837B NETWORK

INSTALLATION AND PRESCRIPTION SETTINGS

CONTENTS PAGE

1. GENERAL

1.01 This section gives the installation procedures and prescription settings for the 837B (900 ohm) network, which is used at the far end as an impedance compensator on 19-, 22-, and 24-gauge high-capacitance cable with H88 loading; 19-, and 24-gauge low-capacitance cable with H88 loading, or any gauge high-capacitance cable with D88 loading. These settings are also found in Section 851-300-101.

1.02 The 837B network description is found in Section 332-206-152.

2. INSTALLATION

2.01 The 837B network is stud mounted on a shelf near the point where the cable pairs are brought out to the panel wiring boards.

2.02 Terminals 1 and 2 connect to the cable pair and terminals 3 and 4 connect to the trunk circuit.

3. PRESCRIPTION SETTINGS

3.01 Table A shows the line building-out capacitor (LBOC) settings for equivalent endsection lengths of H88 high-capacitance 19-, 22-, and 24-gauge cable. Table B shows the LBOC settings for equivalent endsection lengths of H88 low-capacitance 19-, and 24-gauge cable. Table C shows the LBOC settings for equivalent endsection lengths of any gauge D88 high-capacitance cable. Table D shows the BOC screw capacitance settings by capacitance values.

3.02 The prescription settings will usually be adequate if the echo structural return loss of the line is high. The 837B network will need to be touched up for maximum return loss through use of a KS-20501 return loss measuring set (RLMS) or a 54C RLMS only if the terminal balance requirement is not met.

3.03 The 837B network also features a drop build-out capacitor (DBOC) to equalize the office capacitance for switching between 2-wire trunks. When terminal balance is required, the DBOC may need adjusting. For more information on terminal balance testing, see Section 660-47Y-502.

3.04 The low-frequency corrector should be set for the particular cable gauge used. If the end section contains mixed gauge cable or differs from the predominant gauge of the line, the low-frequency corrector must be set by means of return loss measurement.

TABLE A
837B* NETWORK (900-OHM)
BUILDING-OUT CAPACITOR ADJUSTMENT
VERSUS EQUIVALENT END-SECTION LENGTH FOR
H88 HIGH-CAPACITANCE CABLE

EQUIVALENT† END SECTION LENGTH (FEET)	19, 22, 24 GA		EQUIVALENT† END SECTION LENGTH (MILES)	19, 22, 24 GA	
	BOC (µF)	SCREWS DOWN‡		BOC (µF)	SCREWS DOWN‡
0	.080	BCFG	0.00	.080	BCFG
200	.077	ABFG	.05	.076	BFG
400	.074	FG	.10	.071	BDEG
600	.070	ADEG	.15	.067	ACEG
800	.067	ACEG	.20	.062	EG
1000	.064	BEG	.25	.058	BDG
1200	.060	CDG	.30	.054	ACG
1400	.057	ADG	.35	.049	G
1600	.054	ACG	.40	.045	DEF
1800	.050	AG	.45	.040	BEF
2000	.047	BDEF	.50	.036	CDF
2200	.044	BCEF	.55	.032	DF
2400	.040	BEF	.60	.027	BF
2600	.037	ACDF	.65	.023	ABDE
2800	.034	BDF	.70	.018	ACE
3000	.031	BCF	.75	.014	AE
3200	.028	ABF	.80	.010	ABD
3400	.025	F	.85	.007	D
3600	.022	BDE	.90	.004	C
3800	.019	BCE	.95	.001	A
4000	.016	ABE	1.00	0.000	—
4200	.013	E			
4400	.010	ABD			
4600	.007	D			
4800	.004	C			
5000	.001	A			
5200	.000	—			
5400	.000	—			
5600	.000	—			
5800	.000	—			
6000	0.000	—			

Notes:

* 837B network has drop BOC available. The 837B also has BOR screws available which should be turned down unless otherwise specified.

† The equivalent end-section length is made up of the actual length of outside cable in the end section (including bridged taps) plus a fictitious length that would have the same capacitance as the rest of the wiring to the network (tip cable, cross-connections, office wiring, etc.).

‡ See Table D for screw combinations for networks giving capacitance values rather than letters.

TABLE B
837B* NETWORK (900-OHM)
BUILDING-OUT CAPACITOR ADJUSTMENT
VERSUS EQUIVALENT END-SECTION LENGTH FOR
H88 LOW-CAPACITANCE CABLE

EQUIVALENT† END SECTION LENGTH (FEET)	19, 24 GA		EQUIVALENT† END SECTION LENGTH (MILES)	19, 24 GA	
	BOC (µF)	SCREWS DOWN‡		BOC (µF)	SCREWS DOWN‡
0	.069	DEG	0.00	.069	DEG
200	.067	ACEG	.05	.066	CEG
400	.064	BEG	.10	.062	EG
600	.062	EG	.15	.059	ABDG
800	.060	CDG	.20	.056	DG
1000	.057	ADG	.25	.052	ABG
1200	.055	BCG	.30	.049	G
1400	.052	ABG	.35	.046	ADEF
1600	.050	AG	.40	.043	ACEF
1800	.047	BDEF	.45	.039	AEF
2000	.045	DEF	.50	.036	CDF
2200	.042	CEF	.55	.033	ADF
2400	.040	BEF	.60	.029	CF
2600	.038	EF	.65	.026	AF
2800	.035	ABDF	.70	.023	ABDE
3000	.033	ADF	.75	.020	DE
3200	.030	ACF	.80	.016	ABE
3400	.028	ABF	.85	.013	E
3600	.025	F	.90	.010	ABD
3800	.023	ABDE	.95	.007	D
4000	.020	DE	1.00	.004	C
4200	.018	ACE	1.05	.001	A
4400	.015	BE	1.10	0.000	—
4600	.013	E			
4800	.010	ABD			
5000	.008	AD			
5200	.006	BC			
5400	.003	AB			
5600	.000	—			
5800	.000	—			
6000	0.000	—			

Notes:

* 837B network has drop BOC available. The 837B also has BOR screws available which should be turned down unless otherwise specified.

† The equivalent end-section length is made up of the actual length of outside cable in the end section (including bridged taps) plus a fictitious length that would have the same capacitance as the rest of the wiring to the network (tip cable, cross-connections, office wiring, etc.).

‡ See Table D for screw combinations for networks giving capacitance values rather than letters.

TABLE C
837B* NETWORK (900-OHM)
BUILDING-OUT CAPACITOR ADJUSTMENT
VERSUS EQUIVALENT END-SECTION LENGTH FOR
ANY GAUGE D88 HIGH-CAPACITANCE CABLE

EQUIVALENT† END SECTION LENGTH (FEET)	ANY GAUGE		EQUIVALENT† END SECTION LENGTH (MILES)	ANY GAUGE	
	BOC (µF)	SCREWS DOWN‡		BOC (µF)	SCREWS DOWN‡
0	.069	DEG	0.00	.069	DEG
200	.066	CEG	.05	.065	ABEG
400	.063	AEG	.10	.060	CDG
600	.060	CDG	.15	.056	DG
800	.056	DG	.20	.052	ABG
1000	.053	CG	.25	.048	ABDEF
1200	.050	AG	.30	.043	ACEF
1400	.047	BDEF	.35	.039	AEF
1600	.044	BCEF	.40	.035	ABDF
1800	.041	ABEF	.45	.030	ACF
2000	.038	EF	.50	.026	AF
2200	.034	BDF	.55	.022	BDE
2400	.031	BCF	.60	.018	ACE
2600	.028	ABF	.65	.013	E
2800	.025	F	.70	.009	BD
3000	.022	BDE	.75	.005	AC
3200	.019	BCE	.80	.000	—
3400	.016	ABE	.85	.000	—
3600	.012	ACD	.90	.000	—
3800	.009	BD	.95	.000	—
4000	.006	BC	1.00	0.000	—
4200	.003	AB			
4400	0.000	—			

Notes:

* 837B network has drop BOC available. The 837B also has BOR screws available which should be turned down unless otherwise specified.

† The equivalent end-section length is made up of the actual length of outside cable in the end section (including bridged taps) plus a fictitious length that would have the same capacitance as the rest of the wiring to the network (tip cable, cross-connections, office wiring, etc.).

‡ See Table D for screw combinations for networks giving capacitance values rather than letters.

TABLE D
837B NETWORKS
BOC-SCREW CAPACITANCE SETTINGS

BOC-SECTION CAPACITANCE — CLOSE SCREWS INDICATED BY ●

DESIRED VALUE OF BOC (μF)	A .001	B .002	C .004	D .007	E .013	F .025	G .049
.001	●						
.002		●					
.003	●	●					
.004			●				
.005	●		●				
.006		●	●				
.007				●			
.008	●			●			
.009		●		●			
.010	●	●		●			
.011			●	●			
.012	●		●	●			
.013					●		
.014	●				●		
.015		●			●		
.016	●	●			●		
.017			●		●		
.018	●		●		●		
.019		●	●		●		
.020	●	●	●		●		
.021	●			●	●		
.022		●		●	●		
.023	●	●		●	●		
.024			●	●	●		
.025						●	
.026	●					●	
.027		●				●	
.028	●	●				●	
.029			●			●	
.030	●		●			●	
.031		●	●			●	
.032				●		●	
.033	●			●		●	
.034		●		●		●	
.035	●	●		●		●	
.036			●	●		●	
.037	●		●	●		●	
.038					●	●	
.039	●				●	●	
.040		●			●	●	
.041	●	●			●	●	
.042			●		●	●	
.043	●		●		●	●	
.044		●	●		●	●	
.045	●	●	●		●	●	
.046	●			●	●	●	
.047		●		●	●	●	
.048	●	●		●	●	●	
.049							●
.050	●						●

DESIRED VALUE OF BOC (μF)	A .001	B .002	C .004	D .007	E .013	F .025	G .049
.051		●					●
.052	●	●					●
.053			●				●
.054	●		●				●
.055		●	●				●
.056				●			●
.057	●			●			●
.058		●		●			●
.059	●	●		●			●
.060			●	●			●
.061	●		●	●			●
.062					●		●
.063	●				●		●
.064		●			●		●
.065	●	●			●		●
.066			●		●		●
.067	●		●		●		●
.068		●	●		●		●
.069	●	●	●		●		●
.070	●			●	●		●
.071		●		●	●		●
.072	●	●		●	●		●
.073			●	●	●		●
.074						●	●
.075	●					●	●
.076		●				●	●
.077	●	●				●	●
.078			●			●	●
.079	●		●			●	●
.080		●	●			●	●
.081				●		●	●
.082	●			●		●	●
.083		●		●		●	●
.084	●	●		●		●	●
.085			●	●		●	●
.086	●		●	●		●	●
.087					●	●	●
.088	●				●	●	●
.089		●			●	●	●
.090	●	●			●	●	●
.091			●		●	●	●
.092	●		●		●	●	●
.093		●	●		●	●	●
.094	●	●	●		●	●	●
.095	●			●	●	●	●
.096		●		●	●	●	●
.097	●	●		●	●	●	●
.098			●	●	●	●	●
.099	●		●	●	●	●	●
.100		●	●	●	●	●	●