DRIVES AND CONNECTING SHAFTS
EQUIPMENT DESIGN REQUIREMENTS
PANEL SYSTEMS

1. GENERAL

Scope

1.01 This specification covers the various types of drives and connecting shafts which shall be used in panel offices. This specification shall be followed in all cases, except for those deviations specifically authorized by the Bell Telephone Laboratories, Inc. in accordance with the routines set up covering special practices.

1.02 This specification is reissued to incorporate previous appendix changes and to change the rating from "AT&TCo Standard" to "A&M Only."

2. DRAWINGS

ED-20182-01 - Oil Guards
ED-20446-01 - Method of Figuring Length of Connecting Shaft
ED-20622-01 - Method of running and supporting frame battery and ground leads for single sided frames.
ED-20623-01 - Method of running and supporting frame battery and ground leads for double sided frames.

3. DRIVES

3.01 The drives covered herein are of two types: (a) Friction roll drives (b) Gear train drives.

(a) Friction Roll Drives: These drives are used for the purpose of raising and lowering the brush rods of all double sided selector frames. With the exception of the drives used on the line finder frames the friction roll drives are also arranged for driving the vertical shaft in the sequence switch bays. They are divided into two groups as follows:

(1) Single Unit Drives: In these drives each set of cork rolls is driven by an individual motor, and the drive is not adapted for coupling to a second drive. This drive must be specified when a frame is to be driven individually. Two motors are required, one for the set of rolls on the front and one for the set of rolls on the rear of each frame.

(2) Double Unit Drives: These drives are arranged to work in pairs on two adjacent frames placed end to end. The two sets of cork rolls on the front sides of the two frames are driven by one motor located on the frame to the right and two sets of rolls on the rear sides by a second motor located on the frame to the left. One set of rolls on each drive is directly coupled to its motor and drives a corresponding set of rolls on the adjacent frame by means of a connecting shaft.

(b) Gear Train Drives: These drives are used to operate the vertical shafts on single sided frames. These drives are arranged for direct connection to a drive motor or by means of a connecting shaft to another drive.

3.02 Drives on single and double sided frames shall be equipped with oil guards in accordance with ED-20182-01.

4. SPEEDS

4.01 The drives as listed in parts 5 and 6 are for use on equipments when the frequency is 60 and 25 cycles respectively. When frequencies other than 60 or 25 cycles are specified by the Telephone Companies, the question as to the type drive to be used should be referred to the Bell Telephone Laboratories, Inc.

4.02 The gear train drives with slow speed connecting shafts are standard and shall be used for new work and additions in the future as listed herein.

5. LIST OF STANDARD FRAMES WITH CORRESPONDING STANDARD DRIVES

5.01 Drives as listed herein shall be furnished for each frame. Unless otherwise indicated one drive of each code specified under the several headings shall be furnished.

5.02 Where more than one drive of the same code is required for any condition the number of drives of that particular code is indicated by the number in parenthesis. The drives listed herein are designed to be driven by 60 cycle duplex motors having a speed of 1765 R.P.M.

5.03 Where 2 motors are specified one is used for driving the friction rolls and sequence switches on the front of the frame or frames and the other for driving the friction rolls and sequence switches on the rear. Where one motor is specified it is used for driving equipment on the front of the frame or frames.

Frame	No. of Motors	Single Unit Drive	Double Unit Drive	Motor Bracket
Selector Frames				
Line Finder - 400 Point 28 Selector Group	2	25E	26G (2)	2D
Line Finder - 400 Point 40 Selector Group	2	17E	18G (2)	2D
Line Finder - 400 Point 60 Selector Group	2	19E	20G (2)	2D
Line Finder - 400 Point 80 Selector Group	2	17E	18H (2)	2D
Intercepting Trk. Fdr. 2 Gr. of 400 or 1 Gr. of 800	2	25E	-	2D
Intercepting Trk. Fdr. 1 Gr. of 400	2	19E	-	2D
District Frame F. & M.R. Subs., "A" Position Dialing and Tandem	2	21E	23G (2)	2D
District Frame 2 Party M.R.	2	21E	23G (2)	2D
District Frame Coin	2	21R 32C (2)	23T (2) 32C (4)	2D
District Frame Arr. for Zone & Overtime 1 & 2 P.M.R.	2	21R 32A (2)	23T (2) 32A (4)	2D
District Frame Arr. for Overtime C.C.	2	21R 32A (2) 32C (2)	23T (2) 32A (4) 32C (4)	2D
Office Frame 3 Wire Local and Tandem	2	21E	23G (2)	2D
Distant Office Frame Local and Tandem	2	21E	23G (2)	2D
Incoming Frame	2	21E	23G (2)	2D
Final Frame	2	22C	24E (2)	2D
Sender & Link Frames				
Call Distributing "B" Link Frame	2	45A	46A (2)	2D
Subscriber's Link Frame	2	35A	49A (2)	2D
Tandem Link Frame	2	47A	48A (2)	2D
Subs. Sender 3 or 3-2 Digit Office Code	1	1034B	1034A 33B	-
Subs. Sender 2 Digit 44 Office Code	1	1034A 33A	1034A 33A (2) 33B	-
Subs. Sender 2-3 Digit 44 Office Code or 2 or 2-3 Digit - 44 Wired for 88 Office Code	1	1034A 33A	1034A 33A (2) 33B	-
Subs. Sender 2 or 2-3 Digit 88 Office Code	1	1034A 33A (2)	1034A 33A (4) 33B	-
Tandem Sender Frame	1	1034B	1034A 33B	-
Miscellaneous and Test Frames				
Local Test Desk Test Selector	1	1034B	1034A 33B	-
Terminating Sender Frame	1	1034B	1034A 33B	-

Frame	No. of Motors	Single Unit Drive	Double Unit Drive	Motor Bracket
Interrupter Frame for L.F. Interrupters	1	1034B	-	-
Misc. Interrupter Frame Local and Tandem	1	1034B	-	-
Make Busy Frame Local and Tandem	1	1034B	1034A 33B	-
Decoder Test Frame, Local and Tandem	1	1034B	-	-
District Selector Test Frame Local and Tandem	1	1034B	1034A 33B	-
Office Selector Test Frame Local and Tandem	1	1034B	1034A 33B	-
Incoming Selector Test Frame	1	1034B	1034A 33B	-
Final Selector Test Frame	1	1034B	1034A 33B	-
Final Multiple Test Line Frame	1	1034B	1034A 33B	-
"B" Sender Test Frame	1	1034B	-	
Subs. Sender Test Frame 2, 2-3, 3 and 3-2 Digit Office Code	1	1034B	1034A 33B	-
Tandem Sender Test Frame	1	1034B	1034A 33B	-

6. LIST OF FRAMES WITH CORRESPONDING DRIVES TO BE USED WITH MOTORS HAVING A FREQUENCY OF 25 CYCLES

6.01 Drives as listed below shall be furnished for each frame. When more than one drive of a type is required the number is given in parenthesis () along with the D-specification number. These drives are designed to be driven by 25 cycle duplex motors having a speed of 1465 R.P.M.

Frame	No. of Motors	Single Unit Drive	Double Unit Drive	Motor Bracket
Line Finder - 400 Point 28 Selector Group	2	-	D-86116	4C
Line Finder - 400 Point 40 Selector Group	2	-	D-86114	4C
District, Orfice and Incoming Frames	2	D-90212	D-90209	2D
Coin - District Frame	2	D-90213	D-90214	2D
Final Frame	2	D-90207	D-90206	2D
Subs. Panel Link Frame	2	D-90216	-	2D
Call Distributing "B" Link Frame	2	D-90208	D-90215	2D
Subs. Sender 2 Digit 44 Office Code	1	D-90210 D-90217	D-90210 D-90217 (2) D-90218	-
District Selector Test Frame	1	D-90211	D-90210 D-90218	-
Incoming Selector Test Frame	1	D-90211	D-90210 D-90218	-
Final Selector Test Frame	1	D-90211	D-90210 D-90218	- -
Subscriber's Sender Test Frame	1	D-90211	D-90210 D-90218	-
"B" Sender Test Frame	1	D-90211	-	-
Interrupter Frame for L.F. Interrupters	1	D-90211	-	-
Miscellaneous Interrupter Frame	1	D-90211	-	-
Make Busy Frame	1	D-90211	D-90210 D-90218	- -

7. CONVERTING SINGLE FRAME DRIVES TO DOUBLE FRAME DRIVES

7.01 Single frame drives may be modified for use as part of two frames driven by the same motors at any time by furnishing certain supplementary parts. These parts have been coded as follows:

29A - For converting 1A, 1C, and 2A drives to 3D, 3E, and 4B respectively.

29D - For converting 17A, 17B, 17E, 19A, 19B, 19E, 21A, 21C, 21E, 21G, 25A, 25B, and 25E drives to 18B, 18D, 18J, 20B, 20D, 20H, 23B, 23D, 23H, 23K, 26B, 26D, and 26H respectively.

29E - For converting 22A, 22B, and 22C drives to 24B, 24D, and 24F respectively.

D-92079 - For converting a 45A drive to a 46A.

D-97732 - For converting a 35A drive to a 49A.

8. CONVERTING DOUBLE UNIT DRIVES TO SINGLE UNIT DRIVES

8.01 For converting double unit drives for operation as single unit drives the following supplementary parts should be provided:

List of Parts	For Modifying Drive	Marking of Modified Drive	Present Status
D-80839	24E	22C	
D-80840	23G	21E	
	23J or 23L	21G	
D-80841	23T	21R	
D-80842	(18G, 18H	17E	
	(20G	19E	
	(26C	25B	
	(26G	25E	
D-86612	(3A	1A	Mfr. Disc. Use D-95852
	(3C or 3F	1C	
D-86644	23A	21A	Mfr. Disc. Use D-86645
D-86645	23A	D-86646	
D-86787	4A	2A	Mfr. Disc. Use D-95832
D-86935	24A	22A	Mfr. Disc. Use D-95628
D-88719	20A or 20C	D-88718 or 19B	
D-95628	24A	D-95629	
D-95726	21D	D-95727	
D-95832	4A	D-95831	
D-95852	3A	D-95853	
D-95935	7B	6E	
D-96747	D-18620	D-96748	
D-140887	46A	45A	

9. COMPLETE LIST OF DRIVES

9.01 The following is a list of all drives which have been designed for use with panel system frames. This list includes those drives which were originally used with the 1800 R.P.M. motor.

9.02 Unless otherwise specified, the drives for double sided frames have two sets of friction rolls. Each set is arranged for one up drive and one down drive. Those indicated by a (2) under "Type of Drive" have two up drives and one down drive.

9.03 Under the heading "type of drive" the following designations are used to indicate the various drives.

"S" - Single Unit Drive - One frame driven by two motors.

"D" - Double Unit Drive - Two frames driven by two motors.

"I" - Intermediate Drive - One frame driven without motors, driven from adjacent frames.

Drive	Motor Speed	Type of Drive	Original Use	Present Status
1A (1800)	1765	S	D., O., & I. Frames	Mfr. Disc. Replaced by 21E
1C (1800)	1765	S	"B" Sender & Link (Kansas City, Main No. 1)	Mfr. Disc. Replaced by 21C
1D (1800)	1765	S	"A" Pos. D Penn. N.Y. used with No. 28 Drive	Mfr. Disc. Replaced by 21D
1E (1800)	1765	S	Trans. Frame Penn. N.Y.	Mfr. Disc. Replaced by 21B
2A (1800)	1765	S (2)	Final Frames	Mfr. Disc. Replaced by 22C
3A (1800)	1765	D	D., O., & I Frames	Mfr. Disc. Replaced by 23G
3C (1800)	1765	D	"B" Sender & Link (K.C. Main No. 1)	Mfr. Disc. Replaced by 23J
3D (1800)	1765	D	1A Converted to 3A by Adding 29A	For Record Only
3E (1800)	1765	D	1C Converted to 3C by Adding 29A	For Record Only
3F (1800)	1765	D	"B" Sender & Link Arranged to drive from 24 Sel. end	Mfr. Disc. Replaced by 23L
4A (1800)	1765	D (2)	Final Frame	Mfr. Disc. Replaced by 24A

Drive	Motor Speed	Type of Drive	Original Use	Present Status
4B (1800)	1765	D (2)	2A Converted to 4A by adding 29A	For Record Only
6A (1800)	1765	Gear Train for Seq. Switches	Subs. Sender Frame	A & M Only Replaced by 6E
6B (1800)	1765	Gear Train for Seq. Sw. and Inter.	Sender Test Frame	Mfr. Disc. Replaced by 6F
6C	1765	Gear Train for Seq. Switch	Subs. Sender Frame	Mfr. Disc. Replaced by 6E
6D	1765	Gear Train for Seq. Sw. and Inter.	Sender Test Frame	Mfr. Disc. Replaced by 6F
6E	1765	Gear Train for Seq. Sw.	Subs. Sender Frame 3 Digit	Mfr. Disc.
6F	1765	Gear Train for Seq. Sw. and Inter.	Sender Test Frame	A & M Only
6G	1765	Gear Train for Seq. Sw. and Inter.	"B" Sender Test Frame	A & M Only
7A (1800)	1765	Gear Train for Seq. Sw.	Sender Frame 2-Digit	A & M Only
7B	1765	Gear Train for Seq. Sw.	Sender Frame 2-Digit	A & M Only
7C	1765	Gear Train	Sender Frame 2-Digit	A & M Only
7D	1765	Gear Train for Seq. Sw.	Sender Test Frame	Mfr. Disc.
7E	1765	Gear Train for Seq. Sw.	Incoming Selector Test Frame & Subs. Sender Unit Type	A & M Only Replaced by 33B and 1034A & B
7G	1765	Gear Train for Seq. Sw. and Inter.	Sender Test Frames	A & M Only Replaced by 1034A
8A (1800)	1765	Gear Train for 1203 Sel. Sw.	Sender Frame 2 Digit 44 Office Code	Mfr. Disc. Replaced by 33A
8B	1765	Gear Train for Seq. Sw.	"B" Sender Frame (Chi. Franklin Office)	Mfr. Disc. Replaced by 1034A & B and 33B
8C	1765	Gear Train for 1203 Sel. Sw.	Sender Frame 2 Digit 88 Office Code	Mfr. Disc. Replaced by 33A
8D	1765	Gear Train for 1203 Sel. Sw.	Sender Frame 2 Digit 44 Office Code	Mfr. Disc. Replaced by 33A
8E	1765	Gear Train for Seq. Sw.	Subs. Sender Fr. 3 Digit "B" Sender (Chi. Franklin Office)	A & M Only Replaced by 1034A & B and 33B
8F	1765	Gear Train for 1203 Sel.Sw.	Sender Frame 2 Digit 44 and 88 Office Code	A & M Only Replaced by 33A

Drive	Motor Speed	Type of Drive	Original Use	Present Status
8G	1765	Gear Train for 1203 Sel. Sw.	Sender Frame 2 Digit 44 Office Code	Mfr. Disc. Replaced by 33A
16A	1765	Gear Train for Seq. Sw.	Sender Frame 10 Senders per Frame	Mfr. Disc. Replaced by 16C
16C	1765	Gear Train for Seq. Sw.	Sender Frame 10 Senders per Fr.	Mfr. Disc.
17A	1765	S	L.F. Frame with 3A Bank	Mfr. Disc. Replaced by 17E
17B	1765	S	L.F. Frame with 3A	Mfr. Disc. Replaced by 17E
17E	1765	S	L.F. Frame with 8A or 8E Bank	Standard
18A	1765	D	L.F. Frame with 3A Bank	Mfr. Disc. Replaced by 18C
18B	1765	D	17A converted to 18A by adding 29D	For Record Only
18C	1765	D	L.F. Frame with 3A Bank	A & M Only
18D	1765	D	17B converted to 18C by adding 29D	For Record Only
18G	1765	D	L.F. Frame with 8A Bank	Standard
18H	1765	D	L.F. Frame with 8D or 8E Bank	Standard
18J	1765	D	17E converted to 18G by adding 29D	For Record Only
19A	1765	S	L.F. Frame with 3B Bank	Mfr. Disc. Replaced by 19E
19B	1765	S	L.F. Frame with 3B Bank	Mfr. Disc. Replaced by 19E
19E	1765	S	L.F. Frame with 8B Bank	Standard
20A	1765	D	L.F. Frame with 3B Bank	Mfr. Disc. Replaced by 20G
20B	1765	D	19A converted to 20A by adding 29D	For Record Only
20C	1765	D	Line Finder with 3B Bank	Mfr. Disc. Replaced by 20G
20D	1765	D	19B converted to 20C by adding 29D	For Record Only
20G	1765	D	L.F. Frame with 8B Bank	Standard
20H	1765	D	19E converted to 20G by adding 29D	For Record Only
21A	1765	S	D., O., & I Frame	Mfr. Disc. Replaced by 21E
21B	1765	S	Panel Type Translator Frame	Mfr. Disc. Replaced by 21F
21C	1765	S	"B" Sender & Link (Kansas City)	Mfr. Disc. Replaced by 21G

Drive	Motor Speed	Type of Drive	Original Use	Present Status
21D	1765	S	A. Pos. Dist. Frame - Penn. arranged to drive adjacent link fr.	Mfr. Disc. Replaced by 21H
21E	1765	S	D., O., & I Frame	Standard
21F	1765	S	Panel Type Translator Frame	A & M Only
21G	1765	S	"B" Sender & Link	A & M Only
21H	1765	S	A Pos. Dist. Frame	A & M Only
21R	1765	S	Coin District	Standard
22A	1765	S (2)	Final Frame	Mfr. Disc. Replaced by 22C
22B	1765	S (2)	Final Frame	Mfr. Disc. Replaced by 22C
22C	1765	S (2)	Final Frame	Standard
23A	1765	D	D., O., & I Frames	Mfr. Disc. Replaced by 23G
23B	1765	D	21A converted to 23A by adding 29D	For Record Only
23C	1765	D	"B" Sender & Link	Mfr. Disc.
23D	1765	D	21C converted to 23C by adding 29D	For Record Only
23F	1765	D	"B" Sender & Link Arranged to Drive from 24 Selector End	Mfr. Disc. Replaced by 23L
23G	1765	D	D., O., & I Frames	Standard
23H	1765	D	21E converted to 23G by adding 29D	For Record Only
23J	1765	D	"B" Sender & Link	Mfr. Disc.
23K	1765	D	21G converted to 23J by adding 29D	For Record Only
23L	1765	D	"B" Sender & Link Arranged to Drive from 24 Selector End	A & M Only
23T	1765	D	Coin District	Standard
23U	1765	D	21R converted to 23T by adding 29D	For Record Only
23W	1765	D	21D converted to 23T by adding 29D	For Record Only
24A	1765	D (2)	Final Frame	Mfr. Disc. Replaced by 24E
24B	1765	D (2)	22A converted to 24A by adding 29E	For Record Only
24C	1765	D (2)	Final Frame	Mfr. Disc. Replaced by 24E
24D	1765	D (2)	22B converted to 24C by adding 29E	For Record Only
24E	1765	D (2)	Final Frame	Standard
24F	1765	D (2)	22C converted to 24E by adding 29E	For Record Only
25A	1765	S	L.F. Frame with 3C Bank	Mfr. Disc. Replaced by 25B

Drive	Motor Speed	Type of Drive	Original Use	Present Status
25B	1765	S	L.F. Frame with 3C Bank	Mfr. Disc. Replaced by 25E
25E	1765	S	L.F. Frame with 8C Bank	Standard
26A	1765	D	L.F. Frame	Mfr. Disc. Replaced by 26C
26B	1765	D	25A converted to 26A by adding 29D	For Record Only
26C	1765	D	L.F. Frame with 3C Bank	A & M Only
26D	1765	D	25B converted to 26 by adding 29D	For Record Only
26G	1765	D	L.F. Frame with 8C Bank	Standard
26H	1765	D	25E converted to 26G by adding 29D	For Record Only
28A	1765	Gear Train	A Pos. S. & L. C. Frame Old Type Seq. Sw. Bay	Mfr. Disc.
28B	1765	Gear Train	A Pos. S. &L. C. Frame Old Type 1203 Sel. Bay	Mfr. Disc.
29A	-	Parts	To Change Single 1 or 2 Drives to Two Frame Drives	Standard
29B	-	Parts	To Change Single 17, 19, 21, 22, & 25 Drives to Two Frame Drives	Mfr. Disc. Replaced by 29D and 29E
29C	-	Parts	To Change Single 21R Drive to a Two Frame Drive	Mfr. Disc.
29D	-	Parts	To Change Single 17, 19, 21 and 25 Drives to Two Frame Drives	Standard
29E	-	Parts	To Change Single 22 Drive to a Two Frame Drive	Standard
30A	1765	Gear Train	Sender Selector for (SM Equipments)	Mfr. Disc.
31A	1765	Gear Train	Sender Selector for (SM Equipments)	Mfr. Disc.
32A	1765	Gear Train (Seq. Sw.)	A Pos. S & Link Circuit Frame. Dist. Frame arr. for Z. & O.	Standard
32B	1765	Gear Train (Seq. Sw.)	A Pos. S. & Old Type Link Circuit Frame, 1203 Sel. Bay	A & M Only
32C	1765	Gear Train (1203 Sel.)	Coin District	Standard
33A	1765	Gear Train (1203 Sel.)	Link & Sender Frames	Standard
33B	1765	Gear Train (Seq. Sw.)	Link, Sender and Test Frames	Standard
33C	1765	Gear Train (1203 Sel.)	Subs. Link Frames (Rotary Type)	A & M Only

Drive	Motor Speed	Type of Drive	Original Use	Present Status
34A	1765	Gear Train (Seq. Sw.)	Link, Sender & Test Frames	Standard
34B	1765	Gear Train (Seq. Sw.)	Link, Sender & Test Frames	Standard
35A	1765	S	Subs. Links (Panel Type)	Standard
40A	1765	I	L.F. with 8A Bank	Mfr. Disc.
40B	1765	I	L.F. with 8E Bank	Mfr. Disc.
40C	1765	I	18G converted to 40 Type	For Record Only
40D	1765	I	18H converted to 40 Type	For Record Only
41A	1765	I	L.F. with 8B Bank	Mfr. Disc.
41B	1765	I	20G converted to 41 Type	For Record Only
42A	1765	I	L.F. with 8C Bank	Mfr. Disc.
42B	1765	I	26G converted to 42 Type	For Record Only
43A	1765	I	D., O. & I. Frames	Mfr. Disc.
43B	1765	I	23G and 23T converted to 43 Type	For Record Only
44A	1765	I (2)	Final Frames	Mfr. Disc.
44B	1765	I (2)	24E converted to 44 Type	For Record Only
45A	1765	S (2)	Call Dist. B Link Frame	Standard
46A	1765	D (2)	Call Dist. B Link Frame	Standard
47A	1765	S (2)	Tandem Link Frame	Standard
48A	1765	D (2)	Tandem Link Frame	Standard
49A	1765	D	Subs. Link Fr. (Panel)	Standard
1034A	1765	Gear Train (Seq. Sw.)	Link, Sender & Test Frames	Standard
1034B	1765	Gear Train (Seq. Sw.)	Link Sender & Test Frames	Standard
D-77341	1765	Gear Train (1203 Sw.)	Tandem Link	Mfr. Disc.
D-77342	1765	Gear Train (1203 Sw.)	Tandem	Mfr. Disc.

Modified Drives

D-86646	1765	Gear Train (1203 Sw.)	23A drive made single frame per D-86645.	For Record Only
D-88718	1765	S	20A made single frame per D-88719.	For Record Only

Drive	Motor Speed	Type of Drive	Original Use	Present Status
D-95629	1765	S (2)	24A Made Single Frame per D-95628	For Record Only
D-95727	1765	S	21D made 21R	For Record Only
D-95831	1765	S (2)	4A made Single Frame per D-95832	For Record Only
D-95853	1765	S	3A Made Single Frame per D-95852	For Record Only
D-140486	1765	S	35A Modified to Eliminate 2 Seq. Sw. Drive Shafts	A & M Only
D-140658	1765	S	35A Modified to Eliminate 1 Seq. Sw. Drive Shaft	A & M Only

Drives for Use with 25 Cycle Motor

Drive	Motor Speed	Type of Drive	Original Use	Present Status
D-16792	1465	Gear Train	Sender Frame (W.E. ED. Exch.)	Mfr. Disc.
D-18457	1465	S	"B" Sender and Link Frames	Mfr. Disc.
D-18458	1465	S	Special 21C Type Drive	Mfr. Disc.
D-18616	1465	D	L.F.Frame with 3A Bank	Mfr. Disc.
D-18617	1465	S	L.F.Frame with 3B Bank	Mfr. Disc.
D-18618	1465	S	L.F.Frame with 3C Bank	Mfr. Disc.
D-18619	1465	S	D., O., and I. Frames	Mfr. Disc.
D-18620	1465	D	D., O., and I. Frames	Mfr. Disc.
D-18621	1465	D	"B" Sender and Link Frames	Mfr. Disc.
D-18622	1465	S (2)	Final Frame	Mfr. Disc.
D-18623	1465	S (2)	Final Frame	Mfr. Disc.
D-18624	1465	Gear Train	Sub. Sender Frame	Mfr. Disc.
D-18625	1465	Gear Train	Sub. Sender Frame	Mfr. Disc.
D-18626	1465	Gear Train	28A converted for Toll Use	Mfr. Disc.
D-20820	1465	Gear Train	Sequence Switches (Semi-Mech.)	Mfr. Disc.
D-20836	1465	Gear Train	Sequence Switches thru jack shaft	Mfr. Disc.
D-43766	1465	D	Dist. Self Contained Selector Frames	Mfr. Disc.
D-43799	1465	Gear Train	Sub. Sender Frame	Mfr. Disc.

Drive	Motor Speed	Type of Drive	Original Use	Present Status
D-44970	1465	S	Special 21C Type	Mfr. Disc.
D-47916	1465	D	L.F. Frame with 8A Bank	A & M Only
D-76897	1465	Gear Train	Incoming Selector Test Frame and Sub. Sender Unit Type	Mfr. Disc.
D-76898	1465	Gear Train	Incoming Selector Test Frame and Sub. Sender Unit Type	Mfr. Disc.
D-76925	1465	Gear Train	Sub. Sender Frame	Mfr. Disc.
D-78012	1465	D	40-20 L.F. Frame	Mfr. Disc.
D-78671	1465	Gear Train	Incoming Selector Test Frame and Sub-Sender Unit Type	Mfr. Disc.
D-78675	1465	Gear Train	Sender Frame (10 Senders per Frame)	Mfr. Disc.
D-78805	1465	Gear Train	Sender Frame (2 Digit 44 and 88 Office Code)	Mfr. Disc.
D-78903	1465	Gear Train	Sub Sender Frame (2 Digit)	Mfr. Disc.
D-78904	1465	Gear Train	Sender Frame 2 Digit H4 Office Code	Mfr. Disc.
D-78905	1465	Gear Train	Sender Frame 2 Digit 88 Office Code	Mfr. Disc.
D-80080	1465	Gear Train	Incoming Selector Test Frame and Subs Sender Unit Type	Mfr. Disc.
D-80526	1465	S	S., O., and I Frames adapted for Toll Use	A & M Only
D-80920	1465	Gear Train	Sender Test Frame adapted for Toll Use	Mfr. Disc.
D-86114	1465	D	L.F. Frame with 8A Bank	A & M Only
D-86115	1465	D	L.F. Frame with 3C Bank	Mfr. Disc.
D-86116	1465	D	L.F. Frame with 8C Bank	A & M Only
D-86503	1465	S	L.F. Frame-400 pt. 40 sel. gr.	A & M Only
D-90206	1465	D (2)	Final Frame	A & M Only
D-90207	1465	S (2)	Final Frame	A & M Only
D-90208	1465	S (2)	Call Distributing "B" Link Frame	A & M Only
D-90209	1465	D	D., O., and I. Frames	A & M Only
D-90210	1465	Gear Train	SDR, TST, and Others Single Sided Frames	A & M Only
D-90211	1465	Gear Train	SDR, TST, and Others Single Sided Frames	A & M Only
D-90212	1465	S	D., O., and I. Frames	A & M Only
D-90213	1465	S	Coin Dist. Frame	A & M Only
D-90214	1465	D	Coin Dist. Frame	A & M Only

Drive	Motor Speed	Type of Drive	Original Use	Present Status
D-90215	1465	D (2)	Call Distributing "B" Link Frame	A & M Only
D-90216	1465	S	Subs. Panel Link Frame	A & M Only
D-90217	1465	Gear Train	Sub. SDR Frame	A & M Only
D-90218	1465	Gear Train	SDR, TST, and others Single Sided Frames	A & M Only
D-90242	1465	Gear Train	SDR, TST, and others Single Sided Frames	A & M Only
D-90243	1465	Gear Train	SDR, TST, and others Single Sided Frames	A & M Only
D-96748	1465	S	D-18620 made single per D-96747	A & M Only

10. CONNECTING SHAFTS

General Description

10.01 Where two or more drives on the same frame or on adjoining frames are to be driven from one motor, connecting shafts of various lengths are required to interconnect the drive units.

Types of Connecting Shafts and Use

10.02 The 2 type (2C) shafts are used to connect 17 to 26, 32 to 35 and 49 type drives together which are driven by the same motor.

10.03 The 6 type (6B) shafts are used to connect 6, 7, and 8 type drives together which are driven by the same motor.

10.04 The 10 type (10A) shafts are used to connect 45, 46, 47, and 48 type drives together which are driven by the same motor.

Connecting Shaft Bearings

10.05 The 5C or 8B bearings which are now obsolete were used with both 2C and 6B shafts.

10.06 The 9A bearing shall be used on single sided frames when the 2C connecting shaft is 6'-0" long or over.

10.07 The 12A bearing shall be used on double sided frames when the 2C or 10A connecting shaft is 6'-0" long or over.

Length of Connecting Shafts

10.08 The length of connecting shaft required for connecting together the drives on adjacent frames depends upon the assembly of the frames involved. The length of the shafts required is specified on the equipment drawings for the several frames.

10.09 Where different frames are lined up together to be driven by the same motor or motors and the length of the connecting shaft required is not covered by the equipment drawing of the individual frames, the length of shaft to be used shall be figured in accordance with the dimensions shown on ED-20446-01.

11. GEAR AND BEARING BOX STOPS

11.01 Gear and bearing box stops per D-159143 shall be furnished on all new frames equipped with friction roll drives and on existing frames when specified by the Telephone Co. The stops shall be installed in accordance with BSP 159-720-812.

Bell Telephone Laboratories, Inc.

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