故障電流計算總表

故障點	配電盤名稱	基準電壓 (KV)	基準電流 (A)	基準阻抗 (Ω)	電壓 (KV)	長度 (M)	每相電纜			管別	電阻 R (Ω /KM)	電抗 X_l (Ω /KM)	Σ等效阻抗 (Ω)		X / R	K	*Isym* (KA)	*Iasy* (KA)	頁碼
							線別	線 徑	條數				R *(pu)*	X *(pu)*					
f-1	PT	22.8	25.3	519.84	25	70	XLPE	200	1	PVC	0.1211	0.1526	0.00003423	0.00190635	55.69	1.1	13.27	14.6	1
f-2	HVCB-M	22.8	25.3	519.84	25	2	CU BUS	60 × 10	1	BUS BAR	0.0398	0.2094	0.00003438	0.00190716	55.47	1.1	13.26	14.59	1
f-3	HVCB-1	22.8	25.3	519.84	25	3	CU BUS	25 × 3	1	BUS BAR	0.3036	0.2902	0.00003613	0.00190883	52.83	1.1	13.25	14.58	1
f-4	ACB-1	0.38	1519.3	0.1444	0.6	10	CU BUS	100 × 10	4	BUS BAR	0.0062	0.1266	0.00295781	0.02794529	8.6	1.22	65.35	79.73	2
f-5	E1	0.38	1519.3	0.1444	0.6	100	XLPE	100	1	TRAY+EMT	0.2341	0.1466	0.16480447	0.12461519	0.76	1	7.35	7.35	2
f-6	E2	0.38	1519.3	0.1444	0.6	100	XLPE	80	1	TRAY+EMT	0.2872	0.1516	0.20157733	0.12807779	0.64	1	6.36	6.36	2
f-7	E3	0.38	1519.3	0.1444	0.6	100	XLPE	80	1	TRAY+EMT	0.2872	0.1516	0.20157733	0.12807779	0.64	1	6.36	6.36	3
f-8	E4	0.38	1519.3	0.1444	0.6	100	XLPE	80	1	TRAY+EMT	0.2872	0.1516	0.20157733	0.12807779	0.64	1	6.36	6.36	3
f-9	E5	0.38	1519.3	0.1444	0.6	100	XLPE	80	1	TRAY+EMT	0.2872	0.1516	0.20157733	0.12807779	0.64	1	6.36	6.36	3
f-10	E6	0.38	1519.3	0.1444	0.6	100	XLPE	80	1	TRAY+EMT	0.2872	0.1516	0.20157733	0.12807779	0.64	1	6.36	6.36	3
f-11	E7	0.38	1519.3	0.1444	0.6	100	XLPE	80	1	TRAY+EMT	0.2872	0.1516	0.20157733	0.12807779	0.64	1	6.36	6.36	3
f-12	E8	0.38	1519.3	0.1444	0.6	100	XLPE	80	1	TRAY+EMT	0.2872	0.1516	0.20157733	0.12807779	0.64	1	6.36	6.36	4
f-13	E9	0.38	1519.3	0.1444	0.6	100	XLPE	80	1	TRAY+EMT	0.2872	0.1516	0.20157733	0.12807779	0.64	1	6.36	6.36	4
f-14	E10	0.38	1519.3	0.1444	0.6	100	XLPE	80	1	TRAY+EMT	0.2872	0.1516	0.20157733	0.12807779	0.64	1	6.36	6.36	4
f-15	F1	0.38	1519.3	0.1444	0.6	100	XLPE	100	1	TRAY+EMT	0.2341	0.1466	0.16480447	0.12461519	0.76	1	7.35	7.35	4
f-16	F2	0.38	1519.3	0.1444	0.6	100	XLPE	80	1	TRAY+EMT	0.2872	0.1516	0.20157733	0.12807779	0.64	1	6.36	6.36	4
f-17	F3	0.38	1519.3	0.1444	0.6	100	XLPE	80	1	TRAY+EMT	0.2872	0.1516	0.20157733	0.12807779	0.64	1	6.36	6.36	5
f-18	F4	0.38	1519.3	0.1444	0.6	100	XLPE	80	1	TRAY+EMT	0.2872	0.1516	0.20157733	0.12807779	0.64	1	6.36	6.36	5
f-19	F5	0.38	1519.3	0.1444	0.6	100	XLPE	80	1	TRAY+EMT	0.2872	0.1516	0.20157733	0.12807779	0.64	1	6.36	6.36	5
f-20	F6	0.38	1519.3	0.1444	0.6	100	XLPE	80	1	TRAY+EMT	0.2872	0.1516	0.20157733	0.12807779	0.64	1	6.36	6.36	5

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故障點	配電盤名稱	基準電壓 (KV)	基準電流 (A)	基準阻抗 (Ω)	電壓 (KV)	長度 (M)	每相電纜			管別	電阻 R (Ω /KM)	電抗 X_l (Ω /KM)	Σ等效阻抗 (Ω)		X / R	K	*Isym* (KA)	*Iasy* (KA)	頁碼
							線別	線 徑	條數				R *(pu)*	X *(pu)*					
f - 21	F7	0.38	1519.3	0.1444	0.6	100	XLPE	80	1	TRAY+EMT	0.2872	0.1516	0.20157733	0.12807779	0.64	1	6.36	6.36	5
f - 22	F8	0.38	1519.3	0.1444	0.6	100	XLPE	80	1	TRAY+EMT	0.2872	0.1516	0.20157733	0.12807779	0.64	1	6.36	6.36	6
f - 23	F9	0.38	1519.3	0.1444	0.6	100	XLPE	80	1	TRAY+EMT	0.2872	0.1516	0.20157733	0.12807779	0.64	1	6.36	6.36	6
f - 24	F10	0.38	1519.3	0.1444	0.6	100	XLPE	80	1	TRAY+EMT	0.2872	0.1516	0.20157733	0.12807779	0.64	1	6.36	6.36	6
f - 25	E0	0.38	1519.3	0.1444	0.6	100	XLPE	50	1	TRAY+EMT	0.4692	0.1614	0.32761611	0.13486449	0.41	1	4.29	4.29	6
f - 26	EE1	0.38	1519.3	0.1444	0.6	100	XLPE	38	1	TRAY+EMT	0.6095	0.1563	0.42477677	0.13133264	0.31	1	3.42	3.42	6
f - 27	EE2	0.38	1519.3	0.1444	0.6	100	XLPE	38	1	TRAY+EMT	0.6095	0.1563	0.42477677	0.13133264	0.31	1	3.42	3.42	7
f - 28	EE3	0.38	1519.3	0.1444	0.6	100	XLPE	38	1	TRAY+EMT	0.6095	0.1563	0.42477677	0.13133264	0.31	1	3.42	3.42	7
f - 29	EE4	0.38	1519.3	0.1444	0.6	100	XLPE	38	1	TRAY+EMT	0.6095	0.1563	0.42477677	0.13133264	0.31	1	3.42	3.42	7
f - 30	EE5	0.38	1519.3	0.1444	0.6	100	XLPE	22	1	TRAY+EMT	1.0507	0.1622	0.73031694	0.13541851	0.19	1	2.05	2.05	7
f - 31	F0	0.38	1519.3	0.1444	0.6	100	XLPE	50	1	TRAY+EMT	0.4692	0.1614	0.32761611	0.13486449	0.41	1	4.29	4.29	7
f - 32	FF1	0.38	1519.3	0.1444	0.6	100	XLPE	38	1	TRAY+EMT	0.6095	0.1563	0.42477677	0.13133264	0.31	1	3.42	3.42	8
f - 33	FF2	0.38	1519.3	0.1444	0.6	100	XLPE	38	1	TRAY+EMT	0.6095	0.1563	0.42477677	0.13133264	0.31	1	3.42	3.42	8
f - 34	FF3	0.38	1519.3	0.1444	0.6	100	XLPE	38	1	TRAY+EMT	0.6095	0.1563	0.42477677	0.13133264	0.31	1	3.42	3.42	8
f - 35	FF4	0.38	1519.3	0.1444	0.6	100	XLPE	38	1	TRAY+EMT	0.6095	0.1563	0.42477677	0.13133264	0.31	1	3.42	3.42	8
f - 36	HVCB-2	22.8	25.3	519.84	25	3	CU BUS	25 × 3	1	BUS BAR	0.3036	0.2902	0.00003613	0.00190883	52.83	1.1	13.25	14.58	8
f - 37	ACB-2	0.38	1519.3	0.1444	0.6	10	CU BUS	100 × 10	4	BUS BAR	0.0062	0.1266	0.00295781	0.02794529	8.91	1.22	60.41	73.7	9
f - 38	CDA	0.38	1519.3	0.1444	0.6	50	XLPE	250	1	PVC	0.0957	0.1126	0.03594129	0.06398358	1.78	1.01	20.7	20.91	9
f - 39	ATS	0.38	1519.3	0.1444	0.6	10	FR	250	6	RSG	0.1046	0.1545	0.00401146	0.02677790	6.68	1.18	56.11	66.21	9
f - 40	EMP	0.38	1519.3	0.1444	0.6	71	FR	250	6	RSG	0.1046	0.1545	0.01258325	0.03943891	3.13	1.07	36.7	39.27	10

故障電流計算總表

故障點	配電盤名稱	基準電壓 (KV)	基準電流 (A)	基準阻抗 (Ω)	電壓 (KV)	長度 (M)	每相電纜			管別	電阻 R (Ω /KM)	電抗 X_l (Ω /KM)	Σ等效阻抗 (Ω)		X / R	K	*Isym* (KA)	*Iasy* (KA)	頁碼
							線別	線 徑	條數				R *(pu)*	X *(pu)*					
f-41	EPF1A	0.38	1519.3	0.1444	0.6	100	FR	80	1	EMT	0.2949	0.1644	0.21680763	0.15328933	0.71	1	5.72	5.72	10
f-42	EPF1B	0.38	1519.3	0.1444	0.6	100	FR	80	1	EMT	0.2949	0.1644	0.21680763	0.15328933	0.71	1	5.72	5.72	10
f-43	EPF1C	0.38	1519.3	0.1444	0.6	100	FR	80	1	EMT	0.2949	0.1644	0.21680763	0.15328933	0.71	1	5.72	5.72	10
f-44	EPF1D	0.38	1519.3	0.1444	0.6	100	FR	80	1	EMT	0.2949	0.1644	0.21680763	0.15328933	0.71	1	5.72	5.72	10
f-45	EPF1E	0.38	1519.3	0.1444	0.6	100	FR	80	1	EMT	0.2949	0.1644	0.21680763	0.15328933	0.71	1	5.72	5.72	11
f-46	EPF1F	0.38	1519.3	0.1444	0.6	100	FR	80	1	EMT	0.2949	0.1644	0.21680763	0.15328933	0.71	1	5.72	5.72	11
f-47	EPF1G	0.38	1519.3	0.1444	0.6	100	FR	80	1	EMT	0.2949	0.1644	0.21680763	0.15328933	0.71	1	5.72	5.72	11
f-48	EPF1H	0.38	1519.3	0.1444	0.6	100	FR	80	1	EMT	0.2949	0.1644	0.21680763	0.15328933	0.71	1	5.72	5.72	11
f-49	EPF2A	0.38	1519.3	0.1444	0.6	100	FR	80	1	EMT	0.2949	0.1644	0.21680763	0.15328933	0.71	1	5.72	5.72	11
f-50	EPF2B	0.38	1519.3	0.1444	0.6	100	FR	80	1	EMT	0.2949	0.1644	0.21680763	0.15328933	0.71	1	5.72	5.72	12
f-51	EPW1A	0.38	1519.3	0.1444	0.6	50	XLPE	14	1	PVC	1.6576	0.1381	0.58654447	0.08725747	0.15	1	2.56	2.56	12
f-52	EPW1B	0.38	1519.3	0.1444	0.6	50	XLPE	14	1	PVC	1.6576	0.1381	0.58654447	0.08725747	0.15	1	2.56	2.56	12
f-53	EPW1C	0.38	1519.3	0.1444	0.6	50	XLPE	14	1	PVC	1.6576	0.1381	0.58654447	0.08725747	0.15	1	2.56	2.56	12
f-54	EPW1D	0.38	1519.3	0.1444	0.6	50	XLPE	14	1	PVC	1.6576	0.1381	0.58654447	0.08725747	0.15	1	2.56	2.56	12
f-55	EPW1E	0.38	1519.3	0.1444	0.6	50	XLPE	14	1	PVC	1.6576	0.1381	0.58654447	0.08725747	0.15	1	2.56	2.56	13
f-56	EPWR1	0.38	1519.3	0.1444	0.6	50	XLPE	14	1	PVC	1.6576	0.1381	0.58654447	0.08725747	0.15	1	2.56	2.56	13
f-57	LMIS	0.38	1519.3	0.1444	0.6	50	XLPE	14	1	EMT	1.6576	0.1726	0.58654447	0.09920345	0.17	1	2.55	2.55	13
f-58	RMIS	0.19	3038.7	0.0361	0.6	50	XLPE	14	1	EMT	1.6576	0.1726	4.61644060	2.59404186	0.56	1	0.57	0.57	13
f-59	HVCB-3	22.8	25.3	519.84	25	3	CU BUS	25 × 3	1	BUS BAR	0.3036	0.2902	0.00003613	0.00190883	52.83	1.1	13.25	14.58	14
f-60	ACB-3	0.38	1519.3	0.1444	0.6	10	CU BUS	100 × 10	4	BUS BAR	0.0062	0.1266	0.00295781	0.02794529	8.6	1.22	65.35	79.73	14

故障電流計算總表

故障點	配電盤名稱	基準電壓 (KV)	基準電流 (A)	基準阻抗 (Ω)	電壓 (KV)	長度 (M)	每相電纜			管別	電阻 R (Ω /KM)	電抗 X_l (Ω /KM)	Σ等效阻抗 (Ω)		X / R	K	*Isym* (KA)	*Iasy* (KA)	頁碼
							線別	線 徑	條數				R *(pu)*	X *(pu)*					
f - 61	C1	0.38	1519.3	0.1444	0.6	100	XLPE	100	1	TRAY+EMT	0.2341	0.1466	0.16480447	0.12461519	0.76	1	7.35	7.35	14
f - 62	C2	0.38	1519.3	0.1444	0.6	100	XLPE	100	1	TRAY+EMT	0.2341	0.1466	0.16480447	0.12461519	0.76	1	7.35	7.35	15
f - 63	C3	0.38	1519.3	0.1444	0.6	100	XLPE	100	1	TRAY+EMT	0.2341	0.1466	0.16480447	0.12461519	0.76	1	7.35	7.35	15
f - 64	C4	0.38	1519.3	0.1444	0.6	100	XLPE	100	1	TRAY+EMT	0.2341	0.1466	0.16480447	0.12461519	0.76	1	7.35	7.35	15
f - 65	C5	0.38	1519.3	0.1444	0.6	100	XLPE	100	1	TRAY+EMT	0.2341	0.1466	0.16480447	0.12461519	0.76	1	7.35	7.35	15
f - 66	C6	0.38	1519.3	0.1444	0.6	100	XLPE	100	1	TRAY+EMT	0.2341	0.1466	0.16480447	0.12461519	0.76	1	7.35	7.35	15
f - 67	C7	0.38	1519.3	0.1444	0.6	100	XLPE	100	1	TRAY+EMT	0.2341	0.1466	0.16480447	0.12461519	0.76	1	7.35	7.35	16
f - 68	C8	0.38	1519.3	0.1444	0.6	100	XLPE	100	1	TRAY+EMT	0.2341	0.1466	0.16480447	0.12461519	0.76	1	7.35	7.35	16
f - 69	C9	0.38	1519.3	0.1444	0.6	100	XLPE	100	1	TRAY+EMT	0.2341	0.1466	0.16480447	0.12461519	0.76	1	7.35	7.35	16
f - 70	C10	0.38	1519.3	0.1444	0.6	100	XLPE	100	1	TRAY+EMT	0.2341	0.1466	0.16480447	0.12461519	0.76	1	7.35	7.35	16
f - 71	D1	0.38	1519.3	0.1444	0.6	100	XLPE	100	1	TRAY+EMT	0.2341	0.1466	0.16480447	0.12461519	0.76	1	7.35	7.35	16
f - 72	D2	0.38	1519.3	0.1444	0.6	100	XLPE	80	1	TRAY+EMT	0.2872	0.1516	0.20157733	0.12807779	0.64	1	6.36	6.36	17
f - 73	D3	0.38	1519.3	0.1444	0.6	100	XLPE	80	1	TRAY+EMT	0.2872	0.1516	0.20157733	0.12807779	0.64	1	6.36	6.36	17
f - 74	D4	0.38	1519.3	0.1444	0.6	100	XLPE	80	1	TRAY+EMT	0.2872	0.1516	0.20157733	0.12807779	0.64	1	6.36	6.36	17
f - 75	D5	0.38	1519.3	0.1444	0.6	100	XLPE	80	1	TRAY+EMT	0.2872	0.1516	0.20157733	0.12807779	0.64	1	6.36	6.36	17
f - 76	D6	0.38	1519.3	0.1444	0.6	100	XLPE	80	1	TRAY+EMT	0.2872	0.1516	0.20157733	0.12807779	0.64	1	6.36	6.36	17
f - 77	D7	0.38	1519.3	0.1444	0.6	100	XLPE	80	1	TRAY+EMT	0.2872	0.1516	0.20157733	0.12807779	0.64	1	6.36	6.36	18
f - 78	D8	0.38	1519.3	0.1444	0.6	100	XLPE	80	1	TRAY+EMT	0.2872	0.1516	0.20157733	0.12807779	0.64	1	6.36	6.36	18
f - 79	D9	0.38	1519.3	0.1444	0.6	100	XLPE	80	1	TRAY+EMT	0.2872	0.1516	0.20157733	0.12807779	0.64	1	6.36	6.36	18
f - 80	D10	0.38	1519.3	0.1444	0.6	100	XLPE	80	1	TRAY+EMT	0.2872	0.1516	0.20157733	0.12807779	0.64	1	6.36	6.36	18

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							線別	線 徑	條數				R *(pu)*	X *(pu)*					
f-81	C0	0.38	1519.3	0.1444	0.6	100	XLPE	50	1	TRAY+EMT	0.4692	0.1614	0.32761611	0.13486449	0.41	1	4.29	4.29	18
f-82	CC1	0.38	1519.3	0.1444	0.6	100	XLPE	38	1	TRAY+EMT	0.6095	0.1563	0.42477677	0.13133264	0.31	1	3.42	3.42	19
f-83	CC2	0.38	1519.3	0.1444	0.6	100	XLPE	38	1	TRAY+EMT	0.6095	0.1563	0.42477677	0.13133264	0.31	1	3.42	3.42	19
f-84	CC3	0.38	1519.3	0.1444	0.6	100	XLPE	38	1	TRAY+EMT	0.6095	0.1563	0.42477677	0.13133264	0.31	1	3.42	3.42	19
f-85	CC4	0.38	1519.3	0.1444	0.6	100	XLPE	38	1	TRAY+EMT	0.6095	0.1563	0.42477677	0.13133264	0.31	1	3.42	3.42	19
f-86	CC5	0.38	1519.3	0.1444	0.6	100	XLPE	22	1	TRAY+EMT	1.0507	0.1622	0.73031694	0.13541851	0.19	1	2.05	2.05	19
f-87	D0	0.38	1519.3	0.1444	0.6	100	XLPE	50	1	TRAY+EMT	0.4692	0.1614	0.32761611	0.13486449	0.41	1	4.29	4.29	20
f-88	DD1	0.38	1519.3	0.1444	0.6	100	XLPE	38	1	TRAY+EMT	0.6095	0.1563	0.42477677	0.13133264	0.31	1	3.42	3.42	20
f-89	DD2	0.38	1519.3	0.1444	0.6	100	XLPE	38	1	TRAY+EMT	0.6095	0.1563	0.42477677	0.13133264	0.31	1	3.42	3.42	20
f-90	DD3	0.38	1519.3	0.1444	0.6	100	XLPE	38	1	TRAY+EMT	0.6095	0.1563	0.42477677	0.13133264	0.31	1	3.42	3.42	20
f-91	DD4	0.38	1519.3	0.1444	0.6	100	XLPE	38	1	TRAY+EMT	0.6095	0.1563	0.42477677	0.13133264	0.31	1	3.42	3.42	20
f-92	HVCB-4	22.8	25.3	519.84	25	3	CU BUS	25 × 3	1	BUS BAR	0.3036	0.2902	0.00003613	0.00190883	52.83	1.1	13.25	14.58	21
f-93	ACB-4	0.38	1519.3	0.1444	0.6	10	CU BUS	100 × 10	4	BUS BAR	0.0062	0.1266	0.00295781	0.02794529	8.92	1.22	60.35	73.63	21
f-94	1-L1A	0.38	1519.3	0.1444	0.6	50	XLPE	30	1	EMT	0.7727	0.1563	0.27036089	0.07913792	0.29	1	5.39	5.39	21
f-95	1-L1B	0.38	1519.3	0.1444	0.6	50	XLPE	30	1	EMT	0.7727	0.1563	0.27036089	0.07913792	0.29	1	5.39	5.39	22
f-96	1-L1C	0.38	1519.3	0.1444	0.6	50	XLPE	38	1	PVC	0.6095	0.125	0.21385120	0.06829997	0.32	1	6.77	6.77	22
f-97	1-L1D	0.38	1519.3	0.1444	0.6	50	XLPE	14	1	PVC	1.6576	0.1381	0.57676671	0.07283598	0.13	1	2.61	2.61	22
f-98	2-L1A	0.38	1519.3	0.1444	0.6	50	XLPE	30	1	EMT	0.7727	0.1563	0.27036089	0.07913792	0.29	1	5.39	5.39	22
f-99	2-L1B	0.38	1519.3	0.1444	0.6	50	XLPE	30	1	EMT	0.7727	0.1563	0.27036089	0.07913792	0.29	1	5.39	5.39	22
f-100	2-L1C	0.38	1519.3	0.1444	0.6	50	XLPE	30	1	EMT	0.7727	0.1563	0.27036089	0.07913792	0.29	1	5.39	5.39	23

故障電流計算總表

故障點	配電盤名稱	基準電壓 (KV)	基準電流 (A)	基準阻抗 (Ω)	電壓 (KV)	長度 (M)	每相電纜			管別	電阻 R (Ω /KM)	電抗 X_l (Ω /KM)	Σ等效阻抗 (Ω)		X / R	K	*Isym* (KA)	*Iasy* (KA)	頁碼
							線別	線徑	條數				R *(pu)*	X *(pu)*					
f- 101	2-L1D	0.38	1519.3	0.1444	0.6	50	XLPE	30	1	EMT	0.7727	0.1563	0.27036089	0.07913792	0.29	1	5.39	5.39	23
f- 102	2-L2A	0.38	1519.3	0.1444	0.6	100	XLPE	30	1	EMT	0.7727	0.1563	0.53791629	0.13325842	0.25	1	2.74	2.74	23
f- 103	2-L2B	0.38	1519.3	0.1444	0.6	100	XLPE	30	1	EMT	0.7727	0.1563	0.53791629	0.13325842	0.25	1	2.74	2.74	23
f- 104	3-L1A	0.38	1519.3	0.1444	0.6	50	XLPE	30	1	EMT	0.7727	0.1563	0.27036089	0.07913792	0.29	1	5.39	5.39	23
f- 105	3-L1B	0.38	1519.3	0.1444	0.6	50	XLPE	30	1	EMT	0.7727	0.1563	0.27036089	0.07913792	0.29	1	5.39	5.39	24
f- 106	PAC1	0.38	1519.3	0.1444	0.6	100	XLPE	250	5	TRAY+RSG	0.1022	0.1408	0.01696061	0.04451881	2.62	1.04	31.89	33.17	24
f- 107	PAC2	0.38	1519.3	0.1444	0.6	100	XLPE	250	3	TRAY+RSG	0.1022	0.1408	0.02639736	0.05751973	2.18	1.03	24.01	24.73	24
f- 108	PAC3	0.38	1519.3	0.1444	0.6	100	XLPE	200	1	PVC	0.1211	0.1159	0.08666976	0.10528058	1.21	1	11.14	11.14	24
f- 109	MR	0.19	3038.7	0.0361	0.6	20	XLPE	200	3	TRAY	0.1258	0.1709	0.08255087	0.17809960	2.16	1.03	15.48	15.94	25
f- 110	1-R1A	0.19	3038.7	0.0361	0.6	50	XLPE	14	1	EMT	1.6576	0.1726	2.37839575	0.41715777	0.18	1	1.26	1.26	25
f- 111	1-R1B	0.19	3038.7	0.0361	0.6	50	XLPE	14	1	EMT	1.6576	0.1726	2.37839575	0.41715777	0.18	1	1.26	1.26	25
f- 112	1-R1C	0.19	3038.7	0.0361	0.6	50	XLPE	8	1	PVC	2.9455	0.1402	4.16219076	0.37228243	0.09	1	0.73	0.73	25
f- 113	1-R1D	0.19	3038.7	0.0361	0.6	50	XLPE	8	1	PVC	2.9455	0.1402	4.16219076	0.37228243	0.09	1	0.73	0.73	26
f- 114	2-R1A	0.19	3038.7	0.0361	0.6	50	XLPE	14	1	EMT	1.6576	0.1726	2.37839575	0.41715777	0.18	1	1.26	1.26	26
f- 115	2-R1B	0.19	3038.7	0.0361	0.6	50	XLPE	14	1	EMT	1.6576	0.1726	2.37839575	0.41715777	0.18	1	1.26	1.26	26
f- 116	2-R1C	0.19	3038.7	0.0361	0.6	50	XLPE	50	1	EMT	0.4692	0.1614	0.73241237	0.40164531	0.55	1	3.64	3.64	26
f- 117	2-R1D	0.19	3038.7	0.0361	0.6	50	XLPE	50	1	EMT	0.4692	0.1614	0.73241237	0.40164531	0.55	1	3.64	3.64	26
f- 118	3-R1A	0.19	3038.7	0.0361	0.6	50	XLPE	14	1	EMT	1.6576	0.1726	2.37839575	0.41715777	0.18	1	1.26	1.26	27
f- 119	3-R1B	0.19	3038.7	0.0361	0.6	50	XLPE	14	1	EMT	1.6576	0.1726	2.37839575	0.41715777	0.18	1	1.26	1.26	27
f- 120	2-R2A	0.19	3038.7	0.0361	0.6	50	XLPE	50	1	EMT	0.4692	0.1614	0.73241237	0.40164531	0.55	1	3.64	3.64	27

故障電流計算總表

故障點	配電盤名稱	基準電壓 (KV)	基準電流 (A)	基準阻抗 (Ω)	電壓 (KV)	長度 (M)	每相電纜			管別	電阻 R (Ω /KM)	電抗 X_l (Ω /KM)	Σ等效阻抗 (Ω)		X / R	K	*Isym* (KA)	*Iasy* (KA)	頁碼
							線別	線 徑	條數				R *(pu)*	X *(pu)*					
f - 121	2-R2B	0.19	3038.7	0.0361	0.6	50	XLPE	50	1	EMT	0.4692	0.1614	0.73241237	0.40164531	0.55	1	3.64	3.64	27
f - 122	HVCB-5	22.8	25.3	519.84	25	3	CU BUS	25 × 3	1	BUS BAR	0.3036	0.2902	0.00003613	0.00190883	52.83	1.1	13.25	14.58	27
f - 123	ACB-5	0.38	1519.3	0.1444	0.6	10	CU BUS	100 × 10	4	BUS BAR	0.0062	0.1266	0.00295781	0.02794529	8.6	1.22	65.35	79.73	28
f - 124	A1	0.38	1519.3	0.1444	0.6	100	XLPE	80	1	TRAY+EMT	0.2872	0.1516	0.20157733	0.12807779	0.64	1	6.36	6.36	28
f - 125	A2	0.38	1519.3	0.1444	0.6	100	XLPE	80	1	TRAY+EMT	0.2872	0.1516	0.20157733	0.12807779	0.64	1	6.36	6.36	28
f - 126	A3	0.38	1519.3	0.1444	0.6	100	XLPE	80	1	TRAY+EMT	0.2872	0.1516	0.20157733	0.12807779	0.64	1	6.36	6.36	29
f - 127	A4	0.38	1519.3	0.1444	0.6	100	XLPE	80	1	TRAY+EMT	0.2872	0.1516	0.20157733	0.12807779	0.64	1	6.36	6.36	29
f - 128	A5	0.38	1519.3	0.1444	0.6	100	XLPE	80	1	TRAY+EMT	0.2872	0.1516	0.20157733	0.12807779	0.64	1	6.36	6.36	29
f - 129	A6	0.38	1519.3	0.1444	0.6	100	XLPE	80	1	TRAY+EMT	0.2872	0.1516	0.20157733	0.12807779	0.64	1	6.36	6.36	29
f - 130	A7	0.38	1519.3	0.1444	0.6	100	XLPE	80	1	TRAY+EMT	0.2872	0.1516	0.20157733	0.12807779	0.64	1	6.36	6.36	29
f - 131	A8	0.38	1519.3	0.1444	0.6	100	XLPE	80	1	TRAY+EMT	0.2872	0.1516	0.20157733	0.12807779	0.64	1	6.36	6.36	30
f - 132	A9	0.38	1519.3	0.1444	0.6	100	XLPE	80	1	TRAY+EMT	0.2872	0.1516	0.20157733	0.12807779	0.64	1	6.36	6.36	30
f - 133	A10	0.38	1519.3	0.1444	0.6	100	XLPE	80	1	TRAY+EMT	0.2872	0.1516	0.20157733	0.12807779	0.64	1	6.36	6.36	30
f - 134	B1	0.38	1519.3	0.1444	0.6	100	XLPE	100	1	TRAY+EMT	0.2341	0.1466	0.16480447	0.12461519	0.76	1	7.35	7.35	30
f - 135	B2	0.38	1519.3	0.1444	0.6	100	XLPE	80	1	TRAY+EMT	0.2872	0.1516	0.20157733	0.12807779	0.64	1	6.36	6.36	30
f - 136	B3	0.38	1519.3	0.1444	0.6	100	XLPE	80	1	TRAY+EMT	0.2872	0.1516	0.20157733	0.12807779	0.64	1	6.36	6.36	31
f - 137	B4	0.38	1519.3	0.1444	0.6	100	XLPE	80	1	TRAY+EMT	0.2872	0.1516	0.20157733	0.12807779	0.64	1	6.36	6.36	31
f - 138	B5	0.38	1519.3	0.1444	0.6	100	XLPE	80	1	TRAY+EMT	0.2872	0.1516	0.20157733	0.12807779	0.64	1	6.36	6.36	31
f - 139	B6	0.38	1519.3	0.1444	0.6	100	XLPE	80	1	TRAY+EMT	0.2872	0.1516	0.20157733	0.12807779	0.64	1	6.36	6.36	31
f - 140	B7	0.38	1519.3	0.1444	0.6	100	XLPE	80	1	TRAY+EMT	0.2872	0.1516	0.20157733	0.12807779	0.64	1	6.36	6.36	31

故障電流計算總表

故障點	配電盤名稱	基準電壓 (KV)	基準電流 (A)	基準阻抗 (Ω)	電壓 (KV)	長度 (M)	每相電纜			管別	電阻 R (Ω /KM)	電抗 X_l (Ω /KM)	Σ等效阻抗 (Ω)		X / R	K	*Isym* (KA)	*Iasy* (KA)	頁碼
							線別	線 徑	條數				R *(pu)*	X *(pu)*					
f - 141	B8	0.38	1519.3	0.1444	0.6	100	XLPE	80	1	TRAY+EMT	0.2872	0.1516	0.20157733	0.12807779	0.64	1	6.36	6.36	32
f - 142	B9	0.38	1519.3	0.1444	0.6	100	XLPE	80	1	TRAY+EMT	0.2872	0.1516	0.20157733	0.12807779	0.64	1	6.36	6.36	32
f - 143	B10	0.38	1519.3	0.1444	0.6	100	XLPE	80	1	TRAY+EMT	0.2872	0.1516	0.20157733	0.12807779	0.64	1	6.36	6.36	32
f - 144	A0	0.38	1519.3	0.1444	0.6	100	XLPE	50	1	TRAY+EMT	0.4692	0.1614	0.32761611	0.13486449	0.41	1	4.29	4.29	32
f - 145	AA1	0.38	1519.3	0.1444	0.6	100	XLPE	38	1	TRAY+EMT	0.6095	0.1563	0.42477677	0.13133264	0.31	1	3.42	3.42	32
f - 146	AA2	0.38	1519.3	0.1444	0.6	100	XLPE	38	1	TRAY+EMT	0.6095	0.1563	0.42477677	0.13133264	0.31	1	3.42	3.42	33
f - 147	AA3	0.38	1519.3	0.1444	0.6	100	XLPE	38	1	TRAY+EMT	0.6095	0.1563	0.42477677	0.13133264	0.31	1	3.42	3.42	33
f - 148	AA4	0.38	1519.3	0.1444	0.6	100	XLPE	38	1	TRAY+EMT	0.6095	0.1563	0.42477677	0.13133264	0.31	1	3.42	3.42	33
f - 149	AA5	0.38	1519.3	0.1444	0.6	100	XLPE	22	1	TRAY+EMT	1.0507	0.1622	0.73031694	0.13541851	0.19	1	2.05	2.05	33
f - 150	B0	0.38	1519.3	0.1444	0.6	100	XLPE	50	1	TRAY+EMT	0.4692	0.1614	0.32761611	0.13486449	0.41	1	4.29	4.29	33
f - 151	BB1	0.38	1519.3	0.1444	0.6	100	XLPE	38	1	TRAY+EMT	0.6095	0.1563	0.42477677	0.13133264	0.31	1	3.42	3.42	34
f - 152	BB2	0.38	1519.3	0.1444	0.6	100	XLPE	38	1	TRAY+EMT	0.6095	0.1563	0.42477677	0.13133264	0.31	1	3.42	3.42	34
f - 153	BB3	0.38	1519.3	0.1444	0.6	100	XLPE	38	1	TRAY+EMT	0.6095	0.1563	0.42477677	0.13133264	0.31	1	3.42	3.42	34
f - 154	BB4	0.38	1519.3	0.1444	0.6	100	XLPE	38	1	TRAY+EMT	0.6095	0.1563	0.42477677	0.13133264	0.31	1	3.42	3.42	34

故障電流計算

◆電源系統阻抗：責任分界點之三相短路容量　500　MVA ，基值容量 KVA_b =1000 KVA

$$Z_s = j\frac{KVA_b}{KVA_s} = \frac{1000\ KVA_b}{500\ \ MVA \times 1000} = j\ \ 0.002\ \ =\ \ 0.002\ \angle\ 90^\circ\ \ (p.u)$$

◆倒灌電流之馬達群組 Σ = 7767.875 HP　X_d' = 25 %　　$\frac{X}{R}$ = 6　　R = 4.16667 %　　(1HP≒1KVA)

$$Z_m = pu\ (Z_m) \times (\frac{KV_{HP}}{KV_b})^2 \times \frac{KVA_b}{KVA_{HP}} = 0.00536397 + j\ 0.03218383 = 0.03262777\ \angle 80.5^\circ\ \ (p.u)$$

$$\Sigma Z_s \quad = Z_s \quad // \quad Z_m = \frac{Z_s \times Z_m}{Z_s + Z_m} = 0.00001792 + j\ 0.00188580 = 0.00188589\ \angle 89.5^\circ\ \ (p.u)$$

◆配電盤名稱：PT　　故障點：$f-1$　　基準值：KV_{b1} = 22.8 KV　I_{b1} = 25.3 A　Z_{b1} = 519.84 Ω

配管線：25 KV XLPE.C　200 mm²，1 / ∮，70 M，IN PVC.P　Z_{cable} = 0.1211 + j 0.1526 (Ω/ KM)

$$Z_w = \frac{Z_{cable}}{Z_{b1}} = \frac{0.1211 + j\ 0.1526}{519.84} \times \frac{70\ \ M}{1000\ M} \times \frac{1}{1} = 0.00001631 + j\ 0.00002055 = 0.00002624\ \angle 51.6^\circ\ \ (p.u)$$

$$\Sigma Z_{f-1} = \Sigma Z_s + Z_w = 0.00003423 + j\ 0.00190635 = 0.00190666\ \angle 89.0^\circ\ \ (p.u)$$

對稱故障電流：$I_{f-1\ (sym)} = \frac{I_{b1}}{\Sigma Z_{f-1}}$ = 13.27 (KA)　　$\frac{X}{R}$ = 55.69 ，K = 1.1

非對稱故障電流：$I_{f-1\ (asy)}$ = K × $I_{f-1\ (sym)}$ = 14.6 (KA) → (C.B選用 ≧ 14.6 KA) …… **O K**

◆配電盤名稱：HVCB-M　　故障點：$f-2$　　基準值：KV_{b1} = 22.8 KV　I_{b1} = 25.3 A　Z_{b1} = 519.84 Ω

配管線：25 KV CU BUS　60 × 10 t，1 / ∮，2 M，IN BUS BAR　Z_{bus} = 0.0398 + j 0.2094 (Ω/ KM)

$$Z_w = \frac{Z_{bus}}{Z_{b1}} = \frac{0.0398 + j\ 0.2094}{519.84} \times \frac{2\ \ M}{1000\ M} \times \frac{1}{1} = 0.00000015 + j\ 0.00000081 = 0.00000082\ \angle 79.5^\circ\ \ (p.u)$$

$$\Sigma Z_{f-2} = \Sigma Z_{f-1} + Z_w = 0.00003438 + j\ 0.00190716 = 0.00190747\ \angle 89.0^\circ\ \ (p.u)$$

對稱故障電流：$I_{f-2\ (sym)} = \frac{I_{b1}}{\Sigma Z_{f-2}}$ = 13.26 (KA)　　$\frac{X}{R}$ = 55.47 ，K = 1.1

非對稱故障電流：$I_{f-2\ (asy)}$ = K × $I_{f-2\ (sym)}$ = 14.59 (KA) → (C.B選用 ≧ 14.6 KA) …… **O K**

◆配電盤名稱：HVCB-1　　故障點：$f-3$　　基準值：KV_{b1} = 22.8 KV　I_{b1} = 25.3 A　Z_{b1} = 519.84 Ω

配管線：25 KV CU BUS　25 × 3 t，1 / ∮，3 M，IN BUS BAR　Z_{bus} = 0.3036 + j 0.2902 (Ω/ KM)

$$Z_w = \frac{Z_{bus}}{Z_{b1}} = \frac{0.3036 + j\ 0.2902}{519.84} \times \frac{3\ \ M}{1000\ M} \times \frac{1}{1} = 0.00000175 + j\ 0.00000167 = 0.00000242\ \angle 43.7^\circ\ \ (p.u)$$

$$\Sigma Z_{f-3} = \Sigma Z_{f-2} + Z_w = 0.00003613 + j\ 0.00190883 = 0.00190917\ \angle 88.9^\circ\ \ (p.u)$$

對稱故障電流：$I_{f-3\ (sym)} = \frac{I_{b1}}{\Sigma Z_{f-3}}$ = 13.25 (KA)　　$\frac{X}{R}$ = 52.83 ，K = 1.1

非對稱故障電流：$I_{f-3\ (asy)}$ = K × $I_{f-3\ (sym)}$ = 14.58 (KA) → (C.B選用 ≧ 14.6 KA) …… **O K**

故障電流計算

◆變壓器名稱： TR-1　　容量： 2500 KVA TR一次側： KV_{b1} = 22.8 KV　I_{b1} = 25.3 A　Z_{b1} = 519.84 Ω

配管線： 25 KV XLPE.C 38 mm²， 1 /ϕ， 12 M，IN PVC.P　Z_{cable} = 0.621 + *j* 0.2006 (Ω/ KM)

$$Z_w = \frac{Z_{cable}}{Z_{b1}} = \frac{0.621 + j\,0.2006}{519.84} \times \frac{12\ M}{1000\ M} \times \frac{1}{10} = 0.00001434 + j\ 0.00000463 = 0.00001507 \angle 17.9^\circ \quad (p.u)$$

變壓器阻抗 Z_{TR} = 0.007 + *j* 0.0596 (Ω/ KM) → $Z_{TR} \times \frac{KVA_b}{KVA_{TR}}$ = 0.0028 + *j* 0.02384 *(p.u)*

$$\Sigma Z_{TR} = \Sigma Z_{f-3} + Z_w + Z_{TR} = 0.00285047 + j\ 0.02575346 = 0.02591073 \angle 83.7^\circ \quad (p.u)$$

◆配電盤名稱： ACB-1　　故障點： *f - 4*　　TR二次側： KV_{b2} = 0.38 KV　I_{b2} = 1519.3 A　Z_{b2} = 0.1444 Ω

配管線： 0.6 KV CU BUS 100 × 10 t，　4 /ϕ， 10 M，IN BUS BAR　Z_{bus} = 0.0062 + *j* 0.1266 (Ω/ KM)

$$Z_w = \frac{Z_{bus}}{Z_{b2}} = \frac{0.0062 + j\,0.1266}{0.1444} \times \frac{10\ M}{1000\ M} \times \frac{1}{4} = 0.00010734 + j\ 0.00219183 = 0.00219446 \angle 87.2^\circ \quad (p.u)$$

$$\Sigma Z'_{f-4} = \Sigma Z_{TR} + Z_w = 0.00295781 + j\ 0.02794529 = 0.02810139 \angle 84.0^\circ \quad (p.u)$$

◆倒灌電流之馬達群組 Σ = 1886 HP　X''_d = 25 %　$\frac{X}{R}$ = 6　R = 4.16667 %　*(1HP≒1KVA)*

$$Z_m = pu\ (Z_m) \times \left(\frac{KV_{HP}}{KV_b}\right)^2 \times \frac{KVA_b}{KVA_{HP}} = 0.02209261 + j\ 0.13255567 = 0.13438411 \angle 80.5^\circ \quad (p.u)$$

$$\Sigma Z_{f-4} = Z'_{f-4}\ //\ Z_m = \frac{Z'_{f-4} \times Z_m}{Z_{f-4} + Z_m} = 0.00268536 + j\ 0.02309164 = 0.02324726 \angle 83.4^\circ \quad (p.u)$$

對稱故障電流： $I_{f-4\ (sym)} = \frac{I_{b2}}{\Sigma Z_{f-4}}$ = 65.35 (KA)　　$\frac{X}{R}$ = 8.6 ，K = 1.22

非對稱故障電流： $I_{f-4\ (asy)}$ = K × $I_{f-4\ (sym)}$ = 79.73 (KA) → (C.B選用 ≧ 79.8 KA) …… ***O K***

◆配電盤名稱： E1　　故障點： *f - 5*　　基準值： KV_{b2} = 0.38 KV　I_{b2} = 1519.3 A　Z_{b2} = 0.1444 Ω

配管線： 0.6 KV XLPE.C 100 mm²， 1 /ϕ， 100 M，IN TRAY+EMT　Z_{cable} = 0.2341 + *j* 0.1466 (Ω/ KM)

$$Z_w = \frac{Z_{cable}}{Z_{b2}} = \frac{0.2341 + j\,0.1466}{0.1444} \times \frac{100\ M}{1000\ M} \times \frac{1}{1} = 0.16211911 + j\ 0.10152355 = 0.19128418 \angle 32.1^\circ \quad (p.u)$$

$$\Sigma Z_{f-5} = \Sigma Z_{f-4} + Z_w = 0.16480447 + j\ 0.12461519 = 0.20661428 \angle 37.1^\circ \quad (p.u)$$

對稱故障電流： $I_{f-5\ (sym)} = \frac{I_{b2}}{\Sigma Z_{f-5}}$ = 7.35 (KA)　　$\frac{X}{R}$ = 0.76 ，K = 1

非對稱故障電流： $I_{f-5\ (asy)}$ = K × $I_{f-5\ (sym)}$ = 7.35 (KA) → (C.B選用 ≧ 7.4 KA) …… ***O K***

◆配電盤名稱： E2　　故障點： *f - 6*　　基準值： KV_{b2} = 0.38 KV　I_{b2} = 1519.3 A　Z_{b2} = 0.1444 Ω

配管線： 0.6 KV XLPE.C 80 mm²， 1 /ϕ， 100 M，IN TRAY+EMT　Z_{cable} = 0.2872 + *j* 0.1516 (Ω/ KM)

$$Z_w = \frac{Z_{cable}}{Z_{b2}} = \frac{0.2872 + j\,0.1516}{0.1444} \times \frac{100\ M}{1000\ M} \times \frac{1}{1} = 0.19889197 + j\ 0.10498615 = 0.22490022 \angle 27.8^\circ \quad (p.u)$$

$$\Sigma Z_{f-6} = \Sigma Z_{f-4} + Z_w = 0.20157733 + j\ 0.12807779 = 0.23882492 \angle 32.4^\circ \quad (p.u)$$

對稱故障電流： $I_{f-6\ (sym)} = \frac{I_{b2}}{\Sigma Z_{f-6}}$ = 6.36 (KA)　　$\frac{X}{R}$ = 0.64 ，K = 1

非對稱故障電流： $I_{f-6\ (asy)}$ = K × $I_{f-6\ (sym)}$ = 6.36 (KA) → (C.B選用 ≧ 6.4 KA) …… ***O K***

故障電流計算

◆配電盤名稱： E3　　故障點： $f-7$　　基準值： $KV_{b2}=0.38$ KV　$I_{b2}=1519.3$ A　$Z_{b2}=0.1444\Omega$

配管線： 0.6 KV　XLPE.C　80　mm²，　1 / ∮ ，100 M，IN TRAY+EMT　$Z_{cable}=0.2872+j\,0.1516\,(\Omega/\text{KM})$

$$Z_w=\frac{Z_{cable}}{Z_{b2}}=\frac{0.2872+j\,0.1516}{0.1444}\times\frac{100\text{ M}}{1000\text{ M}}\times\frac{1}{1}=0.19889197+j\,0.10498615=0.22490022\angle 27.8^\circ\ (p.u)$$

$$\Sigma Z_{f-7}=\Sigma Z_{f-4}+Z_w=0.20157733+j\,0.12807779=0.23882492\angle 32.4^\circ\ (p.u)$$

對稱故障電流：$I_{f-7\ (sym)}=\dfrac{I_{b2}}{\Sigma Z_{f-7}}=6.36$ (KA)　　$\dfrac{X}{R}=0.64$，K＝ 1

非對稱故障電流：$I_{f-7\ (asy)}=K\times I_{f-7\ (sym)}=6.36$ (KA)　→　(C.B選用 ≧ 6.4 KA) ‥‥‥ ***OK***

◆配電盤名稱： E4　　故障點： $f-8$　　基準值： $KV_{b2}=0.38$ KV　$I_{b2}=1519.3$ A　$Z_{b2}=0.1444\Omega$

配管線： 0.6 KV　XLPE.C　80　mm²，　1 / ∮ ，100 M，IN TRAY+EMT　$Z_{cable}=0.2872+j\,0.1516\,(\Omega/\text{KM})$

$$Z_w=\frac{Z_{cable}}{Z_{b2}}=\frac{0.2872+j\,0.1516}{0.1444}\times\frac{100\text{ M}}{1000\text{ M}}\times\frac{1}{1}=0.19889197+j\,0.10498615=0.22490022\angle 27.8^\circ\ (p.u)$$

$$\Sigma Z_{f-8}=\Sigma Z_{f-4}+Z_w=0.20157733+j\,0.12807779=0.23882492\angle 32.4^\circ\ (p.u)$$

對稱故障電流：$I_{f-8\ (sym)}=\dfrac{I_{b2}}{\Sigma Z_{f-8}}=6.36$ (KA)　　$\dfrac{X}{R}=0.64$，K＝ 1

非對稱故障電流：$I_{f-8\ (asy)}=K\times I_{f-8\ (sym)}=6.36$ (KA)　→　(C.B選用 ≧ 6.4 KA) ‥‥‥ ***OK***

◆配電盤名稱： E5　　故障點： $f-9$　　基準值： $KV_{b2}=0.38$ KV　$I_{b2}=1519.3$ A　$Z_{b2}=0.1444\Omega$

配管線： 0.6 KV　XLPE.C　80　mm²，　1 / ∮ ，100 M，IN TRAY+EMT　$Z_{cable}=0.2872+j\,0.1516\,(\Omega/\text{KM})$

$$Z_w=\frac{Z_{cable}}{Z_{b2}}=\frac{0.2872+j\,0.1516}{0.1444}\times\frac{100\text{ M}}{1000\text{ M}}\times\frac{1}{1}=0.19889197+j\,0.10498615=0.22490022\angle 27.8^\circ\ (p.u)$$

$$\Sigma Z_{f-9}=\Sigma Z_{f-4}+Z_w=0.20157733+j\,0.12807779=0.23882492\angle 32.4^\circ\ (p.u)$$

對稱故障電流：$I_{f-9\ (sym)}=\dfrac{I_{b2}}{\Sigma Z_{f-9}}=6.36$ (KA)　　$\dfrac{X}{R}=0.64$，K＝ 1

非對稱故障電流：$I_{f-9\ (asy)}=K\times I_{f-9\ (sym)}=6.36$ (KA)　→　(C.B選用 ≧ 6.4 KA) ‥‥‥ ***OK***

◆配電盤名稱： E6　　故障點： $f-10$　　基準值： $KV_{b2}=0.38$ KV　$I_{b2}=1519.3$ A　$Z_{b2}=0.1444\Omega$

配管線： 0.6 KV　XLPE.C　80　mm²，　1 / ∮ ，100 M，IN TRAY+EMT　$Z_{cable}=0.2872+j\,0.1516\,(\Omega/\text{KM})$

$$Z_w=\frac{Z_{cable}}{Z_{b2}}=\frac{0.2872+j\,0.1516}{0.1444}\times\frac{100\text{ M}}{1000\text{ M}}\times\frac{1}{1}=0.19889197+j\,0.10498615=0.22490022\angle 27.8^\circ\ (p.u)$$

$$\Sigma Z_{f-10}=\Sigma Z_{f-4}+Z_w=0.20157733+j\,0.12807779=0.23882492\angle 32.4^\circ\ (p.u)$$

對稱故障電流：$I_{f-10\ (sym)}=\dfrac{I_{b2}}{\Sigma Z_{f-10}}=6.36$ (KA)　　$\dfrac{X}{R}=0.64$，K＝ 1

非對稱故障電流：$I_{f-10\ (asy)}=K\times I_{f-10\ (sym)}=6.36$ (KA)　→　(C.B選用 ≧ 6.4 KA) ‥‥‥ ***OK***

◆配電盤名稱： E7　　故障點： $f-11$　　基準值： $KV_{b2}=0.38$ KV　$I_{b2}=1519.3$ A　$Z_{b2}=0.1444\Omega$

配管線： 0.6 KV　XLPE.C　80　mm²，　1 / ∮ ，100 M，IN TRAY+EMT　$Z_{cable}=0.2872+j\,0.1516\,(\Omega/\text{KM})$

$$Z_w=\frac{Z_{cable}}{Z_{b2}}=\frac{0.2872+j\,0.1516}{0.1444}\times\frac{100\text{ M}}{1000\text{ M}}\times\frac{1}{1}=0.19889197+j\,0.10498615=0.22490022\angle 27.8^\circ\ (p.u)$$

$$\Sigma Z_{f-11}=\Sigma Z_{f-4}+Z_w=0.20157733+j\,0.12807779=0.23882492\angle 32.4^\circ\ (p.u)$$

對稱故障電流：$I_{f-11\ (sym)}=\dfrac{I_{b2}}{\Sigma Z_{f-11}}=6.36$ (KA)　　$\dfrac{X}{R}=0.64$，K＝ 1

非對稱故障電流：$I_{f-11\ (asy)}=K\times I_{f-11\ (sym)}=6.36$ (KA)　→　(C.B選用 ≧ 6.4 KA) ‥‥‥ ***OK***

故障電流計算

◆配電盤名稱： E8　　故障點： $f-12$　　基準值： KV_{b2} = 0.38 KV　I_{b2} = 1519.3 A　Z_{b2} = 0.1444 Ω

配管線： 0.6 KV　XLPE.C　80　mm²，　1 / 𝛷 ，100 M，IN TRAY+EMT　Z_{cable} = 0.2872 + j 0.1516 (Ω/ KM)

$$Z_w = \frac{Z_{cable}}{Z_{b2}} = \frac{0.2872 + j\ 0.1516}{0.1444} \times \frac{100\ M}{1000\ M} \times \frac{1}{1} = 0.19889197 + j\ 0.10498615 = 0.22490022 \angle 27.8^\circ \ (p.u)$$

$$\Sigma Z_{f-12} = \Sigma Z_{f-4} + Z_w = 0.20157733 + j\ 0.12807779 = 0.23882492 \angle 32.4^\circ \ (p.u)$$

對稱故障電流： $I_{f-12\ (sym)} = \frac{I_{b2}}{\Sigma Z_{f-12}}$ = 6.36 (KA)　　$\frac{X}{R}$ = 0.64 ，K = 1

非對稱故障電流： $I_{f-12\ (asy)}$ = K × $I_{f-12\ (sym)}$ = 6.36 (KA) → (C.B選用 ≧ 6.4 KA) …… **OK**

◆配電盤名稱： E9　　故障點： $f-13$　　基準值： KV_{b2} = 0.38 KV　I_{b2} = 1519.3 A　Z_{b2} = 0.1444 Ω

配管線： 0.6 KV　XLPE.C　80　mm²，　1 / 𝛷 ，100 M，IN TRAY+EMT　Z_{cable} = 0.2872 + j 0.1516 (Ω/ KM)

$$Z_w = \frac{Z_{cable}}{Z_{b2}} = \frac{0.2872 + j\ 0.1516}{0.1444} \times \frac{100\ M}{1000\ M} \times \frac{1}{1} = 0.19889197 + j\ 0.10498615 = 0.22490022 \angle 27.8^\circ \ (p.u)$$

$$\Sigma Z_{f-13} = \Sigma Z_{f-4} + Z_w = 0.20157733 + j\ 0.12807779 = 0.23882492 \angle 32.4^\circ \ (p.u)$$

對稱故障電流： $I_{f-13\ (sym)} = \frac{I_{b2}}{\Sigma Z_{f-13}}$ = 6.36 (KA)　　$\frac{X}{R}$ = 0.64 ，K = 1

非對稱故障電流： $I_{f-13\ (asy)}$ = K × $I_{f-13\ (sym)}$ = 6.36 (KA) → (C.B選用 ≧ 6.4 KA) …… **OK**

◆配電盤名稱： E10　　故障點： $f-14$　　基準值： KV_{b2} = 0.38 KV　I_{b2} = 1519.3 A　Z_{b2} = 0.1444 Ω

配管線： 0.6 KV　XLPE.C　80　mm²，　1 / 𝛷 ，100 M，IN TRAY+EMT　Z_{cable} = 0.2872 + j 0.1516 (Ω/ KM)

$$Z_w = \frac{Z_{cable}}{Z_{b2}} = \frac{0.2872 + j\ 0.1516}{0.1444} \times \frac{100\ M}{1000\ M} \times \frac{1}{1} = 0.19889197 + j\ 0.10498615 = 0.22490022 \angle 27.8^\circ \ (p.u)$$

$$\Sigma Z_{f-14} = \Sigma Z_{f-4} + Z_w = 0.20157733 + j\ 0.12807779 = 0.23882492 \angle 32.4^\circ \ (p.u)$$

對稱故障電流： $I_{f-14\ (sym)} = \frac{I_{b2}}{\Sigma Z_{f-14}}$ = 6.36 (KA)　　$\frac{X}{R}$ = 0.64 ，K = 1

非對稱故障電流： $I_{f-14\ (asy)}$ = K × $I_{f-14\ (sym)}$ = 6.36 (KA) → (C.B選用 ≧ 6.4 KA) …… **OK**

◆配電盤名稱： F1　　故障點： $f-15$　　基準值： KV_{b2} = 0.38 KV　I_{b2} = 1519.3 A　Z_{b2} = 0.1444 Ω

配管線： 0.6 KV　XLPE.C　100　mm²，　1 / 𝛷 ，100 M，IN TRAY+EMT　Z_{cable} = 0.2341 + j 0.1466 (Ω/ KM)

$$Z_w = \frac{Z_{cable}}{Z_{b2}} = \frac{0.2341 + j\ 0.1466}{0.1444} \times \frac{100\ M}{1000\ M} \times \frac{1}{1} = 0.16211911 + j\ 0.10152355 = 0.19128418 \angle 32.1^\circ \ (p.u)$$

$$\Sigma Z_{f-15} = \Sigma Z_{f-4} + Z_w = 0.16480447 + j\ 0.12461519 = 0.20661428 \angle 37.1^\circ \ (p.u)$$

對稱故障電流： $I_{f-15\ (sym)} = \frac{I_{b2}}{\Sigma Z_{f-15}}$ = 7.35 (KA)　　$\frac{X}{R}$ = 0.76 ，K = 1

非對稱故障電流： $I_{f-15\ (asy)}$ = K × $I_{f-15\ (sym)}$ = 7.35 (KA) → (C.B選用 ≧ 7.4 KA) …… **OK**

◆配電盤名稱： F2　　故障點： $f-16$　　基準值： KV_{b2} = 0.38 KV　I_{b2} = 1519.3 A　Z_{b2} = 0.1444 Ω

配管線： 0.6 KV　XLPE.C　80　mm²，　1 / 𝛷 ，100 M，IN TRAY+EMT　Z_{cable} = 0.2872 + j 0.1516 (Ω/ KM)

$$Z_w = \frac{Z_{cable}}{Z_{b2}} = \frac{0.2872 + j\ 0.1516}{0.1444} \times \frac{100\ M}{1000\ M} \times \frac{1}{1} = 0.19889197 + j\ 0.10498615 = 0.22490022 \angle 27.8^\circ \ (p.u)$$

$$\Sigma Z_{f-16} = \Sigma Z_{f-4} + Z_w = 0.20157733 + j\ 0.12807779 = 0.23882492 \angle 32.4^\circ \ (p.u)$$

對稱故障電流： $I_{f-16\ (sym)} = \frac{I_{b2}}{\Sigma Z_{f-16}}$ = 6.36 (KA)　　$\frac{X}{R}$ = 0.64 ，K = 1

非對稱故障電流： $I_{f-16\ (asy)}$ = K × $I_{f-16\ (sym)}$ = 6.36 (KA) → (C.B選用 ≧ 6.4 KA) …… **OK**

故障電流計算

◆配電盤名稱： F3　　故障點： $f-17$　　基準值： KV_{b2} = 0.38 KV　I_{b2} = 1519.3 A　Z_{b2} = 0.1444 Ω

配管線： 0.6 KV　XLPE.C　80　mm²，　1 / 𝛗 ，100 M，IN TRAY+EMT　Z_{cable} = 0.2872 + j 0.1516 (Ω/ KM)

$$Z_w = \frac{Z_{cable}}{Z_{b2}} = \frac{0.2872 + j\ 0.1516}{0.1444} \times \frac{100\ M}{1000\ M} \times \frac{1}{1} = 0.19889197 + j\ 0.10498615 = 0.22490022 \angle 27.8^\circ \ (p.u)$$

$$\Sigma Z_{f-17} = \Sigma Z_{f-4} + Z_w = 0.20157733 + j\ 0.12807779 = 0.23882492 \angle 32.4^\circ \ (p.u)$$

對稱故障電流： $I_{f-17\ (sym)} = \frac{I_{b2}}{\Sigma Z_{f-17}}$ = 6.36 (KA)　　$\frac{X}{R}$ = 0.64 ，K = 1

非對稱故障電流： $I_{f-17\ (asy)}$ = K × $I_{f-17\ (sym)}$ = 6.36 (KA) → (C.B選用 ≧ 6.4 KA) …… **OK**

◆配電盤名稱： F4　　故障點： $f-18$　　基準值： KV_{b2} = 0.38 KV　I_{b2} = 1519.3 A　Z_{b2} = 0.1444 Ω

配管線： 0.6 KV　XLPE.C　80　mm²，　1 / 𝛗 ，100 M，IN TRAY+EMT　Z_{cable} = 0.2872 + j 0.1516 (Ω/ KM)

$$Z_w = \frac{Z_{cable}}{Z_{b2}} = \frac{0.2872 + j\ 0.1516}{0.1444} \times \frac{100\ M}{1000\ M} \times \frac{1}{1} = 0.19889197 + j\ 0.10498615 = 0.22490022 \angle 27.8^\circ \ (p.u)$$

$$\Sigma Z_{f-18} = \Sigma Z_{f-4} + Z_w = 0.20157733 + j\ 0.12807779 = 0.23882492 \angle 32.4^\circ \ (p.u)$$

對稱故障電流： $I_{f-18\ (sym)} = \frac{I_{b2}}{\Sigma Z_{f-18}}$ = 6.36 (KA)　　$\frac{X}{R}$ = 0.64 ，K = 1

非對稱故障電流： $I_{f-18\ (asy)}$ = K × $I_{f-18\ (sym)}$ = 6.36 (KA) → (C.B選用 ≧ 6.4 KA) …… **OK**

◆配電盤名稱： F5　　故障點： $f-19$　　基準值： KV_{b2} = 0.38 KV　I_{b2} = 1519.3 A　Z_{b2} = 0.1444 Ω

配管線： 0.6 KV　XLPE.C　80　mm²，　1 / 𝛗 ，100 M，IN TRAY+EMT　Z_{cable} = 0.2872 + j 0.1516 (Ω/ KM)

$$Z_w = \frac{Z_{cable}}{Z_{b2}} = \frac{0.2872 + j\ 0.1516}{0.1444} \times \frac{100\ M}{1000\ M} \times \frac{1}{1} = 0.19889197 + j\ 0.10498615 = 0.22490022 \angle 27.8^\circ \ (p.u)$$

$$\Sigma Z_{f-19} = \Sigma Z_{f-4} + Z_w = 0.20157733 + j\ 0.12807779 = 0.23882492 \angle 32.4^\circ \ (p.u)$$

對稱故障電流： $I_{f-19\ (sym)} = \frac{I_{b2}}{\Sigma Z_{f-19}}$ = 6.36 (KA)　　$\frac{X}{R}$ = 0.64 ，K = 1

非對稱故障電流： $I_{f-19\ (asy)}$ = K × $I_{f-19\ (sym)}$ = 6.36 (KA) → (C.B選用 ≧ 6.4 KA) …… **OK**

◆配電盤名稱： F6　　故障點： $f-20$　　基準值： KV_{b2} = 0.38 KV　I_{b2} = 1519.3 A　Z_{b2} = 0.1444 Ω

配管線： 0.6 KV　XLPE.C　80　mm²，　1 / 𝛗 ，100 M，IN TRAY+EMT　Z_{cable} = 0.2872 + j 0.1516 (Ω/ KM)

$$Z_w = \frac{Z_{cable}}{Z_{b2}} = \frac{0.2872 + j\ 0.1516}{0.1444} \times \frac{100\ M}{1000\ M} \times \frac{1}{1} = 0.19889197 + j\ 0.10498615 = 0.22490022 \angle 27.8^\circ \ (p.u)$$

$$\Sigma Z_{f-20} = \Sigma Z_{f-4} + Z_w = 0.20157733 + j\ 0.12807779 = 0.23882492 \angle 32.4^\circ \ (p.u)$$

對稱故障電流： $I_{f-20\ (sym)} = \frac{I_{b2}}{\Sigma Z_{f-20}}$ = 6.36 (KA)　　$\frac{X}{R}$ = 0.64 ，K = 1

非對稱故障電流： $I_{f-20\ (asy)}$ = K × $I_{f-20\ (sym)}$ = 6.36 (KA) → (C.B選用 ≧ 6.4 KA) …… **OK**

◆配電盤名稱： F7　　故障點： $f-21$　　基準值： KV_{b2} = 0.38 KV　I_{b2} = 1519.3 A　Z_{b2} = 0.1444 Ω

配管線： 0.6 KV　XLPE.C　80　mm²，　1 / 𝛗 ，100 M，IN TRAY+EMT　Z_{cable} = 0.2872 + j 0.1516 (Ω/ KM)

$$Z_w = \frac{Z_{cable}}{Z_{b2}} = \frac{0.2872 + j\ 0.1516}{0.1444} \times \frac{100\ M}{1000\ M} \times \frac{1}{1} = 0.19889197 + j\ 0.10498615 = 0.22490022 \angle 27.8^\circ \ (p.u)$$

$$\Sigma Z_{f-21} = \Sigma Z_{f-4} + Z_w = 0.20157733 + j\ 0.12807779 = 0.23882492 \angle 32.4^\circ \ (p.u)$$

對稱故障電流： $I_{f-21\ (sym)} = \frac{I_{b2}}{\Sigma Z_{f-21}}$ = 6.36 (KA)　　$\frac{X}{R}$ = 0.64 ，K = 1

非對稱故障電流： $I_{f-21\ (asy)}$ = K × $I_{f-21\ (sym)}$ = 6.36 (KA) → (C.B選用 ≧ 6.4 KA) …… **OK**

故障電流計算

◆配電盤名稱： F8　　故障點： $f-22$　　基準值： KV_{b2} = 0.38 KV　I_{b2} = 1519.3 A　Z_{b2} = 0.1444 Ω

配管線： 0.6 KV　XLPE.C　80　mm²，　1 / ϕ ，100 M，IN TRAY+EMT　Z_{cable} = 0.2872 + j 0.1516 (Ω/ KM)

$$Z_w = \frac{Z_{cable}}{Z_{b2}} = \frac{0.2872 + j\ 0.1516}{0.1444} \times \frac{100\ M}{1000\ M} \times \frac{1}{1} = 0.19889197 + j\ 0.10498615 = 0.22490022 \angle 27.8^\circ \ (p.u)$$

$$\Sigma Z_{f-22} = \Sigma Z_{f-4} + Z_w = 0.20157733 + j\ 0.12807779 = 0.23882492 \angle 32.4^\circ \ (p.u)$$

對稱故障電流： $I_{f-22\ (sym)} = \frac{I_{b2}}{\Sigma Z_{f-22}}$ = 6.36 (KA)　　$\frac{X}{R}$ = 0.64 ，K = 1

非對稱故障電流： $I_{f-22\ (asy)}$ = K × $I_{f-22\ (sym)}$ = 6.36 (KA) → (C.B選用 ≧ 6.4 KA) …… **OK**

◆配電盤名稱： F9　　故障點： $f-23$　　基準值： KV_{b2} = 0.38 KV　I_{b2} = 1519.3 A　Z_{b2} = 0.1444 Ω

配管線： 0.6 KV　XLPE.C　80　mm²，　1 / ϕ ，100 M，IN TRAY+EMT　Z_{cable} = 0.2872 + j 0.1516 (Ω/ KM)

$$Z_w = \frac{Z_{cable}}{Z_{b2}} = \frac{0.2872 + j\ 0.1516}{0.1444} \times \frac{100\ M}{1000\ M} \times \frac{1}{1} = 0.19889197 + j\ 0.10498615 = 0.22490022 \angle 27.8^\circ \ (p.u)$$

$$\Sigma Z_{f-23} = \Sigma Z_{f-4} + Z_w = 0.20157733 + j\ 0.12807779 = 0.23882492 \angle 32.4^\circ \ (p.u)$$

對稱故障電流： $I_{f-23\ (sym)} = \frac{I_{b2}}{\Sigma Z_{f-23}}$ = 6.36 (KA)　　$\frac{X}{R}$ = 0.64 ，K = 1

非對稱故障電流： $I_{f-23\ (asy)}$ = K × $I_{f-23\ (sym)}$ = 6.36 (KA) → (C.B選用 ≧ 6.4 KA) …… **OK**

◆配電盤名稱： F10　　故障點： $f-24$　　基準值： KV_{b2} = 0.38 KV　I_{b2} = 1519.3 A　Z_{b2} = 0.1444 Ω

配管線： 0.6 KV　XLPE.C　80　mm²，　1 / ϕ ，100 M，IN TRAY+EMT　Z_{cable} = 0.2872 + j 0.1516 (Ω/ KM)

$$Z_w = \frac{Z_{cable}}{Z_{b2}} = \frac{0.2872 + j\ 0.1516}{0.1444} \times \frac{100\ M}{1000\ M} \times \frac{1}{1} = 0.19889197 + j\ 0.10498615 = 0.22490022 \angle 27.8^\circ \ (p.u)$$

$$\Sigma Z_{f-24} = \Sigma Z_{f-4} + Z_w = 0.20157733 + j\ 0.12807779 = 0.23882492 \angle 32.4^\circ \ (p.u)$$

對稱故障電流： $I_{f-24\ (sym)} = \frac{I_{b2}}{\Sigma Z_{f-24}}$ = 6.36 (KA)　　$\frac{X}{R}$ = 0.64 ，K = 1

非對稱故障電流： $I_{f-24\ (asy)}$ = K × $I_{f-24\ (sym)}$ = 6.36 (KA) → (C.B選用 ≧ 6.4 KA) …… **OK**

◆配電盤名稱： E0　　故障點： $f-25$　　基準值： KV_{b2} = 0.38 KV　I_{b2} = 1519.3 A　Z_{b2} = 0.1444 Ω

配管線： 0.6 KV　XLPE.C　50　mm²，　1 / ϕ ，100 M，IN TRAY+EMT　Z_{cable} = 0.4692 + j 0.1614 (Ω/ KM)

$$Z_w = \frac{Z_{cable}}{Z_{b2}} = \frac{0.4692 + j\ 0.1614}{0.1444} \times \frac{100\ M}{1000\ M} \times \frac{1}{1} = 0.32493075 + j\ 0.11177285 = 0.34361776 \angle 19.0^\circ \ (p.u)$$

$$\Sigma Z_{f-25} = \Sigma Z_{f-4} + Z_w = 0.32761611 + j\ 0.13486449 = 0.35428907 \angle 22.4^\circ \ (p.u)$$

對稱故障電流： $I_{f-25\ (sym)} = \frac{I_{b2}}{\Sigma Z_{f-25}}$ = 4.29 (KA)　　$\frac{X}{R}$ = 0.41 ，K = 1

非對稱故障電流： $I_{f-25\ (asy)}$ = K × $I_{f-25\ (sym)}$ = 4.29 (KA) → (C.B選用 ≧ 4.3 KA) …… **OK**

◆配電盤名稱： EE1　　故障點： $f-26$　　基準值： KV_{b2} = 0.38 KV　I_{b2} = 1519.3 A　Z_{b2} = 0.1444 Ω

配管線： 0.6 KV　XLPE.C　38　mm²，　1 / ϕ ，100 M，IN TRAY+EMT　Z_{cable} = 0.6095 + j 0.1563 (Ω/ KM)

$$Z_w = \frac{Z_{cable}}{Z_{b2}} = \frac{0.6095 + j\ 0.1563}{0.1444} \times \frac{100\ M}{1000\ M} \times \frac{1}{1} = 0.42209141 + j\ 0.10824100 = 0.43574909 \angle 14.4^\circ \ (p.u)$$

$$\Sigma Z_{f-26} = \Sigma Z_{f-4} + Z_w = 0.42477677 + j\ 0.13133264 = 0.44461620 \angle 17.2^\circ \ (p.u)$$

對稱故障電流： $I_{f-26\ (sym)} = \frac{I_{b2}}{\Sigma Z_{f-26}}$ = 3.42 (KA)　　$\frac{X}{R}$ = 0.31 ，K = 1

非對稱故障電流： $I_{f-26\ (asy)}$ = K × $I_{f-26\ (sym)}$ = 3.42 (KA) → (C.B選用 ≧ 3.5 KA) …… **OK**

◆配電盤名稱： EE2　故障點： f- 27　基準值： KV_{b2} = 0.38 KV　I_{b2} = 1519.3 A　Z_{b2} = 0.1444 Ω

配管線： 0.6 KV XLPE.C 38 mm²， 1 / § ， 100 M，IN TRAY+EMT Z_{cable} = 0.6095 + j 0.1563 (Ω/ KM)

$$Z_w = \frac{Z_{cable}}{Z_{b2}} = \frac{0.6095 + j\,0.1563}{0.1444} \times \frac{100\ M}{1000\ M} \times \frac{1}{1} = 0.42209141 + j\,0.10824100 = 0.43574909 \angle 14.4^\circ \quad (p.u)$$

$$\Sigma Z_{f-27} = \Sigma Z_{f-4} + Z_w = 0.42477677 + j\,0.13133264 = 0.44461620 \angle 17.2^\circ \quad (p.u)$$

對稱故障電流：$I_{f-27\ (sym)} = \dfrac{I_{b2}}{\Sigma Z_{f-27}} =$ 3.42 (KA)　$\dfrac{X}{R} =$ 0.31 ，K= 1

非對稱故障電流：$I_{f-27\ (asy)} = K \times I_{f-27\ (sym)} =$ 3.42 (KA) → (C.B選用 ≧ 3.5 KA) …… ***OK***

◆配電盤名稱： EE3　故障點： f- 28　基準值： KV_{b2} = 0.38 KV　I_{b2} = 1519.3 A　Z_{b2} = 0.1444 Ω

配管線： 0.6 KV XLPE.C 38 mm²， 1 / § ， 100 M，IN TRAY+EMT Z_{cable} = 0.6095 + j 0.1563 (Ω/ KM)

$$Z_w = \frac{Z_{cable}}{Z_{b2}} = \frac{0.6095 + j\,0.1563}{0.1444} \times \frac{100\ M}{1000\ M} \times \frac{1}{1} = 0.42209141 + j\,0.10824100 = 0.43574909 \angle 14.4^\circ \quad (p.u)$$

$$\Sigma Z_{f-28} = \Sigma Z_{f-4} + Z_w = 0.42477677 + j\,0.13133264 = 0.44461620 \angle 17.2^\circ \quad (p.u)$$

對稱故障電流：$I_{f-28\ (sym)} = \dfrac{I_{b2}}{\Sigma Z_{f-28}} =$ 3.42 (KA)　$\dfrac{X}{R} =$ 0.31 ，K= 1

非對稱故障電流：$I_{f-28\ (asy)} = K \times I_{f-28\ (sym)} =$ 3.42 (KA) → (C.B選用 ≧ 3.5 KA) …… ***OK***

◆配電盤名稱： EE4　故障點： f- 29　基準值： KV_{b2} = 0.38 KV　I_{b2} = 1519.3 A　Z_{b2} = 0.1444 Ω

配管線： 0.6 KV XLPE.C 38 mm²， 1 / § ， 100 M，IN TRAY+EMT Z_{cable} = 0.6095 + j 0.1563 (Ω/ KM)

$$Z_w = \frac{Z_{cable}}{Z_{b2}} = \frac{0.6095 + j\,0.1563}{0.1444} \times \frac{100\ M}{1000\ M} \times \frac{1}{1} = 0.42209141 + j\,0.10824100 = 0.43574909 \angle 14.4^\circ \quad (p.u)$$

$$\Sigma Z_{f-29} = \Sigma Z_{f-4} + Z_w = 0.42477677 + j\,0.13133264 = 0.44461620 \angle 17.2^\circ \quad (p.u)$$

對稱故障電流：$I_{f-29\ (sym)} = \dfrac{I_{b2}}{\Sigma Z_{f-29}} =$ 3.42 (KA)　$\dfrac{X}{R} =$ 0.31 ，K= 1

非對稱故障電流：$I_{f-29\ (asy)} = K \times I_{f-29\ (sym)} =$ 3.42 (KA) → (C.B選用 ≧ 3.5 KA) …… ***OK***

◆配電盤名稱： EE5　故障點： f- 30　基準值： KV_{b2} = 0.38 KV　I_{b2} = 1519.3 A　Z_{b2} = 0.1444 Ω

配管線： 0.6 KV XLPE.C 22 mm²， 1 / § ， 100 M，IN TRAY+EMT Z_{cable} = 1.0507 + j 0.1622 (Ω/ KM)

$$Z_w = \frac{Z_{cable}}{Z_{b2}} = \frac{1.0507 + j\,0.1622}{0.1444} \times \frac{100\ M}{1000\ M} \times \frac{1}{1} = 0.72763158 + j\,0.11232687 = 0.73625067 \angle 8.8^\circ \quad (p.u)$$

$$\Sigma Z_{f-30} = \Sigma Z_{f-4} + Z_w = 0.73031694 + j\,0.13541851 = 0.74276578 \angle 10.5^\circ \quad (p.u)$$

對稱故障電流：$I_{f-30\ (sym)} = \dfrac{I_{b2}}{\Sigma Z_{f-30}} =$ 2.05 (KA)　$\dfrac{X}{R} =$ 0.19 ，K= 1

非對稱故障電流：$I_{f-30\ (asy)} = K \times I_{f-30\ (sym)} =$ 2.05 (KA) → (C.B選用 ≧ 2.1 KA) …… ***OK***

◆配電盤名稱： F0　故障點： f- 31　基準值： KV_{b2} = 0.38 KV　I_{b2} = 1519.3 A　Z_{b2} = 0.1444 Ω

配管線： 0.6 KV XLPE.C 50 mm²， 1 / § ， 100 M，IN TRAY+EMT Z_{cable} = 0.4692 + j 0.1614 (Ω/ KM)

$$Z_w = \frac{Z_{cable}}{Z_{b2}} = \frac{0.4692 + j\,0.1614}{0.1444} \times \frac{100\ M}{1000\ M} \times \frac{1}{1} = 0.32493075 + j\,0.11177285 = 0.34361776 \angle 19.0^\circ \quad (p.u)$$

$$\Sigma Z_{f-31} = \Sigma Z_{f-4} + Z_w = 0.32761611 + j\,0.13486449 = 0.35428907 \angle 22.4^\circ \quad (p.u)$$

對稱故障電流：$I_{f-31\ (sym)} = \dfrac{I_{b2}}{\Sigma Z_{f-31}} =$ 4.29 (KA)　$\dfrac{X}{R} =$ 0.41 ，K= 1

非對稱故障電流：$I_{f-31\ (asy)} = K \times I_{f-31\ (sym)} =$ 4.29 (KA) → (C.B選用 ≧ 4.3 KA) …… ***OK***

故障電流計算

◆配電盤名稱： FF1　　故障點： $f-32$　　基準值： $KV_{b2}=0.38$ KV　$I_{b2}=1519.3$ A　$Z_{b2}=0.1444\Omega$

配管線： 0.6 KV　XLPE.C　38　mm²，　1 / § ，100 M，IN TRAY+EMT　$Z_{cable}=0.6095+j\,0.1563\ (\Omega/\text{KM})$

$$Z_w=\frac{Z_{cable}}{Z_{b2}}=\frac{0.6095+j\,0.1563}{0.1444}\times\frac{100\ \text{M}}{1000\ \text{M}}\times\frac{1}{1}=0.42209141+j\,0.10824100=0.43574909\angle 14.4^\circ\ (p.u)$$

$$\Sigma Z_{f-32}=\Sigma Z_{f-4}+Z_w=0.42477677+j\,0.13133264=0.44461620\angle 17.2^\circ\ (p.u)$$

對稱故障電流：$I_{f-32\ (sym)}=\dfrac{I_{b2}}{\Sigma Z_{f-32}}=3.42$ (KA)　　$\dfrac{X}{R}=0.31$ ，K＝ 1

非對稱故障電流：$I_{f-32\ (asy)}=K\times I_{f-32\ (sym)}=3.42$ (KA)　→　(C.B選用 ≧ 3.5 KA) …… ***OK***

◆配電盤名稱： FF2　　故障點： $f-33$　　基準值： $KV_{b2}=0.38$ KV　$I_{b2}=1519.3$ A　$Z_{b2}=0.1444\Omega$

配管線： 0.6 KV　XLPE.C　38　mm²，　1 / § ，100 M，IN TRAY+EMT　$Z_{cable}=0.6095+j\,0.1563\ (\Omega/\text{KM})$

$$Z_w=\frac{Z_{cable}}{Z_{b2}}=\frac{0.6095+j\,0.1563}{0.1444}\times\frac{100\ \text{M}}{1000\ \text{M}}\times\frac{1}{1}=0.42209141+j\,0.10824100=0.43574909\angle 14.4^\circ\ (p.u)$$

$$\Sigma Z_{f-33}=\Sigma Z_{f-4}+Z_w=0.42477677+j\,0.13133264=0.44461620\angle 17.2^\circ\ (p.u)$$

對稱故障電流：$I_{f-33\ (sym)}=\dfrac{I_{b2}}{\Sigma Z_{f-33}}=3.42$ (KA)　　$\dfrac{X}{R}=0.31$ ，K＝ 1

非對稱故障電流：$I_{f-33\ (asy)}=K\times I_{f-33\ (sym)}=3.42$ (KA)　→　(C.B選用 ≧ 3.5 KA) …… ***OK***

◆配電盤名稱： FF3　　故障點： $f-34$　　基準值： $KV_{b2}=0.38$ KV　$I_{b2}=1519.3$ A　$Z_{b2}=0.1444\Omega$

配管線： 0.6 KV　XLPE.C　38　mm²，　1 / § ，100 M，IN TRAY+EMT　$Z_{cable}=0.6095+j\,0.1563\ (\Omega/\text{KM})$

$$Z_w=\frac{Z_{cable}}{Z_{b2}}=\frac{0.6095+j\,0.1563}{0.1444}\times\frac{100\ \text{M}}{1000\ \text{M}}\times\frac{1}{1}=0.42209141+j\,0.10824100=0.43574909\angle 14.4^\circ\ (p.u)$$

$$\Sigma Z_{f-34}=\Sigma Z_{f-4}+Z_w=0.42477677+j\,0.13133264=0.44461620\angle 17.2^\circ\ (p.u)$$

對稱故障電流：$I_{f-34\ (sym)}=\dfrac{I_{b2}}{\Sigma Z_{f-34}}=3.42$ (KA)　　$\dfrac{X}{R}=0.31$ ，K＝ 1

非對稱故障電流：$I_{f-34\ (asy)}=K\times I_{f-34\ (sym)}=3.42$ (KA)　→　(C.B選用 ≧ 3.5 KA) …… ***OK***

◆配電盤名稱： FF4　　故障點： $f-35$　　基準值： $KV_{b2}=0.38$ KV　$I_{b2}=1519.3$ A　$Z_{b2}=0.1444\Omega$

配管線： 0.6 KV　XLPE.C　38　mm²，　1 / § ，100 M，IN TRAY+EMT　$Z_{cable}=0.6095+j\,0.1563\ (\Omega/\text{KM})$

$$Z_w=\frac{Z_{cable}}{Z_{b2}}=\frac{0.6095+j\,0.1563}{0.1444}\times\frac{100\ \text{M}}{1000\ \text{M}}\times\frac{1}{1}=0.42209141+j\,0.10824100=0.43574909\angle 14.4^\circ\ (p.u)$$

$$\Sigma Z_{f-35}=\Sigma Z_{f-4}+Z_w=0.42477677+j\,0.13133264=0.44461620\angle 17.2^\circ\ (p.u)$$

對稱故障電流：$I_{f-35\ (sym)}=\dfrac{I_{b2}}{\Sigma Z_{f-35}}=3.42$ (KA)　　$\dfrac{X}{R}=0.31$ ，K＝ 1

非對稱故障電流：$I_{f-35\ (asy)}=K\times I_{f-35\ (sym)}=3.42$ (KA)　→　(C.B選用 ≧ 3.5 KA) …… ***OK***

◆配電盤名稱： HVCB-2　　故障點： $f-36$　　基準值： $KV_{b1}=22.8$ KV　$I_{b1}=25.3$ A　$Z_{b1}=519.84\Omega$

配管線： 25 KV　CU BUS　25 × 3 t，　1 / § ，　3 M，IN BUS BAR　$Z_{bus}=0.3036+j\,0.2902\ (\Omega/\text{KM})$

$$Z_w=\frac{Z_{bus}}{Z_{b1}}=\frac{0.3036+j\,0.2902}{519.84}\times\frac{3\ \text{M}}{1000\ \text{M}}\times\frac{1}{1}=0.00000175+j\,0.00000167=0.00000242\angle 43.7^\circ\ (p.u)$$

$$\Sigma Z_{f-36}=\Sigma Z_{f-2}+Z_w=0.00003613+j\,0.00190883=0.00190917\angle 88.9^\circ\ (p.u)$$

對稱故障電流：$I_{f-36\ (sym)}=\dfrac{I_{b1}}{\Sigma Z_{f-36}}=13.25$ (KA)　　$\dfrac{X}{R}=52.83$ ，K＝ 1.1

非對稱故障電流：$I_{f-36\ (asy)}=K\times I_{f-36\ (sym)}=14.58$ (KA)　→　(C.B選用 ≧ 14.6 KA) …… ***OK***

故障電流計算

◆變壓器名稱：TR-2　　容量：2500 KVA TR一次側：KV_{b1} = 22.8 KV　I_{b1} = 25.3 A　Z_{b1} = 519.84 Ω

配管線：25 KV XLPE.C 38 mm²，1 / ∮，12 M，IN PVC.P　Z_{cable} = 0.621 + *j* 0.2006 (Ω/ KM)

$$Z_w = \frac{Z_{cable}}{Z_{b1}} = \frac{0.621 + j\ 0.2006}{519.84} \times \frac{12\ M}{1000\ M} \times \frac{1}{10} = 0.00001434 + j\ 0.00000463 = 0.00001507 \angle 17.9^\circ \quad (p.u)$$

變壓器阻抗 Z_{TR} = 0.007 + *j* 0.0596 (Ω/ KM) → $Z_{TR} \times \frac{KVA_b}{KVA_{TR}}$ = 0.0028 + *j* 0.02384 *(p.u)*

$$\Sigma Z_{TR} = \Sigma Z_{f-36} + Z_w + Z_{TR} = 0.00285047 + j\ 0.02575346 = 0.02591073 \angle 83.7^\circ \quad (p.u)$$

◆配電盤名稱：ACB-2　　故障點：*f - 37*　TR二次側：KV_{b2} = 0.38 KV　I_{b2} = 1519.3 A　Z_{b2} = 0.1444 Ω

配管線：0.6 KV CU BUS 100 × 10 t，4 / ∮，10 M，IN BUS BAR　Z_{bus} = 0.0062 + *j* 0.1266 (Ω/ KM)

$$Z_w = \frac{Z_{bus}}{Z_{b2}} = \frac{0.0062 + j\ 0.1266}{0.1444} \times \frac{10\ M}{1000\ M} \times \frac{1}{4} = 0.00010734 + j\ 0.00219183 = 0.00219446 \angle 87.2^\circ \quad (p.u)$$

$$\Sigma Z'_{f-37} = \Sigma Z_{TR} + Z_w = 0.00295781 + j\ 0.02794529 = 0.02810139 \angle 84.0^\circ \quad (p.u)$$

◆倒灌電流之馬達群組 Σ = 1059.5 HP　X''_d = 25 %　$\frac{X}{R}$ = 6　R = 4.16667 %　*(1HP ≒1KVA)*

$$Z_m = pu\ (Z_m) \times \left(\frac{KV_{HP}}{KV_b}\right)^2 \times \frac{KVA_b}{KVA_{HP}} = 0.03932673 + j\ 0.23596036 = 0.23921514 \angle 80.5^\circ \quad (p.u)$$

$$\Sigma Z_{f-37} = Z'_{f-37}\ //\ Z_m = \frac{Z'_{f-37} \times Z_m}{Z_{f-37} + Z_m} = 0.00280417 + j\ 0.02499466 = 0.02515147 \angle 83.6^\circ \quad (p.u)$$

對稱故障電流：$I_{f-37\ (sym)} = \frac{I_{b2}}{\Sigma Z_{f-37}}$ = 60.41 (KA)　　$\frac{X}{R}$ = 8.91 ，K = 1.22

非對稱故障電流：$I_{f-37\ (asy)}$ = K × $I_{f-37\ (sym)}$ = 73.7 (KA) → (C.B選用 ≧ 73.7 KA) …… ***O K***

◆配電盤名稱：CDA　　故障點：*f - 38*　　基準值：KV_{b2} = 0.38 KV　I_{b2} = 1519.3 A　Z_{b2} = 0.1444 Ω

配管線：0.6 KV XLPE.C 250 mm²，1 / ∮，50 M，IN PVC.P　Z_{cable} = 0.0957 + *j* 0.1126 (Ω/ KM)

$$Z_w = \frac{Z_{cable}}{Z_{b2}} = \frac{0.0957 + j\ 0.1126}{0.1444} \times \frac{50\ M}{1000\ M} \times \frac{1}{1} = 0.03313712 + j\ 0.03898892 = 0.05116839 \angle 49.6^\circ \quad (p.u)$$

$$\Sigma Z_{f-38} = \Sigma Z_{f-37} + Z_w = 0.03594129 + j\ 0.06398358 = 0.07338716 \angle 60.7^\circ \quad (p.u)$$

對稱故障電流：$I_{f-38\ (sym)} = \frac{I_{b2}}{\Sigma Z_{f-38}}$ = 20.7 (KA)　　$\frac{X}{R}$ = 1.78 ，K = 1.01

非對稱故障電流：$I_{f-38\ (asy)}$ = K × $I_{f-38\ (sym)}$ = 20.91 (KA) → (C.B選用 ≧ 21 KA) …… ***O K***

◆配電盤名稱：ATS　　故障點：*f - 39*　　基準值：KV_{b2} = 0.38 KV　I_{b2} = 1519.3 A　Z_{b2} = 0.1444 Ω

配管線：0.6 KV FR.C 250 mm²，6 / ∮，10 M，IN RSG.P　Z_{cable} = 0.1046 + *j* 0.1545 (Ω/ KM)

$$Z_w = \frac{Z_{cable}}{Z_{b2}} = \frac{0.1046 + j\ 0.1545}{0.1444} \times \frac{10\ M}{1000\ M} \times \frac{1}{6} = 0.00120729 + j\ 0.00178324 = 0.00215348 \angle 55.9^\circ \quad (p.u)$$

$$\Sigma Z_{f-39} = \Sigma Z_{f-37} + Z_w = 0.00401146 + j\ 0.02677790 = 0.02707670 \angle 81.5^\circ \quad (p.u)$$

對稱故障電流：$I_{f-39\ (sym)} = \frac{I_{b2}}{\Sigma Z_{f-39}}$ = 56.11 (KA)　　$\frac{X}{R}$ = 6.68 ，K = 1.18

非對稱故障電流：$I_{f-39\ (asy)}$ = K × $I_{f-39\ (sym)}$ = 66.21 (KA) → (C.B選用 ≧ 66.3 KA) …… ***O K***

故障電流計算

◆配電盤名稱： EMP　　故障點： $f-40$　　基準值： KV_{b2} = 0.38 KV　I_{b2} = 1519.3 A　Z_{b2} = 0.1444 Ω

配管線： 0.6 KV　FR.C　250 mm²，6 /ϕ，71 M，IN　RSG.P　Z_{cable} = 0.1046 + j 0.1545 (Ω/ KM)

$$Z_w = \frac{Z_{cable}}{Z_{b2}} = \frac{0.1046 + j\ 0.1545}{0.1444} \times \frac{71\ M}{1000\ M} \times \frac{1}{6} = 0.00857179 + j\ 0.01266101 = 0.01528976 \angle 55.9^\circ \ (p.u)$$

$$\Sigma Z_{f-40} = \Sigma Z_{f-39} + Z_w = 0.01258325 + j\ 0.03943891 = 0.04139765 \angle 72.3^\circ \ (p.u)$$

對稱故障電流： $I_{f-40\ (sym)} = \frac{I_{b2}}{\Sigma Z_{f-40}}$ = 36.7 (KA)　　$\frac{X}{R}$ = 3.13 ，K = 1.07

非對稱故障電流： $I_{f-40\ (asy)}$ = K × $I_{f-40\ (sym)}$ = 39.27 (KA) → (C.B選用 ≧ 39.3 KA) …… **OK**

◆配電盤名稱： EPF1A　　故障點： $f-41$　　基準值： KV_{b2} = 0.38 KV　I_{b2} = 1519.3 A　Z_{b2} = 0.1444 Ω

配管線： 0.6 KV　FR.C　80 mm²，1 /ϕ，100 M，IN　EMT.P　Z_{cable} = 0.2949 + j 0.1644 (Ω/ KM)

$$Z_w = \frac{Z_{cable}}{Z_{b2}} = \frac{0.2949 + j\ 0.1644}{0.1444} \times \frac{100\ M}{1000\ M} \times \frac{1}{1} = 0.20422438 + j\ 0.11385042 = 0.23381513 \angle 29.1^\circ \ (p.u)$$

$$\Sigma Z_{f-41} = \Sigma Z_{f-40} + Z_w = 0.21680763 + j\ 0.15328933 = 0.26552432 \angle 35.3^\circ \ (p.u)$$

對稱故障電流： $I_{f-41\ (sym)} = \frac{I_{b2}}{\Sigma Z_{f-41}}$ = 5.72 (KA)　　$\frac{X}{R}$ = 0.71 ，K = 1

非對稱故障電流： $I_{f-41\ (asy)}$ = K × $I_{f-41\ (sym)}$ = 5.72 (KA) → (C.B選用 ≧ 5.8 KA) …… **OK**

◆配電盤名稱： EPF1B　　故障點： $f-42$　　基準值： KV_{b2} = 0.38 KV　I_{b2} = 1519.3 A　Z_{b2} = 0.1444 Ω

配管線： 0.6 KV　FR.C　80 mm²，1 /ϕ，100 M，IN　EMT.P　Z_{cable} = 0.2949 + j 0.1644 (Ω/ KM)

$$Z_w = \frac{Z_{cable}}{Z_{b2}} = \frac{0.2949 + j\ 0.1644}{0.1444} \times \frac{100\ M}{1000\ M} \times \frac{1}{1} = 0.20422438 + j\ 0.11385042 = 0.23381513 \angle 29.1^\circ \ (p.u)$$

$$\Sigma Z_{f-42} = \Sigma Z_{f-40} + Z_w = 0.21680763 + j\ 0.15328933 = 0.26552432 \angle 35.3^\circ \ (p.u)$$

對稱故障電流： $I_{f-42\ (sym)} = \frac{I_{b2}}{\Sigma Z_{f-42}}$ = 5.72 (KA)　　$\frac{X}{R}$ = 0.71 ，K = 1

非對稱故障電流： $I_{f-42\ (asy)}$ = K × $I_{f-42\ (sym)}$ = 5.72 (KA) → (C.B選用 ≧ 5.8 KA) …… **OK**

◆配電盤名稱： EPF1C　　故障點： $f-43$　　基準值： KV_{b2} = 0.38 KV　I_{b2} = 1519.3 A　Z_{b2} = 0.1444 Ω

配管線： 0.6 KV　FR.C　80 mm²，1 /ϕ，100 M，IN　EMT.P　Z_{cable} = 0.2949 + j 0.1644 (Ω/ KM)

$$Z_w = \frac{Z_{cable}}{Z_{b2}} = \frac{0.2949 + j\ 0.1644}{0.1444} \times \frac{100\ M}{1000\ M} \times \frac{1}{1} = 0.20422438 + j\ 0.11385042 = 0.23381513 \angle 29.1^\circ \ (p.u)$$

$$\Sigma Z_{f-43} = \Sigma Z_{f-40} + Z_w = 0.21680763 + j\ 0.15328933 = 0.26552432 \angle 35.3^\circ \ (p.u)$$

對稱故障電流： $I_{f-43\ (sym)} = \frac{I_{b2}}{\Sigma Z_{f-43}}$ = 5.72 (KA)　　$\frac{X}{R}$ = 0.71 ，K = 1

非對稱故障電流： $I_{f-43\ (asy)}$ = K × $I_{f-43\ (sym)}$ = 5.72 (KA) → (C.B選用 ≧ 5.8 KA) …… **OK**

◆配電盤名稱： EPF1D　　故障點： $f-44$　　基準值： KV_{b2} = 0.38 KV　I_{b2} = 1519.3 A　Z_{b2} = 0.1444 Ω

配管線： 0.6 KV　FR.C　80 mm²，1 /ϕ，100 M，IN　EMT.P　Z_{cable} = 0.2949 + j 0.1644 (Ω/ KM)

$$Z_w = \frac{Z_{cable}}{Z_{b2}} = \frac{0.2949 + j\ 0.1644}{0.1444} \times \frac{100\ M}{1000\ M} \times \frac{1}{1} = 0.20422438 + j\ 0.11385042 = 0.23381513 \angle 29.1^\circ \ (p.u)$$

$$\Sigma Z_{f-44} = \Sigma Z_{f-40} + Z_w = 0.21680763 + j\ 0.15328933 = 0.26552432 \angle 35.3^\circ \ (p.u)$$

對稱故障電流： $I_{f-44\ (sym)} = \frac{I_{b2}}{\Sigma Z_{f-44}}$ = 5.72 (KA)　　$\frac{X}{R}$ = 0.71 ，K = 1

非對稱故障電流： $I_{f-44\ (asy)}$ = K × $I_{f-44\ (sym)}$ = 5.72 (KA) → (C.B選用 ≧ 5.8 KA) …… **OK**

故障電流計算

◆配電盤名稱： EPF1E　　故障點： $f-45$　　基準值： KV_{b2} = 0.38 KV　I_{b2} = 1519.3 A　Z_{b2} = 0.1444 Ω

配管線： 0.6 KV　FR.C　80　mm²，　1 / ϕ ，100 M，IN　EMT.P　Z_{cable} = 0.2949 + j 0.1644 (Ω/ KM)

$$Z_w = \frac{Z_{cable}}{Z_{b2}} = \frac{0.2949 + j\ 0.1644}{0.1444} \times \frac{100\ M}{1000\ M} \times \frac{1}{1} = 0.20422438 + j\ 0.11385042 = 0.23381513 \angle 29.1^\circ \ (p.u)$$

$$\Sigma Z_{f-45} = \Sigma Z_{f-40} + Z_w = 0.21680763 + j\ 0.15328933 = 0.26552432 \angle 35.3^\circ \ (p.u)$$

對稱故障電流： $I_{f-45\ (sym)} = \frac{I_{b2}}{\Sigma Z_{f-45}}$ = 5.72 (KA)　　$\frac{X}{R}$ = 0.71 ，K = 1

非對稱故障電流： $I_{f-45\ (asy)}$ = K × $I_{f-45\ (sym)}$ = 5.72 (KA) → (C.B選用 ≧ 5.8 KA) …… **OK**

◆配電盤名稱： EPF1F　　故障點： $f-46$　　基準值： KV_{b2} = 0.38 KV　I_{b2} = 1519.3 A　Z_{b2} = 0.1444 Ω

配管線： 0.6 KV　FR.C　80　mm²，　1 / ϕ ，100 M，IN　EMT.P　Z_{cable} = 0.2949 + j 0.1644 (Ω/ KM)

$$Z_w = \frac{Z_{cable}}{Z_{b2}} = \frac{0.2949 + j\ 0.1644}{0.1444} \times \frac{100\ M}{1000\ M} \times \frac{1}{1} = 0.20422438 + j\ 0.11385042 = 0.23381513 \angle 29.1^\circ \ (p.u)$$

$$\Sigma Z_{f-46} = \Sigma Z_{f-40} + Z_w = 0.21680763 + j\ 0.15328933 = 0.26552432 \angle 35.3^\circ \ (p.u)$$

對稱故障電流： $I_{f-46\ (sym)} = \frac{I_{b2}}{\Sigma Z_{f-46}}$ = 5.72 (KA)　　$\frac{X}{R}$ = 0.71 ，K = 1

非對稱故障電流： $I_{f-46\ (asy)}$ = K × $I_{f-46\ (sym)}$ = 5.72 (KA) → (C.B選用 ≧ 5.8 KA) …… **OK**

◆配電盤名稱： EPF1G　　故障點： $f-47$　　基準值： KV_{b2} = 0.38 KV　I_{b2} = 1519.3 A　Z_{b2} = 0.1444 Ω

配管線： 0.6 KV　FR.C　80　mm²，　1 / ϕ ，100 M，IN　EMT.P　Z_{cable} = 0.2949 + j 0.1644 (Ω/ KM)

$$Z_w = \frac{Z_{cable}}{Z_{b2}} = \frac{0.2949 + j\ 0.1644}{0.1444} \times \frac{100\ M}{1000\ M} \times \frac{1}{1} = 0.20422438 + j\ 0.11385042 = 0.23381513 \angle 29.1^\circ \ (p.u)$$

$$\Sigma Z_{f-47} = \Sigma Z_{f-40} + Z_w = 0.21680763 + j\ 0.15328933 = 0.26552432 \angle 35.3^\circ \ (p.u)$$

對稱故障電流： $I_{f-47\ (sym)} = \frac{I_{b2}}{\Sigma Z_{f-47}}$ = 5.72 (KA)　　$\frac{X}{R}$ = 0.71 ，K = 1

非對稱故障電流： $I_{f-47\ (asy)}$ = K × $I_{f-47\ (sym)}$ = 5.72 (KA) → (C.B選用 ≧ 5.8 KA) …… **OK**

◆配電盤名稱： EPF1H　　故障點： $f-48$　　基準值： KV_{b2} = 0.38 KV　I_{b2} = 1519.3 A　Z_{b2} = 0.1444 Ω

配管線： 0.6 KV　FR.C　80　mm²，　1 / ϕ ，100 M，IN　EMT.P　Z_{cable} = 0.2949 + j 0.1644 (Ω/ KM)

$$Z_w = \frac{Z_{cable}}{Z_{b2}} = \frac{0.2949 + j\ 0.1644}{0.1444} \times \frac{100\ M}{1000\ M} \times \frac{1}{1} = 0.20422438 + j\ 0.11385042 = 0.23381513 \angle 29.1^\circ \ (p.u)$$

$$\Sigma Z_{f-48} = \Sigma Z_{f-40} + Z_w = 0.21680763 + j\ 0.15328933 = 0.26552432 \angle 35.3^\circ \ (p.u)$$

對稱故障電流： $I_{f-48\ (sym)} = \frac{I_{b2}}{\Sigma Z_{f-48}}$ = 5.72 (KA)　　$\frac{X}{R}$ = 0.71 ，K = 1

非對稱故障電流： $I_{f-48\ (asy)}$ = K × $I_{f-48\ (sym)}$ = 5.72 (KA) → (C.B選用 ≧ 5.8 KA) …… **OK**

◆配電盤名稱： EPF2A　　故障點： $f-49$　　基準值： KV_{b2} = 0.38 KV　I_{b2} = 1519.3 A　Z_{b2} = 0.1444 Ω

配管線： 0.6 KV　FR.C　80　mm²，　1 / ϕ ，100 M，IN　EMT.P　Z_{cable} = 0.2949 + j 0.1644 (Ω/ KM)

$$Z_w = \frac{Z_{cable}}{Z_{b2}} = \frac{0.2949 + j\ 0.1644}{0.1444} \times \frac{100\ M}{1000\ M} \times \frac{1}{1} = 0.20422438 + j\ 0.11385042 = 0.23381513 \angle 29.1^\circ \ (p.u)$$

$$\Sigma Z_{f-49} = \Sigma Z_{f-40} + Z_w = 0.21680763 + j\ 0.15328933 = 0.26552432 \angle 35.3^\circ \ (p.u)$$

對稱故障電流： $I_{f-49\ (sym)} = \frac{I_{b2}}{\Sigma Z_{f-49}}$ = 5.72 (KA)　　$\frac{X}{R}$ = 0.71 ，K = 1

非對稱故障電流： $I_{f-49\ (asy)}$ = K × $I_{f-49\ (sym)}$ = 5.72 (KA) → (C.B選用 ≧ 5.8 KA) …… **OK**

故障電流計算

◆配電盤名稱： EPF2B　　故障點： $f-50$　　基準值： KV_{b2} = 0.38 KV　I_{b2} = 1519.3 A　Z_{b2} = 0.1444 Ω

配管線： 0.6 KV　FR.C　80　mm²，　1 / ϕ ，100 M，IN　EMT.P　Z_{cable} = 0.2949 + j 0.1644 (Ω/ KM)

$$Z_w = \frac{Z_{cable}}{Z_{b2}} = \frac{0.2949 + j\ 0.1644}{0.1444} \times \frac{100\ M}{1000\ M} \times \frac{1}{1} = 0.20422438 + j\ 0.11385042 = 0.23381513 \angle 29.1^\circ \ (p.u)$$

$$\Sigma Z_{f-50} = \Sigma Z_{f-40} + Z_w = 0.21680763 + j\ 0.15328933 = 0.26552432 \angle 35.3^\circ \ (p.u)$$

對稱故障電流： $I_{f-50\ (sym)} = \frac{I_{b2}}{\Sigma Z_{f-50}}$ = 5.72 (KA)　　$\frac{X}{R}$ = 0.71 ，K = 1

非對稱故障電流： $I_{f-50\ (asy)}$ = K × $I_{f-50\ (sym)}$ = 5.72 (KA) → (C.B選用 ≧ 5.8 KA) …… **OK**

◆配電盤名稱： EPW1A　　故障點： $f-51$　　基準值： KV_{b2} = 0.38 KV　I_{b2} = 1519.3 A　Z_{b2} = 0.1444 Ω

配管線： 0.6 KV　XLPE.C　14　mm²，　1 / ϕ ，50 M，IN　PVC.P　Z_{cable} = 1.6576 + j 0.1381 (Ω/ KM)

$$Z_w = \frac{Z_{cable}}{Z_{b2}} = \frac{1.6576 + j\ 0.1381}{0.1444} \times \frac{50\ M}{1000\ M} \times \frac{1}{1} = 0.57396122 + j\ 0.04781856 = 0.57594973 \angle 4.8^\circ \ (p.u)$$

$$\Sigma Z_{f-51} = \Sigma Z_{f-40} + Z_w = 0.58654447 + j\ 0.08725747 = 0.59299939 \angle 8.5^\circ \ (p.u)$$

對稱故障電流： $I_{f-51\ (sym)} = \frac{I_{b2}}{\Sigma Z_{f-51}}$ = 2.56 (KA)　　$\frac{X}{R}$ = 0.15 ，K = 1

非對稱故障電流： $I_{f-51\ (asy)}$ = K × $I_{f-51\ (sym)}$ = 2.56 (KA) → (C.B選用 ≧ 2.6 KA) …… **OK**

◆配電盤名稱： EPW1B　　故障點： $f-52$　　基準值： KV_{b2} = 0.38 KV　I_{b2} = 1519.3 A　Z_{b2} = 0.1444 Ω

配管線： 0.6 KV　XLPE.C　14　mm²，　1 / ϕ ，50 M，IN　PVC.P　Z_{cable} = 1.6576 + j 0.1381 (Ω/ KM)

$$Z_w = \frac{Z_{cable}}{Z_{b2}} = \frac{1.6576 + j\ 0.1381}{0.1444} \times \frac{50\ M}{1000\ M} \times \frac{1}{1} = 0.57396122 + j\ 0.04781856 = 0.57594973 \angle 4.8^\circ \ (p.u)$$

$$\Sigma Z_{f-52} = \Sigma Z_{f-40} + Z_w = 0.58654447 + j\ 0.08725747 = 0.59299939 \angle 8.5^\circ \ (p.u)$$

對稱故障電流： $I_{f-52\ (sym)} = \frac{I_{b2}}{\Sigma Z_{f-52}}$ = 2.56 (KA)　　$\frac{X}{R}$ = 0.15 ，K = 1

非對稱故障電流： $I_{f-52\ (asy)}$ = K × $I_{f-52\ (sym)}$ = 2.56 (KA) → (C.B選用 ≧ 2.6 KA) …… **OK**

◆配電盤名稱： EPW1C　　故障點： $f-53$　　基準值： KV_{b2} = 0.38 KV　I_{b2} = 1519.3 A　Z_{b2} = 0.1444 Ω

配管線： 0.6 KV　XLPE.C　14　mm²，　1 / ϕ ，50 M，IN　PVC.P　Z_{cable} = 1.6576 + j 0.1381 (Ω/ KM)

$$Z_w = \frac{Z_{cable}}{Z_{b2}} = \frac{1.6576 + j\ 0.1381}{0.1444} \times \frac{50\ M}{1000\ M} \times \frac{1}{1} = 0.57396122 + j\ 0.04781856 = 0.57594973 \angle 4.8^\circ \ (p.u)$$

$$\Sigma Z_{f-53} = \Sigma Z_{f-40} + Z_w = 0.58654447 + j\ 0.08725747 = 0.59299939 \angle 8.5^\circ \ (p.u)$$

對稱故障電流： $I_{f-53\ (sym)} = \frac{I_{b2}}{\Sigma Z_{f-53}}$ = 2.56 (KA)　　$\frac{X}{R}$ = 0.15 ，K = 1

非對稱故障電流： $I_{f-53\ (asy)}$ = K × $I_{f-53\ (sym)}$ = 2.56 (KA) → (C.B選用 ≧ 2.6 KA) …… **OK**

◆配電盤名稱： EPW1D　　故障點： $f-54$　　基準值： KV_{b2} = 0.38 KV　I_{b2} = 1519.3 A　Z_{b2} = 0.1444 Ω

配管線： 0.6 KV　XLPE.C　14　mm²，　1 / ϕ ，50 M，IN　PVC.P　Z_{cable} = 1.6576 + j 0.1381 (Ω/ KM)

$$Z_w = \frac{Z_{cable}}{Z_{b2}} = \frac{1.6576 + j\ 0.1381}{0.1444} \times \frac{50\ M}{1000\ M} \times \frac{1}{1} = 0.57396122 + j\ 0.04781856 = 0.57594973 \angle 4.8^\circ \ (p.u)$$

$$\Sigma Z_{f-54} = \Sigma Z_{f-40} + Z_w = 0.58654447 + j\ 0.08725747 = 0.59299939 \angle 8.5^\circ \ (p.u)$$

對稱故障電流： $I_{f-54\ (sym)} = \frac{I_{b2}}{\Sigma Z_{f-54}}$ = 2.56 (KA)　　$\frac{X}{R}$ = 0.15 ，K = 1

非對稱故障電流： $I_{f-54\ (asy)}$ = K × $I_{f-54\ (sym)}$ = 2.56 (KA) → (C.B選用 ≧ 2.6 KA) …… **OK**

◆配電盤名稱： EPW1E　故障點： f- 55　基準值： KV_{b2} = 0.38 KV　I_{b2} = 1519.3 A　Z_{b2} = 0.1444 Ω

配管線： 0.6 KV　XLPE.C　14 mm²， 1 / ∮， 50 M，IN　PVC.P　Z_{cable} = 1.6576 + j 0.1381 (Ω/ KM)

$$Z_w = \frac{Z_{cable}}{Z_{b2}} = \frac{1.6576 + j\,0.1381}{0.1444} \times \frac{50\ M}{1000\ M} \times \frac{1}{1} = 0.57396122 + j\,0.04781856 = 0.57594973 \angle 4.8^\circ \ (p.u)$$

$$\Sigma Z_{f-55} = \Sigma Z_{f-40} + Z_w = 0.58654447 + j\,0.08725747 = 0.59299939 \angle 8.5^\circ \ (p.u)$$

對稱故障電流：$I_{f-55\,(sym)} = \dfrac{I_{b2}}{\Sigma Z_{f-55}} = 2.56$ (KA)　　$\dfrac{X}{R} = 0.15$，K= 1

非對稱故障電流：$I_{f-55\,(asy)} = K \times I_{f-55\,(sym)} = 2.56$ (KA)　→　(C.B選用 ≧ 2.6 KA) …… ***OK***

◆配電盤名稱： EPWR1　故障點： f- 56　基準值： KV_{b2} = 0.38 KV　I_{b2} = 1519.3 A　Z_{b2} = 0.1444 Ω

配管線： 0.6 KV　XLPE.C　14 mm²， 1 / ∮， 50 M，IN　PVC.P　Z_{cable} = 1.6576 + j 0.1381 (Ω/ KM)

$$Z_w = \frac{Z_{cable}}{Z_{b2}} = \frac{1.6576 + j\,0.1381}{0.1444} \times \frac{50\ M}{1000\ M} \times \frac{1}{1} = 0.57396122 + j\,0.04781856 = 0.57594973 \angle 4.8^\circ \ (p.u)$$

$$\Sigma Z_{f-56} = \Sigma Z_{f-40} + Z_w = 0.58654447 + j\,0.08725747 = 0.59299939 \angle 8.5^\circ \ (p.u)$$

對稱故障電流：$I_{f-56\,(sym)} = \dfrac{I_{b2}}{\Sigma Z_{f-56}} = 2.56$ (KA)　　$\dfrac{X}{R} = 0.15$，K= 1

非對稱故障電流：$I_{f-56\,(asy)} = K \times I_{f-56\,(sym)} = 2.56$ (KA)　→　(C.B選用 ≧ 2.6 KA) …… ***OK***

◆配電盤名稱： LMIS　故障點： f- 57　基準值： KV_{b2} = 0.38 KV　I_{b2} = 1519.3 A　Z_{b2} = 0.1444 Ω

配管線： 0.6 KV　XLPE.C　14 mm²， 1 / ∮， 50 M，IN　EMT.P　Z_{cable} = 1.6576 + j 0.1726 (Ω/ KM)

$$Z_w = \frac{Z_{cable}}{Z_{b2}} = \frac{1.6576 + j\,0.1726}{0.1444} \times \frac{50\ M}{1000\ M} \times \frac{1}{1} = 0.57396122 + j\,0.05976454 = 0.57706437 \angle 5.9^\circ \ (p.u)$$

$$\Sigma Z_{f-57} = \Sigma Z_{f-40} + Z_w = 0.58654447 + j\,0.09920345 = 0.59487456 \angle 9.6^\circ \ (p.u)$$

對稱故障電流：$I_{f-57\,(sym)} = \dfrac{I_{b2}}{\Sigma Z_{f-57}} = 2.55$ (KA)　　$\dfrac{X}{R} = 0.17$，K= 1

非對稱故障電流：$I_{f-57\,(asy)} = K \times I_{f-57\,(sym)} = 2.55$ (KA)　→　(C.B選用 ≧ 2.6 KA) …… ***OK***

◆變壓器名稱：TR-RMIS　容量： 15 KVA　TR一次側：KV_{b2} = 0.38 KV　I_{b2} = 1519.3 A　Z_{b2} = 0.1444 Ω

配管線： 0.6 KV　PVC.W　5.5 mm²， 1 / ∮， 10 M，IN　PVC.P　Z_{cable} = 4.2461 + j 0.1316 (Ω/ KM)

$$Z_w = \frac{Z_{cable}}{Z_{b2}} = \frac{4.2461 + j\,0.1316}{0.1444} \times \frac{10\ M}{1000\ M} \times \frac{1}{10} = 0.29405125 + j\,0.00911357 = 0.29419245 \angle 1.8^\circ \ (p.u)$$

變壓器阻抗 Z_{TR} = 0.0216 + j 0.0337 (Ω/ KM) → $Z_{TR} \times \dfrac{KVA_b}{KVA_{TR}} = 1.44 + j\,2.24666667 \ (p.u)$

$$\Sigma Z_{TR} = \Sigma Z_{f-57} + Z_w + Z_{TR} = 2.32059572 + j\,2.35498369 = 3.30622333 \angle 45.4^\circ \ (p.u)$$

◆配電盤名稱： RMIS　故障點： f- 58　TR二次側： KV_{b3} = 0.19 KV　I_{b3} = 3038.7 A　Z_{b3} = 0.0361 Ω

配管線： 0.6 KV　XLPE.C　14 mm²， 1 / ∮， 50 M，IN　EMT.P　Z_{cable} = 1.6576 + j 0.1726 (Ω/ KM)

$$Z_w = \frac{Z_{cable}}{Z_{b3}} = \frac{1.6576 + j\,0.1726}{0.0361} \times \frac{50\ M}{1000\ M} \times \frac{1}{1} = 2.29584488 + j\,0.23905817 = 2.30825746 \angle 5.9^\circ \ (p.u)$$

$$\Sigma Z_{f-58} = \Sigma Z_{TR} + Z_w = 4.61644060 + j\,2.59404186 = 5.29533540 \angle 29.3^\circ \ (p.u)$$

對稱故障電流：$I_{f-58\,(sym)} = \dfrac{I_{b3}}{\Sigma Z_{f-58}} = 0.57$ (KA)　　$\dfrac{X}{R} = 0.56$，K= 1

非對稱故障電流：$I_{f-58\,(asy)} = K \times I_{f-58\,(sym)} = 0.57$ (KA)　→　(C.B選用 ≧ 0.6 KA) …… ***OK***

故障電流計算

◆配電盤名稱： HVCB-3　　故障點： $f-59$　　基準值： $KV_{b1}=$ 22.8 KV　$I_{b1}=$ 25.3 A　$Z_{b1}=519.84\,\Omega$

配管線： 25 KV CU BUS 25 × 3 t，　1 / ϕ ，3 M，IN BUS BAR $Z_{bus}=0.3036+j\,0.2902$ (Ω/ KM)

$$Z_w=\frac{Z_{bus}}{Z_{b1}}=\frac{0.3036+j\,0.2902}{519.84}\times\frac{3\ M}{1000\ M}\times\frac{1}{1}=0.00000175+j\,0.00000167=0.00000242\angle 43.7^\circ\ (p.u)$$

$$\Sigma Z_{f-59}=\Sigma Z_{f-2}+Z_w=0.00003613+j\,0.00190883=0.00190917\angle 88.9^\circ\ (p.u)$$

對稱故障電流： $I_{f-59\ (sym)}=\frac{I_{b1}}{\Sigma Z_{f-59}}=$ 13.25 (KA)　　$\frac{X}{R}=$ 52.83 ，K= 1.1

非對稱故障電流： $I_{f-59\ (asy)}=K\times I_{f-59\ (sym)}=$ 14.58 (KA) → (C.B選用 ≧ 14.6 KA) …… **OK**

◆變壓器名稱： TR-3　　容量： 2500 KVA TR一次側： $KV_{b1}=$ 22.8 KV　$I_{b1}=$ 25.3 A　$Z_{b1}=519.84\,\Omega$

配管線： 25 KV XLPE.C 38 mm²，1 / ϕ ，12 M，IN PVC.P $Z_{cable}=0.621+j\,0.2006$ (Ω/ KM)

$$Z_w=\frac{Z_{cable}}{Z_{b1}}=\frac{0.621+j\,0.2006}{519.84}\times\frac{12\ M}{1000\ M}\times\frac{1}{10}=0.00001434+j\,0.00000463=0.00001507\angle 17.9^\circ\ (p.u)$$

變壓器阻抗 $Z_{TR}=$ 0.007 + j 0.0596 (Ω/ KM) → $Z_{TR}\times\frac{KVA_b}{KVA_{TR}}=$ 0.0028 + j 0.02384 $(p.u)$

$$\Sigma Z_{TR}=\Sigma Z_{f-59}+Z_w+Z_{TR}=0.00285047+j\,0.02575346=0.02591073\angle 83.7^\circ\ (p.u)$$

◆配電盤名稱： ACB-3　　故障點： $f-60$　TR二次側： $KV_{b2}=$ 0.38 KV　$I_{b2}=1519.3$ A　$Z_{b2}=0.1444\,\Omega$

配管線： 0.6 KV CU BUS 100 × 10 t，　4 / ϕ ，10 M，IN BUS BAR $Z_{bus}=0.0062+j\,0.1266$ (Ω/ KM)

$$Z_w=\frac{Z_{bus}}{Z_{b2}}=\frac{0.0062+j\,0.1266}{0.1444}\times\frac{10\ M}{1000\ M}\times\frac{1}{4}=0.00010734+j\,0.00219183=0.00219446\angle 87.2^\circ\ (p.u)$$

$$\Sigma Z'_{f-60}=\Sigma Z_{TR}+Z_w=0.00295781+j\,0.02794529=0.02810139\angle 84.0^\circ\ (p.u)$$

◆倒灌電流之馬達群組 Σ = 1886 HP $X''_d=25\,\%$　　$\frac{X}{R}=6$　　R = 4.16667 %　　(1HP≒1KVA)

$$Z_m=pu\ (Z_m)\times\left(\frac{KV_{HP}}{KV_b}\right)^2\times\frac{KVA_b}{KVA_{HP}}=0.02209261+j\,0.13255567=0.13438411\angle 80.5^\circ\ (p.u)$$

$$\Sigma Z_{f-60}=Z'_{f-60}\ //\ Z_m=\frac{Z'_{f-60}\times Z_m}{Z_{f-60}+Z_m}=0.00268536+j\,0.02309164=0.02324726\angle 83.4^\circ\ (p.u)$$

對稱故障電流： $I_{f-60\ (sym)}=\frac{I_{b2}}{\Sigma Z_{f-60}}=$ 65.35 (KA)　　$\frac{X}{R}=$ 8.6 ，K= 1.22

非對稱故障電流： $I_{f-60\ (asy)}=K\times I_{f-60\ (sym)}=$ 79.73 (KA) → (C.B選用 ≧ 79.8 KA) …… **OK**

◆配電盤名稱： C1　　故障點： $f-61$　　基準值： $KV_{b2}=$ 0.38 KV　$I_{b2}=1519.3$ A　$Z_{b2}=0.1444\,\Omega$

配管線： 0.6 KV XLPE.C 100 mm²，1 / ϕ ，100 M，IN TRAY+EMT $Z_{cable}=0.2341+j\,0.1466$ (Ω/ KM)

$$Z_w=\frac{Z_{cable}}{Z_{b2}}=\frac{0.2341+j\,0.1466}{0.1444}\times\frac{100\ M}{1000\ M}\times\frac{1}{1}=0.16211911+j\,0.10152355=0.19128418\angle 32.1^\circ\ (p.u)$$

$$\Sigma Z_{f-61}=\Sigma Z_{f-60}+Z_w=0.16480447+j\,0.12461519=0.20661428\angle 37.1^\circ\ (p.u)$$

對稱故障電流： $I_{f-61\ (sym)}=\frac{I_{b2}}{\Sigma Z_{f-61}}=$ 7.35 (KA)　　$\frac{X}{R}=$ 0.76 ，K= 1

非對稱故障電流： $I_{f-61\ (asy)}=K\times I_{f-61\ (sym)}=$ 7.35 (KA) → (C.B選用 ≧ 7.4 KA) …… **OK**

故障電流計算

◆配電盤名稱： C2　故障點： f- 62　基準值： KV_{b2} = 0.38 KV　I_{b2} = 1519.3 A　Z_{b2} = 0.1444 Ω

配管線： 0.6 KV XLPE.C 100 mm²， 1 / ∮ ， 100 M，IN TRAY+EMT Z_{cable} = 0.2341 + j 0.1466 (Ω/ KM)

$$Z_w = \frac{Z_{cable}}{Z_{b2}} = \frac{0.2341 + j\,0.1466}{0.1444} \times \frac{100\ M}{1000\ M} \times \frac{1}{1} = 0.16211911 + j\,0.10152355 = 0.19128418 \angle 32.1^\circ \quad (p.u)$$

$$\Sigma Z_{f-62} = \Sigma Z_{f-60} + Z_w = 0.16480447 + j\,0.12461519 = 0.20661428 \angle 37.1^\circ \quad (p.u)$$

對稱故障電流：$I_{f-62\,(sym)} = \dfrac{I_{b2}}{\Sigma Z_{f-62}} =$ 7.35 (KA)　$\dfrac{X}{R} =$ 0.76 ，K= 1

非對稱故障電流：$I_{f-62\,(asy)}$ = K × $I_{f-62\,(sym)}$ = 7.35 (KA) → (C.B選用 ≧ 7.4 KA) …… ***OK***

◆配電盤名稱： C3　故障點： f- 63　基準值： KV_{b2} = 0.38 KV　I_{b2} = 1519.3 A　Z_{b2} = 0.1444 Ω

配管線： 0.6 KV XLPE.C 100 mm²， 1 / ∮ ， 100 M，IN TRAY+EMT Z_{cable} = 0.2341 + j 0.1466 (Ω/ KM)

$$Z_w = \frac{Z_{cable}}{Z_{b2}} = \frac{0.2341 + j\,0.1466}{0.1444} \times \frac{100\ M}{1000\ M} \times \frac{1}{1} = 0.16211911 + j\,0.10152355 = 0.19128418 \angle 32.1^\circ \quad (p.u)$$

$$\Sigma Z_{f-63} = \Sigma Z_{f-60} + Z_w = 0.16480447 + j\,0.12461519 = 0.20661428 \angle 37.1^\circ \quad (p.u)$$

對稱故障電流：$I_{f-63\,(sym)} = \dfrac{I_{b2}}{\Sigma Z_{f-63}} =$ 7.35 (KA)　$\dfrac{X}{R} =$ 0.76 ，K= 1

非對稱故障電流：$I_{f-63\,(asy)}$ = K × $I_{f-63\,(sym)}$ = 7.35 (KA) → (C.B選用 ≧ 7.4 KA) …… ***OK***

◆配電盤名稱： C4　故障點： f- 64　基準值： KV_{b2} = 0.38 KV　I_{b2} = 1519.3 A　Z_{b2} = 0.1444 Ω

配管線： 0.6 KV XLPE.C 100 mm²， 1 / ∮ ， 100 M，IN TRAY+EMT Z_{cable} = 0.2341 + j 0.1466 (Ω/ KM)

$$Z_w = \frac{Z_{cable}}{Z_{b2}} = \frac{0.2341 + j\,0.1466}{0.1444} \times \frac{100\ M}{1000\ M} \times \frac{1}{1} = 0.16211911 + j\,0.10152355 = 0.19128418 \angle 32.1^\circ \quad (p.u)$$

$$\Sigma Z_{f-64} = \Sigma Z_{f-60} + Z_w = 0.16480447 + j\,0.12461519 = 0.20661428 \angle 37.1^\circ \quad (p.u)$$

對稱故障電流：$I_{f-64\,(sym)} = \dfrac{I_{b2}}{\Sigma Z_{f-64}} =$ 7.35 (KA)　$\dfrac{X}{R} =$ 0.76 ，K= 1

非對稱故障電流：$I_{f-64\,(asy)}$ = K × $I_{f-64\,(sym)}$ = 7.35 (KA) → (C.B選用 ≧ 7.4 KA) …… ***OK***

◆配電盤名稱： C5　故障點： f- 65　基準值： KV_{b2} = 0.38 KV　I_{b2} = 1519.3 A　Z_{b2} = 0.1444 Ω

配管線： 0.6 KV XLPE.C 100 mm²， 1 / ∮ ， 100 M，IN TRAY+EMT Z_{cable} = 0.2341 + j 0.1466 (Ω/ KM)

$$Z_w = \frac{Z_{cable}}{Z_{b2}} = \frac{0.2341 + j\,0.1466}{0.1444} \times \frac{100\ M}{1000\ M} \times \frac{1}{1} = 0.16211911 + j\,0.10152355 = 0.19128418 \angle 32.1^\circ \quad (p.u)$$

$$\Sigma Z_{f-65} = \Sigma Z_{f-60} + Z_w = 0.16480447 + j\,0.12461519 = 0.20661428 \angle 37.1^\circ \quad (p.u)$$

對稱故障電流：$I_{f-65\,(sym)} = \dfrac{I_{b2}}{\Sigma Z_{f-65}} =$ 7.35 (KA)　$\dfrac{X}{R} =$ 0.76 ，K= 1

非對稱故障電流：$I_{f-65\,(asy)}$ = K × $I_{f-65\,(sym)}$ = 7.35 (KA) → (C.B選用 ≧ 7.4 KA) …… ***OK***

◆配電盤名稱： C6　故障點： f- 66　基準值： KV_{b2} = 0.38 KV　I_{b2} = 1519.3 A　Z_{b2} = 0.1444 Ω

配管線： 0.6 KV XLPE.C 100 mm²， 1 / ∮ ， 100 M，IN TRAY+EMT Z_{cable} = 0.2341 + j 0.1466 (Ω/ KM)

$$Z_w = \frac{Z_{cable}}{Z_{b2}} = \frac{0.2341 + j\,0.1466}{0.1444} \times \frac{100\ M}{1000\ M} \times \frac{1}{1} = 0.16211911 + j\,0.10152355 = 0.19128418 \angle 32.1^\circ \quad (p.u)$$

$$\Sigma Z_{f-66} = \Sigma Z_{f-60} + Z_w = 0.16480447 + j\,0.12461519 = 0.20661428 \angle 37.1^\circ \quad (p.u)$$

對稱故障電流：$I_{f-66\,(sym)} = \dfrac{I_{b2}}{\Sigma Z_{f-66}} =$ 7.35 (KA)　$\dfrac{X}{R} =$ 0.76 ，K= 1

非對稱故障電流：$I_{f-66\,(asy)}$ = K × $I_{f-66\,(sym)}$ = 7.35 (KA) → (C.B選用 ≧ 7.4 KA) …… ***OK***

故障電流計算

◆配電盤名稱： C7　　故障點： $f-67$　　基準值： KV_{b2} = 0.38 KV　I_{b2} = 1519.3 A　Z_{b2} = 0.1444 Ω

配管線： 0.6 KV　XLPE.C　100　mm²，　1 / 𝛷 ，100 M，IN TRAY+EMT　Z_{cable} = 0.2341 + j 0.1466 (Ω/ KM)

$$Z_w = \frac{Z_{cable}}{Z_{b2}} = \frac{0.2341 + j\ 0.1466}{0.1444} \times \frac{100\ M}{1000\ M} \times \frac{1}{1} = 0.16211911 + j\ 0.10152355 = 0.19128418 \angle 32.1^\circ \ (p.u)$$

$$\Sigma Z_{f-67} = \Sigma Z_{f-60} + Z_w = 0.16480447 + j\ 0.12461519 = 0.20661428 \angle 37.1^\circ \ (p.u)$$

對稱故障電流： $I_{f-67\ (sym)} = \frac{I_{b2}}{\Sigma Z_{f-67}}$ = 7.35 (KA)　　$\frac{X}{R}$ = 0.76 ，K = 1

非對稱故障電流： $I_{f-67\ (asy)}$ = K × $I_{f-67\ (sym)}$ = 7.35 (KA) → (C.B選用 ≧ 7.4 KA) …… **OK**

◆配電盤名稱： C8　　故障點： $f-68$　　基準值： KV_{b2} = 0.38 KV　I_{b2} = 1519.3 A　Z_{b2} = 0.1444 Ω

配管線： 0.6 KV　XLPE.C　100　mm²，　1 / 𝛷 ，100 M，IN TRAY+EMT　Z_{cable} = 0.2341 + j 0.1466 (Ω/ KM)

$$Z_w = \frac{Z_{cable}}{Z_{b2}} = \frac{0.2341 + j\ 0.1466}{0.1444} \times \frac{100\ M}{1000\ M} \times \frac{1}{1} = 0.16211911 + j\ 0.10152355 = 0.19128418 \angle 32.1^\circ \ (p.u)$$

$$\Sigma Z_{f-68} = \Sigma Z_{f-60} + Z_w = 0.16480447 + j\ 0.12461519 = 0.20661428 \angle 37.1^\circ \ (p.u)$$

對稱故障電流： $I_{f-68\ (sym)} = \frac{I_{b2}}{\Sigma Z_{f-68}}$ = 7.35 (KA)　　$\frac{X}{R}$ = 0.76 ，K = 1

非對稱故障電流： $I_{f-68\ (asy)}$ = K × $I_{f-68\ (sym)}$ = 7.35 (KA) → (C.B選用 ≧ 7.4 KA) …… **OK**

◆配電盤名稱： C9　　故障點： $f-69$　　基準值： KV_{b2} = 0.38 KV　I_{b2} = 1519.3 A　Z_{b2} = 0.1444 Ω

配管線： 0.6 KV　XLPE.C　100　mm²，　1 / 𝛷 ，100 M，IN TRAY+EMT　Z_{cable} = 0.2341 + j 0.1466 (Ω/ KM)

$$Z_w = \frac{Z_{cable}}{Z_{b2}} = \frac{0.2341 + j\ 0.1466}{0.1444} \times \frac{100\ M}{1000\ M} \times \frac{1}{1} = 0.16211911 + j\ 0.10152355 = 0.19128418 \angle 32.1^\circ \ (p.u)$$

$$\Sigma Z_{f-69} = \Sigma Z_{f-60} + Z_w = 0.16480447 + j\ 0.12461519 = 0.20661428 \angle 37.1^\circ \ (p.u)$$

對稱故障電流： $I_{f-69\ (sym)} = \frac{I_{b2}}{\Sigma Z_{f-69}}$ = 7.35 (KA)　　$\frac{X}{R}$ = 0.76 ，K = 1

非對稱故障電流： $I_{f-69\ (asy)}$ = K × $I_{f-69\ (sym)}$ = 7.35 (KA) → (C.B選用 ≧ 7.4 KA) …… **OK**

◆配電盤名稱： C10　　故障點： $f-70$　　基準值： KV_{b2} = 0.38 KV　I_{b2} = 1519.3 A　Z_{b2} = 0.1444 Ω

配管線： 0.6 KV　XLPE.C　100　mm²，　1 / 𝛷 ，100 M，IN TRAY+EMT　Z_{cable} = 0.2341 + j 0.1466 (Ω/ KM)

$$Z_w = \frac{Z_{cable}}{Z_{b2}} = \frac{0.2341 + j\ 0.1466}{0.1444} \times \frac{100\ M}{1000\ M} \times \frac{1}{1} = 0.16211911 + j\ 0.10152355 = 0.19128418 \angle 32.1^\circ \ (p.u)$$

$$\Sigma Z_{f-70} = \Sigma Z_{f-60} + Z_w = 0.16480447 + j\ 0.12461519 = 0.20661428 \angle 37.1^\circ \ (p.u)$$

對稱故障電流： $I_{f-70\ (sym)} = \frac{I_{b2}}{\Sigma Z_{f-70}}$ = 7.35 (KA)　　$\frac{X}{R}$ = 0.76 ，K = 1

非對稱故障電流： $I_{f-70\ (asy)}$ = K × $I_{f-70\ (sym)}$ = 7.35 (KA) → (C.B選用 ≧ 7.4 KA) …… **OK**

◆配電盤名稱： D1　　故障點： $f-71$　　基準值： KV_{b2} = 0.38 KV　I_{b2} = 1519.3 A　Z_{b2} = 0.1444 Ω

配管線： 0.6 KV　XLPE.C　100　mm²，　1 / 𝛷 ，100 M，IN TRAY+EMT　Z_{cable} = 0.2341 + j 0.1466 (Ω/ KM)

$$Z_w = \frac{Z_{cable}}{Z_{b2}} = \frac{0.2341 + j\ 0.1466}{0.1444} \times \frac{100\ M}{1000\ M} \times \frac{1}{1} = 0.16211911 + j\ 0.10152355 = 0.19128418 \angle 32.1^\circ \ (p.u)$$

$$\Sigma Z_{f-71} = \Sigma Z_{f-60} + Z_w = 0.16480447 + j\ 0.12461519 = 0.20661428 \angle 37.1^\circ \ (p.u)$$

對稱故障電流： $I_{f-71\ (sym)} = \frac{I_{b2}}{\Sigma Z_{f-71}}$ = 7.35 (KA)　　$\frac{X}{R}$ = 0.76 ，K = 1

非對稱故障電流： $I_{f-71\ (asy)}$ = K × $I_{f-71\ (sym)}$ = 7.35 (KA) → (C.B選用 ≧ 7.4 KA) …… **OK**

故障電流計算

◆配電盤名稱： D2　　故障點： $f-72$　　基準值： KV_{b2} = 0.38 KV　I_{b2} = 1519.3 A　Z_{b2} = 0.1444 Ω

配管線： 0.6 KV　XLPE.C　80　mm²，　1 / ϕ ，100 M，IN TRAY+EMT　Z_{cable} = 0.2872 + j 0.1516 (Ω/ KM)

$$Z_w = \frac{Z_{cable}}{Z_{b2}} = \frac{0.2872 + j\ 0.1516}{0.1444} \times \frac{100\ M}{1000\ M} \times \frac{1}{1} = 0.19889197 + j\ 0.10498615 = 0.22490022 \angle 27.8^\circ \ (p.u)$$

$$\Sigma Z_{f-72} = \Sigma Z_{f-60} + Z_w = 0.20157733 + j\ 0.12807779 = 0.23882492 \angle 32.4^\circ \ (p.u)$$

對稱故障電流： $I_{f-72\ (sym)} = \frac{I_{b2}}{\Sigma Z_{f-72}} =$ 6.36 (KA)　　$\frac{X}{R} =$ 0.64 ，K = 1

非對稱故障電流： $I_{f-72\ (asy)} = K \times I_{f-72\ (sym)} =$ 6.36 (KA) → (C.B選用 ≧ 6.4 KA) …… **OK**

◆配電盤名稱： D3　　故障點： $f-73$　　基準值： KV_{b2} = 0.38 KV　I_{b2} = 1519.3 A　Z_{b2} = 0.1444 Ω

配管線： 0.6 KV　XLPE.C　80　mm²，　1 / ϕ ，100 M，IN TRAY+EMT　Z_{cable} = 0.2872 + j 0.1516 (Ω/ KM)

$$Z_w = \frac{Z_{cable}}{Z_{b2}} = \frac{0.2872 + j\ 0.1516}{0.1444} \times \frac{100\ M}{1000\ M} \times \frac{1}{1} = 0.19889197 + j\ 0.10498615 = 0.22490022 \angle 27.8^\circ \ (p.u)$$

$$\Sigma Z_{f-73} = \Sigma Z_{f-60} + Z_w = 0.20157733 + j\ 0.12807779 = 0.23882492 \angle 32.4^\circ \ (p.u)$$

對稱故障電流： $I_{f-73\ (sym)} = \frac{I_{b2}}{\Sigma Z_{f-73}} =$ 6.36 (KA)　　$\frac{X}{R} =$ 0.64 ，K = 1

非對稱故障電流： $I_{f-73\ (asy)} = K \times I_{f-73\ (sym)} =$ 6.36 (KA) → (C.B選用 ≧ 6.4 KA) …… **OK**

◆配電盤名稱： D4　　故障點： $f-74$　　基準值： KV_{b2} = 0.38 KV　I_{b2} = 1519.3 A　Z_{b2} = 0.1444 Ω

配管線： 0.6 KV　XLPE.C　80　mm²，　1 / ϕ ，100 M，IN TRAY+EMT　Z_{cable} = 0.2872 + j 0.1516 (Ω/ KM)

$$Z_w = \frac{Z_{cable}}{Z_{b2}} = \frac{0.2872 + j\ 0.1516}{0.1444} \times \frac{100\ M}{1000\ M} \times \frac{1}{1} = 0.19889197 + j\ 0.10498615 = 0.22490022 \angle 27.8^\circ \ (p.u)$$

$$\Sigma Z_{f-74} = \Sigma Z_{f-60} + Z_w = 0.20157733 + j\ 0.12807779 = 0.23882492 \angle 32.4^\circ \ (p.u)$$

對稱故障電流： $I_{f-74\ (sym)} = \frac{I_{b2}}{\Sigma Z_{f-74}} =$ 6.36 (KA)　　$\frac{X}{R} =$ 0.64 ，K = 1

非對稱故障電流： $I_{f-74\ (asy)} = K \times I_{f-74\ (sym)} =$ 6.36 (KA) → (C.B選用 ≧ 6.4 KA) …… **OK**

◆配電盤名稱： D5　　故障點： $f-75$　　基準值： KV_{b2} = 0.38 KV　I_{b2} = 1519.3 A　Z_{b2} = 0.1444 Ω

配管線： 0.6 KV　XLPE.C　80　mm²，　1 / ϕ ，100 M，IN TRAY+EMT　Z_{cable} = 0.2872 + j 0.1516 (Ω/ KM)

$$Z_w = \frac{Z_{cable}}{Z_{b2}} = \frac{0.2872 + j\ 0.1516}{0.1444} \times \frac{100\ M}{1000\ M} \times \frac{1}{1} = 0.19889197 + j\ 0.10498615 = 0.22490022 \angle 27.8^\circ \ (p.u)$$

$$\Sigma Z_{f-75} = \Sigma Z_{f-60} + Z_w = 0.20157733 + j\ 0.12807779 = 0.23882492 \angle 32.4^\circ \ (p.u)$$

對稱故障電流： $I_{f-75\ (sym)} = \frac{I_{b2}}{\Sigma Z_{f-75}} =$ 6.36 (KA)　　$\frac{X}{R} =$ 0.64 ，K = 1

非對稱故障電流： $I_{f-75\ (asy)} = K \times I_{f-75\ (sym)} =$ 6.36 (KA) → (C.B選用 ≧ 6.4 KA) …… **OK**

◆配電盤名稱： D6　　故障點： $f-76$　　基準值： KV_{b2} = 0.38 KV　I_{b2} = 1519.3 A　Z_{b2} = 0.1444 Ω

配管線： 0.6 KV　XLPE.C　80　mm²，　1 / ϕ ，100 M，IN TRAY+EMT　Z_{cable} = 0.2872 + j 0.1516 (Ω/ KM)

$$Z_w = \frac{Z_{cable}}{Z_{b2}} = \frac{0.2872 + j\ 0.1516}{0.1444} \times \frac{100\ M}{1000\ M} \times \frac{1}{1} = 0.19889197 + j\ 0.10498615 = 0.22490022 \angle 27.8^\circ \ (p.u)$$

$$\Sigma Z_{f-76} = \Sigma Z_{f-60} + Z_w = 0.20157733 + j\ 0.12807779 = 0.23882492 \angle 32.4^\circ \ (p.u)$$

對稱故障電流： $I_{f-76\ (sym)} = \frac{I_{b2}}{\Sigma Z_{f-76}} =$ 6.36 (KA)　　$\frac{X}{R} =$ 0.64 ，K = 1

非對稱故障電流： $I_{f-76\ (asy)} = K \times I_{f-76\ (sym)} =$ 6.36 (KA) → (C.B選用 ≧ 6.4 KA) …… **OK**

故障電流計算

◆配電盤名稱： D7　　故障點： $f-77$　　基準值： $KV_{b2}=0.38$ KV　$I_{b2}=1519.3$ A　$Z_{b2}=0.1444\,\Omega$

配管線： 0.6 KV　XLPE.C　80　mm^2，　1 / § ，100 M，IN TRAY+EMT　$Z_{cable}=0.2872+j\,0.1516$ (Ω/ KM)

$$Z_w=\frac{Z_{cable}}{Z_{b2}}=\frac{0.2872+j\,0.1516}{0.1444}\times\frac{100\ M}{1000\ M}\times\frac{1}{1}=0.19889197+j\,0.10498615=0.22490022\angle 27.8^\circ\ (p.u)$$

$$\Sigma Z_{f-77}=\Sigma Z_{f-60}+Z_w=0.20157733+j\,0.12807779=0.23882492\angle 32.4^\circ\ (p.u)$$

對稱故障電流： $I_{f-77\,(sym)}=\dfrac{I_{b2}}{\Sigma Z_{f-77}}=$ 6.36 (KA)　　$\dfrac{X}{R}=$ 0.64 ，K= 1

非對稱故障電流： $I_{f-77\,(asy)}=K\times I_{f-77\,(sym)}=$ 6.36 (KA) → (C.B選用 ≧ 6.4 KA) …… ***OK***

◆配電盤名稱： D8　　故障點： $f-78$　　基準值： $KV_{b2}=0.38$ KV　$I_{b2}=1519.3$ A　$Z_{b2}=0.1444\,\Omega$

配管線： 0.6 KV　XLPE.C　80　mm^2，　1 / § ，100 M，IN TRAY+EMT　$Z_{cable}=0.2872+j\,0.1516$ (Ω/ KM)

$$Z_w=\frac{Z_{cable}}{Z_{b2}}=\frac{0.2872+j\,0.1516}{0.1444}\times\frac{100\ M}{1000\ M}\times\frac{1}{1}=0.19889197+j\,0.10498615=0.22490022\angle 27.8^\circ\ (p.u)$$

$$\Sigma Z_{f-78}=\Sigma Z_{f-60}+Z_w=0.20157733+j\,0.12807779=0.23882492\angle 32.4^\circ\ (p.u)$$

對稱故障電流： $I_{f-78\,(sym)}=\dfrac{I_{b2}}{\Sigma Z_{f-78}}=$ 6.36 (KA)　　$\dfrac{X}{R}=$ 0.64 ，K= 1

非對稱故障電流： $I_{f-78\,(asy)}=K\times I_{f-78\,(sym)}=$ 6.36 (KA) → (C.B選用 ≧ 6.4 KA) …… ***OK***

◆配電盤名稱： D9　　故障點： $f-79$　　基準值： $KV_{b2}=0.38$ KV　$I_{b2}=1519.3$ A　$Z_{b2}=0.1444\,\Omega$

配管線： 0.6 KV　XLPE.C　80　mm^2，　1 / § ，100 M，IN TRAY+EMT　$Z_{cable}=0.2872+j\,0.1516$ (Ω/ KM)

$$Z_w=\frac{Z_{cable}}{Z_{b2}}=\frac{0.2872+j\,0.1516}{0.1444}\times\frac{100\ M}{1000\ M}\times\frac{1}{1}=0.19889197+j\,0.10498615=0.22490022\angle 27.8^\circ\ (p.u)$$

$$\Sigma Z_{f-79}=\Sigma Z_{f-60}+Z_w=0.20157733+j\,0.12807779=0.23882492\angle 32.4^\circ\ (p.u)$$

對稱故障電流： $I_{f-79\,(sym)}=\dfrac{I_{b2}}{\Sigma Z_{f-79}}=$ 6.36 (KA)　　$\dfrac{X}{R}=$ 0.64 ，K= 1

非對稱故障電流： $I_{f-79\,(asy)}=K\times I_{f-79\,(sym)}=$ 6.36 (KA) → (C.B選用 ≧ 6.4 KA) …… ***OK***

◆配電盤名稱： D10　　故障點： $f-80$　　基準值： $KV_{b2}=0.38$ KV　$I_{b2}=1519.3$ A　$Z_{b2}=0.1444\,\Omega$

配管線： 0.6 KV　XLPE.C　80　mm^2，　1 / § ，100 M，IN TRAY+EMT　$Z_{cable}=0.2872+j\,0.1516$ (Ω/ KM)

$$Z_w=\frac{Z_{cable}}{Z_{b2}}=\frac{0.2872+j\,0.1516}{0.1444}\times\frac{100\ M}{1000\ M}\times\frac{1}{1}=0.19889197+j\,0.10498615=0.22490022\angle 27.8^\circ\ (p.u)$$

$$\Sigma Z_{f-80}=\Sigma Z_{f-60}+Z_w=0.20157733+j\,0.12807779=0.23882492\angle 32.4^\circ\ (p.u)$$

對稱故障電流： $I_{f-80\,(sym)}=\dfrac{I_{b2}}{\Sigma Z_{f-80}}=$ 6.36 (KA)　　$\dfrac{X}{R}=$ 0.64 ，K= 1

非對稱故障電流： $I_{f-80\,(asy)}=K\times I_{f-80\,(sym)}=$ 6.36 (KA) → (C.B選用 ≧ 6.4 KA) …… ***OK***

◆配電盤名稱： C0　　故障點： $f-81$　　基準值： $KV_{b2}=0.38$ KV　$I_{b2}=1519.3$ A　$Z_{b2}=0.1444\,\Omega$

配管線： 0.6 KV　XLPE.C　50　mm^2，　1 / § ，100 M，IN TRAY+EMT　$Z_{cable}=0.4692+j\,0.1614$ (Ω/ KM)

$$Z_w=\frac{Z_{cable}}{Z_{b2}}=\frac{0.4692+j\,0.1614}{0.1444}\times\frac{100\ M}{1000\ M}\times\frac{1}{1}=0.32493075+j\,0.11177285=0.34361776\angle 19.0^\circ\ (p.u)$$

$$\Sigma Z_{f-81}=\Sigma Z_{f-60}+Z_w=0.32761611+j\,0.13486449=0.35428907\angle 22.4^\circ\ (p.u)$$

對稱故障電流： $I_{f-81\,(sym)}=\dfrac{I_{b2}}{\Sigma Z_{f-81}}=$ 4.29 (KA)　　$\dfrac{X}{R}=$ 0.41 ，K= 1

非對稱故障電流： $I_{f-81\,(asy)}=K\times I_{f-81\,(sym)}=$ 4.29 (KA) → (C.B選用 ≧ 4.3 KA) …… ***OK***

故障電流計算

◆配電盤名稱： CC1　故障點： f- 82　基準值： KV_{b2} = 0.38 KV　I_{b2} = 1519.3 A　Z_{b2} = 0.1444 Ω

配管線： 0.6 KV XLPE.C 38 mm²， 1 / § ， 100 M，IN TRAY+EMT　Z_{cable} = 0.6095 + j 0.1563 (Ω/ KM)

$$Z_w = \frac{Z_{cable}}{Z_{b2}} = \frac{0.6095 + j\,0.1563}{0.1444} \times \frac{100\ M}{1000\ M} \times \frac{1}{1} = 0.42209141 + j\,0.10824100 = 0.43574909 \angle 14.4^\circ \ (p.u)$$

$$\Sigma Z_{f-82} = \Sigma Z_{f-60} + Z_w = 0.42477677 + j\,0.13133264 = 0.44461620 \angle 17.2^\circ \ (p.u)$$

對稱故障電流：$I_{f-82\ (sym)} = \dfrac{I_{b2}}{\Sigma Z_{f-82}}$ = 3.42 (KA)　$\dfrac{X}{R}$ = 0.31 ，K = 1

非對稱故障電流：$I_{f-82\ (asy)}$ = K × $I_{f-82\ (sym)}$ = 3.42 (KA) → (C.B選用 ≧ 3.5 KA) …… ***OK***

◆配電盤名稱： CC2　故障點： f- 83　基準值： KV_{b2} = 0.38 KV　I_{b2} = 1519.3 A　Z_{b2} = 0.1444 Ω

配管線： 0.6 KV XLPE.C 38 mm²， 1 / § ， 100 M，IN TRAY+EMT　Z_{cable} = 0.6095 + j 0.1563 (Ω/ KM)

$$Z_w = \frac{Z_{cable}}{Z_{b2}} = \frac{0.6095 + j\,0.1563}{0.1444} \times \frac{100\ M}{1000\ M} \times \frac{1}{1} = 0.42209141 + j\,0.10824100 = 0.43574909 \angle 14.4^\circ \ (p.u)$$

$$\Sigma Z_{f-83} = \Sigma Z_{f-60} + Z_w = 0.42477677 + j\,0.13133264 = 0.44461620 \angle 17.2^\circ \ (p.u)$$

對稱故障電流：$I_{f-83\ (sym)} = \dfrac{I_{b2}}{\Sigma Z_{f-83}}$ = 3.42 (KA)　$\dfrac{X}{R}$ = 0.31 ，K = 1

非對稱故障電流：$I_{f-83\ (asy)}$ = K × $I_{f-83\ (sym)}$ = 3.42 (KA) → (C.B選用 ≧ 3.5 KA) …… ***OK***

◆配電盤名稱： CC3　故障點： f- 84　基準值： KV_{b2} = 0.38 KV　I_{b2} = 1519.3 A　Z_{b2} = 0.1444 Ω

配管線： 0.6 KV XLPE.C 38 mm²， 1 / § ， 100 M，IN TRAY+EMT　Z_{cable} = 0.6095 + j 0.1563 (Ω/ KM)

$$Z_w = \frac{Z_{cable}}{Z_{b2}} = \frac{0.6095 + j\,0.1563}{0.1444} \times \frac{100\ M}{1000\ M} \times \frac{1}{1} = 0.42209141 + j\,0.10824100 = 0.43574909 \angle 14.4^\circ \ (p.u)$$

$$\Sigma Z_{f-84} = \Sigma Z_{f-60} + Z_w = 0.42477677 + j\,0.13133264 = 0.44461620 \angle 17.2^\circ \ (p.u)$$

對稱故障電流：$I_{f-84\ (sym)} = \dfrac{I_{b2}}{\Sigma Z_{f-84}}$ = 3.42 (KA)　$\dfrac{X}{R}$ = 0.31 ，K = 1

非對稱故障電流：$I_{f-84\ (asy)}$ = K × $I_{f-84\ (sym)}$ = 3.42 (KA) → (C.B選用 ≧ 3.5 KA) …… ***OK***

◆配電盤名稱： CC4　故障點： f- 85　基準值： KV_{b2} = 0.38 KV　I_{b2} = 1519.3 A　Z_{b2} = 0.1444 Ω

配管線： 0.6 KV XLPE.C 38 mm²， 1 / § ， 100 M，IN TRAY+EMT　Z_{cable} = 0.6095 + j 0.1563 (Ω/ KM)

$$Z_w = \frac{Z_{cable}}{Z_{b2}} = \frac{0.6095 + j\,0.1563}{0.1444} \times \frac{100\ M}{1000\ M} \times \frac{1}{1} = 0.42209141 + j\,0.10824100 = 0.43574909 \angle 14.4^\circ \ (p.u)$$

$$\Sigma Z_{f-85} = \Sigma Z_{f-60} + Z_w = 0.42477677 + j\,0.13133264 = 0.44461620 \angle 17.2^\circ \ (p.u)$$

對稱故障電流：$I_{f-85\ (sym)} = \dfrac{I_{b2}}{\Sigma Z_{f-85}}$ = 3.42 (KA)　$\dfrac{X}{R}$ = 0.31 ，K = 1

非對稱故障電流：$I_{f-85\ (asy)}$ = K × $I_{f-85\ (sym)}$ = 3.42 (KA) → (C.B選用 ≧ 3.5 KA) …… ***OK***

◆配電盤名稱： CC5　故障點： f- 86　基準值： KV_{b2} = 0.38 KV　I_{b2} = 1519.3 A　Z_{b2} = 0.1444 Ω

配管線： 0.6 KV XLPE.C 22 mm²， 1 / § ， 100 M，IN TRAY+EMT　Z_{cable} = 1.0507 + j 0.1622 (Ω/ KM)

$$Z_w = \frac{Z_{cable}}{Z_{b2}} = \frac{1.0507 + j\,0.1622}{0.1444} \times \frac{100\ M}{1000\ M} \times \frac{1}{1} = 0.72763158 + j\,0.11232687 = 0.73625067 \angle 8.8^\circ \ (p.u)$$

$$\Sigma Z_{f-86} = \Sigma Z_{f-60} + Z_w = 0.73031694 + j\,0.13541851 = 0.74276578 \angle 10.5^\circ \ (p.u)$$

對稱故障電流：$I_{f-86\ (sym)} = \dfrac{I_{b2}}{\Sigma Z_{f-86}}$ = 2.05 (KA)　$\dfrac{X}{R}$ = 0.19 ，K = 1

非對稱故障電流：$I_{f-86\ (asy)}$ = K × $I_{f-86\ (sym)}$ = 2.05 (KA) → (C.B選用 ≧ 2.1 KA) …… ***OK***

故障電流計算

◆配電盤名稱： D0　　故障點： $f-87$　　基準值： KV_{b2} = 0.38 KV　I_{b2} = 1519.3 A　Z_{b2} = 0.1444 Ω

配管線： 0.6 KV　XLPE.C　50　mm²，　1 / ∮ ，100 M，IN TRAY+EMT　Z_{cable} = 0.4692 + j 0.1614 (Ω/ KM)

$$Z_w = \frac{Z_{cable}}{Z_{b2}} = \frac{0.4692 + j\ 0.1614}{0.1444} \times \frac{100\ M}{1000\ M} \times \frac{1}{1} = 0.32493075 + j\ 0.11177285 = 0.34361776 \angle 19.0^\circ \ (p.u)$$

$$\Sigma Z_{f-87} = \Sigma Z_{f-60} + Z_w = 0.32761611 + j\ 0.13486449 = 0.35428907 \angle 22.4^\circ \ (p.u)$$

對稱故障電流： $I_{f-87\ (sym)} = \frac{I_{b2}}{\Sigma Z_{f-87}}$ = 4.29 (KA)　　$\frac{X}{R}$ = 0.41 ，K = 1

非對稱故障電流： $I_{f-87\ (asy)}$ = K × $I_{f-87\ (sym)}$ = 4.29 (KA) → (C.B選用 ≧ 4.3 KA) …… **OK**

◆配電盤名稱： DD1　　故障點： $f-88$　　基準值： KV_{b2} = 0.38 KV　I_{b2} = 1519.3 A　Z_{b2} = 0.1444 Ω

配管線： 0.6 KV　XLPE.C　38　mm²，　1 / ∮ ，100 M，IN TRAY+EMT　Z_{cable} = 0.6095 + j 0.1563 (Ω/ KM)

$$Z_w = \frac{Z_{cable}}{Z_{b2}} = \frac{0.6095 + j\ 0.1563}{0.1444} \times \frac{100\ M}{1000\ M} \times \frac{1}{1} = 0.42209141 + j\ 0.10824100 = 0.43574909 \angle 14.4^\circ \ (p.u)$$

$$\Sigma Z_{f-88} = \Sigma Z_{f-60} + Z_w = 0.42477677 + j\ 0.13133264 = 0.44461620 \angle 17.2^\circ \ (p.u)$$

對稱故障電流： $I_{f-88\ (sym)} = \frac{I_{b2}}{\Sigma Z_{f-88}}$ = 3.42 (KA)　　$\frac{X}{R}$ = 0.31 ，K = 1

非對稱故障電流： $I_{f-88\ (asy)}$ = K × $I_{f-88\ (sym)}$ = 3.42 (KA) → (C.B選用 ≧ 3.5 KA) …… **OK**

◆配電盤名稱： DD2　　故障點： $f-89$　　基準值： KV_{b2} = 0.38 KV　I_{b2} = 1519.3 A　Z_{b2} = 0.1444 Ω

配管線： 0.6 KV　XLPE.C　38　mm²，　1 / ∮ ，100 M，IN TRAY+EMT　Z_{cable} = 0.6095 + j 0.1563 (Ω/ KM)

$$Z_w = \frac{Z_{cable}}{Z_{b2}} = \frac{0.6095 + j\ 0.1563}{0.1444} \times \frac{100\ M}{1000\ M} \times \frac{1}{1} = 0.42209141 + j\ 0.10824100 = 0.43574909 \angle 14.4^\circ \ (p.u)$$

$$\Sigma Z_{f-89} = \Sigma Z_{f-60} + Z_w = 0.42477677 + j\ 0.13133264 = 0.44461620 \angle 17.2^\circ \ (p.u)$$

對稱故障電流： $I_{f-89\ (sym)} = \frac{I_{b2}}{\Sigma Z_{f-89}}$ = 3.42 (KA)　　$\frac{X}{R}$ = 0.31 ，K = 1

非對稱故障電流： $I_{f-89\ (asy)}$ = K × $I_{f-89\ (sym)}$ = 3.42 (KA) → (C.B選用 ≧ 3.5 KA) …… **OK**

◆配電盤名稱： DD3　　故障點： $f-90$　　基準值： KV_{b2} = 0.38 KV　I_{b2} = 1519.3 A　Z_{b2} = 0.1444 Ω

配管線： 0.6 KV　XLPE.C　38　mm²，　1 / ∮ ，100 M，IN TRAY+EMT　Z_{cable} = 0.6095 + j 0.1563 (Ω/ KM)

$$Z_w = \frac{Z_{cable}}{Z_{b2}} = \frac{0.6095 + j\ 0.1563}{0.1444} \times \frac{100\ M}{1000\ M} \times \frac{1}{1} = 0.42209141 + j\ 0.10824100 = 0.43574909 \angle 14.4^\circ \ (p.u)$$

$$\Sigma Z_{f-90} = \Sigma Z_{f-60} + Z_w = 0.42477677 + j\ 0.13133264 = 0.44461620 \angle 17.2^\circ \ (p.u)$$

對稱故障電流： $I_{f-90\ (sym)} = \frac{I_{b2}}{\Sigma Z_{f-90}}$ = 3.42 (KA)　　$\frac{X}{R}$ = 0.31 ，K = 1

非對稱故障電流： $I_{f-90\ (asy)}$ = K × $I_{f-90\ (sym)}$ = 3.42 (KA) → (C.B選用 ≧ 3.5 KA) …… **OK**

◆配電盤名稱： DD4　　故障點： $f-91$　　基準值： KV_{b2} = 0.38 KV　I_{b2} = 1519.3 A　Z_{b2} = 0.1444 Ω

配管線： 0.6 KV　XLPE.C　38　mm²，　1 / ∮ ，100 M，IN TRAY+EMT　Z_{cable} = 0.6095 + j 0.1563 (Ω/ KM)

$$Z_w = \frac{Z_{cable}}{Z_{b2}} = \frac{0.6095 + j\ 0.1563}{0.1444} \times \frac{100\ M}{1000\ M} \times \frac{1}{1} = 0.42209141 + j\ 0.10824100 = 0.43574909 \angle 14.4^\circ \ (p.u)$$

$$\Sigma Z_{f-91} = \Sigma Z_{f-60} + Z_w = 0.42477677 + j\ 0.13133264 = 0.44461620 \angle 17.2^\circ \ (p.u)$$

對稱故障電流： $I_{f-91\ (sym)} = \frac{I_{b2}}{\Sigma Z_{f-91}}$ = 3.42 (KA)　　$\frac{X}{R}$ = 0.31 ，K = 1

非對稱故障電流： $I_{f-91\ (asy)}$ = K × $I_{f-91\ (sym)}$ = 3.42 (KA) → (C.B選用 ≧ 3.5 KA) …… **OK**

故障電流計算

◆配電盤名稱： HVCB-4　　故障點： $f-92$　　基準值： $KV_{b1}=$ 22.8 KV　$I_{b1}=$ 25.3 A　$Z_{b1}=519.84\,\Omega$

配管線： 25 KV CU BUS 25 × 3 t，　1 / ϕ ，3 M，IN BUS BAR $Z_{bus}=0.3036+j\,0.2902$ (Ω/ KM)

$$Z_w=\frac{Z_{bus}}{Z_{b1}}=\frac{0.3036+j\,0.2902}{519.84}\times\frac{3\ M}{1000\ M}\times\frac{1}{1}=0.00000175+j\,0.00000167=0.00000242\angle 43.7^\circ\ (p.u)$$

$$\Sigma Z_{f-92}=\Sigma Z_{f-2}+Z_w=0.00003613+j\,0.00190883=0.00190917\angle 88.9^\circ\ (p.u)$$

對稱故障電流： $I_{f-92\ (sym)}=\frac{I_{b1}}{\Sigma Z_{f-92}}=$ 13.25 (KA)　　$\frac{X}{R}=$ 52.83 ，K= 1.1

非對稱故障電流： $I_{f-92\ (asy)}=K\times I_{f-92\ (sym)}=$ 14.58 (KA) → (C.B選用 ≧ 14.6 KA) …… **OK**

◆變壓器名稱： TR-4　　容量： 2500 KVA TR一次側： $KV_{b1}=$ 22.8 KV　$I_{b1}=$ 25.3 A　$Z_{b1}=519.84\,\Omega$

配管線： 25 KV XLPE.C 38 mm²，1 / ϕ ，12 M，IN PVC.P $Z_{cable}=0.621+j\,0.2006$ (Ω/ KM)

$$Z_w=\frac{Z_{cable}}{Z_{b1}}=\frac{0.621+j\,0.2006}{519.84}\times\frac{12\ M}{1000\ M}\times\frac{1}{10}=0.00001434+j\,0.00000463=0.00001507\angle 17.9^\circ\ (p.u)$$

變壓器阻抗 $Z_{TR}=$ 0.007 + j 0.0596 (Ω/ KM) → $Z_{TR}\times\frac{KVA_b}{KVA_{TR}}=$ 0.0028 + j 0.02384 $(p.u)$

$$\Sigma Z_{TR}=\Sigma Z_{f-92}+Z_w+Z_{TR}=0.00285047+j\,0.02575346=0.02591073\angle 83.7^\circ\ (p.u)$$

◆配電盤名稱： ACB-4　　故障點： $f-93$　TR二次側： $KV_{b2}=$ 0.38 KV　$I_{b2}=1519.3$ A　$Z_{b2}=0.1444\,\Omega$

配管線： 0.6 KV CU BUS 100 × 10 t，　4 / ϕ ，10 M，IN BUS BAR $Z_{bus}=0.0062+j\,0.1266$ (Ω/ KM)

$$Z_w=\frac{Z_{bus}}{Z_{b2}}=\frac{0.0062+j\,0.1266}{0.1444}\times\frac{10\ M}{1000\ M}\times\frac{1}{4}=0.00010734+j\,0.00219183=0.00219446\angle 87.2^\circ\ (p.u)$$

$$\Sigma Z'_{f-93}=\Sigma Z_{TR}+Z_w=0.00295781+j\,0.02794529=0.02810139\angle 84.0^\circ\ (p.u)$$

◆倒灌電流之馬達群組 Σ = 1050.375 HP　$X''_d=$ 25 %　　$\frac{X}{R}=6$　　R = 4.16667 %　　(1HP≒1KVA)

$$Z_m=pu\ (Z_m)\times\left(\frac{KV_{HP}}{KV_b}\right)^2\times\frac{KVA_b}{KVA_{HP}}=0.03966838+j\,0.23801023=0.24129329\angle 80.5^\circ\ (p.u)$$

$$\Sigma Z_{f-93}=Z'_{f-93}\ //\ Z_m=\frac{Z'_{f-93}\times Z_m}{Z_{f-93}+Z_m}=0.00280549+j\,0.02501742=0.02517423\angle 83.6^\circ\ (p.u)$$

對稱故障電流： $I_{f-93\ (sym)}=\frac{I_{b2}}{\Sigma Z_{f-93}}=$ 60.35 (KA)　　$\frac{X}{R}=$ 8.92 ，K= 1.22

非對稱故障電流： $I_{f-93\ (asy)}=K\times I_{f-93\ (sym)}=$ 73.63 (KA) → (C.B選用 ≧ 73.7 KA) …… **OK**

◆配電盤名稱： 1-L1A　　故障點： $f-94$　　基準值： $KV_{b2}=$ 0.38 KV　$I_{b2}=1519.3$ A　$Z_{b2}=0.1444\,\Omega$

配管線： 0.6 KV XLPE.C 30 mm²，1 / ϕ ，50 M，IN EMT.P $Z_{cable}=0.7727+j\,0.1563$ (Ω/ KM)

$$Z_w=\frac{Z_{cable}}{Z_{b2}}=\frac{0.7727+j\,0.1563}{0.1444}\times\frac{50\ M}{1000\ M}\times\frac{1}{1}=0.26755540+j\,0.05412050=0.27297421\angle 11.4^\circ\ (p.u)$$

$$\Sigma Z_{f-94}=\Sigma Z_{f-93}+Z_w=0.27036089+j\,0.07913792=0.28170520\angle 16.3^\circ\ (p.u)$$

對稱故障電流： $I_{f-94\ (sym)}=\frac{I_{b2}}{\Sigma Z_{f-94}}=$ 5.39 (KA)　　$\frac{X}{R}=$ 0.29 ，K= 1

非對稱故障電流： $I_{f-94\ (asy)}=K\times I_{f-94\ (sym)}=$ 5.39 (KA) → (C.B選用 ≧ 5.4 KA) …… **OK**

◆配電盤名稱： 1-L1B　故障點： f_{-95}　基準值： $KV_{b2}=0.38$ KV　$I_{b2}=1519.3$ A　$Z_{b2}=0.1444\Omega$

配管線： 0.6 KV XLPE.C 30 mm²， 1 / § ， 50 M，IN EMT.P　$Z_{cable}=0.7727+j\,0.1563$ (Ω/ KM)

$$Z_w=\frac{Z_{cable}}{Z_{b2}}=\frac{0.7727+j\,0.1563}{0.1444}\times\frac{50\ \text{M}}{1000\ \text{M}}\times\frac{1}{1}=0.26755540+j\,0.05412050=0.27297421\angle 11.4^\circ\ (p.u)$$

$$\Sigma Z_{f-95}=\Sigma Z_{f-93}+Z_w=0.27036089+j\,0.07913792=0.28170520\angle 16.3^\circ\ (p.u)$$

對稱故障電流： $I_{f-95\ (sym)}=\dfrac{I_{b2}}{\Sigma Z_{f-95}}=5.39$ (KA)　$\dfrac{X}{R}=0.29$ ，K= 1

非對稱故障電流： $I_{f-95\ (asy)}=K\times I_{f-95\ (sym)}=5.39$ (KA) → (C.B選用 ≧ 5.4 KA) …… **OK**

◆配電盤名稱： 1-L1C　故障點： f_{-96}　基準值： $KV_{b2}=0.38$ KV　$I_{b2}=1519.3$ A　$Z_{b2}=0.1444\Omega$

配管線： 0.6 KV XLPE.C 38 mm²， 1 / § ， 50 M，IN PVC.P　$Z_{cable}=0.6095+j\,0.125$ (Ω/ KM)

$$Z_w=\frac{Z_{cable}}{Z_{b2}}=\frac{0.6095+j\,0.125}{0.1444}\times\frac{50\ \text{M}}{1000\ \text{M}}\times\frac{1}{1}=0.21104571+j\,0.04328255=0.21543832\angle 11.6^\circ\ (p.u)$$

$$\Sigma Z_{f-96}=\Sigma Z_{f-93}+Z_w=0.21385120+j\,0.06829997=0.22449326\angle 17.7^\circ\ (p.u)$$

對稱故障電流： $I_{f-96\ (sym)}=\dfrac{I_{b2}}{\Sigma Z_{f-96}}=6.77$ (KA)　$\dfrac{X}{R}=0.32$ ，K= 1

非對稱故障電流： $I_{f-96\ (asy)}=K\times I_{f-96\ (sym)}=6.77$ (KA) → (C.B選用 ≧ 6.8 KA) …… **OK**

◆配電盤名稱： 1-L1D　故障點： f_{-97}　基準值： $KV_{b2}=0.38$ KV　$I_{b2}=1519.3$ A　$Z_{b2}=0.1444\Omega$

配管線： 0.6 KV XLPE.C 14 mm²， 1 / § ， 50 M，IN PVC.P　$Z_{cable}=1.6576+j\,0.1381$ (Ω/ KM)

$$Z_w=\frac{Z_{cable}}{Z_{b2}}=\frac{1.6576+j\,0.1381}{0.1444}\times\frac{50\ \text{M}}{1000\ \text{M}}\times\frac{1}{1}=0.57396122+j\,0.04781856=0.57594973\angle 4.8^\circ\ (p.u)$$

$$\Sigma Z_{f-97}=\Sigma Z_{f-93}+Z_w=0.57676671+j\,0.07283598=0.58134750\angle 7.2^\circ\ (p.u)$$

對稱故障電流： $I_{f-97\ (sym)}=\dfrac{I_{b2}}{\Sigma Z_{f-97}}=2.61$ (KA)　$\dfrac{X}{R}=0.13$ ，K= 1

非對稱故障電流： $I_{f-97\ (asy)}=K\times I_{f-97\ (sym)}=2.61$ (KA) → (C.B選用 ≧ 2.7 KA) …… **OK**

◆配電盤名稱： 2-L1A　故障點： f_{-98}　基準值： $KV_{b2}=0.38$ KV　$I_{b2}=1519.3$ A　$Z_{b2}=0.1444\Omega$

配管線： 0.6 KV XLPE.C 30 mm²， 1 / § ， 50 M，IN EMT.P　$Z_{cable}=0.7727+j\,0.1563$ (Ω/ KM)

$$Z_w=\frac{Z_{cable}}{Z_{b2}}=\frac{0.7727+j\,0.1563}{0.1444}\times\frac{50\ \text{M}}{1000\ \text{M}}\times\frac{1}{1}=0.26755540+j\,0.05412050=0.27297421\angle 11.4^\circ\ (p.u)$$

$$\Sigma Z_{f-98}=\Sigma Z_{f-93}+Z_w=0.27036089+j\,0.07913792=0.28170520\angle 16.3^\circ\ (p.u)$$

對稱故障電流： $I_{f-98\ (sym)}=\dfrac{I_{b2}}{\Sigma Z_{f-98}}=5.39$ (KA)　$\dfrac{X}{R}=0.29$ ，K= 1

非對稱故障電流： $I_{f-98\ (asy)}=K\times I_{f-98\ (sym)}=5.39$ (KA) → (C.B選用 ≧ 5.4 KA) …… **OK**

◆配電盤名稱： 2-L1B　故障點： f_{-99}　基準值： $KV_{b2}=0.38$ KV　$I_{b2}=1519.3$ A　$Z_{b2}=0.1444\Omega$

配管線： 0.6 KV XLPE.C 30 mm²， 1 / § ， 50 M，IN EMT.P　$Z_{cable}=0.7727+j\,0.1563$ (Ω/ KM)

$$Z_w=\frac{Z_{cable}}{Z_{b2}}=\frac{0.7727+j\,0.1563}{0.1444}\times\frac{50\ \text{M}}{1000\ \text{M}}\times\frac{1}{1}=0.26755540+j\,0.05412050=0.27297421\angle 11.4^\circ\ (p.u)$$

$$\Sigma Z_{f-99}=\Sigma Z_{f-93}+Z_w=0.27036089+j\,0.07913792=0.28170520\angle 16.3^\circ\ (p.u)$$

對稱故障電流： $I_{f-99\ (sym)}=\dfrac{I_{b2}}{\Sigma Z_{f-99}}=5.39$ (KA)　$\dfrac{X}{R}=0.29$ ，K= 1

非對稱故障電流： $I_{f-99\ (asy)}=K\times I_{f-99\ (sym)}=5.39$ (KA) → (C.B選用 ≧ 5.4 KA) …… **OK**

故障電流計算

◆配電盤名稱： 2-L1C　　故障點： f-100　　基準值： KV_{b2} = 0.38 KV　I_{b2} = 1519.3 A　Z_{b2} = 0.1444 Ω

配管線： 0.6 KV XLPE.C 30 mm²， 1 / § ， 50 M，IN EMT.P　Z_{cable} = 0.7727 + j 0.1563 (Ω/ KM)

$$Z_w = \frac{Z_{cable}}{Z_{b2}} = \frac{0.7727 + j\,0.1563}{0.1444} \times \frac{50\ M}{1000\ M} \times \frac{1}{1} = 0.26755540 + j\ 0.05412050 = 0.27297421 \angle 11.4^\circ\ \ (p.u)$$

$$\Sigma Z_{f\text{-}100} = \Sigma Z_{f\text{-}93} + Z_w = 0.27036089 + j\ 0.07913792 = 0.28170520 \angle 16.3^\circ\ \ (p.u)$$

對稱故障電流： $I_{f\text{-}100\,(sym)} = \dfrac{I_{b2}}{\Sigma Z_{f\text{-}100}} =$ 5.39 (KA)　　$\dfrac{X}{R} =$ 0.29 ， K= 1

非對稱故障電流： $I_{f\text{-}100\,(asy)} = K \times I_{f\text{-}100\,(sym)} =$ 5.39 (KA) → (C.B選用 ≧ 5.4 KA) …… ***OK***

◆配電盤名稱： 2-L1D　　故障點： f-101　　基準值： KV_{b2} = 0.38 KV　I_{b2} = 1519.3 A　Z_{b2} = 0.1444 Ω

配管線： 0.6 KV XLPE.C 30 mm²， 1 / § ， 50 M，IN EMT.P　Z_{cable} = 0.7727 + j 0.1563 (Ω/ KM)

$$Z_w = \frac{Z_{cable}}{Z_{b2}} = \frac{0.7727 + j\,0.1563}{0.1444} \times \frac{50\ M}{1000\ M} \times \frac{1}{1} = 0.26755540 + j\ 0.05412050 = 0.27297421 \angle 11.4^\circ\ \ (p.u)$$

$$\Sigma Z_{f\text{-}101} = \Sigma Z_{f\text{-}93} + Z_w = 0.27036089 + j\ 0.07913792 = 0.28170520 \angle 16.3^\circ\ \ (p.u)$$

對稱故障電流： $I_{f\text{-}101\,(sym)} = \dfrac{I_{b2}}{\Sigma Z_{f\text{-}101}} =$ 5.39 (KA)　　$\dfrac{X}{R} =$ 0.29 ， K= 1

非對稱故障電流： $I_{f\text{-}101\,(asy)} = K \times I_{f\text{-}101\,(sym)} =$ 5.39 (KA) → (C.B選用 ≧ 5.4 KA) …… ***OK***

◆配電盤名稱： 2-L2A　　故障點： f-102　　基準值： KV_{b2} = 0.38 KV　I_{b2} = 1519.3 A　Z_{b2} = 0.1444 Ω

配管線： 0.6 KV XLPE.C 30 mm²， 1 / § ， 100 M，IN EMT.P　Z_{cable} = 0.7727 + j 0.1563 (Ω/ KM)

$$Z_w = \frac{Z_{cable}}{Z_{b2}} = \frac{0.7727 + j\,0.1563}{0.1444} \times \frac{100\ M}{1000\ M} \times \frac{1}{1} = 0.53511080 + j\ 0.10824100 = 0.54594842 \angle 11.4^\circ\ \ (p.u)$$

$$\Sigma Z_{f\text{-}102} = \Sigma Z_{f\text{-}93} + Z_w = 0.53791629 + j\ 0.13325842 = 0.55417663 \angle 13.9^\circ\ \ (p.u)$$

對稱故障電流： $I_{f\text{-}102\,(sym)} = \dfrac{I_{b2}}{\Sigma Z_{f\text{-}102}} =$ 2.74 (KA)　　$\dfrac{X}{R} =$ 0.25 ， K= 1

非對稱故障電流： $I_{f\text{-}102\,(asy)} = K \times I_{f\text{-}102\,(sym)} =$ 2.74 (KA) → (C.B選用 ≧ 2.8 KA) …… ***OK***

◆配電盤名稱： 2-L2B　　故障點： f-103　　基準值： KV_{b2} = 0.38 KV　I_{b2} = 1519.3 A　Z_{b2} = 0.1444 Ω

配管線： 0.6 KV XLPE.C 30 mm²， 1 / § ， 100 M，IN EMT.P　Z_{cable} = 0.7727 + j 0.1563 (Ω/ KM)

$$Z_w = \frac{Z_{cable}}{Z_{b2}} = \frac{0.7727 + j\,0.1563}{0.1444} \times \frac{100\ M}{1000\ M} \times \frac{1}{1} = 0.53511080 + j\ 0.10824100 = 0.54594842 \angle 11.4^\circ\ \ (p.u)$$

$$\Sigma Z_{f\text{-}103} = \Sigma Z_{f\text{-}93} + Z_w = 0.53791629 + j\ 0.13325842 = 0.55417663 \angle 13.9^\circ\ \ (p.u)$$

對稱故障電流： $I_{f\text{-}103\,(sym)} = \dfrac{I_{b2}}{\Sigma Z_{f\text{-}103}} =$ 2.74 (KA)　　$\dfrac{X}{R} =$ 0.25 ， K= 1

非對稱故障電流： $I_{f\text{-}103\,(asy)} = K \times I_{f\text{-}103\,(sym)} =$ 2.74 (KA) → (C.B選用 ≧ 2.8 KA) …… ***OK***

◆配電盤名稱： 3-L1A　　故障點： f-104　　基準值： KV_{b2} = 0.38 KV　I_{b2} = 1519.3 A　Z_{b2} = 0.1444 Ω

配管線： 0.6 KV XLPE.C 30 mm²， 1 / § ， 50 M，IN EMT.P　Z_{cable} = 0.7727 + j 0.1563 (Ω/ KM)

$$Z_w = \frac{Z_{cable}}{Z_{b2}} = \frac{0.7727 + j\,0.1563}{0.1444} \times \frac{50\ M}{1000\ M} \times \frac{1}{1} = 0.26755540 + j\ 0.05412050 = 0.27297421 \angle 11.4^\circ\ \ (p.u)$$

$$\Sigma Z_{f\text{-}104} = \Sigma Z_{f\text{-}93} + Z_w = 0.27036089 + j\ 0.07913792 = 0.28170520 \angle 16.3^\circ\ \ (p.u)$$

對稱故障電流： $I_{f\text{-}104\,(sym)} = \dfrac{I_{b2}}{\Sigma Z_{f\text{-}104}} =$ 5.39 (KA)　　$\dfrac{X}{R} =$ 0.29 ， K= 1

非對稱故障電流： $I_{f\text{-}104\,(asy)} = K \times I_{f\text{-}104\,(sym)} =$ 5.39 (KA) → (C.B選用 ≧ 5.4 KA) …… ***OK***

故障電流計算

◆配電盤名稱： 3-L1B　　故障點： f- 105　　基準值： KV_{b2} = 0.38 KV　I_{b2} = 1519.3 A　Z_{b2} = 0.1444 Ω

配管線： 0.6 KV　XLPE.C　30　mm²，　1 / ϕ ，　50　M，IN　EMT.P　Z_{cable} = 0.7727 + j 0.1563 (Ω/ KM)

$$Z_w = \frac{Z_{cable}}{Z_{b2}} = \frac{0.7727 + j\ 0.1563}{0.1444} \times \frac{50\ M}{1000\ M} \times \frac{1}{1} = 0.26755540 + j\ 0.05412050 = 0.27297421 \angle 11.4^\circ \ (p.u)$$

$$\Sigma Z_{f\text{-}105} = \Sigma Z_{f\text{-}93} + Z_w = 0.27036089 + j\ 0.07913792 = 0.28170520 \angle 16.3^\circ \ (p.u)$$

對稱故障電流： $I_{f\text{-}105\ (sym)} = \frac{I_{b2}}{\Sigma Z_{f\text{-}105}}$ = 5.39 (KA)　　$\frac{X}{R}$ = 0.29 ，K = 1

非對稱故障電流： $I_{f\text{-}105\ (asy)}$ = K × $I_{f\text{-}105\ (sym)}$ = 5.39 (KA) → (C.B選用 ≧ 5.4 KA) …… **OK**

◆配電盤名稱： PAC1　　故障點： f- 106　　基準值： KV_{b2} = 0.38 KV　I_{b2} = 1519.3 A　Z_{b2} = 0.1444 Ω

配管線： 0.6 KV　XLPE.C　250　mm²，　5 / ϕ ，　100 M，IN TRAY+RSG　Z_{cable} = 0.1022 + j 0.1408 (Ω/ KM)

$$Z_w = \frac{Z_{cable}}{Z_{b2}} = \frac{0.1022 + j\ 0.1408}{0.1444} \times \frac{100\ M}{1000\ M} \times \frac{1}{5} = 0.01415512 + j\ 0.01950139 = 0.02409713 \angle 54.0^\circ \ (p.u)$$

$$\Sigma Z_{f\text{-}106} = \Sigma Z_{f\text{-}93} + Z_w = 0.01696061 + j\ 0.04451881 = 0.04764018 \angle 69.1^\circ \ (p.u)$$

對稱故障電流： $I_{f\text{-}106\ (sym)} = \frac{I_{b2}}{\Sigma Z_{f\text{-}106}}$ = 31.89 (KA)　　$\frac{X}{R}$ = 2.62 ，K = 1.04

非對稱故障電流： $I_{f\text{-}106\ (asy)}$ = K × $I_{f\text{-}106\ (sym)}$ = 33.17 (KA) → (C.B選用 ≧ 33.2 KA) …… **OK**

◆配電盤名稱： PAC2　　故障點： f- 107　　基準值： KV_{b2} = 0.38 KV　I_{b2} = 1519.3 A　Z_{b2} = 0.1444 Ω

配管線： 0.6 KV　XLPE.C　250　mm²，　3 / ϕ ，　100 M，IN TRAY+RSG　Z_{cable} = 0.1022 + j 0.1408 (Ω/ KM)

$$Z_w = \frac{Z_{cable}}{Z_{b2}} = \frac{0.1022 + j\ 0.1408}{0.1444} \times \frac{100\ M}{1000\ M} \times \frac{1}{3} = 0.02359187 + j\ 0.03250231 = 0.04016188 \angle 54.0^\circ \ (p.u)$$

$$\Sigma Z_{f\text{-}107} = \Sigma Z_{f\text{-}93} + Z_w = 0.02639736 + j\ 0.05751973 = 0.06328776 \angle 65.3^\circ \ (p.u)$$

對稱故障電流： $I_{f\text{-}107\ (sym)} = \frac{I_{b2}}{\Sigma Z_{f\text{-}107}}$ = 24.01 (KA)　　$\frac{X}{R}$ = 2.18 ，K = 1.03

非對稱故障電流： $I_{f\text{-}107\ (asy)}$ = K × $I_{f\text{-}107\ (sym)}$ = 24.73 (KA) → (C.B選用 ≧ 24.8 KA) …… **OK**

◆配電盤名稱： PAC3　　故障點： f- 108　　基準值： KV_{b2} = 0.38 KV　I_{b2} = 1519.3 A　Z_{b2} = 0.1444 Ω

配管線： 0.6 KV　XLPE.C　200　mm²，　1 / ϕ ，　100 M，IN　PVC.P　Z_{cable} = 0.1211 + j 0.1159 (Ω/ KM)

$$Z_w = \frac{Z_{cable}}{Z_{b2}} = \frac{0.1211 + j\ 0.1159}{0.1444} \times \frac{100\ M}{1000\ M} \times \frac{1}{1} = 0.08386427 + j\ 0.08026316 = 0.11608355 \angle 43.7^\circ \ (p.u)$$

$$\Sigma Z_{f\text{-}108} = \Sigma Z_{f\text{-}93} + Z_w = 0.08666976 + j\ 0.10528058 = 0.13636586 \angle 50.5^\circ \ (p.u)$$

對稱故障電流： $I_{f\text{-}108\ (sym)} = \frac{I_{b2}}{\Sigma Z_{f\text{-}108}}$ = 11.14 (KA)　　$\frac{X}{R}$ = 1.21 ，K = 1

非對稱故障電流： $I_{f\text{-}108\ (asy)}$ = K × $I_{f\text{-}108\ (sym)}$ = 11.14 (KA) → (C.B選用 ≧ 11.2 KA) …… **OK**

故障電流計算

◆變壓器名稱： TR-MR　　容量： 300 KVA TR一次側： KV_{b2} = 0.38 KV　I_{b2} = 1519.3 A　Z_{b2} = 0.1444 Ω

配管線： 0.6 KV　XLPE.C　250 mm²，　2 / ∮ ，　25 M，IN TRAY+RSG　Z_{cable} = 0.1022 + j 0.1408 (Ω/ KM)

$$Z_w = \frac{Z_{cable}}{Z_{b2}} = \frac{0.1022 + j\ 0.1408}{0.1444} \times \frac{25\ M}{1000\ M} \times \frac{1}{10} = 0.00884695 + j\ 0.01218837 = 0.01506071 \angle 54.0^\circ \ (p.u)$$

變壓器阻抗 Z_{TR} = 0.0143 + j 0.0328 (Ω/ KM) → $Z_{TR} \times \frac{KVA_b}{KVA_{TR}} = 0.04766667 + j\ 0.10933333\ (p.u)$

$$\Sigma Z_{TR} = \Sigma Z_{f-93} + Z_w + Z_{TR} = 0.05931911 + j\ 0.14653912 = 0.15809007 \angle 68.0^\circ \ (p.u)$$

◆配電盤名稱： MR　　故障點： f - 109　TR二次側： KV_{b3} = 0.19 KV　I_{b3} = 3038.7 A　Z_{b3} = 0.0361 Ω

配管線： 0.6 KV　XLPE.C　200 mm²，　3 / ∮ ，　20 M，IN　TRAY　Z_{cable} = 0.1258 + j 0.1709 (Ω/ KM)

$$Z_w = \frac{Z_{cable}}{Z_{b3}} = \frac{0.1258 + j\ 0.1709}{0.0361} \times \frac{20\ M}{1000\ M} \times \frac{1}{3} = 0.02323176 + j\ 0.03156048 = 0.03918901 \angle 53.6^\circ \ (p.u)$$

$$\Sigma Z_{f-109} = \Sigma Z_{TR} + Z_w = 0.08255087 + j\ 0.17809960 = 0.19630108 \angle 65.1^\circ \ (p.u)$$

對稱故障電流： $I_{f-109\ (sym)} = \frac{I_{b3}}{\Sigma Z_{f-109}}$ = 15.48 (KA)　　$\frac{X}{R}$ = 2.16 ，K = 1.03

非對稱故障電流： $I_{f-109\ (asy)}$ = K × $I_{f-109\ (sym)}$ = 15.94 (KA) → (C.B選用 ≧ 16 KA) …… **OK**

◆配電盤名稱： 1-R1A　　故障點： f - 110　　基準值： KV_{b3} = 0.19 KV　I_{b3} = 3038.7 A　Z_{b3} = 0.0361 Ω

配管線： 0.6 KV　XLPE.C　14 mm²，　1 / ∮ ，　50 M，IN　EMT.P　Z_{cable} = 1.6576 + j 0.1726 (Ω/ KM)

$$Z_w = \frac{Z_{cable}}{Z_{b3}} = \frac{1.6576 + j\ 0.1726}{0.0361} \times \frac{50\ M}{1000\ M} \times \frac{1}{1} = 2.29584488 + j\ 0.23905817 = 2.30825746 \angle 5.9^\circ \ (p.u)$$

$$\Sigma Z_{f-110} = \Sigma Z_{f-109} + Z_w = 2.37839575 + j\ 0.41715777 = 2.41470225 \angle 9.9^\circ \ (p.u)$$

對稱故障電流： $I_{f-110\ (sym)} = \frac{I_{b3}}{\Sigma Z_{f-110}}$ = 1.26 (KA)　　$\frac{X}{R}$ = 0.18 ，K = 1

非對稱故障電流： $I_{f-110\ (asy)}$ = K × $I_{f-110\ (sym)}$ = 1.26 (KA) → (C.B選用 ≧ 1.3 KA) …… **OK**

◆配電盤名稱： 1-R1B　　故障點： f - 111　　基準值： KV_{b3} = 0.19 KV　I_{b3} = 3038.7 A　Z_{b3} = 0.0361 Ω

配管線： 0.6 KV　XLPE.C　14 mm²，　1 / ∮ ，　50 M，IN　EMT.P　Z_{cable} = 1.6576 + j 0.1726 (Ω/ KM)

$$Z_w = \frac{Z_{cable}}{Z_{b3}} = \frac{1.6576 + j\ 0.1726}{0.0361} \times \frac{50\ M}{1000\ M} \times \frac{1}{1} = 2.29584488 + j\ 0.23905817 = 2.30825746 \angle 5.9^\circ \ (p.u)$$

$$\Sigma Z_{f-111} = \Sigma Z_{f-109} + Z_w = 2.37839575 + j\ 0.41715777 = 2.41470225 \angle 9.9^\circ \ (p.u)$$

對稱故障電流： $I_{f-111\ (sym)} = \frac{I_{b3}}{\Sigma Z_{f-111}}$ = 1.26 (KA)　　$\frac{X}{R}$ = 0.18 ，K = 1

非對稱故障電流： $I_{f-111\ (asy)}$ = K × $I_{f-111\ (sym)}$ = 1.26 (KA) → (C.B選用 ≧ 1.3 KA) …… **OK**

◆配電盤名稱： 1-R1C　　故障點： f - 112　　基準值： KV_{b3} = 0.19 KV　I_{b3} = 3038.7 A　Z_{b3} = 0.0361 Ω

配管線： 0.6 KV　XLPE.C　8 mm²，　1 / ∮ ，　50 M，IN　PVC.P　Z_{cable} = 2.9455 + j 0.1402 (Ω/ KM)

$$Z_w = \frac{Z_{cable}}{Z_{b3}} = \frac{2.9455 + j\ 0.1402}{0.0361} \times \frac{50\ M}{1000\ M} \times \frac{1}{1} = 4.07963989 + j\ 0.19418283 = 4.08425864 \angle 2.7^\circ \ (p.u)$$

$$\Sigma Z_{f-112} = \Sigma Z_{f-109} + Z_w = 4.16219076 + j\ 0.37228243 = 4.17880678 \angle 5.1^\circ \ (p.u)$$

對稱故障電流： $I_{f-112\ (sym)} = \frac{I_{b3}}{\Sigma Z_{f-112}}$ = 0.73 (KA)　　$\frac{X}{R}$ = 0.09 ，K = 1

非對稱故障電流： $I_{f-112\ (asy)}$ = K × $I_{f-112\ (sym)}$ = 0.73 (KA) → (C.B選用 ≧ 0.8 KA) …… **OK**

故障電流計算

◆配電盤名稱： 1-R1D　　故障點： f- 113　　基準值： KV_{b3} = 0.19 KV　I_{b3} = 3038.7 A　Z_{b3} = 0.0361 Ω

配管線： 0.6 KV　XLPE.C　8　mm²，　1 / ϕ ，　50 M，IN　PVC.P　Z_{cable} = 2.9455 + j 0.1402 (Ω/ KM)

$$Z_w = \frac{Z_{cable}}{Z_{b3}} = \frac{2.9455 + j\ 0.1402}{0.0361} \times \frac{50\ M}{1000\ M} \times \frac{1}{1} = 4.07963989 + j\ 0.19418283 = 4.08425864 \angle\ 2.7^\circ\ (p.u)$$

$$\Sigma Z_{f\text{-}113} = \Sigma Z_{f\text{-}109} + Z_w = 4.16219076 + j\ 0.37228243 = 4.17880678 \angle\ 5.1^\circ\ (p.u)$$

對稱故障電流： $I_{f\text{-}113\ (sym)} = \frac{I_{b3}}{\Sigma Z_{f\text{-}113}}$ = 0.73 (KA)　　$\frac{X}{R}$ = 0.09 ，K = 1

非對稱故障電流： $I_{f\text{-}113\ (asy)}$ = K × $I_{f\text{-}113\ (sym)}$ = 0.73 (KA) → (C.B選用 ≧ 0.8 KA) …… **OK**

◆配電盤名稱： 2-R1A　　故障點： f- 114　　基準值： KV_{b3} = 0.19 KV　I_{b3} = 3038.7 A　Z_{b3} = 0.0361 Ω

配管線： 0.6 KV　XLPE.C　14　mm²，　1 / ϕ ，　50 M，IN　EMT.P　Z_{cable} = 1.6576 + j 0.1726 (Ω/ KM)

$$Z_w = \frac{Z_{cable}}{Z_{b3}} = \frac{1.6576 + j\ 0.1726}{0.0361} \times \frac{50\ M}{1000\ M} \times \frac{1}{1} = 2.29584488 + j\ 0.23905817 = 2.30825746 \angle\ 5.9^\circ\ (p.u)$$

$$\Sigma Z_{f\text{-}114} = \Sigma Z_{f\text{-}109} + Z_w = 2.37839575 + j\ 0.41715777 = 2.41470225 \angle\ 9.9^\circ\ (p.u)$$

對稱故障電流： $I_{f\text{-}114\ (sym)} = \frac{I_{b3}}{\Sigma Z_{f\text{-}114}}$ = 1.26 (KA)　　$\frac{X}{R}$ = 0.18 ，K = 1

非對稱故障電流： $I_{f\text{-}114\ (asy)}$ = K × $I_{f\text{-}114\ (sym)}$ = 1.26 (KA) → (C.B選用 ≧ 1.3 KA) …… **OK**

◆配電盤名稱： 2-R1B　　故障點： f- 115　　基準值： KV_{b3} = 0.19 KV　I_{b3} = 3038.7 A　Z_{b3} = 0.0361 Ω

配管線： 0.6 KV　XLPE.C　14　mm²，　1 / ϕ ，　50 M，IN　EMT.P　Z_{cable} = 1.6576 + j 0.1726 (Ω/ KM)

$$Z_w = \frac{Z_{cable}}{Z_{b3}} = \frac{1.6576 + j\ 0.1726}{0.0361} \times \frac{50\ M}{1000\ M} \times \frac{1}{1} = 2.29584488 + j\ 0.23905817 = 2.30825746 \angle\ 5.9^\circ\ (p.u)$$

$$\Sigma Z_{f\text{-}115} = \Sigma Z_{f\text{-}109} + Z_w = 2.37839575 + j\ 0.41715777 = 2.41470225 \angle\ 9.9^\circ\ (p.u)$$

對稱故障電流： $I_{f\text{-}115\ (sym)} = \frac{I_{b3}}{\Sigma Z_{f\text{-}115}}$ = 1.26 (KA)　　$\frac{X}{R}$ = 0.18 ，K = 1

非對稱故障電流： $I_{f\text{-}115\ (asy)}$ = K × $I_{f\text{-}115\ (sym)}$ = 1.26 (KA) → (C.B選用 ≧ 1.3 KA) …… **OK**

◆配電盤名稱： 2-R1C　　故障點： f- 116　　基準值： KV_{b3} = 0.19 KV　I_{b3} = 3038.7 A　Z_{b3} = 0.0361 Ω

配管線： 0.6 KV　XLPE.C　50　mm²，　1 / ϕ ，　50 M，IN　EMT.P　Z_{cable} = 0.4692 + j 0.1614 (Ω/ KM)

$$Z_w = \frac{Z_{cable}}{Z_{b3}} = \frac{0.4692 + j\ 0.1614}{0.0361} \times \frac{50\ M}{1000\ M} \times \frac{1}{1} = 0.64986150 + j\ 0.22354571 = 0.68723552 \angle 19.0^\circ\ (p.u)$$

$$\Sigma Z_{f\text{-}116} = \Sigma Z_{f\text{-}109} + Z_w = 0.73241237 + j\ 0.40164531 = 0.83531242 \angle 28.7^\circ\ (p.u)$$

對稱故障電流： $I_{f\text{-}116\ (sym)} = \frac{I_{b3}}{\Sigma Z_{f\text{-}116}}$ = 3.64 (KA)　　$\frac{X}{R}$ = 0.55 ，K = 1

非對稱故障電流： $I_{f\text{-}116\ (asy)}$ = K × $I_{f\text{-}116\ (sym)}$ = 3.64 (KA) → (C.B選用 ≧ 3.7 KA) …… **OK**

◆配電盤名稱： 2-R1D　　故障點： f- 117　　基準值： KV_{b3} = 0.19 KV　I_{b3} = 3038.7 A　Z_{b3} = 0.0361 Ω

配管線： 0.6 KV　XLPE.C　50　mm²，　1 / ϕ ，　50 M，IN　EMT.P　Z_{cable} = 0.4692 + j 0.1614 (Ω/ KM)

$$Z_w = \frac{Z_{cable}}{Z_{b3}} = \frac{0.4692 + j\ 0.1614}{0.0361} \times \frac{50\ M}{1000\ M} \times \frac{1}{1} = 0.64986150 + j\ 0.22354571 = 0.68723552 \angle 19.0^\circ\ (p.u)$$

$$\Sigma Z_{f\text{-}117} = \Sigma Z_{f\text{-}109} + Z_w = 0.73241237 + j\ 0.40164531 = 0.83531242 \angle 28.7^\circ\ (p.u)$$

對稱故障電流： $I_{f\text{-}117\ (sym)} = \frac{I_{b3}}{\Sigma Z_{f\text{-}117}}$ = 3.64 (KA)　　$\frac{X}{R}$ = 0.55 ，K = 1

非對稱故障電流： $I_{f\text{-}117\ (asy)}$ = K × $I_{f\text{-}117\ (sym)}$ = 3.64 (KA) → (C.B選用 ≧ 3.7 KA) …… **OK**

故障電流計算

◆配電盤名稱： 3-R1A　　故障點： f- 118　　基準值： KV_{b3} = 0.19 KV　I_{b3} = 3038.7 A　Z_{b3} = 0.0361 Ω

配管線： 0.6 KV XLPE.C 14 mm^2， 1 / ∮ ， 50 M，IN EMT.P　Z_{cable} = 1.6576 + j 0.1726 (Ω/ KM)

$$Z_w = \frac{Z_{cable}}{Z_{b3}} = \frac{1.6576 + j\,0.1726}{0.0361} \times \frac{50\ \text{M}}{1000\ \text{M}} \times \frac{1}{1} = 2.29584488 + j\,0.23905817 = 2.30825746 \angle 5.9^\circ \quad (p.u)$$

$$\Sigma Z_{f-118} = \Sigma Z_{f-109} + Z_w = 2.37839575 + j\,0.41715777 = 2.41470225 \angle 9.9^\circ \quad (p.u)$$

對稱故障電流：$I_{f-118\,(sym)} = \frac{I_{b3}}{\Sigma Z_{f-118}} =$ 1.26 (KA)　　$\frac{X}{R} =$ 0.18 ，K= 1

非對稱故障電流：$I_{f-118\,(asy)} = K \times I_{f-118\,(sym)} =$ 1.26 (KA) → (C.B選用 ≧ 1.3 KA) …… ***OK***

◆配電盤名稱： 3-R1B　　故障點： f- 119　　基準值： KV_{b3} = 0.19 KV　I_{b3} = 3038.7 A　Z_{b3} = 0.0361 Ω

配管線： 0.6 KV XLPE.C 14 mm^2， 1 / ∮ ， 50 M，IN EMT.P　Z_{cable} = 1.6576 + j 0.1726 (Ω/ KM)

$$Z_w = \frac{Z_{cable}}{Z_{b3}} = \frac{1.6576 + j\,0.1726}{0.0361} \times \frac{50\ \text{M}}{1000\ \text{M}} \times \frac{1}{1} = 2.29584488 + j\,0.23905817 = 2.30825746 \angle 5.9^\circ \quad (p.u)$$

$$\Sigma Z_{f-119} = \Sigma Z_{f-109} + Z_w = 2.37839575 + j\,0.41715777 = 2.41470225 \angle 9.9^\circ \quad (p.u)$$

對稱故障電流：$I_{f-119\,(sym)} = \frac{I_{b3}}{\Sigma Z_{f-119}} =$ 1.26 (KA)　　$\frac{X}{R} =$ 0.18 ，K= 1

非對稱故障電流：$I_{f-119\,(asy)} = K \times I_{f-119\,(sym)} =$ 1.26 (KA) → (C.B選用 ≧ 1.3 KA) …… ***OK***

◆配電盤名稱： 2-R2A　　故障點： f- 120　　基準值： KV_{b3} = 0.19 KV　I_{b3} = 3038.7 A　Z_{b3} = 0.0361 Ω

配管線： 0.6 KV XLPE.C 50 mm^2， 1 / ∮ ， 50 M，IN EMT.P　Z_{cable} = 0.4692 + j 0.1614 (Ω/ KM)

$$Z_w = \frac{Z_{cable}}{Z_{b3}} = \frac{0.4692 + j\,0.1614}{0.0361} \times \frac{50\ \text{M}}{1000\ \text{M}} \times \frac{1}{1} = 0.64986150 + j\,0.22354571 = 0.68723552 \angle 19.0^\circ \quad (p.u)$$

$$\Sigma Z_{f-120} = \Sigma Z_{f-109} + Z_w = 0.73241237 + j\,0.40164531 = 0.83531242 \angle 28.7^\circ \quad (p.u)$$

對稱故障電流：$I_{f-120\,(sym)} = \frac{I_{b3}}{\Sigma Z_{f-120}} =$ 3.64 (KA)　　$\frac{X}{R} =$ 0.55 ，K= 1

非對稱故障電流：$I_{f-120\,(asy)} = K \times I_{f-120\,(sym)} =$ 3.64 (KA) → (C.B選用 ≧ 3.7 KA) …… ***OK***

◆配電盤名稱： 2-R2B　　故障點： f- 121　　基準值： KV_{b3} = 0.19 KV　I_{b3} = 3038.7 A　Z_{b3} = 0.0361 Ω

配管線： 0.6 KV XLPE.C 50 mm^2， 1 / ∮ ， 50 M，IN EMT.P　Z_{cable} = 0.4692 + j 0.1614 (Ω/ KM)

$$Z_w = \frac{Z_{cable}}{Z_{b3}} = \frac{0.4692 + j\,0.1614}{0.0361} \times \frac{50\ \text{M}}{1000\ \text{M}} \times \frac{1}{1} = 0.64986150 + j\,0.22354571 = 0.68723552 \angle 19.0^\circ \quad (p.u)$$

$$\Sigma Z_{f-121} = \Sigma Z_{f-109} + Z_w = 0.73241237 + j\,0.40164531 = 0.83531242 \angle 28.7^\circ \quad (p.u)$$

對稱故障電流：$I_{f-121\,(sym)} = \frac{I_{b3}}{\Sigma Z_{f-121}} =$ 3.64 (KA)　　$\frac{X}{R} =$ 0.55 ，K= 1

非對稱故障電流：$I_{f-121\,(asy)} = K \times I_{f-121\,(sym)} =$ 3.64 (KA) → (C.B選用 ≧ 3.7 KA) …… ***OK***

◆配電盤名稱： HVCB-5　　故障點： f- 122　　基準值： KV_{b1} = 22.8 KV　I_{b1} = 25.3 A　Z_{b1} = 519.84 Ω

配管線： 25 KV CU BUS 25 × 3 t， 1 / ∮ ， 3 M，IN BUS BAR　Z_{bus} = 0.3036 + j 0.2902 (Ω/ KM)

$$Z_w = \frac{Z_{bus}}{Z_{b1}} = \frac{0.3036 + j\,0.2902}{519.84} \times \frac{3\ \text{M}}{1000\ \text{M}} \times \frac{1}{1} = 0.00000175 + j\,0.00000167 = 0.00000242 \angle 43.7^\circ \quad (p.u)$$

$$\Sigma Z_{f-122} = \Sigma Z_{f-2} + Z_w = 0.00003613 + j\,0.00190883 = 0.00190917 \angle 88.9^\circ \quad (p.u)$$

對稱故障電流：$I_{f-122\,(sym)} = \frac{I_{b1}}{\Sigma Z_{f-122}} =$ 13.25 (KA)　　$\frac{X}{R} =$ 52.83 ，K= 1.1

非對稱故障電流：$I_{f-122\,(asy)} = K \times I_{f-122\,(sym)} =$ 14.58 (KA) → (C.B選用 ≧ 14.6 KA) …… ***OK***

故障電流計算

◆變壓器名稱：TR-5　　容量：2500 KVA TR一次側：KV_{b1} = 22.8 KV　I_{b1} = 25.3 A　Z_{b1} = 519.84 Ω

配管線：25 KV XLPE.C 38 mm²，1 / ϕ，12 M，IN PVC.P　Z_{cable} = 0.621 + j 0.2006 (Ω/ KM)

$$Z_w = \frac{Z_{cable}}{Z_{b1}} = \frac{0.621 + j\ 0.2006}{519.84} \times \frac{12\ M}{1000\ M} \times \frac{1}{10} = 0.00001434 + j\ 0.00000463 = 0.00001507 \angle 17.9^\circ \ (p.u)$$

變壓器阻抗 Z_{TR} = 0.007 + j 0.0596 (Ω/ KM) → $Z_{TR} \times \frac{KVA_b}{KVA_{TR}}$ = 0.0028 + j 0.02384 (p.u)

$$\Sigma Z_{TR} = \Sigma Z_{f-122} + Z_w + Z_{TR} = 0.00285047 + j\ 0.02575346 = 0.02591073 \angle 83.7^\circ \ (p.u)$$

◆配電盤名稱：ACB-5　　故障點：f-123　TR二次側：KV_{b2} = 0.38 KV　I_{b2} = 1519.3 A　Z_{b2} = 0.1444 Ω

配管線：0.6 KV CU BUS 100 × 10 t，4 / ϕ，10 M，IN BUS BAR　Z_{bus} = 0.0062 + j 0.1266 (Ω/ KM)

$$Z_w = \frac{Z_{bus}}{Z_{b2}} = \frac{0.0062 + j\ 0.1266}{0.1444} \times \frac{10\ M}{1000\ M} \times \frac{1}{4} = 0.00010734 + j\ 0.00219183 = 0.00219446 \angle 87.2^\circ \ (p.u)$$

$$\Sigma Z'_{f-123} = \Sigma Z_{TR} + Z_w = 0.00295781 + j\ 0.02794529 = 0.02810139 \angle 84.0^\circ \ (p.u)$$

◆倒灌電流之馬達群組 Σ = 1886 HP　X''_d = 25 %　$\frac{X}{R}$ = 6　R = 4.16667 %　(1HP≒1KVA)

$$Z_m = pu\ (Z_m) \times \left(\frac{KV_{HP}}{KV_b}\right)^2 \times \frac{KVA_b}{KVA_{HP}} = 0.02209261 + j\ 0.13255567 = 0.13438411 \angle 80.5^\circ \ (p.u)$$

$$\Sigma Z_{f-123} = Z'_{f-123} \ // \ Z_m = \frac{Z'_{f-123} \times Z_m}{Z_{f-123} + Z_m} = 0.00268536 + j\ 0.02309164 = 0.02324726 \angle 83.4^\circ \ (p.u)$$

對稱故障電流：$I_{f-123\ (sym)} = \frac{I_{b2}}{\Sigma Z_{f-123}}$ = 65.35 (KA)　$\frac{X}{R}$ = 8.6 ，K = 1.22

非對稱故障電流：$I_{f-123\ (asy)}$ = K × $I_{f-123\ (sym)}$ = 79.73 (KA) → (C.B選用 ≧ 79.8 KA) …… **OK**

◆配電盤名稱：A1　　故障點：f-124　基準值：KV_{b2} = 0.38 KV　I_{b2} = 1519.3 A　Z_{b2} = 0.1444 Ω

配管線：0.6 KV XLPE.C 80 mm²，1 / ϕ，100 M，IN TRAY+EMT　Z_{cable} = 0.2872 + j 0.1516 (Ω/ KM)

$$Z_w = \frac{Z_{cable}}{Z_{b2}} = \frac{0.2872 + j\ 0.1516}{0.1444} \times \frac{100\ M}{1000\ M} \times \frac{1}{1} = 0.19889197 + j\ 0.10498615 = 0.22490022 \angle 27.8^\circ \ (p.u)$$

$$\Sigma Z_{f-124} = \Sigma Z_{f-123} + Z_w = 0.20157733 + j\ 0.12807779 = 0.23882492 \angle 32.4^\circ \ (p.u)$$

對稱故障電流：$I_{f-124\ (sym)} = \frac{I_{b2}}{\Sigma Z_{f-124}}$ = 6.36 (KA)　$\frac{X}{R}$ = 0.64 ，K = 1

非對稱故障電流：$I_{f-124\ (asy)}$ = K × $I_{f-124\ (sym)}$ = 6.36 (KA) → (C.B選用 ≧ 6.4 KA) …… **OK**

◆配電盤名稱：A2　　故障點：f-125　基準值：KV_{b2} = 0.38 KV　I_{b2} = 1519.3 A　Z_{b2} = 0.1444 Ω

配管線：0.6 KV XLPE.C 80 mm²，1 / ϕ，100 M，IN TRAY+EMT　Z_{cable} = 0.2872 + j 0.1516 (Ω/ KM)

$$Z_w = \frac{Z_{cable}}{Z_{b2}} = \frac{0.2872 + j\ 0.1516}{0.1444} \times \frac{100\ M}{1000\ M} \times \frac{1}{1} = 0.19889197 + j\ 0.10498615 = 0.22490022 \angle 27.8^\circ \ (p.u)$$

$$\Sigma Z_{f-125} = \Sigma Z_{f-123} + Z_w = 0.20157733 + j\ 0.12807779 = 0.23882492 \angle 32.4^\circ \ (p.u)$$

對稱故障電流：$I_{f-125\ (sym)} = \frac{I_{b2}}{\Sigma Z_{f-125}}$ = 6.36 (KA)　$\frac{X}{R}$ = 0.64 ，K = 1

非對稱故障電流：$I_{f-125\ (asy)}$ = K × $I_{f-125\ (sym)}$ = 6.36 (KA) → (C.B選用 ≧ 6.4 KA) …… **OK**

故障電流計算

◆配電盤名稱： A3　故障點： f- 126　基準值： KV_{b2} = 0.38 KV　I_{b2} = 1519.3 A　Z_{b2} = 0.1444 Ω

配管線： 0.6 KV XLPE.C 80 mm^2， 1 / ∮ ， 100 M，IN TRAY+EMT Z_{cable} = 0.2872 + j 0.1516 (Ω/ KM)

$$Z_w = \frac{Z_{cable}}{Z_{b2}} = \frac{0.2872 + j\,0.1516}{0.1444} \times \frac{100\ M}{1000\ M} \times \frac{1}{1} = 0.19889197 + j\,0.10498615 = 0.22490022 \angle 27.8^\circ \quad (p.u)$$

$$\Sigma Z_{f-126} = \Sigma Z_{f-123} + Z_w = 0.20157733 + j\,0.12807779 = 0.23882492 \angle 32.4^\circ \quad (p.u)$$

對稱故障電流： $I_{f-126\,(sym)} = \frac{I_{b2}}{\Sigma Z_{f-126}} = 6.36$ (KA)　$\frac{X}{R} = 0.64$ ，K= 1

非對稱故障電流： $I_{f-126\,(asy)} = K \times I_{f-126\,(sym)} = 6.36$ (KA) → （C.B選用 ≧ 6.4 KA）…… ***OK***

◆配電盤名稱： A4　故障點： f- 127　基準值： KV_{b2} = 0.38 KV　I_{b2} = 1519.3 A　Z_{b2} = 0.1444 Ω

配管線： 0.6 KV XLPE.C 80 mm^2， 1 / ∮ ， 100 M，IN TRAY+EMT Z_{cable} = 0.2872 + j 0.1516 (Ω/ KM)

$$Z_w = \frac{Z_{cable}}{Z_{b2}} = \frac{0.2872 + j\,0.1516}{0.1444} \times \frac{100\ M}{1000\ M} \times \frac{1}{1} = 0.19889197 + j\,0.10498615 = 0.22490022 \angle 27.8^\circ \quad (p.u)$$

$$\Sigma Z_{f-127} = \Sigma Z_{f-123} + Z_w = 0.20157733 + j\,0.12807779 = 0.23882492 \angle 32.4^\circ \quad (p.u)$$

對稱故障電流： $I_{f-127\,(sym)} = \frac{I_{b2}}{\Sigma Z_{f-127}} = 6.36$ (KA)　$\frac{X}{R} = 0.64$ ，K= 1

非對稱故障電流： $I_{f-127\,(asy)} = K \times I_{f-127\,(sym)} = 6.36$ (KA) → （C.B選用 ≧ 6.4 KA）…… ***OK***

◆配電盤名稱： A5　故障點： f- 128　基準值： KV_{b2} = 0.38 KV　I_{b2} = 1519.3 A　Z_{b2} = 0.1444 Ω

配管線： 0.6 KV XLPE.C 80 mm^2， 1 / ∮ ， 100 M，IN TRAY+EMT Z_{cable} = 0.2872 + j 0.1516 (Ω/ KM)

$$Z_w = \frac{Z_{cable}}{Z_{b2}} = \frac{0.2872 + j\,0.1516}{0.1444} \times \frac{100\ M}{1000\ M} \times \frac{1}{1} = 0.19889197 + j\,0.10498615 = 0.22490022 \angle 27.8^\circ \quad (p.u)$$

$$\Sigma Z_{f-128} = \Sigma Z_{f-123} + Z_w = 0.20157733 + j\,0.12807779 = 0.23882492 \angle 32.4^\circ \quad (p.u)$$

對稱故障電流： $I_{f-128\,(sym)} = \frac{I_{b2}}{\Sigma Z_{f-128}} = 6.36$ (KA)　$\frac{X}{R} = 0.64$ ，K= 1

非對稱故障電流： $I_{f-128\,(asy)} = K \times I_{f-128\,(sym)} = 6.36$ (KA) → （C.B選用 ≧ 6.4 KA）…… ***OK***

◆配電盤名稱： A6　故障點： f- 129　基準值： KV_{b2} = 0.38 KV　I_{b2} = 1519.3 A　Z_{b2} = 0.1444 Ω

配管線： 0.6 KV XLPE.C 80 mm^2， 1 / ∮ ， 100 M，IN TRAY+EMT Z_{cable} = 0.2872 + j 0.1516 (Ω/ KM)

$$Z_w = \frac{Z_{cable}}{Z_{b2}} = \frac{0.2872 + j\,0.1516}{0.1444} \times \frac{100\ M}{1000\ M} \times \frac{1}{1} = 0.19889197 + j\,0.10498615 = 0.22490022 \angle 27.8^\circ \quad (p.u)$$

$$\Sigma Z_{f-129} = \Sigma Z_{f-123} + Z_w = 0.20157733 + j\,0.12807779 = 0.23882492 \angle 32.4^\circ \quad (p.u)$$

對稱故障電流： $I_{f-129\,(sym)} = \frac{I_{b2}}{\Sigma Z_{f-129}} = 6.36$ (KA)　$\frac{X}{R} = 0.64$ ，K= 1

非對稱故障電流： $I_{f-129\,(asy)} = K \times I_{f-129\,(sym)} = 6.36$ (KA) → （C.B選用 ≧ 6.4 KA）…… ***OK***

◆配電盤名稱： A7　故障點： f- 130　基準值： KV_{b2} = 0.38 KV　I_{b2} = 1519.3 A　Z_{b2} = 0.1444 Ω

配管線： 0.6 KV XLPE.C 80 mm^2， 1 / ∮ ， 100 M，IN TRAY+EMT Z_{cable} = 0.2872 + j 0.1516 (Ω/ KM)

$$Z_w = \frac{Z_{cable}}{Z_{b2}} = \frac{0.2872 + j\,0.1516}{0.1444} \times \frac{100\ M}{1000\ M} \times \frac{1}{1} = 0.19889197 + j\,0.10498615 = 0.22490022 \angle 27.8^\circ \quad (p.u)$$

$$\Sigma Z_{f-130} = \Sigma Z_{f-123} + Z_w = 0.20157733 + j\,0.12807779 = 0.23882492 \angle 32.4^\circ \quad (p.u)$$

對稱故障電流： $I_{f-130\,(sym)} = \frac{I_{b2}}{\Sigma Z_{f-130}} = 6.36$ (KA)　$\frac{X}{R} = 0.64$ ，K= 1

非對稱故障電流： $I_{f-130\,(asy)} = K \times I_{f-130\,(sym)} = 6.36$ (KA) → （C.B選用 ≧ 6.4 KA）…… ***OK***

故障電流計算

◆配電盤名稱： A8　　故障點： $f-131$　　基準值： KV_{b2} = 0.38 KV　I_{b2} = 1519.3 A　Z_{b2} = 0.1444 Ω

配管線： 0.6 KV　XLPE.C　80　mm²，　1 / ϕ ，100 M，IN TRAY+EMT　Z_{cable} = 0.2872 + j 0.1516 (Ω/ KM)

$$Z_w = \frac{Z_{cable}}{Z_{b2}} = \frac{0.2872 + j\ 0.1516}{0.1444} \times \frac{100\ M}{1000\ M} \times \frac{1}{1} = 0.19889197 + j\ 0.10498615 = 0.22490022 \angle 27.8^\circ \ (p.u)$$

$$\Sigma Z_{f-131} = \Sigma Z_{f-123} + Z_w = 0.20157733 + j\ 0.12807779 = 0.23882492 \angle 32.4^\circ \ (p.u)$$

對稱故障電流： $I_{f-131\ (sym)} = \frac{I_{b2}}{\Sigma Z_{f-131}}$ = 6.36 (KA)　　$\frac{X}{R}$ = 0.64 ，K = 1

非對稱故障電流： $I_{f-131\ (asy)}$ = K × $I_{f-131\ (sym)}$ = 6.36 (KA) → (C.B選用 ≧ 6.4 KA) …… **OK**

◆配電盤名稱： A9　　故障點： $f-132$　　基準值： KV_{b2} = 0.38 KV　I_{b2} = 1519.3 A　Z_{b2} = 0.1444 Ω

配管線： 0.6 KV　XLPE.C　80　mm²，　1 / ϕ ，100 M，IN TRAY+EMT　Z_{cable} = 0.2872 + j 0.1516 (Ω/ KM)

$$Z_w = \frac{Z_{cable}}{Z_{b2}} = \frac{0.2872 + j\ 0.1516}{0.1444} \times \frac{100\ M}{1000\ M} \times \frac{1}{1} = 0.19889197 + j\ 0.10498615 = 0.22490022 \angle 27.8^\circ \ (p.u)$$

$$\Sigma Z_{f-132} = \Sigma Z_{f-123} + Z_w = 0.20157733 + j\ 0.12807779 = 0.23882492 \angle 32.4^\circ \ (p.u)$$

對稱故障電流： $I_{f-132\ (sym)} = \frac{I_{b2}}{\Sigma Z_{f-132}}$ = 6.36 (KA)　　$\frac{X}{R}$ = 0.64 ，K = 1

非對稱故障電流： $I_{f-132\ (asy)}$ = K × $I_{f-132\ (sym)}$ = 6.36 (KA) → (C.B選用 ≧ 6.4 KA) …… **OK**

◆配電盤名稱： A10　　故障點： $f-133$　　基準值： KV_{b2} = 0.38 KV　I_{b2} = 1519.3 A　Z_{b2} = 0.1444 Ω

配管線： 0.6 KV　XLPE.C　80　mm²，　1 / ϕ ，100 M，IN TRAY+EMT　Z_{cable} = 0.2872 + j 0.1516 (Ω/ KM)

$$Z_w = \frac{Z_{cable}}{Z_{b2}} = \frac{0.2872 + j\ 0.1516}{0.1444} \times \frac{100\ M}{1000\ M} \times \frac{1}{1} = 0.19889197 + j\ 0.10498615 = 0.22490022 \angle 27.8^\circ \ (p.u)$$

$$\Sigma Z_{f-133} = \Sigma Z_{f-123} + Z_w = 0.20157733 + j\ 0.12807779 = 0.23882492 \angle 32.4^\circ \ (p.u)$$

對稱故障電流： $I_{f-133\ (sym)} = \frac{I_{b2}}{\Sigma Z_{f-133}}$ = 6.36 (KA)　　$\frac{X}{R}$ = 0.64 ，K = 1

非對稱故障電流： $I_{f-133\ (asy)}$ = K × $I_{f-133\ (sym)}$ = 6.36 (KA) → (C.B選用 ≧ 6.4 KA) …… **OK**

◆配電盤名稱： B1　　故障點： $f-134$　　基準值： KV_{b2} = 0.38 KV　I_{b2} = 1519.3 A　Z_{b2} = 0.1444 Ω

配管線： 0.6 KV　XLPE.C　100　mm²，　1 / ϕ ，100 M，IN TRAY+EMT　Z_{cable} = 0.2341 + j 0.1466 (Ω/ KM)

$$Z_w = \frac{Z_{cable}}{Z_{b2}} = \frac{0.2341 + j\ 0.1466}{0.1444} \times \frac{100\ M}{1000\ M} \times \frac{1}{1} = 0.16211911 + j\ 0.10152355 = 0.19128418 \angle 32.1^\circ \ (p.u)$$

$$\Sigma Z_{f-134} = \Sigma Z_{f-123} + Z_w = 0.16480447 + j\ 0.12461519 = 0.20661428 \angle 37.1^\circ \ (p.u)$$

對稱故障電流： $I_{f-134\ (sym)} = \frac{I_{b2}}{\Sigma Z_{f-134}}$ = 7.35 (KA)　　$\frac{X}{R}$ = 0.76 ，K = 1

非對稱故障電流： $I_{f-134\ (asy)}$ = K × $I_{f-134\ (sym)}$ = 7.35 (KA) → (C.B選用 ≧ 7.4 KA) …… **OK**

◆配電盤名稱： B2　　故障點： $f-135$　　基準值： KV_{b2} = 0.38 KV　I_{b2} = 1519.3 A　Z_{b2} = 0.1444 Ω

配管線： 0.6 KV　XLPE.C　80　mm²，　1 / ϕ ，100 M，IN TRAY+EMT　Z_{cable} = 0.2872 + j 0.1516 (Ω/ KM)

$$Z_w = \frac{Z_{cable}}{Z_{b2}} = \frac{0.2872 + j\ 0.1516}{0.1444} \times \frac{100\ M}{1000\ M} \times \frac{1}{1} = 0.19889197 + j\ 0.10498615 = 0.22490022 \angle 27.8^\circ \ (p.u)$$

$$\Sigma Z_{f-135} = \Sigma Z_{f-123} + Z_w = 0.20157733 + j\ 0.12807779 = 0.23882492 \angle 32.4^\circ \ (p.u)$$

對稱故障電流： $I_{f-135\ (sym)} = \frac{I_{b2}}{\Sigma Z_{f-135}}$ = 6.36 (KA)　　$\frac{X}{R}$ = 0.64 ，K = 1

非對稱故障電流： $I_{f-135\ (asy)}$ = K × $I_{f-135\ (sym)}$ = 6.36 (KA) → (C.B選用 ≧ 6.4 KA) …… **OK**

故障電流計算

◆配電盤名稱： B3　　故障點： f- 136　　基準值： KV_{b2} = 0.38 KV　I_{b2} = 1519.3 A　Z_{b2} = 0.1444 Ω

配管線： 0.6 KV XLPE.C 80 mm^2， 1 / § ， 100 M，IN TRAY+EMT $Z_{cable} = 0.2872 + j\,0.1516$ (Ω/ KM)

$$Z_w = \frac{Z_{cable}}{Z_{b2}} = \frac{0.2872 + j\,0.1516}{0.1444} \times \frac{100\ M}{1000\ M} \times \frac{1}{1} = 0.19889197 + j\,0.10498615 = 0.22490022 \angle 27.8^\circ \quad (p.u)$$

$$\Sigma Z_{f-136} = \Sigma Z_{f-123} + Z_w = 0.20157733 + j\,0.12807779 = 0.23882492 \angle 32.4^\circ \quad (p.u)$$

對稱故障電流：$I_{f-136\,(sym)} = \frac{I_{b2}}{\Sigma Z_{f-136}} = 6.36$ (KA)　　$\frac{X}{R} = 0.64$ ，K= 1

非對稱故障電流：$I_{f-136\,(asy)} = K \times I_{f-136\,(sym)} = 6.36$ (KA) → (C.B選用 ≧ 6.4 KA) …… ***OK***

◆配電盤名稱： B4　　故障點： f- 137　　基準值： KV_{b2} = 0.38 KV　I_{b2} = 1519.3 A　Z_{b2} = 0.1444 Ω

配管線： 0.6 KV XLPE.C 80 mm^2， 1 / § ， 100 M，IN TRAY+EMT $Z_{cable} = 0.2872 + j\,0.1516$ (Ω/ KM)

$$Z_w = \frac{Z_{cable}}{Z_{b2}} = \frac{0.2872 + j\,0.1516}{0.1444} \times \frac{100\ M}{1000\ M} \times \frac{1}{1} = 0.19889197 + j\,0.10498615 = 0.22490022 \angle 27.8^\circ \quad (p.u)$$

$$\Sigma Z_{f-137} = \Sigma Z_{f-123} + Z_w = 0.20157733 + j\,0.12807779 = 0.23882492 \angle 32.4^\circ \quad (p.u)$$

對稱故障電流：$I_{f-137\,(sym)} = \frac{I_{b2}}{\Sigma Z_{f-137}} = 6.36$ (KA)　　$\frac{X}{R} = 0.64$ ，K= 1

非對稱故障電流：$I_{f-137\,(asy)} = K \times I_{f-137\,(sym)} = 6.36$ (KA) → (C.B選用 ≧ 6.4 KA) …… ***OK***

◆配電盤名稱： B5　　故障點： f- 138　　基準值： KV_{b2} = 0.38 KV　I_{b2} = 1519.3 A　Z_{b2} = 0.1444 Ω

配管線： 0.6 KV XLPE.C 80 mm^2， 1 / § ， 100 M，IN TRAY+EMT $Z_{cable} = 0.2872 + j\,0.1516$ (Ω/ KM)

$$Z_w = \frac{Z_{cable}}{Z_{b2}} = \frac{0.2872 + j\,0.1516}{0.1444} \times \frac{100\ M}{1000\ M} \times \frac{1}{1} = 0.19889197 + j\,0.10498615 = 0.22490022 \angle 27.8^\circ \quad (p.u)$$

$$\Sigma Z_{f-138} = \Sigma Z_{f-123} + Z_w = 0.20157733 + j\,0.12807779 = 0.23882492 \angle 32.4^\circ \quad (p.u)$$

對稱故障電流：$I_{f-138\,(sym)} = \frac{I_{b2}}{\Sigma Z_{f-138}} = 6.36$ (KA)　　$\frac{X}{R} = 0.64$ ，K= 1

非對稱故障電流：$I_{f-138\,(asy)} = K \times I_{f-138\,(sym)} = 6.36$ (KA) → (C.B選用 ≧ 6.4 KA) …… ***OK***

◆配電盤名稱： B6　　故障點： f- 139　　基準值： KV_{b2} = 0.38 KV　I_{b2} = 1519.3 A　Z_{b2} = 0.1444 Ω

配管線： 0.6 KV XLPE.C 80 mm^2， 1 / § ， 100 M，IN TRAY+EMT $Z_{cable} = 0.2872 + j\,0.1516$ (Ω/ KM)

$$Z_w = \frac{Z_{cable}}{Z_{b2}} = \frac{0.2872 + j\,0.1516}{0.1444} \times \frac{100\ M}{1000\ M} \times \frac{1}{1} = 0.19889197 + j\,0.10498615 = 0.22490022 \angle 27.8^\circ \quad (p.u)$$

$$\Sigma Z_{f-139} = \Sigma Z_{f-123} + Z_w = 0.20157733 + j\,0.12807779 = 0.23882492 \angle 32.4^\circ \quad (p.u)$$

對稱故障電流：$I_{f-139\,(sym)} = \frac{I_{b2}}{\Sigma Z_{f-139}} = 6.36$ (KA)　　$\frac{X}{R} = 0.64$ ，K= 1

非對稱故障電流：$I_{f-139\,(asy)} = K \times I_{f-139\,(sym)} = 6.36$ (KA) → (C.B選用 ≧ 6.4 KA) …… ***OK***

◆配電盤名稱： B7　　故障點： f- 140　　基準值： KV_{b2} = 0.38 KV　I_{b2} = 1519.3 A　Z_{b2} = 0.1444 Ω

配管線： 0.6 KV XLPE.C 80 mm^2， 1 / § ， 100 M，IN TRAY+EMT $Z_{cable} = 0.2872 + j\,0.1516$ (Ω/ KM)

$$Z_w = \frac{Z_{cable}}{Z_{b2}} = \frac{0.2872 + j\,0.1516}{0.1444} \times \frac{100\ M}{1000\ M} \times \frac{1}{1} = 0.19889197 + j\,0.10498615 = 0.22490022 \angle 27.8^\circ \quad (p.u)$$

$$\Sigma Z_{f-140} = \Sigma Z_{f-123} + Z_w = 0.20157733 + j\,0.12807779 = 0.23882492 \angle 32.4^\circ \quad (p.u)$$

對稱故障電流：$I_{f-140\,(sym)} = \frac{I_{b2}}{\Sigma Z_{f-140}} = 6.36$ (KA)　　$\frac{X}{R} = 0.64$ ，K= 1

非對稱故障電流：$I_{f-140\,(asy)} = K \times I_{f-140\,(sym)} = 6.36$ (KA) → (C.B選用 ≧ 6.4 KA) …… ***OK***

◆配電盤名稱： B8　　故障點： f- 141　　基準值： KV_{b2} = 0.38 KV　I_{b2} = 1519.3 A　Z_{b2} = 0.1444 Ω

配管線： 0.6 KV XLPE.C 80 mm^2， 1 / ∮ ， 100 M，IN TRAY+EMT Z_{cable} = 0.2872 + j 0.1516 (Ω/ KM)

$$Z_w = \frac{Z_{cable}}{Z_{b2}} = \frac{0.2872 + j\,0.1516}{0.1444} \times \frac{100\ M}{1000\ M} \times \frac{1}{1} = 0.19889197 + j\,0.10498615 = 0.22490022 \angle 27.8^\circ \quad (p.u)$$

$$\Sigma Z_{f-141} = \Sigma Z_{f-123} + Z_w = 0.20157733 + j\,0.12807779 = 0.23882492 \angle 32.4^\circ \quad (p.u)$$

對稱故障電流： $I_{f-141\,(sym)} = \dfrac{I_{b2}}{\Sigma Z_{f-141}}$ = 6.36 (KA)　　$\dfrac{X}{R}$ = 0.64 ，K = 1

非對稱故障電流： $I_{f-141\,(asy)} = K \times I_{f-141\,(sym)}$ = 6.36 (KA) → (C.B選用 ≧ 6.4 KA) …… ***OK***

◆配電盤名稱： B9　　故障點： f- 142　　基準值： KV_{b2} = 0.38 KV　I_{b2} = 1519.3 A　Z_{b2} = 0.1444 Ω

配管線： 0.6 KV XLPE.C 80 mm^2， 1 / ∮ ， 100 M，IN TRAY+EMT Z_{cable} = 0.2872 + j 0.1516 (Ω/ KM)

$$Z_w = \frac{Z_{cable}}{Z_{b2}} = \frac{0.2872 + j\,0.1516}{0.1444} \times \frac{100\ M}{1000\ M} \times \frac{1}{1} = 0.19889197 + j\,0.10498615 = 0.22490022 \angle 27.8^\circ \quad (p.u)$$

$$\Sigma Z_{f-142} = \Sigma Z_{f-123} + Z_w = 0.20157733 + j\,0.12807779 = 0.23882492 \angle 32.4^\circ \quad (p.u)$$

對稱故障電流： $I_{f-142\,(sym)} = \dfrac{I_{b2}}{\Sigma Z_{f-142}}$ = 6.36 (KA)　　$\dfrac{X}{R}$ = 0.64 ，K = 1

非對稱故障電流： $I_{f-142\,(asy)} = K \times I_{f-142\,(sym)}$ = 6.36 (KA) → (C.B選用 ≧ 6.4 KA) …… ***OK***

◆配電盤名稱： B10　　故障點： f- 143　　基準值： KV_{b2} = 0.38 KV　I_{b2} = 1519.3 A　Z_{b2} = 0.1444 Ω

配管線： 0.6 KV XLPE.C 80 mm^2， 1 / ∮ ， 100 M，IN TRAY+EMT Z_{cable} = 0.2872 + j 0.1516 (Ω/ KM)

$$Z_w = \frac{Z_{cable}}{Z_{b2}} = \frac{0.2872 + j\,0.1516}{0.1444} \times \frac{100\ M}{1000\ M} \times \frac{1}{1} = 0.19889197 + j\,0.10498615 = 0.22490022 \angle 27.8^\circ \quad (p.u)$$

$$\Sigma Z_{f-143} = \Sigma Z_{f-123} + Z_w = 0.20157733 + j\,0.12807779 = 0.23882492 \angle 32.4^\circ \quad (p.u)$$

對稱故障電流： $I_{f-143\,(sym)} = \dfrac{I_{b2}}{\Sigma Z_{f-143}}$ = 6.36 (KA)　　$\dfrac{X}{R}$ = 0.64 ，K = 1

非對稱故障電流： $I_{f-143\,(asy)} = K \times I_{f-143\,(sym)}$ = 6.36 (KA) → (C.B選用 ≧ 6.4 KA) …… ***OK***

◆配電盤名稱： A0　　故障點： f- 144　　基準值： KV_{b2} = 0.38 KV　I_{b2} = 1519.3 A　Z_{b2} = 0.1444 Ω

配管線： 0.6 KV XLPE.C 50 mm^2， 1 / ∮ ， 100 M，IN TRAY+EMT Z_{cable} = 0.4692 + j 0.1614 (Ω/ KM)

$$Z_w = \frac{Z_{cable}}{Z_{b2}} = \frac{0.4692 + j\,0.1614}{0.1444} \times \frac{100\ M}{1000\ M} \times \frac{1}{1} = 0.32493075 + j\,0.11177285 = 0.34361776 \angle 19.0^\circ \quad (p.u)$$

$$\Sigma Z_{f-144} = \Sigma Z_{f-123} + Z_w = 0.32761611 + j\,0.13486449 = 0.35428907 \angle 22.4^\circ \quad (p.u)$$

對稱故障電流： $I_{f-144\,(sym)} = \dfrac{I_{b2}}{\Sigma Z_{f-144}}$ = 4.29 (KA)　　$\dfrac{X}{R}$ = 0.41 ，K = 1

非對稱故障電流： $I_{f-144\,(asy)} = K \times I_{f-144\,(sym)}$ = 4.29 (KA) → (C.B選用 ≧ 4.3 KA) …… ***OK***

◆配電盤名稱： AA1　　故障點： f- 145　　基準值： KV_{b2} = 0.38 KV　I_{b2} = 1519.3 A　Z_{b2} = 0.1444 Ω

配管線： 0.6 KV XLPE.C 38 mm^2， 1 / ∮ ， 100 M，IN TRAY+EMT Z_{cable} = 0.6095 + j 0.1563 (Ω/ KM)

$$Z_w = \frac{Z_{cable}}{Z_{b2}} = \frac{0.6095 + j\,0.1563}{0.1444} \times \frac{100\ M}{1000\ M} \times \frac{1}{1} = 0.42209141 + j\,0.10824100 = 0.43574909 \angle 14.4^\circ \quad (p.u)$$

$$\Sigma Z_{f-145} = \Sigma Z_{f-123} + Z_w = 0.42477677 + j\,0.13133264 = 0.44461620 \angle 17.2^\circ \quad (p.u)$$

對稱故障電流： $I_{f-145\,(sym)} = \dfrac{I_{b2}}{\Sigma Z_{f-145}}$ = 3.42 (KA)　　$\dfrac{X}{R}$ = 0.31 ，K = 1

非對稱故障電流： $I_{f-145\,(asy)} = K \times I_{f-145\,(sym)}$ = 3.42 (KA) → (C.B選用 ≧ 3.5 KA) …… ***OK***

故障電流計算

◆配電盤名稱： AA2　　故障點： f- 146　　基準值： KV_{b2}＝ 0.38 KV　I_{b2}＝1519.3 A　Z_{b2}＝0.1444Ω

配管線： 0.6 KV XLPE.C 38 mm²， 1 /§ ， 100 M，IN TRAY+EMT　Z_{cable} ＝ 0.6095 ＋j 0.1563 (Ω/ KM)

$$Z_w = \frac{Z_{cable}}{Z_{b2}} = \frac{0.6095 + j\,0.1563}{0.1444} \times \frac{100\ M}{1000\ M} \times \frac{1}{1} = 0.42209141 + j\,0.10824100 = 0.43574909 \angle 14.4^\circ \quad (p.u)$$

$$\Sigma Z_{f-146} = \Sigma Z_{f-123} + Z_w = 0.42477677 + j\,0.13133264 = 0.44461620 \angle 17.2^\circ \quad (p.u)$$

對稱故障電流：$I_{f-146\,(sym)} = \dfrac{I_{b2}}{\Sigma Z_{f-146}} =$ 3.42 (KA)　　$\dfrac{X}{R}=$ 0.31 ，K＝ 1

非對稱故障電流：$I_{f-146\,(asy)} = K \times I_{f-146\,(sym)} =$ 3.42 (KA) → （C.B選用 ≧ 3.5 KA）…… ***OK***

◆配電盤名稱： AA3　　故障點： f- 147　　基準值： KV_{b2}＝ 0.38 KV　I_{b2}＝1519.3 A　Z_{b2}＝0.1444Ω

配管線： 0.6 KV XLPE.C 38 mm²， 1 /§ ， 100 M，IN TRAY+EMT　Z_{cable} ＝ 0.6095 ＋j 0.1563 (Ω/ KM)

$$Z_w = \frac{Z_{cable}}{Z_{b2}} = \frac{0.6095 + j\,0.1563}{0.1444} \times \frac{100\ M}{1000\ M} \times \frac{1}{1} = 0.42209141 + j\,0.10824100 = 0.43574909 \angle 14.4^\circ \quad (p.u)$$

$$\Sigma Z_{f-147} = \Sigma Z_{f-123} + Z_w = 0.42477677 + j\,0.13133264 = 0.44461620 \angle 17.2^\circ \quad (p.u)$$

對稱故障電流：$I_{f-147\,(sym)} = \dfrac{I_{b2}}{\Sigma Z_{f-147}} =$ 3.42 (KA)　　$\dfrac{X}{R}=$ 0.31 ，K＝ 1

非對稱故障電流：$I_{f-147\,(asy)} = K \times I_{f-147\,(sym)} =$ 3.42 (KA) → （C.B選用 ≧ 3.5 KA）…… ***OK***

◆配電盤名稱： AA4　　故障點： f- 148　　基準值： KV_{b2}＝ 0.38 KV　I_{b2}＝1519.3 A　Z_{b2}＝0.1444Ω

配管線： 0.6 KV XLPE.C 38 mm²， 1 /§ ， 100 M，IN TRAY+EMT　Z_{cable} ＝ 0.6095 ＋j 0.1563 (Ω/ KM)

$$Z_w = \frac{Z_{cable}}{Z_{b2}} = \frac{0.6095 + j\,0.1563}{0.1444} \times \frac{100\ M}{1000\ M} \times \frac{1}{1} = 0.42209141 + j\,0.10824100 = 0.43574909 \angle 14.4^\circ \quad (p.u)$$

$$\Sigma Z_{f-148} = \Sigma Z_{f-123} + Z_w = 0.42477677 + j\,0.13133264 = 0.44461620 \angle 17.2^\circ \quad (p.u)$$

對稱故障電流：$I_{f-148\,(sym)} = \dfrac{I_{b2}}{\Sigma Z_{f-148}} =$ 3.42 (KA)　　$\dfrac{X}{R}=$ 0.31 ，K＝ 1

非對稱故障電流：$I_{f-148\,(asy)} = K \times I_{f-148\,(sym)} =$ 3.42 (KA) → （C.B選用 ≧ 3.5 KA）…… ***OK***

◆配電盤名稱： AA5　　故障點： f- 149　　基準值： KV_{b2}＝ 0.38 KV　I_{b2}＝1519.3 A　Z_{b2}＝0.1444Ω

配管線： 0.6 KV XLPE.C 22 mm²， 1 /§ ， 100 M，IN TRAY+EMT　Z_{cable} ＝ 1.0507 ＋j 0.1622 (Ω/ KM)

$$Z_w = \frac{Z_{cable}}{Z_{b2}} = \frac{1.0507 + j\,0.1622}{0.1444} \times \frac{100\ M}{1000\ M} \times \frac{1}{1} = 0.72763158 + j\,0.11232687 = 0.73625067 \angle 8.8^\circ \quad (p.u)$$

$$\Sigma Z_{f-149} = \Sigma Z_{f-123} + Z_w = 0.73031694 + j\,0.13541851 = 0.74276578 \angle 10.5^\circ \quad (p.u)$$

對稱故障電流：$I_{f-149\,(sym)} = \dfrac{I_{b2}}{\Sigma Z_{f-149}} =$ 2.05 (KA)　　$\dfrac{X}{R}=$ 0.19 ，K＝ 1

非對稱故障電流：$I_{f-149\,(asy)} = K \times I_{f-149\,(sym)} =$ 2.05 (KA) → （C.B選用 ≧ 2.1 KA）…… ***OK***

◆配電盤名稱： B0　　故障點： f- 150　　基準值： KV_{b2}＝ 0.38 KV　I_{b2}＝1519.3 A　Z_{b2}＝0.1444Ω

配管線： 0.6 KV XLPE.C 50 mm²， 1 /§ ， 100 M，IN TRAY+EMT　Z_{cable} ＝ 0.4692 ＋j 0.1614 (Ω/ KM)

$$Z_w = \frac{Z_{cable}}{Z_{b2}} = \frac{0.4692 + j\,0.1614}{0.1444} \times \frac{100\ M}{1000\ M} \times \frac{1}{1} = 0.32493075 + j\,0.11177285 = 0.34361776 \angle 19.0^\circ \quad (p.u)$$

$$\Sigma Z_{f-150} = \Sigma Z_{f-123} + Z_w = 0.32761611 + j\,0.13486449 = 0.35428907 \angle 22.4^\circ \quad (p.u)$$

對稱故障電流：$I_{f-150\,(sym)} = \dfrac{I_{b2}}{\Sigma Z_{f-150}} =$ 4.29 (KA)　　$\dfrac{X}{R}=$ 0.41 ，K＝ 1

非對稱故障電流：$I_{f-150\,(asy)} = K \times I_{f-150\,(sym)} =$ 4.29 (KA) → （C.B選用 ≧ 4.3 KA）…… ***OK***

故障電流計算

◆配電盤名稱： BB1　　故障點： $f-151$　　基準值： KV_{b2} = 0.38 KV　I_{b2} = 1519.3 A　Z_{b2} = 0.1444 Ω

配管線： 0.6 KV XLPE.C 38 mm²， 1 /§ ， 100 M，IN TRAY+EMT Z_{cable} = 0.6095 + j 0.1563 (Ω/ KM)

$$Z_w = \frac{Z_{cable}}{Z_{b2}} = \frac{0.6095 + j\ 0.1563}{0.1444} \times \frac{100\ M}{1000\ M} \times \frac{1}{1} = 0.42209141 + j\ 0.10824100 = 0.43574909 \angle 14.4^\circ \ (p.u)$$

$$\Sigma Z_{f-151} = \Sigma Z_{f-123} + Z_w = 0.42477677 + j\ 0.13133264 = 0.44461620 \angle 17.2^\circ \ (p.u)$$

對稱故障電流： $I_{f-151\ (sym)} = \frac{I_{b2}}{\Sigma Z_{f-151}}$ = 3.42 (KA)　　$\frac{X}{R}$ = 0.31 ， K = 1

非對稱故障電流： $I_{f-151\ (asy)}$ = K × $I_{f-151\ (sym)}$ = 3.42 (KA) → (C.B選用 ≧ 3.5 KA) …… **OK**

◆配電盤名稱： BB2　　故障點： $f-152$　　基準值： KV_{b2} = 0.38 KV　I_{b2} = 1519.3 A　Z_{b2} = 0.1444 Ω

配管線： 0.6 KV XLPE.C 38 mm²， 1 /§ ， 100 M，IN TRAY+EMT Z_{cable} = 0.6095 + j 0.1563 (Ω/ KM)

$$Z_w = \frac{Z_{cable}}{Z_{b2}} = \frac{0.6095 + j\ 0.1563}{0.1444} \times \frac{100\ M}{1000\ M} \times \frac{1}{1} = 0.42209141 + j\ 0.10824100 = 0.43574909 \angle 14.4^\circ \ (p.u)$$

$$\Sigma Z_{f-152} = \Sigma Z_{f-123} + Z_w = 0.42477677 + j\ 0.13133264 = 0.44461620 \angle 17.2^\circ \ (p.u)$$

對稱故障電流： $I_{f-152\ (sym)} = \frac{I_{b2}}{\Sigma Z_{f-152}}$ = 3.42 (KA)　　$\frac{X}{R}$ = 0.31 ， K = 1

非對稱故障電流： $I_{f-152\ (asy)}$ = K × $I_{f-152\ (sym)}$ = 3.42 (KA) → (C.B選用 ≧ 3.5 KA) …… **OK**

◆配電盤名稱： BB3　　故障點： $f-153$　　基準值： KV_{b2} = 0.38 KV　I_{b2} = 1519.3 A　Z_{b2} = 0.1444 Ω

配管線： 0.6 KV XLPE.C 38 mm²， 1 /§ ， 100 M，IN TRAY+EMT Z_{cable} = 0.6095 + j 0.1563 (Ω/ KM)

$$Z_w = \frac{Z_{cable}}{Z_{b2}} = \frac{0.6095 + j\ 0.1563}{0.1444} \times \frac{100\ M}{1000\ M} \times \frac{1}{1} = 0.42209141 + j\ 0.10824100 = 0.43574909 \angle 14.4^\circ \ (p.u)$$

$$\Sigma Z_{f-153} = \Sigma Z_{f-123} + Z_w = 0.42477677 + j\ 0.13133264 = 0.44461620 \angle 17.2^\circ \ (p.u)$$

對稱故障電流： $I_{f-153\ (sym)} = \frac{I_{b2}}{\Sigma Z_{f-153}}$ = 3.42 (KA)　　$\frac{X}{R}$ = 0.31 ， K = 1

非對稱故障電流： $I_{f-153\ (asy)}$ = K × $I_{f-153\ (sym)}$ = 3.42 (KA) → (C.B選用 ≧ 3.5 KA) …… **OK**

◆配電盤名稱： BB4　　故障點： $f-154$　　基準值： KV_{b2} = 0.38 KV　I_{b2} = 1519.3 A　Z_{b2} = 0.1444 Ω

配管線： 0.6 KV XLPE.C 38 mm²， 1 /§ ， 100 M，IN TRAY+EMT Z_{cable} = 0.6095 + j 0.1563 (Ω/ KM)

$$Z_w = \frac{Z_{cable}}{Z_{b2}} = \frac{0.6095 + j\ 0.1563}{0.1444} \times \frac{100\ M}{1000\ M} \times \frac{1}{1} = 0.42209141 + j\ 0.10824100 = 0.43574909 \angle 14.4^\circ \ (p.u)$$

$$\Sigma Z_{f-154} = \Sigma Z_{f-123} + Z_w = 0.42477677 + j\ 0.13133264 = 0.44461620 \angle 17.2^\circ \ (p.u)$$

對稱故障電流： $I_{f-154\ (sym)} = \frac{I_{b2}}{\Sigma Z_{f-154}}$ = 3.42 (KA)　　$\frac{X}{R}$ = 0.31 ， K = 1

非對稱故障電流： $I_{f-154\ (asy)}$ = K × $I_{f-154\ (sym)}$ = 3.42 (KA) → (C.B選用 ≧ 3.5 KA) …… **OK**