

### Database Information

Equipment Name	Main Circuit Braker			
1. Name of Substation :	GALLE			
2. Number of Units :	8			
3. Particulars :				
Items	Data	Identification Number		
		D111/D121	D150/D170 /D180/D190	D110/D120
(1) Type		HPL145 /25AI	ORIG SMALL OIL CB	HPGE12-15-A SMALL OIL CB
(2) Rated Voltage	(kV)	145	132	170
(3) Rated Current	(A)	2500	1250	2500
(4) Rated Interrupting Current	(kA/MVA)	40/9200	11/2500	10.9/2500
(5) Making Current	(kA)	100	27.5	27.5
(6) Rated Short Time Withstand Current/Duration	(kA/S)	40/3	11/3	11/3
(7) Basic Insulation Level	(kV)	650	550	550
(8) Total Weight	(kg)	3640	2788	4550
(9) Year of Manufacturer		1986	1972	1963
(10) Manufacturer		ASEA SWEDDEN	N/A	CGE FRANCE
Remarks				

### Database Information

Equipment Name	Main Transformer				
1. Name of Substation :		HABARANA			
( Address :		Ceylon Electricity Board, Dambulla Road, Habarana )			
2. Number of Units & Capacity :		3 x 10 MVA			
3. Particulars :					
Items	Data	Unit Number			
		No. 1	No. 2	No. 3	No. 4
(1) Number of Phase		3 phase	3 phase	3 phase	
(2) Capacity	(MVA)	10	10	10	
(3) Rated Voltage	(kV)	132/33	132/33	132/33	
(4) Basic Insulation Level	(kV)	550	550	550	
(5) Impedance	(%/MVA)	10.84/10	10.57/10	10.60/10	
	Primary - Secondary (%/MVA)				
	Primary - Tertiary (%/MVA)				
	Secondary - Tertiary (%/MVA)				
(6) Connection Symbol		Ynd1	Ynd1	Ynd1	
(7) Cooling System		ONAN/ONAF	ONAN/ONAF	ONAN/ONAF	
(8) Number of Taps		21	21	21	
(9) Voltage Range		+12.8% -12.8%	+12.8% -12.8%	+12.8% -12.8%	
(10) Weight - Total	(tons)	32.0	32.0	32.0	
	- Transportation (tons)	N/A	N/A	N/A	
(11) Year of Manufacturer		1969	1968	1968	
(12) Manufacturer		ALSTHOM SAVOISIENNE	ALSTHOM SAVOISIENNE	ALSTHOM SAVOISIENNE	
Remarks					

### Database Information

Equipment Name	Main Circuit Braker				
1. Name of Substation :	HABARANA (1/2)				
2. Number of Units :	7				
3. Particulars :					
Items	Data	Identification Number			
		L25/L45/S10	L65	D40	D170
(1) Type		ELF SF2-1 SF6 CB	ELF145nc1rtv SF6 CB	SF6 CB	HPGE12/15E SMALL OIL VOLUME CB
(2) Rated Voltage	(kV)	145	145	132	170
(3) Rated Current	(A)	2000	2000	2000	1000
(4) Rated Interrupting Current	(kA/MVA)	25/5700	20/4600	25/5700	11/2500
(5) Making Current	(kA)	N/A	N/A	N/A	27.5
(6) Rated Short Time Withstand Current/Duration	(kA/S)	25/(N/A)	20/(N/A)	25/(N/A)	11/3
(7) Basic Insulation Level	(kV)	650	650	550	550
(8) Total Weight	(kg)	N/A	N/A	N/A	3090
(9) Year of Manufacturer		1986	1983	N/A	1969
(10) Manufacturer		BBC	BBC	BBC	N/A
Remarks					

### Database Information

<b>Equipment Name</b>	<b>Main Circuit Braker</b>			
1. Name of Substation :		HABARANA (2/2)		
2. Number of Units :		7		
3. Particulars :				
Items	Data	Identification Number		
		L35		
(1) Type		N/A		
(2) Rated Voltage	(kV)	N/A		
(3) Rated Current	(A)	N/A		
(4) Rated Interrupting Current	(kA/MVA)	N/A		
(5) Making Current	(kA)	N/A		
(6) Rated Short Time Withstand Current/Duration	(kA/S)	N/A		
(7) Basic Insulation Level	(kV)	N/A		
(8) Total Weight	(kg)	N/A		
(9) Year of Manufacturer		N/A		
(10) Manufacturer		N/A		
Remarks				

## Database Information

Equipment Name	Main Transformer				
1. Name of Substation : <span style="float: right;">KELANITISSA (1/2)</span>					
( Address : <span style="float: right;">Ceylon Electricity Board, New Kelani Bridge Road, Wellampitiya</span> )					
2. Number of Units & Capacity : <span style="float: right;">2 x 60 MVA, 1 x 28.7 MVA, 2 x 32 MVA</span>					
3. Particulars :					
Items	Data	Unit Number			
		No. 1	No. 2	No. 3 (GT01)	No. 4 (GT02)
(1) Number of Phase		3 phase	3 phase	3 phase	N/A
(2) Capacity	(MVA)	60	60	28.7	N/A
(3) Rated Voltage	(kV)	132/33	132/33	132/11.5	N/A
(4) Basic Insulation Level	(kV)	N/A	N/A	N/A	N/A
(5) Impedance	(%/MVA)	15.05/60	15.15/60	N/A	N/A
	Primary - Secondary (%/MVA)				N/A
	Primary - Tertiary (%/MVA)				N/A
	Secondary - Tertiary (%/MVA)				N/A
(6) Connection Symbol		Ynd1	Ynd1	Yd11	N/A
(7) Cooling System		ONAN/ONAF	ONAN/ONAF	ONAN/ONAF	N/A
(8) Number of Taps		17	17	7	N/A
(9) Voltage Range		+5% -15%	+5% -15%	+10.15% -5.00%	N/A
(10) Weight - Total	(tons)	65.0	65.0	N/A	N/A
	- Transportation (tons)	N/A	N/A	N/A	N/A
(11) Year of Manufacturer		1980	1980	1980	N/A
(12) Manufacturer		PAUWELS TRAFO BELGIUM	PAUWELS TRAFO BELGIUM	N/A	N/A
Remarks					

### Database Information

Equipment Name	Main Transformer				
1. Name of Substation : <span style="float: right;">KELANITISSA (2/2)</span>					
( Address : <span style="float: right;">Ceylon Electricity Board, New Kelani Bridge Road, Wellampitiya</span> )					
2. Number of Units & Capacity : <span style="float: right;">2 x 60 MVA, 1 x 28.7 MVA, 2 x 32 MVA</span>					
3. Particulars :					
Items	Data	Unit Number			
		No. 1 (GT03)	No. 2	No. 3	No. 4
(1) Number of Phase		N/A			
(2) Capacity	(MVA)	N/A			
(3) Rated Voltage	(kV)	N/A			
(4) Basic Insulation Level	(kV)	N/A			
(5) Impedance	(%/MVA)	N/A			
	Primary - Secondary (%/MVA)	N/A			
	Primary - Tertiary (%/MVA)	N/A			
	Secondary - Tertiary (%/MVA)	N/A			
(6) Connection Symbol		N/A			
(7) Cooling System		N/A			
(8) Number of Taps		N/A			
(9) Voltage Range		N/A			
(10) Weight - Total	(tons)	N/A			
	- Transportation (tons)	N/A			
(11) Year of Manufacturer		N/A			
(12) Manufacturer		N/A			
Remarks					

### Database Information

Equipment Name	Main Circuit Braker				
1. Name of Substation :		KELANITISSA (1/2)			
2. Number of Units :		11			
3. Particulars :					
Items	Data	Identification Number			
		M10/M20	505/605	405	M40/105/110
(1) Type		HLR145/2501G1 SMALL OIL CB	SMALL OIL CB	ELF145ncIrtv SF6 CB	FG1
(2) Rated Voltage	(kV)	145	N/A	145	145
(3) Rated Current	(A)	2500	N/A	2000	2500
(4) Rated Interrupting Current	(kA/MVA)	31.5/7200	31.5/(N/A)	25/5700	25/5700
(5) Making Current	(kA)	78	79	N/A	62.5
(6) Rated Short Time Withstand Current/Duration	(kA/S)	(N/A)/3	50/3	N/A	25/3
(7) Basic Insulation Level	(kV)	N/A	N/A	850	200
(8) Total Weight	(kg)	2510	4410	N/A	N/A
(9) Year of Manufacturer		1985	1983	1983	1981
(10) Manufacturer		N/A	ASEA	BBC	GEC GREAT BRITIAN
Remarks					

### Database Information

<b>Equipment Name</b>	<b>Main Circuit Braker</b>			
1. Name of Substation : <span style="float: right;">KELANITISSA (2/2)</span>				
2. Number of Units : <span style="float: right;">11</span>				
3. Particulars :				
Items	Data	Identification Number		
		210	205	130
(1) Type		N/A	N/A	N/A
(2) Rated Voltage	(kV)	N/A	N/A	N/A
(3) Rated Current	(A)	N/A	N/A	N/A
(4) Rated Interrupting Current	(kA/MVA)	N/A	N/A	N/A
(5) Making Current	(kA)	N/A	N/A	N/A
(6) Rated Short Time Withstand Current/Duration	(kA/S)	N/A	N/A	N/A
(7) Basic Insulation Level	(kV)	N/A	N/A	N/A
(8) Total Weight	(kg)	N/A	N/A	N/A
(9) Year of Manufacturer		N/A	N/A	N/A
(10) Manufacturer		N/A	N/A	N/A
Remarks				



### Database Information

Equipment Name	Main Transformer				
1. Name of Substation :		KILINOCCHCHI			
( Address :		Ceylon Electricity Board, Kilinochchi )			
2. Number of Units & Capacity :		1 x 10 MVA			
3. Particulars :					
Items	Data	Unit Number			
		No. 1	No. 2	No. 3	No. 4
(1) Number of Phase		3 phase			
(2) Capacity	(MVA)	10			
(3) Rated Voltage	(kV)	132/33			
(4) Basic Insulation Level	(kV)	550			
(5) Impedance	(%/MVA)	11/(N/A)			
	Primary - Secondary (%/MVA)				
	Primary - Tertiary (%/MVA)				
	Secondary - Tertiary (%/MVA)				
(6) Connection Symbol		Ynd1			
(7) Cooling System		N/A			
(8) Number of Taps		21			
(9) Voltage Range		+1.25% -1.25%			
(10) Weight - Total	(tons)	N/A			
	- Transportation (tons)	26.0			
(11) Year of Manufacturer		1978			
(12) Manufacturer		ALSTHOM			
Remarks					

### Database Information

Equipment Name	Main Circuit Braker			
1. Name of Substation :	KILINOHCHI			
2. Number of Units :	3			
3. Particulars :				
Items	Data	Identification Number		
		D110	D180	D120
(1) Type		ORIG	HPG12/15E	N/A
(2) Rated Voltage	(kV)	145	170	N/A
(3) Rated Current	(A)	1250	1000	N/A
(4) Rated Interrupting Current	(kA/MVA)	15.3/3500	11/2500	N/A
(5) Making Current	(kA)	N/A	N/A	N/A
(6) Rated Short Time Withstand Current/Duration	(kA/S)	15.3/3	11/3	N/A
(7) Basic Insulation Level	(kV)	N/A	N/A	N/A
(8) Total Weight	(kg)	2790	3090	N/A
(9) Year of Manufacturer		1979	1969	N/A
(10) Manufacturer		ALSTHOM	ALSTHOM	N/A
Remarks				

### Database Information

Equipment Name	Main Transformer				
1. Name of Substation :		KIRIBATHKUMBURA			
( Address :		Ceylon Electricity Board, Kilibathkumbura )			
2. Number of Units & Capacity :		2 x 31.5 MVA			
3. Particulars :					
Items	Data	Unit Number			
		No. 1	No. 2	No. 3	No. 4
(1) Number of Phase		3 phase	3 phase		
(2) Capacity	(MVA)	31.5	31.5		
(3) Rated Voltage	(kV)	132/33	132/33		
(4) Basic Insulation Level	(kV)	550	550		
(5) Impedance	(%/MVA)	10.87/31.5	10.91/31.5		
	Primary - Secondary (%/MVA)				
	Primary - Tertiary (%/MVA)				
	Secondary - Tertiary (%/MVA)				
(6) Connection Symbol		YndI	YndI		
(7) Cooling System		ONAN/ONAF	ONAN/ONAF		
(8) Number of Taps		13	13		
(9) Voltage Range		+5% -15%	+5% -15%		
(10) Weight - Total	(tons)	46.55	46.55		
	- Transportation (tons)	40.0	40.0		
(11) Year of Manufacturer		1986	1986		
(12) Manufacturer		EBG	EBG		
Remarks					

### Database Information

<b>Equipment Name</b>	<b>Main Circuit Braker</b>			
1. Name of Substation :		KIRIBATHKUMBURA		
2. Number of Units :		7		
3. Particulars :				
Items	Data	Identification Number		
		H10/H20/L15 /L25/L35/L45 /S10		
(1) Type		ELF SF2-1 SF6 CB		
(2) Rated Voltage	(kV)	145		
(3) Rated Current	(A)	2000		
(4) Rated Interrupting Current	(kA/MVA)	25/5700		
(5) Making Current	(kA)	N/A		
(6) Rated Short Time Withstand Current/Duration	(kA/S)	25/(N/A)		
(7) Basic Insulation Level	(kV)	650		
(8) Total Weight	(kg)	N/A		
(9) Year of Manufacturer		1986		
(10) Manufacturer		BBC		
Remarks				

### Database Information

Equipment Name	Main Transformer				
1. Name of Substation :		KOLLUPITIYA			
( Address :		Kollupitiya, Colombo 3 )			
2. Number of Units & Capacity :		2 x 30 MVA			
3. Particulars :					
Items	Data	Unit Number			
		No. 1	No. 2	No. 3	No. 4
(1) Number of Phase		3 phase	3 phase		
(2) Capacity	(MVA)	30	30		
(3) Rated Voltage	(kV)	132/11	132/11		
(4) Basic Insulation Level	(kV)	550	550		
(5) Impedance	(%/MVA)	29.2/30	29.2/30		
	Primary - Secondary (%/MVA)				
	Primary - Tertiary (%/MVA)				
	Secondary - Tertiary (%/MVA)				
(6) Connection Symbol		Yyn0	Yyn0		
(7) Cooling System		ONAN/ONAF	ONAN/ONAF		
(8) Number of Taps		13	13		
(9) Voltage Range		+5% -15%	+5% -15%		
(10) Weight - Total	(tons)	N/A	N/A		
	- Transportation (tons)	47.0	47.0		
(11) Year of Manufacturer		1984	1984		
(12) Manufacturer		BBC	BBC		
Remarks					

### Database Information

<b>Equipment Name</b>	<b>Main Circuit Braker</b>			
1. Name of Substation :		KOLLUPITIYA		
2. Number of Units :		4		
3. Particulars :				
Items	Data	Identification Number		
		105/205 /110/210		
(1) Type		SF6 CB		
(2) Rated Voltage	(kV)	132		
(3) Rated Current	(A)	1250		
(4) Rated Interrupting Current	(kA/MVA)	25/5700		
(5) Making Current	(kA)	63		
(6) Rated Short Time Withstand Current/Duration	(kA/S)	25/3		
(7) Basic Insulation Level	(kV)	650		
(8) Total Weight	(kg)	1020		
(9) Year of Manufacturer		1983		
(10) Manufacturer		BBC		
Remarks				

## Database Information

Equipment Name	Main Transformer				
1. Name of Substation : <span style="float: right;">KOLONNAWA (1/2)</span>					
( Address : <span style="float: right;">Ceylon Electricity Board, Kolonnawa, Wellampitiya</span> )					
2. Number of Units & Capacity : <span style="float: right;">4 x 30 MVA, 2 x 15 MVA</span>					
3. Particulars :					
Items	Data	Unit Number			
		No. 1	No. 2	No. 3	No. 4 (ENTER CONNECTOR)
(1) Number of Phase		3 phase	3 phase	3 phase	3 phase
(2) Capacity	(MVA)	30	30	30	30
(3) Rated Voltage	(kV)	132/33	132/33	132/33	132/69.3/34.57
(4) Basic Insulation Level	(kV)	N/A	N/A	N/A	N/A
(5) Impedance	(%/MVA)	11.85/30	12.15/30	13/30	
	Primary - Secondary (%/MVA)				11.9/30
	Primary - Tertiary (%/MVA)				10.85/30
	Secondary - Tertiary (%/MVA)				6.15/30
(6) Connection Symbol		Ydl	Ydl	Ydl	Dyl Yyo
(7) Cooling System		ON/OB	ON/OB	ON/OB	ONAF
(8) Number of Taps		23	23	23	N/A
(9) Voltage Range		+10% -10%	+10% -10%	+10% -10%	N/A
(10) Weight - Total	(tons)	83.0	83.0	51.8	83.2
	- Transportation (tons)	N/A	N/A	N/A	N/A
(11) Year of Manufacturer		1957	1957	1962	1957
(12) Manufacturer		SAVOISSINNE FRANCE	SAVOISSINNE FRANCE	SAVOISSINNE FRANCE	SAVOISSINNE FRANCE
Remarks					

### Database Information

Equipment Name	Main Transformer				
1. Name of Substation :		KOLONNAWA (2/2)			
( Address :		Ceylon Electricity Board, Kolonnawa, Wellampitiya )			
2. Number of Units & Capacity :		4 x 30 MVA, 2 x 15 MVA			
3. Particulars :					
Items	Data	Unit Number			
		No. 1	No. 2	No. 3	No. 4
(1) Number of Phase		3 phase	3 phase		
(2) Capacity	(MVA)	15	15		
(3) Rated Voltage	(kV)	66/11	66/11		
(4) Basic Insulation Level	(kV)	N/A	N/A		
(5) Impedance	(%/MVA)	N/A	N/A		
	Primary - Secondary (%/MVA)	N/A	N/A		
	Primary - Tertiary (%/MVA)	N/A	N/A		
	Secondary - Tertiary (%/MVA)	N/A	N/A		
(6) Connection Symbol		N/A	N/A		
(7) Cooling System		N/A	N/A		
(8) Number of Taps		N/A	N/A		
(9) Voltage Range		N/A	N/A		
(10) Weight - Total	(tons)	N/A	N/A		
	- Transportation (tons)	N/A	N/A		
(11) Year of Manufacturer		N/A	N/A		
(12) Manufacturer		N/A	N/A		
Remarks					



### Database Information

Equipment Name	Main Circuit Braker			
1. Name of Substation :	KOLONNAWA			
2. Number of Units :	20			
3. Particulars :				
Items	Data	Identification Number		
		D200/D210/D220/D230 /D240/D250/D260/D270 /D280/D300/D310/D320 /D330/D340	D280/D350	205/105/120
(1) Type	HLR145/2501EI MINIMUM OIL TYPE	ELF145 nclrtv SF6 CB	N/A	N/A
(2) Rated Voltage (kV)	145	145	N/A	N/A
(3) Rated Current (A)	2500	2000	N/A	N/A
(4) Rated Interrupting Current (kA/MVA)	31.5/7200	20/4600	N/A	N/A
(5) Making Current (kA)	79	N/A	N/A	N/A
(6) Rated Short Time Withstand Current/Duration (kA/S)	31.5/3	20/(N/A)	N/A	N/A
(7) Basic Insulation Level (kV)	650/275	650	N/A	N/A
(8) Total Weight (kg)	2685	N/A	N/A	N/A
(9) Year of Manufacturer	1985	1983	N/A	N/A
(10) Manufacturer	ASEA SWEEDEN	BBC	N/A	N/A
Remarks				

### Database Information

Equipment Name	Main Transformer				
1. Name of Substation :		KOTMALE			
( Address :		Ceylon Electricity Board, Kotmale )			
2. Number of Units & Capacity :		3 x 90 MVA			
3. Particulars :					
Items	Data	Unit Number			
		No. 1	No. 2	No. 3	No. 4
( 1 )	Number of Phase	3 phase	3 phase	3 phase	
( 2 )	Capacity (MVA)	90	90	90	
( 3 )	Rated Voltage (kV)	220/13.8	220/13.8	220/132/13.8	
( 4 )	Basic Insulation Level (kV)	N/A	N/A	N/A	
( 5 )	Impedance (%/MVA)	10/90	10/90		
	Primary - Secondary (%/MVA)			10/90	
	Primary - Tertiary (%/MVA)			13.7/90	
	Secondary - Tertiary (%/MVA)			10.2/90	
( 6 )	Connection Symbol	Ynd1	Ynd1	YnaOd2	
( 7 )	Cooling System	OFAP	OFAP	N/A	
( 8 )	Number of Taps	9	9	N/A	
( 9 )	Voltage Range	+15% -5%	+15% -5%	N/A	
( 10 )	Weight - Total (tons)	N/A	N/A	N/A	
	- Transportation (tons)	N/A	N/A	N/A	
( 11 )	Year of Manufacturer	1982	1982	N/A	
( 12 )	Manufacturer	ASEA	ASEA	N/A	
Remarks					

### Database Information

Equipment Name	Main Circuit Braker			
1. Name of Substation :	KOTMALE			
2. Number of Units :	17			
3. Particulars :				
Items	Data	Identification Number		
		110/120/130/210 /220/230/330/430 /530/320/420/520	L15/L25/T130	
(1) Type		OIL MINIMUM TYPE84-420 /250XE	N/A	
(2) Rated Voltage (kV)	245		N/A	
(3) Rated Current (A)	2500		N/A	
(4) Rated Interrupting Current (kA/MVA)	40/15000		N/A	
(5) Making Current (kA)	N/A		N/A	
(6) Rated Short Time Withstand Current/Duration (kA/S)	50/1		N/A	
(7) Basic Insulation Level (kV)	N/A		N/A	
(8) Total Weight (kg)	N/A		N/A	
(9) Year of Manufacturer	1982		N/A	
(10) Manufacturer	ASEA		N/A	
Remarks				

### Database Information

Equipment Name	Main Transformer				
1. Name of Substation :		KOTUGODA			
( Address :		Ceylon Electricity Board, Opatha, Kotugoda )			
2. Number of Units & Capacity :		2 x 250 MVA			
3. Particulars :					
Items	Data	Unit Number			
		No. 1	No. 2	No. 3	No. 4
(1) Number of Phase		3 phase	3 phase		
(2) Capacity	(MVA)	250	250		
(3) Rated Voltage	(kV)	220/132/33	220/132/33		
(4) Basic Insulation Level	(kV)	850	850		
(5) Impedance	(%/MVA)				
Primary - Secondary	(%/MVA)	13.8/250	13.8/250		
Primary - Tertiary	(%/MVA)	89/250	89/250		
Secondary - Tertiary	(%/MVA)	153.3/250	153.3/250		
(6) Connection Symbol		YnaOdl	YnaOdl		
(7) Cooling System		ONAN/ONAF	ONAN/ONAF		
(8) Number of Taps		13	13		
(9) Voltage Range		+15% -5%	+15% -5%		
(10) Weight - Total	(tons)	58.5	58.5		
- Transportation	(tons)	42.0	42.0		
(11) Year of Manufacturer		1983	1983		
(12) Manufacturer		TAKAOKA ELECT. CO. LTD.TOKYO	TAKAOKA ELECT. CO. LTD.TOKYO		
Remarks					

### Database Information

Equipment Name	Main Circuit Braker			
1. Name of Substation :		KOTUGODA		
2. Number of Units :		6		
3. Particulars :				
Items	Data	Identification Number		
		LD100/LD110 /LD120/LD130	180/280	
(1) Type		FLX145 SF6 CB	HLR145 /2501E	
(2) Rated Voltage	(kV)	145	145	
(3) Rated Current	(A)	3000	2500	
(4) Rated Interrupting Current	(kA/MVA)	40/9100	31.5/7200	
(5) Making Current	(kA)	100	79	
(6) Rated Short Time Withstand Current/Duration	(kA/S)	40/3	50/3	
(7) Basic Insulation Level	(kV)	650	N/A	
(8) Total Weight	(kg)	3870	2610	
(9) Year of Manufacturer		1981	N/A	
(10) Manufacturer		N/A	ASEA	
Remarks				

### Database Information

Equipment Name	Main Transformer				
1. Name of Substation :		KURUNEGALA			
( Address :		Ceylon Electricity Board, Mallawapitiya, Kurunegala )			
2. Number of Units & Capacity :		2 x 16 MVA			
3. Particulars :					
Items	Data	Unit Number			
		No. 1	No. 2	No. 3	No. 4
(1) Number of Phase		3 phase	3 phase		
(2) Capacity	(MVA)	16	16		
(3) Rated Voltage	(kV)	132/33	132/33		
(4) Basic Insulation Level	(kV)	550	550		
(5) Impedance	(%/MVA)	10.87/16	10.81/16		
	Primary - Secondary (%/MVA)				
	Primary - Tertiary (%/MVA)				
	Secondary - Tertiary (%/MVA)				
(6) Connection Symbol		Ynd1	Ynd1		
(7) Cooling System		ONAN/ONAF	ONAN/ONAF		
(8) Number of Taps		13	13		
(9) Voltage Range		+5% -15%	+5% -15%		
(10) Weight - Total	(tons)	32.0	32.0		
	- Transportation (tons)	27.4	27.4		
(11) Year of Manufacturer		1986	1986		
(12) Manufacturer		EBG AUSTRIA	EBG AUSTRIA		
Remarks					

### Database Information

Equipment Name	Main Circuit Braker			
1. Name of Substation :	KURUNEGALA			
2. Number of Units :	5			
3. Particulars :				
Items	Data	Identification Number		
		S10/L25/L15	H10/H20	
(1) Type		ELF SF2-1	N/A	
(2) Rated Voltage	(kV)	145	145	
(3) Rated Current	(A)	2000	N/A	
(4) Rated Interrupting Current	(kA/MVA)	25/5700	N/A	
(5) Making Current	(kA)	N/A	N/A	
(6) Rated Short Time Withstand Current/Duration	(kA/S)	N/A	N/A	
(7) Basic Insulation Level	(kV)	650	N/A	
(8) Total Weight	(kg)	N/A	N/A	
(9) Year of Manufacturer		1986	N/A	
(10) Manufacturer		BBC	N/A	
Remarks				

### Database Information

Equipment Name	Main Transformer				
1. Name of Substation :		MATUGAMA			
( Address :		Ceylon Electricity Board, Matugama )			
2. Number of Units & Capacity :		2 x 31.5 MVA			
3. Particulars :					
Items	Data	Unit Number			
		No. 1	No. 2	No. 3	No. 4
(1) Number of Phase		3 phase	3 phase		
(2) Capacity	(MVA)	31.5	31.5		
(3) Rated Voltage	(kV)	132/33	132/33		
(4) Basic Insulation Level	(kV)	550	550		
(5) Impedance	(%/MVA)	9.98/31.5	9.97/31.5		
	Primary - Secondary (%/MVA)				
	Primary - Tertiary (%/MVA)				
	Secondary - Tertiary (%/MVA)				
(6) Connection Symbol		Ynd1	Ynd1		
(7) Cooling System		ONAN/ONAF	ONAN/ONAF		
(8) Number of Taps		18	18		
(9) Voltage Range		+10.5% -15%	+10.5% -15%		
(10) Weight - Total	(tons)	54.8	54.8		
	- Transportation (tons)	38.5	38.5		
(11) Year of Manufacturer		1993	1993		
(12) Manufacturer		HYUNDAI KOREA	HYUNDAI KOREA		
Remarks					



### Database Information

Equipment Name	Main Circuit Braker			
1. Name of Substation :	MATUGAMA			
2. Number of Units :	5			
3. Particulars :				
Items	Data	Identification Number		
		D110/D150/D120 /D170/D180		
(1) Type		FLX145 SF6 CB		
(2) Rated Voltage	(kV)	145		
(3) Rated Current	(A)	3000		
(4) Rated Interrupting Current	(kA/MVA)	40/9100		
(5) Making Current	(kA)	100		
(6) Rated Short Time Withstand Current/Duration	(kA/S)	40/3		
(7) Basic Insulation Level	(kV)	650		
(8) Total Weight	(kg)	1710		
(9) Year of Manufacturer		1982		
(10) Manufacturer		ALSTHOM FRANCE		
Remarks				

### Database Information

Equipment Name	Main Transformer				
1. Name of Substation : <span style="float: right;">NEW NUWARA ELIYA</span>					
( Address : <span style="float: right;">Ceylon Electricity Board, Magastota, Nuwara Eliya</span> )					
2. Number of Units & Capacity : <span style="float: right;">2 x 250 MVA</span>					
3. Particulars :					
Items	Data	Unit Number			
		No. 1	No. 2	No. 3	No. 4
(1) Number of Phase		3 phase	3 phase		
(2) Capacity	(MVA)	31.5	31.5		
(3) Rated Voltage	(kV)	132/33	132/33		
(4) Basic Insulation Level	(kV)	650	650		
(5) Impedance	(%/MVA)	9.55/31.5	9.64/31.5		
	Primary - Secondary (%/MVA)				
	Primary - Tertiary (%/MVA)				
	Secondary - Tertiary (%/MVA)				
(6) Connection Symbol		Ynd1	Ynd1		
(7) Cooling System		ONAN/ONAF	ONAN/ONAF		
(8) Number of Taps		18	18		
(9) Voltage Range		+10.5% -15%	+10.5% -15%		
(10) Weight - Total	(tons)	65.0	65.0		
	- Transportation (tons)	48.0	48.0		
(11) Year of Manufacturer		1994 -5	1994 -5		
(12) Manufacturer		NYUNDAI KOREA	NYUNDAI KOREA		
Remarks					

### Database Information

<b>Equipment Name</b>	<b>Main Circuit Braker</b>			
1. Name of Substation :		NEW NUWARA ELIYA		
2. Number of Units :		4		
3. Particulars :				
Items	Data	Identification Number		
		L15/L25 /H10/H20		
(1) Type		FXT 13		
(2) Rated Voltage	(kV)	170		
(3) Rated Current	(A)	1250		
(4) Rated Interrupting Current	(kA/MVA)	N/A		
(5) Making Current	(kA)	N/A		
(6) Rated Short Time Withstand Current/Duration	(kA/S)	31.5/3		
(7) Basic Insulation Level	(kV)	750		
(8) Total Weight	(kg)	2040		
(9) Year of Manufacturer		1995		
(10) Manufacturer		G.E.C ALSTHOM		
<b>Remarks</b>				

### Database Information

Equipment Name	Main Transformer				
1. Name of Substation :		PADUKKA			
( Address :		Ceylon Electricity Board, Horana Road, Padukka )			
2. Number of Units & Capacity :		4 x 3 MVA			
3. Particulars :					
Items	Data	Unit Number			
		No. 1	No. 2	No. 3	No. 4
( 1 ) Number of Phase		3 phase	3 phase	3 phase	3 phase
( 2 ) Capacity	(MVA)	3	3	3	3
( 3 ) Rated Voltage	(kV)	66/33	66/33	66/33	66/33
( 4 ) Basic Insulation Level	(kV)	N/A	N/A	N/A	N/A
( 5 ) Impedance	(%/MVA)	10/(N/A)	10/(N/A)	10/(N/A)	10/(N/A)
	Primary - Secondary (%/MVA)				
	Primary - Tertiary (%/MVA)				
	Secondary - Tertiary (%/MVA)				
( 6 ) Connection Symbol		Yyo	Yyo	Yyo	Yyo
( 7 ) Cooling System		ONAN	ONAN	ONAN	ONAN
( 8 ) Number of Taps		17	17	17	17
( 9 ) Voltage Range		+1.25% -1.25%	+1.25% -1.25%	+1.25% -1.25%	+1.25% -1.25%
( 10 ) Weight - Total	(tons)	N/A	N/A	N/A	N/A
	- Transportation (tons)	28.5	28.5	28.5	28.5
( 11 ) Year of Manufacturer		N/A	N/A	N/A	N/A
( 12 ) Manufacturer		METROPOLYTON VICKERS	METROPOLYTON VICKERS	METROPOLYTON VICKERS	METROPOLYTON VICKERS
Remarks					

### Database Information

Equipment Name	Main Circuit Braker			
1. Name of Substation :	PADUKKA			
2. Number of Units :	3			
3. Particulars :				
Items	Data	Identification Number		
		D610/D620 /D690		
(1) Type		OIL CIRCUIT BREAKER JB429		
(2) Rated Voltage	(kV)	66		
(3) Rated Current	(A)	400		
(4) Rated Interrupting Current	(kA/MVA)	1.31/150		
(5) Making Current	(kA)	N/A		
(6) Rated Short Time Withstand Current/Duration	(kA/S)	N/A		
(7) Basic Insulation Level	(kV)	N/A		
(8) Total Weight	(kg)	N/A		
(9) Year of Manufacturer		1951		
(10) Manufacturer		THOMPSON-HOUSTON CO.LTD		
Remarks				

### Database Information

Equipment Name	Main Transformer				
1. Name of Substation :		PANADURA			
( Address :		Ceylon Electricity Board, Courts Road, Panadura )			
2. Number of Units & Capacity :		2 x 31.5 MVA			
3. Particulars :					
Items	Data	Unit Number			
		No. 1	No. 2	No. 3	No. 4
(1) Number of Phase		3 phase	3 phase		
(2) Capacity	(MVA)	31.5	31.5		
(3) Rated Voltage	(kV)	132/33	132/33		
(4) Basic Insulation Level	(kV)	N/A	N/A		
(5) Impedance	(%/MVA)	9.98/31.5	9.95/31.5		
	Primary - Secondary (%/MVA)				
	Primary - Tertiary (%/MVA)				
	Secondary - Tertiary (%/MVA)				
(6) Connection Symbol		YndI	YndI		
(7) Cooling System		ONAN/ONAF	ONAN/ONAF		
(8) Number of Taps		18	18		
(9) Voltage Range		+10.5% -15%	+10.5% -15%		
(10) Weight - Total	(tons)	54.8	54.8		
	- Transportation (tons)	38.5	38.5		
(11) Year of Manufacturer		1993	1994		
(12) Manufacturer		HYUNDAI KOREA	HYUNDAI KOREA		
Remarks					

### Database Information

<b>Equipment Name</b>	<b>Main Circuit Braker</b>			
1. Name of Substation :		PANADURA		
2. Number of Units :		4		
3. Particulars :				
Items	Data	Identification Number		
		L15/L25 /H110/H20		
(1) Type		FA1-5 SF6 CB		
(2) Rated Voltage	(kV)	145		
(3) Rated Current	(A)	1250		
(4) Rated Interrupting Current	(kA/MVA)	25/5700		
(5) Making Current	(kA)	63		
(6) Rated Short Time Withstand Current/Duration	(kA/S)	(N/A)/3		
(7) Basic Insulation Level	(kV)	N/A		
(8) Total Weight	(kg)	2000		
(9) Year of Manufacturer		1993		
(10) Manufacturer		NISSIN ELECT. CO. LTD. JAPAN		
<b>Remarks</b>				

## Database Information

Equipment Name	Main Transformer				
1. Name of Substation : <span style="float: right;">PANNIPITIYA</span>					
( Address : <span style="float: right;">Ceylon Electricity Board, Highlevel Road, Pannipitiya</span> )					
2. Number of Units & Capacity : <span style="float: right;">1 x 31.5 MVA, 2 x 30 MVA</span>					
3. Particulars :					
Items	Data	Unit Number			
		No. 1	No. 2	No. 3	No. 4
(1) Number of Phase		3 phase	3 phase	3 phase	
(2) Capacity	(MVA)	30	30	31.5	
(3) Rated Voltage	(kV)	132/33	132/33	132/33	
(4) Basic Insulation Level	(kV)	N/A	N/A	N/A	
(5) Impedance	(%/MVA)	11.15/(N/A)	11.15/(N/A)	11.15/(N/A)	
	Primary - Secondary (%/MVA)				
	Primary - Tertiary (%/MVA)				
	Secondary - Tertiary (%/MVA)				
(6) Connection Symbol		Ynd1	Ynd1	Ynd1	
(7) Cooling System		ONAN/ONAF	ONAN/ONAF	ONAN/ONAF	
(8) Number of Taps		21	21	21	
(9) Voltage Range		N/A	N/A	+1.25% -1.25%	
(10) Weight - Total	(tons)	44.2	44.2	65.5	
	- Transportation (tons)	34.3	34.3	57.5	
(11) Year of Manufacturer		1982	1982	1994	
(12) Manufacturer		BBC	BBC	ABB	
Remarks					



### Database Information

Equipment Name	Main Circuit Braker			
1. Name of Substation :	PANNIPITIYA			
2. Number of Units :	3			
3. Particulars :				
Items	Data	Identification Number		
		N/A		
(1) Type		ELF SF2-1		
(2) Rated Voltage	(kV)	132		
(3) Rated Current	(A)	1600		
(4) Rated Interrupting Current	(kA/MVA)	31.5/		
(5) Making Current	(kA)	N/A		
(6) Rated Short Time Withstand Current/Duration	(kA/S)	31.5 / 35		
(7) Basic Insulation Level	(kV)	650		
(8) Total Weight	(kg)	1750		
(9) Year of Manufacturer		1982, 1994		
(10) Manufacturer		ABB, INDIA		
Remarks				

### Database Information

Equipment Name	Main Transformer				
1. Name of Substation :		PUTTALAM			
( Address :		Ceylon Electricity Board, Puttalam )			
2. Number of Units & Capacity :		2 x 31.5 MVA			
3. Particulars :					
Items	Data	Unit Number			
		No. 1	No. 2	No. 3	No. 4
(1) Number of Phase		3 phase	3 phase		
(2) Capacity	(MVA)	31.5	31.5		
(3) Rated Voltage	(kV)	132/33	132/33		
(4) Basic Insulation Level	(kV)	550	550		
(5) Impedance	(%/MVA)	9.95/31.5	9.99/31.5		
	Primary - Secondary (%/MVA)				
	Primary - Tertiary (%/MVA)				
	Secondary - Tertiary (%/MVA)				
(6) Connection Symbol		Ynd1	Ynd1		
(7) Cooling System		ONAN/ONAF	ONAN/ONAF		
(8) Number of Taps		18	18		
(9) Voltage Range		+10.5% -15%	+10.5% -15%		
(10) Weight - Total	(tons)	54.8	54.8		
	- Transportation (tons)	38.5	38.5		
(11) Year of Manufacturer		1993	1993		
(12) Manufacturer		HYUNDAI KOREA	HYUNDAI KOREA		
Remarks					

### Database Information

Equipment Name	Main Circuit Braker			
1. Name of Substation :	PUTTALAM			
2. Number of Units :	4			
3. Particulars :				
Items	Data	Identification Number		
		L15/L20 /H10/H20		
(1) Type		FA1-S GAS CB		
(2) Rated Voltage	(kV)	145		
(3) Rated Current	(A)	N/A		
(4) Rated Interrupting Current	(kA/MVA)	25/750		
(5) Making Current	(kA)	63		
(6) Rated Short Time Withstand Current/Duration	(kA/S)	13.1/3		
(7) Basic Insulation Level	(kV)	650		
(8) Total Weight	(kg)	2000		
(9) Year of Manufacturer		1993		
(10) Manufacturer		NISSAN CO JAPAN		
Remarks				

### Database Information

Equipment Name	Main Transformer				
1. Name of Substation : <span style="float: right;">RATMALANA</span>					
( Address : Ceylon Electricity Board, NO. 688, Galle Road, Ratmalana )					
2. Number of Units & Capacity : <span style="float: right;">2 x 30 MVA, 1 x 31.5 MVA</span>					
3. Particulars :					
Items	Data	Unit Number			
		No. 1	No. 2	No. 3	No. 4
( 1 ) Number of Phase		3 phase	3 phase	3 phase	
( 2 ) Capacity	(MVA)	30	30	31.5	
( 3 ) Rated Voltage	(kV)	132/33	132/33	132/33	
( 4 ) Basic Insulation Level	(kV)	N/A	550	550	
( 5 ) Impedance	(%/MVA)	N/A	N/A	10.2/31.5	
	Primary - Secondary (%/MVA)	N/A	N/A		
	Primary - Tertiary (%/MVA)	N/A	N/A		
	Secondary - Tertiary (%/MVA)	N/A	N/A		
( 6 ) Connection Symbol		Ynd1	Ynd1	Ynd1	
( 7 ) Cooling System		N/A	ONAN/ONAF	ONAN/ONAF	
( 8 ) Number of Taps		N/A	21	21	
( 9 ) Voltage Range		N/A	+10% -15.5%	+10% -15.5%	
( 10 ) Weight - Total	(tons)	N/A	44.2	65.5	
	- Transportation (tons)	N/A	34.3	57.5	
( 11 ) Year of Manufacturer		N/A	1973	1994	
( 12 ) Manufacturer		N/A	ABB	ABB	
Remarks					

### Database Information

<b>Equipment Name</b>	<b>Main Circuit Braker</b>			
1. Name of Substation :		RATMALANA		
2. Number of Units :		5		
3. Particulars :				
Items	Data	Identification Number		
		ALL 132kV BREAKERS L15/L25/10/20/30		
(1) Type		ELF SF2-1 SF6 CB		
(2) Rated Voltage	(kV)	145		
(3) Rated Current	(A)	1600		
(4) Rated Interrupting Current	(kA/MVA)	31.5/7200		
(5) Making Current	(kA)	N/A		
(6) Rated Short Time Withstand Current/Duration	(kA/S)	31.5/3		
(7) Basic Insulation Level	(kV)	650		
(8) Total Weight	(kg)	1750		
(9) Year of Manufacturer		1994		
(10) Manufacturer		ABB		
Remarks				

## Database Information

Equipment Name	Main Transformer				
1. Name of Substation : <span style="float: right;">SAPUGASKANDA</span>					
( Address : <span style="float: right;">Ceylon Electricity Board, Palliwila, Sapugaskanda</span> )					
2. Number of Units & Capacity : <span style="float: right;">3 x 30 MVA</span>					
3. Particulars :					
Items	Data	Unit Number			
		No. 1	No. 2	No. 3	No. 4
(1) Number of Phase		3 phase	3 phase		3 phase
(2) Capacity	(MVA)	30	30		30
(3) Rated Voltage	(kV)	132/33	132/33		132/33
(4) Basic Insulation Level	(kV)	550	550		550
(5) Impedance	(%/MVA)	9.9/30	9.9/30		9.9/30
	Primary - Secondary (%/MVA)				
	Primary - Tertiary (%/MVA)				
	Secondary - Tertiary (%/MVA)				
(6) Connection Symbol		Ynd1	Ynd1		Ynd1
(7) Cooling System		ONAN/ONAF	ONAN/ONAF		ONAN/ONAF
(8) Number of Taps		21	21		21
(9) Voltage Range		+10% -15%	+10% -15%		+10% -15%
(10) Weight - Total	(tons)	44.2	44.2		44.2
	- Transportation (tons)	34.3	34.3		34.3
(11) Year of Manufacturer		1981	1981		1981
(12) Manufacturer		CEM	CEM		CEM
Remarks					

### Database Information

Equipment Name	Main Circuit Braker				
1. Name of Substation : <span style="float: right;">SAPUGASKANDA</span>					
2. Number of Units : <span style="float: right;">7</span>					
3. Particulars :					
Items	Data	Identification Number			
		D100/D120	D160/D180 /D190	D170	D130
(1) Type		HPGE12/15E SMALL OIL VOLUME CB	ORIG SMALL OIL VOLUME CB	ORIG SMALL OIL VOLUME CB	SF6 CB
(2) Rated Voltage	(kV)	170	132	132	132
(3) Rated Current	(A)	1000	1250	1250	2000
(4) Rated Interrupting Current	(kA/MVA)	11/2500	11/2500	15.3/3500	25/5700
(5) Making Current	(kA)	27.5	27.5	38	N/A
(6) Rated Short Time Withstand Current/Duration	(kA/S)	11/3	11/3	15.3/3	25/(N/A)
(7) Basic Insulation Level	(kV)	550	550	550	550
(8) Total Weight	(kg)	3090	2788	2788	N/A
(9) Year of Manufacturer		1968	1972	1975	1981
(10) Manufacturer		ALSTHOM	ALSTHOM	ALSTHOM	BBC
Remarks					

### Database Information

Equipment Name	Main Transformer				
1. Name of Substation :		THULHIRIYA			
( Address :		Ceylon Electricity Board, Thulhiriya )			
2. Number of Units & Capacity :		2 x 31.5 MVA			
3. Particulars :					
Items	Data	Unit Number			
		No. 1	No. 2	No. 3	No. 4
( 1 ) Number of Phase		3 phase	3 phase		
( 2 ) Capacity	(MVA)	31.5	31.5		
( 3 ) Rated Voltage	(kV)	132/33	132/33		
( 4 ) Basic Insulation Level	(kV)	550	550		
( 5 ) Impedance	(%/MVA)	10/31.5	10.3/31.5		
	Primary - Secondary (%/MVA)				
	Primary - Tertiary (%/MVA)				
	Secondary - Tertiary (%/MVA)				
( 6 ) Connection Symbol		YndI	YndI		
( 7 ) Cooling System		ONAN/ONAF	ONAN/ONAF		
( 8 ) Number of Taps		16	16		
( 9 ) Voltage Range		+10% -15%	+10% -15%		
( 10 ) Weight - Total	(tons)	44.0	44.0		
	- Transportation (tons)	38.0	38.0		
( 11 ) Year of Manufacturer		1989	1989		
( 12 ) Manufacturer		ALSTHOM-FRANCE	ALSTHOM-FRANCE		
Remarks					



### Database Information

Equipment Name	Main Circuit Braker			
1. Name of Substation :	THULHRIYA			
2. Number of Units :	2			
3. Particulars :				
Items	Data	Identification Number		
		D110	D120	
(1) Type		HPGE12/15E SMALL OIL VOLUME CB	HPGE12/15E SMALL OIL VOLUME CB	
(2) Rated Voltage	(kV)	170	170	
(3) Rated Current	(A)	1000	1000	
(4) Rated Interrupting Current	(kA/MVA)	11/2500	11/2500	
(5) Making Current	(kA)	27.5	27.5	
(6) Rated Short Time Withstand Current/Duration	(kA/S)	11/1	11/3	
(7) Basic Insulation Level	(kV)	550	550	
(8) Total Weight	(kg)	3090	3090	
(9) Year of Manufacturer		1968	1968	
(10) Manufacturer		N/A	N/A	
Remarks				

### Database Information

Equipment Name	Main Transformer				
1. Name of Substation :		TRINCOMALEE			
( Address :		Ceylon Electricity Board, Love Lane, Trincomalee )			
2. Number of Units & Capacity :		2 x 10 MVA			
3. Particulars :					
Items	Data	Unit Number			
		No. 1	No. 2	No. 3	No. 4
(1) Number of Phase		3 phase	3 phase		
(2) Capacity	(MVA)	10	10		
(3) Rated Voltage	(kV)	132/33	132/33		
(4) Basic Insulation Level	(kV)	N/A	N/A		
(5) Impedance	(%/MVA)	10/(N/A)	10/(N/A)		
Primary - Secondary	(%/MVA)				
Primary - Tertiary	(%/MVA)				
Secondary - Tertiary	(%/MVA)				
(6) Connection Symbol		Ynd1	Ynd1		
(7) Cooling System		ONAN	ONAN		
(8) Number of Taps		21	21		
(9) Voltage Range		+10% -15%	+10% -15%		
(10) Weight - Total	(tons)	N/A	N/A		
- Transportation	(tons)	N/A	N/A		
(11) Year of Manufacturer		1978	1978		
(12) Manufacturer		ALSTHOM	ALSTHOM		
Remarks					

### Database Information

<b>Equipment Name</b>	<b>Main Circuit Braker</b>			
1. Name of Substation :		TRINCOMALEE		
2. Number of Units :		2		
3. Particulars :				
Items	Data	Identification Number		
		D110/D120		
(1) Type		ORIG		
(2) Rated Voltage	(kV)	132		
(3) Rated Current	(A)	1250		
(4) Rated Interrupting Current	(kA/MVA)	15.3/3500		
(5) Making Current	(kA)	N/A		
(6) Rated Short Time Withstand Current/Duration	(kA/S)	N/A		
(7) Basic Insulation Level	(kV)	N/A		
(8) Total Weight	(kg)	N/A		
(9) Year of Manufacturer		1975		
(10) Manufacturer		DELLE ALSTHOM		
<b>Remarks</b>				

### Database Information

Equipment Name	Main Transformer				
1. Name of Substation :		UKUWELA			
( Address :		Ceylon Electricity Board, Ukuwela )			
2. Number of Units & Capacity :		2 x 15 MVA			
3. Particulars :					
Items	Data	Unit Number			
		No. 1	No. 2	No. 3	No. 4
(1) Number of Phase		3 phase	3 phase		
(2) Capacity	(MVA)	15	15		
(3) Rated Voltage	(kV)	132/33	132/33		
(4) Basic Insulation Level	(kV)	N/A	N/A		
(5) Impedance	(%/MVA)	10.05/15	9.92/15		
	Primary - Secondary (%/MVA)				
	Primary - Tertiary (%/MVA)				
	Secondary - Tertiary (%/MVA)				
(6) Connection Symbol		Ynd1	Ynd1		
(7) Cooling System		ONAF	ONAF		
(8) Number of Taps		10	10		
(9) Voltage Range		+5% -15%	+5% -15%		
(10) Weight - Total	(tons)	N/A	N/A		
	- Transportation (tons)	N/A	N/A		
(11) Year of Manufacturer		1968	1968		
(12) Manufacturer		CEM	CEM		
Remarks					

### Database Information

Equipment Name	Main Circuit Braker				
1. Name of Substation :		UKUWELA (1/2)			
2. Number of Units :		9			
3. Particulars :					
Items	Data	Identification Number			
		D120	D110	152-1/152-2 /152-3/152-4 /152-5	D52
(1) Type	ELF nclrtv SF6 CB	ORIG CB	ORIG CB	140 PO OIL CB	
(2) Rated Voltage	(kV)	132	132	132	145
(3) Rated Current	(A)	2000	1250	1250	600
(4) Rated Interrupting Current	(kA/MVA)	25/5700	15.3/3500	11/2500	12.5/2500
(5) Making Current	(kA)	N/A	38	28	31.5
(6) Rated Short Time Withstand Current/Duration	(kA/S)	N/A	15.3/1	11/1	(N/A)3 CYCLES
(7) Basic Insulation Level	(kV)	550	550	550	N/A
(8) Total Weight	(kg)	N/A	2788	2788	4600
(9) Year of Manufacturer		1981	1975	1973	1977
(10) Manufacturer		BBC	N/A	N/A	TAKAOKA ELECT CO. TOKYO
Remarks					

### Database Information

<b>Equipment Name</b>	<b>Main Circuit Braker</b>			
1. Name of Substation :		UKUWELA (2/2)		
2. Number of Units :		9		
3. Particulars :				
Items	Data	Identification Number		
		152 - 8		
(1) Type		N/A		
(2) Rated Voltage	(kV)	N/A		
(3) Rated Current	(A)	N/A		
(4) Rated Interrupting Current	(kA/MVA)	N/A		
(5) Making Current	(kA)	N/A		
(6) Rated Short Time Withstand Current/Duration	(kA/S)	N/A		
(7) Basic Insulation Level	(kV)	N/A		
(8) Total Weight	(kg)	N/A		
(9) Year of Manufacturer		N/A		
(10) Manufacturer		N/A		
Remarks				

## Database Information

Equipment Name	Main Transformer				
1. Name of Substation :		OLD LAXAPANA			
( Address :		Ceylon Electricity Board, Laxapana )			
2. Number of Units & Capacity :		1 x 13.33 MVA			
3. Particulars :					
Items	Data	Unit Number			
		No. 1	No. 2	No. 3	No. 4
(1) Number of Phase				3 phase	
(2) Capacity	(MVA)			13.33	
(3) Rated Voltage	(kV)			$(132/\sqrt{3})/11$	
(4) Basic Insulation Level	(kV)			550	
(5) Impedance	(%/MVA)			12.5/13.33	
	Primary - Secondary (%/MVA)				
	Primary - Tertiary (%/MVA)				
	Secondary - Tertiary (%/MVA)				
(6) Connection Symbol				N/A	
(7) Cooling System				ONAN/ONAF	
(8) Number of Taps				13	
(9) Voltage Range				+10% -10%	
(10) Weight - Total	(tons)			9.9	
	- Transportation (tons)			8.55	
(11) Year of Manufacturer				1989	
(12) Manufacturer				ALSTHOM	
Remarks					

### Database Information

<b>Equipment Name</b>	<b>Main Circuit Braker</b>			
1. Name of Substation :		OLD LAXAPANA		
2. Number of Units :		12		
3. Particulars :				
Items	Data	Identification Number		
		CB1/CB2	ALL OTHER BREAKERS	
(1) Type		FX11	HLR145 /2501E1	
(2) Rated Voltage	(kV)	N/A	145	
(3) Rated Current	(A)	3150	2500	
(4) Rated Interrupting Current	(kA/MVA)	31.5/(N/A)	31.5/7200	
(5) Making Current	(kA)	80	79	
(6) Rated Short Time Withstand Current/Duration	(kA/S)	31.5/3	31.5/3	
(7) Basic Insulation Level	(kV)	650	650/275	
(8) Total Weight	(kg)	1300	2350	
(9) Year of Manufacturer		1989	1985	
(10) Manufacturer		ALSTHOM	ASEA	
Remarks				



### Database Information

Equipment Name	Main Transformer				
1. Name of Substation :		NEW LAXAPANA			
( Address :		Ceylon Electricity Board, Laxapana (New) )			
2. Number of Units & Capacity :		2 x 72 MVA			
3. Particulars :					
Items	Data	Unit Number			
		No. 1	No. 2	No. 3	No. 4
(1) Number of Phase		3 phase	3 phase		
(2) Capacity	(MVA)	72	72		
(3) Rated Voltage	(kV)	$(132/\sqrt{3})/12.5$	$(132/\sqrt{3})/12.5$		
(4) Basic Insulation Level	(kV)	550	550		
(5) Impedance	(%/MVA)	8.55/15	8.55/15		
	Primary - Secondary (%/MVA)				
	Primary - Tertiary (%/MVA)				
	Secondary - Tertiary (%/MVA)				
(6) Connection Symbol		N/A	N/A		
(7) Cooling System		ONAN/ONAF	ONAN/ONAF		
(8) Number of Taps		5	5		
(9) Voltage Range		+10%	+10%		
(10) Weight - Total	(tons)	40.86	40.86		
	- Transportation (tons)	N/A	N/A		
(11) Year of Manufacturer		1972	1972		
(12) Manufacturer		ALSTHOM SAVOISRENNE	ALSTHOM SAVOISRENNE		
Remarks					

### Database Information

<b>Equipment Name</b>	<b>Main Circuit Braker</b>			
<b>1. Name of Substation :</b>	NEW LAXAPANA			
<b>2. Number of Units :</b>	9			
<b>3. Particulars :</b>				
Items	Data	Identification Number		
		32-6	<small>ALL OTHER BREAKERS 32-10 02-903-802-7 02-502-3</small>	
(1) Type		FLX145	HLR145 /2501E1	
(2) Rated Voltage (kV)		145	145	
(3) Rated Current (A)		3000	2500	
(4) Rated Interrupting Current (kA/MVA)		40/9100	31.5/7200	
(5) Making Current (kA)		100	79	
(6) Rated Short Time Withstand Current/Duration (kA/S)		40/3	31.5/3	
(7) Basic Insulation Level (kV)		650	650/275	
(8) Total Weight (kg)		3870	2350	
(9) Year of Manufacturer		1981	1985	
(10) Manufacturer		ALSTHIOM	ASEA	
<b>Remarks</b>				

## Database Information

Equipment Name	Main Transformer				
1. Name of Substation :		SAMANALAWEWA			
( Address :		Samanalawewa Power Station, Handagiriya )			
2. Number of Units & Capacity :		2 x 71 MVA			
3. Particulars :					
Items	Data	Unit Number			
		No. 1	No. 2	No. 3	No. 4
(1) Number of Phase		3 phase	3 phase		
(2) Capacity	(MVA)	71	71		
(3) Rated Voltage	(kV)	138/10.5	138/10.5		
(4) Basic Insulation Level	(kV)	650	650		
(5) Impedance	(%/MVA)	10.89/(N/A)	10.89/(N/A)		
	Primary - Secondary (%/MVA)				
	Primary - Tertiary (%/MVA)				
	Secondary - Tertiary (%/MVA)				
(6) Connection Symbol		Yndll	Yndll		
(7) Cooling System		ONAN/ONAF	ONAN/ONAF		
(8) Number of Taps		5	5		
(9) Voltage Range		+7.5% -2.5%	+7.5% -2.5%		
(10) Weight - Total	(tons)	N/A	N/A		
	- Transportation (tons)	N/A	N/A		
(11) Year of Manufacturer		N/A	N/A		
(12) Manufacturer		GES ALSTHOM	GES ALSTHOM		
Remarks					

### Database Information

Equipment Name	Main Circuit Braker			
1. Name of Substation :		SAMANALAWEWA		
2. Number of Units :		7		
3. Particulars :				
Items	Data	Identification Number		
		L15/L25/L35/L45 M15/M20/W10		
(1) Type		FGIAb		
(2) Rated Voltage	(kV)	145		
(3) Rated Current	(A)	2500		
(4) Rated Interrupting Current	(kA/MVA)	31.5/7200		
(5) Making Current	(kA)	79		
(6) Rated Short Time Withstand Current/Duration	(kA/S)	31.5/1		
(7) Basic Insulation Level	(kV)	650		
(8) Total Weight	(kg)	N/A		
(9) Year of Manufacturer		1985		
(10) Manufacturer		GES ALSTHOM		
Remarks				

### Database Information

Equipment Name	Main Transformer				
1. Name of Substation :	WIMALASURENDRA				
( Address :	Ceylon Electricity Board, Norton Bridge )				
2. Number of Units & Capacity :	2 x 31.5 MVA				
3. Particulars :					
Items	Data	Unit Number			
		No. 1	No. 2	No. 3	No. 4
( 1 ) Number of Phase		3 phase	3 phase		
( 2 ) Capacity	(MVA)	31.5	31.5		
( 3 ) Rated Voltage	(kV)	132/33	132/33		
( 4 ) Basic Insulation Level	(kV)	170	170		
( 5 ) Impedance	(%/MVA)	10.3/31.5	N/A		
	Primary - Secondary (%/MVA)				
	Primary - Tertiary (%/MVA)				
	Secondary - Tertiary (%/MVA)				
( 6 ) Connection Symbol		YndI	YndI		
( 7 ) Cooling System		ONAN/ONAF	ONAN/ONAF		
( 8 ) Number of Taps		16	16		
( 9 ) Voltage Range		+10% -15%	+10% -15%		
( 10 ) Weight - Total	(tons)	44.0	44.0		
	- Transportation (tons)	38.0	38.0		
( 11 ) Year of Manufacturer		1989	1989		
( 12 ) Manufacturer		ALSTHOM	ALSTHOM		
Remarks					

### Database Information

<b>Equipment Name</b>	<b>Main Circuit Braker</b>			
1. Name of Substation : <span style="float: right;">WIMALASURENDRA</span>				
2. Number of Units : <span style="float: right;">8</span>				
3. Particulars :				
Items	Data	Identification Number		
		170	H10/L15/L20 /L25/S10	M20/M10
(1) Type		EP36-25C	FX11	ELFI45cc1rt
(2) Rated Voltage	(kV)	N/A	132	132
(3) Rated Current	(A)	N/A	3150	2000
(4) Rated Interrupting Current	(kA/MVA)	25/(N/A)	31.5/7200	25/5700
(5) Making Current	(kA)	62.5	80	N/A
(6) Rated Short Time Withstand Current/Duration	(kA/S)	25/3	31.5/3	N/A
(7) Basic Insulation Level	(kV)	170	650	550
(8) Total Weight	(kg)	N/A	1300	N/A
(9) Year of Manufacturer		1989	1989	1981
(10) Manufacturer		ALSTHOM	ALSTHOM	BBC
Remarks				

**A11.3 Database Information for Communication Facilities**

**Table A11.3 - 1 Base Data for Existing PLC System**

**Table A11.3 - 2 Data for Existing PLC System of d.c. Power**

Table A11.3 - 1 Base Data for Existing PLC System (1/5)

220 kV Transmission Lines

Voltage	Transmission Line		Power Line Circuit (PLC)				Teleprotection		PLS		PAX		CVT/CC		Remarks
	Line No.	Station from/Station to	Line No.	Year	Serial No.	Operation Year	Type/Model	PLC	Operation Year	Qty	PLC Year	Qty	PLC Year	CVT/CC	
220 kV	Kampala	Kampala	ET122	1976	2008	104-11296-104	2	20	ET122	1976	2008	104-11296-104	2	20	
			ET121	1976	2008	104-11296-104	2	20	ET121	1976	2008	104-11296-104	2	20	
220 kV	Kampala	Kampala	ET121	1976	2008	104-11296-104	2	20	ET121	1976	2008	104-11296-104	2	20	
			ET122	1976	2008	104-11296-104	2	20	ET122	1976	2008	104-11296-104	2	20	
220 kV	Kampala	Kampala	ET121	1976	2008	104-11296-104	2	20	ET121	1976	2008	104-11296-104	2	20	
			ET122	1976	2008	104-11296-104	2	20	ET122	1976	2008	104-11296-104	2	20	
220 kV	Kampala	Kampala	ET121	1976	2008	104-11296-104	2	20	ET121	1976	2008	104-11296-104	2	20	
			ET122	1976	2008	104-11296-104	2	20	ET122	1976	2008	104-11296-104	2	20	
220 kV	Kampala	Kampala	ET121	1976	2008	104-11296-104	2	20	ET121	1976	2008	104-11296-104	2	20	
			ET122	1976	2008	104-11296-104	2	20	ET122	1976	2008	104-11296-104	2	20	
220 kV	Kampala	Kampala	ET121	1976	2008	104-11296-104	2	20	ET121	1976	2008	104-11296-104	2	20	
			ET122	1976	2008	104-11296-104	2	20	ET122	1976	2008	104-11296-104	2	20	
220 kV	Kampala	Kampala	ET121	1976	2008	104-11296-104	2	20	ET121	1976	2008	104-11296-104	2	20	
			ET122	1976	2008	104-11296-104	2	20	ET122	1976	2008	104-11296-104	2	20	
220 kV	Kampala	Kampala	ET121	1976	2008	104-11296-104	2	20	ET121	1976	2008	104-11296-104	2	20	
			ET122	1976	2008	104-11296-104	2	20	ET122	1976	2008	104-11296-104	2	20	
220 kV	Kampala	Kampala	ET121	1976	2008	104-11296-104	2	20	ET121	1976	2008	104-11296-104	2	20	
			ET122	1976	2008	104-11296-104	2	20	ET122	1976	2008	104-11296-104	2	20	
220 kV	Kampala	Kampala	ET121	1976	2008	104-11296-104	2	20	ET121	1976	2008	104-11296-104	2	20	
			ET122	1976	2008	104-11296-104	2	20	ET122	1976	2008	104-11296-104	2	20	





Table A11.3 - 1 Base Data for Existing PLC System (3/5)

132 kV Transmission Lines (2/3)

Voltage/ Line No.	Transmission Line		Power Line Center (PLC)			Tower		Structure		P.L.S.		P.A.N.		Line Imp		CV/CC		Remarks				
	Station	From/to Station	Type	TXRX	Alt	Wtd	No	Serial	Operation	Year	Exp	Substr	PLC	Qty	Year	Capacitance	Inductance		Resistance	Phase	Imp. Use	Year
132 kV	Kulimawaya		ETB	144-148/148-152	1	15					1	1										
IL 16-20	Polipiya		ETB	148-152/144-148	1	15					1	1										
132 kV	Kulimawaya		ETI102	176-184/184-192	2	100					1	1										
IL 18-20	Polipiya		ETI102	184-192/176-184	2	100					1	1										
132 kV	Pannipiya		ETI22	72-80/80/88	2	20					1	1										
IL 21	Rattanaitha		ETI22	80-88/72-80	2	20					1	1				500kvarf						
132 kV	Pannipiya		ETI22	292-300/300-308	2	20					1	1										
IL 22-24	Paradara (T)		ETI22	300-308/292-300	2	20					1	1									By TSADP	
132 kV	Paradara (T)		ETL41	204-208/208-204	1	40					1	1				60F					By TSADP	
IL 23	Matigama		ETL41	200-204/204-208	1	40					1	1				60F					By TSADP	
132 kV	Pannipiya		ETI22	264-272/256-264	2	20					1	1										
IL 22-24	Matigama		ETI22	256-264/256-272	2	20					1	1										
132 kV	Polipiya		ETB	168-172/164-168	1	15					1	1										
IL 25	Lasaratha		ETB	164-168/168-172	1	15					1	1										
	Polipiya		ETI21	204-208/200-204	1	20					1	1										
	Lasaratha		ETI21	200-204/204-208	1	20					1	1										
132 kV	Lasaratha		ETI22	248-256/240-248	2	20					1	1										
IL 26	Wimalasarendra		ETI22	248-256/240-248	2	20					1	1										
132 kV	Old Lasaratha		ETB	192-196/196-200	1	15					1	1										
IL 27	(New) Lasaratha		ETB	196-200/192-196	1	15					1	1										
132 kV	Lasaratha		ETI22	316-324/308-316	2	20					1	1										
IL 29	Canyon		ETI22	308-316/316-324	2	20					1	1										
132 kV	Polipiya		ETI22	80-88/72-80	2	20					1	1										
IL 30	Krimale		ETI22	72-80/80-88	2	20					1	1										
132 kV	Krimale		ETI22	288-296/280-288	2	20					1	1										
IL 31	Krimabhumbura		ETI22	296-304/288-296	2	20					1	1										
132 kV	Krimabhumbura		ETI101	308-312/304-308	1	100					1	1										
IL 32	Anuradhapura		ETI101	304-308/308-312	1	100					1	1										
	Krimabhumbura		ETI101	304-308/308-324	1	100					1	1										
	Anuradhapura		ETI101	320-324/324-328	1	100					1	1										
132 kV	Polipiya		ETI22	244-252/252-260	2	20					1	1										
IL 33	Ukullela		ETI22	252-260/244-252	2	20					1	1										
132 kV	Habarana		ETB	268-272/264-272	1	15					1	1										
IL 35	Anuradhapura		ETB	268-272/264-288	1	15					1	1										
	Habarana		ETB	276-284/280-284	1	15					1	1										
	Anuradhapura		ETB	288-292/284-292	1	15					1	1										

Table A11.3 - 1 Base Data for Existing PLC System (4/5)

Voltage/ Line No.	Transmission Line		Insulator			Power Line Carrier (PLC)			Teleprotection		P.T.S		P.A.X		Line Trap		C.V.T/C		M.C.C./M.C.C.E		Remarks
	Station	From/To Station	Type	TRXN	Altitude	CL	Span	No	Year	Operation	Year	Year	Year	Year	Year	Year	Year	Year	Year	Year	
132 kV	Ukawa	Habara (CF Inpasta)	ET102	176-224/224-232	2	100															
132 kV	Amardhapura		ET102	224-232/16-234	2	100															
132 kV	Ukawa		ETB	440-444/444-448	1	15															
132 kV	Bawitama		ETB	444-448/448-452	1	15															
132 kV	Ukawa		ETB	452-456/456-456	1	15															
132 kV	Brawitama		ETB	456-459/459-456	1	15															
132 kV	Kiribakumbura		ET122	176-184/184-192	2	20															
132 kV	Kurunggala		ET122	184-192/176-184	2	20															
132 kV	Amardhapura		ETB	344-352/344-344	2	15															
132 kV	Trinomukte		ETB	336-344/344-352	2	15															
132 kV	Lakapana		ET122	304-308/292-308	2	20															
132 kV	Balanganda		ET122	292-304/308-308	2	20															
132 kV	Balanganda		ET122	308-356/340-348	2	20															
132 kV	Samarajawewa		ET122	340-348/348-356	2	20															
132 kV	Samarajawewa		ET122	412-420/408-412	2	20															
132 kV	Embilipitiya		ET122	404-412/412-420	2	20															
132 kV	Balanganda		ET122	316-324/308-316	2	20															
132 kV	Donyaya (T)		ET122	308-316/316-324	2	20															
132 kV	Balanganda - Donyaya (T)		ET102	324-332/332-340	2	100															
132 kV	Galle		ET102	332-340/324-332	2	100															
132 kV	Rantembe		ET122	176-184/184-192	2	20															
132 kV	Badulla		ET122	184-192/176-184	2	20															
132 kV	Badulla		ET122	192-200/200-208	2	20															
132 kV	Jagunyangala		ET122	208-208/192-200	2	20															
132 kV	Anuradhapura		ET102	200-208/192-200	2	100															
132 kV	Kilinochchi (T)		ET102	192-200/200-208	2	100															
132 kV	Kilinochchi (T)		ETB	244-248/252-256	1	15															
132 kV	Chunnamakam		ETB	252-256/244-248	1	15															
132 kV	Kilinochchi (T)		ETB	236-240/228-232	1	15															
132 kV	Chunnamakam		ETB	228-232/236-240	1	15															

Note: Two (2) sets of blocking frequency of 252-450 kHz are supplied for Nawra Eriya (132 kV) by TSADP.

Table A11.3 - 1 Base Data for Existing PLC System (5/5)

Voltage/Line No.	Transmission Line Station (mains) station	Distance (km)	Power Line Carrier (PLC)			Teleprotection			PLS			PAX			CVT/CC	10' Coupling device Type (40/4)	Remarks	
			Type	PNAS ALFA	Ch. Wad. No.	Serial No.	Year	Type/Scheme	PLC	Op. Year	Op. Year	PLC	Op. Year	PLC				Op. Year
66 KV IL-1	Kritonawa	2 ccis	ETB	168-172/172-176	1	15												
	Padakka (T)		ETB	172-176/168-172	1	15												
	Kudomawa	2 ccis	ETB	196-200/192-196	1	15												
	Padakka (T)		ETB	192-196/196-200	1	15												
	Padakka (T)		ET121	456-460/460-464	1	20												
	Avissawella (T)		ET121	460-464/456-460	1	20												
66 KV IL-2	Avissawella (T)	2 ccis	ET122	208-212/16-224	2	20												
66 KV IL-3	Lanupaba		ET122	216-220/208-216	2	20												
66 KV IL-4	Loakapaba	2 ccis	ET122	144-152/152-160	2	20												
66 KV IL-5	Noron Bridge (T)		ET122	152-160/144-152	2	20												
66 KV IL-5	Nuwara Eliya (T)	2 ccis	ET122	268-272/268-276	2	20												
66 KV IL-6	Nuwara Eliya (T)		ET122	268-272/260-268	2	20												
	Baddula	2 ccis	ET122	168-180/168-176	2	20												
			ET122	168-176/160-168	2	20												
33 KV IL-1	Balangoda	2 ccis	ETB	208-204/204-208	1	15												
	Uda Walawe		ETB	204-208/200-204	1	15												
	Balangoda	2 ccis	ETB	172-176/176-180	1	15												
	Uda Walawe		ETB	176-180/172-176	1	15												

Table A11.3 - 2 Data for Existing PLC System of d.c. power (1/3)

No.	Name of station	Battery		Battery charger		Distribution board/circuits			Load data		Required capacity				
		Type	Capacity	Operation year	Type	Capacity	Operation year	Used circuits	Rating [A/AF]	Equipped circuits	Rating [A/AF]	Existing [A]	Additional [A]	Battery	Charger
1	Kotugoda	Pb/Ac	200 Ah		Systronic	60A									
2	Biyyagama	Ni-Cd	200 Ah		Systronic	60A									
3	Kotmale	Pb/Ac	700 Ah		PS DC										
4	Victoria	Ni/Cd	105 + 200 Ah		Systronic	40 + 80 A									
5	Randenigla	Pb/Ac			PS DC										
6	Rantembe	Pb/Ac			PS DC										
7	Sapugaskanda DPS	Ni/Cd	170 Ah		Systronic	60A									
8	Bolawatta	Pb/Ac	120 Ah		Gutor	40A									
9	Putalam	Pb/Ac	120 Ah		Gutor	40A									
10	Chillaw : PDTP				Nife										
11	Kolonnawa	Pb/Ac	120 Ah		EAO	40 A									
12	Sapugaskanda	Pb/Ac	120 Ah		Gutor	40 A									
13	Pannipitiya	Pb/Ac	200 Ah		Systronic	40 A									
14	Ratamalana	Pb/Ac	90 Ah		Electrona	15 A									
15	Matugama	Pb/Ac	120 Ah		Orelikon	40 A									
16	Fort (Future)														
17	Kolipitiya (Future)														
18	Kelanitissa	Pb/Ac	210 Ah		Gutor	40A									
19	Padukka (66 kV)				Gutor										
20	Avissawella : TSADP	Ni/Cd	100 Ah	1996	Apolion-Diamond	25 A	1996	3	10A 2P	6	10A 2P	12 (+ A x 3)	Minimum 100 Ah		

Note

1 Pb/Ac and Ni/Cd denotes Lead-Acid and Nickel-Cadmium respectively.

2 Time of power stopping at station is required for battery capacity calculation.

TSADP : 8 hours is guarantee time at 80 % charged.

Table A11.3 - 2 Data for Existing PLC System of d.c. power (2/3)

No.	Name of station	Battery		Battery charger		Distribution board/circuits			Load data		Required capacity			
		Type	Capacity	Operation year	Type	Capacity	Operation year	Used circuits	Rating [A/AF]	Equipped circuits	Rating [A/AF]	Existing [A]	Additional [A]	Battery
21	Oruwala				EAO									
22	Polipitiya	Pb/Ac	400 Ah x 2		Statron	105 A								
23	Thujihiriya	Pb/Ac	120 Ah		OLTEN	40 A								
24	Ukuwela	Pb/Ac	400 Ah		Gutor	40 A								
25	Bowatenna	Pb/Ac	200 Ah		Orelikon	40 A								
26	Anuradhapura	Pb/Ac	300 Ah		Statron	85 A								
27	Kiribathkumbra	Ni/Cd	170 Ah		Systronic	60 A								
28	Kurungala	Ni/Cd	170 Ah		Systronic	60 A								
29	Trincomelec	Pb/Ac	90 Ah		Orelikon	40 A								
30	Kikinochchi	Pb/Ac	120 Ah		Gutor	40 A								
31	Chunnakam	Pb/Ac	120 Ah		Gutor	40 A								
32	Habarana	Ni/Cd	200 Ah		Systronic	60 A								
33	New Laxapana	Pb/Ac	400 Ah x 2		Statron	105 A								
34	Wimalasurenda	Pb/Ac	120 Ah		Gutor	40 A								
35	Canyon	Pb/Ac	200 Ah		Orelikon	40 A								
36	Balangoda		200 Ah		Systronic	40 A								
37	Deniyaya	Pb/Ac	120 Ah		Gutor	40 A								
38	Galle	Pb/Ac	120 Ah		Gutor	40 A								
39	Samanaawewa	Pb/Ac	1400 Ah		Yuasa									
40	Embilipitiya	Pb/Ac	170 Ah		Gutor	40 A								

Note

1 Pb/Ac and Ni/Cd denotes Lead-Acid and Nickel-Cadmium respectively.

2 Time of power stopping at station is required for battery capacity calculation.

TSADP : 8 hours is guarantee time at 80 % charged.



CHAPTER A13

ENVIRONMENTAL PROBLEMS  
ASSOCIATED WITH CONSTRUCTION  
OF TRANSMISSION SYSTEM FACILITIES



## CHAPTER A13

### ENVIRONMENTAL PROBLEMS ASSOCIATED WITH CONSTRUCTION OF TRANSMISSION SYSTEM FACILITIES

#### A13.1 Calculation of Electromagnetic Induction Voltage

(Reference to Clause 13.3.4 Electromagnetic Induction)

In case that zero-phase current flows in a transmission line, induction voltage is induced on a communication line due to the mutual induction phenomena. The mutual inductance of an earth-return circuit is calculated with the Carson-Pollaczek formula. The formula is very complex due to current through the earth. An application formula to calculate induction voltage on a communication line, which is used in Japan, is given below:

$$V = \lambda \left( \sum (l_p \cdot Z_{mp}) + \sum (l_c \cdot Z_{mc}) \right) \times I$$

where:

$\lambda$ : Coefficient; Reduction factor due to effects of shielding wires, etc.

$l_p$ : Projected route length of communication line on the transmission line (km)

$I$ : Current causing electromagnetic induction (A)

$l_c$ : Projected route length of communication line of crossing section on the transmission line (km)

$Z_{mp}$ : Average mutual impedance (ohm/km) in parallel or diagonal running section, which is obtained from Fig. A13.1-2 showing relation between mutual impedance and equivalent spacing  $dm'$ .

$dm', dc'$ : Equivalent spacing against standard ground conductivity ( $\sigma_0 = 0.01 \text{ S/m}$ ), in case of ground conductivity of  $\sigma$  (S/m),  $dm'$  is as follows:

$$dm' = /100 \sigma \times dm \text{ and } dc' = /100 \sigma \times dc$$

$dm$ : Spacing of parallel section, or average spacing of diagonal section (m)

$dc$ : Average spacing of crossing section (m)

$$dm = (d1 + d2)/2 \text{ or } dc = (dc1 + dc2)/2$$

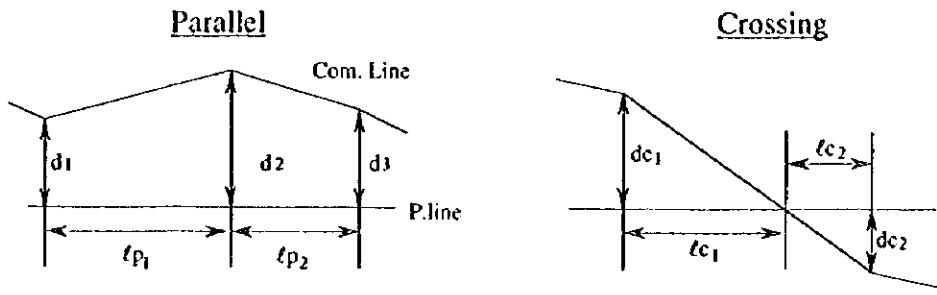
$dc1, dc2$ : Spacing at the both ends of diagonal section (m)

Regarding mutual location of transmission line and communication line Fig. A13.1-1 is referred to. Prior to calculation the mutual location of the transmission line and communication line shall be confirmed from maps and supplemental survey.

In Japan, the standard earth resistivity is 100 ohm.cm, and the above mutual impedance values are calculated assuming that the above resistivity is uniform in the ground up to deep location.

If the earth resistivity is a known figure, such figure shall be used. In case that the earth resistivity is not known measured value shall be used.

In calculation, sections with separation of exceeding 5000 m are not taken into account.



$$dm = \frac{1}{2} (d_1 + d_2)$$

$$dm' = \sqrt{100 \sigma} \times dm$$

$$dc = \frac{1}{2} (dc_1 + dc_2)$$

$$dc' = \sqrt{100 \sigma} \times dc$$

$\sigma$  : Earth conductivity (S/m)

Fig. A13.1 - 1 Mutual Relation of Power and Communication Lines

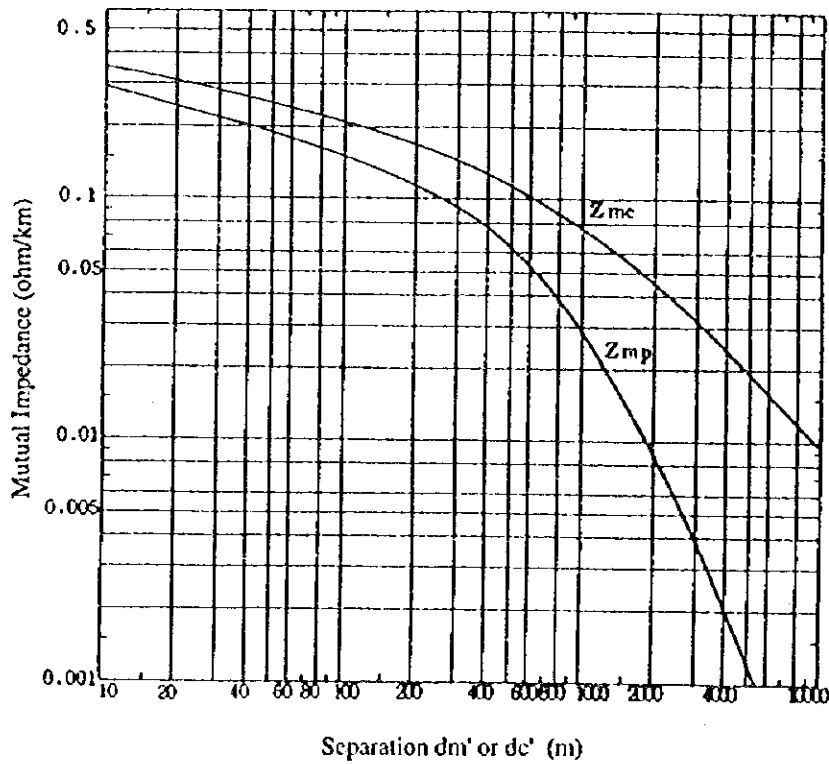


Fig. A13.1 - 2 Mutual Impedance of Power and Communication Lines

<b>CEYLON ELECTRICITY BOARD</b>	JAPAN INTERNATIONAL COOPERATION AGENCY	MASTER PLAN STUDY FOR DEVELOPMENT OF THE TRANSMISSION SYSTEM OF THE CEYLON ELECTRICITY BOARD IN THE DEMOCRATIC SOCIALIST REPUBLIC OF SRI LANKA	TITLE
	NIPPON KOEI CO., LTD. Consulting Engineer		



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