LINE JUNCTOR REDISTRIBUTION PROCEDURES FOR THE INSTALLATION OF ADDITIONS TO CENTRAL OFFICES EQUIPMENT DESIGN REQUIREMENTS NO. 1 CROSSBAR SYSTEM

TABLE OF CONTENTS

PROCEDURES

Size of Existing Installation Per ED-25079-01*	Procedure Nos. for Additions of 1, 2 or 3, I-LCC		
	1	2	3
2,I-2,LCC	021	022	023
3,I-3,LCC	031	032	033
4,I-4,LCC	041	042	043
5,I-5,LCC	051	052	053
6,I-6,LCC	061	062	063
7,I-7,LCC	071	072	073
8,I-8,LCC	081	082	
9,I-9,LCC	091		

*The procedures are also applicable to like numbers of IG per ED-25080-01.

FIGURES

SUPPLEMENTARY INFORMATION

816-000-000—No. 1 Crossbar System Index.
J29254 (816-009-200)—Installation of Additions to Switching Equipment (General discussion of various problems).
J29255 (816-010-150)—Office Junctor Redistribution Procedures.
J27752 (816-427-150)—Incoming Link and Incoming Extension Frames.
J27851 (816-300-150)—Line Choice Connector Frame.
J28853 (816-351-150)—Terminating Marker Frame.
ED-25079-01—Line Junctors—Assignment Charts—Nonpaired Incoming Frames—Previous Standard Arrangements.
ED-25080-01—Cross-connection Patterns for Line Junctors—Assignment Charts—Paired Incoming Frames—Previous Standard Arrangements.
ED-25333-01—Terminating Marker Cross-connecting Terminal Strip Equipment.
ED-25332-02—Terminating Marker Mounting Plate Equipment.
ED-25233-01—Line Junctor Grouping Frame.
ED-25713-01—Line Junctor Assignment Charts—Nonpaired Incoming Frames—Present Standard Arrangements.
ED-25714-01—Line Junctor Assignment Charts—Paired Incoming Frames—Present Standard Arrangements.
SD-25283-01—Terminating Marker Circuit.
SD-25275-01—Line Choice Connector Circuit.
SD-25511-01—Auxiliary Relay Circuit for Use During Transitions.
SD-25177-01—Outgoing Trunk Test Frame—Trunk and Line Test Circuit.
SD-96096-01—Incoming Trunk Test Line.

1. GENERAL

1.1 Scope

1.11 This specification covers the procedures that should be followed in making additions of incoming link (I), and line link and line choice connector (LCC) equipment in No. 1 crossbar offices. Aside from the installation of the new frame equipment and associated cabling and the extension of marker and sender service to the new equipment, the primary installation work consists of changing the line junctor distribution to conform with the pattern for the number of incoming link frames or incoming groups (IG) and line choice connectors after the addition and making accompanying changes in the terminating marker and LCC circuits.

1.12 Following discussions of the major portions of the work, viz. the preliminary work, preparation for routine testing the incoming trunks on added incoming frames, transition work, and clean-up work, detailed procedures are attached as outlined in Section 4 herein, which cover specific installation work to be done in making additions to any sized office from 2 incoming link frames and 2 line choices (2,I-2,LCC) to 9 incoming link frames and 9 line choices (9,I-9,LCC).

These Procedures cover two general methods of affecting line junctor redistribution. Both of these methods provide for making the actual transition over a week-end period, but one requires that the new incoming trunks on the added incoming frames be routine tested prior to the transition in order that load can be transferred to these frames as soon as possible after the transition. The other method permits the routine testing of incoming trunks after the transition and has the advantage of eliminating certain additional temporary cross-connection changes (and in some cases, temporary wiring changes) in the markers that would otherwise be required for establishing a few junctors in advance of the transition for routine testing the incoming trunks. This latter method is specified for additions to the next higher size junctor distribution arrangement from 4,I-4,LCC, 7,I-7,LCC, 8,I-8,LCC, and 9,I-9,LCC, in which cases it is felt that the full office load can be carried with the reduced junctor capacity until the routine testing of incoming trunks is completed and load is transferred to the added incoming frame. **In any procedure calling for the routine testing of incoming trunks prior to the transition, the preparation work for this routine testing can, of course, be ignored if line link frames only are being added.**

1.13 **The procedures covered in the manner outlined in 1.12 above** are based on transitions from existing installations having the previous standard line junctor distribution arrangements per ED-25079-01 (nonpaired incoming frames) or ED-25080-01 (paired incoming frames) to the new standard arrangements per ED-25713-01 or ED-25714-01, respectively. The prefix "0" is intended to identify this fact. On future additions to offices previously converted to the new patterns, because of the far greater uniformity obtained in the new line junctor patterns for the different sizes of installations, and of the resultant simplification of transition procedure and reduction in installation effort, it is not planned to issue additional procedures in this specification covering such transitions. Instead, the Western Electric Co. Installation Division will prepare the necessary procedures in this connection, either along the lines of the present procedures, or still further simplified by virtue of the more uniform new line junctor patterns and experience with their use and with line junctor transitions in general.

1.14 **Also attached, as outlined in Section 4 herein, are figures showing previous and new standard cross connections of (LJA) and (LJB) relays to marker leads at the JA and JB terminals of the line choice connectors, and junctor assignment charts for previous and new standard line junctor distribution arrangements.**

1.15 This specification is reissued to incorporate previous appendix changes.

1.2 Description

1.21 Installation work for the addition of incoming link, line link, and line choice connector equipment is divided into four general classifications as follows:

(a) **Preliminary work** involves mainly the erection of added frames and the connection of switchboard cabling to them, the installation of the necessary added equipment on existing frames, and such associated wiring to this equipment that will not interfere with existing working circuits, the installation of transitional apparatus in marker circuits, and the extension of marker and sender facilities to the new frames.

(b) **Work preparatory to the routine testing of incoming trunks** on the added incoming frame or frames prior to the start of the transition consists of establishing a maximum of 20 1st subgroup junctors from the first added incoming frame to the LCC in which the last incoming trunk test line, or this test line and the return test line, are assigned; or in some cases higher subgroup junctors from 2 or more added incoming frames to this LCC. Two or more of 10 of the above 1st subgroup junctors to the half choice (HC) containing the last test lines are made available as required to other added incoming frames by temporary connections at the LJGF and in the markers.

(c) **Transition work** establishes, by a series of operations to be formed over a week-end, working junctors from both existing and added incoming link frames to the existing line link frames in accordance with the cross-connection patterns for the office after the addition is completed. At certain points, some of the working equipment is temporarily removed from service, but not to an extent that will interfere appreciably with the normal flow of traffic through the existing equipment. Regardless of the number of frames being added, the junctor distribution is changed directly from that of the existing installation to that of the new standard junctor distribution for the size of the installation after the addition. This method is the most practicable one for line junctor redistribution, although it necessitates a

transition procedure for each number of frames added to each size of installation.

(d) **Clean-up work** comprises the removal of transitional and other equipment as indicated in the procedures and abandoned wiring, including LJGF and MDF cross-connection wire and temporary marker cross connections, putting into service new line link frames and LCC equipment, and the transfer of any desired additional load to the new incoming frames.

In future discussions herein, for convenience and brevity, references to a line choice, the line link equipment making up the line choice, or the associated line choice connector equipment insofar as these references apply to line junctor distribution or the termination of line junctors will in general be indicated synonymously as "line choice connector" and abbreviated "LCC" either for the singular or the plural. For example, reference to the line junctor cross-connection arrangement for 4 incoming frames and 4 line choices will be indicated as the arrangement for "4,I-4,LCC", and reference to the line junctors to the line link frames of line choices 0-3 will be indicated as junctors to "LCC0-3", etc.

1.22 A transition circuit, SD-25511-01, is employed for transitions requiring the routine testing of incoming trunks prior to the transition work. This circuit provides for a (JPL) relay for properly controlling the selection of left or right links on the incoming link frame, and in some cases as an auxiliary relay for cross connection to a JR terminal for the selection of the proper group of junctors. This circuit also contains information for the use of the (JGD) relay in the marker walking circuit per SD-28283-01, Fig. 18, as an auxiliary to the (JGB) or (JGC) relay for obtaining additional JG terminals for indicating calls from larger numbers of incoming frames than the (JGB) and (JGC) relays are capable of alone. Certain other temporary marker wiring arrangements required, but not shown on this circuit. are covered by descriptions in certain of the attached procedures. Other information pertinent to line junctor transitions is covered on SD-25511-01, including information for blocking markers to use one only of several subgroups of junctors.

1.23 Either during or prior to the transition and subsequent to the routine testing of the incoming trunks, preparations for the transfer of load to the trunks on added incoming frames shall be made by soldering down the jumpers from these incoming trunks to protectors or office multiple terminal strips at the MDF. This brings up the point that some of the work outlined in the attached procedures, including the above item, may be performed either by the Western Electric Company or by the Telephone Company, depending upon local arrangements.

1.24 At the conclusion of each transition the junctor distribution is in accordance with the standard arrangement shown on ED-25713-01 or ED-25714-01 for the size of installation after the additions. Junctors are in service from both existing and added incoming link frames to existing line link frames, with junctors to the added line link frames connected and tested and ready for service when lines are transferred to these frames.

1.25 For simplicity, the procedures and all descriptions herein are set up on the basis of nonpaired incoming link frames, which arrangement provides for a maximum of 10 incoming link frames to be associated with 10 line choices in one line junctor cross-connection pattern. The cross-connection patterns for from 2,I-2,LCC to 10,I-10,LCC are shown on drawing ED-25079-01 or ED-25713-01. **Where more than 10,I or 10,LCC are required in the ultimate,** it is necessary to pair the incoming link frames and provide incoming extension frames as described in J27752; and each such pair is called an "incoming group" (IG). Each pair of regular incoming frames has 200 junctors outgoing to a maximum of 20 LCC, and the corresponding pairs of extension frames also have 200 junctors to the same LCC. The cross-connection patterns for paired frames are shown on drawing ED-25080-01 or ED-25714-01. The junctors from a pair of regular incoming frames correspond with the "Left" junctors, that is, the junctors from the left half of the incoming link secondary switches in the nonpaired arrangement, and similarly, are connected mainly to half-choices A of the LCC. There are 200 junctors instead of 100, however, connecting to a maximum of 20 LCC instead of 10. Similarly, the 200 junctors of each pair of extension frames correspond with the 100 "Right" junctors of the nonpaired arrangement and connect mainly with half-choices B of 20 LCC maximum. In fact, the two sets of interconnection patterns for nonpaired and paired incoming frame arrangements are the equivalent if the following substitutions are made in the two cases.

NONPAIRED	PAIRED
1. Incoming Frame (I)	Incoming Group (IG)
2. ED-25079 or ED-25713-01	ED-25080-01 or ED-25714-01
3. Left half-switch (10 junctors)	Paired Reg. Fr. Sws. (20 junctors)
4. Right half-switch (10 junctors)	Paired Ext. Fr. Sws. (20 junctors)
5. One LCC and One I Vertical	Two consecutive LCC and IG Verticals

6. Where the number of junctors per LCC is indicated, the number also applies to paired frame arrangements. However, since there are twice as many LCC, any totals of junctors such as junctors to be rearranged or junctors in service will be doubled.

7. In the patterns per Figs. 2-9 of ED-25079-01 and ED-25080-01 or ED-25713-01 and ED-25714-01, the following association exists between the junctors controlled by (LJA) and (LJB) relays 2-9 and the incoming link verticals.

NONPAIRED		PAIRED		
(LJA) or (LJB) Relays	Incoming Verticals	(LJA) or (LJB) Relays	Inc. Verticals of Junctors to: Even LCC	Odd LCC
2	2	2	4	5
3	3	3	6	7
4	4	4	8	9
5	5	5	10	11
6	6	6	12	13
7	7	7	14	15
8	8	8	16	17
9	9	9	18	19

8. Also in the line junctor assignment charts, the order of incoming frame association on ED-25079-01 and ED-25713-01 is the same as the incoming group association on ED-25080-01 and ED-25714-01 under the following respective "L.C. No." headings:

ED-25079-01 ED-25713-01 L.C. No.	ED-25080-01 ED-25714-01 L.C. No.
0	0&1
1	2&3
2	4&5
3	6&7
4	8&9
5	10&11
6	12&13
7	14&15
8	16&17

9. The relationship in 8 also applies respectively to the relationship between marker (LCA) relays and associated LCC under the paired arrangement, that is, (LCA)0, LCC0&1; (LCA)1, LCC2&3; (LCA)2, LCC4&5, etc. (see SD-25511-01, Tables 1 and 6).

10. There is also a difference to be considered in the use of junctors for routine testing incoming trunks on new I frames, as discussed in paragraph 2.44.

1.26 Since the amount of work involved on additions to paired frame arrangements is nearly twice that for nonpaired arrangements as covered in the respective procedures, proportionately increased man power will be required in order to complete these transitions over a weekend.

2. DETAILS OF LINE JUNCTOR REDISTRIBUTION

2.1 General

2.11 The following paragraphs contain a general description of the preliminary and clean-up work, followed by descriptions of the work in connection with the routine testing of incoming trunks on the new incoming frames, and then the actual transitional work. Items in these categories that are specific to each addition are contained in the attached individual procedures for each size installation (see Section 4). In order to condense and simplify each of these individual procedures as much as possible, although not omitting any essential information, certain phrases are used to indicate definite uniform installation operations as indicated in paragraph 2.52 on the transition work.

2.2 Preliminary Work

2.201 Erect new incoming link and trunk frames, line link frames, line choice connectors, and line junctor connector frames.

2.202 If markers are being added, install per J29254.

2.203 Establish added incoming frames, line link frames, and line choice connectors in the marker multiple.

2.204 Provide sender service to the added incoming link frames. This includes extending the terminating sender multiple to new terminating sender links and changing frame indication leads to give markers access to the new incoming link frames.

2.205 Equip additional terminal strips on LJGF as required, per ED-25233-01.

2.206 Run in all cabling between added incoming and line link frames and LJGF terminal strips, and solder down at the LJGF the cable circuits that connect to terminals that are free, that is that are not already in use for existing line junctors. Prepare remaining cable conductors for ready connection as soon as the respective terminals are freed during the transitional period.

2.207 Run in and terminate at both ends the cabling between the new incoming trunk frames and the MDF. Run in the necessary additional jumpers between the incoming trunk circuits of the new incoming trunk frames and the protectors and office multiple terminal strips, soldering these jumpers down at the incoming trunk end and preparing them for connection at the other end subsequent to the routine testing of incoming trunks.

2.208 Run in at the LJGF all jumpers for junctors that are to be re-established between both existing and new incoming and line link frames, and solder down the jumpers to terminal strips for the new incoming and line link frames.

2.209 Prepare for disconnection all existing jumpers at the LJGF that are to be affected by junctor redistribution. Jumpers of junctors that will remain connected between the same two points after the junctor redistribution should not be disconnected; and, of course, new jumpers will not be run in for these junctors.

Such junctors are indicated on the attached line junctor assignment charts (see Section 4).

2.210 Modify the terminating trouble indicator (TTI) to accommodate the added link frames. The TTI will be used during the transitional work to sleeve test the new junctor assignments.

2.211 Equip the markers with all new apparatus that will be required for transition work or for standard operation after the junctor redistribution, including any of the apparatus of the transition circuit SD-25511-01 required. The mounting arrangements for the latter apparatus are covered on ED-25332-02, Note 6. Wire apparatus to punchings for cross connections as indicated on SD-25511-01, the terminating marker circuit SD-25283-01, and the terminating marker frame cross-connection terminal strip equipment drawing ED-25333-01. Do not make any marker cross-connection changes at this time, although cross connections between some of the nonworking terminals may be made, if desired. Where cross connections from J terminals of the (LCA) or (LCB) relays to JR0-6 terminals are required, establish multiples as required of JR0-6 terminals temporarily in the right hand section of the XTS(G) terminal strip as indicated on ED-25333-01.

2.212 **Specific marker apparatus** and wiring associated with operations to be performed in preparation for routine testing the incoming trunks on added I frames and which should be installed as part of the preliminary work, and the jumper work to be done at the LJGF in preparation for the transition work are listed under "Preliminary Work" in each of the detailed procedures. **Other additional apparatus** such as the marker (LC) relays per SD-25283-01, Fig. 12, (LCA) relays per SD-25283-0108, Fig. 21, and (XP) relays and (Y) 0-4 resistances, Fig. 17, that are installed and wired in advance and are not involved in the transition work, are not so covered in the procedures.

2.213 In the case of transitions where the routine testing of incoming trunks precedes the transition work, if the return test line SD-25177-0114, Fig. 9, is not assigned in the same HC as the last regular incoming trunk test line SD-96096-01, it should temporarily be assigned to this HC so that the same set of junctors that is established for the routine testing of incoming trunks on the new incoming trunk frame or frames may be used to reach both test lines. In order to reduce to a minimum the effect of routine tests on regular calls, and because of the reduced junctor capacity to the LCC with the above test lines, it is recommended that, where conditions justify it, the Telephone Company give consideration to changing the assignment of these lines to a HC having low regular traffic if they are not already so assigned.

2.3 Clean-up Work

2.31 At the conclusion of the transition work, (see par. 2.5), the new junctor assignment is completed between the existing and added line link frames and existing and added incoming link frames, but the added line link frames are not yet in service. One item of clean-up work, therefore, will be to place the added line link frames in service by the assignment of lines to these frames.

2.32 The remaining clean-up work consists of removing abandoned junctor and incoming trunk jumpers and removing transition and regular equipment in the markers that will not be required on future additions. A statement in the latter regard is included at the end of each attached procedure. Where transition or other equipment is to be left in place for future use, it is considered unnecessary to disconnect battery from the relay windings of this unused apparatus, since the terminals of this apparatus are all wired to unassigned cross-connection punchings.

2.4 Routine Testing of New Incoming Trunks

2.41 As indicated previously, certain transitions are conducted on the basis of routine testing the incoming trunks after the transition, but the majority of the transitions require this routine testing to be completed prior to the transition. In the former type of transition, the new junctors established from the added frames may be used in obtaining access to the test lines. In the latter type of transition, however, the first step following the preliminary work is to establish a small number of junctors from each added incoming link frame to the LCC in which the last incoming trunk test line circuit per SD-96096-01 or this test line and the return test line per SD-25177-01, Fig. 9, are assigned, for the purpose of routine testing the incoming trunks of the added incoming frame or frames. The junctors established in the majority of the transitions are the 20 1st subgroup junctors from the first (lowest numbered) added incoming frame to this LCC; and of these 20, the 10 junctors to the HC in which the last test line is assigned are available for routine testing purposes. A portion of these 10 junctors is made available to each of the other added incoming frames by temporarily multipling to them at the LJGF certain of the cable circuits from these other added incoming frames that are to be later used for 1st subgroup junctors from these incoming frames to this HC, and making the necessary cross connections in the markers to permit calls from these other incoming frames to be routed temporarily to these 10 junctors. In certain transitions, however, it is more convenient to establish higher subgroup junctors where sets of such junctors are used exclusively by the added incoming frames. **This general method necessitates the routine testing of the incoming trunks of only one added incoming link frame at a time, and, where**

only a portion of the trunks are available to any added incoming frame, requires that those of the 10 junctors not available to the frame being routined be made busy in the recommended manner with make busy plugs at the line link secondary verticals. **Any multiple with the 1st subgroup junctors from the first added incoming frame must be removed** before these junctors are placed in service.

2.42 In connecting the cable circuits of other incoming link frames with the 1st subgroup junctors of the lowest numbered added incoming frame, care should be taken to leave the skinners long enough to be reconnected later in their permanent location.

2.43 The method of establishing the 20 junctors from the first added incoming frame to the LCC with the last test line is to remove from service the (LJA)&(LJB) relays controlling these junctors by causing the markers to avoid these relays. These junctors are then connected as 1st subgroup junctors from the first added incoming frame. Work performed in this connection reduces to some extent the work to be performed later in the transitional period.

2.44 In the case of paired incoming frames, there is a minor difference in connection with the process of obtaining junctors for routine test purposes. There will be 40 1st subgroup junctors from the first added incoming group to two LCC that will be removed from service and reconnected as 1st subgroup. However, only the 10 junctors that connect with the HC in which the last incoming trunk test line is assigned will be usable for the routine testing of the incoming trunk in the added incoming groups. In multipling junctors of a higher numbered incoming group to a portion of these junctors, four incoming link hold magnets will be in multiple. This would not be considered desirable under service conditions over extended periods, since it will tend to slow up connections somewhat in the event the hold magnets do not operate until direct ground is applied to the line junctor sleeve, and will result in increased current being broken when the holding ground is removed. For purposes of this routine testing, however, the procedure is considered satisfactory.

2.5 Transition Work

2.51 General

2.511 As indicated previously, the transition work outlined in the attached procedures is based on performing the entire transition in one week-end period, and these transitions will consist initially of revising the junctor distribution and associated marker cross connections from existing arrangements per ED-25079-01 or ED-25080-01 to the new standard arrangements per ED-25713-01 or ED-25714-01. Junctors to be rearranged comprise the junctor subgroups higher than 1st subgroup junctors. As is well known, 1st subgroup junctors are those which are connected permanently at the LJGF by means of switchboard cables from incoming link and line link secondary verticals connected to the front and rear ends, respectively, of the same LJGF terminal strip punchings. The higher subgroup junctors are connected by means of jumpers between the rear end of terminal strip punchings the front end of which are connected to cables from incoming link secondary verticals, and the front of terminal punchings the rear end of which are connected to cables from line link secondary verticals. These two ends of these jumpers are referred to in the procedures as the "I frame end" and "LCC end", respectively.

2.512 A set of 20 1st subgroup junctors from an incoming link frame to any LCC are the junctors terminating on the 10 verticals in a file on the line link secondary switches of half-choice A (HCA) and the like 10 verticals in half-choice B (HCB) that bear the same number as the incoming link frame. Therefore, such sets of 20 junctors in each LCC are connected as 1st subgroup junctors up to and including the set for the last equipped frame as indicated on drawing ED-25079-01 or ED-25713-01, Fig. 10. The sets of 20 junctors to the remaining verticals of the line link frames are connected as 2nd, 3rd, 4th, or 5th subgroup junctors from one or more I frames as indicated in Figs. 2-9 on these drawings. The sleeves of each set of 20 junctors to a LCC (or, as to be understood hereinafter, 40 junctors to two LCC in the case of incoming groups) are cut into the LCC for testing and control by the marker through the operated contacts of (LJA) and (LJB) relays in each LCC that bears the same number as the line link verticals. For example, the 1st subgroup junctors from incoming frame 3 (I3) terminate on line link frame verticals 3 are controlled by (LJA)3 and (LJB)3 relays in all LCC. Such sets of junctors in any cross-connection pattern per ED-25079-01 or ED-25713-01, Figs. 2-9, for an existing office must be removed from service and reestablished as 1st subgroup junctors from the added incoming frame or frames or as 2nd or 3rd subgroup of the pattern for the new office size. **Such sets of junctors are referred to hereafter and in the procedures as LJA2&LJB2, LJA3&LJB3, etc., to LJA9&LJB9 junctors.**

2.513 The usual procedure of removing from service the existing higher than 1st subgroup junctors and associated relays in the line choice connectors is to block all of the markers, except one which is removed from service for revision to the new standard, to use 1st subgroup junctors only. This is accomplished as indicated on SD-25511-01, Table 5 or 11, by blocking from two to four relays operated and disconnecting one strap connection in each marker. This operation is followed, where required, by the connec-

tion of the windings of the (LJA) and (LJB) relays of each LCC (SD-25275-01) to marker leads in accordance with the standard for the new size of installation as indicated on ED-25713-01 or ED-25714-01, Fig. 11. This is accomplished at the JA and JB terminals on the rear of the (LJA) and (LJB) relay mounting plates on the line junctor connector frame. Simultaneously with the above work of revising the connections to the windings of the (LJA) and (LJB) relays should be performed the work of disconnecting jumpers for existing 2nd, 3rd, 4th, or 5th subgroup junctors that require change, connecting the switchboard cable circuits for the new 1st subgroup junctors per ED-25713-01 or ED-25714-01, Fig. 10, from the added incoming frame or frames, and finally connecting the jumpers as required for the higher subgroup junctors of the new distribution arrangement per ED-25713-01 or ED-25714-01, Figs. 2-9. The two latter connecting operations may be performed simultaneously if desired, but if the switchboard cable connections for the new 1st subgroup junctors are connected first, as a distinct operation, the sleeves of these junctors can be tested with one of the markers and the TTI while the jumpers for the higher subgroup junctors are being connected. Following the connection of the new junctors at the LJGF, the T&R conductors should be buzz tested for satisfactory continuity between the incoming and line link secondary hold magnets.

2.514 Simultaneously with the changes in the connections to the (LJA) and (LJB) relay winding and the changes at the LJGF indicated in 2.513 above, the revision of the marker circuits to the standard for the new junctor distribution after the addition shall be started. **These revisions include changes in the marker walking circuit** where the markers will be required to operate in different steps after the transition than before, as indicated on SD-25283-0116, Tables 1 and 12 and SD-25283-0117, Tables 13 and 22. The strap connections for the various sized installations are shown in note 130 of SD-25283-0111 for existing installations with the previous standard junctor distribution and in Table 23 of SD-25283-0117 for the new standard distribution.

2.515 **The remaining marker changes and pertinent information** associated with line junctor redistribution comprise cross connections between various sets of cross-connection terminals outlined in paragraph 3.6 herein and covered in Tables 3, 4, 5, 6, 7, 8, 9, and 11 on SD-25283-0116 and Tables 14, 15, 16, 17, 18, 19, 20, and 21 on SD-25283-0117, and notes on SD-25283-0111 and SD-25283-0112 as follows: note 108 having to do with the furnishing of (JP)0-8 and (JPN) pattern relays, (XP) relay, (Y)0-4 resistances and "TK" wiring; note 119 pertaining to the cross connection of AB0-9 terminal to LJ0-9 or "G" terminals to create the desired patterns; note 123 covering the cross connection of terminals IF0-8 to like numbered JR terminals for 10,I-10,LCC; note 126 on cross connections between LCA and LC terminals; note 134 covering the use of "X" and "BX" options at the (PGT) and (OF) relays and the cross connection of terminals HCA and HCB to LIL and RIL, respectively, for 10,I-10,LCC, or otherwise the use of "Y" and "BY" options; note 155, paragraphs 5.1 and 5.2, pertaining to "AN" and "AM" wiring associated with the (XP) relay; note 173 pertaining to the cross connection of JG terminals to JR terminals; note 175 regarding the cross connection of LIL and RIL terminals to IL0-9 terminals; note 176 covering the basis for furnishing junctor subgroup (walking circuit) relays for the "A", "B", "C", and "E" steps.

2.516 When one or more markers have been changed to the new arrangement in accordance with 2.514-2.515 above and the new 1st subgroup junctors have been connected at the LJGF, one of the modified markers is used, together with the TTI, to test for satisfactory sleeve conductor continuity in the new junctors, followed by the similar testing of the sleeves of the higher subgroup junctors. To facilitate this testing, the markers may be blocked to use any one subgroup of junctors only as covered in Table 11 of SD-25511-01.

2.517 The transition work is complete when any necessary final check is made in each marker to determine that it is operating in all respects in accordance with the standard for the new line junctor distribution size, and all markers are returned to service arranged to test all junctors from existing and added incoming link frames and existing line link frames.

2.52 Installation Operations and Descriptive Terminology Applying to All Procedures

2.521 In performing any work on any marker in service, the procedure is always to remove the marker from service, perform the specified work, make any necessary checks and tests of the connections, and then, if so indicated, return the marker to service. This of course reduces marker service capacity; and, unless other arrangements are agreed upon with the Telephone Company, this work should be done during light-load periods, and only one marker should be out of service at a time. In the larger offices, particularly in the larger offices with paired incoming frames, a Telephone Company may consider it permissible to have more than one marker out of service at a time or possibly in extreme cases to have one marker out of service during other than a light-load period. These additional marker out-of-service concessions are desirable whenever possible, as they have the advantage, particularly in offices with paired incoming frames, of permitting a larger installation force to perform the transition work in about the same time as in smaller offices.

2.522 In the attached procedures, for the sake of brevity, the above marker modification process is indicated by the following phraseology: "Make changes (as indicated) in each marker and return marker to service." In some cases the procedure may not be to return a marker to service until some other operation is performed in which case it is indicated not to return this marker to service until these other operations are completed.

2.523 Under any condition in which wiring changes, including cross - connection changes, have been made in a marker, **all connections should be checked, and any necessary tests of the marker should be made to see that the marker is satisfactory in all respects before returning the marker to service.**

2.524 After making junctor cross-connection changes at the LJGF, the process of testing these connections shall always be first to buzz-test the T&R connections between the hold magnets at each end of each new junctor, and then to use one marker that is arranged to test the newly established junctors and the terminating trouble indicator (TTI) to test the sleeves of the new junctors, and return the marker to service. In the individual procedures the instructions for performing these operations will be similar to the following: "The 60 LJA7& LJB7 junctors per ED-25079-01, Fig. 3, are now out of service. Disconnect the corresponding jumpers at the LJGF and recross connect as LJA7&LJB7 junctors per ED-25713-01, Fig. 4, from I0-3 to LCC0-3 by soldering 20 jumpers at one end only and 40 at both ends. Buzz test T&R; use any marker (modified as indicated) and TTI to test sleeves of the new LJA7&LJB7 junctors; and return marker to service."

2.525 **In installations where a marker is being added,** this marker shall be arranged to test for the junctors in accordance with the new junctor pattern. In some cases this marker may be used advantageously during the transition to test the sleeves of newly connected junctors even before any of the existing markers have been modified to test these junctors, thus facilitating this operation and in some cases possibly shortening the over-all transition time. Junctors so tested, however, must be junctors that will be tested correctly when associated connections in the marker and LCC are made in the standard manner, such as 1st subgroup junctors and other junctors that will be tested correctly with a standard marker when the windings of the (LJA)&(LJB) relays in the LCC are connected to like numbered marker leads. Also, near the end of the transition when all of the junctors have been established in accordance with the new pattern and the (LJA)&(LJB) relays in the LCC are connected in accordance with the new standard, an added marker may be used for regular service in place of an existing marker not yet changed to the new standard.

3. DESCRIPTION OF PROCEDURES

3.1 Procedures are attached hereto as outlined in Section 4 which cover the detailed steps to be employed in making additions to any number of incoming link frames and line choice connectors from 2,I-2,LCC to 9,I-9,LCC.

3.2 The procedures are numbered 021, 022, 023, 031, 033, 041, etc.—to 081, 082, and 091. The prefix "0" indicates that the procedures are for making transitions from existing installations having junctor distribution arrangements per ED-25079-01 and ED-25080-01 to arrangements per ED-25713-01 and ED-25714-01 after the addition. The 2nd digit of the number indicates the size of the existing installation for which the junctor distribution is arranged and the 3rd digit indicates the number of added frames for which the distribution is to be arranged. For example, procedure 042 indicates a transition from an installation for 4,I-4,LCC or 4,IG-8,LCC per ED-25079-01 or ED-25080-01, Fig. 4, to an installation for 6,I-6,LCC or 6,IG-12,LCC per ED-25713-01 or ED-25714-01, Figs. 6, etc. Since experience to date indicates additions of not more than 3 incoming frames or 3 incoming groups and since there is no indication that additions of greater size will be required for some time, the procedures in this specification are carried only through additions of 3,I or 3,IG. If additions of more than 3,I or 3,LCC, or 3,IG or 6,LCC are encountered, the basic procedures as now set up may be readily adapted to such installations, and the Western Electric Co. Installation Department will prepare the necessary supplementary job information in each case.

3.3 **In an office having fewer LCC than incoming frames, or vice versa,** the line junctor distribution pattern is based on the larger of the two numbers of frames. Therefore, if only an addition to the frames of the fewer number is involved and this does not increase the number beyond that of the other frames, none of the above procedures is required, the only transition work necessary being to cross connect and test additional junctors from the added frame or frames. Such a case, for example, would be the addition of one LCC to an existing office of 8,I-7,LCC. If, in this case, two LCC were added without an incoming frame being added, procedure 081 would be used; but in this case there would be no 1st subgroup LJA8&LJB8 junctors or other junctors to be established to frame I8 since this frame is not being installed; and only the 2nd subgroup LJA9&LJB9 junctors of the 9,I-9,LCC pattern would be established to the existing LCC. Furthermore, where the number of I frames is less than that indicated by the new junctor distribution, the temporary marker cross connection, indicated in the procedures for purposes of routine testing the incoming but which are associated with I frames not installed, need not be made.

3.4 **Each procedure contains the following groups of information:**

(a) An itemization of the preliminary installation work that is specific to each procedure and of the apparatus required in connection with temporary marker cross connections required for routine testing the incoming trunk on added I frames. For reference to other apparatus associated with line junctor distribution, see paragraphs 2.212, 2.514, and 2.515.

(b) A detailed description of the installation work, first where necessary, that performed in preparation for routine testing the incoming trunks on the added incoming frames, and then that of the actual transition. The work under the headings "Routine Test of Incoming Trunks" and "Transition Work" is divided into portions designated (a), (b), (c), etc., which should be performed in this sequence except where it is specified that work in two or more such portions may be performed simultaneously or where it is indicated that certain work can be done as soon as certain other work not immediately preceding it in the description is completed. The work within each such (a), (b), (c), etc., portion, however, may be performed in the order considered most efficient from the installation standpoint. For example, in work on a marker, the marker is out of service and cross-connection changes may be made in any desired order provided all of the specified work is completed before the marker is returned to service.

(c) At the close is given certain specific "Clean-up" work to be done, including recommendations as to which apparatus should be removed and which should be left installed for use on future additions. In some cases, information pertaining to the routine testing of incoming trunks to be performed after the transition work is grouped in one section with the clean-up work.

3.5 As there are a large number of procedures to be covered, the information in each procedure, while including all of the installation work necessary to the transition, states it in brief form and does not repeat such steps as previously indicated in paragraph 2.52 must always be performed in connection with particular operations. As previously stated, the procedures are set up on the basis of nonpaired incoming link frames, and the cross-connection pattern drawing ED-25079-01 or ED-25713-01 for nonpaired frames only is referred to. For paired frames, it is to be understood that ED-25080-01 or ED-25714-01 and other substitutions outlined in paragraphs 1.25 and 1.26 apply.

3.6 In order to make clear the purpose and location of the various terminals involved in marker recross connections as outlined in the procedures, the following table giving this information is prepared.

DESCRIPTION OF MARKER CROSS-CONNECTION TERMINALS REFERRED TO IN PROCEDURE TABLES

Terminals	
JGA0-8 JGB0-3 JGC0-2 JGD0-6 JGE0-8	Contacts of junctor group relays (JGA)-(JGE) of the marker walking circuit SD-25283-0104, Fig. 18, -0116, Tables 3 and 5 and -0117, Tables 14 and 16, cross connections from which control selection of proper (LJA) or (LJB) 0-9 relays of the LCC, SD-25275-011, Fig. 3, for calls from the same numbered incoming link frame as the terminal number.
JGB4-5	Additional junctor group relay contacts required for transition purposes as described in certain of the attached procedures.
JPD0-6 JPE0-8	Junctor group relay contacts per SD-25283-0104, Fig. 18, -0116, Table 4, and -0117, Table 15, cross connections from which control the operation of pattern relays on calls from the same numbered incoming link frame as the terminal number.
JC0-20	(LCA) and (LCB) relay contacts per SD-25283-0108, Figs. 21 and 21A, -0116, Table 4, and -0117, Table 15, cross connections to which from JG or JP terminals of (JGA)-(JGE) relays, SD-25283-0104, Fig. 18, control selection of proper (LJA) or (LJB) relays in LCC or the proper pattern relays, respectively.
J0-20	(LCA) and (LCB) relay contacts per SD-25283-0108, Figs. 21 and 21A, -0116, Table 5, and -0117, Table 16, corresponding to JC0-20 except that there is one set per (LCA) or (LCB) relay. Cross connections from these terminals control the operation of the proper pattern relays, or when corresponding with JC terminals cross connected to JG terminals, control the operation of the proper (LJA) or (LJB) relay in a LCC. In the procedures the cross connections from these terminals are set up in columns numbered 0 up to indicate the number of the (LCA) or (LCB) relay from which the cross connections are taken in each case.

Terminals	
JR0-9	(HCA) and (HCB) relay contacts, SD-25283-0105, Fig. 15, -0116, Tables 3 and 5, and -0117, Tables 14, cross connections to which from JG terminals of (JGA)-(JGE) relays, SD-25283-0104, Fig. 18 or J terminals of (LCA) or (LCB) relays, SD-25283-0108, Figs. 21 and 21A, control the operation of proper (LJA) or (LJB) relays in a LCC.
JP0-8	Windings of pattern relays JP0-8, respectively, SD-25283-0103, Fig. 17, -0116, Table 5, and -0117, Table 16, cross connections to which from J terminals of (LCA) or (LCB) relays create the proper patterns on calls to each LCC.
JPN	Winding of (JPN) relay SD-25283-0103, Fig. 17, -0116, Table 6, and -0117, Table 17, which is normally cross connected to PNA-PNC, or during transitions, to JPM.
PNA-PNC	Contacts of (JGA)-(JGC) relays SD-25283-0104, Fig. 18, -0116, Table 6, and -0117, Table 17, which are cross connected to JPN when all of the junctors associated with all (LJA) & (LJB) relays in the corresponding subgroup are to be tested.
LJ0-9	SD-25283-0103, Fig. 17, -0116, Table 8, and -0117, Table 19. Test leads to the line choice connectors for testing the 10 junctors of a half choice corresponding to the (LJA) or (LJB) relay in the LCC that is operated. When these terminals are cross connected to AB terminals of the pattern relays, these relays control the particular junctors of the 10 that are to be tested, or when cross connected to NP0-9 terminals, respectively, provide for testing all of the junctors at all times.
NP0-9	Contacts of channel relays (CH) 0-9, respectively, SD-25283-0103, Fig. 17, -0116, Table 8, and -0117, Table 19, which are cross connected to terminal LJ0-9 when no pattern relays are required and provide for testing all junctors at all times.
IL0-9	Contacts of (JGA)-(JGE) relays, SD-25283-0104, Fig. 18, -0116, Table 7, and -0117, Table 18, the even numbers of which are associated with HCA and the odd numbers with HCB. When cross connected to LIL or RIL of SD-25283-0105, Fig. 15, they cause the selection of left or right links, respectively, of the incoming link frames.
LIL & RIL	Windings of the (LIL) and (RIL) relays of SD-25283-0105, Fig. 15, and -0116, Table 7, and -0117, Table 18, which control the selection of left and right links, respectively, of the incoming link frames.
JPL	Winding of (JPL) transition relay, SD-25511-01, Fig. 1. This relay when operated performs one or both of two functions: (a) causes the testing of all of the junctors of a particular (LJA) or (LJB) relays in a LCC or (b) switches circuits from even numbered IL terminals from RIL to LIL terminals and from odd numbered IL terminals from LIL to RIL terminals.
JPM	Contact of (JPL) relay, SD-25511-01, Fig. 1, which when cross connected to JPN, causes all junctors to be tested when (JPL) operates or to a JR terminal causes the operation of the proper (LJA) or (LJB) relay in a LCC.
LA & LB	Contacts of (JPL) relay, SD-25511-01, Fig. 1, which when cross connected to even numbered and odd numbered IL terminals, respectively, prepare circuits for switching from RIL to LIL and LIL to RIL, respectively.
0-AIL & 1-AIL	Contacts of (JPL) relay, SD-25511-01, Fig. 1, which when cross connected to terminals RIL and LIL, respectively, completes the preparation of circuits for switching from RIL to LIL and vice versa.
HCA&HCB	Contacts of (HCA) and (HCB) relays, SD-25283-0105, Fig. 15, to be cross connected to LIL & RIL, respectively, of same figure when walking circuit relays per Fig. 18, SD-25283-0104, are not required (10,I-10,LCC).
IF0-8	SD-25283-0105, Fig. 15. Leads to incoming link connectors corresponding with incoming link frames 0-8, respectively, which are cross connected to JR0-8, respectively, when walking circuit relays are not required (10,I-10, LCC). This causes the same numbered (LJA)&(LJB) relays in a LCC to be operated.

In the procedures, the running or disconnection of cross connections between any of the above terminals wil be indicated by the tabulation of the terminals under headings "DISC" (disconnect) "FROM" and "TRNS" (transfer) or "CONN" (connect) "TO". For example:

TRNS	FROM	TO
JGB1	JR4	JC4
JGB0	JR3	JC3

indicates that the cross connection from terminal JGB0 is to be transferred from terminal JR3 to terminal JC3, and the cross connection from terminal JGB1 is to be transferred from terminal JR4 to terminal JC4. The "FROM" column is included in the cross-connection tables where space permits, but in those tables where it is omitted it is to be understood that "TRNS" "TO" indicates the transfer of cross connections from the existing terminations to the terminals in the "TO" column. Occasionally, in order to keep a series of associated terminals together, a column may have two operational headings as:

CONN° TRNS#	TO	
	(LCA)0	1
J9°	JR8	JR8
J8°	JR8	JR8
J1#	JPL	JPL
J0#	JPL	JPL

which indicates that terminals J8&9 of the (LCA) 0&1 relays are to be connected to terminal JR8, whereas the cross connection from terminals J0&1 of relays (LCA)0&1 are to be transferred from their existing termination to terminal JPL.

4. INDIVIDUAL PROCEDURES AND LINE JUNCTOR ASSIGNMENT CHARTS

4.1 The remainder of this specification consists in part of attached detailed procedures for additions of from 1 to 3 incoming frames and 1 to 3 line choices or 1 to 3 incoming groups and 2 to 6 line choices to all sizes of offices from 2,I-2,LCC or 2,IG-4,LCC to 9,I-9,LCC or 9,IG-18,LCC. A description of the system of numbering these procedures has been covered in paragraph 3.2.

4.2 The other part of the remainder of this specification consists of Figs. 1, 10-19, and 22-29. Figs. 1 and 11 show the previous and new standard order of connecting the windings of the (LJA) and (LJB) relays in the LCC to marker leads at the JA and JB terminals in accordance with Fig. 11 of ED-25079-01 or ED-25080-01 and ED-25713-01 or ED-25714-01, respectively. Figs. 12-19 show line junctor assignment charts for the previous standard junctor distribution in offices of 2,I-2,LCC to 9,I-9,LCC and correspond with Figs. 2-9, respectively, of ED-25079-01. Figs. 22-29 show similar information for the new standard junctor distribution and correspond with Figs. 2-9 of ED-25713-01. Fig. 10 shows the junctor distribution for 10,I-10,LCC and corresponds with Fig. 10 on both ED-25079-01 and ED-25713-01. The charts in the above Figs. 12-18 and 23-29 also indicate by means of corner index numbers the junctors that connect between the same points in larger and smaller installations, that is in Figs. 12-18 these numbers indicate the junctors that are the same for larger sizes of installations to be converted to the new distribution arrangements per ED-25713-01, and in Figs. 23-29 they indicate the junctors that are the same in smaller existing installations per ED-25079-01. For example, referring to Fig. 15, LC1, LJ8, channel 3, $\boxed{\begin{smallmatrix}4 & 6\\ 8 & 7\end{smallmatrix}}$ indicates that this junctor terminates at the same points at both ends for the 6,7&8,I-LCC arrangements, per Figs. 6, 7, and 8 of ED-25713-01 as it does in the existing 5,I-5,LCC arrangement per Fig. 5 of ED-25079-01. Therefore, on transitions to these other sizes, the corresponding jumper does not have to be changed. Figure numbers 2-9 are being reserved for line junctor assignment charts based on ED-25713-01, but containing information relative to junctors that remain the same on transitions to or from installations of the same type.

Bell Telephone Laboratories, Inc.
Attached: Procedures and Figures.

Preliminary Work

Install in each marker, relay (JPL) per SD-25511-01, Fig. 1, and ED-25332-02, Note 6, and connect to cross-connection terminal strip per ED-25333-01.

Run jumpers at the LJGF for 320 of the 360 2nd and 3rd subgroup junctors for the new 3,I-3,LCC arrangement per ED-25713-01, Fig. 3 from I0-2 to LCC0-2. 40 junctors are the same as for the existing 2,I-2,LCC arrangement as indicated in Fig. 23 herein.

Solder jumpers at the LJGF for 80 of the above 320 junctors from I2 to LCC0&1 at the I frame end only, for 80 junctors from I0-1 to LCC2 at the LCC end only, and for 40 junctors from I2 to LCC2 at both ends.

Prepare for disconnection at the LJGF, 280 of the existing 320 2nd, 3rd, 4th, and 5th subgroup junctors, 40 as indicated in Fig. 12 herein remaining unchanged.

Routine Test of Incoming Trunks

The objective of this work is to establish LJA2&LJB2 1st subgroup junctors from the added incoming frame I2 to LCC0&1 for the purpose of routine testing the incoming trunks in I2. This shall be accomplished by performing the work in (a)-(e) below during a light-load period.

(a) Make the following changes in each marker and return marker to service.

TRNS	FROM	TO
JGB1	JR3	JR7
JGB0	JR2	JR6

(b) The (LJA)&(LJB)2&3 relays in LCC0&1 are now out of service. Connect the windings of these relays in LCC1 to marker leads as indicated on ED-25713-01, Fig. 11, for the new 3,I-3,LCC arrangement.

(c) As the result of work in (a) above, the 80 LJA&LJB2&3 junctors to LCC0&1 are out of service. **Disconnect** the corresponding jumpers at the LJGF and **connect** the LJA2&LJB2 junctors as 1st subgroup from I2 to LCC0&1 per ED-25713-01, Fig. 10, by soldering 40 switchboard cable circuits at the LJGF. Buzz test T&R.

(d) As soon as the work in (a) above is completed in all markers, remove one marker from service, make the following cross-connection changes, and when the work in (b) and (c) above is completed, use this marker and TTI to test sleeves of the junctors connected in (c) above and return marker to service.

CONN			TO	TRNS	TO
JGA2	JGC2	JGE2	JR2	IL7	LB
JGB2	JGD2		JPL	IL6	LA
		JPM	JR2	IL3	LB
		1-AIL	LIL	IL2	LA
		0-AIL	RIL		

(e) Repeat the cross-connection changes in (d) above in each of the other markers and return marker to service. **Junctors in service** from each of incoming frames I0&1 to each of LCC0&1, 80.

The incoming trunks in the added incoming frame I2 shall now be routine tested by the use of the 1st subgroup junctors from I2. This routine testing shall be completed prior to the start of the transition work.

Transition Work

In the following transition work it is assumed that the markers have been changed and the 1st subgroup junctors from I2 to LCC0&1 have been connected as indicated under "Routine Test of Incoming Trunks", and that the incoming trunks in I2 have been routine tested.

(a) Remove from service each marker except the last; block to use 1st subgroup junctors only per SD-25511-01, Table 5 for 2,I; and return marker to service.

(b) Remove the last marker from service; remove the temporary marker cross-connections made in (a) and (d) of "Routine Test of Incoming Trunks" **except** the connection of JGA2 to JR2; convert the marker in all other respects to the standard for 3,I-3,LCC (including the changes in the marker walking circuit connections to make the marker operative in marker steps A, B, and E); block marker to use 1st subgroup junctors only per SD-25511-01, Table 11 for 3,I; and return marker to service.

(c) Repeat the cross-connection changes in (b) above in each of the other markers, and return marker to service.

(d) As soon as the work in (a) above is completed and (b) is started, the (LJA)&(LJB)2-9 relays of LCC0&1 are out of service. Change the cross-connections to the windings of the (LJA)&(LJB) 4-9 relays of LCC1 to the standard for 3,I-3,LCC per ED-25713-01, Fig. 11. (The windings of relays (LJA)&(LJB)2&3 were so connected as covered in "Routine Test of Incoming Trunks".)

(e) Also as soon as the work in (a) above is completed and the work in (b) above is started, the 320 LJA&LJB2-9 junctors per ED-25079-01, Fig. 2, are out of service. **Disconnect** 200 of the corresponding jumpers at the LJGF, 40 remaining unchanged as indicated in Fig. 12 herein and 80 having been disconnected by the work in (c) of "Routine Test of Incoming Trunks". **Connect** at the LJGF, 280 of the 360 2nd and 3rd subgroup junctors from I0-2 to LCC0-2 per ED-25713-01, Fig. 3, by soldering 160 jumpers for junctors from I2 to LCC0&1 and from I0&1 to LCC2 at one end only, and 120 jumpers for junctors from I0&1 to LCC0&1 at both ends. 40 of the remaining jumpers, as indicated in Fig. 23 herein, require no change; and 40 were connected as preliminary work. Buzz test T&R.

PROCEDURE 021

(f) When the work in (d) and (e) above is completed, remove from service one marker modified as in (b) or (c) above; remove block to use 1st subgroup junctors only; block to use 2nd subgroup junctors only per SD-25511-01, Fig. 11, for 3,I; use this marker and TTI to test sleeves of the 2nd subgroup junctor connected in (e); block to use 3rd subgroup junctor only and use this marker and TTI to test sleeves of the 3rd subgroup junctor connected in (e); and finally, after making any necessary final check that the marker is operating in all respects in accordance with the standard for the new 3,I-3,LCC arrangement, return marker to service.

(g) Remove each of the remaining markers from service; remove block to use 1st subgroup junctors only; and after making any necessary final check, return marker to service.

During or prior to the transition and subsequent to the routine testing of the incoming trunks, the Telephone Company shall have soldered the jumpers at the M.D.F. from the incoming trunks in the new incoming frame I2 to protectors or office multiple terminal strips and made other necessary preparations to start transferring load to these trunks on the completion of the work in (f) above, with the objective of completing at least a substantial portion of this load transfer by the next busy hour.

Clean-up Work

The markers and junctors are now connected and operating in the standard manner for 3,I-3,LCC on 60 junctors per LCC from each of incoming frames I0-2 to each of LCC0&1, with junctors to LCC2 also connected and ready for operation when lines are transferred to this line choice. The (JPL) relay in each marker per SD-25511-01, Fig. 1, shall be left installed, as it may be required on a future addition. The "C" and "D" step walking circuit relays (JGC), (RTC'), (RTC), (OVC), (RTD'), (RTD) and (OVD) per SD-25283-0104, Fig. 18, shall be removed.

PROCEDURE 022

Preliminary Work

Install in each marker, relay (JPL) per SD-25511-01, Fig. 1, and ED-25332-02, Note 6, and connect to cross-connection terminal strip per ED-25333-01.

Run jumpers at the LJGF for all of the 320 2nd subgroup junctors of the new 4,I-4,LCC arrangement per ED-25713-01, Fig. 4.

Solder jumpers at the LJGF for 80 of the above 320 junctors from I2&3 to LCC0&1 at the I frame end only, for 80 junctors from I0&1 to LCC2&3 at the LCC end only, and for 80 junctors from I2&3 to LCC2&3 at both ends.

Prepare for disconnection at the LJGF all of the 320 existing 2nd, 3rd, 4th, and 5th subgroup junctors per ED-25079-01, Fig. 2.

Routine Test of Incoming Trunks

The objective of this work is to establish LJA2&LJB2 1st subgroup junctors from the first added incoming frame I2, and LJA3&LJB3 1st subgroup junctors from the 2nd added incoming frame I3 to LCC0&1 for the purpose of routine testing the incoming trunk in I2 and I3. This work constitutes part of the work that would otherwise have to be done during the transition. It shall be accomplished by performing the work in (a)-(g) below during a light-load period.

(a) Same as (a) in "Routine Test of Incoming Trunks", PROCEDURE 021.

(b) When the work in (a) above is completed, the (LJA)&(LJB)2&3 relays of LCC0&1 are out of service. Connect the windings of these relays of LCC1 to like numbered marker leads as indicated on ED-25713-01, Fig. 11, for 4,I-4,LCC.

(c) Also when the work in (a) above is completed, the 80 LJA&LJB2&3 junctors per ED-25079-01, Fig. 2, to LCC0&1 are out of service. **Disconnect** the corresponding jumpers at the LJGF, and **connect** these junctors as 1st subgroup from the added incoming frames I2 and I3 to LCC0&1 per ED-25713-01, Fig. 10, by soldering 80 switchboard cable circuits at the LJGF. Buzz test T&R.

(d) Remove one marker from service and make the following cross-connection changes. Do not return marker to service until the work in (e) below is completed.

CONN				TO
JGA2		JGC2	JGE2	JR2
	JGB2			JPL
JGA3		JGD3	JGE3	JR3
	JGB3			JPL
			JPM	JR2

CONN	TO
1-AIL	LIL
0-AIL	RIL

TRNS	FROM	TO
IL3	LIL	LB
IL2	RIL	LA

DISC	FROM
JGD1	JR7
JGD0	JR6
IL7	LIL
IL6	RIL

(e) In addition to the changes in (d) above, revise the marker walking circuit cross connections temporarily from those indicated in note 130 of SD-25283-0111 for the existing 2,I arrangement (marker operative in the "A", "B", "C", "D", and "E" steps) to those for the new standard 2,I arrangement per SD-25283-0117, Table 23, (marker operative in the "A", "B", "C", and "E" steps). The

resultant elimination of the "D" step will not reduce the access to junctors since, by the work in (a) above, the LJA&LJB6&7 junctors previously tested in the "D" step are also made to be tested in the "B" step in place of the LJA&LJB2&3 2nd subgroup junctors that were removed from service. Arrange for operating the (JGD) relay (SD-25283-0104, Fig. 18) in addition to the (JGC) relay in the "C" marker step by temporarily connecting a lead from the 1T terminal of relay (JGC) to the 6T terminal of relay (RTD'). (See SD-25511-01, Fig. 6.) This change is for the purpose of utilizing the JGD3 cross-connection terminal in the "C" marker step for selecting 1st subgroup junctors from I3 for routine testing the incoming trunks in I3. Return marker to service.

(f) Repeat the changes in (d) and (e) above in each of the other markers and return marker to service. **Junctors in service** from each of frames I0&1 to each of LCC0&1, 80.

(g) The changes in (d) and (e) above prepare the marker to test for LJA2&LJB2 1st subgroup junctors from 12 in the "A", "B", "C", and "E" marker steps and for LJA3&LJB3 1st subgroup junctors from I3 in the "A", "C", and "E" steps. When the work in (b) and (c) above is completed, remove any marker from service modified as in (d) and (e) or (f) above, and use this marker and TTI to test sleeves of the LJA2&LJB2 1st subgroup junctors connected in (c). Block marker to use 1st subgroup junctors only per SD-25511-01, Fig. 11, for 2I; use marker to test sleeves of the LJA3&LJB3 1st subgroup junctors connected in (c) above; remove block to use 1st subgroup only; and return marker to service.

The incoming trunks in I2 shall now be routine tested by the use of the 1st subgroup junctors from I2. When the routine testing of the trunk in I2 is completed, change the cross connection of JPM to JR2 in each marker as indicated in (d) above to become JPM to JR3, and then use the 1st subgroup junctors from I3 for routine testing the incoming trunks in I3. This routine testing shall be completed prior to the start of the transition work.

Transition Work

In the following transition work it is assumed that the 1st subgroup junctors from I2&3 to LCC0&1 have been connected at the LJGF, that the incoming trunk in I2 and I3 have been routine tested, and that the temporary marker connections outlined under (a) and (d)-(f) of "Routine Test of Incoming Trunks" are still in place.

(a) Remove each marker except the last from service; block to use 1st subgroup junctors only per SD-25511-01, Table 11 for 2,I; and return marker to service.

(b) Remove the last marker from service and remove all temporary connections mad in (a) and (d)-(f) of "Routine Test of Incoming Trunks" except the connection of JGA2 to JR2 and JGA3 to JR3. Revise the marker in all respects to the standard for the new 4,I-4,LCC arrangement (including the change in the marker walking circuit cross connections per SD-25283-0117, Table 23 for 4,I to make the marker operative in the "A" and "E" steps); block marker to use 1st subgroup junctors only per SD-25511-01, Table 11 for 4,I; and return marker to service.

(c) Repeat the changes in (b) above in each of the other markers and return marker to service.

(d) As soon as the work in (a) above is completed and the work in (b) is started, the (LJA)&(LJB)2-9 relays of LCC0&1 are out of service. Change the cross connections to the windings of the (LJA)&(LJB)4-9 relays in LCC1 to the standard for the new 4,I-4,LCC arrangement per SD-25713-01, Fig. 11. (The winding of relays (LJA)&(LJB)2&3 were so connected as covered in "Routine Test of Incoming Trunks".)

(e) Also as soon as the work in (a) above is completed and the work in (b) is started, the 320 LJA&LJB2-9 junctors per ED-25079-01, Fig. 2, are out of service. **Disconnect** 240 of the corresponding jumpers at the LJGF, 80 having been changed as the result of the work in (c) of "Routine Test of Incoming Trunks". **Connect** at the LJGF, 240 of the 320 2nd subgroup junctors from I0-3 to LCC0-3 for the new 4,I-4,LCC arrangement per ED-25713-01, Fig. 4, by soldering 160 jumpers for junctors from I2&3 to LCC0&1 and I0&1 to LCC2&3 at one end only and 80 jumpers for junctors from I0&1 to LCC0&1 at both ends. 80 junctors from I2&3 to LCC2&3 were connected as preliminary work. Buzz test T&R.

(f) Remove from service any marker modified as in (b) or (c) above; remove block to use 1st subgroup junctors only; block to use 2nd subgroup junctors only per SD-25511-01, Table 11 for 4,I; and use this marker and TTI to test sleeves of the 2nd subgroup junctors connected in (e) above. Remove block to use 2nd subgroup junctors only; and, after making any necessary final check that the marker is operating in all respects in accordance with new 4,I-4,LCC arrangement, return marker to service.

(g) Remove block to use 1st subgroup junctors only from each of the other markers; and, after making any necessary final check, return marker to service.

During or prior to the transition and subsequent to the routine testing of the incoming trunks, the Telephone Company shall have soldered the cross connections at the M.D.F. from the trunks on the new incoming frames I2 and I3 to protectors or office multiple terminal strips, and made other necessary preparation to start transferring traffic to these trunks at the completion of the work in (f) above, with the objective of completing at least a substantial portion of this transfer by the next busy hour.

PROCEDURE 022

Clean-up Work

The markers and junctors are now connected and operating in the standard manner for the new 4,I-4,LCC arrangement on 40 junctors from each of incoming frames I0-3 to each of LCC0&1, with junctors to LCC2&3 also connected and ready for operation when lines are assigned to these line choices. The (JPL) relay per SD-25511-01, Fig. 1, shall be left installed, as it may be required on a future addition. The "B", "C", and "D" step walking circuit relays (JGB), (RTB'), (RTB), (OVB), (JGC), (RTC'), (RTC), (OVC), (RTD'), (RTD), and (OVD) per SD-25283-0104, Fig. 18, shall be removed.

PROCEDURE 023

Preliminary Work

Install in each marker, relay (JPL) per SD-25511-01, Fig. 1, and ED-25332-02, Note 6, and connect to cross-connection terminal strip per ED-25333-01.

Run jumpers at the LJGF for the 500 2nd subgroup junctors of the new 5,I-5,LCC arrangement per ED-25713-01, Fig. 5.

Solder jumpers at the LJGF for 120 of the above 500 junctors from I2,3&4 to LCC0&1 at the I frame end only, for 120 junctors from I0&1 to LCC2,3&4 at the LCC end only, and for 180 junctors from I2,3&4 to LCC2,3&4 at both ends.

Prepare for disconnection at the LJGF all of the 320 existing 2nd, 3rd, 4th, and 5th subgroup junctors per ED-25079-01, Fig. 2.

Routine Test of Incoming Trunks

The objective of this work is (1) to establish LJA2&LJB2 1st subgroup junctors from the first added incoming frame, I2, and LJA3&LJB3 1st subgroup junctors from the 2nd added incoming frame, I3, to LCC0&1 for the purpose of routine testing the incoming trunk in I2 and I3; and (2) to provide for routine testing the incoming trunks in the third added incoming frame, I4, by temporarily multiplying at the LJGF two of the 1st subgroup junctors from I3 to the HC in which the last incoming trunk test line is assigned with corresponding verticals in I4, and arranging the markers in all steps to test for these junctors on calls from I4 to this HC. The work in (1) above constitutes part of the work that would otherwise have to be done during the transition. The above objectives shall be accomplished by performing the work in (a)-(h) below during a light-load period.

(a) Same as (a) in "Routine Test of Incoming Trunks", PROCEDURE 021.

(b) When the work in (a) above is completed, the (LJA)&(LJB)2&3 relays of LCC0&1 are out of service. Connect the windings of these relays of LCC1 to like numbered marker leads per ED-25713-01, Fig. 11, for 5,I-5LCC.

(c) Also when the work in (a) above is completed, the 80 LJA&LJB2&3 junctors per ED-25079-01, Fig. 2, to LCC0&1 are out of service. **Disconnect** the corresponding jumpers at the LJGF and **connect** these junctors as 1st subgroup from the added incoming frames I2&3 to LCC0&1 per ED-25713-01, Fig. 10, by soldering 80 switchboard cable circuits at the LJGF. Buzz test T&R.

(d) In order to provide for routine testing the incoming trunks in I4, multiple temporarily at the LJGF two of the LJA3 or LJB3 junctors connected in (c) above to the HC in which the last incoming trunk test line is assigned, with corresponding secondary switch verticals in I4. The two junctors shall be those for channels 0 and 1, and the verticals in I4 shall be the same as those on which the junctors terminate in I3, viz., the verticals bearing the same number as the HC to which the junctors connect. The multipling shall be accomplished by connecting the switchboard cable circuits from I4 temporarily to the LJGF terminals on which the cable circuits from I3 terminate.

(e) As soon as the work in (a) above is completed, remove one marker from service and make the following cross-connection changes. Do not return marker to service until the work in (f) below is completed.

CONN				TO
JGA2		JGC2	JGE2	JR2
	JGB2			JPL
JGA3		JGD3	JGE3	JR3
	JGB3			JPL
JGA4		JGD4	JGE4	JR3
	JGB4*			JPL
			JPM	JR2

CONN	TO
1-AIL	LIL
0-AIL	RIL

TRNS	FROM	TO	DISC	FROM
			JGD1	JR7
			JGD0	JR6
IL3	LIL	LB	IL7	LIL
IL2	RIL	LA	IL6	RIL

*Make the JGB4 terminal of the XTS (F) terminal strip of ED-25333-01, Fig. 2, effective on calls from I4 by wiring this terminal to the 1T contact of the (JGB) relay, SD-25283-0104, Fig. 18, and wiring the 2T contact of this relay to the 10B contact of the (JGA) relay (JR4 lead from the incoming link and connector circuit on I4).

(f) In addition to the changes in (e) above, revise the marker walking circuit cross connections temporarily from those indicated in note 130 of SD-25283-0111 for the existing 2,I arrangement (marker operative in the "A", "B", "C", "D", and

"E" steps) to those for the new standard 2,I arrangement per SD-25283-0117, Table 23 (marker operative in the "A", "B", "C", and "E" steps). The resultant elimination of the "D" step will not reduce access to junctors since by the work in (a) above the LJA&LJB6&7 junctors previously tested in the "D" step are also made to be tested in the "B" step in place of the LJA&LJB2&3 2nd subgroup junctors that were removed from service. Arrange for operating the (JGD) relay (SD-25283-0104, Fig. 18) in addition to the (JGC) relay in the "C" marker step by temporarily connecting a lead from the 1T contact of relay (JGC) to the 6T contact of relay (RTD'). (See SD-25511-01, Fig. 6.) This change is for the purpose of utilizing the JGD3 and JGD4 cross-connection terminals in the "C" marker step as indicated in the cross-connection changes in (e) above, for selecting 1st subgroup junctors for routine testing the incoming trunks in I3 and I4, respectively. Return marker to service.

(g) Repeat the changes in (e) and (f) above in each of the other markers and return marker to service. Junctors in service from each of incoming frames I0&1 to each of LCC0&1, 80.

(h) When the work in (b)-(f) above is completed, use the marker modified as in (e) and (f) and the TTI to test sleeves of the LJA2&LJB2 1st subgroup junctors connected in (c); block marker to use 1st subgroup junctors only per SD-25511-01, Fig. 11, for 2,I; use marker and TTI to test sleeves of LJA3&LJB3 junctors connected in (c); remove block to use 1st subgroup junctors only; and return marker to service.

The incoming trunks in the first added incoming frame I2 shall now be routine tested by the use of the 1st subgroup junctors from I2. When this testing is completed, change the cross connection of JPM to JR2 in each marker as indicated in (e) above to become JPM to JR3 and then routine test the incoming trunks in I3 by the use of 1st subgroup junctors from I3. Finally, with the markers as now arranged, routine test the incoming trunks in I4 by the use of the two LJA3 or LJB3 junctors to the HC in which the last incoming trunk test line is assigned which are multipled with verticals of this frame, after having first made busy the other eight LJA3&LJB3 junctors to this HC. All of the above routine testing shall be completed prior to the start of the transition work.

Transition Work

In the following transition work it is assumed that the 1st subgroup junctors from I2&3 to LCC0&1 have been connected at the LJGF, that the routine testing of incoming trunks in I2-4 has been completed, and that the temporary marker connections outlined under (a) and (e)-(g) of "Routine Test of Incoming Trunks" are still in place.

(a) Remove each marker except the last from service; block to use 1st subgroup junctors only per SD-25511-01, Fig. 11, for 2,I; and return marker to service.

(b) Remove the last marker from service and remove the temporary marker connections outlined in (a) and (e)-(g) of "Routine Test of Incoming Trunks" except the cross connections of JGA2 to JR2 and JGA3 to JR3, and remove the cross connection of JPM to JR3. Convert the marker in all other respects to the standard for 5,I-5,LCC (including the changes in the marker walking circuit connections to make the marker operative in steps "A" and "E"). Block marker to use 1st subgroup junctors only per SD-25511-01, Fig. 11, for 5,I and return marker to service.

(c) Repeat changes in (b) above in each of the other markers and return marker to service.

(d) As soon as the work in (a) above is completed and the work in (b) is started, the (LJA)&(LJB)2-9 relays of LCC0&1 are out of service. Change the cross connections to the relay windings of the (LJA)&(LJB)4-9 relay of LCC1 to the standard for the new 5,I-5,LCC arrangement per ED-25713-01, Fig. 11. (The windings of relays (LJA)&(LJB)2&3 were so connected as covered in "Routine Test of Incoming Trunks").

(e) Also as soon as the work in (a) above is completed and the work in (b) is started, the 320 LJA&LJB2-9 junctors per ED-25079-01, Fig. 2, are out of service. **Disconnect** 240 of the corresponding jumpers at the LJGF, 80 having been changed as the result of the work in (c) of "Routine Test of Incoming Trunks". **Also disconnect** the temporary multiple of two 1st subgroup junctors from I3 to corresponding verticals in I4 which were connected by the work in (d) of "Routine Test of Incoming Trunks". **Connect** at the LJGF the 40 LJA4&LJB4 1st subgroup junctors from I4 to LCC0&1 by soldering 40 switchboard cable circuits. The 80 1st subgroup junctors from I2&3 to LCC0&1 were connected by the work in "Routine Test of Incoming Trunks". Buzz test T&R.

(f) **Connect** at the LJGF 320 of the 500 2nd subgroup junctors from I0-4 to LCC0-4 for the new 5,I-5,LCC arrangement per ED-25713-01, Fig. 5, by soldering 240 jumpers for junctors from I2-4 to LCC0&1 and from I0&1 to LCC2-4 at one end only and 80 jumpers for junctors from I0&1 to LCC0&1 at both ends. Jumpers for 180 junctors from I2-4 to LCC2-4 were connected as preliminary work. Buzz test T&R. Any part of this work in (f) may be performed concurrently with the work in (e) above, if desired.

(g) When the work in (e) above is completed, remove from service any marker modified as in (a)-(c) above and use this marker and TTI to test sleeves of the 1st subgroup junctors from I4 connected in (e). When the work in (f) above is completed, remove block to use 1st subgroup junctors only in this marker; block to use 2nd subgroup junctors only per SD-25511-01, Table 11 for 5,I; and use this marker and TTI to test sleeves of 2nd subgroup junctors connected in (f). Remove block to use 2nd subgroup junctors only; and, after making any nec-

essary final check that the marker is operating in all respects in accordance with the standard for the new 5,I-5,LCC arrangement, return marker to service.

(h) Remove block to use 1st subgroup junctors only from each of the other markers; and, after making any necessary final check, return marker to service.

During or prior to the transition and subsequent to the routine testing of the incoming trunks in the new incoming frames I2-4, the Telephone Company shall have soldered the jumpers at the M.D.F. from the trunks in I2-4 to protectors or office multiple terminal strips and made other necessary preparations to start transferring load to the trunk of I2-4 at the completion of the work in (g) above, with the objective of completing at least a substantial portion of this load transfer by the next busy hour.

Clean-up Work

The markers and junctors are now connected and operating in the standard manner for 5,I-5,LCC on 40 junctors from each of incoming frames I0-5 to each of LCC0&1, with junctors to LCC2-4 also connected and ready for operation when lines are transferred to these line choices. The (JPL) relays per SD-25511-01, Fig. 1, shall be left installed, as they may be required on future additions. The "B", "C", and "D" step walking circuit relays per SD-25283-0104, Fig. 18, except the (JGD) relay, which is 1/2 of a multicontact relay, shall be removed.

Preliminary Work

Install in each marker, relay (JPL) per SD-25511-01, Fig. 1, and ED-25332-02, Note 6, and connect to cross-connection terminal strip per ED-25333-01.

Arrange each marker for operating the (JGD) relay per SD-25283-0104, Fig. 18, in addition to the (JGC) relay in the "C" marker step by disconnecting the cross connection between cross-connection terminals IL4 and LIL, disconnecting the lead to contact 5T of the (JGC) relay, strapping this contact to ground on the 2T contact of this relay, and connecting a lead from the 4T contact of the (JGC) relay to the top winding terminal of (JGD) relay. Cross connect IL6 to LIL in place of the previous cross connection from IL4. (See SD-25511-01, Fig. 6.) The above is for the purpose of utilizing JGD3 cross-connection terminals in the "C" marker step for selecting 1st subgroup junctors from I3 to the LCC, in which the last incoming trunk test line is assigned, for routine testing the incoming trunks in I3.

Provide multiples of the JR3, JR4, or JR5 terminal on the TS (G) terminal strip per ED-25333-01, as required [see (b) of "Routine Test of Incoming Trunks"] for cross connection to J3 terminals.

Run jumpers at the LJGF for 296 of the 320 2nd subgroup junctors of the new 4,I-4,LCC arrangement per ED-25713-01, Fig. 4, from I0-3 to LCC0-3. 24 junctors, as indicated in Fig. 24 herein, are the same as for the existing 3,I-3,LCC arrangement and require no change.

Solder jumpers at the LJGF for 60 of the above 296 junctors from I3 to LCC0-2 at the I frame end only, for 60 junctors from I0-2 to LCC3 at the LCC end only, and for 20 junctors from I3 to LCC3 at both ends.

Prepare for disconnection at the LJGF the jumpers for 396 of the existing 420 2nd, 3rd, and 4th subgroup junctors per ED-25079-01, Fig. 3, 24 junctors remaining the same for the new 4,I-4,LCC arrangement per ED-25713-01, Fig. 4, as indicated in Fig. 13 herein.

Routine Test of Incoming Trunks

The objective of this work is to establish LJA3&LJB3 1st subgroup junctors from the added incoming frame I3 to the LCC in which the last incoming trunk test line is assigned for the purpose of routine testing the incoming trunks in I3. It shall be accomplished in the following steps during a light-load period.

(a) Block each marker except the last to use 1st subgroup junctors only per SD-25511-01, Table 5 for 3,I; and return marker for service.

(b) Remove the last marker from service, and make the following cross-connection changes. Do not return marker to service until the work in (c) below is completed.

TRNS	FROM	TO
*		
(2)JGB2	JR5	JC3
(1)JGB1	JR4	JC3
(0)JGB0	JR3	JC3
IL3	LIL	LB
IL2	RIL	LA

CONN	TO		
* (LCA)	0	1	2
(2)J3	JR5	JR5	JR9
(1)J3	JR4	JR9	JR4
(0)J3	JR9	JR3	JR3

CONN		TO
*		
(2)JGA3	JGD3	JR5
(2)	JGB3	JPL
(1)JGA3	JGD3	JR4
(1)	JGB3	JPL
(0)JGA3	JGD3	JR3
(0)	JGB3	JPL

CONN	TO
*	
(2)JPM	JR5
(1)JPM	JR4
(0)JPM	JR3
1—AIL	LIL
0—AIL	RIL

*For work items numbered (0)-(2), perform only the work in items bearing the same number as the number of the LCC in which the last incoming trunk test line is assigned.

The above changes remove from services the LJA3&LJB3 2nd subgroup junctors needed for establishing 1st subgroup from I3 to the LCC in which the last test line is assigned by causing the marker to test for existing LJA9&LJB9 4th subgroup junctors instead of these LJA3&LJB3 junctors in the "B", marker step; and prepare the marker in the "A", "B", and "C" marker steps to test for LJA3&LJB3 1st subgroup junctors on test calls from I3. It is not considered necessary to make additional temporary cross connections and wiring changes in the marker to test for 1st subgroup junctors from I3 in the "E" marker step during the routine testing period, since the marker should never be required to advance to this "overflow" step on test calls from I3.

(c) Before returning to service the marker modified as in (b) above, make busy the 12 LJA9&LJB9 4th subgroup junctors per ED-25079-01, Fig. 3, in channels 1, 2, 4, 5, 7, and 8 to the LCC in which the last incoming trunk test line is assigned, since the marker changes in (b) above do not provide for operating a pattern relay in the "B" marker step; and, therefore, the junctors from other I frames than the one which is made to test for LJA9&LJB9 junctors in the "B" step must be made busy. When this is completed, return marker to service.

(d) Repeat the cross-connection changes in (b) above in each of the other markers, remove block to use 1st subgroup junctors only, and return marker to service. **Junctors in service** from one I frame to the LCC in which the last incoming trunk test line is assigned, 48; from the other I frames to this LCC, 60; in all other cases, 66 or 68 from each I frame to each LCC.

(e) When the work in (a) above is completed and the work in (b) is started, all of the LJA3&LJB3 junctors for the 3,I-3,LCC arrangement per ED-25079-01, Fig. 3, are out of service. **Disconnect** at the LJGF the 20 jumpers corresponding to the LJA3&LJB3 junctors to the LCC in

which the last incoming trunk test line is assigned; and connect these junctors as 1st subgroup from I3 to this LCC per ED-25713-01, Fig. 10, by soldering 20 switchboard cable circuits at the LJGF. Buzz test T&R.

(f) Remove from service any marker modified as in (b) or (d) above, and use this marker and TTI to test sleeves of the 1st subgroup junctors connected in (e) above. Return marker to service.

The 1st subgroup junctors from I3 to the LCC connector with the last incoming trunk test line shall now be used to routine test the incoming trunks in I3. This routine testing shall be completed prior to the start of the transition work.

Transition Work

In the following transition work, it is assumed that the incoming trunk on I3 has been routine tested, that 1st subgroup junctors from I3 to the LCC in which the last incoming trunk test line is assigned have been connected at the LJGF, and that the temporary marker cross connections and other wiring outlined in (b) of "Routine Test of Incoming Trunks" and in "Preliminary Work" are still in place.

(a) Remove each marker except the last from service; block to use 1st subgroup junctors only per SD-25511-01, Table 5, for 3,I; and return marker to service.

(b) Remove the last marker from service; remove all temporary marker cross connections made in (b) of "Routine Test of Incoming Trunks", except the possible connection from JGA3 to JR3; convert the temporary wiring outlined in "Preliminary Work" to normal; convert the marker in all other respects to the standard for 4,I-4,LCC (including the changes in the marker walking circuit to make the marker operative in steps "A" and "E" only); block marker to use 1st subgroup junctors only per SD-25511-01, Table 11 for 4,I; and return marker to service.

(c) Repeat changes in (b) above in each of the other markers, and return marker to service.

(d) As soon as the work in (a) above is completed and the work in (b) is started, the (LJA)& (LJB)3-9 relays of LCC0-2 are out of service. Change the cross connections to the windings of these relays in LCC1&2 to the standard for the new 4,I-4,LCC arrangement per ED-25713-01, Fig. 11. Also at this time remove busy from the 12 LJA9& LJB9 4th subgroup junctors that were made busy by the work in (c) of "Routine Test of Incoming Trunks".

(e) Also at the end of the work in (a) and the start of the work in (b) above, the 420 LJA&LJB3-9 junctors per ED-25079-01, Fig. 3, are out of service. **Disconnect** at the LJGF 376 of the corresponding jumpers, leaving unchanged 24 of these junctors which are the same for the new 4,I-4,LCC arrangement per ED-25713-01, Fig. 4, as indicated in Fig. 13 herein, and 20 which were changed by the work in (e) of "Routine Test of Incoming Trunks". **Connect** at the LJGF 40 of the 60 LJA3&LJB3 1st subgroup junctors per ED-25713-01, Fig. 10, from I3 to LCC0-2 by soldering 40 switchboard cable circuits, 20 already having been connected as covered in "Routine Test of Incoming Trunks". Buzz test T&R.

(f) **Connect** at the LJGF 276 of the 320 2nd subgroup junctors from I0-3 to LCC0-3 by soldering 120 jumpers for junctors from I3 to LCC0-2 and from I0-2 to LCC3 at one end only and 156 jumpers for junctors from I0-2 to LCC0-2 at both ends. 24 junctors remain the same as for the existing 3,I-3,LCC arrangement, as indicated in Fig. 24 herein, and 20 from I3 to LCC3 were connected as preliminary work. Any part of this work in (f) may be performed concurrently with the work in (e) above, if desired.

(g) When the work in (e) above is completed, remove from service any marker modified as in (b) or (c) above and use this marker and TTI to test sleeves of the 1st subgroup junctors connected in (e). When the work in (f) above is completed, remove block to use 1st subgroup junctors only in this marker; block marker to use 2nd subgroup junctors only per SD-25511-01, Fig. 11 for 4,I; and use this marker and TTI to test sleeves of the 2nd subgroup junctors connected in (f). Remove block to use 2nd subgroup junctors only; and, after making any necessary final check that the marker is operating in all respects in accordance with the standard for 4,I-4,LCC, return marker to service.

(h) Remove block to use 1st subgroup junctors from each of the other markers; and, after making any necessary final check, return marker to service.

During or prior to the transition and subsequent to the routine testing of incoming trunks, the Telephone Company shall have soldered the jumpers at the M.D.F. from the incoming trunks on the new incoming frame I,3 to protectors or office multiple terminal strips and made other necessary preparations to start transferring load to these trunks on the completion of the work in (g) above, with the objective of completing at least a substantial portion of this load transfer by the next busy hour.

Clean-up Work

The markers and junctors are now connected and operating in the standard manner for the new 4,I-4,LCC arrangement on 40 junctors per LCC from each of incoming frames I0-3 to LCC0-2, with the junctors to LCC3 also connected and ready for operation when lines are transferred to this line choice. The (JPL) relay per SD-25511-01, Fig. 1, and the (JP)0-2 and (JPN) pattern relays and the (LCA)0-2 relays shall be left installed in each marker, as they may be required on a future addition. The "B" and "C" step walking circuit relays (JGB), (RTB'), (RTB), (OVB), (JGC), (RTC'), (RTC), and (OVC) per SD-25283-0104, Fig. 18, shall be removed.

Preliminary Work

Install in each marker, relay (JPL) per SD-25511-01, Fig. 1, and ED-25332-02, Note 6, and connect to cross-connection terminal strip per ED-25333-01.

Make provision for utilizing the JGB4 terminal of the XTS (F) terminal strip per ED-25333-01, Fig. 2, for completing test calls from I4 in the "B" marker step during the routine testing of incoming trunks by wiring this terminal temporarily to the IT contact of the (JGB) relay per SD-25283-01, Fig. 18, and wiring the 2T contact of this relay to the 10B contact of the (JGA) relay (JR4 lead from the incoming link and connector circuit in I4).

Arrange each marker for operating the (JGD) relay per SD-25283-0104, Fig. 18, in addition to the (JGC) relay in the "C" marker step by disconnecting the cross connection between cross-connection terminals IL4 and LIL, disconnecting the lead to the 5T contact of the (JGC) relay, strapping this contact to ground at the 2T contact of this relay, and connecting a lead from the 4T contact of the (JGC) relay to the top winding terminal of (JGD) relay. Cross connect terminal IL6 to terminal LIL in place of the previous cross connection from IL4. (See SD-25511-01, Fig. 6.) The above is for the purpose of utilizing JGD3 and JGD4 cross-connection terminals in the "C" marker step for selecting 1st subgroup junctors from I3 to the LCC in which the last incoming trunk test line is assigned for routine testing the incoming trunks in I3 and I4.

Provide multiples of the JR3, JR4, or JR5 terminals on the XTS(G) terminal strip per ED-25333-01, as required [see (b) of "Routine Test of Incoming Trunks"] for cross connection to J3 terminals.

Run jumpers at the LJGF for 476 of the 500 2nd subgroup junctors of the new 5,I-5,LCC arrangement per ED-25713-01, Fig. 5, from I0-4 to LCC0-4. 24 junctors are the same as for the existing 3,I-3,LCC arrangement as indicated in Fig. 25 herein, and require no change.

Solder jumpers at the LJGF for 120 of the above 476 junctors from I3&4 to LCC0-2 at the I frame end only, for 120 junctors from I0-2 to LCC3&4 at the LCC end only, and for 80 junctors from I3&4 to LCC3&4 at both ends.

Prepare for disconnection 396 of the existing 420 2nd, 3rd, and 4th subgroup junctors per FD-25079-01, Fig. 3, 24 remaining the same for the new 5,I-5,LCC arrangement per ED-25713-01, Fig. 5, as indicated in Fig. 13 herein.

Routine Test of Incoming Trunks

The objectives of this work are (1) to establish LJA3&LJB3 1st subgroup junctors from the added incoming frame I3 to the LCC in which the last incoming trunk test line is assigned for the purpose of routine testing the incoming trunks in I3, and (2) to provide for routine testing the incoming trunks in the second added incoming frame I4 by temporarily multipling at the LJGF two of the 1st subgroup junctors from I3 to the HC in which the last incoming trunk test line is assigned with corresponding verticals in I4, and arranging the markers in the "A", "B", and "C" steps to test for these junctors on test calls from I4 to this HC. The above work in (1) constitutes part of the work that would otherwise be done during the transition period and thus facilitate the transition. The above objectives shall be accomplished in the following steps during a light-load period.

(a) Block each marker except the last to use 1st subgroup junctors only per SD-25511-01, Table 5, for 3,I; and return marker for service.

(b) Remove the last marker from service and make the following cross-connection changes. Do not return marker to service until the work in (c) below is completed.

TRNS	FROM	TO
*		
(2)JGB2	JR5	JC3
(1)JGB1	JR4	JC3
(0)JGB0	JR3	JC3
IL3	LIL	LB
IL2	RIL	LA

CONN		TO
*		
(2)JGA3&4	JGD3&4	JR5
(2)JGB3&4		JPL
(1)JGA3&4	JGD3&4	JR4
(1)JGB3&4		JPL
(0)JGA3&4	JGD3&4	JR3
(0)JGB3&4		JPL

CONN	(LCA)0	TO 1	2
*			
(2)J3	JR5	JR5	JR9
(1)J3	JR4	JR9	JR4
(0)J3	JR9	JR3	JR3

CONN	TO
*	
(2)JPM	JR5
(1)JPM	JR4
(0)JPM	JR3
1—AIL	LIL
0—AIL	RIL

*For work items numbered (0)-(2), perform only the work in items bearing the same number as the LCC in which the last incoming trunk test line is assigned.

The above changes remove from service the LJA3&LJB3 2nd subgroup junctors needed for establishing 1st subgroup from I3 to the LCC in which the last test line is assigned by causing the marker to test for existing LJA9&LJB9 4th subgroup junctors instead of these LJA3&LJB3 junctors in the "B" marker step, and prepare the marker in the "A", "B", and "C" steps to test for LJA3&LJB3 1st subgroup junctors on test calls from I3 or I4. It is not considered necessary to make additional temporary cross-connection and wiring changes in the marker to test for 1st subgroup junctors from I3 in the "E" marker step during the routine testing period, since the marker should never be required to advance to this "overflow" step on test calls from I3 or I4.

(c) Before returning to service the marker modified as in (b) above, make busy the 12 LJA9&LJB9 4th subgroup junctors per ED-25079-01, Fig. 3, in channels 1, 2, 4, 5, 7, and 8 to the LCC in which the last incoming trunk test line is assigned, since the marker changes in (b) above do not provide for

operating a pattern relay in the "B" marker step; and, therefore, the junctors from other I frames than the one which is made to test for LJA9&LJB9 junctors in the "B" step must be made busy. When this is done, return marker to service.

(d) Repeat the cross-connection changes in (b) above in each of the other markers, remove block to use 1st subgroup junctors only, and return marker to service. **Junctors in service** from one I frame to the LCC in which the last incoming trunk test line is assigned, 48; from the other I frames to this LCC, 60; in all other cases, 66 or 68 from each I frame to each LCC.

(e) When the work in (a) above is completed and the work in (b) is started, all of the LJA3&LJB3 junctors for the 3,I-3,LCC arrangement per ED-25079-01, Fig. 3, are out of service. **Disconnect** at the LJGF the 20 jumpers corresponding to the LJA3&LJB3 junctors to the LCC in which the last incoming trunk test line is assigned; and **connect** these junctors as 1st subgroup from I3 to this LCC per ED-25713-01, Fig. 10, by soldering 20 switchboard cable circuits at the LJGF. Buzz test T&R.

(f) In order to provide for routine testing the incoming trunks in I4, multiple at the LJGF two of the LJA3 or LJB3 junctors connected in (e) above to the HC in which the last incoming trunk test line is assigned, with corresponding verticals in I4. The two junctors shall be those for channels 0 and 1; and the verticals in I4 shall be the same as those on which the junctors terminate in I3, viz., the verticals bearing the same number as the HC to which the junctors connect and in the same channels as the verticals in 13. The multipling shall be accomplished by connecting the switchboard cable circuits from I4 temporarily to the LJGF terminals on which the cable circuits from I3 terminate.

(g) Remove from service any marker modified as in (b) or (d) above, and use this marker and TTI to test sleeves of the 1st subgroup junctors connected in (e) above. Return marker to service.

The incoming trunks in the first added incoming frame I3 shall now be routine tested by the use of the 1st subgroup junctors from I3. When this testing is completed, routine test the incoming trunks in I4 by the use of the two LJA3 or LJB3 junctors which are multipled with verticals of this frame, after having first made busy the other eight LJA3 or LJB3 junctors to the same HC. All of the above routine testing shall be completed prior to the start of the transition work.

Transition Work

In the following transition work it is assumed that the incoming trunks in I3&4 have been routine tested, that the 1st subgroup junctors from I3 to the LCC in which the last incoming trunk test line is assigned have been connected at the LJGF, and that the temporary marker cross-connections and other wiring outlined in (b) of "Routine Test of Incoming Trunks" and in "Preliminary Work" are still in place.

(a) Remove each marker except the last from service; block to use 1st subgroup junctors only per SD-25511-01, Fig. 5, for 3,I; and return to service.

(b) Remove the last marker from service; remove all temporary marker cross connections made in (b) of "Routine Test of Incoming Trunks" except the possible connection from JGA3 to JR3 or JGA4 to JR4; convert the temporary wiring outlined in "Preliminary Work" to normal; convert the marker in all other respects to the standard for 5,I-5,LCC (including the changes in the marker walking circuit to make the marker operative in steps "A" and "E" only); block marker to use 1st subgroup junctors only per SD-25511-01, Table 11 for 5,I; and return marker to service.

(c) Repeat changes in (b) above in each of the other markers, and return marker to service.

(d) As soon as the work in (a) above is completed and the work in (b) is started, the (LJA)&(LJB)3-9 relays of LCC0-2 are out of service. Change the cross connections to the windings of these relays in LCC1&2 to the standard for the new 5,I-5,LCC arrangement per ED-25713-01, Fig. 11. Also at this time remove busy from the 12 LJA9&LJB9 4th subgroup junctors that were made busy by the work in (c) of "Routine Test of Incoming Trunks".

(e) Also at the end of the work in (a) and the start of the work in (b) above, the 420 LJA&LJB3-9 junctors per ED-25079-01, Fig. 3, are out of service. **Disconnect** at the LJGF 376 of the corresponding jumpers, leaving unchanged 24 of these junctors which are the same for the new 5,I-5,LCC arrangement per ED-25113-01, Fig. 5, as indicated in Fig. 13 herein, and 20 which were changed by the work in (e) of "Routine Test of Incoming Trunks". **Also disconnect** at the LJGF the temporary multiple of two 1st subgroup junctors from I3 with corresponding verticals in I4 which were connected by the work in (f) of "Routine Test of Incoming Trunks". **Connect** at the LJGF 100 of the 120 1st subgroup junctors per ED-25713-01, Fig. 10, from I3&4 to LCC0-2 by soldering 100 switchboard cable circuits, 20 already having been connected as covered in "Routine Test of Incoming Trunks". Buzz test T&R.

(f) **Connect** at the LJGF 396 of the 500 2nd subgroup junctors from I0-4 to LCC0-4 by soldering 240 jumpers for junctors from I3&4 to LCC0-2 and from I0-2 to LCC3&4 at one end only and 156 jumpers for junctors from I0-3 to LCC0-3 at both ends. 24 junctors remain the same as for the existing 3,I-3,LCC arrangement as indicated in Fig. 25 herein, and 80 from I3&4 to LCC3&4 were connected as preliminary work. Buzz test T&R. Any part of this work in (f) may be performed concurrently with the work in (e) above, if desired.

(g) When the work in (e) above is completed, remove from service any marker modified as in (b) or (c) above and use this marker and TTI to test sleeves of the 1st subgroup junctors connected in (e). When the work in (f) above is completed, remove block to use 1st subgroup junctors only; block to use 2nd subgroup junctors only per SD-25511-01, Fig. 11, for 5,I; and use this marker and TTI to test sleeves of the 2nd subgroup junctors connected in (f). Remove block to use 2nd subgroup junctors only; and, after making any necessary final check that the marker is operating in all respects in accordance with the standard per 5,I-5,LCC, return marker to service.

(h) Remove block to use 1st subgroup junctors from each of the other markers; and, after making any necessary final check, return marker to service.

During or prior to the transition and subsequent to the routine testing of incoming trunks, the Telephone Company shall have soldered the jumpers at the M.D.F. from the incoming trunks on the new incoming frames I3&4 to protectors or office multiple terminal strips and made other necessary preparations to start transferring load to these trunks on the completion of the work in (g) above, with the objective of completing at least a substantial portion of this load transfer by the next busy hour.

Clean-up Work

The markers and junctors are now connected and operating in the standard manner for the new 5,I-5,LCC arrangement on 40 junctors from each of incoming frames I0-4 to each of LCC0-2, with the junctors to LCC3&4 also connected and ready for operation when lines are transferred to these line choices. The (JPL) relays per SD-25511-01, Fig. 1, the (JP)0-2 and (JPN) pattern relays, and the (LCA)0-2 relays shall be left installed in each marker, as they may be required on a future addition. The "B" and "C" walking circuit relays (JGB), (RTB'), (RTB), (OVB), (JGC), (RTC'), (RTC) and (OVC) per SD-25283-0104, Fig. 18, shall be removed.

PROCEDURE 033

Preliminary Work

Install in each marker, relay (JPL) per SD-25511-01, Fig. 1, and ED-25332-02, Note 6, and connect to cross-connection terminal strip per ED-25333-01.

Make provision for utilizing the JGB4 and JGB5 terminals of the XTS (F) terminal strip per ED-25333-01, Fig. 2, for completing test calls from I4 and I5 in the "B" marker step during the routine testing of incoming trunks by wiring these terminals temporarily to the 1T and 3T contacts, respectively, of the (JGB) relay per SD-25283-01, Fig. 18, and wiring the 2T and 4T contacts of this relay to the 10B and 12B contacts, respectively, of the (JGA) relay (JR4 and JR5 leads from the incoming link and connector circuits in I4 and I5).

Arrange each marker for operating the (JGD) relay per SD-25283-0104, Fig. 18, in addition to the (JGC) relay in the "C" marker step by disconnecting the cross connection between cross-connection terminals IL4 and LIL, disconnecting the lead to the 5T contact of the (JGC) relay, strapping this contact to ground at the 2T contact of this relay and connecting a lead from the 4T contact of the (JGC) relay to the top winding terminal of (JGD) relay. Cross connect terminal IL6 to terminal LIL in place of the previous cross connection from IL4. (See SD-25511-01, Fig. 6.) The above is for the purpose of utilizing JGD3, JGD4, and JGD5 cross-connection terminals in the "C" marker step for selecting 1st subgroup junctors from I3 to the LCC in which the last incoming trunk test line is assigned for routine testing the incoming trunks in I3, I4, and I5.

Provide multiples of the JR3, JR4, or JR5 terminals on the XTS(G) terminal strip per ED-25333-01, as required [see (b) of Routine Test of Incoming Trunks"] for cross connection to J3 terminals.

Run jumpers at the LJGF for 342 of the 360 2nd subgroup junctors of the new 6,I-6,LCC arrangement per ED-25713-01, Fig. 6, from I0-5 to LCC0-5. 18 junctors are the same as for the existing 3,I-3,LCC arrangement as indicated in Fig. 26 herein, and require no change.

Solder jumpers at the LJGF for 90 of the above 342 junctors from I3&4 to LCC0-2 at the I frame end only, for 90 junctors from I0-2 to LCC3&4 at the LCC end only, and for 90 junctors from I3&4 to LCC3&4 at both ends.

Prepare for disconnection 402 of the existing 420 2nd, 3rd, and 4th subgroup junctors per ED-25079-01, Fig. 3, 18 remaining the same for the new 6,I-6,LCC arrangement per ED-25713-01, Fig. 6, as indicated in Fig. 13 herein.

Routine Test of Incoming Trunks

The objectives of this work are (1) to establish LJA3&LJB3 1st subgroup junctors from the added incoming frame I3 to the LCC in which the last incoming trunk test line is assigned for the purpose of routine testing the incoming trunks in I3, and

(2) to provide for routine testing the incoming trunks in the second and third added incoming frame I4 and I5 by temporarily multipling at the LJGF four of the 1st subgroup junctors from I3 to the HC in which the last incoming trunk test line is assigned, with two corresponding verticals in each of I4 and I5, and arranging the markers in the "A", "B", and "C" steps to test for these junctors on test calls from I4 and I5 to this HC. The above work in (1) constitutes part of the work that would otherwise be done during the transition period and thus facilitate the transition. The above objectives shall be accomplished in the following steps during a light-load period.

(a) Block each marker except the last to use 1st subgroup junctors only per SD-25511-01, Fig. 5, for 3,I; and return marker for service.

(b) Remove the last marker from service and make the following cross-connection changes. Do not return marker to service until the work in (c) below is completed.

*	TRNS	FROM	TO
	(2)JGB2	JR5	JC3
	(1)JGB1	JR4	JC3
	(0)JGB0	JR3	JC3
	IL3	LIL	LB
	IL2	RIL	LA

*	CONN (LCA)	TO 0	1	2
(2)	J3	JR5	JR5	JR9
(1)	J3	JR4	JR9	JR4
(0)	J3	JR9	JR3	JR3

*	CONN		TO
(2)	JGA3,4&5	JGD3,4&5	JR5
(2)	JGB3,4&5		JPL
(1)	JGA3,4&5	JGD3,4&5	JR4
(1)	JGB3,4&5		JPL
(0)	JGA3,4&5	JGD3,4&5	JR3
(0)	JGB3,4&5		JPL

*	CONN	TO
(2)	JPM	JR5
(1)	JPM	JR4
(0)	JPM	JR3
	1—AIL	LTL
	0—AIL	RIL

*For work items numbered (0)-(2), perform only the work items bearing the same number as the LCC in which the last incoming trunk test line is assigned.

The above changes remove from service the LJA3&LJB3 2nd subgroup junctors needed for establishing 1st subgroup from I3 to the LCC in which the last test line is assigned by causing the marker to test for existing LJA9&LJB9 4th subgroup junctors instead of these LJA3&LJB3 junctors in the "B" marker step, and prepare the marker in the "A", "B", and "C" steps to test for LJA3&LJB3 1st subgroup junctors on test calls from I3, I4, or I5. It is not considered necessary to make additional temporary cross-connection and wiring changes in the marker to test for 1st subgroup junctors from I3 in the "E" marker step during the routine testing period, since the marker should never be required to advance to this "overflow" step on test calls from I3, I4, or I5.

(c) Before returning to service the marker modified as in (b) above, make busy the 12 LJA9&LJB9 4th subgroup junctors per ED-25079-01, Fig. 3, in channels 1, 2, 4, 5, 7, and 8 to the LCC in which the last incoming trunk test line is assigned, since the marker changes in (b) above do not provide for operating a pattern relay in the "B" marker step; and, therefore, the junctors from other I frames than the one which is made to test for LJA9&LJB9 junctors in the "B" step must be made busy. When this work is done, return above marker to service.

(d) Repeat the cross-connection changes in (b) above in each of the other markers, remove block to use 1st subgroup junctors only, and return marker to service. **Junctors in service** from one I frame to the LCC in which the last incoming trunks test line is assigned, 48; from the other I frames to this LCC, 60; in all other cases, 66 or 68 from each I frame to each LCC.

(e) When the work in (a) above is completed and the work in (b) is started, all of the LJA3&LJB3 junctors for the 3,I-3,LCC arrangement per ED-25079-01, Fig. 3, are out of service. **Disconnect** at the LJGF the 20 jumpers corresponding to the LJA3&LJB3 junctors to the LCC in which the last incoming trunk test line is assigned, and **connect** these junctors as 1st subgroup from I,3 to this LCC per ED-25713-01, Fig. 10, by soldering 20 switchboard cable circuits at the LJGF. Buzz test T&R.

(f) In order to provide for routine testing the incoming trunks in I4 and I5, multiple at the LJGF two of the LJA3 or LJB3 junctors connected in (e) above to the HC in which the last incoming trunk test line is assigned, with corresponding verticals in I4, and multiple two other of such junctors with corresponding verticals in I5. These four junctors shall be those for channels 0, 1, 2, and 3, respectively; and the verticals in I4 and I5 shall be the same as those on which the junctors terminate in I3, viz., the verticals bearing the same number as the HC to which the junctors connect, and in the same channels as the verticals in I3. The multipling shall be accomplished by connecting the switchboard cable circuits from I4 and I5 temporarily to the LJGF terminals on which the cable circuits from I3 terminate.

(g) Remove from service any marker modified as in (b) or (d) above, and use this marker and TTI to test sleeves of the 1st subgroup junctors connected in (e) above. Return marker to service.

The incoming trunks in the first added incoming frame I3 shall now be routine tested by the use of the 1st subgroup junctors from I3. This routine testing shall be followed by the routine testing of the incoming trunks in I4 and I5 in succession by using successively the two LJA3 or LJB3 junctors which are multipled with verticals of each of these frames, after having first made busy the other eight LJA3 or LJB3 junctors to the same HC. All of the above routine testing shall be completed prior to the start of the transition work.

Transition Work

In following transition work, it is assumed that the incoming trunks in I3-5 have been routine tested,

that the 1st subgroup junctors from I3 to the LCC connector in which the last incoming trunk test line as assigned have been connected at the LJGF, and that the temporary marker cross connections and other wiring outlined in (b) of "Routine Test of Incoming Trunks" and in "Preliminary Work" are still in place.

(a) Remove each marker except the last from service; block to use 1st subgroup junctors only per SD-25511-01, Fig. 5, for 3,I; and return to service.

(b) Remove the last marker from service; remove all temporary marker cross connections made in (b) of "Routine Test of Incoming Trunks" except the possible connection from JGA3 to JR3, JGA4 to JR5, or JGA5 to JR5; convert the temporary wiring outlined in "Preliminary Work" to normal; convert the marker in all other respects to the standard for 6,I-6,LCC (including the changes in the marker walking circuit to make the marker operative in steps "A" and "E" only); block marker to use 1st subgroup junctors only per SD-25511-01, Table 11 for 6,I; and return marker to service.

(c) Repeat changes in (b) above in each of the other markers, and return marker to service.

(d) As soon as the work in (a) above is completed and the work in (b) is started, the (LJA)& (LJB)3-9 relays of LCC0-2 are out of service. Change the cross connections to the windings of these relays in LCC1&2 to the standard for the new 6,I-6,LCC arrangement per ED-25713-01, Fig. 11.

(e) Also at the end of the work in (a) and the start of the work in (b) above, the 420 LJA&LJB3-9 junctors per ED-25079-01, Fig. 3, are out of service. **Disconnect** at the LJGF 382 of the corresponding jumpers, leaving unchanged 18 of these junctors which are the same for the new 6,I-6,LCC arrangement per ED-25713-01, Fig. 6, as indicated in Fig. 13 herein, and 20 which were changed by the work in (e) of "Routine Test of Incoming Trunks." **Also disconnect** at the LJGF the temporary multiple of four 1st subgroup junctors from I3 with corresponding verticals in I4 and I5 which were connected by the work in (f) of "Routine Test of Incoming Trunks". **Connect** at the LJGF 160 of the 180 1st subgroup junctors per ED-25713-01, Fig. 10, from I3-4 to LCC0-2 by soldering 160 switchboard cable circuits, 20 already having been connected as covered in "Routine Test of Incoming Trunks". Buzz test T&R.

(f) **Connect** at the LJGF 252 of the 360 2nd subgroup junctors from I0-5 to LOC0-5 by soldering 180 jumpers for junctors from I3-5 to LCC0-2 and from I0-2 to LCC3-5 at one end only and 72 jumpers for junctors from I0-3 to LCC0-3 at both ends. 18 junctors remain the same as for the existing 3,I-3,LCC arrangement, as indicated in Fig. 26 herein, and 90 from I3-5 to LCC3-5 were connected as preliminary work. Buzz test T&R. Any part of this work in (f) may be performed concurrently with the work in (e) above, if desired.

(g) When the work in (e) above is completed, remove from service any marker modified as in (b) or (c) above; and use this marker and TTI to test sleeves of the 1st subgroup junctors connected in (e). When the work in (f) above is completed, remove block to use 1st subgroup only; block to use 2nd subgroup junctors only per SD-25511-01, Fig. 11, for 6,I; and use this marker and TTI to test sleeves of the 2nd subgroup junctors connected in (f). Remove block to use 2nd subgroup junctors only; and, after making any necessary final check that the marker is operating in all respects in accordance with the standard for 6,I-6,LCC, return marker to service.

(h) Remove block to use 1st subgroup junctors from each of the other markers; and, after making any necessary final check, return marker to service.

During or prior to the transition and subsequent to the routine testing of incoming trunks, the Telephone Company shall have soldered the jumpers at the M.D.F. from the incoming trunks on the new incoming frames I3-5 to protectors or office multiple terminals strips and made other necessary preparations to start transferring load to these trunks on the completion of the work in (g) above, with the objective of completing at least a substantial portion of this load transfer by the next busy hour.

Clean-up Work

The markers and junctors are now connected and operating in the standard manner for the new 6,I-6,LCC arrangement on 30 junctors from each of incoming frames I-5 to each of LCC0-2, with the junctors to LCC3-5 also connected and ready for operation when lines are transferred to these line choices. The (JPL) relay per SD-25511-01, Fig. 1, shall be left installed, as it may be required on a future addition. The "B" and "C" walking step circuit relays (JGB), (RTB'), (RTB), (OVB), (JGC), (RTC'), (RTC), and (OVC) per SD-25283-0104, Fig. 18, shall be removed.

Preliminary Work

No installation of any temporary transition apparatus or wiring is required for transitions from an existing 4,I-4,LCC arrangement per ED-25079-01, Fig. 4, to a new 5,I-5,LCC arrangement per ED-25713-01, Fig. 5, since the incoming trunks in I4 are to be routine tested after the transition work is completed; and the establishment in advance of junctors from I4 to one of the LCC for routine test purposes is, therefore, not required.

Run jumpers at the LJGF for 380 of the 500 2nd subgroup junctors of the new 5,I-5,LCC arrangement per ED-25713-01, Fig. 5, from I0-4 to LCC0-4. 120 junctors are the same as for the existing 4,I-4,LCC arrangement per ED-25079-01, Fig. 4, as indicated in Fig. 25 herein.

Solder jumpers at the LJGF for 80 of the above 380 junctors from I4 to LCC0-3 at the I frame end only, for 80 junctors from I0-3 to LCC4 at the LCC end only, and for 20 junctors from I4 to LCC4 at both ends.

Prepare for disconnection at the LJGF the jumpers for 360 of the existing 480 2nd and 3rd subgroup junctors per ED-25079-01, Fig. 4, 120 remaining the same for the new 5,I-5,LCC arrangement as indicated in Fig. 14 herein.

Transition Work

On additions to an existing 4,I-4,LCC arrangement per ED-25079-01 to a new 5,I-5,LCC arrangement per ED-25713-01, Fig. 5, it is satisfactory to make all necessary changes for operation with the new junctor distribution prior to the routine testing of the incoming trunks in I4. This is because the new distribution provides 40 junctors from each incoming frame to each LCC, which is sufficient to carry the existing load from I0-3 to LCC0-3, and in fact, is the same as provided under the new 4,I-4,LCC arrangement per ED-25713-01. It is unnecessary, therefore, to establish junctors for routine testing the incoming trunks in advance of the transition. The transition work shall be conducted as follows:

(a) Block each marker except the last marker to use 1st subgroup junctors only per SD-25511-01, Table 5 for 4,I, and return marker to service.

(b) Remove the last marker from service; convert marker in all respects to the standard for the new 5,I-5,LCC arrangement (including the changes in the marker walking circuit to make the marker operative in the "A" and "E" steps only); block marker to use 1st subgroup junctors only per SD-25511-01, Table 11, for 5,I; and return marker to service.

(c) Repeat changes in (b) above in each of the other markers, and return marker to service.

(d) As soon as the work in (a) above is completed and the work in (b) is started, the (LJA)&(LJB)4-9 relays of LCC0-3 are out of service. Change the cross connections to the windings of these relays of LCC1-3 to conform with the standard for the new 5,I-5,LCC arrangement per ED-25713-01, Fig. 11.

(e) Also as soon as the work in (a) above is completed and the work in (b) is started, the 480 2nd and 3rd subgroup LJA&LJB4-9 junctors per ED-25079-01, Fig. 4, are out of service. **Disconnect** at the LJGF 360 of the corresponding jumpers, leaving unchanged 120 jumpers for junctors that remain the same for the new 5,I-5,LCC arrangement per ED-25713-01, Fig. 5, as indicated in Fig. 14 herein. **Connect** the 80 1st subgroup junctors from I4 to LCC0-3 per ED-25713-01, Fig. 10, by soldering 80 switchboard cable circuits. Buzz test T&R.

(f) **Connect** at the LJGF 360 of the 500 2nd subgroup junctors from I0-4 to LCC0-4 for the 5,I-5,LCC arrangement per ED-25713-01, Fig. 5, by soldering 160 jumpers for junctors from I4 to LCC0-3 and from I0-3 to LCC4 at one end only and 200 jumpers for junctors from I0-3 to LCC0-3 at both ends. 120 junctors remain the same as for the 4,I-4,LCC arrangement as indicated in Fig. 25 herein, and 20 from I4 to LCC4 were connected as preliminary work. Buzz test T&R. Any part of this work in (f) may be performed concurrently with the work in (e) above, if desired.

(g) When the work in (e) above is completed, remove from service any marker modified as in (b) or (c) above and use this marker and TTI to test sleeves of the 1st subgroup junctors connected in (e). When the work in (f) above is completed, remove block to use 1st subgroup junctors only; block marker to use 2nd subgroup junctors only per SD-25511-01, Fig. 11, for 5,I; and use this marker and TTI to test sleeves of 2nd subgroup junctors connected in (f). Remove block to use 2nd subgroup junctors only; and, after making any necessary final check that the marker is operating in all respects in accordance with the standard for the new 5,I-5,LCC arrangement, return marker to service.

(h) Remove block to use 1st subgroup junctors only from each of the other markers; and, after making any necessary final check, return marker to service.

Clean-up Work and Routine Test of Incoming Trunks

The markers and junctors are now connected and operating in the standard manner for the new 5,I-5,LCC arrangement on 40 junctors from each of incoming frames I0-3 to each of LCC0-3, with the junctors from I4 and to LCC4 connected and ready for operation when load is transferred to I4 and lines are assigned to LCC4. The (JP)0&1 and (JPN) pattern relays and (LCA)0-3 relays shall be left installed in each marker as they may be required on future additions. The "B" step walking circuit re-

PROCEDURE 041

lays (JGB), (RTB'), (RTB), and (OVB) per SD-25283-0104, Fig. 18, shall be removed.

Upon the completion of the transition work above, the routine testing of the trunks in I4 shall begin. At the completion of the routine tests on each group of trunks, the Telephone Company shall solder at the M.D.F. the jumpers from these incoming trunks to protectors or office multiple terminal strips and transfer load to these trunks.

PROCEDURE 042

Preliminary Work

Install in each marker, relay (JPL) per SD-25511-01, Fig. 1, and ED-25332-02, Note 6, and connect to cross-connection terminal strip per ED-25333-01.

Arrange for operating the (JGD) relay (SD-25283-0104, Fig. 18) in addition to the (JGB) relay in the "B" marker step by temporarily connecting a lead from the 3T contact of the (JGB) relay to the top winding terminal of (JGD) relay and connecting the 4T contact of the (JGB) relay to ground. (See SD-25511-01, Fig. 6.) This change is for the purpose of utilizing the JGD4 and JGD5 cross-connection terminals in the "B" marker step for selecting 2nd subgroup junctors to LCC0 or LCC1 for routine testing the incoming trunks in I4 and I5.

Run jumpers at the LJGF for 350 of the 360 2nd subgroup junctors of the new 6,I-6,LCC arrangement per ED-25713-01, Fig. 6, from I0-5 to LCC0-5. 10 junctors, as indicated in Fig. 24 herein, are the same as for the existing 4,I-4,LCC arrangement and require no change.

Solder jumpers at the LJGF for 80 of the above 350 junctors from I4&5 to LCC0-3 at the I frame end only, for 80 junctors from I0-3 to LCC4&5 at the LCC end only, and for 40 junctors from I4&5 to LCC4&5 at both ends.

Prepare for disconnection at the LJGF 470 of the existing 480 2nd and 3rd subgroup junctors per ED-25079-01, Fig. 4, 10 junctors remaining the same for the new 6,I-6,LCC arrangement per ED-25713-01, Fig. 6, as indicated in Fig. 14 herein.

Routine Test of Incoming Trunks

The objective of this work is to establish LJA8&LJB8 2nd subgroup junctors for the new 6,I-6,LCC arrangement per ED-25713-01, Fig. 6, from the added incoming frames I4&5 to LCC0&1 for the purpose of routine testing the incoming trunks in I4&5. If the last incoming trunk test line is not assigned in LCC0 or LCC1, it shall be temporarily so assigned and connected in order that the above junctors may be utilized for completing test calls from I4&5 to this line. If such reassignment is necessary and either LCC0 or LCC1 has less traffic than the other, the last test line should be assigned in the LCC with the lesser traffic.

(a) Make the following cross-connection changes in each marker, and return marker to service. **Junctors in service** from each of I0&1 to each of LCC0-3, 40; from each of I2&3 to each of LCC0-3, 50.

TRNS	FROM	TO
JGE1	JR8	JR1
JGE0	JR8	JR0
IL1	RIL	LB
IL0	LIL	LA

CONN		TO
JGA4	JGA5	JPL
JGD4	JGD5	JR8
1-AIL		RIL
0-AIL		LIL
JPM		JR8

The above changes remove from service the existing LJA8&LJB8 3rd subgroup junctors from I0&1 to LCC0&1 that are needed for establishing 2nd subgroup junctors for the new 6,I-6,LCC arrangement from I4&5 to LCC0&1, cause the marker to test existing 1st subgroup junctors instead of these LJA8&LJB8 junctors in the "E", marker step, and prepare the marker in the "A" and "B" steps to test for the new LJA8&LJB8 2nd group junctors on test calls from I4&5. It is not considered necessary to make additional temporary cross connections in the markers to test for these junctors in the "E" marker step during the routine test period since the markers should never be required to advance to this "overflow" step on test calls from I4&5. The LJA9&LJB9 junctors from I0&1 to LCC2&3 are also removed from service, but the resultant reduction to 40 junctors from each of these I frames to each LCC will not materially affect the junctor capacity. The pattern relays operated in the "E" step are effective on calls routed over 1st subgroup junctors from I0&1 to LCC0-3 in the "E" step, but this is immaterial since all of these junctors are still being tested in the "A" marker step. It will be noted that the cross connections to the 0-AIL, 1-AIL, LA, and LB terminals associated with the (JPL) relay are such as to associate left links with HCA and right links with HCB when the relay is normal, and right links with HCA and left links with HCB when the relay is operated, which is the reverse of the usual connections to this relay.

(b) When the work in (a) above is completed, 40LJA8&LJB8 junctors for the 4,I-4,LCC arrangement per ED-25079-01, Fig. 4, to LCC0&1 are out of service. **Disconnect** corresponding jumpers at the LJGF. **Connect** these LJA8&LJB8 junctors as 2nd subgroup from I4&5 to LCC0&1 per ED-25713-01, Fig. 6, by soldering 40 jumpers at one end only. Buzz test T&R.

(c) Make busy the 20 LJA8&LJB8 2nd subgroup junctors from I4 to LCC0&1 connected in (b) above. Remove from service any marker modified as in (a) above; use this marker and TTI to test sleeves of the 20 LJA8&LJB8 2nd subgroup junctors from I5 to LCC0&1. Remove busy from the 20 junctors from I4; make busy the 20 LJA8&LJB8 2nd subgroup junctors from I5 to LCC0&1 connected in (b) above; use marker and TTI to test sleeves of the 20 LJA8&LJB8 2nd subgroup junctors from I4 to LCC0&1; and return marker to service. Leave busy the 20 junctors from I5 to LCC0&1.

The 2nd subgroup junctors from I4 to the LCC0 or LCC1 with the last incoming trunk test line shall now be used to routine test the incoming trunks in I4. When this testing is completed, remove busy from the 20 LJA8&LJB8 2nd subgroup junctors from I5 to LCC0&1; make busy the 5 LJA8 or LJB8 2nd subgroup junctors from I4 to the HC in which the last incoming trunk test line is assigned; and use the 2nd subgroup junctors from I5 to this HC to routine test the incoming trunks in I5. When this testing is completed, remove busy from the 5 junctors from I4. The above routine testing shall be completed prior to the start of the transition work.

Transition Work

In the following transition work it is assumed that the incoming trunks in I4 and I5 have been routine tested, that the 2nd subgroup junctors for the new 6,I-6,LCC arrangement from I4&5 to LCC0&1 have been connected at the LJGF and are ready for use, and that the temporary marker wiring and cross connections outlined in "Preliminary Work" and (a) of "Routine Tests of Incoming Trunks" are still in place.

(a) Remove each marker except the last from service; block to use 1st subgroup junctors only per SD-25511-01, Table 5, for 4,I; and return marker to service.

(b) Remove the last marker from service; remove all temporary marker wiring and cross connections made in "Preliminary Work" and (a) of "Routine Test of Incoming Trunks"; convert the marker in all respects to the standard for 6,I-6,LCC (including the changes in the marker walking circuit to make the marker operative in steps "A" and "E" only); block marker to use 1st subgroup junctors only per SD-25511-01, Table 11, for 6,I; and return marker to service.

(c) Repeat changes in (b) above in each of the other markers, and return marker to service.

(d) As soon as the work in (a) above is completed and the work in (b) is started, the (LJA)&(LJB)4-9 relays of LCC0-3 are out of service. Change the cross connections to the windings of these relays in LCC1-3 to the standard for the new 6,I-6,LCC arrangement per ED-25713-01, Fig. 11.

(e) Also at the end of the work in (a) and the start of the work in (b) above, the 480 LJA&LJB4-9 junctors per ED-25079-01, Fig. 4, are out of service. **Disconnect** at the LJGF 430 of the corresponding jumpers, leaving unchanged 10 of these junctors which are the same for the new 6,I-6,LCC per ED-25713-01, Fig. 6, as indicated in Fig. 14 herein, and 40 which were changed by the work in (b) of "Routine Test of Incoming Trunks". **Connect** at the LJGF the 160 LJA&LJB4&5 1st subgroup junctors per ED-25713-01, Fig. 10, from I4&5 to LCC0-3 by soldering 160 switchboard cable circuits. Buzz test T&R.

(f) **Connect** at the LJGF 270 of the 360 LJA&LJB7-9 2nd subgroup junctors of the new 6,I-6,LCC arrangement per ED-25713-01, Fig. 6, from I0-5 to LCC0-5 by soldering 120 jumpers for junctors from I4&5 to LCC0-3 and from I0-3 to LCC4&5 at one end only, and 150 jumpers for junctors from I0-3 to LCC0-3 at both ends. 10 junctors remain the same as for the existing 4,I-4,LCC arrangement as indicated in Fig. 26 herein; 40 from I4&5 to LCC4&5 were connected as preliminary work and 40 from I4&5 to LCC0&1 were connected by the work in (b) of "Routine Test of Incoming Trunks". Any part of this work in (f) may be performed concurrently with the work in (e) above, if desired.

(g) When the work in (e) above is completed, remove from service any marker modified as in (b) or (c) above and use this marker and TTI to test sleeves of the 1st subgroup junctors connected in (e). When the work in (f) above is completed, remove block to use 1st subgroup junctors only in this marker; block marker to use 2nd subgroup junctors only per SD-25511-01, Table 11, for 6,I; and use this marker and TTI to test sleeves of the 2nd subgroup junctors connected in (f). Remove block to use 2nd subgroup junctors only; and, after making any necessary final check that the marker is operating in all respects in accordance with the new standard for 6,I-6,LCC, return marker to service.

(h) Remove block to use 1st subgroup junctors from each of the other markers; and, after making any necessary final check, return marker to service.

During or prior to the transition and subsequent to the routine testing of incoming trunks, the Telephone Company shall have soldered the jumpers at the M.D.F. from the incoming trunks on the new incoming frames I4&5 to protectors or office multiple terminal strips and made other necessary preparations to start transferring load to these trunks on the completion of the work in (g) above, with the objective of completing at least a substantial portion of this load transfer by the next busy hour.

PROCEDURE 042

Clean-up Work

The markers and junctors are now connected and operating in the standard manner for the new 6,I-6,LCC arrangement on 30 junctors from each of incoming frames I0-5 to each of LCC0-3, with the junctors to LCC4&5 also connected and ready for operation when lines are transferred to these line choices. The (JPL) relay per SD-25511-01, Fig. 1, shall be left installed in each marker, as it may be required on a future addition. The "B" step walking circuit relays (JGB), (RTB'), (RTB), and (OVB) per SD-25283-0104, Fig. 18, shall be removed.

PROCEDURE 043

Preliminary Work

Install in each marker, relay (JPL) per SD-25511-01, Fig. 1, and ED-25332-02, Note 6, and connect to cross-connection terminal strip per ED-25333-01.

Arrange for operating the (JGD) relay (SD-25283-0104, Fig. 18) in addition to the (JGB) relay in the "B" marker step by temporarily connecting a lead from the 3T contact of the (JGB) relay to the top winding terminal of (JGD) relay and connecting the 4T contact of the (JGB) relay to ground. (See SD-25511-01, Fig. 6.) This change is for the purpose of utilizing the JGD4, JGD5, and JGD6 cross-connection terminals in the "B" marker step for selecting 2nd subgroup junctors to LCC0 or LCC1 for routine testing the incoming trunks in I4, I5, and I6, respectively.

Run jumpers at the LJGF for the 246 2nd subgroup junctors of the new 7,I-7,LCC arrangement per ED-25713-01, Fig. 7, from I0-6 to LCC0-6.

Solder jumpers for 60 of the above 246 junctors from I4-6 to LCC0-3 at the I frame end only, for 60 junctors from I0-3 to LCC4-6 at the LCC end only, and for 46 junctors from I4-6 to LCC4-6 at both ends.

Prepare for disconnection all of the existing 480 2nd and 3rd subgroup junctors per ED-25079-01, Fig. 4.

Routine Test of Incoming Trunks

The objective of this work is to establish LJA8&LJB8 2nd subgroup junctors for the new 7,I-7,LCC arrangement per ED-25713-01, Fig. 7, from the added incoming frames I4-6 to LCC0-3 for the purpose of routine testing the incoming trunks in I4-6.

(a) Make the following cross-connection changes in each marker, and return markers to service. **Junctors in service** from each of I0-3 to each of LCC0-3, 40.

TRNS	FROM	TO
JGE3	JR9	JR3
JGE2	JR9	JR2
JGE1	JR8	JR1
JGE0	JR8	JR0
IL1	RIL	LB
IL0	LIL	LA

CONN			TO
JGA4	JGA5	JGA6	JPL
JGD4	JGD5	JGD6	JR8
1-AIL			RIL
0-AIL			LIL
JPM			JR8

The above changes remove from service all of the existing LJA8&LJB8 3rd subgroup junctors for the purpose of establishing 2nd subgroup junctors for the new 7,I-7,LCC arrangement from I4-6 to LCC0-3, cause the marker to test existing 1st subgroup junctors instead of these LJA8&LJB8 junctors in the "E", marker step, and prepare the marker in the "A" and "B" steps to test for the new LJA8&LJB8 2nd subgroup junctors from I4-6. It is not considered necessary to make additional temporary cross connections in the markers to test for these junctors in the "E" marker step during the routine test period since the markers should never be required to advance to this "overflow" step on test calls from I4-6. The LJA9&LJB9 junctors from I0-3 to LCC0-3 are also removed from service, but the resultant reduction to 40 junctors from each of these I frames to each LCC will not materially affect the junctor capacity. The pattern relays operated in the "E" step are effective on calls routed over 1st subgroup junctors from I0-3 to LCC0-3 in the "E" step, but this is immaterial since all of these junctors are still being tested in the "A" marker step. It will be noted that the cross connections to the 0-AIL, 1-AIL, LA and LB terminals associated with the (JPL) relay are such as to associate left links with HCA and right links with HCB when the relay is normal, and right links with HCA and left links with HCB when the relay is operated, which is the reverse of the usual connections to this relay.

(b) When the work in (a) above is completed, the (LJA)&(LJB)8&9 relays of LCC0-3 are out of service. Connect the windings of these relays of LCC2&3 to like numbered marker leads per ED-25713-01, Fig. 11, for 7,I-7,LCC.

(c) Also when the work in (a) above is completed and the work in (b) is started, the 80 LJA8&LJB8 junctors for the 4,I-4,LCC arrangement per ED-25079-01, Fig. 4, to LCC0-3 are out of service. **Disconnect** corresponding jumpers at the LJGF. **Connect** 60 of these junctors as LJA8&LJB8 2nd subgroup junctors from I4-5 to LCC0-3 per ED-25713-01, Fig. 7, by soldering 60 jumpers at one end only. Buzz test T&R.

(d) Make busy the 40 LJA8&LJB8 2nd subgroup junctors from I4&5 to LCC0-3 connected in (c) above, and also make busy the 20 LJA8&LJB8 vacant junctor positions that are reserved for future

junctors from I8. The latter make-busy operation must of course be performed at the line link secondary verticals, whereas the former may be done at either the incoming link secondary or line link secondary verticals, as desired. Remove from service any marker modified as in (a) above, and use this marker and TTI to test sleeves of the 20 LJA8&LJB8 2nd subgroup junctors from I6 to LCC0-3 connected in (c) above. Remove busy from the 20 LJA8&LJB8 junctors from I5; make busy the 20 LJA8&LJB8 2nd subgroup junctors from I6 to LCC0-3; and use marker and TTI to test sleeves of the 20 LJA8&LJB8 2nd subgroup junctors from I5 to LCC0-3. Remove busy from the 20 LJA8&LJB8 2nd subgroup junctors from I4 to LCC0-3; make busy the 20 LJA8&LJB8 2nd subgroup junctors from I5 to LCC0-3; and use marker and TTI to test sleeves of the 20 LJA8&LJB8 2nd subgroup junctors from I4 to LCC0-3. Return marker to service. Leave busy the 40 LJA8&LJB8 2nd subgroup junctors from I5&6 to LCC0-3.

The 2nd subgroup junctors from I4 to the HC with the last incoming trunk test line shall now be used to routine test the incoming trunks in I4. When this testing is completed, remove busy from the 20 LJA8&LJB8 2nd subgroup junctors from I5 to LCC0-3; make busy the 2 or 3 LJA8 or LJB8 2nd subgroup junctors from I4 to the HC in which the last incoming trunk test line is assigned; and use the 2nd subgroup junctors from I5 to this HC to routine test the incoming trunks in I5. Next, remove busy from the 20 LJA8&LJB8 2nd subgroup junctors from I6 to LCC0-3; make busy the 2 or 3 LJA8 or LJB8 2nd subgroup junctors from I5 to the HC in which the last test line is assigned; and use the 2nd subgroup junctors from I6 to this HC to routine test the incoming trunks in I6. When this testing is completed, remove busy from the 4, 5, or 6 2nd subgroup junctors from I4&5 to the HC with the last incoming trunk test line and the 20 vacant junctor positions. The above routine testing shall be completed prior to the start of the transition work.

Transition Work

In the following transition work it is assumed that the incoming trunks in I4-6 have been routine tested, that the 2nd subgroup junctors for the new 7,I-7,LCC arrangement from I4-5 to LCC0-3 have been connected at the LJGF and are ready for use, and that the temporary marker wiring and cross connections outlined in "Preliminary Work" and (a) of "Routine Test of Incoming Trunks" are still in place.

(a) Remove each marker except the last from service; block to use 1st subgroup junctors only per SD-25511-01, Table 5 for 4,I; and return marker to service.

(b) Remove the last marker from service; remove all temporary marker wiring and cross connections made in "Preliminary Work" and (a) of "Routine Test of Incoming Trunks"; convert the marker in all respects to the standard for 7,I-7,LCC (including the changes in the marker walking circuit to make the marker operative in steps "A" and "E" only); block marker to use 1st subgroup junctors only per SD-25511-01, Table 11 for 7,I; and return marker to service.

(c) Repeat changes in (b) above in each of the other markers, and return marker to service.

(d) As soon as the work in (a) above is completed and the work in (b) is started, the (LJA)&(LJB)4-9 relays of LCC0-3 are out of service. Change the cross connections to the windings of the (LJA)&(LJB)4-7 relays in LCC1-3 to correspondingly numbered marker leads in accordance with the standard for the new 7,I-7,LCC arrangement per ED-25713-01, Fig. 11. The (LJA)&(LJB)8&9 relays were so changed as covered in "Routine Test of Incoming Trunks".

(e) Also at the end of the work in (a) and the start of the work in (b) above, the 480 LJA&LJB4-9 junctors per ED-25079-01, Fig. 4, are out of service. **Disconnect** at the LJGF 400 of the corresponding jumpers, 80 having been changed by the work in (c) of "Routine Test of Incoming Trunks". **Connect** at the LJGF the 240 LJA&LJB4-6 1st subgroup junctors per ED-25713-01, Fig. 10, from I4-6 to LCC0-3 by soldering 240 switchboard cable circuits. Buzz test T&R.

(f) **Connect** at the LJGF 140 of the 246 2nd subgroup junctors of the new 7,I-7,LCC arrangement per ED-25713-01, Fig. 7, from I0-6 to LCC0-6 by soldering 60 jumpers for junctors from I0-3 to LCC4-6 at one end only and 80 jumpers for junctors from I0-3 to LCC0-3 at both ends. 46 junctors from I4-6 to LCC4-6 were connected as preliminary work, and 60 from I4-6 to LCC0-3 were connected by the work in (c) of "Routine Test of Incoming Trunks". Any part of this work in (f) may be performed concurrently with the work in (e) above, if desired.

(g) When the work in (e) above is completed, remove from service any marker modified as in (b) or (c) above and use this marker and TTI to test sleeves of the 1st subgroup junctors connected in (e). When the work in (f) above is completed, remove block to use 1st subgroup junctors only in this marker; block marker to use 2nd subgroup junctors only per SD-25511-01, Table 11 for 7,I; and use this marker and TTI to test sleeves of 2nd subgroup junctors connected in (f). Remove block to use 2nd subgroup junctors only; and, after making any necessary final check that the marker is operating in all respects in accordance with the standard for 7,I-7,LCC, return marker to service.

(h) Remove block to use 1st subgroup junctors from each of the other markers; and, after making any necessary final check, return marker to service.

During or prior to the transition and subsequent to the routine testing of incoming trunks, the Telephone Company shall have soldered the jumpers at the M.D.F. from the incoming trunks on the new incoming frames I4-6 to protectors or office multiple terminal strips and made other necessary preparations to start transferring load to these trunks on the completion of the work in (g) above, with the objective of completing at least a substantial portion of this load transfer by the next busy hour.

Clean-up Work

The markers and junctors are now connected and operating in the standard manner for the new 7,I-7,LCC arrangement on 24 or 26 junctors from each of incoming frames I0-6 to each of LCC0-3, with the junctors to LCC4-6 also connected and ready for operation when lines are transferred to these line choices. The (JPL) relay per SD-25511-01, Fig. 1, shall be left installed, as it may be required on a future addition. The "B" walking circuit relays (JGB), (RTB'), (RTB), and (OVB) per SD-25283-0104, Fig. 18, shall be removed.

Preliminary Work

Install in each marker, relays (LCA)0-5 per SD-25283-0108, Fig. 21, and ED-25332-02, Fig. 2, and relay (JPL) per SD-25511-01, Fig. 1, and ED-25332-02, Note 6, and wire to XTS terminal strips per ED-25333-01.

Provide multiples of terminals JR5&6 on the XTS(G) terminal strip per ED-25333-01, Fig. 2, for cross connections to J terminal.

Run jumpers at the LJGF for 270 of the 360 2nd subgroup junctors of the 6,I-6,LCC arrangement, ED-25713-01, Fig. 6, from I0-5 to LCC0-5. 90 junctors remain the same as for the existing 5,I-5,LCC arrangement per ED-25079-01, Fig. 5, as indicated in Fig. 26 herein.

Solder jumpers at the LJGF for 50 of the above 270 junctors from I5 to LCC0-4 at the I frame end only, for 50 junctors from I0-4 to LCC5 at the LCC end, and for 10 junctors from I5 to LCC5 at both ends.

Prepare for disconnection the jumpers for 410 of the existing 500 2nd subgroup junctors per ED-25079-01, Fig. 5, 90 junctors as indicated in Fig. 15 herein remaining unchanged.

Routine Test of Incoming Trunks

The objective of this work is to establish 1st subgroup junctors from the added incoming frame I5 to the LCC in which the last incoming trunk test line is assigned for the purpose of routine testing the incoming trunks in I5. This work constitutes part of the work that would otherwise be done during the transition period and thus facilitates the transition. It shall be accomplished by performing the work in (a)-(f) below during a light-load period.

(a) Block each marker except the last to use 1st subgroup junctors only per SD-25511-01, Table 5, for 5,I, and return marker to service.

(b) Remove the last marker from service; make the following cross-connection changes in this marker; block marker to use 1st subgroup junctors only per SD-25511-01, Table 5 for 5-I; and return marker to service.

TRNS# CONN°	FROM	TO
*		
(4)JGE4#	JR9	JC5
(3)JGE3#	JR8	JC5
(2)JGE2#	JR7	JC5
(1)JGE1#	JR6	JC5
(0)JGE0#	JR5	JC5
(4)JPE4°		JC4
(3)JPE3°		JC4
(2)JPE2°		JC4
(1)JPE1°		JC4
(0)JPE0°		JC4

CONN	TO				
* (LCA)	0	1	2	3	4
(4)J5	JR9	JR9	JR9	JR9	JR4
(3)J5	JR8	JR8	JR8	JR3	JR8
(2)J5	JR7	JR7	JR2	JR7	JR7
(1)J5	JR6	JR1	JR6	JR6	JR6
(0)J5	JR0	JR5	JR5	JR5	JR5
(4)J4					JPL
(3)J4				JPL	
(2)J4			JPL		
(1)J4		JPL			
(0)J4	JPL				

CONN	TO		TRNS# CONN°	FROM	TO
*					
(4)JGA5	JGE5	JR9	IL9#	LIL	LB
(3)JGA5	JGE5	JR8	IL8#	RIL	LA
(2)JGA5	JGE5	JR7	1-AIL°		LIL
(1)JGA5	JGE5	JR6	0-AIL°		RIL
(0)JGA5	JGE5	JR5			
	JPE5	JPL			

*For work items numbered (0)-(4), perform only the work in items bearing the same number as the number of the LCC in which last incoming trunk test line is assigned.

The above changes remove from service the LJA5& LJB5 2nd subgroup junctors needed for establishing 1st subgroup from I5 to the LCC in which the last test line is assigned, cause the marker to test for 1st subgroup junctors instead of these LJA5&LJB5 junctors in the "E" marker step, and prepare the marker to test for 1st subgroup junctors from I5 in both the "A" and "E" steps.

(c) Repeat the cross-connection changes in (b) above in each of the other markers and return marker to service, still blocked to use 1st subgroup junctors only.

(d) When the work in (a) above is completed and the work in (b) is started, the 20 LJA5&LJB5 junctors per ED-25079-01, Fig. 5, to the LCC in which the last incoming trunk test line is assigned are out of service. **Disconnect** the corresponding jumpers at the LJGF and **connect** these junctors as 1st subgroup from I5 to this LCC per ED-25713-01, Fig. 10, by soldering 20 switchboard cable circuits.

(e) Remove from service any marker modified as in (b) or (c) above; use this marker and TTI to test the sleeves of the 20 1st subgroup junctors connected in (d) above; remove block to use 1st subgroup junctors only; and return marker to service.

(f) Remove each of the other markers from service; remove block to use 1st subgroup junctors only; and return marker to service. **Junctors in service** from one I frame to the LCC with last incoming trunk test line, 20; in all other cases, 40 from each I frame to each LCC.

Use the 1st subgroup junctors from I5 established in (a) to (f) above to routine test the incoming trunks in I5. This routine testing shall be completed prior to the start of the transition work.

Transition Work

In the following transition work it is assumed that the incoming trunks in I5 have been routine tested, that the 1st subgroup junctors from I5 to the LCC in which the last incoming trunk test line is assigned have been connected at the LJGF as covered in (d) of "Routine Test of Incoming Trunks", and that the temporary marker connections outlined in (b) of "Routine Test of Incoming Trunks" are still in place.

PROCEDURE 051

(a) **Remove** each marker except the last marker from service; block to use 1st subgroup only per SD-25511-01, Table 5 for 5,I; and return marker to service.

(b) **Remove** the last marker from service; remove the marker cross connections made in (b) of "Routine Test of Incoming Trunks" except the possible connection of JGA5 to JR5; convert the marker in all other respects to the standard for 6,I-6,LCC; block the marker to use 1st subgroup junctors only per SD-25511-01, Table 11 for 6,I; and return marker to service.

(c) **Repeat** the changes in (b) above in each of the other markers, and return marker to service.

(d) As soon as the work in (a) above is completed and (b) is started, the (LJA)&(LJB)5-9 relays of LCC0-4 are out of service. Change the cross connections to the windings of these relays in LCC1-4 to the standard for the 6,I-6,LCC arrangement per ED-25713-01, Fig. 11.

(e) Also at the end of the work in (a) above and the start of the work in (b), the 500 LJA&LJB 5-9 junctors per ED-25079-01, Fig. 5, are out of service. **Disconnect** at the LJGF 390 of the corresponding jumpers, 90 being the same as in the new 6,I-6,LCC arrangement per ED-25713-01, Fig. 6, as indicated in Fig. 15 herein, and 20 having been removed by the work in "Routine Test of Incoming Trunks". **Connect** at the LJGF 80 of the 100 LJA5&LJB5 junctors as 1st subgroup from I5 to LCC0-4, by soldering 80 switchboard cable circuits, 20 already having been connected as covered in "Routine Test of Incoming Trunks". Buzz test T&R.

(f) **Connect** at the LJGF 260 of the 360 LJA&LJB 7-9 2nd subgroup junctors from I0-5 to LCC0-5 for the new 6,I-6,LCC arrangement per ED-25713-01, Fig. 6, by soldering 100 jumpers for junctors from I5 to LCC0-4 and from I0-4 to LCC5 at one end only, and 160 jumpers for junctors from I0-4 to LCC0-4 at both ends. 90 of these junctors remain the same as for 5,I-5,LCC as indicated in Fig. 26 herein, and 10 were connected as preliminary work. Buzz test T&R. Any part of this work in (f) may be performed concurrently with the work in (e) above, if desired.

(g) When the work in (e) above is completed, remove from service any marker modified as in (b) or (c) above and use this marker and TTI to test sleeves of 1st subgroup junctors connected in (e) above. When the work in (f) above is completed, remove block to use 1st subgroup only; block to use 2nd subgroup junctors only per SD-25511-01, Table 11 per 6,I; and use this marker and TTI to test sleeves of remaining junctors connected in (f). Remove block to use 2nd subgroup junctors only; and, after making any necessary final check that the marker is operating in all respects in accordance with the standard for 6,I-6,LCC, return marker to service.

(h) Remove block to use 1st subgroup junctors only from each of the other markers; and, after making any necessary final check, return marker to service.

During or prior to the transition and subsequent to the routine testing of the incoming trunks, the Telephone Company shall have soldered the jumpers at the M.D.F. from the trunks on the new incoming frame I5 to protectors or office multiple terminal strips and made other necessary preparations to start transferring traffic to the trunk of I5 at the completion of the work in (g) above, with the objective of completing at least a substantial portion of this load transfer by the next busy hour.

Clean-up Work

The marker and junctors are now connected and operating in the standard manner for 6,I-6,LCC on 30 junctors from each of I0-5 to each of LCC0-4, with junctors to LCC5 also connected and ready for operation when lines are transferred to this LCC. The (JPL) relay per SD-25511-01, Fig. 1, shall be left installed, as it may be required on a future addition.

PROCEDURE 052

Preliminary Work

Install in each marker, relays (LCA)0-6 per SD-25283-0108, Fig. 21, and ED-25332-02, Fig. 2, and relay (JPL) per SD-25511-01, Fig. 1, and ED-25332-02, Note 6, and wire to XTS terminal strips per ED-25333-01.

Provide multiples of terminals JR5&6 on the XTS(G) terminal strips per ED-25333-01, Fig. 2, for cross connection to J5 terminals.

Run jumpers at the LJGF for 226 of the 246 2nd subgroup junctors of the new 7,I-7,LCC arrangement per ED-25713-01, Fig. 7, from I0-6 to LCC0-6. 20 junctors remain the same as for the existing 5,I-5,LCC arrangement per ED-25079-01, Fig. 5, as indicated in Fig. 27 herein.

Solder jumpers at the LJGF for 50 of the above 226 junctors from I5&6 to LCC0-4 at the I frame end only, for 48 junctors from I0-5 to LCC5&6 at the LCC end only, and for the 22 junctors from I5&6 to LCC5&6 at both ends.

Prepare for disconnection at the LJGF the jumpers for 480 of the existing 500 2nd subgroup junctors per ED-25079-01, Fig. 5, 20 remaining the

same for the new 7,I-7,LCC arrangement per ED-25713-01, Fig. 7, as indicated in Fig. 15 herein.

Routine Test of Incoming Trunks

The objective of this work is (1) to establish LJA5&LJB5 1st subgroup junctors for the first added incoming frame I5 to the LCC in which the last incoming test line is assigned for the purpose of routine testing the incoming trunks in I5, and (2) to provide for routine testing the incoming trunks on the second added incoming frame I6 by temporarily multipling at the LJGF two of the above 1st subgroup junctors to the HC in which the last incoming trunk test line is assigned with corresponding verticals in I6, and arranging all markers in all steps temporarily to test for these junctors on test calls from I6 to this HC. These objectives shall be accomplished by performing the work in (a)-(g) below during a light-load period.

(a) Block each marker except the last to use 1st subgroup junctors only per SD-25511-01, Fig. 5, for 5,I, and return marker to service.

(b) Remove the last marker from service; make all of the same cross-connection changes in this marker that are outlined in (b) of "Routine Test of Incoming Trunks", PROCEDURE 051; make the additional changes outlined below; block marker to use 1st subgroup junctors only per SD-25511-01, Fig. 5 for 5,I; and return marker to service.

*	CONN		TO	CONN	TO
(4)	JGA6	JGE6	JR9	JPE6	JPL
(3)	JGA6	JGE6	JR8		
(2)	JGA6	JGE6	JR7		
(1)	JGA6	JGE6	JR6		
(0)	JGA6	JGE6	JR5		

*For work items numbered (0)-(4), perform only the work in items bearing the same number as the number of the LCC in which the last incoming trunk test line is assigned.

The above work performs the same functions as the work in (b) of PROCEDURE 051, and the additional cross connections indicated prepare the marker on calls from the second added incoming frame I6 to the HC in which the last incoming trunk test line is assigned to test for the same LJA5&LJB5 1st subgroup junctors established from I5 to this HC, for the purpose of routine testing the incoming trunks in I6.

(c) Repeat the cross-connection changes in (b) above in each of the other markers, and return marker to service (still blocked to use 1st subgroup junctors only).

(d) When the work in (a) above is completed and the work in (b) is started, the 20 LJA5&LJB5 junctors per ED-25079-01, Fig. 5, to the LCC in which the last incoming trunk test line is assigned are out of service. **Disconnect** the corresponding jumpers at the LJGF and **connect** these junctors as 1st subgroups from I5 to this LCC per ED-25713-01, Fig. 10, by soldering 20 switchboard cable circuits at the LJGF. Buzz test T&R.

(e) In order to provide for testing the incoming trunks in I6, multiple at the LJGF two of the LJA5&LJB5 junctors connected in (d) above with corresponding verticals in I6. The two junctors shall be those for channels 0 and 1, and the verticals in I6 shall be the same as those on which the junctors terminate in I5, viz., the verticals bearing the same number as the HC to which the junctors connect. The multipling shall be accomplished by connecting the switchboard cable circuits from I6 temporarily to the LJGF terminals on which the cable circuits from I5 terminate.

(f) Remove from service any marker modified as in (b) or (c) above; use this marker (blocked to use 1st subgroup junctors only) and TTI to test sleeves of the 20 1st subgroup junctors from I5 connected in (d) above; remove block to use 1st subgroup junctors only; and return marker to service.

(g) Remove block to use 1st subgroup junctors only in each of the other markers, and return marker to service. **Junctors in service** from one I frame to the LCC with the last incoming trunk test line, 20; in all other cases, 40 from each I frame to each LCC.

The incoming trunks in I5 shall now be routine tested by the use of the 1st subgroup junctors from I5. When this testing is completed, routine test the incoming trunks in I6 by the use of the two LJA5 or LJB5 junctors which are multipled with verticals of this frame after having first made busy the other eight LJA5 or LJB5 junctors to the same HC. This routine testing shall be completed prior to the start of the transition work.

Transition Work

In the following transition work it is assumed that the incoming trunks in I5&6 have been routine tested, that the 1st subgroup junctors from I5 to the LCC in which the last incoming trunk test line is assigned have been connected at the LJGF as covered in (d) of "Routine Test of Incoming Trunks", and that the temporary marker connections outlined in (b) of "Routine Test of Incoming Trunks" are still in place.

(a) Remove each marker except the last marker from service; block to use 1st subgroup junctors only per SD-25511-01, Table 5 for 5,I; and return marker to service.

(b) Remove the last marker from service, and remove the temporary marker cross connections made in (b) of "Routine Test of Incoming Trunks" except the possible connection of JGA5 to JR5 or JGA6 to JR6. Convert the marker in all other respects to the standard for 7,I-7,LCC; block the marker to use 1st subgroup junctors only per SD-25511-01, Table 11 for 7,I; and return marker to service.

(c) Repeat the changes in (b) above in each of the other markers, and return marker to service.

(d) As soon as the work in (a) above is completed and the work in (b) is started, the (LJA)&(LJB)5-9 relays of LCC0-4 are out of service. Change the cross connections to the windings of these relays in LCC1-4 to the standard for the new 7,I-7,LCC arrangement per ED-25713-01, Fig. 11.

(e) Also at the end of the work in (a) above and the start of the work in (b), the 500 LJA&LJB5-9 junctors per ED-25079-01, Fig. 5, are out of service. **Disconnect** at the LJGF 460 of the corresponding jumpers, leaving unchanged 20 of these junctors which are the same for the new 7,I-7,LCC arrangement per ED-25713-01, Fig. 7, as indicated in Fig. 15 herein, and 20 which were changed by the work in (d) of "Routine Test of Incoming Trunks." **Also disconnect** the temporary multiple of two 1st subgroup junctors from I5 with corresponding verticals in I6, which were connected by the work in (e) of "Routine Test of Incoming Trunks". **Connect** 180 of the 200 1st subgroup junctors from I5 and I6 to LCC0-4 per ED-25713-01, Fig. 10, by soldering 180 cable circuits at the LJGF, 20 having been connected by the work in (d) of "Routine Test of Incoming Trunks".

(f) **Connect** at the LJGF 204 of the 246 2nd subgroup junctors from I0-6 to LCC0-6 for the new 7,I-7,LCC arrangement per ED-25713-01, Fig. 7, by soldering 98 jumpers for junctors from I5&6 to LCC0-4 and from I0-4 to LCC5&6 at one end only, and 100 jumpers for junctors from I0-4 to LCC0-4 at both ends. 20 junctors remain the same as for the existing 5,I-5,LCC arrangement as indicated in Fig. 25 herein, and 22 from I5&6 to LCC5&6 were connected as preliminary work. Buzz test T&R. Any part of this work in (f) may be performed concurrently with the work in (e) above, if desired.

(g) When the work in (e) above is completed, remove from service any marker modified as in (b) or (c) above and use this marker and TTI to test sleeves of the 1st subgroup junctors connected in (e). When the work in (f) above is completed, remove block to use 1st subgroup junctors only in this marker; block to use 2nd subgroup junctors only per SD-25511-01, Table 11 for 7,I; and use this marker and TTI to test sleeves of the 2nd subgroup junctors connected in (f). Remove block to use 2nd subgroup junctors only; and, after making any necessary final check that the marker is operating in all respects in accordance with the standard for the new 7,I-7,LCC arrangement, return marker to service.

(h) Remove block to use 1st subgroup junctors only from each of the other markers; and, after making any necessary final check, return marker to service.

During or prior to the transition and subsequent to the routine testing of the incoming trunks in the new incoming frames I5&6, the Telephone Company shall have soldered the jumpers at the M.D.F. from the trunks in I5&6 to protectors or office multiple terminal strips and made other necessary preparations to start transferring load to the trunks of I5&6 at the completion of the work in (g) above, with the objective of completing at least a substantial portion of this load transfer by the next busy hour.

Clean-up Work

The markers and junctors are now connected and operating in the standard manner for 7,I-7,LCC on 24 or 26 junctors from each of I0-6 to each of LCC0-4, with junctors to LCC5&6 also connected and ready for operation when lines are transferred to these LCC. The (JPL) relay per SD-25511-01, Fig. 1 shall be left installed, as it may be required on future additions.

PROCEDURE 053

Preliminary Work

Install in each marker, relays (LCA)0-7 per SD-25283-0108, Fig. 21, and ED-25332-02, Fig. 2, and relay (JPL) per SD-25511-01, Fig. 1, and ED-25332-02, Note 6, and wire to XTS terminal strips per ED-25333-01.

Provide multiples of terminals JR5&6 on the XTS(G) terminal strip per ED-25333-01, Fig. 2, for cross connection to J5 terminals.

Run jumpers at the LJGF for 300 of the 320 2nd subgroup junctors of the new 8,I-8,LCC arrangement per ED-25713-01, Fig. 8, from I0-7 to LCC0-7. 20 junctors remain the same as for the existing 5,I-5,LCC arrangement per ED-25079-01, Fig. 5, as indicated in Fig. 28 herein.

Solder jumpers at the LJGF for 74 of the above 320 junctors from I5-7 to LCC0-4 at the I frame end only, for 74 junctors from I0-4 to LCC5-7 at the LCC end only, and for 46 junctors from I5-7 to LCC5-7 at both ends.

Prepare for disconnection at the LJGF the jumpers for 480 of the existing 500 2nd subgroup junctors per ED-25079-01, Fig. 5, 20 remaining the same for the new 8,I-8,LCC arrangement per ED-25713-01, Fig. 8, as indicated in Fig. 15 herein.

Routine Test of Incoming Trunks

The objective of this work is (1) to establish LJA5&LJB5 1st subgroup junctors for the first added incoming frame I5 to the LCC in which the

last incoming test line is assigned for the purpose of routine testing the incoming trunks in I5, and (2) to provide for routine testing the incoming trunks on the second and third added incoming frames I6&7 by temporarily multipling at the LJGF four of the above 1st subgroup junctors to the HC in which the last incoming trunk test line is assigned, with two corresponding verticals in each of I6 and I7, and arranging all markers in all steps temporarily to test for these junctors on calls from I6&7 to this HC. These objectives shall be accomplished by performing the work in (a)-(g) below during a light-load period.

(a) Block each marker except the last to use 1st subgroup junctors only per SD-25511-01, Fig. 5, for 5,I, and return marker to service.

(b) Remove the last marker from service; make all of the same cross-connection changes in this marker that are outlined in (b) of "Routine Test of Incoming Trunks", PROCEDURE 051; make the additional changes outlined below; block marker to use 1st subgroup junctors only per SD-25511-01, Fig. 5 for 5,I; and return marker to service.

*	CONN		TO	CONN	TO
(4)	JGA6&7	JGE6&7	JR9	JPE6&7	JPL
(3)	JGA6&7	JGE6&7	JR8		
(2)	JGA6&7	JGE6&7	JR7		
(1)	JGA6&7	JGE6&7	JR6		
(0)	JGA6&7	JGE6&7	JR5		

*For work items numbered (0)-(4), perform only the work in items bearing the same number as the number of the LCC in which the last incoming trunk test line is assigned.

The above work performs the same functions as the work in (b) of PROCEDURE 051, and the additional cross connections indicated prepare the marker on calls from the second and third added incoming frames I6&7 to the HC in which the last incoming trunk test line is assigned to test for the same LJA5&LJB5 1st subgroup junctors established from I5 to this HC, for the purpose of routine testing the incoming trunks in I6&7.

(c) Repeat the cross-connection changes in (b) above in each of the other markers, and return marker to service (still blocked to use 1st subgroup junctors only).

(d) When the work in (a) above is completed and the work in (b) is started, the 20 LJA5&LJB5 junctors per ED-25079-01, Fig. 5, to the LCC in which the last incoming trunk test line is assigned are out of service. **Disconnect** the corresponding jumpers at the LJGF and **connect** these junctors as 1st subgroups from I5 to this LCC per ED-25713-01, Fig. 10, by soldering 20 switchboard cable circuits at the LJGF. Buzz test T&R.

(e) In order to provide for routine testing the incoming trunks in I6 and I7, multiple at the LJGF four of the LJA5&LJB5 junctors connected in (d) above with two corresponding verticals in each of I6 and I7. The four junctors shall be those for channels 0, 1, 2, and 3, junctors for channels 0 and 1 being multipled with verticals in I6 and for channels 2 and 3 with verticals in I7. The verticals in I6&7 shall be the same as those on which the junctors terminate in I5, viz., the verticals bearing the same number as the HC to which the junctors connect, and in the same channels. The multipling shall be accomplished by connecting the switchboard cable circuits from I6&7 temporarily to the LJGF terminals on which the cable circuits from I5 terminate. Buzz test T&R.

(f) Remove from service any marker modified as in (b) or (c) above; use this marker (blocked to use 1st subgroup junctors only) and TTI to test sleeves of the 20 1st subgroup junctors from I5 connected in (d) above; remove block to use 1st subgroup junctors only; and return marker to service.

(g) Remove block to use 1st subgroup junctors only in each of the other markers, and return marker to service. **Junctors in service** from one I frame to the LCC with the last incoming trunk test line, 20; in all other cases, 40 from each I frame to each LCC.

The incoming trunks in I5 shall now be routine tested by the use of the 1st subgroup junctors from this frame to the HC in which the last incoming trunk test line is assigned. This testing shall be followed by the routine testing of the incoming trunks in I6 and I7 in succession by the use successively of the two LJA5 or LJB5 junctors multipled with verticals of each of these frames, after having first made busy the other eight LJA5 or LJB5 junctors to the same HC. All of the above routine testing shall be completed prior to the start of the transition work.

Transition Work

In the following transition work it is assumed that the incoming trunks in I5-7 have been routine tested, that the 1st subgroup junctors from I5 to the LCC in which the last incoming trunk test line is assigned have been connected at the LJGF as covered in (d) of "Routine Test of Incoming Trunks", and that the temporary marker connections outlined in (b) of "Routine Test of Incoming Trunks" are still in place.

(a) Remove each marker except the last marker from service; block to use 1st subgroup junctors only per SD-25511-01, Table 5 for 5,I; and return marker to service.

(b) Remove the last marker from service; remove the marker cross connections made in (b) of "Routine Test of Incoming Trunks" except the possible connection of JGA5 to JR5, JGA6 to JR6, or JGA7 to JR7. Convert the marker in all other respects to the standard for 8,I-8,LCC; block the marker to use 1st subgroup junctors only per SD-25511-01, Table 11 for 8,I; and return marker to service.

(c) Repeat the changes in (b) above in each of the other markers, and return marker to service.

(d) As soon as the work in (a) above is completed and the work in (b) is started, the (LJA)& (LJB)5-9 relays of LCC0-4 are out of service. Change the cross connections to the windings of these relays in LCC1-4 to the standard for the new 8,I-8,LCC arrangement per ED-25713-01, Fig. 11.

(e) Also at the end of the work in (a) above and the start of the work in (b), the 500 LJA&LJB 5-9 junctors per ED-25079-01, Fig. 5, are out of service. **Disconnect** at the LJGF 460 of the corresponding jumpers, leaving unchanged 20 of these junctors which are the same for the new 8,I-8,LCC arrangement per ED-25713-01, Fig. 7, as indicated in Fig. 15 herein, and 20 which were changed by the work in (d) of "Routine Test of Incoming Trunks." **Also disconnect** the temporary multiple of four 1st subgroup junctors from I5 with corresponding verticals in I6&7, which were connected by the work in (e) of "Routine Test of Incoming Trunks." **Connect** 280 of the 300 1st subgroup junctors from I5-7 to LCC0-4 per ED-25713-01, Fig. 10, by soldering 280 switchboard cable circuits, 20 having been connected by the work in (d) or "Routine Test of Incoming Trunks." Buzz test T&R.

(f) **Connect** at the LJGF 254 of the 320 2nd subgroup junctors from I0-7 to LCC0-7 for the 8,I-8,LCC arrangement per ED-25713-01, Fig. 8, by soldering 148 jumpers for junctors from I5-7 to LCC0-4 and from I0-4 to LCC5-7 at one end only, and 106 jumpers for junctors from I0-4 to LCC0-4 at both ends. 20 junctors remain the same as for the 5,I-5,LCC arrangement as indicated in Fig. 25 herein; 46 from I5-7 to LCC5-7 were connected as preliminary work. Buzz test T&R. Any part of this work in (f) may be performed concurrently with the work in (e) above, if desired.

(g) When the work in (e) above is completed, remove from service any marker modified as in (b) or (c) above and use this marker and TTI to test sleeves of the 1st subgroup junctors connected in (e). When the work in (f) above is completed, remove block to use 1st subgroup junctors only in this marker; block to use 2nd subgroup junctors only per SD-25511-01, Table 11 for 8,I; and use this marker and TTI to test sleeves of 2nd subgroup junctors connected in (f). Remove block to use 2nd subgroup junctors only; and, after making any necessary final check that the marker is operating in all respects in accordance with the standard for the new 8,I-8,LCC arrangement, return marker to service.

(h) Remove block to use 1st subgroup junctors only from each of the other markers; and, after making any necessary final check, return marker to service.

During or prior to the transition and subsequent to the routine testing of the incoming trunks in the new incoming frames I5-7, the Telephone Company shall have soldered the cross connections at the M.D.F. from the trunks in I5-7 to protectors or office multiple terminal strips and made other necessary preparations to start transferring load to the trunks of I5-7 at the completion of the work in (g) above, with the objective of completing at least a substantial portion of this load transfer by the next busy hour.

Clean-up Work

The markers and junctors are now connected and operating in the standard manner for 8,I-8,LCC on 24 or 26 junctors from each of I0-7 to each of LCC0-4, with junctors to LCC5-7 also connected and ready for operation when lines are transferred to these LCC. The (JPL) relay per SD-25511-01, Fig. 1, shall be left installed, as it may be required on future additions.

Preliminary Work

Install in each marker, relay (JPL) per SD-25511-01, Fig. 1, and ED-25332-02, Note 6, and wire to XTS terminal strips per ED-25333-01.

Provide multiples of two or three of terminals JR0-6 on the XTS(G) terminal strip per ED-25333-01, as required [see (a) of "Routine Test of Incoming Trunks"], for cross connection to J8&9 terminals.

Run jumpers at the LJGF for 206 of the 246 2nd subgroup junctors of the new 7,I-7,LCC arrangement per ED-25713-01, Fig. 7, from I0-6 to LCC0-6. 40 junctors are the same as for the existing 6,I-6,LCC arrangement per ED-25079-01 as indicated in Fig. 27 herein.

Solder jumpers at the LJGF for 30 of the above 206 junctors from I6 to LCC0-5 at the I frame end only, for 28 junctors from I0-5 to LCC6 and at the LCC end only, and for 6 junctors from I6 to LCC6 at both ends.

Prepare for disconnection at the LJGF the jumpers for 440 of the existing 480 2nd and 3rd subgroup junctors per ED-25079-01, Fig. 6, 40 remaining the same for the new 7,I-7,LCC arrangement as indicated in Fig. 16 herein.

Routine Test of Incoming Trunks

The objective of this work is to establish 1st subgroup junctors from the added incoming frame I6 to the LCC in which the last incoming trunk test line is assigned for the purpose of routine testing the incoming trunks in I6. This work constitutes part of the work that would otherwise be done during the transition. It shall be accomplished in the following steps during a light-load period.

(a) Make the following changes in each marker and return marker to service. **Junctors in service** from one existing I frame to the LCC in which the last test line is assigned, 24; in all other cases, 32 or 34 from each I frame to each LCC.

TRNS	FROM	TO	CONN	TO					
*			*(LCA)0	1	2	3	4	5	
(5)JGD5	JR8	JC9	(5)J9	JR8	JR8	JR8	JR8	JR8	JR5
(4)JGD4	JR8	JC9	(4)J9	JR8	JR8	JR8	JR8	JR4	JR8
(3)JGD3	JR7	JC9	(3)J9	JR7	JR7	JR7	JR3	JR7	JR7
(2)JGD2	JR7	JC9	(2)J9	JR7	JR7	JR2	JR7	JR7	JR7
(1)JGD1	JR6	JC9	(1)J9	JR6	JR1	JR6	JR6	JR6	JR6
(0)JGD0	JR6	JC9	(0)J9	JR0	JR6	JR6	JR6	JR6	JR6
(5)JPD5	JC1	JC8	(5)J8	JP1	JP0	JP1	JP0	JP1	JPL
(4)JPD4	JC0	JC8	(4)J8	JP0	JP1	JP0	JP1	JPL	JP1
(3)JPD3	JC1	JC8	(3)J8	JP1	JP0	JP1	JPL	JP1	JP0
(2)JPD2	JC0	JC8	(2)J8	JP0	JP1	JPL	JP1	JP0	JP1
(1)JPD1	JC1	JC8	(1)J8	JP1	JPL	JP1	JP0	JP1	JP0
(0)JPD0	JC0	JC8	(0)J8	JPL	JP1	JP0	JP1	JP0	JP1

IL7	LIL	LB
IL6	RIL	LA

CONN	TO
1-AIL	LIL
0-AIL	RIL
JPM	JPN

CONN	TO
*	
(5)JGA6	JR8
(4)JGA6	JR8
(3)JGA6	JR7
(2)JGA6	JR7
(1)JGA6	JR6
(0)JGA6	JR6

* For work items numbered (0-(5), perform only the work in items bearing the same number as the number of the LCC in which the last incoming trunk test line is assigned.

The above changes remove from service the 10 LJA6&LJB6 2nd subgroup junctors from one incoming frame to the LCC in which the last test line is assigned and cause the marker in the "D" step to test 1st subgroup junctors from this incoming frame instead of these LJA6&LJB6 junctors. During or subsequent to the above changes, but prior to the work in (b) below, **make busy** at associated line link secondary verticals the remaining 10 LJA6&LJB6 junctors to this LCC in channels 1, 3, 5, 7, and 9, in order that these junctors will not be selected later on calls from the other of two incoming frames. **Junctors now in service** from this I frame to this LCC, 24. The above changes also prepare the marker in the "A" step to test for LJA6&LJB6 1st subgroup junctors from I6. It is not considered necessary to make additional temporary cross connections and wiring changes in the marker to test for 1st subgroup junctors from I6 in the "D" and "E" marker steps during the routine testing period, since the marker should never be required to advance to these "overflow" steps on test calls from I6.

(b) When the work in (a) above is completed in all markers, the 20 LJA6&LJB6 2nd subgroup junctors for the 6,I-6,LCC arrangement per ED-25079-01, Fig. 6, to the LCC in which the last test line is assigned are out of service. **Disconnect** the corresponding jumpers at the LJGF and **connect** these junctors as 1st subgroup from I6 to this LCC per ED-25713-01, Fig. 10, by soldering 20 switchboard cable circuits at the LJGF. Buzz test T&R.

(c) Remove from service any marker modified as in (a) above; use this marker and TTI to test sleeves of the nonbusied 1st subgroup junctors connected in (b) above; and return marker to service.

The 1st subgroup junctors from I6 to the LCC in which the last incoming trunk test line is assigned shall now be used to routine test the incoming trunks in I6, and this routine testing shall be completed before the start of the transition work.

Transition Work

In the following transition work it is assumed that the incoming trunks in I6 have been routine tested, that the 1st subgroup junctors from I6 to the LCC in which the last incoming trunk test line is assigned have been connected at the LJGF, and that the temporary marker connections outlined in (a) of "Routine Test of Incoming Trunks" are still in place.

(a) Block each marker except the last to use 1st subgroup junctors only per SD-25511-01, Table 5 for 6,I, and return marker to service.

(b) Remove the last marker from service; remove all temporary cross connections made in (a) of "Routine Test of Incoming Trunks" except the possible connection of JGA6 to JR6; convert the marker in all respects to the standard for 7,I-7,LCC (including the changes in the marker walking circuit to make the marker operative in steps "A" and "E" only); block marker to use 1st subgroup junctors only per SD-25511-01, Table 11 for 7,I; and return marker to service.

(c) Repeat changes in (b) above in each of the other markers, and return marker to service.

(d) As soon as the work in (a) above is completed and the work in (b) is started, the (LJA)& (LJB)6-9 relays of LCC0-5 are out of service. Change the cross connections to the windings of these relays of LCC2-5 to conform with the standard for the 7,I-7,LCC arrangement per ED-25713-01, Fig. 11.

(e) Also as soon as the work in (a) above is completed and the work in (b) is started, the 480 LJA&LJB6-9 2nd and 3rd subgroup junctors per ED-25079-01, Fig. 6, are out of service. **Disconnect** at the LJGF 420 of the corresponding jumpers, leaving unchanged 40 jumpers for junctors that remain the same for the new 7,I-7,LCC arrangement per ED-25713-01, as indicated in Fig. 16 herein and 20 which were changed by the work in (b) of "Routine Test of Incoming Trunks". **Connect** 100 of the 120 1st subgroup junctors from I6 to LCC0-5 per ED-25713-01, Fig. 10, by soldering 100 cable circuits, 20 having been connected by the work in (b) of "Routine Test of Incoming Trunks". Buzz test T&R and remove the busy from the 10 LJA6& LJB6 junctors made busy in (a) of "Routine Test of Incoming Trunks".

(f) **Connect** 200 of the 246 2nd subgroup junctors for the new 7,I-7,LCC arrangement from I0-6 to LCC0-6 by soldering 58 junctors for junctors from I6 to LCC0-5 and from I0-5 to LCC6 at one end only and 142 jumpers for junctors from I0-5 to LCC0-5 at both ends. 40 junctors are the same as for the existing 6,I-6,LCC arrangement as indicated in Fig. 27 herein, and 6 from I6 to LCC6 were connected as preliminary work. Buzz test T&R. Any part of this work in (f) may be performed concurrently with the work in (e) above, if desired.

(g) When the work in (e) above is completed, remove from service any marker modified as in (b) or (c) above and use this marker and TTI to test sleeves of the 1st subgroup junctors connected in (e); and also test sleeves of the 10 1st subgroup junctors which were previously made busy by the work in (a) of "Routine Test of Incoming Trunks". When the work in (f) above is completed, remove block to use 1st subgroup junctors only; block to use 2nd subgroup junctors only per SD-25511-01, Table 11 for 7,I; and use this marker and TTI to test sleeves of the 2nd subgroup junctors connected in (e) above. Remove block to use 2nd subgroup junctors only; and, after making any necessary final check that the marker is operating in all respects in accordance with the standard for the new 7,I-7,LCC arrangement, return marker to service.

(h) Remove block to use 1st subgroup only from each of the other markers; and, after making any necessary final check, return marker to service.

During or prior to the transition, the Telephone Company shall have soldered the jumpers at the M.D.F. from the incoming trunks on the new incoming frame I6 to protectors or office multiple terminal strips and made other necessary preparations to start transferring load to these trunks on the completion of the work in (g) above, with the objective of completing at least a substantial portion of this load transfer by the next busy hour.

Clean-up Work

The markers and junctors are now connected and operating in the standard manner for the new 7,I-7,LCC arrangement on 24 or 26 junctors per LCC from each of incoming frames I0-6 to LCC0-5, with the junctors to LCC6 also connected and ready for operation when lines are assigned to this line choice. The (JPL) relay per SD-25511-01, Fig. 1, and the (JP)4-7 pattern relays shall be left installed as it may be required on a future addition. The "D" walking circuit relays (RTD'), (RTD), and (OVD) per SD-25283-0104, Fig. 18, shall be removed.

PROCEDURE 062

Preliminary Work

Install in each marker, relay (JPL) per SD-25511-01, Fig. 1, and ED-25332-02, Note 6, and wire to XTS terminal strips per ED-25333-01.

Provide multiples of two or three of terminals JR0-6 on the XTS(G) terminal strip per ED-25333-01, as required [see (a) of "Routine Test of Incoming Trunks"], for cross connection to J8&9 terminals.

Run jumpers at the LJGF for 280 of the 320 2nd subgroup junctors of the new 8,I-8,LCC arrangement per ED-25713-01, Fig. 8, from I0-7 to LCC0-7. 40 junctors are the same as for the existing 6,I-6,LCC arrangement, as indicated in Fig. 28 herein.

Solder jumpers at the LJGF for 58 of the above 280 junctors from I6&7 to LCC0-5 at the I frame end only, for 58 junctors from I0-5 to LCC6&7 at the LCC end only, and for 22 junctors from I6&7 to LCC6&7 at both ends.

Prepare for disconnection at the LJGF the jumpers for 440 of the existing 480 2nd and 3rd subgroup junctors per ED-25079-01, Fig. 6, 40 remaining the same for the new 8,I-8,LCC arrangement per ED-25713-01, Fig. 8, as indicated in Fig. 16 herein.

Routine Test of Incoming Trunks

The objective of this work is (1) to establish 1st subgroup junctors from the added incoming frame I6 to the LCC in which the last incoming trunk test line is assigned for the purpose of routine testing the incoming trunks in I6, and (2) to provide for routine testing the incoming trunks in the second added incoming frame, I7, by temporarily

multipling at the LJGF two of the 1st subgroup junctors from I6 to the HC in which the last incoming trunk test line is assigned, with corresponding verticals in I7, and arranging the markers in the "A" step to test for these junctors on test calls from I7 to this HC. The work in (1) above includes part of the work that would otherwise be done during the transition. All of the above work shall be accomplished in the following steps during a light-load period.

(a) Make all of the same cross-connection changes in each marker that are outlined in (a) of "Routine Test of Incoming Trunks," PROCEDURE 061; make the **additional changes** outlined below, and return marker to service. **Junctors in service** from one of existing I frames to the LCC in which the last test line is assigned, 24; in all other cases, 32 or 34 from each I frame to each LCC.

CONN *	TO
(5)JGA7	JR8
(4)JGA7	JR8
(3)JGA7	JR7
(2)JGA7	JR7
(1)JGA7	JR6
(0)JGA7	JR6

* For work items numbered (0)-(5), perform only the work in the item bearing the same number as the number of the LCC in which the last incoming trunk test line is assigned.

The above work performs the same functions as the work in (a) of PROCEDURE 061, and the additional cross-connection changes indicated prepare the marker on test calls from the second added incoming frame I7 to the HC in which the last incoming trunk test line is assigned to test for the same LJA6&LJB6 1st subgroup junctors established from I6 to this HC, for the purpose of routine testing the incoming trunk in I7. During or subsequent to the above changes but **prior to the work in (b)** below, **make busy** at associated line link secondary verticals the 10 LJA6&LJB6 2nd subgroup junctors in channels 1, 3, 5, 7, and 9 from one of two line link frames to the LCC in which the last test line is assigned. These are the junctors which were not removed from service by the cross-connection changes. **Junctors now in service** from this I frame to this LCC, 24.

(b) When the work in (a) above is completed in all markers, the 20 LJA6&LJB6 2nd subgroup junctors for the 6,I-6,LCC arrangement per ED-25079-01, Fig. 6, to the LCC in which the last test line is assigned are out of service. **Disconnect** the corresponding jumpers at the LJGF and **connect** these junctors as 1st subgroup from I6 to this LCC per ED-25713-01, Fig. 10, by soldering 20 switchboard cable circuits at the LJGF. Buzz test T&R.

(c) In order to provide for routine testing the incoming trunks in I7, multiple at the LJGF two of the LJA6 or LJB6 junctors connected in (b) above to the HC in which the last incoming trunk test line is assigned, with corresponding secondary switch verticals in I7. The two junctors shall be those in channels 0 and 2, and the verticals in I7 shall be the same as those on which the junctors terminate in I6, viz., the verticals bearing the same number as the HC to which the junctors connect, and in the same channels as the junctors in I6. The multipling shall be accomplished by connecting the switchboard cable circuits from I7 temporarily to the LJGF terminals on which the cable circuits from I6 terminate.

(d) Remove from service any marker modified as in (a) above; use this marker and TTI to test sleeves of the nonbusied 1st subgroup junctors connected in (b) above; and return marker to service.

The incoming trunks in I6 shall now be routine tested by the use of the 1st subgroup junctors from I6. When this testing is completed, routine test the incoming trunks in I7 by the use of the two LJA6 or LJB6 junctors which are multipled with verticals of this frame, after having first made busy the other eight LJA6 or LJB6 junctors. All of the above routine testing shall be completed prior to the start of the transition work.

Transition Work

In the following transition work it is assumed that the incoming trunks in I6&I7 have been routine tested, that the 1st subgroup junctors from I6 to the LCC in which the last incoming trunk test line is assigned have been connected at the LJGF, and that the temporary marker connections outlined in (a) of "Routine Test of Incoming Trunks" are still in place.

(a) Block each marker except the last to use 1st subgroup junctors only per SD-25511-01, Table 5 for 6,I, and return marker to service.

(b) Remove the last marker from service; remove all temporary cross connections made in (a) of "Routine Test of Incoming Trunks" except the possible connection of JGA6 to JR6 or JGA7 to JR7; convert the marker in all respects to the standard for 8,I-8,LCC (including the changes in the marker walking circuit to make the marker operative in steps "A" and "E" only); block marker to use 1st subgroup junctors only per SD-25511-101, Table 11 for 8,I; and return marker to service.

(c) Repeat changes in (b) above in each of the other markers, and return marker to service.

(d) As soon as the work in (a) above is completed and the work in (b) is started, the (LJA)& (LJB)6-9 relays of LCC0-5 are out of service. Change the cross connections to the windings of these relays of LCC2-5 to conform with the standard for the new 8,I-8,LCC arrangement per ED-25713-01, Fig. 11.

(e) Also as soon as the work in (a) above is completed and the work in (b) is started, the 480 LJA&LJB6-9 2nd and 3rd subgroup junctors per

ED-25079-01, Fig. 6, are out of service. **Disconnect** at the LJGF 420 of the corresponding jumpers, leaving unchanged 40 of these junctors that remain the same for the new 8,I-8,LCC arrangement per ED-25713-01, Fig. 8, as indicated in Fig. 16 herein, and 20 which were changed by the work in (b) of "Routine Test of Incoming Trunks". **Connect** at the LJGF 220 of the 240 1st subgroup junctors per ED-25713-01, Fig. 10, from I6&7 to LCC0-5 by soldering 220 switchboard cable circuits. 20 1st subgroup junctors from I6 were connected previously by the work in (b) of "Routine Test of Incoming Trunks". Buzz test T&R and remove the busy from the 10 LJA6&LJB6 junctors made busy in (a) of "Routine Test of Incoming Trunks".

(f) **Connect** at the LJGF 258 of the 320 2nd subgroup junctors from I0-7 to LCC0-7 for the new 8,I-8,LCC arrangement per ED-25713-01, Fig. 8, by soldering 116 jumpers for junctors from I6&7 to LCC0-5 and from I0-5 to LCC6&7 at one end only, and 142 jumpers for junctors from I0-5 to LCC0-5 at both ends. 40 junctors are the same as for the existing 6,I-6,LCC arrangement as indicated in Fig. 27 herein and 22 from I6&7 to LCC6&7 were connected as preliminary work. Buzz test T&R. Any part of this work in (f) may be performed concurrently with the work in (e) above, if desired.

(g) When the work in (e) above is completed, remove from service any marker modified as in (b) or (c) above and use this marker and TTI to test sleeves of the 1st subgroup junctors connected in (e); and also test sleeves of the 10 1st subgroup junctors which were previously made busy by the work in (a) of "Routine Test of Incoming Trunks". When the work in (f) above is completed, remove block to use 1st subgroup junctors only; block to use 2nd subgroup junctors only per SD-25511-01, Table 11 for 8,I; and use this marker and TTI to test sleeves of 2nd subgroup junctors connected in (f). Remove block to use 2nd subgroup junctors only; and, after making any necessary final check that the marker is operating in all respects in accordance with the standard for the new 8,I-8,LCC arrangement, return marker to service.

(h) Remove block to use 1st subgroup only from each of the other markers; and, after making any necessary final check, return marker to service.

During or prior to the transition, the Telephone Company shall have soldered the jumpers at the M.D.F. from the incoming trunks on the new incoming frames I6&7 to protectors or office multiple terminal strips and made other necessary preparations to start transferring load to these trunks on the completion of the work in (g) above, with the objective of completing at least a substantial portion of this load transfer by the next busy hour.

Clean-up Work

The markers and junctors are now connected and operating in the standard manner for the new 8,I-8,LCC arrangement on 24 or 26 junctors from each of incoming frames 10-7 to each of LCC0-5, with the junctors to LCC6&7 also connected and ready for operation when lines are transferred to these line choices. The (JPL) relay per SD-25511-01, Fig. 1, and the (JP)4-7 pattern relays shall be left installed in each marker as they may be required on a future addition. The "D" step walking circuit relays (RTD'), (RTD), and (OVD) per SD-25283-0104, Fig. 18, shall be removed.

PROCEDURE 063

Preliminary Work

Install in each marker, relay (JPL) per SD-25511-01, Fig. 1, and ED-25332-02, Note 6, and wire to XTS terminal strips per ED-25333-01.

Provide multiples of two or three of terminals JR0-6 on the XTS(G) terminal strip per ED-25333-01, as required [see (a) of "Routine Test of Incoming Trunks"], for cross connection to J8&9 terminals.

Run jumpers at the LJGF for all of the 180 2nd subgroup junctors of the new 9,I-9,LCC arrangement per ED-25713-01, Fig. 9, from I0-8 to LCC0-8.

Solder jumpers at the LJGF for 36 of the above 180 junctors from I6-8 to LCC0-5 at the I frame end only, for 36 junctors from I0-5 to LCC6-8 at the LCC end only, and for 24 junctors from I6-8 to LCC6-8 at both ends.

Prepare for disconnection at the LJGF the jumpers for all of the existing 480 2nd and 3rd subgroup junctors per ED-25079-01, Fig. 6.

Routine Test of Incoming Trunks

The objective of this work is (1) to establish 1st subgroup junctors from the added incoming frame I6 to the LCC in which the last incoming trunk test line is assigned for the purpose of routine testing the incoming trunks in I6, and (2) to provide for routine testing the incoming trunks in the second and third added incoming frames, I7 and I8, by temporarily multipling at the LJGF four of the 1st subgroup junctors from I6 to the HC in which the last incoming trunk test line is assigned with two corresponding verticals in each of I7 and I8, and arranging the markers in the "A" step to test for these junctors on test calls from I7 and I8 to this HC. The work in (1) above includes part of

the work that would otherwise be done during the transition. All of the above work shall be accomplished in the following steps during a light-load period.

(a) Make all of the cross-connection changes in each marker that are outlined in (a) of "Routine Test of Incoming Trunks", PROCEDURE 061; make the **additional changes** outlined below, and return marker to service. **Junctors in service** from one of existing I frames to the LCC in which the last test line is assigned, 24; in all other cases, 32 or 34 from each I frame to each LCC.

CONN *	TO
(5)JGA7&8	JR8
(4)JGA7&8	JR8
(3)JGA7&8	JR7
(2)JGA7&8	JR7
(1)JGA7&8	JR6
(0)JGA7&8	JR6

*For work items numbered (0)-(5), perform only the work in the item bearing the same number as the number of the LCC in which the last incoming trunk test line is assigned.

The above work performs the same functions as the work in (a) of PROCEDURE 061, and the additional cross-connection changes indicated prepare the marker on test calls from the second and third added incoming frames I7 and I8 to the HC in which the last incoming trunk test line is assigned to test for the same LJA6&LJB6 1st subgroup junctors established from I6 to this HC, for the purpose of routine testing the incoming trunk in I7 and I8. During or subsequent to the above changes but **prior to the work in (b)** below, **make busy** at associated line link secondary verticals the 10 LJA6&LJB6 2nd subgroup junctors in channels 1, 3, 5, 7, and 9 from one of two line link frames to the LCC in which the last test line is assigned. These are the junctors which were not removed from service by the cross-connection changes. **Junctors now in service** from this I frame to this LCC, 24.

(b) When the work in (a) above is completed in all markers, the 20 LJA6&LJB6 2nd subgroup junctors for the 6,I-6,LCC arrangement per ED-25079-01, Fig. 6, to the LCC in which the last test line is assigned are out of service. **Disconnect** the corresponding jumpers at the LJGF, and **connect** these junctors as 1st subgroup from I6 to this LCC per ED-25713-01, Fig. 10, by soldering 20 switchboard cable circuits at the LJGF. Buzz test T&R.

(c) In order to provide for routine testing the incoming trunks in I7 and I8, multiple at the LJGF two of the LJA6 or LJB6 junctors connected in (b) above to the HC in which the last incoming trunk test line is assigned, with corresponding secondary switch verticals in I7, and multiple two other of such junctors with corresponding verticals in I8. These four junctors shall be those in channels 0, 2, 4, and 6, respectively; and the verticals in I7 and I8 shall be the same as those on which the junctors terminate in I6, viz., the verticals bearing the same number as the HC to which the junctors connect, and in the same channels as the junctors in I6. The multipling shall be accomplished by connecting the switchboard cable circuits from I7 & I8 temporarily to the LJGF terminals on which the cable circuits from I6 terminate.

(d) Remove from service any marker modified as in (a) above, use this marker and TT1 to test sleeves of the nonbusied 1st subgroup junctors connected in (b) above; and return marker to service.

The incoming trunks in I6 shall now be routine tested by the use of the 1st subgroup junctors from I6. This routine testing shall be followed by the routine testing of the incoming trunks in I7 and I8 in succession by using successively the two LJA6 or LJB6 junctors which are multipled with verticals of each of these frames, after first having made busy the other eight LJA6 or LJB6 junctors to the same HC. All of the above routine testing shall be completed prior to the start of the transition work.

Transition Work

In the following transition work it is assumed that the incoming trunks in I6,7&8 have been routine tested, that the 1st subgroup junctors from I6 to the LCC in which the last incoming trunk test line is assigned have been connected at the LJGF, and that the temporary marker connections outlined in (a) of "Routine Test of Incoming Trunks" are still in place.

(a) Block each marker except the last to use 1st subgroup junctors only per SD-25511-01, Table 5 for 6,I, and return marker to service.

(b) Remove the last marker from service; remove all temporary cross connections made in (a) of "Routine Test of Incoming Trunks" except the possible connection of JGA6 to JR6, JGA7 to JR7, or JGA8 to JR8; convert the marker in all respects to the standard for 9,I-9,LCC (including the changes in the marker walking circuit to make the marker operative in steps "A" and "E" only); block marker to use 1st subgroup junctors only per SD-25511-01, Table 11 for 9,I; and return marker to service.

(c) Repeat changes in (b) above in each of the other markers, and return marker to service.

(d) As soon as the work in (a) above is completed and the work in (b) is started, the (LJA)& (LJB)6-9 relays of LCC0-5 are out of service. Change the cross connections to the windings of these relays of LCC2-5 to conform with the standard for the 9,I-9,LCC arrangement per ED-25713-01, Fig. 11.

(e) Also as soon as the work in (a) above is completed and the work in (b) is started, the 480 LJA&LJB6-9 2nd and 3rd subgroup junctors per ED-25079-01, Fig. 6, are out of service. **Disconnect** at the LJGF 460 of the corresponding jumpers, 20 junctors having been changed by the work in (b) of "Routine Test of Incoming Trunks". **Also disconnect** at the LJGF the temporary multiple of four 1st subgroup junctors from I6 with corresponding verticals in I7 and I5 which were connected by the work in (c) of "Routine Test of Incoming Trunks". **Connect** at the LJGF 340 of the 360 LJA&LJB6-8 1st subgroup junctors per ED-25713-01, Fig. 10, from I6-8 to LCC0-5 by soldering 340 switchboard cable circuits, 20 already having been connected as covered in "Routine Test of Incoming Trunks". Buzz test T&R and remove the busy from the 10 LJA6&LJB6 junctors made busy in (a) of "Routine Test of Incoming Trunks".

(f) **Connect** at the LJGF 156 of the 180 2nd subgroup junctors from I0-8 to LCC0-8 for the new 9,I-9,LCC arrangement per ED-25317-01, Fig. 9, by soldering 72 jumpers for junctors from I6-8 to LCC0-5 and from I0-5 to LCC6-8 at one end only, and 84 jumpers for junctors from I0-5 to LCC0-5 at both ends. 24 junctors from I6-8 to LCC6-8 were connected as preliminary work. Buzz test T&R. Any part of this work in (f) may be performed concurrently with the work in (e) above, if desired.

(g) When the work in (e) above is completed, remove from service any marker modified as in (b) or (c) above; and use this marker and TTI to test sleeves of the 1st subgroup junctors connected in (e); and also test sleeves of the 10 1st subgroup junctors which were previously made busy by the work in (a) of "Routine Test of Incoming Trunks". When the work in (f) above is completed, remove block to use 1st subgroup junctors only; block to use 2nd subgroup junctors only per SD-25511-01, Table 11 for 9,I; and use this marker and TTI to test sleeves of 2nd subgroup junctors connected in (f). Remove block to use 2nd subgroup junctors only; and, after making any necessary final check that the marker is operating in all respects in accordance with the standard for the new 9,I-9,LCC arrangement, return marker to service.

(h) Remove block to use 1st subgroup only from each of the other markers; and, after making any necessary final check, return marker to service.

During or prior to the transition, the Telephone Company shall have soldered the jumpers at the M.D.F. from the incoming trunks on the new incoming frames I6-8 to protectors or office multiple terminal strips and made other necessary preparations to start transferring load to these trunks on the completion of the work in (g) above, with the objective of completing at least a substantial portion of this load transfer by the next busy hour.

Clean-up Work

The markers and junctors are now connected and operating in the standard manner for the new 9,I-9,LCC arrangement on 22 or 24 junctors from each of incoming frames I0-8 to each of LCC0-5, with the junctors to LCC6-8 also connected and ready for operation when lines are transferred to these line choices. The (JPL) relay per SD-25511-01, Fig. 1, and the "D" step walking circuit relays (RTD'), (RTD), and (OVD) per SD-25283-0104, Fig. 18, shall be removed.

Preliminary Work

No installation of any temporary transition apparatus or wiring is required for transitions from 7,I-7,LLC to 8,I-8,LCC since the routine testing of incoming trunks in I7 is not to be started until near the end of the transition work, and the establishment in advance of junctors from I7 to one of the LCC for routine test purposes is, therefore, not required.

Run jumpers at the LJGF for 278 of the 320 2nd subgroup junctors of the new 8,I-8,LCC arrangement per ED-25713-01, Fig. 8, from I0-7 to LCC0-7. 42 junctors are the same as for the existing 7,I-7,LCC arrangement per ED-25079-01, Fig. 7, as indicated in Fig. 28 herein.

Solder jumpers at the LJGF for 34 of the above 278 junctors from I7 to LCC0-6 at the I frame end only, for 34 junctors from I0-6 to LCC7 at the LCC end only, and for 6 junctors from I7 to LCC7 at both ends.

Prepare for disconnection at the LJGF the jumpers for 378 of the existing 420 2nd and 3rd subgroup junctors per ED-25079-01, Fig. 7, 42 remaining the same for the new 8,I-8,LCC arrangement as indicated in Fig. 17 herein.

Transition Work

On additions from a 7,I-7,LCC arrangement per ED-25079-01, Fig. 7, to a new 8,I-8,LCC arrangement per ED-25713-01, Fig. 8, it is satisfactory to make all necessary changes for operation with the new junctor distribution prior to the routine testing of the incoming trunks in I7. However, it will be desirable to routine test the incoming trunks and transfer load to the trunks of I7 as soon after the transition as possible, since the junctors from each of the existing I frames to each line choice is reduced from 28 or 30 to 24 or 26, which, with only 7 incoming frames and possible heavy load on the existing equipment, may result in some junctor overload. With the above procedure, therefore, it is unnecessary to establish junctors for routine testing the incoming trunks in advance of the transition. The transition work shall be conducted as follows:

(a) Block each marker except the last to use 1st subgroup junctors only per SD-25511-01, Table 5, for 7,I, and return marker to service.

(b) Remove the last marker from service; convert marker in all respects to the standard for the new 8,I-8,LCC arrangement (including the changes in the marker walking circuit to make the marker operative in the "A" and "E" steps only); block marker to use 1st subgroup junctors only per SD-25511-01, Table 11, for 8,I; and return marker to service.

(c) Repeat changes in (b) above in each of the other markers, and return marker to service.

(d) As soon as the work in (a) above is completed and the work in (b) is started, the (LJA)&(LJB)7-9 relays of LCC0-6 are out of service. Change the cross connections to the windings of the (LJA)&(LJB)8&9 relays of LCC4-6 to conform with the standard for the new 8,I-8,LCC arrangement per ED-25713-01, Fig. 11.

(e) Also as soon as the work in (a) above is completed and the work in (b) is started, the 420 2nd and 3rd subgroup LJA&LJB7-9 junctors per ED-25079-01, Fig. 7, are out of service. **Disconnect** at the LJGF 378 of the corresponding jumpers, leaving unchanged 42 jumpers for junctors that remain the same for the new 8,I-8,LCC arrangement per ED-25713-01, Fig. 8, as indicated in Fig. 17 herein. **Connect** the 140 1st subgroup junctors from I7 to LCC0-6 per ED-25713-01, Fig. 10, by soldering 140 switchboard cable circuits. Buzz test T&R.

(f) **Connect** at the LJGF 272 of the 320 2nd subgroup junctors from I0-7 to LCC0-7 for the new 8I-8,LCC arrangement per ED-25713-01, Fig. 8, by soldering 68 jumpers for junctors from I7 to LCC0-6 and from I0-6 to LCC7 at one end only, and 204 jumpers for junctors from I0-6 to LCC0-6 at both ends. 42 junctors remain the same as for the existing 7,I-7,LCC arrangement as indicated in Fig. 28 herein, and 6 from I7 to LCC7 were connected as preliminary work. Buzz test T&R. Any part of this work in (f) may be performed concurrently with the work in (e) above, if desired.

(g) When the work in (e) above is completed, remove from service any marker modified as in (b) or (c) above, and use this marker and TTI to test sleeves of the 1st subgroup junctors connected in (e). When the work in (f) above is completed, remove block to use 1st subgroup junctors only; block marker to use 2nd subgroup junctors only per SD-25511-01, Table 11, for 8,I; and use this marker and TTI to test sleeves of the 2nd subgroup junctors connected in (f). Remove block to use 2nd subgroup junctors only; and, after making any necessary final check that the marker is operating in all respects in accordance with the standard for the new 8,I-8,LLC arrangement, return marker to service.

(h) Remove block to use 1st subgroup only from each of the other markers; and, after making any necessary final check, return marker to service.

Clean-up Work and Routine Test of Incoming Trunks

The markers are now connected and operating in the standard manner for the new 8,I-8,LCC arrangement on 24 or 26 junctors from each of incoming frames I0-6 to each of LCC0-6, with the junctors from I7 and to LCC7 connected and ready for operation when load is transferred to I7 and lines are assigned to LCC7. The (JP)4-8 pattern relays shall be left installed in each marker as they may be required on the next addition. The (LCB)0-6 relays

per SD-25283-01, Fig. 21A, and the "D" step walking circuit relays (RTD'), (RTD), and (OVD) per SD-25283-0104, Fig. 18, shall be removed.

Upon the completion of the work in (g) of "Transition Work", the routine testing of the trunks in I7 shall be started and then proceed as rapidly as possible since it is important to transfer traffic quickly to the trunks of I7 in view of the reduced junctor capacity. At the completion of the routine tests on each group of trunks, the Telephone Company shall solder at the M.D.F. the jumpers from these incoming trunks to protectors or office multiple terminal strips and transfer traffic to these trunks.

Preliminary Work

Install in each marker, relay (JPL) per SD-25511-01, Fig. 1, and ED-25332-02, Note 6, and wire to XTS terminal strips per ED-25333-01.

Provide multiples of three of terminals JR0-6 on the XTS(G) terminal strip per ED-25333-01, as required [see (a) of "Routine Test of Incoming Trunks"], for cross connection to J terminals.

Run jumpers at the LJGF for 158 of the 180 2nd subgroup junctors of the new 9,I-9,LCC arrangement per ED-25713-01, Fig. 9, from I0-8 to LCC0-8. 22 junctors are the same as for the existing 7,I-7,LCC arrangement, as indicated in Fig. 29 herein.

Solder jumpers at the LJGF for 28 of the above 158 junctors from I7&8 to LCC0-6 at the I frame end only, for 28 junctors from I0-6 to LCC7&8 at the LCC end only, and for 12 junctors from I7&8 to LCC7&8 at both ends.

Prepare for disconnection at the LJGF the jumpers for 398 of the existing 420 2nd and 3rd subgroup junctors per ED-25079-01, Fig. 7, 22 remaining the same for the new 9, I-9,LCC arrangement per ED-25713-01, Fig. 9, as indicated in Fig. 17 herein.

Routine Test of Incoming Trunks

The objective of this work is (1) to establish 1st subgroup junctors from the added incoming frame I7 to the LCC in which the last incoming trunk test line is assigned for the purpose of routine testing the incoming trunks in I7, and (2) to provide for routine testing the incoming trunks in the second added incoming frame, I8, by temporarily multipling at the LJGF two of the 1st subgroup junctors from I7 to the HC in which the last incoming trunk test line is assigned, with corresponding verticals in I8, and arranging the markers in the "A" marker step to test for these junctors on calls from I8 to this HC. The work in (1) above includes part of the work that would otherwise be done during the transition. All of the above work shall be accomplished in the following steps during a light-load period.

(a) Make the following changes in each marker, and return marker to service. **Junctors in service** from each of 3 existing I frames to the LCC in which the last test line is assigned, 22; in all other cases, 28 or 30 from each I frame to each LCC.

TRNS	FROM	TO	CONN	TO	CONN	TO
IL7	LIL	LB	1-AIL	LIL	JGA8	JR7
IL6	RIL	LA	0-AIL	RIL	JGA7	JR7
			JPM	JPN		

TRNS	TO*					
(LCA&B)	0	1	2	3	4	5	6
J20					JR6	JR6	JR6
J19				JR5	JR5	JR5	
J18			JR4	JR4	JR4		
J17		JR3	JR3	JR3			
J16	JR2	JR2	JR2				
J15	JR1	JR1					JR1
J14	JR0					JR0	JR0
J6					JPL	JPL	JPL
J5				JPL	JPL	JPL	
J4			JPL	JPL	JPL		
J3		JPL	JPL	JPL			
J2	JPL	JPL	JPL				
J1	JPL	JPL					JPL
J0	JPL					JPL	JPL

*Transfer the cross-connections as indicated from the J terminals associated with only one (LCA) and one (LCB) relay, viz. the (LCA) and (LCB) relays associated with the LCC in which the last incoming trunk test line is assigned.

The above changes remove from service the LJA7&LJB7 2nd subgroup junctors needed for establishing 1st subgroup junctors from I7 to the LCC connector in which the last test line is assigned, cause the marker to test 1st subgroup junctors instead of these LJA7&JLB7 junctors in the "D" marker step, and prepare the marker in the "A" step to test for LJA7&LJB7 1st subgroup junctors from I7 on calls from I7 or I8. It is not considered necessary to make additional temporary marker cross-connection and wiring changes to test for LJA7&LJB7 1st subgroup junctors in the "D" and "E" marker steps during the routine test period since the marker should never be required to advance to these "overflow" steps on test calls from I7 or I8.

(b) When the work in (a) above is completed in all markers, the 20 LJA7&LJB7 2nd subgroup junctors for the existing 7,I-7,LCC arrangement per ED-25079-01, Fig. 7, to the LCC in which the last test line is assigned are out of service. **Disconnect** the corresponding jumpers at the LJGF, and **connect** these junctors as 1st subgroup from I7 to this LCC per ED-25713-01, Fig. 10, by soldering 20 switchboard cable circuits. Buzz test T&R.

(c) In order to provide for routine testing the incoming trunks in I8, multiple at the LJGF two of the LJA7 or LJB7 junctors connected in (b) above to the HC in which the last incoming trunk test line is assigned, with corresponding verticals in I8. The two junctors shall be those for channels 0 and 1, and the verticals in I8 shall be the same as those on which the junctors terminate in I7, viz., the verticals bearing the same number as the HC to which the junctors connect, and in the same channels as the verticals in I7. The multipling shall be accomplished by connecting the switchboard cable circuits from I8 temporarily to the LJGF terminals on which the cable circuits from I7 terminate.

(d) Remove from service any marker modified as in (a) above; use this marker and TTI to test sleeves of the 1st subgroup junctors connected in (b) above; and return marker to service.

The incoming trunks in I7 shall now be routine tested by the use of the 1st subgroup junctors from I7. When this testing is completed, routine test the incoming trunks in I8 by the use of the two LJA7 or LJB7 junctors which are multipled with verticals of this frame after having first made busy the other eight LJA7 or LJB7 junctors to the same HC. This routine testing shall be completed prior to the start of the transition work.

Transition Work

In the following transition work it is assumed that the incoming trunks in I7&8 have been routine tested, that the 1st subgroup junctors from I7 to the LCC in which the last incoming trunk test line is assigned have been connected at the LJGF, and that the temporary marker connections outlined in (a) of "Routine Test of Incoming Trunks" are still in place.

(a) Remove each marker except the last from service; block to use 1st subgroup junctors only per SD-25511-01, Table 5 for 7,I; and return marker to service.

(b) Remove the last marker from service; remove all temporary cross connections made in (a) of "Routine Test of Incoming Trunks" except the connection of JGA7 to JR7; convert the marker in all respects to the standard for 9,I-9,LCC (including the changes in the marker walking circuit to make the marker operative in steps "A" and "E" only); block marker to use 1st subgroup junctors only per SD-25511-01, Table 11 for 9,I; and return marker to service.

(c) Repeat changes in (b) above in each of the other markers, and return marker to service.

(d) As soon as the work in (a) above is completed and the work in (b) is started, the 420 LJA&LJB7-9 2nd and 3rd subgroup junctors per ED-25079-01, Fig. 7, are out of service. **Disconnect** at the LJGF 378 of the corresponding jumpers, leaving unchanged 22 jumpers for junctors that remain the same for the new 9,I-9,LCC arrangement per ED-25713-01, Fig. 19, as indicated in Fig. 17 herein, and 20 which were changed by the work in (b) of "Routine Test of Incoming Trunks". **Connect** at the LJGF 260 of the 280 1st subgroup junctors for the new 9,I-9,LCC arrangement from I7&8 to LCC0-6 by soldering 260 switchboard cable circuits, 20 already having been connected as covered in "Routine Test of Incoming Trunks". Buzz test T&R.

(e) **Connect** at the LJGF 146 of the 180 2nd subgroup junctors from I0-8 to LCC0-8 for the new 9,I-9,LCC arrangement per ED-25713-01, Fig. 9, by soldering 56 jumpers for junctors from I7&8 to LCC0-6 and from I0-6 to LCC7&8 at one end only and 90 jumpers for junctors from I0-6 to LCC0-6 at both ends. 22 junctors are the same as for the existing 7,I-7,LCC arrangement as indicated in Fig. 29 herein, and 12 from I7&8 to LCC7&8 were connected as preliminary work. Buzz test T&R. Any part of this work in (f) may be performed concurrently with the work in (3) above, if desired.

(f) When the work in (d) above is completed, remove from service any marker modified as in (b) or (c) above, and use this marker and TTI to test sleeves of the 1st subgroup junctors connected in (d). When the work in (e) above is completed, remove block to use 1st subgroup junctors only; block to use 2nd subgroup junctors only per SD-25511-01, Table 11, for 9,I; and use this marker and TTI to test sleeves of 2nd subgroup junctors connected in (e). Remove block to use 2nd subgroup junctors only; and, after making any necessary final check that the marker is operating in all respects in accordance with the standard for the new 9,I-9,LCC arrangement, return marker to service.

(g) Remove block to use 1st subgroup only from each of the other markers; and, after making any necessary final check, return marker to service.

During or prior to the transition, the Telephone Company shall have soldered the jumpers at the M.D.F. from the incoming trunks on the new incoming frames I7&8 to protectors or office multiple terminal strips and made other necessary preparations to start transferring load to these trunks on the completion of the work in (f) above, with the objective of completing at least a substantial portion of this load transfer by the next busy hour.

Clean-up Work

The markers and junctors are now connected and operating in the standard manner for the new 9,I-9,LCC arrangement on 22 or 24 junctors from each of incoming frames I0-8 to each of LCC0-6, with the junctors to LCC7&8 also connected and ready for operation when lines are transferred to these line choices. The (JPL) relay per SD-25511-01, Fig. 1, the (LCB)0-6 relays per SD-25283-0108, Fig. 21A, and the "D" step walking circuit relays (RTD'), (RTD), and (OVD) per SD-25283-0104, Fig. 18, in each marker shall be removed.

Preliminary Work

Install in each marker, relay (JPL) per SD-25511-01, Fig. 1, and ED-25332-02, Note 6, and wire to XTS terminal strips per ED-25333-01. Provide multiples of three of terminals JR0-6 on the XTS(G) terminal strip per ED-25333-01, as required [see (a) of "Routine Test of Incoming Trunks"], for cross connection to J terminals.

Prepare for disconnection at the LJGF the jumpers for all of the existing 420 2nd and 3rd subgroup junctors per ED-25079-01, Fig. 7.

Routine Test of Incoming Trunks

The objective of this work is (1) to establish 1st subgroup junctors from the added incoming frame I7 to the LCC in which the last incoming trunk test line is assigned for the purpose of routine testing the incoming trunks in I7, and (2) to provide for routine testing the incoming trunks in the second and third added incoming frames I8 and I9 by temporarily multipling at the LJGF four of the 1st subgroup junctors from I7 to the HC in which the last incoming trunk test line is assigned, with two corresponding verticals in each of I8 and I9, and arranging the markers in the "A" step to test for these junctors on test calls from I8 and I9 to this HC. The work in (1) above includes part of the work that would otherwise be done during the transition. All of the above work shall be accomplished in the following steps during a light load period.

(a) Make the following changes in each marker; but before returning each marker to service, the work in (b) below should also be performed.

TRNS	FROM	TO	CONN	TO	CONN	TO
IL7	LIL	LB	1-AIL	LIL	JGA8	JR7
IL6	RIL	LA	0-AIL	RIL	JGA7	JR7
			JPM	JPN		

TRNS	TO*						
(LCA&B)	0	1	2	3	4	5	6
J20					JR6	JR6	JR6
J19				JR5	JR5	JR5	
J18			JR4	JR4	JR4		
J17		JR3	JR3	JR3			
J16	JR2	JR2	JR2				
J15	JR1	JR1					JR1
J14	JR0					JR0	JR0
J6					JPL	JPL	JPL
J5				JPL	JPL	JPL	
J4			JPL	JPL	JPL		
J3		JPL	JPL	JPL			
J2	JPL	JPL	JPL				
J1	JPL	JPL					JPL
J0	JPL					JPL	JPL

*Transfer the cross-connections as indicated from the J terminals associated with only one (LCA) and one (LCB) relay, viz. the (LCA) and (LCB) relays associated with the LCC in which the last incoming trunk test line is assigned.

The above changes remove from service the LJA7&LJB7 2nd subgroup junctors needed for establishing 1st subgroup junctors from I7 to the LCC connector in which the last test line is assigned, cause the marker to test 1st subgroup junctor instead of these LJA7&LJB7 junctors in the "D" marker step, and prepare the marker in the "A" step to test for LJA7&LJB7 1st subgroup junctors from I7 on test calls from I7 or I8. It is not considered necessary to make additional temporary marker cross connection and wiring changes to test for LJA7&LJB7 1st subgroup junctors in the "D" and "E" marker steps during the routine testing period since the marker should never be required to advance to these "overflow" steps on test calls from I7 or I8.

(b) In order to prepare each marker to test for LJA7&LJB7 1st subgroup junctors on test calls from I9 during the routine testing of incoming trunks, temporarily transfer the "JR9" switchboard cable lead from the incoming link and connector circuit in I9, shown in Fig. 15K of SD-25283-0119, from terminal No. 99 of the miscellaneous terminal strip to terminal No. 97, which is the terminal to which the "JR7" lead from I7 terminates. When this change is made, in addition to the change in (a) above, return marker to service. **Junctors in service** from each of 3 existing I frames to the LCC in which the last test line is assigned, 22; in all other cases, 28 or 30 from each I frame to each LCC.

(c) When the work in (a) and (b) above is completed in all markers, the 20 LJA7&LJB7 2nd subgroup junctors for the existing 7,I-7,LCC arrangement per ED-25079-01, Fig. 7, to the LCC in which the last test line is assigned are out of service. **Disconnect** the corresponding jumpers at the LJGF, and **connect** these junctors as 1st subgroup from I7 to this LCC per ED-25713-01, Fig. 10, by soldering 20 switchboard cable circuits at the LJGF. Buzz test T&R.

(d) In order to provide for routine testing the incoming trunks in I8&9, multiple at the LJGF two of the LJA7 or LJB7 junctors connected in (b) above to the HC in which the last incoming trunk test line is assigned, with corresponding verticals in I8, and multiple two other such junctors with corresponding verticals in I9. These four junctors shall be those in channels 0, 1, 2, and 3, respectively; and the verticals in I8 and I9 shall be the same as those on which the junctors terminate in I7, viz., the verticals bearing the same number as the HC to which the junctors connect and in the same channels as the verticals in I7. The multipling shall be accomplished by connecting the switchboard cable circuits from I8 and I9 temporarily to the LJGF terminals on which the cable circuits from I7 terminate.

(e) Remove from service any marker modified as in (a) and (b) above; use this marker and TTI to test sleeves of the 1st subgroup junctors connected in (b) above; and return marker to service.

The incoming trunks in I7 shall now be routine tested by the use of the 1st subgroup junctors from I7. When this testing is completed, routine test the incoming trunks in I8 and I9 in succession by

using successively the two LJA7 or LJB7 junctors which are multipled with verticals in each of these frames, after having first made busy the other eight LJA7 or LJB7 junctors to the same HC. All of the above routine testing shall be completed prior to the start of the transition work.

Transition Work

In the following transition work it is assumed that the incoming trunks in I7,8&9 have been routine tested, that the 1st subgroup junctors from I7 to the LCC in which the last incoming trunk test line is assigned have been connected at the LJGF, and that the temporary marker connection and wiring changes outlined in (a) and (b) of "Routine Test of Incoming Trunks" are still in place.

(a) Remove each marker except the last from service; block to use 1st subgroup junctors only per SD-25511-01, Table 5 for 7,I; and return marker to service.

(b) Remove the last marker from service; remove all temporary cross-connection and wiring changes made in (a) and (b) of "Routine Test of Incoming Trunks"; convert the marker in all respects to the standard for 10,I-10,LCC (including the removal from service of the marker walking circuit and pattern relays); and return marker to service.

(c) Repeat changes in (b) above in each of the other markers, and return marker to service.

(d) As soon as the work in (a) above is completed and the work in (b) is started, the 420 LJA&LJB7-9 2nd and 3rd subgroup junctors per ED-25079-01, Fig. 7, are out of service. **Disconnect** at the LJGF 400 of the corresponding jumpers, 20 having been removed by the work in (c) of "Routine Test of Incoming Trunks". **Connect** at the LJGF 400 of the 420 1st subgroup junctors for the new 10,I-10,LCC arrangement from I7-10 to LCC0-6 by soldering 400 switchboard cable circuits, 20 already having been connected as covered in "Routine Test of Incoming Trunks". Buzz test T&R.

(e) When the work in (d) above is completed, remove from service any marker modified as in (b) or (c) above, and use this marker and TTI to test sleeves of the 1st subgroup junctors connected in (d). Remove block to use 1st subgroup junctors only; and, after making any necessary final check that the marker is operating in all respects in accordance with the standard for 10,I-10,LCC arrangement, return marker to service.

(f) Remove from service each of the other markers modified as in (b) or (c) above; make any necessary final check that the marker is operating in accordance with the standard for 10,I-10,LCC; and return marker to service.

During or prior to the transition, the Telephone Company shall have soldered the jumpers at the M.D.F. from the incoming trunks on the new incoming frames I7-9 to protectors or office multiple terminal strips and made other necessary preparations to start transferring load to these trunks on the completion of the work in (e) above, with the objective of completing at least a substantial portion of this load transfer by the next busy hour.

Clean-up Work

The markers and junctors are now connected and operating in the standard manner for the 10,I-10,LCC arrangement on 20 junctors from each of incoming frames I0-9 to each of LCC0-6, with the junctors to LCC7-9 also connected and ready for operation when lines are transferred to these line choices. The (JPL) relay per SD-25511-01, Fig. 1, the (JP)0-8 and (JPN) pattern relays and the (XP) relay and (Y)0-4 resistances per SD-25283-0103, Fig. 17, the (LCA) and (LCB)0-6 relays per SD-25283-0108, Figs. 21 and 21A, and the "A", "D" and "E" step walking circuit relays per SD-25283-0104, Fig. 18, in each marker shall be removed.

Preliminary Work

No installation of any temporary transition apparatus or wiring is required for transitions from 8,I-8,LCC to 9,I-9,LCC since the routine testing of incoming trunks in I8 is not to be started until near the end of the transition work, and the establishment in advance of junctors from I8 to one of the LCC for routine test purposes is, therefore, not required.

Run jumpers at the LJGF for 148 of the 180 2nd subgroup junctors of the new 9,I-9,LCC arrangement per SD-25713-01, Fig. 9, from I0-8 to LCC0-8. 32 junctors are the same as for the existing 8,I-8,LCC arrangement per ED-25079-01, Fig. 8, as indicated in Fig. 29 herein.

Solder jumpers at the LJGF for 16 of the above junctors from I8 to LCC0-7 at the I frame end only, for 16 junctors from I0-7 to LCC8 at the LCC end only and for 4 junctors from I8 to LCC8 at both ends.

Prepare for disconnection at the LJGF the jumpers for 288 of the existing 320 2nd subgroup junctors per ED-25079-01, Fig. 8, 32 junctors remaining the same for the new 9,I-9,LCC arrangement as indicated in Fig. 18 herein.

Transition Work

On additions from an 8,I-8,LCC arrangement per ED-25079-01, Fig. 8, to a new 9,I-9,LCC arrangement per ED-25713-01, Fig. 9, it is satisfactory to make all necessary changes for operation with the new junctor distribution prior to the routine testing of the incoming trunks in I8. However, it will be desirable to routine test the incoming trunks and transfer load to the trunks of I8 as soon after the transition as possible since the junctors from each of the existing I frames to each line choice are reduced from 24 or 26 to 22 or 24, which, with only 8 incoming frames and possibly heavy loads on the existing equipment, may result in some junctor overload. With the above procedure, therefore, it is unnecessary to establish junctors for routine testing the incoming trunks in advance of the transition. The transition work shall be conducted as follows:

(a) Block each marker except the last to use 1st subgroup junctors only per SD-25511-01, Table 5 for 8,I, and return marker to service.

(b) Remove the last marker from service; convert marker in all respects to the standard for the new 9,I-9,LCC arrangement; block marker to use 1st subgroup junctors only per SD-25511-01, Table 11 for 9,I; and return marker to service.

(c) Repeat changes in (b) above in each of the other markers, and return marker to service.

(d) As soon as the work in (a) above is completed and the work in (b) is started, the (LJA)& (LJB)8&9 relays of LCC0-7 are out of service. Change the cross connections to the windings of these relays of LCC4-7 to like numbered marker leads to conform with the standard for the new 9,I-9,LCC arrangement per ED-25713-01, Fig. 11.

(e) Also as soon as the work in (a) above is completed and the work in (b) is started, the 320 LJA&LJB8&9 junctors per ED-25079-01, Fig. 8, are out of service. **Disconnect** at the LJGF 288 of the corresponding jumpers, leaving unchanged 32 jumpers for junctors that remain the same for the new 9,I-9,LCC arrangement per ED-25713-01, Fig. 9, as indicated in Fig. 18 herein. **Connect** the 160 1st subgroup junctors from I8 to LCC0-7 per ED-25713-01, Fig. 10, by soldering 160 switchboard cable circuits. Buzz test T&R.

(f) **Connect** at the LJGF 144 of the 180 2nd subgroup junctors from I0-8 to LCC0-8 for the 9,I-9,LCC arrangement per ED-25713-01, Fig. 9, by soldering 32 jumpers for junctors from I8 to LCC0-7 and from I0-7 to LCC8 at one end only, and 112 jumpers for junctors from I0-7 to LCC0-7 at both ends. 32 junctors remain the same as for the 8,I-8,LCC arrangement as indicated in Fig. 29 herein, and 4 from I8 to LCC8 were connected as preliminary work. Buzz test T&R. Any part of this work in (f) may be performed concurrently with the work in (e) above, if desired.

(g) When the work in (e) above is completed, remove from service any marker modified as in (b) or (c) above and use this marker and TTI to test sleeves of the 1st subgroup junctors connected in (e). When the work in (f) above is completed, remove block to use 1st subgroup junctors only; block marker to use 2nd subgroup junctors only per SD-25511-01, Table 11 for 9,I; and use this marker and TTI to test sleeves of the 2nd subgroup junctors connected in (f). Remove block to use 2nd subgroup junctors only; and, after making any necessary final check that the marker is operating in all respects in accordance with the standard for the new 9,I-9,LCC arrangement, return marker to service.

(h) Remove block to use 1st subgroup only from each of the other markers; and, after making any necessary final check, return marker to service.

Clean-up Work and Routine Test of Incoming Trunks

The markers are now connected and operating in the standard manner for the new 9,I-9,LCC arrangement on 22 or 24 junctors per LCC from each of incoming frames I0-7 to LCC0-7, with the junctors from I8 and to LCC8 connected and ready for operation when load is transferred to I8 and lines are assigned to LCC8.

Upon the completion of the work in (g) of "Transition Work", the routine testing of the trunks in I8 shall be started. Then proceed as rapidly as possible since it is important to transfer load quickly to the trunks of I8 in view of the reduced

junctor capacity. At the completion of the routine tests on each group of trunks, the Telephone Company shall solder at the M.D.F. the jumpers from these incoming trunks to protectors or office multiple terminal strips and transfer load to these trunks.

PROCEDURE 082

Preliminary Work

Install in each marker, relay (JPL) per SD-25511-01, Fig. 1 and ED-25332-02, Note 6, and wire to XTS terminal strips per ED-25333-01.

Prepare for disconnection at the LJGF, the jumpers for all of the existing 320 2nd subgroup junctors per ED-25079-01, Fig. 8.

Routine Test of Incoming Trunks

The objective of this work is (1) to establish two or three LJA8&LJB8 1st subgroup junctors from the first added incoming frame I8 to the HC in which the last incoming trunk test line is assigned for the purpose of routine testing the incoming trunks in the first added incoming frame I8, and (2) to provide for routine testing the incoming trunks in the second added incoming frame I9 by temporarily multipling at the LJGF the above 1st subgroup junctors from I8 with corresponding verticals in I9, and arranging the markers in the "A" step to test for these junctors on call from I9 to this HC. This work constitutes part of the work that would otherwise be done during the transition period. It shall be accomplished in the following steps during a light-load period.

(a) Block each marker except the last to use 1st subgroup junctors only per SD-25511-01, Table 5, for 8,I, and return marker to service.

(b) Remove the last marker from service; make the following cross-connection changes in this marker; and block marker to use 1st subgroup junctors only per SD-25511-01, Table 5 for 8,I. Do not return marker to service until the change in (c) below is also made.

* TRNS	FROM	TO	CONN	TO
(4-7) JGE4	JR9	JR4	JGA8	JR8
(0-3) JGE0	JR8	JR0	1-AIL	LIL
(4-7) JPE4	JC0	JPL	0-AIL	RIL
(0-3) JPE0	JC0	JPL	JPM	JPN
IL9	LIL	LB		
IL8	RIL	LA		

*For work items designated (0-3) and (4-7), perform only the work in items designated (0-3) if the last incoming trunk test line is assigned in LCC0,1,2or3, or the work in items designated (4-7) if this test line is assigned in LLC4,5,6or7.

The above cross-connection changes remove from service the LJA8&LJB8 2nd subgroup junctors from one of the existing incoming frames to four LCC and the LJA9&LJB9 2nd subgroup junctors from this incoming frame to the other four LCC, cause the marker in the "E" step to test for 1st subgroup junctors from this I frame instead of these LJA& LJB8&9 junctors, and prepare the marker in the "A" step to test for LJA8&LJB8 1st subgroup junctors from I8 on test calls from I8 to the HC in which the last incoming trunk test line is assigned. It is not considered necessary to make additional temporary cross-connection changes in the markers to test for these 1st subgroup junctors in the "E" marker step during the routine test period since the marker should never be required to advance to this "overflow" step on test calls from I8 or I9.

(c) In order to prepare the marker removed from service in (b) above to test for LJA8&LJB8 1st subgroup junctors on test calls from the second added incoming frame I9 during the routine testing of incoming trunks in I9, temporarily transfer the "JR9" switchboard cable lead from the incoming link and connector circuit in I9, shown in Fig. 15K of SD-25283-0119, from terminal No. 99 of the miscellaneous terminal strip to terminal No. 98, which is the terminal to which the "JR8" lead from I8 terminates. Return marker to service.

(d) Repeat the cross-connection and wiring changes in (b) and (c) above in each of the other markers, and return marker to service (still blocked to use 1st subgroup junctors only).

(e) When the work in (a) above is completed and the work in (b) is started, the 20 LJA8&LJB8 2nd subgroup junctors per ED-25079-01, Fig. 8, from I0 to LCC0-3 or from I4 to LCC4-7 are out of service. **Disconnect** at the LJGF the jumpers for 10 of these LJA8 or LJB8 junctors to the HC in which the last incoming trunk test line is assigned, and **connect** these 10 junctors as first subgroup junctors from I8 to this HC per ED-25713-01, Fig. 10, by soldering 10 switchboard cable circuits at the LJGF. Buzz test T&R.

(f) In order to provide for routine testing the incoming trunks in I9, multiple temporarily at the LJGF the two or three LJA8 or LJB8 junctors connected in (e) above which previously connected with I0 or I4, with corresponding secondary switch verticals in I9. These verticals in I9 shall be the same as those on which the junctors terminate in I8, viz., the verticals bearing the same number as the HC to which the junctors connect, and in the same channels as the verticals in I8.

(g) Remove from service any marker modified as in (b) and (c) or (d) above, and use this marker (blocked to use 1st subgroup junctors only)

and TTI to test the sleeves of the 10 1st subgroup junctors connected in (e) above. Remove block to use 1st subgroup junctors only; but, before returning the marker to service, make busy the 7 or 8 of the above 10 LJA8 or LJB8 junctors which were previously connected to incoming link frames I1-3 or I5-7 in order that the marker will not attempt to complete calls from these incoming frames to these junctors. This make busy operation must be accomplished at the line link secondary verticals since the LJGF cross connections to the incoming link secondary verticals of I1-3 or I5-7 are now removed. Return marker to service.

(h) Remove each of the other markers from service; remove block to use 1st subgroup junctors only; and return marker to service. **Junctors in service** from incoming frame I0 or I4 to each LCC, 20; from each of I1-3 or I5-7 to the LCC with the last incoming trunk test line, 22 or 23; from each of I1-3 or I5-7 to each the other LCC, 24 or 26.

The incoming trunks in I8 and I9, one frame at a time, shall now be routine tested by the use of the two or three 1st subgroup junctors from I8 established in (a) to (h) above. This routine testing shall be completed prior to the start of the transition work.

Transition Work

In the following transition work it is assumed that the 1st subgroup junctors from I8 to the HC in which the last incoming trunk test line is assigned have been connected at the LJGF, that the incoming trunks in I8 and I9 have been tested, and that the temporary cross connection and other wiring changes outlined in (a)-(d) of "Routine Test of Incoming Trunks" are still in place.

(a) Remove each marker except the last marker from service; block to use 1st subgroup only per SD-25511-01, Table 5 for 8,I; and return marker to service.

(b) Remove the last marker from service; remove the temporary marker cross connections made in (b) of "Routine Test of Incoming Trunks"; and restore to normal the wiring of the JR9 lead at the miscellaneous terminal strip from the temporary arrangement outlined in (c) of "Routine Test of Incoming Trunks". Convert the marker in all respects to the standard for 10,I-10,LCC (including the removal from service of the marker walking circuit and pattern relays); and return marker to service.

(c) Repeat the changes in (b) above in each of the other markers; remove block to use first subgroup junctors only; and return marker to service.

(d) As soon as the work in (a) above is completed and (b) is started, the (LJA)&(LJB)8&9 relays of LCC0-7 are out of service. Change the cross connections to the windings of these relays of LCC4-7 to correspondingly numbered marker leads in accordance with the standard for the 10,I-10,LCC arrangement per ED-25713-01, Fig. 11.

(e) Also at the end of the work in (a) above and the start of the work in (b), the 320 LJA& LJB8&9 junctors per ED-25079-01, Fig. 8, are out of service. **Disconnect** at the LJGF 310 of the corresponding jumpers, 10 having been removed by the work in "Routine Test of Incoming Trunks". Also disconnect at the LJGF the multiples of two or three LJA8 or LJB8 1st subgroup junctors from I8 with corresponding verticals in I9 which were connected by the work in (f) of "Routine Test of Incoming Trunks". **Connect** 310 of the 320 LJA& LJB8&9 1st subgroup junctors from I8&9 to LCC0-7 by soldering 310 switchboard cable circuits at the LJGF. Ten 1st subgroup junctors from I8 were previously connected as covered in "Routine Test of Incoming Trunks". Buzz test T&R.

(f) Remove from service any marker modified as in (b) or (c) above, and use this marker and TTI to test sleeves of the 1st subgroup junctors connected in (e) above. After making any necessary final check that the marker is operating in all respects in accordance with the standard for 10,I-10,LCC, return marker to service.

(g) Remove from service each of the other markers modified as in (b) or (c) above; make any necessary final check that the marker is operating in accordance with the standard for 10,I-10,LCC; and return marker to service.

During or prior to the transition and subsequent to the routine testing of the incoming trunks in the added incoming frames I8 and I9, the Telephone Company shall have soldered the cross connection at the M.D.F. from these trunks to protectors or office multiple terminal strips and made other necessary preparations to start transferring traffic to the trunks of I8 and I9 at the completion of the work in (f) above, with the objective of completing at least a substantial portion of this load transfer by the next busy hour.

Clean-up Work

The marker and junctors are now connected and operating in the standard manner for 10,I-10,LCC on 20 junctors from each of I0-9 to each of LCC0-7, with the junctors to LCC8&9 also connected and ready for operation when lines are transferred to these LCC. The (JPL) relay per SD-25511-01, Fig. 1; the (JP)0-3 and (JPN) pattern relays; (XP) relay; and the (Y)0-4 resistances per SD-25283-0103, Fig. 17; and the "A" and "E" step walking circuit relays (JGA), (RTA'), (RTA), (OVA), (JGE), (RTE'), (RTE), and (OVE) per SD-25283-0104, Fig. 18, and the (LCA)0-7 relays per SD-25283-0108, Fig. 21, will no longer be required and shall be removed.

Preliminary Work

No installation of any temporary transition apparatus or wiring is required for transitions from 9,I-9,LCC to 10,I-10,LCC since the routine testing of incoming trunks in I9 is not to be started until the end of the transition work; and the establishment in advance of junctors from I9 to one of the LCC for routine test purposes is, therefore, not required.

Prepare for disconnection at the LJGF the jumpers for the existing 160 2nd subgroup junctors per ED-25079-01, Fig. 9.

Transition Work

On additions from a 9,I-9,LCC arrangement per ED-25079-01, Fig. 9, to the 10,I-10,LCC arrangement per ED-25713-01, Fig. 10, it is satisfactory to make all necessary changes for operation with the new junctor distribution prior to the routine testing of the incoming trunks in I9. However, it will be desirable to routine test the incoming trunks and transfer load to the trunks of I9 as soon after the transition as possible since the junctors from each of the existing I frames to each line choice are reduced from 22 or 24 to 20, which, with only 9 incoming frames and possibly heavy loads on the existing equipment, may result in some junctor overload. With the above procedure, therefore, it is unnecessary to establish junctors for routine testing the incoming trunks in advance of the transition. The transition work shall be conducted as follows:

(a) Block each marker except the last to use 1st subgroup junctors only per SD-25511-01, Table 5 for 9,I, and return marker to service.

(b) Remove the last marker from service; convert marker in all respects to the standard for 10,I-10,LCC (including the removal from service of the marker walking circuit and pattern relays); and return marker to service.

(c) Repeat changes in (b) above in each of the other markers; remove block to use 1st subgroup junctors only; and return marker to service.

(d) As soon as the work in (a) above is completed and the work in (b) is started, the 160 LJA9& LJB9 junctors per ED-25079-01, Fig. 9, are out of service. **Disconnect** the corresponding jumpers at the LJGF, and then **connect** the 160 1st subgroup junctors from I9 to LCC0-8 per ED-25713-01, Fig. 10, by soldering 160 switchboard cable circuits. Buzz test T&R.

(e) When the work in (d) above is completed, remove from service any marker modified as in (b) or (c) above, and use this marker and TTI to test sleeves of the 1st subgroup junctors connected in (d). After making any necessary final check that the marker is operating in all respects in accordance with the standard for the 10,I-10,LCC arrangement, return marker to service.

(f) Make any necessary final check in each of the other markers that it is operating in all respects in accordance with the standard for 10,I-10,LCC, and return marker to service.

Clean-up Work and Routine Test of Incoming Trunks

The markers are now connected and operating in the standard manner for the 10,I-10,LCC arrangement on 20 junctors from each of I0-8 to each of LCC0-8, with the junctors from I9 and to LCC9 connected and ready for operation when load is transferred to I9 and lines are assigned to LCC9. The (JP)0-8 and (JPN) pattern relays, the (XP) relay, and the (Y)0-4 resistances per SD-25283-0103, Fig. 17, the (LCA)0-8 relays per SD-25283-0108, Fig. 21, and the "A" and "E" step walking circuit relays (JGA), (RTA'), (RTA), (OVA), (JGE), (RTE'), (RTE), and (OVE) per SD-25283-0104, Fig. 18, will no longer be required and shall be removed.

Upon the completion of the work in (e) of "Transition Work", the routine testing of the trunks in I9 shall be started. Then proceed as rapidly as possible since it is important to transfer load quickly to the trunks of I9 in view of the reduced junctor capacity. At the completion of the routine tests on each group of trunks, the Telephone Company shall solder at the M.D.F. the jumpers from these incoming trunks to protectors or office multiple terminal strips and transfer load to these trunks.

0	1	2	3	4	5	6	7	← L.C. NO.
0-0	0-0	0-0	0-0	0-0	0-0	0-0	0-0	
1-1	1-1	1-1	1-1	1-1	1-1	1-1	1-1	
2-2	2-2	2-2	2-2	2-2	2-2	2-2	2-2	
3-3	3-3	3-3	3-3	3-3	3-3	3-3	3-3	
4-4	4-4	4-4	4-4	4-4	4-4	4-4	4-4	
5-5	5-5	5-5	5-5	5-5	5-5	5-5	5-5	
6-6	6-6	6-6	6-6	6-6	6-6	6-6	6-6	
7-7	7-7	7-7	7-7	7-7	7-7	7-7	7-7	
8-8	8-8	8-8	8-8	8-9	8-9	8-9	8-9	
9-9	9-9	9-9	9-9	9-8	9-8	9-8	9-8	

7 OR 8 LINE CHOICES OR
7 OR 8 INC. FRS.

0	1	2	3	4	← L.C. NO.
0-0	0-0	0-0	0-0	0-0	
1-1	1-1	1-1	1-1	1-1	
2-2	2-2	2-2	2-2	2-2	
3-3	3-3	3-3	3-3	3-3	
4-4	4-4	4-4	4-4	4-4	
5-5	5-9	5-8	5-7	5-6	
6-6	6-5	6-9	6-8	6-7	
7-7	7-6	7-5	7-9	7-8	
8-8	8-7	8-6	8-5	8-9	
9-9	9-8	9-7	9-6	9-5	

5 LINE CHOICES
OR 5 INC. FRS

0	1	2	← L.C. NO.
0-0	0-0	0-0	
1-1	1-1	1-1	
2-2	2-2	2-2	
3-3	3-	3-	
4-4	4-6	4-5	
5-5	5-9	5-8	
6-6	6-5	6-9	
7-7	7-4	7-6	
8-8	8-7	8-4	
9-9	9-8	9-7	

3 LINE CHOICES
OR 3 INC. FRS.

PUNCHINGS ON MARKER SIDE

PUNCHINGS ON JUNCTOR SIDE

0	1	2	3	4	5	← L.C. NO.
0-0	0-0	0-0	0-0	0-0	0-0	
1-1	1-1	1-1	1-1	1-1	1-1	
2-2	2-2	2-2	2-2	2-2	2-2	
3-3	3-3	3-3	3-3	3-3	3-3	
4-4	4-4	4-4	4-4	4-4	4-4	
5-5	5-5	5-5	5-5	5-5	5-5	
6-6	6-	6-	6-	6-	6-	
7-7	7-7	7-9	7-9	7-8	7-8	
8-8	8-8	8-7	8-7	8-9	8-9	
9-9	9-9	9-8	9-8	9-7	9-7	

6 LINE CHOICES
OR 6 INC. FRS.

0	1	2	3	← L.C. NO.
0-0	0-0	0-0	0-0	
1-1	1-1	1-1	1-1	
2-2	2-2	2-2	2-2	
3-3	3-3	3-3	3-3	
4-4	4-	4-	4-	
5-5	5-9	5-8	5-7	
6-6	6-5	6-9	6-8	
7-7	7-6	7-5	7-9	
8-8	8-	8-	8-	
9-9	9-8	9-7	9-6	

4 LINE CHOICES
OR 4 INC. FRS

0	1	← L.C. NO.
0-0	0-0	
1-1	1-1	
2-2	2-	
3-3	3-5	
4-4	4-6	
5-5	5-9	
6-6	6-	
7-7	7-4	
8-8	8-3	
9-9	9-8	

2 LINE CHOICES
OR 2 INC. FRS.

NOTE:
THE TWO DIGITS ARE THE JA, 0-9 OR JB, 0-9 PUNCHINGS FIGS. 2 AND 3 RESPECTIVELY, OF LINE CHOICE CONNECTOR CIRCUIT SD-25034-01 (A&M) OR SD-25275-01, IN INSTALLATIONS WITH 10 OR 9 LINE CHOICES, THE PUNCHINGS ARE CONNECTED DIRECTLY (LIKE NUMBERS TO LIKE NUMBERS).

CROSS CONNECTION CHARTS FOR
JA AND JB PUNCHINGS
OF LINE CHOICE CONNECTOR CIRCUIT
FIG. 1

LL VERT. NO.
LJ REL. NO.
IL FR. NO.

HALF CHOICE

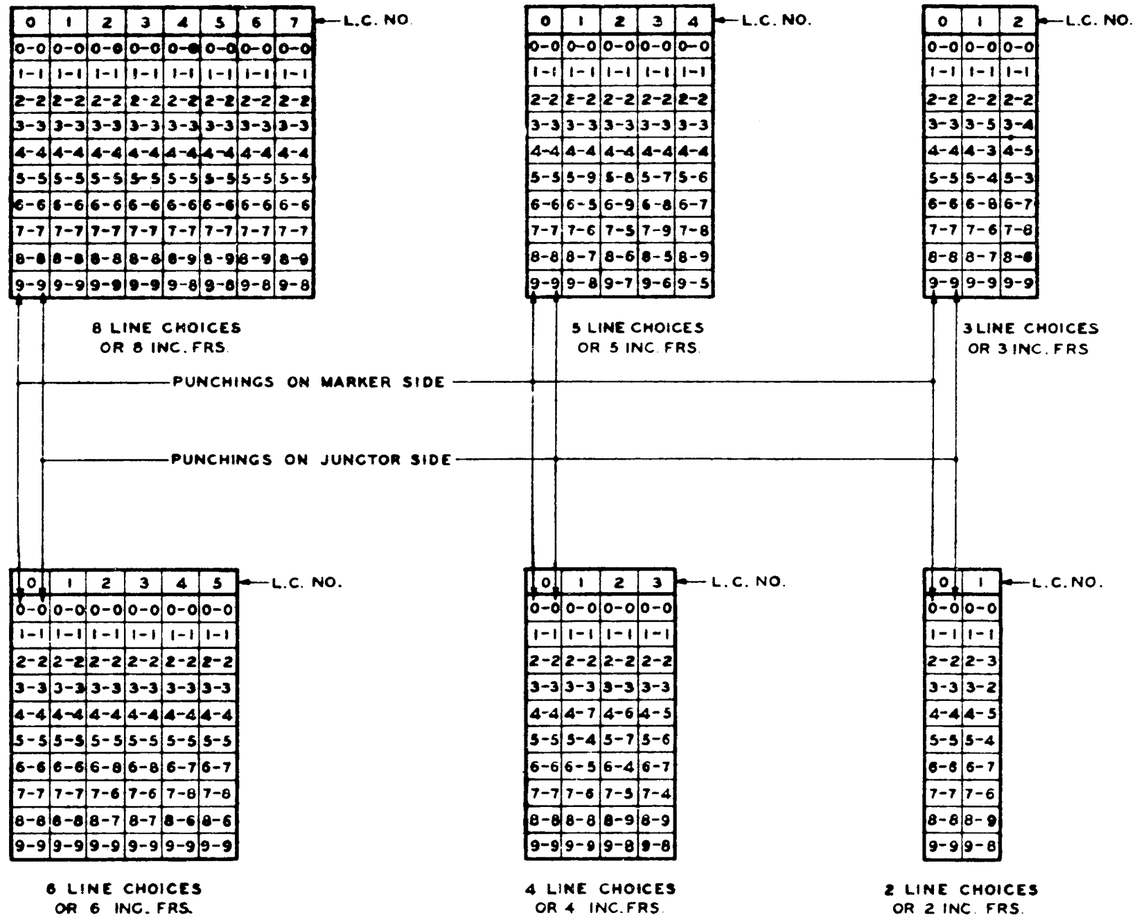
	0	1	2	3	4	5	6	7	8	9
9A	9L	9L	9L	9L	9L	9L	9L	9L	9L	9L
8A	8L	8L	8L	8L	8L	8L	8L	8L	8L	8L
7A	7L	7L	7L	7L	7L	7L	7L	7L	7L	7L
6A	6L	6L	6L	6L	6L	6L	6L	6L	6L	6L
5A	5L	5L	5L	5L	5L	5L	5L	5L	5L	5L
4A	4L	4L	4L	4L	4L	4L	4L	4L	4L	4L
3A	3L	3L	3L	3L	3L	3L	3L	3L	3L	3L
2A	2L	2L	2L	2L	2L	2L	2L	2L	2L	2L
1A	1L	1L	1L	1L	1L	1L	1L	1L	1L	1L
0A	0L	0L	0L	0L	0L	0L	0L	0L	0L	0L

	0	1	2	3	4	5	6	7	8	9
9B	9R	9R	9R	9R	9R	9R	9R	9R	9R	9R
8B	8R	8R	8R	8R	8R	8R	8R	8R	8R	8R
7B	7R	7R	7R	7R	7R	7R	7R	7R	7R	7R
6B	6R	6R	6R	6R	6R	6R	6R	6R	6R	6R
5B	5R	5R	5R	5R	5R	5R	5R	5R	5R	5R
4B	4R	4R	4R	4R	4R	4R	4R	4R	4R	4R
3B	3R	3R	3R	3R	3R	3R	3R	3R	3R	3R
2B	2R	2R	2R	2R	2R	2R	2R	2R	2R	2R
1B	1R	1R	1R	1R	1R	1R	1R	1R	1R	1R
0B	0R	0R	0R	0R	0R	0R	0R	0R	0R	0R

INC. VERT.

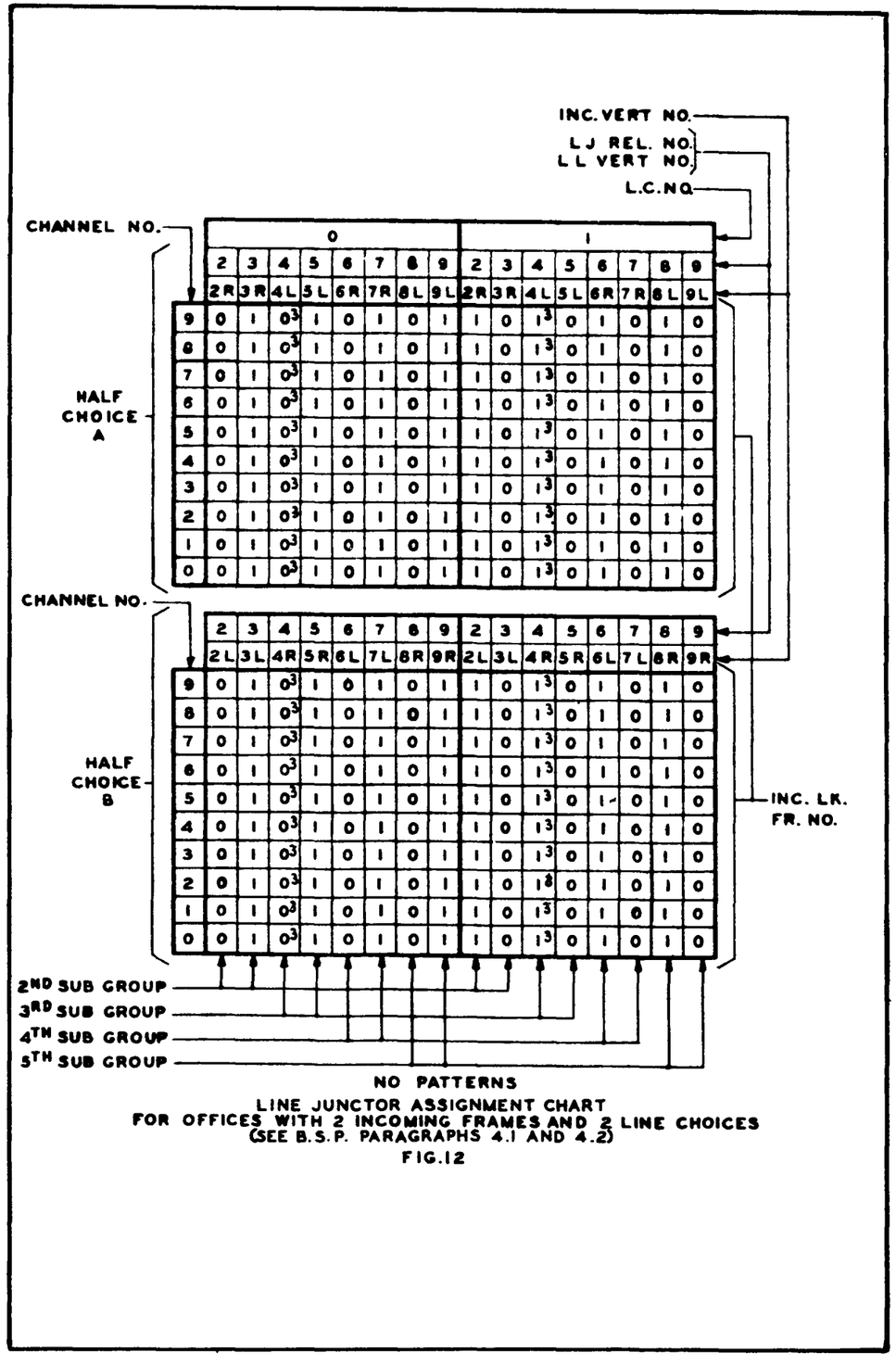
EXAMPLE OF USE OF TABLE:
VERTICAL 4L OF INCOMING LINK 3 (ANY SWITCH) CONNECTS TO HALF CHOICE 4A,
VERTICAL 3 (SAME AS IL NUMBER) SAME NUMBERED SWITCH AS ON IL.

FOR OFFICES WITH 10 INCOMING FRAMES AND 10 LINE CHOICES
FIG. 10



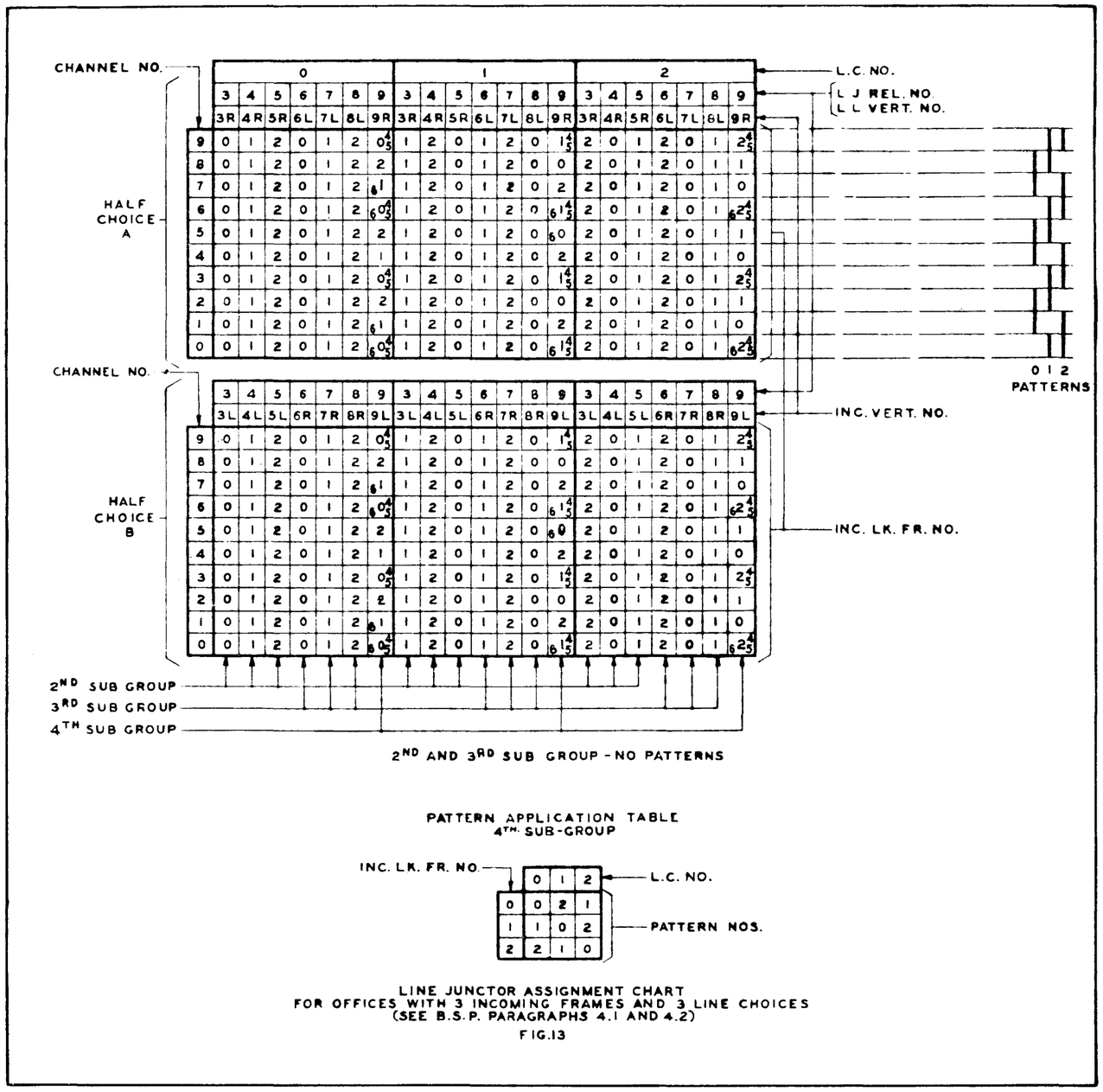
NOTE:
THE TWO DIGITS ARE THE JA, 0-9 OR JB, 0-9 PUNCHINGS FIGS. 2 AND 3 RESPECTIVELY, OF LINE CHOICE CONNECTOR CIRCUIT SD-25034-01. (A&M) OR SD-25275-01, IN INSTALLATIONS WITH 10, 9 OR 7 LINE CHOICES, THE PUNCHINGS ARE CONNECTED DIRECTLY (LIKE NUMBERS TO LIKE NUMBERS).

CROSS CONNECTION CHARTS FOR
JA AND JB PUNCHINGS
OF LINE CHOICE CONNECTOR CIRCUIT
(SEE B.S.P. PARAGRAPH 4.1)
FIG. 11



LINE JUNCTOR ASSIGNMENT CHART
FOR OFFICES WITH 2 INCOMING FRAMES AND 2 LINE CHOICES
(SEE B.S.P. PARAGRAPHS 4.1 AND 4.2)

FIG.12



PATTERN APPLICATION TABLE
4TH. SUB-GROUP

INC. LK. FR. NO. \ L.C. NO.	0	1	2
0	0	2	1
1	1	0	2
2	2	1	0

LINE JUNCTOR ASSIGNMENT CHART
FOR OFFICES WITH 3 INCOMING FRAMES AND 3 LINE CHOICES
(SEE B.S.P. PARAGRAPHS 4.1 AND 4.2)
FIG.13

CHANNEL NO.

	0						1						2						3					
	4	5	6	7	8	9	4	5	6	7	8	9	4	5	6	7	8	9	4	5	6	7	8	9
	4R	5R	6R	7R	8L	9L	4R	5R	6R	7R	8L	9L	4R	5R	6R	7R	8L	9L	4R	5R	6R	7R	8L	9L
9	0	1	2	3	1	3	1	2	3	0	0	2	2	3	0	1	3	1	3	0	1	2	2	0
8	0	1	2	3	0	2	1	2	3	0	1	3	2	3	0	1	2	0	3	0	1	2	3	1
7	0	1	2	3	1	3	1	2	3	0	0	2	2	3	0	1	3	1	3	0	1	2	2	0
6	0	1	2	3	0	2	1	2	3	0	1	3	2	3	0	1	2	0	3	0	1	2	3	1
5	0	1	2	3	1	3	1	2	3	0	0	2	2	3	0	1	3	1	3	0	1	2	2	0
4	0	1	2	3	0	2	1	2	3	0	1	3	2	3	0	1	2	0	3	0	1	2	3	1
3	0	1	2	3	1	3	1	2	3	0	0	2	2	3	0	1	3	1	3	0	1	2	2	0
2	0	1	2	3	0	2	1	2	3	0	1	3	2	3	0	1	2	0	3	0	1	2	3	1
1	0	1	2	3	1	3	1	2	3	0	0	2	2	3	0	1	3	1	3	0	1	2	2	0
0	0	1	2	3	0	2	1	2	3	0	1	3	2	3	0	1	2	0	3	0	1	2	3	1

HALF CHOICE A

L.C. NO.

L J REL. NO.

L L VERT. NO.

0 1 PATTERNS

CHANNEL NO.

	4	5	6	7	8	9	4	5	6	7	8	9	4	5	6	7	8	9	4	5	6	7	8	9
	4L	5L	6L	7L	8R	9R	4L	5L	6L	7L	8R	9R	4L	5L	6L	7L	8R	9R	4L	5L	6L	7L	8R	9R
9	0	1	2	3	1	3	1	2	3	0	0	2	2	3	0	1	3	1	3	0	1	2	2	0
8	0	1	2	3	0	2	1	2	3	0	1	3	2	3	0	1	2	0	3	0	1	2	3	1
7	0	1	2	3	1	3	1	2	3	0	0	2	2	3	0	1	3	1	3	0	1	2	2	0
6	0	1	2	3	0	2	1	2	3	0	1	3	2	3	0	1	2	0	3	0	1	2	3	1
5	0	1	2	3	1	3	1	2	3	0	0	2	2	3	0	1	3	1	3	0	1	2	2	0
4	0	1	2	3	0	2	1	2	3	0	1	3	2	3	0	1	2	0	3	0	1	2	3	1
3	0	1	2	3	1	3	1	2	3	0	0	2	2	3	0	1	3	1	3	0	1	2	2	0
2	0	1	2	3	0	2	1	2	3	0	1	3	2	3	0	1	2	0	3	0	1	2	3	1
1	0	1	2	3	1	3	1	2	3	0	0	2	2	3	0	1	3	1	3	0	1	2	2	0
0	0	1	2	3	0	2	1	2	3	0	1	3	2	3	0	1	2	0	3	0	1	2	3	1

HALF CHOICE B

INC. VERT.

INC. LK. FR. NO.

2ND SUB GROUP

3RD SUB GROUP

2ND SUB GROUP - NO PATTERNS

PATTERN APPLICATION TABLE
3RD SUB GROUP

INC. LK. FR. NO.

	0	1	2	3
0	0	1	0	1
1	1	0	1	0
2	0	1	0	1
3	1	0	1	0

L.C. NO.

PATTERN NOS.

LINE JUNCTOR ASSIGNMENT CHART
FOR OFFICES WITH 4 INCOMING FRAMES AND 4 LINE CHOICES
(SEE B.S.P. PARAGRAPHS 4.1 AND 4.2)

FIG.14

CHANNEL NO.	0					1					2					3					4				
	5	6	7	8	9	5	6	7	8	9	5	6	7	8	9	5	6	7	8	9	5	6	7	8	9
	5R	6R	7R	8R	9R	5R	6R	7R	8R	9R	5R	6R	7R	8R	9R	5R	6R	7R	8R	9R	5R	6R	7R	8R	9R
9	0	1	2	3	4	1	2	3	4[5]	0	2	3	4	0	1	3	4	0	1	2[6]	4	0	1[6]	2	3
8	0	1	2[6]	3	4	1	2	3[6]	4	0	2	3	4[6]	0[6]	1	3	4	0	1[6]	2	4	0	1	2[6]	3
7	0	1	2	3	4	1	2	3	[5]4[6]0[7]		2	3	4	0	[6]1[7]	3	4	0	1	[6]2[7]	4	0	1[6]	2	3
6	0	1	2[6]	3	4	1	2	3[6]	4	0	2	3	4[6]	0[6]	1	3	4	0	1[6]	2	4	0	1	[6]2[7]	3
5	0	1	2	3	4	1	2	3	4[6]	0	2	3	4	0	1	3	4	0	1	2[6]	4	0	1[6]	2	3
4	0	1	2[6]	3	4	1	2	3[6]	4	0	2	3	4[6]	0[6]	1	3	4	0	1[6]	2	4	0	1	2[6]	3
3	0	1	2	3	4	1	2	3	[5]4[6]0[7]		2	3	4	0	[6]1[7]	3	4	0	1	[6]2[7]	4	0	1[6]	2	3
2	0	1	2[6]	3	4	1	2	3[6]	4	0	2	3	4[6]	0[6]	1	3	4	0	1[6]	2	4	0	1	[6]2[7]	3
1	0	1	2	3	4	1	2	3	4[6]	0	2	3	4	0	1	3	4	0	1	2[6]	4	0	1[6]	2	3
0	0	1	2[6]	3	4	1	2	3[6]	4	0	2	3	4[6]	0[6]	1	3	4	0	1[6]	2	4	0	1	2[6]	3

HALF CHOICE A

L.C.NO.
LJ REL. NO.
LL VERT. NO.

CHANNEL NO.	5	6	7	8	9	5	6	7	8	9	5	6	7	8	9	5	6	7	8	9	5	6	7	8	9
	5L	6L	7L	8L	9L	5L	6L	7L	8L	9L	5L	6L	7L	8L	9L	5L	6L	7L	8L	9L	5L	6L	7L	8L	9L
9	0	1	2	3	4	1	2	3	4[6]	0	2	3	4	0	1	3	4	0	1	2[6]	4	0	1[6]	2	3
8	0	1	2[6]	3	4	1	2	3[6]	4	0	2	3	4[6]	0[6]	1	3	4	0	1[6]	2	4	0	1	2[6]	3
7	0	1	2	3	4	1	2	3	[5]4[6]0[7]		2	3	4	0	[6]1[7]	3	4	0	1	[6]2[7]	4	0	1[6]	2	3
6	0	1	2[6]	3	4	1	2	3[6]	4	0	2	3	4[6]	0[6]	1	3	4	0	1[6]	2	4	0	1	[6]2[7]	3
5	0	1	2	3	4	1	2	3	4[6]	0	2	3	4	0	1	3	4	0	1	2[6]	4	0	1[6]	2	3
4	0	1	2[6]	3	4	1	2	3[6]	4	0	2	3	4[6]	0[6]	1	3	4	0	1[6]	2	4	0	1	2[6]	3
3	0	1	2	3	4	1	2	3	[5]4[6]0[7]		2	3	4	0	[6]1[7]	3	4	0	1	[6]2[7]	4	0	1[6]	2	3
2	0	1	2[6]	3	4	1	2	3[6]	4	0	2	3	4[6]	0[6]	1	3	4	0	1[6]	2	4	0	1	[6]2[7]	3
1	0	1	2	3	4	1	2	3	4[6]	0	2	3	4	0	1	3	4	0	1	2[6]	4	0	1[6]	2	3
0	0	1	2[6]	3	4	1	2	3[6]	4	0	2	3	4[6]	0[6]	1	3	4	0	1[6]	2	4	0	1	2[6]	3

HALF CHOICE B

INC. VERT. NO.

INC. LK. FR. NO.

NO PATTERNS
LINE JUNCTOR ASSIGNMENT CHART
FOR OFFICES WITH 5 INCOMING FRAMES AND 5 LINE CHOICES
(SEE B.S.P. PARAGRAPHS 4.1 AND 4.2)
FIG. 15

CHANNEL NO.

	0				1				2				3				4				5			
	6	7	8	9	6	7	8	9	6	7	8	9	6	7	8	9	6	7	8	9	6	7	8	9
	6R	7R	8R	9L	6R	7R	8R	9L	6R	7R	8R	9L	6R	7R	8R	9L	6R	7R	8R	9L	6R	7R	8R	9L
9	1	3	5 7/8	2	0	2	4	3	3	5	1	4	2	4	0	5	5	1	3	0	4	0	2 7/8	1
8	0	2	4 7/8	1	1	3	5 1/8	2	2	4	0	3	3	5	1	4	4	0	2	5	5	1	3	0
7	1	3	5	0	0	2	4 7/8	1	3	5	1	2	2	4	0	3	5	1	3 1/8	4	4	0	2	5
6	0	2	4	5	1	3	5	0	2	4	0	1	3	5	1	2	4	0	2 7/8	3	5	1	3 1/8	4
5	1	3	5 1/8	4	0	2	4	5	3	5	1	0	2	4	0	1	5	1	3	2	4	0	2 1/8	3
4	0	2	4 7/8	3	1	3	5 1/8	4	2	4	0	5	3	5	1	0	4	0	2	1	5	1	3	2
3	1	3	5	2	0	2	4 7/8	3	3	5	1	4	2	4	0	5	5	1	3 1/8	0	4	0	2	1
2	0	2	4	1	1	3	5	2	2	4	0	3	3	5	1	4	4	0	2 1/8	5	5	1	3 1/8	0
1	1	3	5 1/8	0	0	2	4	1	3	5	1	2	2	4	0	3	5	1	3	4	4	0	2 1/8	5
0	0	2	4 7/8	5	1	3	5 1/8	0	2	4	0	1	3	5	1	2	4	0	2	3	5	1	3	4

HALF CHOICE A

L.C. NO.

LJ REL. NO.
LL VERT. NO.

0 1 2 3 4 5 6 7
PATTERNS

CHANNEL NO.

	6	7	8	9	6	7	8	9	6	7	8	9	6	7	8	9	6	7	8	9	6	7	8	9
	6L	7L	8L	9R	6L	7L	8L	9R	6L	7L	8L	9R	6L	7L	8L	9R	6L	7L	8L	9R	6L	7L	8L	9R
9	1	3	5 7/8	2	0	2	4	3	3	5	1	4	2	4	0	5	5	1	3	0	4	0	2 7/8	1
8	0	2	4 7/8	1	1	3	5 1/8	2	2	4	0	3	3	5	1	4	4	0	2	5	5	1	3	0
7	1	3	5	0	0	2	4 7/8	1	3	5	1	2	2	4	0	3	5	1	3 1/8	4	4	0	2	5
6	0	2	4	5	1	3	5	0	2	4	0	1	3	5	1	2	4	0	2 7/8	3	5	1	3 1/8	4
5	1	3	5 1/8	4	0	2	4	5	3	5	1	0	2	4	0	1	5	1	3	2	4	0	2 1/8	3
4	0	2	4 7/8	3	1	3	5 1/8	4	2	4	0	5	3	5	1	0	4	0	2	1	5	1	3	2
3	1	3	5	2	0	2	4 7/8	3	3	5	1	4	2	4	0	5	5	1	3 1/8	0	4	0	2	1
2	0	2	4	1	1	3	5	2	2	4	0	3	3	5	1	4	4	0	2 1/8	5	5	1	3 1/8	0
1	1	3	5 1/8	0	0	2	4	1	3	5	1	2	2	4	0	3	5	1	3	4	4	0	2 1/8	5
0	0	2	4 7/8	5	1	3	5 1/8	0	2	4	0	1	3	5	1	2	4	0	2	3	5	1	3	4

HALF CHOICE B

INC. VERT.

INC. LK. FR. NO.

0 1 2 3 4 5 6 7
PATTERNS

2ND SUB-GROUP

3RD SUB-GROUP

PATTERN APPLICATION TABLE
2ND SUB-GROUP

INC. LK. FR. NO.

	0	1	2	3	4	5
0	0	1	0	1	0	1
1	1	0	1	0	1	0
2	0	1	0	1	0	1
3	1	0	1	0	1	0
4	0	1	0	1	0	1
5	1	0	1	0	1	0

L.C.NO.

PATTERN NOS.

PATTERN APPLICATION TABLE
3RD SUB-GROUP

INC. LK. FR. NO.

	0	1	2	3	4	5
0	2	7	6	5	4	3
1	3	2	7	6	5	4
2	4	3	2	7	6	5
3	5	4	3	2	7	6
4	6	5	4	3	2	7
5	7	6	5	4	3	2

L.C. NO.

PATTERN NOS.

LINE JUNCTOR ASSIGNMENT CHART
FOR OFFICES WITH 6 INCOMING FRAMES AND 6 LINE CHOICES
(SEE B.S.P. PARAGRAPHS 4.1 AND 4.2)
FIG.16

CHANNEL NO.

	0			1			2			3			4			5			6		
	7	8	9	7	8	9	7	8	9	7	8	9	7	8	9	7	8	9	7	8	9
	7R	8R	9R	7R	8R	9R	7R	8R	9R	7R	8R	9R	7R	8R	9R	7R	8R	9R	7R	8R	9R
9	0	3	6	1	4	0	2	5	1	3	6	2	4	0	3	5	1	4	6	2	5
8	2	5	4	3	6	5	4	0	6	5	1	0	6	2	1	0	3	2	1	4	3
7	1	4	5	2	5	6	3	6	0_9	4	0	1_9	5	1	2_9	6	2	3_9	0	3	4_9
6	0	3	6_9	1	4	0	2	5	1	3	6	2	4	0	3	5	1	4	6	2	5
5	2	5^8	3	3	6^8	4	4	0	5	5	1	6	6	2	0_9	0	3	1_9	1	4	2_9
4	1	4^8	2	2	5^8	3	3	6^8	4	4	0	5	5	1	6	6	2	0_9	0	3	1_9
3	0	3	6	1	4^8	0^8	2	5^8	1^8	3	6^8	2^8	4	0	3	5	1	4^8	6	2	5^8
2	2	5	1	3	6	2	4	0	3	5	1	4	6	2^8	5	0	3^8	6	1	4	0
1	1	4	0	2	5	1	3	6	2	4	0	3	5	1^8	4	6	2^8	5	0	3^8	6
0	0	3	6	1	4	0	2	5	1	3	6	2	4	0^8	3	5	1^8	4	6	2^8	5

HALF CHOICE A

L.C. NO.
LJ REL. NO.
LL VERT. NO.

0 1 2 3 4 5 6 7 8

PATTERNS

CHANNEL NO.

	7	8	9	7	8	9	7	8	9	7	8	9	7	8	9	7	8	9	7	8	9
	7L	8L	9L	7L	8L	9L	7L	8L	9L	7L	8L	9L	7L	8L	9L	7L	8L	9L	7L	8L	9L
9	0	3	6	1	4	0	2	5	1	3	6	2	4	0	3	5	1	4	6	2	5
8	2	5	4	3	6	5	4	0	6	5	1	0	6	2	1	0	3	2	1	4	3
7	1	4	5	2	5	6	3	6	0_9	4	0	1_9	5	1	2_9	6	2	3_9	0	3	4_9
6	0	3	6_9	1	4	0	2	5	1	3	6	2	4	0	3	5	1	4	6	2	5
5	2	5^8	3	3	6^8	4	4	0	5	5	1	6	6	2	0_9	0	3	1_9	1	4	2_9
4	1	4^8	2	2	5^8	3	3	6^8	4	4	0	5	5	1	6	6	2	0_9	0	3	1_9
3	0	3	6	1	4^8	0^8	2	5^8	1^8	3	6^8	2^8	4	0	3	5	1	4^8	6	2	5^8
2	2	5	1	3	6	2	4	0	3	5	1	4	6	2^8	5	0	3^8	6	1	4	0
1	1	4	0	2	5	1	3	6	2	4	0	3	5	1^8	4	6	2^8	5	0	3^8	6
0	0	3	6	1	4	0	2	5	1	3	6	2	4	0^8	3	5	1^8	4	6	2^8	5

HALF CHOICE B

INC. VERT.

INC. LK. FR. NO.

0 1 2 3 4 5 6 7 8

PATTERNS

2ND. SUB-GROUP
2ND. OR 3RD. SUB-GROUP

PATTERN APPLICATION TABLE
2ND. SUB-GROUP

INC. LK. FR. NO.

	0	1	2	3	4	5	6
0	0	*0	2	1	0	2	1
1	1	0	*0	2	1	0	2
2	2	1	0	*0	2	1	0
3	0	2	1	0	*0	2	1
4	1	0	2	1	0	*0	2
5	2	1	0	2	1	0	*0
6	*0	2	1	0	2	1	0

L.C. NO.
PATTERN NOS.

PATTERN APPLICATION TABLE
3RD. SUB-GROUP

INC. LK. FR. NO.

	0	1	2	3	4	5	6
0	3	*0	8	7	6	5	4
1	4	3	*0	8	7	6	5
2	5	4	3	*0	8	7	6
3	6	5	4	3	*0	8	7
4	7	6	5	4	3	*0	8
5	8	7	6	5	4	3	*0
6	*0	8	7	6	5	4	3

L.C. NO.
PATTERN NOS.

* SAME JUNCTORS IN BOTH 2ND. AND 3RD. SUB-GROUPS

LINE JUNCTOR ASSIGNMENT CHART
FOR OFFICES WITH 7 INCOMING FRAMES AND 7 LINE CHOICES
(SEE B.S.P. PARAGRAPHS 4.1 AND 4.2)
FIG.17

CHANNEL NO.

	0		1		2		3		4		5		6		7	
	8	9	8	9	8	9	8	9	8	9	8	9	8	9	8	9
	8R	9R	8R	9R	8R	9R	8R	9R	8R	9R	8R	9R	8R	9R	8R	9R
9	1	5	2	6	3	7	0	4	5	1	6	2	7	3	4	0
8	0	4	1	5	2	6	3	7	4	0	5	1	6	2	7	3
7	3	7 9	0	4	1	5	2	6	7	3	4	0	5	1	6	2
6	2	6 9	3	7 9	0	4	1	5	6	2	7	3	4	0	5	1
5	1	5 9	2	6 9	3	7 9	0	4	5	1	6	2	7	3	4	0
4	0	4 9	1	5 9	2	6 9	3	7 9	4	0	5	1	6	2	7	3
3	3	7	0	4 9	1	5 9	2	6 9	7	3	4	0	5	1	6	2
2	2	6	3	7	0	4 9	1	5 9	6	2	7	3	4	0	5	1
1	1	5	2	6	3	7	0	4 9	5	1	6	2	7	3	4	0
0	0	4	1	5	2	6	3	7	4	0	5	1	6	2	7	3

HALF CHOICE A

L.C. NO.
LJ REL. NO.
LL VERT. NO.

0 1 2 3 PATTERN

CHANNEL NO.

	8	9	8	9	8	9	8	9	8	9	8	9	8	9	8	9
	8L	9L	8L	9L	8L	9L	8L	9L	8L	9L	8L	9L	8L	9L	8L	9L
9	1	5	2	6	3	7	0	4	5	1	6	2	7	3	4	0
8	0	4	1	5	2	6	3	7	4	0	5	1	6	2	7	3
7	3	7 9	0	4	1	5	2	6	7	3	4	0	5	1	6	2
6	2	6 9	3	7 9	0	4	1	5	6	2	7	3	4	0	5	1
5	1	5 9	2	6 9	3	7 9	0	4	5	1	6	2	7	3	4	0
4	0	4 9	1	5 9	2	6 9	3	7 9	4	0	5	1	6	2	7	3
3	3	7	0	4 9	1	5 9	2	6 9	7	3	4	0	5	1	6	2
2	2	6	3	7	0	4 9	1	5 9	6	2	7	3	4	0	5	1
1	1	5	2	6	3	7	0	4 9	5	1	6	2	7	3	4	0
0	0	4	1	5	2	6	3	7	4	0	5	1	6	2	7	3

HALF CHOICE B

INC. VERT.

INC. LK. FR. NO.

0 1 2 3 PATTERNS

PATTERN APPLICATION TABLE
2ND SUB-GROUP

INC. LK. FR. NO.

	0	1	2	3	4	5	6	7
0	0	3	2	1	0	3	2	1
1	1	0	3	2	1	0	3	2
2	2	1	0	3	2	1	0	3
3	3	2	1	0	3	2	1	0
4	0	3	2	1	0	3	2	1
5	1	0	3	2	1	0	3	2
6	2	1	0	3	2	1	0	3
7	3	2	1	0	3	2	1	0

L.C. NO.

PATTERN NOS.

LINE JUNCTOR ASSIGNMENT CHART
FOR OFFICES WITH 8 INCOMING FRAMES AND 8 LINE CHOICES
(SEE B.S.P. PARAGRAPH 4.1 AND 4.2)
FIG.18

CHANNEL NO.

HALF CHOICE A

	0	1	2	3	4	5	6	7	8
	9	9	9	9	9	9	9	9	9
	9R	9R	9R	9R	9R	9R	9R	9R	9R
9	0	1	2	3	4	5	6	7	8
8	8	0	1	2	3	4	5	6	7
7	7	8	0	1	2	3	4	5	6
6	6	7	8	0	1	2	3	4	5
5	5	6	7	8	0	1	2	3	4
4	4	5	6	7	8	0	1	2	3
3	3	4	5	6	7	8	0	1	2
2	2	3	4	5	6	7	8	0	1
1	1	2	3	4	5	6	7	8	0
0	0	1	2	3	4	5	6	7	8

L C. NO.
L J REL. NO.
L L VERT NO.

0 1 2 3 4 5 6 7 8 PATTERNS

CHANNEL NO.

HALF CHOICE B

	9	9	9	9	9	9	9	9	9
	9L	9L	9L	9L	9L	9L	9L	9L	9L
9	0	1	2	3	4	5	6	7	8
8	8	0	1	2	3	4	5	6	7
7	7	8	0	1	2	3	4	5	6
6	6	7	8	0	1	2	3	4	5
5	5	6	7	8	0	1	2	3	4
4	4	5	6	7	8	0	1	2	3
3	3	4	5	6	7	8	0	1	2
2	2	3	4	5	6	7	8	0	1
1	1	2	3	4	5	6	7	8	0
0	0	1	2	3	4	5	6	7	8

INC. VERT.

INC. LK. FR. NO.

0 1 2 3 4 5 6 7 8 PATTERNS

PATTERN APPLICATION TABLE
2ND. SUB-GROUP

INC. LK. FR. NO.

	0	1	2	3	4	5	6	7	8
0	0	8	7	6	5	4	3	2	1
1	1	0	8	7	6	5	4	3	2
2	2	1	0	8	7	6	5	4	3
3	3	2	1	0	8	7	6	5	4
4	4	3	2	1	0	8	7	6	5
5	5	4	3	2	1	0	8	7	6
6	6	5	4	3	2	1	0	8	7
7	7	6	5	4	3	2	1	0	8
8	8	7	6	5	4	3	2	1	0

L.C. NO.

PATTERN NOS.

LINE JUNCTOR ASSIGNMENT CHART
FOR OFFICES WITH 9 INCOMING FRAMES AND 9 LINE CHOICES
(SEE B.S.P. PARAGRAPHS 4.1 AND 4.2)
FIG. 19

INC. VERT. NO.
LJ REL. NO.
LL VERT. NO.
L.C. NO.

CHANNEL NO.

	0								1							
	2	3	4	5	6	7	8	9	2	3	4	5	6	7	8	9
	2R	3R	4L	5R	6R	7L	8R	9R	2R	3R	4L	5R	6L	7L	8R	9R
9		0	0	1		1	1	0		1	1	0	0		0	1
8		0	0	1		1	1	0		1	1	0	0		0	1
7		0	0	1		1	1	0		1	1	0	0		0	1
6		0	0	1		1	1	0		1	1	0	0		0	1
5		0	0	1		1	1	0		1	1	0	0		0	1
4		0	0	1		1	1	0		1	1	0	0		0	1
3		0	0	1		1	1	0		1	1	0	0		0	1
2		0	0	1		1	1	0		1	1	0	0		0	1
1		0	0	1		1	1	0		1	1	0	0		0	1
0		0	0	1		1	1	0		1	1	0	0		0	1

HALF CHOICE A

CHANNEL NO.

	2	3	4	5	6	7	8	9	2	3	4	5	6	7	8	9
	2L	3L	4R	5L	6L	7R	8L	9L	2L	3L	4R	5L	6R	7R	8L	9L
9		0	0	1		1	1	0		1	1	0	0		0	1
8		0	0	1		1	1	0		1	1	0	0		0	1
7		0	0	1		1	1	0		1	1	0	0		0	1
6		0	0	1		1	1	0		1	1	0	0		0	1
5		0	0	1		1	1	0		1	1	0	0		0	1
4		0	0	1		1	1	0		1	1	0	0		0	1
3		0	0	1		1	1	0		1	1	0	0		0	1
2		0	0	1		1	1	0		1	1	0	0		0	1
1		0	0	1		1	1	0		1	1	0	0		0	1
0		0	0	1		1	1	0		1	1	0	0		0	1

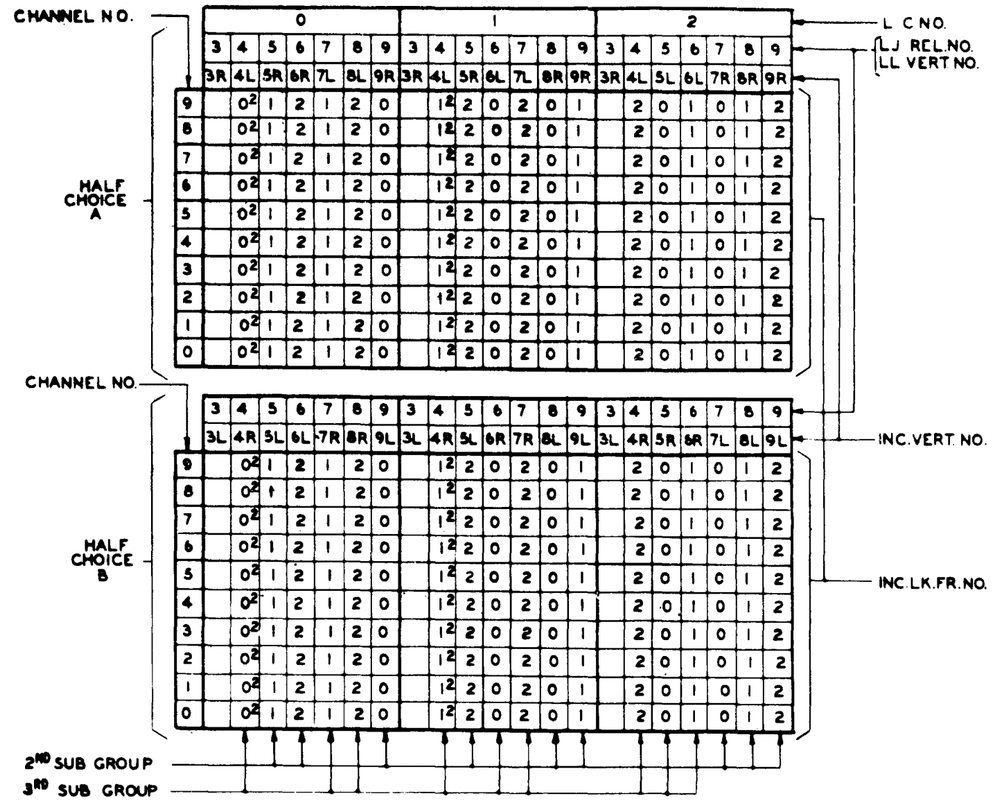
HALF CHOICE B

INC. LK. FR. NO.

2ND SUB GROUP
3RD SUB GROUP
4TH SUB GROUP

NO PATTERNS

FOR OFFICES WITH 2 INCOMING FRAMES AND 2 LINE CHOICES
FIG. 22



2ND AND 3RD SUB GROUP - NO PATTERNS

FOR OFFICES WITH 3 INCOMING FRAMES AND 3 LINE CHOICES

FIG. 23

CHANNEL NO.

	0						1						2						3					
	4	5	6	7	8	9	4	5	6	7	8	9	4	5	6	7	8	9	4	5	6	7	8	9
	4R	5R	6R	7R	8R	9R	4R	5R	6R	7R	8R	9R	4R	5R	6R	7R	8R	9R	4R	5R	6R	7R	8R	9R
9		1	2	3		0_3		2	3		0	1_3		3		0	1	2_3			0	1	2	3
8		1	2	3		0		2	3		0	1		3		0	1	2			0	1	2	3
7		1	2	3		0		2	3		0	1		3		0	1	2			0	1	2	3
6		1	2	3		0_3		2	3		0	1_3		3		0	1	2_3			0	1	2	3
5		1	2	3		0		2	3		0	1		3		0	1	2			0	1	2	3
4		1	2	3		0		2	3		0	1		3		0	1	2			0	1	2	3
3		1	2	3		0_3		2	3		0	1_3		3		0	1	2_3			0	1	2	3
2		1	2	3		0		2	3		0	1		3		0	1	2			0	1	2	3
1		1	2	3		0		2	3		0	1		3		0	1	2			0	1	2	3
0		1	2	3		0_3		2	3		0	1_3		3		0	1	2_3			0	1	2	3

HALF CHOICE A

L.C. NO.
LJ REL. NO.
LL VERT. NO.

CHANNEL NO.

	4	5	6	7	8	9	4	5	6	7	8	9	4	5	6	7	8	9	4	5	6	7	8	9
	4L	5L	6L	7L	8L	9L	4L	5L	6L	7L	8L	9L	4L	5L	6L	7L	8L	9L	4L	5L	6L	7L	8L	9L
9		1	2	3		0_3		2	3		0	1_3		3		0	1	2_3			0	1	2	3
8		1	2	3		0		2	3		0	1		3		0	1	2			0	1	2	3
7		1	2	3		0		2	3		0	1		3		0	1	2			0	1	2	3
6		1	2	3		0_3		2	3		0	1_3		3		0	1	2_3			0	1	2	3
5		1	2	3		0		2	3		0	1		3		0	1	2			0	1	2	3
4		1	2	3		0		2	3		0	1		3		0	1	2			0	1	2	3
3		1	2	3		0_3		2	3		0	1_3		3		0	1	2_3			0	1	2	3
2		1	2	3		0		2	3		0	1		3		0	1	2			0	1	2	3
1		1	2	3		0		2	3		0	1		3		0	1	2			0	1	2	3
0		1	2	3		0_3		2	3		0	1_3		3		0	1	2_3			0	1	2	3

HALF CHOICE B

INC. VERT.

INC. LK. FR. NO.

2ND SUB GROUP-NO PATTERNS

FOR OFFICES WITH 4 INCOMING FRAMES AND 4 LINE CHOICES
FIG. 24

CHANNEL NO.	0					1					2					3					4				
	5	6	7	8	9	5	6	7	8	9	5	6	7	8	9	5	6	7	8	9	5	6	7	8	9
	5R	6R	7R	8R	9R	5R	6R	7R	8R	9R	5R	6R	7R	8R	9R	5R	6R	7R	8R	9R	5R	6R	7R	8R	9R
9	4^1	4^2	4^3	4	0_3	4^2	4^3	4	0	1_3	4^3	4	0	1	2_3	4	0	1	2	3	0	1	2	3	4
8	4^1	4^2	4^3	4	0	4^2	4^3	4	0	1	4^3	4	0	1	2	4	0	1	2	3	0	1	2	3	4
7	4^1	4^2	4^3	4	0	4^2	4^3	4	0	1	4^3	4	0	1	2	4	0	1	2	3	0	1	2	3	4
6	4^1	4^2	4^3	4	0_3	4^2	4^3	4	0	1_3	4^3	4	0	1	2_3	4	0	1	2	3	0	1	2	3	4
5	4^1	4^2	4^3	4	0	4^2	4^3	4	0	1	4^3	4	0	1	2	4	0	1	2	3	0	1	2	3	4
4	4^1	4^2	4^3	4	0	4^2	4^3	4	0	1	4^3	4	0	1	2	4	0	1	2	3	0	1	2	3	4
3	4^1	4^2	4^3	4	0_3	4^2	4^3	4	0	1_3	4^3	4	0	1	2_3	4	0	1	2	3	0	1	2	3	4
2	4^1	4^2	4^3	4	0	4^2	4^3	4	0	1	4^3	4	0	1	2	4	0	1	2	3	0	1	2	3	4
1	4^1	4^2	4^3	4	0	4^2	4^3	4	0	1	4^3	4	0	1	2	4	0	1	2	3	0	1	2	3	4
0	4^1	4^2	4^3	4	0_3	4^2	4^3	4	0	1_3	4^3	4	0	1	2_3	4	0	1	2	3	0	1	2	3	4

HALF CHOICE A

L. C. NO.

LJ REL. NO.
LL VERT. NO.

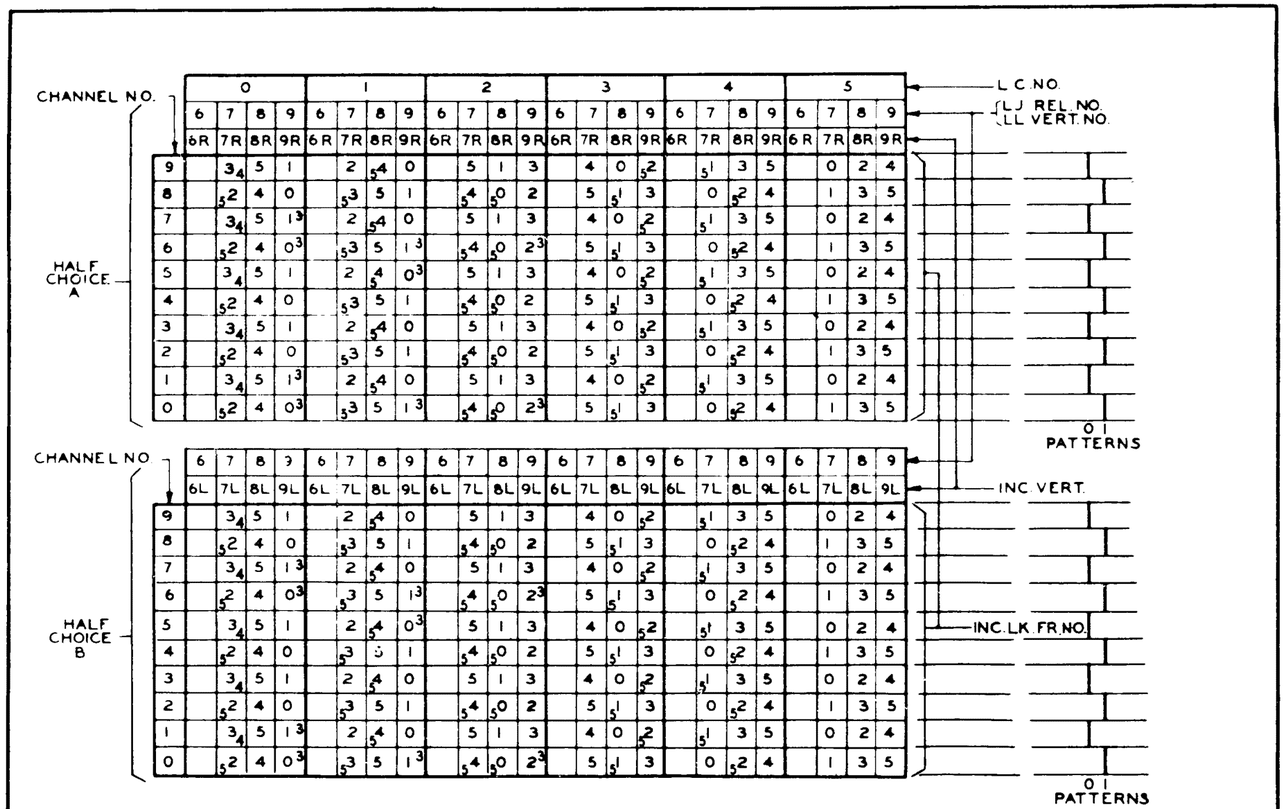
CHANNEL NO.	5	6	7	8	9	5	6	7	8	9	5	6	7	8	9	5	6	7	8	9	5	6	7	8	9
	5L	6L	7L	8L	9L	5L	6L	7L	8L	9L	5L	6L	7L	8L	9L	5L	6L	7L	8L	9L	5L	6L	7L	8L	9L
9	4^1	4^2	4^3	4	0_3	4^2	4^3	4	0	1_3	4^3	4	0	1	2_3	4	0	1	2	3	0	1	2	3	4
8	4^1	4^2	4^3	4	0	4^2	4^3	4	0	1	4^3	4	0	1	2	4	0	1	2	3	0	1	2	3	4
7	4^1	4^2	4^3	4	0	4^2	4^3	4	0	1	4^3	4	0	1	2	4	0	1	2	3	0	1	2	3	4
6	4^1	4^2	4^3	4	0_3	4^2	4^3	4	0	1_3	4^3	4	0	1	2_3	4	0	1	2	3	0	1	2	3	4
5	4^1	4^2	4^3	4	0	4^2	4^3	4	0	1	4^3	4	0	1	2	4	0	1	2	3	0	1	2	3	4
4	4^1	4^2	4^3	4	0	4^2	4^3	4	0	1	4^3	4	0	1	2	4	0	1	2	3	0	1	2	3	4
3	4^1	4^2	4^3	4	0_3	4^2	4^3	4	0	1_3	4^3	4	0	1	2_3	4	0	1	2	3	0	1	2	3	4
2	4^1	4^2	4^3	4	0	4^2	4^3	4	0	1	4^3	4	0	1	2	4	0	1	2	3	0	1	2	3	4
1	4^1	4^2	4^3	4	0	4^2	4^3	4	0	1	4^3	4	0	1	2	4	0	1	2	3	0	1	2	3	4
0	4^1	4^2	4^3	4	0_3	4^2	4^3	4	0	1_3	4^3	4	0	1	2_3	4	0	1	2	3	0	1	2	3	4

HALF CHOICE B

INC. VERT. NO.

INC. LK. FR. NO.

2ND SUB-GROUP-NO PATTERNS
FOR OFFICES WITH 5 INCOMING FRAMES AND 5 LINE CHOICES
FIG. 25



PATTERN APPLICATION TABLE
2ND SUB-GROUP

INC. LK. FR. NO.	L.C.NO. 0	1	2	3	4	5
0	0	1	0	1	0	1
1	1	0	1	0	1	0
2	0	1	0	1	0	1
3	1	0	1	0	1	0
4	0	1	0	1	0	1
5	1	0	1	0	1	0

PATTERN NOS.

FOR OFFICES WITH 6 INCOMING FRAMES AND 6 LINE CHOICES
FIG. 26

CHANNEL NO.

HALF CHOICE A

	0			1			2			3			4			5			6		
	7	8	9	7	8	9	7	8	9	7	8	9	7	8	9	7	8	9	7	8	9
	7R	8R	9R	7R	8R	9R	7R	8R	9R	7R	8R	9R	7R	8R	9R	7R	8R	9R	7R	8R	9R
9		6^{5}	1		6	2			3		4	0		1	5		6^{2}	6		3	
8		6^{4}	0		6^{5}	1		6	2			3		0	4		1	5		2	6
7			3		$6^{4}{}_{5}$	0_{5}		5	1_{5}		6	2_{5}		6^{3}			0	4		1	5
6		6	2			3		4	0		5	1		$6^{2}{}_{5}$	6		6^{3}			0	4
5		6^{5}	1		6	2			3		4	0		1	5		6^{2}	6		3	
4		6^{4}	0		6^{5}	1		6	2			3		0	4		1	5		2	6
3			3		$6^{4}{}_{5}$	0_{5}		5	1_{5}		6	2_{5}		6^{3}			0	4		1	5
2		6	2			3		4	0		5	1		$6^{2}{}_{5}$	6		6^{3}			0	4
1		6^{5}	1		6	2			3		4	0		1	5		6^{2}	6		3	
0		6^{4}	0		6^{5}	1		6	2			3		0	4		1	5		2	6

L.C. NO.
LJ REL NO.
LL VERT. NO.

0 1 2 3 PATTERNS

CHANNEL NO.

HALF CHOICE B

	7	8	9	7	8	9	7	8	9	7	8	9	7	8	9	7	8	9	7	8	9
	7L	8L	9L	7L	8L	9L	7L	8L	9L	7L	8L	9L	7L	8L	9L	7L	8L	9L	7L	8L	9L
9		6^{5}	1		6	2			3		4	0		1	5		6^{2}	6		3	
8		6^{4}	0		6^{5}	1		6	2			3		0	4		1	5		2	6
7			3		$6^{4}{}_{5}$	0_{5}		5	1_{5}		6	2_{5}		6^{3}			0	4		1	5
6		6	2			3		4	0		5	1		$6^{2}{}_{5}$	6		6^{3}			0	4
5		6^{5}	1		6	2			3		4	0		1	5		6^{2}	6		3	
4		6^{4}	0		6^{5}	1		6	2			3		0	4		1	5		2	6
3			3		$6^{4}{}_{5}$	0_{5}		5	1_{5}		6	2_{5}		6^{3}			0	4		1	5
2		6	2			3		4	0		5	1		$6^{2}{}_{5}$	6		6^{3}			0	4
1		6^{5}	1		6	2			3		4	0		1	5		6^{2}	6		3	
0		6^{4}	0		6^{5}	1		6	2			3		0	4		1	5		2	6

INC. VERT.

INC. LK. FR. NO.

0 1 2 3 PATTERNS

PATTERN APPLICATION TABLE
2ND SUB-GROUP

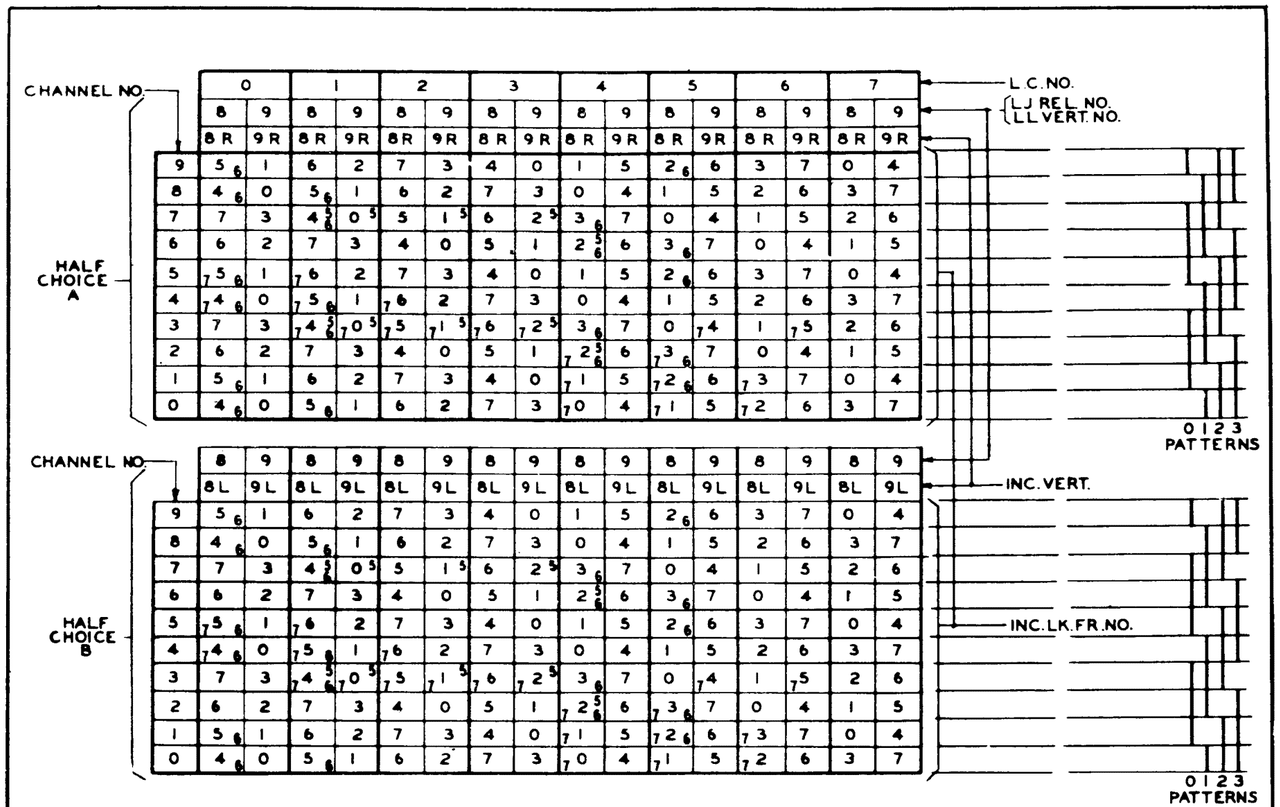
INC. LK. FR. NO.

	0	1	2	3	4	5	6
0	0	3	2	1	0	3	2
1	1	0	3	2	1	0	3
2	2	1	0	3	2	1	0
3	3	2	1	0	3	2	1
4	0	3	2	1	0	3	2
5	1	0	3	2	1	0	3
6	2	1	0	3	2	1	0

L.C. NO.

PATTERN NOS.

FOR OFFICES WITH 7 INCOMING FRAMES AND 7 LINE CHOICES
FIG. 27

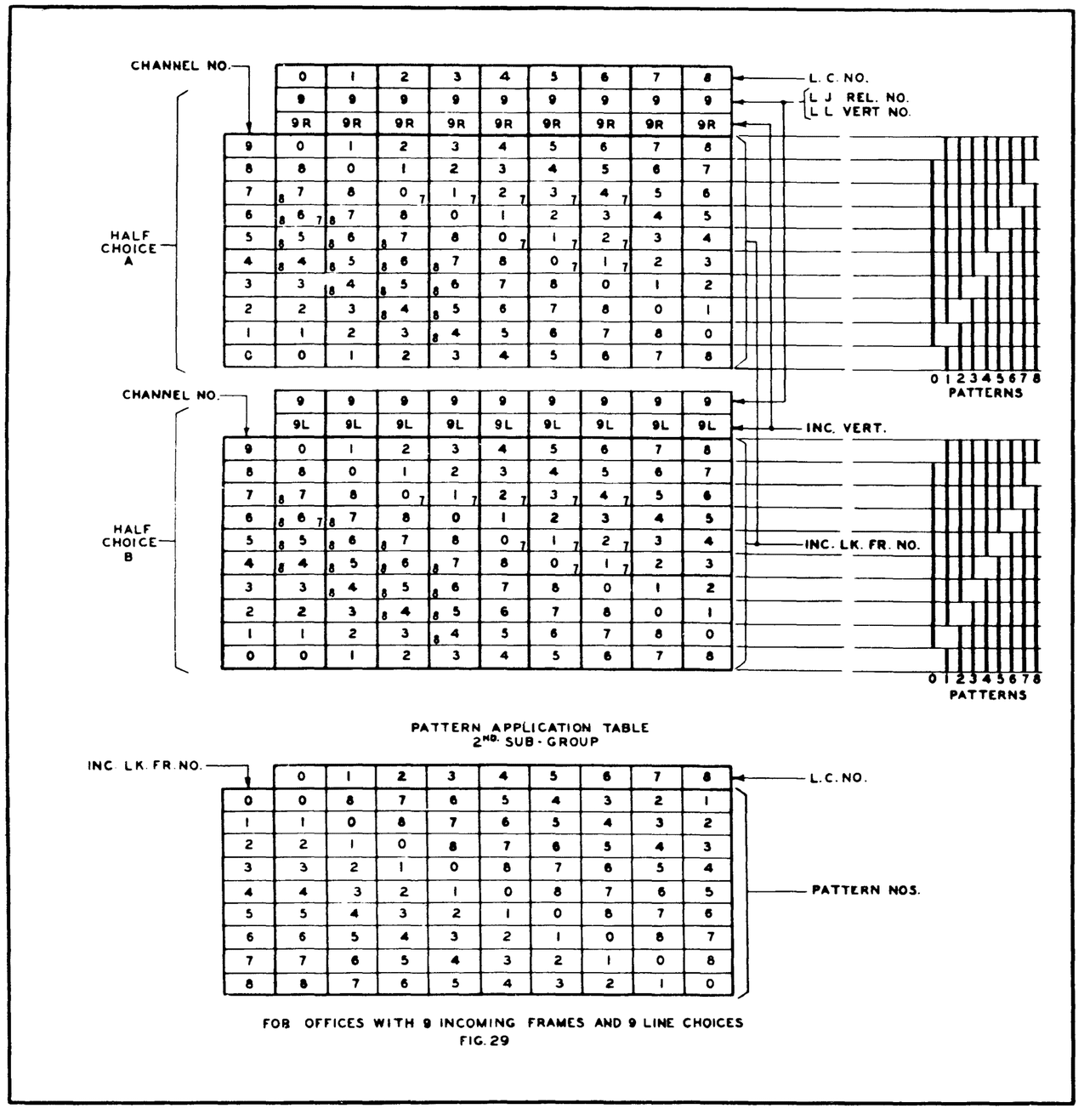


PATTERN APPLICATION TABLE
2ND SUB-GROUP

INC. LK. FR. NO.	0	1	2	3	4	5	6	7
0	0	3	2	1	0	3	2	1
1	1	0	3	2	1	0	3	2
2	2	1	0	3	2	1	0	3
3	3	2	1	0	3	2	1	0
4	0	3	2	1	0	3	2	1
5	1	0	3	2	1	0	3	2
6	2	1	0	3	2	1	0	3
7	3	2	1	0	3	2	1	0

L.C. NO. — PATTERN NOS.

FOR OFFICES WITH 8 INCOMING FRAMES AND 8 LINE CHOICES
FIG. 28



PATTERN APPLICATION TABLE
2ND. SUB-GROUP

INC. LK. FR. NO.	0	1	2	3	4	5	6	7	8
0	0	8	7	6	5	4	3	2	1
1	1	0	8	7	6	5	4	3	2
2	2	1	0	8	7	6	5	4	3
3	3	2	1	0	8	7	6	5	4
4	4	3	2	1	0	8	7	6	5
5	5	4	3	2	1	0	8	7	6
6	6	5	4	3	2	1	0	8	7
7	7	6	5	4	3	2	1	0	8
8	8	7	6	5	4	3	2	1	0

L.C. NO.
PATTERN NOS.

FOR OFFICES WITH 9 INCOMING FRAMES AND 9 LINE CHOICES
FIG. 29