

Appendix

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AP-S-IV-01

**Standard of Annual Schedule of
Distribution Activity**

AS-P-IV-1 : Standard of Annual Schedule of Distribution Activity

SEASON		DRY			RAINY					DRY			
MONTH		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
OPERATION	DATA ANALYSYS												
	MEASUREMENT												
	SCHEDULED												
	IRREGULAR												
SCHEDULED OUTAGE													
FAULT RESTORATION													
MAINTENANCE	PATROL&INSPECTION												
	CUT/TRIM TREES												
	OUTSIDER NEGOTIATION												
	SPARE PARTS/TOOLS/FACILITY BOOK												
CUSTOMER'S REQUEST&CLAIM													
CONSTRUCTION	SCHEDULED												
	IRREGULAR												
CONTRACT ISSUE(METERING, etc.)													

AS-P-IV-02

**Standard of Monthly Schedule of
Distribution Activity**

AS-P-IV-2 : Standard of Monthly Schedule of Distribution Activity

WEEK		1st							2nd							3rd							4th					5th						
DAY		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31		
OPERATION	DATA ANALYSIS																																	
	MEASUREMENT																																	
	SCHEDULED																																	
	IRREGULAR																																	
SCHEDULED OUTAGE																																		
FAULT RESTORATION																																		
MAINTENANCE	PATROL&INSPECTION																																	
	WEEKLY																																	
	YEARLY																																	
	CUT/TRIM TREES																																	
	OUTSIDER NEGOTIATION																																	
	SPARE PARTS/TOOLS/F. BOOK																																	
CUSTOMER'S REQUEST&CLAIM																																		
CONSTRUCTION	SCHEDULED																																	
	IRREGULAR																																	
CONTRACT ISSUE	METERING																																	
	DERIVER INVOICE																																	
	DISCONNECT/RECONNECT																																	

AS-P-IV-03

Typical Usage of Measuring Instruments

AS-P-IV-3: Typical Usage of Measuring Instruments

Usage	Voltage Detector	Insulation Tester		Clump Meter	Digital Multi Meter	Power Quality Analyzer	Clump-On Power High Tester	Power High Tester	Earth Resistance Tester
		1000V	2500V						
Inspection of Customers' Circuit									
Insulation Resistance		<input type="checkbox"/>							
Momentary Voltage		<input type="checkbox"/>		<input type="checkbox"/>	<input type="checkbox"/>				
Momentary Current				<input type="checkbox"/>					
Fluctuation of Voltage&Current						<input type="checkbox"/>	<input type="checkbox"/>		
Regular Measurement of LV Line									
Insulation Resistance		<input type="checkbox"/>							
Current Leakage	<input type="checkbox"/>			<input type="checkbox"/>					
Earth Resistance									<input type="checkbox"/>
Load of Transformer						<input type="checkbox"/>	<input type="checkbox"/>		
Fluctuation of Voltage						<input type="checkbox"/>	<input type="checkbox"/>		
Irregular Measurement of MV Line									
Insulation Resistance			*						
Operation Analysis of PS									
Harmonics&Flicker						<input type="checkbox"/>	<input type="checkbox"/>		
Checking Watt-hour Meter									
Watt-hour								<input type="checkbox"/>	

* : Very Dangerous because of High Voltage. Never Use if You do not Understand the Manual Completely !

AP-S-IV-04

**Sample Form of SCHEDULED OUTAGE
REPORT**

AP-S-IV-4: Sample Form of SCHEDULED OUTAGE REPORT

DATE OF WORK		24-Feb-09			
WORK OUTLINE		Installation of 10kVA Transformer to OR-066			
Place		OR-066			
Purpose		To supply electricity to a new customer			
Responsible person at the site		Mr. Noda, TOENEC			
Deenergized MV Line		From	O'Romis P/S		
		To	Hospital S/S F1		
Outage PMT		PMT01, PMT02, PMT03			
Date of notification*		24-Feb-09			
Method of notification		loudspeaker			
PROCEDURE		Outage PMT		TIME	
				Scheduled	Result
1	O'Romis P/S MCB	OFF	-		
2	Hospital S/S F2	OFF	PMT01,PMT02,PMT03	13:00	13:05
3	Hospital S/S F2	Earthing	PMT01,PMT02,PMT03		
4	OR-065	Check voltage	PMT01,PMT02,PMT03		
5	OR-065	Earthing	PMT01,PMT02,PMT03		
6	OR-067	Check voltage	PMT01,PMT02,PMT03		
7	OR-067	Earthing	PMT01,PMT02,PMT03		
8	OR-066	10kVA TR Installation	PMT01,PMT02,PMT03		
9	OR-066	Meter Box Installation	PMT01,PMT02,PMT03		
10	OR-065	Detach Earthing Tool	PMT01,PMT02,PMT03		
11	OR-067	Detach Earthing Tool	PMT01,PMT02,PMT03		
12	Hospital S/S F2	OFF	PMT01,PMT02,PMT03		
13	Hospital S/S F2	ON	-	16:00	15:30
14	OR-066	Check the New Equipment	-		
15	OR-066	Check voltage	-		
16	O'Romis P/S	Synchronizing	-		
17	O'Romis P/S MCB	ON	-		
Result of outage period**		PMT01		2:25	
		PMT02		2:25	
		PMT03		2:25	

* EAC Standard : At least 2 days before outage in case of outage of duration 1 hour or more

** EAC Standard : 12 hours or less

AP-S-IV-05

**Sample Form of FAULT OUTAGE
RECOVERY LOG SHEET
(Distribution)**

AP-S-IV-5 :

Sample Form of FAULT OUTAGE RECOVERY LOG SHEET (Distribution)

Date	Outage time	Weather			
3-Apr-09	13:10	Rain with thunder			
Customer Report	Name	-			
	Date & Time	-			
	Contents	-			
P/S Situation (Output before outage)	O'Romis P/S	V0=21kV, Overcurrent, MCB Shutdown (60kW)			
	Diesel P/S	V0=22kV, V0-Overvoltage (100kW)			
	O'Moleng P/S	Scheduled Stopping (0kW)			
Responsible Person	Order of Operation	Mr.Kong Piseth			
	Transmission	Mr. Savuth Sothea			
	DG P/S	Mr. Yeb Thav			
Procedure		Date	Time	Condition(P/S, Site)	
1	Diesel P/S MCB	OFF	3-Apr	13:10	
2	District S/S F1,F2,F3	OFF	3-Apr	13:20	
3	Hospital S/S F1,F2,F3	OFF	3-Apr	13:25	
4	Diesel P/S MCB	ON	3-Apr	13:28	GOOD
5	Hospital S/S F1	ON	3-Apr	13:28	GOOD
6	Hospital S/S F2	ON	3-Apr	13:28	GOOD
7	Hospital S/S F3	ON	3-Apr	13:28	GOOD
8	District S/S F2	ON	3-Apr	13:34	GOOD
9	District S/S F3	ON	3-Apr	13:35	GOOD
10	District S/S F1	ON	3-Apr	13:36	GOOD
Inspection		Date	From	To	Result
MV Line of O'Romis Side		3-Apr	13:50	15:00	GOOD
MV Line of O'Moleng Side		3-Apr	13:50	15:00	GOOD
From OM108 to OM135		4-Apr	14:30	15:00	GOOD
Reason for Fault					
Unkown — Probably thunder shock					
Comments by JICA advisors team					
<p>The person who are responsible to order operations should stay DG P/S, and order operations to Distribution team by radio, so that DG P/S Indicator can be observed and do the next action quickly if Distribution team finds some Distribution equipment's abnormal condition.</p> <p>Distribution staff should be devided to 2 teams. One is to go to Hospital S/S, and the other is to go to District S/S. So EUMP can go through the switch operation quickly, and reduce power outage duration to customers.</p>					

*EAC Standard : 60% within 6 hours, all case within 24 hours, except MV Cable

AP-S-IV-06

**Trial Charge Pattern A : (From DG up to
300kW)**

AP-S-IV-6 :

Trial Charge Pattern A : (From DG up to 300kW)

* To find Fault Point of MV Line, we have to charge each of MV-Line Section and detect abnormal indication at Diesel Power Station.

● → : Order & Confirm the result
 → □ : Action & Report

	Responsible Person	Distribution team	Diesel P/S team	O'Romis P/S team	O'Moleng P/S team
A) Confirm Safety					
1	To Confirm that every staff is safe and keeping away from M/V line		→ □	→ □	→ □
B) Separate Each Circuit					
2	To Open Main MCB in Diesel P/S		→ □		
3	To Open Main MCB in O'Romis P/S			→ □	
4	To Open Main MCB in O'Moleng P/S				→ □
5	To Confirm that LBS-1 is Open	→ □			
6	To Open F1 LBS in Hospital S/S	→ □			
7	To Open F2 LBS in Hospital S/S	→ □			
8	To Open F3 LBS in Hospital S/S	→ □			
9	To Open TR1 LBS in Hospital S/S	→ □			
10	To Open TR2 LBS in Hospital S/S	→ □			
11	To Open F1 LBS in District Office S/S	→ □			
12	To Open F2 LBS in District Office S/S	→ □			
13	To Open F3 LBS in District Office S/S	→ □			
14	To Open TR1 LBS in District Office S/S	→ □			
15	To Open TR2 LBS in District Office S/S	→ □			
16	To Open LBS-2	→ □			
C) Start Diesel P/S					
17	To Stand by Diesel P/S		→ □		

Trial Charge Pattern A : (From DG up to 300kW)

* To find Fault Point of MV Line, we have to charge each of MV-Line Section and detect abnormal indication at Diesel Power Station.

● → : Order & Confirm the result
 → □ : Action & Report

	Responsible Person	Distribution team	Diesel P/S team	O'Romis P/S team	O'Moleng P/S team
D) Search Fault Circuit					
18	● →		→ □		
To Close Main MCB in Diesel P/S					
19	● →		→ □		
To Confirm that any indicator is normal in Diesel P/S					
>>If Not normal, Fault Circuit may be the "C13-DG Link Line"					
20	● →	→ □			
To Close F3 LBS in Hospital S/S					
21	● →		→ □		
To Confirm that any indicator is normal in Diesel P/S					
>>If Not normal, Fault Circuit may be the "Bus-Bar in Hospital SS"					
22	● →	→ □			
To Close F1 LBS in Hospital S/S					
23	● →		→ □		
To Confirm that any indicator is normal in Diesel P/S					
>>If Not normal, Fault Circuit may be the "C11-O'Romis Line"					
24	● →	→ □			
To Close F2 LBS in Hospital S/S					
25	● →		→ □		
To Confirm that any indicator is normal in Diesel P/S					
>>If Not normal, Fault Circuit may be the "C12-North East Line"					
26	● →	→ □			
To Close TR1 LBS in Hospital S/S					
27	● →		→ □		
To Confirm that any indicator is normal in Diesel P/S					
>>If Not normal, Fault Circuit may be the "Hospital-TR1"					
28	● →	→ □			
To Close TR2 LBS in Hospital S/S					
29	● →		→ □		
To Confirm that any indicator is normal in Diesel P/S					
>>If Not normal, Fault Circuit may be the "Hospital-TR2"					

Trial Charge Pattern A : (From DG up to 300kW)

* To find Fault Point of MV Line, we have to charge each of MV-Line Section and detect abnormal indication at Diesel Power Station.

●↑ : Order & Confirm the result
 →□ : Action & Report

	Responsible Person	Distribution team	Diesel P/S team	O'Ramis P/S team	O'Moleng P/S team
30 To Close F2 LBS in District Office S/S	●↑	→□			
31 To Confirm that any indicator is normal in Diesel P/S	●↑		→□		
>>If Not normal, Fault Circuit may be the "Bus-Bar in District Office SS"					
32 To Close F1 LBS in District Office S/S	●↑	→□			
33 To Confirm that any indicator is normal in Diesel P/S	●↑		→□		
>>If Not normal, Fault Circuit may be the "C22-O'Moleng Line"					
34 To Close F3 LBS in District Office S/S	●↑	→□			
35 To Confirm that any indicator is normal in Diesel P/S	●↑		→□		
>>If Not normal, Fault Circuit may be the "C21-North Line"					
36 To Close TR1 LBS in District Office S/S	●↑	→□			
37 To Confirm that any indicator is normal in Diesel P/S	●↑		→□		
>>If Not normal, Fault Circuit may be the "District Office-TR1"					
38 To Close TR2 LBS in District Office S/S	●↑	→□			
39 To Confirm that any indicator is normal in Diesel P/S	●↑		→□		
>>If Not normal, Fault Circuit may be the "District Office-TR2"					
40 To Close LBS2	●↑	→□			
41 To Confirm that any indicator is normal in Diesel P/S	●↑		→□		
>>If Not normal, Fault Circuit may be the "C23-North West Line"					

Trial Charge Pattern A : (From DG up to 300kW)

* To find Fault Point of MV Line, we have to charge each of MV-Line Section and detect abnormal indication at Diesel Power Station.

●↑ : Order & Confirm the result
 →□ : Action & Report

	Responsible Person	Distribution team	Diesel P/S team	O' Romis P/S team	O' Moleng P/S team
E) Search Fault Range in the Fault Circuit					
42 To Turn ON or OFF of All LBS to normal condition Except the Fault Circuit	●↑	→□			
43 To Open All FCOs of every PMT in the Fault Circuit	●↑	→□			
44 To Charge 22kV voltage to MV Line Except the Fault Circuit	●↑	→□	→□		
45 To Charge 22kV voltage to MV Line Of the Fault Circuit	●↑	→□			
46 To Confirm that any indicator is normal in Diesel P/S	●↑	→□	→□		
>>if Not normal, Minimized Fault Circuit may be the "MV Line except PMTs in the Fault Circuit"					
47 To Close 3 of FCOs of each PMT sequently in the Fault Circuit	●↑	→□			
48 To Confirm that any indicator is normal in Diesel P/S	●↑	→□	→□		
>>if Not normal, Minimized Fault Circuit may be the "PMT"					
49 To Close 3 of FCOs of all PMTs except the Minimized Fault Circuit	●↑	→□			
F) Supply electricity except the Minimized Fault Range					
50 To Charge 22kV voltage to MV Line Except the Minimized Fault Circuit	●↑		→□		
51 To Stand by O' Romis P/S	●↑			→□	
52 To Synchronize and Connect O' Romis P/S to the 22kV Grid	●↑			→□	
53 To Stand by O' Moleng P/S	●↑				→□
54 To Synchronize and Connect O' Moleng P/S to the 22kV Grid	●↑				→□
G) Find and Repair the Fault Point					
55 To Find the Fault Point in the Minimized Fault Circuit	●↑	→□			
56 To Repair the Fault Point	●↑	→□			
H) Supply electricity to all customers					
57 To Charge 22kV voltage to all MV Line	●↑	→□			
AP-S/576					4/4

AP-S-IV-07

**Trial Charge Pattern B : (From DG from 300kW
to 400kW)**

AP-S-IV-7:

Trial Charge Pattern B : (From DG from 300kW to 400kW)

* To find Fault Point of MV Line, we have to charge each of MV-Line Section and detect abnormal indication at Diesel Power Station.

	Responsible Person	Distribution team	Diesel P/S team	O Romis P/S team	O Moleng P/S team
A) Confirm Safety					
1 To Confirm that every staff is safe and keeping away from M/V line	●→		→□	→□	→□
B) Separate Each Circuit					
2 To Open Main MCB in Diesel P/S	●→		→□		
3 To Open Main MCB in O/Romis P/S	●→			→□	
4 To Open Main MCB in O'Moleng P/S	●→				→□
5 To Confirm that LBS-1 is Open	●→	→□			
6 To Open F1 LBS in Hospital S/S	●→	→□			
7 To Open F2 LBS in Hospital S/S	●→	→□			
8 To Open F3 LBS in Hospital S/S	●→	→□			
9 To Open TR1 LBS in Hospital S/S	●→	→□			
10 To Open TR2 LBS in Hospital S/S	●→	→□			
11 To Open F1 LBS in District Office S/S	●→	→□			
12 To Open F2 LBS in District Office S/S	●→	→□			
13 To Open F3 LBS in District Office S/S	●→	→□			
14 To Open TR1 LBS in District Office S/S	●→	→□			
15 To Open TR2 LBS in District Office S/S	●→	→□			
16 To Open LBS-2	●→	→□			
C) Start Diesel P/S					
17 To Stand by Diesel P/S	●→		→□		

●→ : Order & Confirm the result
 →□ : Action & Report

Trial Charge Pattern B : (From DG from 300kW to 400kW)

* To find Fault Point of MV Line, we have to charge each of MV-Line Section and detect abnormal indication at Diesel Power Station.

● → : Order & Confirm the result
 → □ : Action & Report

	Responsible Person	Distribution team	Diesel P/S team	O'Romis P/S team	O'Moleng P/S team
D) Search Fault Circuit					
18 To Close Main MCB in Diesel P/S	● →		→ □		
19 To Confirm that any indicator is normal in Diesel P/S >>If Not normal, Fault Circuit may be the "C13-DG Link Line"	● →		→ □		
20 To Close F3 LBS in Hospital S/S	● →	→ □			
21 To Confirm that any indicator is normal in Diesel P/S >>If Not normal, Fault Circuit may be the "Bus-Bar in Hospital SS"	● →		→ □		
22 To Close F1 LBS in Hospital S/S	● →	→ □			
23 To Confirm that any indicator is normal in Diesel P/S >>If Not normal, Fault Circuit may be the "C11-O'Romis Line"	● →		→ □		
24 To Close F2 LBS in Hospital S/S	● →	→ □			
25 To Confirm that any indicator is normal in Diesel P/S >>If Not normal, Fault Circuit may be the "C12-North East Line"	● →		→ □		
26 To Close TR1 LBS in Hospital S/S	● →	→ □			
27 To Confirm that any indicator is normal in Diesel P/S >>If Not normal, Fault Circuit may be the "Hospital-TR1"	● →		→ □		
28 To Close TR2 LBS in Hospital S/S	● →	→ □			
29 To Confirm that any indicator is normal in Diesel P/S >>If Not normal, Fault Circuit may be the "Hospital-TR2"	● →		→ □		

Trial Charge Pattern B : (From DG from 300kW to 400kW)

* To find Fault Point of MV Line, we have to charge each of MV-Line Section and detect abnormal indication at Diesel Power Station.

● : Order & Confirm the result
 → □ : Action & Report

	Responsible Person	Distribution team	Diesel P/S team	O'Romis P/S team	O'Moleng P/S team
30 To Close F2 LBS in District Office S/S	●	→ □			
31 To Confirm that any indicator is normal in Diesel P/S >>If Not normal, Fault Circuit may be the "Bus-Bar in District Office SS"	●		→ □		
32 To Close F1 LBS in District Office S/S	●	→ □			
33 To Confirm that any indicator is normal in Diesel P/S >>If Not normal, Fault Circuit may be the "C22-O'Moleng Line"	●		→ □		
34 To Close F3 LBS in District Office S/S	●	→ □			
35 To Confirm that any indicator is normal in Diesel P/S >>If Not normal, Fault Circuit may be the "C21-North Line"	●		→ □		
34 To Open F3 LBS in District Office S/S >>For preventing Overload-Shutdown	●	→ □			
36 To Close TR1 LBS in District Office S/S	●	→ □			
37 To Confirm that any indicator is normal in Diesel P/S >>If Not normal, Fault Circuit may be the "District Office-TR1"	●		→ □		
34 To Open TR1 LBS in District Office S/S >>For preventing Overload-Shutdown	●	→ □			
38 To Close TR2 LBS in District Office S/S	●	→ □			
39 To Confirm that any indicator is normal in Diesel P/S >>If Not normal, Fault Circuit may be the "District Office-TR2"	●		→ □		
34 To Open TR2 LBS in District Office S/S >>For preventing Overload-Shutdown	●	→ □			
40 To Close LBS2	●	→ □			
41 To Confirm that any indicator is normal in Diesel P/S >>If Not normal, Fault Circuit may be the "C23-North West Line"	●		→ □		

Trial Charge Pattern B : (From DG from 300kW to 400kW)

* To find Fault Point of MV Line, we have to charge each of MV-Line Section and detect abnormal indication at Diesel Power Station.

● → : Order & Confirm the result
 → □ : Action & Report

	Responsible Person	Distribution team	Diesel P/S team	O'Romis P/S team	O'Moleng P/S team
E) Search Fault Range in the Fault Circuit					
42	● →	→ □			
42 To Disconnect the Fault 22kV Circuit from the other 22kV Circuit by LBS					
43	● →	→ □			
43 To Open All FCOs of every PMT in the Fault Circuit					
44	● →	→ □	→ □		
44 To Charge 22kV voltage to MV Line Except the Fault Circuit					
>>At first, Charge from DG or OM					
>>If necessary, synchronize other P/S much enough					
45	● →	→ □			
45 To Charge 22kV voltage to MV Line Of the Fault Circuit					
46	● →	→ □	→ □		
46 To Confirm that any indicator is normal in P/S					
>>If Not normal, Minimized Fault Circuit may be the "MV Line except PMTs in the Fault Circuit"					
47	● →	→ □			
47 To Close 3 of FCOs of each PMT sequently in the Fault Circuit					
48	● →	→ □	→ □		
48 To Confirm that any indicator is normal in P/S					
>>If Not normal, Minimized Fault Circuit may be the "PMT"					
49	● →	→ □			
49 To Close 3 of FCOs of all PMTs except the Minimized Fault Circuit					
F) Supply electricity except the Minimized Fault Range					
50	● →		→ □		
50 To Charge 22kV voltage to MV Line Except the Minimized Fault Circuit					
51	● →			→ □	
51 To Stand by O' Romis P/S					
52	● →			→ □	
52 To Synchronize and Connect O' Romis P/S to the 22kV Grid					
53	● →				→ □
53 To Stand by O' Moleng P/S					
54	● →				→ □
54 To Synchronize and Connect O' Moleng P/S to the 22kV Grid					
G) Find and Repair the Fault Point					
55	● →	→ □			
55 To Find the Fault Point in the Minimized Fault Circuit					
56	● →	→ □			
56 To Repair the Fault Point					
H) Supply electricity to all customers					
57	● →	→ □			
57 To Charge 22kV voltage to all MV Line					
End					

AP-S-IV-08 Trial Charge Pattern C :(From OM up to 370kW)

AP-S-IV-8:

Trial Charge Pattern C : (From OM up to 370kW)

* When Diesel station can not operate such as periodic inspection or trouble of diesel generator. We can start by Black starting method at O'Moleng P/S

●→ : Order & Confirm the result
 →□ : Action & Report

	Responsible Person	Distribution team	Diesel P/S team	O'Romis P/S team	O'Moleng P/S team
E) Start O'Romis P/S					
To start O'Romis P/S by normal starting	●→			→□	
To confirm operation and parallel in the 22kV Line (full 185kW, if possible)	●→			→□	
To confirm that any indicator is normal	●→			→□	
F) Stop O'Moleng P/S by Black start method					
To stop # 1 Switch OFF	●→				→□
To confirm stop O'Moleng P/S	●→				→□
To change 43BS ON to OFF position	●→				→□
G) Start normal operation in O'Moleng P/S					
To receive power from O'Romis line by 52-1 ON	●→				→□
To start normal operation and parallel in the 22kV line (full 185kW , if possible)	●→				→□
H) Charging 22kV Line by Substation					
24 To Close F2 LBS in Hospital S/S	●→	→□			
26 To Close TR1 LBS in Hospital S/S	●→	→□			
28 To Close TR2 LBS in Hospital S/S	●→	→□			
29 To Confirm that any indicator is normal	●→		→□		→□
34 To Close F3 LBS in District Office S/S	●→	→□			
35 To Confirm that any indicator is normal	●→		→□		→□
36 To Close TR1 LBS in District Office S/S	●→	→□			
38 To Close TR2 LBS in District Office S/S	●→	→□			
39 To Confirm that any indicator is normal	●→		→□		→□
40 To Close LBS2	●→	→□			
41 To Close NFB of PMT 19 and PMT 21	●→	→□			
To Confirm that any indicator is normal	●→		→□		→□
I) Supply electricity to all customers					
57 To confirm Charging to 22kV/400V all lines and customers	●→	→□	→□	→□	→□
End					

AP-S-IV-8:
Trial Charge Pattern C : (From OM up to 370kW)

* When Diesel station can not operate such as periodic inspection or trouble of diesel generator. We can start by Black starting method at O'Moleng P/S

● → : Order & Confirm the result
 → □ : Action & Report

	Responsible Person	Distribution team	Diesel P/S team	O'Romis P/S team	O'Moleng P/S team
A) Confirm Safety					
1 To Confirm that every staff is safe and keeping away from M/V line	● →		→ □	→ □	→ □
2 To Confirm that each power station are stoppage. (all system Black out)	● →		→ □	→ □	→ □
B) To confirm and Separate Each Circuit					
2 To Open Main MCB in Diesel P/S	● →		→ □		
3 To Open Main MCB in O'Romis P/S	● →			→ □	
4 To Open Main MCB in O'Moleng P/S	● →				→ □
5 To open NFB of PMT 19 and PMT 21	● →	→ □			
6 To open LBS-2	● →	→ □			
7 To Open F1 LBS in Hospital S/S	● →	→ □			
8 To Open F2 LBS in Hospital S/S	● →	→ □			
9 To Open F3 LBS in Hospital S/S	● →	→ □			
10 To Open TR1 LBS in Hospital S/S	● →	→ □			
11 To Open TR2 LBS in Hospital S/S	● →	→ □			
12 To Open F1 LBS in District Office S/S	● →	→ □			
13 To Open F2 LBS in District Office S/S	● →	→ □			
14 To Open F3 LBS in District Office S/S	● →	→ □			
15 To Open TR1 LBS in District Office S/S	● →	→ □			
16 To Open TR2 LBS in District Office S/S	● →	→ □			
C) Start O'Moleng P/S					
17 To start O'Moleng P/S by Black start method	● →				→ □
18 To confirm operation in dummy load (full 185kW, if possible)	● →				→ □
19 To connect 22kV line by 52-1 MCB (ON)	● →				→ □
20 To confirm that any indicator is normal	● →				→ □
D) Charging 22kV Line between O'Moleng and O'Romis P/S					
21 To Confirm that any indicator is normal in O'Moleng P/S	● →				→ □
To Close F1 LBS in District Office S/S	● →	→ □			
To Close F2 LBS in District Office S/S	● →	→ □			
To Close F3 LBS in Hospital S/S	● →	→ □			
To Close F1 LBS in Hospital S/S	● →	→ □			
To Confirm that receiving power in O'Romis P/S	● →			→ □	

**AP-S-IV-09 Detail Check Items for Distribution
Facilities' Inspection**

Detail Check Items for Distribution Facilities' Inspection

Overhead	
Pole Assembly	
General	
Concrete Pole	
Surroundings	EDC Staff Easy to access Bucket Car Easy to access Easy to climb No dead animal around No trace of rusty water around No new building is near No new construction work is near
Pole No.	MV Pole No. is clear LV Pole No. is clear
Ground	Not flow up Not sink down
Body of a pole	Not incline Not bent Not cracked Not weathered Not broken
Stepbar	Not remain
TV cable	Attached appropriate
Guy Wire	
Height	Height over road Height over building Height over another place
Clearance	Clearance to MV Lines, LV Lines OK Clearance to another Transmission equipment OK Clearance to a building OK
Surroundings	No trace of rusty water around No new building around No new construction work around No vine growing along Not Obstruct Traffic
Ground	Not flow up Not sink down Anchor is Not shown
Wire	Elemental wire is Not broken Not too rusty Tension is not too loose Wire End is safe for public
Collier	Installed firmly Not too rusty Not broken
Parallel groove Clamp	Installed firmly Not too rusty Not broken
Turnbuckle	Installed firmly Not too rusty Not broken
Guy Insulator	Not cracked Not broken Not dusty No trace of arc
Rod	Not bent too much Not cracked too much Not broken Not too rusty
Guy Wire Cover	Attached at necessary place Not detached Not broken

Overhead		
Pole Assembly		
General		
Cross Arm		
	Cross Arm & Arm Tie	Not Incline Not bent Not broken Not too rusty
	Bolt & Nut	Not disappeared Not broken Not too rusty Not loose Not bent
	Obstacles	No nest of birds No other obstacles
Insulator		
	Porcelain	Not broken Not cracked Not dusty No trace of arc
	Bolt & Nut	Not disappeared Not broken Not too rusty Not loose Not bent
Earthing Wire		
	General Ground	Earth Resistance Good ※Need to measure Not flow up Not sink down Earthing Rod is Not shown
	Earthing wire	Protected enough by pipe Pipe not broken Pipe not cracked Pipe height enough Conductor is Not shown Insulating Cover Not broken Insulating Cover Not cracked Insulating Cover Not melt
	Joint to equipment(Transformer etc.)	Jointed tightly Not too rusty Wire stripping Not too much

Overhead	
Pole Assembly	
Transformer Assembly	
Transformer	
Body outside	Height is enough Not incline Not bent Not dent Not bulge Not too rusty No trace of arc No oil leak Spray Coating Not coming off No abnormal noise Not heated too much Fixed tightly
Bolt & Nut	Not disappeared Not broken Not too rusty Not loose Not bent
Insulation Resistance ※If Discharge	Insulation Resistance is enough
Body Inside ※If Open & Discharge	Color of Oil is Clean Tap Position is appropriate Tap tightly fixed
Terminal(Primary/Secondary)	firmly fixed to Lead Wire & Cable Joint Not too rusty Bolt & Nut Not disappeared Bolt & Nut Not broken Bolt & Nut Not loose Bolt & Nut Not bent No Tension to Joint Point Not heated too much Not melt Porcelain Not broken Porcelain Not cracked Porcelain Not dusty Porcelain No trace of arc
Lead Wire to FCO	Insulating Cover Not broken Insulating Cover Not cracked Insulating Cover Not melt No trace of arc Wire Tension is not too loose Wire Tension is not too tight Clearance enough to other objectives
Joint of Lead Wire	firmly fixed to Transformer and FCO Joint Not too rusty Bolt & Nut Not disappeared Bolt & Nut Not broken Bolt & Nut Not loose Bolt & Nut Not bent No Tension to Joint Point Not heated too much Not melt Wire stripping Not too much
Earthing Terminal	Jointed tightly to earthing wire Not too rusty Wire stripping Not too much

Overhead	
Pole Assembly	
Transformer Assembly	
Fuse Cutout Switch	
Primary Cutout Switch	firmly fixed to Cross Arm firmly fixed to Lead Wire Joint Not too rusty Bolt & Nut Not disappeared Bolt & Nut Not broken Bolt & Nut Not loose Bolt & Nut Not bent No Tension to Joint Point Not heated too much Not melt Porcelain Not broken Porcelain Not cracked Porcelain Not dusty Porcelain No trace of arc Fuse Size Appropriate
Lead Wire to MV Line	Insulating Cover Not broken Insulating Cover Not cracked Insulating Cover Not melt No trace of arc Wire Tension is not too loose Wire Tension is not too tight Clearance enough to other objectives
Joint of Lead Wire	firmly fixed to MV Line and FCO Joint Not too rusty Bolt & Nut Not disappeared Bolt & Nut Not broken Bolt & Nut Not loose Bolt & Nut Not bent No Tension to Joint Point Not heated too much Not melt Wire stripping Not too much

Overhead	
Pole Assembly	
Transformer Assembly	
Lightning Arrester	
Body	firmly fixed to Cross Arm firmly fixed to Lead Wire Joint Not too rusty Bolt & Nut Not disappeared Bolt & Nut Not broken Bolt & Nut Not loose Bolt & Nut Not bent No Tension to Joint Point Not heated too much Not melt Porcelain Not broken Porcelain Not cracked Porcelain Not dusty Porcelain No trace of arc Fuse Size Appropriate
Lead Wire to MV Line	Insulating Cover Not broken Insulating Cover Not cracked Insulating Cover Not melt No trace of arc Wire Tension is not too loose Wire Tension is not too tight Clearance enough to other objectives
Joint of Lead Wire	firmly fixed to MV Line Joint Not too rusty Bolt & Nut Not disappeared Bolt & Nut Not broken Bolt & Nut Not loose Bolt & Nut Not bent No Tension to Joint Point Not heated too much Not melt Wire stripping Not too much
Earthing Terminal	Jointed tightly to earthing wire Not too rusty Wire stripping Not too much

Overhead	
Pole Assembly	
Transformer Assembly	
LV Distribution Board	
Body	
Body	Height is appropriate Easy to access for Reading meters Case is Not Charged Front Glass Not Foggy Front Glass Not Dirty Locked Fixed tightly Not broken Not incline
Lead Cable to Transformer	Insulating Cover Not broken Insulating Cover Not cracked Insulating Cover Not melt No trace of arc Fixed firmly to the Pole
Watt-Hour Meter	
Watt-Hour Meter	Fixed firmly to the Box Not broken Not incline Not too rusty Front Glass Not Foggy Front Glass Not Dirty No trace of arc Not Burned Inside Disk Rotate is smooth No abnormal noise Terminal Cover is Not Charged Terminal Cover is Fixed firmly Wire Fixed to Terminal firmly Terminal Voltage is appropriate Wires connected to correct phase or neutral Not heated too much
CT	Appropriate Combination to Watt-Hour Meter Fixed firmly to the Box Not broken Not incline Not too rusty Not Burned No trace of arc No abnormal noise Wire Fixed to Terminal firmly Wires connected to correct phase Not heated too much
MCCB	
Magnetng Switch	Turn On & Off Smoothly Fixed firmly to the Box Not broken Not incline Not too rusty Not Burned No trace of arc No abnormal noise Wire Fixed to Terminal firmly Wires connected to correct phase Not heated too much

Overhead	
Pole Assembly	
Transformer Assembly	
LV Distribution Board	
Street Light Control Circuit with Timer	
Timer	Time Acculate(Yes/No) Switch Turn On & Off smoothly Fixed firmly to the Box Not broken Not incline Not too rusty Not Burned No trace of arc No abnormal noise Wire Fixed to Terminal firmly Wires connected to correct phase Not heated too much
Wires Inside	
Wires Inside	No Abnormal Pressure from outside Fixed to the Box firmly Not heated too much Insulating Cover Not broken Insulating Cover Not cracked Insulating Cover Not melt No trace of arc Wire Tension is not too loose Wire Tension is not too tight
Joint of Wires	firmly fixed to Watt-Hour Meter etc. Joint Not too rusty Bolt & Nut Not disappeared Bolt & Nut Not broken Bolt & Nut Not loose Bolt & Nut Not bent No Tension to Joint Point Not heated too much Not melt Wire stripping Not too much
Earthing Terminal	Jointed tightly to earthing wire Not too rusty Wire stripping Not too much

Overhead	
Pole Assembly	
LV Assembly	
Aggregating Meter Box	
Body	
Body	Height is appropriate Easy to access for Reading meters Case is Not Charged Front Glass Not Foggy Front Glass Not Dirty Locked Fixed tightly Not broken Not incline
Watt-Hour Meter	
Watt-Hour Meter	Fixed firmly to the Box Not broken Not incline Not too rusty Front Glass Not Foggy Front Glass Not Dirty No trace of arc Not Burned Inside Disk Rotate is smooth No abnormal noise Terminal Cover is Not Charged Terminal Cover is Fixed firmly Wire Fixed to Terminal firmly Terminal Voltage is appropriate Wires connected to correct phase or neutral Not heated too much
CB	
CB	Turn On & Off Smoothly Fixed firmly to the Box Not broken Not incline Not too rusty Not Burned No trace of arc No abnormal noise Wire Fixed to Terminal firmly Wires connected to correct phase Not heated too much

Overhead	
Pole Assembly	
LV Assembly	
Aggregating Meter Box	
Wires Inside	
Wires Inside	No Abnormal Pressure from outside Fixed to the Box firmly Not heated too much Insulating Cover Not broken Insulating Cover Not cracked Insulating Cover Not melt No trace of arc Wire Tension is not too loose Wire Tension is not too tight
Joint of Wires	firmly fixed to Watt-Hour Meter etc. Joint Not too rusty Bolt & Nut Not disappeared Bolt & Nut Not broken Bolt & Nut Not loose Bolt & Nut Not bent No Tension to Joint Point Not heated too much Not melt Wire stripping Not too much
Earthing Terminal	Jointed tightly to earthing wire Not too rusty Wire stripping Not too much
Street Light	
Body	Not Incline Not bent Not broken Not too rusty
Bolt & Nut	Not disappeared Not broken Not too rusty Not loose Not bent
Circuit	Connection is correct Bulb Not Broken Glow Lamp Not Broken

Overhead	
Pole Assembly	
Underground Connecting Assembly	
MV/LV Termination	
Location	Easy to climb
Termination	Fixed firmly to the Pole No Compound Leakage Each Termination Not Touched Each Termination Not too close Phase Plate Not Detached No Tracking Winding Tape Not loose Not broken Not cracked Not dusty
Lead Wire to MV Line	Insulating Cover Not broken Insulating Cover Not cracked Insulating Cover Not melt No trace of arc Wire Tension is not too loose Wire Tension is not too tight Clearance enough to other objectives
Joint of Lead Wire	firmly fixed to MV Line Joint Not too rusty Bolt & Nut Not disappeared Bolt & Nut Not broken Bolt & Nut Not loose Bolt & Nut Not bent No Tension to Joint Point Not heated too much Not melt Wire stripping Not too much
Cable along the Pole	
Lead Cable along the Pole	Insulating Cover Not broken Insulating Cover Not cracked Insulating Cover Not melt No trace of arc Caution: If Finding abnormal condition, Check electric Leakage by MV Voltage Detector AT FIRST before approaching
Pipe along the Pole	
Pipe along the Pole	Height is appropriate Fixed tightly to the Pole Not broken Not incline

Overhead		
Pole Assembly		
Underground Connecting Assembly		
Lightning Arrester		
	Body	firmly fixed to Cross Arm firmly fixed to Lead Wire Joint Not too rusty Bolt & Nut Not disappeared Bolt & Nut Not broken Bolt & Nut Not loose Bolt & Nut Not bent No Tension to Joint Point Not heated too much Not melt Porcelain Not broken Porcelain Not cracked Porcelain Not dusty Porcelain No trace of arc Fuse Size Appropriate
	Lead Wire to MV Line	Insulating Cover Not broken Insulating Cover Not cracked Insulating Cover Not melt No trace of arc Wire Tension is not too loose Wire Tension is not too tight Clearance enough to other objectives
	Joint of Lead Wire	firmly fixed to MV Line Joint Not too rusty Bolt & Nut Not disappeared Bolt & Nut Not broken Bolt & Nut Not loose Bolt & Nut Not bent No Tension to Joint Point Not heated too much Not melt Wire stripping Not too much
	Earthing Terminal	Jointed tightly to earthing wire Not too rusty Wire stripping Not too much

Overhead	
Line	
Ground Wire	
Ground Wire	
Clearance	Clearance to MV lines is enough.
Sag	Not Unbalanced Not too loose
Wire	No Kink Elemental Wire is not Broken No Obstacle on the Wire *Kite, Branch, etc.
Near the pole	Fixed firmly to the Cross Arm
Earthing Terminal	Jointed tightly to earthing wire Not too rusty Wire stripping Not too much
MV Wire	
MV Wire	
Clearance	Height is enough. Clearance to other things is enough. Clearance to Construction Work is enough. Public cannot touch easily.
Neighbor	Burned Trees near a wire Dead Animal by electrical shock No Obstacle near the Wire *Inclined TV Antenna or Tree *Tin Roof easy to fly toward, etc
Sag	Not Unbalanced Not too loose
Wire	No Kink Insulating Cover is not Cracked Insulating Cover is not Broken No trace of arc on the Insulating Cover Insulating Cover is not burned. No Obstacle on the Wire *Kite, Branch, etc.
Near the pole	Elemental Wire is not Broken Binding Wire to an Insulator is not Detached Binding Wire to an Insulator is not Loose Bare Conductor is not Touched to other things.
LV Cable	
LV Cable	
Clearance	Height is enough. Clearance to other things is enough. Clearance to Construction Work is enough. Public cannot touch easily.
Neighbor	Burned Trees near a wire Dead Animal by electrical shock No Obstacle near the Wire *Inclined TV Antenna or Tree *Tin Roof easy to fly toward, etc
Sag	Not Unbalanced Not too loose
Wire	No Kink Insulating Cover is not Cracked Insulating Cover is not Broken No trace of arc on the Insulating Cover Insulating Cover is not burned. No Obstacle on the Wire *Kite, Branch, etc.
Near the pole	Fixed firmly to the Clamp

Cubicle		
Cubicle		
Cubicle		
Location	EDC Staff Easy to access No dead animal around No new building is near No digging construction work is near	
Foundation	Not sink Anchor Bolt is not Loose No Crack Not Broken Fixed to the Case Not incline Not Slide Not Collapse	
Case	Not broken Not Dent Not bulge Not bent Not too rusty Easy to read Name Plate Spray Coating Coming Off(Yes/No)	
Door	Locked Easily Open and Close Door Stopper works well Gasket of the Door is good Ventilation Opening is not Blocked	
Panel	Easy to read Switch Number and symbol No abnormal noise No trace of entering water No trace of animal No Condensation Not too dirt	
Earthing wire	Earth Resistance Good ※Need to measure Insulating Cover Not broken Insulating Cover Not cracked Insulating Cover Not melt Joint is tight Joint is Not too rusty Wire stripping Not too much	
Operation	Smooth to turn ON/OFF	
Switch	Blade does not Bent Blade is not too rusty Blade is not dirty Charged part is covered well Not Broken inside No trace of arc	
Terminal	firmly fixed to MV Line Joint Not too rusty Bolt & Nut Not disappeared Bolt & Nut Not broken Bolt & Nut Not loose Bolt & Nut Not bent No Tension to Joint Point Not heated too much Not melt Wire stripping Not too much	
Line		
Cable		
Cable		
Location	No digging construction work is along the route	
Cable	Insulating Resistance Good ※Need to measure	

AP-S-IV-10

Transformer Station Check Sheet

AP-S-IV-10 : Transformer Station Check Sheet

Transformerstation Outline

Visit place

Commune	
Village	
PMT-	

Photo.-1: Photograph of Sample transformer power station (PMT-19)

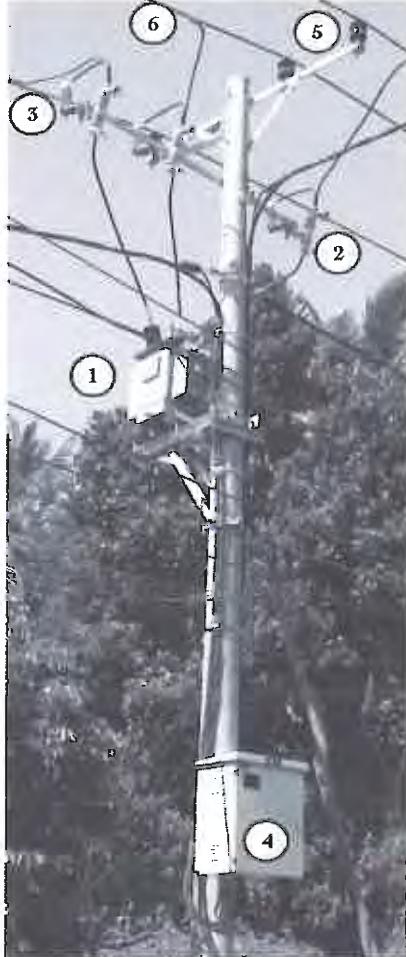
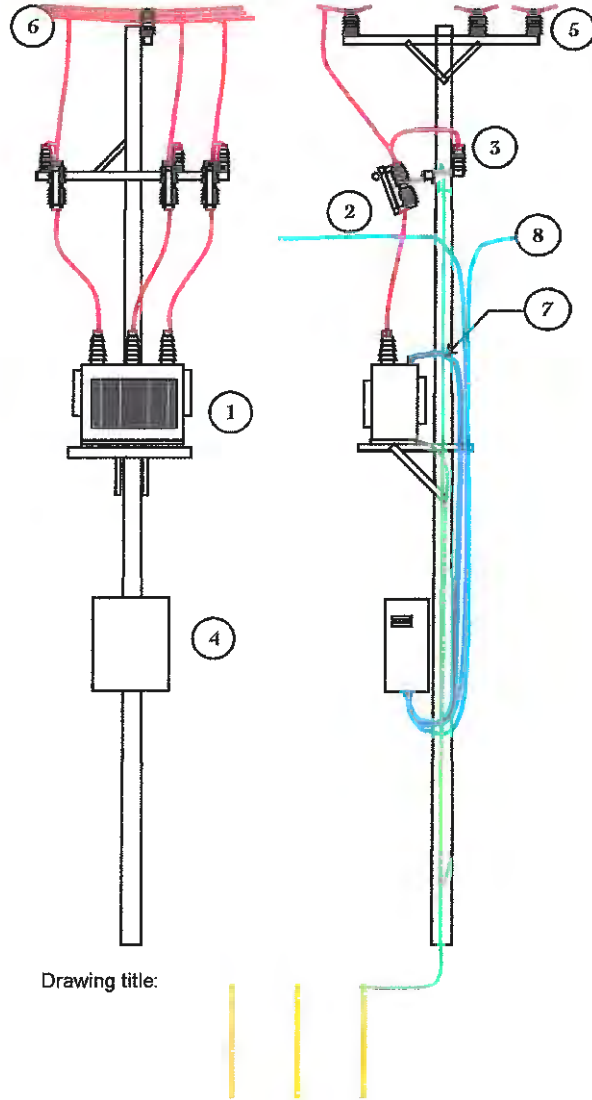


Fig.-1: Typical construction figure of transformer station

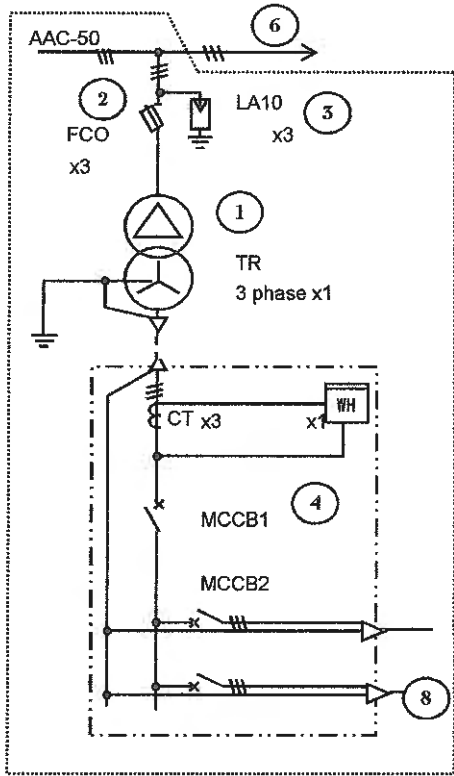


Field check note:



Opened Fuse Cutout

Fig-2: Single line diagram of Typical Distribution Transformer Station



The symbols in the single line diagram above are followed IEC.

Table-1: Installed device table (This table follows the Fig.-1)

Indical No. No.	Dev.No.	Device Name	Q'ty	Unit	Specification
①	TR	TRANSFORMER	1	Pcs	22 ± 2 x 2.5 % /0.4 kV Δ-Yn Dyn-11 22kV,2.5kA
②	FCO	FUSE CUTOFF SWITCH	3	sets	
③	LA10	Lightning ARRESTER	3	Pcs	
④	DB	Distribution Box	1	set	
⑤		INSULATOR	3	Pcs	
⑥		MV CONDUCTOR	3	Lines	
⑦		LV CABLE		Lines	
⑧		FEEDER LV CABLE		Lines	
⑨		GROUNDING WIRE		sets	
⑩		GROUNDING SYSTEM	1	set	
⑪		CROSS ARM FOR PHASE INSULATOR	1	set	
⑬		CROSS ARM FOR FUSE AND ARRESTOR	1	set	
⑭		TRANSFORMER FOUNDATION	1	Pcs	
⑮		CENTRIFUGAL CONCRETE POLE	1	Pcs	
	MCCB1	LV Feeder Molded circuit Breaker	1	Pcs	
	MCCB2		1	Pcs	
	MCCB3		1	Pcs	
	MCCB4		1	Pcs	
	MCCB5		1	Pcs	
	MCCB6		1	Pcs	

**AP-S-IV-11 Sample Form of SPARE PARTS LIST OF
DISTRIBUTION**

AP-S-IV-11 : Sample Form of SPARE PARTS LIST OF DISTRIBUTION

Name of Equipment: _____ Year: 2009 Month: April Week: 1st

Unit	End of last week	Quantity							5-Apr Sun										
		30-Mar		31-Mar		1-Apr		2-Apr		3-Apr		4-Apr							
		Add	Remain	Add	Remain	Add	Remain	Add		Remain	Add	Remain	Add	Remain					
1	200		200		200		200		200		200		200		200		200		200
2	200		200		200		200		200		200		200		200		200		200
3																			
4																			
5																			
6																			
7																			
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50																			

Name of Equipment:	Unit	2008							2009										
		30-Mar		31-Mar		1-Apr		2-Apr		3-Apr		4-Apr		5-Apr					
		Add	Remain	Add	Remain	Add	Remain	Add	Remain	Add	Remain	Add	Remain	Add	Remain				
51 Underground Cable 0.6/1 kV .XLPE 3c x85x1c x50 sq.mm (AI)	m																		
52 Underground Cable 0.6/1 kV .XLPE 2c x25 sq.mm (AI)	m																		
53 Underground Cable 0.6/1 kV .XLPE 1c x 120 sq.mm (AI)	m																		
54 Concrete Pole Type - S (9m - 2kN)	pole		2																
55 Concrete Pole Type - A (9m - 5kN)	pole		2																
56 Concrete Pole Type - T (9m - 8kN)	pole		2																
57 ABC Cable 3x70+1x70+2x16sq.mm	m																		
58 ABC Cable 3x50+1x50sq.mm	m																		
59 ABC Cable 4x35sq.mm	m																		
60 ABC Cable 2x25sq.mm	m																		
61 LV cable (PVC) 35sq.mm, green	m																		
62 LV Hardware for Suspension assembly (Type SC-A)	sets																		
63 LV Hardware for Suspension assembly (Type SC-A)	sets																		
64 LV Hardware for Suspension assembly (Type SC-A)	sets																		
65 LV Hardware for Dead end assembly (Type DEC-C)	sets																		
66 LV Hardware for Dead end assembly (Type DEC-C)	sets																		
67 LV Hardware for Dead end assembly (Type DEC-C)	sets																		
68 LV Straight Joint 3x70+1x70+2x16sq.mm	nos.																		
69 LV Straight Joint 3x50+1x55sq.mm	nos.																		
70 LV Connector 70sq.mm, etc.	nos.																		
71 LV Cable End Cap 70sq.mm, etc.	nos.																		
72 Neutral Earthing (PG Clamp 55-35)	nos.																		
73 Fluorescent lighting 20W	nos.																		
74 Street lighting equipment	nos.																		
75 Meter Box for Single Meter	nos.																		
76 Meter Box for Three Meters	nos.																		
77 Meter Box for Five Meters	nos.																		
78 Meter Box for Three Phases Meter	nos.																		
79 Watch-hour Meter Single Phase 230V 10/30A	nos.		80																
80 Watch-hour meter Three Phases 400V 20/60A	nos.		10																
81 MCB 2P 6A	nos.																		
82 MCB 2P 10A	nos.																		
83 MCB 2P 20A	nos.																		
84 MCB 2P 30A	nos.																		
85 MCB 2P 32A	nos.																		
86 MCB 3P 40A	nos.		20																
87 MCB 4P 63A	nos.		20																

AP-S-IV-12

**Sample Form of TOOLS LIST OF
DISTRIBUTION IN
WAREHOUSE**

AP-S-IV-12 : Sample Form of TOOLS LIST OF DISTRIBUTION IN WAREHOUSE

Year: 2009 Month: April

Description	Quantity	Check																															
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	
1 Lineman tools (drivers, knife, adjustable spanner)	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2 Lineman safety belt, working bag	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3 Voltage Detector 22kV	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4 Earthing tool (30mm diammm conductors, 15m leads)	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5 Insulation Tester 2500V	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6 Earth Resistance tester (leads, spikes)	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7 AC, DC Current Clamp meter 1000A	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8 Electric Drill (max. 36mm bit)	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9 Drills bits for steel 6mm to 16mm each	10	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10 Drills bits for wood 6mm to 32mm each	16	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11 Electric Chain saw 230V, 13m/s, 350mm effective cut	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12 Shovel	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
13 Shovel Round Type	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
14 Pecker and Handle	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
15 Steel Leveler 1.5m	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
16 Cord Reel 230, 15A, 30m	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
17 Crimper for pre-insulated lugs 0.5mm2 to 6mm2	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
18 Compression Crimper, built-in dies, hexagonal	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
19 Connector crimper with built-in dies	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
20 Ratchet type cable cutter (Φ40mm max)	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
21 Hydraulic cable cutter	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
22 Spanner (6 pieces set)	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
23 Cable pulling grip (Φ50mm max, 1600kg)	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
24 Cable roller (aluminium)	6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
25 Tension meter 1.5 ton	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
26 Tension meter 5 ton, and Pulling ratchet hoist 4 ton	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
27 Two Sections Ladder (for pole climbing)	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
28 Telescopic Ladder 5m	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
29 Tool Bucket (diamm 260mm, depth 340mm)	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
30 Tool Bucket (diamm 200mm, depth 200mm)	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
31 Double sling wire 10mm, 1m length	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
32 Double sling wire 12mm, 1m length	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
33 Nylon Rope 12mm, 30m length	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
34 Snatch Block 2 ton hook type	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
35 Measuring Tape (100m, polyethylene)	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
36 Jig Saw 18mm stroke (6 blades set)	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
37 Aerial Platform	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
38 On pole working Step	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

AP-S-IV-13

**Sample Form of TOOLS LIST OF
DISTRIBUTION IN BUCKET
CAR**

AP-S-IV-13 : Sample Form of TOOLS LIST OF DISTRIBUTION IN BUCKET CAR

Year: 2009 Month: April

Description	Quantity	Check																														
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31
1 Lineman tools(drivers, knife,adjustable sparrer)	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2 Lineman safety belt, working bag	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3 Voltage Detector 22kV	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4 Earthing tool (30mm diammm conductors, 15m leads)	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5 Insulation Tester 2500V	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6 Earth Resistance tester (leads, spikes)	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7 AC, DC Current Clamp meter 1000A	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8 Electric Drill (max 36mm bit)	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9 Drills bits for steel 6mm to 16mm each	10	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10 Drills bits for wood 6mm to 32mm each	16	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11 Electric Chain saw 230V, 13m/s, 350mm effective cut	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12 Shovel	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
13 Shovel Round Type	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
14 Pecker and Handle	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
15 Steel Leveler 1.5m	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
16 Cord Reel 230, 15A, 30m	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
17 Crimper for pre-insulated lugs 0.5mm ² to 6mm ²	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
18 Compression Crimper, built-in dies, hexagonal	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
19 Connector crimper with built-in dies	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
20 Ratchet type cable cutter (Φ40mm max)	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
21 Hydraulic cable cutter	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
22 Spinner (6 pieces set)	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
23 Cable pulling grip (Φ50mm max, 1600kg)	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
24 Cable roller (aluminium)	6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
25 Tension meter 1.5 ton	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
26 Tension meter 5 ton, and Pulling ratchet hoist 4 ton	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
27 Two Sections Ladder (for pole climbing)	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
28 Telescopic Ladder 5m	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
29 Tool Bucket (diammm 260mm, depth 340mm)	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
30 Tool Bucket (diammm 200mm, depth 200mm)	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
31 Double sling wire 10mm, 1m length	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
32 Double sling wire 12mm, 1m length	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
33 Nylon Rope 12mm, 30m length	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
34 Snatch Block 2 ton hook type	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
35 Measuring Tape (100m, polyethylene)	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
36 Jig Saw 18mm stroke (6 blades set)	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
37 Aerial Platform	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
38 On pole working Step	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

AP-S-IV-14

**Sample Form of COMPLAINTS ON
VOLTAGE RECORD**

AP-S-IV-14 : Sample Form of COMPLAINTS ON VOLTAGE RECORD

	Complaint Received				Investigation							Resolve					
	Date	Name of Customer	Pole #	Meter Serial #	Type	Phase	Nature of Complaint	Date#	Voltage at the point of service						Reason	Date##	Method
									A-B	B-C	C-A	A-N	B-N	C-N			
1	12-Feb	Mr. Chin Sokhun	P-11-101	12345	Business	3phase	Light too dark	13-Feb	350V	347V	355V	195V	196V	194V	Joint Loose	14-Feb	Repair Joint
2																	
3																	
4																	
5																	
6																	
7																	
8																	
9																	
10																	
11																	
12																	
13																	
14																	
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16																	
17																	
18																	
19																	
20																	
21																	
22																	
23																	
24																	
25																	

*EAC Standard : within 10 working days after complaint
 *EAC Standard : 60% within 6 months after complaint

AP-S-IV-15

**Sample Form of COMPLAINTS ON
INCORRECT METER READING
RECORD**

AP-S-IV-15 : Sample Form of COMPLAINTS ON INCORRECT METER READING RECORD

	Complaint Received				Investigation			Resolve			
	Date	Name of Customer	Pole #	Meter Serial #	Type	Phase	Nature of Complaint	Date	Judgement	Date	Method
1	12-Feb	Mr. Chin Sokhurn	P-11-101	12345	Business	3phase	January Invoice too expensive	13-Feb	12345 13456	misreaded last time	14-Feb
2											
3											
4											
5											
6											
7											
8											
9											
10											
11											
12											
13											
14											
15											
16											
17											
18											
19											
20											
21											
22											
23											
24											
25											

*EAC Standard : within 10 working days after complaint

AP-S-IV-16

**REPLACEMENT OF DEFECTIVE
METER RECORD**

AP-S-IV-16 : REPLACEMENT OF DEFECTIVE METER RECORD

Find to be defective										Replacement		
Date	Name of Customer	Pole #	Meter Serial #	Type	Phase	How to find	Date*	Old Meter Reading	New Meter Serial#	Reading		
1	20-Feb	Mr. Chin Sokhun	P-11-101	12345	Business	3phase	EUMP Staff found at meter reading	14-Feb	23456	67890	0	
2												
3												
4												
5												
6												
7												
8												
9												
10												
11												
12												
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23												
24												
25												

*EAC Standard : within 30 days after complaint

AP-S-IV-17

**Sample Form of TESTING OF
METER RECORD**

AP-S-IV-17: Sample Form of TESTING OF METER RECORD

	Complaint Requested										Testing Fee		Replace to Temporary Meter			Testing		Report to Customer		Replace to Original Meter	
	Date	Name of Customer	Pole #	Meter Serial #	Type	Phase	Receive Date	Date	Original Meter Reading	Serial#	Temp. Meter Reading	Date	Result	Date*	Document#	Date	Temp. Meter Reading	Original Meter Reading			
1	20-Feb	Mr. Chin Sokhun	P-11-101	12345	Business	3phase	20-Feb	14-Feb	23456	67890	0	14-Feb	Good	14-Feb		14-Feb	23456	23456			
2																					
3																					
4																					
5																					
6																					
7																					
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25																					

*EAC Standard : within 30 days after complaint

