# USE OF COMPENSATING RESISTANCE REVERTIVE AND PCI PULSING CIRCUITS

## 1. GENERAL

1.01 This section describes the method of using compensating resistance in all offices employing revertive and panel call indicator pulsing circuits.

1.02 This section is reissued to incorporate material from the addendum in its proper location. In this process marginal arrows have been omitted.

1.03 Compensating resistance is used during revertive selections to limit the current flow in the fundamental circuit in order to insure proper release of the sender stepping relay on short loops and under adverse shunting conditions caused by resistance in the selector commutator path, and during call indicator pulsing to limit the current flow in the relays of call indicator control circuits.

1.04 The maximum loop resistance over which pulsing may take place is limited only by the capability of the incoming selector or trunk circuit. The sender circuit itself imposes no limitations in this respect.

1.05 Since the considerations governing the use of the sender MTG relay are not affected by compensating resistance requirements, no reference to them is included in this section.

## 2. FACILITIES FOR COMPENSATING

2.01 Some sender circuits are arranged so that compensating resistance may be introduced by means of translator, decoder, or marker cross-connections. When senders control office selections as well as selections beyond the office selector, one value of compensating resistance may be effective during office selections and another value during selections beyond office (trunk test, incoming and final selections, and call indicator pulsing). The compensating resistance may be introduced in steps of 300 ohms, from 0 to 900 ohms (1200 ohms in the case of certain early type senders). Due to the compensating resistance arrangement of the sender circuits, the selections beyond office compensating resistance cannot exceed the office selections compensating resistance.

Note: Crossbar tandem dial pulsing senders are arranged to compensate either 0 or 900 ohms for office selections. No. 4 type toll switching system outgoing senders are not furnished with facilities for compensation. If compensating resistance is required it is introduced at the outgoing trunk circuit.

2.02 Certain outgoing trunk circuits and certain panel selector circuits are equipped with compensating resistance facilities. Variations in compensating resistance for these circuits may be made effective by changing the strapping at the wiring terminals of the resistances. These resistances are intended to be used (1) when the conductor resistance is less than the required minimum loop resistance and the senders either do not compensate or the maximum available in the sender is not sufficient to bring the compensated conductor loop resistance up to the minimum required or (2) when due to the use of different cable routes for trunks in the same group, the amount of compensating resistance which may be provided by the sender is limited by the loop resistance of the longest trunk, and consequently the additional compensating resistance required for the shorter trunks may be provided at the associated trunk or selector circuit. The values of compensating resistance provided in the various trunk and selector circuits are shown in Table A.

2.03 Distant office selectors (office selector tandem) are equipped with compensating resistance for use during office selections, and are also provided with other compensating resistances which are effective only during selections beyond office. These latter are intended to be used when the trunk conductor resistance to distant office selectors in the same group varies to the extent that satisfactory compensation cannot be obtained during selections beyond office without equalizing at least partially the loop resistance to the office selectors.

2.04 Local (3-wire) incoming selectors with the exception of ES-207896 are provided with fixed compensating resistances.

2.05 No compensating resistance is provided in local (3-wire) office selectors, crossbar incoming and crossbar tandem trunk circuits, full

selector tandem district selectors, manual call indicator trunk circuits and operator type trunk circuits.

Note: Certain early manual call indicator control circuits were designed for use with senders not equipped with compensating resistance, and were therefore arranged to provide the necessary compensation, when required. For the purposes of this section it should be determined that such compensating resistance is not effective.

## 3. REQUIREMENTS

3.01 Minimum: The minimum compensated trunk loop resistance for revertive selections, call indicator pulsing, or trunk test on operator class calls, shall not be less than the value specified for the particular type of selector or trunk circuit. By compensated trunk loop resistance is meant the total resistance in the fundamental circuit between the sender and the selector or trunk circuit, including any compensating resistance in the sender and selector circuits, the trunk conductor resistance, and the resistance of the polarized relay of distant office selectors, dial coin zone outgoing trunk circuits, or crossbar tandem senders.

3.02 Maximum: The maximum compensated trunk loop resistance shall not exceed the equivalent maximum external circuit loop resistance over which the selector or trunk circuit is capable of operating, taking into consideration the resistance of the sender stepper (STP) and polarized overflow (OF) relays.

3.03 For revertive selections, the minimum compensated trunk loop resistance is 1200 ohms for those selectors having line relays of 650 ohms or less, and 900 ohms for selectors having line relays of 900 ohms or more and for calls to crossbar and crossbar tandem equipment.

3.04 For call indicator pulsing and trunk test on operator type trunks, the minimum compensated trunk loop resistance is 900 ohms, except as shown below:

(a) In some instances, battery and ground for trunk test on operator class calls are supplied by auxiliary equipment at the local central office (e.g. recording-completing trunk circuits, etc). In these cases, on operator class calls, the compensating resistance for trunk test in panel and No. 1 crossbar originating senders should be 900 ohms regardless of the trunk loop resistance beyond the local central office.

(b) Compensating resistance for operator class trunk test in No. 5 crossbar offices need not be considered, since an outgoing sender is not used.

(c) In crossbar tandem offices, compensating resistance information for operator class trunk test must be cross-connected in the tandem marker to satisfy marker functions. However, crossbar tandem senders do not introduce compensating resistance into the fundamental circuit for trunk test on this class of call and, therefore, any value may be used.

(d) In crossbar tandem offices equipped with revertive pulsing senders, compensating resistance information for call indicator pulsing class of call must be cross-connected in the tandem marker to satisfy marker functions. However, revertive pulsing senders do not introduce compensating resistance into the fundamental circuit during call indicator pulsing and, therefore, any value may be used.

3.05 For all classes of calls routed via distant office selectors, the resistance of the office selector polarized relay (50 ohms) and the selections beyond (C) resistance are effective during selections beyond. The conductor resistance effective is the sum of the resistance from the originating office to the distant office selector and the resistance from the distant office selector to the terminating office.

3.06 For PCI class calls routed via crossbar tandem revertive pulsing senders, the resistance of the tandem sender polarized relay (50 ohms) is effective during call indicator pulsing. The conductor resistance effective is the sum of the resistance from the originating office to the tandem office and the resistance from the tandem office to the terminating office. The compensating resistance setting of the tandem sender is ineffective and should be arbitrarily set at 900 ohms, unless the same tandem marker route relay is also used for calls routed through crossbar tandem dial pulsing senders, in which case the setting will be governed by the requirements of that routing.

3.07 For PCI class calls routed via crossbar tandem dial pulsing senders, the call indicator pulses are generated by the tandem sender and the sender should be compensated as required by the resistance of the conductor between the tandem office and the call indicator incoming trunk circuit.

3.08 For full selector class calls, (panel, crossbar and step-by-step) routed via crossbar tandem revertive pulsing senders, incoming and final selections are registered in the tandem sender in the same manner as office selections and therefore the originating sender should be compensated the same during selections beyond office as during office selections. The tandem senders should be compensated as required by the resistance of the conductors between the

tandem and terminating offices, except on out dial pulsing calls, in which case the use of compensating resistance is not required.

3.09 For full selector class calls routed via crossbar tandem dial pulsing senders, the tandem senders should be compensated as required by the resistance of the conductors between the tandem and terminating offices, except on out dial pulsing calls, in which case the use of compensating resistance is not required.

3.10 For full selector (panel sender) tandem class calls routed via coin dial zone outgoing trunks, the resistance of the polarized relay (50 ohms) of the trunk circuit is included in the call indicator pulsing loop.

3.11 For skip-office calls, the office selections compensating resistance of the sender is ineffective. However, in order to permit the use of any value of compensating resistance for selections beyond office, 900 ohms (or 1200 ohms, when available) should be used for skip-office calls.

3.12 Allowance for deviation of conductor and compensating resistances from nominal: The tables provided in this section allow for deviation from nominal values of conductor resistance due to temperature variations and the resistance of the compensating resistances due to manufacturing tolerances.

3.13 For minimum requirements a deviation of −5% from nominal resistance has been allowed for compensating resistances and −6.8% (approx.) for the deviation of conductor resistance from its nominal value (at 68°F.) to its minimum value (at 37°F.). For maximum tolerances a deviation of +5% from nominal resistance has been allowed for compensating resistances. No allowance has been made for increase in conductor resistance due to temperature, since this factor is included in the maximum conductor range of the various circuits.

3.14 Distribution of compensating resistance: When compensating resistance is required, as much as possible of the total should be provided at the senders in order to avoid compensation at selectors whenever possible.

3.15 When the trunks in a group have different cable routings, the trunk conductor resistances may vary considerably, and consequently the amount of compensation which may be placed at the senders will be limited by the maximum permissible for the trunks having the greatest conductor resistance. In this case it may be necessary to compensate at the incoming selectors having the lesser conductor resistances sufficiently to meet the minimum total requirement.

Note: If it should be found that both the minimum and maximum requirements cannot be met for all trunks in the group, it is an indication that the variation in conductor resistance is too great, and therefore that such routings cannot be employed.

3.16 Compensating to equalize the resistance of the trunks in a group for the sole purpose of applying more severe tests with the panel incoming selector test frame does not appear to be warranted. However, if it is necessary to compensate at incoming selectors in order to meet the minimum requirements, it would be desirable to provide such additional compensating resistance as is required to equalize the resistance of the trunks.

3.17 When more than one type of selector is included in a trunk group, the amount of compensation which may be placed at the senders may be limited by the capabilities of a particular type of selector, and consequently it may be necessary to compensate at the selectors of the other type in order to meet their minimum total requirement.

3.18 For routings via distant office selectors, when the trunk conductor resistance to the office selectors varies considerably between trunks in the same group, it may not be possible during selections beyond to meet the minimum compensating resistance requirements of the shorter routes without exceeding the trunk capabilities for the longer routes. In this case it will be necessary to use the selections beyond (C) compensating resistance of the office selectors having the lower conductor resistances in order to equalize, to some extent, the resistance of all trunks in the group during selections beyond office.

Note: If it should be found that even with the use of the maximum (C) compensating resistance available at the office selector (600 ohms) it is not possible to meet both the minimum and maximum compensating resistance requirements for all trunks in the group, it should be understood that the variation in conductor resistance is too great and consequently such routings cannot be employed.

3.19 In some cases it may be desirable to use the beyond office (C) compensating resistance at distant office selectors in order to avoid compensating at incoming selectors, even though there is little or no variation in trunk conductor resistance. An example of this is the case where the cable resistance from the originating office to the office selector is low, and consequently, on routes to incoming selectors which are close to the office selectors, compensating resistance is required in addition to that which the sender is capable of providing. If this resistance were provided at the incoming selectors, it

might cause the maximum capability of the incoming selectors to be exceeded on calls from some other originating office having considerable conductor resistance to the office selectors. In that case, compensating at the office selectors first mentioned would render it unnecessary to compensate at these incoming selectors. On the other hand, this would decrease the range of these office selectors, and might consequently result in exceeding their capability for completing calls to some other outlying terminating point. The decision as to where compensating resistance should be placed will therefore depend upon an analysis of the trunking plan of the office selector tandem center.

3.20 Compensating above minimum requirements: The amount of compensating resistance provided may exceed the minimum required provided that this does not raise the total compensated loop resistance above the allowable maximum.

## 4. METHOD

4.01 The compensating resistance required at senders and panel selector circuits should be determined from the trunk conductor resistance and the minimum and maximum requirements for the type of termination involved.

> Note: No. 4 type toll switching system outgoing senders are not furnished with facilities for compensation. If compensating resistance is required it is introduced at the outgoing trunk circuit.

4.02 Table A lists some of the various types of routings and terminations and shows for each the minimum compensated trunk loop resistance, the maximum conductor resistance, the compensating resistances available at the selectors, and lists the tables which have been prepared for determining the compensating resistance requirements. For working limits and available compensating resistances of circuits not listed in Table A refer to the circuit drawing and choose a line in Table A with corresponding requirements.

4.03 Composite Tables 1 and 2, show the nominal amount of compensating resistance which should be placed at the senders and selectors for the particular conductor loop resistance and type of selector or trunk involved. It is assumed that the variation in resistance of the trunks in a group will be small enough so that one value of sender compensating resistance will be satisfactory for all trunks. These tables are based primarily on providing the minimum amount of compensating resistance required. In using these tables the trunk conductor resistance should be considered to be increased by 50 ohms when the polarized relay of distant office selectors, crossbar tandem senders, or dial coin zone outgoing trunks is included in the routing, as covered in Part 3.

4.04 Individual Tables (3 to 15), show for each type of termination the nominal minimum and maximum compensating resistance which may be used for a particular conductor resistance. This resistance may be provided at either the sender, the selector, or part may be provided in each, as required for the individual case. These tables include in addition to requirements for direct routings, those for routings via distance office selectors both with and without office selector beyond office (C) compensating resistance, routings via crossbar tandem, and via dial coin zone outgoing trunks. Allowance has been made for the resistance of the polarized relay of distant office selectors, etc., and also for the office selector beyond office compensating resistance, so that the compensating resistance values shown are exclusive of these items. These tables are intended for use particularly in those cases where the trunks in a group are routed over different cable routes or terminate on selectors of different types. Since the values of compensating resistance given are the theoretical minimum and maximum values, the use of these tables permits the widest possible latitude in fixing compensating resistance values, and in addition indicates clearly those cases where the variation in conductor resistance of trunks in a group is excessive.

4.05 Allowance has been made in all the above-mentioned tables for the manufacturing tolerances of compensating resistances and the variation of trunk conductor resistance with temperature.

4.06 When using Tables 3 to 15, it will be necessary to apportion the total compensating resistance required between the senders and the selector circuits, as described in other paragraphs of this section.

## 5. EXAMPLES OF USE OF TABLES

5.01 Several examples of the use of the tables in this section follow.

### (A) Group of Long Range Battery Cutoff Incoming Selectors

5.02 Assume a trunk group containing only long range battery cutoff incoming selectors and having trunk conductor resistance of 340 ohms. From Table A it is found that this type of selector is covered in Tables 1 and 12. Referring to Table 1, it is found that sender compensating resistance of 900 ohms should be used, together with selector compensating resistance of 300 ohms. It should be understood in this connection that if the sender is capable of furnishing 1200 ohms, that value may be used and the 300 ohms omitted at the selector. If it is desired to use Table 12, which also covers this type of selector, it is found that the compensation must lie between 1200 ohms and 2100 ohms. If the sender were capable of providing only 900 ohms, it would be necessary to provide at least 300 ohms at the

selector. It would be permissible, however, to provide the full amount of compensation available at the selector (900 ohms) since this would bring the total to 1800 ohms, which is below the permissible maximum.

(B) Mixed Group of Local (3-wire) and Non-repeating Incoming Selectors

5.03 Assume an intra-building trunk group containing both local (3-wire) incoming selectors per ES-226882 and 2-wire non-repeating incoming selectors. From Table A, it is found that the local 3-wire incoming selector compensating resistance is fixed and that sender compensating resistance of 600 ohms must be provided. Table 8 covers the requirements for 2-wire non-repeating incoming selectors and indicates that a minimum of 1000 ohms, maximum 1200 ohms is required. Since 600 ohms is to be provided in the senders, the additional 400 to 600 ohms compensating resistance must be provided in the 2-wire non-repeating incoming selectors.

(C) Group of Non-repeating Incoming Selectors with Different Cable Routings

5.04 Assume a group of ground cutoff non-repeating incoming selectors routed over different cables with resistances as shown below. From Table A, it is found that the requirements for this type of selector are covered in Table 8 and are as follows:

| Cable Route | Conductor Resistance | Compensating Resistance Min. | Max. |
|---|---|---|---|
| A | 320 | 700 | 900 |
| B | 1180 | 0 | 100 |

Since route B permits no more than 100 ohms compensating resistance, the sender compensating resistance, must be 0. The selectors using route A will therefore require compensation of from 700 ohms to 900 ohms. The selectors using route B require no compensation.

(D) Group of Long Range Battery Cutoff Incoming Selectors Routed Via Distant Office Selectors - Different Cable Routes to Office Selectors

Example 1

5.05 Assume a group of long range battery cutoff incoming selectors which are reached via distant office selectors. The cable routes from the originating office to the terminating office vary in resistance as indicated below. From Table A it is found that this type of incoming selector is covered in Table 12. The compensating resistances required for each route via distant office selectors using 0 ohms office selector beyond office (C) compensating resistance are as indicated:

| Cable Route | Conductor Resistance Orig. Off. to Off. Sel. | Off. Sel. to Inc. Sel. | Total | Compensating Res. Min. | Max. |
|---|---|---|---|---|---|
| A | 370 | 280 | 650 | 600 | 1800 |
| B | 1570 | 280 | 1850 | 0 | 600 |

The trunks using cable route A require a minimum of 600 ohms compensating resistance. This amount may be placed in the senders, since it does not exceed the maximum permissible compensating resistance for cable route B.

Example 2

5.06 Assume the same type of routing as in 5.05 with the exception of the cable resistance.

| Cable Route | Conductor Resistance Orig. Off. to Off. Sel. | Off. Sel. to Inc. Sel. | Total | Compensating Res. Min. | Max. |
|---|---|---|---|---|---|
| A | 250 | 280 | 530 | 900 | 1800 |
| B | 1570 | 280 | 1850 | 0 | 600 |

In this case it will be noted that with 0 ohms office selector beyond office compensating resistance, the trunks using cable route A require at least 900 ohms compensating resistance, while those using cable route B can tolerate no more than 600 ohms. Since the conductor resistance between the office selectors and the incoming selectors is the same for both routes, it is obvious that the inability to meet the requirements of both cable routes is due to the difference in conductor resistance of the trunks between the originating office and the office selectors. Consequently, it will be necessary to compensate those office selectors using cable route A during selections beyond in order to equalize to some extent the resistance of the trunks to the office selectors. Referring to Table 12, it will be seen that if 200 ohms selections beyond (C) compensating resistance is provided at the office selectors using cable route A, the compensating resistance requirements become:

| Cable Route | Office Sel. (C) Comp. | Compensating Res. Min. | Max. |
|---|---|---|---|
| A | 200 | 600 | 1800 |
| B | 0 | 0 | 600 |

600 ohms sender compensating resistance will now satisfy the minimum requirement for trunks using cable route A, and will not exceed that allowable for cable route B. Therefore, the senders should be compensated for 600 ohms, and 200 ohms beyond office compensating resistance should be provided at the office selectors using cable route A. Since this involves a change in the office selector beyond office compensating resistance, all routings through these selectors should be inspected to insure that this will not cause any route to fail to meet the compensating resistance requirements.

TABLE A

| Type of Selector,** Trunk, or Routing | | | Minimum Compensated Loop Res. | Maximum Conductor Res. | | Selector Compensating Resistance | Comp. Res. Required | |
|---|---|---|---|---|---|---|---|---|
| | | | | Direct | Via Dist. Off. | | Composite Table | Individual Table |
| Skip-Office (See 3.11) | | | - | - | - | - | 900W** | |
| Local (3-W) Office Selector | | | 900W | - | - | - | Table 2 | |
| Distant (2-Wire) Office Selector | ES-226137 | Short Range | 1200W | 1670W | - | T 200-400ϕ R 100-500 C 200-400 | Table 1 | Table 3 |
| | | Long Range | | 2700W | | | | Table 4 |
| | SD-21092-01 SD-21092-02 SD-21733-01 | Short Range | | 1670W | | D 300-600ϕ C 200-400 | | Table 5 |
| | | Long Range | | 2700W | | | | Table 6 |
| Crossbar Tandem Trunk | | | 900W | 2900W | - | - | Table 2 | Table 7 |
| Local (3-Wire) Incoming Selector | ES-20090-01 ES-240092 ES-240093 | | - | - | - | Fixed# | 0W## | |
| | ES-207490 ES-226310 ES-226882 | | - | - | - | Fixed (500W) | 600W## | |
| | ES-207371 | | - | - | - | Fixed (1200W) | 0W## | |
| | ES-207896 | | 900W | - | - | T 200-400 R 100-500 | 900W* | |
| Ground Cutoff Incoming Selector | Non-Repeating | | 900W | 1300W | 1245W | T 200-400 R 100-500 | Table 2 | Table 8 |
| | Repeating | | 1200W | *** | *** | 300-600 | Table 1 | Table 9 |
| | | | | | | 500-500 | | Table 10 |
| Battery Cutoff Incoming Selector | Short Range | | 1200W | 1640W | 1590W | 300-600 | Table 1 | Table 11 |
| | Long Range | | | *** | *** | | | Table 12 |
| Crossbar Incoming Trunk | Short Range | | 900W | 2585W | 2530W | - | Table 2 | Table 13 |
| | Long Range | | | 2900W | 2845W | | | Table 14 |
| Panel Call Indicator and Full Selector Tandem Incoming Trunks | | | 900W | 2640W | 2585W | - | Table 2 | Table 15 |
| Operator Type Trunks | | | 900W | ϕϕ | | - | Table 2 | |

* Use 1200 ohms if this amount can be furnished by sender.

\# Fixed compensation of 500 ohms during incoming selections; 1000 ohms during final selections.

ϕ T and R (or D) resistances effective only during office selections; C resistance effective only during selections beyond office.

** Long range panel selectors are equipped with L, N or S type line relays. Long range crossbar incoming trunks are equipped with S type A relays.

*** See working limits for selector circuit.

## Sender compensating resistance required in addition to fixed compensating resistance in selector.

ϕϕ See working limits for trunk circuit.

TABLE 1

Composite Table for Distant (2-Wire) Office and Repeating and Battery Cutoff Incoming Selectors.

| Trunk Conductor Resistance # | Compensating Resistance | |
|---|---|---|
| | Sender | Selector |
| 0 - 65 | 900 | 600 |
| 66 - 375 | 900 | 300 |
| 66 - 375 | 1200 | 0 |
| 376 - 685 | 900 | 0 |
| 686 - 1000 | 600 | 0 |
| 1001 - 1310 | 300 | 0 |
| 1311 Up | 0 | 0 |

# Add 50 ohms for all routings via distant office selectors and dial coin zone outgoing trunks and for PCI classes via crossbar tandem. (See 4.03.)

TABLE 2

Composite Table for Local (3-Wire) Office and Ground Cutoff Non-Repeating Incoming Selectors, Crossbar Incoming and Crossbar Tandem Trunks, Manual P.C.I. Incoming Trunks, Full Selector Tandem and Operator Type Trunks.

| Trunk Conductor Resistance # | Compensating Resistance | |
|---|---|---|
| | Sender | Selector |
| 0 - 40 | 900* | 0 |
| 41 - 350 | 900 | 0 |
| 351 - 660 | 600 | 0 |
| 661 - 975 | 300 | 0 |
| 976 Up | 0 | 0 |

* Use 1200 ohms if available.

# Add 50 ohms for all routings via distant office selectors and dial coin zone outgoing zone outgoing trunks and for PCI classes via crossbar tandem. (See 4.03.)

TABLE 3

Short Range Distant Office Selector Equipped with 200-400 and 100-500 Ohm Compensating Resistances. (See 4.04.)

| Trunk Conductor Resistance | Compensating Resistance | |
|---|---|---|
| | Min. | Max. |
| 0 - 62 | 1300 | 1500 |
| 63 - 95 | 1200 | 1500 |
| 96 - 164 | 1200 | 1400 |
| 165 - 200 | 1100 | 1400 |
| 201 - 266 | 1100 | 1300 |
| 267 - 305 | 1000 | 1300 |
| 306 - 368 | 1000 | 1200 |
| 369 - 410 | 900 | 1200 |
| 411 - 470 | 900 | 1100 |
| 471 - 515 | 800 | 1100 |
| 516 - 572 | 800 | 1000 |
| 573 - 620 | 700 | 1000 |
| 621 - 674 | 700 | 900 |
| 675 - 725 | 600 | 900 |
| 726 - 776 | 600 | 800 |
| 777 - 830 | 500 | 800 |
| 831 - 878 | 500 | 700 |
| 879 - 935 | 400 | 700 |
| 936 - 980 | 400 | 600 |
| 981 - 1040 | 300 | 600 |
| 1041 - 1082 | 300 | 500 |
| 1083 - 1145 | 200 | 500 |
| 1146 - 1184 | 200 | 400 |
| 1185 - 1250 | 100 | 400 |
| 1251 - 1286 | 100 | 300 |
| 1287 - 1355 | 0 | 300 |
| 1356 - 1460 | 0 | 200 |
| 1461 - 1565 | 0 | 100 |
| 1566 - 1670 | 0 | 0 |

TABLE 4

Long Range Distant Office Selector Equipped with 200-400 and 100-500 Ohm Compensating Resistances. (See 4.04.)

| Trunk Conductor Resistance | Compensating Resistance | |
|---|---|---|
| | Min. | Max. |
| 0 - 62 | 1300 | 2400 |
| 63 - 164 | 1200 | 2400 |
| 165 - 180 | 1100 | 2400 |
| 181 - 266 | 1100 | 2300 |
| 267 - 285 | 1000 | 2300 |
| 286 - 368 | 1000 | 2200 |
| 369 - 390 | 900 | 2200 |
| 391 - 470 | 900 | 2100 |
| 471 - 495 | 800 | 2100 |
| 496 - 572 | 800 | 2000 |
| 573 - 600 | 700 | 2000 |
| 601 - 674 | 700 | 1900 |
| 675 - 705 | 600 | 1900 |
| 706 - 776 | 600 | 1800 |
| 777 - 810 | 500 | 1800 |
| 811 - 878 | 500 | 1700 |
| 879 - 915 | 400 | 1700 |
| 916 - 980 | 400 | 1600 |
| 981 - 1020 | 300 | 1600 |
| 1021 - 1082 | 300 | 1500 |
| 1083 - 1125 | 200 | 1500 |
| 1126 - 1184 | 200 | 1400 |
| 1185 - 1230 | 100 | 1400 |
| 1231 - 1286 | 100 | 1300 |
| 1287 - 1335 | 0 | 1300 |
| 1336 - 1440 | 0 | 1200 |
| 1441 - 1545 | 0 | 1100 |
| 1546 - 1650 | 0 | 1000 |
| 1651 - 1755 | 0 | 900 |
| 1756 - 1860 | 0 | 800 |
| 1861 - 1965 | 0 | 700 |
| 1966 - 2070 | 0 | 600 |
| 2071 - 2175 | 0 | 500 |
| 2176 - 2280 | 0 | 400 |
| 2281 - 2385 | 0 | 300 |
| 2386 - 2490 | 0 | 200 |
| 2491 - 2595 | 0 | 100 |
| 2596 - 2700 | 0 | 0 |

TABLE 5

Short Range Distant Office Selector Equipped with 300-600 Ohm Compensating Resistance (See 4.04)

| Trunk Conductor Res. | Comp. Res. Min. | Comp. Res. Max. |
|---|---|---|
| 0- 62 | 1500 | 1500 |
| 63- 95 | 1200 | 1500 |
| 96- 368 | 1200 | 1200 |
| 369- 410 | 900 | 1200 |
| 411- 674 | 900 | 900 |
| 675- 725 | 600 | 900 |
| 726- 980 | 600 | 600 |
| 981-1040 | 300 | 600 |
| 1041-1286 | 300 | 300 |
| 1287-1355 | 0 | 300 |
| 1356-1670 | 0 | 0 |

TABLE 6

Long Range Distant Office Selector Equipped with 300-600 Ohm Compensating Resistance (See 4.04)

| Trunk Conductor Res. | Comp. Res. Min. | Comp. Res. Max. |
|---|---|---|
| 0- 62 | 1500 | 2100 |
| 63- 368 | 1200 | 2100 |
| 369- 495 | 900 | 2100 |
| 496- 674 | 900 | 1800 |
| 675- 810 | 600 | 1800 |
| 811- 980 | 600 | 1500 |
| 981-1125 | 300 | 1500 |
| 1126-1286 | 300 | 1200 |
| 1287-1440 | 0 | 1200 |
| 1441-1755 | 0 | 900 |
| 1756-2070 | 0 | 600 |
| 2071-2385 | 0 | 300 |
| 2386-2700 | 0 | 0 |

TABLE 7

Crossbar Tandem Incoming Trunk (See 4.04)

| Trunk Conductor Res. | Comp. Res. Min. | Comp. Res. Max. |
|---|---|---|
| 0- 47 | 1200* | 1200 |
| 48- 353 | 900 | 1200 |
| 354- 659 | 600 | 1200 |
| 660- 965 | 300 | 1200 |
| 966-1640 | 0 | 1200 |
| 1641-1955 | 0 | 900 |
| 1956-2270 | 0 | 600 |
| 2271-2585 | 0 | 300 |
| 2586-2900 | 0 | 0 |

* 900 ohms may be used.

TABLE 8

Ground Cutoff 2-Wire Non-Repeating Incoming Selector (See 4.04)

| Direct Routing | | | Routing Via Distant Office Selector | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Beyond Office (C) Compensating Resistance Effective in Distant Office Selector | | | | | | | | | | | |
| | | | 0W | | | 200W | | | 400W | | | 600W | | |
| Trunk Conductor Res. | Comp. Res. Min. | Comp. Res. Max. | Trunk Conductor Res. | Comp. Res. Min. | Comp. Res. Max. | Trunk Conductor Res. | Comp. Res. Min. | Comp. Res. Max. | Trunk Conductor Res. | Comp. Res. Min. | Comp. Res. Max. | Trunk Conductor Res. | Comp. Res. Min. | Comp. Res. Max. |
| 0- 40 | 1000* | 1200 | 0- 95 | 900 | 1100 | 0- 95 | 700 | 900 | 0- 95 | 500 | 700 | 0- 95 | 300 | 500 |
| 41- 47 | 1000* | 1100 | 96- 200 | 800 | 1000 | 96- 200 | 600 | 800 | 96- 200 | 400 | 600 | 96- 200 | 200 | 400 |
| 48- 147 | 900 | 1100 | 201- 303 | 700 | 900 | 201- 303 | 500 | 700 | 201- 303 | 300 | 500 | 201- 303 | 100 | 300 |
| 148- 251 | 800 | 1000 | 304- 405 | 600 | 800 | 304- 405 | 400 | 600 | 304- 405 | 200 | 400 | 304- 405 | 0 | 200 |
| 252- 354 | 700 | 900 | 406- 510 | 500 | 700 | 406- 510 | 300 | 500 | 406- 510 | 100 | 300 | 406- 510 | 0 | 100 |
| 355- 457 | 600 | 800 | 511- 608 | 400 | 600 | 511- 608 | 200 | 400 | 511- 618 | 0 | 200 | 511- 618 | 0 | 0 |
| 458- 557 | 500 | 700 | 609- 618 | 300 | 600 | 609- 618 | 100 | 400 | 619- 723 | 0 | 100 | | | |
| 558- 565 | 400 | 700 | 619- 710 | 300 | 500 | 619- 710 | 100 | 300 | 724- 828 | 0 | 0 | | | |
| 566- 659 | 400 | 600 | 711- 723 | 200 | 500 | 711- 723 | 0 | 300 | | | | | | |
| 660- 670 | 300 | 600 | 724- 812 | 200 | 400 | 724- 828 | 0 | 200 | | | | | | |
| 671- 761 | 300 | 500 | 813- 828 | 100 | 400 | 829- 933 | 0 | 100 | | | | | | |
| 762- 775 | 200 | 500 | 829- 914 | 100 | 300 | 934-1028 | 0 | 0 | | | | | | |
| 776- 863 | 200 | 400 | 915- 933 | 0 | 300 | | | | | | | | | |
| 864- 880 | 100 | 400 | 934-1028 | 0 | 200 | | | | | | | | | |
| 881- 965 | 100 | 300 | 1029-1143 | 0 | 100 | | | | | | | | | |
| 966- 985 | 0 | 300 | 1144-1245 | 0 | 0 | | | | | | | | | |
| 986-1090 | 0 | 200 | | | | | | | | | | | | |
| 1091-1195 | 0 | 100 | | | | | | | | | | | | |
| 1196-1300 | 0 | 0 | | | | | | | | | | | | |

* 900 ohms may be used.

TABLE 9

Ground Cutoff Repeating Incoming Selector Equipped with 300-600 Ohm Compensating Resistance (See 4.04)

| Direct Routing | | | Routing Via Distant Office Selector | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Beyond Office (C) Compensating Resistance Effective in Distant Office Selector | | | | | | | | | | | |
| | | | 0W | | | 200W | | | 400W | | | 600W | | |
| Trunk Conductor Res. | Comp. Res. Min. | Comp. Res. Max. | Trunk Conductor Res. | Comp. Res. Min. | Comp. Res. Max. | Trunk Conductor Res. | Comp. Res. Min. | Comp. Res. Max. | Trunk Conductor Res. | Comp. Res. Min. | Comp. Res. Max. | Trunk Conductor Res. | Comp. Res. Min. | Comp. Res. Max. |
| 0- 62 | 1500 | 1800 | 0- 11 | 1500 | 1800 | 0- 113 | 1200 | 1500 | 0- 215 | 900 | 1200 | 0- 11 | 900 | 1200 |
| 63- 120 | 1200 | 1800 | 12- 65 | 1200 | 1800 | 114- 170 | 900 | 1500 | 216- 275 | 600 | 1200 | 12- 65 | 600 | 1200 |
| 121- 368 | 1200 | 1500 | 66- 317 | 1200 | 1500 | 171- 419 | 900 | 1200 | 276- 521 | 600 | 900 | 66- 317 | 600 | 900 |
| 369- 435 | 900 | 1500 | 318- 380 | 900 | 1500 | 420- 485 | 600 | 1200 | 522- 590 | 300 | 900 | 318- 380 | 300 | 900 |
| 436- 674 | 900 | 1200 | 381- 623 | 900 | 1200 | 486- 725 | 600 | 900 | 591- 878 | 300 | 600 | 381- 623 | 300 | 600 |
| 675- 750 | 600 | 1200 | 624- 695 | 600 | 1200 | 726- 800 | 300 | 900 | 879- 905 | 0 | 600 | 624- 695 | 0 | 600 |
| 751- 980 | 600 | 900 | 696- 929 | 600 | 900 | 801-1031 | 300 | 600 | 906-1220 | 0 | 300 | 696-1010 | 0 | 300 |
| 981-1065 | 300 | 900 | 930-1010 | 300 | 900 | 1032-1115 | 0 | 600 | 1221-1535 | 0 | 0 | 1011-1325 | 0 | 0 |
| 1066-1286 | 300 | 600 | 1011-1235 | 300 | 600 | 1116-1430 | 0 | 300 | | | | | | |
| 1287-1380 | 0 | 600 | 1236-1325 | 0 | 600 | 1431-1715 | 0 | 0 | | | | | | |
| 1381-1695 | 0 | 300 | 1326-1640 | 0 | 300 | | | | | | | | | |
| 1696- * | 0 | 0 | 1641- * | 0 | 0 | | | | | | | | | |

*See working limits for selector circuit.

TABLE 10

Ground Cutoff Repeating Incoming Selector
Equipped with 500-500 Ohm Compensating Resistance (See 4.04)

| Direct Routing | | | Routing Via Distant Office Selector | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Beyond Office (C) Compensating Resistance Effective in Distant Office Selector | | | | | | | | | | | |
| | | | 0W | | | 200W | | | 400W | | | 600W | | |
| Trunk Conductor Res. | Comp. Res. | | Trunk Conductor Res. | Comp. Res. | | Trunk Conductor Res. | Comp. Res. | | Trunk Conductor Res. | Comp. Res. | | Trunk Conductor Res. | Comp. Res. | |
| | Min. | Max. | | Min. | Max. | | Min. | Max. | | Min. | Max. | | Min. | Max. |
| 0- 15 | 1300 | 1900 | 0- 11 | 1300 | 1800 | 0- 11 | 1100 | 1600 | 0- 11 | 900 | 1400 | 0- 11 | 800 | 1200 |
| 16- 62 | 1300 | 1700 | 12- 65 | 1200 | 1800 | 12- 65 | 1000 | 1600 | 12- 65 | 800 | 1400 | 12- 65 | 600 | 1200 |
| 63- 164 | 1200 | 1700 | 66- 113 | 1200 | 1700 | 66- 113 | 1000 | 1400 | 66- 170 | 800 | 1300 | 66- 113 | 600 | 1100 |
| 165- 225 | 1100 | 1700 | 114- 170 | 1100 | 1700 | 114- 215 | 900 | 1400 | 171- 215 | 800 | 1200 | 114- 170 | 500 | 1100 |
| 226- 266 | 1100 | 1600 | 171- 215 | 1100 | 1600 | 216- 275 | 800 | 1400 | 216- 275 | 600 | 1200 | 171- 275 | 500 | 1000 |
| 267- 330 | 1000 | 1600 | 216- 317 | 1000 | 1600 | 276- 380 | 800 | 1300 | 276- 317 | 600 | 1100 | 276- 317 | 500 | 900 |
| 331- 368 | 1000 | 1400 | 318- 330 | 900 | 1600 | 381- 419 | 800 | 1200 | 318- 380 | 500 | 1100 | 318- 380 | 300 | 900 |
| 369- 470 | 900 | 1400 | 331- 419 | 900 | 1400 | 420- 485 | 600 | 1200 | 381- 485 | 500 | 1000 | 381- 485 | 300 | 800 |
| 471- 540 | 800 | 1400 | 420- 485 | 800 | 1400 | 486- 521 | 600 | 1100 | 486- 521 | 500 | 900 | 486- 623 | 300 | 600 |
| 541- 623 | 800 | 1300 | 486- 590 | 800 | 1300 | 522- 590 | 500 | 1100 | 522- 590 | 300 | 900 | 624- 695 | 0 | 600 |
| 624- 645 | 600 | 1300 | 591- 623 | 800 | 1200 | 591- 695 | 500 | 1000 | 591- 695 | 300 | 800 | 696- 800 | 0 | 500 |
| 646- 725 | 600 | 1200 | 624- 695 | 600 | 1200 | 696- 725 | 500 | 900 | 696- 827 | 300 | 600 | 801-1010 | 0 | 300 |
| 726- 750 | 500 | 1200 | 696- 725 | 600 | 1100 | 726- 800 | 300 | 900 | 828- 905 | 0 | 600 | 1011-1325 | 0 | 0 |
| 751- 855 | 500 | 1100 | 726- 800 | 500 | 1100 | 801- 905 | 300 | 800 | 906-1010 | 0 | 500 | | | |
| 856- 929 | 500 | 1000 | 801- 905 | 500 | 1000 | 906-1031 | 300 | 600 | 1011-1220 | 0 | 300 | | | |
| 930- 960 | 300 | 1000 | 906- 929 | 500 | 900 | 1032-1115 | 0 | 600 | 1221-1535 | 0 | 0 | | | |
| 961-1065 | 300 | 900 | 930-1010 | 300 | 900 | 1116-1220 | 0 | 500 | | | | | | |
| 1066-1170 | 300 | 800 | 1011-1115 | 300 | 800 | 1221-1430 | 0 | 300 | | | | | | |
| 1171-1286 | 300 | 600 | 1116-1235 | 300 | 600 | 1431-1745 | 0 | 0 | | | | | | |
| 1287-1380 | 0 | 600 | 1236-1325 | 0 | 600 | | | | | | | | | |
| 1381-1485 | 0 | 500 | 1326-1430 | 0 | 500 | | | | | | | | | |
| 1486-1695 | 0 | 300 | 1431-1640 | 0 | 300 | | | | | | | | | |
| 1696- * | 0 | 0 | 1641- * | 0 | 0 | | | | | | | | | |

* See working limits for selector circuit.

TABLE 11

Short Range Battery Cutoff Incoming Selector (See 4.04)

| Direct Routing | | | Routing Via Distant Office Selector | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Beyond Office (C) Compensating Resistance Effective in Distant Office Selector | | | | | | | | | | | |
| | | | 0W | | | 200W | | | 400W | | | 600W | | |
| Trunk Conductor Res. | Comp. Res. | | Trunk Conductor Res. | Comp. Res. | | Trunk Conductor Res. | Comp. Res. | | Trunk Conductor Res. | Comp. Res. | | Trunk Conductor Res. | Comp. Res. | |
| | Min. | Max. | | Min. | Max. | | Min. | Max. | | Min. | Max. | | Min. | Max. |
| 0- 65 | 1500 | 1500 | 0- 12 | 1500 | 1500 | 0- 115 | 1200 | 1200 | 0- 215 | 900 | 900 | 0- 12 | 900 | 900 |
| 66- 368 | 1200 | 1200 | 13- 317 | 1200 | 1200 | 116- 419 | 900 | 900 | 216- 223 | 600 | 900 | 13- 317 | 600 | 600 |
| 369- 380 | 900 | 1200 | 318- 328 | 900 | 1200 | 420- 433 | 600 | 900 | 224- 521 | 600 | 600 | 318- 328 | 300 | 600 |
| 381- 674 | 900 | 900 | 329- 623 | 900 | 900 | 434- 725 | 600 | 600 | 522- 538 | 300 | 600 | 329- 623 | 300 | 300 |
| 675- 695 | 600 | 900 | 624- 643 | 600 | 900 | 726- 748 | 300 | 600 | 539- 827 | 300 | 300 | 624- 643 | 0 | 300 |
| 696- 980 | 600 | 600 | 644- 929 | 600 | 600 | 749-1031 | 300 | 300 | 828- 853 | 0 | 300 | 644- 958 | 0 | 0 |
| 981-1010 | 300 | 600 | 930- 958 | 300 | 600 | 1032-1063 | 0 | 300 | 854-1168 | 0 | 0 | | | |
| 1011-1286 | 300 | 300 | 959-1235 | 300 | 300 | 1064-1378 | 0 | 0 | | | | | | |
| 1287-1325 | 0 | 300 | 1236-1273 | 0 | 300 | | | | | | | | | |
| 1326-1640 | 0 | 0 | 1274-1590 | 0 | 0 | | | | | | | | | |

TABLE 12

Long Range Battery Cutoff Incoming Selector (See 4.04)

| Direct Routing | | | Routing Via Distant Office Selector | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Beyond Office (C) Compensating Resistance Effective in Distant Office Selector | | | | | | | | | | | |
| | | | 0W | | | 200W | | | 400W | | | 600W | | |
| Trunk Conductor Res. | Comp. Res. | | Trunk Conductor Res. | Comp. Res. | | Trunk Conductor Res. | Comp. Res. | | Trunk Conductor Res. | Comp. Res. | | Trunk Conductor Res. | Comp. Res. | |
| | Min. | Max. | | Min. | Max. | | Min. | Max. | | Min. | Max. | | Min. | Max. |
| 0- 62 | 1500 | 2100 | 0- 11 | 1500 | 2100 | 0- 113 | 1200 | 2100 | 0- 20 | 900 | 2100 | 0- 11 | 900 | 1800 |
| 63- 368 | 1200 | 2100 | 12- 317 | 1200 | 2100 | 114- 230 | 900 | 2100 | 21- 215 | 900 | 1800 | 12- 125 | 600 | 1800 |
| 369- 495 | 900 | 2100 | 318- 440 | 900 | 2100 | 231- 419 | 900 | 1800 | 216- 335 | 600 | 1800 | 126- 317 | 600 | 1500 |
| 496- 674 | 900 | 1800 | 441- 623 | 900 | 1800 | 420- 545 | 600 | 1800 | 336- 521 | 600 | 1500 | 318- 440 | 300 | 1500 |
| 675- 810 | 600 | 1800 | 624- 755 | 600 | 1800 | 546- 725 | 600 | 1500 | 522- 650 | 300 | 1500 | 441- 623 | 300 | 1200 |
| 811- 980 | 600 | 1500 | 756- 929 | 600 | 1500 | 726- 860 | 300 | 1500 | 651- 827 | 300 | 1200 | 624- 755 | 0 | 1200 |
| 981-1125 | 300 | 1500 | 930-1070 | 300 | 1500 | 861-1031 | 300 | 1200 | 828- 965 | 0 | 1200 | 756-1070 | 0 | 900 |
| 1126-1286 | 300 | 1200 | 1071-1235 | 300 | 1200 | 1032-1175 | 0 | 1200 | 966-1280 | 0 | 900 | 1071-1385 | 0 | 600 |
| 1287-1440 | 0 | 1200 | 1236-1385 | 0 | 1200 | 1176-1490 | 0 | 900 | 1281-1595 | 0 | 600 | 1386-1700 | 0 | 300 |
| 1441-1755 | 0 | 900 | 1386-1700 | 0 | 900 | 1491-1805 | 0 | 600 | 1596-1910 | 0 | 300 | 1701-2015 | 0 | 0 |
| 1756-2070 | 0 | 600 | 1701-2015 | 0 | 600 | 1806-2120 | 0 | 300 | 1911-2225 | 0 | 0 | | | |
| 2071-2385 | 0 | 300 | 2016-2330 | 0 | 300 | 2121-2435 | 0 | 0 | | | | | | |
| 2386- * | 0 | 0 | 2331- * | 0 | 0 | | | | | | | | | |

* See working limits for selector circuit.

TABLE 13

Short Range Crossbar Incoming Trunk (See 4.04)

| Direct Routing | | | Routing Via Distant Office Selector | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Beyond Office (C) Compensating Resistance Effective in Distant Office Selector | | | | | | | | | | | |
| | | | 0W | | | 200W | | | 400W | | | 600W | | |
| Trunk Conductor Res. | Comp. Res. Min. | Comp. Res. Max. | Trunk Conductor Res. | Comp. Res. Min. | Comp. Res. Max. | Trunk Conductor Res. | Comp. Res. Min. | Comp. Res. Max. | Trunk Conductor Res. | Comp. Res. Min. | Comp. Res. Max. | Trunk Conductor Res. | Comp. Res. Min. | Comp. Res. Max. |
| 0- 47 | 1200* | 1200 | 0- 302 | 900 | 1200 | 0- 98 | 900 | 1200 | 0- 200 | 600 | 1200 | 0- 302 | 300 | 1200 |
| 48- 353 | 900 | 1200 | 303- 608 | 600 | 1200 | 99- 404 | 600 | 1200 | 201- 506 | 300 | 1200 | 303- 640 | 0 | 1200 |
| 354- 659 | 600 | 1200 | 609- 914 | 300 | 1200 | 405- 710 | 300 | 1200 | 507- 850 | 0 | 1200 | 641- 955 | 0 | 900 |
| 660- 965 | 300 | 1200 | 915-1270 | 0 | 1200 | 711-1060 | 0 | 1200 | 851-1165 | 0 | 900 | 956-1270 | 0 | 600 |
| 966-1325 | 0 | 1200 | 1271-1585 | 0 | 900 | 1061-1375 | 0 | 900 | 1166-1485 | 0 | 600 | 1271-1585 | 0 | 300 |
| 1326-1640 | 0 | 900 | 1586-1900 | 0 | 600 | 1376-1690 | 0 | 600 | 1486-1795 | 0 | 300 | 1586-1900 | 0 | 0 |
| 1641-1955 | 0 | 600 | 1901-2215 | 0 | 300 | 1691-2005 | 0 | 300 | 1796-2110 | 0 | 0 | | | |
| 1956-2270 | 0 | 300 | 2216-2530 | 0 | 0 | 2006-2320 | 0 | 0 | | | | | | |
| 2271-2585 | 0 | 0 | | | | | | | | | | | | |

* 900 ohms may be used.

TABLE 14

Long Range Crossbar Incoming Trunk (See 4.04)

| Direct Routing | | | Routing Via Distant Office Selector | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Beyond Office (C) Compensating Resistance Effective in Distant Office Selector | | | | | | | | | | | |
| | | | 0W | | | 200W | | | 400W | | | 600W | | |
| Trunk Conductor Res. | Comp. Res. Min. | Comp. Res. Max. | Trunk Conductor Res. | Comp. Res. Min. | Comp. Res. Max. | Trunk Conductor Res. | Comp. Res. Min. | Comp. Res. Max. | Trunk Conductor Res. | Comp. Res. Min. | Comp. Res. Max. | Trunk Conductor Res. | Comp. Res. Min. | Comp. Res. Max. |
| 0- 47 | 1200* | 1200 | 0- 302 | 900 | 1200 | 0- 98 | 900 | 1200 | 0- 200 | 600 | 1200 | 0- 302 | 300 | 1200 |
| 48- 353 | 900 | 1200 | 303- 608 | 600 | 1200 | 99- 404 | 600 | 1200 | 201- 506 | 300 | 1200 | 303- 955 | 0 | 1200 |
| 354- 659 | 600 | 1200 | 609- 914 | 300 | 1200 | 405- 710 | 300 | 1200 | 507-1165 | 0 | 1200 | 956-1270 | 0 | 900 |
| 660- 965 | 300 | 1200 | 915-1585 | 0 | 1200 | 711-1375 | 0 | 1200 | 1166-1480 | 0 | 900 | 1271-1585 | 0 | 600 |
| 966-1640 | 0 | 1200 | 1586-1900 | 0 | 900 | 1376-1690 | 0 | 900 | 1481-1795 | 0 | 600 | 1586-1900 | 0 | 300 |
| 1641-1955 | 0 | 900 | 1901-2215 | 0 | 600 | 1691-2005 | 0 | 600 | 1796-2110 | 0 | 300 | 1901-2215 | 0 | 0 |
| 1956-2270 | 0 | 600 | 2216-2530 | 0 | 300 | 2006-2320 | 0 | 300 | 2111-2425 | 0 | 0 | | | |
| 2271-2585 | 0 | 300 | 2531-2845 | 0 | 0 | 2321-2635 | 0 | 0 | | | | | | |
| 2586-2900 | 0 | 0 | | | | | | | | | | | | |

* 900 ohms may be used.

TABLE 15

Manual PCI, Tandem PCI, and Full Selector Tandem (See 4.04)

| Direct # Routing | | | Routing Via Distant Office Selector | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Beyond Office (C) Compensating Resistance Effective in Distant Office Selector | | | | | | | | | | | |
| | | | 0W# | | | 200W | | | 400W | | | 600W | | |
| Trunk Conductor Res. | Comp. Res. Min. | Comp. Res. Max. | Trunk Conductor Res. | Comp. Res. Min. | Comp. Res. Max. | Trunk Conductor Res. | Comp. Res. Min. | Comp. Res. Max. | Trunk Conductor Res. | Comp. Res. Min. | Comp. Res. Max. | Trunk Conductor Res. | Comp. Res. Min. | Comp. Res. Max. |
| 0- 47 | 1200* | 1200 | 0- 302 | 900 | 1200 | 0- 98 | 900 | 1200 | 0- 200 | 600 | 1200 | 0- 302 | 300 | 1200 |
| 48- 353 | 900 | 1200 | 303- 608 | 600 | 1200 | 99- 404 | 600 | 1200 | 201- 506 | 300 | 1200 | 303- 695 | 0 | 1200 |
| 354- 659 | 600 | 1200 | 609- 914 | 300 | 1200 | 405- 710 | 300 | 1200 | 507- 905 | 0 | 1200 | 696-1010 | 0 | 900 |
| 660- 965 | 300 | 1200 | 915-1325 | 0 | 1200 | 711-1115 | 0 | 1200 | 906-1220 | 0 | 900 | 1011-1325 | 0 | 600 |
| 966-1380 | 0 | 1200 | 1326-1640 | 0 | 900 | 1116-1430 | 0 | 900 | 1221-1535 | 0 | 600 | 1326-1640 | 0 | 300 |
| 1381-1695 | 0 | 900 | 1641-1955 | 0 | 600 | 1431-1745 | 0 | 600 | 1536-1850 | 0 | 300 | 1641-1955 | 0 | 0 |
| 1696-2010 | 0 | 600 | 1956-2275 | 0 | 300 | 1746-2060 | 0 | 300 | 1851-2165 | 0 | 0 | | | |
| 2011-2325 | 0 | 300 | 2276-2585 | 0 | 0 | 2061-2375 | 0 | 0 | | | | | | |
| 2326-2640 | 0 | 0 | | | | | | | | | | | | |

# For routings via crossbar tandem or dial coin zone outgoing trunk, use column for routing via distant office selector with 0W(C) compensating resistance.

* 900 ohms may be used.