

## SHEET INDEX

| FIG.   | CONTENTS   | SHEET NO.  | ISSUE NO. |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    | OLD SHEET NO. |    |    |
|--|--|--|-----------|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|---------------|----|----|
|  |  |  | 19        | 20 | 21 | 22 | 23 | 24 | 25 | 26 | 27 | 28 | 29 | 30 | 31 | 32 | 33 | 34 |               | 35 | 36 |
|  | SHEET INDEX<br>SUPPORTING INFORMATION              | A1   | 19        | 20 |    |    |    |    |    |    |    |    |    |    |    |    |    |    |               |    |    |
|  |  | A2   | 19        | 20 |    |    |    |    |    |    |    |    |    |    |    |    |    |    |               |    |    |
|  | APPARATUS INDEX                                    | A3   | 19        | 20 |    |    |    |    |    |    |    |    |    |    |    |    |    |    |               |    |    |
|  | CIRCUIT NOTES<br>INFORMATION NOTES<br>OPTION INDEX | B1   | 19        | 20 |    |    |    |    |    |    |    |    |    |    |    |    |    |    |               |    |    |
|  | GROUP  |  |           |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |               |    |    |
| 1<br>2<br>3<br>4<br>5<br>6<br>7<br>8<br>9<br>10<br>11<br>12                | ED-91929-01  | 1<br>2 (MD)<br>3<br>4<br>5<br>6<br>7<br>8 (MD)<br>9 (MD)<br>10<br>11 (MD)<br>12                | C1        | 19 | 20 |    |    |    |    |    |    |    |    |    |    |    |    |    |               |    |    |
| 13<br>14<br>15<br>16<br>21<br>23<br>25<br>29<br>30<br>31<br>32<br>33<br>34 | ED-91929-01  | 13<br>14<br>15 (MD)<br>16<br>17<br>18 (MD)<br>19<br>20<br>21 (MD)<br>22<br>23<br>24<br>25 (MD) | C2        | 19 | 20 |    |    |    |    |    |    |    |    |    |    |    |    |    |               |    |    |
| 35<br>36<br>43<br>46<br>47<br>51<br>49<br>55                               | ED-91929-01  | 26<br>27<br>28<br>29<br>30<br>31<br>32<br>33   | C3        | 19 | 20 |    |    |    |    |    |    |    |    |    |    |    |    |    |               |    |    |
| 17<br>18<br>19<br>20<br>22<br>24<br>27<br>28                               | ED-91938-01  | 1<br>2<br>3 (MD)<br>4 (MD)<br>5<br>6<br>7<br>8   | C4        | 19 | 20 |    |    |    |    |    |    |    |    |    |    |    |    |    |               |    |    |

| DWG ISS | CD ISS | DWG ISS     | CD ISS  | DWG ISS | CD ISS |
|---------|--------|-------------|---------|---------|--------|
| 1       | 1      | 2D          | 2D      | 3D      | 3D     |
| 4A      | 4A     | 5D          | 5D      | 6D      | 6D     |
| 7A      | 7A     | 8A          | 8A      | 9D      | 9D     |
| 10D     | 10D    | 11D         | 11D     | 12D     | 12D    |
| 13D     | 13D    | 14D         | 14D     | 15D     | 15D    |
| 16D     | 16D    | 17D         | 17D     | 18D     | 18D    |
| DWG ISS | CD ISS | DATE ISSUED | DRW     | APPD    |        |
| 19D     | 18D    | APPID       | 4-28-64 | RGR     | WFBH   |
|         |        |             |         | JAH     | ARM    |
| 20D     | 18D    | APP2D       | 8-28-64 | DHC     | GRT    |
|         |        |             |         |         | PBF    |
|         |        |             |         |         | ARM    |

### 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 BROUGHT UP TO DATE EACH TIME ANY SHEET OF THE DRAWING IS REISSUED, OR A NEW SHEET IS ADDED.
3. THE ISSUE NUMBER ASSIGNED TO A CHANGED OR NEW SHEET WILL BE THE SAME ISSUE NUMBER AS THAT OF THE SHEET INDEX.
4. SHEETS THAT ARE NOT CHANGED WILL RETAIN THEIR EXISTING ISSUE NUMBER.
5. THE LAST ISSUE NUMBER OF THE SHEET INDEX IS RECOGNIZED AS THE LATEST ISSUE NUMBER OF THE DRAWING AS A WHOLE.
6. "OLD SHEET NO." REFERS TO SHEET NO. PRIOR TO ISSUE: 19D

### SUPPORTING INFORMATION

| CATEGORY       | NO.                        |
|----------------|----------------------------|
| EQUIPMENT DWGS | ED-91929-01<br>ED-91938-01 |

|   |  |
|---|--|
| SD- 69160-01  | AT&TCO<br>STANDARD                                 |
| STATION SYSTEMS<br>EQUIPMENT UNITS                                |  |
| <b>BELL TELEPHONE LABORATORIES</b><br><small>INCORPORATED</small> | <b>SD- 69160-01-A1</b><br>SHEET INDEX<br>11 SHEETS |
| <small>DWG SIZE</small><br><b>35</b>                              | <small>PRINTED IN U. S. A.</small>                 |



APPARATUS INDEX

DRAWING  
ISSUE  
19D PNC  
20D PNC  
PBM  
VBM

| EQUIPMENT UNITS |         |   |
|-----------------|---------|---|
| ED-91929-01     |         |   |
| FIG NO.         | GRP NO. | APPARATUS USED  |
| 1               | 1       | 307P OR 274AH INDUCTOR  |
| 2               | 2       | 178B INDUCTION COIL (MD)  |
| 3               | 3       | 139C OR 439C CAPACITOR<br>33A OR 33L VARISTOR                   |
| 4               | 4       | 161A OR 189A REP COIL   |
| 5               | 5       | MTG ONLY WITH 9 TERMINALS DRILLED<br>FOR FOUR 19-TYPE RESISTORS |
| 6               | 6       | 18AE RESISTOR   |
| 7               | 7       | UA46 RELAY  |
| 8               | 8       | D-159797 INDUCTION COIL (MD)                                    |
| 9               | 9       | MALLORY FPS122 CAPACITOR 40UF (MD)                              |
| 10              | 10      | 18HP OR 18KM RESISTOR<br>TWO 19SH RESISTORS                     |
| 11              | 11      | 137A CAPACITOR (MD)   |
| 12              | 12      | B1129 RELAY   |
| 13              | 13      | 85G INDUCTOR  |
| 14              | 14      | U1023 RELAY   |
| 15              | 15      | 33A VARISTOR (MD)   |
| 16              | 16      | U815 RELAY  |
| 21              | 17      | U6107 OR UA129 RELAY  |
| 23              | 18      | 178F INDUCTION COIL (MD)  |
| 25              | 19      | KS-13486 CAPACITOR<br>18DJ RESISTOR                             |
| 29              | 20      | 18CN RESISTOR<br>TWO 18BA RESISTORS                             |
| 30              | 21      | 13N RESISTANCE LAMP (MD)  |
| 31              | 22      | 18CN RESISTOR<br>18G RESISTOR<br>TWO 18DS RESISTORS             |
| 32              | 23      | TWO 19PJ RESISTORS  |
| 33              | 24      | 441A CAPACITOR  |
| 34              | 25      | 271A RELAY (MD)   |
| 35              | 26      | 33L VARISTOR  |
| 36              | 27      | 439A CAPACITOR  |
| 43              | 28      | 1C PAD  |
| 46              | 29      | TWO 439A CAPACITORS   |
| 47              | 30      | 439C CAPACITOR  |
| 51              | 31      | TWO 19AM RESISTORS  |
| 49              | 32      | 181B INDUCTION COIL   |
| 55              | 33      | 189D REP COIL   |

| EQUIPMENT UNITS |         |   |
|-----------------|---------|---|
| ED-91938-01     |         |   |
| FIG NO.         | GRP NO. | APPARATUS USED  |
| 17              | 1       | U235 RELAY  |
| 18              | 2       | U6107 OR UA129 RELAY<br>TWO 139A OR 439A CAPACITOR<br>111A RESISTOR                                 |
| 19              | 3       | U112 RELAY  |
| 20              | 4       | D-159797 INDUCTION COIL<br>307N INDUCTOR (MD)<br>18AJ RESISTOR                                      |
| 22              | 5       | 178F INDUCTION COIL<br>307N INDUCTOR (MD)<br>18CK RESISTOR  |
| 24              | 6       | UA13 RELAY<br>18DA RESISTOR<br>33D VARISTOR   |
| 27              | 7       | UA46 RELAY  |
| 28              | 8       | 94F REP COIL<br>8B THERMISTOR   |
| 26              | 9       | TWO 13P RESISTANCE LAMPS<br>19CB RESISTOR<br>19LA RESISTOR  |
| 37              | 10      | 120H OR 120HS REP COIL  |
| 38              | 11      | 120K OR 120KS REP COIL  |
| 39              | 12      | 120L OR 120LS REP COIL  |
| 40              | 13      | U902 RELAY  |
| 41              | 14      | 149E INDUCTOR   |
| 42              | 15      | U612 RELAY  |
| 44              | 16      | 94E REP COIL  |
| 45              | 17      | 94G REP COIL (MD)   |
| 48              | 18      | 120P REP COIL<br>19HP RESISTOR<br>19JB RESISTOR<br>19GC RESISTOR<br>19SM RESISTOR<br>439A CAPACITOR |
| 50              | 19      |   |
| 52              | 20      | 181B INDUCTION COIL<br>274L INDUCTOR  |
| 53              | 21      | 425B NETWORK  |
| 54              | 22      | U1078 RELAY   |

CIRCUIT NOTES:

|      |       |                |           |               |
|------|-------|----------------|-----------|---------------|
| 101. | DESIG | FUSE AMP       | POTENTIAL | ONE PER       |
|      |       |                |           |               |
|      |       | BATTERY SYMBOL |           | VOLTAGE RANGE |

|      |                   |         |            |          |
|------|-------------------|---------|------------|----------|
| 102. | FEATURE OR OPTION | PROVIDE |            |          |
|      |                   | FIG.    | APP OR WRG | QUANTITY |
|      |                   |         |            |          |

| 103. RECORD OF FIGURES, WIRING, AND APPARATUS CHANGES |                               |                      |          |  |     |                       |
|---|-------------------------------|----------------------|----------|--|-----|-----------------------|
| CHANGED ON ISS  | IF JOB RECORDS DO NOT SPECIFY | THIS OPTION WAS FURN | SEE NOTE | USE IN CIRCUIT                                 |     |                       |
|   |                               |                      |          | STD  | A&M | MD                    |
| 3D  |                               |                      |          |  |     | FIG.9                 |
| 5D  |                               |                      |          | FIG.14   |     |                       |
| 6D  |                               |                      |          | FIG.15, 16, 17, 18, 19, 20                     |     |                       |
| 9D  |                               |                      |          | FIG.21   |     |                       |
| 10D   |                               |                      |          | FIG.22   |     | FIG.20                |
|   |                               |                      |          | FIG.23   |     | FIG.8                 |
| 11D   |                               |                      |          | FIG.24   |     |                       |
| 12D   |                               |                      |          | FIG.25, 26, 27, 28                             |     |                       |
| 13D   |                               |                      |          | FIG.29, 30, 31, 32                             |     |                       |
|   | Y OR Z                        | Z                    |          | Y  |     | Z                     |
| 14D   |                               |                      |          | FIG.33, 34, 35, 36, 37, 38, 39, 40, 41, 42, 43 |     |                       |
| 15D   |                               |                      |          | FIG.44, 45, 46, 47                             |     | FIG.11,30             |
|   | W OR X                        | X                    |          | W  |     | X                     |
|   | U OR V                        | V                    |          | U  |     | V                     |
| 16D   |                               |                      |          | FIG.48, 49, 50, 51, 52, 53                     |     |                       |
|   |                               |                      |          |  |     | FIG.2, 15, 22, 23, 34 |
|   | T OR S                        | S                    |          | T  |     | S                     |
|   | Q OR R                        | R                    |          | Q  |     | R                     |
|   | N OR P                        | P                    | 104      | N, P   |     |                       |
|   | K OR M                        | M                    | 104      | K, M   |     |                       |
|   | H OR J                        | J                    | 104      | H, J   |     |                       |
|   | F OR G                        | G                    |          | F  |     | G                     |
|   | D OR E                        | E                    |          | D  |     | E                     |
| 17D   |                               |                      |          | FIG.54   |     |                       |
| 18D   |                               |                      |          | FIG.55   |     | FIG.45                |

104. USE OPTIONS N, K, AND H ONLY IF REQUIRED BY GOVERNMENT MATERIAL RESTRICTIONS ON OPTIONS P, M, AND J RESPECTIVELY.

CIRCUIT NOTES: (CONT)

|      |                |                    |                   |
|------|----------------|--------------------|-------------------|
| 105. | NETWORK VALUES |                    |                   |
|      | NETWORK        | RESISTANCE IN OHMS | CAPACITANCE IN UF |
|      | NO.            | CODE               |                   |
|      |                |                    |                   |

INFORMATION NOTES:

301. UNLESS OTHERWISE SPECIFIED:  
RESISTANCE VALUES ARE IN OHMS,  
CAPACITANCE VALUES ARE IN MICROFARADS,  
VALUES PRECEDED BY THE SYMBOL + (PLUS)  
OR - (MINUS) ARE IN VOLTS.

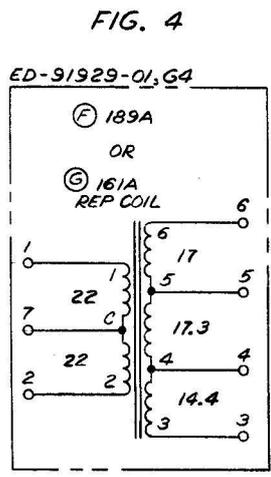
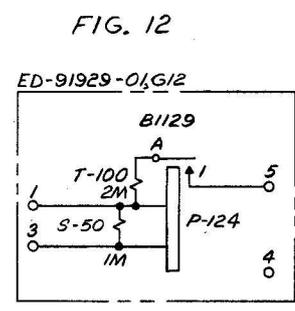
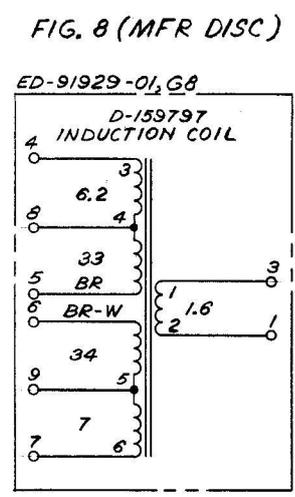
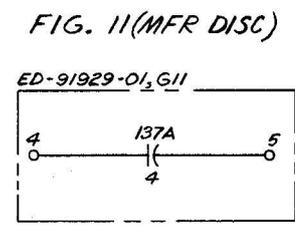
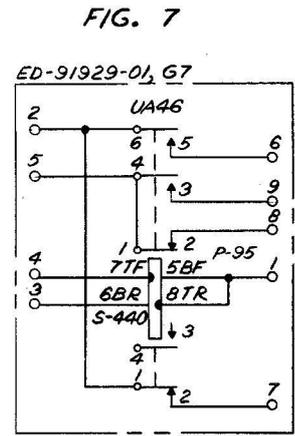
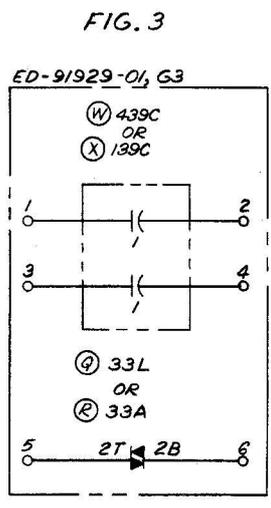
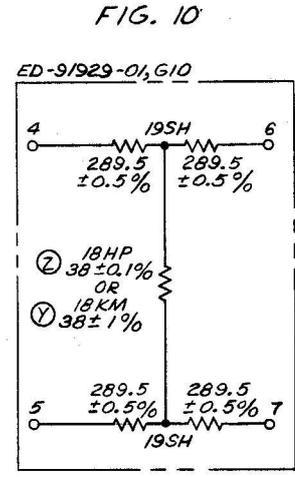
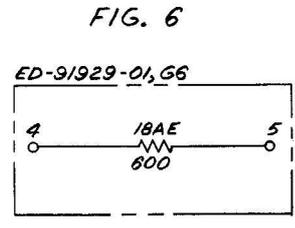
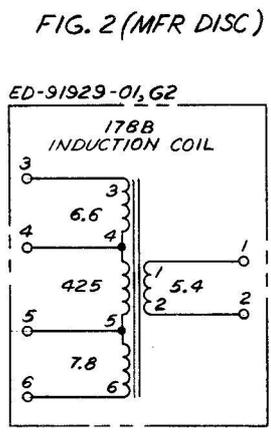
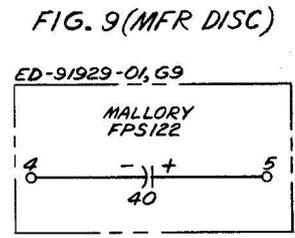
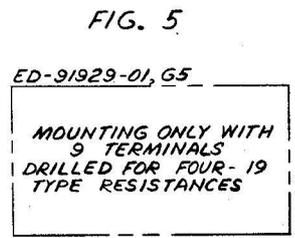
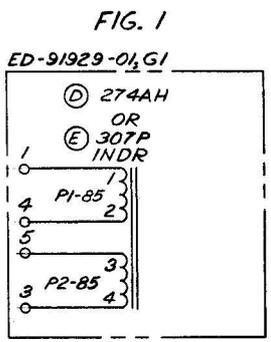
OPTION INDEX

| APP OR WRG | LOCATION |
|------------|----------|
| Z          | C1       |
| Y          |          |
| X          |          |
| W          |          |
| V          | C4       |
| U          |          |
| T          | C2, C4   |
| S          |          |
| R          | C1       |
| P          |          |
| N          | C5       |
| M          |          |
| K          |          |
| J          |          |
| H          | C1       |
| G          |          |
| F          |          |
| E          |          |

STATION SYSTEMS  
EQUIPMENT UNITS

SD-69160-01-B1

DRAWING ISSUE  
19D  
20D



| DRAWING ISSUE |         |
|---------------|---------|
| 19D           | APR DHC |
|               | ARM     |
| 20D           | DHC     |
|               | ARM     |

FIG. 13

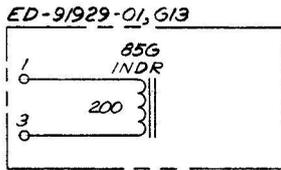


FIG. 14

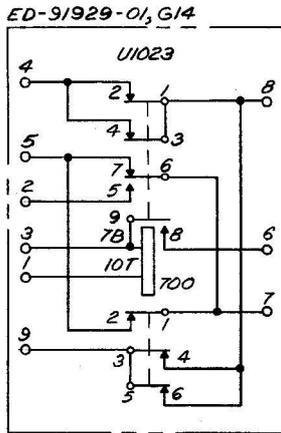


FIG. 15(MFR DISC)

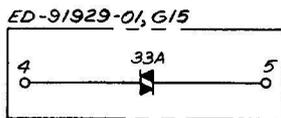


FIG. 16

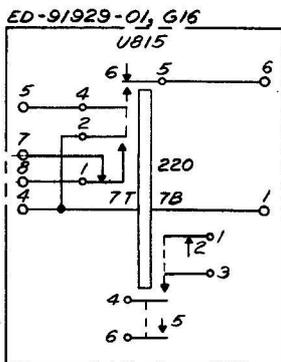


FIG. 21

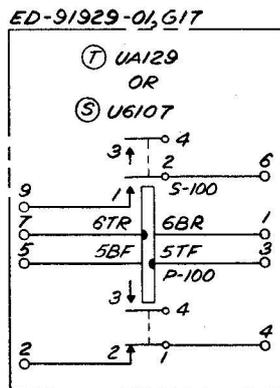


FIG. 23(MFR DISC)

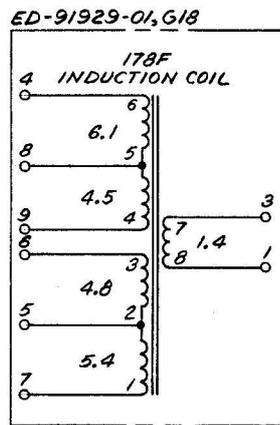


FIG. 25

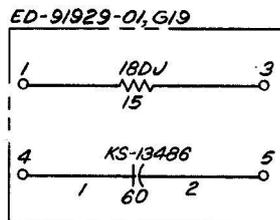


FIG. 29

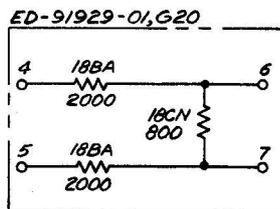


FIG.30(MFR DISC)

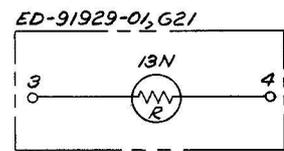


FIG.31

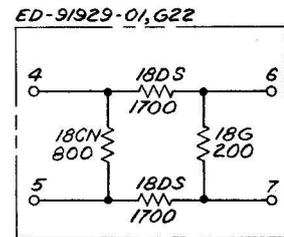


FIG. 32

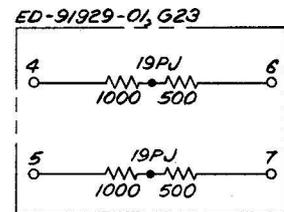


FIG. 33

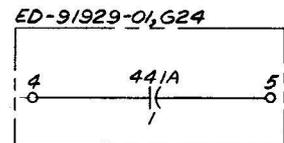


FIG.34(MFR DISC)

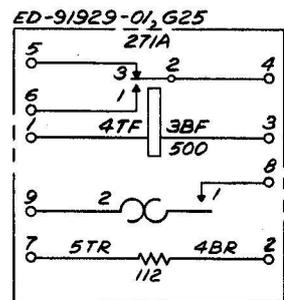


FIG. 35

ED-91929-01, G26

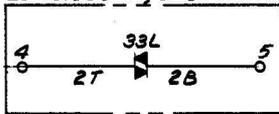


FIG. 36

ED-91929-01, G27

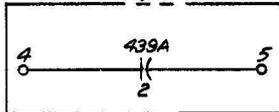


FIG. 43

ED-91929-01, G28

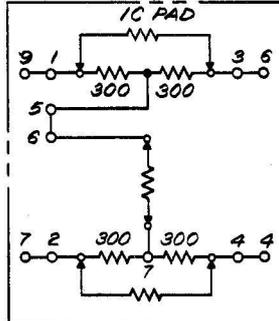


FIG. 46

ED-91929-01, G29

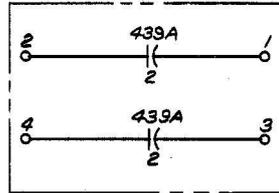


FIG. 47

ED-91929-01, G30

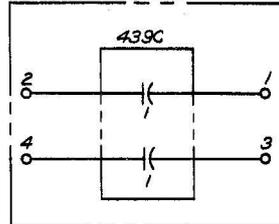


FIG. 51

ED-91929-01, G31

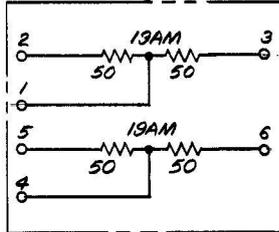


FIG. 49

ED-91929-01, G32

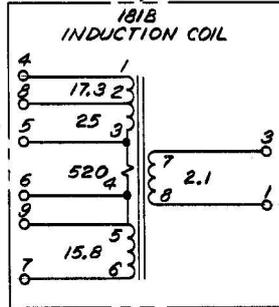


FIG. 55

ED-91929-01, G33

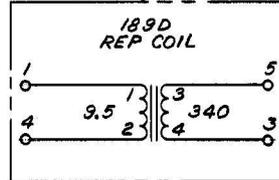


FIG. 17

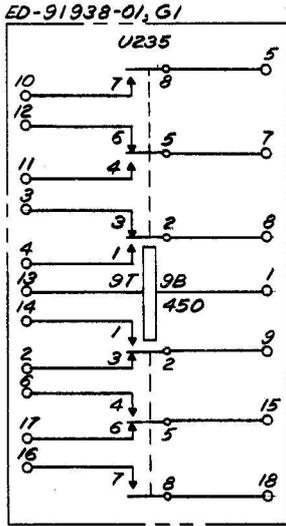


FIG. 20 (MFR DISC)

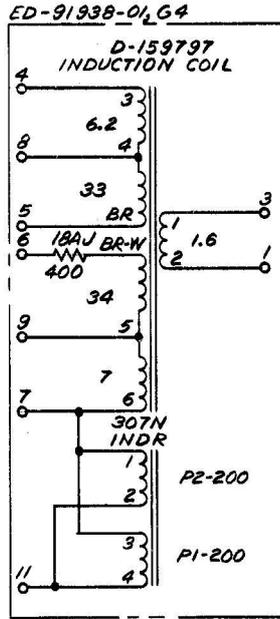


FIG. 22 (MFR DISC)

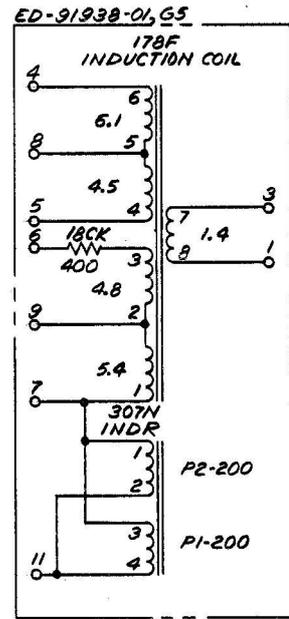


FIG. 18

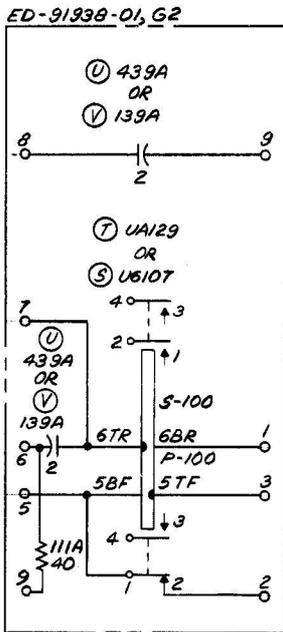


FIG. 24

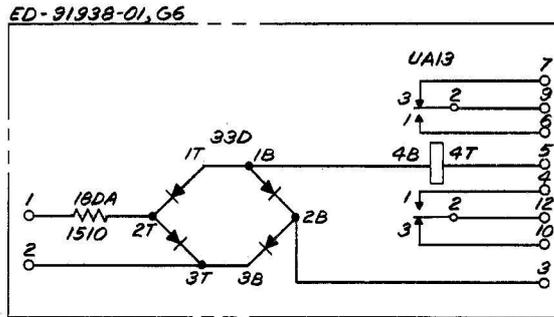


FIG. 27

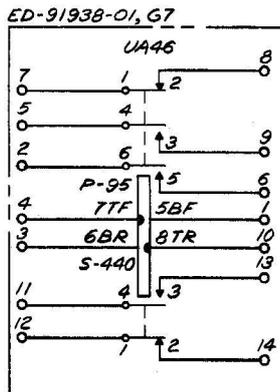


FIG. 28

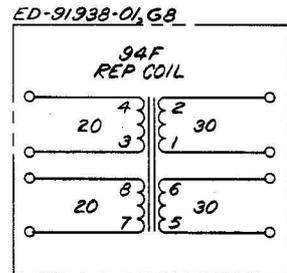
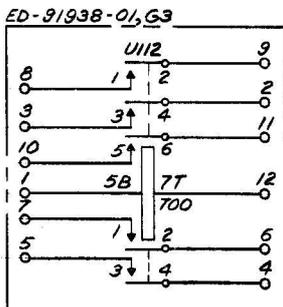


FIG. 19



STATION SYSTEMS  
EQUIPMENT UNITS

SD-69160-01-C4

FIG. 26

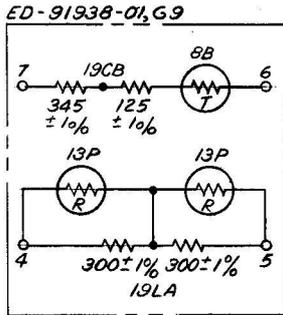


FIG. 40

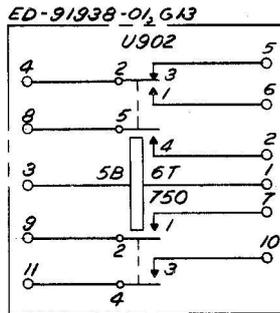


FIG. 45 (MFR DISC)

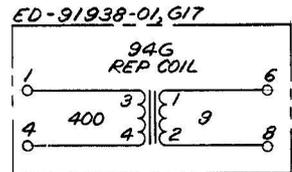


FIG. 37

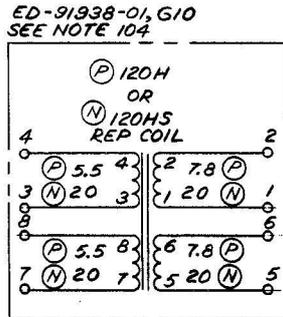


FIG. 48

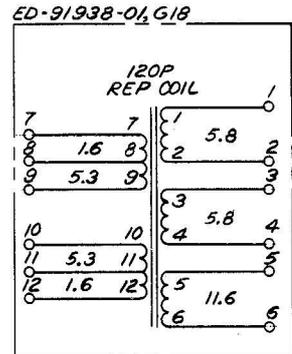


FIG. 41

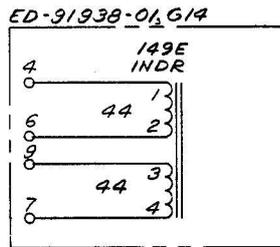


FIG. 38

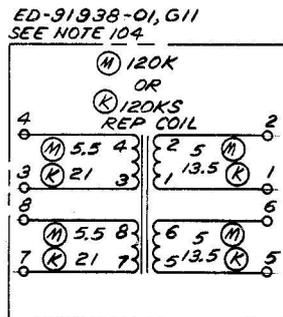


FIG. 42

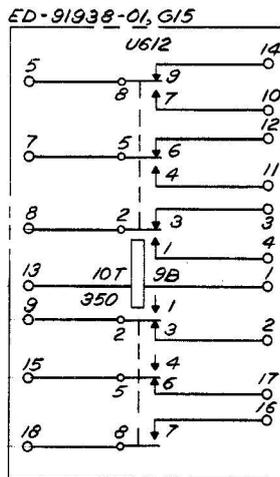


FIG. 50

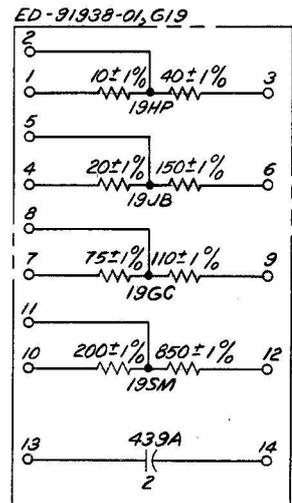


FIG. 39

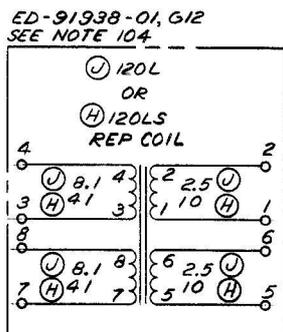


FIG. 44

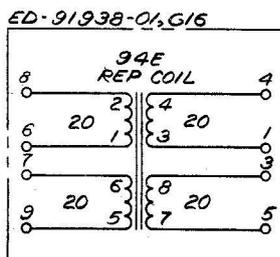


FIG. 52

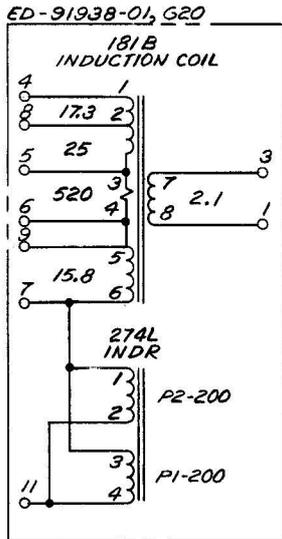


FIG. 53

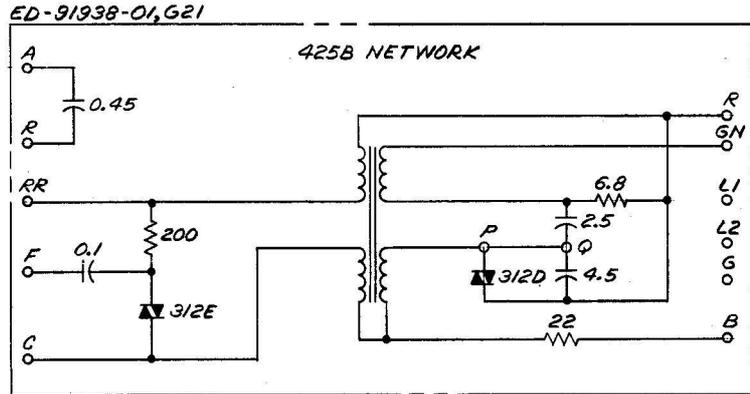


FIG. 54

