

28 ELECTRICAL SERVICE UNITS

WIRING DIAGRAM

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28F electrical service unit	21	1. GENERAL	
28F-1 electrical service unit	23	1.01 This section shows the wiring of 28 elec- trical service units and 28 electrical ser- vice unit subassemblies.	
28G electrical service unit	25	1.02 The wiring diagrams are shown in alpha- betical order except the wiring diagrams for the 28U and 28W electrical service units. The 28D and 28U electrical service units are shown in the same figure. The 28E and 28W electrical service units are shown in the same figure.	
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2. 28 ELECTRICAL SERVICE UNIT WIRING DIAGRAMS

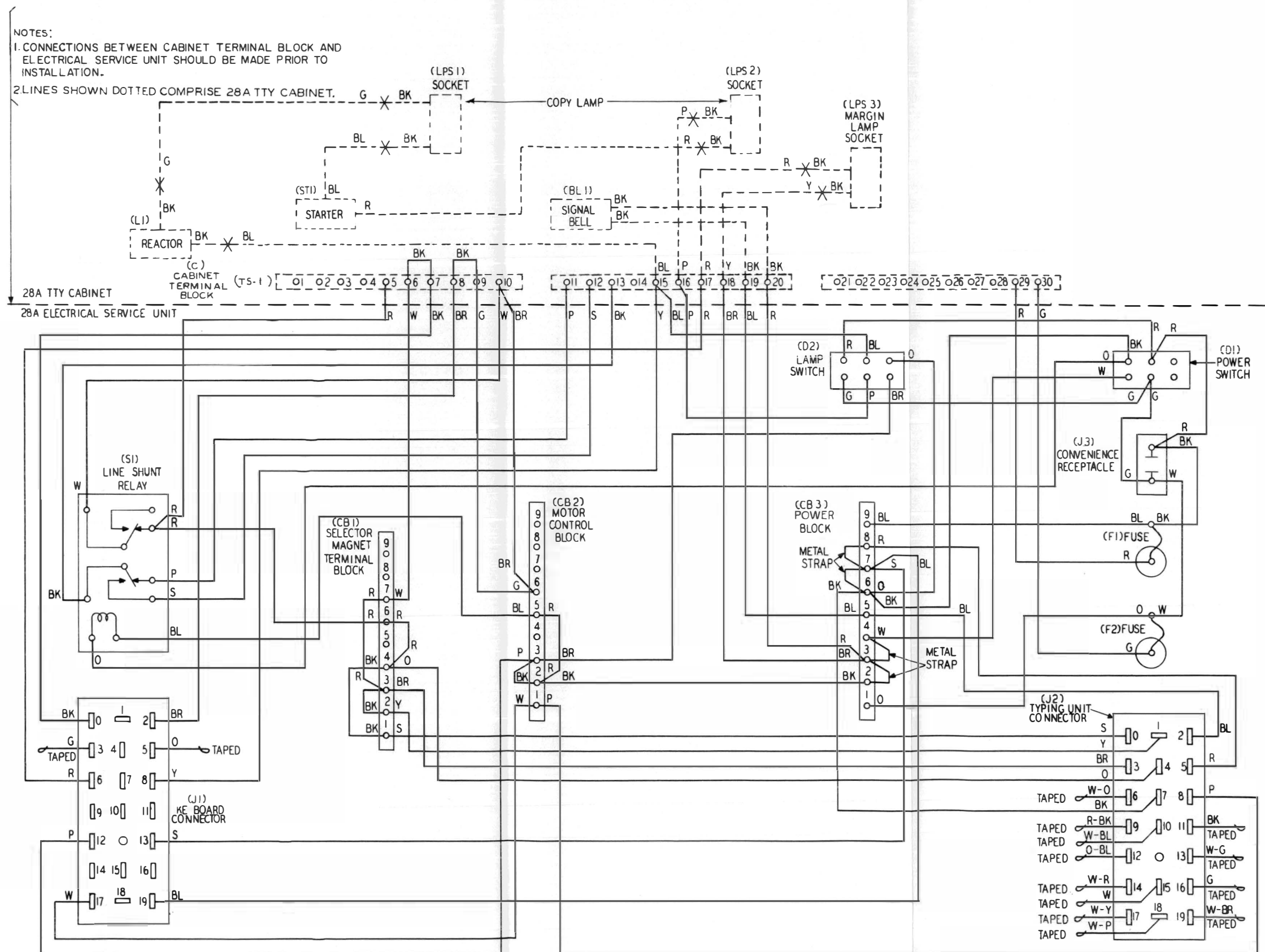


Figure 1 - 28A Electrical Service Unit

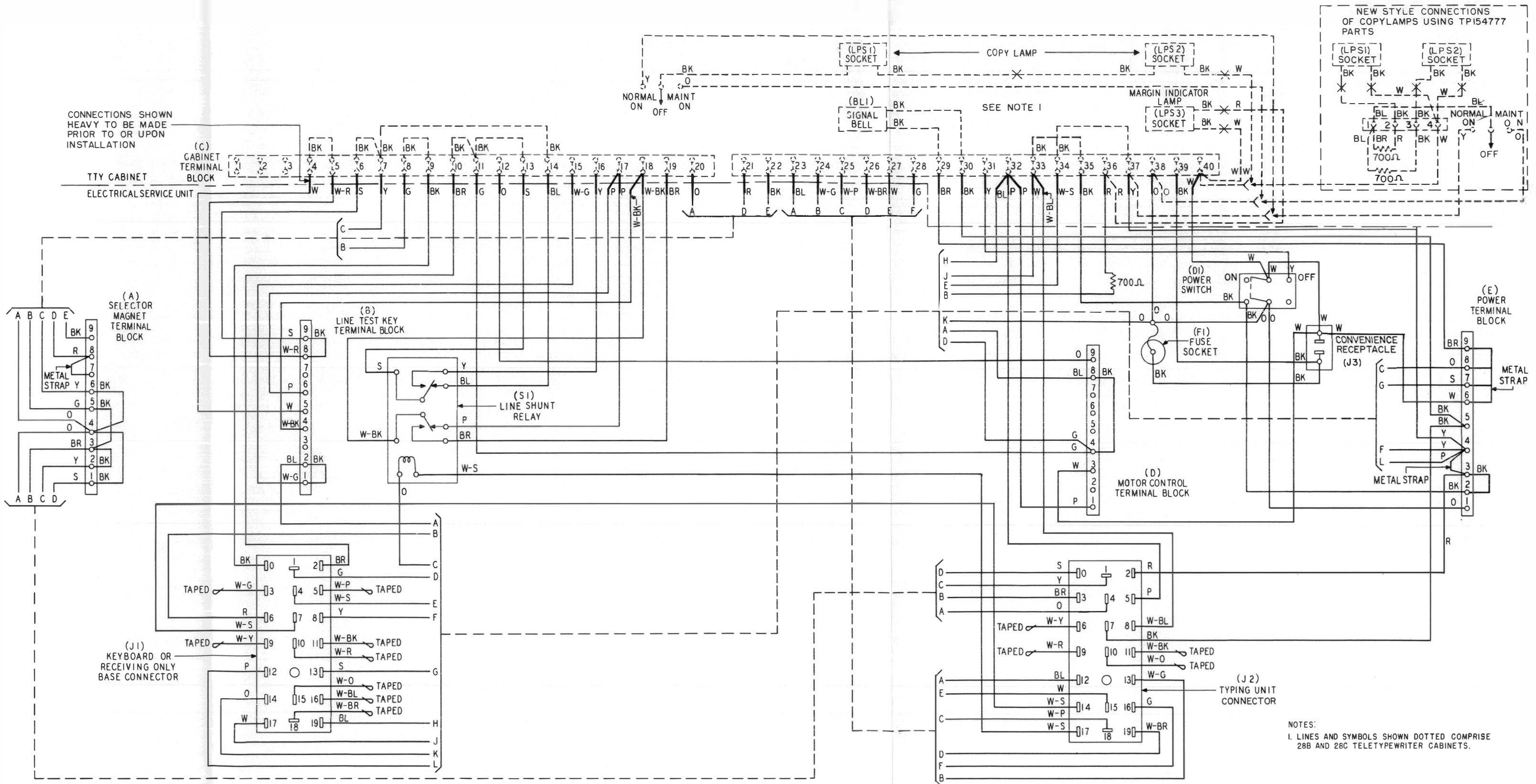
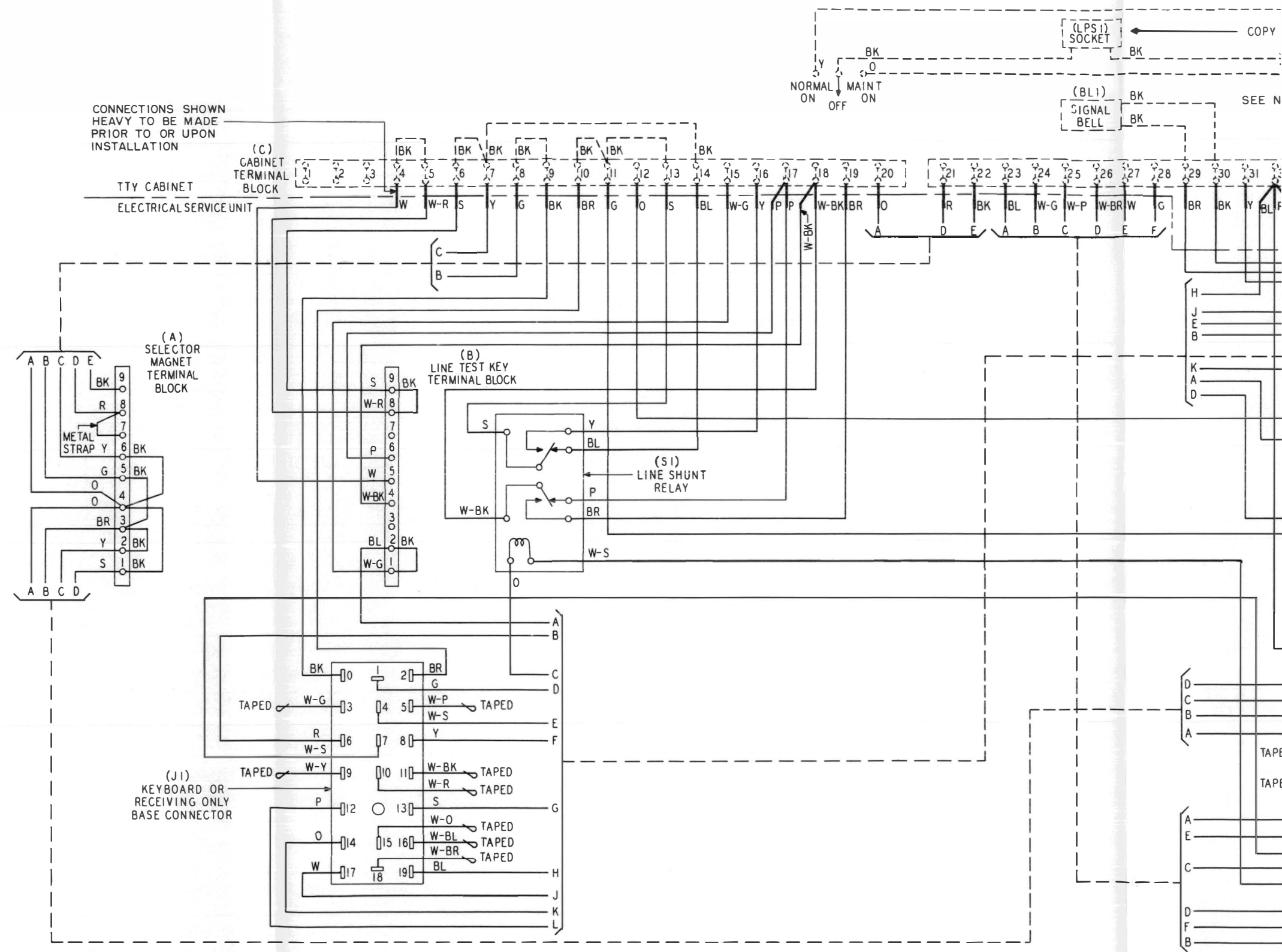


Figure 2A - 28B Electrical Service Unit



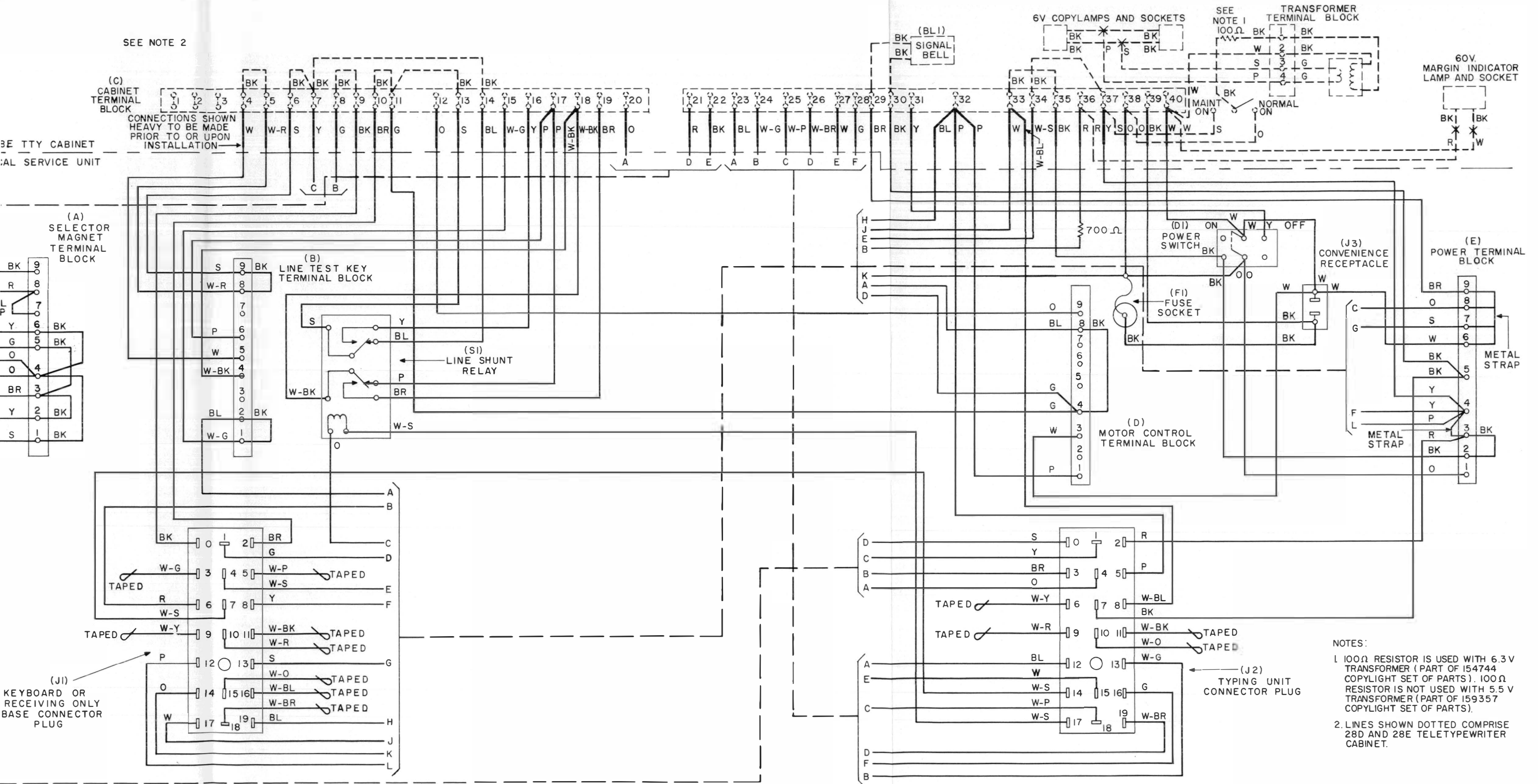


Figure 2B - 28B Electrical Service Unit

SEE NOTE 2

28D AND 28E TTY CABINET
28B ELECTRICAL SERVICE UNIT

(C)
CABINET
TERMINAL
BLOCK

CONNECTIONS SHOWN
HEAVY TO BE MADE
PRIOR TO OR UPON
INSTALLATION

(A)
SELECTOR
MAGNET
TERMINAL
BLOCK

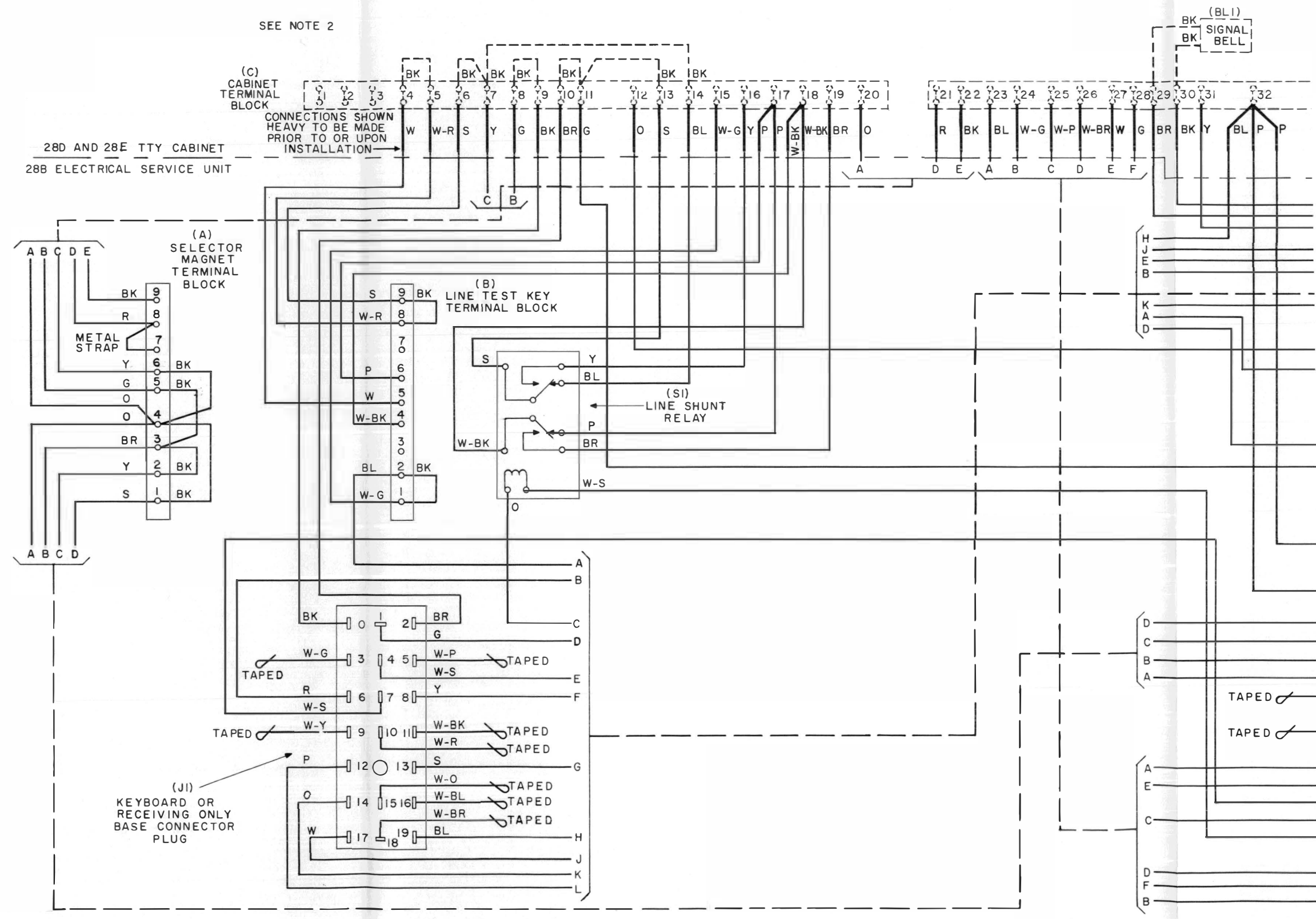
METAL
STRAP

(B)
LINE TEST KEY
TERMINAL
BLOCK

(SI)
LINE SHUNT
RELAY

(JI)
KEYBOARD OR
RECEIVING ONLY
BASE CONNECTOR
PLUG

(BL1)
BK
BK
SIGNAL
BELL



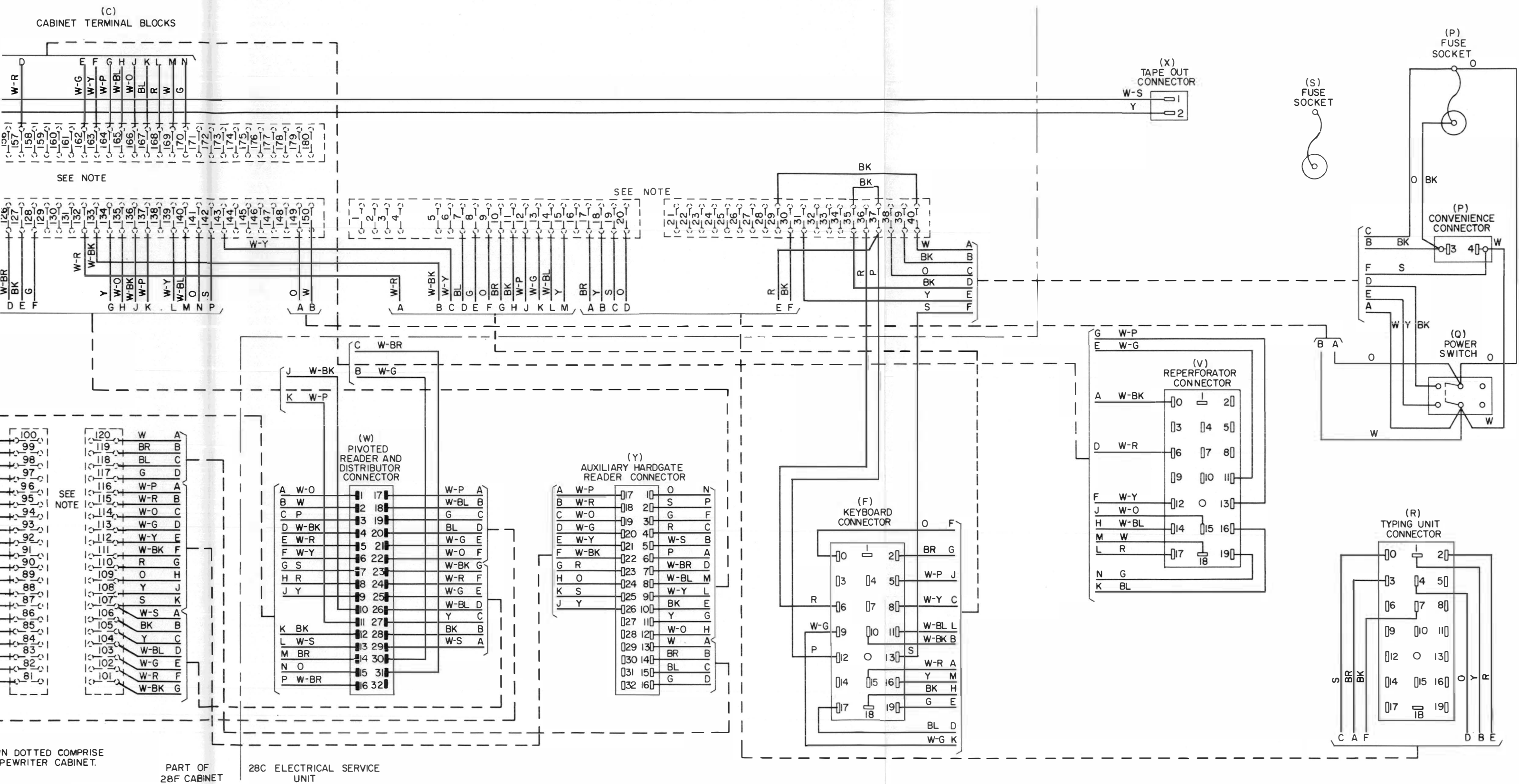
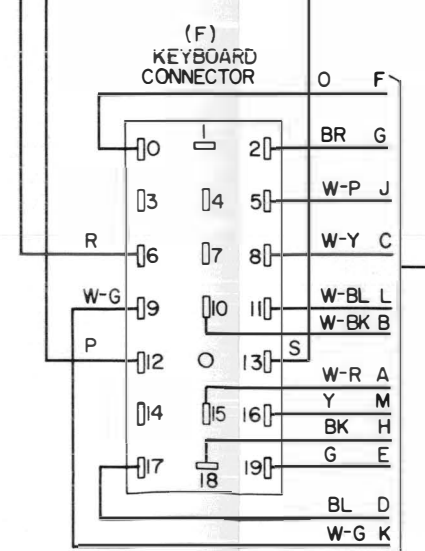
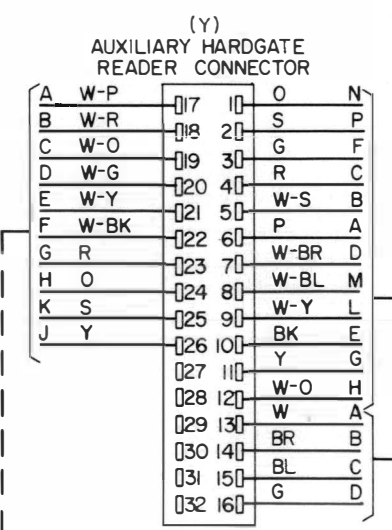
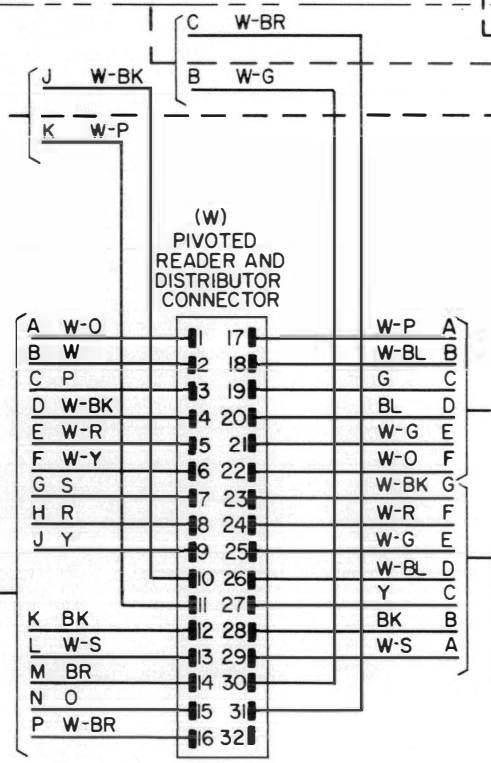
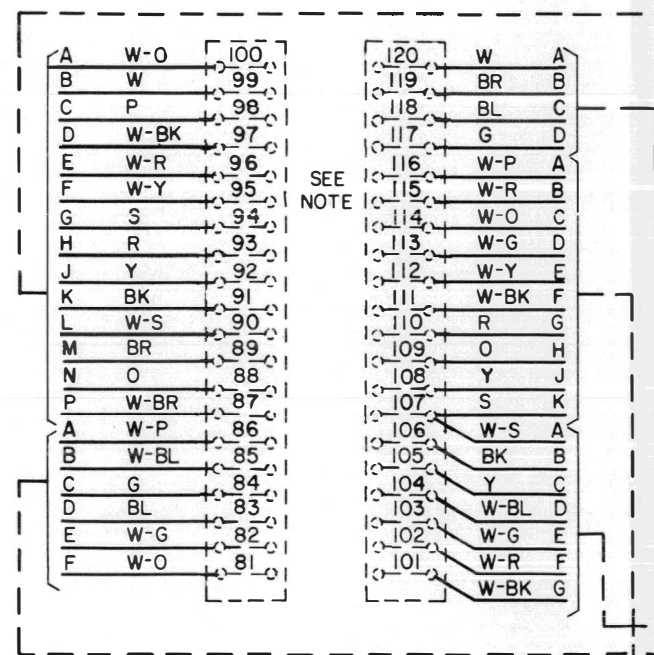
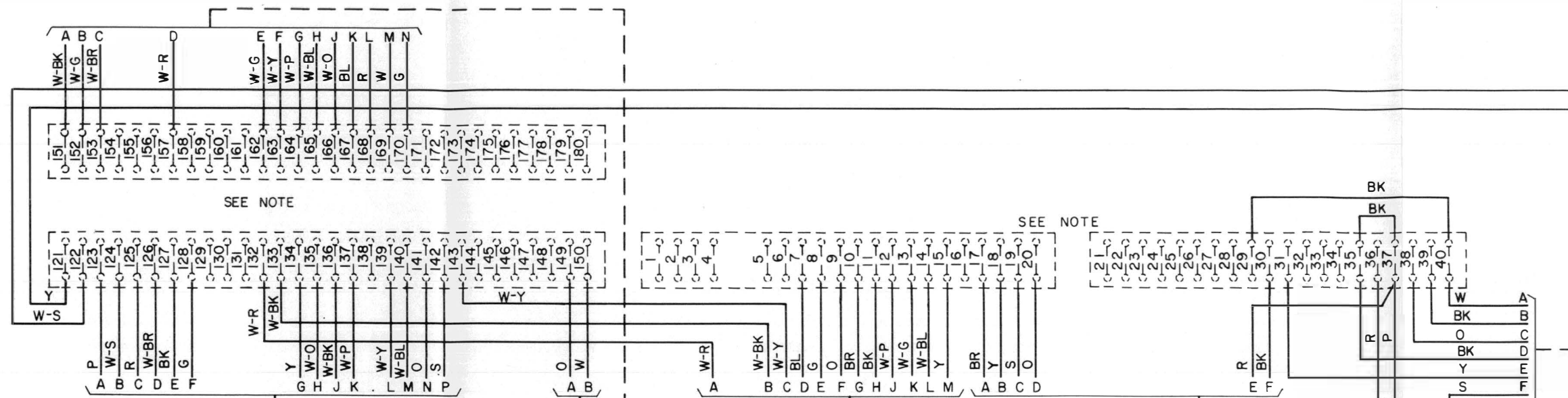


Figure 3 - 28C Electrical Service Unit

(C)
CABINET TERMINAL BLOCKS

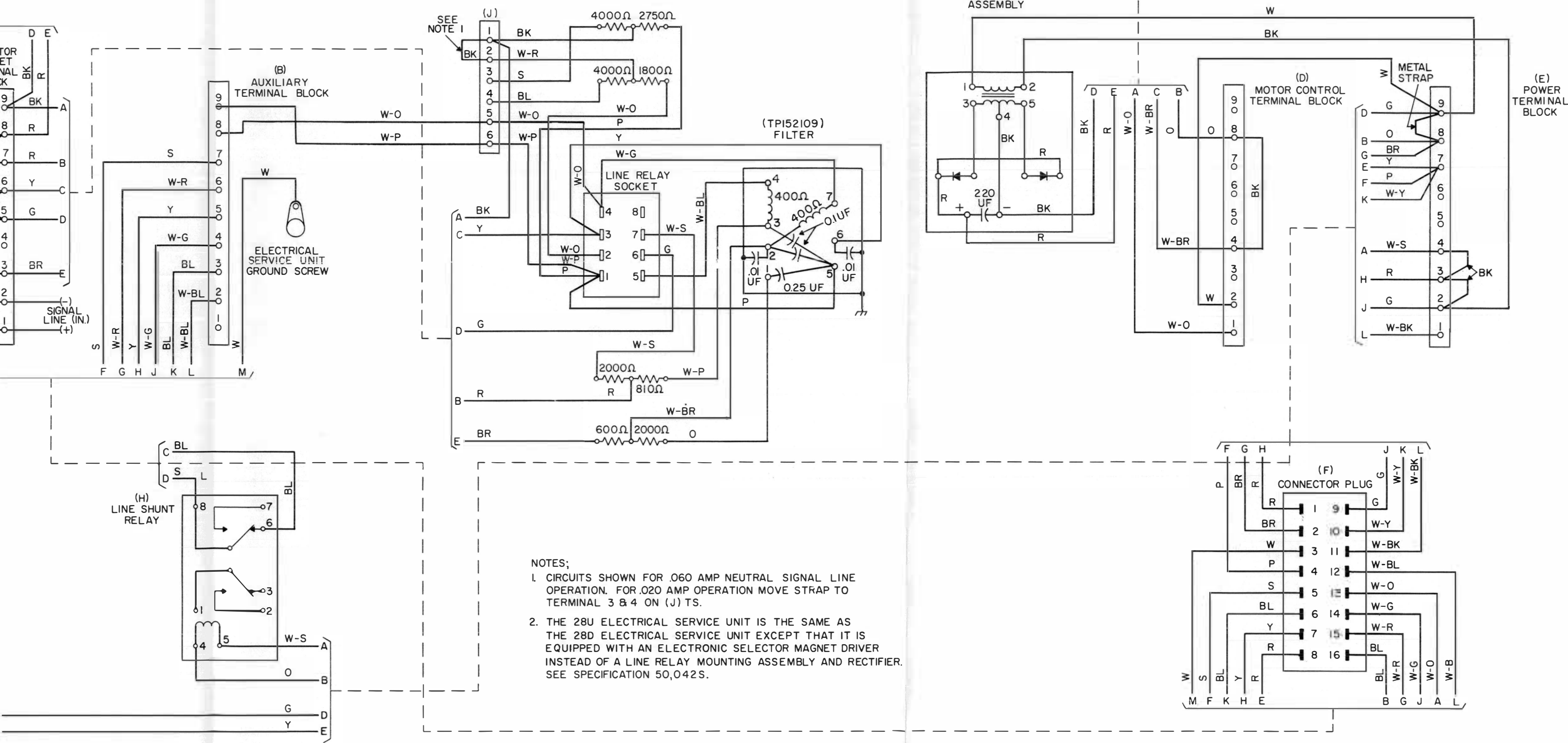


NOTE:
LINES SHOWN DOTTED COMPRISE
28F TELETYPEWRITER CABINET.

PART OF
28F CABINET

28C ELECTRICAL SERVICE
UNIT

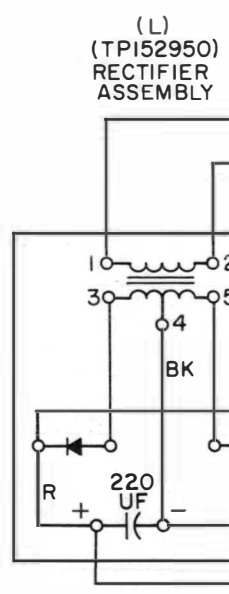
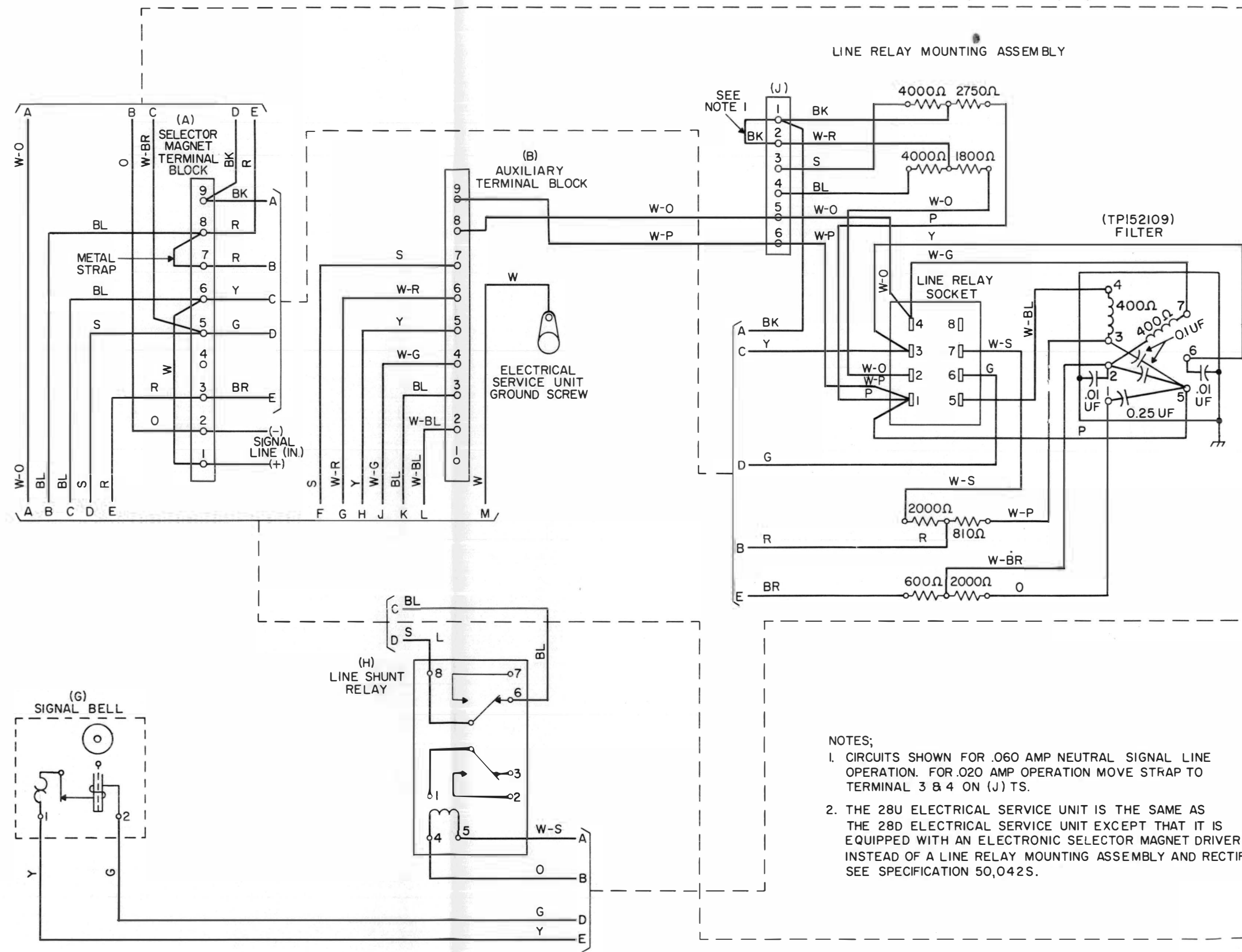
SEE NOTE 2



NOTES;
 1. CIRCUITS SHOWN FOR .060 AMP NEUTRAL SIGNAL LINE OPERATION. FOR .020 AMP OPERATION MOVE STRAP TO TERMINAL 3 & 4 ON (J) TS.
 2. THE 28U ELECTRICAL SERVICE UNIT IS THE SAME AS THE 28D ELECTRICAL SERVICE UNIT EXCEPT THAT IT IS EQUIPPED WITH AN ELECTRONIC SELECTOR MAGNET DRIVER INSTEAD OF A LINE RELAY MOUNTING ASSEMBLY AND RECTIFIER. SEE SPECIFICATION 50,042S.

Figure 4 - 28D and 28U Electrical Service Units

SEE NOTE 2



- NOTES;
1. CIRCUITS SHOWN FOR .060 AMP NEUTRAL SIGNAL LINE OPERATION. FOR .020 AMP OPERATION MOVE STRAP TO TERMINAL 3 & 4 ON (J) TS.
 2. THE 28U ELECTRICAL SERVICE UNIT IS THE SAME AS THE 28D ELECTRICAL SERVICE UNIT EXCEPT THAT IT IS EQUIPPED WITH AN ELECTRONIC SELECTOR MAGNET DRIVER INSTEAD OF A LINE RELAY MOUNTING ASSEMBLY AND RECTIFIER. SEE SPECIFICATION 50,042S.

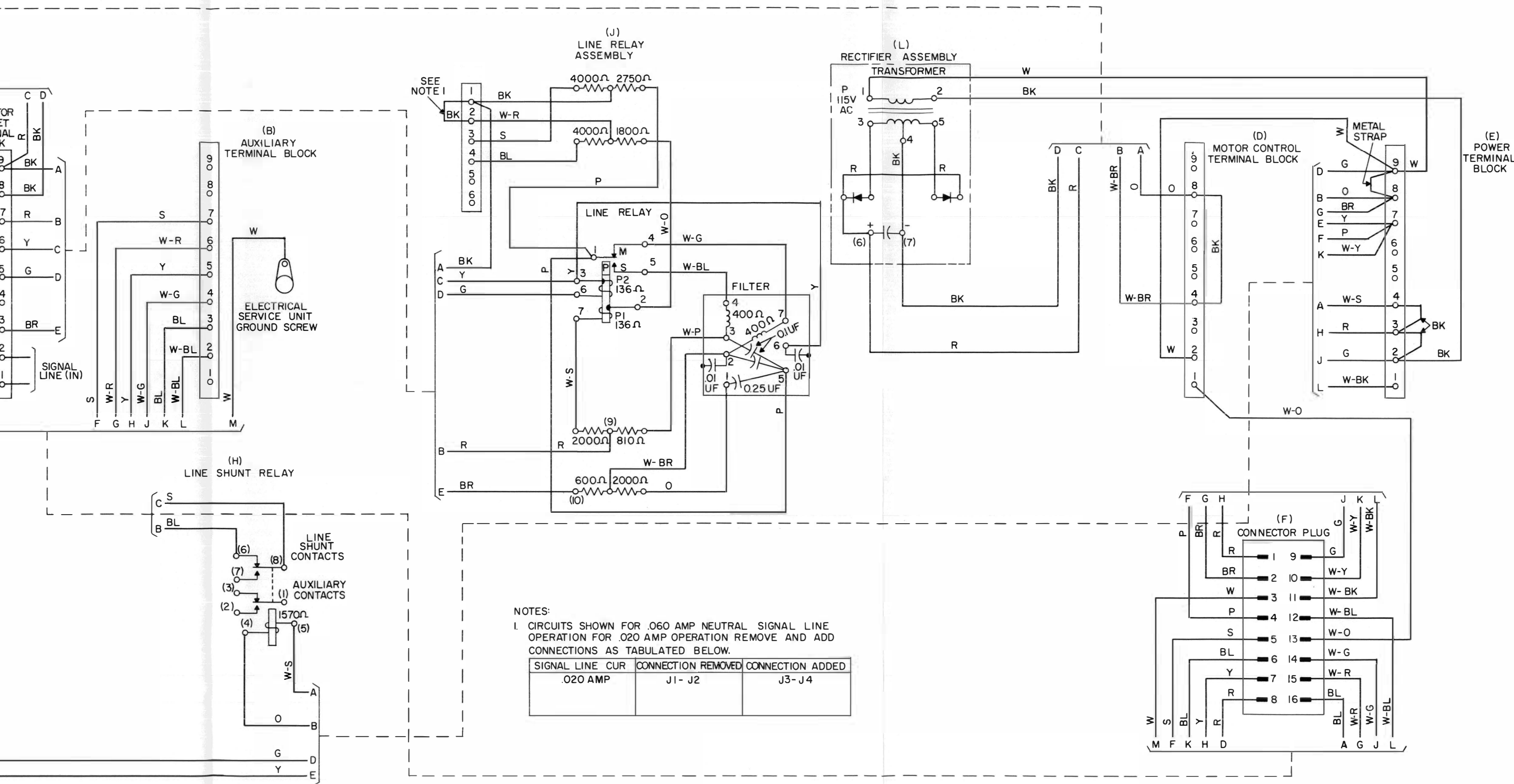
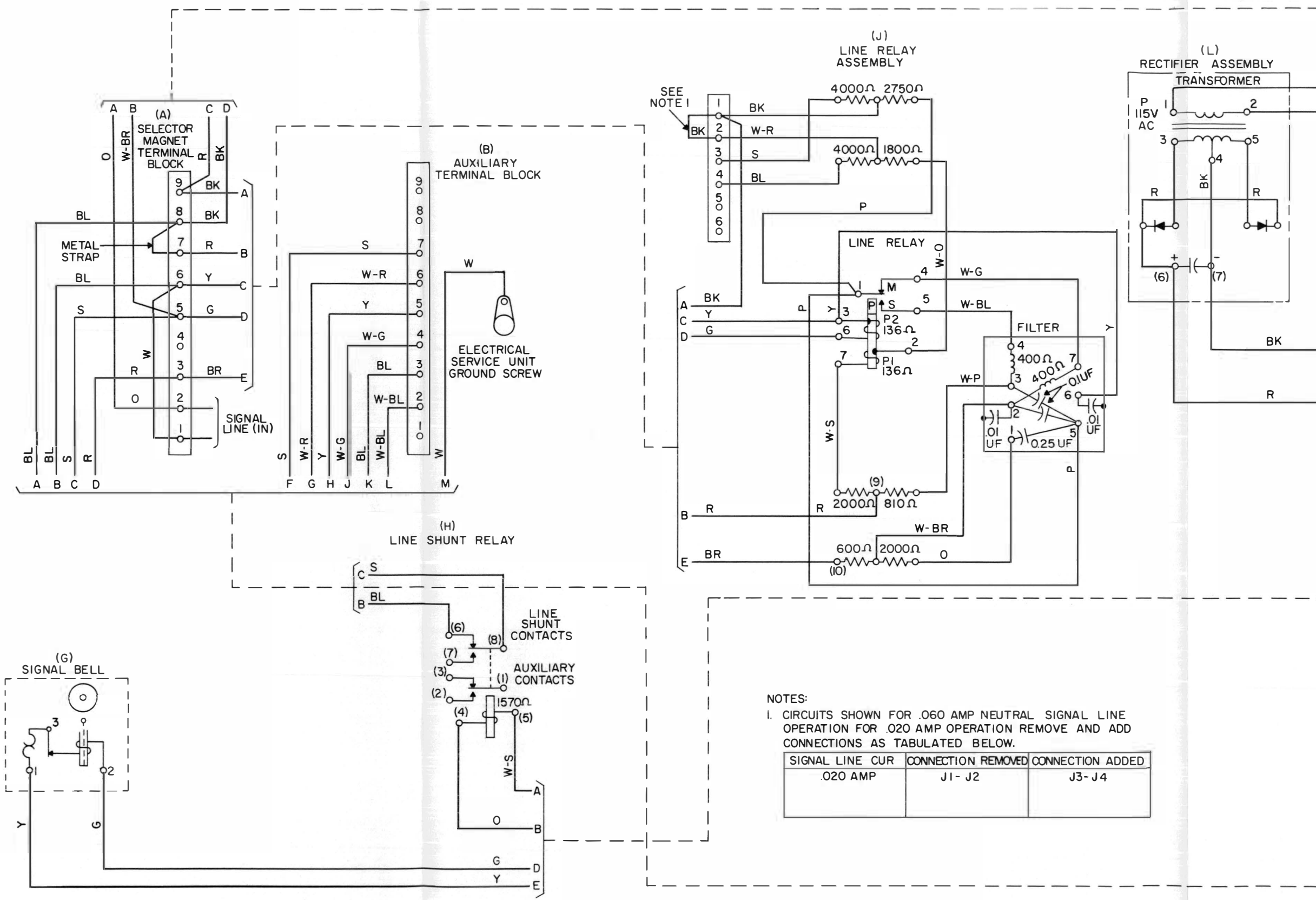


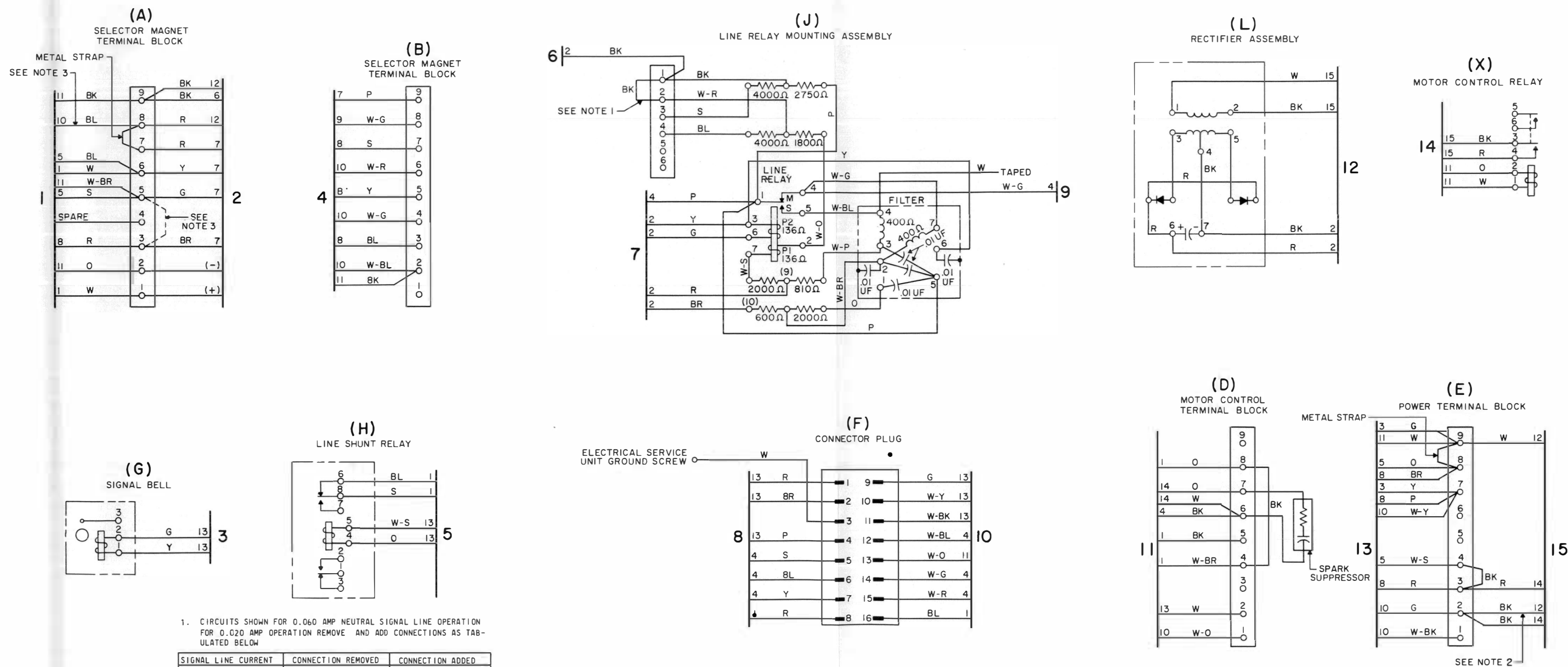
Figure 5 - 28D-1 Electrical Service Unit



NOTES:

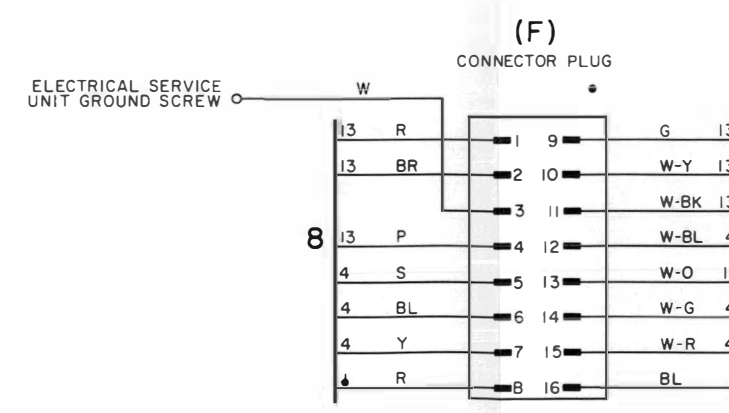
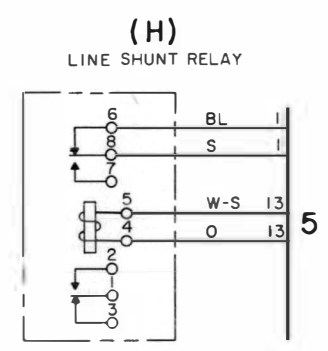
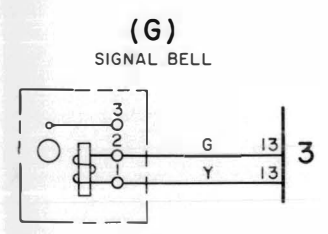
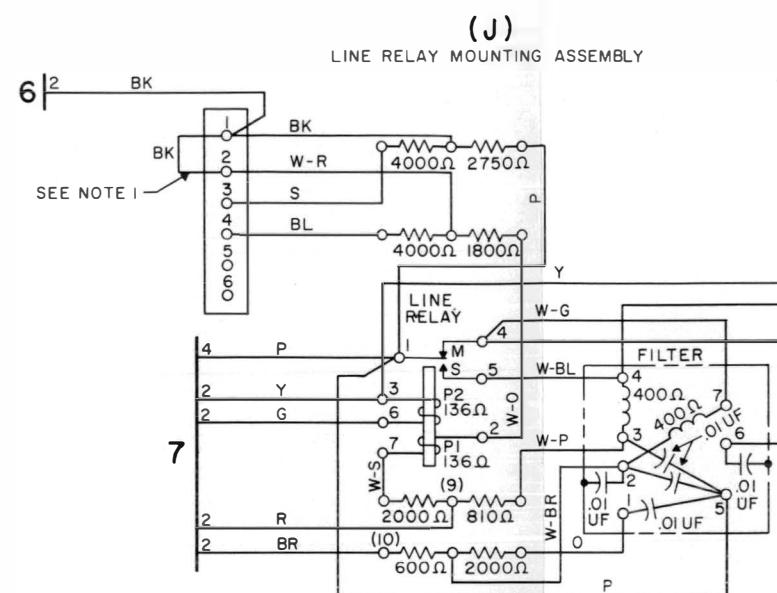
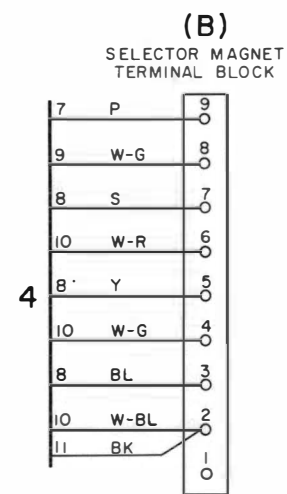
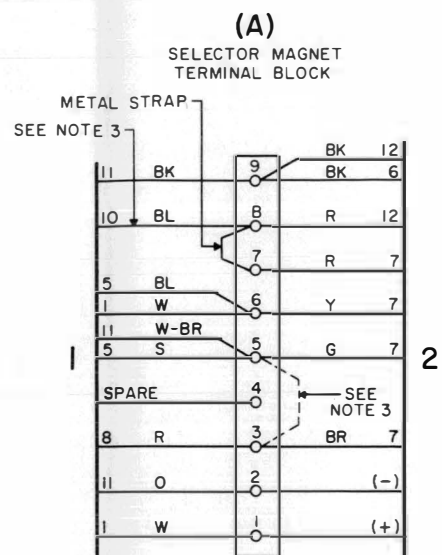
1. CIRCUITS SHOWN FOR .060 AMP NEUTRAL SIGNAL LINE OPERATION FOR .020 AMP OPERATION REMOVE AND ADD CONNECTIONS AS TABULATED BELOW.

SIGNAL LINE CUR	CONNECTION REMOVED	CONNECTION ADDED
.020 AMP	J1 - J2	J3 - J4



1. CIRCUITS SHOWN FOR 0.060 AMP NEUTRAL SIGNAL LINE OPERATION FOR 0.020 AMP OPERATION REMOVE AND ADD CONNECTIONS AS TABULATED BELOW
- | SIGNAL LINE CURRENT | CONNECTION REMOVED | CONNECTION ADDED |
|---------------------|--------------------|------------------|
| 0.020 AMP | J1-J2 | J3-J4 |
2. RECTIFIER SHOWN CONTROLLED BY POWER SWITCH FOR CONTINUOUS OPERATION REMOVE LEAD 12-BK FROM TERMINAL 2 AND CONNECT TO TERMINAL 1 OF E (POWER TERMINAL BLOCK).
3. SELECTOR MAGNETS CAN BE CONNECTED DIRECTLY IN THE SIGNAL LINE CIRCUIT FOR NEUTRAL OPERATION AS FOLLOWS:
- A) REMOVE LINE RELAY
 - B) 20 MILLIAMPERE 60 & 75 WPM OPERATION (OR ANY INTERMEDIATE SPEED)
 - 1) STRAP AS TO A3
 - 2) MOVE BLUE LEAD FROM TERMINAL A8 TO TERMINAL A6
 - C) 50 MILLIAMPERE, 60, 75 & 100 WPM OPERATION (OR ANY INTERMEDIATE SPEED)
 - 1) STRAP AS TO A3
 - 2) MOVE BLUE LEAD FROM TERMINAL A8 TO TERMINAL A6
 - 3) CHANGE WIRING ON SELECTOR MAGNETS FOR 60 MILLIAMPERE OPERATION

Figure 6 - 28D-2 Electrical Service Unit

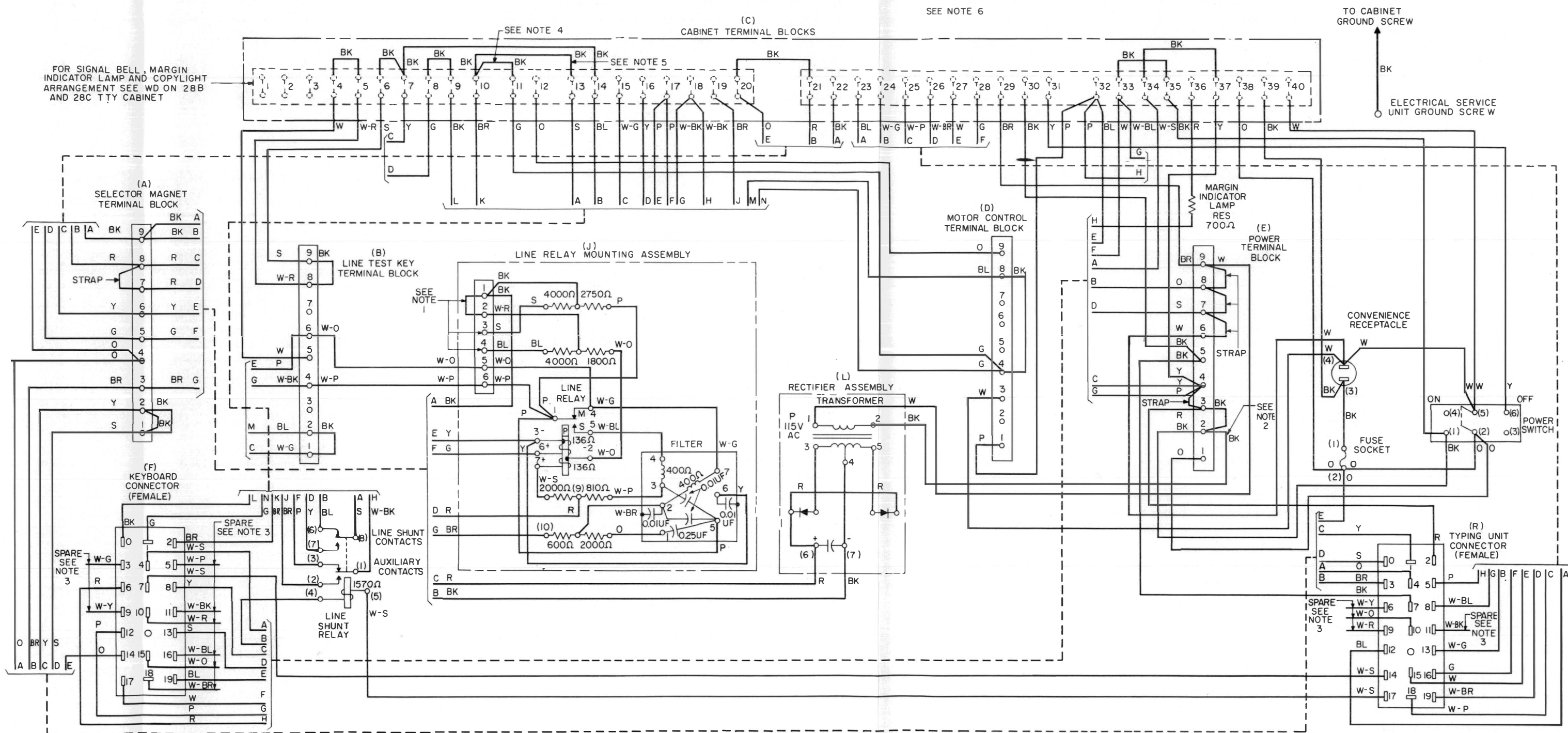


1. CIRCUITS SHOWN FOR 0.060 AMP NEUTRAL SIGNAL LINE OPERATION FOR 0.020 AMP OPERATION REMOVE AND ADD CONNECTIONS AS TABULATED BELOW

SIGNAL LINE CURRENT	CONNECTION REMOVED	CONNECTION ADDED
0.020 AMP	J1-J2	J3-J4

2. RECTIFIER SHOWN CONTROLLED BY POWER SWITCH FOR CONTINUOUS OPERATION REMOVE LEAD 12-BK FROM TERMINAL 2 AND CONNECT TO TERMINAL 1 OF E (POWER TERMINAL BLOCK).
3. SELECTOR MAGNETS CAN BE CONNECTED DIRECTLY IN THE SIGNAL LINE CIRCUIT FOR NEUTRAL OPERATION AS FOLLOWS:
- A) REMOVE LINE RELAY
 - B) 20 MILLIAMPERE 60 & 75 WPM OPERATION (OR ANY INTERMEDIATE SPEED)
 - 1) STRAP A5 TO A3
 - 2) MOVE BLUE LEAD FROM TERMINAL A8 TO TERMINAL A6
 - C) 50 MILLIAMPERE, 60,75 & 100 WPM OPERATION (OR ANY INTERMEDIATE SPEED)
 - 1) STRAP A5 TO A3
 - 2) MOVE BLUE LEAD FROM TERMINAL A8 TO TERMINAL A6
 - 3) CHANGE WIRING ON SELECTOR MAGNETS FOR 60 MILLIAMPERE OPERATION

SEE NOTE 6

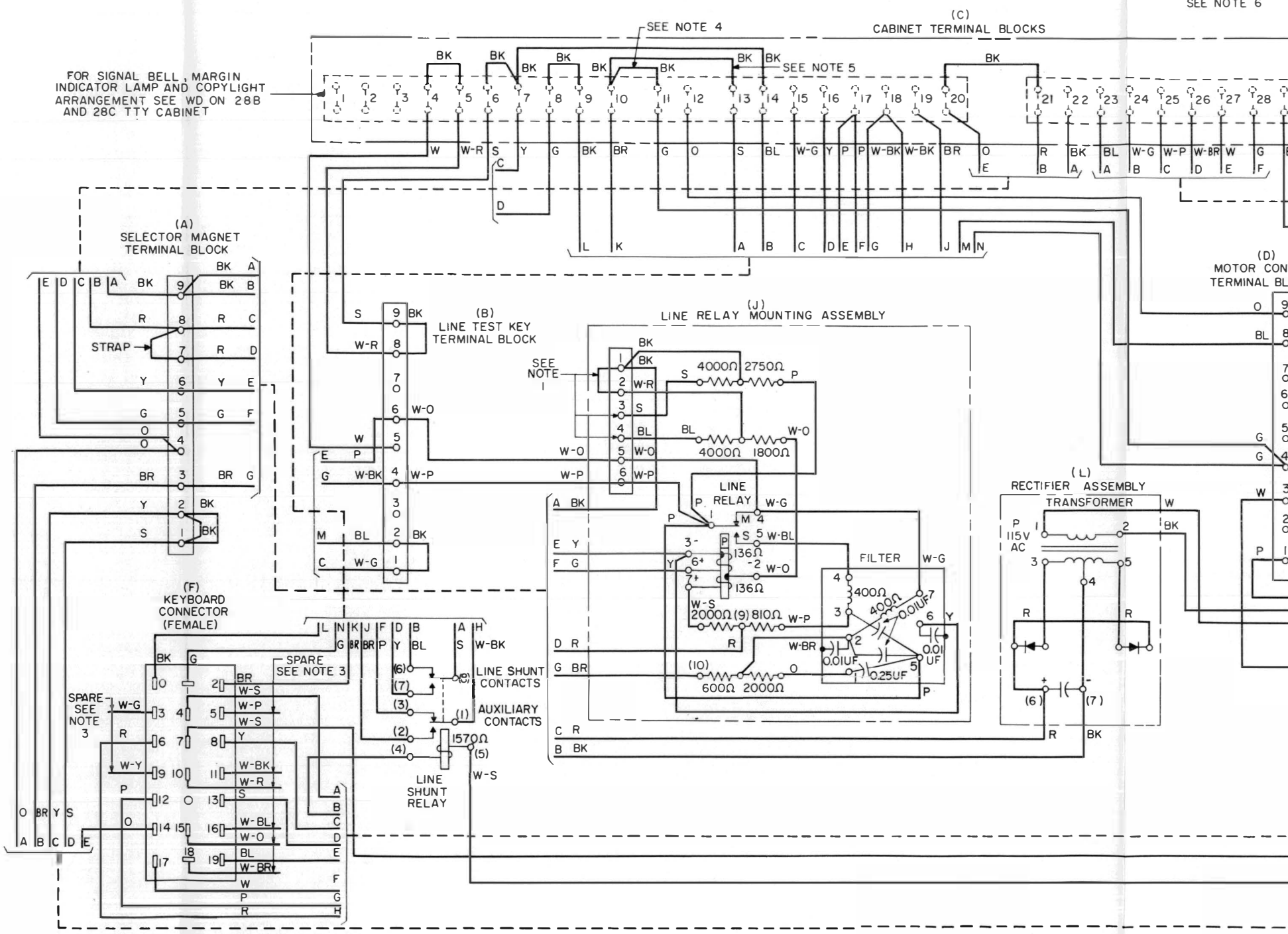


NOTES:

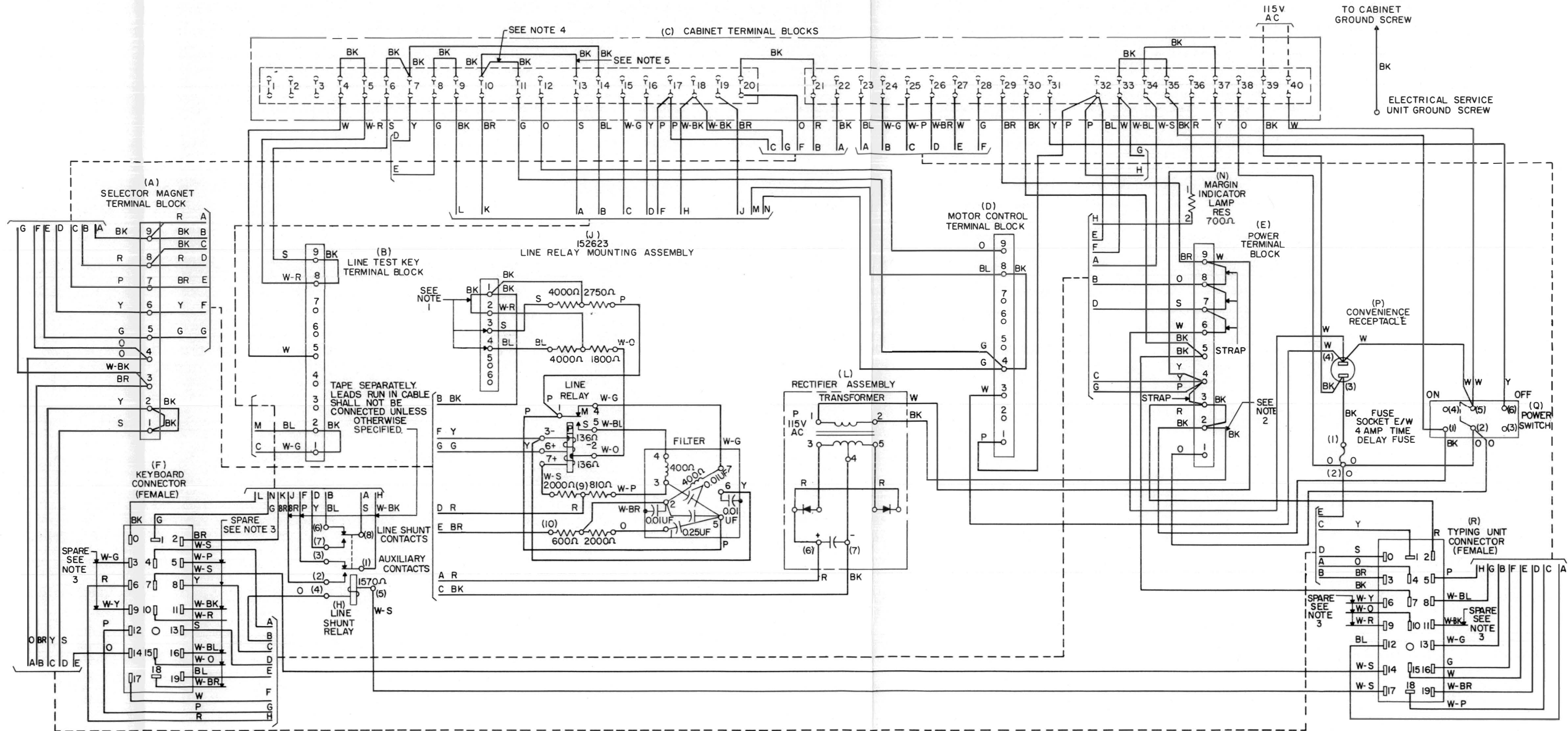
- CIRCUITS SHOWN FOR 0.060 AMP NEUTRAL SIGNAL LINE OPERATION. FOR 0.020 AMP OPERATION, REMOVE AND ADD CONNECTIONS AS TABULATED BELOW:

SIGNAL LINE CURRENT	0.060 AMP	0.020 AMP
CONNECTION REMOVED	J1-J2	
CONNECTIONS ADDED		J3-J4
- RECTIFIER SHOWN CONTROLLED BY POWER SWITCH FOR CONTINUOUS OPERATION, REMOVE L2 BLK LEAD FROM E-2 TERMINAL AND CONNECT TO E-1 TERMINAL.
- THE SPARE LEADS FROM THE KEYBOARD AND TYPING UNIT CONNECTORS ARE TERMINATED IN THE RIGHT AND LEFT ENDS OF THE ELECTRICAL SERVICE UNIT RESPECTIVELY.
- FOR RECEIVING ONLY BASES: CONNECT C-10 TO C-11.
- FOR KEYBOARD OPERATION: C-13 TERMINAL MAY BE CONNECTED TO EITHER C-9, C-10, C-11 OR C-15 TERMINAL TO OBTAIN DESIRED SHUNTING OF THE SIGNAL LINE CIRCUIT.
- THE 28W ELECTRICAL SERVICE UNIT IS THE SAME AS THE 28E ELECTRICAL SERVICE UNIT EXCEPT THAT IT IS EQUIPPED WITH AN ELECTRONIC MAGNET DRIVER INSTEAD OF A LINE RELAY MOUNTING ASSEMBLY AND RECTIFIER. SEE SPECIFICATION 50,042S.

Figure 7 - 28E and 28W Electrical Service Units



- NOTES:
1. CIRCUITS OPERATING CONNECTIONS
 2. RECTIFIER CONTINUOUS TERMINALS



NOTES:

1. CIRCUITS SHOWN FOR 0.060 AMP NEUTRAL SIGNAL LINE OPERATION. FOR 0.020 AMP OPERATION REMOVE AND ADD CONNECTIONS AS TABULATED BELOW:

SIGNAL LINE CURRENT	0.020 AMP
CONNECTION REMOVED	J1-J2
CONNECTION ADDED	J3-J4

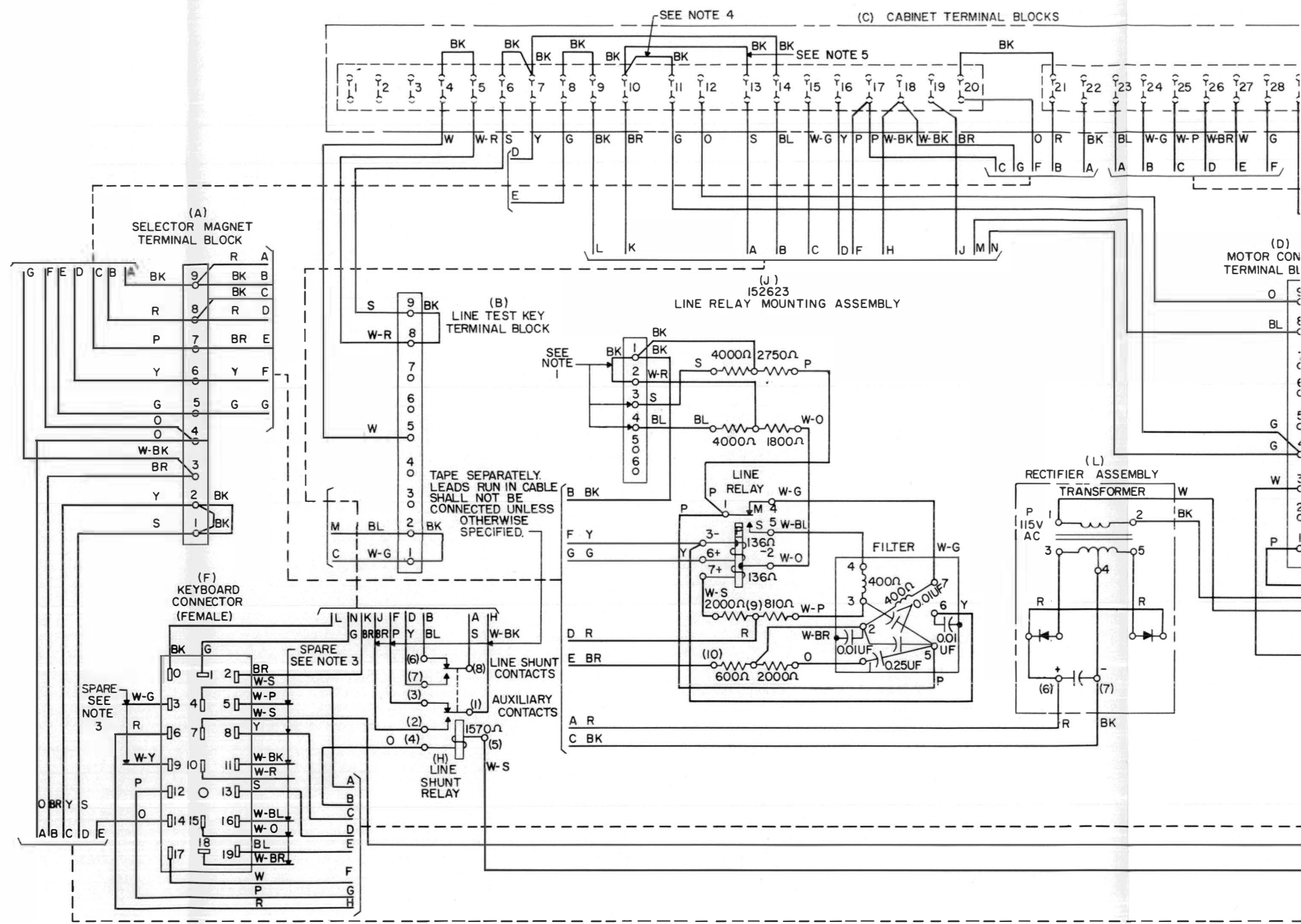
2. RECTIFIER SHOWN CONTROLLED BY POWER SWITCH. FOR CONTINUOUS OPERATION, REMOVE LEAD L-2-BK FROM TERMINAL E2 AND CONNECT TO TERMINAL E1.

3. THE SPARE LEADS FROM THE KEYBOARD AND TYPING UNIT CONNECTOR PLUGS ARE TERMINATED IN THE RIGHT AND LEFT ENDS OF THE ELECTRICAL SERVICE UNIT RESPECTIVELY.

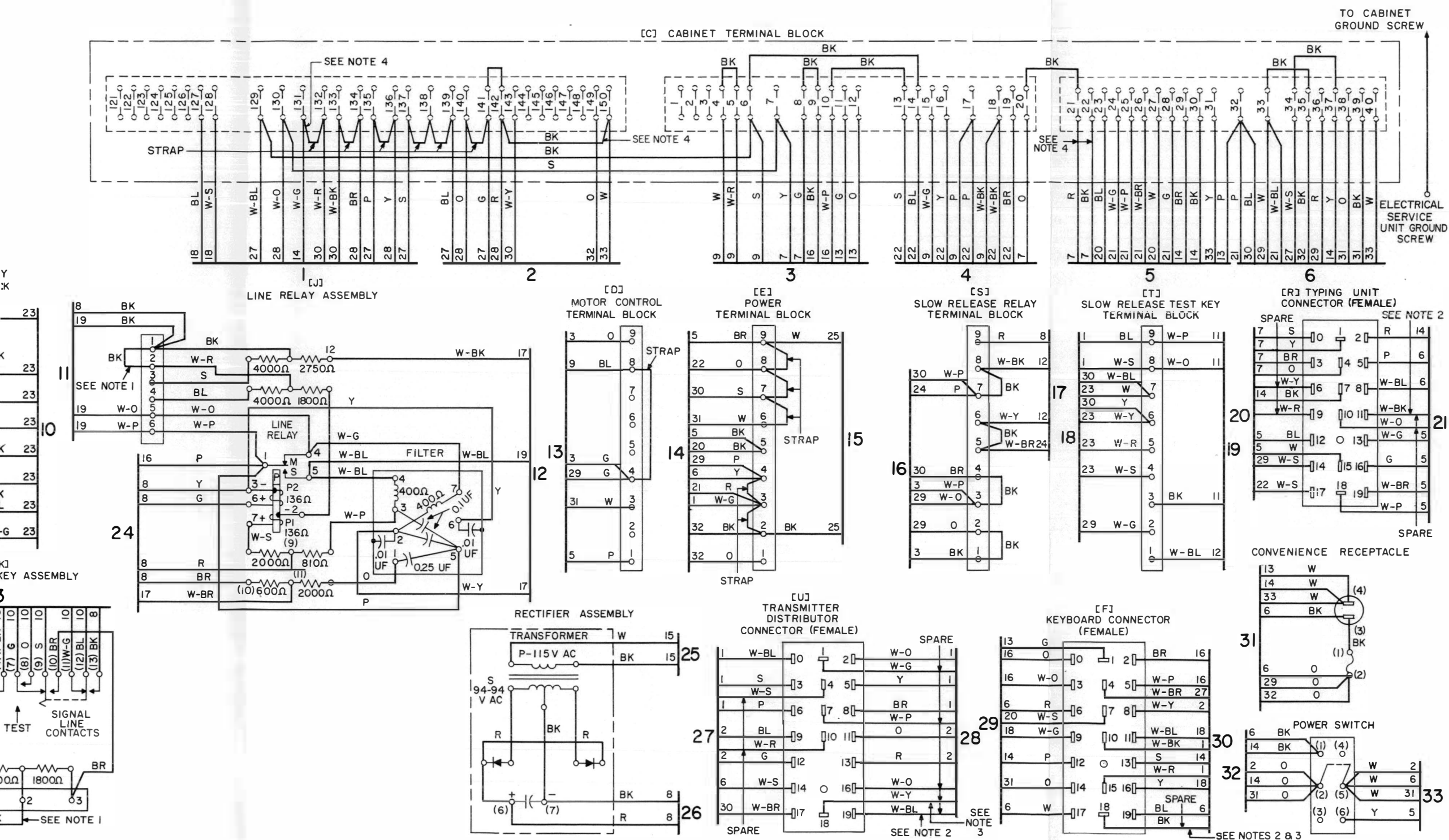
4. FOR RECEIVING ONLY BASES: CONNECT C-10 TO C-11.

5. FOR KEYBOARD OPERATION: TERMINAL C-13 MAY BE CONNECTED TO EITHER TERMINAL C-9, C-10, C-11, OR C-15 TO OBTAIN DESIRED SHUNTING OF THE SIGNAL LINE CIRCUIT.

Figure 8 - 28E-1 Electrical Service Unit

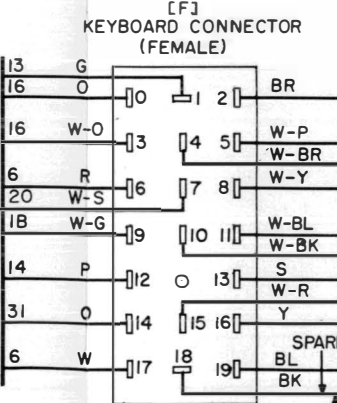
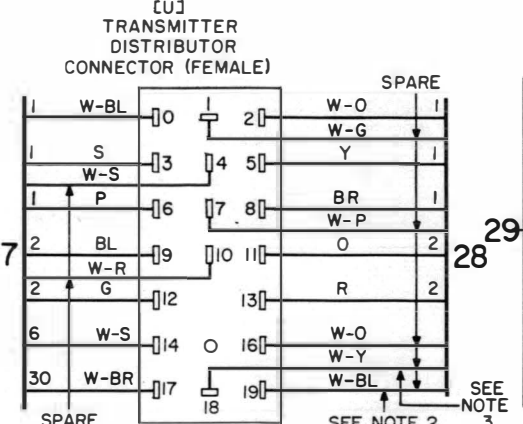
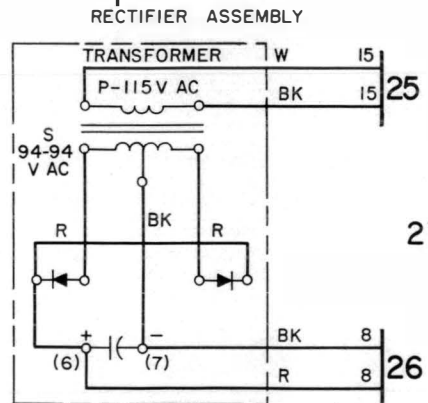
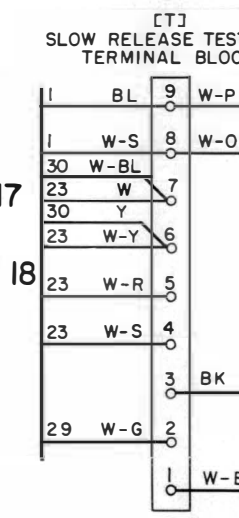
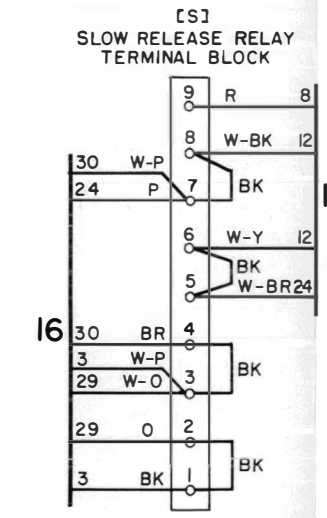
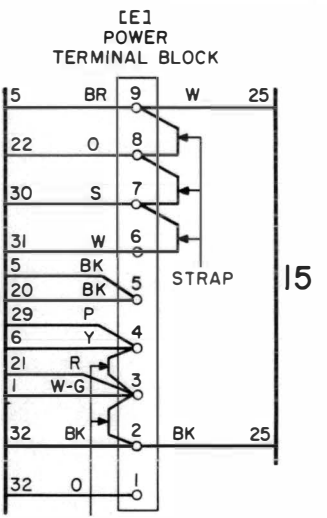
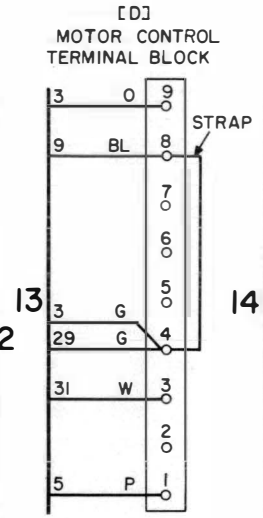
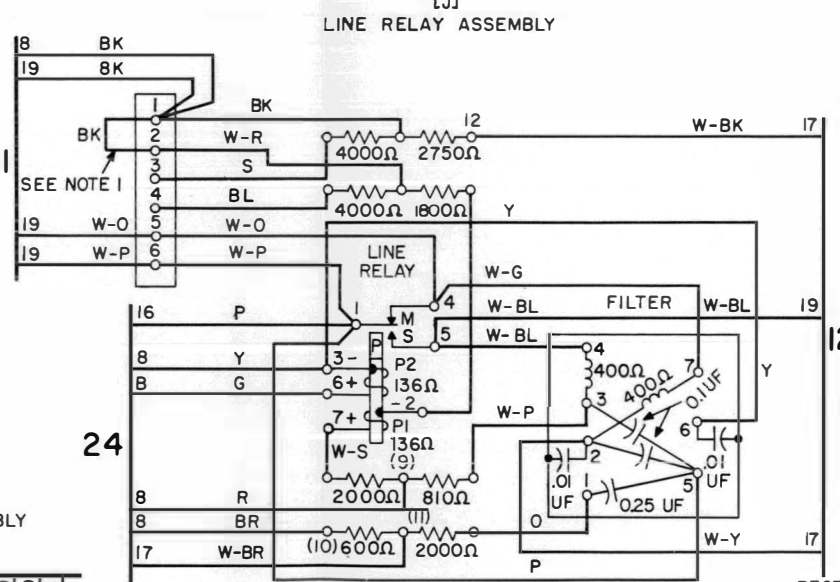
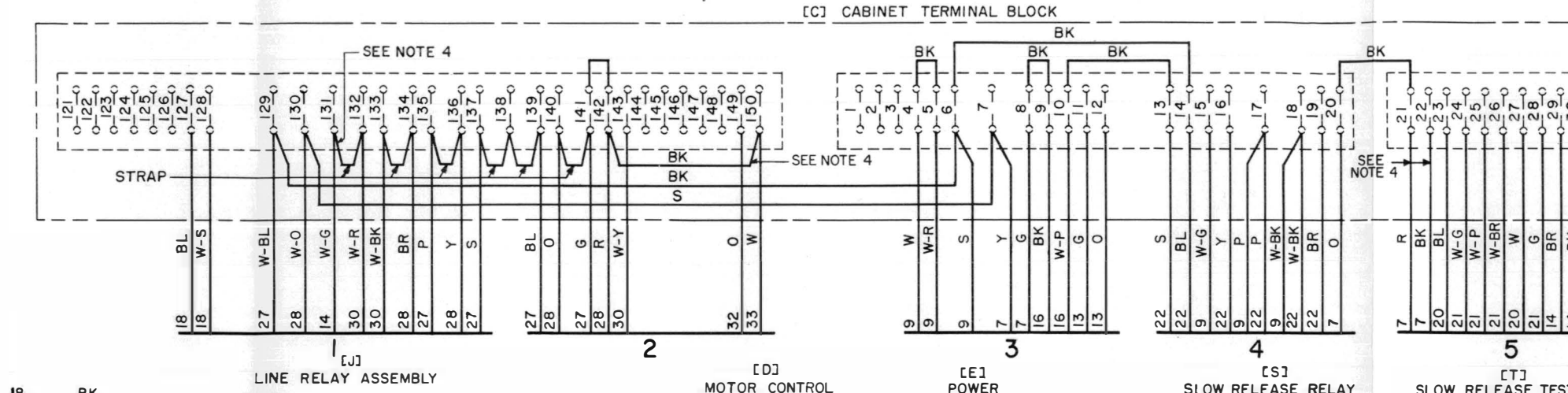
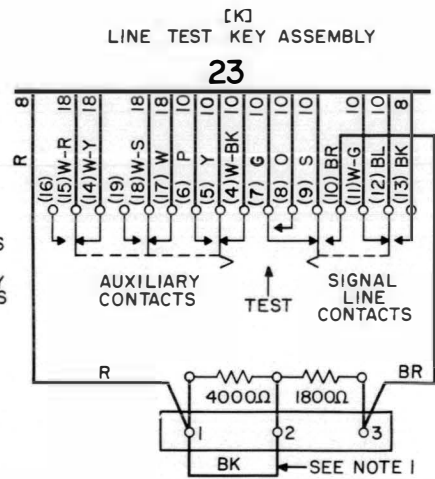
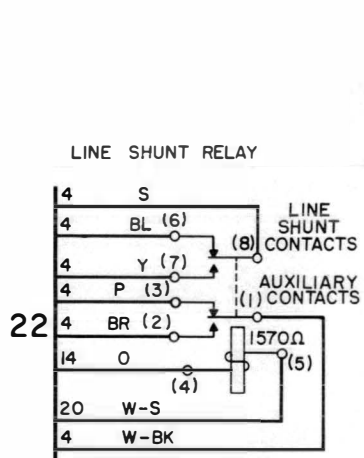
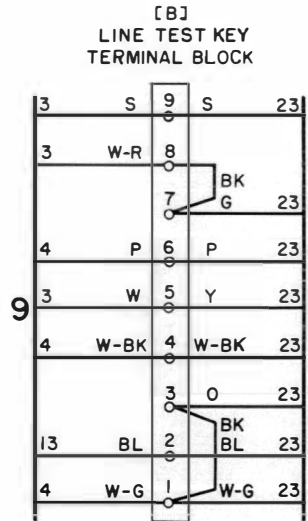
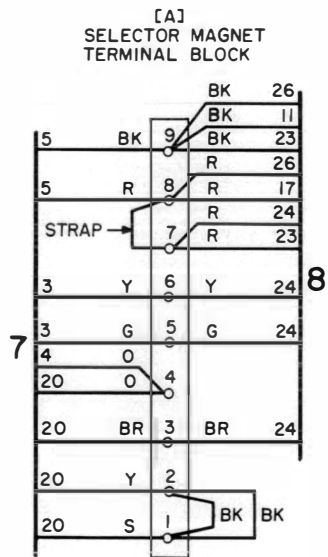


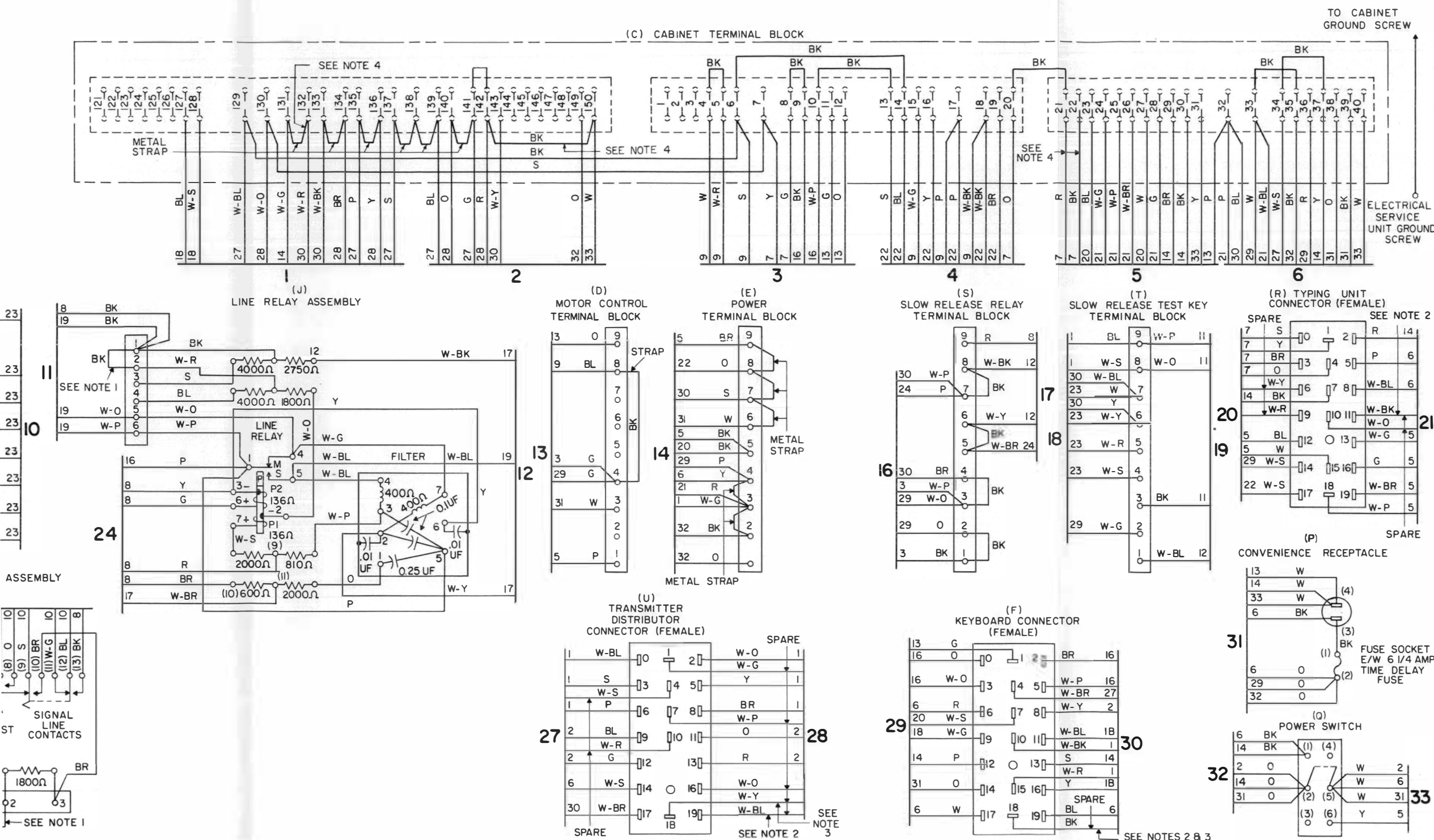
- NOTES:
1. CIRCUITS SHOWN FOR 0.020 AMP TABULATED BE...
 2. RECTIFIER SHOWN FOR OPERATION, R... TO TERMINAL...



- NOTES:
- CIRCUITS SHOWN FOR .060 AMP NEUTRAL SIGNAL LINE OPERATION. FOR .020 AMP OPERATION REMOVE AND ADD CONNECTIONS AS TABULATED BELOW:
- | | |
|---------------------|--------------|
| SIGNAL LINE CURRENT | .020 AMP |
| CONNECTION REMOVED | K1-K2, J1-J2 |
| CONNECTIONS ADDED | J3-J4 |
- THE SPARE LEADS FROM THE KEYBOARD AND TRANSMITTER DISTRIBUTOR UNITS CONNECTOR PLUGS ARE TERMINATED IN THE RIGHT END OF THE ELECTRICAL SERVICE UNIT. THE SPARE LEADS FROM THE TYPING UNIT PLUG ARE TERMINATED IN THE LEFT END OF THE ELECTRICAL SERVICE UNIT.
 - SPARE LEADS FROM F-18 AND U18 ARE RESERVED FOR POLAR OPERATION OF KEYBOARD AND TRANSMITTER DISTRIBUTOR SIGNAL GENERATORS.
 - ELECTRICAL SERVICE UNIT AND CABINET ARE SHOWN WIRED FOR OPERATION OF START MAGNET OF 28E OR 28H TRANSMITTER DISTRIBUTOR ON AC. WHEN 120 VOLTS DC IS TO BE USED WIRE AS FOLLOWS:
 OMIT C-131 TO C-132
 C-142 TO C-150
 ADD C-21 TO C-142
 C-22 TO C-132
 IF A 28F OR 28G TRANSMITTER DISTRIBUTOR UNIT IS INSTALLED ALSO ADD:
 C-83* TO C-132
 C-82* TO C-142
 *C-82 AND C-83 ARE SHOWN ON 28F AND 28G TRANSMITTER DISTRIBUTOR HOUSING DRAWING.

Figure 9 - 28F Electrical Service Unit

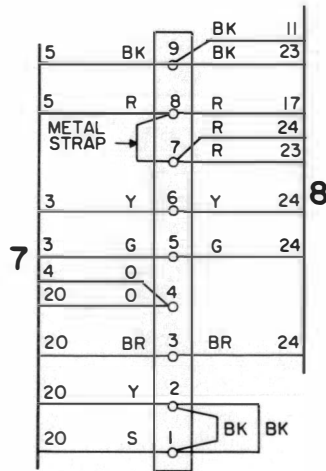




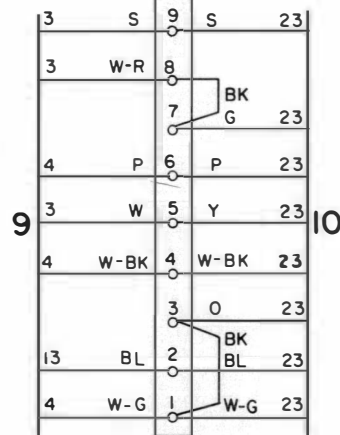
- NOTES:
- CIRCUITS SHOWN FOR .060 AMP NEUTRAL SIGNAL LINE OPERATION. FOR .020 AMP OPERATION REMOVE AND ADD CONNECTIONS AS TABULATED BELOW:
- | SIGNAL LINE CURRENT | .020 AMP |
|---------------------|--------------|
| CONNECTION REMOVED | K1-K2, J1-J2 |
| CONNECTIONS ADDED | J3-J4 |
- THE SPARE LEADS FROM THE KEYBOARD AND TRANSMITTER DISTRIBUTOR UNITS CONNECTOR PLUGS ARE TERMINATED IN THE RIGHT END OF THE ELECTRICAL SERVICE UNIT. THE SPARE LEADS FROM THE TYPING UNIT PLUG ARE TERMINATED IN THE LEFT END OF THE ELECTRICAL SERVICE UNIT.
 - SPARE LEADS FROM F-18 AND U18 ARE RESERVED FOR POLAR OPERATION OF KEYBOARD AND TRANSMITTER DISTRIBUTOR SIGNAL GENERATORS.
 - ELECTRICAL SERVICE UNIT AND CABINET ARE SHOWN WIRED FOR OPERATION OF START MAGNET OF 28E OR 28H TRANSMITTER DISTRIBUTOR ON AC. WHEN 120 VOLTS DC IS TO BE USED WIRE AS FOLLOWS:
 - OMIT C-131 TO C-132
 - C-142 TO C-150
 - ADD C-21 TO C-142
 - C-22 TO C-132
 - IF A 28F OR 28G TRANSMITTER DISTRIBUTOR UNIT IS INSTALLED ALSO ADD:
 - C-83* TO C-132
 - C-82* TO C-142
- *C-82 AND C-83 ARE SHOWN ON 28F AND 28G TRANSMITTER DISTRIBUTOR HOUSING DRAWING.

Figure 10 - 28F-1 Electrical Service Unit

(A) SELECTOR MAGNET TERMINAL BLOCK

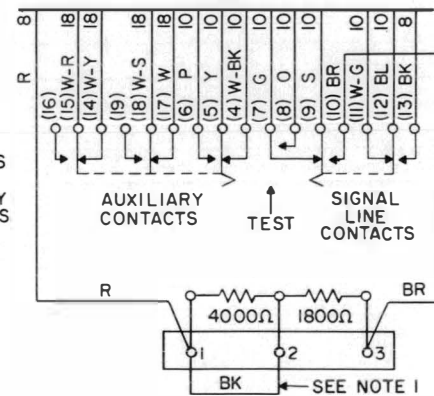


(B) LINE TEST KEY TERMINAL BLOCK

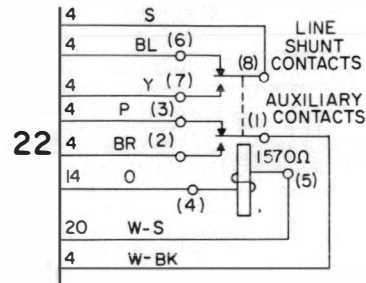


(K) LINE TEST KEY ASSEMBLY

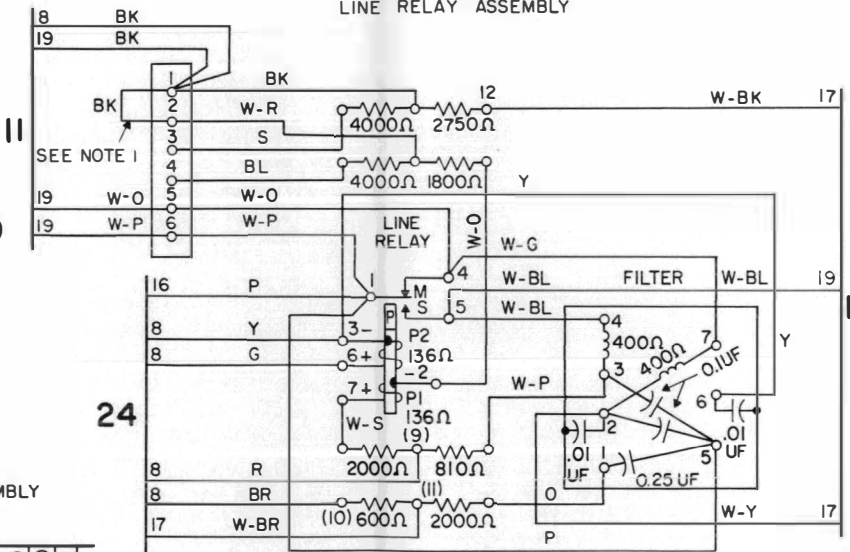
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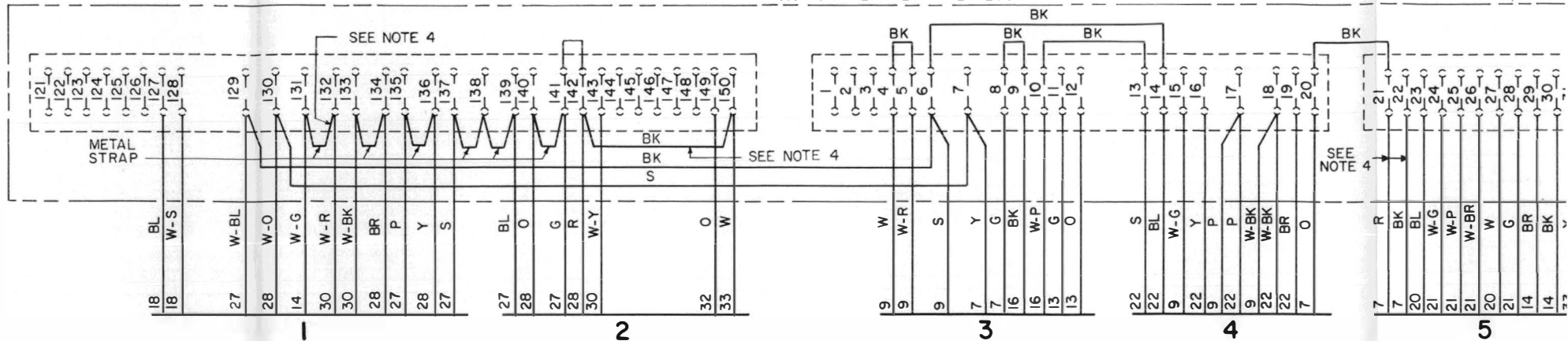
(H) LINE SHUNT RELAY



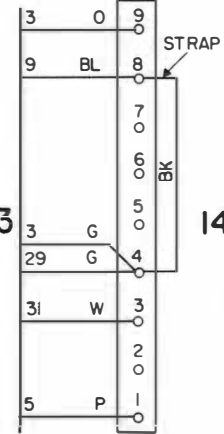
(J) LINE RELAY ASSEMBLY



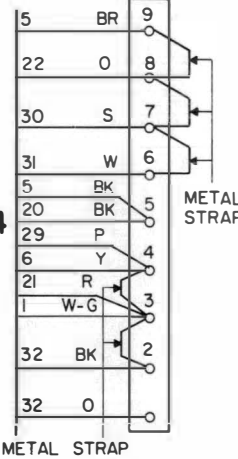
(C) CABINET TERMINAL BLOCK



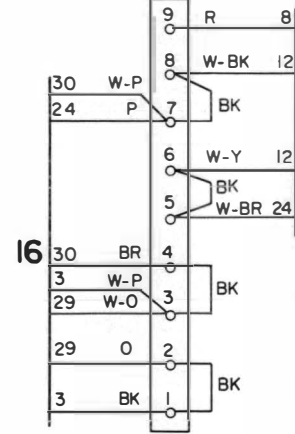
(D) MOTOR CONTROL TERMINAL BLOCK



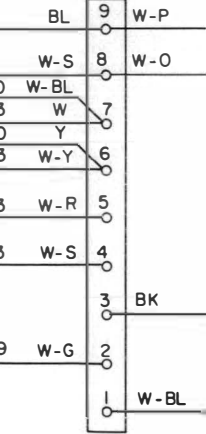
(E) POWER TERMINAL BLOCK



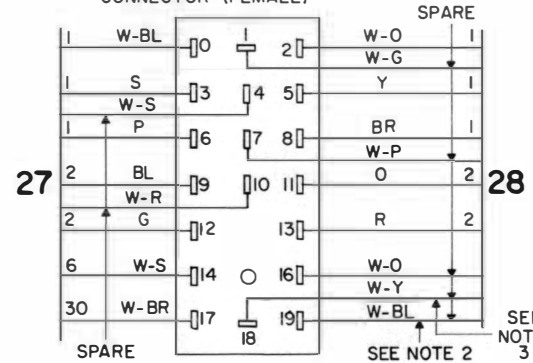
(S) SLOW RELEASE RELAY TERMINAL BLOCK



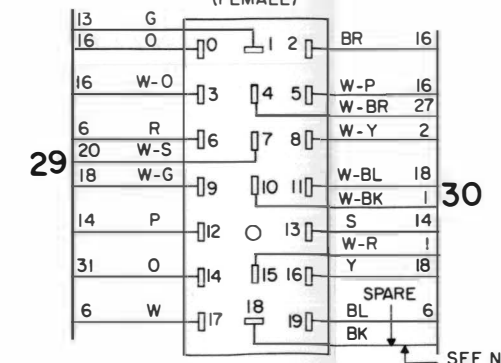
(T) SLOW RELEASE TEST KEY TERMINAL BLOCK



(U) TRANSMITTER DISTRIBUTOR CONNECTOR (FEMALE)

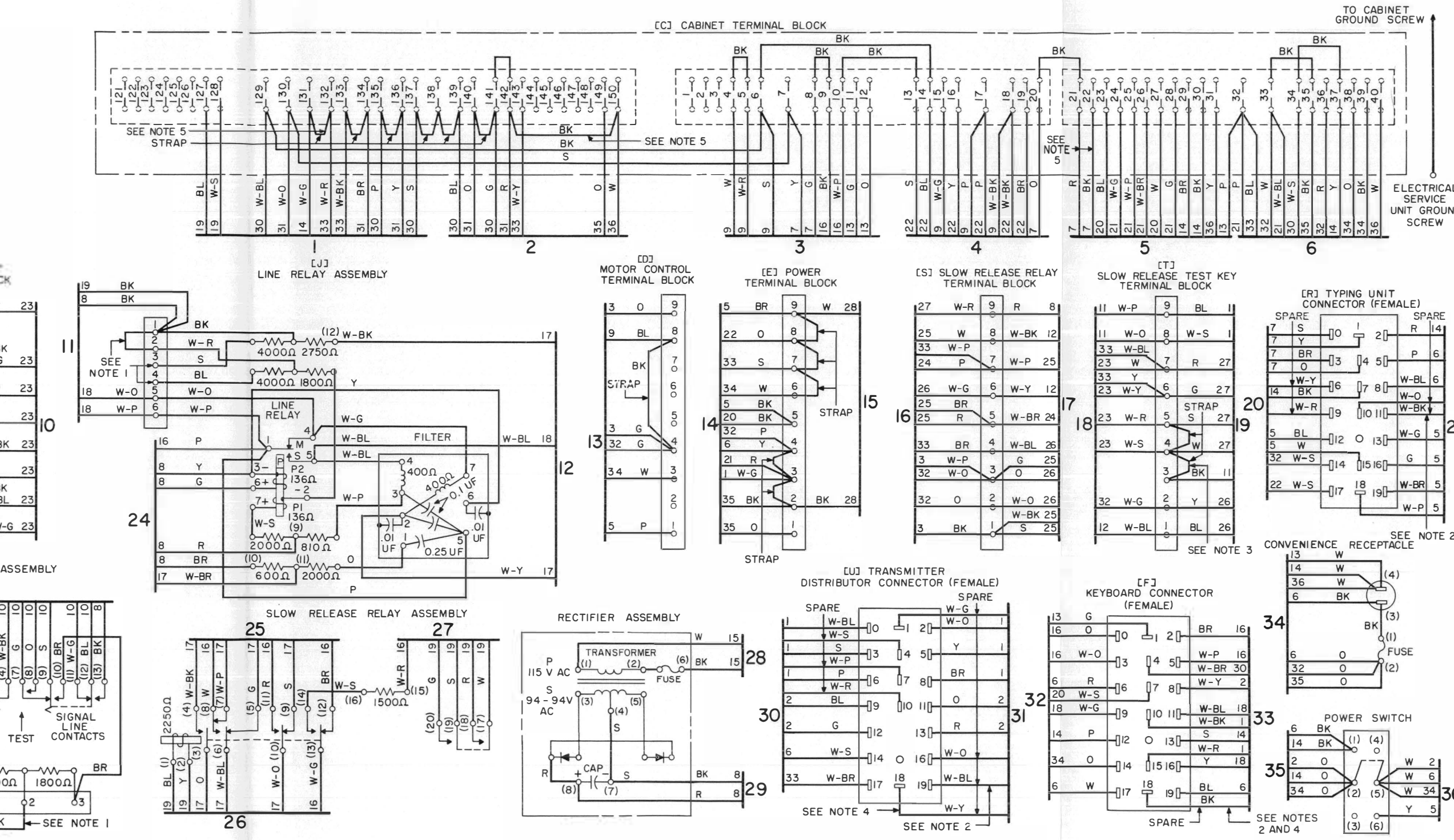


(F) KEYBOARD CONNECTOR (FEMALE)



SEE NOTE 3

SEE NOTES 2



- NOTES:
1. CIRCUITS SHOWN FOR .060 AMP NEUTRAL SIGNAL LINE OPERATION. FOR .020 AMP OPERATION REMOVE AND ADD CONNECTIONS AS TABULATED BELOW:

SIGNAL LINE CURRENT	.020 AMP
CONNECTION REMOVED	K1-K2, J1-J2
CONNECTIONS ADDED	J3-J4

2. THE SPARE LEADS FROM THE KEYBOARD AND TRANSMITTER DISTRIBUTOR UNITS CONNECTORS ARE TERMINATED IN THE RIGHT END OF THE ELECTRICAL SERVICE UNIT. THE SPARE LEADS FROM THE TYPING UNIT CONNECTOR ARE TERMINATED IN THE LEFT END OF THE ELECTRICAL SERVICE UNIT.
3. TO PREVENT SLOW RELEASE RELAY FROM OPERATING, REMOVE STRAP CONNECTING T-3, T-4 AND T-5,
4. SPARE LEADS FROM F-18 AND U-18 ARE RESERVED FOR POLAR OPERATION OF KEYBOARD AND TRANSMITTER DISTRIBUTOR SIGNAL GENERATORS.
5. ELECTRICAL SERVICE UNIT AND CABINET ARE SHOWN WIRED FOR OPERATION OF START MAGNET OF 28E OR 28H TRANSMITTER DISTRIBUTOR ON AC. WHEN 120 VOLTS DC IS TO BE USED WIRE AS FOLLOWS:

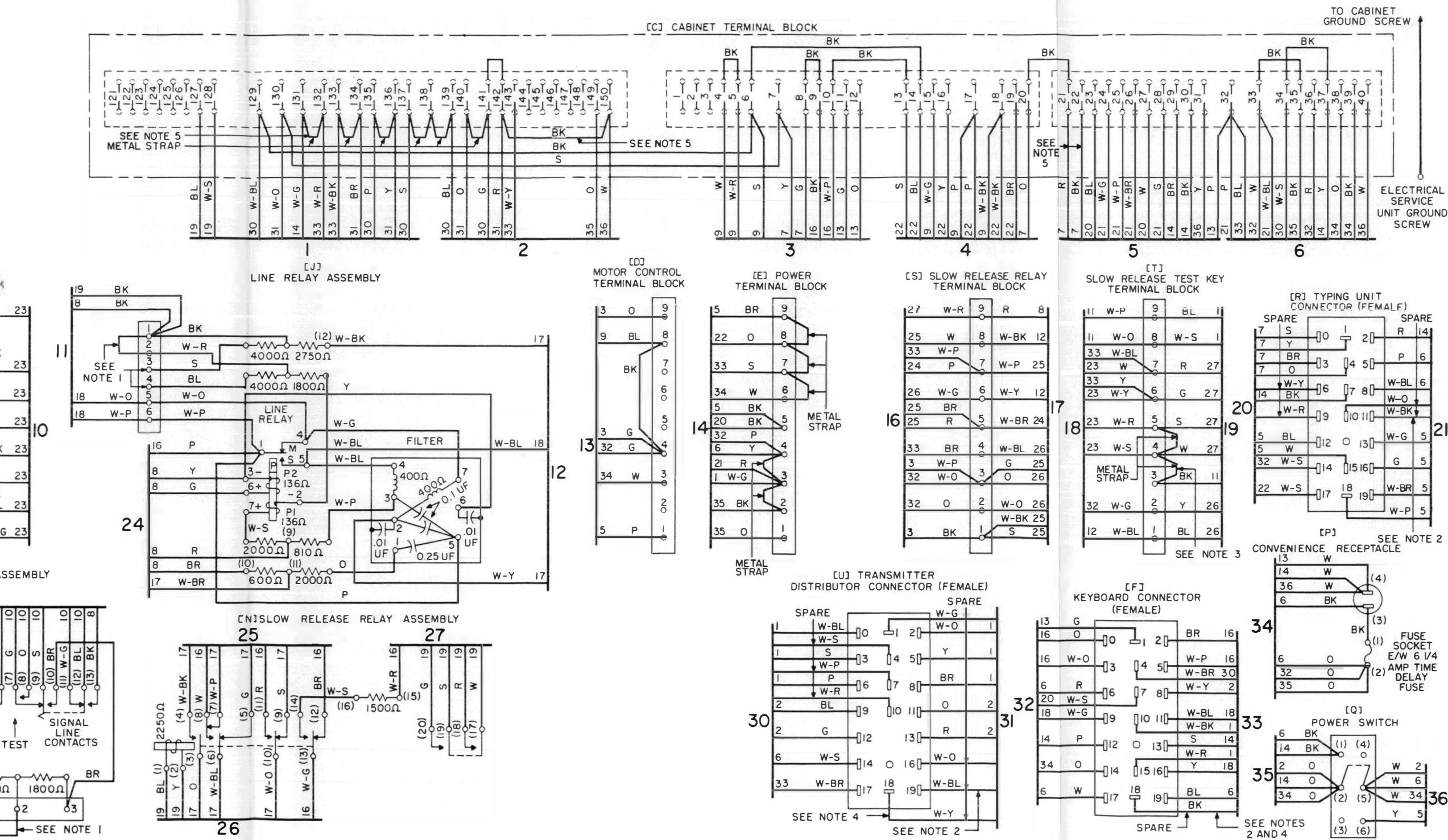
OMIT C-131 TO C-132
C-142 TO C-150

ADD C-21 TO C-142
C-22 TO C-132

IF A 28F OR 28G TRANSMITTER DISTRIBUTOR UNIT IS INSTALLED ALSO ADD:
C-83* TO C-132
C-82* TO C-142

*C-82 AND C-83 ARE SHOWN ON 28F AND 28G TRANSMITTER DISTRIBUTOR HOUSING DRAWING.

Figure 11 - 28G Electrical Service Unit

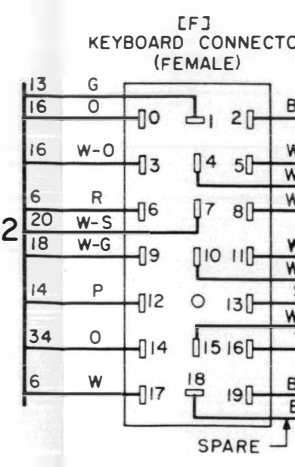
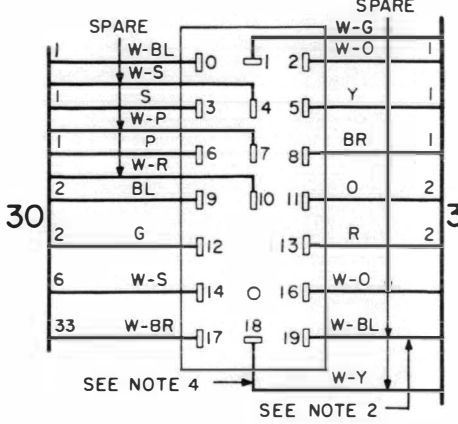
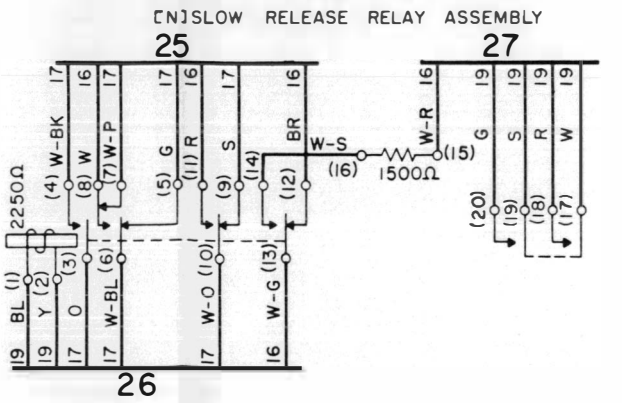
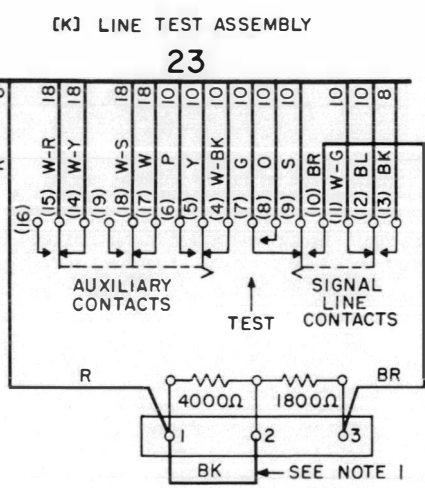
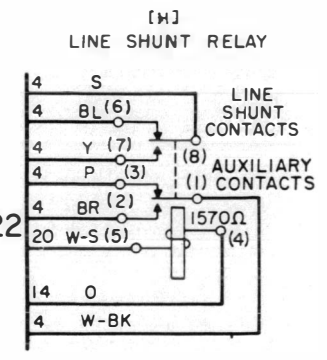
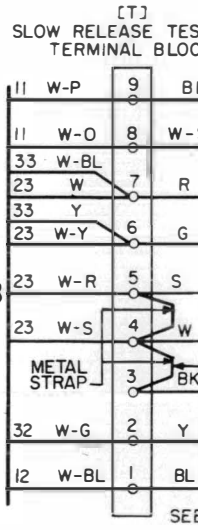
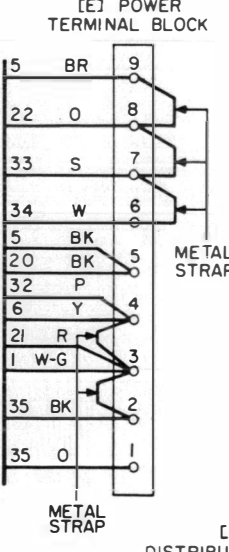
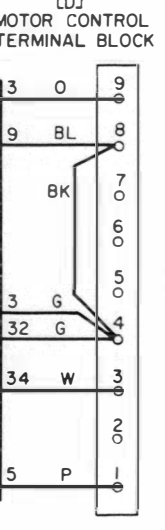
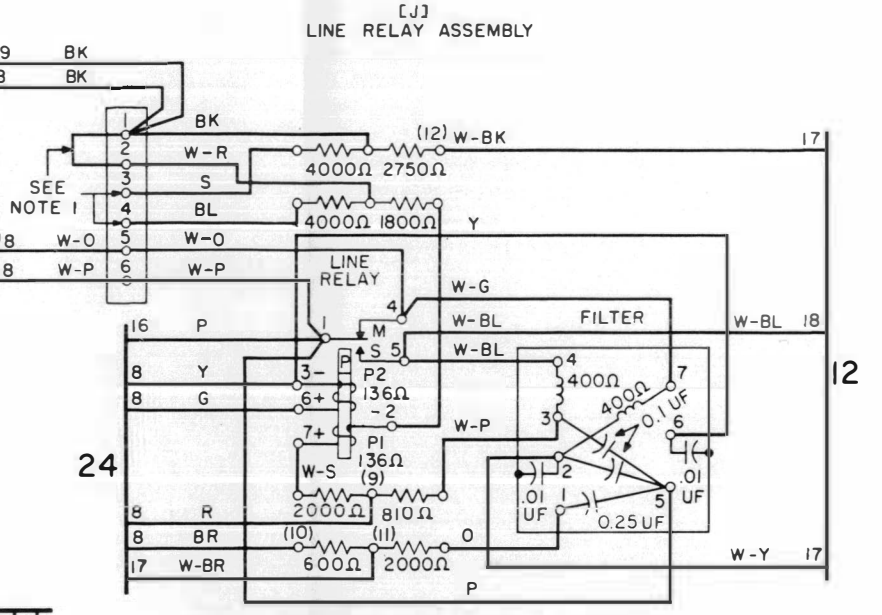
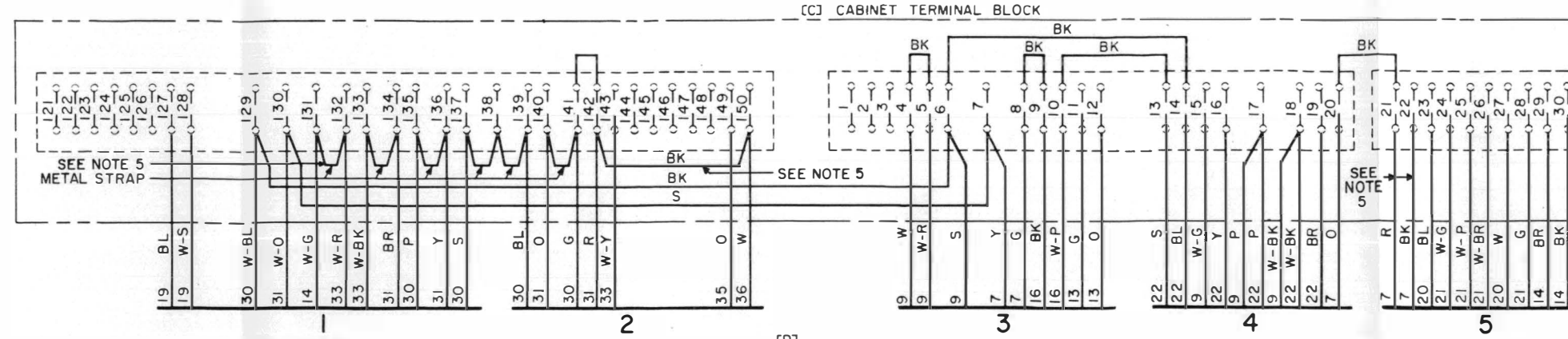
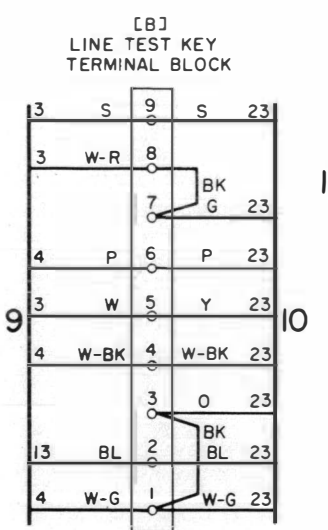
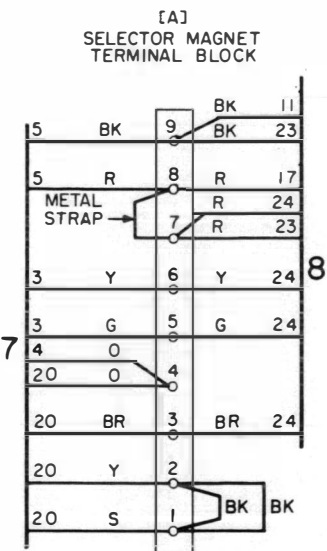


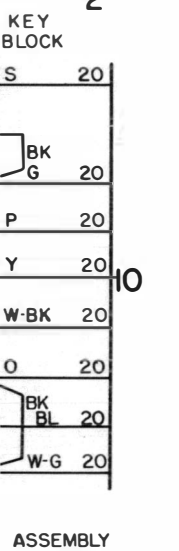
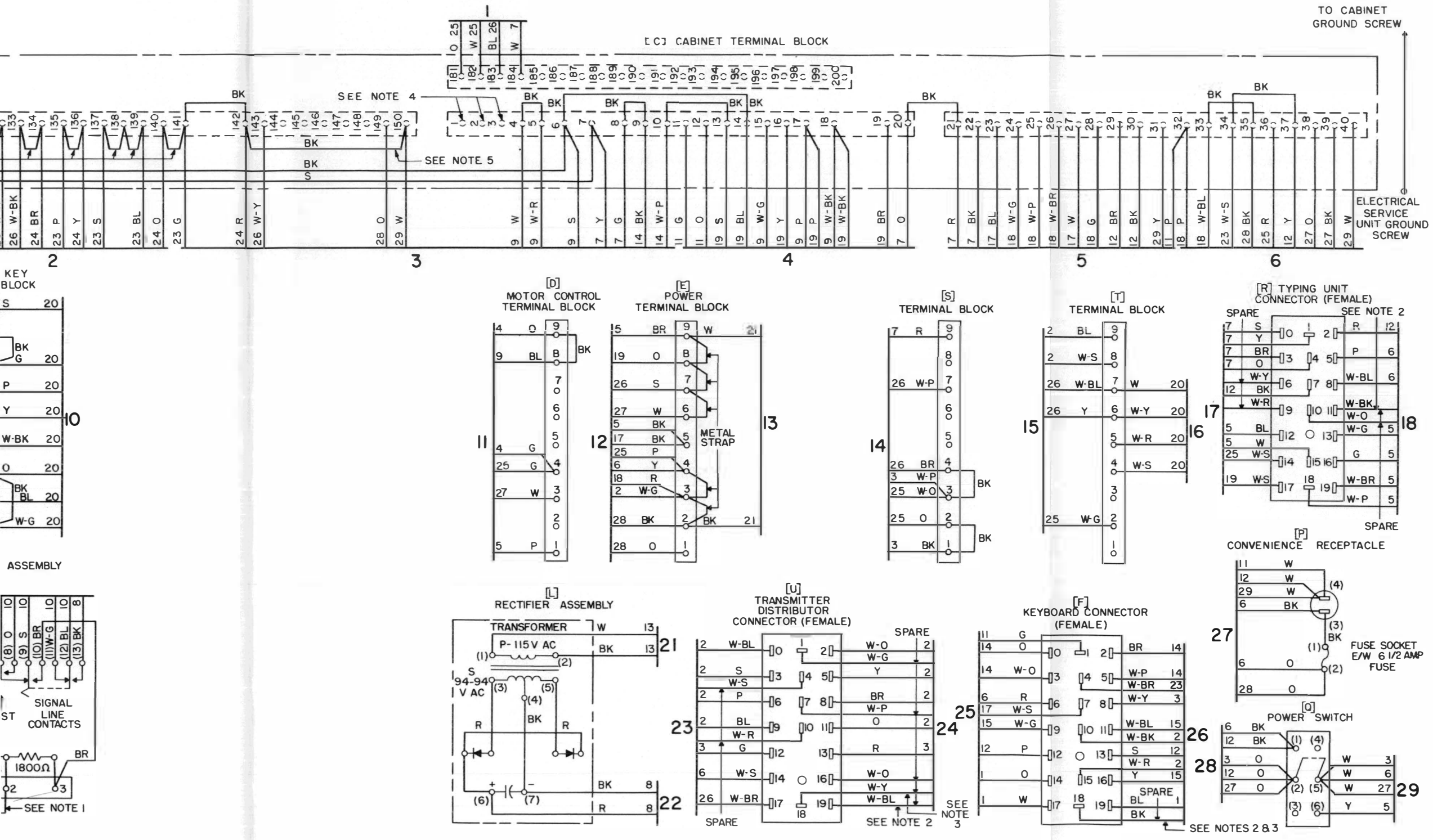
NOTES:
 1. CIRCUITS SHOWN FOR .060 AMP NEUTRAL SIGNAL LINE OPERATION. FOR .020 AMP OPERATION REMOVE AND ADD CONNECTIONS AS TABULATED BELOW:

SIGNAL LINE CURRENT	.020 AMP
CONNECTION REMOVED	K1-K2, J1-J2
CONNECTIONS ADDED	J3-J4

- THE SPARE LEADS FROM THE KEYBOARD AND TRANSMITTER DISTRIBUTOR UNITS CONNECTORS ARE TERMINATED IN THE RIGHT END OF THE ELECTRICAL SERVICE UNIT. THE SPARE LEADS FROM THE TYPING UNIT CONNECTOR ARE TERMINATED IN THE LEFT END OF THE ELECTRICAL SERVICE UNIT.
- TO PREVENT SLOW RELEASE RELAY FROM OPERATING, REMOVE STRAP CONNECTING T-3, T-4 AND T-5.
- SPARE LEADS FROM F-18 AND U-18 ARE RESERVED FOR POLAR OPERATION OF KEYBOARD AND TRANSMITTER DISTRIBUTOR SIGNAL GENERATORS.
- ELECTRICAL SERVICE UNIT AND CABINET ARE SHOWN WIRED FOR OPERATION OF START MAGNET OF 28E OR 28H TRANSMITTER DISTRIBUTOR ON AC. WHEN 120 VOLTS DC IS TO BE USED WIRE AS FOLLOWS:
 OMIT C-131 TO C-132
 C-142 TO C-150
 ADD C-21 TO C-142
 C-22 TO C-132
 IF A 28F OR 28G TRANSMITTER DISTRIBUTOR UNIT IS INSTALLED ALSO ADD:
 C-83* TO C-132
 C-82* TO C-142
 *C-82 AND C-83 ARE SHOWN ON 28F AND 28G TRANSMITTER DISTRIBUTOR HOUSING DRAWING.

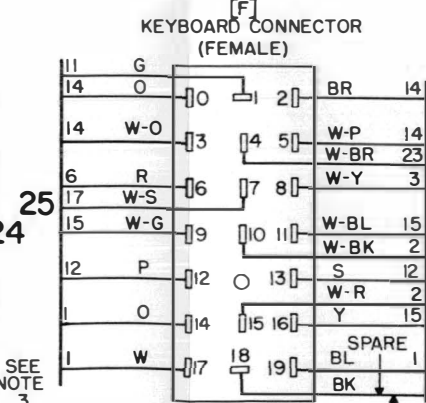
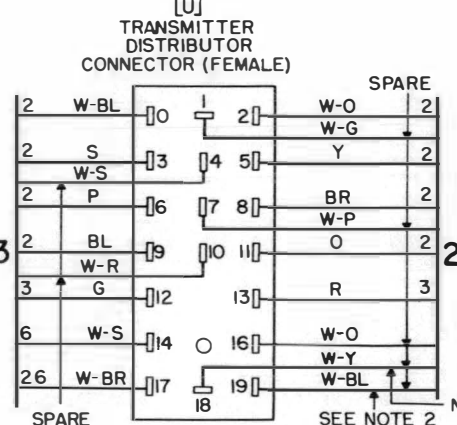
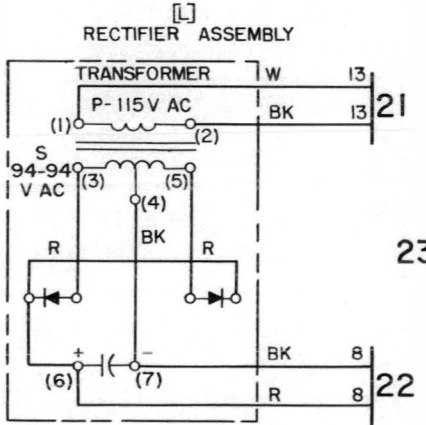
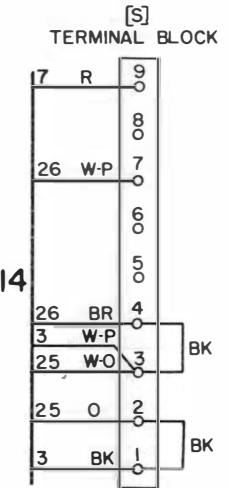
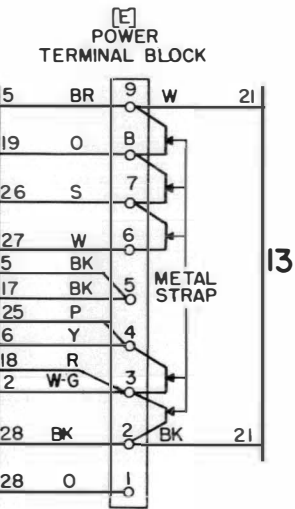
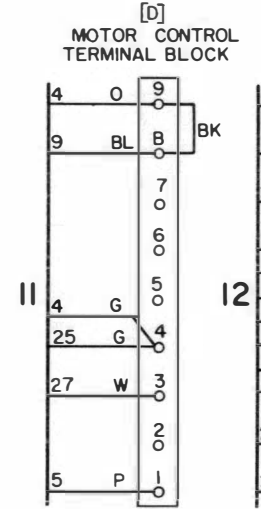
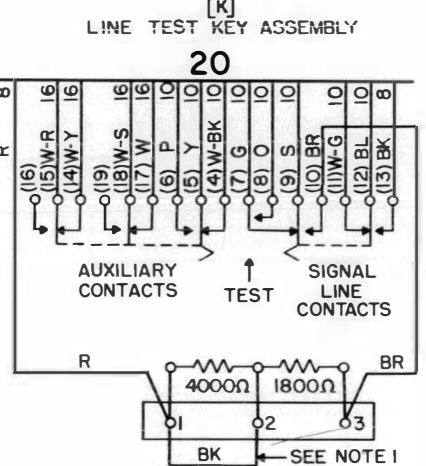
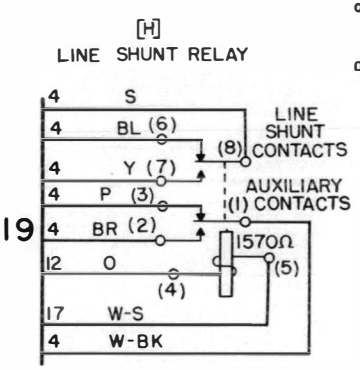
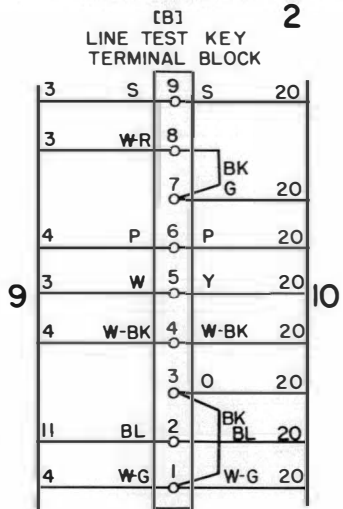
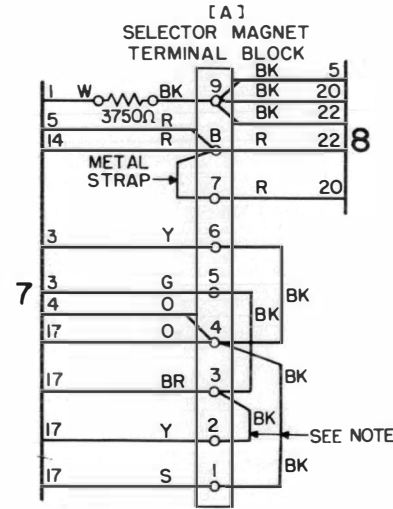
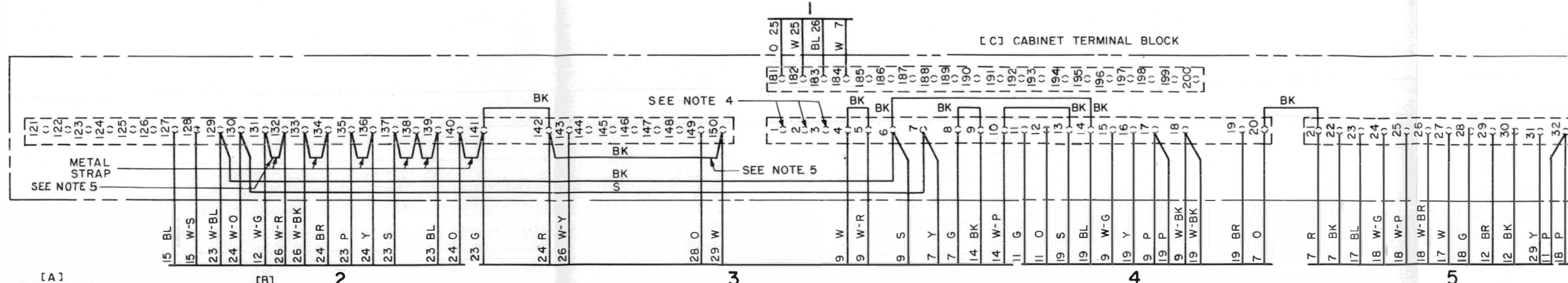
Figure 12 - 28G-1 Electrical Service Unit





- NOTES:**
- CIRCUITS SHOWN FOR 0.060 AMP NEUTRAL SIGNAL LINE OPERATION. FOR 0.020 AMP OPERATION, REMOVE AND ADD CONNECTIONS AS TABULATED BELOW:
- | | |
|---------------------|---------------------|
| SIGNAL LINE CURRENT | 0.020 AMP |
| CONNECTION REMOVED | A1-A4, A2-A3, K1-K2 |
| CONNECTIONS ADDED | A1-A2 |
- THE SPARE LEADS FROM THE KEYBOARD AND TRANSMITTER DISTRIBUTOR UNITS CONNECTOR PLUGS ARE TERMINATED IN THE RIGHT END OF THE ELECTRICAL SERVICE UNIT. THE SPARE LEADS FROM THE TYPING UNIT PLUG ARE TERMINATED IN THE LEFT END OF THE ELECTRICAL SERVICE UNIT.
 - SPARE LEADS FROM F-1B AND U-1B ARE RESERVED FOR POLAR OPERATION OF KEYBOARD AND TRANSMITTER DISTRIBUTOR SIGNAL GENERATORS.
 - TERMINALS C1-C3 RESERVED FOR CUSTOMERS USE.
 - 28H WIRED FOR USE WITH THE 28E OR 28H TRANS-DIST UNIT. WHEN THE 28F OR 28G TRANS-DIST UNIT IS USED OMIT:
C-131 TC C-132
C-142 TC C-150

Figure 13 - 28H Electrical Service Unit



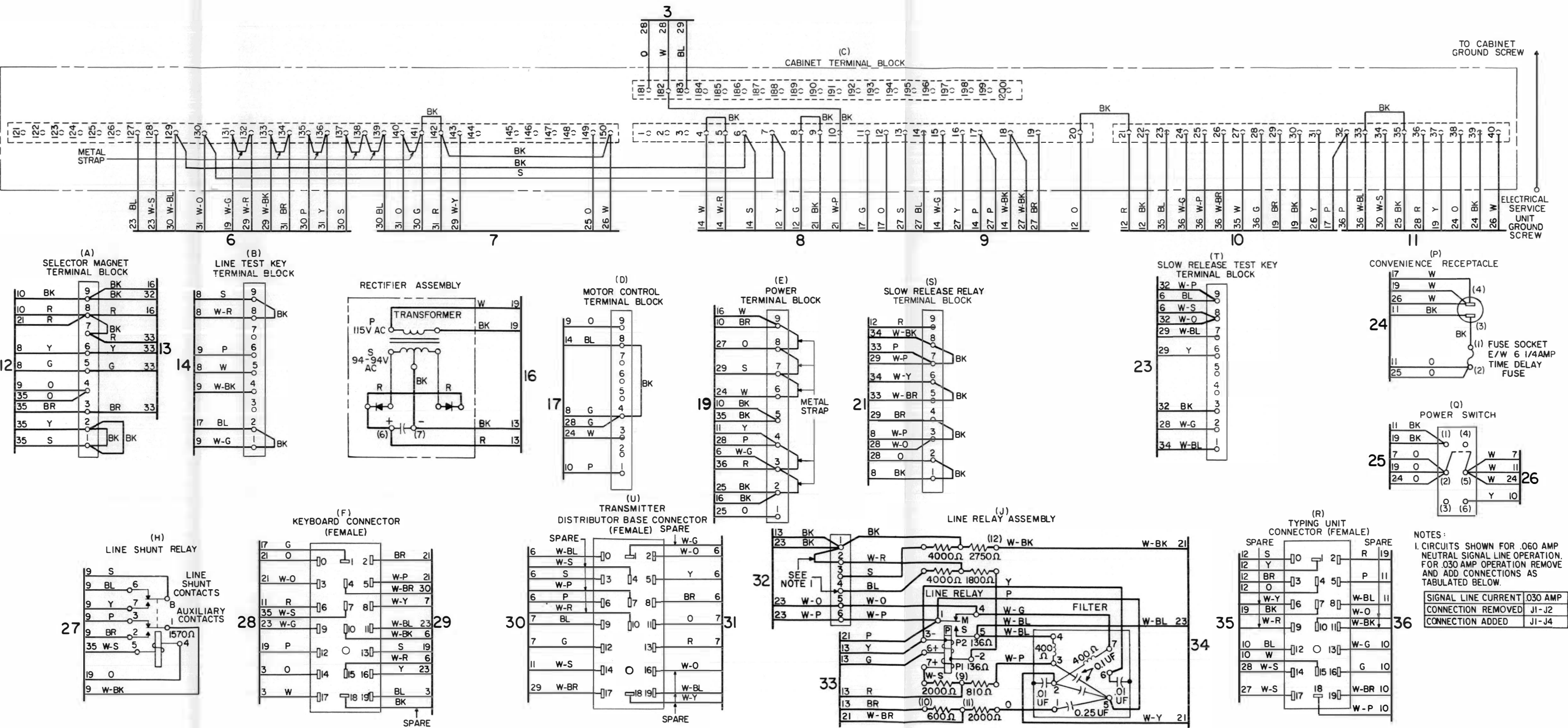
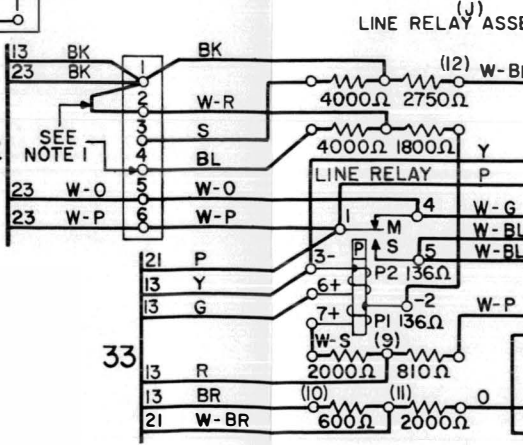
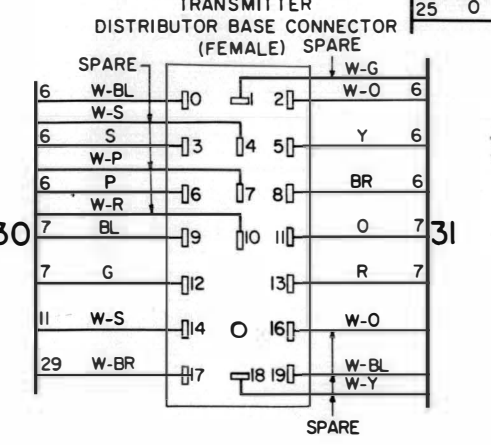
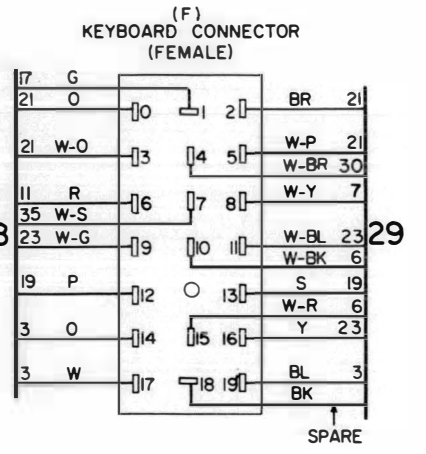
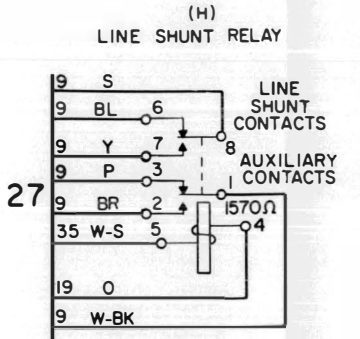
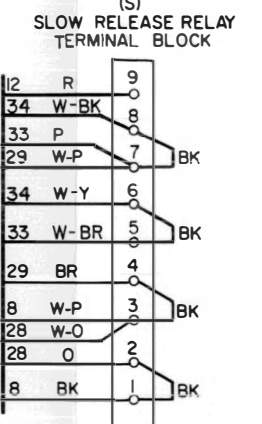
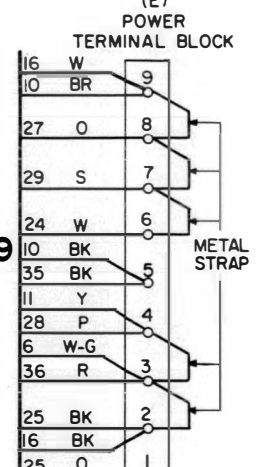
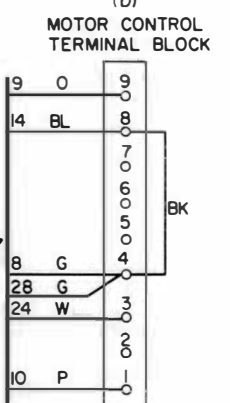
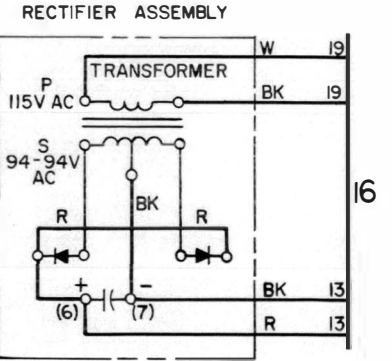
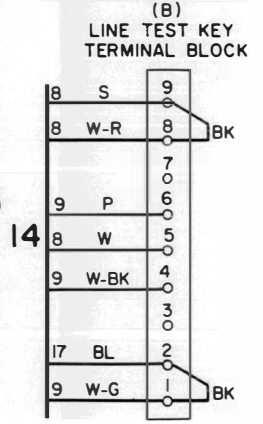
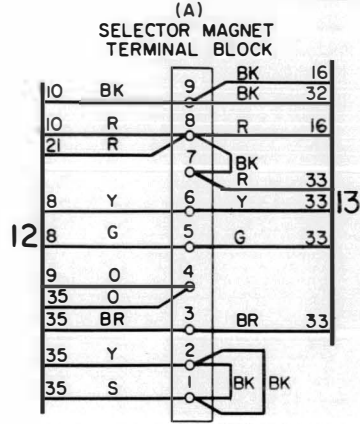
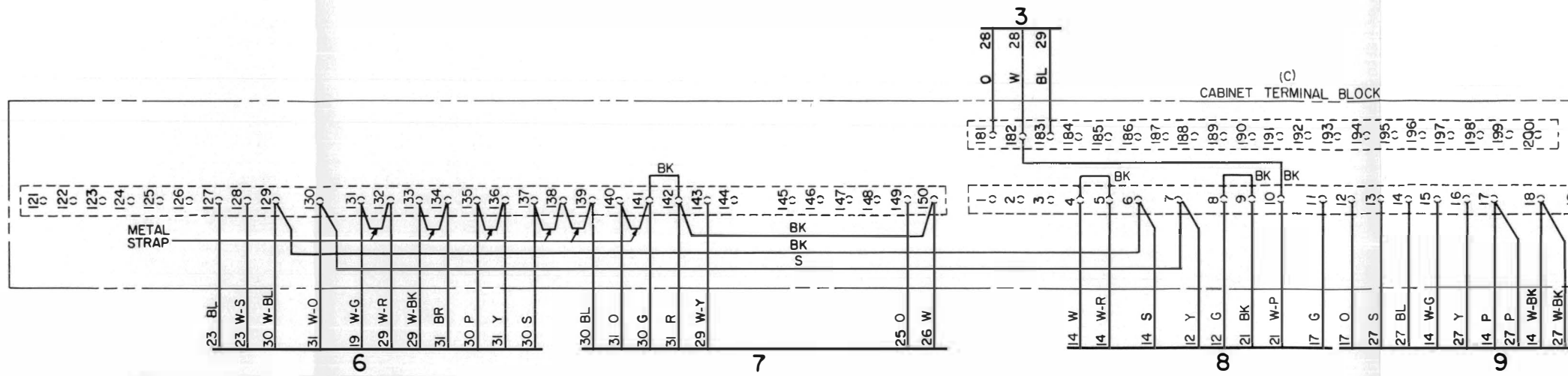


Figure 14 - 28J Electrical Service Unit



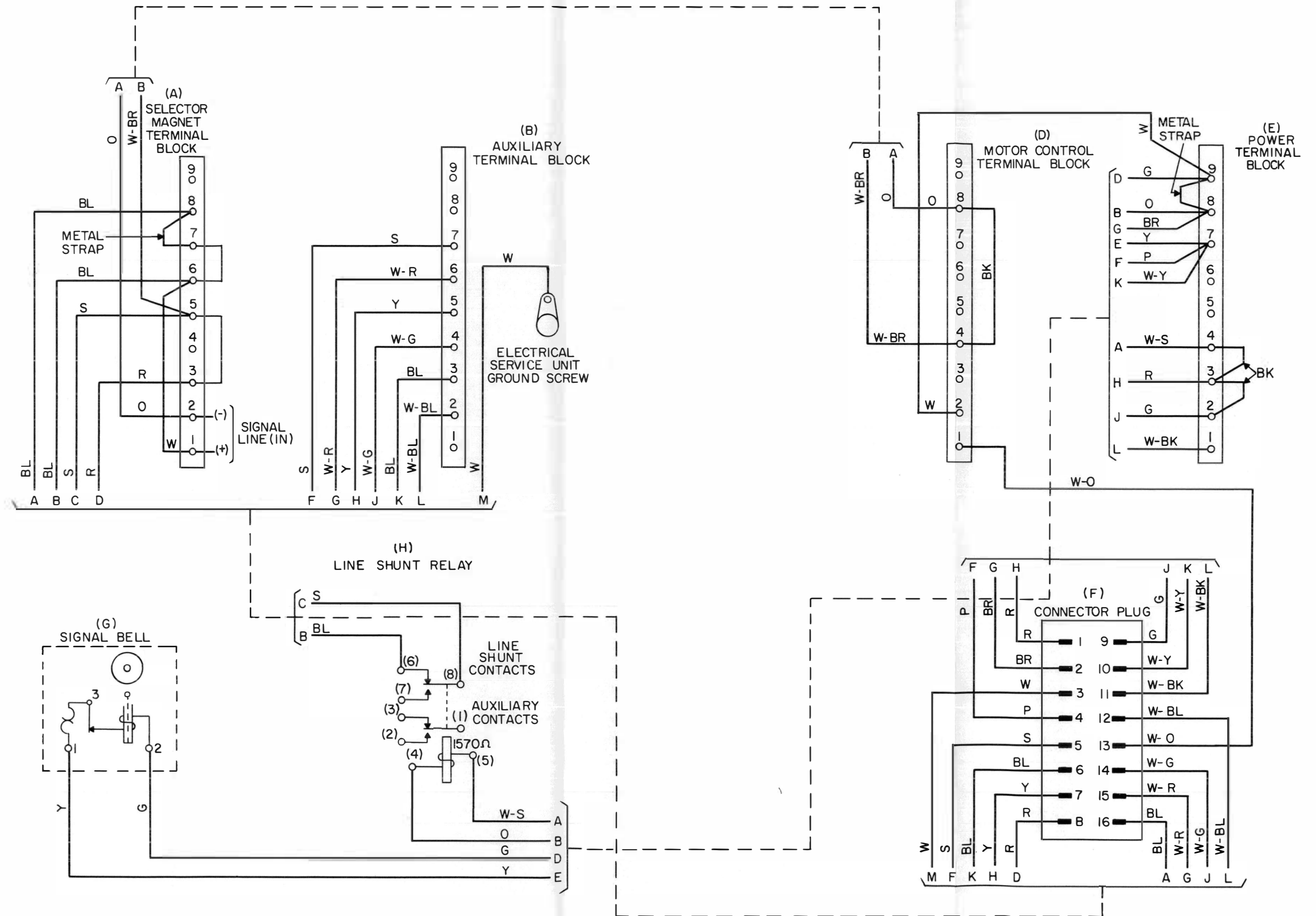


Figure 15 - 28K Electrical Service Unit

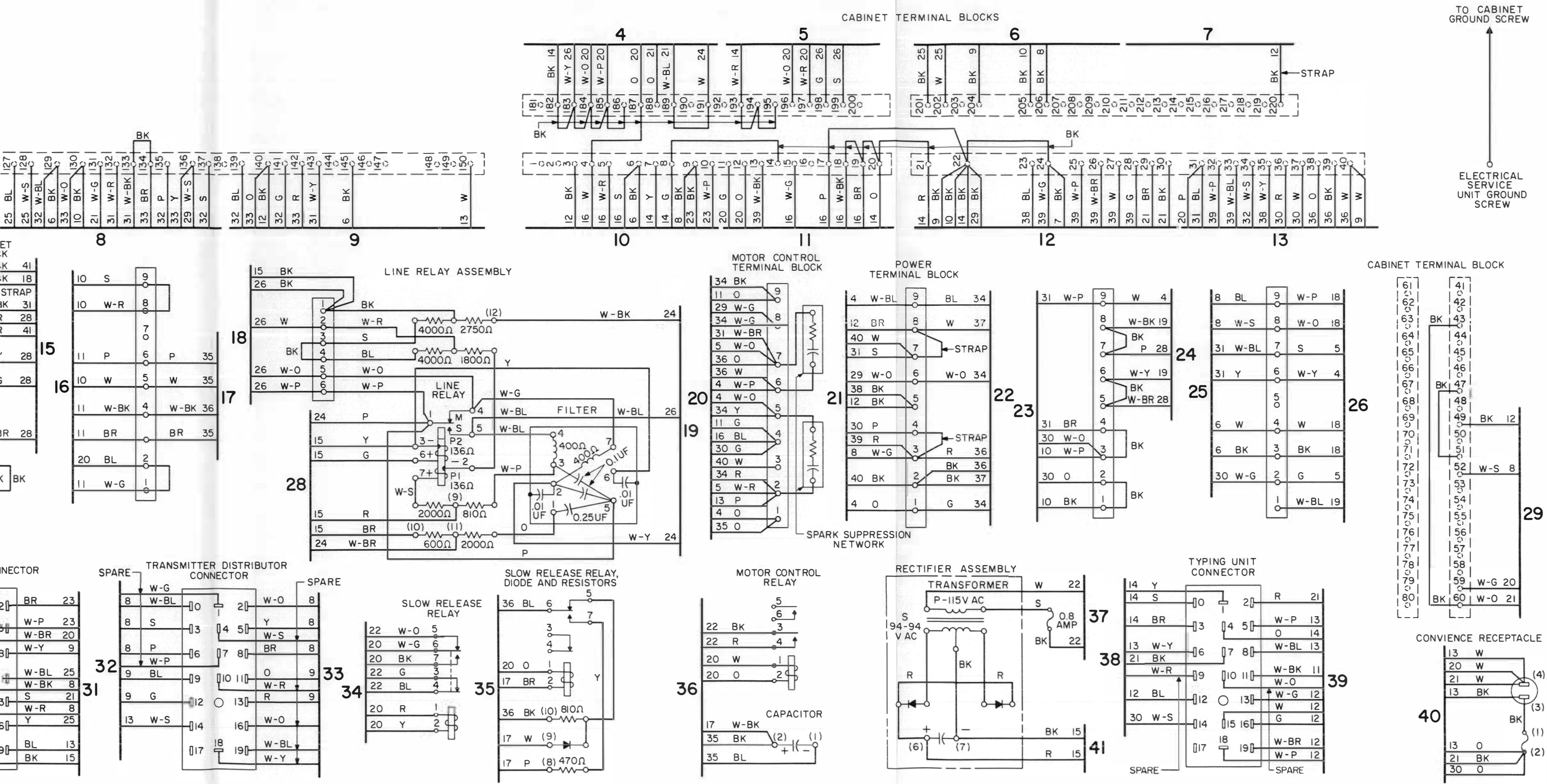
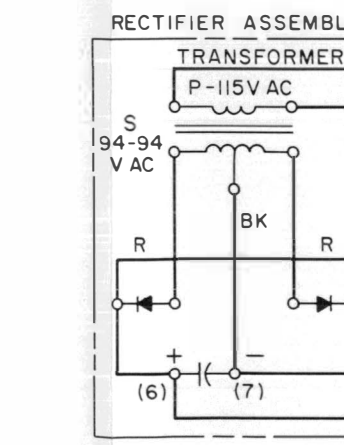
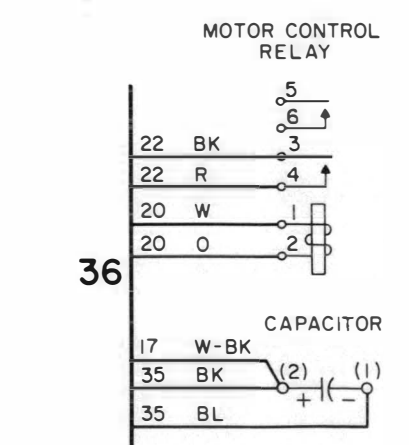
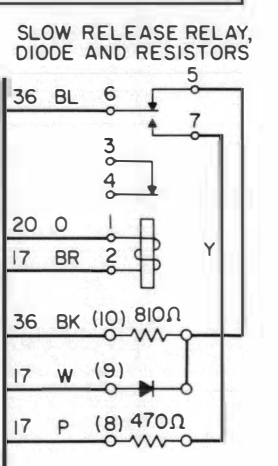
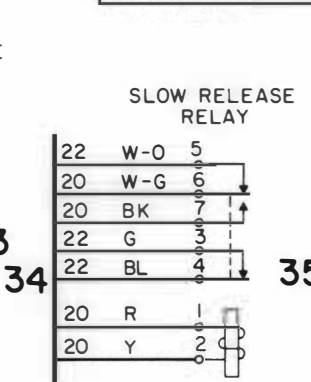
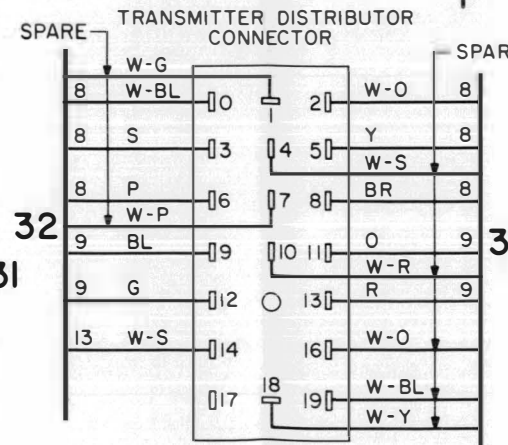
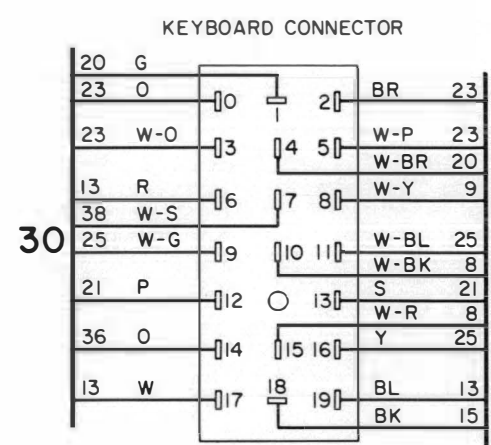
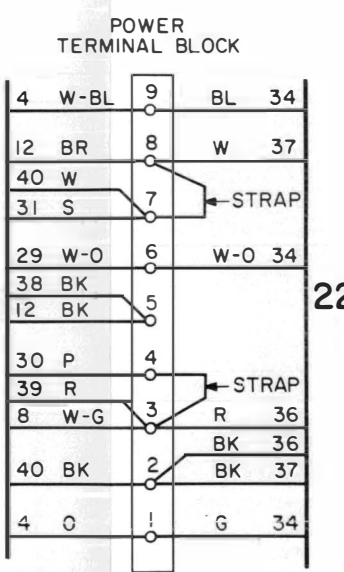
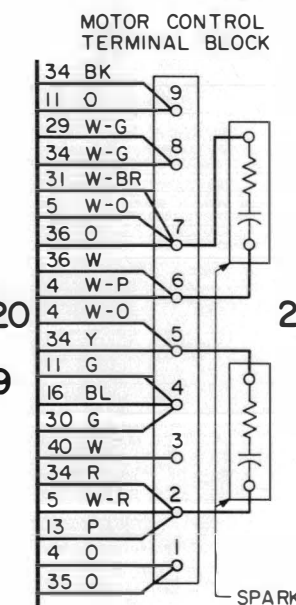
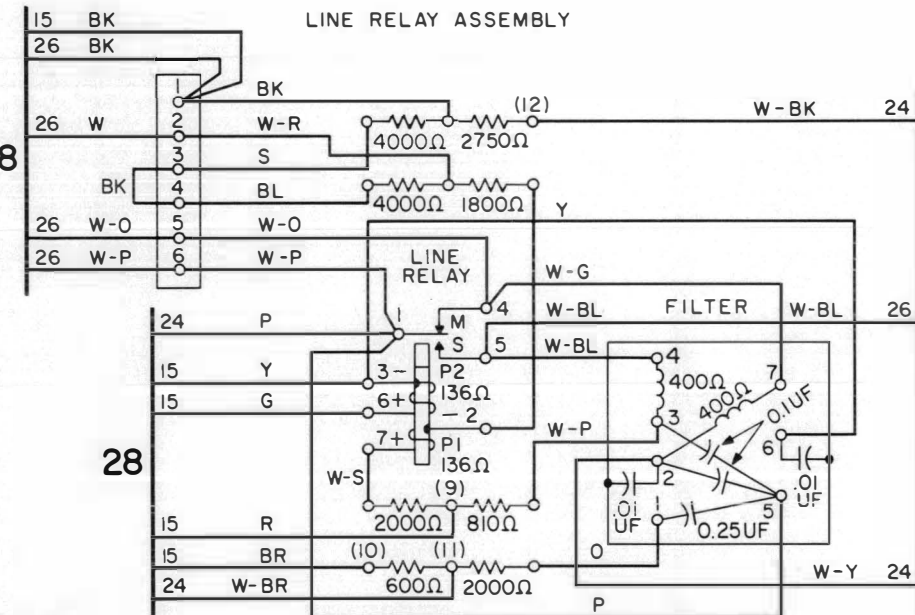
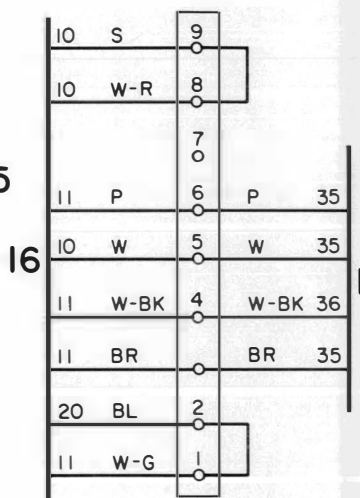
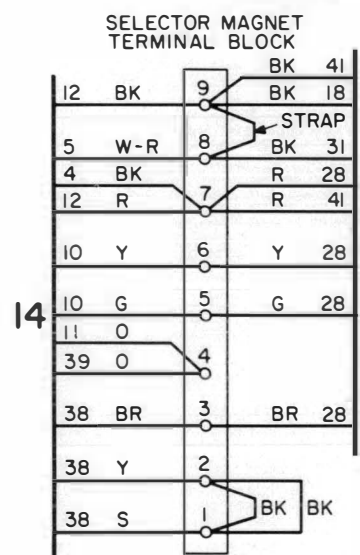
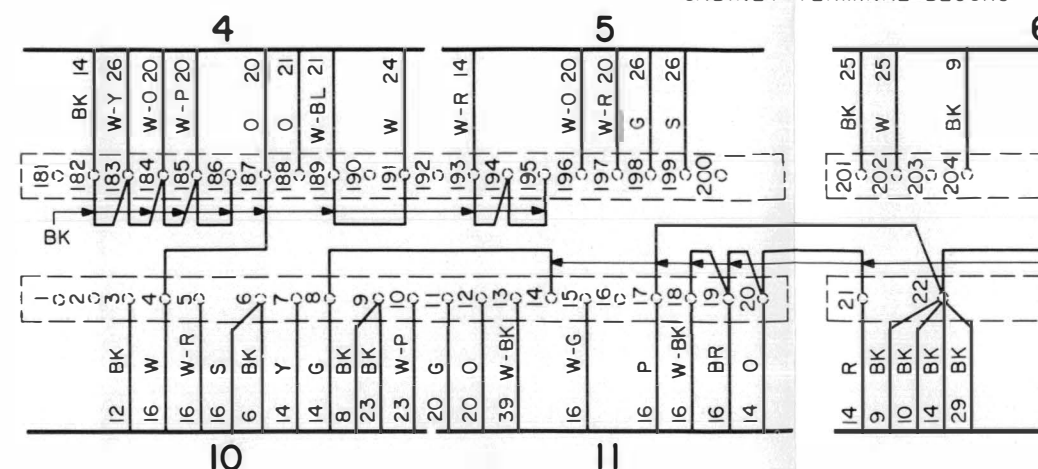
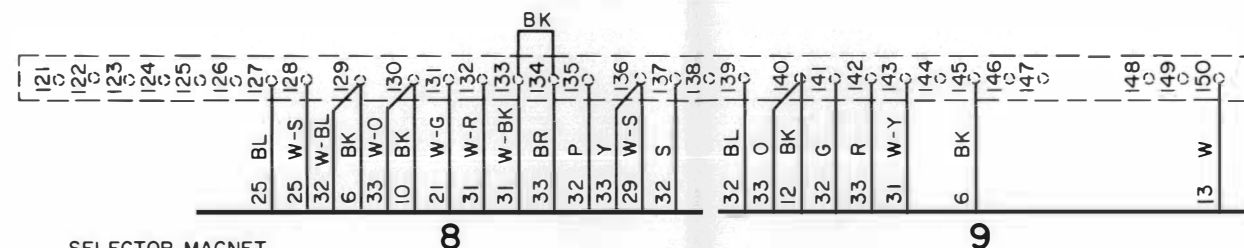
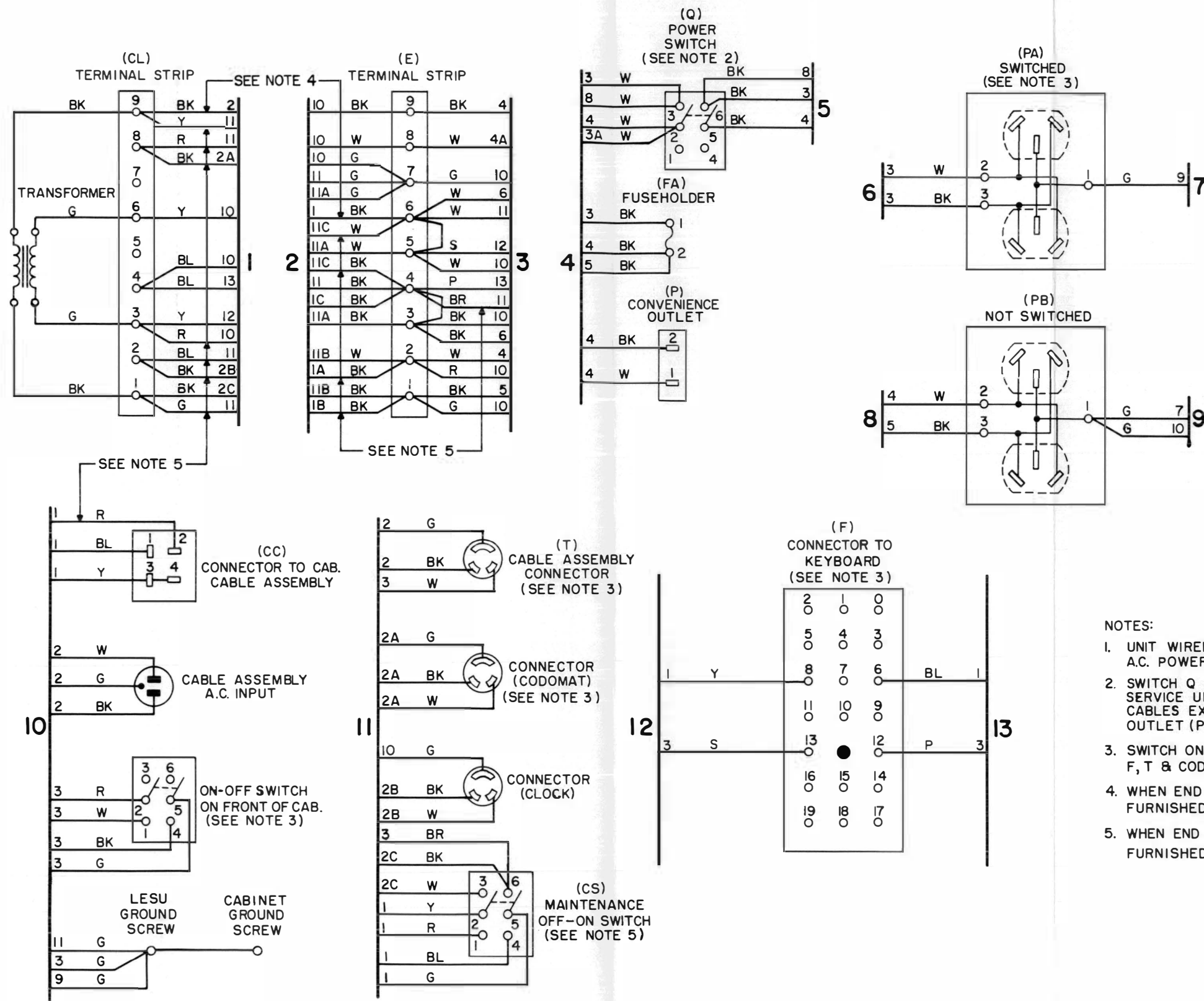


Figure 16 - 28L Electrical Service Unit





- NOTES:
1. UNIT WIRED FOR 115 VOLTS, 60 CYCLE A.C. POWER INPUT ONLY.
 2. SWITCH Q CONTROLS ALL OF ELECTRICAL SERVICE UNIT AND RELATED OUTGOING CABLES EXCEPT FOR CONVENIENCE OUTLET (P).
 3. SWITCH ON FRONT OF CABINET CONTROLS F, T & CODOMAT CABLES AND PA OUTLETS.
 4. WHEN END OF LINE INDICATOR LAMP IS FURNISHED WITHOUT COPYRIGHTS.
 5. WHEN END OF LINE INDICATOR LAMP IS FURNISHED WITH COPYRIGHTS.

Figure 17 - 28LA Electrical Service Unit

20
10
3
0 10
-O-BR 22
-O-G 22
-BL-G 19
-G-BR 19
-G-S 9
-BL-BR 9
-BL-S 9
-G 19
-BL-BK 20
-BL 20

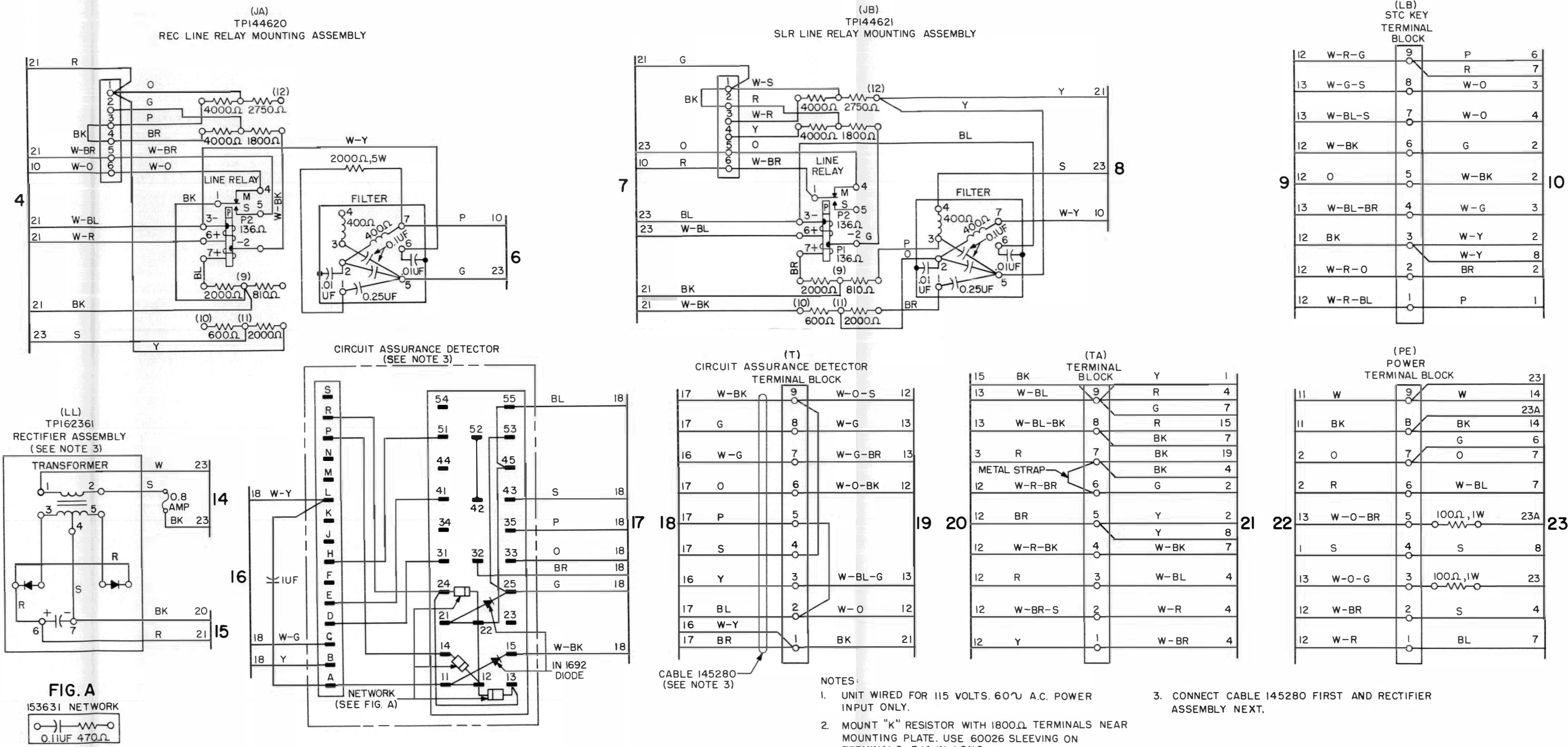
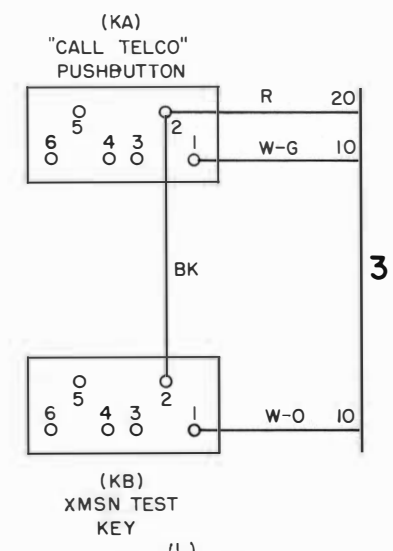
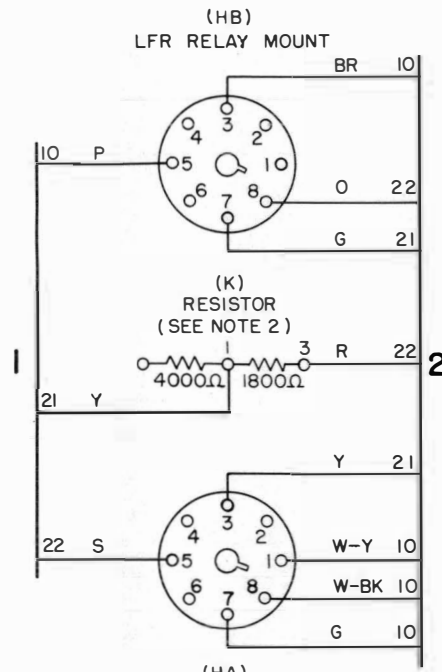


Figure 18 - 28LB Electrical Service Unit



(L) CABLE ASSEMBLY TO MD PANEL

19 W-O	18 36	W-O-BR 22
22 W-R	17 35	W-O-G 22
22 W-BR	16 34	
9 W-BK	15 33	
19 W-O-S	14 32	
20 W-R-BK	13 31	
19 W-O-BK	11 29	
20 W-R-BR	10 28	
9 W-R-G	9 27	W-BL-G 19
20 W-BR-S	8 26	W-G-BR 19
20 R	7 25	W-G-S 9
9 O	6 24	W-BL-BR 9
20 BR	5 23	W-BL-S 9
9 BK	4 22	W-G 19
20 Y	3 21	
9 W-R-O	2 20	W-BL-BK 20
9 W-R-BL	1 19	W-BL 20

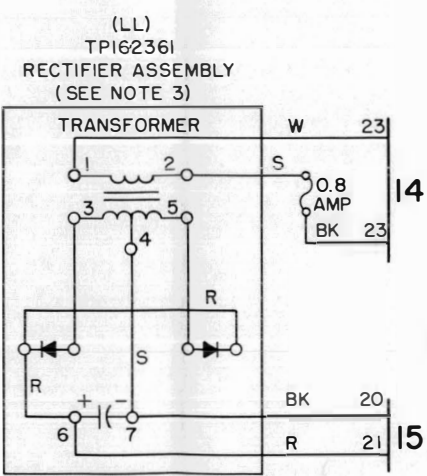
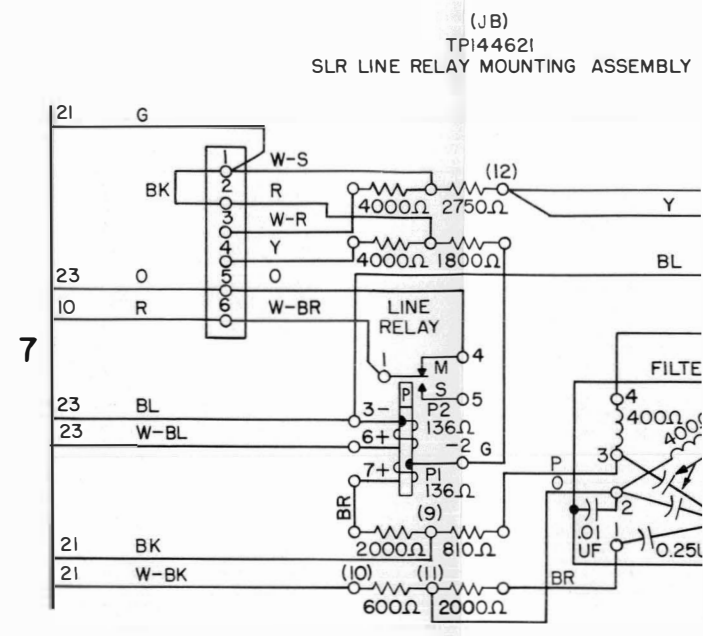
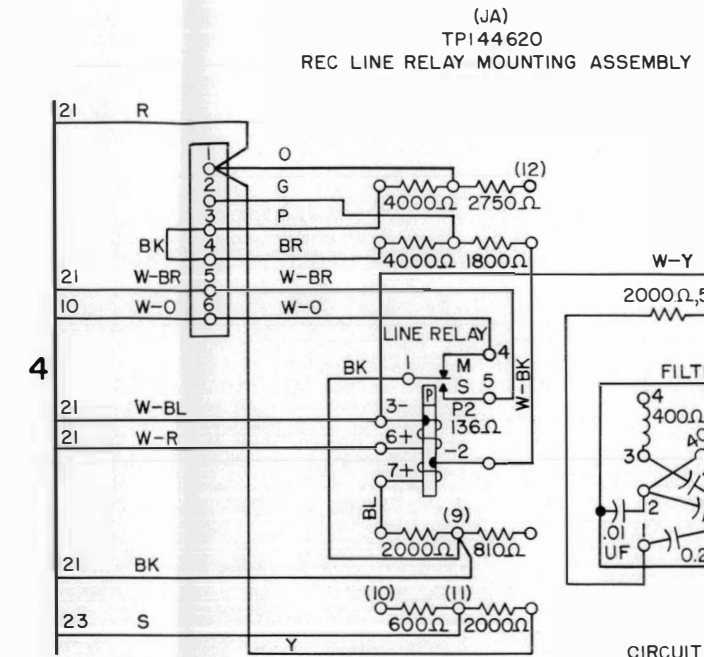
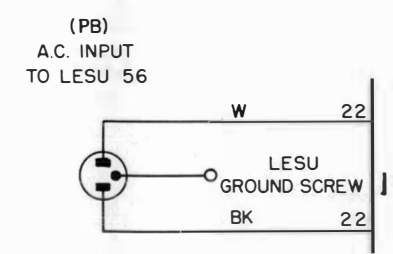
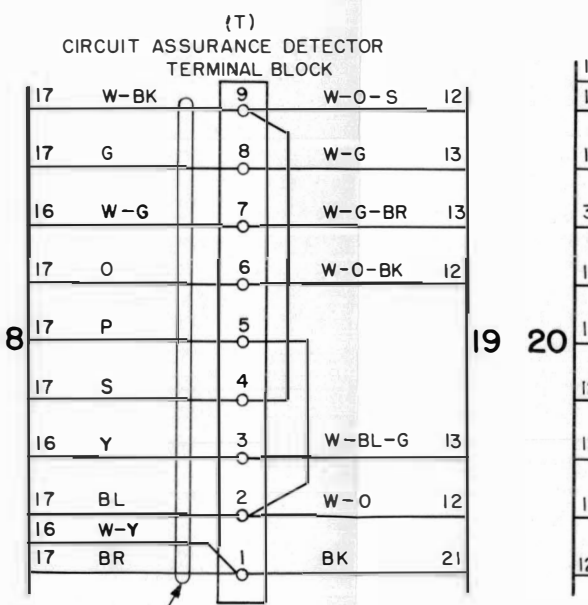
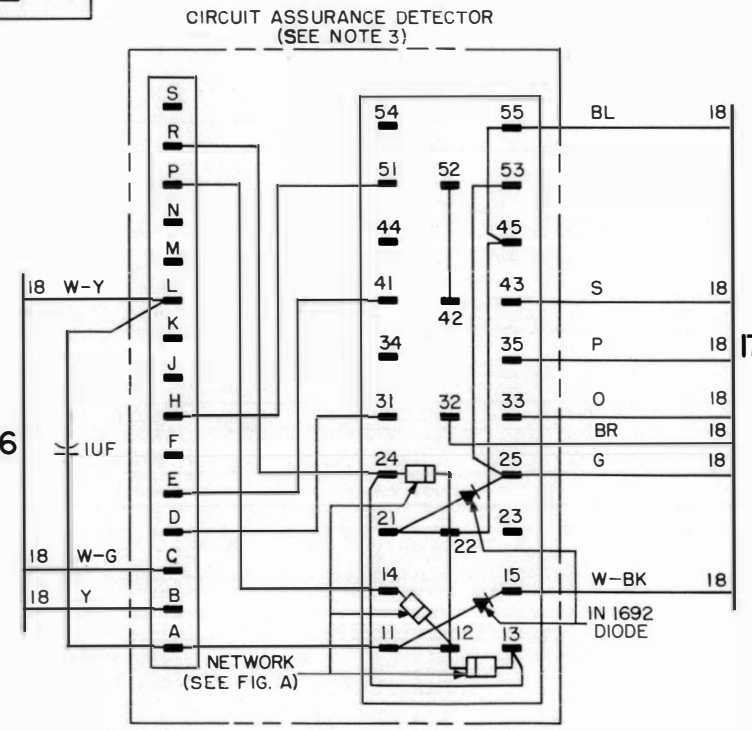
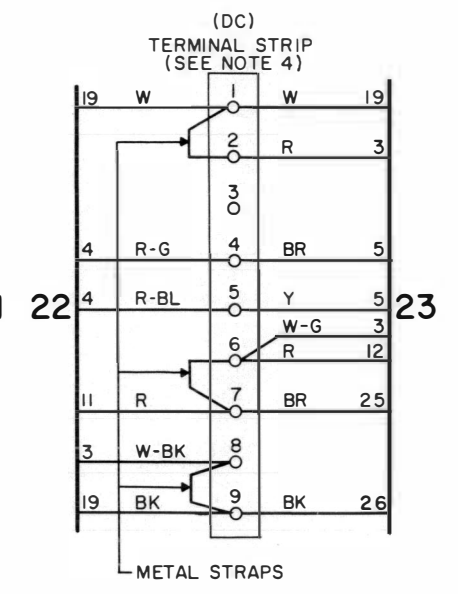
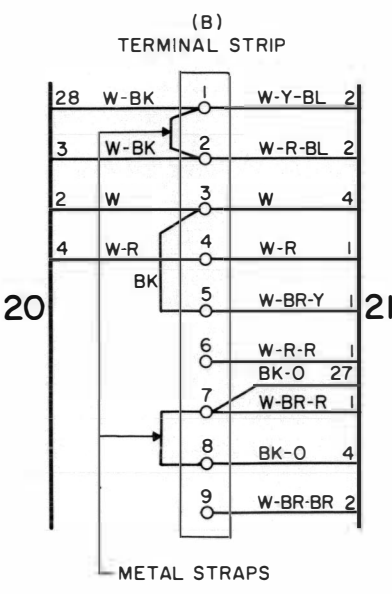
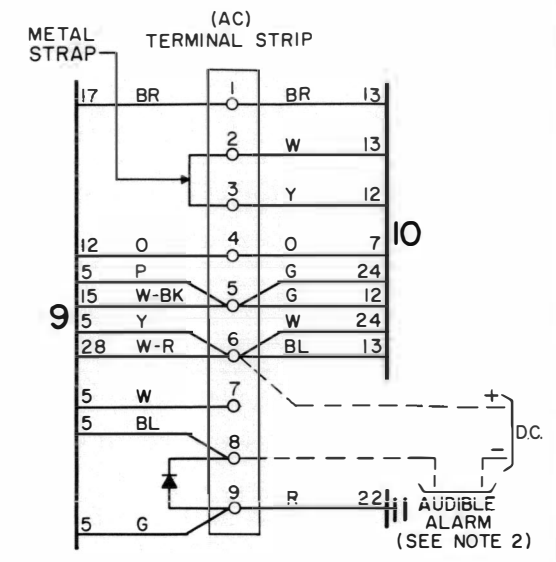
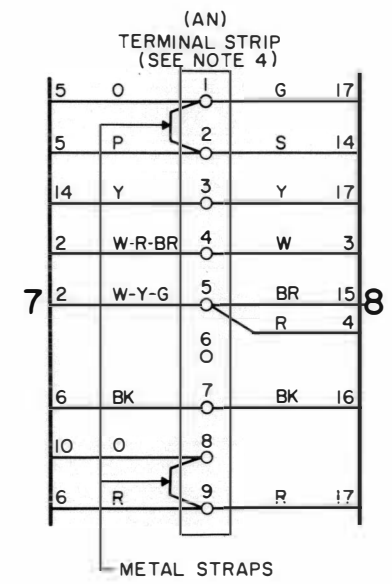
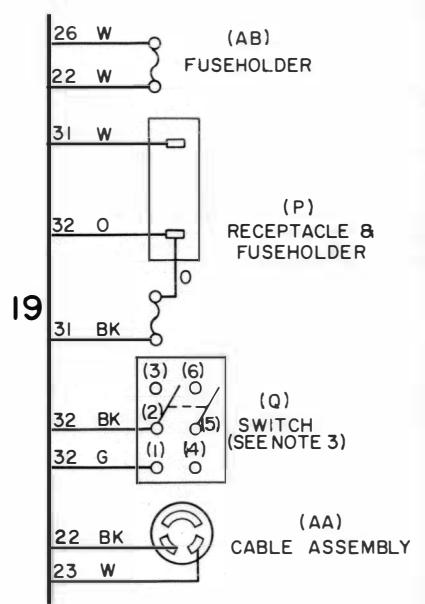
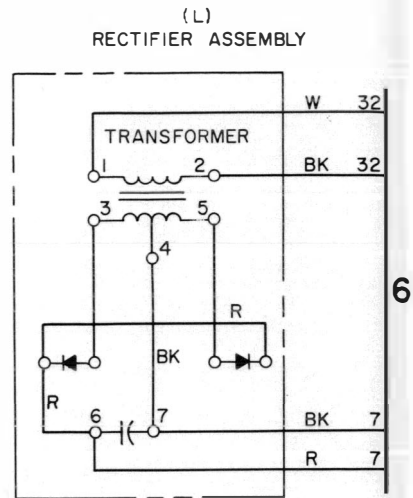
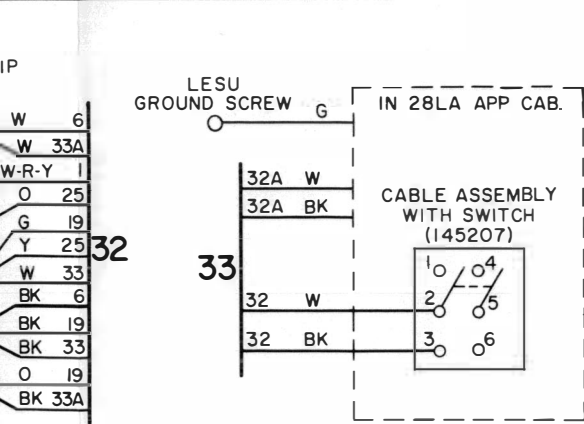
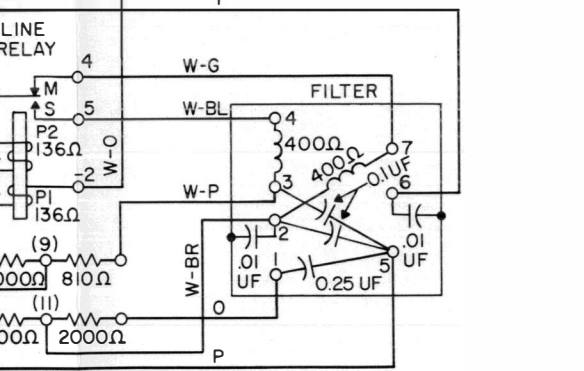
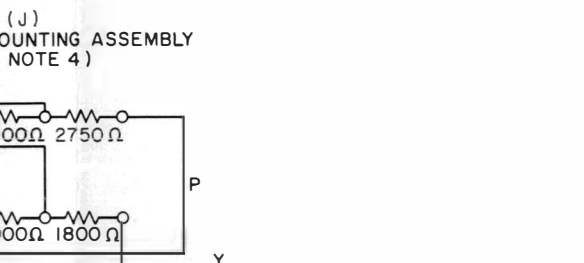
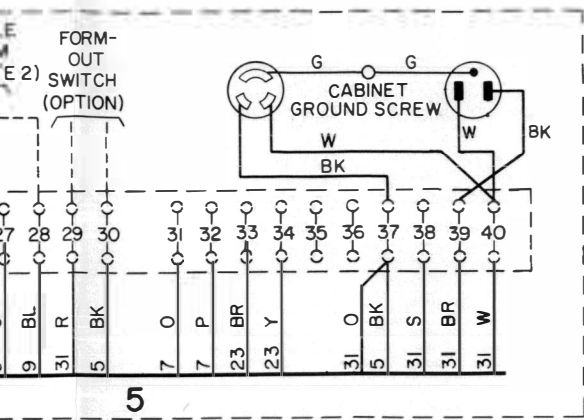


FIG. A
153631 NETWORK
0.11UF 470Ω



- CABLE 145280 (SEE NOTE 3)
- NOTES:
- UNIT WIRED FOR 115 VOLTS INPUT ONLY.
 - MOUNT "K" RESISTOR WITH MOUNTING PLATE. USE 60C TERMINALS, 3/4 IN. LONG.

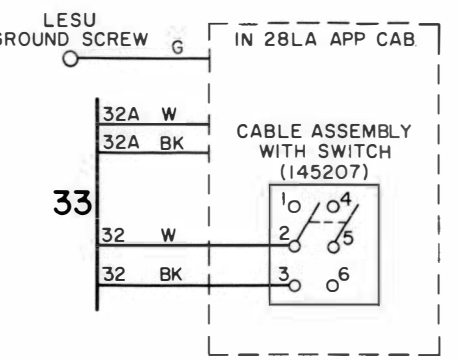
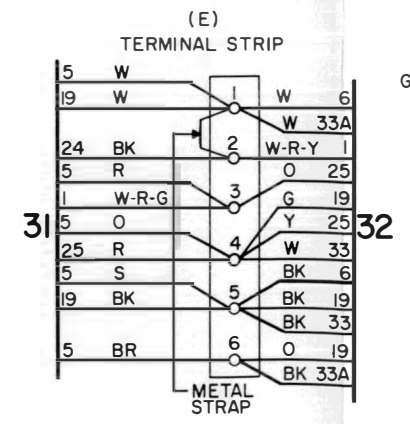
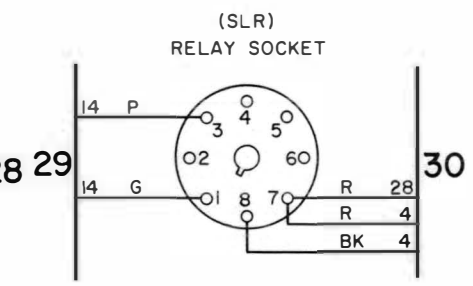
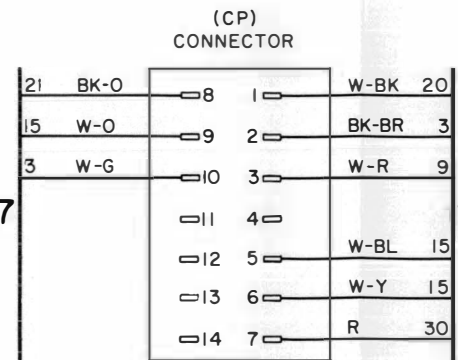
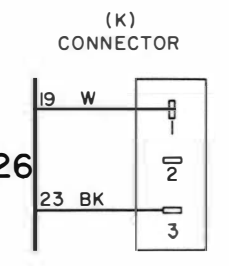
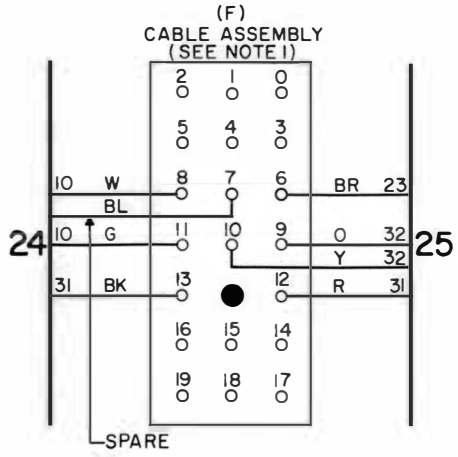
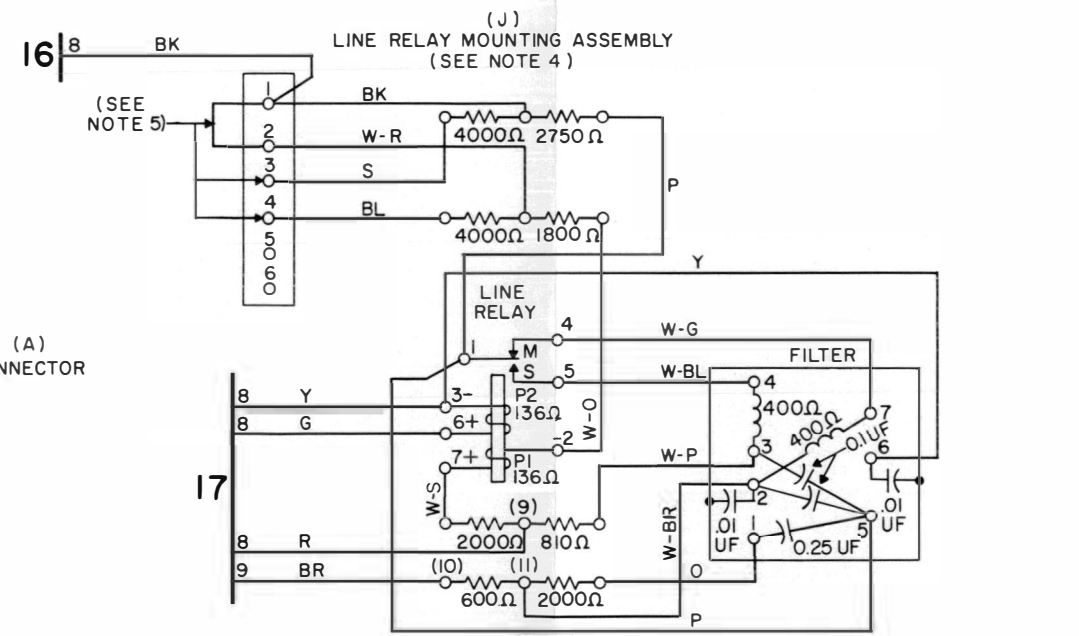
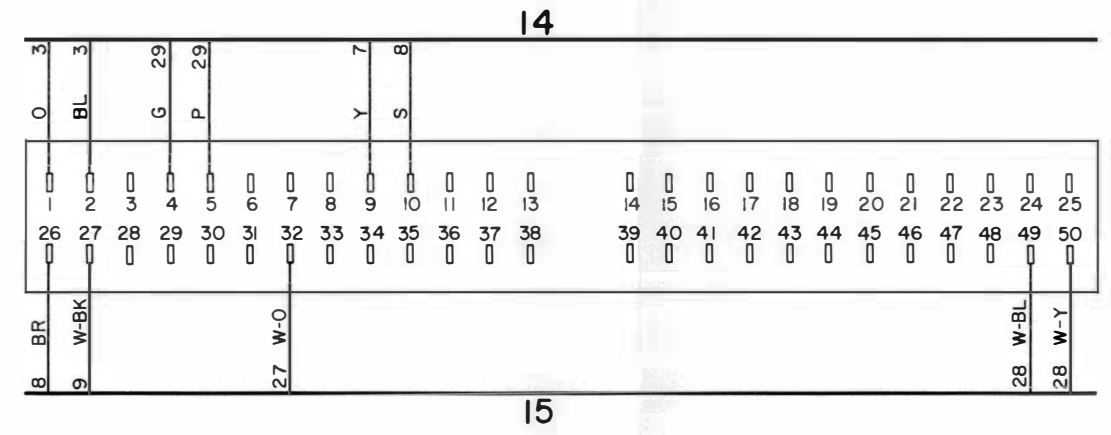
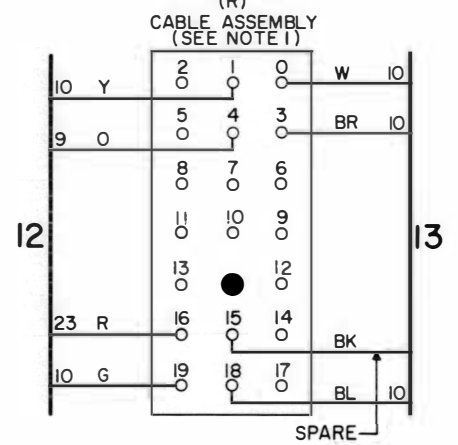
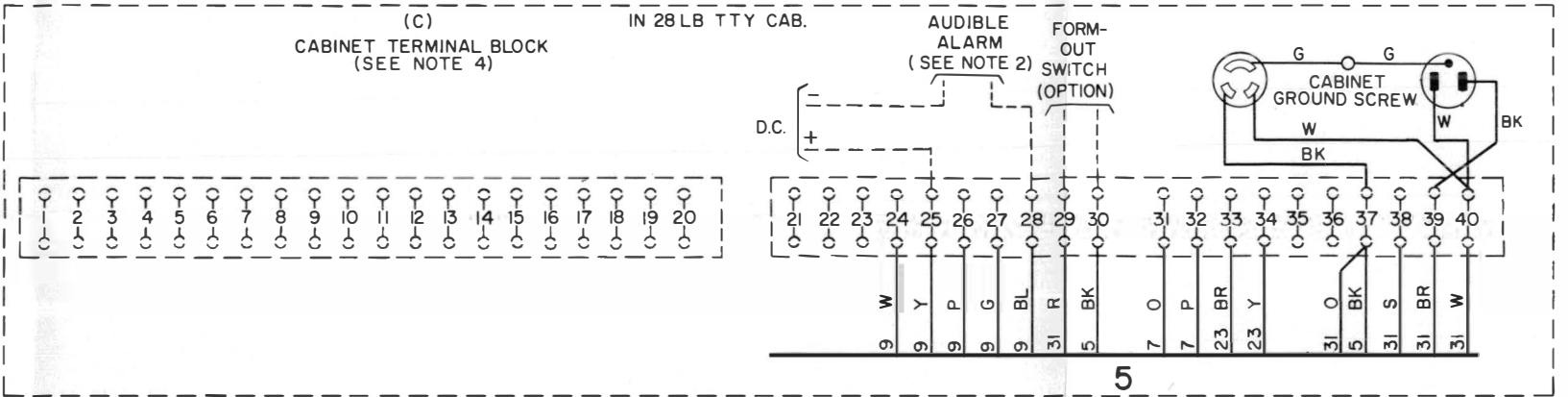
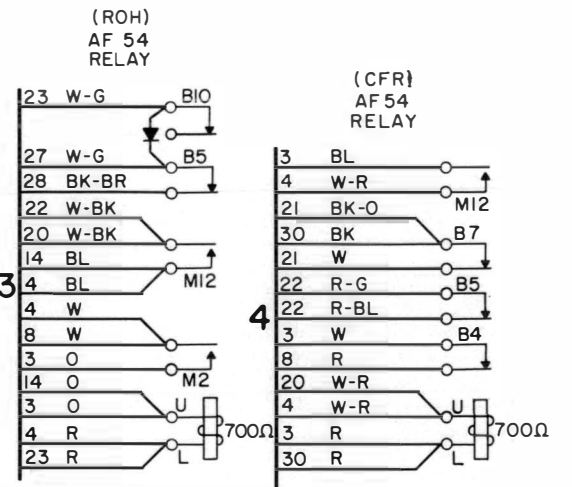
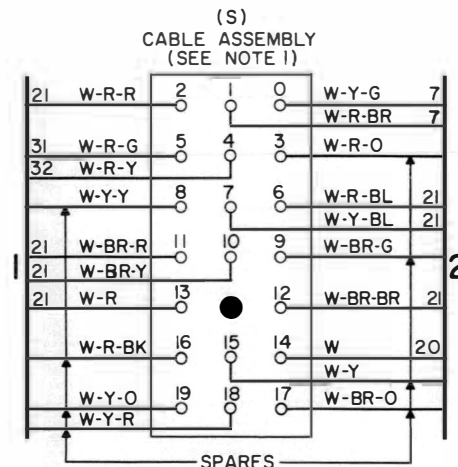


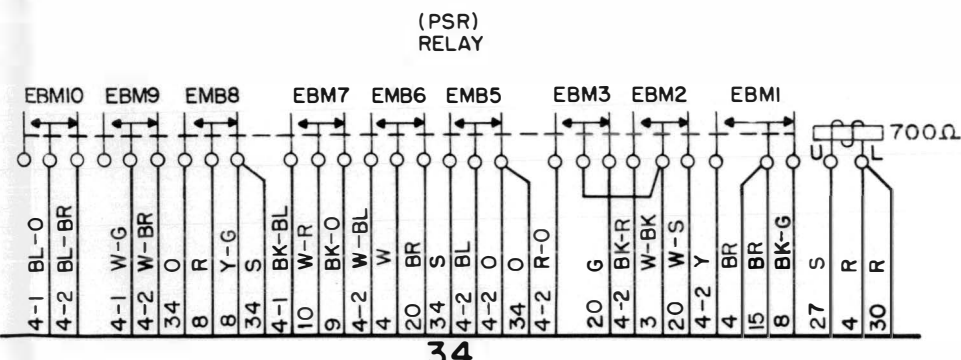
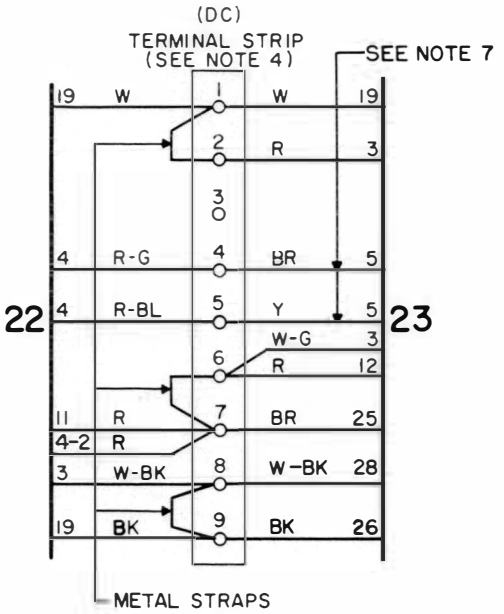
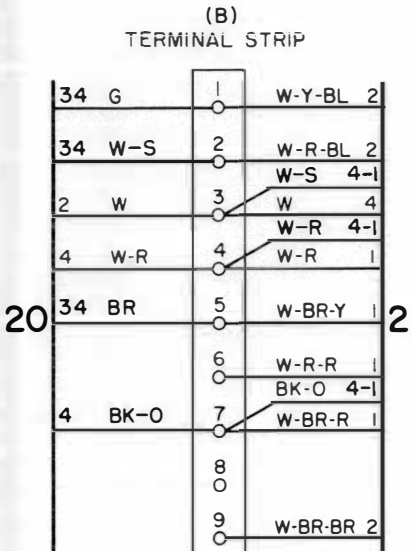
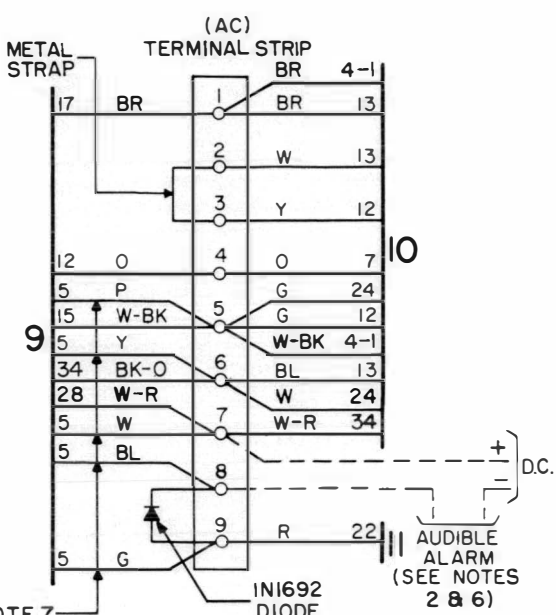
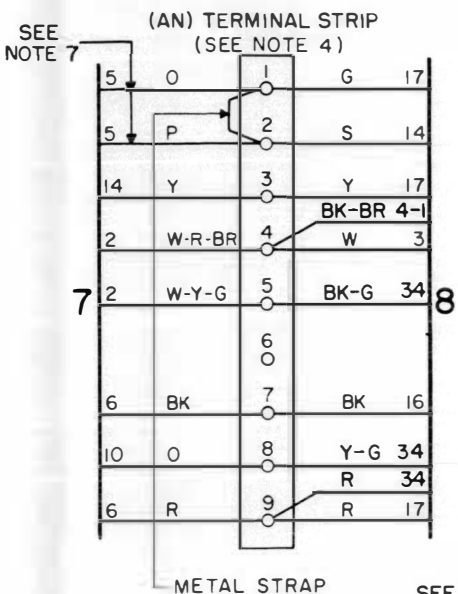
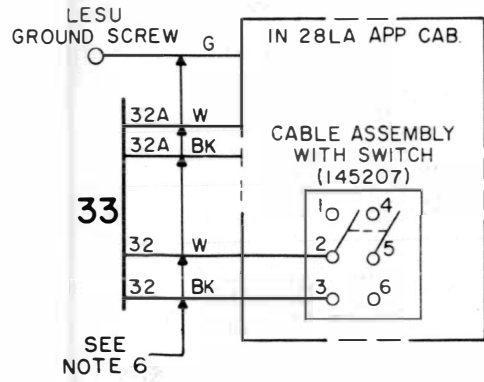
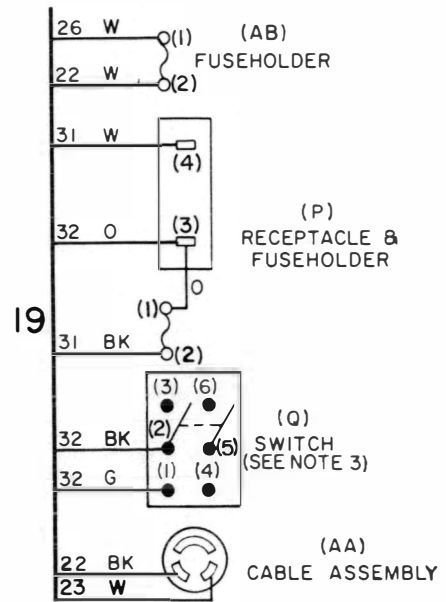
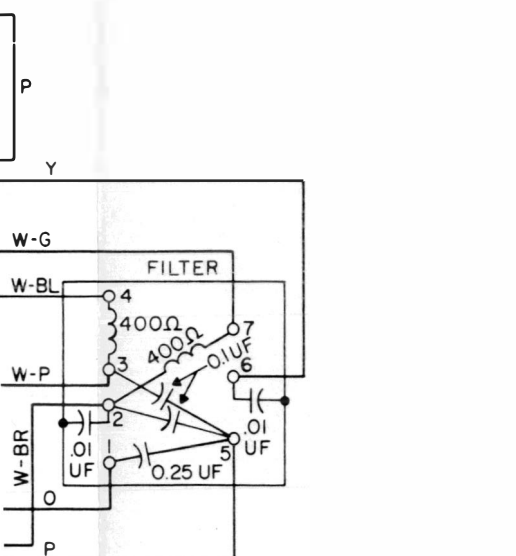
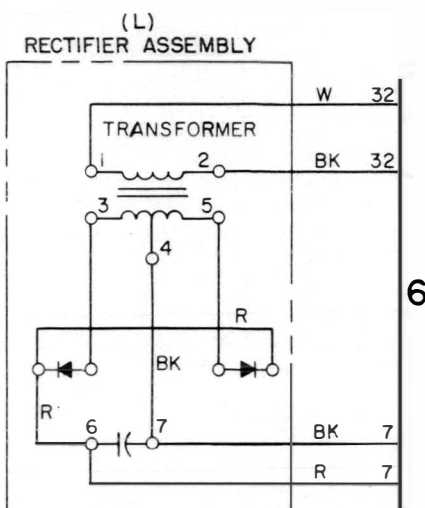
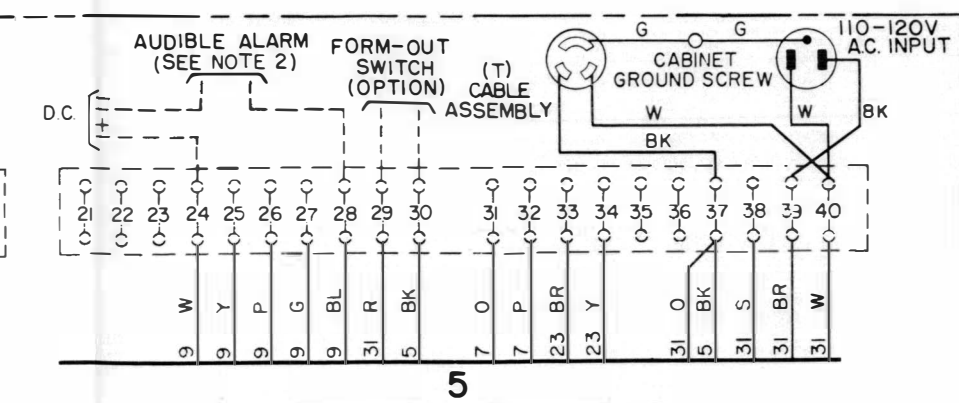
NOTES:

- THE CABLES USED ARE THE FOLLOWING:

CABLE ASSEMBLY	W/LAC 215	W/LBAC 227
F	145282	145064
R	145283	145062
S	145284	145063
- AUDIBLE ALARM TO BE FURNISHED BY CUSTOMER.
- SWITCH Q MUST BE IN "OFF" POSITION WHEN LESU IS INSTALLED IN 28 LA APP CAB.
- TO CONNECT AUXILIARY PRINTER OR REPERFORATOR WITH LINE RELAY.
 - REMOVE STRAP CONNECTING AN-1 TO AN-2.
 - CONNECT + LINE SIDE OF LINE RELAY COIL TO AN-1 OR C-31.
 - CONNECT - LINE SIDE OF LINE RELAY COIL TO AN-2 OR C-32.
 - TO RECEIVE ON AUXILIARY UNIT ONLY AFTER CONFIRMATION HAS BEEN RECEIVED BY THE RECEIVING SET, CONNECT DC-4 AND DC-5 OR C-33 AND C-34 ACROSS THE AUXILIARY LINE RELAY CONTACTS.
 - AUXILIARY LOOP BATTERY, BIAS WINDING, MOUNTING FACILITIES, ETC MUST BE PROVIDED BY THE CUSTOMER AND ARE NOT SHOWN.
- CIRCUITS SHOWN FOR .060 AMP NEUTRAL SIGNAL LINE OPERATION. FOR .020 AMP OPERATION REMOVE CONNECTION BETWEEN TERMINALS 1 AND 2 AND ADD CONNECTION BETWEEN TERMINALS 3 AND 4 ON THE LINE RELAY TERMINAL BLOCK.

Figure 19 - 28LC and 28LC-1 Electrical Service Units



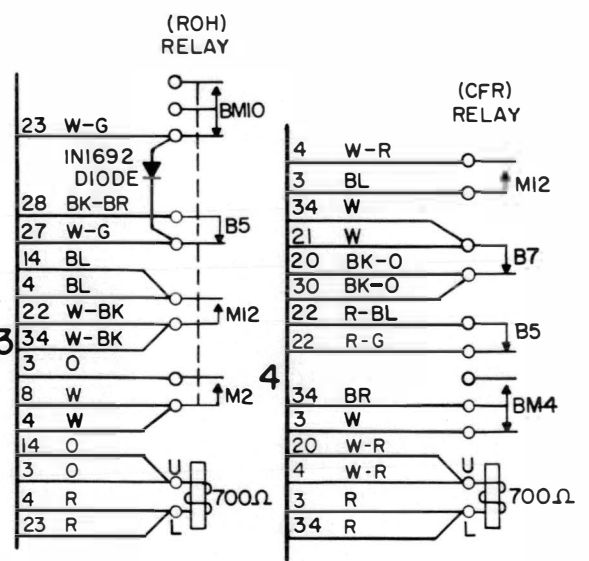
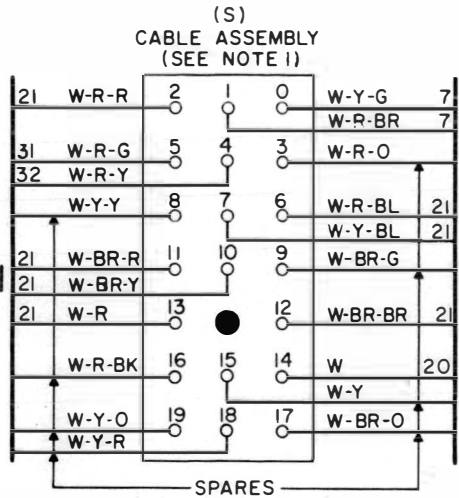


NOTES:

1. THE CABLES USED ARE THE FOLLOWING:

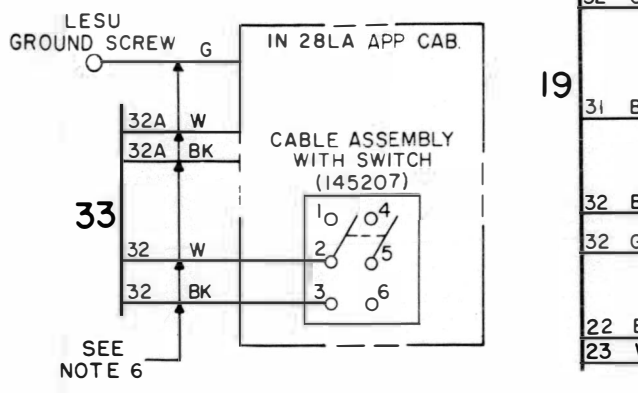
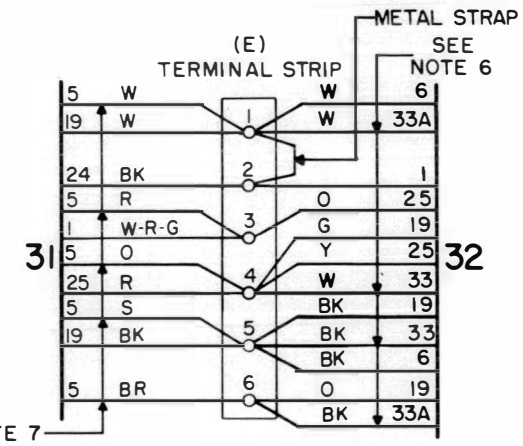
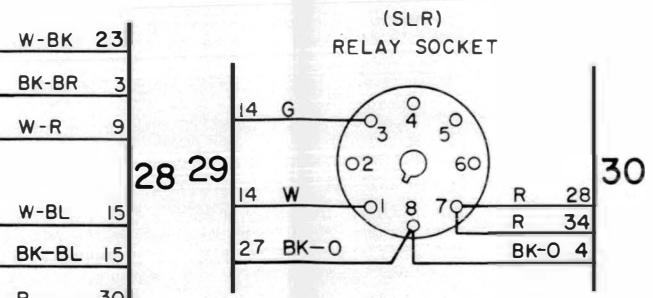
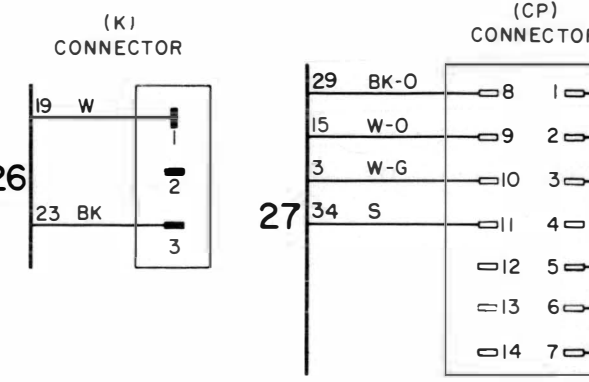
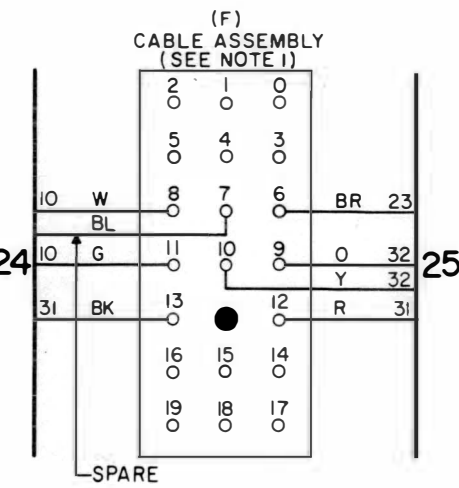
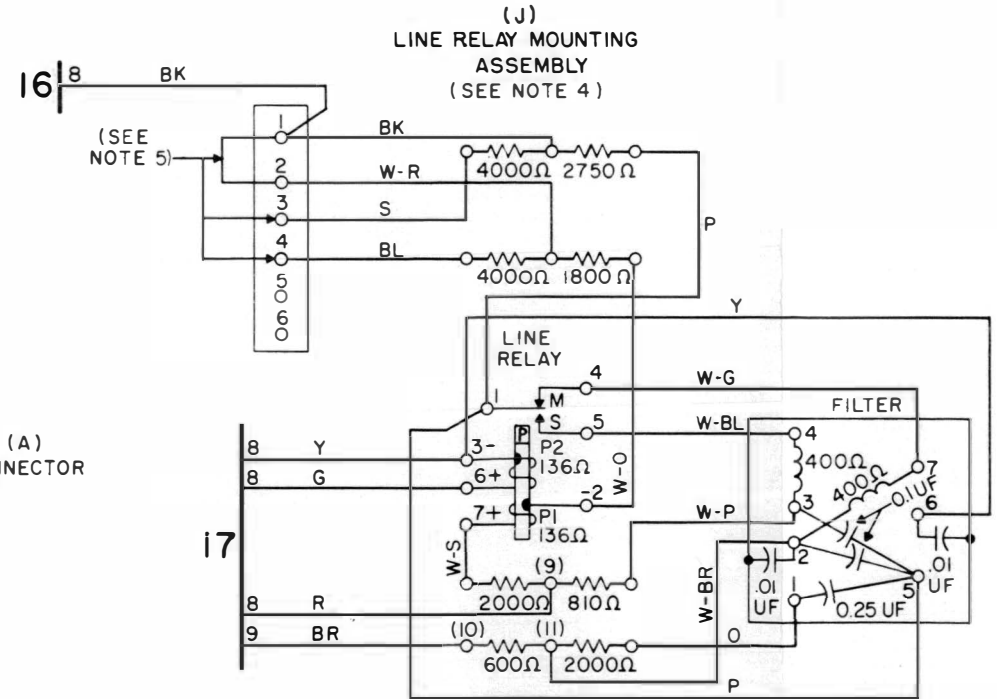
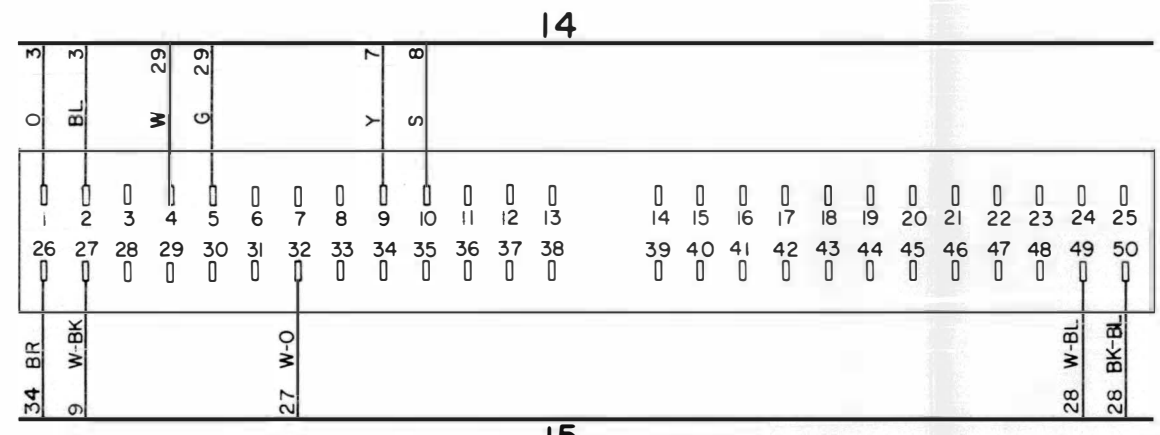
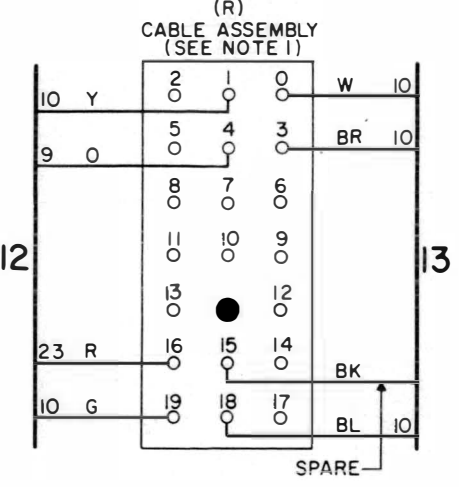
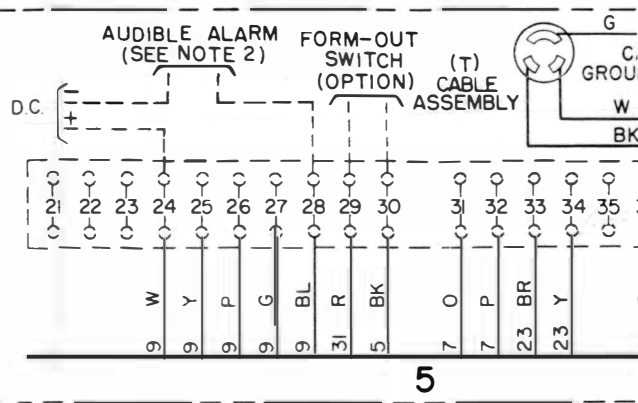
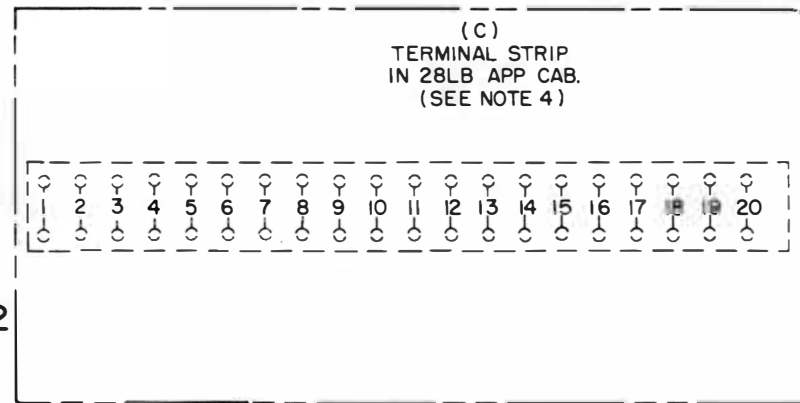
CABLE ASSEMBLY	W/LAC 215	W/LBAC 227
F	145282	145064
R	145283	145062
S	145284	145063
2. AUDIBLE ALARM TO BE FURNISHED BY CUSTOMER.
3. SWITCH Q MUST BE IN "OFF" POSITION WHEN LESU IS INSTALLED IN 28 LA APP CAB.
4. TO CONNECT AUXILIARY PRINTER OR REPERFORATOR WITH LINE RELAY:
 - A. REMOVE STRAP CONNECTING AN-1 TO AN-2.
 - B. CONNECT + LINE SIDE OF LINE RELAY COIL TO AN-1 OR C-31.
 - C. CONNECT - LINE SIDE OF LINE RELAY COIL TO AN-2 OR C-32.
 - D. TO RECEIVE ON AUXILIARY UNIT ONLY AFTER CONFIRMATION HAS BEEN RECEIVED BY THE RECEIVING SET, CONNECT DC-4 AND DC-5 OR C-33 AND C-34 ACROSS THE AUXILIARY LINE RELAY CONTACTS.
 - E. AUXILIARY LOOP BATTERY, BIAS WINDING, MOUNTING FACILITIES, ETC. MUST BE PROVIDED BY THE CUSTOMER AND ARE NOT SHOWN.
5. CIRCUITS SHOWN FOR .060 AMP NEUTRAL SIGNAL LINE OPERATION. FOR .020 AMP OPERATION REMOVE CONNECTION BETWEEN TERMINALS 1 AND 2 AND ADD CONNECTION BETWEEN TERMINALS 3 AND 4 ON THE LINE RELAY TERMINAL BLOCK.
6. WHEN LESU IS USED IN 28LA APP CAB.
7. WHEN LESU IS USED IN 28LB APP CAB.

Figure 20 - 28LD and 28LD-1 Electrical Service Units



(PS) CONNECTOR

10 BR	13	1	BL 34
10 W-BK	14	2	O 34
8 BK-BR	15	3	Y 34
34 BK-BL	16	4	R 22
21 W-R	17	5	BK-R 34
34 W-G	18	6	W-BR 34
21 W-S	19	7	R-O 34
34 BL-O	20	8	BL-BR 34
	21	9	
	22	10	
21 BK-O	23	11	W-BL 34
	24	12	



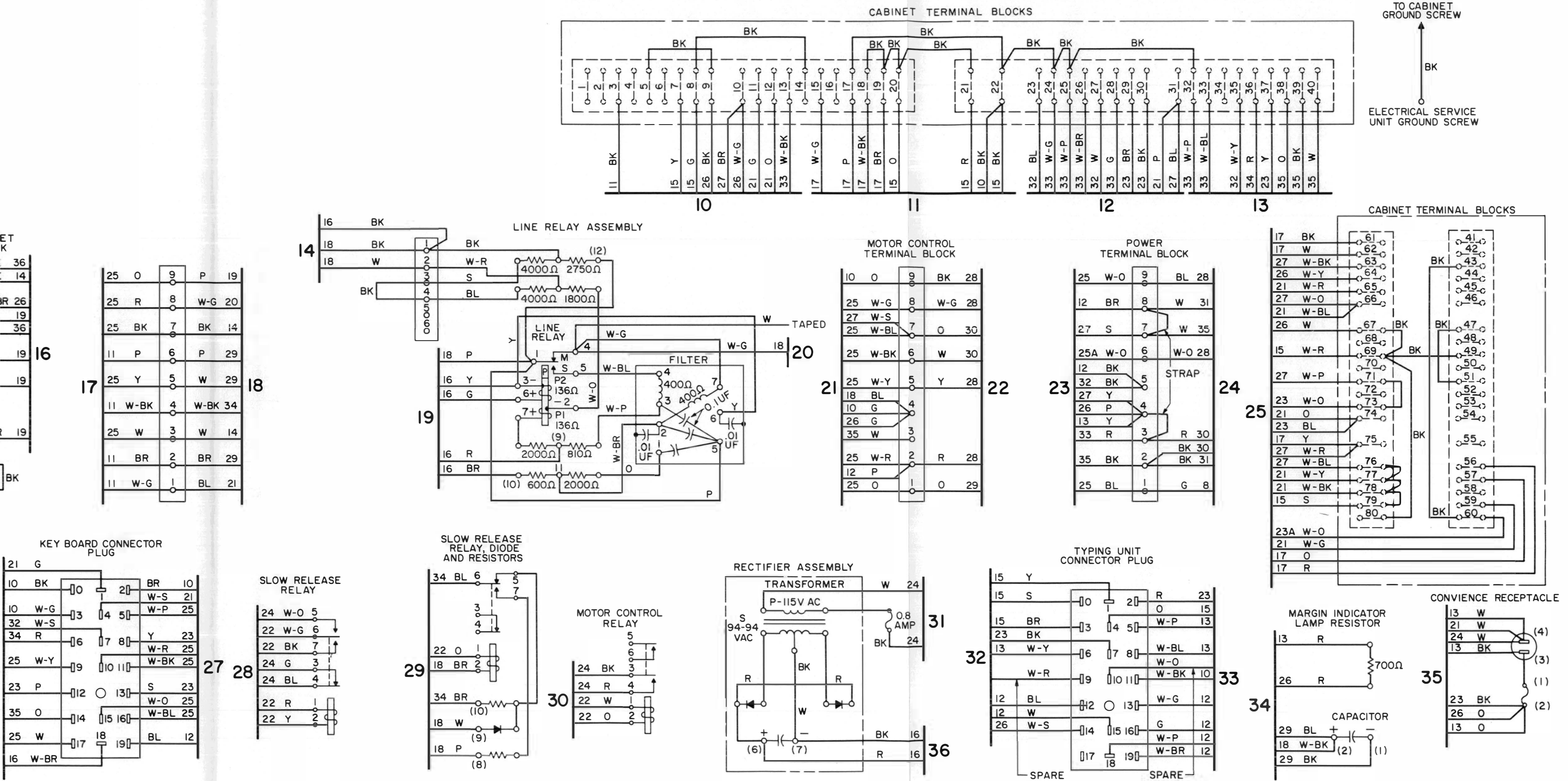
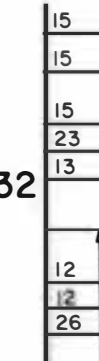
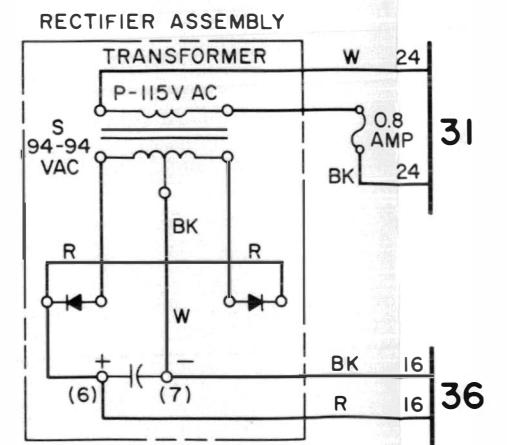
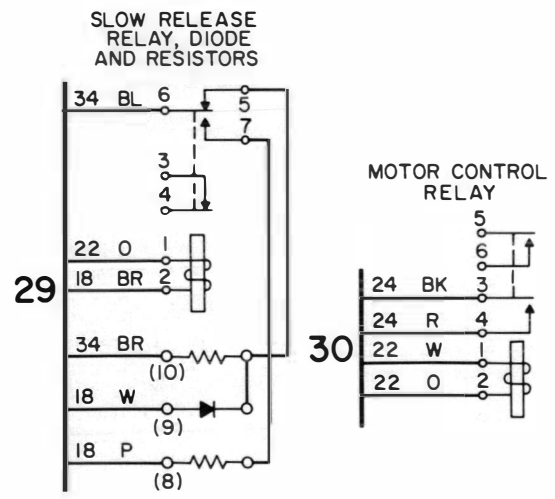
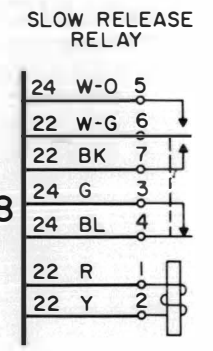
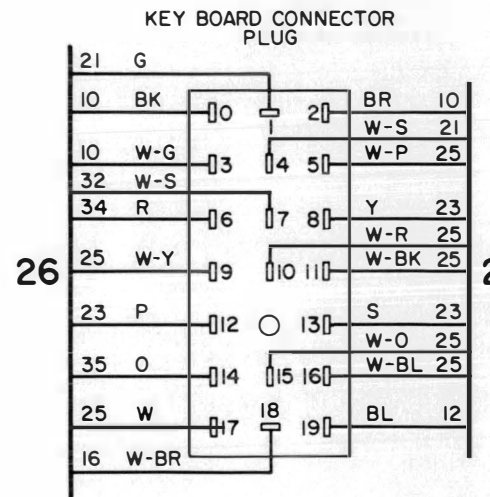
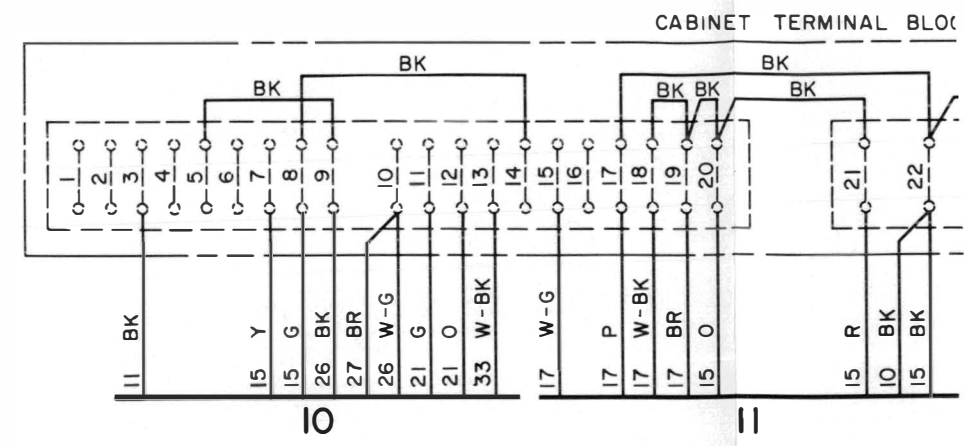
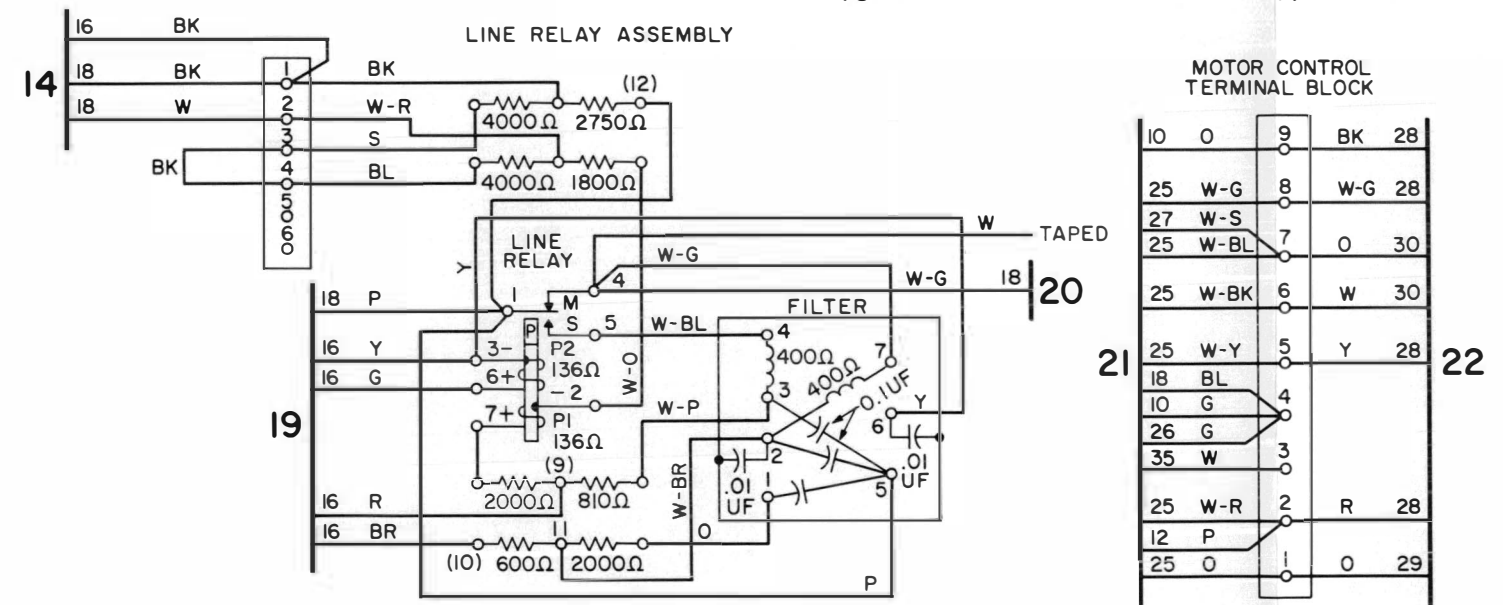
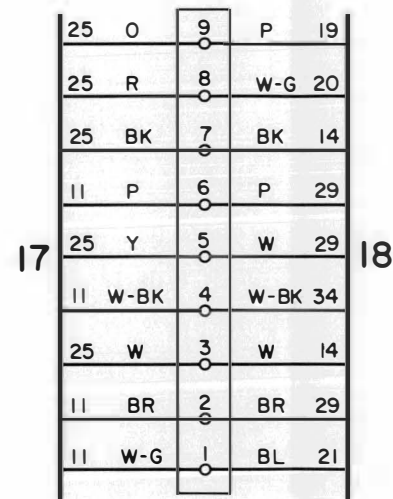
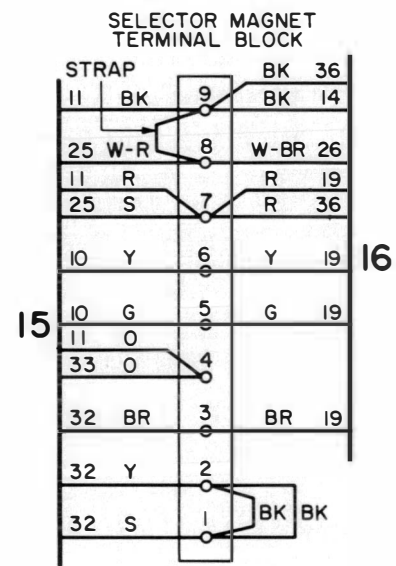
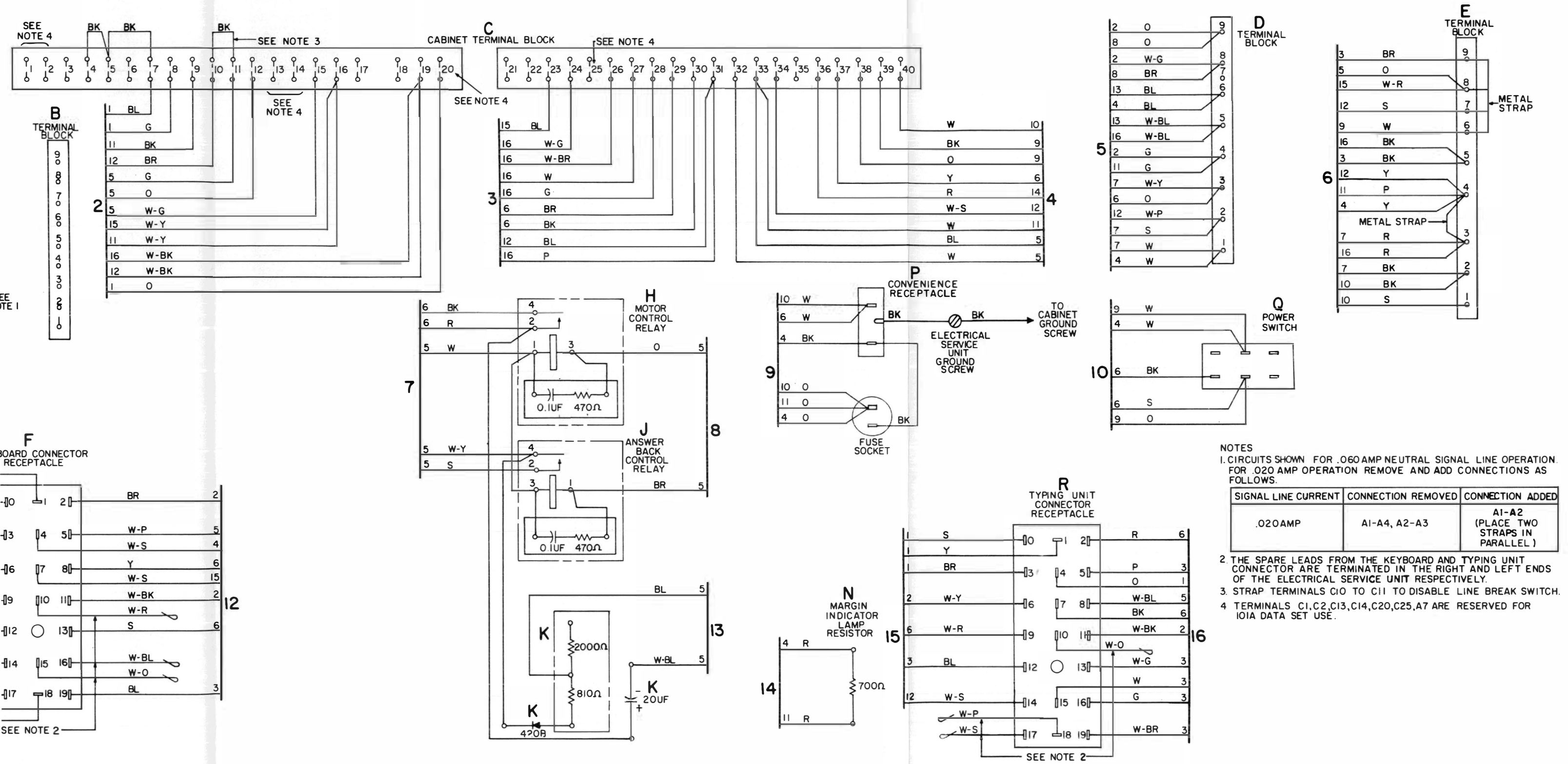


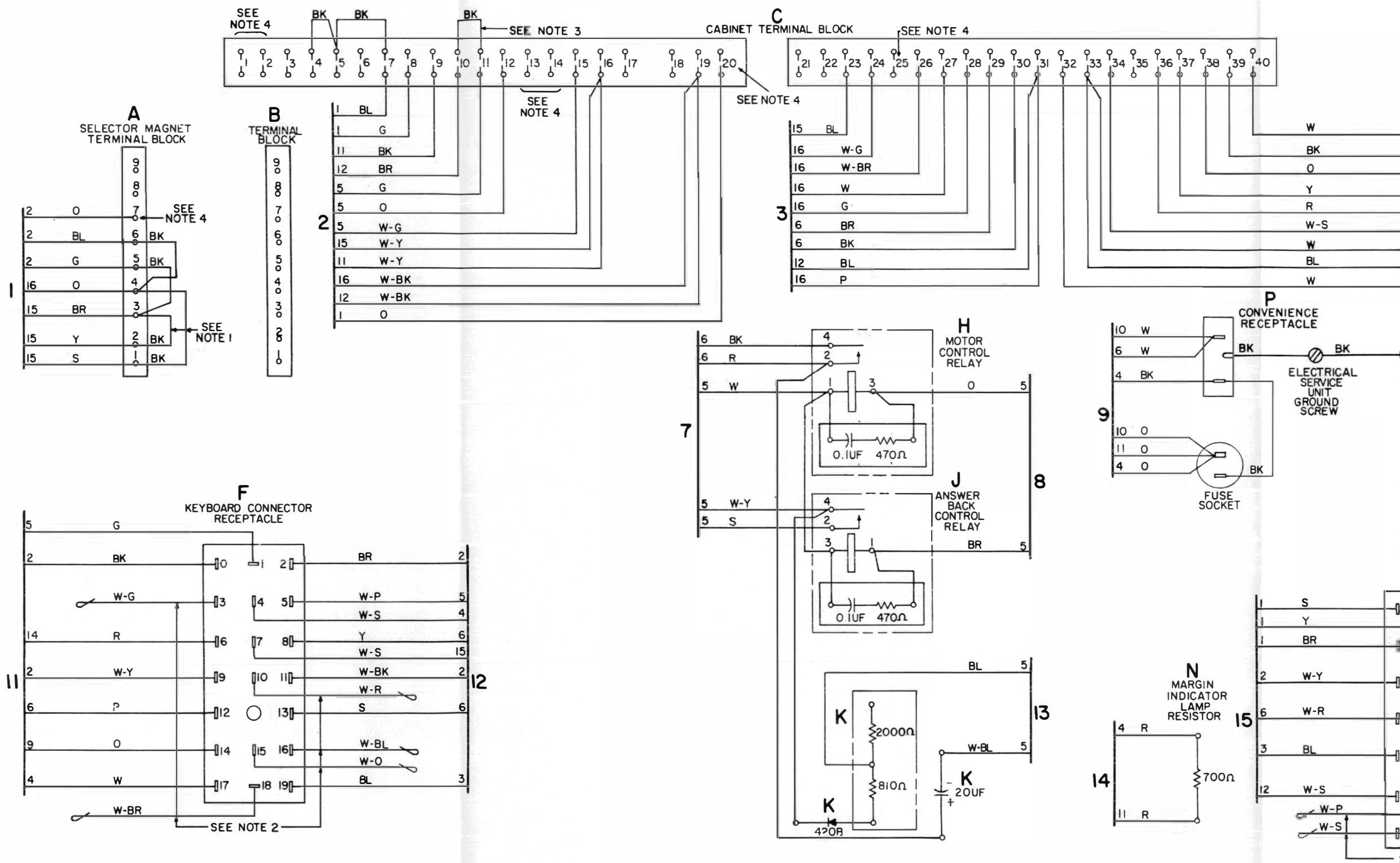
Figure 21 - 28M Electrical Service Unit

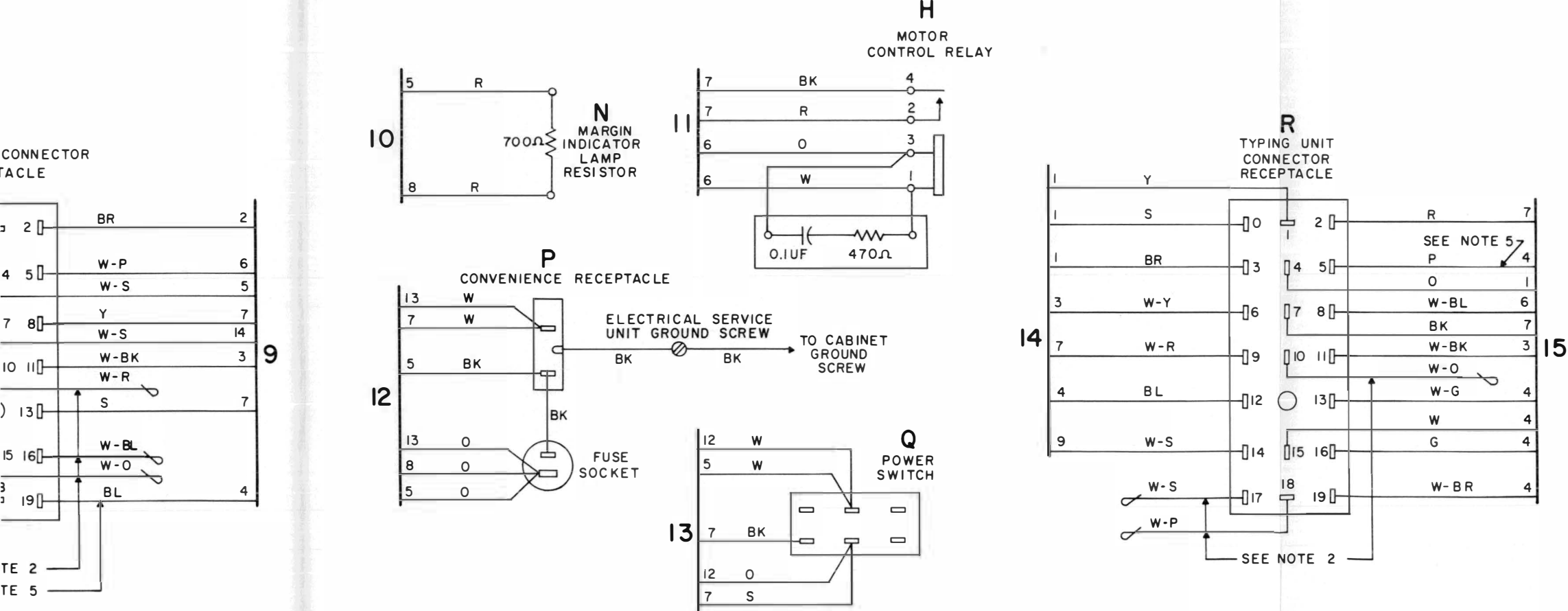
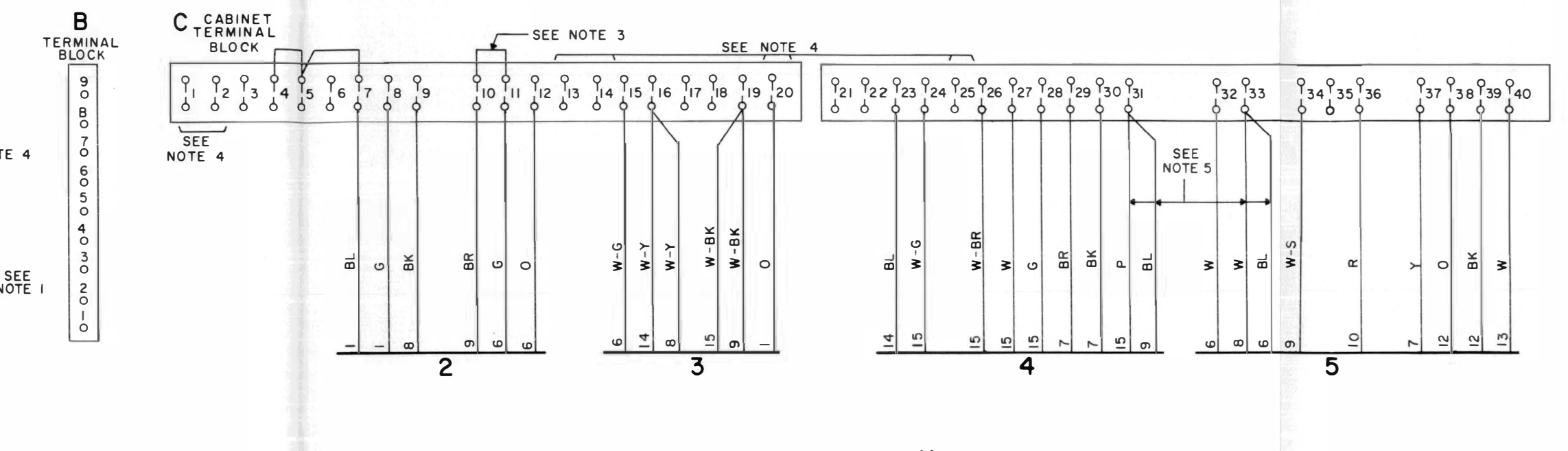




- NOTES
1. CIRCUITS SHOWN FOR .060 AMP NEUTRAL SIGNAL LINE OPERATION. FOR .020 AMP OPERATION REMOVE AND ADD CONNECTIONS AS FOLLOWS.
- | SIGNAL LINE CURRENT | CONNECTION REMOVED | CONNECTION ADDED |
|---------------------|--------------------|--------------------------------------|
| .020AMP | A1-A4, A2-A3 | A1-A2 (PLACE TWO STRAPS IN PARALLEL) |
2. THE SPARE LEADS FROM THE KEYBOARD AND TYPING UNIT CONNECTOR ARE TERMINATED IN THE RIGHT AND LEFT ENDS OF THE ELECTRICAL SERVICE UNIT RESPECTIVELY.
 3. STRAP TERMINALS C10 TO C11 TO DISABLE LINE BREAK SWITCH.
 4. TERMINALS C1, C2, C13, C14, C20, C25, A7 ARE RESERVED FOR IOIA DATA SET USE.

Figure 22 - 26N Electrical Service Unit



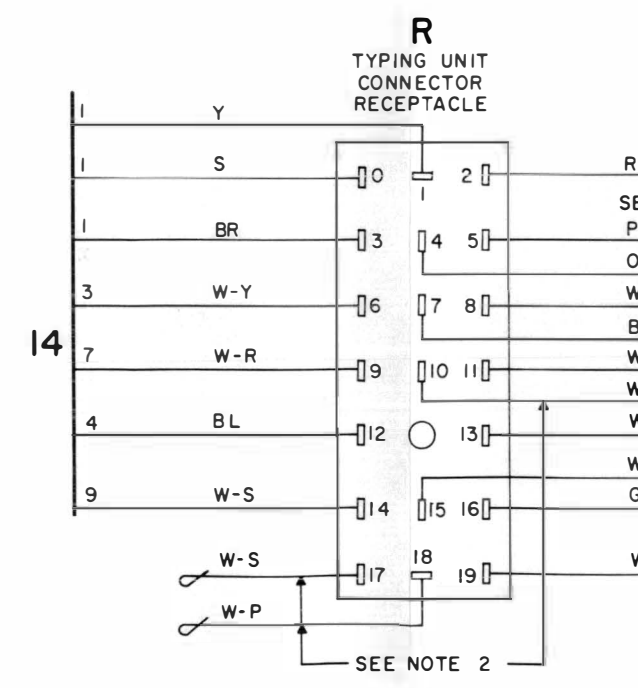
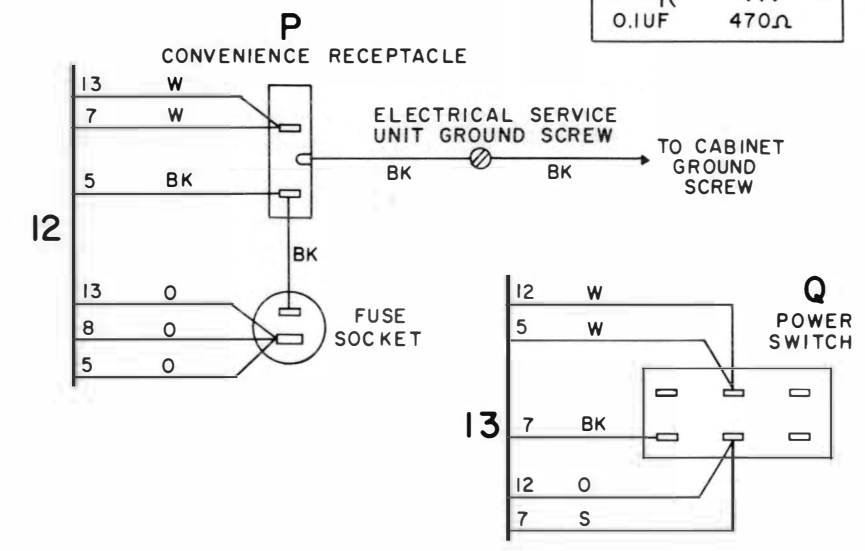
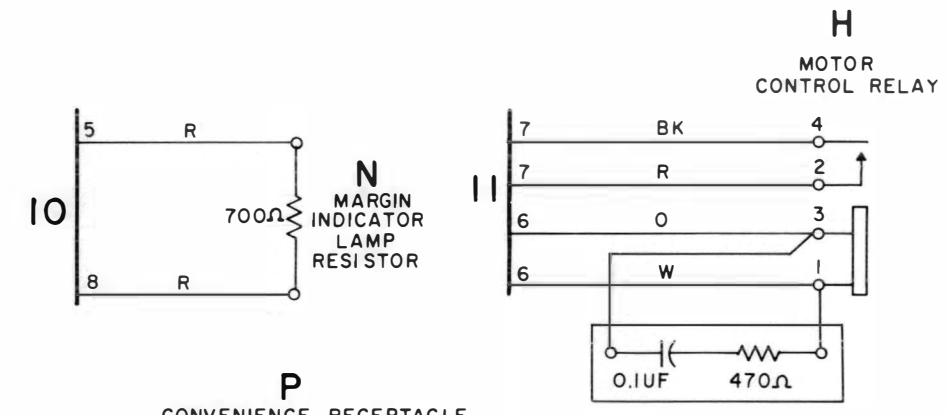
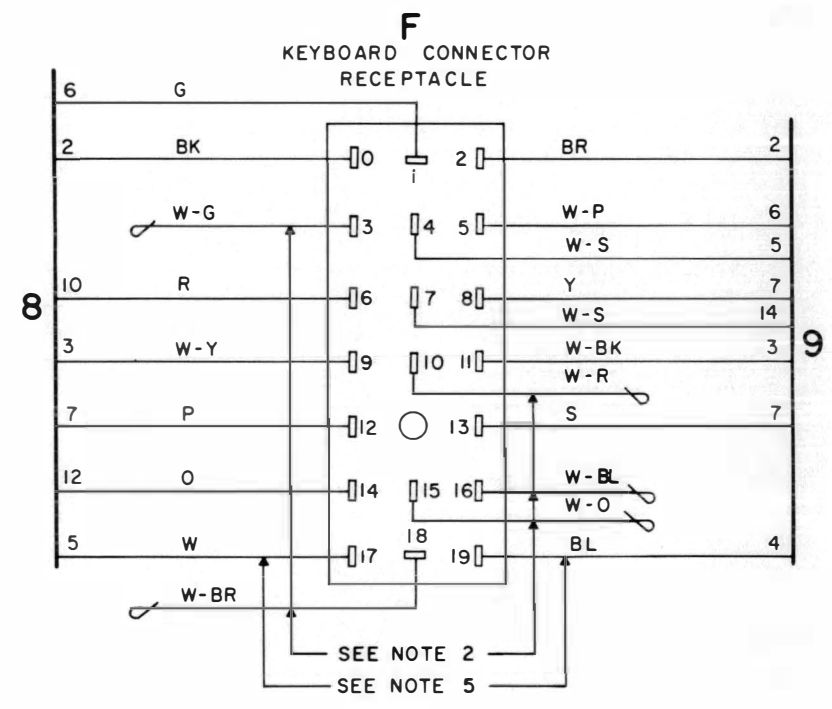
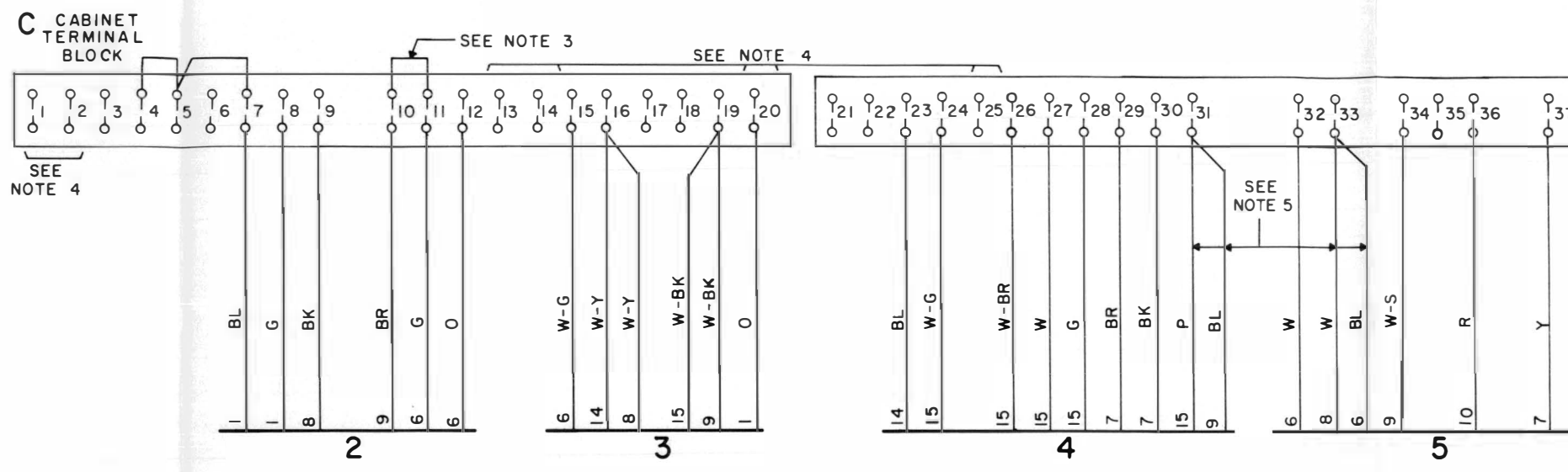
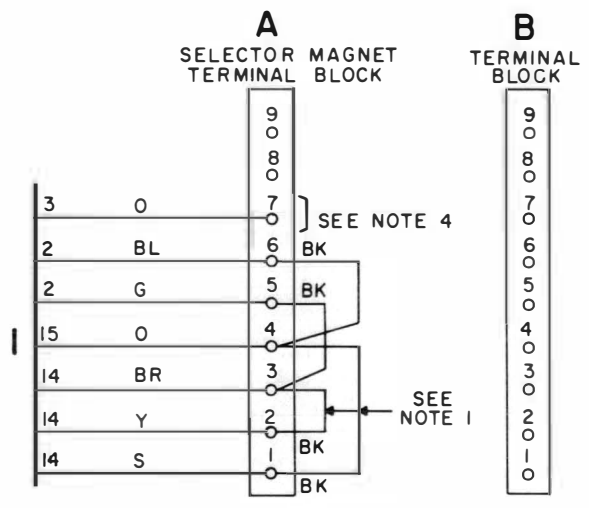


NOTES:
 1. CIRCUITS SHOWN FOR .060 AMP NEUTRAL SIGNAL LINE OPERATION. FOR .020 AMP OPERATION REMOVE AND ADD CONNECTIONS AS FOLLOWS:

SIGNAL LINE CURRENT	CONNECTION REMOVED	CONNECTION ADDED
.020 AMP	A1-A4, A2-A3	A1-A2 (PLACE TWO STRAPS IN PARALLEL)

- THE SPARE LEADS FROM THE KEYBOARD AND TYPING UNIT CONNECTORS ARE TERMINATED IN THE RIGHT AND LEFT ENDS OF THE ELECTRICAL SERVICE UNIT RESPECTIVELY.
- STRAP TERMINALS C10 TO C11 TO DISABLE LINE BREAK SWITCH.
- TERMINALS A7, C1, C2, C13, C14, C20 AND C25 ARE RESERVED FOR IOIA DATA SET USE.
- LEADS RESERVED FOR ELECTRICAL SEND-RECEIVE BREAK MECHANISM (162224 MODIFICATION KIT).

Figure 23 - 28N-1 Electrical Service Unit



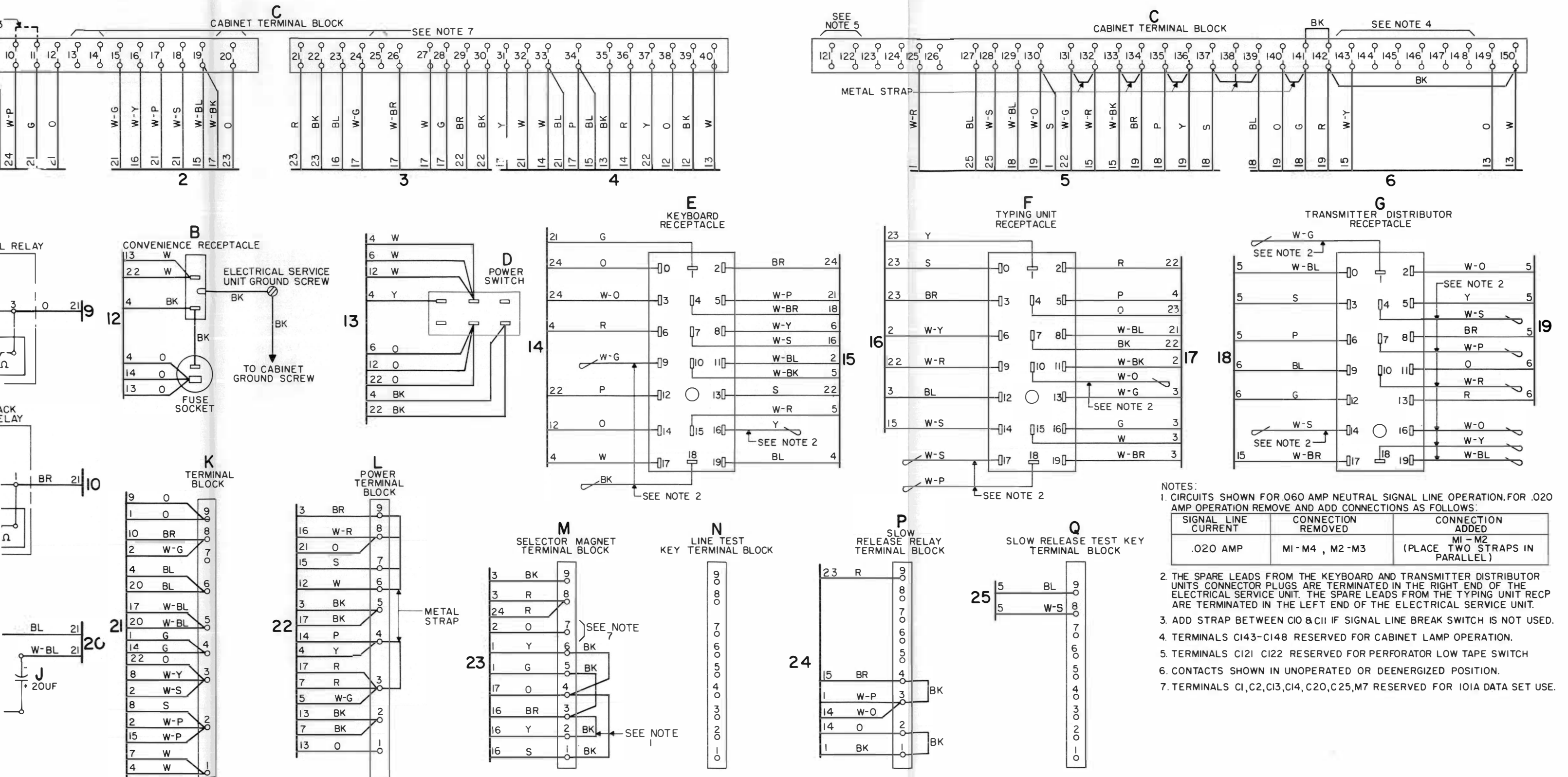
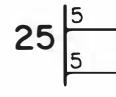
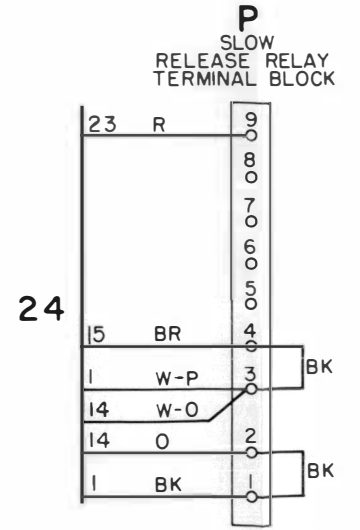
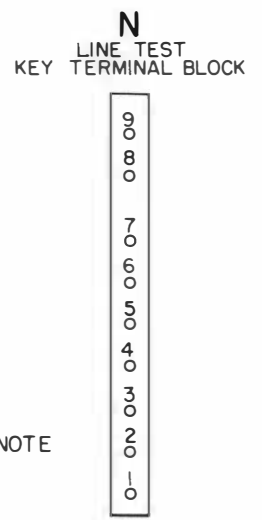
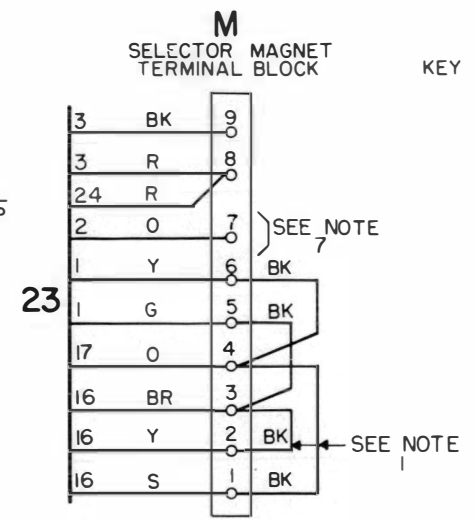
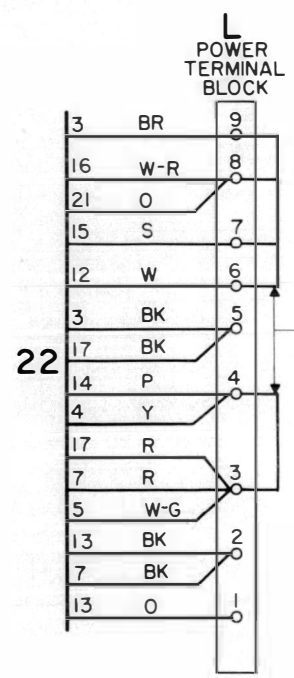
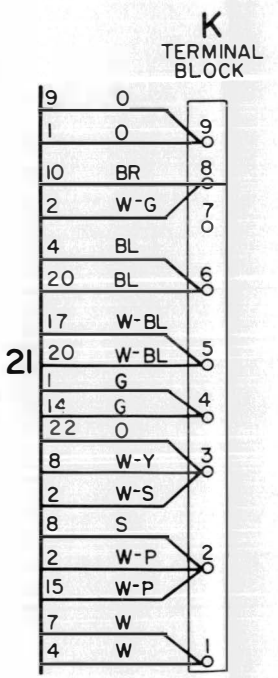
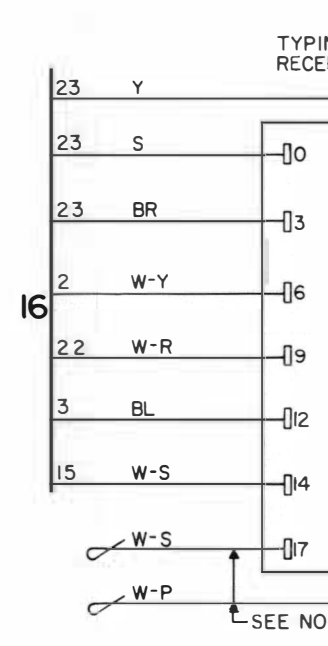
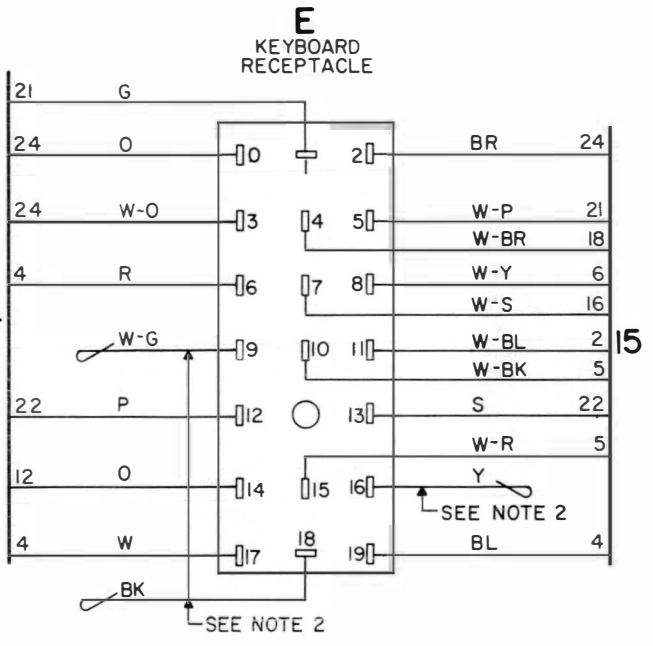
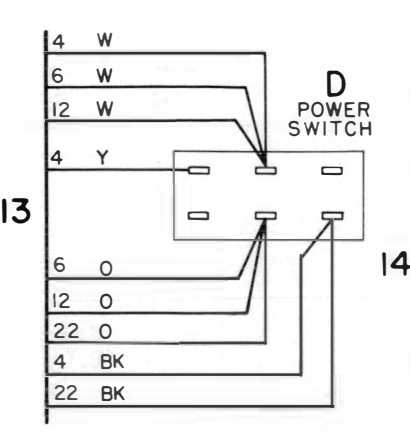
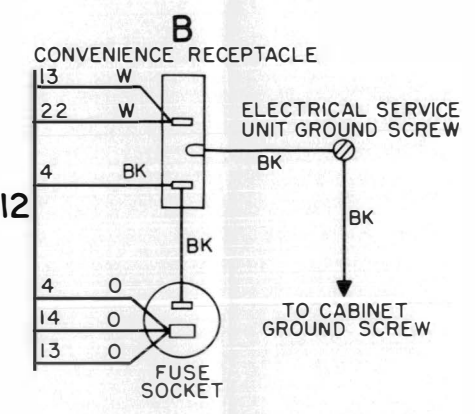
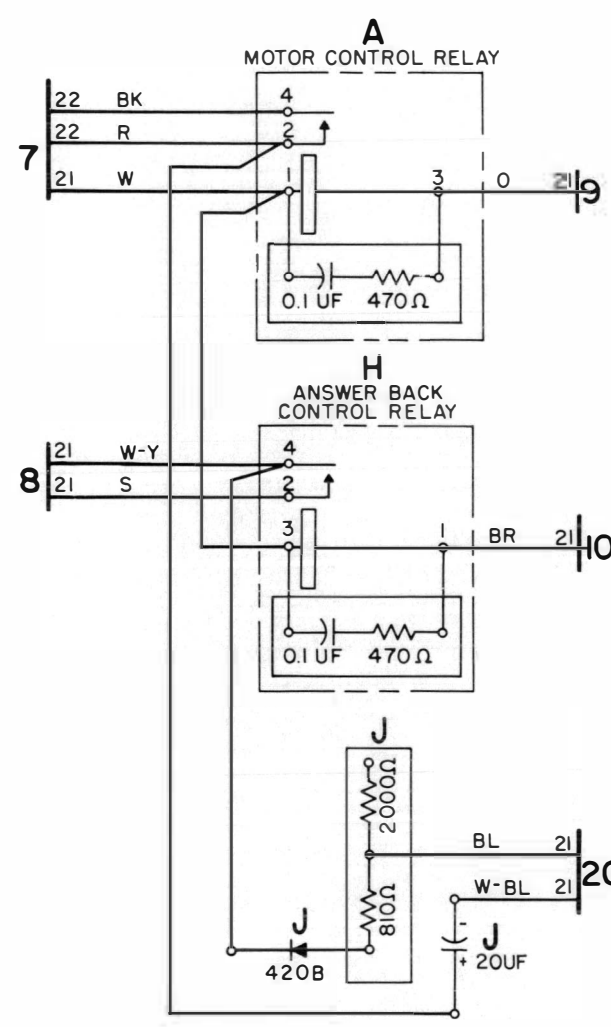
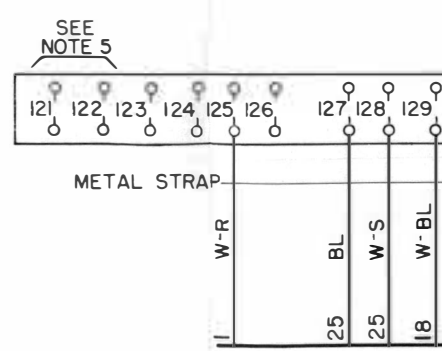
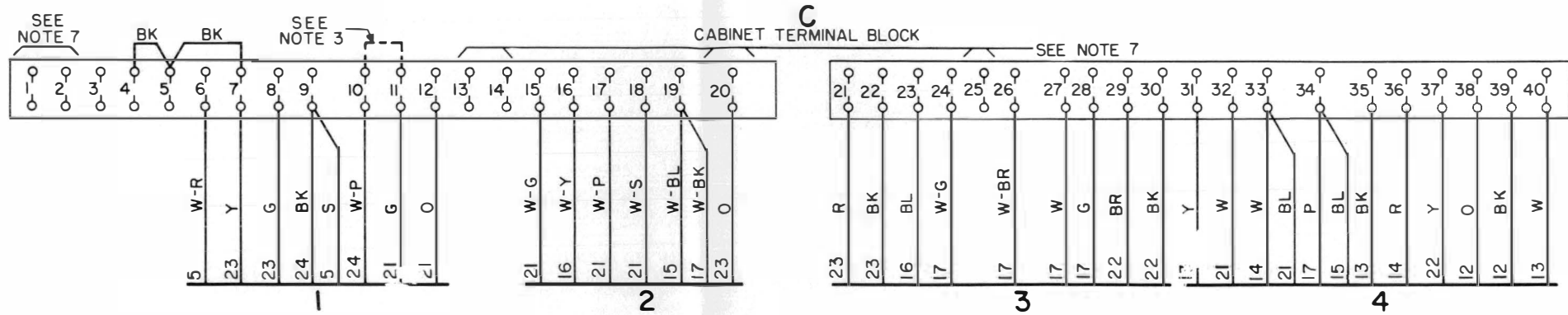


Figure 24 - 28P Electrical Service Unit



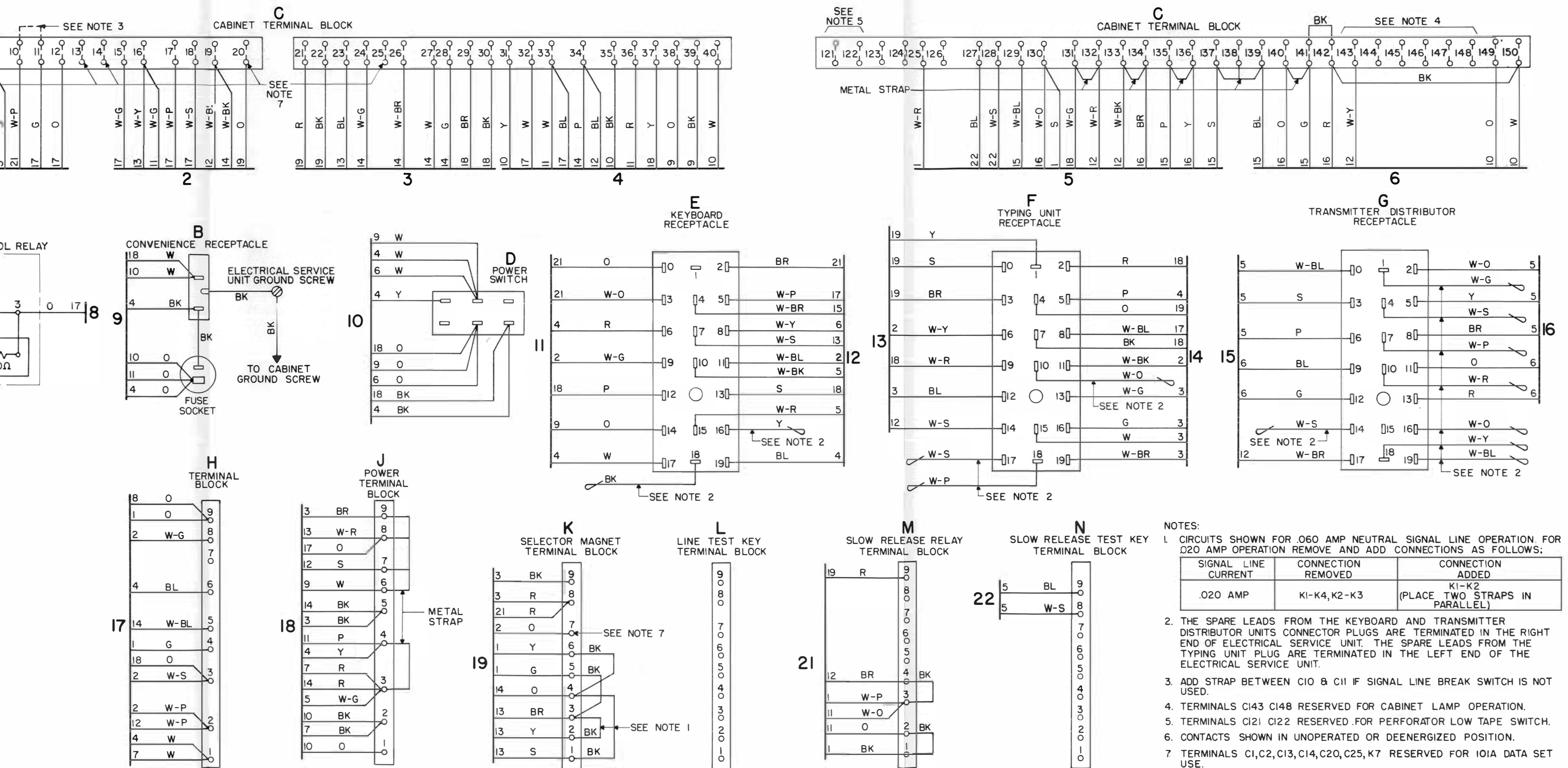
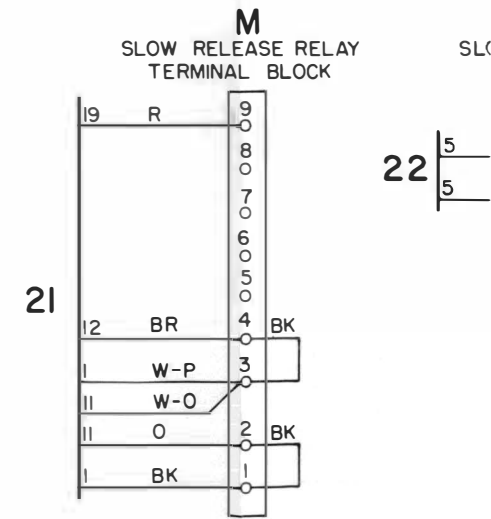
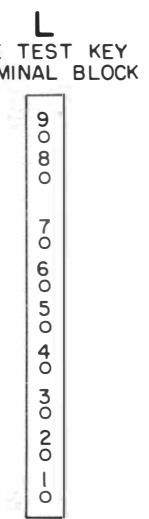
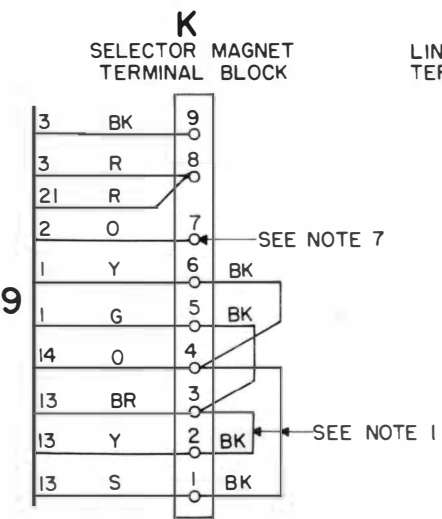
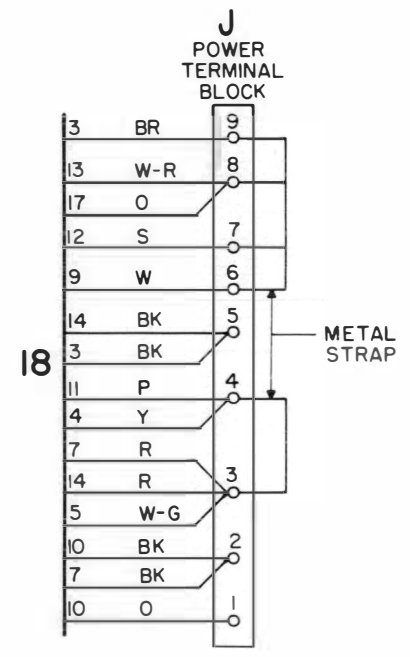
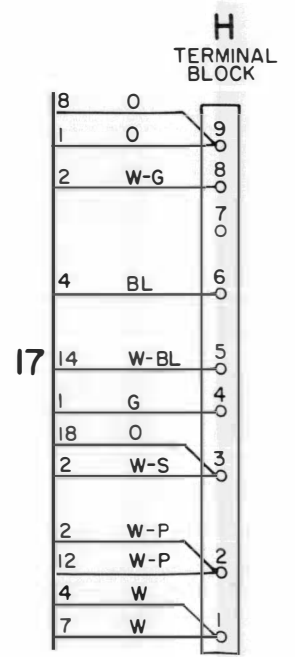
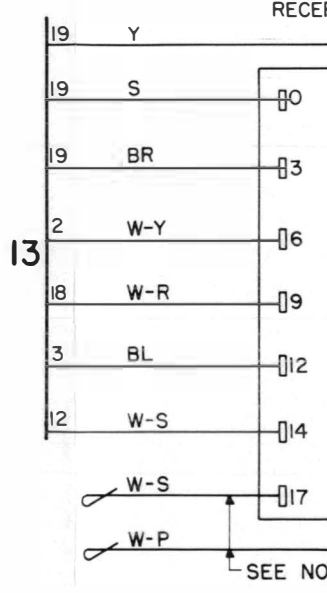
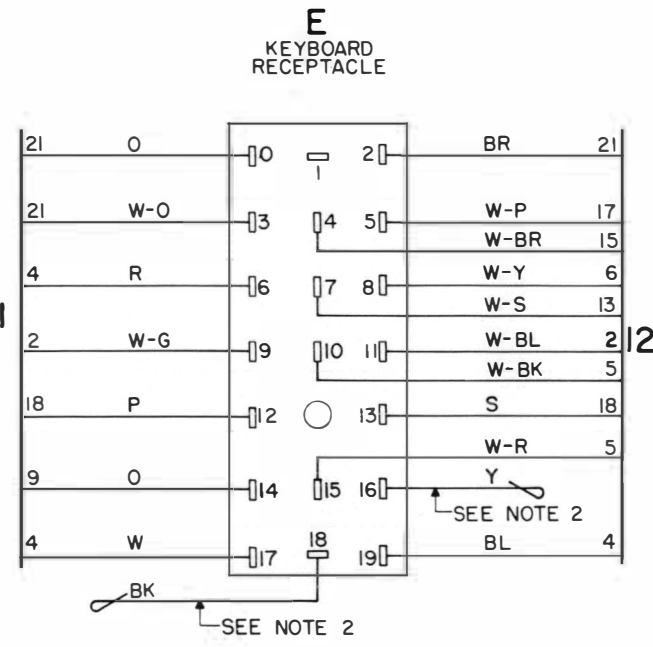
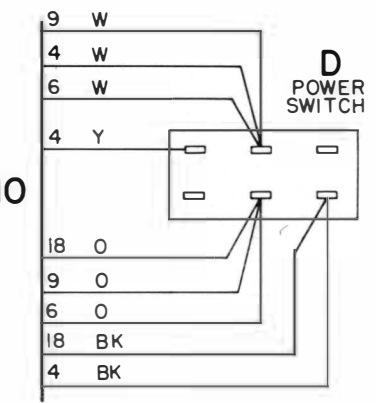
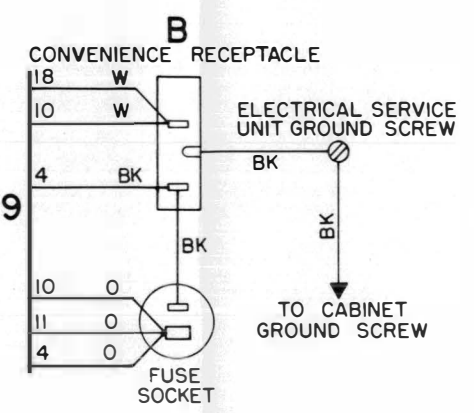
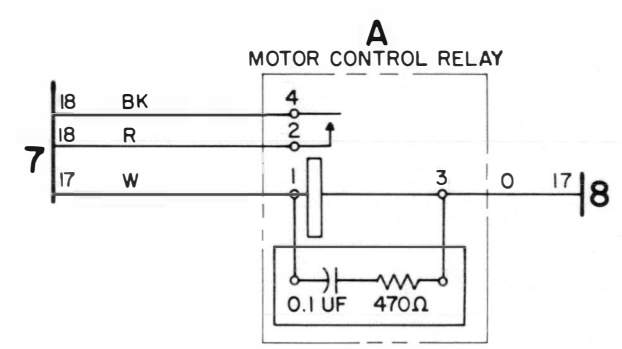
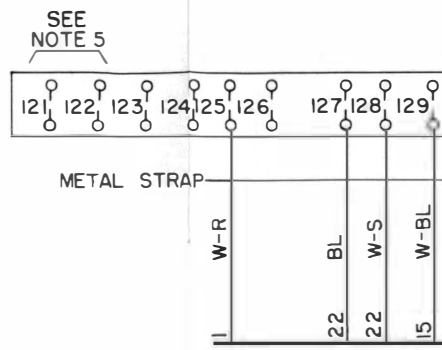
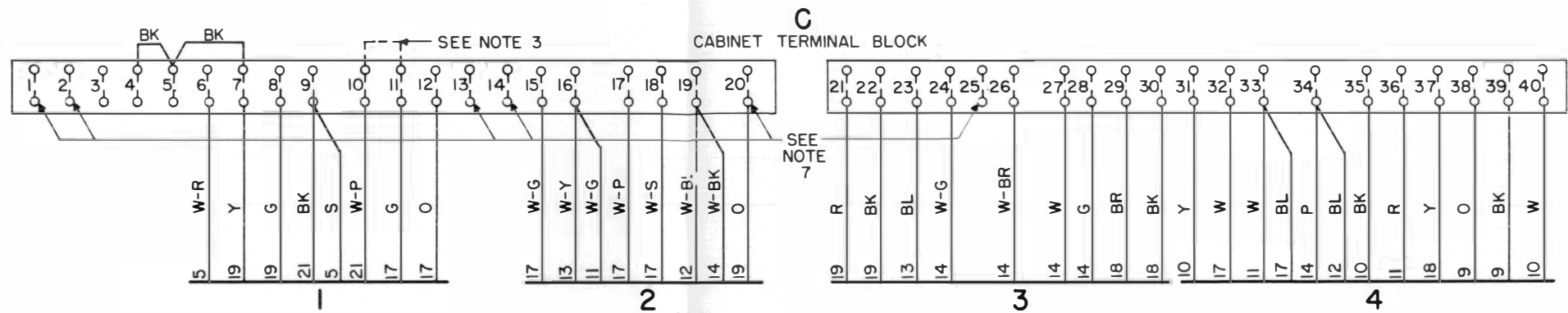


Figure 25 - 28P-1 Electrical Service Unit



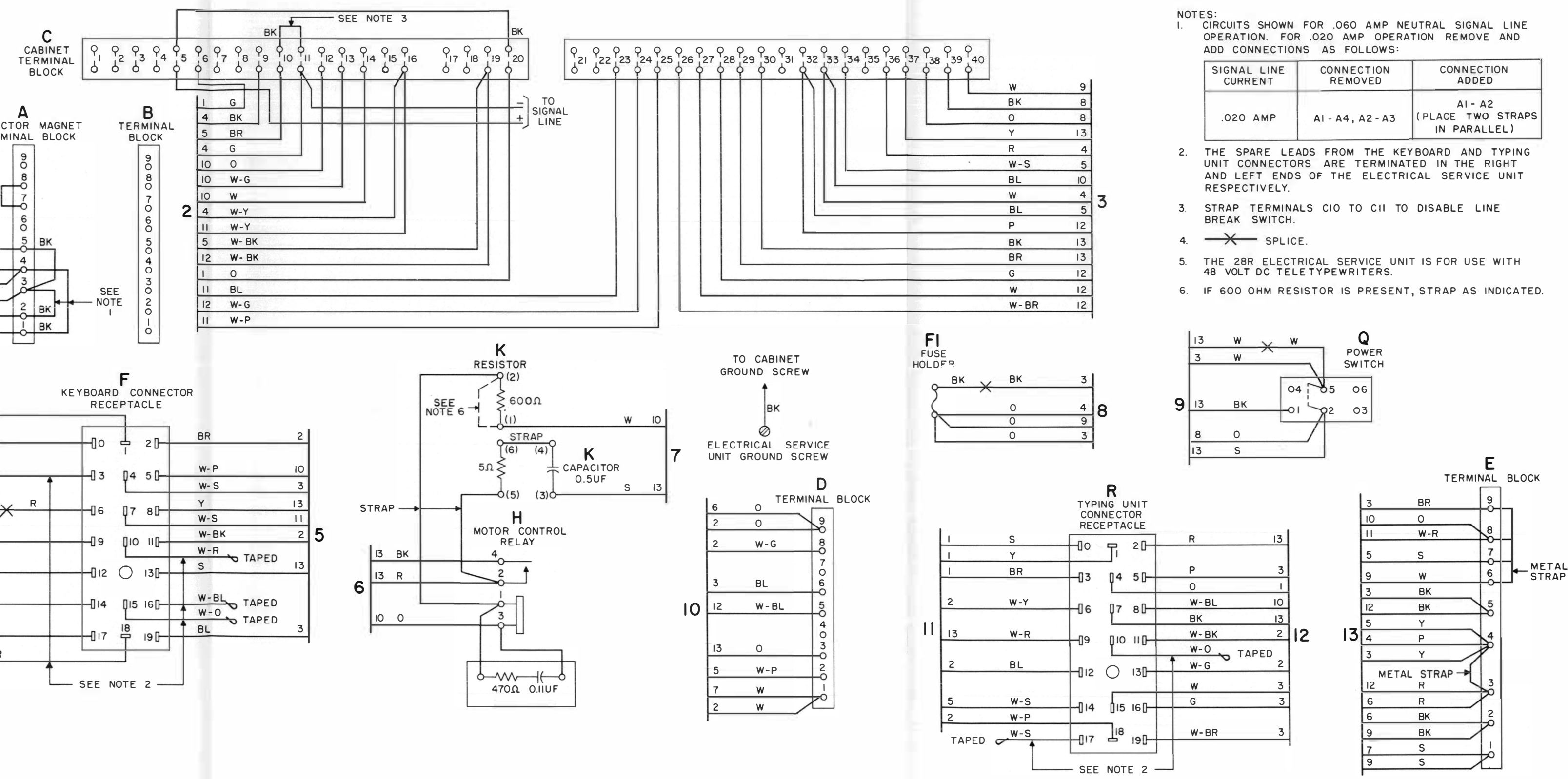
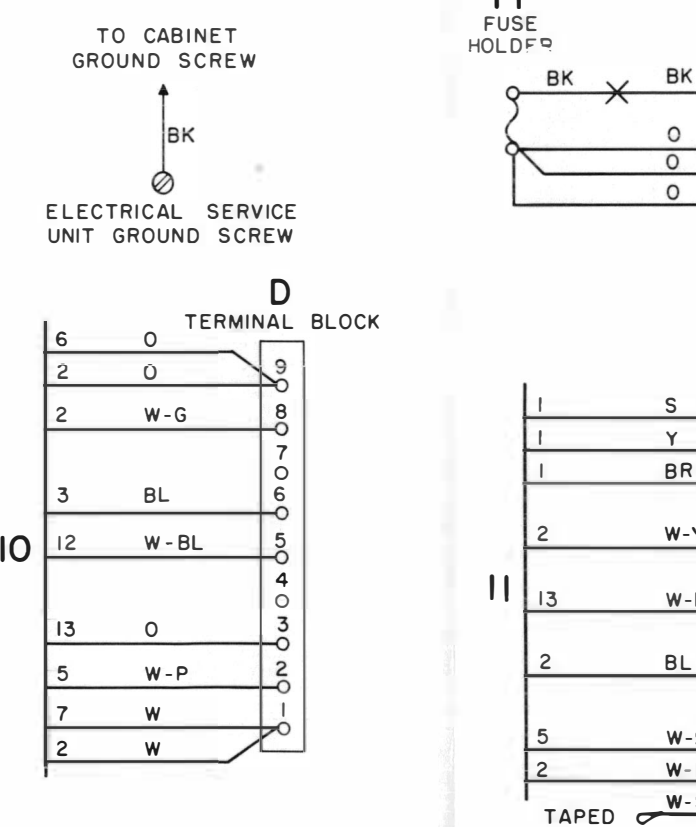
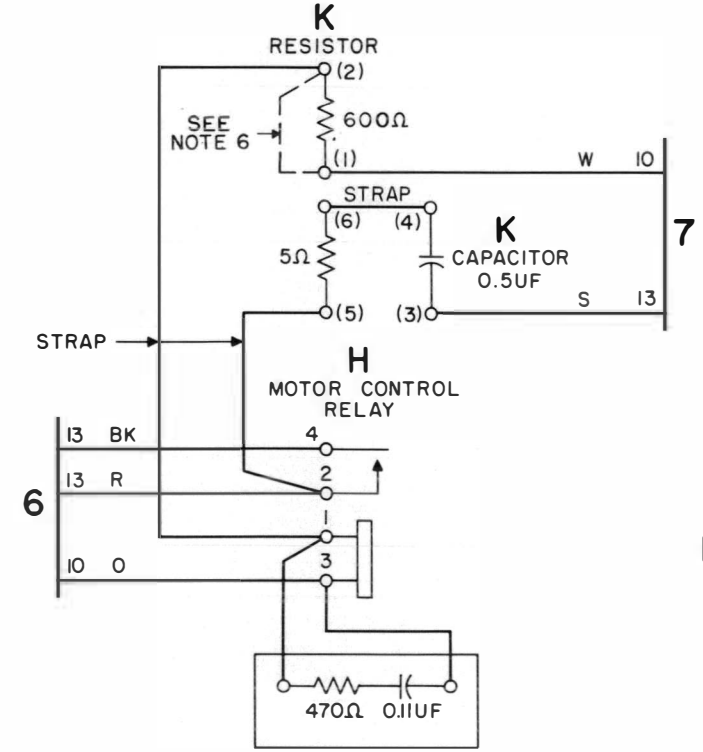
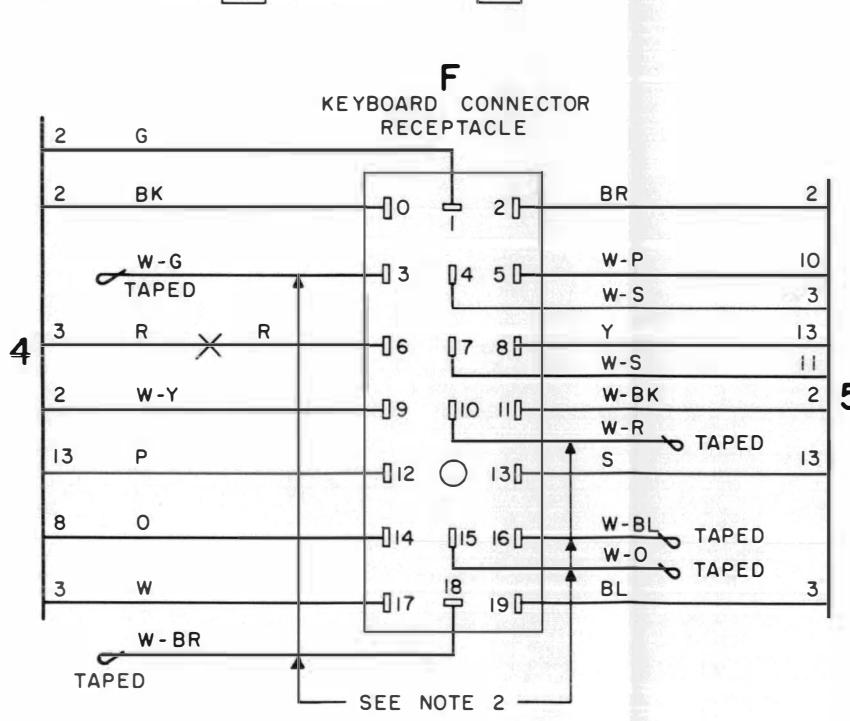
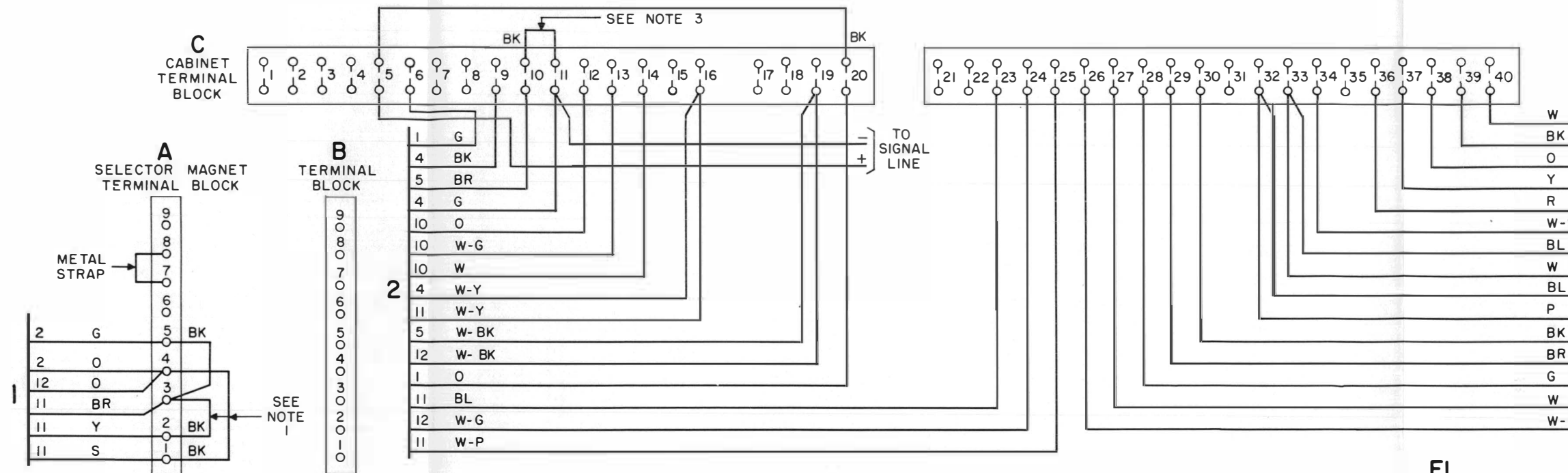
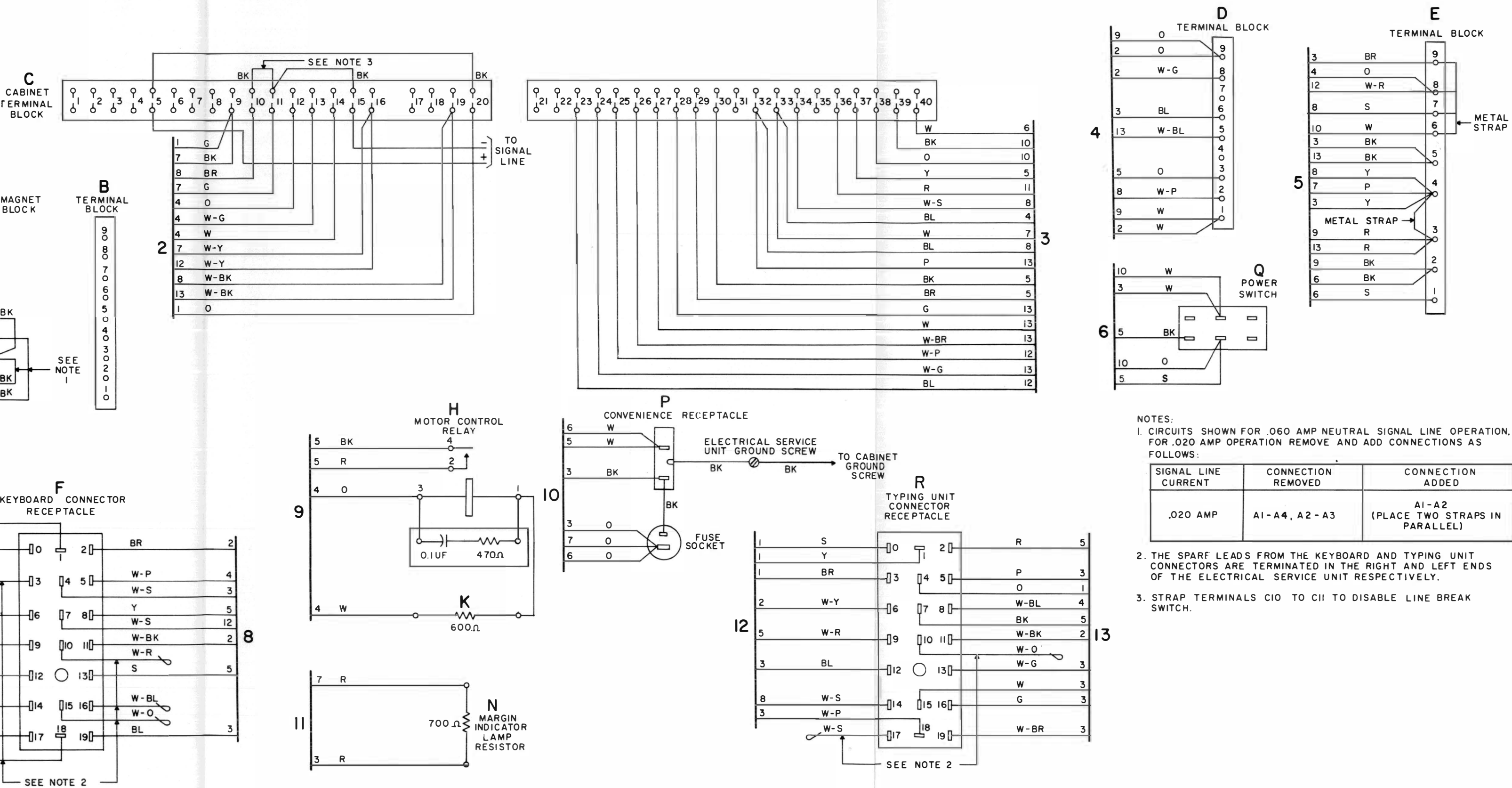


Figure 26 - 28R Electrical Service Unit



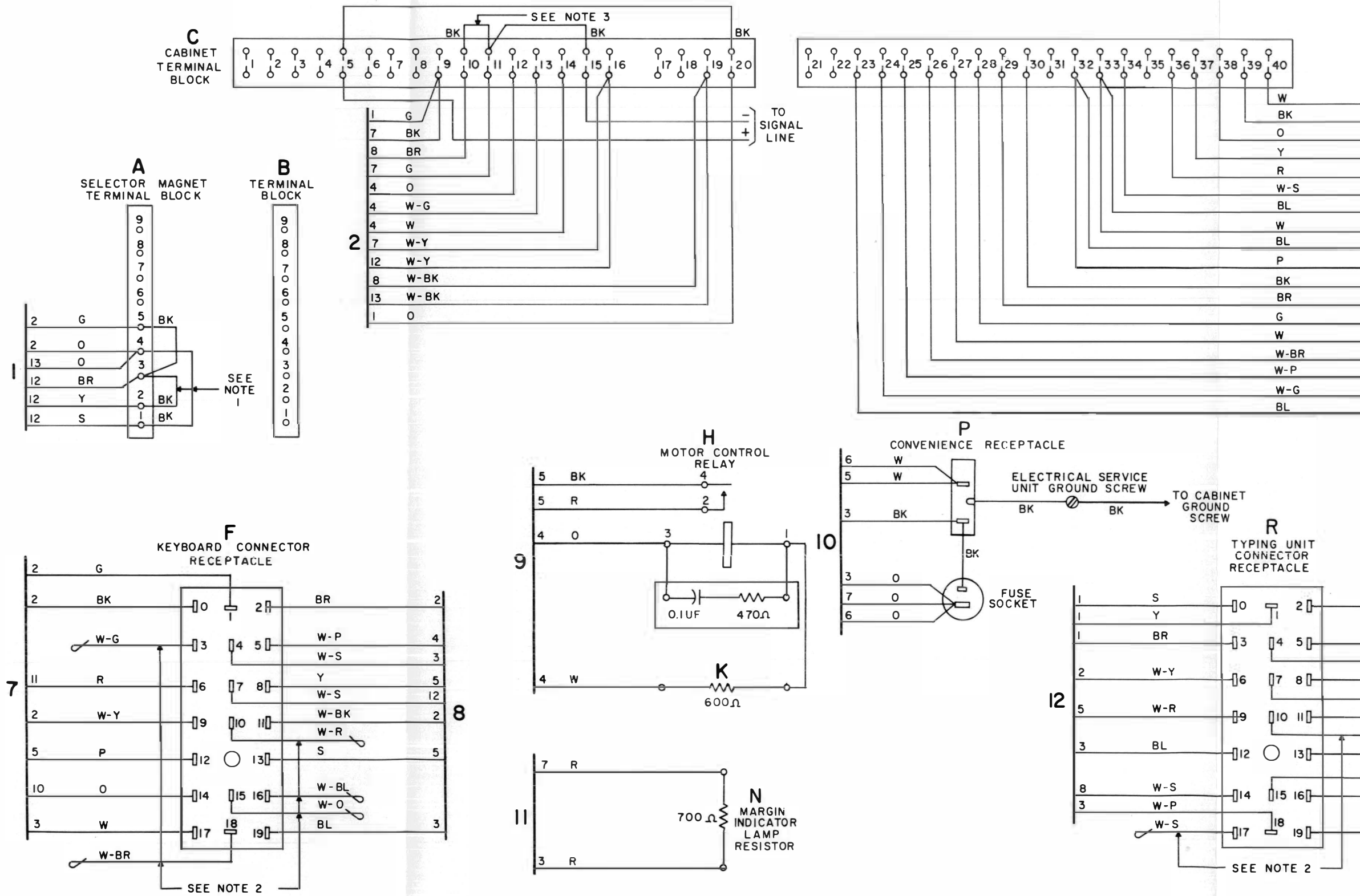


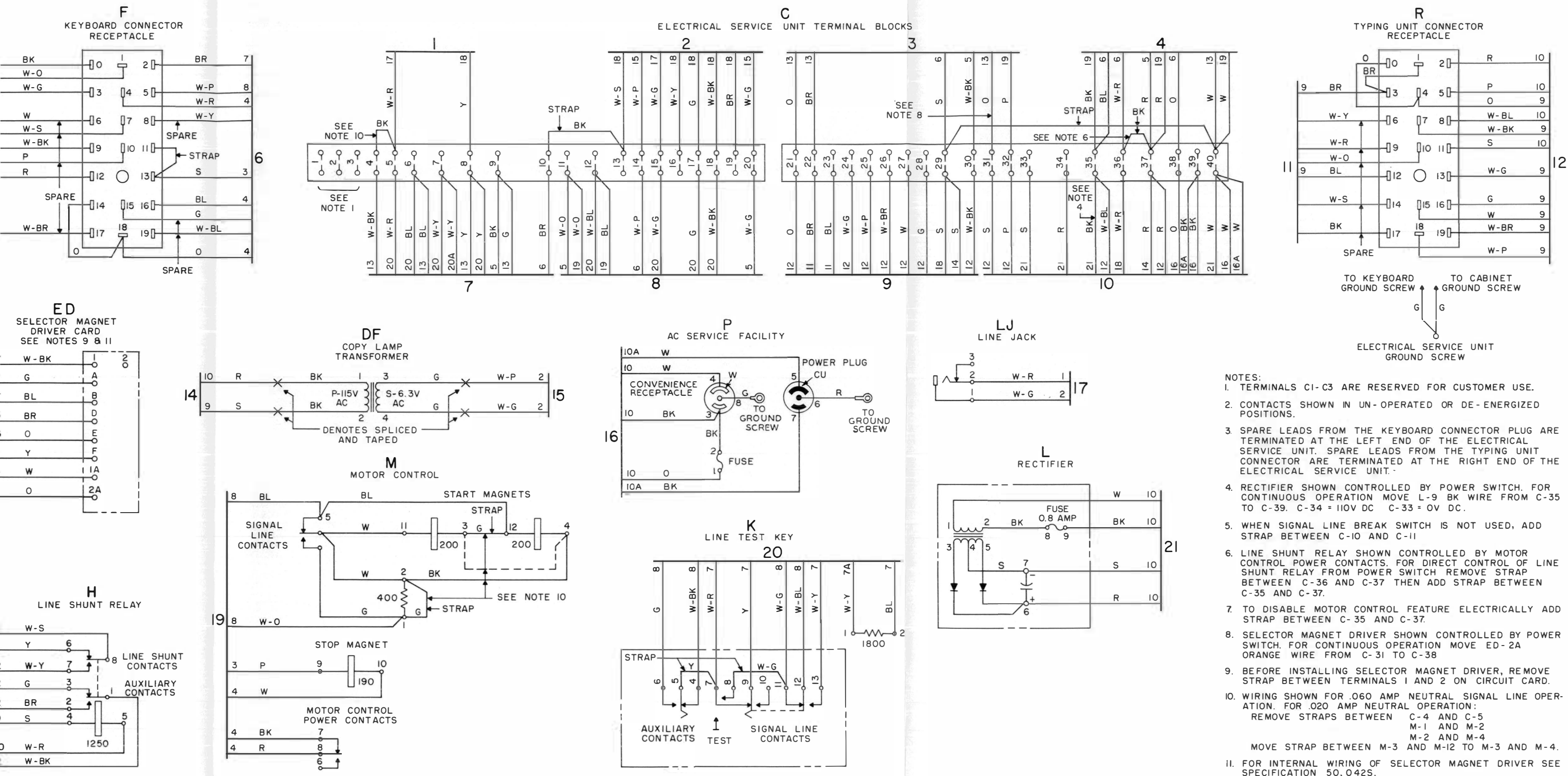
NOTES:
 1. CIRCUITS SHOWN FOR .060 AMP NEUTRAL SIGNAL LINE OPERATION. FOR .020 AMP OPERATION REMOVE AND ADD CONNECTIONS AS FOLLOWS:

SIGNAL LINE CURRENT	CONNECTION REMOVED	CONNECTION ADDED
.020 AMP	A1-A4, A2-A3	A1-A2 (PLACE TWO STRAPS IN PARALLEL)

- 2. THE SPARE LEADS FROM THE KEYBOARD AND TYPING UNIT CONNECTORS ARE TERMINATED IN THE RIGHT AND LEFT ENDS OF THE ELECTRICAL SERVICE UNIT RESPECTIVELY.
- 3. STRAP TERMINALS C10 TO C11 TO DISABLE LINE BREAK SWITCH.

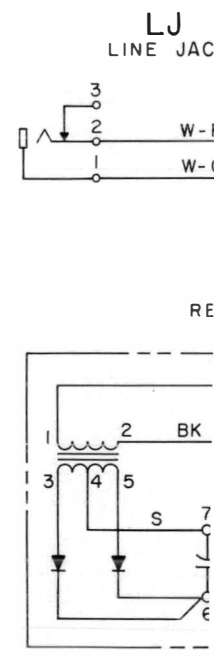
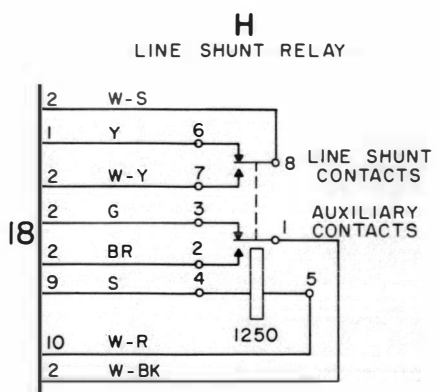
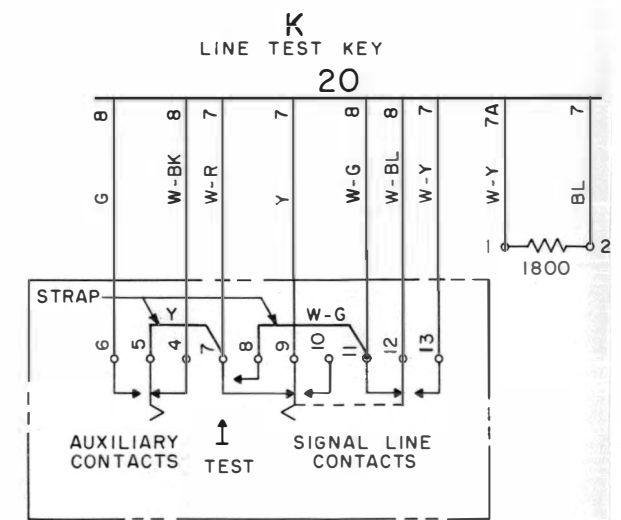
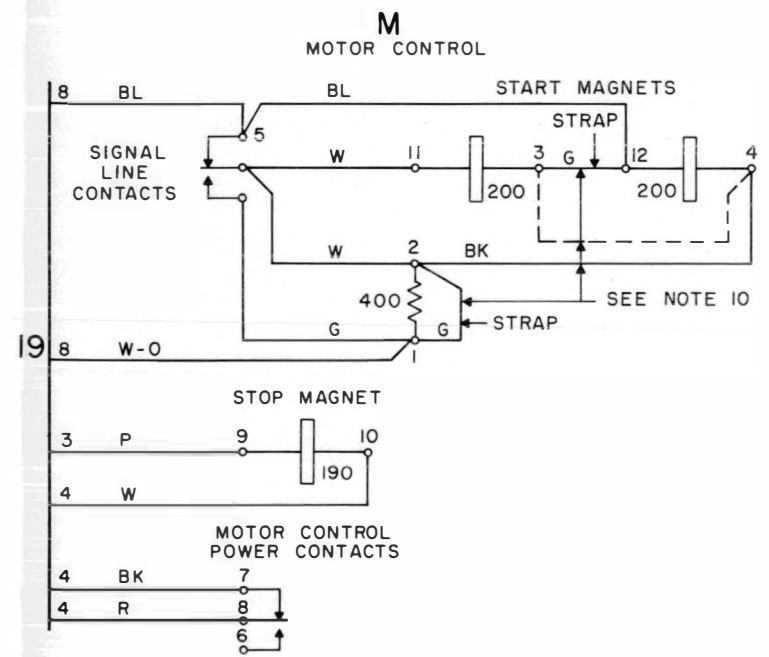
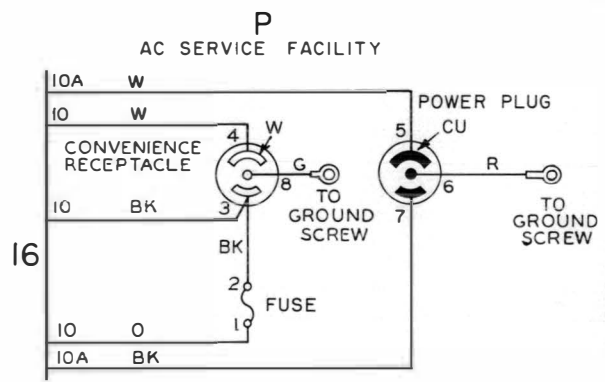
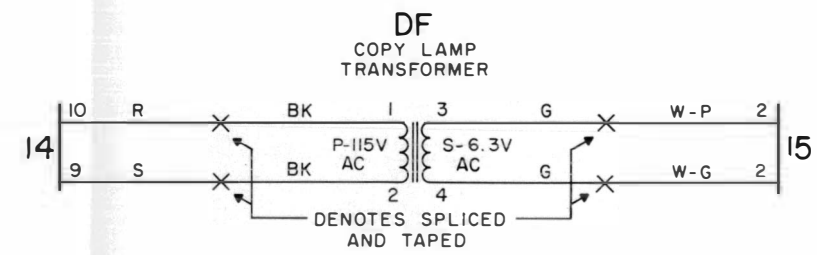
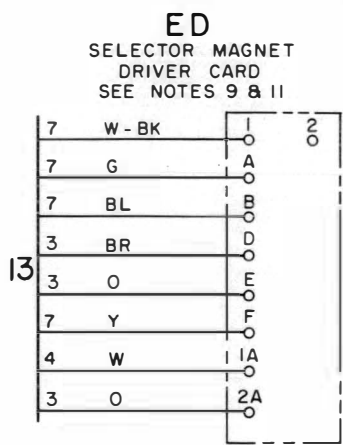
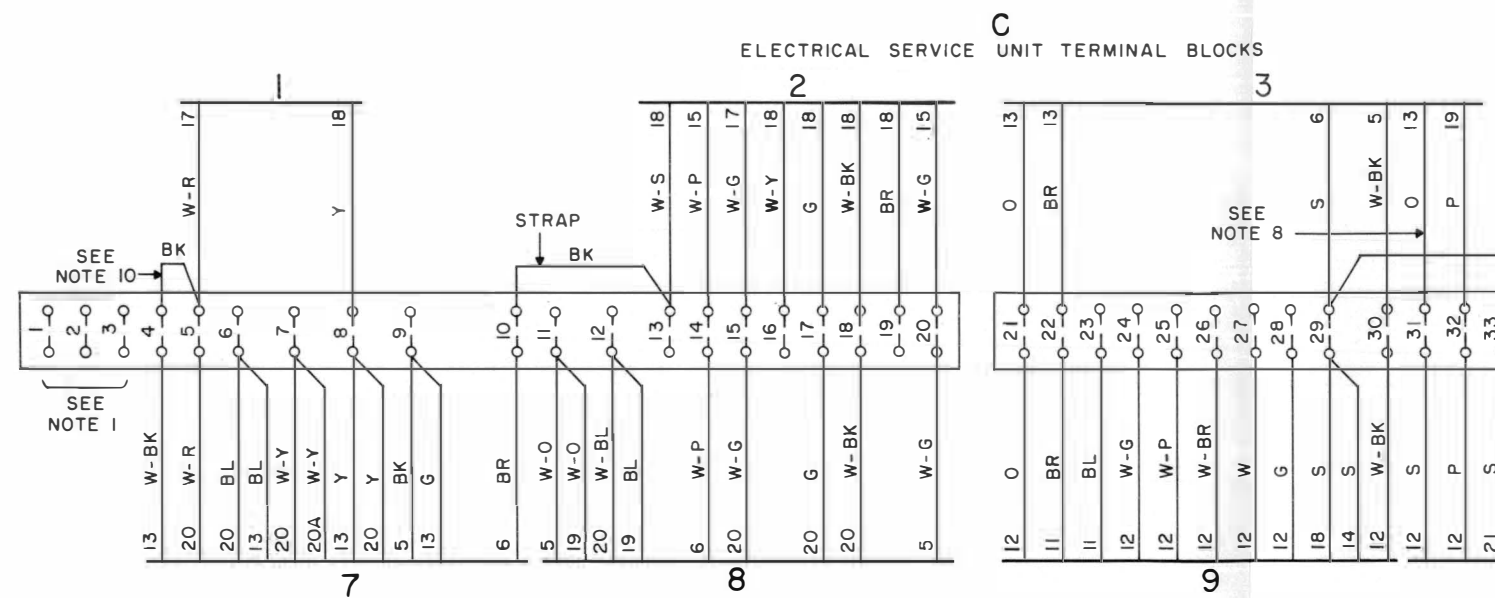
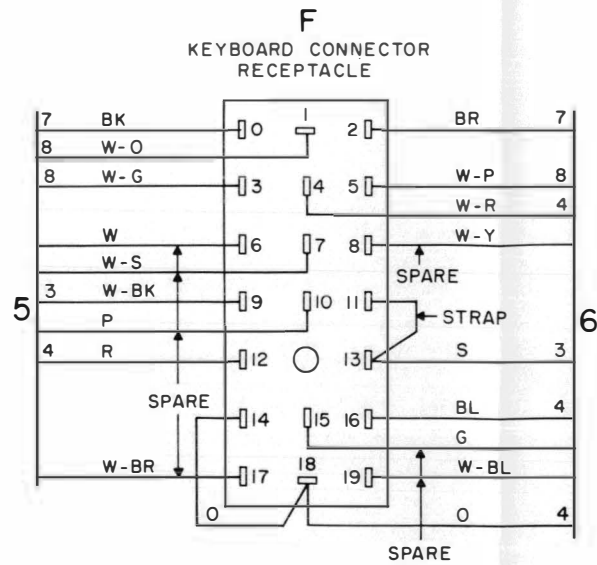
Figure 27 - 28S Electrical Service Unit





- NOTES:
1. TERMINALS C1-C3 ARE RESERVED FOR CUSTOMER USE.
 2. CONTACTS SHOWN IN UN-OPERATED OR DE-ENERGIZED POSITIONS.
 3. SPARE LEADS FROM THE KEYBOARD CONNECTOR PLUG ARE TERMINATED AT THE LEFT END OF THE ELECTRICAL SERVICE UNIT. SPARE LEADS FROM THE TYPING UNIT CONNECTOR ARE TERMINATED AT THE RIGHT END OF THE ELECTRICAL SERVICE UNIT.
 4. RECTIFIER SHOWN CONTROLLED BY POWER SWITCH. FOR CONTINUOUS OPERATION MOVE L-9 BK WIRE FROM C-35 TO C-39. C-34 = 110V DC C-33 = 0V DC.
 5. WHEN SIGNAL LINE BREAK SWITCH IS NOT USED, ADD STRAP BETWEEN C-10 AND C-11
 6. LINE SHUNT RELAY SHOWN CONTROLLED BY MOTOR CONTROL POWER CONTACTS. FOR DIRECT CONTROL OF LINE SHUNT RELAY FROM POWER SWITCH REMOVE STRAP BETWEEN C-36 AND C-37 THEN ADD STRAP BETWEEN C-35 AND C-37.
 7. TO DISABLE MOTOR CONTROL FEATURE ELECTRICALLY ADD STRAP BETWEEN C-35 AND C-37.
 8. SELECTOR MAGNET DRIVER SHOWN CONTROLLED BY POWER SWITCH. FOR CONTINUOUS OPERATION MOVE ED-2A ORANGE WIRE FROM C-31 TO C-38
 9. BEFORE INSTALLING SELECTOR MAGNET DRIVER, REMOVE STRAP BETWEEN TERMINALS 1 AND 2 ON CIRCUIT CARD.
 10. WIRING SHOWN FOR .060 AMP NEUTRAL SIGNAL LINE OPERATION. FOR .020 AMP NEUTRAL OPERATION:
 - REMOVE STRAPS BETWEEN C-4 AND C-5
 - M-1 AND M-2
 - M-2 AND M-4
 - M-2 AND M-4
 MOVE STRAP BETWEEN M-3 AND M-12 TO M-3 AND M-4.
 11. FOR INTERNAL WIRING OF SELECTOR MAGNET DRIVER SEE SPECIFICATION 50,042S.

Figure 28 - 28T Electrical Service Unit



3. 28 ELECTRICAL SERVICE UNIT SUBASSEMBLY WIRING DIAGRAMS

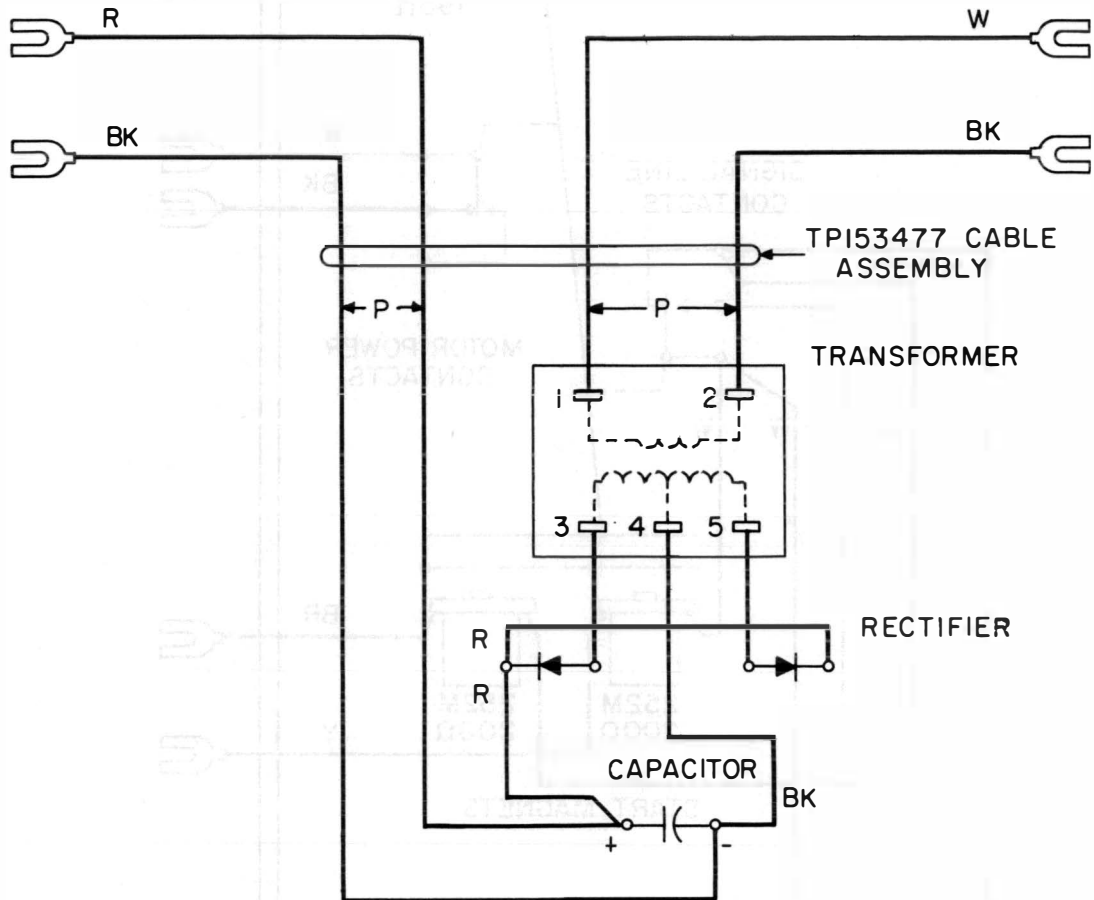


Figure 29 - TP152950 Rectifier Assembly
(120 Mil Output)

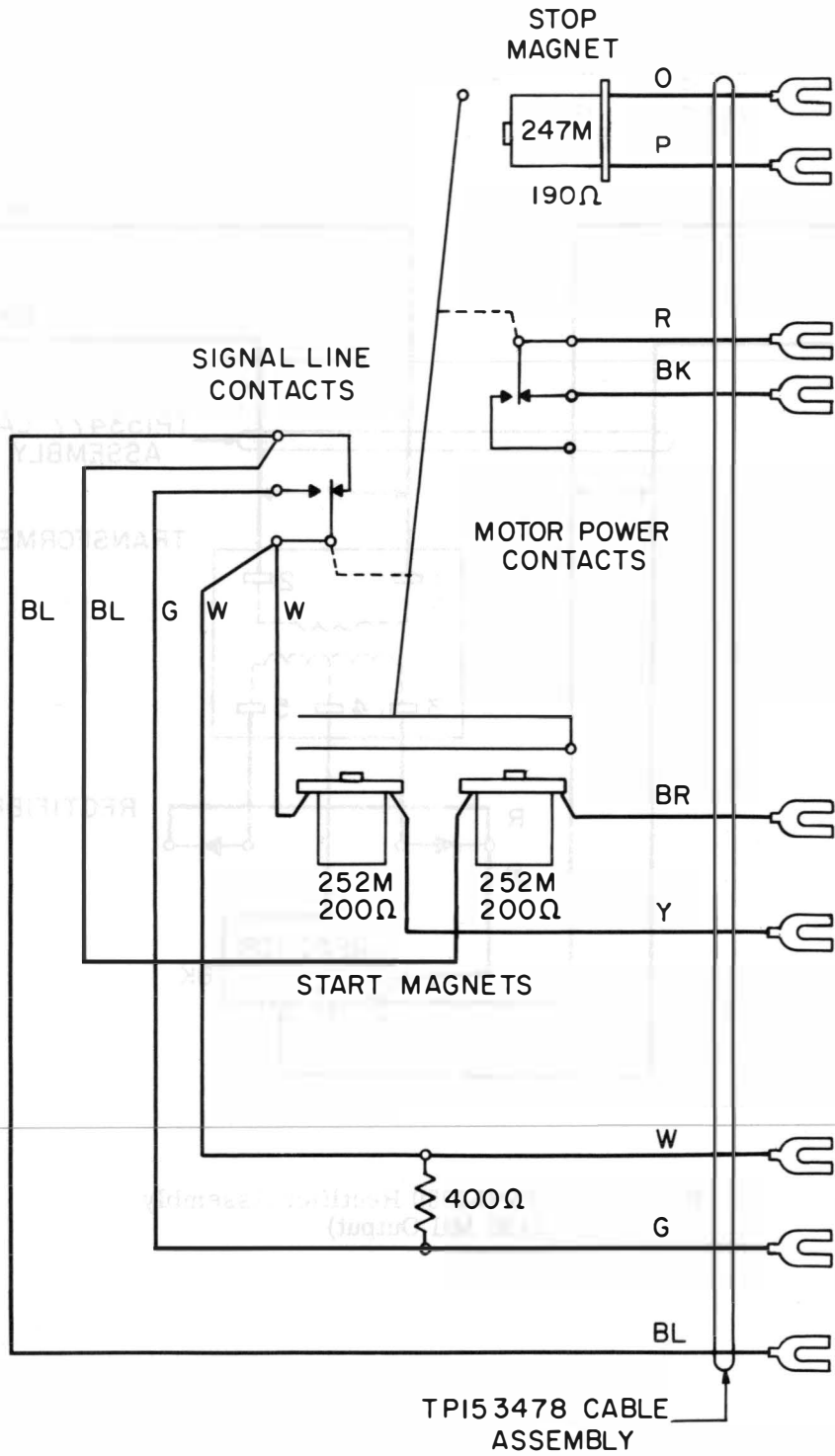


Figure 30 - TP153251 Electrical Motor Control Assembly

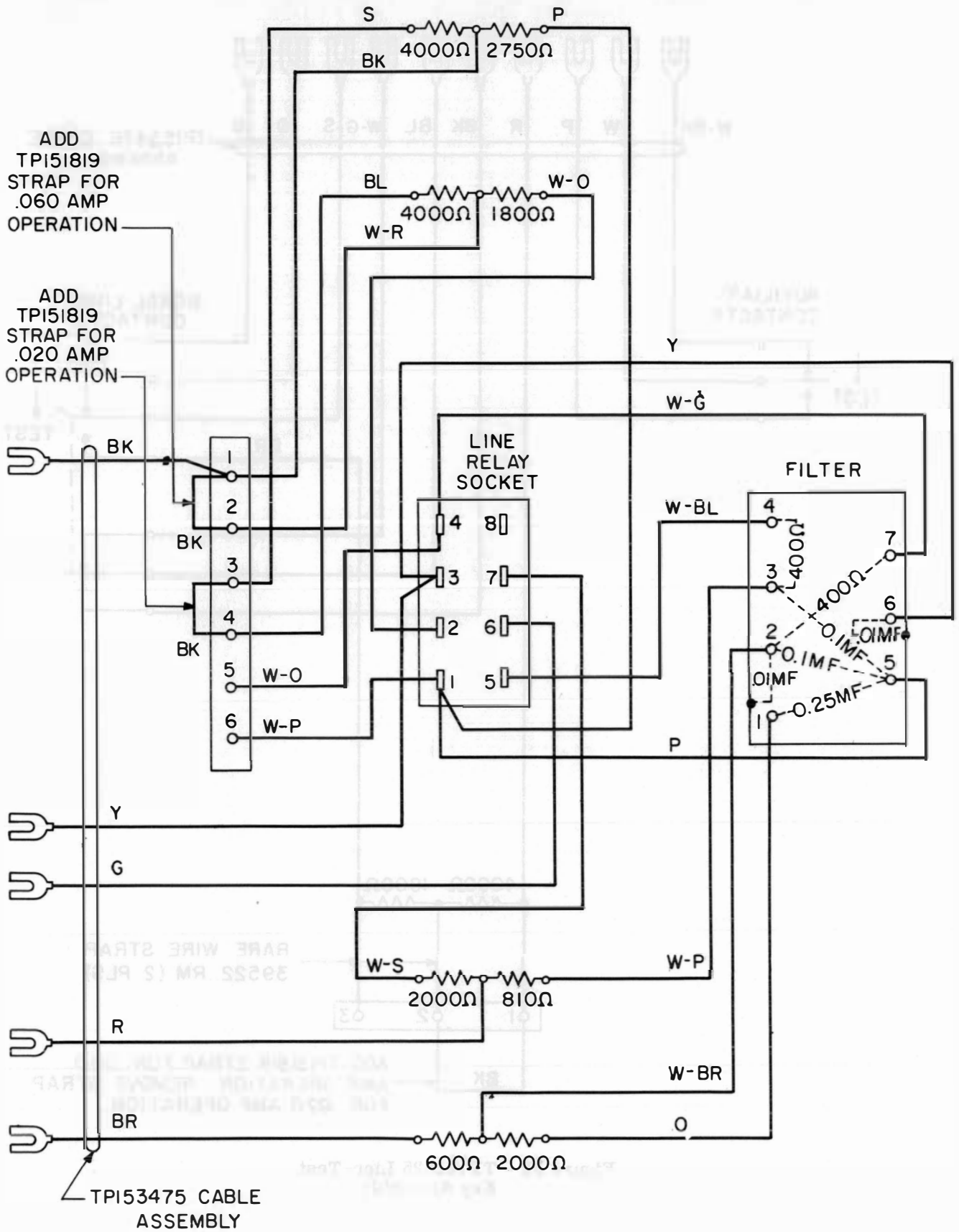


Figure 31 - TP152623 Line Relay Mounting Assembly

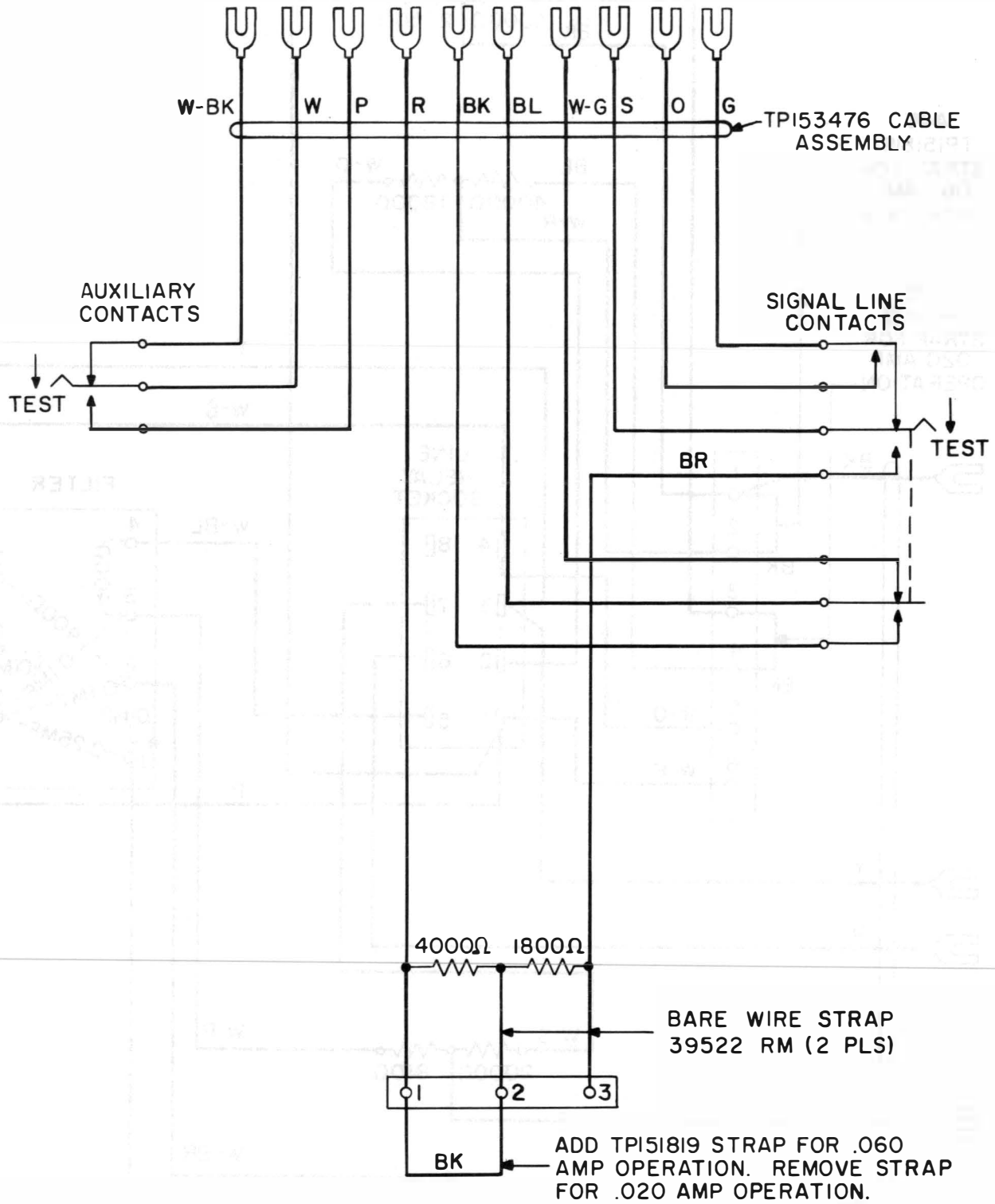


Figure 32 - TP152625 Line-Test Key Assembly

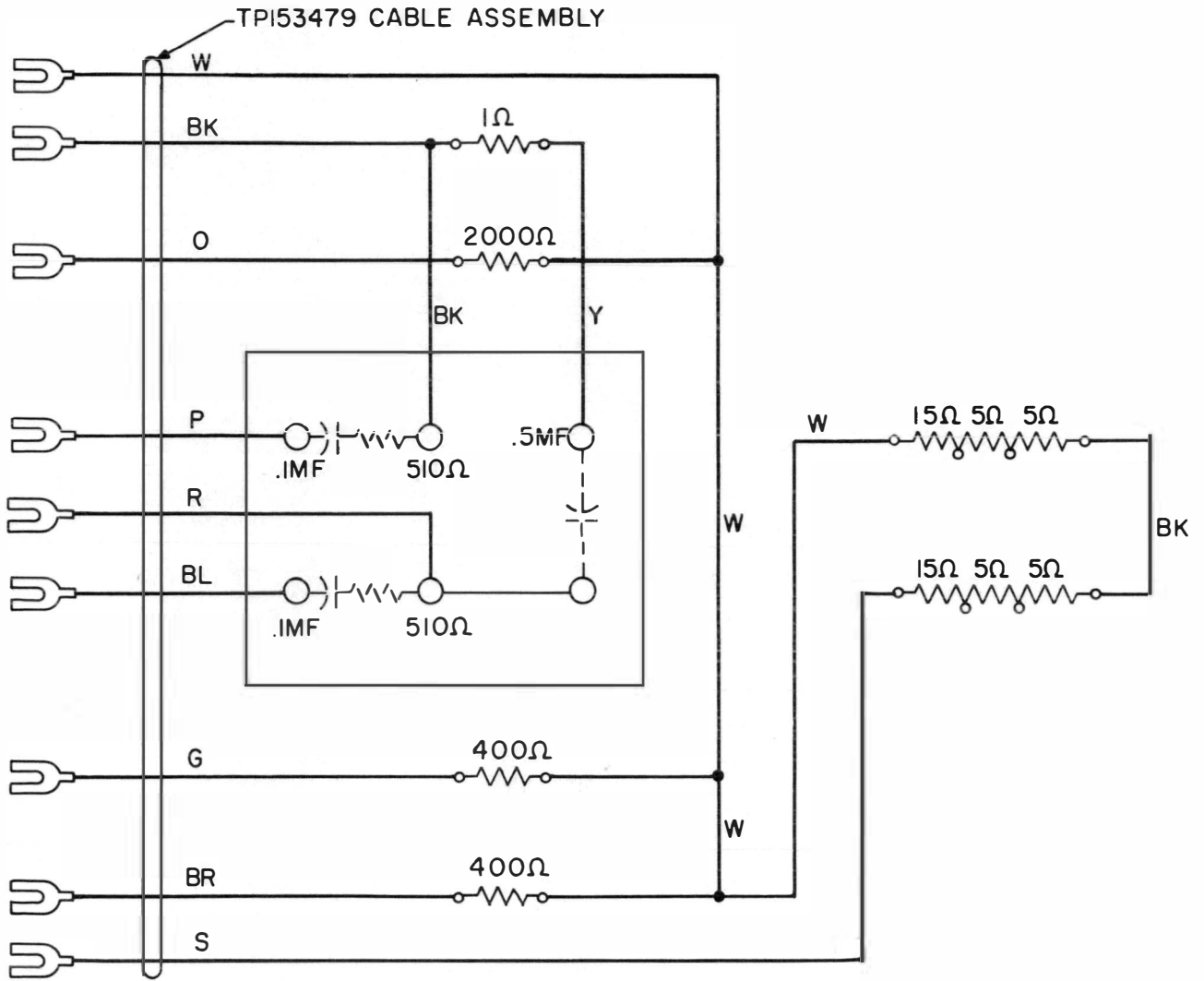


Figure 33 - TP152624 Capacitor Resistor Assembly