4W
R111	315960		RESISTOR 5600 OHM 1/4W
R112	321545		RESISTOR 12K OHM 1/4W
R113	315954		RESISTOR 1500 OHM 1/4W
R114	315960		RESISTOR 5600 OHM 1/4W
R115	315960		RESISTOR 5600 OHM 1/4W
R116	321508	1	RESISTOR 100K OHM 1/4W
R117	315957	1	RESISTOR 3300 OHM 1/4W
R118	315960		RESISTOR 5600 OHM 1/4W
Q16	315930	21	TRANSISTOR NPN
Q17	302865	3	TRANSISTOR PNP
Q18	302865		TRANSISTOR PNP
Q19	315930		TRANSISTOR NPN
Q20	315930		TRANSISTOR NPN
Q21	315930		TRANSISTOR NPN
Q22	315930		TRANSISTOR NPN
Q23	315930		TRANSISTOR NPN
Q24	302865		TRANSISTOR PNP
Q25	315930		TRANSISTOR NPN
Q26	181659	1	TRANSISTOR UNIUNCTION
Q27	315930		TRANSISTOR NPN
Q28	315930		TRANSISTOR NPN
Q29	315930		TRANSISTOR NPN
Q30	315930		TRANSISTOR NPN
Q31	315930		TRANSISTOR NPN
Q32	315930		TRANSISTOR NPN
Q33	315930		TRANSISTOR NPN
Q34	315930		TRANSISTOR NPN
Q35	315930		TRANSISTOR NPN
Q36	315930		TRANSISTOR NPN
Q37	315930		TRANSISTOR NPN
Q38	315930		TRANSISTOR NPN
Q39	315930		TRANSISTOR NPN
Q40	315930		TRANSISTOR NPN
ST2	336470	3	STRAP
ST3	336470		STRAP
ST4	336470		STRAP
	186675	4	SPACER
	186685	1	CIRCUIT BOARD
	315967	8	CONTACT STRIP
		89	STAKE WIRE CONNECTION
	144495	1	TRANSISTOR PAD

UL RECOGNITION SYMBOL
REQUIRED PER MR 2801.



TRANSISTOR PAD
M4499 1 PLS

186685
CIRCUIT BOARD

315967
CONTACT STRIP
(8-PLS.)

186675 SPACER
STAKE TO BOARD
MAINTAIN .156 DIA. HOLE
(4-PLS.)

MATES WITH 303831

REVISIONS		
ISSUE	DATE	AUTH. NO.
1	6-10-70	20088-R
2	12-10-70	3459
	8/25-71	1520

CIRCUIT CARD		
MC	EC 832	
LOGIC CARD		
FOR PRIVATE LINE SET		
APPROVALS		
PROJ. SUPV. J.S.R.	PROJ. DIR. R.R.S.	MFG. REL. COMRL. M
ENGR. H. J. G. DSGNR.		
DRN. J. J. A. DATE 11-7-69		
E-NUMBER		
SD-CD NO. 1040SD		
R & D FILE 2-165.152AA		
TELETYPE		
303832		

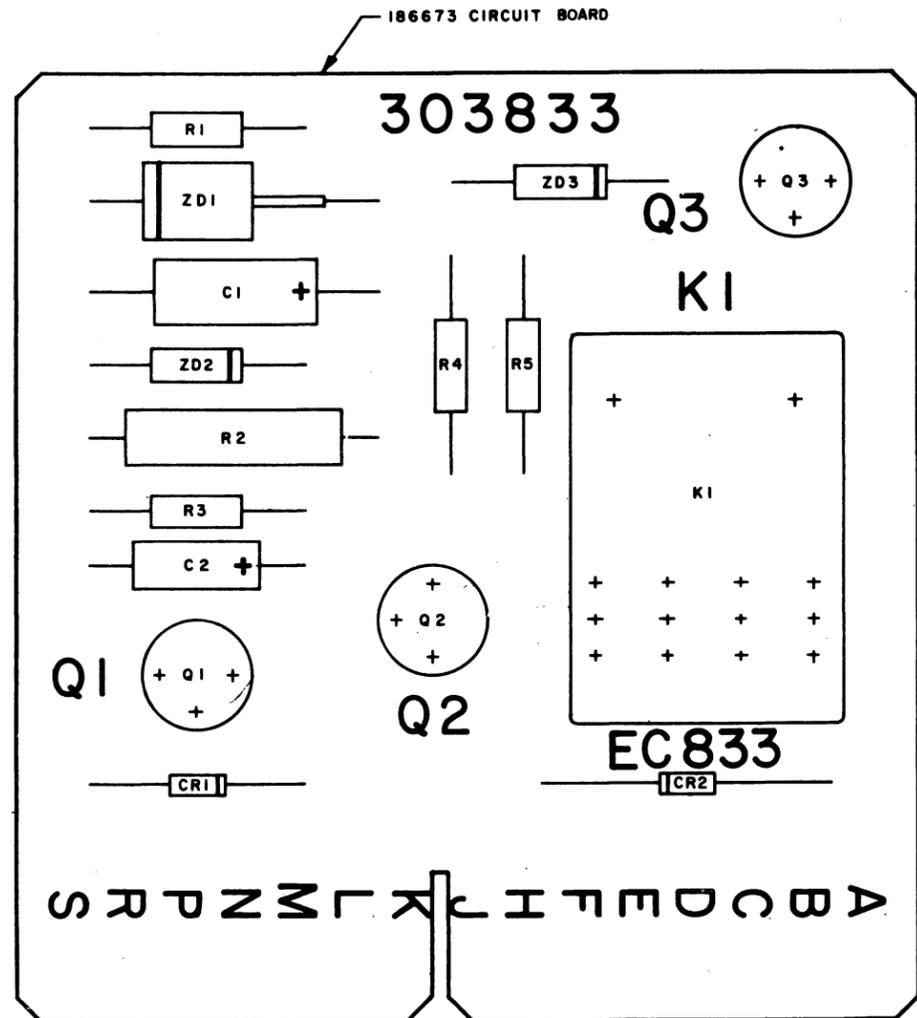
REF. DESIG.	PART NO. REQ.	QTY.	DESCRIPTION
C1	171458	1	CAPACITOR 12 MFD 20V 10%
C2	310929	1	CAPACITOR 1.8 MFD 20V 10%
CR1	197464	2	DIODE
CR2	197464		DIODE
K1	305456	1	RELAY
R1	143861	1	RESISTOR 330 OHM 1/2 W
R2	310201	1	RESISTOR 24.3K OHM 1%
R3	300092	1	RESISTOR 6800 OHM 1/4 W
R4	315960	2	RESISTOR 5600 OHM 1/4 W
R5	315960		RESISTOR 5600 OHM 1/4 W
Q1	315930	2	TRANSISTOR NPN
Q2	302865	1	TRANSISTOR PNP
Q3	315930		TRANSISTOR NPN
ZD1	300016	1	ZENER DIODE 8.2V 5%
ZD2	321161	2	ZENER DIODE 3.9V 5%
ZD3	321161		ZENER DIODE 3.9V 5%
186673	1		CIRCUIT BOARD

NOTE: MANUFACTURE PER MR2001
 UL RECOGNITION SYMBOL
 REQUIRED PER MR 2001.

CONTENTS	SHEET NO.	ISSUE NO.						
		1	2	3	4	5	6	7
SCHEMATIC	1	X	2	3				
CIRCUIT DESCRIPTION	2	X	1	1				

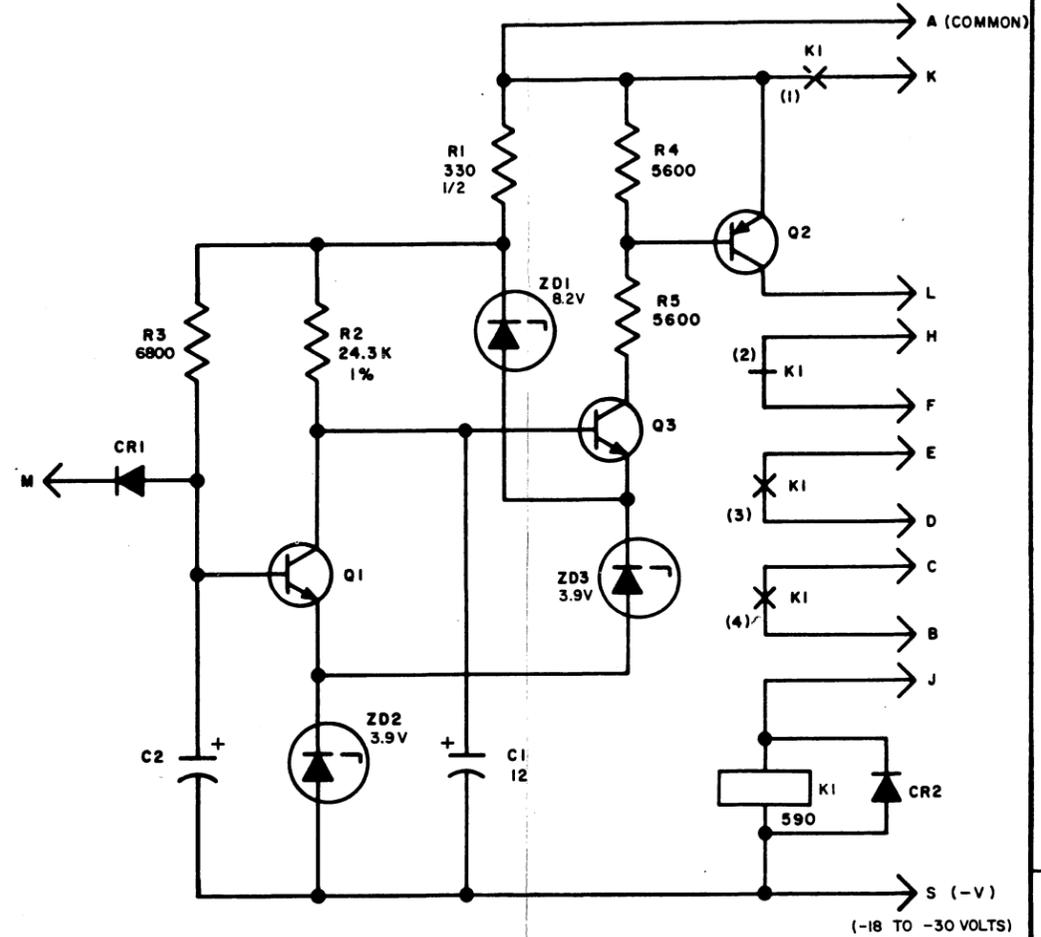
ORIGINAL USE
 186630 FINAL
 186630 DIRECT

REVISIONS		
ISSUE	DATE	AUTH NO.
1	2-4-70	20606R
2	7-7-70	3183
3	3-3-71	2320



- NOTES:
1. PRINTING SCREEN TO BE MADE FROM MASTER ARTWORK 303833AW AVAILABLE IN R & D OFFICE SERVICE SECTION.
 2. CHARACTERS TO BE SILK SCREENED USING WHITE ENAMEL.
 3. ALL RESISTORS 1/4 WATT UNLESS NOTED.
 4. ALL CAPACITORS IN MICROFARADS.

SIMILAR TO:



CIRCUIT CARD

EC 833
 BREAK DETECTOR CARD
 (IGNORES UP TO 1.5 MS. MARKING PULSES)

APPROVALS

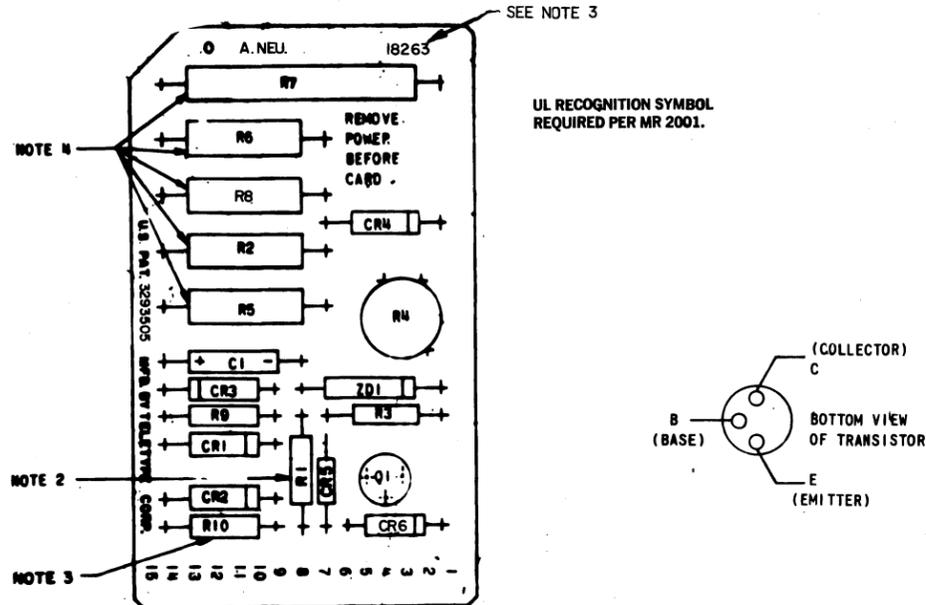
PROJ. SUPV. 15R	PROJ. DIR. RPS	MFG. REL. COMPL. LW
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ENGR. H. J. G. DSGNR. J. J. A.
 DRN. J. J. A. DATE 11-11-69
 S-NUMBER 01,584S
 SD-CD NO.
 R & D FILE 2-165.152AA

TELETYPE

303833 (1)

NO.	NOTES
1.	REFER TO 5906WD FOR CARD MARKING INFORMATION.
2.	THE SELECTION OF THIS RESISTOR DEPENDS ON THE APPLICATION IN WHICH THE DRIVER IS TO BE USED.
3.	R10 IS USED ON 182630 ASSEMBLY ONLY.
4.	RAISE R2,5,6,7,8 1/32 TO 1/16 ABOVE CIRCUIT CARD.
5.	THE 39603RM STRAP IS USED ON THE 182631 AND 182632 ASSEMBLIES
6.	SEE 5983WD FOR APPROPRIATE POWER INPUT.
7.	DIODE CR6 WAS ADDED TO PROTECT Q1 FROM DESTRUCTION BY ACCIDENTAL GROUNDING OF THE COLLECTOR OF Q2. 181653 DIODE WAS USED FIRST BUT CHANGED TO 199442 TO REDUCE "LEAKAGE" CURRENT DURING SPACING PULSES.
8.	020 A NEU 182630 .060 A NEU 182631 .040 A NEU 182632



CIRCUIT CARD ASSEMBLY

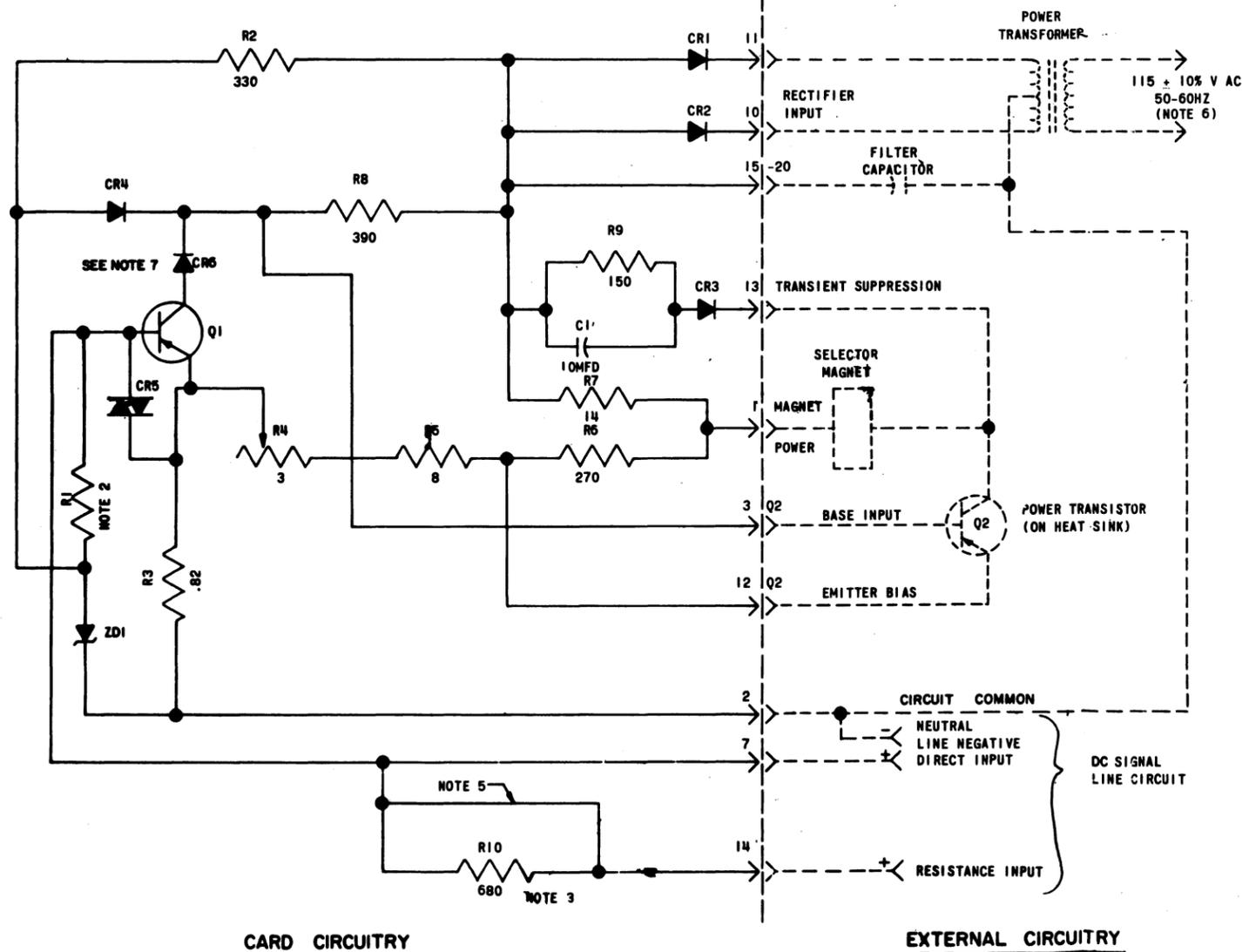
REF. DESIG.	TELETYPE PART NO.	TOTAL QTY.	NAME & DESIGNATION	LOCATING FUNCTION	USED ON	FOR
R1	182779	1	RESISTOR 420 OHMS 1/2W	.010 AMP. SWITCHING	182630	.020A NEUTRAL LINE
"	182797	1	RESISTOR 135 OHMS 1/2W	.030 AMP. SWITCHING	182631	.060A " "
"	182180	1	RESISTOR 200 OHMS 1/2W	.020 AMP. SWITCHING	182632	.040A " "
R10	182777	1	RESISTOR 680 OHMS 1/2W	INPUT CURRENT LIMITING	182630	DATA SET OPERATION
R10	39603RM	1	STRAP	.030 AMP. SWITCHING	182631	.060A NEUTRAL LINE
R10	39603RM	1	STRAP	.020 AMP. SWITCHING	182632	.040A " "
R2	181669	1	RESISTOR 330 OHMS 2 1/2W	ZENER CURRENT LIMITING		
R3	182778	1	RESISTOR 0.82 OHM 1/2W	COMMON EMITTER BIAS		
R4	182773	1	RHEOSTAT 3 OHMS 2 1/2W	OUTPUT CURRENT ADJUST		
R5	181717	1	RESISTOR 8 OHMS 5W	Q2 EMITTER BIAS		
R6	182770	1	RESISTOR 270 OHMS 4W	Q2 EMITTER BIAS		
R7	182772	1	RESISTOR 14 OHMS 10W	Q2 COLLECTOR LOAD		
R8	182627	1	RESISTOR 390 OHMS 4 W	Q1 COLLECTOR LOAD		
R9	182776	1	RESISTOR 150 OHMS 1/2 W	Q2 COLLECTOR LOAD		
				TRANSIENT LIMITING		
CR1	182520	2	DIODE 1N3193	POWER RECTIFIER		
CR2	182520		SAME AS CR1	POWER RECTIFIER		
CR3	181619	2	DIODE 1N482	COLLECTOR TRANSIENT LIMITING		
CP4	181619		SAME AS CR3	VOLTAGE CLAMPING		
CR5	178844	1	VARIATOR 100A	INPUT PROTECTION		
CR6	199442	1	DIODE, 1N270	SEE NOTE 7		
ZD1	182774	1	DIODE, ZENER 4.7V 5% 1W.	REFERENCE		
C1	182628	1	CAPACITOR, 10 MFD, 25WVDC	COLLECTOR TRANSIENT LIMITING		
Q1	181671	1	TRANSISTOR, HIGH GAIN	INPUT SWITCH		
EC	182775	1	CIRCUIT BOARD, ETCHED			

182630-35

REVISIONS

ISSUE	DATE	AUTH. NO.
2	8-8-62	30-1259
3	11-27-62	30-5388
4	12-17-62	30-5445
5	1-23-63	30-5580
6	3-20-64	81340
7	5-21-64	81781
8	4-26-65	86507
9	6-10-65	86507-2
10	9-19-66	88816
11	10-25-66	88816-1
12	12-14-66	92190
13	2-7-67	93101
14	5-3-67	93502
15	6-20-68	19358-R
16	7-9-68	95948
17	12-20-68	98266
17A	3-3-71	2320

CONSTANT CURRENT .500 SELECTOR MAGNET DRIVER



CIRCUIT DESCRIPTION

THE SELECTOR MAGNET DRIVER CIRCUIT IS POWERED FROM A SOURCE OF 117 VOLT ALTERNATING CURRENT THROUGH A STEP DOWN ISOLATION TRANSFORMER. DIODES CR1 AND CR2 PROVIDE FULL WAVE RECTIFICATION OF THE REDUCED VOLTAGE TO -20 VOLTS DC AT TERMINAL 15. THE CIRCUIT COMMON IS CONNECTED TO TERMINAL 2 AND A POWER SUPPLY FILTER CAPACITOR IS CONNECTED BETWEEN TERMINALS 2 AND 15.

THE DIRECT CURRENT SIGNAL LINE CIRCUIT IS CONNECTED THROUGH TERMINALS 7 AND 2. WITH AN ALTERNATE CONNECTION THROUGH R10 AT TERMINAL 14 PROVIDING A CURRENT LIMITING FUNCTION. IN THE MARKING CONDITION, Q1 IS OFF-BIASED. WITH Q1 OFF, THE BASE OF Q2 WILL BE CLAMPED AT THE ZENER REFERENCE VOLTAGE BY DIODE CR4. THIS VOLTAGE CLAMP IS THEN TRANSLATED TO CURRENT REGULATION BY THE TRANSISTOR ACTION OF Q2. THE REGULATED MAGNET CURRENT IS ADJUSTED TO .500 AMPERES BY RHEOSTAT R4.

WITH THE SIGNAL LINE IN THE OPEN OR SPACING CONDITION, Q1 IS TURNED ON BY BASE CURRENT SUPPLIED THROUGH RESISTOR R1. THE POTENTIAL AT THE COLLECTOR OF Q1 WILL BE NEAR ZERO. OFF-BIASING Q2. WITH Q2 OFF, NO SELECTOR MAGNET CURRENT FLOWS, ALLOWING THE MAGNET TO RELEASE. DURING THE TURN OFF OF Q2 THE INDUCTIVE TRANSIENT DEVELOPED AT THE COLLECTOR IS SUPPRESSED BY THE NETWORK CONSISTING OF CR3, R9, AND C1.

"SNAP-ACTION" IS SUPPLIED TO THE CIRCUIT TRANSITIONS BY FEEDBACK IN THE EMITTER CIRCUITS OF TRANSISTORS Q1 AND Q2.

APPROVALS

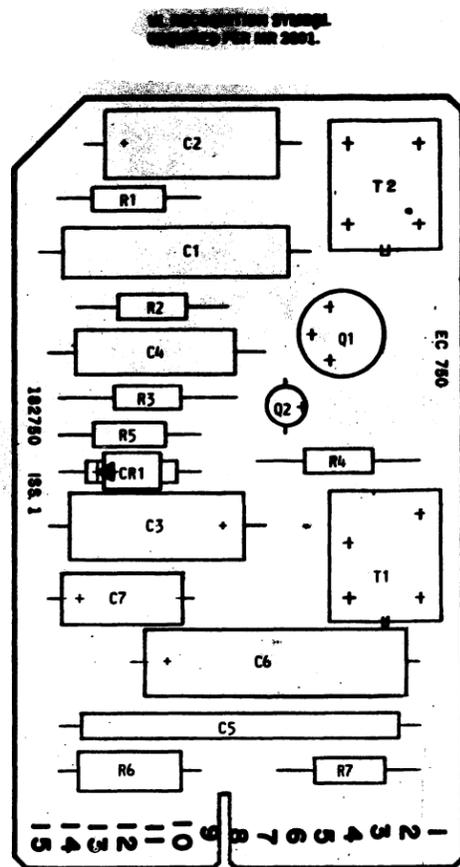
D AND R	E OF M
HJK	

E-NUMBER	
PROD. NO.	182630-35
DATE	6-2-62
P.D. FILE NO.	30-158AAA
DRAWN	E. R. REG
CHKD.	
ENGD.	R. J. M.
APPD.	

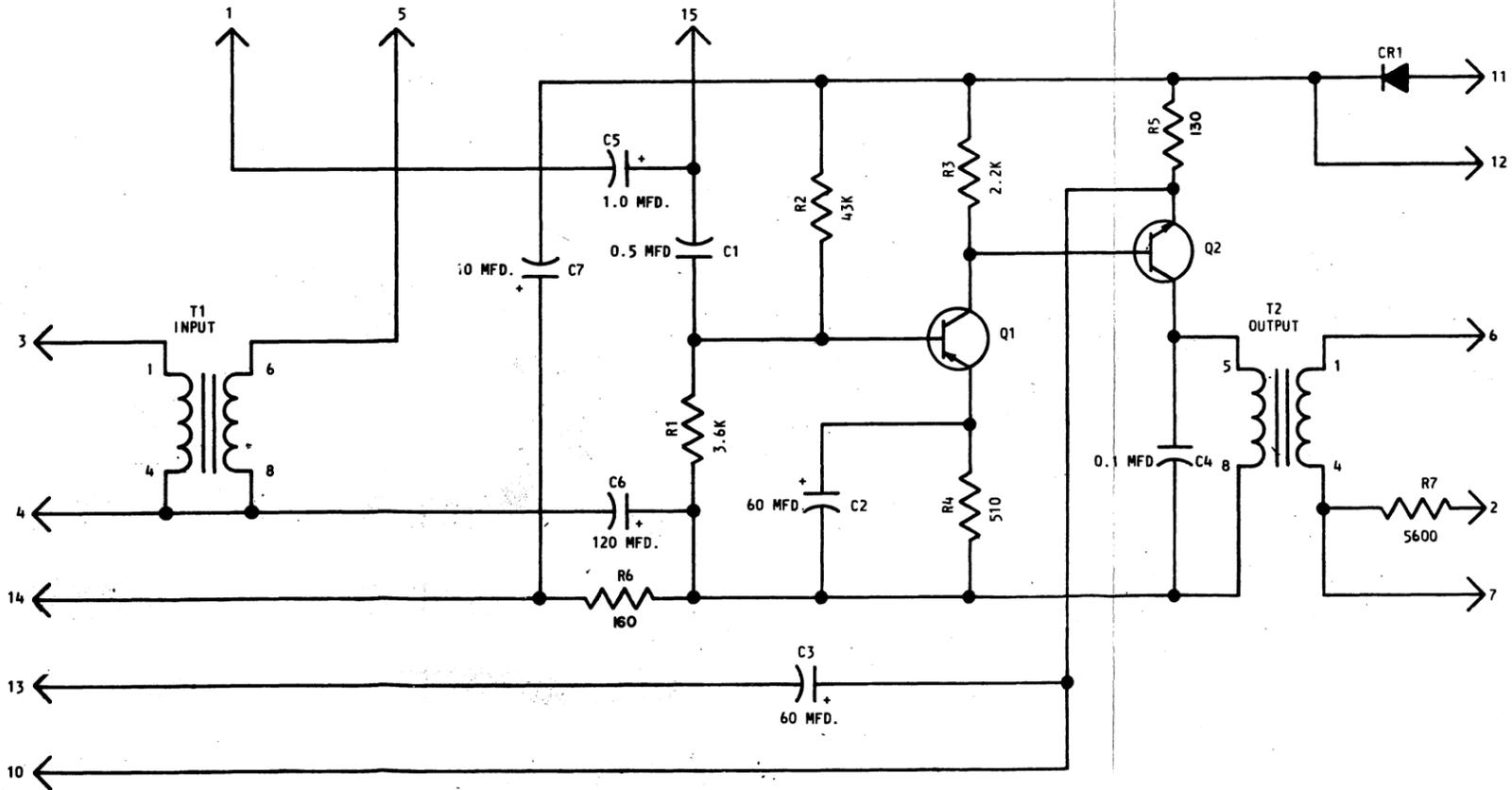
TELETYPE CORPORATION

182630-35

REF. DESIG.	PART NO. REQ.	QTY.	DESCRIPTION	NOTE: MANUFACTURE PER MR2001
R1	182751	1	RESISTOR 3600 OHMS 1/2W	1. COMPONENTS OR CIRCUIT SHOULD NOT BE CHANGED WITHOUT PRIOR APPROVAL OF THE BELL TELEPHONE LABORATORIES.
R2	139843	1	RESISTOR 43000 OHMS 1/2W	
R3	129852	1	RESISTOR 2200 OHMS 1/2W	
R4	137603	1	RESISTOR 510 OHMS 1/2W	
R5	182753	1	RESISTOR 130 OHMS 1/2W	
R6	182766	1	RESISTOR 160 OHMS 1 W	
R7	118186	1	RESISTOR 5600 OHMS 1/2W	
C1	148255	1	CAPACITOR 0.5MFD., 200VDC	2. TRANSISTOR Q1 TO BE MOUNTED ON 144495 TRANSISTOR PAD.
C2	182747	2	CAPACITOR 60MFD., 10VDC.	
C3			SAME AS C2	3. TRANSISTOR Q2 TO BE MOUNTED ON 324147 TRANSISTOR PAD.
C5	182749	1	CAPACITOR 1.0 MFD., 200VDC	
C4	181648	1	CAPACITOR 0.1 MFD., 100VDC	
C6	182178	1	CAPACITOR 120 MFD., 25VDC	
C7	195239	1	CAPACITOR 10 MFD., 35VDC.	
CR1	182767	1	DIODE 400A	
Q1	182744	1	TRANSISTOR, 126	
Q2	182745	1	TRANSISTOR, 16A	
T1	182754	1	TRANSFORMER, 2564 B	5. PRINTING SCREEN TO BE MADE FROM MASTER ARTWORK NUMBER 182750AW. ARTWORK AVAILABLE IN R AND D OFFICE SERVICE SECTION.
T2	182755	1	TRANSFORMER, 2564 AB	
TP	324147	1	PAD, TRANSISTOR MOUNTING	
TP	144495	1	PAD, TRANSISTOR MOUNTING	
EC	182743	1	ETCHED CIRCUIT BOARD	



THIS IS A TWO STAGE, DIRECT-COUPLED, TRANSISTORIZED AUDIO AMPLIFIER. SIGNALS MAY BE FED INTO THE AMPLIFIER BY THE IMPEDANCE MATCHING TRANSFORMER T₁ OR BY THE INPUT COUPLING CAPACITOR C₅. THE INPUT SIGNAL (EITHER FROM T₁ OR C₅) IS COUPLED INTO THE FIRST STAGE OF AUDIO AMPLIFICATION (Q₁) THROUGH C₁. THE OUTPUT SIGNAL IS DIRECTLY COUPLED INTO THE SECOND AND LAST STAGE OF THE AMPLIFIER (Q₂). Q₂ IS A SILICON TRANSISTOR TO MINIMIZE LEAKAGE CURRENT PROBLEMS. THE OUTPUT SIGNAL CAN BE TAKEN DIRECTLY OFF THE EMITTER, TAKEN OFF THE EMITTER THROUGH C₃, COUPLED DIRECTLY OFF THE SECONDARY OF THE OUTPUT TRANSFORMER (T₂), OR COUPLED OFF THE SECONDARY OF THE OUTPUT TRANSFORMER THROUGH A 5600 OHM RESISTOR.



REVISIONS		
ISSUE	DATE	AUTH. NO.
12	12-20-68	98266
13	5-7-70	6
14	11-30-70	3461
15	2-17-71	2546
16	3-3-71	2320

WDP

CIRCUIT CARD
MC

APPROVALS		
PROJ. SU-V.	PROJ. DIR.	MFG. REL. COMPL.
682		
ENGR. A. C. P.	DSGNER. A. C. P.	
DRN. D. W. J.	DATE 11-25-69	
E-NUMBER		
SD-CD NO. 182750		
R & D FILE I-165.153AA		
TELETYPE		
182750		

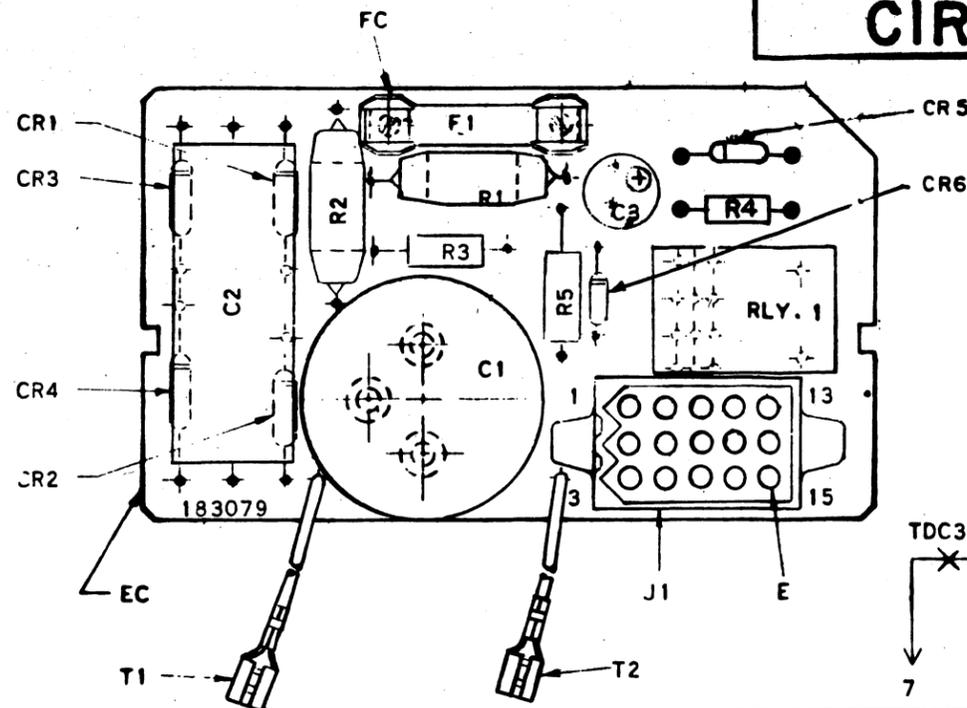
SIMILAR TO:

CIRCUIT CARD ASSEMBLY

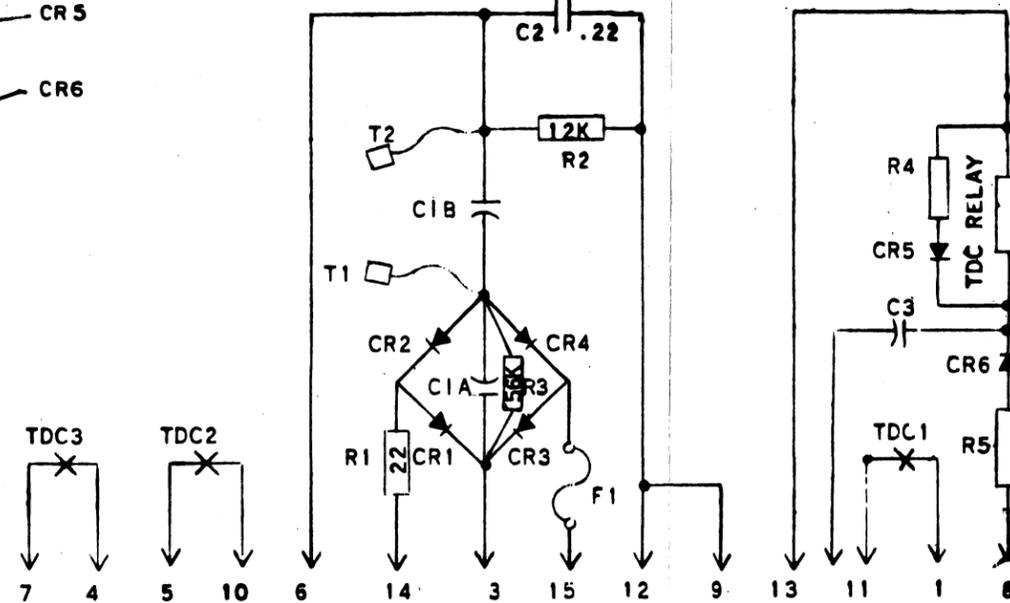
183079

NOTES

- REFER TO 7141 WD FOR MARKING INFORMATION
- SOME PREVIOUS CIRCUIT CARD ASSEMBLIES USED 1/2 AFB. 3/4 AFB. IS PREFERABLE



POWER PACK ASSEMBLY W/RELAY



PARTS REQ.	NO REQ.	USED ON	NO REQ.
		182149	

REVISIONS

ISSUE NO	DATE	AUTHOR NO
2	12-2-63	79461
3	3-8-64	80414
4	5-6-64	81899
5	11-29-66	88816-A
6	8-21-68	95993
7	10-8-68	96269-A
8	9-17-69	99187
9	2-10-70	99187-2
9A	3-3-71	2320

DESIGNATION	TELETYPE PART NO.	TOTAL QTY.	*DESCRIPTION	FUNCTION
R1	183083	1	RESISTOR, 22 OHM	SURGE LIMITER
R2	183082	1	RESISTOR, 12,000 OHM	ARC SUPPRESSOR
C1	183078	1	CAPACITOR, DUAL SECTION A - 200 MFD, 200V DC B - 9 MFD, 200V DC	POWER SUPPLY FILTER SURGE SOURCE
C2	183084	1	CAPACITOR, .22 MFD	ARC SUPPRESSOR
CR1	181654	6	DIODE, 400V	POWER SUPPLY RECTIFIER
CR2			SAME AS CR1	POWER SUPPLY RECTIFIER
CR3			SAME AS CR1	POWER SUPPLY RECTIFIER
CR4			SAME AS CR1	POWER SUPPLY RECTIFIER
F1	143630	1	FUSE, 3/4 A.F.B.	POWER SUPPLY PROTECTION SEE NOTE 2
FC	171595	2	FUSE CLIP	
T1	183085	2	TERMINAL WITH WIRE LEAD	
T2			SAME AS T1	
J1	182540	1	CONTACT BLOCK, 15 POINT	
E	182641	15	TERMINAL, MALE P.C.	
EC	183137	1	ETCHED CIRCUIT BOARD	
	151637	2	SCREW, 4-40 FIL. HEAD	
	110743	2	LOCKWASHER, 4-40	
	151880	2	NUT	
R3	118198	1	RESISTOR, 56,000 OHM	BLEEDER
CR6	181654		SAME AS CR1	RECTIFIER
R5	183119	1	RESISTOR, 470 OHM	VOLTAGE DROPPING
C3	183121	1	CAPACITOR, 15 MFD	FILTER
CR5	181654		SAME AS CR1	ARC SUPPRESSOR
R4	118180	1	RESISTOR, 10,000 OHM	ARC SUPPRESSOR
RLY.1	183088	1	RELAY, 2,100 OHM	AUTOMATIC READER CONTROL

THIS POWER PACK CONSISTS OF A 150 VOLT POWER SUPPLY OPERATING DIRECTLY FROM THE 117V AC LINE, A WAVE SHAPING NETWORK, AND AN ARC SUPPRESSOR. IT IS DESIGNED TO OPERATE WITH AN INDUCTIVE LOAD OF APPROXIMATELY 100 OHMS BETWEEN TERMINALS 6 AND 12, WITH A 850 OHM, 40 WATT RESISTOR CONNECTED BETWEEN T1 AND T2.

TD FEED SWITCH IS CONNECTED BETWEEN TERMINALS 9 AND 3 THE UNIT IS DESIGNED TO DRIVE THE READER MAGNET IN THE MODEL 33 ASR SET.

TDC RELAY CONTACTS ARE USED FOR AUTOMATIC READER CONTROL. 48V AC INPUT IS RECTIFIED THRU R5 AND CR6 BEFORE REACHING TDC RELAY. CAPACITOR C3 FILTERS TO GROUND THRU COMMON POINT OF TDC1.

**UL RECOGNITION SYMBOL
REQUIRED PER MR 2001.**

P

WDP

APPROVALS

DESIGNED BY: [Signature] CHECKED BY: [Signature] APPROVED BY: [Signature]

E. NUMBER

PROD. NO. 183079

TELETYPE CORPORATION

183079

SCALE: 1/1

STOCK SPECIFICATION

DRAWN	FILE NO	DATE
P.H.N.	1-47.60.AA	2-1-63
DESIGNED	ENGINEER	CHECKED
APPROVED	APPROVED	APPROVED

SIZE	KIND	SHAPE	TEMPER

ALL DIMENSIONS ± UNLESS OTHERWISE SPECIFIED.

UL RECOGNITION SYMBOL REQUIRED PER MR 2001.

CIRCUIT CARD ASSEMBLY

POWER PACK ASSEMBLY

NO B/M

183087

PARTS REQ	NO REQ	USED ON	NO REQ
SEE BELOW		182134	1

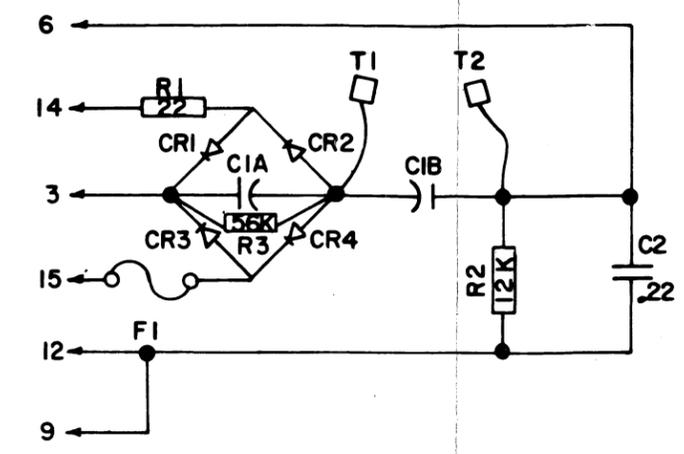
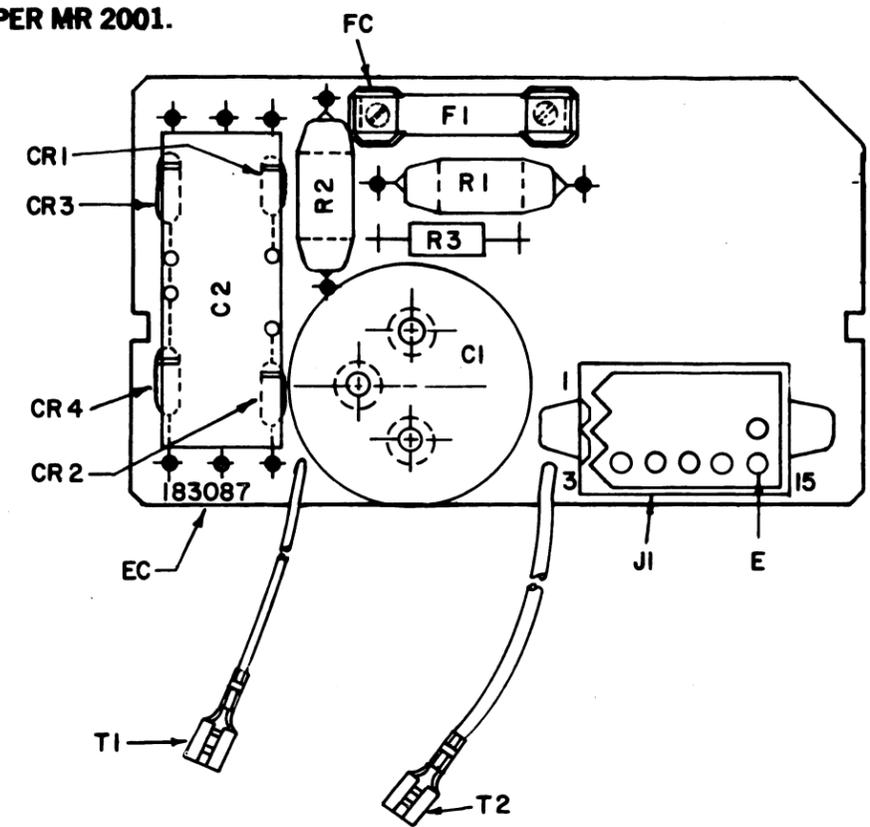
REVISIONS		
ISSUE NO.	DATE	AUTHOR NO.
2	8-20-62	30-1276
3	9-26-62	30-3151
4	2-20-63	30-5537
5	6-26-63	76290
6	9-19-66	88816
7	11-25-66	88816-1
8	8-22-68	95993
9	9-17-69	99187
10	2-10-70	99187-2
11	3-3-71	2320

P

WCP

APPROVALS	
D AND R	E OF M
<i>AAH</i>	<i>W</i>
E. NUMBER	
PROG. NO. 183087	

TELETYPE CORPORATION
183087



NO.	NOTES
1.	REFER TO 5851WD FOR MARKING INFORMATION.
2.	SOME PREVIOUS CIRCUIT CARD ASSEMBLIES USED 1/2 AFB. 3/4 AFB. IS PREFERABLE.

DESIGNATION	TELETYPE PART NO.	TOTAL QTY.	DESCRIPTION	FUNCTION
R1	183083	1	RESISTOR, 22 OHM	SURGE LIMITER
R2	183082	1	RESISTOR, 12,000 OHM	ARC SUPPRESSOR
C1	183078	1	CAPACITOR, DUAL SELECTION A- 200 M.F.D. 200 V.D.C. B- 9 M.F.D. 200 V.D.C.	POWER SUPPLY FILTER SURGE SOURCE
C2	183084	1	CAPACITOR, .22 M.F.D.	ARC SUPPRESSOR
CR1	181654	4	DIODE, 400 V.	POWER SUPPLY RECTIFIER
CR2			" "	" " "
CR3			" "	" " "
CR4			" "	" " "
F1	143630	1	FUSE, 3/4 A. F.B.	POWER SUPPLY PROTECTION SEE NOTE 2.
FC	171595	2	FUSE CLIP	
T1	183085	2	TERMINAL WITH WIRE LEAD	
T2			" " " "	
J1	182540	1	CONTACT BLOCK, 15 POINT	
E	182641	6	TERMINALS MALE P.C.	
EC	183080	1	ETCHED CIRCUIT BOARD	
	151637	2	SCREW 4-40 FIL HEAD	
	110743	2	LOCK WASHER # 4	
	151880	2	NUT	
R3	118198	1	RESISTOR, 56,000 OHM	BLEEDER

THIS POWER PACK CONSISTS OF A 150 VOLT POWER SUPPLY OPERATING DIRECTLY FROM THE 117 VAC LINE. A WAVE SHAPING NETWORK AND AN ARC SUPPRESSOR. IT IS DESIGNED TO OPERATE WITH AN INDUCTIVE LOAD OF APPROXIMATELY 100 OHMS BETWEEN TERMINALS 6 AND 12. WITH A 850 OHM 40 WATT RESISTOR CONNECTED BETWEEN T1 AND T2.

AN ON-OFF CONTROL SWITCH IS CONNECTED BETWEEN TERMINALS 9 AND 3. THE UNIT IS DESIGNED TO DRIVE THE READER MAGNET IN THE MODEL 32 AND 33 ASR.

SCALE: 1/1

STOCK SPECIFICATION

DRAWN T.R.	P.D. FILE NO 1-47.60AA	DATE 6-7-62
DESIGNED	ENGINEER J.A.J.	CHECKED AAH
		APPROVED <i>BWB</i>

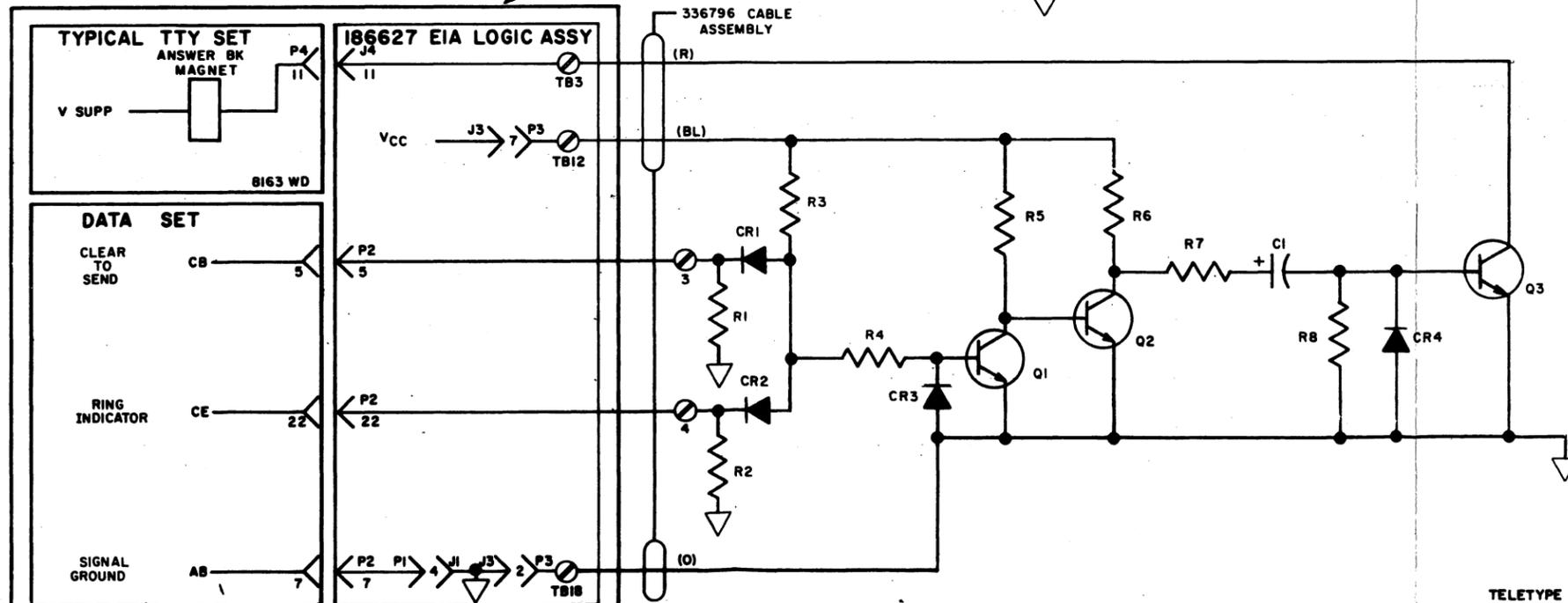
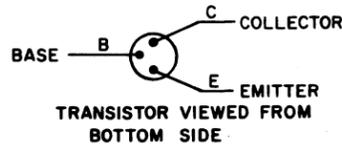
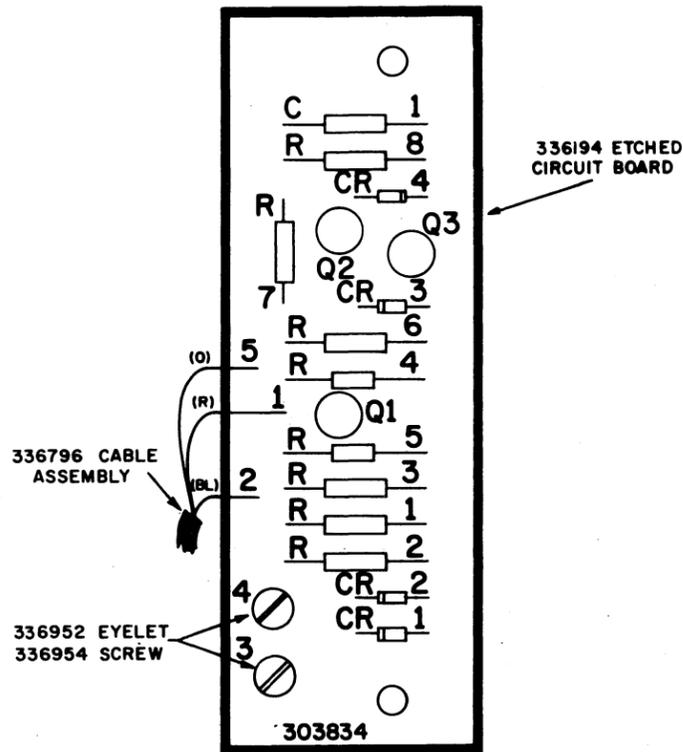
SIZE	KIND	SHAPE	TEMPER

REF. DESIG.	PART NO. REQ.	QTY	DESCRIPTION
R1, R2	118186	2	RESISTOR, 5.6K±5% 1/2W
R3	118720	1	RESISTOR, 100K±5% 1/2W
R4	320275	1	RESISTOR, 10K±5% 1/4W
R5	318801	1	RESISTOR, 47K±5% 1/4W
R6	118144	1	RESISTOR, 2.7K±5% 1/2W
R7	143661	1	RESISTOR, 330±5% 1/2W
R8	118180	1	RESISTOR, 10K±5% 1/2W
CF1, CR2	197464	2	DIODE
CR3	171602	1	DIODE
CR4	197464	1	SAME AS CR1
C1	333730	1	CAPACITOR, 22MFD±10% 35V
Q1, Q2	315930	2	TRANSISTOR, 2N3568
Q3	321166	1	TRANSISTOR, 2N1893
	336194	1	ETCHED CIRCUIT BOARD
	336796	1	CABLE ASSEMBLY
	336952	2	EYELETS, THREADED
	336954	2	SCREWS

NOTES:

- MANUFACTURE PER MR 2001
- PRINTING SCREEN TO BE MADE FROM MASTER ARTWORK# 303834 AW. ARTWORK AVAILABLE IN R&D OFFICE SERVICE SECTION.
- ASSEMBLE TAPPED EYELETS FROM COMPONENT SIDE OF CARD.

UL RECOGNITION SYMBOL REQUIRED PER MR 2001.



ANSWER BACK TRIP MAGNET DRIVER

THE TRIP MAGNET DRIVER CARD PROVIDES A TIMED (8 TO 350 MS.) 350 MA (MAXIMUM) PULSE THROUGH THE ANSWER BACK TRIP MAGNET TO GROUND. (TERMINAL 1) IN RESPONSE TO THE SIMULTANEOUS APPLICATION OF TWO EIA "ON" VOLTAGES (+3V TO +25V) AT INPUT TERMINALS 3 AND 4. (THE SIMULTANEOUS "ON" VOLTAGE INPUT DURATION MUST EXCEED 350 MS.)

THE CIRCUIT OPERATION IS STRAIGHTFORWARD. AN "OFF" INPUT (-3V TO -25V) ON EITHER TERMINAL 3 OR 4 WILL REVERSE BIAS THE Q1 EMITTER BASE JUNCTION HOLDING Q1 OFF. TRANSISTOR Q2, WILL BE "ON" AND C1 (GROUNDED AT BOTH SIDES), IS UNCHARGED. THE SIMULTANEOUS APPLICATION OF TWO "ON" VOLTAGE TURNS ON Q1, TURNING OFF Q2 AND ALLOWING C1 TO CHARGE. THE C1 CHARGING CURRENT (THROUGH THE BASE EMITTER JUNCTION OF Q1, R1, AND R7) WILL TURN ON Q3 HOLDING IT ON LONG ENOUGH TO ASSURE TRIPPING THE ANSWER BACK MAGNET, BUT NOT SO LONG AS TO CAUSE DOUBLE TRIPPING. THE RETURN TO THE OFF STATE OF EITHER INPUT WILL TURN ON Q2 DISCHARGING C1 THROUGH R7. Q3 WILL DISCHARGE THE C1 APPROXIMATELY 35 MS.)

INPUT / OUTPUT REQUIREMENTS (SEE TEST CIRCUIT)

INPUT REQUIREMENTS			
STATE	TERM	VOLTAGE	DURATION
"ON"	3 AND 4	+3 < V < +25	T > 350 MS
"OFF"	3 OR 4	-3 < V < -25	T > 50 MS

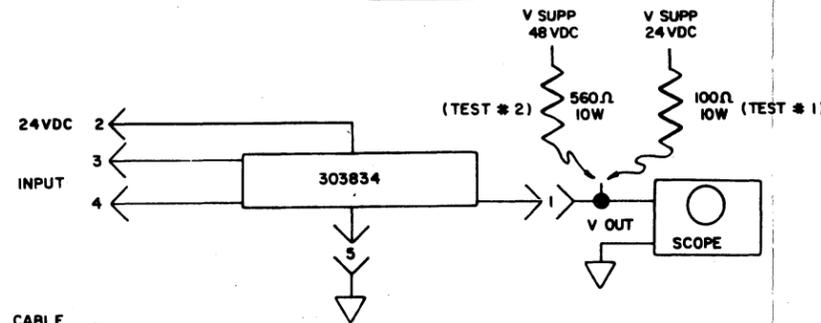
OUTPUT REQUIREMENTS			
STATE	TERM	VOLTAGE	DURATION
"ON"	1	V OUT < 5V	8 MS < T < 350 MS
"OFF"	1	V OUT = V SUPP.	

POWER REQUIREMENTS

V_{CC} - 20 VDC MIN., 33 VDC MAX.
500MW MAX.

V SUPP. - 60VDC MAX., 120MA
30VDC MAX., 350MA

TEST CIRCUIT



ORIGINAL USE
186627 M33/35 FINAL
336192 DIRECT

REVISIONS

ISSUE	DATE	AUTH NO.
1	2-17-70	20632-R
2	8-12-70	761
3	3-3-71	2320

CIRCUIT CARD
MC 834
303834
CIRCUIT CARD
ASSEMBLY

APPROVALS		
PROJ. SUPV.	PROJ. DIR.	MFG. REL. COMPL.

ENGR. R.L.C. DSGNR. R.L.C.
DRN. R.A.P. DATE 12-16-69
S-NUMBER 61,756
SD-CD NO.
R&D FILE 3-A132AA



303834

DRAWING NO.	SHEET NO.	DESCRIPTION	ISSUE NUMBER																													
			1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
		SCHEMATIC WIRING DIAGRAMS																														
7890WD	ALL	182630-35 SEL. MAG. DRIVER CIRCUIT	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1														
8163WD	ALL	ASR AND KSR SETS USING UCC29	1	1	2	2	2	2	2	3	3	3	4	5	5	5	5	5														
		ACTUAL WIRING DIAGRAMS																														
7885WD	1	UK800, -804 KEYBOARD	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5														
7886WD	1	181870 AND 182241 MOTOR	4	4	4	4	4	5	5	5	5	5	5	5	5	6	6	6														
7887WD	1	UX800, -801 READER	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3														
8162WD	ALL	UCC29 CALL CONTROL UNIT	1	1	1	1	1	1	1	2	2	2	3	3	3	3	3	3														
8799WD	1	UP 851, - 853 PRINTERS	1	1	2	2	2	2	2	2	2	2	2	2	2	2	2	2														
		CIRCUIT CARD ASSEMBLIES																														
182630	1	SELECTOR MAGNET DRIVER	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17														
186438	1	POWER SUPPLY	1	1	1	2	2	2	2	2	2	2	2	2	2	2	3	3														
186439	1	JUMPER CARD	1	1	1	2	2	2	2	2	2	2	2	2	2	3	3															
303833	1	BREAK DETECTOR [OPTION]	2	2	2	2	2	2	2	1	1	1	1	1	2	2	3	3														
186479	1	AUTO. READER POWER PACK	1	1	1	1	2	2	3	3	4	5	5	5	5	5	6	6														

GENERAL CIRCUIT DESCRIPTION

The selector magnet driver circuit is powered from a source of 115 volts alternating current through a step down isolation transformer. Diodes CR1 and CR2 provide full wave rectification of the reduced voltage to -20 volts DC at terminal 15. The circuit common is connected to terminal 2 and a power supply filter capacitor is connected between terminals 2 and 15.

The direct current signal line circuit is connected through terminals 7 and 2, with an alternate connection through R10 at terminal 14 providing a current limiting function.

In the marking condition, Q1 is off-biased. With Q1 off, the base of Q2 will be clamped at the zener reference voltage by diode CR4. This voltage clamp is then translated to current regulation by the transistor action of Q2. The regulated magnet current is adjusted to 0.500 amperes by rheostat R4.

With the signal line in the open or spacing condition, Q1 is turned on by base current supplied through resistor R1. The potential at the collector of Q1 will be near zero, off-biasing Q2. With Q2 off, no selector magnet current flows, allowing the magnet to release. During the turn off of Q2 the inductive transient developed at the collector is suppressed by the network consisting of CR3, R9, and C1.

"Snap-action" is supplied to the circuit transitions by feedback in the emitter circuits of transistors Q1 and Q2.

DETAILED CIRCUIT DESCRIPTION

The signal line circuit is from the positive side of the signal line through CR5 and R3 to the negative side of the signal line. Signal line resistance must be provided so that with the particular signal line voltage used, the marking signal line current is either 0.020 or 0.060 amperes. This resistance may be provided in the signal line circuit external to the card, or by the R10 680 ohm resistor on the card, or by both. For a 0.020 ampere signal line current, R1 is 420 ohms so that the switching level is at 0.010 amperes. For a 0.060 ampere signal line current, R1 is 135 ohms so that the switching level is at 0.030 amperes.

The operation of the circuit on marking and spacing pulses is as follows:

SPACING

A switching device in the positive or negative sides opens the signal line circuit on spacing pulses so that no signal line current flows. Current flows from the positive side of the selector magnet driver power supply, through the parallel paths of ZD1 and of R3, CR5, and R1, and through the parallel paths of R2 and of CR4 and R8 to the negative side of the power supply. The voltage drop across the breakdown or Zener diode ZD1 is constant at 4.7 volts even though the value of the current through it may vary due to variations in the external supply voltage. This means that the current through CR5 and R1, which determines the switching level of transistor Q1, is constant at .010 amperes with a 420 ohm resistor or at .030 amperes with a 135 ohm resistor. On spacing, this current causes Q1 to be biased on so that it conducts through the emitter and collector, CR6, and R8, causing the base of Q2 to be at very slightly below the potential of the positive side of the power supply. The emitter of Q2 is at a lower potential than the base because of the voltage divider formed by R3, R4, R5, R6, and R7, and therefore Q2 does not conduct and no current flows through the selector magnet coils.

MARKING

On marking pulses, a current of .020 amperes (or .060 amperes, depending on the signal line resistance) flows from + signal line to the junction of CR5 and R1, where it opposes the .010 ampere (or .030 ampere) bias current flowing through R3, CR5, and R1. The result is a .010 ampere (or .030 ampere) current flow through CR5 and R3 to - signal line. Q1 is now biased off. Because of the approximately 5.2 volt drop across ZD1 and CR4, the base of Q2 is negative with respect to the emitter. Q2 turns on and current flows from the positive side of the power supply through R3, R4, and R5 and through the parallel paths of emitter and collector of Q2 and selector magnet and of R6, and through R7 to the negative side of the power supply.

The resistor R4 is adjusted until the emitter - base current is such that a current of 0.500 amperes flows through the emitter, collector, and selector magnets.

Since the voltage at the base of Q2 in marking is clamped by ZD1 and CR4, the base current (and therefore collector current) will be constant even with external voltage variations.

SHEET INDEX

CONTENTS	SHEET NO.	ISSUE NO.																												SHEET NO.
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	
CONTROL CIRCUITS	1	X	X	X	3	3																								
SIGNAL GENERATORS, SELECTOR MAGNET DRIVER AND BREAK DETECTOR	2	X	X	X	X	4																								
POWER CIRCUITS	3	X	X	X	3	3																								
NOTES	4	X	X	X	3	3																								
APP. FIG. 1-3	5					1																								
APP. FIG. 4	6					1																								
APP. FIG. 5-6	7					1																								
APP. FIG. 7-9	8					1																								
APP. FIG. 10-17	9					1																								

SUPPORTING INFORMATION

CATEGORY	NO.
WIRING DIAGRAM PACKAGE	ACR0152

SHEET INDEX NOTES

1. WHEN CHANGES ARE MADE IN THIS DRAWING ONLY THOSE SHEETS AFFECTED WILL BE REISSUED.
2. THIS SHEET INDEX WILL BE REISSUED AND UPDATED EACH TIME ANY SHEET OF THE DRAWING IS REISSUED OR A NEW SHEET IS ADDED.
3. THE LAST COMPLETED COLUMN INDICATES THE LATEST ISSUE NUMBER OF THE SHEET INDEX.
4. SHEETS THAT ARE NOT CHANGED WILL RETAIN THEIR EXISTING ISSUE NO.
5. ISSUE DATES WILL BE SHOWN ON THE SHEET INDEX ONLY.

REVISIONS		
ISSUE	DATE	AUTH. NO.
1	6-6-69	19474-F
2	9-26-69	99475
3	4-1-70	99954
4	6-12-70	530
5	6-22-70	497

SCHEMATIC
WIRING DIAGRAM
FOR MODEL 33
AUTOMATIC SEND-RECEIVE
KEYBOARD SEND-RECEIVE
AND
RECEIVE ONLY
SETS
USING THE UCC 29

APPROVALS		
PROJ. SUPV.	PROJ. DIR.	MFG. REL. COMPL.
ENGR. R.C.H.	DSGMR.	
DRN. J.L.	DATE 7-2-69	
R & D FILE	2-165.152AA	
S-NUMBER	61,584S-734S	

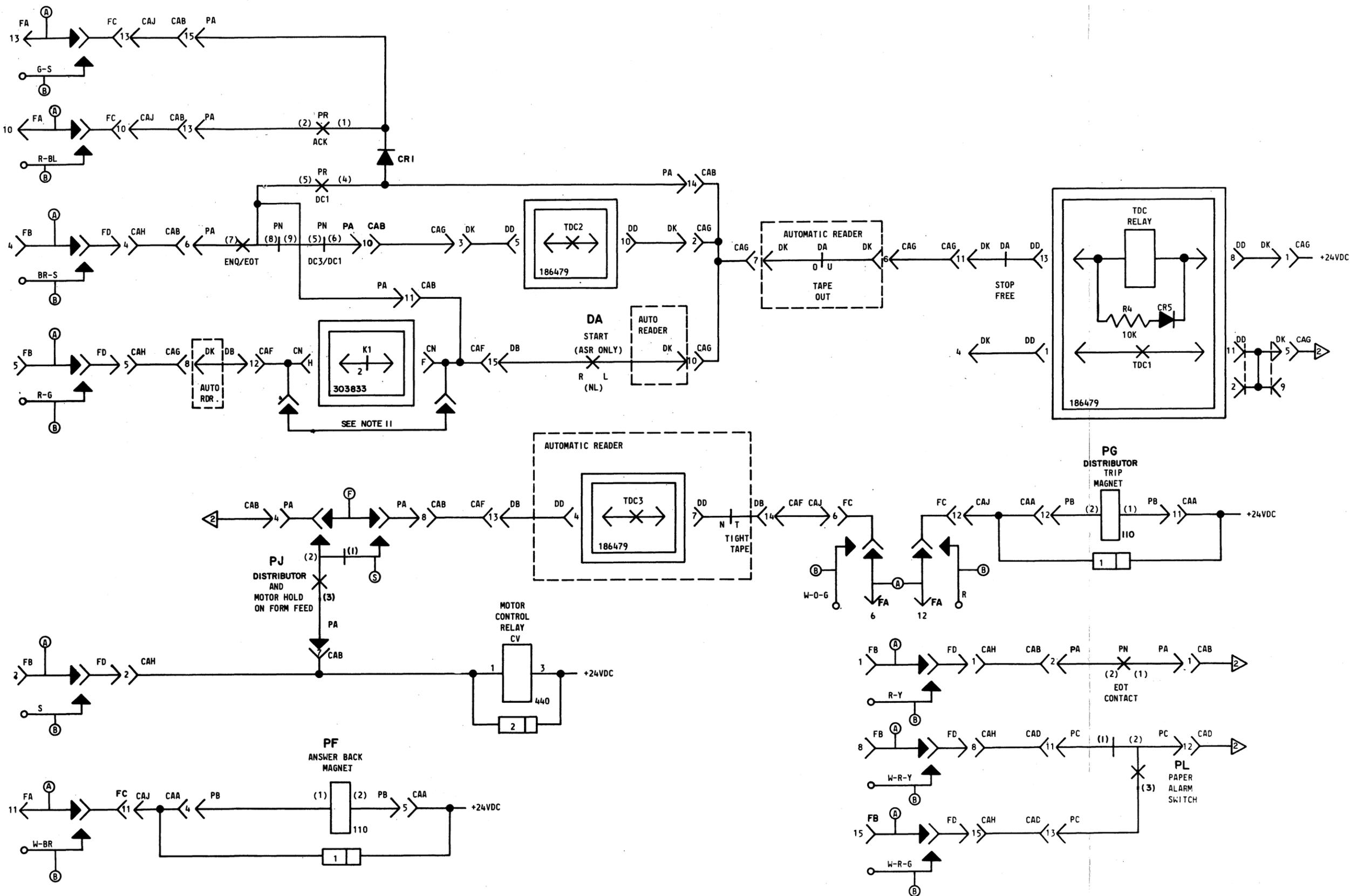


SEE SHEET 4 FOR NOTES

CONTROL CIRCUITS

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

REVISIONS		
ISSUE	DATE	AUTH. NO.
1	6-6-69	19474-R
2	9-26-69	99475
3	3-31-70	99954



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

WDP	SHEET 1	
SCHEMATIC WIRING DIAGRAM FOR MODEL 33 AUTOMATIC SEND-RECEIVE KEYBOARD SETS AND RECEIVE ONLY SETS USING THE UCC 29		
APPROVALS		
PROJ. SUPV.	PROJ. DIR.	MFG. REL. COMPL.
ENGR. R. C. H.	DSGMR.	
DRN. J. L. L.	DATE 7-1-69	
R & D FILE 2-165.152AD		
S-NUMBER 61,584S-734S		

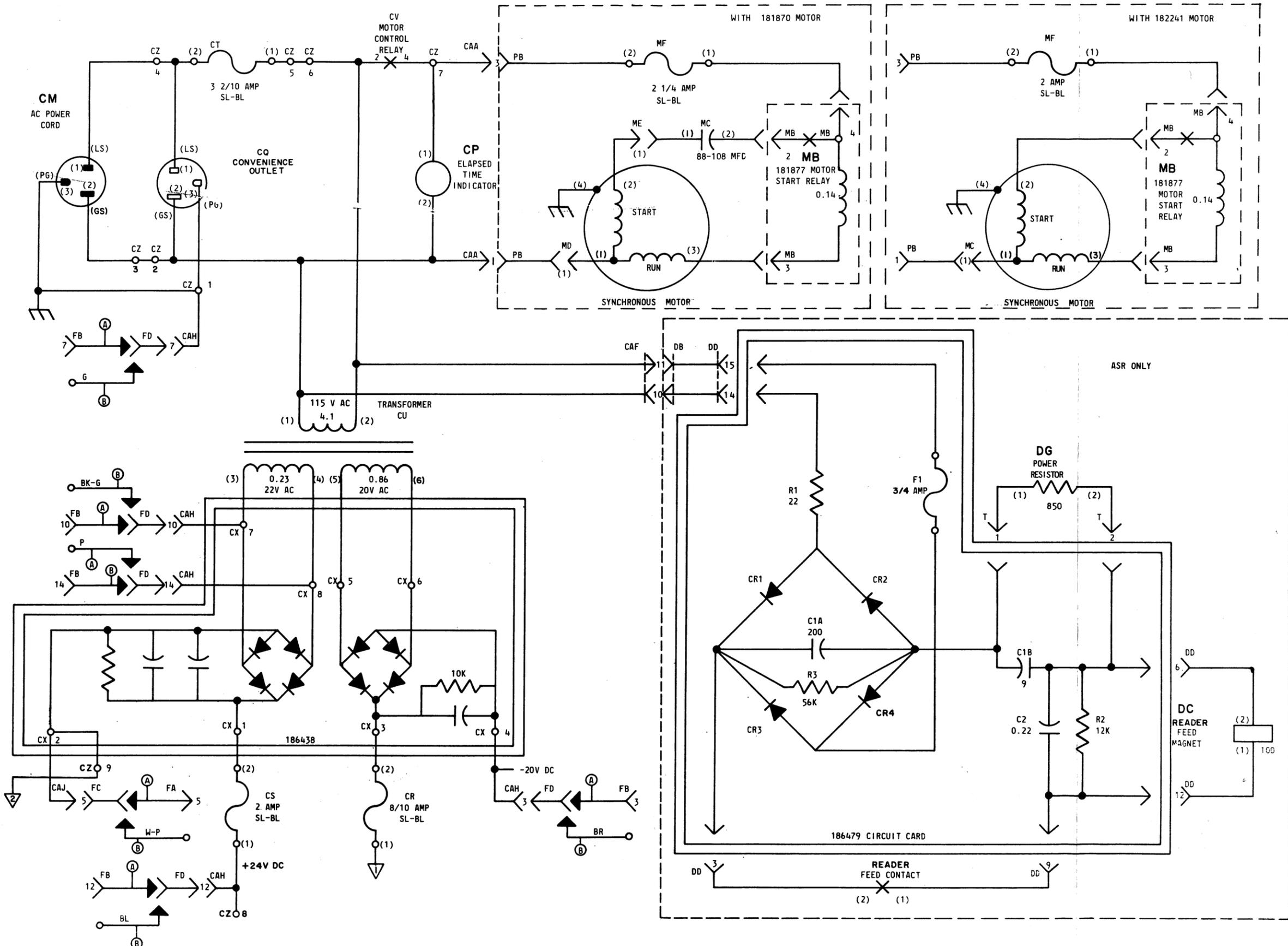


8163WD

POWER CIRCUITS

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

REVISIONS		
ISSUE	DATE	AUTH. NO.
1	6-6-69	19474-R
2	9-26-69	99475
3	4-1-70	99954



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

WDP SHEET 3

SCHEMATIC WIRING DIAGRAM FOR MODEL 33 AUTOMATIC SEND-RECEIVE KEYBOARD SEND-RECEIVE AND RECEIVE ONLY SETS USING THE UCC 29

APPROVALS

PROJ. SUPV.	PROJ. DIR.	MFG. REL. COMPL.
ENGR. R. C. H. DSGNR.	DRN. J. L.	DATE
R & D FILE 2-165.152 AA		
S-NUMBER 61,584S-734S		



8163WD

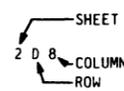
NOTE:
REVISION INFORMATION MUST ALSO BE REFLECTED ON THE ISSUE CONTROL RECORD, WHICH IS A PART OF THIS DRAWING.

REVISIONS		
ISSUE	DATE	AUTH. NO.
1	9-26-69	99475
2	4-1-70	99954
3	6-12-70	530

- NO. NOTES
- ALL VOLTAGES DC UNLESS OTHERWISE SPECIFIED.
 - RESISTANCE VALUES ARE IN OHMS.
 - CAPACITANCE VALUES ARE IN MICROFARADS.
 -  INDICATES FEMALE TERMINAL
 INDICATES MALE TERMINAL
 -  NETWORK SYMBOL

NETWORK NO.	TELETYPE NO.	RESISTANCE	INDUCTIVE REACTANCE
1	151631	470 OHM	0.11MFD
2	178535	470 OHM	0.11MFD
 - SL-BL DENOTES SLOW BLOWING
 - WIRE COLOR CODE:

O - ORANGE	Y - YELLOW	R - RED
P - PURPLE	W - WHITE	G - GREEN
S - SLATE	BL - BLUE	BR - BROWN
	BK - BLACK	
 - LEGEND FOR SHEET REFERENCE:


 -  INDICATES OPTION

A 336464 CABLE TERMINATES AT EACH END IN TWO 15 PIN CONNECTORS.
 B 336463 CABLE TERMINATES IN 30 SPADE TERMINALS ON ONE END.
 F FRICTION FEED PRINTER.
 S SPROCKET FEED PRINTER.
 -  INDICATES COMMON RETURN TO +24VDC
 INDICATES COMMON RETURN TO -20VDC
 - CONNECTION BETWEEN CN-F AND CN-H IS REMOVED WHEN 303833 CIRCUIT CARD IS USED.
 - REFERENCE: 8162WD ACTUAL WIRING DIAGRAM UCC29 CALL CONTROL UNIT.
 - ON RO SETS SUBSTITUTE THE 181838 PLUG ASSEMBLY ON CONNECTOR NO 7 "CAE".
 - LEAD ADDED ON CAA-7 FOR COMPATIBILITY WITH M35ASR SET

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

SCHEMATIC
WIRING DIAGRAM
FOR MODEL 33
AUTOMATIC SEND-RECEIVE
KEYBOARD SEND-RECEIVE
AND
RECEIVE ONLY
SETS
USING THE UCC 29

APPROVALS

PROJ. SUPV.	PROJ. DIR.	MFG. REL. COMPL.
-------------	------------	------------------

ENGR. R. C. H.	DSGMR.
DRN. 11	DATE 7-2-69
R & D FILE 2-165,152AA	
S-NUMBER 6 1,584S-734S	

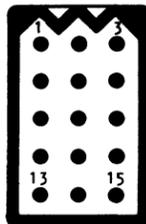
TELETYPE

8163WD

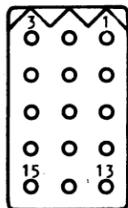
APP. FIG. 1
RELAY

DESIG.	CV	
CODE	178306	
OPTION		
X	CONT ARR	LOC
2-4	BM	3A3
COIL	X	1D3

328727
PLUG



328733
RECEPTACLE



181819
CONNECTOR



APP. FIG. 2
TERMINAL STRIP

DESIG.	CZ
CODE	151411
OPTION	
TERM.	LOC.
1	3B2
2	3B2
3	3B2
4	3A2
5	3A2
6	3A2
7	3A3
8	3E2
9	3D2

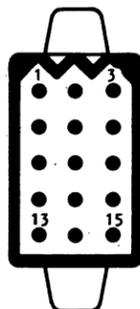
APP. FIG. 3
CONNECTOR

DESIG.	FA	FB	FC	CAJ	CN	CW
CODE	PLUG	RECEPT.	PLUG	RECEPT.	CONN.	CONN.
	328727	328733	182540	182539	181819	181819
TERM.	LOCATION					
1 A	2E5	1D5	2E4	2E4	2B7	2C6
2 B	2A4	1D1	2A5	2A5	2C5	2D6
3 C	2A4	3E4	2A5	2A5	2B5	2C5
4 D	2B4	1B1	2B5	2B5	2B5	
5 E	3E2	1C1	3E1	3E1	2B5	
6 F	1D5	2E5	1C5	1C5	1C3	
7 H	2C4	3B1	2C5	2C5	1C2	2E5
8 J	2B4	1D5	2B5	2B5	2A5	
9 K	2A4	2A4	2A5	2A5	2A5	
10 L	1A1	3C1	1A2	1A2	2A5	
11 M	1E1	2A4	1E2	1E2	2B6	
12 N	1D5	3E2	1C5	1C5		2C6
13 P	1A1	2E5	1A2	1A2		2C6
14 R	2E5	3D1	2E4	2E4		
15 S	2B4	1E5	2B5	2B5	2A7	2C7

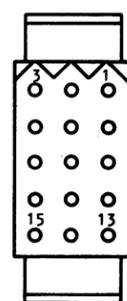
APP. FIG. 4
CONNECTOR

DESIG.	PB	CAA	PA	CAB	PC	CAD	KQ	CAE	DB	CAF	DK	CAG	FD	CAH	DD
CODE	PLUG	RECEPT.	PLUG	RECEPT.	PLUG	RECEPT.	PLUG	RECEPT.	PLUG	RECEPT.	PLUG	RECEPT.	PLUG	RECEPT.	RECEPT.
	182540	182539	182540	182539	182540	182539	182540	182539	182540	182539	182540	182539	182540	182539	182539
TERM	LOCATION														
1	3B3 3B5	3B3	1D6	1D6	2D3	2D3	2B3	2C3	2D4	2D4	1B7	1B7	1D5	1D5	1C5
2	2E5	2E5	1D6	1D6	2D1	2D1	2B1	2C1	2D4	2D4	1B4	1B4	1G2	1D2	1C6
3	3A3 3A5	3A3			2D1	2D1	2B1	2C1	2D4	2D4	1B3	1B3	3E3	3E3	3E4
4	1E2	1E2	1C2	1C2	2D2	2D2	2B1	2C1	2C4	2C4	1C5		1B2	1B2	1C4
5	1E3	1E3	KEYPIN		2D2	2D2	2B2	2C2	2C4	2C4	1B7	1B7	1C2	1C2	1B3
6	2E6	2E6	1B2	1B2	2D2	2D2	2B2	2C2	2C4	2C4	1B5	1B5	2E5	2E5	3D6
7			1D2	1D2	2D2	2D2	2B2	2C2	2C4	2C4	1B4	1B4	3B2	3B2	1C4
8	KEYPIN		1C3	1C3	2D2	2D2	2B2	2C2	2C4	2C4	1C2	1C2	1D5	1D5	1B6
9	2B6	2B6			2D2	2D2	2B2	2C3	2C4	2C4	1C7		2B3	2B3	3E6
10	2B6	2B6	1B3	1B3	2E3	2E3	2B3	2B3	3C4	3C4	1B4	1B4	3C2	3C2	1B4
11	1C6	1C6	1B3	1B3	1D6	1D6	2B3	2B3	3C4	3C4	1B5	1B5	2B3	2B3	1C6
12	1C6	1C5			1D6	1D6			1B2	1B2			3E2	3E2	3E6
13	KEYPIN		1A2	1A2	1E6	1E6			1C3	1C3			2E5	2E5	1B6
14			1B4	1B4					1C4	1C4			3D2	3D2	3C4
15			1A2	1A2	KEYPIN				1B3	1B3			1E5	1E5	3C4

182540
PLUG



182539
RECEPTACLE



MODEL 33
AUTOMATIC SEND RECEIVE
KEYBOARD SEND RECEIVE
AND
RECEIVE ONLY SETS USING
THE UCC29



8163 WD-6

APP. FIG. 5
TERMINAL

DESIG.	CX		
CODE	CIRCUIT CARD		
	186438	186439	186479
TERM.	LOCATION		
1	3D2		
2	3D1		
3	3D3		
4	3D3		
5	3D3		
6	3D3		
7	3C2		
8	3D2		
A		2D3	
T1			3C5
T2			3C6

APP. FIG. 6
CONTACT BLOCK

DESIG.	DA	PE
CODE		
	183049	180823
TERM.	LOCATION	
A	2C4	2E2
B	2C4	2E2
C	2C4	2E2
D	2C4	2E1
E	2C4	
F	2C4	2E2
H	2D4	2E2
J	2D4	2E2
K		2E2
L		2E1
N		
O		
P		
R		
T		
U		
1	2D4	2E2

MODEL 33
 AUTOMATIC SEND RECEIVE
 KEYBOARD SEND RECEIVE
 AND
 RECEIVE ONLY SETS USING
 THE UCC29

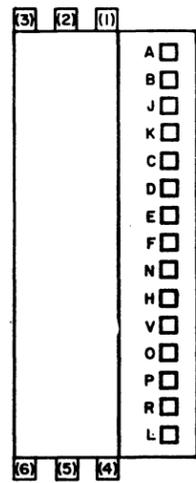


8163 WD-7

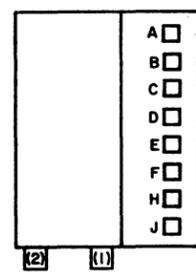
APP. FIG. 7
KEYBOARD CONTACT BLOCK

DESIG.	KP	KS
CODE	RIGHT	LEFT
	184109	184135
TERM	LOCATION	
A	2B3	2A2
B	2B1	2A2
C	2B1	2B2
D	2B1	2B2
E	2B1	
F	2B2	
H	2B2	
J	2B3	
K	2B3	
L	2B3	
N	2B2	
O	2B2	
P	2B2	
R	2B3	
V	2B2	
1	2B3	2A2
2	2B3	2B2
3		
4	2B2	
5	2B2	
6	2A2	

184109
CONTACT BLOCK



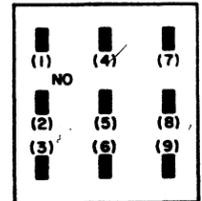
184135
CONTACT BLOCK



APP. FIG. 8
CONTACT ASSEMBLY

DESIG.	PN	PR
CODE		
	182037	182037
TERM	LOCATION	
1		1A2
2		1A2
3		
4		1B2
5	1B2	1B2
6	1B2	
7	1B2	
8	1B2	
9	1B2	

182037
CONTACT ASSEMBLY



APP. FIG. 9
TRANSFORMER

DESIG.	LOC	CODE
CU	3C2	186434

APP. FIG. 10
COIL

DESIG.	LOC	CODE	FUNCTION
DC	3D6	277M	READER FEED
PF	1E2	272M	ANSWER-BACK
PG	1C6	279M	DIST. TRIP
PH	2B6	180715	SELECTOR

APP. FIG. 11
FUSE - FUSE HOLDER

DESIG.	CR	CS	CT
FUSE PART NO.	162360	138538	120167
HOLDER PART NO.	182182	182182	182182
LOCATION	3E3	3D2	3A2

APP. FIG. 12
POWER CORD E/W PLUG

DESIG.	LOC	CODE
CM	3B1	182510

APP. FIG. 13
OUTLET

DESIG.	LOC	CODE
CQ	3B2	301713

APP. FIG. 14
SWITCH

DESIG.	LOC	CODE
PJ	1C2	183444

APP. FIG. 15
ELAPSED TIME INDICATOR

DESIG.	LOC	CODE
CP	3B3	186318

APP. FIG. 16
RESISTOR

DESIG.	LOC	CODE
DG	3C5	183081

APP. FIG. 17
TRANSISTOR

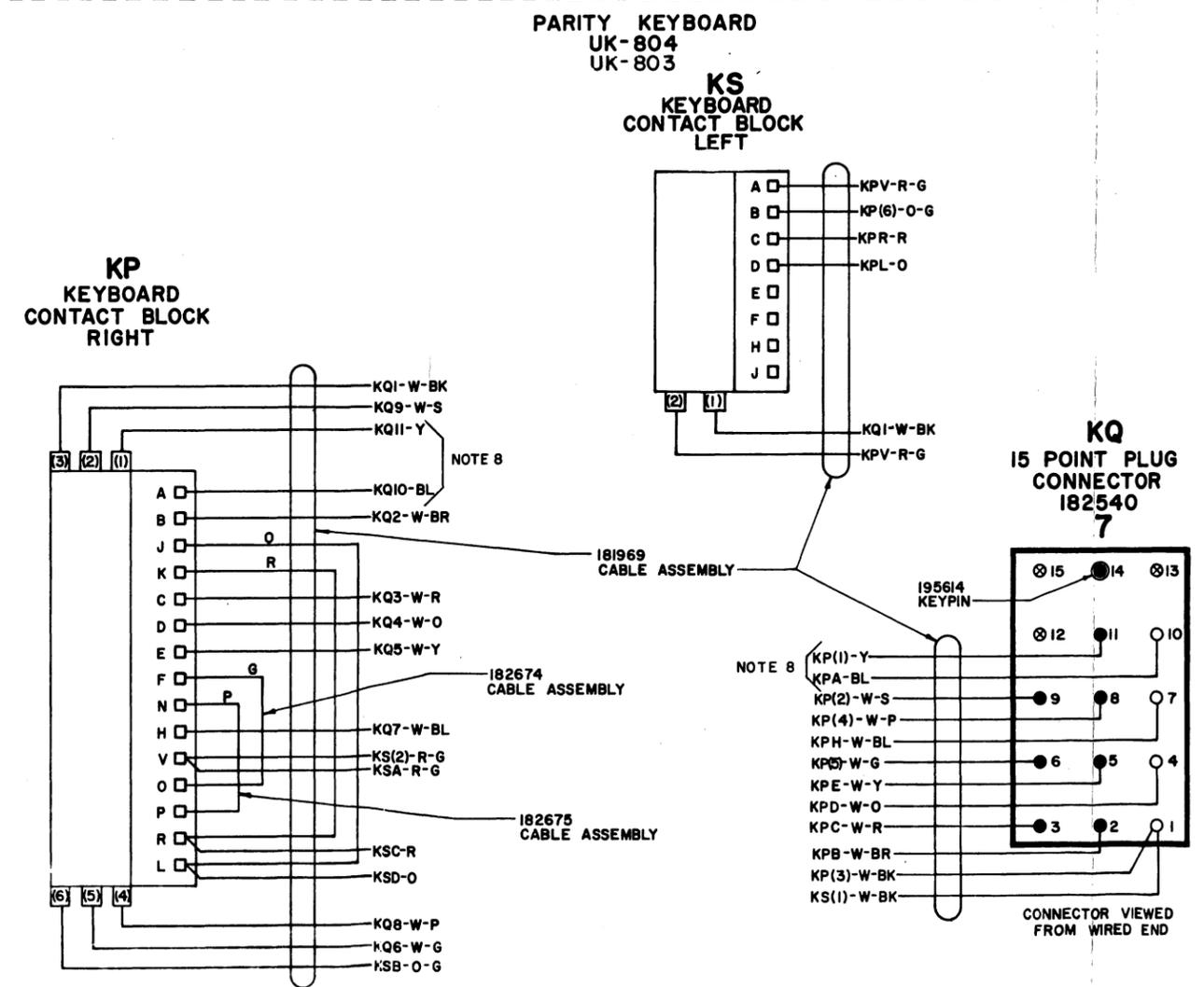
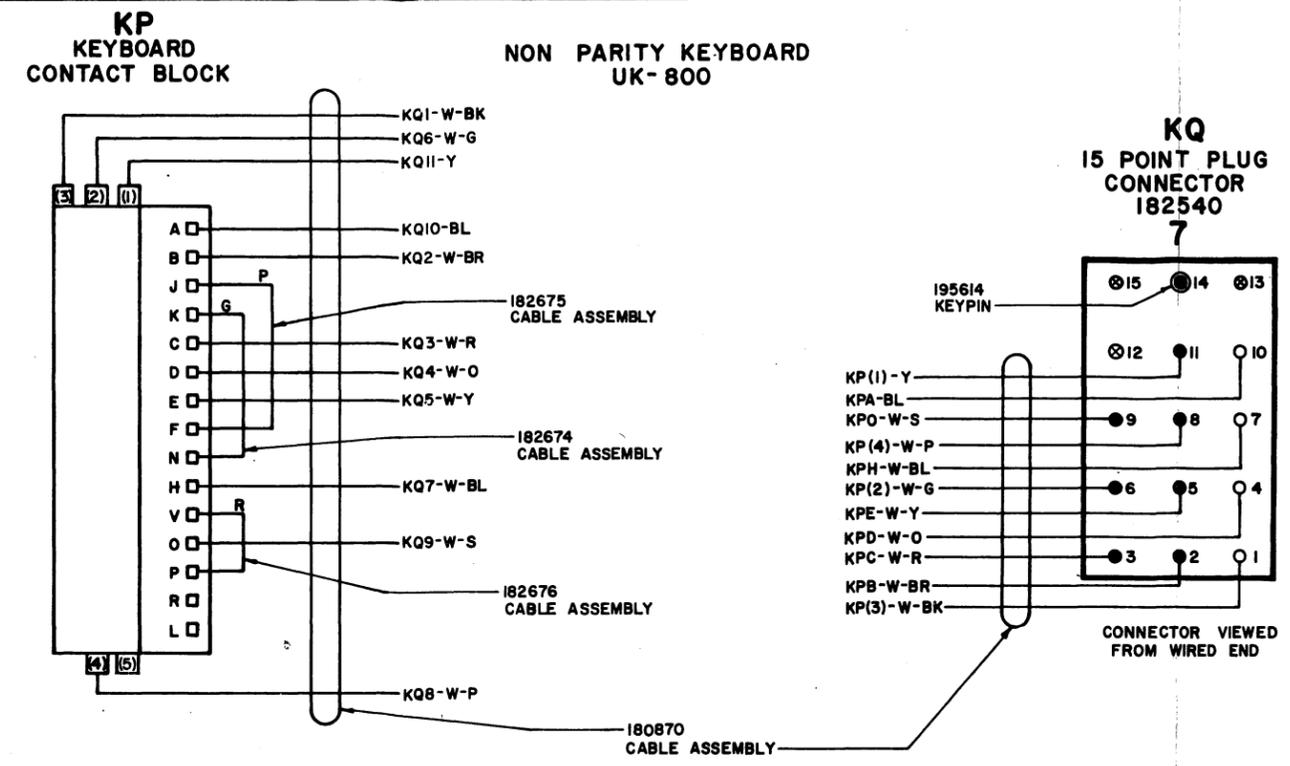
DESIG.	LOC	CODE
CY	2C6	181675

7885 WD

REVISIONS

ISSUE	DATE	AUTH. NO.
1	2-23-66	17470-R
2	11-3-66	92300 RC
3	8-8-67	94091-B
4	1-30-68	95171
5	12-13-68	96625

- NO. NOTES**
- WIRING LEGEND:**
 DISTANT TERMINATING AREA
 DISTANT TERMINATING DESIGNATION
 COLOR CODE
 KQ1-W-BK
 - WIRE COLOR CODE:**
 W-WHITE BL-BLUE
 BK-BLACK BR-BROWN
 O-ORANGE P-PURPLE
 Y-YELLOW S-SLATE
 G-GREEN R-RED
 - TERMINALS DESIGNATED () DO NOT APPEAR ON COMPONENT.**
 - FOR TELETYPE PERSONNEL REFERENCE: SPECIFICATION 6713S**
 - FOR SCHEMATIC WIRING DIAGRAM SEE 7882WD OR 8159WD.**
 - ASSOCIATED UNIT ACTUAL WIRING DIAGRAMS:**
 7884WD PRINTER - UP800,801,802,803,820
 7886WD MOTOR
 7887WD TAPE READER - UX800,801
 7888WD CALL CONTROL - UCC-3
 4970WD SELECTOR MAGNET DRIVER
 8158WD CALLCONTROL-UCC26
 8160WD PRINTER - UP836
 - WIRING STATUS:**
 RECTANGULAR BOX INDICATES HISTORY OF WIRING CHANGES
 (2-B) B - DENOTES WIRING BEFORE THE CHANGE DESCRIBED BY THE DESIGNATED NOTE ENTERED THE PRODUCT.
 (2-A) A - DENOTES WIRING AFTER THE CHANGE DESCRIBED BY THE DESIGNATED NOTE ENTERED THE PRODUCT.
 - THESE WIRES ARE NOT FOUND ON UK803.**



ACTUAL WIRING DIAGRAM FOR MODEL 33 B LEVEL KEYBOARD NON PARITY-UK800 PARITY-UK804, UK803

APPROVALS

D AND R	E OF M
<i>oak</i>	<i>LT</i>
E-NUMBER	
PROD. NO. 7885WD	
DATE 7-1-65	
P.D. FILE NO. 1-165.153AA	
DRAWN R.H.B.	CHKD. <i>oak</i>
ENGD. J.W.S.	APPD. <i>oak</i>

TELETYPE CORPORATION

7885 WD

7886 WD

REVISIONS

ISSUE	DATE	AUTH. NO.
1	2-23-66	17470-R
2	3-29-66	90790
3	11-3-66	92300 PC
4	1-30-68	95171
5	2-18-70	99947-4
6	12-9-12	2145

- NOTES**
- WIRING LEGEND:**

DISTANT TERMINATING AREA
 DISTANT TERMINATING DESIGNATION
 COLOR CODE

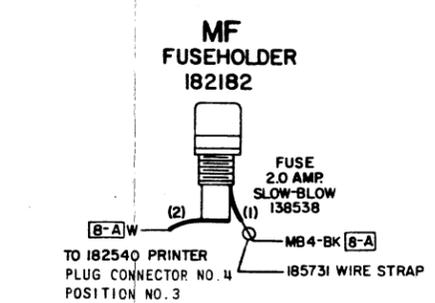
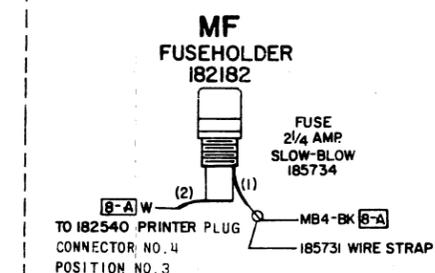
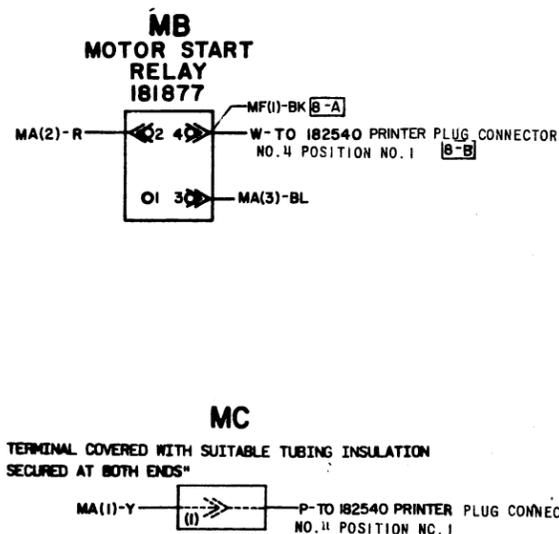
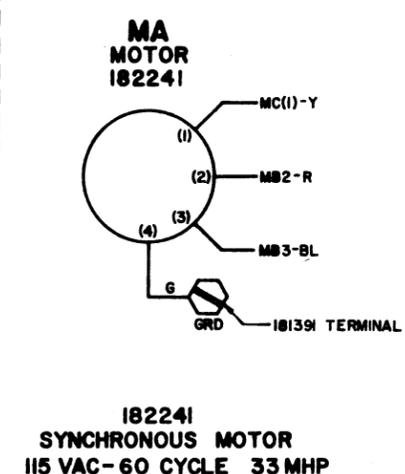
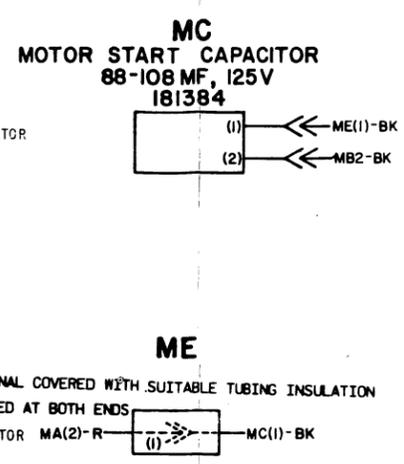
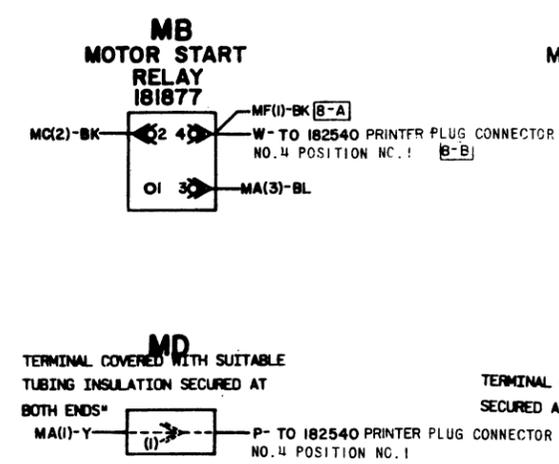
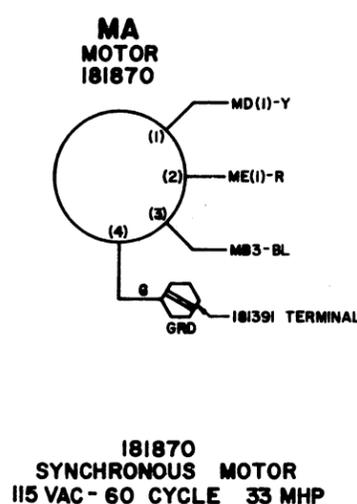
MD(1)-Y
 - WIRE COLOR CODE:**

W- WHITE	BL- BLUE
BK- BLACK	BR- BROWN
O- ORANGE	P- PURPLE
Y- YELLOW	S- SLATE
G- GREEN	R- RED
 - TERMINALS DESIGNATED () DO NOT APPEAR ON COMPONENT
 - FOR TELETYPE PERSONNEL REFERENCE: SPECIFICATION 904S FOR 181870 MOTOR SPECIFICATION 9120S FOR 182241 MOTOR SPECIFICATION 8718S
 - ASSOCIATED UNIT ACTUAL WIRING DIAGRAMS:
 7883 WD PRINTER-RECEIVE ONLY-UP800
 7884 WD PRINTER-UP800, 801, 802, 803, 820
 7885 WD KEYBOARD-UK800, 804
 7887 WD TAPE READER-UX800, 801
 7888 WD CALL CONTROL- UCC-3
 7889 WD CALL CONTROL- UCC-4(R.O.)
 4970 WD SELECTOR MAGNET DRIVER
 8158 WD CALL CONTROL- UCC 26
 8160 WD PRINTER - UP 836
 - USE 182673 CABLE ASSEMBLY
 - FOR SCHEMATIC WIRING DIAGRAMS SEE:
 7882 WD KSR-ASR. 8159 WD 33TCC
 7881 WD R.O.
 - FUSEHOLDER ADDED TO PROVIDE FUSE PROTECTION FOR MOTOR CIRCUIT
 - WIRING STATUS:**

RECTANGULAR BOX INDICATES HISTORY OF WIRING CHANGES

B - DENOTES WIRING BEFORE THE CHANGE DESCRIBED BY THE DESIGNATED NOTE

A - DENOTES WIRING AFTER THE CHANGE DESCRIBED BY THE DESIGNATED NOTE



ACTUAL WIRING DIAGRAM FOR MODEL 33 8 LEVEL MOTORS 181870 182241

APPROVALS

D AND R *oak* E OF M

E-NUMBER

PROD. NO. 7886 WD

DATE 8-6-65

P.D. FILE NO. GA152AA

DRAWN R.H.B. CHKD *oak*

ENGD. J.W.S. APPD. *oak*

TELETYPE CORPORATION

7886 WD

SEE ISSUE CONTROL SHEET FOR NOTES

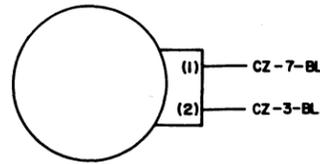
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REVISION INFORMATION MUST ALSO BE
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ORD. WHICH IS A PART OF THIS DRAWING.

8162WD

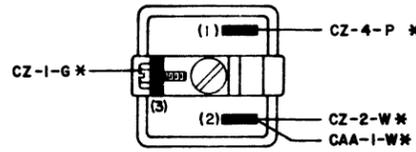
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ISSUE	DATE	AUTH. NO.
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2	3-31-70	99954
3	6-12-70	530

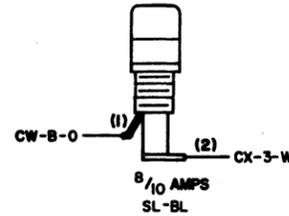
CP
ELAPSED TIME
INDICATOR
186318



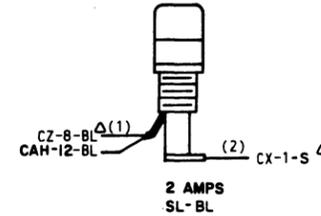
CQ
CONVENIENCE
OUTLET
301713



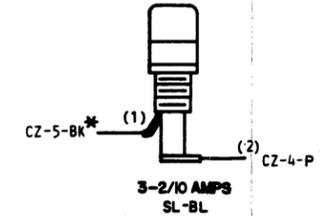
CR
FUSE HOLDER
182182



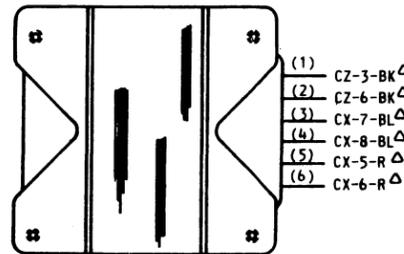
CS
FUSE HOLDER
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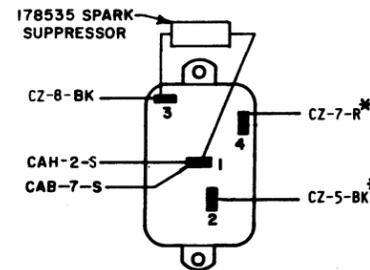
CT
FUSE HOLDER
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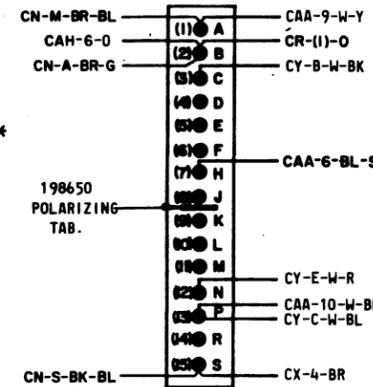
CU
TRANSFORMER
ASSEMBLY
186434



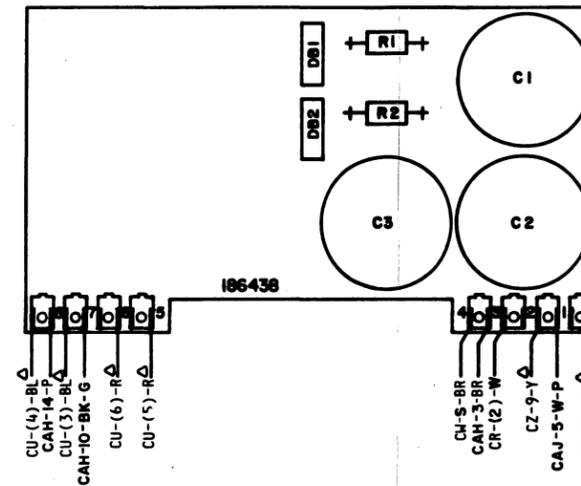
CV
MOTOR CONTROL
RELAY
178306



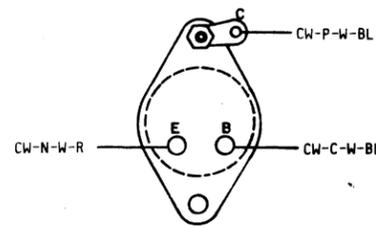
CW
SMD CARD
CONNECTOR
181819



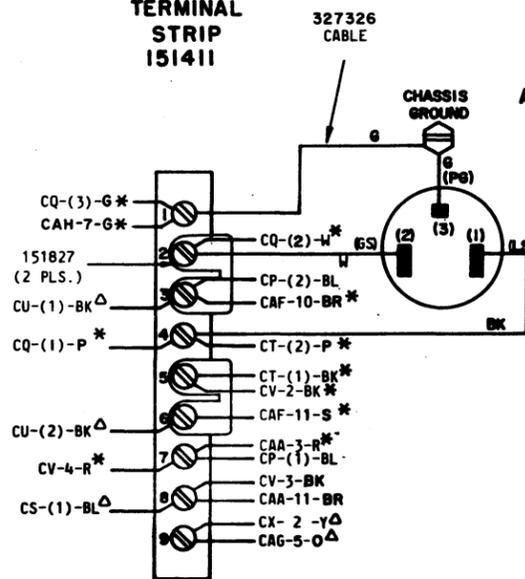
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CIRCUIT CARD
ASSEMBLY
186438



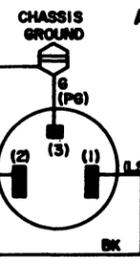
CY
POWER
TRANSISTOR
181675



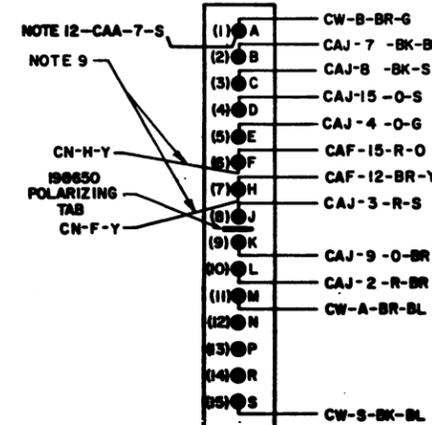
CZ
TERMINAL
STRIP
151411



CM
A.C. POWER
CORD
182510



CN
BREAK DETECTOR
CARD CONNECTOR
181819



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

SHEET 1

ACTUAL
WIRING DIAGRAM
FOR
CALL CONTROL UNIT
UCC-29
MODEL 33
8 LEVEL
AUTOMATIC SEND-RECEIVE (ASR)
SEND-RECEIVE (KSR)
RECEIVE ONLY (RO)

APPROVALS

D AND R E OF M
[Signatures]

E-NUMBER

PROD. NO. 8162 WD

DATE

P.D. FILE NO. 2-165.152 AA

DRAWN MWH. CHKD. *[Signature]*

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

TELETYPE
CORPORATION

8162WD

SEE ISSUE CONTROL SHEET FOR NOTES

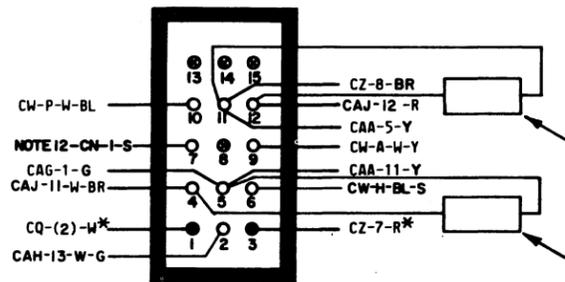
NOTE
REVISION INFORMATION MUST ALSO BE
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ORD WHICH IS A PART OF THIS DRAWING

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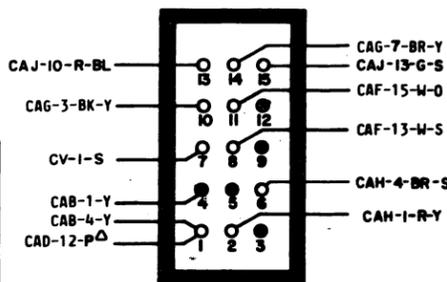
REVISIONS

ISSUE	DATE	AUTH. NO.
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2	3-31-70	99954
3	6-12-70	530

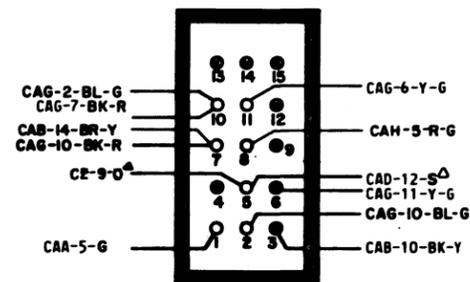
CAA
CONNECTOR
182539
4



CAB
CONNECTOR
182539
3

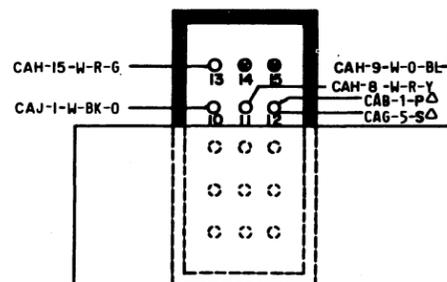


CAG
CONNECTOR
182539
5

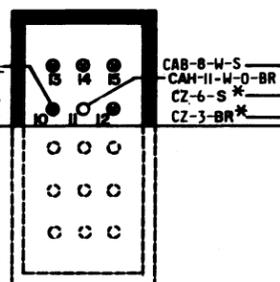


153631 SPARK SUPPRESSORS ARE
PART OF 186431 CABLE ASSEMBLY

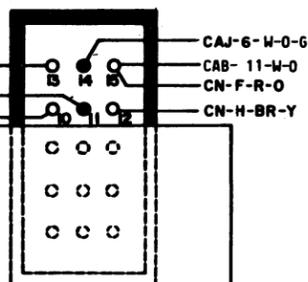
CAD
CONNECTOR
182539
8



CAE
CONNECTOR
182539
7

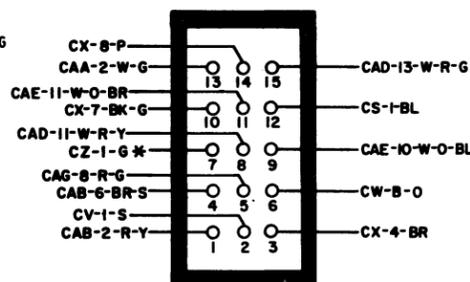


CAF
CONNECTOR
182539
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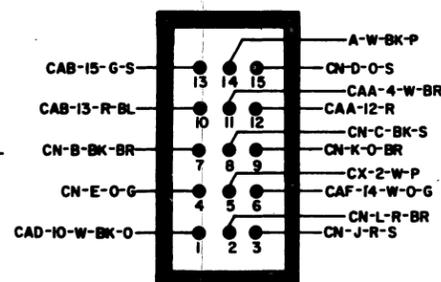


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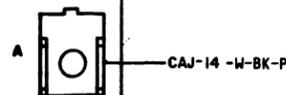
CAH
CONNECTOR
182539
1



CAJ
CONNECTOR
182539
2



186439 CIRCUIT CARD ASSEMBLY



SEE ISSUE CONTROL RECORD FOR COM-
PLETE LIST OF SHEETS COMPRISING THIS
W.D.

SHEET 2

ACTUAL
WIRING DIAGRAM
FOR
CALL CONTROL UNIT
UCC-29
MODEL 33
8 LEVEL
AUTOMATIC SEND-RECEIVE(ASR)
SEND-RECEIVE(KSR)
RECEIVE ONLY (RO)

APPROVALS

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

E-NUMBER

PROD. NO. 8162 WD

DATE 3-21-68

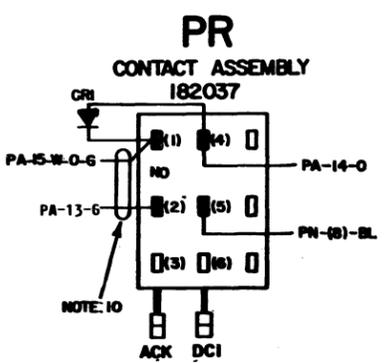
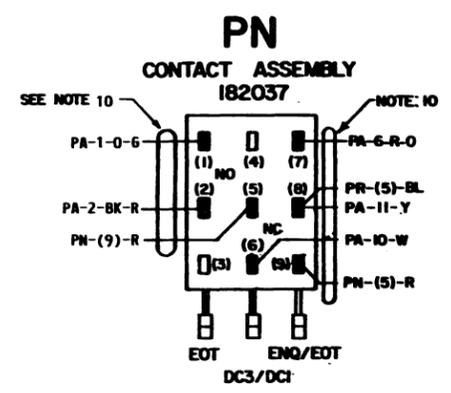
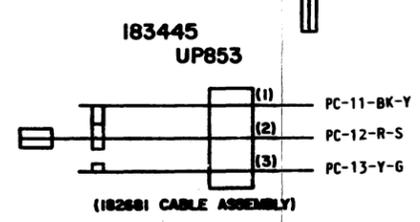
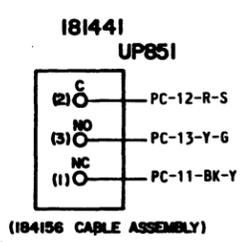
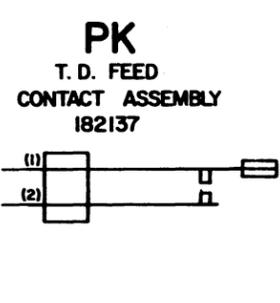
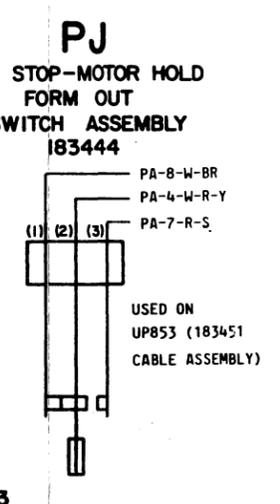
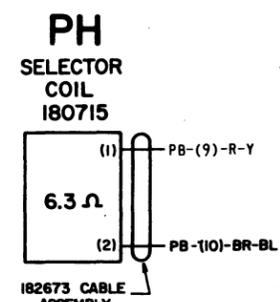
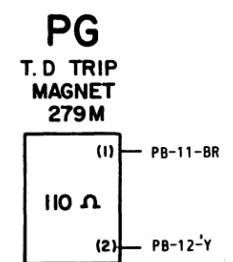
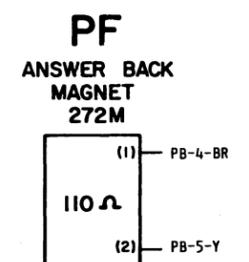
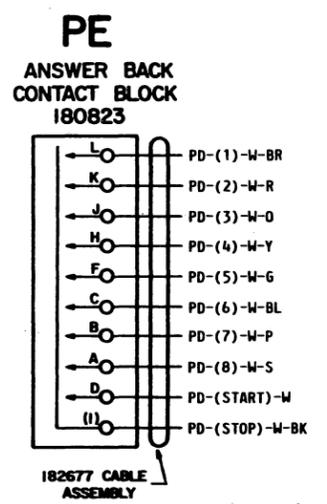
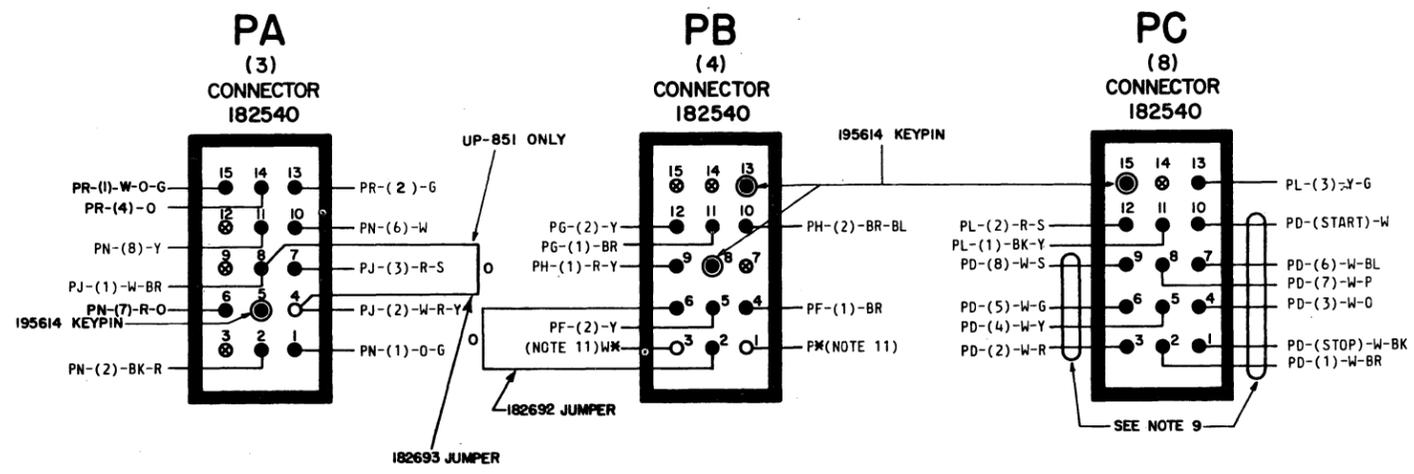
P.D. FILE NO. 2-165.152AA

DRAWN MWH. CHKD. *K.C.*
ENGD. R.C.H. APPD. *[Signature]*

TELETYPE
CORPORATION

8162WD

NO.	NOTES
1.	WIRING LEGEND: DISTANT TERMINATING AREA DISTANT TERMINATING DESIGNATION PC-2-BL WIRE COLOR CODE
2.	WIRE COLOR CODE: BK-BLACK BL-BLUE BR-BROWN G-GREEN R-RED P-PURPLE O-ORANGE W-WHITE Y-YELLOW S-SLATE
3.	TERMINAL DESIGNATIONS ENCLOSED IN PARENTHESIS ARE FOR REFERENCE AND ARE NOT MARKED ON COMPONENT.
4.	CONNECTOR VIEWED FROM WIRING END.
5.	ALL WIRE 24 AWG. UNLESS OTHERWISE SPECIFIED.
6.	S-NUMBERS 6713S & 60,767S
7.	REFER TO 8163WD FOR SCHEMATIC WIRING DIAGRAM.
8.	ASSOCIATED UNIT ACTUAL WIRING DIAGRAMS. 7885WD - KEYBOARD - UK800,804 7886WD - MOTOR 7887WD - READER - UX800 - 801 8162WD - CALL CONTROL UNIT - UCC29 4970WD - SMD
9.	182678 CABLE ASSEMBLY USED ON UP851 PRINTERS 182681 CABLE ASSEMBLY USED ON UP 853 PRINTERS.
10.	186483 CABLE ASSEMBLY USED ON UP851 AND 853 PRINTERS.
11.	TO MOTOR CIRCUIT 181870 OR 182241 (PART OF 182673 CABLE ASSEMBLY) SEE 7886WD.
12.	* DENOTES 18 AWG WIRE.



8799WD

REVISIONS		
ISSUE	DATE	AUTH. NO.
1	5-28-69	19843-R
2	9-25-69	99475

ACTUAL WIRING DIAGRAM FOR MODEL 33 8 LEVEL KSR-ASR PRINTERS

UP851 - FRICTION FEED
UP853 - SPROCKET FEED

APPROVALS

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

E-NUMBER

PROD. NO. 8799WD

DATE 11/2/68

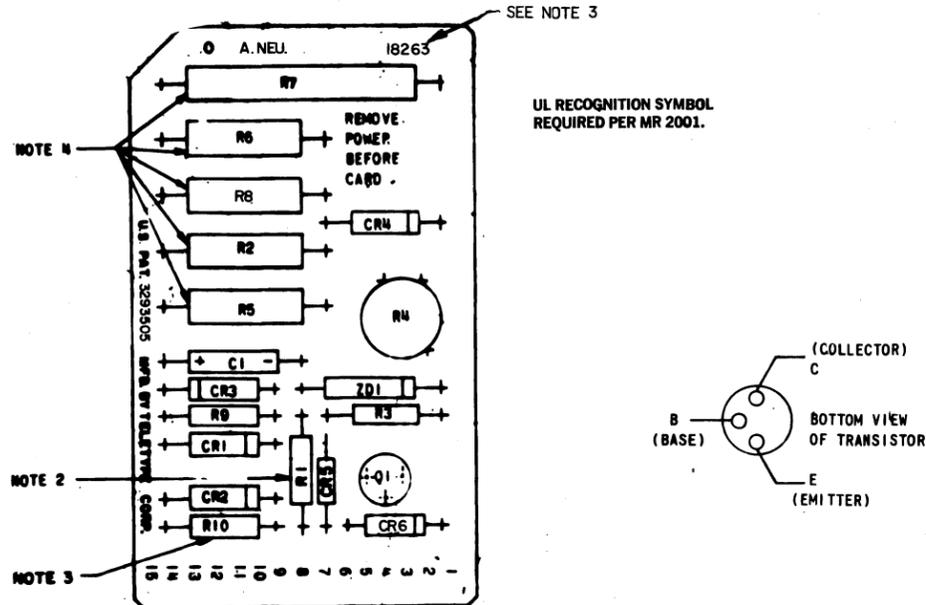
R.D. FILE NO. 2-165.152AA

DRAWN C.C.	CHKD. <i>TR</i>
ENGR. R.C.H.	APPD. <i>RRS</i>

TELETYPE CORPORATION

8799WD

NO.	NOTES
1.	REFER TO 5906WD FOR CARD MARKING INFORMATION.
2.	THE SELECTION OF THIS RESISTOR DEPENDS ON THE APPLICATION IN WHICH THE DRIVER IS TO BE USED.
3.	R10 IS USED ON 182630 ASSEMBLY ONLY.
4.	RAISE R2,5,6,7,8 1/32 TO 1/16 ABOVE CIRCUIT CARD.
5.	THE 39603RM STRAP IS USED ON THE 182631 AND 182632 ASSEMBLIES
6.	SEE 5983WD FOR APPROPRIATE POWER INPUT.
7.	DIODE CR6 WAS ADDED TO PROTECT Q1 FROM DESTRUCTION BY ACCIDENTAL GROUNDING OF THE COLLECTOR OF Q2. 181653 DIODE WAS USED FIRST BUT CHANGED TO 199442 TO REDUCE "LEAKAGE" CURRENT DURING SPACING PULSES.
8.	020 A NEU 182630 .060 A NEU 182631 .040 A NEU 182632



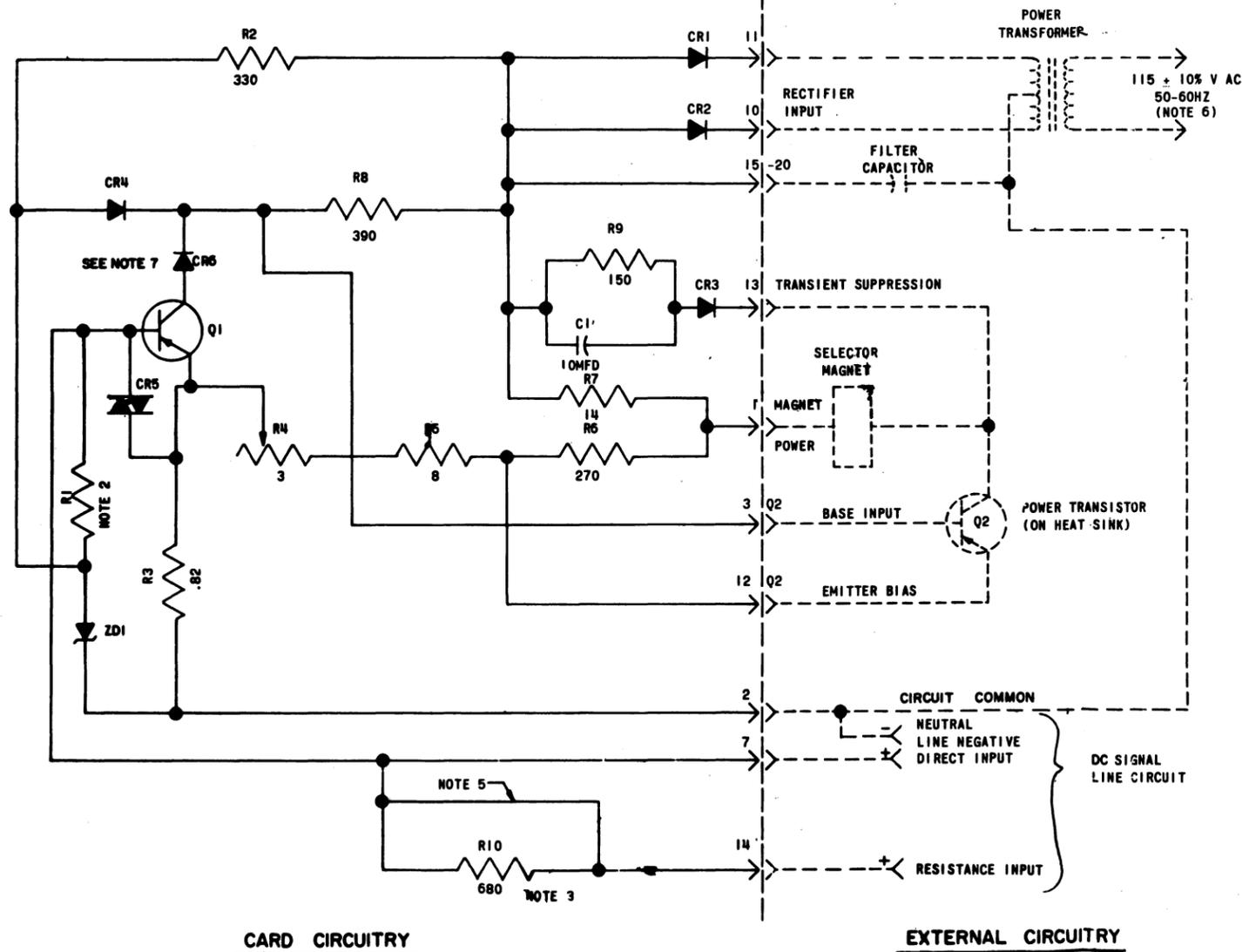
CIRCUIT CARD ASSEMBLY					
REF. DESIG.	TELETYPE PART NO.	TOTAL QTY.	NAME & DESIGNATION	LOCATING FUNCTION	USED ON FOR
R1	182779	1	RESISTOR 420 OHMS 1/2W	.010 AMP. SWITCHING	182630 .020A NEUTRAL LINE
"	182797	1	RESISTOR 135 OHMS 1/2W	.030 AMP. SWITCHING	182631 .060A " "
"	182180	1	RESISTOR 200 OHMS 1/2W	.020 AMP. SWITCHING	182632 .040A " "
R10	182777	1	RESISTOR 680 OHMS 1/2W	INPUT CURRENT LIMITING	182630 DATA SET OPERATION
R10	39603RM	1	STRAP	.030 AMP. SWITCHING	182631 .060A NEUTRAL LINE
R10	39603RM	1	STRAP	.020 AMP. SWITCHING	182632 .040A " "
R2	181669	1	RESISTOR 330 OHMS 2 1/2W	ZENER CURRENT LIMITING	182630
R3	182778	1	RESISTOR 0.82 OHM 1/2W	COMMON EMITTER BIAS	182630
R4	182773	1	RHEOSTAT 3 OHMS 2 1/2W	OUTPUT CURRENT ADJUST	182630
R5	181717	1	RESISTOR 8 OHMS 5W	Q2 EMITTER BIAS	182630
R6	182770	1	RESISTOR 270 OHMS 4W	Q2 EMITTER BIAS	182630
R7	182772	1	RESISTOR 14 OHMS 10W	Q2 COLLECTOR LOAD	182630
R8	182627	1	RESISTOR 390 OHMS 4W	Q1 COLLECTOR LOAD	182630
R9	182776	1	RESISTOR 150 OHMS 1/2W	Q2 COLLECTOR LOAD	182630
CR1	182520	2	DIODE 1N3193	POWER RECTIFIER	182630
CR2	182520	2	SAME AS CR1	POWER RECTIFIER	182630
CR3	181619	2	DIODE 1N482	COLLECTOR TRANSIENT LIMITING	182630
CP4	181619	1	SAME AS CR3	VOLTAGE CLAMPING	182630
CR5	178844	1	VARIATOR 100A	INPUT PROTECTION	182630
CR6	199442	1	DIODE, 1N270	SEE NOTE 7	182630
ZD1	182774	1	DIODE, ZENER 4.7V 5% 1W.	REFERENCE	182630
C1	182628	1	CAPACITOR, 10 MFD, 25WVDC	COLLECTOR TRANSIENT LIMITING	182630
Q1	181671	1	TRANSISTOR, HIGH GAIN	INPUT SWITCH	182630
EC	182775	1	CIRCUIT BOARD, ETCHED		182630

182630-35

REVISIONS

ISSUE	DATE	AUTH. NO.
2	8-8-62	30-1259
3	11-27-62	30-5388
4	12-17-62	30-5445
5	1-23-63	30-5580
6	3-20-64	81340
7	5-21-64	81781
8	4-26-65	86507
9	6-10-65	86507-2
10	9-19-66	88816
11	10-25-66	88816-1
12	12-14-66	92190
13	2-7-67	93101
14	5-3-67	93502
15	6-20-68	19358-R
16	7-9-68	95948
17	12-20-68	98266
17A	3-3-71	2320

CONSTANT CURRENT .500 SELECTOR MAGNET DRIVER



CIRCUIT DESCRIPTION

THE SELECTOR MAGNET DRIVER CIRCUIT IS POWERED FROM A SOURCE OF 117 VOLT ALTERNATING CURRENT THROUGH A STEP DOWN ISOLATION TRANSFORMER. DIODES CR1 AND CR2 PROVIDE FULL WAVE RECTIFICATION OF THE REDUCED VOLTAGE TO -20 VOLTS DC AT TERMINAL 15. THE CIRCUIT COMMON IS CONNECTED TO TERMINAL 2 AND A POWER SUPPLY FILTER CAPACITOR IS CONNECTED BETWEEN TERMINALS 2 AND 15.

THE DIRECT CURRENT SIGNAL LINE CIRCUIT IS CONNECTED THROUGH TERMINALS 7 AND 2. WITH AN ALTERNATE CONNECTION THROUGH R10 AT TERMINAL 14 PROVIDING A CURRENT LIMITING FUNCTION.

IN THE MARKING CONDITION, Q1 IS OFF-BIASED. WITH Q1 OFF, THE BASE OF Q2 WILL BE CLAMPED AT THE ZENER REFERENCE VOLTAGE BY DIODE CR4. THIS VOLTAGE CLAMP IS THEN TRANSLATED TO CURRENT REGULATION BY THE TRANSISTOR ACTION OF Q2. THE REGULATED MAGNET CURRENT IS ADJUSTED TO .500 AMPERES BY RHEOSTAT R4.

WITH THE SIGNAL LINE IN THE OPEN OR SPACING CONDITION, Q1 IS TURNED ON BY BASE CURRENT SUPPLIED THROUGH RESISTOR R1. THE POTENTIAL AT THE COLLECTOR OF Q1 WILL BE NEAR ZERO. OFF-BIASING Q2. WITH Q2 OFF, NO SELECTOR MAGNET CURRENT FLOWS, ALLOWING THE MAGNET TO RELEASE. DURING THE TURN OFF OF Q2 THE INDUCTIVE TRANSIENT DEVELOPED AT THE COLLECTOR IS SUPPRESSED BY THE NETWORK CONSISTING OF CR3, R9, AND C1.

"SNAP-ACTION" IS SUPPLIED TO THE CIRCUIT TRANSITIONS BY FEEDBACK IN THE EMITTER CIRCUITS OF TRANSISTORS Q1 AND Q2.

APPROVALS

D AND R	E OF M
HJK	

E-NUMBER

PROD. NO. 182630-35

DATE 6-2-62

P.D. FILE NO. 30-158AAA

DRAWN E.R. REG. CHKD.

ENGD. R.J.M. APPD.

TELETYPE CORPORATION

182630-35

UL RECOGNITION SYMBOL
REQUIRED PER MR 2001.

REFERENCE SPECIFICATION
FOR TELETYPE CORPORATION
EMPLOYEES ONLY: 61584S

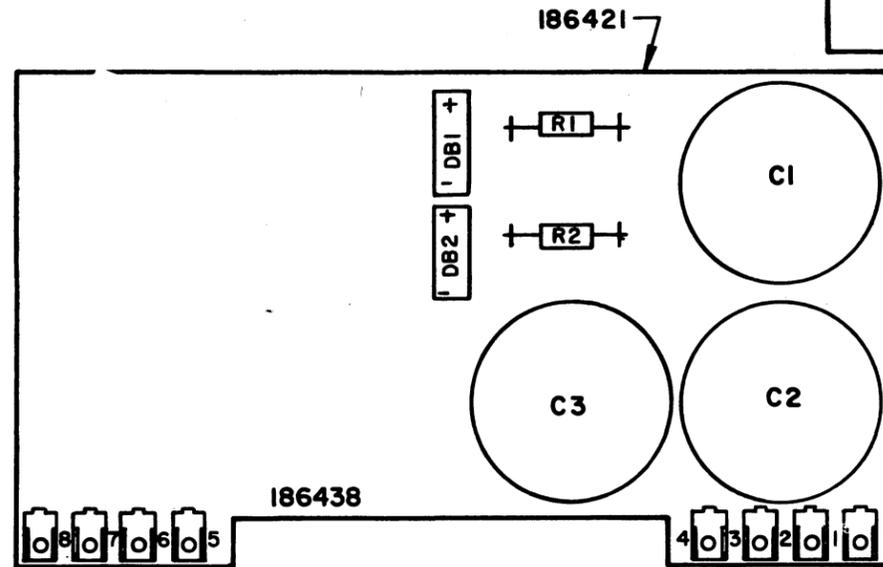
CIRCUIT CARD ASSEM.

186438

SYMBOLS

REVISIONS

ISSUE	DATE	AUTH. NO.
1	3-27-69	19474-R
2	10-29-69	98927
3	3-3-71	2320

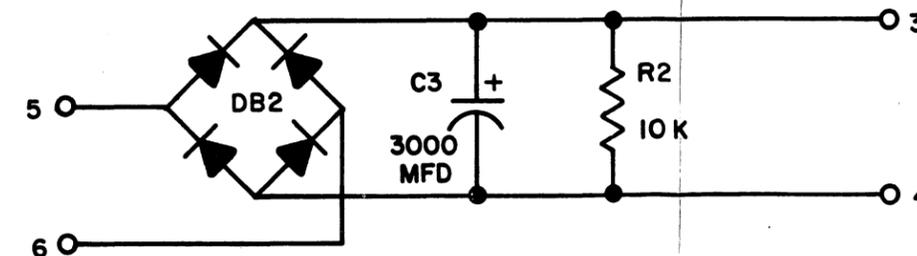
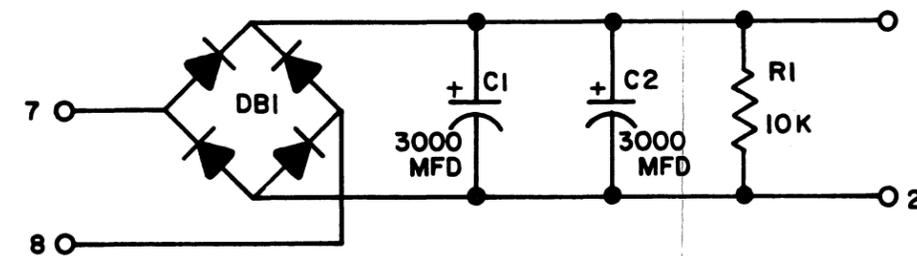


NOTE:
REFER TO 186438 FOR MARKING INFORMATION.
SHEET 2

SHEET INDEX

SHEET NO.	ISSUE																			
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
1	1	2	3																	
2	1	1	1																	

REF. DESIGN.	TELETYPE PART NO.	TOTAL QTY.	NAME AND DESCRIPTION	LOCATING FUNCTION
CI TO C3	186430	3	CAPACITOR 3000 MFD, 35V	FILTER
DB1, DB2	186420	2	DIODE, BRIDGE	RECTIFIER
R1, R2	118180	2	RESISTOR 10K, 1/2 W	BLEEDER
	186421	1	BOARD, ETCHED CIRCUIT	
	334767	8	TERMINAL	
	336473	8	RIVET	
	125220	6	NUT	
	110191	6	WASHER, LOCK	



WDP

SHEET 1 OF 2

APPROVALS

R AND D E OF M

E-NUMBER

PROD. NO. 186438

DATE 3-12-68

FILE NO. 2-165.152 AA

DRAWN. MWH CHKD.

ENG. R.C.H. APPD.

TELETYPE CORPORATION

186438

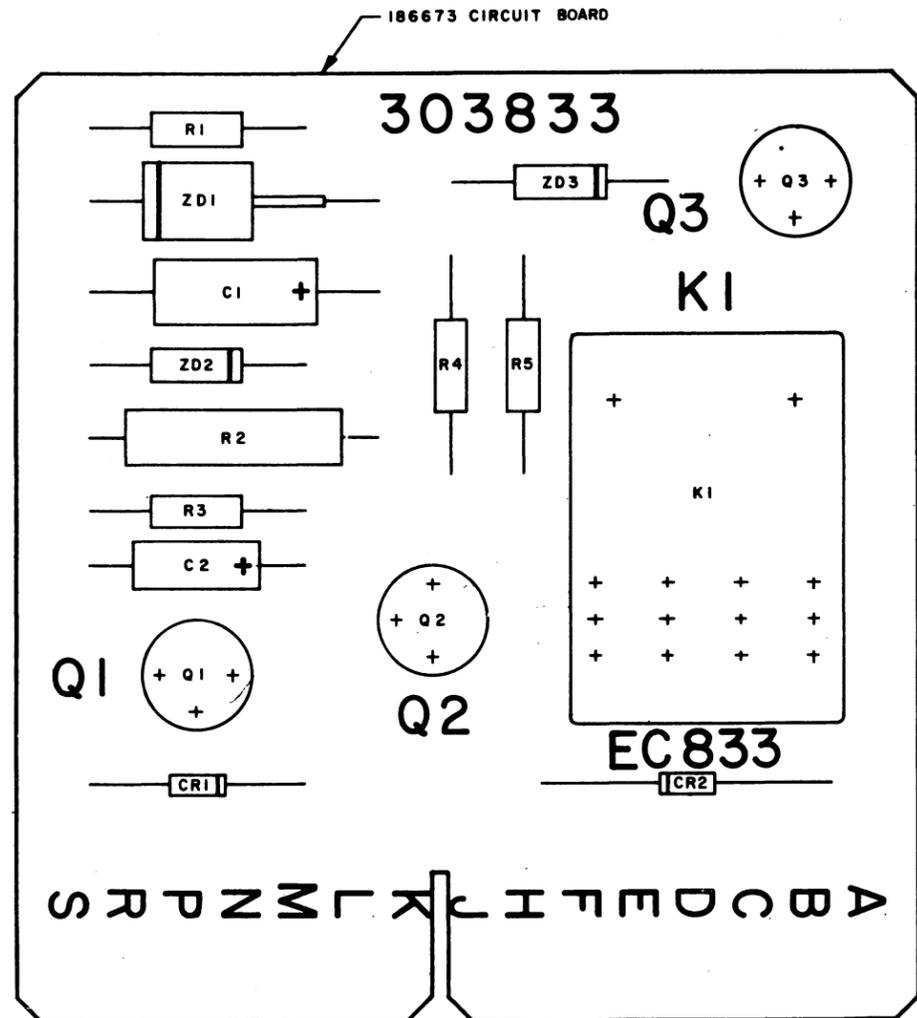
REF. DESIG.	PART NO. REQ.	QTY.	DESCRIPTION
C1	171458	1	CAPACITOR 12 MFD 20V 10%
C2	310929	1	CAPACITOR 1.8 MFD 20V 10%
CR1	197464	2	DIODE
CR2	197464		DIODE
K1	305456	1	RELAY
R1	143861	1	RESISTOR 330 OHM 1/2 W
R2	310201	1	RESISTOR 24.3K OHM 1%
R3	300092	1	RESISTOR 6800 OHM 1/4 W
R4	315960	2	RESISTOR 5600 OHM 1/4 W
R5	315960		RESISTOR 5600 OHM 1/4 W
Q1	315930	2	TRANSISTOR NPN
Q2	302865	1	TRANSISTOR PNP
Q3	315930		TRANSISTOR NPN
ZD1	300016	1	ZENER DIODE 8.2V 5%
ZD2	321161	2	ZENER DIODE 3.9V 5%
ZD3	321161		ZENER DIODE 3.9V 5%
186673	1		CIRCUIT BOARD

NOTE: MANUFACTURE PER MR2001
 UL RECOGNITION SYMBOL
 REQUIRED PER MR 2001.

CONTENTS	SHEET NO.	ISSUE NO.						
		1	2	3	4	5	6	7
SCHEMATIC	1	X	2	3				
CIRCUIT DESCRIPTION	2	X	1	1				

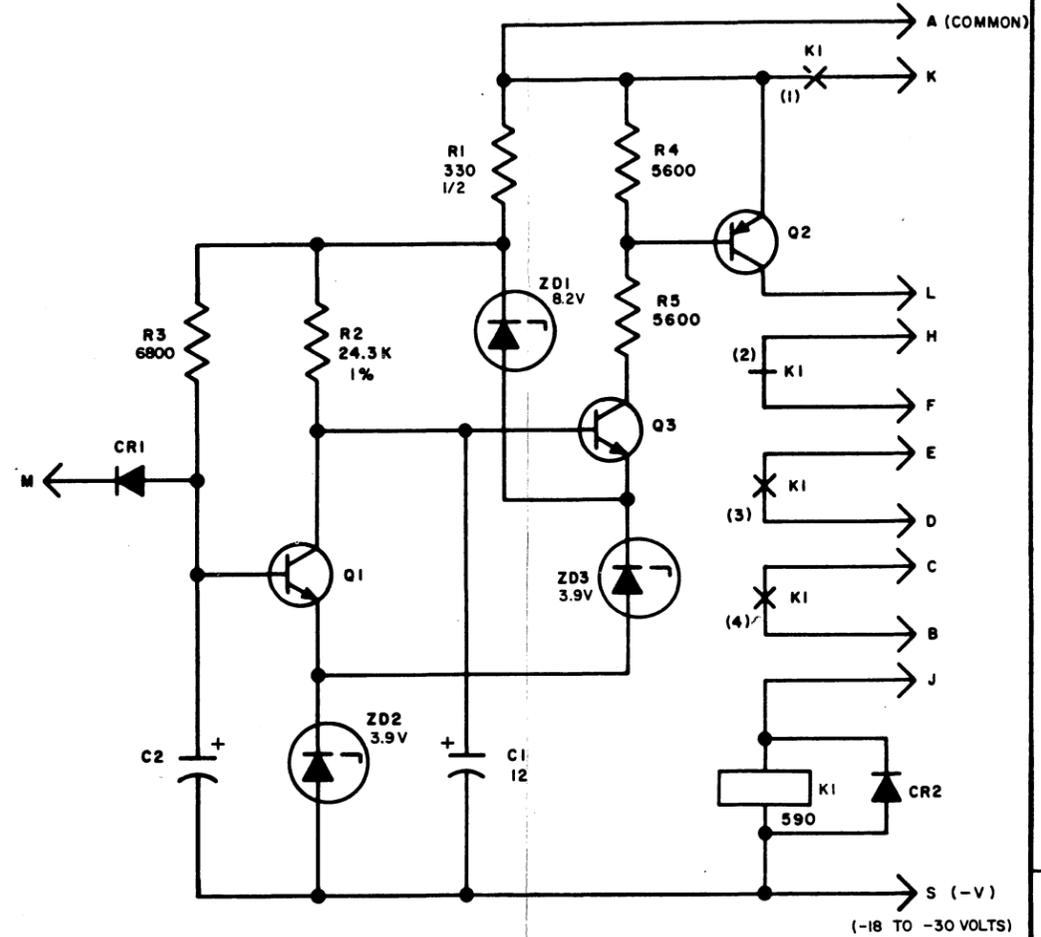
ORIGINAL USE
 186630 FINAL
 186630 DIRECT

REVISIONS		
ISSUE	DATE	AUTH NO.
1	2-4-70	20606R
2	7-7-70	3183
3	3-3-71	2320



- NOTES:
1. PRINTING SCREEN TO BE MADE FROM MASTER ARTWORK 303833AW AVAILABLE IN R & D OFFICE SERVICE SECTION.
 2. CHARACTERS TO BE SILK SCREENED USING WHITE ENAMEL.
 3. ALL RESISTORS 1/4 WATT UNLESS NOTED.
 4. ALL CAPACITORS IN MICROFARADS.

SIMILAR TO:



CIRCUIT CARD

EC 833
 BREAK DETECTOR CARD
 (IGNORES UP TO 1.5 MS. MARKING PULSES)

APPROVALS

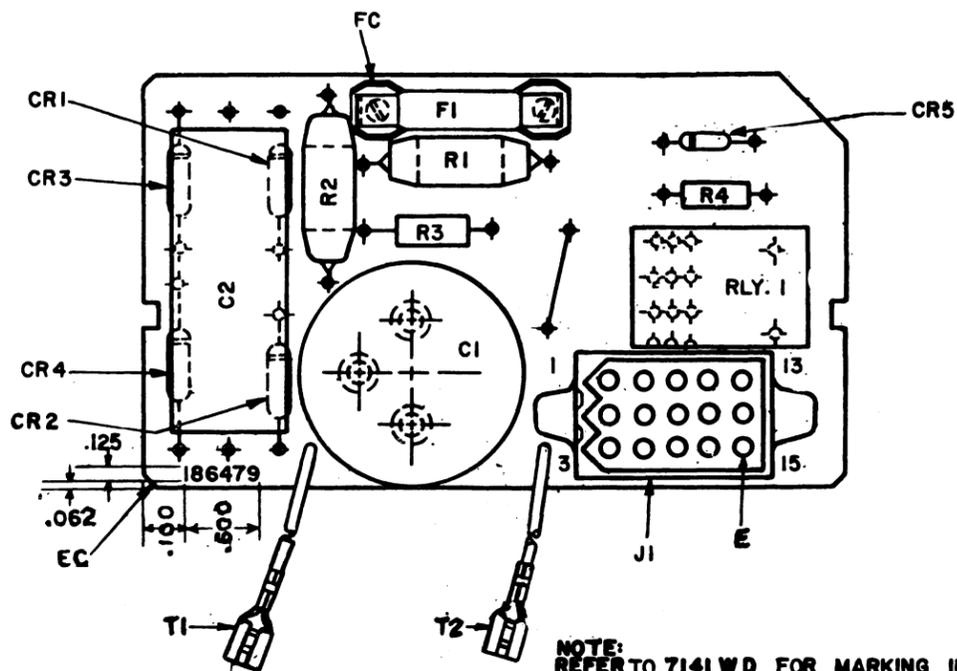
PROJ. SUPV. 15R	PROJ. DIR. RPS	MFG. REL. COMPL. LW
--------------------	-------------------	------------------------

ENGR. H. J. G. DSGNR. J. J. A.
 DRN. J. J. A. DATE 11-11-69
 S-NUMBER 01,584S
 SD-CD NO.
 R & D FILE 2-165.152AA

TELETYPE

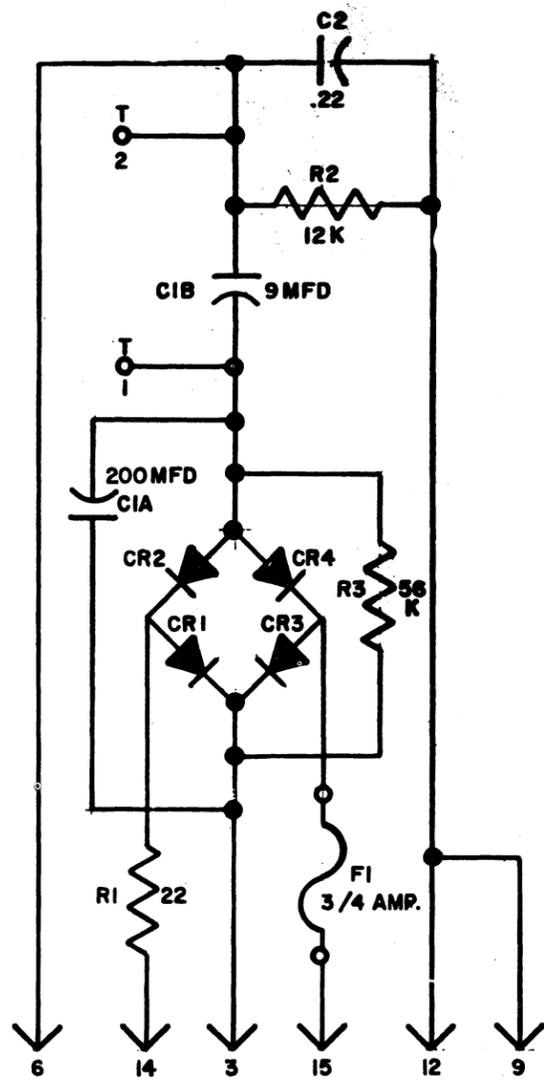
303833 (1)

UL RECOGNITION SYMBOL
REQUIRED PER MR 2001.

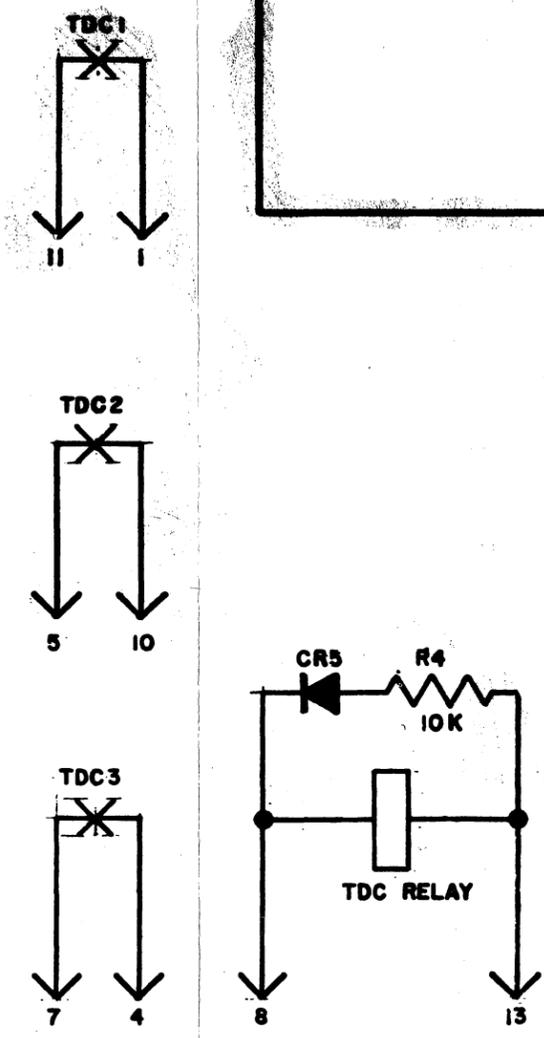


REF. DESIGN	TELETYPE PART NO.	TOTAL QTY.	NAME AND DESCRIPTION	LOCATING FUNCTION
R1	183083	1	RESISTOR, 22 OHM	SURGE LIMITER
R2	183082	1	RESISTOR, 12,000 OHM	ARC SUPPRESSOR
C1	183078	1	CAPACITOR, DUAL SECTION: A-200 MFD, 200V DC B-9 MFD, 200V DC	POWER SUPPLY FILTER SURGE SOURCE
C2	183084	1	CAPACITOR, .22 MFD	ARC SUPPRESSOR
CR1	181654	5	DIODE, 400V	POWER SUPPLY RECTIFIER
CR2			SAME AS CR1	POWER SUPPLY RECTIFIER
CR3			SAME AS CR1	POWER SUPPLY RECTIFIER
CR4			SAME AS CR1	POWER SUPPLY RECTIFIER
F1	143630	1	FUSE, 3/4 AMP.	PROTECTION
FC	171595	2	FUSE CLIP	
T1	183085	2	TERMINAL WITH WIRE LEAD	
T2			SAME AS T1	
J1	182540	1	CONTACT BLOCK, 15 POINT	
E	182641	15	TERMINAL, MALE P.C.	
EC	183137	1	ETCHED CIRCUIT BOARD	
	151637	2	SCREW, 4-40 FIL. HEAD	
	110743	2	LOCKWASHER, 4-40	
	151880	2	NUT	
R3	118198	1	RESISTOR, 56,000 OHM	BLEEDER
CR5	181654	1	SAME AS CR1	ARC SUPPRESSOR
R4	118180	1	RESISTOR, 10,000 OHM	ARC SUPPRESSOR
RLY.1	183088	1	RELAY, 2,100 OHM STRAP, BARE, 24 AWG.	AUTOMATIC READER CONTROL

POWER PACK ASSEMBLY W/RELAY



CIRCUIT CARD ASSEMBLY



SYMBOLS

186479

ISSUE	DATE	AUTH. NO.
1	8-7-68	19848
2	1-28-70	99984
3	3-13-70	132
4	7-9-70	1876
5	5-6-70	99187-3
6	3-3-71	2320

P

WDP

THIS POWER PACK CONSISTS OF A 150 VOLT POWER SUPPLY OPERATING DIRECTLY FROM THE 117V AC LINE, A WAVE SHAPING NETWORK, AND AN ARC SUPPRESSOR. IT IS DESIGNED TO OPERATE WITH AN INDUCTIVE LOAD OF APPROXIMATELY 100 OHMS BETWEEN TERMINALS 6 AND 12, WITH A 850 OHM, 40 WATT RESISTOR CONNECTED BETWEEN T1 AND T2.

TD FEED SWITCH IS CONNECTED BETWEEN TERMINALS 9 AND 3. THE UNIT IS DESIGNED TO DRIVE THE READER MAGNET IN THE MODEL 33 ASR SET.

TDC RELAY CONTACTS ARE USED FOR AUTOMATIC READER CONTROL.

SOME PREVIOUS CIRCUIT CARD ASSEMBLIES USED 1/2 AFB.
3/4 AFB. IS PREFERRED

APPROVALS

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

E-NUMBER
PROD. NO. 186479

DATE: 10-4-68
P.D. FILE NO. 2-165.152AA
DRAWN: C.E.C. CHKD: *TDC*
ENGD: R.C.H. APPD: *RRS*

TELETYPE CORPORATION
186479