

E-TYPE TELEPHONE REPEATERS  
NETWORK STRAPPING BY USE OF CHARTS  
E13 OR E23 BRIDGED REPEATERS

| CONTENTS                      | PAGE |
|-------------------------------|------|
| 1. INTRODUCTION . . . . .     | 1    |
| 2. CHART INDEX . . . . .      | 1    |
| 3. STRAPPING CHARTS . . . . . | 1    |

1. INTRODUCTION

1.01 The E-repeater network strappings included in this section have been designed for E23 or E13 repeaters on loaded cable facilities. They are organized by loading system, as defined by inductance and spacing of loading coils; by cable capacitance per unit length, classed as "high" or "low"; by cable gauge; and by location of repeater, either "terminal" or "intermediate".

1.02 Type and length of facility, regularity of loading and location of repeater determine how much gain it is practicable to obtain. The person applying the strapping is usually furnished information as to the gain desired.

2. CHART INDEX

2.01 The index of strapping charts following this text reflects the organization mentioned above. The numerical part of the chart designation, 1, 2, 3, etc, indicates the type of loading and whether the cable is of the high or low capacitance type. These numbers have the same meanings as in the strapping charts for E1 repeaters. One or more M's following the chart number indicate strappings for intermediate repeaters, while one or more T's indicate strappings for terminal repeaters. One M or T denotes 19- or 22-gauge; 2 M's or T's 24-gauge; and 3 M's or T's 26-gauge.

2.02 Charts with M in the designation are not suitable for an intermediate repeater located between two facilities employing different types of loading. For such a repeater, strappings are selected from T charts for the facility having the lower cutoff frequency of the two.

2.03 Terminal repeaters are usually strapped for gains not exceeding 6.5 db. The gain steps above 6.5 db in the T charts are provided for intermediate repeaters, as covered in Paragraph 2.02.

2.04 Where the same type of loading but different wire sizes are used on the two sides of an intermediate repeater, the strapping chart for the finer-gauge wire (larger number) is used.

2.05 Where more than one size of wire is used on the same side of the repeater, information is usually furnished the person applying the strapping, as to which gauge controls the chart selection.

2.06 Each strapping chart is represented in the index by a rectangular space. The date in each space indicates the latest strapping chart for the particular facility represented. This date also appears on the strapping chart.

2.07 A blank space in the index indicates that no strappings have been developed as yet for the type of facility represented. The index will be brought up to date from time to time to show new or revised charts.

2.08 In order to avoid confusion when new charts are added, page numbers have been omitted. Any chart may be located easily, however, if it is remembered that all the charts are bound in the natural order in which they would be read in the index, that is, 1 M, 1 MM, 1 MMM, 1 T, 1 TT, 1 TTT, 2 M, 2 MM, etc. When the new charts are issued they should be inserted in such a way that this same order will prevail.

3. STRAPPING CHARTS

3.01 Each chart is arranged to show both the E1 or E2 and the E3 strappings. A complete E2 strapping includes E2 basic strapping and supplementary strapping for a particular end-section. The E3 strappings have been placed to the left of the others and are

**SECTION 332-200-106**

separated from them by the bold gain figures so as to minimize the chances of confusion. E3 strappings are independent of end-sections.

Supplemental Strapping

3.02 The end-section is defined as the capacitance between the repeater and the first loading coil divided by the nominal capacitance of a loading section. It is computed to the nearest tenth. The capacitance between the repeater and the first loading coil includes that of any cable building-out capacitor that may be specified.

3.03 At a terminal repeater, there is only one end-section, and it alone determines the supplementary strapping.

3.04 At an intermediate repeater, there are two end-sections. It is the larger of the two, but not necessarily the longer, that determines the supplementary strapping. Suppose the loading on the west side of a repeater is B88 with loading section capacitance of 0.048 MF and an end-section capacitance of 0.029 MF. Suppose further that the loading on the east side is H88 with loading section capacitance of 0.096 MF and an end-section capacitance of 0.042 MF. By the definition in Paragraph 3.02, the west end-section is 0.6 and the east end-section is 0.4. This situation is presented below in tabular form.

|                             | <u>West</u> | <u>East</u> |
|-----------------------------|-------------|-------------|
| 1. Loading                  | B88         | H88         |
| 2. Load.-Sect. Cap.         | 0.048 MF    | 0.096 MF    |
| 3. End-Sect. Cap.           | 0.029 MF    | 0.042 MF    |
| 4. End-Section<br>(3) / (2) | 0.6         | 0.4         |

According to the rule at the beginning of this paragraph, the supplemental E2 strapping is chosen for 0.6 end-section, the larger of the two. Note that the larger end-section does not necessarily have the larger capacitance. In this case the west end-section is the larger, although the west end-section capacitance is the smaller.

Building Out End-Sections

3.05 Where cable end-sections are not large enough for best operation with E-type repeaters, building-out capacitors are usually specified. It is important that each building-out capacitor be connected at the specified side of the repeater.

E1 Repeater

3.06 Where building-out capacitors are added to an E1 repeater, they are connected across the line at the line transformer terminals, either 1 and 4, or 2 and 3, as specified. In some cases, building-out capacitors are specified at both locations.

E2 Repeater

3.07 Three building-out capacitors, one of 0.01 MF and two of 0.02 MF, are furnished as a part of each E2 repeater. One terminal of each capacitor is connected permanently to terminal 42 of the repeater. The other terminals are connected permanently to terminals 43, 44, and 45 of the strapping board, respectively. The capacitors may be used in any parallel combination on either side of the repeater, but not on both sides, to add from 0.01 to 0.05 MF to the end-section. The line transformer terminals, 40-41 and 46-47, appear on the strapping board for convenience in making the connections.

3.08 If end-sections on both sides of the repeater require building-out, additional capacitors must be provided for one side, and connected to the line terminals on the strapping board, either 40-41 or 46-47.

Reused E1 Repeater Strappings

3.09 In some cases the strappings for the E2 repeaters have been taken from the tables of E1 repeater strappings. Where this has been done it is indicated by a note in the chart. It should be remembered, however, that these strappings appear under different gains in the E1 and E23 strapping charts, since the presence of the E3 repeater unit increases the gain. The following table indicates the E1 or E2 gains and the corresponding E13 or E23 gains in db.

| <u>E1 or E2</u> | <u>E23</u> | <u>E1 or E2</u> | <u>E23</u> |
|-----------------|------------|-----------------|------------|
| 1.0             | 1.9        | 4.0             | 6.5        |
| 1.5             | 2.7        | 4.5             | 7.3        |
| 2.0             | 3.5        | 5.0             | 8.0        |
| 2.5             | 4.3        | 5.5             | 8.6        |
| 3.0             | 5.0        | 6.0             | 9.2        |
| 3.5             | 5.8        | 6.5             | 9.8        |

3.10 In some cases the existing strapping of an E1 or E2 repeater may correspond to that for the E3 gain that is to be established. In such cases, it will not be necessary to change the former when the E3 unit is added, except perhaps for supplementary strapping.

#### Interconnection of 2 Strings of Capacitors

3.11 It may be noted that some of the E3 repeater strappings specify a connection between terminals 34 and 29, although no apparent use is made of the latter connection. Each of these terminals is common to a separate string of capacitors, the string common to terminal 29 consisting of relatively small capacitors. Since experience has shown that small adjustments are often required, necessitating connection to this latter string, the strapping from 34 to 29 has been specified, in effect making the two strings into one and facilitating small adjustments.

3.12 Where connections to terminal 29 but not 34 are specified, the strapping between the two strings is not called for in the charts

because small adjustments would have to be made within the "29" string.

#### External Network Elements

3.13 In a few instances it has been necessary to use, in a network, a resistance element not furnished in the repeater as part of the network. Such an element may be obtained locally and connected between the two terminals whose numbers appear adjacent to it in the strapping chart. For example (20-2,000  $\Omega$  -35) means that a 2,000-ohm resistor is to be connected between terminals 20 and 35.

3.14 Resistors should measure within two per cent of the specified resistance and should be rated at one-half watt. Western Electric Type 145B resistors or similar type should be satisfactory. The resistors should be placed so that each lead will make contact with only that terminal to which it is soldered, and close enough to the strapping panel so that they will not touch the cover of the adjacent repeater.

INDEX OF STRAPPING CHARTS

9-55

| Chart Designation | →       | Intermediate |      |     | Terminal |      |     |
|-------------------|---------|--------------|------|-----|----------|------|-----|
|                   |         | M            | MM   | MMM | T        | TT   | TTT |
| ↓                 | Gauge   | 19 or 22     | 24   | 26  | 19 or 22 | 24   | 26  |
|                   | Loading |              |      |     |          |      |     |
| 1                 | B 88HC  | 9-55         | 9-55 |     | 9-55     | 9-55 |     |
| 2                 | B 88LC  | 9-55         |      |     | 9-55     |      |     |
| 3                 | D 88HC  | 9-55         | 9-55 |     | 9-55     | 9-55 |     |
| 4                 | D 88LC  |              |      |     |          |      |     |
| 5                 | H 88HC  | 9-55         | 9-55 |     | 9-55     | 9-55 |     |
| 6                 | H 88LC  | 9-55         |      |     | 9-55     |      |     |
| 7                 | M 88LC  |              |      |     |          |      |     |
| 8                 | BL35HC  | 9-55         |      |     | 9-55     |      |     |
| 9                 | BL35LC  |              |      |     | 9-55     |      |     |
| 10                | DL35HC  |              |      |     |          |      |     |
| 11                | DL35LC  |              |      |     |          |      |     |
| 12                | HL35HC  |              |      |     |          |      |     |
| 13                | HL35LC  |              |      |     |          |      |     |
| 14                | BL75LC  |              |      |     |          |      |     |
| 15                | DL75LC  |              |      |     |          |      |     |
| 16                | HL75LC  | 9-55         |      |     | 9-55     |      |     |
| 17                | H 44HC  |              |      |     | 9-55     |      |     |

- Notes: 1. HC designates "high capacitance" cable.  
 2. LC designates "low capacitance" cable.  
 3. All 22-gauge cable is considered HC. HC and LC in other gauges are of the following types or their equivalent.

|    |           |           |           |
|----|-----------|-----------|-----------|
|    | <u>19</u> | <u>24</u> | <u>26</u> |
| HC | CNB       | DSM       | BST       |
| LC | DNB       | CSM       | AST       |

Example: Select the strapping chart for an intermediate E23 repeater on 24-gauge, high-capacitance, H88-loaded facilities.

H88 HC is in the row designated by the Number 5.  
 Intermediate repeater on 24-gauge is in the column designated by the letters MM.  
 Intersection of Row 5 and Column MM contains date 9-55.

The chart desired, therefore, is 5 MM dated 9-55.

## CHART 1M

INTERMEDIATE E23 REPEATER  
(T ARRANGEMENT)

19B88-HC

22B88-HC

| E3 STRAPPING   | NOMINAL<br>GAIN<br>DB | E1 OR E2 STRAPPING  |                     |                      |
|--|-----------------------|---|---------------------|----------------------|
|  |                       | BASIC   | END<br>SECTION<br>* | SUPPLEMENTAL         |
| (5-14-29-34)<br>(6-19) (15-18)<br>(20-3000 Ω **-35)<br>(27-28-36)                          | 1.9                   | (4-12-20-34)<br>(5-15-24-31)<br>(14-39)<br>(21-22-23-25-36)<br>(37-38)        |                     |                      |
|  |                       |   | .5                  | (7-8-9-18)           |
|  |                       |   | .6                  | (7-8-10-13-18)       |
|  |                       |   | .7                  | (7-8-11-13-18)       |
| (5-13-14-29-34)<br>(6-18) (12-15) (16-17)<br>(19-21)<br>(20-1000 Ω **-35)<br>(26-28-30-36) | 2.7                   | (4-31-33)<br>(5-12-24-26-27)<br>(14-39)<br>(17-25-36-38)<br>(22-34)           |                     |                      |
|  |                       |   | .5                  | (7-9-11-13-15-16-28) |
|  |                       |   | .6                  | (7-9-10-11-16-28)    |
|  |                       |   | .7                  | (7-16-18-28)         |
| (5-12-29-34) (6-18)<br>(14-16) (15-17)<br>(20-35)<br>(28-30-31-36)                         | 3.5                   | (4-12-24-37)<br>(8-29-30)<br>(14-25-39)<br>(17-19-22-32<br>-33-36)<br>(27-38) |                     |                      |
|  |                       |   | .5                  | (6-7-11-13-28)       |
|  |                       |   | .6                  | (6-7-9-11-13-28)     |
|  |                       |   | .7                  | (6-7-10-11-15-28)    |
| (5-10-13-29-34)<br>(6-16-20)<br>(7-35)<br>(18-19-21)<br>(23-31-32-36)                      | 4.3                   | (4-20) (8-24-37)<br>(12-30)<br>(14-39)<br>(17-19-29-32<br>-33-34-36)          |                     |                      |
|  |                       |   | .5                  | (5-7-9-10-15)        |
|  |                       |   | .6                  | (5-7-11)             |
|  |                       |   | .7                  | (5-7-11-13)          |
| (5-13-29-34)<br>(6-16-18-21)<br>(12-14) (17-19)<br>(20-35)<br>(28-30-32-36)                | 5.0                   | (4-8-20-37)<br>(5-12) (14-39)<br>(19-22-31-32-36)<br>(24-30-33)               |                     |                      |
|  |                       |   | .5                  | (6-7-9-10-15)        |
|  |                       |   | .6                  | (6-7-11)             |
|  |                       |   | .7                  | (6-7-11-13)          |
| (5-14-15) (6-11-16)<br>(10-29-34) (12-17)<br>(19-35) (33-36)                               | 5.8                   | (4-20-26-34)<br>(5-12) (14-39)<br>(24-29-33)<br>(25-30-31-36-37)<br>(27-38)   |                     |                      |
|  |                       |   | .5                  | (6-7-10-13-16)       |
|  |                       |   | .6                  | (6-7-9-10-16)        |
|  |                       |   | .7                  | (6-7-9-10-13-16)     |
|  |                       |   | .8                  | (6-7-11-16)          |

\* Use the Strapping that Corresponds to the Larger Fractional End Section Adjacent to the Repeater.

\*\* External Resistance.

CHART 1M

INTERMEDIATE E23 REPEATER  
(T ARRANGEMENT)

19B88-HC

22B88-HC

| E3 STRAPPING   | NOMINAL GAIN<br>DB | E1 OR E2 STRAPPING  |                  |                                 |
|--|--------------------|---|------------------|---------------------------------|
|  |                    | BASIC   | END SECTION<br>* | SUPPLEMENTAL                    |
| (3-17-29-34) (4-18)<br>(12-35) (13-14)<br>(16-19)<br>(26-27-33-36)           | 6.5                | (5-29-33)<br>(6-28-34)<br>(14-39)<br>(25-31-36-37)<br>(27-38)                     |                  |                                 |
|  |                    |   | .5               | (7-10-13-24)                    |
|  |                    |   | .6               | (7-9-10-24)                     |
|  |                    |   | .7               | (7-9-10-13-24)                  |
|  |                    |   | .8               | (7-11-24)                       |
| (3-13-15) (4-16-29-34)<br>(12-17) (19-35)<br>(31-33-36)                      | 7.3                | (5-29-33)<br>(6-8-20-22)<br>(12-24)(14-39)<br>(19-31-32-36-37)<br>(26-27) (34-38) |                  |                                 |
|  |                    |   | .5               | (7-10-15-16)                    |
|  |                    |   | .6               | (7-10-13-15-16)                 |
|  |                    |   | .7               | (7-9-10-15-16)                  |
|  |                    |   | .8               | (7-9-10-13-16)                  |
| (3-8-29-34)<br>(4-15) (10-13)<br>(16-18-21)<br>(19-20-35)<br>(27-31-33-36)   | 8.0                | (4-12-22)<br>(5-20)<br>(9-16)<br>(14-39)<br>(34-38)                               |                  |                                 |
|  |                    |   | .5               | (6-7-28-29-30) (17-25-36-37)    |
|  |                    |   | .6               | (6-7-28-31) (17-25-36-37)       |
|  |                    |   | .7               | (6-7-28-29-30) (21-25-36-37)    |
|  |                    |   | .8               | (6-7-28-30-31) (17-25-36-37)    |
| (3-8-29-34) (4-15)<br>(9-13) (16-18-21)<br>(19-20-35)<br>(24-25-27-31-33-36) | 8.6                | (4-24) (12-29)<br>(16-22-28)<br>(27-34)<br>(31-33-35-36-37)                       |                  |                                 |
|  |                    |   | .5               | (5-7-10)                        |
|  |                    |   | .6               | (5-7-10-15)                     |
|  |                    |   | .7               | (5-7-10-13-15)                  |
|  |                    |   | .8               | (5-7-9-10)                      |
| (3-13-17)<br>(4-11-15)<br>(10-29-34) (18-20)<br>(19-35)<br>(32-33-36)        | 9.2                | (4-12-22)<br>(13-15-16)<br>(14-39)<br>(26-34)                                     |                  |                                 |
|  |                    |   | .5               | (6-7-30-33) (25-31-36-37)       |
|  |                    |   | .6               | (6-7-29-30) (17-25-33-36-37)    |
|  |                    |   | .7               | (6-7-31) (17-25-36-37)          |
|  |                    |   | .8               | (6-7-29-30) (21-25-36-37)       |
| (3-11-13)<br>(4-15-18)<br>(8-29-34) (19-35)<br>(27-32-33-36)                 | 9.8                | (4-12-22)<br>(13-15-16)<br>(14-25-39)<br>(19-23)<br>(26-27)                       |                  |                                 |
|  |                    |   | .5               | (6-7-29-30) (31-32-36-37)       |
|  |                    |   | .6               | (6-7-30) (21-32-36-37)          |
|  |                    |   | .7               | (6-7-29-30-33) (17-32-36-37)    |
|  |                    |   | .8               | (6-7-29-30-33) (17-31-32-36-37) |

\* Use the Strapping that Corresponds to the Larger Fractional End Section Adjacent to the Repeater.

## CHART 1MM

INTERMEDIATE E23 REPEATER  
(T ARRANGEMENT)

24B88-HC

| E3 STRAPPING  | NOMINAL<br>GAIN<br>DB | E1 OR E2 STRAPPING  |                                  |
|---|-----------------------|---|----------------------------------|
|   |                       | BASIC   | END<br>SECTION<br>* SUPPLEMENTAL |
| (5-14-29-34) (6-19)<br>(15-18)<br>(20-3000 $\Omega$ ** -35)<br>(25-27-36)                       | 1.9                   | (4-12-20-34)<br>(5-15-24-31)<br>(14-39)<br>(21-22-23-25-36)<br>(37-38)      | .5 (7-8-9-18)                    |
|   |                       |   | .6 (7-8-10-13-18)                |
|   |                       |   | .7 (7-8-11-13-18)                |
|   |                       |   | .8 (7-8-10-11-13-18)             |
| (5-13-14-29-34)<br>(6-18) (12-15)<br>(16-17) (19-21)<br>(20-1000 $\Omega$ ** -35)<br>(27-28-36) | 2.7                   | (4-31-33)<br>(5-12-24-26-27)<br>(14-39)<br>(17-25-36-38)<br>(22-34)         | .5 (7-9-11-13-15-16-28)          |
|   |                       |   | .6 (7-9-10-11-16-28)             |
|   |                       |   | .7 (7-16-18-28)                  |
|   |                       |   | .8 (7-9-15-16-18-28)             |
| (5-12-29-34) (6-18)<br>(14-16) (15-17)<br>(20-35) (27-28-36)                                    | 3.5                   | (4-12-24-37)<br>(8-29-30)<br>(14-25-39)<br>(17-19-22-32-33-36)<br>(27-38)   | .5 (6-7-11-13-28)                |
|   |                       |   | .6 (6-7-9-11-13-28)              |
|   |                       |   | .7 (6-7-10-11-15-28)             |
|   |                       |   | .8 (6-7-9-10-11-15-28)           |
| (5-10-13-29-34)<br>(6-16-20) (17-35)<br>(18-19-21)<br>(23-25-27-28-36)                          | 4.3                   | (4-20) (8-24-37)<br>(12-30)<br>(14-39)<br>(17-19-29-32-33-34-36)            | .5 (5-7-9-10-15)                 |
|   |                       |   | .6 (5-7-11)                      |
|   |                       |   | .7 (5-7-11-13)                   |
|   |                       |   | .8 (5-7-9-11-15)                 |
| (5-13-29-34)<br>(6-16-18-21)<br>(12-14) (17-19)<br>(20-35) (32-36)                              | 5.0                   | (4-8-20-37)<br>(5-12) (14-39)<br>(19-22-31-32-36)<br>(24-30-33)             | .5 (6-7-9-10-15)                 |
|   |                       |   | .6 (6-7-11)                      |
|   |                       |   | .7 (6-7-11-13)                   |
|   |                       |   | .8 (6-7-9-11-15)                 |
| (5-14-15) (6-11-16)<br>(10-29-34) (12-17)<br>(19-35) (28-30-31-36)                              | 5.8                   | (4-20-26-34)<br>(5-12) (14-39)<br>(24-29-33)<br>(25-30-31-36-37)<br>(27-38) | .5 (6-7-10-13-16)                |
|   |                       |   | .6 (6-7-9-10-16)                 |
|   |                       |   | .7 (6-7-9-10-13-16)              |
|   |                       |   | .8 (6-7-11-16)                   |

\* Use the Strapping that Corresponds to the Larger Fractional End Section Adjacent to the Repeater.

\*\* External Resistance

CHART IMM

INTERMEDIATE E23 REPEATER  
(T ARRANGEMENT)

24B88-HC

| E3 STRAPPING   | NOMINAL GAIN<br>DB | E1 OR E2 STRAPPING   |                  |                                 |
|--|--------------------|--|------------------|---------------------------------|
|  |                    | BASIC  | END SECTION<br>* | SUPPLEMENTAL                    |
| (3-17-29-34)<br>(4-18) (12-35)<br>(13-14) (16-19)<br>(30-32-36)          | 6.5                | (5-29-33)<br>(6-28-34)<br>(14-39)<br>(25-31-36-37)<br>(27-38)                      |                  |                                 |
|  |                    |  | .5               | (7-10-13-24)                    |
|  |                    |  | .6               | (7-9-10-24)                     |
|  |                    |  | .7               | (7-9-10-13-24)                  |
|  |                    |  | .8               | (7-11-24)                       |
| (3-13-15)<br>(4-16-29-34) (12-17)<br>(19-35) (31-32-36)                  | 7.3                | (5-29-33)<br>(6-8-20-22)<br>(12-24) (14-39)<br>(19-31-32-36-37)<br>(26-27) (34-38) |                  |                                 |
|  |                    |  | .5               | (7-10-15-16)                    |
|  |                    |  | .6               | (7-10-13-15-16)                 |
|  |                    |  | .7               | (7-9-10-15-16)                  |
|  |                    |  | .8               | (7-9-10-13-16)                  |
| (3-8-29-34) (4-15)<br>(10-13) (16-18-21)<br>(19-20-35)<br>(24-31-32-36)  | 8.0                | (4-12-22)<br>(5-20)<br>(9-16)<br>(14-39)<br>(34-38)                                |                  |                                 |
|  |                    |  | .5               | (6-7-28-29-30) (17-25-36-37)    |
|  |                    |  | .6               | (6-7-28-31) (17-25-36-37)       |
|  |                    |  | .7               | (6-7-28-29-30) (21-25-36-37)    |
|  |                    |  | .8               | (6-7-28-30-31) (17-25-36-37)    |
| (3-8-29-34) (4-15)<br>(9-13) (16-18-21)<br>(19-20-35)<br>(27-31-32-36)   | 8.6                | (4-24) (12-29)<br>(16-22-28)<br>(27-34)<br>(31-33-35-36-37)                        |                  |                                 |
|  |                    |  | .5               | (5-7-10)                        |
|  |                    |  | .6               | (5-7-10-15)                     |
|  |                    |  | .7               | (5-7-10-13-15)                  |
|  |                    |  | .8               | (5-7-9-10)                      |
| (3-13-17) (4-11-15)<br>(10-29-34) (18-20)<br>(19-35)<br>(24-27-31-32-36) | 9.2                | (4-12-22)<br>(13-15-16)<br>(14-39)<br>(26-34)                                      |                  |                                 |
|  |                    |  | .5               | (6-7-30-33) (25-31-36-37)       |
|  |                    |  | .6               | (6-7-29-30) (17-25-33-36-37)    |
|  |                    |  | .7               | (6-7-31) (17-25-36-37)          |
|  |                    |  | .8               | (6-7-29-30) (21-25-36-37)       |
| (3-11-13) (4-15-18)<br>(8-29-34) (19-35)<br>(30-31-32-35)                | 9.8                | (4-12-22)<br>(13-15-16)<br>(14-25-39)<br>(19-23)<br>(26-27)                        |                  |                                 |
|  |                    |  | .5               | (6-7-29-30) (31-32-36-37)       |
|  |                    |  | .6               | (6-7-30) (21-32-36-37)          |
|  |                    |  | .7               | (6-7-29-30-33) (17-32-36-37)    |
|  |                    |  | .8               | (6-7-29-30-33) (17-31-32-36-37) |

\* Use the Strapping that Corresponds to the Larger Fractional End Section Adjacent to the Repeater.



CHART 1T

TERMINAL E23 REPEATER  
(T ARRANGEMENT)

19B88-HC

22B88-HC

| E3 STRAPPING  | NOMINAL GAIN DB | E1 OR E2 STRAPPING  |                          |                      |
|---|-----------------|---|--------------------------|----------------------|
|   |                 | BASIC   | END SECTION *<br>SECTION | SUPPLEMENTAL         |
| (1-29-34) (2-3)<br>(4-13) (5-14-22-24)<br>(6-19) (15-18)<br>(20-3000Ω** -35)<br>(27-28-36)                            | 1.9             | (4-12-20-34)<br>(5-15-24-31)<br>(14-39)<br>(21-22-23-25-36)<br>(37-38)      | .4                       | (7-8-9-10-11-13)     |
|   |                 |   | .5                       | (7-8-9-18)           |
|   |                 |   | .6                       | (7-8-10-13-18)       |
|   |                 |   | .7                       | (7-8-11-13-18)       |
|   |                 |   | .8                       | (7-8-10-11-13-18)    |
| (1-7) (2-3) (4-29-34)<br>(5-10-13-14-22-24)<br>(6-18) (12-15)<br>(16-17) (19-21)<br>(20-1000Ω** -35)<br>(26-28-30-36) | 2.7             | (4-31-33)<br>(5-12-24-26-27)<br>(14-39)<br>(17-25-36-38)<br>(22-34)         | .4                       | (7-11-13-15-16-28)   |
|   |                 |   | .5                       | (7-9-11-13-15-16-28) |
|   |                 |   | .6                       | (7-9-10-11-16-28)    |
|   |                 |   | .7                       | (7-16-18-28)         |
|   |                 |   | .8                       | (7-9-15-16-18-28)    |
| (1-29-34) (2-3)<br>(4-10) (5-8-12-22-24)<br>(6-18) (14-16)<br>(15-17) (20-35)<br>(28-30-31-36)                        | 3.5             | (4-12-24-37)<br>(8-29-30)<br>(14-25-39)<br>(17-19-22-32-33-36)<br>(27-38)   | .4                       | (6-7-9-10-13-15-28)  |
|   |                 |   | .5                       | (6-7-11-13-28)       |
|   |                 |   | .6                       | (6-7-9-11-13-28)     |
|   |                 |   | .7                       | (6-7-10-11-15-28)    |
|   |                 |   | .8                       | (6-7-9-10-11-15-28)  |
| (1-8) (2-3) (4-29-34)<br>(5-10-13-22-24)<br>(6-16-20) (7-9)<br>(17-35) (18-19-21)<br>(23-31-32-36)                    | 4.3             | (4-20)<br>(8-24-37)<br>(12-30) (14-39)<br>(17-19-29-32-33-34-36)            | .4                       | (5-7-10-13-15)       |
|   |                 |   | .5                       | (5-7-9-10-15)        |
|   |                 |   | .6                       | (5-7-11)             |
|   |                 |   | .7                       | (5-7-11-13)          |
|   |                 |   | .8                       | (5-7-9-11-15)        |
| (3-7) (4-29-34)<br>(5-9-13-22-26)<br>(6-16-18-21) (12-14)<br>(17-19) (20-35)<br>(28-30-32-36)                         | 5.0             | (4-8-20-37)<br>(5-12) (14-39)<br>(19-22-31-32-36)<br>(24-30-33)             | .4                       | (6-7-10-13-15)       |
|   |                 |   | .5                       | (6-7-9-10-15)        |
|   |                 |   | .6                       | (6-7-11)             |
|   |                 |   | .7                       | (6-7-11-13)          |
|   |                 |   | .8                       | (6-7-9-11-15)        |
| (3-29-34) (4-9)<br>(5-14-15) (6-11-16)<br>(10-22-26) (12-17)<br>(19-35) (33-36)                                       | 5.8             | (4-20-26-34)<br>(5-12) (14-39)<br>(24-29-33)<br>(25-30-31-36-37)<br>(27-38) | .4                       | (6-7-10-16)          |
|   |                 |   | .5                       | (6-7-10-13-16)       |
|   |                 |   | .6                       | (6-7-9-10-16)        |
|   |                 |   | .7                       | (6-7-9-10-13-16)     |
|   |                 |   | .8                       | (6-7-11-16)          |

\* Use the Strapping that Corresponds to the Larger Fractional End Section Adjacent to the Repeater.

\*\* External Resistance

## CHART 1T

TERMINAL E23 REPEATER  
(T ARRANGEMENT)

19B88-HC

22B88-HC

| E3 STRAPPING   | NOMINAL<br>GAIN<br>DB | E1 OR E2 STRAPPING   |                     |                                 |
|--|-----------------------|--|---------------------|---------------------------------|
|  |                       | BASIC  | END<br>*<br>SECTION | SUPPLEMENTAL                    |
| (1-29-34) (2-9)<br>(3-8-10-17-31) (4-18)<br>(12-35) (13-14)<br>(16-19)<br>(26-27-33-36)      | 6.5                   | (5-29-33)<br>(6-28-34)(14-39)<br>(25-31-36-37)<br>(27-38)                          | .4                  | (7-10-24)                       |
|  |                       |  | .5                  | (7-10-13-24)                    |
|  |                       |  | .6                  | (7-9-10-24)                     |
|  |                       |  | .7                  | (7-9-10-13-24)                  |
|  |                       |  | .8                  | (7-11-24)                       |
| (1-29-34) (2-9-10)<br>(3-13-15)<br>(4-7-11-16-30)<br>(12-17) (19-35)<br>(31-33-36)           | 7.3                   | (5-29-33)<br>(6-8-20-22)<br>(12-24) (14-39)<br>(19-31-32-36-37)<br>(26-27) (34-38) | .5                  | (7-10-15-16)                    |
|  |                       |  | .6                  | (7-10-13-15-16)                 |
|  |                       |  | .7                  | (7-9-10-15-16)                  |
|  |                       |  | .8                  | (7-9-10-13-16)                  |
| (1-29-34) (2-7)<br>(3-8-30) (4-15)<br>(10-13) (16-18-21)<br>(19-20-35)<br>(27-31-33-36)      | 8.0                   | (4-12-22)<br>(5-20) (9-16)<br>(14-39) (34-38)                                      | .4                  | (6-7-28-29-30)(25-31-33-36-37)  |
|  |                       |  | .5                  | (6-7-28-29-30)(17-25-36-37)     |
|  |                       |  | .6                  | (6-7-28-31)(17-25-36-37)        |
|  |                       |  | .7                  | (6-7-28-29-30)(21-25-36-37)     |
| (1-29-34) (2-7)<br>(3-8-30) (4-15)<br>(9-13) (16-18-21)<br>(19-20-35)<br>(24-25-27-31-33-36) | 8.6                   | (4-24) (12-29)<br>(16-22-28)<br>(27-34)<br>(31-33-35-36-37)                        | .5                  | (5-7-10)                        |
|  |                       |  | .6                  | (5-7-10-15)                     |
|  |                       |  | .7                  | (5-7-10-13-15)                  |
|  |                       |  | .8                  | (5-7-9-10)                      |
| (1-29-34) (2-8)<br>(3-13-17) (4-11-15)<br>(9-10-28) (18-20)<br>(19-35) (32-33-36)            | 9.2                   | (4-12-22)<br>(13-15-16)<br>(14-39)<br>(26-34)                                      | .5                  | (6-7-30-33) (25-31-36-37)       |
|  |                       |  | .6                  | (6-7-29-30) (17-25-33-36-37)    |
|  |                       |  | .7                  | (6-7-31) (17-25-36-37)          |
|  |                       |  | .8                  | (6-7-29-30) (21-25-36-37)       |
| (1-29-34) (2-7)<br>(3-11-13) (4-15-18)<br>(8-28) (19-35)<br>(27-32-33-36)                    | 9.8                   | (4-12-22)<br>(13-15-16)<br>(14-25-39)<br>(19-23) (26-27)                           | .5                  | (6-7-29-30) (31-32-36-37)       |
|  |                       |  | .6                  | (6-7-30) (21-32-36-37)          |
|  |                       |  | .7                  | (6-7-29-30-33) (17-32-36-37)    |
|  |                       |  | .8                  | (6-7-29-30-33) (17-31-32-36-37) |

\* Use the Strapping that Corresponds to the Larger Fractional End Section Adjacent to the Repeater.

## CHART 1TT

TERMINAL E23 REPEATER  
(T ARRANGEMENT)

24B88-HC

| E3 STRAPPING  | NOMINAL<br>GAIN<br>DB | E1 OR E2 STRAPPING  |                     |                      |
|---|-----------------------|---|---------------------|----------------------|
|   |                       | BASIC   | END<br>SECTION<br>* | SUPPLEMENTAL         |
| (1-29-34) (2-3) (4-13)<br>(5-14-22-24) (6-19)<br>(15-18)<br>(20-3000 $\Omega$ ** -35)<br>(25-27-36)                         | 1.9                   | (4-12-20-34)<br>(5-15-24-31)<br>(14-39)<br>(21-22-23-25-36)<br>(37-38)      | .4                  | (7-8-9-10-11-13)     |
|   |                       |   | .5                  | (7-8-9-18)           |
|   |                       |   | .6                  | (7-8-10-13-18)       |
|   |                       |   | .7                  | (7-8-11-13-18)       |
|   |                       |   | .8                  | (7-8-10-11-13-18)    |
| (1-7) (2-3) (4-29-34)<br>(5-10-13-14-22-24)<br>(6-18) (12-15)<br>(16-17) (19-21)<br>(20-1000 $\Omega$ ** -35)<br>(27-28-36) | 2.7                   | (4-31-33)<br>(5-12-24-26-27)<br>(14-39)<br>(17-25-36-38)<br>(22-34)         | .4                  | (7-11-13-15-16-28)   |
|   |                       |   | .5                  | (7-9-11-13-15-16-28) |
|   |                       |   | .6                  | (7-9-10-11-16-28)    |
|   |                       |   | .7                  | (7-16-18-28)         |
|   |                       |   | .8                  | (7-9-15-16-18-28)    |
| (1-29-34) (2-3)<br>(4-10) (5-8-12-22-24)<br>(6-18) (14-16)<br>(15-17) (20-35)<br>(27-28-36)                                 | 3.5                   | (4-12-24-37)<br>(8-29-30)<br>(14-25-39)<br>(17-19-22-32-33-36)<br>(27-38)   | .4                  | (6-7-9-10-13-15-28)  |
|   |                       |   | .5                  | (6-7-11-13-28)       |
|   |                       |   | .6                  | (6-7-9-11-13-28)     |
|   |                       |   | .7                  | (6-7-10-11-15-28)    |
|   |                       |   | .8                  | (6-7-9-10-11-15-28)  |
| (1-8) (2-3) (4-29-34)<br>(5-10-13-22-24)<br>(6-16-20) (7-9)<br>(17-35) (18-19-21)<br>(23-25-27-28-36)                       | 4.3                   | (4-20)<br>(8-24-37)<br>(12-30) (14-39)<br>(17-19-29-32-33-34-36)            | .4                  | (5-7-10-13-15)       |
|   |                       |   | .5                  | (5-7-9-10-15)        |
|   |                       |   | .6                  | (5-7-11)             |
|   |                       |   | .7                  | (5-7-11-13)          |
|   |                       |   | .8                  | (5-7-9-11-15)        |
| (3-7) (4-23-34)<br>(5-9-13-22-26)<br>(6-16-18-21) (12-14)<br>(17-19) (20-35)<br>(32-36)                                     | 5.0                   | (4-8-20-37)<br>(5-12) (14-39)<br>(19-22-31-32-36)<br>(24-30-33)             | .4                  | (6-7-10-13-15)       |
|   |                       |   | .5                  | (6-7-9-10-15)        |
|   |                       |   | .6                  | (6-7-11)             |
|   |                       |   | .7                  | (6-7-11-13)          |
|   |                       |   | .8                  | (6-7-9-11-15)        |
| (3-29-34) (4-9)<br>(5-14-15) (6-11-16)<br>(10-22-26) (12-17)<br>(19-35) (28-30-31-36)                                       | 5.8                   | (4-20-26-34)<br>(5-12) (14-39)<br>(24-29-33)<br>(25-30-31-36-37)<br>(27-38) | .4                  | (6-7-10-16)          |
|   |                       |   | .5                  | (6-7-10-13-16)       |
|   |                       |   | .6                  | (6-7-9-10-16)        |
|   |                       |   | .7                  | (6-7-9-10-13-16)     |
|   |                       |   | .8                  | (6-7-11-16)          |

\* Use the Strapping that Corresponds to the Larger Fractional End Section Adjacent to the Repeater.

\*\* External Resistance

## CHART 1TT

TERMINAL E23 REPEATER  
(T ARRANGEMENT)

24B88-HC

| E3 STRAPPING   | NOMINAL<br>GAIN<br>DB | E1 OR E2 STRAPPING   |                                    |
|--|-----------------------|--|------------------------------------|
|  |                       | BASIC  | END<br>* SECTION                   |
| (1-29-34) (2-9)<br>(3-8-10-17-31)<br>(4-18) (12-35)<br>(13-14) (16-19)<br>(30-32-36)       | 6.5                   | (5-29-33)<br>(6-28-34) (14-39)<br>(25-31-36-37)<br>(27-38)                         | .4 (7-10-24)                       |
|  |                       |  | .5 (7-10-13-24)                    |
|  |                       |  | .6 (7-9-10-24)                     |
|  |                       |  | .7 (7-9-10-13-24)                  |
|  |                       |  | .8 (7-11-24)                       |
| (1-29-34) (2-9-10)<br>(3-13-15)<br>(4-7-11-16-30)<br>(12-17) (19-35)<br>(31-32-36)         | 7.3                   | (5-29-33)<br>(6-8-20-22)<br>(12-24) (14-39)<br>(19-31-32-36-37)<br>(26-27) (34-38) | .5 (7-10-15-16)                    |
|  |                       |  | .6 (7-10-13-15-16)                 |
|  |                       |  | .7 (7-9-10-15-16)                  |
|  |                       |  | .8 (7-9-10-13-16)                  |
| (1-29-34) (2-7)<br>(3-8-30) (4-15)<br>(10-13) (16-18-21)<br>(19-20-35)<br>(24-31-32-36)    | 8.0                   | (4-12-22)<br>(5-20) (9-16)<br>(14-39) (34-38)                                      | .5 (6-7-28-29-30) (17-25-36-37)    |
|  |                       |  | .6 (6-7-28-31) (17-25-36-37)       |
|  |                       |  | .7 (6-7-28-29-30) (21-25-36-37)    |
|  |                       |  | .8 (6-7-28-30-31) (17-25-36-37)    |
| (1-29-34) (2-7)<br>(3-8-30) (4-15)<br>(9-13) (16-18-21)<br>(19-20-35)<br>(27-31-32-36)     | 8.6                   | (4-24) (12-29)<br>(16-22-28)<br>(27-34)<br>(31-33-35-36-37)                        | .5 (5-7-10)                        |
|  |                       |  | .6 (5-7-10-15)                     |
|  |                       |  | .7 (5-7-10-13-15)                  |
|  |                       |  | .8 (5-7-9-10)                      |
| (1-29-34) (2-8)<br>(3-13-17) (4-11-15)<br>(9-10-28) (18-20)<br>(19-35)<br>(24-27-31-32-36) | 9.2                   | (4-12-22)<br>(13-15-16)<br>(14-39)<br>(26-34)                                      | .5 (6-7-30-33) (25-31-36-37)       |
|  |                       |  | .6 (6-7-29-30) (17-25-33-36-37)    |
|  |                       |  | .7 (6-7-31) (17-25-36-37)          |
|  |                       |  | .8 (6-7-29-30) (21-25-36-37)       |
| (1-29-34) (2-7)<br>(3-11-13) (4-15-18)<br>(8-28) (19-35)<br>(30-31-32-35)                  | 9.8                   | (4-12-22)<br>(13-15-16)<br>(14-25-39)<br>(19-23) (26-27)                           | .5 (6-7-29-30) (31-32-36-37)       |
|  |                       |  | .6 (6-7-30) (21-32-36-37)          |
|  |                       |  | .7 (6-7-29-30-33) (17-32-36-37)    |
|  |                       |  | .8 (6-7-29-30-33) (17-31-32-36-37) |

\* Use the Strapping that Corresponds to the Larger Fractional End Section Adjacent to the Repeater.

## CHART 2M

INTERMEDIATE E23 REPEATER  
(T ARRANGEMENT)

19B88-LC

| E3 STRAPPING  | NOMINAL<br>GAIN<br>DB | E1 OR E2 STRAPPING   |                  |                     |
|---|-----------------------|--|------------------|---------------------|
|   |                       | BASIC  | END<br>* SECTION | SUPPLEMENTAL        |
| (5-17-29) (6-19)<br>(20-4000 $\Omega$ ** -35)<br>(26-28-36)         | 1.9                   | (4-12-20-38)<br>(5-24-31)<br>(14-39)<br>(21-22-23-25-36<br>-37)<br>(26-34) |                  |                     |
|   |                       |  | .5               | (7-8-18)            |
|   |                       |  | .6               | (7-8-9-13-18)       |
|   |                       |  | .7               | (7-8-9-10-18)       |
|   |                       |  | .8               | (7-8-11-13-18)      |
| (5-13-29) (6-19)<br>(20-2000 $\Omega$ ** -35)<br>(24-27-30-36)      | 2.7                   | (5-8-24-38)<br>(12-28-30-33)<br>(14-39)<br>(21-23-25-26-36)                |                  |                     |
|   |                       |  | .5               | (6-7-9-11-13)       |
|   |                       |  | .6               | (6-7-10-11-13)      |
|   |                       |  | .7               | (6-7-9-10-11-13-15) |
|   |                       |  | .8               | (6-7-13-15-18)      |
| (5-12-29) (6-16-17)<br>(19-21) (20-35)<br>(26-28-30-36)             | 3.5                   | (6-8-28-37)<br>(9-12-13-15)<br>(14-39)<br>(21-25-26-36)<br>(34-38)         |                  |                     |
|   |                       |  | .5               | (4-7-24-31)         |
|   |                       |  | .6               | (4-7-24-29-31)      |
|   |                       |  | .7               | (4-7-24-29-31-33)   |
|   |                       |  | .8               | (4-7-24-30-31-33)   |
| (5-12-29-34)<br>(6-16-18) (17-21)<br>(20-35)<br>(28-30-31-36)       | 4.3                   | (12-24-37)<br>(14-39)<br>(19-26-31-36)<br>(20-29-30)                       |                  |                     |
|   |                       |  | .5               | (7-9-10-13-16)      |
|   |                       |  | .6               | (7-11-15-16)        |
|   |                       |  | .7               | (7-9-11-16)         |
|   |                       |  | .8               | (7-9-11-13-16)      |
| (5-13-29-34)<br>(6-16-20) (17-35)<br>(18-19-21)<br>(26-28-30-31-36) | 5.0                   | (4-20-22)<br>(5-16) (14-39)<br>(19-31-33-36-37)<br>(24-30)<br>(27-38)      |                  |                     |
|   |                       |  | .5               | (6-7-10-12-13-15)   |
|   |                       |  | .6               | (6-7-9-10-12-15)    |
|   |                       |  | .7               | (6-7-11-12)         |
|   |                       |  | .8               | (6-7-11-12-13)      |
| (5-14-29-34)<br>(6-16-19)<br>(20-35)<br>(23-24-30-32-36)            | 5.8                   | (5-28-34)<br>(6-29-33)<br>(14-39)<br>(25-31-36-37)<br>(27-38)              |                  |                     |
|   |                       |  | .5               | (7-10-13-24)        |
|   |                       |  | .6               | (7-9-10-24)         |
|   |                       |  | .7               | (7-9-10-13-24)      |
|   |                       |  | .8               | (7-11-24)           |

\* Use the Strapping that Corresponds to the Larger Fractional End Section Adjacent to the Repeater.

\*\* External Resistance.

CHART 2M

INTERMEDIATE E23 REPEATER  
(T ARRANGEMENT)

19B88-LC

| E3 STRAPPING   | NOMINAL GAIN<br>DB | E1 OR E2 STRAPPING   |                  |                                    |
|--|--------------------|--|------------------|------------------------------------|
|  |                    | BASIC  | END SECTION<br>* | SUPPLEMENTAL                       |
| (3-16-17) (4-18)<br>(10-29-34) (11-12)<br>(19-35)<br>(30-31-32-36)                           | 6.5                | (5-29-33)<br>(6-16-22)<br>(12-24)<br>(26-27)<br>(31-35-36-37)<br>(34-38) |                  |                                    |
|  |                    |  | .5               | (7-8-10-13-20)                     |
|  |                    |  | .6               | (7-8-10-13-15-20)                  |
|  |                    |  | .7               | (7-8-9-10-15-20)                   |
|  |                    |  | .8               | (7-8-9-10-13-15-20)                |
| (3-9) (4-15) (8-29-34)<br>(10-16) (12-17)<br>(13-14)<br>(19-35)<br>(22-24-27-28-30-31-32-36) | 7.3                | (4-16-34)<br>(5-20) (12-29)<br>(14-39)<br>(17-23-25-36-37)               |                  |                                    |
|  |                    |  | .5               | (6-7-10-28)                        |
|  |                    |  | .6               | (6-7-10-13-28)                     |
|  |                    |  | .7               | (6-7-10-13-15-28)                  |
|  |                    |  | .8               | (6-7-9-10-15-28)                   |
| (3-8) (4-13-15)<br>(7-16)<br>(9-29-34) (12-17)<br>(19-35) (30-31-33-36)                      | 8.0                | (4-16-20-27)<br>(5-28) (12-29)<br>(17-35-36-37)<br>(26-34)               |                  |                                    |
|  |                    |  | .5               | (6-7-10)                           |
|  |                    |  | .6               | (6-7-10-13)                        |
|  |                    |  | .7               | (6-7-10-13-15)                     |
|  |                    |  | .8               | (6-7-9-10-15)                      |
| (3-15-17) (4-16-29-34)<br>(18-21) (19-35)<br>(31-33-36)                                      | 8.6                | (4-16-22)<br>(12-13-15)<br>(26-34)                                       |                  |                                    |
|  |                    |  | .5               | (6-7-29-30-33) (31-35-36-37)       |
|  |                    |  | .6               | (6-7-29-30) (17-33-35-36-37)       |
|  |                    |  | .7               | (6-7-31) (17-35-36-37)             |
|  |                    |  | .8               | (6-7-29-30) (21-35-36-37)          |
| (3-8-29-34) (4-15)<br>(7-12) (16-18-21)<br>(19-20-35)<br>(31-33-36)                          | 9.2                | (5-24)<br>(12-13-15)<br>(16-27-28)                                       |                  |                                    |
|  |                    |  | .5               | (6-7-29-30) (31-35-36-37)          |
|  |                    |  | .6               | (6-7-30) (21-35-36-37)             |
|  |                    |  | .7               | (6-7-29-30-33) (17-35-36-37)       |
|  |                    |  | .8               | (6-7-29-30-33) (17-31-35-36-37)    |
| (3-12-29-34)<br>(4-15) (16-17-20)<br>(19-35)<br>(30-31-33-36)                                | 9.8                | (4-24)<br>(12-20-22)<br>(13-15-16)                                       |                  |                                    |
|  |                    |  | .5               | (6-7-28-29-30) (31-35-36-37)       |
|  |                    |  | .6               | (6-7-28-30) (21-35-36-37)          |
|  |                    |  | .7               | (6-7-28-29-30-33) (17-35-36-37)    |
|  |                    |  | .8               | (6-7-28-29-30-33) (17-31-35-36-37) |

\* Use the Strapping that Corresponds to the Larger Fractional End Section Adjacent to the Repeater.

## CHART 2T

TERMINAL E23 REPEATER  
(T ARRANGEMENT)

19B88-LC

| E3 STRAPPING  | NOMINAL<br>GAIN<br>DB | E1 OR E2 STRAPPING   |                     |                      |
|---|-----------------------|--|---------------------|----------------------|
|   |                       | BASIC  | END<br>*<br>SECTION | SUPPLEMENTAL         |
| (1-29) (2-3) (4-8)<br>(5-11-17-22-23)<br>(6-19) (9-10)<br>(20-4000 $\Omega$ ** -35)<br>(26-28-36)   | 1.9                   | (4-12-20-38)<br>(5-24-31)<br>(14-39)<br>(21-22-23-25<br>-36-37)<br>(26-34) | .4                  | (7-8-10-11-13)       |
|   |                       |  | .5                  | (7-8-18)             |
|   |                       |  | .6                  | (7-8-9-13-18)        |
|   |                       |  | .7                  | (7-8-9-10-18)        |
|   |                       |  | .8                  | (7-8-11-13-18)       |
| (1-29) (2-3) (4-14)<br>(5-13-22-23)<br>(6-19) (12-18)<br>(20-2000 $\Omega$ ** -35)<br>(24-27-30-36) | 2.7                   | (5-8-24-38)<br>(12-28-30-33)<br>(14-39)<br>(21-23-25-26-36)                | .4                  | (6-7-11-13)          |
|   |                       |  | .5                  | (6-7-9-11-13)        |
|   |                       |  | .6                  | (6-7-10-11-13)       |
|   |                       |  | .7                  | (6-7-9-10-11-13-15)* |
| (1-29) (2-3) (4-7)<br>(5-10-12-22-23)<br>(6-16-17) (9-11)<br>(19-21) (20-35)<br>(26-28-30-36)       | 3.5                   | (6-8-28-37)<br>(9-12-13-15)<br>(14-39)<br>(21-25-26-36)<br>(34-38)         | .4                  | (4-7-24-29-30-33)    |
|   |                       |  | .5                  | (4-7-24-31)          |
|   |                       |  | .6                  | (4-7-24-29-31)       |
|   |                       |  | .7                  | (4-7-24-29-31-33)    |
| (1-29-34) (2-3) (4-7)<br>(5-10-12-22-23)<br>(6-16-18) (8-11)<br>(17-21) (20-35)<br>(28-30-31-36)    | 4.3                   | (12-24-37)<br>(14-39)<br>(19-26-31-36)<br>(20-29-30)                       | .4                  | (7-9-10-16)          |
|   |                       |  | .5                  | (7-9-10-13-16)       |
|   |                       |  | .6                  | (7-11-15-16)         |
|   |                       |  | .7                  | (7-9-11-16)          |
| (1-29-34) (2-3)<br>(4-12) (5-13-22-23)<br>(6-16-20) (17-35)<br>(18-19-21)<br>(26-28-30-31-36)       | 5.0                   | (4-20-22)<br>(5-16) (14-39)<br>(19-31-33-36-37)<br>(24-30)<br>(27-38)      | .4                  | (6-7-10-12-15)       |
|   |                       |  | .5                  | (6-7-10-12-13-15)    |
|   |                       |  | .6                  | (6-7-9-10-12-15)     |
|   |                       |  | .7                  | (6-7-11-12)          |
| (3-29-34) (4-9)<br>(5-10-14-26)<br>(6-16-19) (20-35)<br>(23-24-30-32-36)                            | 5.8                   | (5-28-34)<br>(6-29-33)<br>(14-39)<br>(25-31-36-37)<br>(27-38)              | .4                  | (7-10-24)            |
|   |                       |  | .5                  | (7-10-13-24)         |
|   |                       |  | .6                  | (7-9-10-24)          |
|   |                       |  | .7                  | (7-9-10-13-24)       |
|   |                       |  | .8                  | (7-11-24)            |

\* Use the Strapping that Corresponds to the Larger Fractional End Section Adjacent to the Repeater.

\*\* External Resistance.

CHART 2T

TERMINAL E23 REPEATER  
(T ARRANGEMENT)

19B88-LC

| E3 STRAPPING   | NOMINAL GAIN<br>DB | E1 OR E2 STRAPPING  |                  |                                    |
|--|--------------------|---|------------------|------------------------------------|
|  |                    | BASIC   | END SECTION<br>* | SUPPLEMENTAL                       |
| (1-29-34) (2-7)<br>(3-16-17) (4-18)<br>(9-10-22-23-26)<br>(11-12) (19-35)<br>(30-31-32-36)             | 6.5                | (5-29-33)<br>(6-16-22)<br>(12-24) (26-27)<br>(31-35-36-37)<br>(34-38) | .4               | (7-8-10-20)                        |
|  |                    |   | .5               | (7-8-10-13-20)                     |
|  |                    |   | .6               | (7-8-10-13-15-20)                  |
|  |                    |   | .7               | (7-8-9-10-15-20)                   |
|  |                    |   | .8               | (7-8-9-10-13-15-20)                |
| (1-29-34) (2-7)<br>(3-9-23-25-26)<br>(4-14-15) (10-16)<br>(12-17) (19-35)<br>(22-24-27-28-30-31-32-36) | 7.3                | (4-16-34)<br>(5-20) (12-29)<br>(14-39)<br>(17-23-25-36-37)            | .5               | (6-7-10-28)                        |
|  |                    |   | .6               | (6-7-10-13-28)                     |
|  |                    |   | .7               | (6-7-10-13-15-28)                  |
|  |                    |   | .8               | (6-7-9-10-15-28)                   |
| (1-29-34) (2-10)<br>(3-8) (4-13-15)<br>(7-16) (9-23-25-26)<br>(12-17) (19-35)<br>(30-31-33-36)         | 8.0                | (4-16-20-27)<br>(5-28)<br>(12-29)<br>(17-35-36-37)<br>(26-34)         | .5               | (6-7-10)                           |
|  |                    |   | .6               | (6-7-10-13)                        |
|  |                    |   | .7               | (6-7-10-13-15)                     |
|  |                    |   | .8               | (6-7-9-10-15)                      |
| (1-29-34) (2-9)<br>(3-15-17)<br>(4-7-11-16-23-25-26)<br>(8-10) (18-21)<br>(19-35)<br>(31-33-36)        | 8.6                | (4-16-22)<br>(12-13-15)<br>(26-34)                                    | .5               | (6-7-29-30-33) (31-35-36-37)       |
|  |                    |   | .6               | (6-7-29-30) (17-33-35-36-37)       |
|  |                    |   | .7               | (6-7-31) (17-35-36-37)             |
|  |                    |   | .8               | (6-7-29-30) (21-35-36-37)          |
| (1-29-34) (2-9)<br>(3-8-23-25-26)<br>(4-15) (7-12)<br>(16-18-21) (19-20-35)<br>(31-33-36)              | 9.2                | (5-24)<br>(12-13-15)<br>(16-27-28)                                    | .5               | (6-7-29-30) (31-35-36-37)          |
|  |                    |   | .6               | (6-7-30) (21-35-36-37)             |
|  |                    |   | .7               | (6-7-29-30-33) (17-35-36-37)       |
|  |                    |   | .8               | (6-7-29-30-33) (17-31-35-36-37)    |
| (1-29-34) (2-7)<br>(3-8-12-23-24-26)<br>(4-15) (16-17-20)<br>(19-35)<br>(30-31-33-36)                  | 9.8                | (4-24)<br>(12-20-22)<br>(13-15-16)                                    | .5               | (6-7-28-29-30) (31-35-36-37)       |
|  |                    |   | .6               | (6-7-28-30) (21-35-36-37)          |
|  |                    |   | .7               | (6-7-28-29-30-33) (17-35-36-37)    |
|  |                    |   | .8               | (6-7-28-29-30-33) (17-31-35-36-37) |

\* Use the Strapping that Corresponds to the Larger Fractional End Section Adjacent to the Repeater.



CHART 3M

INTERMEDIATE E23 REPEATER  
(T ARRANGEMENT)

19D88-HC

22D88-HC

| E3 STRAPPING   | NOMINAL GAIN<br>DB | E1 OR E2 STRAPPING  |                          |                      |
|--|--------------------|---|--------------------------|----------------------|
|  |                    | BASIC   | END SECTION<br>* SECTION | SUPPLEMENTAL         |
| (5-14-29)(6-18-21)<br>(16-17)<br>(20-2000 $\Omega$ ** - 35)<br>(27-30-36)    | 1.9                | (4-8-20-22)<br>(12-15-24-31)<br>(14-39)<br>(21-23-25-34-36)<br>(26-27)  |                          |                      |
|  |                    |   | .5                       | (5-7-18)             |
|  |                    |   | .6                       | (5-7-9-13-18)        |
|  |                    |   | .7                       | (5-7-9-10-18)        |
| (5-12-29)(6-16-17)<br>(18-21)(20-35)<br>(28-30-36)                           | 2.7                | (5-12-20-38)<br>(6-16-29-30-33)<br>(19-39)<br>(21-22-36)<br>(27-34)     |                          |                      |
|  |                    |   | .5                       | (7-9-10-11-15-24)    |
|  |                    |   | .6                       | (7-13-15-18-24)      |
|  |                    |   | .7                       | (7-10-18-24)         |
| (5-10-13)(6-16-17)<br>(9-29)(12-14)<br>(18-19-21)(20-35)<br>(25-27-28-30-36) | 3.5                | (5-20-37-38)<br>(14-25-39)<br>(15-24-30)<br>(19-21-22-32-36)<br>(26-27) |                          |                      |
|  |                    |   | .5                       | (6-7-9-11)           |
|  |                    |   | .6                       | (6-7-10-11)          |
|  |                    |   | .7                       | (6-7-9-10-11)        |
| (5-12-29-34)<br>(6-16-19)(14-15)<br>(17-21)(20-35)<br>(23-24-27-32-36)       | 4.3                | (5-30-33)<br>(6-16-28-37)<br>(14-39)<br>(17-19-32-36-38)                |                          |                      |
|  |                    |   | .5                       | (7-11-12-20)         |
|  |                    |   | .6                       | (7-11-12-13-15-20)   |
|  |                    |   | .7                       | (7-9-11-12-13-15-20) |
| (5-17-35)(6-18)<br>(14-29-34)(16-19)<br>(22-24-31-32-36)                     | 5.0                | (5-30)<br>(6-16-28-37)<br>(14-39)<br>(17-22-23-25-36)<br>(26-27)(34-38) |                          |                      |
|  |                    |   | .5                       | (7-8-9-10-13-24)     |
|  |                    |   | .6                       | (7-8-11-15-24)       |
|  |                    |   | .7                       | (7-8-11-13-15-24)    |
| (5-12-29-34)<br>(6-16-17)(13-15)<br>(19-35)<br>(23-24-27-31-32-36)           | 5.8                | (4-24-30)<br>(6-16-28-37)<br>(14-39)<br>(19-22-31-32-36)<br>(26-34)     |                          |                      |
|  |                    |   | .5                       | (7-10-12-13-15)      |
|  |                    |   | .6                       | (7-9-10-12-15)       |
|  |                    |   | .7                       | (7-9-10-12-13-15)    |
|  |                    |   | .8                       | (7-11-12-15)         |

\* Use the strapping that corresponds to the larger Fractional End Section adjacent to the Repeater.

\*\* External Resistance

CHART 3M

INTERMEDIATE E23 REPEATER  
(T ARRANGEMENT)

19D88-HC

22D88-HC

| E3 STRAPPING   | NOMINAL GAIN<br>DB | E1 OR E2 STRAPPING                                     |                  |                                 |
|--|--------------------|--|------------------|---------------------------------|
|  |                    | BASIC  | END SECTION<br>* | SUPPLEMENTAL                    |
| (3-12-29-34)(4-15)<br>(16-18-21)(19-20-35)<br>(33-36)                        | 6.5                | (4-12-20-38)<br>(5-24)(16-30)<br>(19-39)<br>(31-36-37) |                  |                                 |
|  |                    |  | .5               | (6-7-9-10)                      |
|  |                    |  | .6               | (6-7-9-10-13)                   |
|  |                    |  | .7               | (6-7-11)                        |
|  |                    |  | .8               | (6-7-11-13)                     |
| (3-8-29-34)(4-14)<br>(9-10)(11-15)<br>(12-17-21)(18-20)<br>(19-35)(24-33-36) | 7.3                | (4-12)# (9-13-24)<br>(16-20-26)<br>(22-34-38)          |                  |                                 |
|  |                    |  | .5               | (5-15-30-33-35)(7-21-36-37)     |
|  |                    |  | .6               | (5-29-31-35)(7-17-30-36-37)     |
|  |                    |  | .7               | (5-31-35)(7-21-36-37)           |
|  |                    |  | .8               | (5-31-33-35)(7-21-36-37)        |
| (3-9-13)(4-15-29-34)<br>(11-18)(19-35)<br>(23-24-26-33-36)                   | 8.0                | (5-9-15)#<br>(6-22-28)(26-38)                          |                  |                                 |
|  |                    |  | .5               | (7-29-30-33-36-37)(17-24-35)    |
|  |                    |  | .6               | (7-31-36-37)(17-24-29-30-33-35) |
|  |                    |  | .7               | (7-30-31-36-37)(17-24-35)       |
|  |                    |  | .8               | (7-21-36-37)(24-31-35)          |
| (3-13)(4-15-29-34)<br>(7-35)(9-19)(12-18)<br>(22-25-26-27-33-36)             | 8.6                | (5-9-15)#<br>(6-8-24-26)<br>(12-20)(34-38)             |                  |                                 |
|  |                    |  | .5               | (7-17-19-36-37)(16-29-30-33-35) |
|  |                    |  | .6               | (7-17-19-36-37)(16-31-33-35)    |
|  |                    |  | .7               | (7-17-19-36-37)(16-29-31-33-35) |
|  |                    |  | .8               | (7-17-19-36-37)(16-29-30-31-35) |
| (3-12-29-34)(4-15-18)<br>(8-35)(9-19)(14-16)<br>(23-24-25-30-33-36)          | 9.2                | (4-12-24-27)#<br>(5-28)(9-16)<br>(34-38)               |                  |                                 |
|  |                    |  | .5               | (6-30-35)(7-21-36-37)           |
|  |                    |  | .6               | (6-29-30-33-35)(7-17-36-37)     |
|  |                    |  | .7               | (6-31-33-35)(7-17-36-37)        |
|  |                    |  | .8               | (6-29-31-33-35)(7-17-36-37)     |
| (3-10-29-34)<br>(4-15-18-21)(11-13-16)<br>(19-35)(25-26-31-33-36)            | 9.8                | (4-12-22-28)#<br>(5-24)(9-16)<br>(34-38)               |                  |                                 |
|  |                    |  | .5               | (6-30-33-35)(7-17-36-37)        |
|  |                    |  | .6               | (6-15-30-35)(7-21-36-37)        |
|  |                    |  | .7               | (6-31-35)(7-17-36-37)           |
|  |                    |  | .8               | (6-29-30-35)(7-21-36-37)        |

\* Use the strapping that corresponds to the larger Fractional End Section adjacent to the Repeater.

#Same as B.S.P. Section 332-200-107

CHART 3MM

INTERMEDIATE E23 REPEATER  
(T ARRANGEMENT)

24D88-HC

| E3 STRAPPING  | NOMINAL GAIN<br>DB | E1 OR E2 STRAPPING  |                  |                      |
|---|--------------------|---|------------------|----------------------|
|   |                    | BASIC   | END SECTION<br>* | SUPPLEMENTAL         |
| (5-14-29)<br>(6-18-21)(16-17)<br>(20-2000 Ω ** - 35)<br>(25-27-36)        | 1.9                | (4-8-20-22)<br>(12-15-24-31)<br>(14-39)<br>(21-23-25-34-36)<br>(26-27)      |                  |                      |
|   |                    |   | .5               | (5-7-18)             |
|   |                    |   | .6               | (5-7-9-13-18)        |
|   |                    |   | .7               | (5-7-9-10-18)        |
| (5-12-29) (6-16-17)<br>(18-21) (20-35)<br>(28-36)                         | 2.7                | (5-12-20-38)<br>(6-16-29-30-33)<br>(19-39)(21-22-36)<br>(27-34)             |                  |                      |
|   |                    |   | .5               | (7-9-10-11-15-24)    |
|   |                    |   | .6               | (7-13-15-18-24)      |
|   |                    |   | .7               | (7-10-18-24)         |
| (5-10-13) (6-16-17)<br>(9-29) (12-14)<br>(18-19-21) (20-35)<br>(25-28-36) | 3.5                | (5-20-37-38)<br>(14-25-39)<br>(15-24-30)<br>(19-21-22-32-36)<br>(26-27)     |                  |                      |
|   |                    |   | .5               | (6-7-9-11)           |
|   |                    |   | .6               | (6-7-10-11)          |
|   |                    |   | .7               | (6-7-9-10-11)        |
| (5-12-29-34)<br>(6-16-19)(14-15)<br>(17-21)(20-35)<br>(23-27-28-36)       | 4.3                | (5-30-33)<br>(6-16-28-37)<br>(14-39)<br>(17-19-32-36-38)                    |                  |                      |
|   |                    |   | .5               | (7-11-12-20)         |
|   |                    |   | .6               | (7-11-12-13-15-20)   |
|   |                    |   | .7               | (7-9-11-12-13-15-20) |
| (5-17-35)(6-18)<br>(14-29-34)<br>(16-19)<br>(23-24-27-28-36)              | 5.0                | (5-30)<br>(6-16-28-37)<br>(14-39)<br>(17-22-23-25-36)<br>(26-27)<br>(34-38) |                  |                      |
|   |                    |   | .5               | (7-8-9-10-13-24)     |
|   |                    |   | .6               | (7-8-11-15-24)       |
|   |                    |   | .7               | (7-8-11-13-15-24)    |
| (5-12-29-34)<br>(6-16-17)(13-15)<br>(19-35)<br>(23-28-30-36)              | 5.8                | (4-24-30)<br>(6-16-28-37)<br>(14-39)<br>(19-22-31-32-36)<br>(26-34)         |                  |                      |
|   |                    |   | .5               | (7-10-12-13-15)      |
|   |                    |   | .6               | (7-9-10-12-15)       |
|   |                    |   | .7               | (7-9-10-12-13-15)    |
|   |                    |   | .8               | (7-11-12-15)         |

\* Use the strapping that corresponds to the larger Fractional End Section adjacent to the repeater.

\*\* External Resistance

## CHART 3MM

INTERMEDIATE E23 REPEATER  
(T ARRANGEMENT)

24D88-HC

| E3 STRAPPING   | NOMINAL<br>GAIN<br>DB | E1 OR E2 STRAPPING                                     |                     |                                 |
|--|-----------------------|--|---------------------|---------------------------------|
|  |                       | BASIC  | END<br>SECTION<br>* | SUPPLEMENTAL                    |
| (3-12-29-34)(4-15)<br>(16-18-21)(19-20-35)<br>(32-36)                            | 6.5                   | (4-12-20-38)<br>(5-24)(16-30)<br>(19-39)<br>(31-36-37) |                     |                                 |
|  |                       |  | .5                  | (6-7-9-10)                      |
|  |                       |  | .6                  | (6-7-9-10-13)                   |
|  |                       |  | .7                  | (6-7-11)                        |
|  |                       |  | .8                  | (6-7-11-13)                     |
| (3-8-29-34)<br>(4-14)(9-10)<br>(11-15)(12-17-21)<br>(18-20)(19-35)<br>(22-32-36) | 7.3                   | (4-12)#<br>(9-13-24)<br>(16-20-26)<br>(22-34-38)       |                     |                                 |
|  |                       |  | .5                  | (5-15-30-33-35)(7-21-36-37)     |
|  |                       |  | .6                  | (5-29-31-35)(7-17-30-36-37)     |
|  |                       |  | .7                  | (5-31-35)(7-21-36-37)           |
|  |                       |  | .8                  | (5-31-33-35)(7-21-36-37)        |
| (3-9-13)<br>(4-15-29-34)<br>(11-18)(19-35)<br>(26-32-36)                         | 8.0                   | (5-9-15)#<br>(6-22-28)<br>(26-38)                      |                     |                                 |
|  |                       |  | .5                  | (7-29-30-33-36-37)(17-24-35)    |
|  |                       |  | .6                  | (7-31-36-37)(17-24-29-30-33-35) |
|  |                       |  | .7                  | (7-30-31-36-37)(17-24-35)       |
|  |                       |  | .8                  | (7-21-36-37)(24-31-35)          |
| (3-13)(4-15-29-34)<br>(7-35)(9-19)(12-18)<br>(24-26-32-36)                       | 8.6                   | (5-9-15)#<br>(6-8-24-26)<br>(12-20)(34-38)             |                     |                                 |
|  |                       |  | .5                  | (7-17-19-36-37)(16-29-30-33-35) |
|  |                       |  | .6                  | (7-17-19-36-37)(16-31-33-35)    |
|  |                       |  | .7                  | (7-17-19-36-37)(16-29-31-33-35) |
|  |                       |  | .8                  | (7-17-19-36-37)(16-29-30-31-35) |
| (3-12-29-34)<br>(4-15-18)<br>(8-35)(9-19)(14-16)<br>(24-25-26-32-36)             | 9.2                   | (4-12-24-27)#<br>(5-28)(9-16)<br>(34-38)               |                     |                                 |
|  |                       |  | .5                  | (6-30-35)(7-21-36-37)           |
|  |                       |  | .6                  | (6-29-30-33-35)(7-17-36-37)     |
|  |                       |  | .7                  | (6-31-33-35)(7-17-36-37)        |
|  |                       |  | .8                  | (6-29-31-33-35)(7-17-36-37)     |
| (3-10-29-34)<br>(4-15-18-21)<br>(11-13-16)(19-35)<br>(24-25-26-32-36)            | 9.8                   | (4-12-22-28)#<br>(5-24)(9-16)<br>(34-38)               |                     |                                 |
|  |                       |  | .5                  | (6-30-33-35)(7-17-36-37)        |
|  |                       |  | .6                  | (6-15-30-35)(7-21-36-37)        |
|  |                       |  | .7                  | (6-31-35)(7-17-36-37)           |
|  |                       |  | .8                  | (6-29-30-35)(7-21-36-37)        |

\* Use the strapping that corresponds to the larger Fractional End Section adjacent to the repeater.

#Same as B.S.P. Section 332-200-107

CHART 3T

TERMINAL E23 REPEATER  
(T ARRANGEMENT)

19D88-HC

22D88-HC

| E3 STRAPPING  | NOMINAL GAIN<br>DB | E1 OR E2 STRAPPING  |                  |                      |
|---|--------------------|---|------------------|----------------------|
|   |                    | BASIC   | END SECTION<br>* | SUPPLEMENTAL         |
| (1-29)(2-3)(4-13)<br>(5-14-22-26)<br>(6-18-21)(16-17)<br>(20-2000 $\Omega$ ** - 35)<br>(27-30-36)   | 1.9                | (4-8-20-22)<br>(12-15-24-31)<br>(14-39)<br>(21-23-25-34-36)<br>(26-27)      | .4               | (5-7-10-11-13)       |
|   |                    |   | .5               | (5-7-18)             |
|   |                    |   | .6               | (5-7-9-13-18)        |
|   |                    |   | .7               | (5-7-9-10-18)        |
|   |                    |   | .8               | (5-7-11-13-18)       |
| (1-29)(2-3)(4-8)<br>(5-10-12-22-26)<br>(6-16-17)(18-21)<br>(20-35)(28-30-36)                        | 2.7                | (5-12-20-38)<br>(6-16-29-30-33)<br>(19-39)<br>(21-22-36)<br>(27-34)         | .4               | (7-9-11-13-15-24)    |
|   |                    |   | .5               | (7-9-10-11-15-24)    |
|   |                    |   | .6               | (7-13-15-18-24)      |
|   |                    |   | .7               | (7-10-18-24)         |
| (1-29)(2-3)(4-7)<br>(5-10-13)(6-16-17)<br>(9-22-26)(12-14)<br>(18-19-21)(20-35)<br>(25-27-28-30-36) | 3.5                | (5-20-37-38)<br>(14-25-39)<br>(15-24-30)<br>(19-21-22-32-36)<br>(26-27)     | .4               | (6-7-11)             |
|   |                    |   | .5               | (6-7-9-11)           |
|   |                    |   | .6               | (6-7-10-11)          |
|   |                    |   | .7               | (6-7-9-10-11)        |
| (1-29-34)(2-3)(4-7)<br>(5-10-12)(6-16-19)<br>(9-22-26)(14-15)<br>(20-35)<br>(23-24-27-32-36)        | 4.3                | (5-30-33)<br>(6-16-28-37)<br>(14-39)<br>(17-19-32-36-38)                    | .4               | (7-9-10-12-15-20)    |
|   |                    |   | .5               | (7-11-12-20)         |
|   |                    |   | .6               | (7-11-12-13-15-20)   |
|   |                    |   | .7               | (7-9-11-12-13-15-20) |
| (3-29-34)(4-7)<br>(5-17-35)(6-18)(8-11)<br>(9-10-14-25-26)(16-19)<br>(22-24-31-32-36)               | 5.0                | (5-30)<br>(6-16-28-37)<br>(14-39)<br>(17-22-23-25-36)<br>(26-27)<br>(34-38) | .4               | (7-8-10-13-15-24)    |
|   |                    |   | .5               | (7-8-9-10-13-24)     |
|   |                    |   | .6               | (7-8-11-15-24)       |
|   |                    |   | .7               | (7-8-11-13-15-24)    |
| (3-29-34)(4-7-11)<br>(5-9-12-22-25-26)<br>(6-16-17)(8-10)(13-15)<br>(19-35)<br>(23-24-27-31-32-36)  | 5.8                | (4-24-30)<br>(6-16-28-37)<br>(14-39)<br>(19-22-31-32-36)<br>(26-34)         | .4               | (7-10-12-15)         |
|   |                    |   | .5               | (7-10-12-13-15)      |
|   |                    |   | .6               | (7-9-10-12-15)       |
|   |                    |   | .7               | (7-9-10-12-13-15)    |
|   |                    |   | .8               | (7-11-12-15)         |

\* Use the strapping that corresponds to the larger Fractional End Section adjacent to the Repeater.

\*\* External Resistance.

CHART 3T

TERMINAL E23 REPEATER  
(T ARRANGEMENT)

19D88-HC

22D88-HC

| E3 STRAPPING  | NOMINAL GAIN<br>DB | E1 OR E2 STRAPPING                                     |                   |                                 |
|---|--------------------|--|-------------------|---------------------------------|
|   |                    | BASIC  | END. SECTION<br>* | SUPPLEMENTAL                    |
| (1-29-34)(2-10)<br>(4-15)<br>(3-9-11-12-24-25-26-27)<br>(16-18-21)(19-20-35)<br>(33-36)           | 6.5                | (4-12-20-38)<br>(5-24)(16-30)<br>(19-39)<br>(31-36-37) | .4                | (6-7-10-13)                     |
|   |                    |  | .5                | (6-7-9-10)                      |
|   |                    |  | .6                | (6-7-9-10-13)                   |
|   |                    |  | .7                | (6-7-11)                        |
|   |                    |  | .8                | (6-7-11-13)                     |
| (1-29-34)(2-7)<br>(3-8-22-27-28)<br>(4-14)(9-10)(11-15)<br>(12-17-21)(18-20)<br>(19-35)(24-33-36) | 7.3                | (4-12)#<br>(9-13-24)<br>(16-20-26)<br>(22-34-38)       | .5                | (5-15-30-33-35)(7-21-36-37)     |
|   |                    |  | .6                | (5-29-31-35)(7-17-30-36-37)     |
|   |                    |  | .7                | (5-31-35)(7-21-36-37)           |
|   |                    |  | .8                | (5-31-33-35)(7-21-36-37)        |
| (1-29-34)(2-8)<br>(3-11-13)(4-15-18)<br>(9-22-27-28)(19-35)<br>(23-24-26-33-36)                   | 8.0                | (5-9-15)#<br>(6-22-28)<br>(26-38)                      | .5                | (7-29-30-33-36-37)(17-24-35)    |
|   |                    |  | .6                | (7-31-36-37)(17-24-29-30-33-35) |
|   |                    |  | .7                | (7-30-31-36-37)(17-24-35)       |
|   |                    |  | .8                | (7-21-36-37)(24-31-35)          |
| (1-29-34)(2-8)<br>(3-13)(4-10-15)<br>(9-22-27-28)(12-18)<br>(19-35)(24-31-33-36)                  | 8.6                | (5-9-15)#<br>(6-8-24-26)<br>(12-20)<br>(34-38)         | .5                | (7-17-19-36-37)(16-29-30-33-35) |
|   |                    |  | .6                | (7-17-19-36-37)(16-31-33-35)    |
|   |                    |  | .7                | (7-17-19-36-37)(16-29-31-33-35) |
|   |                    |  | .8                | (7-17-19-36-37)(16-29-30-31-35) |
| (1-29-34)(2-9)<br>(3-7-12)(4-15-18)<br>(8-22-27-28)(14-16)<br>(19-35)<br>(23-24-25-30-33-36)      | 9.2                | (4-12-24-27)#<br>(5-28)(9-16)<br>(34-38)               | .5                | (6-30-35)(7-21-36-37)           |
|   |                    |  | .6                | (6-29-30-33-35)(7-17-36-37)     |
|   |                    |  | .7                | (6-31-33-35)(7-17-36-37)        |
|   |                    |  | .8                | (6-29-31-33-35)(7-17-36-37)     |
| (1-29-34)(2-7)<br>(3-9-10)(4-15-18-21)<br>(8-22-27-30)(11-13-16)<br>(19-35)<br>(25-26-31-33-36)   | 9.8                | (4-12-22-28)#<br>(5-24)(9-16)<br>(34-38)               | .5                | (6-30-33-35)(7-17-36-37)        |
|   |                    |  | .6                | (6-15-30-35)(7-21-36-37)        |
|   |                    |  | .7                | (6-31-35)(7-17-36-37)           |
|   |                    |  | .8                | (6-29-30-35)(7-21-36-37)        |

\* Use the strapping that corresponds to the larger Fractional End Section adjacent to the Repeater.

#Same as B.S.P. Section 332-200-107

## CHART 3TT

TERMINAL E23 REPEATER  
(T ARRANGEMENT)

24D88-HC

| E3 STRAPPING   | NOMINAL<br>GAIN<br>DB | E1 OR E2 STRAPPING  |                     |                      |
|--|-----------------------|---|---------------------|----------------------|
|  |                       | BASIC   | END<br>SECTION<br>* | SUPPLEMENTAL         |
| (1-29)(2-3)(4-13)<br>(5-14-22-26)(6-18-21)<br>(16-17)<br>(20-2000- $\Omega$ ** - 35)<br>(25-27-36) | 1.9                   | (4-8-20-22)<br>(12-15-24-31)<br>(14-39)<br>(21-23-25-34-36)<br>(26-27)  | .4                  | (5-7-10-11-13)       |
|  |                       |   | .5                  | (5-7-18)             |
|  |                       |   | .6                  | (5-7-9-13-18)        |
|  |                       |   | .7                  | (5-7-9-10-18)        |
|  |                       |   | .8                  | (5-7-11-13-18)       |
| (1-29)(2-3)(4-8)<br>(5-10-12-22-26)<br>(6-16-17)(18-21)<br>(20-35)(28-36)                          | 2.7                   | (5-12-20-38)<br>(6-16-29-30-33)<br>(19-39)<br>(21-22-36)<br>(27-34)     | .4                  | (7-9-11-13-15-24)    |
|  |                       |   | .5                  | (7-9-10-11-15-24)    |
|  |                       |   | .6                  | (7-13-15-18-24)      |
|  |                       |   | .7                  | (7-10-18-24)         |
| (1-29)(2-3)(4-7)<br>(5-10-13)(6-16-17)<br>(9-22-26)(12-14)<br>(18-19-21)(20-35)<br>(25-28-36)      | 3.5                   | (5-20-37-38)<br>(14-25-39)<br>(15-24-30)<br>(19-21-22-32-36)<br>(26-27) | .4                  | (6-7-11)             |
|  |                       |   | .5                  | (6-7-9-11)           |
|  |                       |   | .6                  | (6-7-10-11)          |
|  |                       |   | .7                  | (6-7-9-10-11)        |
| (1-29-34)(2-3)(4-7)<br>(5-10-12)(6-16-19)<br>(9-22-26)(14-15)<br>(20-35)(23-27-28-36)              | 4.3                   | (5-30-33)<br>(6-16-28-37)<br>(14-39)<br>(17-19-32-36-38)                | .4                  | (7-9-10-12-15-20)    |
|  |                       |   | .5                  | (7-11-12-20)         |
|  |                       |   | .6                  | (7-11-12-13-15-20)   |
|  |                       |   | .7                  | (7-9-11-12-13-15-20) |
| (3-29-34)(4-7)<br>(5-17-35)(6-18)(8-11)<br>(9-10-14-25-26)(16-19)<br>(23-24-27-28-36)              | 5.0                   | (5-30)<br>(6-16-28-37)<br>(14-39)<br>(17-22-23-25-36)<br>(26-27)(34-38) | .4                  | (7-8-10-13-15-24)    |
|  |                       |   | .5                  | (7-8-9-10-13-24)     |
|  |                       |   | .6                  | (7-8-11-15-24)       |
|  |                       |   | .7                  | (7-8-11-13-15-24)    |
| (3-29-34)(4-7-11)<br>(5-9-12-22-25-26)<br>(6-16-17)(8-10)<br>(13-15)(19-35)<br>(23-28-30-36)       | 5.8                   | (4-24-30)<br>(6-16-28-37)<br>(14-39)<br>(19-22-31-32-36)<br>(26-34)     | .4                  | (7-10-12-15)         |
|  |                       |   | .5                  | (7-10-12-13-15)      |
|  |                       |   | .6                  | (7-9-10-12-15)       |
|  |                       |   | .7                  | (7-9-10-12-13-15)    |
|  |                       |   | .8                  | (7-11-12-15)         |

\* Use the strapping that corresponds to the larger Fractional End Section adjacent to the repeater.

\*\* External Resistance.

CHART 3TT

TERMINAL E23 REPEATER  
(T ARRANGEMENT)

24D88-HC

| E3 STRAPPING  | NOMINAL GAIN<br>DB | E1 OR E2 STRAPPING                                 |                  |                                 |
|---|--------------------|--|------------------|---------------------------------|
|   |                    | BASIC  | END SECTION<br>* | SUPPLEMENTAL                    |
| (1-29-34)(2-10)<br>(3-9-11-12-24-25-26-27)<br>(4-15)(16-18-21)<br>(19-20-35)(32-36)               | 6.5                | (4-12-20-38)<br>(5-24)(16-30)<br>(19-39)(31-36-37) | .4               | (6-7-10-13)                     |
|   |                    |  | .5               | (6-7-9-10)                      |
|   |                    |  | .6               | (6-7-9-10-13)                   |
|   |                    |  | .7               | (6-7-11)                        |
|   |                    |  | .8               | (6-7-11-13)                     |
| (1-29-34)(2-7)<br>(3-8-22-27-28)(4-14)<br>(9-10)(11-15)<br>(12-17-21)(18-20)<br>(19-35)(23-32-36) | 7.3                | (4-12)#<br>(9-13-24)<br>(16-20-26)<br>(22-34-38)   | .5               | (5-15-30-33-35)(7-21-36-37)     |
|   |                    |  | .6               | (5-29-31-35)(7-17-30-36-37)     |
|   |                    |  | .7               | (5-31-35)(7-21-36-37)           |
|   |                    |  | .8               | (5-31-33-35)(7-21-36-37)        |
| (1-29-34)(2-8)<br>(3-11-13)(4-15-18)<br>(9-22-27-28)(19-35)<br>(26-32-36)                         | 8.0                | (5-9-15)#<br>(6-22-28)(26-38)                      | .5               | (7-29-30-33-36-37)(17-24-35)    |
|   |                    |  | .6               | (7-31-36-37)(17-24-29-30-33-35) |
|   |                    |  | .7               | (7-30-31-36-37)(17-24-35)       |
|   |                    |  | .8               | (7-21-36-37)(24-31-35)          |
| (1-29-34)(2-8)(3-13)<br>(4-10-15)<br>(9-22-27-28)(12-18)<br>(19-35)(24-26-32-36)                  | 8.6                | (5-9-15)#<br>(6-8-24-26)<br>(12-20)(34-38)         | .5               | (7-17-19-36-37)(16-29-30-33-35) |
|   |                    |  | .6               | (7-17-19-36-37)(16-31-33-35)    |
|   |                    |  | .7               | (7-17-19-36-37)(16-29-31-33-35) |
|   |                    |  | .8               | (7-17-19-36-37)(16-29-30-31-35) |
| (1-29-34)(2-9)<br>(3-7-12)(4-15-18)<br>(8-22-27-28)(14-16)<br>(19-35)<br>(24-25-26-32-36)         | 9.2                | (4-12-24-27)#<br>(5-28)(9-16)<br>(34-38)           | .5               | (6-30-35)(7-21-36-37)           |
|   |                    |  | .6               | (6-29-30-33-35)(7-17-36-37)     |
|   |                    |  | .7               | (6-31-33-35)(7-17-36-37)        |
|   |                    |  | .8               | (6-29-31-33-35)(7-17-36-37)     |
| (1-29-34)(2-7)<br>(3-9-10)(4-15-18-21)<br>(8-22-27-30)<br>(11-13-16)(19-35)<br>(24-25-26-32-36)   | 9.8                | (4-12-22-28)#<br>(5-24)(9-16)<br>(34-38)           | .5               | (6-30-33-35)(7-17-36-37)        |
|   |                    |  | .6               | (6-15-30-35)(7-21-36-37)        |
|   |                    |  | .7               | (6-31-35)(7-17-36-37)           |
|   |                    |  | .8               | (6-29-30-35)(7-21-36-37)        |

\* Use the strapping that corresponds to the larger Fractional End Section adjacent to the Repeater.

#Same as B.S.P. Section 332-200-107



CHART 5M

INTERMEDIATE E23 REPEATER  
(T ARRANGEMENT)

19H88-HC

22H88-HC

| E3 STRAPPING  | NOMINAL GAIN<br>DB | E1 OR E2 STRAPPING  |                  |                      |
|---|--------------------|---|------------------|----------------------|
|   |                    | BASIC   | END SECTION<br>* | SUPPLEMENTAL         |
| (5-18-29)<br>(6-19)<br>(20-2000 $\Omega$ ** -35)<br>(23-25-26-30-36)  | 1.9                | (4-8-20-34)<br>(12-24-30-31)<br>(14-39)<br>(21-22-23-25-36)<br>(26-27)(37-38) |                  |                      |
|   |                    |   | .5               | (5-7-9-10-13-18)     |
|   |                    |   | .6               | (5-7-9-11-13-15-18)  |
|   |                    |   | .7               | (5-7-17-18)          |
| (5-13-22-24-27-28)<br>(6-16-18)<br>(20-35)<br>(29-36)                 | 2.7                | (8-20-38)<br>(12-29-30-33)<br>(14-19-39)<br>(21-22-25-36-37)<br>(26-27)       |                  |                      |
|   |                    |   | .5               | (7-9-10-11-13-24)    |
|   |                    |   | .6               | (7-9-18-24)          |
|   |                    |   | .7               | (7-10-13-18-24)      |
| (5-12-22-24-27-28)<br>(6-16-18) (13-14)<br>(17-19) (20-35)<br>(29-36) | 3.5                | (5-24-37-38)<br>(14-19-39)<br>(17-22-31-32-36)<br>(20-29-30-33)<br>(26-34)    |                  |                      |
|   |                    |   | .5               | (6-7-10-11)          |
|   |                    |   | .6               | (6-7-9-10-11-15)     |
|   |                    |   | .7               | (6-7-15-18)          |
| (5-12-29-34)<br>(6-18-19-21)<br>(13-17) (20-35)<br>(28-30-31-36)      | 4.3                | (5-29-30)<br>(6-12-20-37-38)<br>(14-19-39)<br>(17-22-32-33-36)                |                  |                      |
|   |                    |   | .5               | (7-11-13-15-16-28)   |
|   |                    |   | .6               | (7-9-11-13-15-16-28) |
|   |                    |   | .7               | (7-10-11-13-16-28)   |
| (5-12-29-34)<br>(6-16-19)<br>(13-15) (17-35)<br>(23-27-31-32-36)      | 5.0                | (5-29-30)<br>(6-8-24-38)<br>(14-39) (17-22-23-25-33-36)                       |                  |                      |
|   |                    |   | .5               | (7-11-13-16-28)      |
|   |                    |   | .6               | (7-9-11-15-16-28)    |
|   |                    |   | .7               | (7-10-11-15-16-28)   |
| (5-15)(6-9-29-34)<br>(10-16)(12-18)<br>(19-35)(33-36)                 | 5.8                | (4-12-24-37)<br>(6-28-30-33)<br>(14-39)<br>(17-19-26-32-36)<br>(34-38)        |                  |                      |
|   |                    |   | .5               | (7-11-16)            |
|   |                    |   | .6               | (7-11-13-15-16)      |
|   |                    |   | .7               | (7-9-11-13-16)       |
|   |                    |   | .8               | (7-10-11-15-16)      |

\* Use the Strapping that Corresponds to the Larger Fractional End Section Adjacent to the Repeater.

\*\* External Resistance.

## CHART 5M

INTERMEDIATE E23 REPEATER  
(T ARRANGEMENT)

19H88-HC

22H88-HC

| E3 STRAPPING   | NOMINAL<br>GAIN<br>DB | E1 OR E2 STRAPPING  |                                     |
|--|-----------------------|---|-------------------------------------|
|  |                       | BASIC   | END SECTION<br>* SUPPLEMENTAL       |
| (5-15) (6-16-29-34)<br>(14-18) (19-35)<br>(25-26-33-36)                        | 6.5                   | (5-20) (9-13-16)<br>(12-22-24)<br>(19-39)                       |                                     |
|  |                       |   | .5 (6-7-15-29-30) (21-23-36-38)     |
|  |                       |   | .6 (6-7-29-30-31-33) (17-23-36-38)  |
|  |                       |   | .7 (6-7-31-33) (21-23-36-38)        |
| (3-13-29-34) (4-15-17)<br>(18-20) (19-21-35)<br>(31-33-36)                     | 7.3                   | (5-12)#<br>(6-16-20-37)<br>(9-13-15-24)                         |                                     |
|  |                       |   | .5 (4-29-31-35) (7-17-22-33-36)     |
|  |                       |   | .6 (4-30-31-33-35) (7-17-22-29-36)  |
|  |                       |   | .7 (4-31-33-35) (7-21-22-36)        |
| (3-14) (4-9-29-34)<br>(11-12) (16-17-21)<br>(18-20-35)<br>(27-31-33-36)        | 8.0                   | (5-22-24)#<br>(6-29-33)<br>(7-21-36-37)<br>(27-38)              |                                     |
|  |                       |   | .5 (10-13-15-28-35)                 |
|  |                       |   | .6 (9-10-15-28-35)                  |
|  |                       |   | .7 (9-10-13-15-28-35)               |
| (3-12-29-34)<br>(4-15-18)<br>(14-16) (19-35)<br>(22-26-27-31-33-36)            | 8.6                   | (5-9-13)#<br>(6-24-26)<br>(27-34-38)                            |                                     |
|  |                       |   | .5 (7-21-36-37) (15-28-30-33-35)    |
|  |                       |   | .6 (7-29-31-36-37) (17-28-30-35)    |
|  |                       |   | .7 (7-29-30-31-33-36-37) (17-28-35) |
| (3-12-29-34)<br>(4-15-18-21) (14-16)<br>(19-35) (28-30-33-36)                  | 9.2                   | (5-12-22)#<br>(6-29-33)<br>(7-21-36-37)<br>(16-20) (26-38)      |                                     |
|  |                       |   | .5 (10-13-24-35)                    |
|  |                       |   | .6 (9-10-24-35)                     |
|  |                       |   | .7 (9-10-13-24-35)                  |
| (3-7-9-29-34)<br>(4-15-19-21)<br>(8-12) (13-14)<br>(17-20-35)<br>(28-30-33-36) | 9.8                   | (5-20)#<br>(6-16-28-34)<br>(7-21-36-37)<br>(9-12-15)<br>(22-38) |                                     |
|  |                       |   | .5 (4-30-33-35)                     |
|  |                       |   | .6 (4-29-30-35)                     |
|  |                       |   | .7 (4-29-30-33-35)                  |
|  |                       |   | .8 (4-31-35)                        |

\* Use the Strapping that Corresponds to the Larger Fractional End Section Adjacent to the Repeater.

#Same as B.S.P. Section 332-200-107

## CHART 5MM

INTERMEDIATE E23 REPEATER  
(T ARRANGEMENT)

24H88-HC

| E3 STRAPPING   | NOMINAL<br>GAIN<br>DB | E1 OR E2 STRAPPING   |                  |                      |
|--|-----------------------|--|------------------|----------------------|
|  |                       | BASIC  | END<br>* SECTION | SUPPLEMENTAL         |
| (5-18-29) (6-19)<br>(20-2000 $\Omega$ ** -35)<br>(23-26-36)        | 1.9                   | (4-8-20-34)<br>(12-24-30-31)<br>(14-39)<br>(21-22-23-25-36)<br>(26-27) (37-38) |                  |                      |
|  |                       |  | .5               | (5-7-9-10-13-18)     |
|  |                       |  | .6               | (5-7-9-11-13-15-18)  |
|  |                       |  | .7               | (5-7-17-18)          |
| (5-13-25-26)<br>(6-16-18)<br>(20-35) (29-36)                       | 2.7                   | (8-20-38)<br>(12-29-30-33)<br>(14-19-39)<br>(21-22-25-36-37)<br>(26-27)        |                  |                      |
|  |                       |  | .5               | (7-9-10-11-13-24)    |
|  |                       |  | .6               | (7-9-18-24)          |
|  |                       |  | .7               | (7-10-13-18-24)      |
| (5-12-22-24-26)<br>(6-16-18) (13-14)<br>(17-19) (20-35)<br>(29-36) | 3.5                   | (5-24-37-38)<br>(14-19-39)<br>(17-22-31-32-36)<br>(20-29-30-33)<br>(26-34)     |                  |                      |
|  |                       |  | .5               | (6-7-10-11)          |
|  |                       |  | .6               | (6-7-9-10-11-15)     |
|  |                       |  | .7               | (6-7-15-18)          |
| (5-12-29)<br>(6-18-19-21)<br>(13-17) (20-35)<br>(24-25-28-36)      | 4.3                   | (5-29-30)<br>(6-12-20-37-38)<br>(14-19-39)<br>(17-22-32-33-36)                 |                  |                      |
|  |                       |  | .5               | (7-11-13-15-16-28)   |
|  |                       |  | .6               | (7-9-11-13-15-16-28) |
|  |                       |  | .7               | (7-10-11-13-16-28)   |
| (5-12-29) (6-16-19)<br>(13-15) (17-35)<br>(28-30-36)               | 5.0                   | (5-29-30)<br>(6-8-24-38)<br>(14-39) (17-22-<br>23-25-33-36)                    |                  |                      |
|  |                       |  | .5               | (7-11-13-16-28)      |
|  |                       |  | .6               | (7-9-11-15-16-28)    |
|  |                       |  | .7               | (7-10-11-15-16-28)   |
| (5-15) (6-9-29-34)<br>(10-16) (12-18)<br>(19-35) (27-32-36)        | 5.8                   | (4-12-24-37)<br>(6-28-30-33)<br>(14-39)<br>(17-19-26-32-36)<br>(34-38)         |                  |                      |
|  |                       |  | .5               | (7-11-16)            |
|  |                       |  | .6               | (7-11-13-15-16)      |
|  |                       |  | .7               | (7-9-11-13-16)       |
|  |                       |  | .8               | (7-10-11-15-16)      |

\* Use the Strapping that Corresponds to the Larger Fractional End Section Adjacent to the Repeater.

\*\* External Resistance.

CHART 5MM

INTERMEDIATE E23 REPEATER  
(T ARRANGEMENT)

24H88-HC

| E3 STRAPPING  | NOMINAL GAIN<br>DB | E1 OR E2 STRAPPING  |                                     |
|---|--------------------|---|-------------------------------------|
|   |                    | BASIC   | END SECTION *<br>SUPPLEMENTAL       |
| (5-15) (6-16-29-34)<br>(14-18) (19-35)<br>(27-28-30-31-36)              | 6.5                | (5-20) (9-13-16)<br>(12-22-24)<br>(19-39)                       | .5 (6-7-15-29-30) (21-23-36-38)     |
|   |                    |   | .6 (6-7-29-30-31-33) (17-23-36-38)  |
|   |                    |   | .7 (6-7-31-33) (21-23-36-38)        |
|   |                    |   | .8 (6-7-15-29-31) (21-23-36-38)     |
| (3-13-29-34)(4-15-17)<br>(18-20) (19-21-35)<br>(22-23-31-32-36)         | 7.3                | (5-12)#<br>(6-16-20-37)<br>(9-13-15-24)                         | .5 (4-29-31-35) (7-17-22-33-36)     |
|   |                    |   | .6 (4-30-31-33-35) (7-17-22-29-36)  |
|   |                    |   | .7 (4-31-33-35) (7-21-22-36)        |
|   |                    |   | .8 (4-29-31-35) (7-21-22-36)        |
| (3-14) (4-9-29-34)<br>(11-12) (16-17-21)<br>(18-20-35)<br>(27-31-32-36) | 8.0                | (5-22-24)#<br>(6-29-33)<br>(7-21-36-37)<br>(27-38)              | .5 (10-13-15-28-35)                 |
|   |                    |   | .6 (9-10-15-28-35)                  |
|   |                    |   | .7 (9-10-13-15-28-35)               |
|   |                    |   | .8 (11-13-28-35)                    |
| (3-12-29-34)<br>(4-15-18) (14-16)<br>(19-35)<br>(24-26-28-32-36)        | 8.6                | (5-9-13)#<br>(6-24-26)<br>(27-34-38)                            | .5 (7-21-36-37) (15-28-30-33-35)    |
|   |                    |   | .6 (7-29-31-36-37) (17-28-30-35)    |
|   |                    |   | .7 (7-29-30-31-33-36-37) (17-28-35) |
|   |                    |   | .8 (7-21-36-37)(28-31-33-35)        |
| (3-12-29-34)<br>(4-15-18-21)<br>(14-16) (19-35)<br>(25-27-31-32-36)     | 9.2                | (5-12-22)#<br>(6-29-33)<br>(7-21-36-37)<br>(16-20) (26-38)      | .5 (10-13-24-35)                    |
|   |                    |   | .6 (9-10-24-35)                     |
|   |                    |   | .7 (9-10-13-24-35)                  |
|   |                    |   | .8 (11-24-35)                       |
| (3-7-9-29-34)<br>(4-15-19-21)<br>(8-12) (13-14)<br>(17-20-35) (33-36)   | 9.8                | (5-20)#<br>(6-16-28-34)<br>(7-21-36-37)<br>(9-12-15)<br>(22-38) | .5 (4-30-33-35)                     |
|   |                    |   | .6 (4-29-30-35)                     |
|   |                    |   | .7 (4-29-30-33-35)                  |
|   |                    |   | .8 (4-31-35)                        |

\* Use the Strapping that Corresponds to the Larger Fractional End Section Adjacent to the Repeater.

#Same as B.S.P. Section 332-200-107

## CHART 5T

TERMINAL E23 REPEATER  
(T ARRANGEMENT)

19H88-HC

22H88-HC

| E3 STRAPPING  | NOMINAL<br>GAIN<br>DB | E1 OR E2 STRAPPING  |                     |                      |
|---|-----------------------|---|---------------------|----------------------|
|   |                       | BASIC   | END<br>SECTION<br>* | SUPPLEMENTAL         |
| (1-29) (2-3) (4-13)<br>(5-14-18-22-27)<br>(6-19)<br>(20-2000Ω** -35)<br>(23-25-26-30-36)                | 1.9                   | (4-8-20-34)<br>(12-24-30-31)<br>(14-39)<br>(21-22-23-25-36)<br>(26-27)(37-38) | .4                  | (5-7-9-15-18)        |
|   |                       |   | .5                  | (5-7-9-10-13-18)     |
|   |                       |   | .6                  | (5-7-9-11-13-15-18)  |
|   |                       |   | .7                  | (5-7-17-18)          |
|   |                       |   | .8                  | (5-7-10-13-17-18)    |
| (1-29) (2-3) (4-9-11)<br>(5-10-13-25-27)<br>(6-16-18)<br>(20-35)<br>(23-24-26-28-36)                    | 2.7                   | (8-20-38)<br>(12-29-30-33)<br>(14-19-39)<br>(21-22-25-36-37)<br>(26-27)       | .4                  | (7-10-11-24)         |
|   |                       |   | .5                  | (7-9-10-11-13-24)    |
|   |                       |   | .6                  | (7-9-18-24)          |
|   |                       |   | .7                  | (7-10-13-18-24)      |
|   |                       |   | .8                  | (7-11-18-24)         |
| (1-29) (2-3) (4-9-11)<br>(5-10-12-24-26)<br>(6-16-18)<br>(13-14) (17-19)<br>(20-35)<br>(23-25-27-28-36) | 3.5                   | (5-24-37-38)<br>(14-19-39)<br>(17-22-31-32-36)<br>(20-29-30-33)<br>(26-34)    | .4                  | (6-7-11-13-15)       |
|   |                       |   | .5                  | (6-7-10-11)          |
|   |                       |   | .6                  | (6-7-9-10-11-15)     |
|   |                       |   | .7                  | (6-7-15-18)          |
|   |                       |   | .8                  | (6-7-9-13-18)        |
| (1-29-34) (2-3)<br>(4-9-11)<br>(5-10-12-22-23-26)<br>(6-18-19-21) (13-17)<br>(20-35) (28-30-31-36)      | 4.3                   | (5-29-30)<br>(6-12-20-37-38)<br>(14-19-39)<br>(17-22-32-33-36)                | .4                  | (7-9-10-13-15-16-28) |
|   |                       |   | .5                  | (7-11-13-15-16-28)   |
|   |                       |   | .6                  | (7-9-11-13-15-16-28) |
|   |                       |   | .7                  | (7-10-11-13-16-28)   |
|   |                       |   | .8                  | (7-9-10-11-13-16-28) |
| (3-8)<br>(4-29-34)<br>(5-7-12-22-24-25-26)<br>(6-16-19)<br>(13-15) (17-35)<br>(23-27-31-32-36)          | 5.0                   | (5-29-30)<br>(6-8-24-38)<br>(14-39)<br>(17-22-23-25-33-36)                    | .4                  | (7-9-10-13-15-16-28) |
|   |                       |   | .5                  | (7-11-13-16-28)      |
|   |                       |   | .6                  | (7-9-11-15-16-28)    |
|   |                       |   | .7                  | (7-10-11-15-16-28)   |
|   |                       |   | .8                  | (7-9-10-11-16-28)    |
| (3-29-34)<br>(4-8) (5-15)<br>(6-9-22-24-25-26)<br>(10-16) (12-18)<br>(19-35) (33-36)                    | 5.8                   | (4-12-24-37)<br>(6-28-30-33)<br>(14-39)<br>(17-19-26-32-36)<br>(34-38)        | .4                  | (7-9-10-15-16)       |
|   |                       |   | .5                  | (7-11-16)            |
|   |                       |   | .6                  | (7-11-13-15-16)      |
|   |                       |   | .7                  | (7-9-11-13-16)       |
|   |                       |   | .8                  | (7-10-11-15-16)      |

\* Use the Strapping that Corresponds to the Larger Fractional End Section Adjacent to the Repeater.

\*\* External Resistance.

CHART 5T

TERMINAL E23 REPEATER  
(T ARRANGEMENT)

19H88-HC

22H88-HC

| E3 STRAPPING   | NOMINAL GAIN<br>DB | E1 OR E2 STRAPPING  |                  |                                  |
|--|--------------------|---|------------------|----------------------------------|
|  |                    | BASIC   | END SECTION<br>* | SUPPLEMENTAL                     |
| (3-29-34)<br>(4-8) (5-15)<br>(6-9-16-28)<br>(14-18) (19-35)<br>(25-26-33-36)                           | 6.5                | (5-20)<br>(9-13-16)<br>(12-22-24)<br>(19-39)                    | .4               | (6-7-31) (17-23-36-38)           |
|  |                    |   | .5               | (6-7-15-29-30) (21-23-36-38)     |
|  |                    |   | .6               | (6-7-29-30-31-33) (17-23-36-38)  |
|  |                    |   | .7               | (6-7-31-33) (21-23-36-38)        |
|  |                    |   | .8               | (6-7-15-29-31) (21-23-36-38)     |
| (1-29-34) (2-7-9)<br>(3-8-13-28-30)<br>(4-15-17) (18-20)<br>(19-21-35)<br>(31-33-36)                   | 7.3                | (5-12)#<br>(6-16-20-37)<br>(9-13-15-24)                         | .5               | (4-29-31-35) (7-17-22-33-36)     |
|  |                    |   | .6               | (4-30-31-33-35) (7-17-22-29-36)  |
|  |                    |   | .7               | (4-31-33-35) (7-21-22-36)        |
|  |                    |   | .8               | (4-29-31-35) (7-21-22-36)        |
| (1-29-34)<br>(2-8) (3-14)<br>(4-7-9-28-30)<br>(11-12) (16-17-21)<br>(18-20-35)<br>(27-31-33-36)        | 8.0                | (5-22-24)#<br>(6-29-33)<br>(7-21-36-37)<br>(27-38)              | .5               | (10-13-15-28-35)                 |
|  |                    |   | .6               | (9-10-15-28-35)                  |
|  |                    |   | .7               | (9-10-13-15-28-35)               |
|  |                    |   | .8               | (11-13-28-35)                    |
| (1-29-34)<br>(2-7-9)<br>(3-8-12-28-30)<br>(4-15-18)<br>(14-16) (19-35)<br>(22-26-27-31-33-36)          | 8.6                | (5-9-13)#<br>(6-24-26)<br>(27-34-38)                            | .5               | (7-21-36-37) (15-28-30-33-35)    |
|  |                    |   | .6               | (7-29-31-36-37) (17-28-30-35)    |
|  |                    |   | .7               | (7-29-30-31-33-36-37) (17-28-35) |
|  |                    |   | .8               | (7-21-36-37) (28-31-33-35)       |
| (1-29-34) (2-7-9)<br>(3-8-12-28-30)<br>(4-15-18-21)<br>(14-16) (19-35)<br>(23-26-27-31-33-36)          | 9.2                | (5-12-22)#<br>(6-29-33)<br>(7-21-36-37)<br>(16-20)<br>(26-38)   | .5               | (10-13-24-35)                    |
|  |                    |   | .6               | (9-10-24-35)                     |
|  |                    |   | .7               | (9-10-13-24-35)                  |
|  |                    |   | .8               | (11-24-35)                       |
| (1-29-34)<br>(2-7-9)<br>(3-8-12-23-24-25-26-28)<br>(4-15-19-21)<br>(13-14) (17-20-35)<br>(30-31-33-36) | 9.8                | (5-20)#<br>(6-16-28-34)<br>(7-21-36-37)<br>(9-12-15)<br>(22-38) | .5               | (4-30-33-35)                     |
|  |                    |   | .6               | (4-29-30-35)                     |
|  |                    |   | .7               | (4-29-30-33-35)                  |
|  |                    |   | .8               | (4-31-35)                        |

\* Use the Strapping that Corresponds to the Larger Fractional End Section Adjacent to the Repeater.

#Same as B.S.P. Section 332-200-107

## CHART 5TT

TERMINAL E23 REPEATER  
(T ARRANGEMENT)

24H88-HC

| E3 STRAPPING  | NOMINAL<br>GAIN<br>DB | E1 OR E2 STRAPPING   |                     |                      |
|---|-----------------------|--|---------------------|----------------------|
|   |                       | BASIC  | END<br>SECTION<br>* | SUPPLEMENTAL         |
| (1-29) (2-3) (4-13)<br>(5-14-18-22-27)<br>(6-19)<br>(20-2000 $\Omega$ ** -35)<br>(23-26-36)       | 1.9                   | (4-8-20-34)<br>(12-24-30-31)<br>(14-39)<br>(21-22-23-25-36)<br>(26-27) (37-38) | .4                  | (5-7-9-15-18)        |
|   |                       |  | .5                  | (5-7-9-10-13-18)     |
|   |                       |  | .6                  | (5-7-9-11-13-15-18)  |
|   |                       |  | .7                  | (5-7-17-18)          |
|   |                       |  | .8                  | (5-7-10-13-17-18)    |
| (1-29) (2-3) (4-9-11)<br>(5-10-13-25-27)<br>(6-16-18) (20-35)<br>(24-26-36)                       | 2.7                   | (8-20-38)<br>(12-29-30-33)<br>(14-19-39)<br>(21-22-25-36-37)<br>(26-27)        | .4                  | (7-10-11-24)         |
|   |                       |  | .5                  | (7-9-10-11-13-24)    |
|   |                       |  | .6                  | (7-9-18-24)          |
|   |                       |  | .7                  | (7-10-13-18-24)      |
|   |                       |  | .8                  | (7-11-18-24)         |
| (1-29) (2-3) (4-9-11)<br>(5-10-12-24-26)<br>(6-16-18) (13-14)<br>(17-19) (20-35)<br>(22-23-27-36) | 3.5                   | (5-24-37-38)<br>(14-19-39)<br>(17-22-31-32-36)<br>(20-29-30-33)<br>(26-34)     | .4                  | (6-7-11-13-15)       |
|   |                       |  | .5                  | (6-7-10-11)          |
|   |                       |  | .6                  | (6-7-9-10-11-15)     |
|   |                       |  | .7                  | (6-7-15-18)          |
|   |                       |  | .8                  | (6-7-9-13-18)        |
| (1-29) (2-3) (4-9-11)<br>(5-10-12-22-23-26)<br>(6-18-19-21)<br>(13-17) (20-35)<br>(24-25-28-36)   | 4.3                   | (5-29-30)<br>(6-12-20-37-38)<br>(14-19-39)<br>(17-22-32-33-36)                 | .4                  | (7-9-10-13-15-16-28) |
|   |                       |  | .5                  | (7-11-13-15-16-28)   |
|   |                       |  | .6                  | (7-9-11-13-15-16-28) |
|   |                       |  | .7                  | (7-10-11-13-16-28)   |
|   |                       |  | .8                  | (7-9-10-11-13-16-28) |
| (3-8) (4-29)<br>(5-7-12-22-24-25-26)<br>(6-16-19) (13-15)<br>(17-35) (28-30-36)                   | 5.0                   | (5-29-30)<br>(6-8-24-38)<br>(14-39)<br>(17-22-23-25-33-36)                     | .4                  | (7-9-10-13-15-16-28) |
|   |                       |  | .5                  | (7-11-13-16-28)      |
|   |                       |  | .6                  | (7-9-11-15-16-28)    |
|   |                       |  | .7                  | (7-10-11-15-16-28)   |
|   |                       |  | .8                  | (7-9-10-11-16-28)    |
| (3-29-34) (4-8)<br>(5-15)<br>(6-9-22-24-25-26)<br>(10-16) (12-18)<br>(19-35) (27-32-36)           | 5.8                   | (4-12-24-37)<br>(6-28-30-33)<br>(14-39)<br>(17-19-26-32-36)<br>(34-38)         | .4                  | (7-9-10-15-16)       |
|   |                       |  | .5                  | (7-11-16)            |
|   |                       |  | .6                  | (7-11-13-15-16)      |
|   |                       |  | .7                  | (7-9-11-13-16)       |
|   |                       |  | .8                  | (7-10-11-15-16)      |

\* Use the Strapping that Corresponds to the Larger Fractional End Section Adjacent to the Repeater.

\*\* External Resistance.

## CHART 5TT

TERMINAL E23 REPEATER  
(T ARRANGEMENT)

24H88-HC

| E3 STRAPPING  | NOMINAL<br>GAIN<br>DB | E1 OR E2 STRAPPING  |                     |                                  |
|---|-----------------------|---|---------------------|----------------------------------|
|   |                       | BASIC   | END<br>SECTION<br>* | SUPPLEMENTAL                     |
| (3-29-34) (4-8)<br>(5-15) (6-9-16-28)<br>(14-18) (19-35)<br>(30-32-36)                        | 6.5                   | (5-20)<br>(9-13-16)<br>(12-22-24)<br>(19-39)                    | .4                  | (6-7-31) (17-23-36-38)           |
|   |                       |   | .5                  | (6-7-15-29-30) (21-23-36-38)     |
|   |                       |   | .6                  | (6-7-29-30-31-33) (17-23-36-38)  |
|   |                       |   | .7                  | (6-7-31-33) (21-23-36-38)        |
|   |                       |   | .8                  | (6-7-15-29-31) (21-23-36-38)     |
| (1-29-34) (2-7-9)<br>(3-8-13-28-30)<br>(4-15-17)<br>(18-20) (19-21-35)<br>(22-23-31-32-36)    | 7.3                   | (5-12)#<br>(6-16-20-37)<br>(9-13-15-24)                         | .5                  | (4-29-31-35) (7-17-22-33-36)     |
|   |                       |   | .6                  | (4-30-31-33-35) (7-17-22-29-36)  |
|   |                       |   | .7                  | (4-31-33-35) (7-21-22-36)        |
|   |                       |   | .8                  | (4-29-31-35) (7-21-22-36)        |
| (1-29-34) (2-8)<br>(3-14) (4-7-9-28-30)<br>(11-12) (16-17-21)<br>(18-20-35)<br>(27-31-32-36)  | 8.0                   | (5-22-24)#<br>(6-29-33)<br>(7-21-36-37)<br>(27-38)              | .5                  | (10-13-15-28-35)                 |
|   |                       |   | .6                  | (9-10-15-28-35)                  |
|   |                       |   | .7                  | (9-10-13-15-28-35)               |
|   |                       |   | .8                  | (11-13-28-35)                    |
| (1-29-34) (2-7-9)<br>(3-8-12-28-30)<br>(4-15-18) (14-16)<br>(19-35)<br>(24-26-31-32-36)       | 8.6                   | (5-9-13)#<br>(6-24-26)<br>(27-34-38)                            | .5                  | (7-21-36-37) (15-28-30-33-35)    |
|   |                       |   | .6                  | (7-29-31-36-37) (17-28-30-35)    |
|   |                       |   | .7                  | (7-29-30-31-33-36-37) (17-28-35) |
|   |                       |   | .8                  | (7-21-36-37) (28-31-33-35)       |
| (1-29-34) (2-7-9)<br>(3-8-12-28-30)<br>(4-15-18-21)<br>(14-16) (19-35)<br>(25-27-31-32-36)    | 9.2                   | (5-12-22)#<br>(6-29-33)<br>(7-21-36-37)<br>(16-20)<br>(26-38)   | .5                  | (10-13-24-35)                    |
|   |                       |   | .6                  | (9-10-24-35)                     |
|   |                       |   | .7                  | (9-10-13-24-35)                  |
|   |                       |   | .8                  | (11-24-35)                       |
| (1-29-34) (2-7-9)<br>(3-8-12-23-24-25-26-28)<br>(4-15-19-21)<br>(13-14) (17-20-35)<br>(33-36) | 9.8                   | (5-20)#<br>(6-16-28-34)<br>(7-21-36-37)<br>(9-12-15)<br>(22-38) | .5                  | (4-30-33-35)                     |
|   |                       |   | .6                  | (4-29-30-35)                     |
|   |                       |   | .7                  | (4-29-30-33-35)                  |
|   |                       |   | .8                  | (4-31-35)                        |

\* Use the Strapping that Corresponds to the Larger Fractional End Section Adjacent to the Repeater.

#Same as B.S.P. Section 332-200-107



CHART 6M

INTERMEDIATE E23 REPEATER  
(T ARRANGEMENT)

19H88-LC

| E3 STRAPPING   | NOMINAL GAIN<br>DB | E1 OR E2 STRAPPING  |                          |                                    |
|--|--------------------|---|--------------------------|------------------------------------|
|  |                    | BASIC   | END SECTION<br>* SECTION | SUPPLEMENTAL                       |
| (5-18)(6-19)<br>(17-2000 $\Omega$ ** - 35)<br>(20-29)<br>(27-28-36)            | 1.9                | (4-12-24-34-38)<br>(8-20-31-33)<br>(14-39)<br>(21-22-23-25-36-37)       | .5                       | (5-7-13-15-18)                     |
|  |                    |   | .6                       | (5-7-10-13-18)                     |
|  |                    |   | .7                       | (5-7-11-15-18)                     |
|  |                    |   | .8                       | (5-7-10-11-18)                     |
| (5-12-35)<br>(6-16-17)<br>(10-29)(11-20)<br>(19-21)<br>(23-28-30-36)           | 2.7                | (8-20-38)<br>(12-29-30-33)<br>(14-39)<br>(21-22-23-25-36-37)<br>(26-27) | .5                       | (7-15-18-24)                       |
|  |                    |   | .6                       | (7-9-13-15-18-24)                  |
|  |                    |   | .7                       | (7-9-10-13-18-24)                  |
|  |                    |   | .8                       | (7-11-13-18-24)                    |
| (5-14-29)(6-8)<br>(7-16)(9-10)(11-20)<br>(17-19)(18-35)<br>(24-25-26-28-30-36) | 3.5                | (4-16-20-22)<br>(17-33-36-38)<br>(19-39)<br>(24-29-30)<br>(27-34)       | .5                       | (6-7-11-12-13-15)                  |
|  |                    |   | .6                       | (6-7-9-11-12-13-15)                |
|  |                    |   | .7                       | (6-7-10-11-12-13)                  |
|  |                    |   | .8                       | (6-7-9-10-11-12-13)                |
| (5-12-35)(6-16-20)<br>(9-29-34)(10-19)<br>(14-15)<br>(31-32-36)                | 4.3                | (4-12-25-28)#<br>(5-10-13)<br>(7-21-23-36)<br>(14-19)                   | .5                       | (16-20-29-31-35)                   |
|  |                    |   | .6                       | (16-20-30-31-35)                   |
|  |                    |   | .7                       | (16-20-29-30-31-35)                |
|  |                    |   | .8                       | (16-17-20-35)                      |
| (5-13)(6-16-35)<br>(9-29-34)<br>(11-19)(12-17)<br>(14-15)<br>(27-31-32-36)     | 5.0                | (5-29-30)<br>(6-8-24-37)<br>(14-39)<br>(23-25-27-31-33-36)<br>(34-38)   | .5                       | (7-9-10-13-16-28)                  |
|  |                    |   | .6                       | (7-11-15-16-28)                    |
|  |                    |   | .7                       | (7-11-13-15-16-28)                 |
|  |                    |   | .8                       | (7-9-11-13-16-28)                  |
| (5-14-35)<br>(6-16-17)<br>(13-15)<br>(19-29-34)<br>(30-31-32-36)               | 5.8                | (4-9-13-24)<br>(6-16-28-37)<br>(14-39)<br>(26-34)                       | .5                       | (7-12-29-31)(17-22-23-25-33-36)    |
|  |                    |   | .6                       | (7-12-30-31-33)(17-22-23-25-29-36) |
|  |                    |   | .7                       | (7-12-15-31)(21-22-23-25-36)       |
|  |                    |   | .8                       | (7-12-15-31-33)(21-22-23-25-36)    |

\* Use the strapping that corresponds to the larger fractional end section adjacent to the repeater.

#Same as B.S.P. Section 332-200-107

\*\* External resistance.

## CHART 6M

INTERMEDIATE E23 REPEATER  
(T ARRANGEMENT)

19H88-LC

| E3 STRAPPING   | NOMINAL<br>GAIN<br>DB | E1 OR E2 STRAPPING  |                     |                                 |
|--|-----------------------|---|---------------------|---------------------------------|
|  |                       | BASIC   | END<br>SECTION<br>* | SUPPLEMENTAL                    |
| (5-9-29-34)<br>(6-16-17-21)<br>(8-15)<br>(19-35)<br>(33-36)                    | 6.5                   | (5-20)(9-15-16)<br>(12-24-26-27)<br>(19-39)<br>(22-34-38) |                     |                                 |
|  |                       |   | .5                  | (6-7-31)(14-17-23-36-37)        |
|  |                       |   | .6                  | (6-7-29-31)(14-17-23-33-36-37)  |
|  |                       |   | .7                  | (6-7-29-30-31)(14-17-23-36-37)  |
|  |                       |   | .8                  | (6-7-31)(14-21-23-36-37)        |
| (3-15-35)(4-8)<br>(7-13)(11-17)<br>(18-20)<br>(19-21-29-34)<br>(22-27-33-36)   | 7.3                   | (5-12)#<br>(6-16-20-32)<br>(9-15-24)<br>(23-25)           |                     |                                 |
|  |                       |   | .5                  | (4-17-35)(7-29-30-33-36)        |
|  |                       |   | .6                  | (4-17-35)(7-31-33-36)           |
|  |                       |   | .7                  | (4-17-30-35)(7-29-31-36)        |
|  |                       |   | .8                  | (4-17-29-35)(7-30-31-33-36)     |
| (1-13-35)(2-3)<br>(4-15-17)<br>(7-29-3.) (9-19)<br>(18-20)<br>(31-33-36)       | 8.0                   | (5-12)#<br>(9-15-24)<br>(16-20-22)<br>(26-38)             |                     |                                 |
|  |                       |   | .5                  | (4-29-30-35)(7-17-36-37)        |
|  |                       |   | .6                  | (4-31-35)(7-17-36-37)           |
|  |                       |   | .7                  | (4-29-31-35)(7-17-36-37)        |
|  |                       |   | .8                  | (4-29-30-33-35)(7-21-36-37)     |
| (1-15-35)(2-3)<br>(4-10)(8-18)(11-13)<br>(14-16)(19-29-34)<br>(27-31-33-36)    | 8.6                   | (5-9-15)#<br>(6-24-26)<br>(34-38)                         |                     |                                 |
|  |                       |   | .5                  | (7-21-36-37)(28-30-35)          |
|  |                       |   | .6                  | (7-29-30-33-36-37)(17-28-35)    |
|  |                       |   | .7                  | (7-29-30-33-36-37)(17-28-31-35) |
|  |                       |   | .8                  | (7-29-31-36-37)(17-28-33-35)    |
| (1-15-35)(2-3)<br>(4-8-13)<br>(7-9-19)<br>(18-21-29-34)<br>(22-24-27-31-33-36) | 9.2                   | (5-12-27)#<br>(6-9-15)<br>(16-20)<br>(34-38)              |                     |                                 |
|  |                       |   | .5                  | (24-29-30-35)(7-17-33-36-37)    |
|  |                       |   | .6                  | (24-31-35)(7-17-36-37)          |
|  |                       |   | .7                  | (24-29-31-35)(7-17-36-37)       |
|  |                       |   | .8                  | (24-29-30-33-35)(7-21-36-37)    |
|  | 9.8                   |   |                     |                                 |
|  |                       |   |                     |                                 |
|  |                       |   |                     |                                 |
|  |                       |   |                     |                                 |

\* Use the strapping that corresponds to the larger fractional end section adjacent to the repeater.

#Same as B.S.P. Section 332-200-107

CHART 6T

TERMINAL E23 REPEATER  
(T ARRANGEMENT)

19H88-LC

| E3 STRAPPING   | NOMINAL GAIN DB | E1 OR E2 STRAPPING  |               |                                    |
|--|-----------------|---|---------------|------------------------------------|
|  |                 | BASIC   | END SECTION * | SUPPLEMENTAL                       |
| (1-29) (2-3)(4-13)<br>(5-18)(6-19)<br>(14-20-27)<br>(17-2000 Ω ** - 35)<br>(22-26-28-36)                   | 1.9             | (4-12-24-34-38)<br>(8-20-31-33)<br>(14-39)<br>(21-22-23-25-36-37)       | .4            | (5-7-9-10-11)                      |
|  |                 |   | .5            | (5-7-13-15-18)                     |
|  |                 |   | .6            | (5-7-10-13-18)                     |
|  |                 |   | .7            | (5-7-11-15-18)                     |
|  |                 |   | .8            | (5-7-10-11-18)                     |
| (1-27)(2-3)(4-7)<br>(5-12-35)(6-16-17)<br>(10-22-26)(11-20)<br>(19-21)<br>(23-28-30-36)                    | 2.7             | (8-20-38)<br>(12-29-30-33)<br>(14-39)<br>(21-22-23-25-36-37)<br>(26-27) | .4            | (7-10-11-13-24)                    |
|  |                 |   | .5            | (7-15-18-24)                       |
|  |                 |   | .6            | (7-9-13-15-18-24)                  |
|  |                 |   | .7            | (7-9-10-13-18-24)                  |
|  |                 |   | .8            | (7-11-13-18-24)                    |
| (1-29)(2-3)(4-12)<br>(5-13-14-27)(6-8)<br>(7-16)(9-10)(11-20)<br>(17-19)(18-35)<br>(24-25-26-28-30-36)     | 3.5             | (4-16-20-22)<br>(17-33-36-38)<br>(19-39)<br>(24-29-30)<br>(27-34)       | .4            | (6-7-9-10-12-13-15)                |
|  |                 |   | .5            | (6-7-11-12-13-15)                  |
|  |                 |   | .6            | (6-7-9-11-12-13-15)                |
|  |                 |   | .7            | (6-7-10-11-12-13)                  |
|  |                 |   | .8            | (6-7-9-10-11-12-13)                |
| (1-29-34)(2-3)<br>(4-7)(5-12-35)<br>(6-16-20)<br>(9-24-25)<br>(10-19)(14-15)<br>(31-32-36)                 | 4.3             | (4-12-25-28)#<br>(5-10-13)<br>(7-21-23-36)<br>(14-19)                   | .4            | (16-20-31-35)                      |
|  |                 |   | .5            | (16-20-29-31-35)                   |
|  |                 |   | .6            | (16-20-30-31-35)                   |
|  |                 |   | .7            | (16-20-29-30-31-35)                |
|  |                 |   | .8            | (16-17-20-35)                      |
| (1-29-34)(2-3)<br>(4-7)(5-13)<br>(6-16-35)<br>(9-23-26)<br>(11-19)(12-17)<br>(14-15)<br>(27-31-32-36)      | 5.0             | (5-29-30)<br>(6-8-24-37)<br>(14-39)<br>(23-25-27-31-33-36)<br>(34-38)   | .4            | (7-10-13-15-16-28)                 |
|  |                 |   | .5            | (7-9-10-13-16-28)                  |
|  |                 |   | .6            | (7-11-15-16-28)                    |
|  |                 |   | .7            | (7-11-13-15-16-28)                 |
|  |                 |   | .8            | (7-9-11-13-16-28)                  |
| (1-29-34)<br>(2-3)(4-8-9)<br>(5-14-35)<br>(6-16-17)<br>(7-11)<br>(10-19-24-25)<br>(13-15)<br>(30-31-32-36) | 5.8             | (4-9-13-24)<br>(6-16-28-37)<br>(14-39)(26-34)                           | .4            | (7-12-30-33)(21-22-23-25-36)       |
|  |                 |   | .5            | (7-12-29-31)(17-22-23-25-33-36)    |
|  |                 |   | .6            | (7-12-30-31-33)(17-22-23-25-29-36) |
|  |                 |   | .7            | (7-12-15-31)(21-22-23-25-36)       |
|  |                 |   | .8            | (7-12-15-31-33)(21-22-23-25-36)    |

\* Use the strapping that corresponds to the larger fractional end section adjacent to the repeater.

#Same as B.S.P. Section 332-200-107

\*\* External resistance.

CHART 6T  
 TERMINAL E23 REPEATER  
 (T ARRANGEMENT)  
 19H88-LC

| E3 STRAPPING   | NOMINAL GAIN<br>DB | E1 OR E2 STRAPPING  |                                    |
|--|--------------------|---|------------------------------------|
|  |                    | BASIC   | END SECTION *<br>SUPPLEMENTAL      |
| (3-29-34)<br>(4-10)<br>(5-9-11-22-23-25-26)<br>(6-16-17-21)<br>(8-15)(19-35)<br>(33-36)                  | 6.5                | (5-20)(9-15-16)<br>(12-24-26-27)<br>(17-32)<br>(22-34-38) | .4 (6-7-29-30)(14-17-23-36-37)     |
|  |                    |   | .5 (6-7-31)(14-17-23-36-37)        |
|  |                    |   | .6 (6-7-29-31)(14-17-23-33-36-37)  |
|  |                    |   | .7 (6-7-29-30-31)(14-17-23-36-37)  |
|  |                    |   | .8 (5-7-31)(14-21-23-36-37)        |
| (1-29-34)(2-7)<br>(3-8-23-26-28)<br>(4-14)(9-10)(11-15)<br>(12-19)(17-21-35)<br>(18-20)<br>(22-27-33-36) | 7.3                | (5-12)#<br>(6-16-20-32)<br>(9-15-24)<br>(23-25)           | .5 (4-17-35)(7-29-30-33-36)        |
|  |                    |   | .6 (4-17-35)(7-31-33-36)           |
|  |                    |   | .7 (4-17-30-35)(7-29-31-35)        |
|  |                    |   | .8 (4-17-29-35)(7-30-31-33-36)     |
| (1-29-34)(2-8)<br>(3-10-13)(4-15-17)<br>(9-23-26-28)<br>(18-20)(19-35)<br>(31-33-36)                     | 8.0                | (5-12)#<br>(9-15-24)<br>(16-20-22)<br>(26-38)             | .5 (4-29-30-35)(7-17-36-37)        |
|  |                    |   | .6 (4-31-35)(7-17-36-37)           |
|  |                    |   | .7 (4-29-31-35)(7-17-36-37)        |
|  |                    |   | .8 (4-29-30-33-35)(7-21-36-37)     |
| (1-29-34)(2-7)<br>(3-10-13)(4-15-18)<br>(8-23-26-28)<br>(19-35)<br>(27-31-33-36)                         | 8.6                | (5-9-15)#<br>(6-24-26)<br>(34-38)                         | .5 (7-21-36-37)(28-30-35)          |
|  |                    |   | .6 (7-29-30-33-36-37)(17-28-35)    |
|  |                    |   | .7 (7-29-30-33-36-37)(17-28-31-35) |
|  |                    |   | .8 (7-29-31-36-37)(17-28-33-35)    |
| (1-29-34)(2-7)<br>(3-13)(4-15)<br>(8-23-26-28)<br>(9-12)(16-17)<br>(18-35)<br>(24-27-31-33-36)           | 9.2                | (5-12-27)#<br>(6-9-15)<br>(16-20)<br>(34-38)              | .5 (24-29-30-35)(7-17-33-36-37)    |
|  |                    |   | .6 (24-31-35)(7-17-36-37)          |
|  |                    |   | .7 (24-29-31-35)(7-17-36-37)       |
|  |                    |   | .8 (24-29-30-33-35)(7-21-36-37)    |
|  | 9.8                |   |                                    |
|  |                    |   |                                    |
|  |                    |   |                                    |
|  |                    |   |                                    |

\* Use the strapping that corresponds to the larger fractional end section adjacent to the repeater.

#Same as B.S.P. Section 332-200-107

CHART 8M

INTERMEDIATE E23 REPEATER  
(T ARRANGEMENT)

19B135-HC

22B135-HC

| E3 STRAPPING  | NOMINAL GAIN<br>DB | E1 OR E2 STRAPPING  |                  |                              |
|---|--------------------|---|------------------|------------------------------|
|   |                    | BASIC   | END SECTION<br>* | SUPPLEMENTAL                 |
| (5-14-29-34)<br>(6-19-21)(15-17)<br>(20-5000Ω ** - 35)<br>(25-27-28-36)               | 1.9                | (8-31-33)<br>(12-24-38)<br>(17-22-36)<br>(19-39)<br>(27-34) |                  |                              |
|   |                    |   | .5               | (7-10-11-20)                 |
|   |                    |   | .6               | (7-9-10-11-20)               |
|   |                    |   | .7               | (7-13-15-18-20)              |
|   |                    |   | .8               | (7-10-18-20)                 |
| (5-12-29-34)<br>(6-18-21)<br>(13-14)(16-17)<br>(20-2000Ω ** - 35)<br>(32-36)          | 2.7                | (5-30)<br>(6-12-20-38)<br>(19-39)<br>(21-27-36)             |                  |                              |
|   |                    |   | .5               | (7-11-15-16-28)              |
|   |                    |   | .6               | (7-9-11-16-28)               |
|   |                    |   | .7               | (7-10-11-16-28)              |
|   |                    |   | .8               | (7-10-11-13-15-16-28)        |
| (5-15-29-34)<br>(6-18-21)(16-17)<br>(20-1000Ω ** - 35)<br>(28-30-31-36)               | 3.5                | (4-9-13-24)<br>(6-16-28-37)<br>(19-39)                      |                  |                              |
|   |                    |   | .5               | (7-12-29-31)(17-33-34-36)    |
|   |                    |   | .6               | (7-12-30-31-33)(17-29-34-36) |
|   |                    |   | .7               | (7-12-31-33)(21-34-36)       |
|   |                    |   | .8               | (7-12-29-31)(21-34-36)       |
| (5-12-29-34)<br>(6-18)(13-14)<br>(15-17)(19-21)<br>(20-35)(31-32-36)                  | 4.3                | (4-12-20-38)<br>(5-24)<br>(9-15-16)<br>(19-39)              |                  |                              |
|   |                    |   | .5               | (6-7-31)(17-36-37)           |
|   |                    |   | .6               | (6-7-29-31-33)(17-36-37)     |
|   |                    |   | .7               | (6-7-30-31-33)(17-29-36-37)  |
|   |                    |   | .8               | (6-7-31)(21-36-37)           |
| (5-8-29-34)<br>(6-16-20)(7-12)<br>(13-14)(17-35)<br>(18-19)<br>(24-25-27-28-30-31-36) | 5.0                | (5-8)<br>(6-28-34)<br>(9-12)<br>(19-39)<br>(26-38)          |                  |                              |
|   |                    |   | .5               | (7-24-29-30)(17-36-37)       |
|   |                    |   | .6               | (7-24-31)(17-36-37)          |
|   |                    |   | .7               | (7-24-29-30)(21-36-37)       |
|   |                    |   | .8               | (7-24-30-31)(17-36-37)       |
|   | 5.8                |   |                  |                              |
|   |                    |   |                  |                              |
|   |                    |   |                  |                              |
|   |                    |   |                  |                              |
|   |                    |   |                  |                              |

\* Use the strapping that corresponds to the larger fractional end section adjacent to the repeater.

\*\* External resistance.

CHART 8M

INTERMEDIATE E23 REPEATER  
(T ARRANGEMENT)

19B135-HC

22B135-HC

| E3 STRAPPING | NOMINAL<br>GAIN<br>DB | E1 OR E2 STRAPPING |                     |              |
|--------------|-----------------------|--------------------|---------------------|--------------|
|              |                       | BASIC              | END<br>*<br>SECTION | SUPPLEMENTAL |
| 6.5          | 6.5                   |                    |                     |              |
|              |                       |                    |                     |              |
|              |                       |                    |                     |              |
|              |                       |                    |                     |              |
| 7.3          | 7.3                   |                    |                     |              |
|              |                       |                    |                     |              |
|              |                       |                    |                     |              |
|              |                       |                    |                     |              |
| 8.0          | 8.0                   |                    |                     |              |
|              |                       |                    |                     |              |
|              |                       |                    |                     |              |
|              |                       |                    |                     |              |
| 8.6          | 8.6                   |                    |                     |              |
|              |                       |                    |                     |              |
|              |                       |                    |                     |              |
|              |                       |                    |                     |              |
| 9.2          | 9.2                   |                    |                     |              |
|              |                       |                    |                     |              |
|              |                       |                    |                     |              |
|              |                       |                    |                     |              |
| 9.8          | 9.8                   |                    |                     |              |
|              |                       |                    |                     |              |
|              |                       |                    |                     |              |
|              |                       |                    |                     |              |

CHART 8T

TERMINAL E23 REPEATER  
(T ARRANGEMENT)

19B135-HC

22B135-HC

| E3 STRAPPING   | NOMINAL GAIN<br>DB | E1 OR E2 STRAPPING  |                          |                              |
|--|--------------------|---|--------------------------|------------------------------|
|  |                    | BASIC   | END SECTION<br>* SECTION | SUPPLEMENTAL                 |
| (1-29-34)(2-3)<br>(4-12)(5-14-22-26)<br>(6-19-21)(15-17)<br>(20-5000 $\Omega$ ** - 35)<br>(25-27-28-36)            | 1.9                | (8-31-33)<br>(12-24-38)<br>(17-22-36)<br>(19-39)<br>(27-34) | .4                       | (7-9-11-20)                  |
|  |                    |   | .5                       | (7-10-11-20)                 |
|  |                    |   | .6                       | (7-9-10-11-20)               |
|  |                    |   | .7                       | (7-13-15-18-20)              |
|  |                    |   | .8                       | (7-10-18-20)                 |
| (1-29-34)(2-3)<br>(4-9-22-26)<br>(5-11-12)<br>(6-18-21)(13-14)<br>(16-17)<br>(20-2000 $\Omega$ ** - 35)<br>(32-36) | 2.7                | (5-30)<br>(6-12-20-38)<br>(19-39)<br>(21-27-36)             | .4                       | (7-9-10-13-16-28)            |
|  |                    |   | .5                       | (7-11-15-16-28)              |
|  |                    |   | .6                       | (7-9-11-16-28)               |
|  |                    |   | .7                       | (7-10-11-16-28)              |
|  |                    |   | .8                       | (7-10-11-13-15-16-28)        |
| (1-29-34)(2-3)<br>(4-13)<br>(5-14-15-22-26)<br>(6-18-21)(16-17)<br>(20-1000 $\Omega$ ** - 35)<br>(28-30-31-36)     | 3.5                | (4-9-13-24)<br>(6-16-28-37)<br>(19-39)                      | .4                       | (7-12-30-33)(21-34-36)       |
|  |                    |   | .5                       | (7-12-29-31)(17-33-34-36)    |
|  |                    |   | .6                       | (7-12-30-31-33)(17-29-34-36) |
|  |                    |   | .7                       | (7-12-31-33)(21-34-36)       |
|  |                    |   | .8                       | (7-12-29-31)(21-34-36)       |
| (1-29-34)(2-3)<br>(4-7)(5-11-12)(6-18)<br>(10-22-26)(13-14)<br>(15-17)(19-21)<br>(20-35)(31-32-36)                 | 4.3                | (4-12-20-38)<br>(5-24)<br>(9-15-16)<br>(19-39)              | .4                       | (6-7-29-30)(17-36-37)        |
|  |                    |   | .5                       | (6-7-31)(17-36-37)           |
|  |                    |   | .6                       | (6-7-29-31-33)(17-36-37)     |
|  |                    |   | .7                       | (6-7-30-31-33)(17-29-36-37)  |
|  |                    |   | .8                       | (6-7-31)(21-36-37)           |
| (1-29-34)(2-3)<br>(4-10)(5-8-22-26)<br>(6-16-20)(7-12)<br>(13-14)(17-35)<br>(18-19)<br>(24-25-27-28-30-31-36)      | 5.0                | (5-8)<br>(6-28-34)<br>(9-12)<br>(19-39)<br>(26-38)          | .4                       | (7-24-29-30)(31-33-36-37)    |
|  |                    |   | .5                       | (7-24-29-30)(17-36-37)       |
|  |                    |   | .6                       | (7-24-31)(17-36-37)          |
|  |                    |   | .7                       | (7-24-29-30)(21-36-37)       |
|  |                    |   | .8                       | (7-24-30-31)(17-36-37)       |
|  | 5.8                |   |                          |                              |
|  |                    |   |                          |                              |
|  |                    |   |                          |                              |
|  |                    |   |                          |                              |
|  |                    |   |                          |                              |

\* Use the strapping that corresponds to the larger fractional end section adjacent to the repeater.

\*\* External resistance.

CHART 8T  
 TERMINAL E23 REPEATER  
 (T ARRANGEMENT)  
 19B135-HC      22B135-HC

| E3 STRAPPING | NOMINAL GAIN<br>DB | E1 OR E2 STRAPPING |                               |
|--------------|--------------------|--------------------|-------------------------------|
|              |                    | BASIC              | END SECTION<br>* SUPPLEMENTAL |
| 6.5          | 6.5                |                    |                               |
|              |                    |                    |                               |
|              |                    |                    |                               |
|              |                    |                    |                               |
| 7.3          | 7.3                |                    |                               |
|              |                    |                    |                               |
|              |                    |                    |                               |
|              |                    |                    |                               |
| 8.0          | 8.0                |                    |                               |
|              |                    |                    |                               |
|              |                    |                    |                               |
|              |                    |                    |                               |
| 8.6          | 8.6                |                    |                               |
|              |                    |                    |                               |
|              |                    |                    |                               |
|              |                    |                    |                               |
| 9.2          | 9.2                |                    |                               |
|              |                    |                    |                               |
|              |                    |                    |                               |
|              |                    |                    |                               |
| 9.8          | 9.8                |                    |                               |
|              |                    |                    |                               |
|              |                    |                    |                               |
|              |                    |                    |                               |



CHART 9T

TERMINAL E23 REPEATER  
(T ARRANGEMENT)

19B135-LC

| E3 STRAPPING  | NOMINAL GAIN<br>DB | E1 OR E2 STRAPPING   |                          |                      |
|---|--------------------|--|--------------------------|----------------------|
|   |                    | BASIC  | END SECTION<br>* SECTION | SUPPLEMENTAL         |
| (1-29) (2-3) (4-12)<br>(5-14-15-26)(6-19)<br>(7-16)(11-17)<br>(20-5100Ω ** - 35)<br>(22-23-27-36) | 1.9                | (4-8-29-30)<br>(5-16-24-37-38)<br>(14-39)<br>(19-21-22-32-36)<br>(26-34) | .4                       | (7-11-13-20)         |
|   |                    |  | .5                       | (7-9-11-13-20)       |
|   |                    |  | .6                       | (7-10-11-13-20)      |
|   |                    |  | .7                       | (7-9-10-11-13-15-20) |
|   |                    |  | .8                       | (7-13-15-18-20)      |
| (1-29)(2-3)(4-11)<br>(5-10-26)(6-18)<br>(8-12)(16-17)<br>(19-5100Ω** - 21-35)<br>(22-30-36)       | 2.7                | (4-12-24-26)<br>(8-30)<br>(14-39)<br>(21-25-36-38)                       | .4                       | (6-7-9-10-28)        |
|   |                    |  | .5                       | (6-7-9-10-13-15-28)  |
|   |                    |  | .6                       | (6-7-11-13-28)       |
|   |                    |  | .7                       | (6-7-9-11-15-28)     |
|   | 3.5                |  | .8                       | (6-7-10-11-28)       |
|   |                    |  |                          |                      |
|   |                    |  |                          |                      |
|   |                    |  |                          |                      |
|   | 4.3                |  |                          |                      |
|   |                    |  |                          |                      |
|   |                    |  |                          |                      |
|   |                    |  |                          |                      |
|   | 5.0                |  |                          |                      |
|   |                    |  |                          |                      |
|   |                    |  |                          |                      |
|   |                    |  |                          |                      |
|   | 5.8                |  |                          |                      |
|   |                    |  |                          |                      |
|   |                    |  |                          |                      |
|   |                    |  |                          |                      |

\* Use the strapping that corresponds to the larger fractional end section adjacent to the repeater.

\*\* External Resistance.

CHART 9T  
 TERMINAL E23 REPEATER  
 (T ARRANGEMENT)

19B135-LC

| E3 STRAPPING | NOMINAL GAIN<br>DB | E1 OR E2 STRAPPING |               |              |
|--------------|--------------------|--------------------|---------------|--------------|
|              |                    | BASIC              | END * SECTION | SUPPLEMENTAL |
| 6.5          | 6.5                |                    |               |              |
|              |                    |                    |               |              |
|              |                    |                    |               |              |
|              |                    |                    |               |              |
| 7.3          | 7.3                |                    |               |              |
|              |                    |                    |               |              |
|              |                    |                    |               |              |
|              |                    |                    |               |              |
| 8.0          | 8.0                |                    |               |              |
|              |                    |                    |               |              |
|              |                    |                    |               |              |
|              |                    |                    |               |              |
| 8.6          | 8.6                |                    |               |              |
|              |                    |                    |               |              |
|              |                    |                    |               |              |
|              |                    |                    |               |              |
| 9.2          | 9.2                |                    |               |              |
|              |                    |                    |               |              |
|              |                    |                    |               |              |
|              |                    |                    |               |              |
| 9.8          | 9.8                |                    |               |              |
|              |                    |                    |               |              |
|              |                    |                    |               |              |
|              |                    |                    |               |              |

CHART 16M

INTERMEDIATE E23 REPEATER  
(T ARRANGEMENT)

19H175-LC

| E3 STRAPPING  | NOMINAL GAIN<br>DB | E1 OR E2 STRAPPING   |                          |  |
|---|--------------------|--|--------------------------|--|
|   |                    | BASIC  | END SECTION<br>* SECTION | SUPPLEMENTAL   |
|   | 1.9                |  |                          |  |
|   | 2.7                |  |                          |  |
| (5-15-29-34)<br>(6-18) (8-35)<br>(10-600 $\Omega$ ** -20)<br>(16-17)(19-21)<br>(31-32-36) | 3.5                | (12-29-30-33)<br>(16-28-37)<br>(17-22-36)<br>(19-39)<br>(26-27)(34-38) | .5<br>.6<br>.7<br>.8     | (7-9-11-24)<br>(7-10-11-24)<br>(7-9-10-11-24)<br>(7-18-24)   |
| (5-13-14)(6-18)<br>(12-29-34)<br>(15-17) (19-21)<br>(20-35)<br>(27-31-32-36)              | 4.3                | (5-20)<br>(6-12-28-37)<br>(16-29-30-33)<br>(17-27-36)<br>(19-39)       | .5<br>.6<br>.7<br>.8     | (4-7-11-13)<br>(4-7-9-11-13)<br>(4-7-10-11-15)<br>(4-7-9-10-11-15)   |
| (5-16-29-34) (6-14)<br>(12-17) (18-19)<br>(20-35)<br>(30-31-32-36)                        | 5.0                | (4-24-26)<br>(19-25-39)<br>(22-34-38)<br>(28-29-30)<br>(31-32-36-37)   | .5<br>.6<br>.7<br>.8     | (6-7-9-10-13)<br>(6-7-11-15)<br>(6-7-9-11)<br>(6-7-9-11-13)  |
| (5-12-29-34)<br>(6-16-18-21)<br>(14-15) (17-19)<br>(20-35) (33-36)                        | 5.8                | (6-12)<br>(9-13-15-24)<br>(16-26-28)<br>(19-39)<br>(34-38)             | .5<br>.6<br>.7<br>.8     | (4-7-8-30-31) (17-25-33-36-37)<br>(4-7-8-31-33) (21-25-36-37)<br>(4-7-8-29-31) (21-25-36-37)<br>(4-7-8-29-31-33) (21-25-36-37) |

\* Use the Strapping that Corresponds to the Larger Fractional End Section Adjacent to the Repeater.

\*\* External Resistance.

CHART 16M

INTERMEDIATE E23 REPEATER  
(T ARRANGEMENT)

19H175-LC

| E3 STRAPPING | NOMINAL<br>GAIN<br>DB | E1 OR E2 STRAPPING |                  |
|--------------|-----------------------|--------------------|------------------|
|              |                       | BASIC              | END<br>* SECTION |
| 6.5          |                       |                    |                  |
|              |                       |                    |                  |
|              |                       |                    |                  |
|              |                       |                    |                  |
| 7.3          |                       |                    |                  |
|              |                       |                    |                  |
|              |                       |                    |                  |
|              |                       |                    |                  |
| 8.0          |                       |                    |                  |
|              |                       |                    |                  |
|              |                       |                    |                  |
|              |                       |                    |                  |
| 8.6          |                       |                    |                  |
|              |                       |                    |                  |
|              |                       |                    |                  |
|              |                       |                    |                  |
| 9.2          |                       |                    |                  |
|              |                       |                    |                  |
|              |                       |                    |                  |
|              |                       |                    |                  |
| 9.8          |                       |                    |                  |
|              |                       |                    |                  |
|              |                       |                    |                  |
|              |                       |                    |                  |

CHART 16T

TERMINAL E23 REPEATER  
(T ARRANGEMENT)

19H175-LC

| E3 STRAPPING  | NOMINAL GAIN<br>DB | E1 OR E2 STRAPPING   |                            |   |
|---|--------------------|--|----------------------------|---|
|   |                    | BASIC  | END SECTION<br>* SECTION   | SUPPLEMENTAL  |
|   | 1.9                |  |                            |   |
|   | 2.7                |  |                            |   |
| (1-29-34) (2-3)<br>(4-13) (5-14-15-30)<br>(6-18) (8-35)<br>(10-600Ω** -20)<br>(16-17) (19-21)<br>(31-32-36)       | 3.5                | (12-29-30-33)<br>(16-28-37)<br>(17-22-36)<br>(19-39)<br>(26-27)<br>(34-38) | .4<br>.5<br>.6<br>.7<br>.8 | (7-11-24)<br>(7-9-11-24)<br>(7-10-11-24)<br>(7-9-10-11-24)<br>(7-18-24)   |
| (1-29-34) (2-3)<br>(4-7) (5-13-14)<br>(6-18)<br>(8-12-22-23-24-26)<br>(15-17) (19-21)<br>(20-35)<br>(27-31-32-36) | 4.3                | (5-20)<br>(6-12-28-37)<br>(16-29-30-33)<br>(17-27-36)<br>(19-39)           | .4<br>.5<br>.6<br>.7<br>.8 | (4-7-9-10-13-15)<br>(4-7-11-13)<br>(4-7-9-11-13)<br>(4-7-10-11-15)<br>(4-7-9-10-11-15)  |
| (1-29-34) (2-3)<br>(4-8)<br>(5-7-9-16-22-26-27)<br>(6-14) (12-17)<br>(18-19) (20-35)<br>(30-31-32-36)             | 5.0                | (4-24-26)<br>(19-25-39)<br>(22-34-38)<br>(28-29-30)<br>(31-32-36-37)       | .4<br>.5<br>.6<br>.7<br>.8 | (6-7-9-10)<br>(6-7-9-10-13)<br>(6-7-11-15)<br>(6-7-9-11)<br>(6-7-9-11-13)   |
| (1-29-34) (2-3)<br>(4-7)<br>(5-8-12-22-23-24-27)<br>(6-16-18-21)<br>(14-15) (17-19)<br>(20-35) (33-36)            | 5.8                | (6-12)<br>(9-13-15-24)<br>(16-26-28)<br>(19-39)<br>(34-38)                 | .4<br>.5<br>.6<br>.7<br>.8 | (4-7-8-31-33) (17-25-36-37)<br>(4-7-8-30-31) (17-25-33-36-37)<br>(4-7-8-31-33) (21-25-36-37)<br>(4-7-8-29-31) (21-25-36-37)<br>(4-7-8-29-31-33) (21-25-36-37) |

\* Use the Strapping that Corresponds to the Larger Fractional End Section Adjacent to the Repeater.

\*\* External Resistance.

CHART 16T  
 TERMINAL E23 REPEATER  
 (T ARRANGEMENT)  
 19H175-LC

| E3 STRAPPING | NOMINAL GAIN<br>DB | E1 OR E2 STRAPPING |               |              |
|--------------|--------------------|--------------------|---------------|--------------|
|              |                    | BASIC              | END * SECTION | SUPPLEMENTAL |
| 6.5          | 6.5                |                    |               |              |
|              |                    |                    |               |              |
|              |                    |                    |               |              |
|              |                    |                    |               |              |
| 7.3          | 7.3                |                    |               |              |
|              |                    |                    |               |              |
|              |                    |                    |               |              |
|              |                    |                    |               |              |
| 8.0          | 8.0                |                    |               |              |
|              |                    |                    |               |              |
|              |                    |                    |               |              |
|              |                    |                    |               |              |
| 8.6          | 8.6                |                    |               |              |
|              |                    |                    |               |              |
|              |                    |                    |               |              |
|              |                    |                    |               |              |
| 9.2          | 9.2                |                    |               |              |
|              |                    |                    |               |              |
|              |                    |                    |               |              |
|              |                    |                    |               |              |
| 9.8          | 9.8                |                    |               |              |
|              |                    |                    |               |              |
|              |                    |                    |               |              |
|              |                    |                    |               |              |

CHART 17T

TERMINAL E23 REPEATER  
(T ARRANGEMENT)

19H44-HC

22H44-HC

| E3 STRAPPING   | NOMINAL GAIN<br>DB | E1 OR E2 STRAPPING   |                            |   |
|--|--------------------|--|----------------------------|---|
|  |                    | BASIC  | END SECTION<br>*           | SUPPLEMENTAL  |
|  | 1.9                |  |                            |   |
|  | 2.7                |  |                            |   |
|  | 3.5                |  |                            |   |
| (1-29-34) (2-8)<br>(3-9-12-28)<br>(4-15) (16-17-20)<br>(19-21-35)<br>(30-31-36)    | 4.3                | (4-12-24-37-38)<br>(5-28-29-30-31)<br>(14-39)<br>(17-22-25-36)<br>(27-34)    | .4<br>.5<br>.6<br>.7<br>.8 | (7-8-10-11)<br>(7-8-9-10-11-13)<br>(7-8-9-18)<br>(7-8-10-13-18)<br>(7-8-11-18)            |
| (1-29-34) (2-7)<br>(3-13-14) (4-8-30)<br>(9-10) (11-15) (12-18)<br>(19-35) (33-36) | 5.0                | (4-8-29-31)<br>(5-16-24-37-38)<br>(14-39)<br>(17-19-22-32-33-36)<br>(26-34)  | .4<br>.5<br>.6<br>.7<br>.8 | (7-9-11-13-20)<br>(7-10-11-15-20)<br>(7-9-10-11-13-20)<br>(7-13-15-18-20)<br>(7-10-18-20) |
| (1-29-34) (2-7)<br>(3-13) (4-8-15-30)<br>(12-17-20)<br>(19-35)<br>(27-33-36)       | 5.8                | (5-8-24-37-38)<br>(10-12-13-15-28)<br>(14-39)<br>(19-21-22-32-36)<br>(26-27) | .4<br>.5<br>.6<br>.7<br>.8 | (6-7-29-31)<br>(6-7-30-31)<br>(6-7-29-30-31-33)<br>(6-7-17-33)<br>(6-7-17-29-33)          |

\* Use the strapping that corresponds to the larger fractional end section adjacent to the repeater.

CHART 17T

TERMINAL E23 REPEATER  
(T ARRANGEMENT)

19H44-HC

22H44-HC

| E3 STRAPPING | NOMINAL<br>GAIN<br>DB | E1 OR E2 STRAPPING |                               |
|--------------|-----------------------|--------------------|-------------------------------|
|              |                       | BASIC              | * END SECTION<br>SUPPLEMENTAL |
| 6.5          |                       |                    |                               |
|              |                       |                    |                               |
|              |                       |                    |                               |
|              |                       |                    |                               |
| 7.3          |                       |                    |                               |
|              |                       |                    |                               |
|              |                       |                    |                               |
|              |                       |                    |                               |
| 8.0          |                       |                    |                               |
|              |                       |                    |                               |
|              |                       |                    |                               |
|              |                       |                    |                               |
| 8.6          |                       |                    |                               |
|              |                       |                    |                               |
|              |                       |                    |                               |
|              |                       |                    |                               |
| 9.2          |                       |                    |                               |
|              |                       |                    |                               |
|              |                       |                    |                               |
|              |                       |                    |                               |
| 9.8          |                       |                    |                               |
|              |                       |                    |                               |
|              |                       |                    |                               |
|              |                       |                    |                               |