

NUMBER GROUPS
NUMBER GROUPS ADDED TO PERMIT A REDUCTION IN SIZE
OF THE EXISTING NUMBER GROUPS

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1. GENERAL

1.1 This section covers the detailed transition operations required when number groups are added to permit a reduction in size of the existing number groups.

1.11 This transition is necessary when it becomes desirable to relieve the traffic load on the number group connectors of an existing office.

1.2 For the purpose of discussion, assume that an office of 10,000 numbers distributed over 5 number groups, of 2000 numbers each, is to be redistributed over 11 number groups, of 800 numbers each, and 1 number group of 1200 numbers.

1.21 This problem is shown on Figure 1.

2. PLANNING

2.1 Due to the complexity of transitions of this type careful planning is essential, and division of the transition into workable steps that can be completed during light load periods, is mandatory.

2.2 The items covered in Section 81 should be checked for application to a particular job, and provision made for those items that apply.

2.3 Existing terminating points of number group cables, on the block relay frame, should be checked, since this location often determines the number of steps into which the transition must be divided.

2.4 The usual procedure in transitions of this type, is to transfer the numbers in the highest numbered existing number group to their new number group connectors, and release the existing number groups connector for use in its ultimate location. The numbers in the next highest numbered number groups are then transferred, and so on until the transition is complete.

2.5 Figure 2 shows the plan required for the performance of the transition as outlined in paragraph 1.2 and shown on Figure 1.

3. PRELIMINARY WORK

3.1 See Paragraph 3 of Section 80

3.2 At the Number Group Frames

3.21 Change the marker lockout and control circuits of both the old and new number groups, now wired per T25276-11, Figure 1, to agree with T25515-11, Figures 1 and 2.

Step	Existing No Grp.		New No Grp.		No Grp. Released	Notes
1	4	8000-9999	11	8800-9999	4	
2	3	6000-7999	10	8000-8799	3	
			9	7200-7999		
			8	6400-7199		
			7	6000-6399		
3	2	4000-4799	5	4000-4799	None	
4	2	4800-5999	6	4800-5599	2	
			7	5600-5999		
5	1	2000-3999	4	3200-3999	1	
			3	2400-3199		
			2	2000-2399		
6	0	0000-1999	1	0000-1999	0	1
7	1	0000-1999	0	0000-0799	None	
8	1	0800-1999	2	1600-1999	None	

NOTE 1: This step is necessary since the cabling from existing number group connector 0 is terminated on hundred 09 on BR1 and must be reterminated on hundred 04 on BRO.

FIG. 2 TRANSITION PLAN (Par. 2.5)

3.22 This change consists of wiring some of the contacts of the MP, E and TR relays to terminal strips, to facilitate the operation of placing number groups in tandem.

3.23 The lockout circuits shall be operated on the regular circuit while the emergency circuit is being changed and on the emergency circuit when the regular circuit is being changed.

3.24 Mount the terminal strips, and temporarily superimpose the wiring on present local cables as shown on ED25638-10.

3.25 Tape the ends of wires disconnected and leave in place for future re-conversion to T25276-11.

3.26 With the number groups wired per T25515-11 Figures 1 and 2, they will continue to function in accordance with the standard arrangement shown on T25276-30, Figure 1.

4. TRANSITION WORK

4.1 At the Number Group Frame

4.11 Change the marker lockout and control circuits of number groups 4, 10 and 11, now wired per T25515-11, Figures 1 and 2, to agree with T25515-11, Figures 1, 3, 4 and 7.

4.12 This change consists of rearranging the strapping, on the temporary terminal strips, to place the number groups in tandem.

4.13 With the tandem arrangement, only one marker at a time may gain access to any of the three number groups.

4.2 At the Block Relay Frames

4.21 Connect the number group to block relay cables for number groups 10 and 11 using segments 84 and 93, respectively, for the HF-TF-RF-XF-JF-JC-HGA-HGB-HGC and HGD leads.

4.211 The NC, NF and NS leads to the TB terminal strip, and the TB and TBA leads to the HB terminal strip should be connected to a point on those terminal strips other than those used for present cable connections.

4.212 Connect the HB leads to the NG terminal strips, on the HB2 punchings, to avoid interference with the present HB leads of number group 4 which are now connected to the HBO punchings.

NOTE: These cables are connected while the present number group cables are in place and the number group is in service, therefore precaution should be taken to insure that grounds or crosses are not inadvertently introduced.

4.22 Without disturbing the present HB cross connections for number group 4, add the HB cross connections at the NG terminal strip for number groups 10 and 11.

4.221 These cross connections are added in BR frames 10, 11 and 12 to obtain the association between HB relays and HB leads, as shown in Figure 3.

BR-10			BR-11			BR-12		
HD NO	FR HB	NG HB	HD NO	FR HB	NG HB	HD NO	FR HB	NG HB
80	0	0	88	0	0	96	0	8
81	1	1	89	1	1	97	1	9
82	2	2	90	2	2	98	2	10
83	3	3	91	3	3	99	3	11
84	4	4	92	4	4			
85	5	5	93	5	5			
86	6	6	94	6	6			
87	7	7	95	7	7			

FIG. 3
HB CROSS CONNECTIONS AT NG TERMINAL STRIPS
(Par. 4.22)

4.3 At the Terminating Markers

4.31 Make busy the terminating markers one at a time and modify the ST and HB cross connection to permit the markers to reach the reassigned numbers in their new number groups. See Figure 4.

4.32 Return the markers to service.

4.4 At the Block Relay Frames

4.41 Remove the straps and multiple leads HF-RF-TF-XF-JF-JC-HGA-HGB-HGC-HGD-XSH and the other leads required for each number group, between segments 87 and 88.

4.411 Remove the multiple leads TB, TBA and XSH, between the HB terminal strip 0 on frame 10 and HB terminal strip 7 on frame 11.

NOTE: When straps are cut between the TB and TBA punchings on the HB terminal strip all open ends of the TB loop wiring shall be closed down as per Note 53 of T25276-23.

4.412 Remove the multiple leads NC, NS and NF between the TB terminal strip 0 on frame 10 and TB terminal strip 7 on frame 11.

4.413 Remove the multiple leads HBO-24 between the NG terminal strips on frames 10 and 11.

4.5 At the Number Group Frame

4.51 Change the marker lockout and control circuits of number groups 10 and 11, now wired per T25515-11, Figs. 1, 3, 4 and 7 to agree with T25276-30, Figure 1.

4.52 Number groups 10 and 11 should now be tested, using each marker and the TT1 to assure that all markers have access to all numbers in each number group.

4.53 Number group 4 is now released for future use in block relay frame 4.

4.6 Steps 2 to 8

4.61 Steps 2 to 8, shown on Figure 2 shall be completed in a manner similar to that outlined in paragraphs 3 and 4.

5. TRANSITION DETAIL CHARTS

5.1 The operations covered in Paragraphs 3 and 4 of this section are shown in Figures 4, 5 and 6.

6. CLEAN-UP WORK

6.1 The cable between number group 4 and block relay frame 11 should be pulled back to block relay frame 4 for future use in that frame.

6.11 If the cable for number group 4 is such that it cannot be reused in block relay frame 4 it should be removed and new cable run in for number group 4.

6.2 Remove all unused wire and cross connections at the block relay and marker frames.

→ Arrowed lines indicate new or changed information.

7. SEQUENCE OF OPERATIONS

7.1 Figure 7 outlines the sequence of operations involved when number groups are added to permit a reduction in size of existing number groups.

7.11 Columns A,B,C etc., do not denote time intervals, since these intervals vary with job conditions. These columns merely indicate the order in which the various operation should be performed.

7.2 Since the sequence of operation is similar for all of steps 1 to 3, Figure 7 is an outline of one step. The elapsed time between steps is indeterminate and must be established by job conditions.

7.3 The design of Figure 7 is such, that with the addition of work unit constants and manload, it may be used as a job plan.

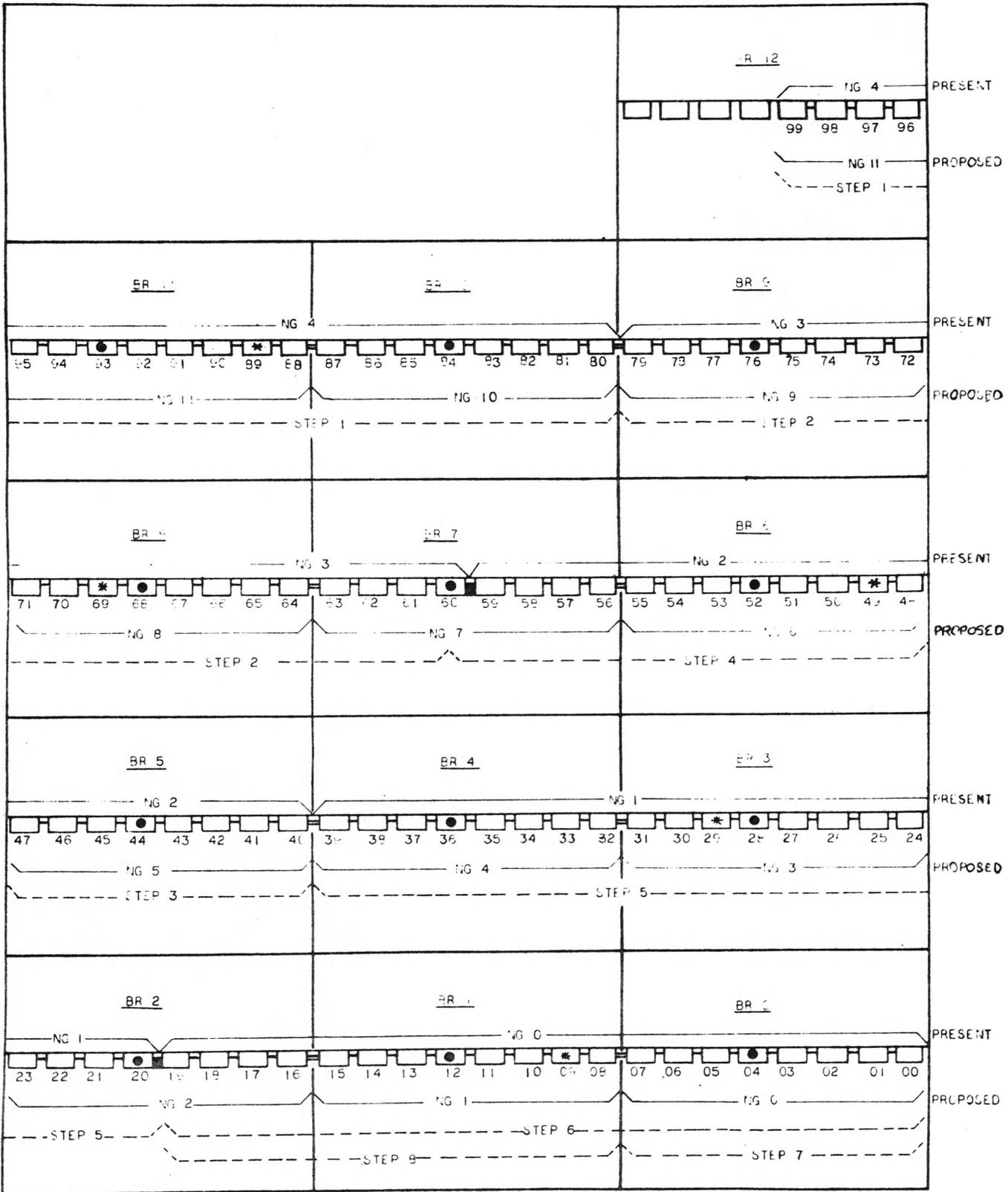
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Engineer of Installation

Reason for Reissue:
Change section number.
Remove time charging information.
Make minor changes.

Figures 1, 4, 5 & 6 attached.

Replaces Section 50C4 of 6-19-47.



- || DISCONNECT
- CONNECT
- EXISTING CABLE TERMINATION
- * NEW CABLE TERMINATION

FIG. 1 PRESENT AND PROPOSED NUMBER GROUPS
(Par. 1.21)

BR. 11																	
NG 4																	
	95	94	93	92	91	90	89	88									
NG 11																	
Step 1																	
BEFORE MKRS. MODIFIED							AFTER MKRS. MODIFIED										
SD-25515-01 NG Frame	Mod. Lockout Ckt. of NG 4-10-11 Fig. 54-55							Modify Lockout Ckts. to original wiring per SD-25276-01									
	Stand. Lockout Ckt. of NG 4-10-11 Fig. 51-52-53																
T-25276-23 (36) T-25276-27 (5) NG Term. Strip	Strap & Mult. HB Pchgs.							Remove Strap & Mult. HB Pchgs.									
	HD NO	FR HB	NG HB	HD NO	FR HB	NG HB	To other Frame	HD NO	FR HB	NG HB	HD NO	FR HB	NG HB	To other Frame			
	88	0	0	92	4	4	HB 0-24 from frame 12 Conn.	88	0	8	92	4	12	HB 0-24 from frame 10. Remove from HB 0 pchgs. Disc. cable from NG 4			
	89	1	1	93	5	5	Cable from NG 11. Use HB 2 pchgs.	89	1	9	93	5	13				
	90	2	2	94	6	6		90	2	10	94	6	14				
91	3	3	95	7	7		91	3	11	95	7	15					
T-25276-23 (35) T-25276-27 (5) HB Term. Strip	Strap & Mult. Pchgs.							Remove Straps & Mult.									
	Term. Strip	0-1	2-3	4-5	6-7					0-1	2-3	4-5	6-7				
	TB	0	X	Connect new cable for NG 11				Disconnect old cable for NG 4				X					
	TBA	0	X									X					
	XSH	0	X									X					
Other Frame								Between HB 7 Fr. 11 & HB 0 Fr. 10									
T-25276-24 (16) (20) TB Term. Strip	Mult. Leads							Remove Leads									
	Term. Strip	0	1	2	3	4	5	6	7	0	1	2	3	4	5	6	7
	NC	0	X	Connect new cable for NG 11				Disconnect old cable for NG 4				X					
	NS	0	X									X					
	NF	0	X									X					
Other Frame								Between TB 7 Fr. 11 & TB 0 Fr. 10									
T-25276-28 (22 to 27) X-Conn Fields	Strap or Mult.							Remove Straps or Mult.									
	Field	Seg.	Seg.	Other Frames				Seg.	Seg.	Other Frames							
	HF		93	Connect new cable for NG 11				Disconnect old cable for NG 4									
	TF																
	XF																
RF																	
JF																	
HGA																	
HGB																	
HGC																	
HGD																	
JC																	
							87	88	Between frs. 10 & 11								
T-25276-28 (27) (42) Upper NF Term. Strip	Mult. Leads	From Br. Fr.	To Br. Fr.					Remove Leads	From Br. Fr.	To Br. Fr.							
	PTN			Connect new cable for NG 11					10	11	Disconnect old cable for NG 4						
	PTN	1															
	TN	1															
	PN	1															
PN	1																
OFT																	
T-25283-14 Cross Conn. as Directed by Tel. Co. X Conn. IS 'B' - 'C' - 'D'	Terminating Markers																
	Remove						Add										
	HB Lead			Hd. No.			HB Lead			Hd No.							
	All work at terminating markers shown on Figure 4																
	ST Lead			Hd No.			St. Lead			Hd No.							
	St Straps Between Hds						St Straps Between Hds										

X - Connect or Disconnect at this point.

FIG. 5 TRANSITION DETAILS
(Par. 5.1)

PRESENT

PROPOSED

		BR. 12												NG 4				NG 11				Step 1				PRESENT		
		99												98				97				96				PROPOSED		
		BEFORE MKRS. MODIFIED												AFTER MKRS. MODIFIED														
SD-25514 NG Frame	Mod. Lockout Ckt. of NG 4-10-11 Fig. 54-55 and Lockout Ckt. of NG 4-10-11 Fig. 51-52-53													Modify Lockout Ckts. to original wiring per SD-25276-01.														
		Strap & Mult. HB Pchgs.												Remove Strap & Mult. HB Pchgs.														
T-25276-23 (36) T-25276-27 (5) NG Term. Strip		HD NO	FR HB	NG HB	HD NO	FR HB	NG HB	To other Frame				HD NO	FR HB	NG HB	HD NO	FR HB	NG HB	To other Frame										
		96	0	8				HB 0-24 from fr. 11. Use HB 2 pchgs.				96	0	16				HB 0-24 Remove from HB 0 pchgs.										
		97	1	9								97	1	17														
		98	2	10								98	2	18														
		99	3	11								99	3	19														
T-25276-23(35)(37) T-25276-27(5) HB Term. Strip		Strap & Mult. Pchgs.												Remove Straps & Mult.														
		Term. Strip	0 - 1			2 - 3			4 - 5			6 - 7			0 - 1			2 - 3			4 - 5			6 - 7				
		TB	0																									
		TBA	0												No work req.													
		XSH	0																									
T-25276-24(6)(20) TB Term. Strip		Mult. Leads												Remove Leads														
		Term. Strip	0	1	2	3	4	5	6	7	0	1	2	3	4	5	6	7										
		NC	0																									
		NG	100																									
		NF	0												No work req.													
T-25276-28(22 to 27) X-Conn Fields		Strap or Mult.												Remove Straps or Mult.														
		Field	Seg.	Seg.	Other Frames								Seg.	Seg.	Other Frames													
		HF																										
		TF																										
		XF																										
T-25276-28(27) (42) Upper NF Term. Strip		Mult. Leads	From Br. Fr.			To Br. Fr.			Remove Leads			From Br. Fr.			To Br. Fr.													
		PTN	1									1																
		TN	1			No work req.						1			No work req.													
		PN	1									1																
		OFT	1									1																
T-25283-14 as Directed by Tel. Co. Cross Conn. "B" - "C" - "D" X Conn. TS "B" - "C" - "D"	Terminating Markers																											
	Remove												Add															
	HB Add						Hd No.						HB Lead						Hd No.									
	All work for terminating markers show on Fig. 4																											
	St Lead						Hd No.						St Lead						Hd No.									
	St Straps Between Hds												St Straps Between Hds															

X - Connect or Disconnect at this point.

FIG. 6 TRANSITION DETAILS

			No. of Unit	Hrs. per Unit	Total Hours	A	B	C	D	E	F	G	H	I
Preliminary Work	Modify Marker Lockout Ckts Mount Terminal Strips Superimpose local form Disconnect or Connect	term. strip												
		form ft.												
		wire end												
Transition	Tandem Marker Lockout Ckts Disconnect or Connect Connect cable at BR frame Modify HB cross conn. at BR frame Modify Term. Mkr. ST & HB leads Remove straps & mult. at BR frame Modify Market Lockout Ckts. Disconnect and Connect Remove local form Remove terminal strips	wire end												
		wire end												
		wire end												
		wire end												
		wire end												
		wire end												
		form ft.												
term. strip														
Clean-Up	Remove or Relocate Cable Remove Temporary app.	ca ft												
		Job												

FIG. 7 SEQUENCE OF OPERATIONS
(Par. 7)