LINE LOAD CONTROL

STEP-BY-STEP AND COMMUNITY DIAL OFFICES

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1. GENERAL

1.01 This section describes the application of line load control in step-by-step offices including No. 355A, 360A, and 35-E-97 community dial offices where line load control equipment is provided.

1.02 This section is reissued to cover reduction in number of lines which can originate calls during unusual conditions.

2. DESCRIPTION

2.01 Line load control equipment in dial offices provides a means by which lines considered essential to national defense and public welfare may be assured of continuity of service under overload conditions. This is accomplished by temporarily denying originating service to some or all of the lines not considered essential. Flexibility in application is provided while serving essential lines to permit continuation of service to as many nonessential lines as possible. Line load control does not affect calls already established, and does not prevent calls being completed to lines temporarily denied originating service. Thus, essential calls may reach any telephone at all times.

(a) The lines of an office arranged for line load control are divided into three categories which are known as class A, class B, and class C. The A lines include all lines which are considered essential to national defense and public welfare during an emergency. B and C lines include all other lines. Approximately ten percent of the lines associated with a given line finder group or line switch bay is assigned to class A. The remaining 90 percent is usually divided approximately equally between class B and C. The B and C subdivisions are made only for control reasons and the designations do not have any significance insofar as the relative importance of the lines in these classifications are concerned.

(b) Coin lines are usually included with class A lines, both because of the importance of having some telephone service available to the general public during emergencies and also because of the difficulty of properly disposing of coins in the hopper of the coin box at the time line load control is applied.

(c) When essential users and coin lines number less than ten percent, additional nonessential lines are assigned to class A to maintain equipment balance. However, a margin for growth or line reclassification must be maintained in the A groups.

(d) A red (G) lamp is provided at the line load control cabinet for each group to indicate a calls-waiting condition. A lighted red lamp indicates an overload in that group. Close observation of the red lamps enables the use of line load control on overloaded groups without affecting other groups.

(e) Control keys are provided as follows: CLASS B and CLASS C keys for the B and C class lines, respectively, and individual

keys for the B and C parts of each line group. A white lamp is associated with each B key, and a green lamp with each C key. Visual and audible alarms are given when the control keys are operated, but the audible alarms can be retired by operating an alarm release key.

(f) While the arrangements vary depending upon the installation, in general, the operation of a master key in conjunction with the CLASS B or CLASS C key operated to the REM LINES FROM SERV position causes originating traffic to be blocked for class B or C in all line groups. The operation of the CLASS B or CLASS C key to the LOCK MAN OPER REL position and the manual operation of the control B or C relay in successive line groups or line switch bays denies service in one group at a time. These arrangements permit application of line load control to all B and/or C lines in the office as a whole or individually by line groups as required, thus affording considerable flexibility as to the extent of control. No calls in progress are affected at the time the control keys are operated.

2.02 ***Auxiliary control*** arrangements also are available whereby the line load control equipment can be operated from a point away from the main control cabinet, such as at a shelter area, usually within the building. These arrangements consist of duplicating the master control keys and associated lamps, the alarm release key and, optionally, the office load meter in a wall mounted metal cabinet at the shelter location. Operation of key will activate alarm indicators at both remote and control locations. This cabinet is padlocked or sealed to guard against inadvertent or unauthorized operation of the keys.

(a) When such an auxiliary cabinet is installed, it is possible at the shelter area to operate the master keys in accordance with the readings of the office load meter and on the basis of other pertinent information that may be available.

Note: Training is essential for recognition of when to apply line load control. See Part 10.

2.03 ***Remote control*** arrangements are available for use in No. 350A, 355A, 360A, and 35-E-97 community dial offices and in partially attended No. 1 step-by-step offices where circumstances warrant. These arrangements enable a distant operator or other authorized person to check the line group busy conditions, determine which classes of lines need to be removed from service, and remove from or restore to service the various classes of lines as required to control the load to safeguard the service of essential lines.

2.04 ***Restoral of service*** can be effected at the main control cabinet provided restoring keys for line groups and/or line switch bays are located there, otherwise it will be necessary to visit the individual line groups and/or line switch bays to operate restoring keys. Line load control arranged for remote control operation provides for restoral of the lines from the remote control location.

3. CONDITIONS FOR USE

3.01 It is not possible to prescribe exact conditions under which line load control should be applied. Variations in type of equipment, optional features and arrangements will cause similar offices to respond differently to identical external influences. However, there are certain events which might create the need for line load control. These are divided into the following three categories:

(a) Civil defense action affecting civilian population as follows:

(1) Public alerts which do not involve evacuation of civilian population. These justify line load control as actual overloads may require.

(2) Take cover warnings and public alerts which require telephone employees to retire to shelter area having auxiliary line load control equipment. These justify line load control as actual overloads may require.

(3) Take cover warnings and public alerts when civilian defense instructions require evacuation. If telephone personnel must evacuate buildings, line load control should be operated before leaving. ***These are exceptions to the rule that actual and serious overload be experienced before operating line load control.***

(b) Public disaster or unusual incidents affecting the area served by a central office or offices. These include:

(1) Accidents involving a wide area or large number of people; for example: fires, explosions, wrecks, mine cave-ins, dam breaks, etc.

(2) Natural catastrophes such as blizzards, floods, hurricanes, tornadoes, earthquakes, etc.

(3) Civil disturbance, riot, prison breaks, etc.

(c) Other events such as: news reports, recreational events, conventions, advertising, etc.

3.02 In many cases, the condition will be a unique occurrence so that previous experience does not exist to serve as a guide. Each situation will require the balanced considerations of such items as: cause, time of day, relationship to busy period, and effectiveness of other less drastic controls.

4. RECOGNIZING ORIGINATING OVERLOADS

4.01 An overload condition exists when the capacity of the central office equipment is exceeded for a sustained period. An overload of originating equipment may be recognized by one or more of the conditions indicated below. It must be recognized, however, that the existence of one or more of these conditions, although indicative of an overload, is not an automatic directive for the application of line load control.

(a) Sudden surge of line finders and/or line switches connecting to lines and remaining connected.

(b) All finders busy in several line groups.

(c) Alarms as a result of all line finders and/or line switches being busy.

(d) Selectors sweeping to eleventh rotary step.

(e) A large number of permanent signals indicated by frame and shelf lamps as well as alarm.

(f) Heavy battery drain indicated by the office load meter.

(g) Heavy traffic to "A" switchboard.

(h) Excessive number of complaints to repair service relative to reaching a satellite office may be an indication of an overloaded condition in the satellite office.

4.02 Permanent signals may be an indication of subscriber cable failures, and the prompt removal of associated line circuits from service will remove the load caused by this trouble condition from the line finders and line switches and first selectors and thus obviate the need for applying line load control under this condition.

4.03 Where the originating overload results from undue traffic stimulation or from conditions such as 4.01(a) and cannot be alleviated by other means, the temporary denial of originating service to selected groups of subscribers through the application of line load control should be undertaken.

5. METHOD OF APPLYING LINE LOAD CONTROL

5.01 There are four methods of applying line load control, depending on the conditions and equipment arrangements available.

Individual Group Method

5.02 Operate the CLASS B or CLASS C keys to the LOCK MAN OPER RELS position depending upon which class of lines is to be denied service. Operate the RA key in the cabinet to retire the alarm. At the line finder frames or the line switch bays, manually operate the B or C relay of each group requiring line load control and observe that it remains operated. The frame lamp when provided should light. The cabinet lamps lighted indicate which B or C line finder groups or line switch bays have been denied originating service.

5.03 In line switch offices, when four or more denied lines attempt to make calls or become permanent, the supervisory ground supply relay will operate and operate the alarm after a short interval. If the alarm persists, remove sufficient lines from service as covered in Part 7 to extinguish the visual alarm lamp.

Note: If this alarm is not cleared it may mask more serious alarms such as a fuse alarm.

Class Key Method

5.04 To deny service to all class B or class C lines operate the CLASS B or CLASS C key to the REM LINES FROM SERV position and in offices equipped with a MASTER key, also momentarily operate this key. In order to prepare for the restoral of lines the CLASS B or CLASS C key should be operated to the LOCK MAN OPR RELS position. Operate the RA key in the cabinet to retire the alarm. All the class B or class C cabinet lamps should light indicating that all lines of that class have been denied originating service.

Shelter Area Method

5.05 To deny service from the shelter area to all class B or class C lines operate the CL B or CL C key in the shelter area control cabinet. Operate the RA key to retire the alarm. When preparing for restoral of lines operate the CLASS B or CLASS C key in the switchroom control cabinet to the LOCK MAN OPR RELS position.

Remote Control Method

5.06 To deny service from the remote control office it will be necessary to use either the switchboard position or the subscriber set which can connect to a trunk or conductors to the line load control circuit in the distant office depending upon local arrangements. To operate the line load control equipment from the switchboard over a regular trunk or right-of-way trunk, insert the cord into the proper jack and dial the digits necessary to reach the remote control equipment and then dial the proper control digit or digits as required. A control subscriber set connected to separate conductors which connect to the control equipment in the distant office may also be used without the use of the switchboard position to dial the proper codes to operate and restore line load control. In order to safeguard the equipment, arrangements are available for varying the dialing procedure. Therefore it will be necessary to determine what type of arrangement is provided for the particular location and then depending on this arrangement determine what dialing will be necessary to control the equipment.

5.07 Whenever feasible, control should be accomplished by progressively suspending service on as few lines as possible. This means taking lines out by individual line groups, selecting first those line groups which are indicated to be most heavily loaded. This procedure is continued until the cumulative effect in load reduction is adequate, or until all groups of B and C lines are removed from service.

5.08 Where the load builds up suddenly or where the line load control arrangements require it, all groups of B or C lines or both may need to be removed at once. Close observation of the (red) G lamps should follow to detect whether this action reduced the load beyond the point required, in which case individual groups of either B or C lines or both should be restored, if possible, to the point that the office can safely handle existing loads.

5.09 Whichever procedure is used, when a point has been reached at which there is assurance of adequate service for the essential lines, an attempt should be made to maintain this condition and also to give equality of service to the nonessential lines by rotating the B and C classes within the line groups. This is done by restoring one line group each time an additional one is removed from service.

Procedures During Denial

5.10 After the load in the office has been brought under control by the denial of service, attention should be given to call blocked alarms or oscillating master switches. These groups should be checked for permanent lines holding line finders or trunks and permanent class B or class C lines removed from service as covered in Part 7. Permanent class A lines should be allowed to remain on the equipment pending action by the test desk when this can be done without encountering a call-blocked condition. A record may be maintained of all permanent lines, showing the action taken on each line, and this record referred to the test desk. This record provides a ready check of the lines that were held out of service.

> ***Note:*** In rare cases during air raids or other war activities, severe cable failures or other outside plant troubles may cause sufficient permanents prior to the application of line load control so that the denial of both class B and class C lines will not provide sufficient available paths quickly enough to prevent interference with service

on the essential lines. In such cases special procedures for insuring service for the essential lines may be required. In line finder or line switch offices sufficient switches being held by permanent lines should be released immediately in each line group so that a small margin of idle facilities is provided over that required for use by essential lines. These procedures are intended merely to obtain promptly available paths and after this has been done the usual methods of tracing and detecting permanents should be followed.

5.11 Busy groups as indicated by the group busy lamps, when provided, should be investigated and checked for permanents without waiting for the office alarm system to function. Where these lamps are not provided, a patrol of the line finder or line switch equipment is desirable.

5.12 Selector permanent signals indicated by the permanent signal alarm should be traced, the line identified and reported to the test desk. In the case of permanent class B or class C lines, the line should be removed from service as covered in Part 7 and the switch train released.

5.13 In offices with connectors arranged for joint control it will be necessary to patrol the connectors during the emergency to prevent an excessive number of these connectors being held out of service because of called party permanents on lines denied originating service. This occurs when an attempt is made to complete a call to a permanent line which has been denied service. Under this condition the operated line relay does not busy the connector sleeve and if the line is seized by a connector, ringing will be tripped. When the calling party hangs up the connector will be held from the called side until the permanent on the line clears or the connector is released manually.

Restoring Service

5.14 In those cases when both class B and class C lines have been denied service an effort should be made to restore all of one class before restoring the other class. If one class has been denied by the "class key" method, and the other class has been denied on an individual group basis, restore the latter first.

5.15 Normally, restoral of any line group should not be attempted until the percentage of idle line finders or line switch trunks is approximately equal to the percentage of lines to be restored. For example, with 20 line finders per group, when 40 percent of the lines have been denied service, approximately eight idle line finders should be available.

5.16 If sufficient line finders or trunks are available, operate the restoring key for the line group for one class of lines, wait for a few seconds, and observe whether an all-paths-busy condition is encountered. If not, proceed to the next group. If an all-paths-busy condition develops, redeny the lines, check the operated switches for permanents and if possible, release one or two switches before proceeding to the next group.

5.17 Unless it is necessary to redeny service on nearly all of the line groups, continue with the above method until all groups have been covered. If it is necessary to abandon this method, proceed as in 5.21, 5.22, and 5.23.

5.18 After covering all line groups and restoring as many groups as possible as outlined above, recheck the groups where it was necessary to redeny service. If sufficient idle line finders or trunks are not available, repeat the operations in 5.16.

5.19 If an insufficient number of idle circuits is available, check all the operated line finders or line switches for permanents and remove from service any class B or class C lines found permanent. If this makes sufficient idle circuits available, repeat the operations in 5.16.

5.20 If, after completing two cycles as outlined above, there are still some groups which could not be restored, check the operated line finders or line switches for permanents and remove from service any class B or class C lines found permanent. Also test the lines denied service for permanent conditions and remove lines with permanent conditions from service. Then operate the restoring key.

5.21 If it was necessary to abandon the method as described in 5.16 and 5.17, it may have been due either to excessive permanents or to an unusually high calling rate on the denied lines.

Check each denied line in a group for a permanent condition and monitor on each line which appears to be permanent to determine whether there is anyone on the line attempting to call. Remove permanent lines from service and request subscribers on the line to hang up for a few minutes. Then operate the restoring key.

5.22 If after checking several frames as covered in the preceding paragraph, it appears that this difficulty in restoring the groups was largely due to excessive permanent signals, check each group for permanent lines holding line finders or trunks and remove these lines from service. Also check the denied lines and remove from service any lines which are permanent. Report these permanents promptly to the test desk since the excessive permanents may be due to outside plant damage.

5.23 If, however, it appears that there is an unusually large number of subscribers trying to originate calls, it should be concluded that the calling rate is too high to permit restoring all lines in a B or C group at one time without affecting service to the essential lines. In these infrequent cases it may be desirable to attempt restoring service by subgroups.

5.24 To restore lines on a subgroup basis it will be necessary to block nonoperated some of the G relays in No. 1, 350A, and 360A office line finder offices or open the start leads at the B or C relays in No. 355A or 35-E-97 offices. For line switch offices block some of the BCO relays. This treatment should be applied to the line groups in one or two line finder frames or one to three bays of line switches. Operate the restoring key and as additional switches or trunks become available progressively restore the remaining subgroups until all of the denied lines in the B or C group have been restored in the first frame or bays. Proceed to the next frame or bays. The procedures for subgrouping the lines are covered in detail in Part 6.

6. METHOD OF RESTORING SERVICE

6.01 Operate the CLASS B or CLASS C key to the LOCK MAN OPER RELS position if not operated and proceed as follows.

Line Finder Groups — No 1, 350A, and 360A Offices

6.02 Observe that sufficient line finders are available for service (see 5.15). Momentarily operate the B or C restoring key at the line finder unit or control cabinet as provided. To redeny lines because of call-blocked or all-finders-busy conditions that may occur at this time, manually reoperate the B or C relay.

6.03 When it has been found desirable to restore lines on a subgroup basis as covered in 5.24 block nonoperated in an approved manner all but one of the G relays associated with the B or C relay. Momentarily operate the B or C restoring key at the line finder unit or control cabinet. Restore an additional subgroup by removing the blocking tool from the associated G relay as line finders become available.

Note: During the period that G relays are blocked the call blocked alarm will probably operate in offices where the battery for the G relay is supplied through the alarm supervisory relay. In such cases the aisle and frame pilots should be observed closely for the presence of other alarm conditions.

Line Switch Lines

6.04 Observe that sufficient trunks are available for service (see 5.15). Momentarily operate the B or C restoring key at the line switch bay. Observe that the line switches of calling lines are permitted to plunge into available idle trunks by the master switch. If two switches plunge into the same trunk, manually restore one of them and sweep the master switch to engage the fantail on the guide bar. Where several line relays are operated, the Wheatstone bridge feature for reducing double connections may prevent any line switches from plunging properly. If this happens, manually operate the plunger of one of the calling lines. It may be necessary to repeat this operation when the master switch steps to the next idle trunk. The above check should be made at each master switch controlled by a contact of the B or C line load control relay. To redeny lines because of all-trunks-busy conditions that may occur at this time, manually reoperate the B or C line load control relay.

6.05 When it has been found desirable to subdivide the B or C lines in the group as covered in 5.24, observe the number of idle trunks of each master switch associated with one line load control B or C relay. For each of these master switches, note the number of operated line relays and remove from service lines in excess of the number of trunks available. Block the BCO operated with a 324 tool having the end painted red to distinguish it from tools used on permanent lines. Momentarily operate the B or C restoring key at the line switch bay. Restore additional lines by removing the 324 tool from line switches as additional trunks become available. Do not remove blocking tools that have been placed in the line switches to remove permanent lines from service.

Line Finder Groups — No. 355A and 35-E-97 Offices

6.06 Observe that sufficient line finders are available for service and momentarily operate the B or C restoring key at the control cabinet. To redeny lines because of call-blocked or all-finders-busy conditions that may occur at this time, manually reoperate the B or C relay.

6.07 When it has been found desirable to restore lines on a subgroup basis as covered in 5.24, insulate in the approved manner all but one of the break contacts on the B or C relay which open the start leads. Momentarily operate the B or C restoring key at the control cabinet. Restore an additional subgroup by removing the insulator from the contacts of the B or C relay as line finders become available.

Restoring Line Load Control Circuit to Normal

6.08 When all B or C line load control relays are released, indicated by all class B or class C cabinet lamps being extinguished, restore to normal the CLASS B or CLASS C key. Where the 10A guard is provided, lock the CLASS B or CLASS C key in the normal position by tightening the associated guard with the lever handle of the key.

Restoring Line Load Control from Remote Control Location

6.09 The proper "Class Restoring" code as required is dialed causing the lines to be restored to service.

7. METHOD OF HANDLING PERMANENT SIGNALS

Line Finder Offices

7.01 ***Checking for Permanents on Operated Line Finders:*** Connect the 1011G dial hand test set to the monitoring jack of the line finder and monitor on the connection. If a call is in progress, disconnect and proceed to the next line finder. If dial tone is heard, or there is no response to a challenge determine the class of line holding the line finder and proceed as follows:

(a) If the line finder is connected to a line in a class being denied service, release the finder. Since the line is in a denied group, the line cannot reseize a line finder. To release the line finder hold the shaft at the lower end with one hand so that it cannot rotate. Apply an orange stick to the end of the ring wiper and lift the wiper just sufficiently to open the contact but do not allow it to touch the bank terminal just above. When the release magnet is heard to operate, remove the orange stick and permit the shaft to restore to normal. In the case of 200 point line finders, if the switch does not release, repeat on the ring wiper of the other bank. If the line is to be removed from service, proceed as in 7.07.

(b) If the line is in a B or C class which has not been denied service remove the line from service and release the line finder in the usual manner.

(c) If the line holding the line finder is a class A line, no further action should be taken except as covered in 5.10. If necessary, remove the line from service and release the line finder in the usual manner.

7.02 ***Checking Permanents on Denied Lines:*** Select an idle line finder serving the group of lines to be checked and make the line finder busy in the approved manner. Remove the switch cover and insulate 1 and 2 of the vertical off-normal springs. Also in No. 1, 350A, and 360A offices insulate the 3 and 4 springs of the F relay, in No. 355A offices insulate the 1 and 2 springs of the release magnet if provided, and in No. 35-E-97 offices insulate the make contact of the C relay which connects to the C2 wiper.

7.03 Manually release the release link if provided. Raise the shaft to the lowest numbered level on which the lines to be checked appear. Rotate the shaft to the first terminal on this level. Then for convenience insert the 240F plug of the special tool assembly (see 9.06) in the monitoring jack. Connect one side of the 2J lamp on the 240F plug to the sleeve wiper cord terminal at the test jack using the 419A tool of the special tool assembly. Connect the other side of the lamp to ground with the 365 tool on the other cord. The lamp will light provided the line is in a permanent condition. Slowly rotate the shaft across the rest of the terminals on this level. The lamp will light each time the sleeve wiper makes contact on a line that is in a permanent condition. Disconnect the ground to the lamp and restore the shaft. Make a note of the permanent lines. Then check the levels on which the remaining lines appear, connecting the ground to the lamp when the wiper is in contact with the first terminal of the level to be checked.

7.04 In 200 line groups, repeat the tests covered in 7.03 with the lamp connected to the other sleeve wiper cord terminal.

7.05 When lines that are indicated as permanent under 7.03 and 7.04 have been determined, insert the 240A plug of the dial hand test set between the tip and ring terminals at the line terminal strip on the line finder frames. Operate the TALK switch and challenge. If no reply is received it indicates that the line is permanent due to a trouble condition. If a subscriber is encountered advise the subscriber to disconnect.

7.06 When the group has been checked remove the test connections and restore the line finder to service. Make an operating test of the line finder. Then remove the permanent lines from service using one of the methods covered in 7.07.

7.07 ***Removing Permanent Lines from Service:*** When it is necessary to remove from service lines on which a permanent condition exists, proceed as follows:

No. 1, 350A, and 360A Line Finder Offices

(a) If sufficient W1U cords or equivalent are available, ground the sleeve of the line at the terminal strip on the line finder frame.

(b) When W1U cords are not available, block open the 3T and 4T contacts and the 1B and 2B contacts of the CO relay using the 441A tool or block the L relay nonoperated with a 136B tool.

No. 355A Offices

(a) If W1U cords or equivalent are available, ground the sleeve of the line at the terminal strip on the line finder frame.

(b) When W1U cords are not available, if lines are not equipped with a lockout relay, block the L relay operated and insulate the 3B and 4B contacts of the relay. If lines are equipped with lockout relays fully operate and then release the L relay. This will operate the LO relay and place the line on lockout.

No. 35-E-97 Offices

(a) In offices equipped with the two-step line relay and the line is not equipped with a lockout relay, block the L relay operated and insulate the 1 and 2 contacts of the relay.

(b) In offices equipped with the two-step line relay and the line is equipped with lockout relays, manually operate the lockout relay.

(c) In offices having line circuits with L, CO, and LO relays, manually operate and release the CO relay which will place the lines on lockout.

Line Switch Offices

7.08 ***Checking for Permanent Signals on Operated Line Switches:*** Apply the 240A plug of the dial hand test set between the 2 and 4 springs of the BCO relay associated with an operated line switch and monitor on the connection. If a call is in progress disconnect and proceed to the next operated line switch. If dial tone is heard or there is no response to a challenge, determine the class of the line and proceed as follows:

(a) If the line switch is connected to a line in a class being denied service, manually restore the line switch. Since the line is in a denied group, the line cannot reseize a trunk. If the line is to be removed from service, proceed as in 7.09.

(b) If the line switch is in a B or C class which has not been denied and is to be removed from service, proceed as in 7.09 and then manually restore the switch.

(c) If the line holding the trunk is a class A line, no further action should be taken except as covered in 5.10. If necessary to remove the line from service proceed as in 7.09 and manually return the line switch.

7.09 ***Removing Permanent Lines from Service:*** When it is necessary to remove from service lines on which a permanent condition exists, proceed as follows:

(a) Block the BCO relays in their operated position using 324 tools.

Special Procedures in Case of Serious Cable Failures or Other Plant Damage

7.10 In rare cases as covered in 5.10 where it is necessary to release blocked equipment, sufficient line finders should be released immediately.

Line Finder Offices

(a) Connect the 1011G dial hand test set to the monitoring jack of an operated line finder. With the MON switch operated, listen for dial tone. If no dial tone is heard, disconnect. If dial tone is heard, release the line finder in the usual manner.

Line Switch Offices

(b) Apply the 240A plug of the dial hand test set between the 2 and 4 springs of the BCO relay of an operated line switch serving a class B or class C line. With the MON switch operated, listen for dial tone. If no dial tone is heard, disconnect. If dial tone is heard, manually restore the switch.

8. RECORDS AND REPORTS

8.01 The required reports of the use of line load control should be entered on the proper forms and referred to other departments in accordance with local instructions. These reports should include such information as date, time, reason, and duration.

9. APPARATUS

9.01 1011G dial hand test sets or equivalent, as required.

9.02 W1U cords, as required (No. 1, 350A, 355A, and 360A offices).

9.03 136B and 441A tools (relay blocking tools), as required (No. 1, 350A, and 360A offices only).

9.04 324 tools (relay blocking tool), as required (line switch offices only). The hole end of some of these tools should be painted red.

9.05 508A tools (armature blocking tool), as required (No. 355A office only).

9.06 Locally assembled tool or equivalent consisting of one 240F plug equipped with 2J lamp, one 1W13A cord, 3 feet long equipped with two 360A tools, one 419A tool, and one 365 tool. Cut the 1W13A cord into two pieces, one approximately 10 inches long. Solder the wire of one piece at the cut end to one terminal of the lamp socket on the 240F plug. To the other terminal of the lamp socket, solder the cut end of the other piece of cord. Connect the 419A tool to the 360A tool connected to the 10-inch length of cord and the 365 tool to the other 360A tool.

9.07 Toothpicks, as required. (Round, approximately 3/32-inch diameter at the thickest part, as required for No. 355A offices only.)

10. TRAINING

10.01 Line load control procedures are infrequently put into use. There may be little or no advance warning of events causing the overload condition. Therefore, employees should be familiar with overload indications as they apply to the particular office. For example, it is not uncommon for the office load meter to indicate a full load condition for sustained periods of time or for certain other overload indications to occur daily. Procedures for applying and removing line load control and the appropriate records and reports which are applicable to the particular office should also be known.

10.02 A program providing both initial and follow-up training would seem to be a must for effective use of line load control equipment.