

NTP 297-3601-502

DMS-10 Family

600-Series Generics

NE-3 Test Cabinet, Operating Procedures

06.01

For Generic 602.20 Standard August 2006

NORTEL

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600-Series Generics

NE-3 Test Cabinet, Operating Procedures

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Section 1: Introduction

Scope and purpose

This publication contains tables that provide instructions on testing subscriber lines or cable pairs using the NE-3 Test Cabinet associated with a DMS-10 switching system.

Section 2: NE-3 Test Cabinet tests

Table 2-A:

Posting a line by means of an NT2T16 Test Trunk

Step	Action	Result
1	Insert patchcord into LC and NT Jacks (see Figure 2-1).	Meter deflection.
2	Operate dial key.	Meter deflection when the DMS-10 switch is ready to receive digits.
3	Dial subscriber's line (last 4 or 5 digits). (This is set in configuration.)	
4	Restore dial key.	Idle Line: No meter deflection Busy Line: Full meter deflection, tone in headset if monitor key is operated. No Access: 120 IPM meter deflections. 120 PM tone heard in headset if monitor key is operated.
5	Proceed to test desired.	Tables 2-B, C, and E through L .

Table 2-B:

Testing a line using test shoe

Step	Action	Result
1	Plug patchcord from TC and RC jacks into TT and RT jacks.	
2	Connect test cord from test shoe to line under test.	
3	Proceed to required test for outside cable pair (IN key not operated) or to test subscriber's line circuit for dial tone.	
4	LOOP START LINE: Operate IN and T keys.	Dial tone should be heard in headset.
5	GROUND START LINE: Operate IN, T, REV, and LRP-RG keys.	Dial tone should be heard in headset.

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Table 2-C: Line Identification Test		
Step	Action	Result
1	Operate 3WO key.	
2	Operate G key.	Meter deflection if line is short-circuited; indicates line on intercept.
3	Release G key.	Meter reading of 48 V on ring indicates Ring party or individual.
4	Operate REV key.	Meter reading of 48 V on tip indicates Tip party.

Check meter reading obtained by this test with Table 2-D to identify the type of line

Table 2-D: Line identification					
Line Type		NT2T16AA or AB Pack		NT2T16CA Pack	
		TIPRING		TIPRING	
DMS-10	Tip party	BATT	OPEN	BATT	OPEN
	Individual or Ring party	OPEN	BATT	OPEN	BATT
	PBX	OPEN	GRD	OPEN	BATT
	Intercept	Approx 30kΩ s/c		Approx 30kΩ s/c	
DMS-1 or Other Remote Loop	Tip party	BATT	GRD		
	Individual or Ring party	GRD	BATT		
	PBX	GRD	GRD		

Table 2-E: Capacitance test		
Step	Action	Result
1	Tip/Ring: Operate G key; operate and release REV key.	Meter movement is proportional to capacitance. <i>Note: Any steady meter deflection indicates line insulation resistance, which must be within limits.</i>
2	Tip to Ground: Operate G key; operate REV key.	Meter movement is proportional to Tip capacitance to Ground.

Table 2-E: (Continued)		
Capacitance test		
Step	Action	Result
3	Ring to Ground: Operate G key; operate REV key; release REV key.	Meter movement is proportional to Ring capacitance to Ground.

Table 2-F:		
Resistance test		
Step	Action	Result
1	Ring to Ground: No keys operated.	Meter indicates Ring to Ground resistance.
2	Tip to Ground: Operate REV key.	Meter indicates Tip to Ground resistance.
3	Tip to Ring: Operate G key.	Meter indicates Tip to Ring resistance.

When a connection is made to the line under test, note the reading of the meter with scale change and RCCI keys, normal. Operate and restore successively the 20,000, 1,000, and RCCI keys, noting the meter deflection obtained. Use the connection which gives the closest to half scale deflection.

Key Operated Meter scale

NONE 0-120
20,000 0-24
1,000 0-24

After the proper scale of the meter has selected, the resistance in ohms can be obtained from Tables 2-M through Tables 2-P

Table 2-G:		
Foreign battery		
Step	Action	Result
1	Operate FEMF key.	Meter indicates foreign potential.

If the potential is positive, the meter will deflect to the left, in which case the VM-REV key should be operated.

The 20,000 or 1,000 keys may be used if the FEMF is less than 24 V.

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Table 2-H: Talk or monitor		
Step	Action	Result
1	IDLE LINE: Monitor Operate MON key.	Monitor connection established.
2	Talk Operate T and/or RCCI key.	Talking connection established.
1	BUSY LINE: Monitor Operate MON key.	Full Scale Reading. 120 IPM tone is heard.
2	Momentarily operate and restore 3WO key.	Monitor connection established.
3	To discontinue monitor connection, momentarily operate and restore 3WO key.	120 IPM tone is heard.
1	Talk Operate T key.	
2	Momentarily operate and restore 3WO key.	Talk connection established.
3	To discontinue talk connection, momentarily operate and restore 3WO key.	

Table 2-I: Ringing on a line		
Step	Action	Result
	Operate proper ringing key (NE-3 test cabinet only). See Figure 2-1.	
1	INDIVIDUAL OR RING PARTY: Operate ± Ring key momentarily.	Bell rings at Ring Party or individual subscriber.
1	TIP PARTY: Operate REV key.	Bells ring at Tip party.

Table 2-J: Answer or originate a call		
Step	Action	Result
	ANSWER A CALL:	
1	Operate TRK key to HOLD position and then to TALK position.	Connection established to incoming caller.
	ORIGINATE A CALL:	
1	Operate TRK key to TALK position.	Dial tone heard.
2	Dial telephone number.	

Table 2-K: Coin collector relay test		
Step	Action	Result
	NON-OPERATE TEST:	
1	Request operating company personnel to trip coin trigger of coin telephone.	
2	Operate rheostat key RH and adjust rheostat to include maximum resistance.	
3	Hold COIN - key operated and adjust current to non-operate value.	
4	Release and operate COIN - key several times.	Milliammeter shows a deflection each time. If no deflection is shown, coin relay has operated.
5	Repeat above steps with COIN + key.	
	OPERATE TEST:	
1	Request operating company personnel to trip coin trigger.	
2	Hold COIN + key operated and adjust current to operate value.	Coin relay should operate before operate value is exceeded (meter returns to zero).
3	Repeat with COIN-key.	

Table 2-L: Breakdown test of line insulation		
Step	Action	Result
1	Operate BT key.	
2	Operate 1000 key.	Steady deflection indicates breakdown on Ring side of line.
3	Operate REV key.	Steady deflection indicates breakdown on Tip side of line.

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Table 2-M: 100,000-ohm winding - 120-volt scale resistance in ohms			
Meter Reading (Volts)	Test Battery Voltage		
	99 Volts	100 Volts	101 Volts
101	-	-	0
100	-	0	1,000
99	0	1,010	2,020
98	1,020	2,040	3,061
97	2,061	3,092	4,123
96	3,125	4,166	5,208
95	4,210	5,263	6,315
94	5,319	6,382	7,446
93	6,451	7,526	8,602
92	7,608	8,695	9,782
91	8,791	9,890	10,990
90	10,000	11,110	12,220
89	11,240	12,360	13,480
88	12,500	13,640	14,770
87	13,790	14,490	16,090
86	15,120	16,280	17,440
85	16,470	17,650	18,820
84	17,860	19,050	20,240
83	19,280	20,480	21,690
82	20,730	21,950	23,170
81	22,220	23,460	24,690
80	23,750	25,000	26,250
79	25,320	26,580	27,850
78	26,920	28,210	29,490
77	28,570	29,870	31,170
76	30,260	31,580	32,890
75	32,000	33,330	34,670
74	33,780	35,140	36,490
73	35,620	36,990	38,360
72	37,500	38,890	40,280
71	39,440	40,850	42,250
70	41,430	42,860	44,290
69	43,480	44,930	46,380

Table 2-M: (Continued)			
100,000-ohm winding - 120-volt scale resistance in ohms			
Meter Reading (Volts)	Test Battery Voltage		
	99 Volts	100 Volts	101 Volts
68	45,590	47,060	48,530
67	47,760	49,250	50,750
66	50,000	51,520	53,030
65	52,310	53,850	55,380
64	54,690	56,250	57,810
63	57,140	58,730	60,320
62	59,680	61,290	62,900
61	62,300	63,930	65,570
60	65,000	66,670	68,330
59	67,800	69,490	71,190
58	70,690	72,410	74,140
57	73,680	75,440	77,190
56	76,790	78,750	80,360
55	80,000	81,820	83,640
54	83,330	85,190	87,040
53	86,790	86,680	80,570
52	90,380	93,310	94,230
51	94,120	96,080	98,040
50	98,000	100,000	102,000
49	102,000	104,100	106,100
48	106,300	108,300	110,400
47	110,600	112,800	114,900
46	115,200	117,400	119,600
45	120,000	122,200	124,400
44	125,000	127,300	129,500
43	130,200	132,600	134,900
42	135,700	138,100	140,500
41	141,500	143,900	146,300
40	147,500	150,000	152,500
39	153,800	156,400	159,000
38	160,500	163,200	165,800
37	167,600	170,300	173,000
36	175,000	177,800	180,600

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Table 2-M: (Continued)			
100,000-ohm winding - 120-volt scale resistance in ohms			
Meter Reading (Volts)	Test Battery Voltage		
	99 Volts	100 Volts	101 Volts
35	182,900	122,200	188,600
34	191,200	194,100	197,100
33	200,000	203,000	206,100
32	209,400	212,500	215,200
31	219,400	222,600	225,800
30	230,000	233,300	235,700
29	241,400	244,800	248,300
28	253,600	257,100	260,700
27	266,700	270,400	274,100
26	280,800	284,600	288,500
25	296,000	300,000	304,000
24	312,500	316,700	320,800
23	330,400	334,800	339,100
22	350,000	354,600	359,100
21	371,400	376,200	381,000
20	395,000	400,000	405,000
19	421,100	426,300	431,600
18	450,000	455,600	461,100
17	482,400	488,200	494,100
16	518,800	525,000	531,300
15	560,000	566,700	573,300
14	607,100	614,300	621,400
13	661,500	669,200	676,900
12	725,000	733,300	741,700
11	800,000	809,100	818,200
10	890,000	900,000	910,000
9	1,000,000	1,011,000	1,022,000
8	1,138,000	1,150,000	1,163,000
7	1,314,000	1,329,000	1,343,000
6	1,550,000	1,567,000	1,583,000
5	1,880,000	1,900,000	1,920,000
4	2,375,000	2,400,000	2,425,000
3	3,200,000	3,233,000	3,267,000

Table 2-M: (Continued) 100,000-ohm winding - 120-volt scale resistance in ohms			
Meter Reading (Volts)	Test Battery Voltage		
	99 Volts	100 Volts	101 Volts
2	4,850,000	4,900,000	4,950,000
1	9,800,000	9,900,000	10,000,000

On subscriber lines with visual indicators or key equipment, readings of between 25 V and 45 V should not be considered.

Table 2-N: 20,000-ohm winding - 24-volt scale resistance in ohms			
Meter Reading (Volts)	Test Battery Voltage		
	19.4 Volts	20 Volts	20.6 Volts
20.6	-	-	0
20.4	-	-	196
20.2	-	-	396
20.0	-	0	600
19.8	-	202	808
19.6	-	408	1,020
19.4	0	618	1,238
19.2	208	833	1,458
19.0	421	1,052	1,684
18.8	638	1,276	1,914
18.6	860	1,505	2,150
18.4	1,086	1,739	2,392
18.2	1,318	1,978	2,638
18.0	1,556	2,222	2,888
17.8	1,798	2,471	3,152
17.6	2,046	2,727	3,410
17.4	2,298	2,988	3,678
17.2	2,558	3,255	3,954
17.0	2,824	3,529	4,234
16.8	3,096	3,809	4,524
16.6	3,374	4,096	4,820
16.4	3,658	4,390	5,122
16.2	3,950	4,691	5,432

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Table 2-N: (Continued)			
20,000-ohm winding - 24-volt scale resistance in ohms			
Meter Reading (Volts)	Test Battery Voltage		
	19.4 Volts	20 Volts	20.6 Volts
16.0	4,250	5,000	5,750
15.8	4,556	5,316	6,076
15.6	4,872	5,641	6,410
15.4	5,194	5,974	6,754
15.2	5,526	6,315	7,106
15.0	5,866	6,666	7,466
14.8	6,236	7,027	7,838
14.6	6,576	7,397	8,220
14.4	6,944	7,777	8,612
14.2	7,324	8,069	9,014
14.0	7,714	8,571	9,428
13.8	8,116	8,895	9,856
13.6	8,530	9,411	10,290
13.4	8,956	9,850	10,750
13.2	9,934	10,300	11,210
13.0	9,846	10,770	11,690
12.8	10,310	11,250	12,260
12.6	10,790	11,750	12,700
12.4	11,290	12,260	13,230
12.2	1,180	12,790	12,770
12.0	12,330	13,330	14,330
11.8	12,880	13,900	14,920
11.6	13,450	14,480	15,520
11.4	14,040	15,090	16,140
11.2	14,640	15,710	16,790
11.0	15,270	16,360	17,450
10.8	15,930	17,040	18,150
10.6	16,600	17,740	18,870
10.4	17,310	18,460	19,620
10.2	18,040	19,220	20,390
10.0	18,800	20,000	21,200
9.8	19,590	20,820	22,040
9.6	20,420	21,670	22,920

Table 2-N: (Continued)			
20,000-ohm winding - 24-volt scale resistance in ohms			
Meter Reading (Volts)	Test Battery Voltage		
	19.4 Volts	20 Volts	20.6 Volts
9.4	21,280	22,550	23,830
9.2	22,170	23,480	24,780
9.0	23,110	24,440	25,780
8.8	24,090	25,450	26,820
8.6	25,120	26,510	27,910
8.4	26,190	27,620	29,050
8.2	27,320	28,780	30,240
8.0	28,500	30,000	31,500
7.8	29,740	31,280	32,820
7.6	31,050	32,630	34,210
7.4	32,430	34,050	35,680
7.2	33,890	35,560	37,220
7.0	35,430	37,140	38,860
6.8	37,060	38,820	40,590
6.6	38,790	40,616	42,430
6.4	40,620	42,500	44,380
6.2	42,580	44,520	46,450
6.0	44,670	46,670	48,670
5.8	46,900	48,970	51,040
5.6	49,290	51,430	53,570
5.4	51,850	54,070	56,300
5.2	54,620	56,920	59,230
5.0	57,600	60,000	62,400
4.8	60,830	63,330	65,830
4.6	64,350	66,960	69,570
4.4	68,180	70,910	73,640
4.2	72,380	75,240	78,100
4.0	77,000	80,000	83,000
3.8	82,110	85,260	88,420
3.6	87,780	91,110	94,450
3.4	94,120	97,650	101,200
3.2	101,200	105,000	108,800
3.0	109,300	113,300	117,300

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Table 2-N: (Continued) 20,000-ohm winding - 24-volt scale resistance in ohms			
Meter Reading (Volts)	Test Battery Voltage		
	19.4 Volts	20 Volts	20.6 Volts
2.8	118,600	122,900	127,100
2.6	129,200	133,800	138,500
2.4	141,700	146,700	151,700
2.2	156,400	161,800	167,300
2.0	174,000	180,000	186,000
1.8	195,600	202,200	208,900
1.6	222,500	230,000	237,500
1.4	257,100	265,700	274,300
1.2	303,300	313,300	323,300
1.0	368,000	380,000	392,000
.8	464,000	480,000	495,000
.6	626,700	646,700	666,700
.4	950,000	980,000	1,010,000
.2	1,920,000	1,980,000	2,040,000

Table 2-O: 1,000-ohm winding - 24-volt scale resistance in ohms			
Meter Reading (Volts)	Test Battery Voltage		
	19.4 Volts	20 Volts	20.6 Volts
20.6	-	-	0
20.4	-	-	10
20.2	-	-	20
20.0	-	0	30
19.8	-	10	40
19.6	-	20	51
19.4	0	31	62
19.2	10	42	73
19.0	21	52	84
18.8	32	63	96
18.6	43	75	108
18.4	54	87	120

Table 2-O: (Continued)			
1,000-ohm winding - 24-volt scale resistance in ohms			
Meter Reading (Volts)	Test Battery Voltage		
	19.4 Volts	20 Volts	20.6 Volts
18.2	66	99	132
18.0	78	111	144
17.8	90	124	158
17.6	102	136	171
17.4	115	149	184
17.2	128	163	198
17.0	141	176	212
16.8	155	190	226
16.6	169	205	241
16.4	183	220	256
16.2	198	235	272
16.0	213	250	288
15.8	228	266	304
15.6	244	282	321
15.4	260	299	338
15.2	276	316	355
15.0	293	333	373
14.8	312	351	392
14.6	329	370	411
14.4	347	389	431
14.2	366	408	451
14.0	386	428	471
13.8	406	449	493
13.6	427	471	515
13.4	448	493	537
13.2	470	515	561
13.0	492	538	585
12.8	516	563	613
12.6	540	587	635
12.4	565	613	661
12.2	590	639	689
12.0	617	667	717
11.8	644	695	746

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Table 2-O: (Continued)			
1,000-ohm winding - 24-volt scale resistance in ohms			
Meter Reading (Volts)	Test Battery Voltage		
	19.4 Volts	20 Volts	20.6 Volts
11.6	672	724	776
11.4	702	754	807
11.2	732	786	839
11.0	764	818	873
10.8	796	852	907
10.6	830	887	943
10.4	865	923	981
10.2	902	961	1,020
10.0	940	1,000	1,060
9.8	980	1,041	1,102
9.6	1,021	1,083	1,146
9.4	1,064	1,128	1,192
9.2	1,109	1,174	1,239
9.0	1,156	1,222	1,289
8.8	1,205	1,273	1,341
8.6	1,256	1,326	1,395
8.4	1,310	1,381	1,452
8.2	1,366	1,439	1,512
8.0	1,425	1,500	1,575
7.8	1,487	1,564	1,641
7.6	1,553	1,632	1,711
7.4	1,622	1,702	1,784
7.2	1,694	1,778	1,861
7.0	1,771	1,857	1,943
6.8	1,853	1,941	2,029
6.6	1,939	2,030	2,121
6.4	2,031	2,125	2,219
6.2	2,129	2,226	2,323
6.0	2,233	2,333	2,433
5.8	2,345	2,448	2,552
5.6	2,464	2,571	2,679
5.4	2,593	2,704	2,815
5.2	2,731	2,846	2,962

Table 2-O: (Continued)			
1,000-ohm winding - 24-volt scale resistance in ohms			
Meter Reading (Volts)	Test Battery Voltage		
	19.4 Volts	20 Volts	20.6 Volts
5.0	2,880	3,000	3,120
4.8	3,042	3,167	3,292
4.6	3,217	3,348	3,478
4.4	3,409	3,545	3,682
4.2	3,619	3,762	3,905
4.0	3,850	4,000	4,150
3.8	4,105	4,263	4,421
3.6	4,389	4,556	4,772
3.4	4,706	4,882	5,059
3.2	5,062	5,250	5,483
3.0	5,467	5,667	5,867
2.8	5,929	6,143	6,357
2.6	6,462	6,692	6,923
2.4	7,083	7,333	7,583
2.2	7,818	8,091	8,364
2.0	8,700	9,000	9,300
1.8	9,778	10,110	10,440
1.6	11,130	11,500	11,880
1.4	12,860	13,290	13,710
1.2	15,170	15,670	16,170
1.0	18,400	19,000	19,600
.8	23,250	24,000	24,750
.6	31,330	32,330	33,330
.4	47,500	49,000	50,500
.2	96,000	99,000	102,000

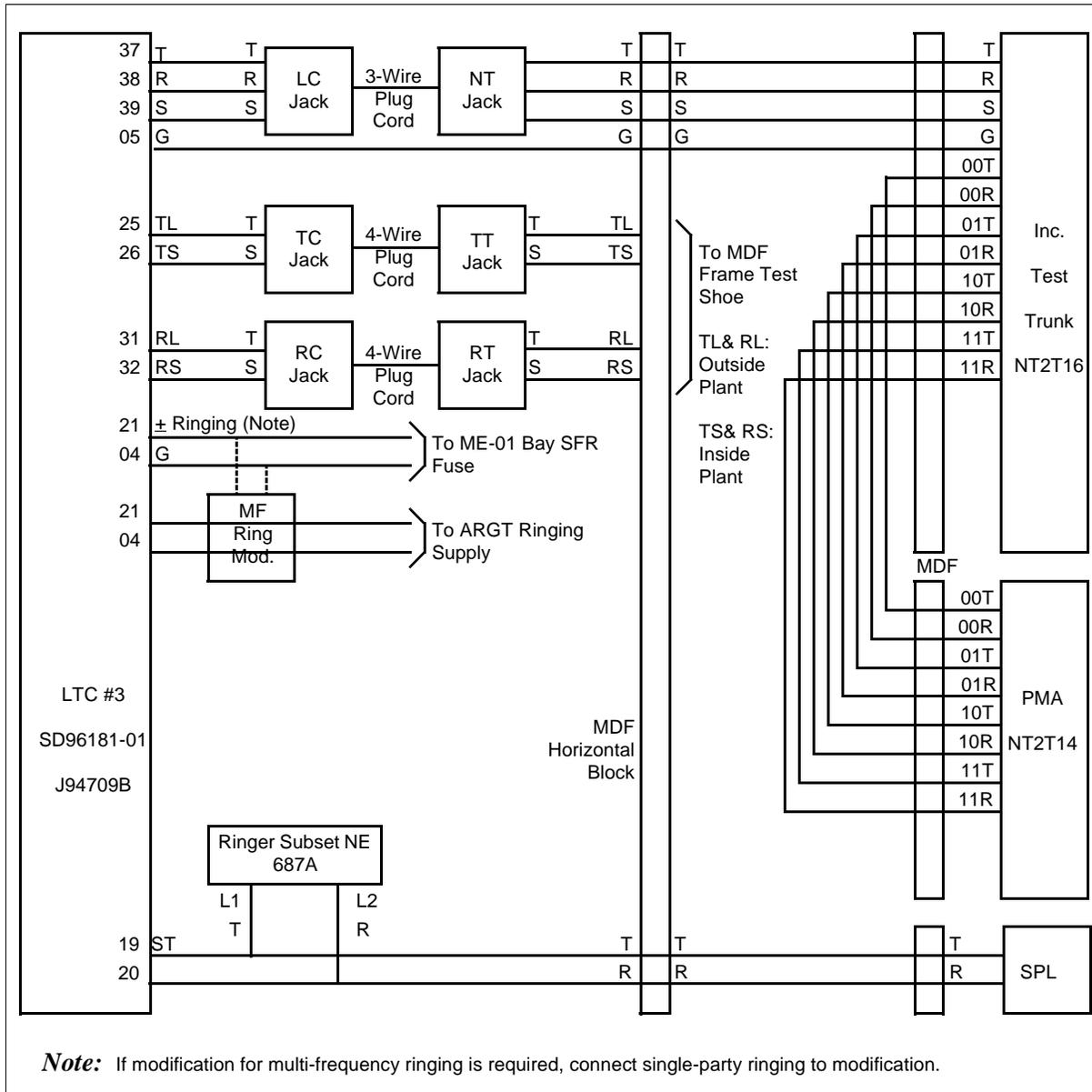
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**Table 2-P:
Milliammeter scale 48-volt office battery resistance in ohms with 203 ohms circuit resistance**

Meter Reading Milliamperes	Central Office Battery Voltage		
	47.5 Volts	48.5 Volts	49.5 Volts
300	-	-	-
295	-	-	-
290	-	-	-
285	-	-	-
280	-	-	-
275	-	-	-
270	-	-	-
265	-	-	-
260	-	-	-
255	-	-	-
250	-	-	-
245	-	-	0
240	-	0	3
235	0	4	8
230	4	8	12
225	8	13	17
220	13	18	22
215	18	23	28
210	23	28	33
205	29	34	39
200	35	39	45
195	41	46	51
190	47	53	58
185	54	59	65
180	61	67	72
175	68	74	80
170	77	82	89
165	85	91	97
160	95	100	107
155	103	110	116
150	114	121	127
145	125	132	139
140	136	144	151

Table 2-P: (Continued)			
Milliammeter scale 48-volt office battery resistance in ohms with 203 ohms circuit resistance			
Meter Reading Milliamperes	Central Office Battery Voltage		
	47.5 Volts	48.5 Volts	49.5 Volts
135	149	156	164
130	162	170	178
125	177	185	193
120	193	201	210
115	210	219	228
110	229	239	247
105	249	262	269
100	272	282	292
95	297	308	318
90	325	336	347
85	356	368	379
80	390	404	415
75	430	444	457
70	475	490	504
65	527	544	559
60	590	606	662
55	660	679	697
50	747	767	787
45	852	876	897
40	987	1010	1034
35	1,115	1,184	1,211
30	1,382	1,414	1,447
25	1,697	1,737	1,759
20	2,172	2,222	2,272
15	2,965	3,032	3,097
10	2,547	4,647	4,747
5	9,297	9,497	9,697

Figure 2-1: Wiring of signal leads to LTC #3



DMS-10 Family

600-Series Generics

NE-3 Test Cabinet, Operating Procedures

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