STATE OF HAWAII DEPARTMENT OF TRANSPORTATION AIRPORTS DIVISION

ADDENDUM NO. 1 TO SPECIAL PROVISIONS, SPECIFICATIONS, AND PROPOSAL FOR

MAINTENANCE OF ELECTRICAL EQUIPMENT LIHUE AIRPORT PROJECT NO. BK1321-53

OCTOBER 3, 2022

The following is provided for information:

A. RESPONSES TO REQUEST FOR INFORMATION (RFI)

1. Question: Are you able to give us more information on the ATS' and Switchgear?

Response: Yes, information can be found on the attached Electrical Maintenance Testing Report.

B. <u>ELECTRICAL MAINTENANCE TESTING REPORT</u>

1. The attached Electrical Maintenance Testing Report for the Lihue Airport is provided for your information.

Please acknowledge receipt of this Addendum No.1 by recording the date of its receipt in the space provided on page PF-4 of the Proposal.

JADE T. BUTAY

Director of Transportation

EXHIBIT A







Lihue Airport

Electrical Maintenance Testing Report

Report Prepared By Jared Helminen, P.E.







Lihue Airport Electrical Maintenance

Customer: American Electric

Dates of Work Performed: 03/21-03/25/2022

Contact: Clark Tyler

Type of Service: Elctrical Maintenance Testing

Summary

Electrical acceptance testing was performed by Electro Test personnel at Lihue Airport and coordinated with aiport personnel. While most equipment is in fair working condition there were multiple deficiencies found and they are listed below.

Deficiencies

- 1. ATS 1 has burnt out bulbs and some corrosion on the mechanical parts. Recommend replacing bulbs and installing heaters.
- 2. ATS 2 has a bad circuit to the racking solenoid and the switches at the racking mechanism as well as the permissive switch at the Bypass mechanism should be replaced. This unit also has corrosion.
- 3. Heaters in ATS 1 and ATS 2 are inoperable. (2) New circuits should be pulled to this location and working heaters should be installed to alleviate moisture and corrosion on these units. This will significantly extend the useful life of these units.
- 4. Insulation resistance readings on all circuit breakers in the Main Switchboard and Generator Switchboard were very low. It is recommended that heaters be installed to prevent further moisture penetration.
- 5. The Control Tower (Airfield) ATS failed during testing and needs to be replaced. The bypass unit and transfer coil are both failed. This unit is old and has a date code of 02/2001.
- 6. The ARFF automatic transfer switch failed previous maintenance cycles and still has not been replaced. The mechanical portion of the switch is in very bad condition and could cause safety concerns going forward.









The contoller is also faulty so the whole switch assembly must be replace as soon as possible.

Please see all attached test forms and feel free to contact us with an questions. A quotation will be provided for correcting deficiencies.

Mahalo,

Jared Helminen, P.E.





Lihue Airport Electrical Maintenance – NETA Testing Results TABLE OF CONTENTS

LOW VOLTAGE CIRCUIT BREAKERS	
G1 BREAKER	2
G2 BREAKER	3
ATS 1 EMERGENCY FEEDER BREAKER	4
ATS 2 EMERGENCY FEEDER BREAKER	5
CAPACITOR BREAKER	6
MAIN 1 BREAKER	7
TIE BREAKER	8
MAIN 2 BREAKER	9
ATS 1 FEEDER BREAKER	10
ATS 2 FEEDER BREAKER	11
ATS 4 FEEDER BREAKER	
SBA FEEDER BREAKER	
SBB FEEDER BREAKER	14
AUTOMATIC TRANSFER SWITCHES	15
ATS 1	16
ATS 2	17
ATS 4	
MAINTENANCE BASEYARD ATS	19
AIRFIELD ATS	20
ARFF ATS	21





LOW VOLTAGE CIRCUIT BREAKERS

			ELECTRO TEST OAHU, HAWAII			ACCREDITED COMPANY
Customer American Electric Date Technician 3/22/2022 Jared Helmi Manufacturer General Electric Test Equipment Used (Calibration Numbers) MEGGER DDA 1600 (Fluke 1587,AEMC 6240 Nameplate			ted Case Circuit Breaker To G1 Site Lihue International Airp Location Lihue, HI Model Power Break Test Equipment Last Cali 8/20/2020	ort	Agreement Number ET22-121 Equipment Tag ID G1 SERIAL NUMBER AC16367-2 Substation Primary	
Fuse Catalog Number Counter as Found Counter As Left	25 60 Power Breaker N/A N/A N/A	Trip Unit Trip Unit Catalog Nu Frame <u>Mounting</u> Draw-Out	mber RMS9C	122953 00 Amps	CAT number Cubicle Code Sensor Taps NTERLOCK OFF ON	THC1616TTEI N/A 1600
Proper Mounting Conductors Match Single Line Feeder Designation Match Drawing Casing Intact with no Cracking Bolt Torque Levels Checked Breaker Operates Correctly Frame Size & Trip Unit Correct Terminals Suitable for 75deg Contents	YES Inspected Inspected NA/DLRO Inspected Inspected Inspected Inspected	Pass No Action Need	led led led led led	Insulating Members Structural Members Contact Fingers Arcing Contacts Arc Chutes Auxiliary Devices ercurrent Device Battery	Inspected Pass	No Action Needed
roundFaul Sensor Tag ettings as Found Rating Plug Sensor Tag which is a sensor Tag Rating Plug Rating Plug Rating Plug Sensor Tag Sensor Tag Which is a sensor Tag Sensor Tag Which is a sensor Tag Which is a sensor Tag Rating Plug Sensor Tag Which is a sensor Tag Which is a sensor Tag Which is a sensor Tag Rating Plug Sensor Tag Rating Plug Sensor Tag Rating Plug Rating Plug Sensor Tag Rating Plug Sensor Tag Sensor Tag Which is a se	Function 1600 Short Instantal Ground Function 1600 Long 1600 Short Instantal	0.75 neous 10	Pickup X 1600 A X 1600 A X 1600 A X 1600 A Pickup X 1600 A X 1600 A X 1600 A	= 1200 A A A A A A A A A A A A A A A A A A	Delay 3 Out Delay 1 0	
Trip Curve (TCC) Number GES-9913 Function Test Amps Long Time 3600 LTPU (amps Short Time STPU (amps 16000 IPU (amps) Ground Fault GFPU (amps 480 GFPU (amps Ontact Resistance Across Closed Poles	3XIr 8) 8XIn 0.01	Time Band m Maximum 16 0.07	As Found seconds 11.42	= 320 A As Left seconds 11.42 0 0 0 0 0 0.05 0 0.39 0	3 Out	
Breaker Current Rating Maximum Percent Load Maximum Load	1600 Amps 100% %	Phase A Phase B	urements μΩ 38 35 49	Deviation 8.57% 0.00% 40.00%	Deviation Pass or Fail PASS PASS PASS	Overall Pass or Fail PASS
Breaker Voltage Rating Minimum Test Voltage Test Voltage Used Test Duration per Reading	e 1000 kV d 1000 kV	C Phase to Phase DC DC conds		Insulatio Temperature Co Minimum Insulat	n Temperature 25 rrection Factor 1.25 ion Resistance 100	°C MΩ
Closed Closed Closed Closed Closed Closed Closed Open A L Open C L	Points A to B B to C C to A A to G B to G C to G ine - Load ine - Load ine - Load	MΩ	ted for °C MΩ 90 62.5 87.5 1.25 65 62.5 81.25 96.25 750	Pass or Fail PASS PASS PASS PASS PASS PASS PASS PAS	OVERALL PAS	S/FAIL: PASS
Comments Deficiencies						

						ELECTRO TEST OAHU, HAWAII					ACCREDITED COM	MPANY
Customer					Insulated C	Case Circuit Breaker Te G2	est and Inspection		Aareemer	nt Number		
American E Date	Electric	Technician			Lihu Loca	e International Airpontion	ort		ET21-121 Equipmer			
3/22/2022 Manufactur General Ele		Jared Helminen			Mode	i <mark>e, HI</mark> el e r Break			G2 SERIAL N AC16367			
Test Equipr	ment Used (Calibration DDA 1600 (Fluke 158)	_			Test	Equipment Last Calib /2020	bration Date		Substation Primary			
Nameplate	Ambient Temperature		25	°C	Trip Unit Type		T+		C	AT number	THC1616TTEI	
	Humidity Breaker Type	GE Pow	60 ver Breaker	% Tri	ip Unit Catalog Number Frame Size	r RMS9C1		Amps		bicle Code ensor Taps	N/A 1600	
'	Fuse Catalog Number Counter as Found Counter As Left	1 k	N/A N/A N/A	Mounting Draw-Ou		Thermal Memory ON		ZONE INT	ERLOCK	<u>L</u>		
benestion								GF ALARI				
Inspection		roper Mounting	Inspected	Pass	No Action Needed		Insulating Me		Inspected	Pass	No Action Needed	
	Conductors Mat Feeder Designation N	tch Single Line Match Drawing	YES Inspected	Pass Pass	No Action Needed No Action Needed		Structural Me Contact F	embers I Fingers I	Inspected Inspected	Pass Pass	No Action Needed No Action Needed	
		evels Checked	NA/DLRO	Pass	No Action Needed No Action Needed			Chutes	Inspected Inspected	Pass Pass	No Action Needed No Action Needed	
	Frame Size & Tr		Inspected Inspected	Pass	No Action Needed No Action Needed		Auxiliary D		Inspected	Pass	No Action Needed	
	Terminals Suitabl Overall Vis	le for 75deg C [sual Inspection PA	Inspected ASSED INSPEC		No Action Needed	J	ercurrent Device I	Batteryi	Inspected	Pass	No Action Needed	
Settings as		Juan Inter a										
0		Rating Plug	1600	Function Long	0.75 X	Pickup 1600 A	= 1200	A	Delay 1			
GroundFaul 3W	1	Sensor Tap		Instantaneous Ground Fault	10 X 0.2 X	1600 A 1600 A	= 0 = 16000 = 320	_ A A	3 Out			
Settings as	Left			Function	U.Z A	Pickup	- 320	A	Delay			
GroundFaul		Rating Plug Sensor Tap	1600	Long Short	0.75 X 0 X	1600 A 0 A	= 1200 = 0	_A	1 0			
3W				Instantaneous Ground Fault	10 X 0.2 X	1600 A 1600 A	= 16000 = 320	A	3 Out			
Timing Test Trip	sts Curve (TCC) Number	r GES-9913										
	Function	•	urrent Multiple	Minimum N	Maximum	As Found seconds	As Left seconds					
	Long Time	3600 LTPU (amps)	3XIr	<u> </u>	16	11.42	11.42	_				
	Short Time	STPU (amps) 16000	8XIn	0.01	0.07	0.05	0.05	_				
		IPU (amps) 480	1XIn	0.38	0.5	0.39	0.39	-				
	Ground Fault esistance Across Close	GFPU (amps)										
	Breaker Current Rating	<i></i>		Amps	Measureme	ents			Deviation		Overall	
IVI	aximum Percent Load Maximum Load]% Phase A			Deviation 10.71%		Pass or Fa	il	Pass or Fail	
				Phase B Phase C			25.00% 0.00%		PASS PASS		PASS	
Insulation R												
	Minimun	Voltage Rating m Test Voltage	600 1000	VAC Phase to kVDC	Phase			erature Corre	Temperature ection Factor	25 1.25	°C	
	। est Test Duratic	t Voltage Used on per Reading	1000 60	kVDC Seconds			Mınımı	ım İnsulatioi	n Resistance	100	ΜΩ	
	State	Point		Measurements MΩ	Corrected for MΩ	or °C	Pass or Fail					
	Closed	A to	В	170 125	212.5 156.25		PASS PASS PASS					
	Closed Closed	C to	Α	150 105	187.5 131.25		PASS PASS					
	Closed Closed	B to C to	G	66	82.5 125		PASS PASS					
	Open	A Line -	· Load	184	230 2750		PASS PASS					
	Open Open	B Line - C Line - Control V	· Load	120 2200	150 2750		PASS PASS PASS			/ERALL PASS/F	FAIL: PASS	
	Any	Control v			2750		PA33			ERALL PASS/F	AIL. PASS	
Comments	;											
Deficiencies	;											

	ELECTRO TEST OAHU, HAWAII	ACCREDITED COMPANY
	Insulated Case Circuit Breaker Test and Inspection ATS 1 Emergency	
Customer American Electric	Site Lihue International Airport ET22-	ment Number -121
Date Technician 3/22/2022 Jared Helminen	Location Equipr	ment Tag ID Emergency
Manufacturer General Electric		AL NUMBER
Test Equipment Used (Calibration Numbers) MEGGER DDA 1600 (Fluke 1587,AEMC 6240)	Test Equipment Last Calibration Date 8/20/2020 Prima	ation
Nameplate	\display \dinfty \display \display \display \display \display	ry
Ambient Temperature 25 °C	Trip Unit Type MVT	CAT number THCVF5612
Breaker Type GE Power Breaker	ip Unit Catalog Number TP4VT206 Frame Size 1200 Amps	Cubicle Code N/A Sensor Taps 1200
Fuse Catalog Number N/A Counter as Found N/A Mounting	Thermal Memory	Size and Type N/A
Counter As Left N/A Draw-Ou	It ON ZONE INTERLOCK	OFF ON
Inspection		
Proper Mounting Inspected Pass	No Action Needed Insulating Members Inspected	Pass No Action Needed
Conductors Match Single Line YES Pass	No Action Needed Structural Members Inspected	Pass No Action Needed
Feeder Designation Match Drawing Inspected Pass Casing Intact with no Cracking Inspected Pass	No Action Needed No Action Needed Arcing Contacts Inspected Inspected	Pass No Action Needed Pass No Action Needed
Bolt Torque Levels Checked NA/DLRO Pass Breaker Operates Correctly Inspected Pass	No Action Needed No Action Needed Arc Chutes Inspected Auxiliary Devices Inspected	Pass No Action Needed Pass No Action Needed
Frame Size & Trip Unit Correct Inspected Pass	No Action Needed	
Terminals Suitable for 75deg C Inspected Pass	No Action Needed Overcurrent Device Battery No battery	NA NA
Overall Visual Inspection PASSED INSPECTION		
Settings as Found Function	Pickup Delay	
Rating Plug 1200 Long	1 X 1200 A = 1200 A 1	
GroundFault Sensor Tap 1200 Short Instantaneous	X A = 0 A = 12000 A = 12000 A	
Ground Fault Settings as Left	0.2 X 1200 A = 240 A Max	
Function	Pickup Delay	
Rating Plug 1200 Long GroundFault Sensor Tap 1200 Short	1 X 1200 A = 1200 A 1 0 X 0 A = 0 A 0	
3W Instantaneous Ground Fault	10 X 1200 A = 12000 A 0.2 X 1200 A = 240 A Max	
Timing Tests Trip Curve (TCC) Number GES-9910	0.2	
Function Tost Amps Current Multiple Time Ba		
Long Time 3600 3XIr 77	Maximum seconds seconds 80.7 80.7	
LIPO (amps)	1308 1308	
Short Time STPU (amps) 8XIn 0.01	0.07 0.05 0.05	
Instantaneous IPU (amps)	11500 11500	
Ground Fault 360 1XIn 0.7 GFPU (amps)	1.2 0.85 244 244	
Contact Resistance Across Closed Poles		
Breaker Current Rating 1200 Amps	Measurements Deviation Deviation	
Maximum Percent Load 100% % Maximum Load 1200 Phase A		S
Phase B Phase C		
Insulation Resistance		
	Travlation Tomporature	
Breaker Voltage Rating 600 VAC Phase to Minimum Test Voltage 1000 kVDC	Temperature Correction Factor	1.25
Test Voltage Used 1000 kVDC Test Duration per Reading 60 Seconds	Minimum Insulation Resistance	
	Corrected for °C	
State Points MΩ	MΩ Pass or Fail	
Closed A to B 99 Closed B to C 5.9	123.75 PASS 7.375 PASS	
Closed C to A 93	116.25 PASS 95 PASS	
Closed B to G 45	56.25 PASS	
Closed C to G 40 Open A Line - Load 800	50 PASS 1000 PASS	
Open B Line - Load 92 Open C Line - Load 90	115 PASS 112.5 PASS	
Any Control Wiring 2200		OVERALL PASS/FAIL: PASS
Comments		
Deficiencies		

						ELECTRO TEST OAHU, HAWAII			ACCREDITED COMPANY	
Customer					Site		ncy	Agreement Numb	per	
American E Date 3/22/2022		Technician Jared Helmin	en		Loca	<u>ue International Air</u> ation ue, HI	port	ET22-121 Equipment Tag II ATS 2 Emergence) C y	
Manufacture General Ele	er ectric				Mod Pow	lel ver Break		SERIAL NUMBER V78656		
	ment Used (Calibration DDA 1600 (Fluke 1587	-				t Equipment Last Ca 1/2020	alibration Date	Substation Primary		
-	Ambient Temperature Humidity		25 60	°C	Trip Unit Typ Trip Unit Catalog Numbe	e N	IVT VT206	CAT num Cubicle Co		
F	Breaker Type Fuse Catalog Number	GE F	Power Breaker N/A	70	Frame Siz		200 Am		aps 1200	
	Counter as Found Counter As Left		N/A N/A		nting v-Out	Thermal Memory ON	ZO	NE INTERLOCK OFF		
Inspection							GF	ON		
·		per Mounting			No Action Needed		Insulating Membe Structural Membe		ass No Action Needed ass No Action Needed	
	Feeder Designation M Casing Intact with	atch Drawing	Inspected		No Action Needed No Action Needed No Action Needed		Contact Finge Arcing Contact	ers Inspected Pa	Ass No Action Needed Ass No Action Needed Ass No Action Needed	
	Bolt Torque Le	vels Checked ates Correctly	NA/DLRO Inspected	Pass Pass	No Action Needed No Action Needed		Ărc Chut Auxiliary Devic	es Inspected Pa	No Action Needed No Action Needed	
	Frame Size & Trip Terminals Suitable		Inspected Inspected		No Action Needed No Action Needed		vercurrent Device Batte	ery No battery N	NA NA	
		ual Inspection	PASSED INSPE	CTION						
Settings as	Found	Rating Plug	1200	Function Long	1 X	Pickup 1200 A	= 1200 A	Delay 1		
GroundFault 3W	1	Sensor Tap		Short Instantaneous	10 X X	1200 A	= 0 A = 12000 A A A	<u>'</u>		
Settings as	Left			Ground Fault	0.2 X	1200 A	= 240 A	Max		
GroundFault	1	Rating Plug Sensor Tap		Function Cong Short	1 X X	Pickup 1200 A	= 1200 A = 0 A	Delay 1 0		
3W	4_			Instantaneous Ground Fault	10 X 0.2 X	1200 A 1200 A	= 12000 A = 240 A	Max		
	Curve (TCC) Number		Cumant Multiple	Tim	ne Band	As Found	As Left			
	Function Long Time	Test Amps 3600	Current Multiple 3XIr	Minimum 77	Maximum 131	seconds 83.1	seconds 83.1			
	Short Time	LTPU (amps) STPU (amps)				1404	1404 0 0			
Ins	etantangous	12000 IPU (amps)	8XIn	0.01	0.07	0.05 12600	0.05 12600			
	Fround Fault sistance Across Closed	360 GFPU (amps)	1XIn	0.7	1.2	0.80 240	0.80 240			
	reaker Current Rating		1200	Amps	Measuren	nents		Deviation	Overall	
Ma	aximum Percent Load Maximum Load		00% 1200]% Phas			Deviation 11.54%	Pass or Fail PASS	Pass or Fail	
				Phas Phas			0.00% 46.15%	PASS PASS	PASS	
Insulation R		alta va Datin v	200	\\\\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \	ı Di		1	allation Tonon and tono		
	Minimum	oltage Rating Test Voltage Voltage Used	1000	VAC Phase kVDC kVDC	e lo Phase		Temperatu	re Correction Factor 1	25 .25 00 MΩ	
		per Reading		Seconds						
	State Closed		oints to B	Measurement MΩ 62	S Corrected MΩ 77.5		Pass or Fail PASS			
	Closed Closed	В	to C to A	12.5 50	15.62s 62.5		PASS PASS			
	Closed Closed	A B	to G to G	50 15	62.5 18.75		PASS PASS			
	Open Open	A Lin	to G le - Load le - Load	96 71	13.75 120 88.75		PASS PASS PASS			
	Open Any	C Lin	ie - Load ol Wiring	70 2200	87.5 2750		PASS PASS	OVERALL	PASS/FAIL: PASS	
Comments										
Deficiencies										

				LECTRO TEST OAHU, HAWAII				ACCREDITED COMPANY	
Customer American Electric Date 3/21/2022 Manufacturer	Technician Jared Helminen		Site Lihue Ir Location Lihue, I Model	HI	Inspection	Agreemen ET22-121 Equipment Capacitor SERIAL N	Tag ID		
General Electric Test Equipment Used (Calib MEGGER DDA 1600 (Fluke			Power I Test Eq 8/20/202	uipment Last Calibration	Date	V110841 Substation Primary			
Breaker Fuse Catalog Nu Counter as F Counter As	Type GE Power Ember N/A ound			MVT RMS-9 TR16S1200 1600 hermal Memory	_	Cuk	T number oicle Code nsor Taps and Type	TP1616SS N/A 1600 N/A	
Feeder Designa Casing Inta Bolt Torq Breaker Frame Size Terminals Su	s Match Single Line Ition Match Drawing act with no Cracking que Levels Checked Coperates Correctly E & Trip Unit Correct	Inspected Pass YES Pass Inspected Pass Inspected Pass NA/DLRO Pass Inspected Pass Inspected Pass Inspected Pass Inspected Pass Inspected Pass Inspected Pass	No Action Needed	St	sulating Members ructural Members Contact Fingers Arcing Contacts Arc Chutes Auxiliary Devices Int Device Battery	Inspected Inspected Inspected Inspected Inspected Inspected Inspected Inspected	Pass Pass Pass Pass Pass Pass NA	No Action Needed	
Settings as Found GroundFault 3W	Rating Plug Sensor Tap	Function 1200 Long 1600 Short Instantaneous Ground Fault	1 X X X X X X X X X X X X	Pickup 1200 A = 1200 A = 1200 A = 1200 A =	1200 A 3600 A 3600 A 240 A	Delay Max Min (Out) Min (Out)			
Settings as Left GroundFault 3W	Rating Plug Sensor Tap	Function 1200 Long 1600 Short Instantaneous Ground Fault	1 X X X X X X X X X X X X X X X X X X X	Pickup 1200 A = 1200 A = 1200 A = 1200 A =	1200 A 3600 A 3600 A 240 A	Delay Max Min (Out) Min (Out)			
Timing Tests Trip Curve (TCC) Nu		Time	Band As	Found As	Left				
Function Long Time	·	Minimum 3XIr 80	Maximum se	econds seco	onds .99				
Short Time	4800	6XIr 0.08	0.17	0.12 0.	12				
Instantaneous	4800	3XIn 0.01	0.07	0.05 0.	05				
	360 0	.3XIn 0.08	0.17	0.12 0.	12				
Ground Fault Contact Resistance Across (
Breaker Current R Maximum Percent Maximum	Rating 1200 Load 100%	Amps % Phase Phase Phase	B 34	D	eviation 0.00% 6.25% 12.50%	Deviation Pass or Fail PASS PASS PASS		Overall Pass or Fail PASS	
Insulation Resistance									
Mir	aker Voltage Rating nimum Test Voltage Test Voltage Used uration per Reading	600 VAC Phase t 1000 kVDC 1000 kVDC 60 Seconds	o Phase		Temperature C	ion Temperature Correction Factor ation Resistance	25 1.25 100	°C MΩ	
State	Points	Measurements MΩ	Corrected for ° MΩ		ss or Fail				
Closed Closed	A to B B to C	2200 2200	2750 2750		PASS PASS				
Closed	C to A	2200	2750		PASS				
Closed Closed	A to G B to G	1700 1700	2125 2125		PASS				
Closed Open	C to G A Line - Loa	2100 d 2200	2625 2750		PASS PASS				
Open Open	B Line - Loa C Line - Loa	d 2200	2750 2750		PASS PASS				
Any	C Line - Loa Control Wirir		2750		PASS	OVI	ERALL PASS/FAI	IL: PASS	
Comments				-					
Deficiencies									

		-				ELECTRO TEST OAHU, HAWAII					ACCREDITED CO	DMPANY
					Insulated C	ase Circuit Breaker Te Main Breaker #1						
Customer American E	Electric				Site Lihu e	e International Airpo	ort		Agreement ET22-121	Number		
Date 3/23/2022		Technician Jared Helminen			Locat Lihu e	tion	<u></u>		Equipment Main Break			
Manufacture General Ele		Jaieu Hommio	-		Mode				SERIAL NU 78395			
Test Equipm	ment Used (Calibration DDA 1600 (Fluke 158)					Equipment Last Calib	bration Date		Substation Primary			
Nameplate		ACIVIC 0240)			UI Z UI I	2020			FIIIIai y			
ļ ,	Ambient Temperature Humidity		25 60	°C 0/. Tr	Trip Unit Type ip Unit Catalog Number					number cle Code	THCBV9640K N/A	
_	Breaker Type	GE Pow	wer Breaker	70	ip Unit Catalog Number Frame Size			Amps	Sen	sor Taps	4000	
-	Fuse Catalog Number Counter as Found	d	N/A N/A	Mounting		Thermal Memory			Cond Size a	and Type[N/A	
	Counter As Left	t!	N/A	Draw-Ou	ıt	OFF		ZONE INTE GF ALARM				
Inspection												
	Pr	roper Mounting	Inspected	Pass	No Action Needed	7	Insulating Me	embers Ins	spected	Pass	No Action Needed	
	Conductors Mat Feeder Designation N	tch Single Line	YES Inspected	Pass Pass	No Action Needed No Action Needed	1	Structural Me Contact F	embers Ins	spected spected	Pass Pass	No Action Needed No Action Needed	
	Casing Intact wit	ith no Cracking	Inspected	Pass	No Action Needed	_	Arcing Co	ontacts Ins	spected	Pass	No Action Needed	
	Breaker Oper	evels Checked rates Correctly	NA/DLRO Inspected	Pass Pass	No Action Needed No Action Needed	-	Arc (Auxiliary D		spected spected	Pass Pass	No Action Needed No Action Needed	
	Frame Size & Tri Terminals Suitable	rip Unit Correct	Inspected	Pass Pass	No Action Needed No Action Needed	- - Ov(ercurrent Device I		battery	NA	NA	
			Inspected		NO ACTION NEEDER		SICUITETII DEVICE I	Sallery 140	Dallery	INA	INA	
		sual Inspection PA	SSED INSPEC	TION								
Settings as	Found			Function		Pickup			Delay			
[GroundFault		Rating Plug Sensor Tap	4000 4000	Long Short	0.6 X 4 X	4000 A 2400 A	= 2400 = 9600]A	3 it (Out)			
3W				Instantaneous	2 X	4000 A	= 8000					
Settings as	Left			Ground Fault	0.3 X	4000 A	= 1200		nt (In)			
		Rating Plug	4000	Function Long	0.6 X	Pickup 4000 A	= 2400		Delay 3			
GroundFault 3W	i [†]	Sensor Tap	4000	Short Instantaneous	4 X X	2400 A 4000 A	= 9600 = 8000	A In	it (Out)			
				Ground Fault	0.3 X	4000 A 4000 A	= 1200	A	nt (In)			
Timing Tests Trip	Curve (TCC) Number	r GES-9910		·								
	Function	Test Amps Cu	urrent Multiple	Time Bar Minimum	and Maximum	As Found seconds	As Left seconds					
ı	Long Time	7200 LTPU (amps)	3XIr	40	60	45.62	45.62	1				
5	Short Time	9600 STPU (amps)		0.22	0.32	0.25	0.25	1				
Ins	nstantaneous	12000	8XIn	0.01	0.07	0.05	0.05	_				
	Fround Fault	IPU (amps) 1800	.45XIn	0.7	1.2	0.82	0.82	_				
	esistance Across Close	GFPU (amps)										
	Breaker Current Rating		10	Amps	Measureme	onte			Deviation		Overall	
	aximum Percent Load	1009	1%]%	μΩ	31115	Deviation		Pass or Fail		Pass or Fail	
	Maximum Load	d 400	0	Phase A Phase B	15		6.67% 0.00%		PASS PASS		PASS	
				Phase C	18		20.00%		PASS			
Insulation R	Resistance											
	Breaker \	Voltage Rating	600	VAC Phase to	Phase		Taman	Insulation Te		25	°C	
	Test	m Test Voltagest Voltage	1000 1000	kVDC kVDC			1 empe Minimı	erature Correction Insulation	tion Factor Resistance	1.25 100	ΜΩ	
	Test Duratio	on per Reading	60	Seconds								
	State	Poin		Measurements	Corrected for	or °C	Pass or Fail					
	Closed	A to	В	MΩ 124	MΩ 155		PASS					
	Closed Closed	B to C to		18 168	22.5 210		PASS PASS					
	Closed	A to	G	104 240	130 300		PASS PASS					
	Closed Closed	B to C to	G	300	375		PASS					
	Open Open	A Line - B Line -		2200 2200	2750 2750		PASS PASS					
	Open Any	C Line - Control V	- Load	2200 2200	2750 2750		PASS PASS		OVE	RALL PASS/F	FAIL: PASS	
l	Ally	Control		2200	2130		1 700		OVL	IVALL I AGO/I	AIL. FAOO	
Comments [;											
Deficiencies	•											

						ELECTRO TEST OAHU, HAWAII				ACCREDITED COMPANY	
					Insulated Ca	ase Circuit Breaker To Tie Breaker	est and Inspection				
Customer	Electric				Site		ort	Agreement N ET22-121	lumber		
American Date		Technician			Locat		ort	Equipment T			
3/23/2022 Manufactur		Jared Helmine	<u> n</u>		Lihue Mode			Tie Breaker SERIAL NUM			
General El	ectric	Ni. wala awa\			Powe	r Break	brotion Data	V76641			
MEGGER I	ment Used (Calibration DDA 1600 (Fluke 1587				8/20/2	Equipment Last Cali 2020	bration Date	Substation Primary			
Nameplate											
	Ambient Temperature		25	°C	Trip Unit Type	M\ TDOT\/40			number	TCVVF9640R	
	Humidity Breaker Type		60 Power Breaker	<u> </u>	Frip Unit Catalog Number Frame Size	TP9TV40 400			le Code sor Taps	N/A 4000	
1	Fuse Catalog Number Counter as Found		N/A N/A	Mounti	na	Thermal Memory	-	Cond Size a	nd Type	N/A	
	Counter As Left		N/A	Draw-C		OFF		INTERLOCK OFF			
							GF AL	ARM ONLY ON			
Inspection											
	Pro	per Mounting	Inspected	Pass	No Action Needed		Insulating Members	Inspected	Pass	No Action Needed	
	Conductors Mate	ch Single Line	YES	Pass	No Action Needed		Structural Members	Inspected	Pass	No Action Needed	
	Feeder Designation M Casing Intact witl		Inspected Inspected		No Action Needed No Action Needed		Contact Fingers Arcing Contacts	Inspected Inspected	Pass Pass	No Action Needed No Action Needed	
	Bolt Torque Le		NA/DLRO		No Action Needed		Arc Chutes	Inspected	Pass	No Action Needed	
	Frame Size & Tri	ates Correctly Durit Correct	Inspected Inspected		No Action Needed No Action Needed		Auxiliary Devices	Inspected	Pass	No Action Needed	
	Terminals Suitable		Inspected		No Action Needed	Ov	ercurrent Device Battery	No battery	NA	NA	
	Overall Visi	ual Inspection F	PASSED INSPEC	CTION							
Settings as	Found										
		Dating Dive	4000	Function		Pickup	_ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \	Delay			
 GroundFaul	1	Rating Plug Sensor Tap) Long) Short	0.6 X 4 X	4000 A 4000 A	= 2400 A = 16000 A	Int			
3W				Instantaneous Ground Fault	2 X 0.3 X	4000 A 4000 A	= 8000 A = 1200 A	Int			
Settings as	Left				U.3 A		- 1200 A				
		Rating Plug	4000	Function Long	0.6 X	Pickup 4000 A	= 2400 A	Delay 3			
GroundFaul	li	Sensor Tap		Short	4 X	4000 A	= 16000 A	Int			
3W				Instantaneous Ground Fault	2 X 0.3 X	4000 A 4000 A	= 8000 A = 1200 A	Int			
Timing Tes		CES 0010									
Пір	Curve (TCC) Number Function		Current Multiple	Time	Band	As Found	As Left				
		7200	3XIr	Minimum 40	Maximum 60	seconds 40.5	seconds 40.5				
	Long Time	LTPU (amps)				2440	2440				
;	Short Time	10800 STPU (amps)		0.22	0.32	0.30 9450	0.30 9450				
In	etantaneous	12000	8XIn	0.01	0.07	0.05	0.05				
		IPU (amps) 1800	1XIn	0.77	1.31	12100 0.85	12100 0.85				
	Bround Fault esistance Across Close	GFPU (amps)				1184	1184				
	_			_							
	Breaker Current Rating aximum Percent Load		000 00%	_Amps _%	Measureme μΩ	nts	Deviation	Deviation Pass or Fail		Overall Pass or Fail	
	Maximum Load		000	Phase A	A 21		16.67%	PASS			
				Phase Phase (0.00% 22.22%	PASS PASS		PASS	
Insulation F	Posistanas					•	,				
IIISulation F											
	Breaker V Minimum	/oltage Rating _ n Test Voltage	600 1000	VAC Phase to kVDC	o Phase			ion Temperature Correction Factor	25 1.25	°C	
	Test	Voltage Used	1000	kVDC			Minimum Insul	ation Resistance	100	ΜΩ	
	Test Duration	n per Reading	60	Seconds							
	State	Do	oints	Measurements	Corrected fo	r °C	Pass or Fail				
	State Closed		to B	MΩ 20	MΩ 25		PASS				
	Closed		to C to A	22 27	27.5 33.75		PASS PASS				
	Closed Closed	At	to G	18	22.5		PASS				
	Closed Closed		to G to G	17 18	21.25 22.5		PASS PASS				
	Open	A Line	e - Load	80	100		PASS				
	Open Open		e - Load e - Load	60 130	75 162.5		PASS PASS				
	Any		ol Wiring	1700	2125		PASS	OVEF	RALL PASS/F/	AIL: PASS	
Comments	3										
Deficiencies											
	·		-								

					ELECTRO TEST			ACCREDITED COMPANY
				Insulated Ca	ase Circuit Breaker Tes Main Breaker #2	and Inspection		
Customer American Electi	tric			Site Lihu e	e International Airpor	t	Agreement Number ET22-121	
Date 3/23/2022	Technician Jared Helmine	n		Locat Lihue	ion		Equipment Tag ID Main Breaker #2	
Manufacturer General Electric	•			Mode			SERIAL NUMBER V76643	
Test Equipment	Used (Calibration Numbers) 1600 (Fluke 1587,AEMC 6240)				Equipment Last Calibr	ation Date	Substation Primary	
Nameplate	1000 (11ake 1001;AEMO 0240)			U/ZU//	2020		T TITLE Y	
Ambie	ient Temperature Humidity	25 60	°C % Trip	Trip Unit Type Unit Catalog Number		I GA3	CAT number Cubicle Code	TCVVF9640R N/A
Fuse	<u> </u>	ower Breaker N/A		Frame Size				4000 N/A
C	Counter as Found Counter As Left	N/A N/A	Mounting Draw-Out		Thermal Memory OFF		IE INTERLOCK OFF	14//
	Counter As Lett	IN//A	Diaw-Out		Oll		ALARM ONLY ON	
Inspection								
	Proper Mounting	Inspected		No Action Needed		Insulating Members		No Action Needed
Feed	Conductors Match Single Line der Designation Match Drawing	YES Inspected	Pass	No Action Needed No Action Needed		Structural Members Contact Fingers	s Inspected Pass	No Action Needed No Action Needed
	Casing Intact with no Cracking Bolt Torque Levels Checked	Inspected NA/DLRO		No Action Needed No Action Needed		Arcing Contacts Arc Chutes		No Action Needed No Action Needed
	Breaker Operates Correctly	Inspected	Pass	No Action Needed		Auxiliary Devices		No Action Needed
	Frame Size & Trip Unit Correct Terminals Suitable for 75deg C	Inspected Inspected		No Action Needed No Action Needed	Over	current Device Battery	y No battery NA	NA
	Overall Visual Inspection F	PASSED INSPECTION	N					
Settings as Foun								
	Rating Plug	Fund 4000 Long	ction	0.6 X	Pickup 4000 A	= 2400 A	Delay 3	
GroundFault	Sensor Tap	4000 Shor	rt	4 X	4000 A	= 16000 A	Int	
3W			antaneous und Fault	2 X 0.3 X	4000 A 4000 A	= 8000 A = 1200 A	Int	
Settings as Left			ction		Pickup		Delay	
GroundFault	Rating Plug Sensor Tap	4000 Long 4000 Shoi		0.6 X 4 X	4000 A 4000 A	= 2400 A = 16000 A	Int	
3W	20001 1451	Insta	antaneous und Fault	2 X	4000 A	= 8000 A	Int	
Timing Tests	(a (TOO) Nilling has 1000 0040	GIOL	unu i auit	0.3 X	4000 A	= 1200 A	THE THE TENTH OF T	
•	ve (TCC) Number GES-9910 ction Test Amps	Current Multiple	Time Ban		As Found	As Left		
	7200	· IVIII		aximum 60	seconds 40.8	seconds 40.8		
	LTPU (amps)		0.22	0.32	2520 0.3	2520 0.3		
Short	STPU (amps)	<u> </u>		0.07	9400 0.05	9400 0.05		
Instanta	taneous 12000 IPU (amps)				8000	8000		
	d Fault 1800 GFPU (amps)	1XIn (0.7	1.2	0.85 1204	0.85 1204		
Contact Resistar	nce Across Closed Poles							
	<u> </u>	000 Amp	os	Measureme μΩ	ents	Deviation	Deviation Pass or Fail	Overall Pass or Fail
IVIAAIIIIU		000	Phase A	22		29.41%	PASS	
			Phase B Phase C	17 27		0.00% 58.82%	PASS PASS	PASS
Insulation Resist	tance							
	Breaker Voltage Rating	600	VAC Phase to Ph			Insul	ation Temperature 25	°C
	Minimum Test Voltage Test Voltage Used	1000 1000	kVDC kVDC			Temperature	e Correction Factor 1.25 sulation Resistance 100	ΜΩ
	Test Duration per Reading	60	Seconds			iviii iii ii	raidilon Nosisiano o 100	INI75
			leasurements	Corrected for	or °C			
		ints to B	MΩ 15	MΩ 18.75		Pass or Fail PASS		
	Closed B t	to C	10	12.5		PASS		
	Closed A t	to A	14	17.5 13.75		PASS PASS		
		to G	9 8	11.25 10		PASS PASS		
	Open A Line	e - Load e - Load	150 130	187.5 162.5		PASS PASS		
I —			160	200		PASS		
<u> </u>	Open C Line			*	•			
		l Wiring	2200	2750		PASS	OVERALL PASS/F	AIL: PASS
Comments				2750		PASS	OVERALL PASS/F	AIL: PASS

						ELECTRO TEST OAHU, HAWAII					NETA ACCREDITED COMPANY	,
						Case Circuit Breaker To ATS 1	est and Inspection					
Customer American Elec		Foologica				e International Airp	ort		Agreement 1 ET22-121			
Date 3/24/2022 Manufacturer		Гесhnician <mark>Jared Helminen</mark>			Loca Lihu Mode	e, HI			Equipment 7 ATS 1 SERIAL NUI			
General Elect	r ic nt Used (Calibration	Numbers)			Pow	er Break Equipment Last Cali	hration Date		V77611 Substation	VIDER		
	A 1600 (Fluke 1587,	= = = = = = = = = = = = = = = = = = = =			l l	/2020			Primary			
-	bient Temperature		25	°C	Trip Unit Type					number	TPVVF5612RB	
_	Humidity Breaker Type	GE Pow	60 ver Breaker		rip Unit Catalog Numbe Frame Size			Amps	Sens	sor Taps	N/A 1200	
	Counter as Found		N/A N/A	Mounti		Thermal Memory		70NE INI	Cond Size a	nd Type	N/A	
	Counter As Left_		N/A	Draw-C	Jut	OFF		GF ALAR	TERLOCK OFF RM ONLY ON			
Inspection												
	Prop Conductors Match	per Mounting	Inspected YES	Pass Pass	No Action Needed No Action Needed		Insulating Me Structural Me		Inspected Inspected	Pass Pass	No Action Needed No Action Needed	
Fe	eder Designation Ma Casing Intact with	atch Drawing	Inspected Inspected	Pass Pass	No Action Needed No Action Needed No Action Needed		Contact F Arcing Co	ngers	Inspected Inspected	Pass Pass	No Action Needed No Action Needed No Action Needed	
	Bolt Torque Lev Breaker Opera	els Checked	NA/DLRO Inspected	Pass Pass	No Action Needed No Action Needed			hutes	Inspected Inspected	Pass Pass	No Action Needed No Action Needed	
	Frame Size & Trip Terminals Suitable	Unit Correct	Inspected Inspected	Pass Pass	No Action Needed No Action Needed No Action Needed	Ove	ercurrent Device B		No battery	NA	NA	
		al Inspection PA	•	•	1 10 / TOLIOTI INCOUGU		C. San Shi Dovide D	~VI y [. to wattory	1 3/ 3	1	
Settings as Fo												
		Rating Plug		Function Long	1 X	Pickup 1200 A	= 1200]A [Delay 4			
GroundFauli 3W		Sensor Tap		Short Instantaneous	4 X 10 X	1200 A 1200 A	= 4800 = 12000	A	Int			
Settings as Let	ft			Ground Fault	0.25 X	1200 A	= 300	Α	Min			
		Rating Plug	1200	Function Long	1 X	Pickup 1200 A	= 1200	A [Delay 4			
GroundFault 3W		Sensor Tap	1200	Short Instantaneous	4 X 10 X	1200 A 1200 A	= 4800 = 12000	A	Int			
Timing Tests				Ground Fault	0.25 X	1200 A	= 300	A	Min			
•	rve (TCC) Number Cunction		ırrent Multiple	Time		As Found	As Left					
	ng Time	3600	3XIr	Minimum 40	Maximum 60	seconds 50.5	seconds 50.5					
	ort Timo	TPU (amps)		0.22	0.32	0.30	1200 0.30					
	ntaneous	STPU (amps) 12000	8XIn	0.01	0.07	4850 0.05	4850 0.05					
	and Fault	PU (amps) 450	1XIn	0.7	1.2	12000 0.85	12000 0.85					
	tance Across Closed	GFPU (amps) Poles				305	305					
	ker Current Rating mum Percent Load	120 100°		Amps	Measurem	ents	Deviation		Deviation Pass or Fail		Overall Pass or Fail	
IVIAAII	Maximum Load	120		Phase Diagram			16.67% 0.00%		PASS PASS		PASS	
				Phase (33.33%		PASS		FAGG	
Insulation Resi	istance											
		oltage Rating Test Voltage	600 1000	VAC Phase to	o Phase				Temperature rection Factor	25 1.25	°C	
		/oltage Used	1000	kVDC Seconds			Minimu	m Insulation	on Resistance	100	ΜΩ	
		·		Measurements	Corrected for	or °C						
	State Closed	Poin A to		MΩ 16	MΩ 20		Pass or Fail PASS					
	Closed Closed	B to C to	С	14 19	17.5 23.75		PASS PASS					
	Closed Closed	A to B to	G	17 14	21.25 17.5		PASS PASS					
	Closed Open	C to	G	15 90	18.75 112.5		PASS PASS					
	Open Open	B Line - C Line -	Load	75 68	93.75		PASS PASS					
	Any	Control V		2200	2750		PASS		OVER	RALL PASS/FAII	L: PASS	
Comments												
Deficiencies												

				ELECTRO TEST OAHU, HAWAII					ACCREDITED COMPANY
			Insulated Ca	ase Circuit Breaker Tes ATS 2	t and Inspection				
Customer			Site				Agreement I	Number	
American Electric Date	Technician		Linue	e International Airpor ion	τ		Equipment 7	Гаg ID	
3/23/2022 Manufacturer	Jared Helminen		Lihue Mode	<i>'</i>			SERIAL NUI	MBER	
General Electric Test Equipment Used (Calibratio	n Numbers)		Powe	e <mark>r Break</mark> Equipment Last Calibr	ation Date		V77612 Substation		
MEGGER DDA 1600 (Fluke 158			8/20/2		alion Date		Primary		
Nameplate						_			
Ambient Temperature Humidity		°C %	Trip Unit Type Jnit Catalog Number		SLGB	-		number cle Code	TPVVF5612RB N/A
Breaker Type	GE Power Breake		Frame Size			Amps	Sens	sor Taps	1200
Fuse Catalog Number Counter as Found	N/A	Mounting		Thermal Memory			Cond Size a	ind Type	N/A
Counter As Left	tN/A	Draw-Out		ON		ZONE INTE GF ALARM			
Inchaotion							· · · · · · · · · · · · · · · · · · ·		
Inspection									
Pr Conductors Ma	roper Mounting Inspet tch Single Line YE		No Action Needed No Action Needed		Insulating Me Structural Me		spected spected	Pass Pass	No Action Needed No Action Needed
Feeder Designation I	Match Drawing Inspe	cted Pass I	No Action Needed		Contact F	ingers Ins	spected	Pass	No Action Needed
	evels Checked NA/DI	_RO Pass I	No Action Needed No Action Needed			Chutes Ins	spected spected	Pass Pass	No Action Needed No Action Needed
Breaker Ope Frame Size & Tr	rates Correctly Insperip Unit Correct Inspe		No Action Needed No Action Needed		Auxiliary D	evices Ins	spected	Pass	No Action Needed
Terminals Suitab			No Action Needed	Over	current Device I	Battery No	battery	NA	NA
Overall Vis	sual Inspection PASSED INS	SPECTION							
Settings as Found									
	Detine a Dive	Function		Pickup	4000		Delay		
GroundFauli		1200 Long 1200 Short	1 X 5 X	1200 A 1200 A	= <u>1200</u> = 6000	A	Max		
3W		Instantaneous Ground Fault	10 X 0.25 X	1200 A 1200 A	= 12000 = 300	A .	Max		
Settings as Left			0.20 X		000				
	Rating Plug	Function 1200 Long	1 X	Pickup 1200 A	= 1200	A	Delay 4		
GroundFault 3W		1200 Short Instantaneous	5 X 10 X	1200 A 1200 A	= 6000 = 12000	A C	Max		
		Ground Fault	0.25 X	1200 A	= 300	A	Max		
Timing Tests Trip Curve (TCC) Number	r GES-9910								
Function	Test Amps Current Mul	tiple Time Band Minimum Max	_	As Found seconds	As Left seconds				
Long Time	3600 3XIr		125	108.4	108.4	_			
Short Time	LTPU (amps) 6000	0.38	0.5	1320 0.40	1320 0.40	_			
	STPU (amps) 8XIn	0.01 0	0.07	0.05 0.05	6000 0.05	-			
Instantaneous	IPU (amps)			12000	12000				
Ground Fault	450 1XIn GFPU (amps)	0.7	1.2	0.83 305	0.83 305	_			
Contact Resistance Across Close									
Breaker Current Rating		Amps	Measureme	ents	D		Deviation		Overall
Maximum Percent Load Maximum Load		% Phase A	μ <u>Ω</u> 33		Deviation 13.79%		Pass or Fail PASS		Pass or Fail
		Phase B Phase C	29 40		0.00% 37.93%		PASS PASS		PASS
		1 Hd00 0	10		01.0070		17100		
Insulation Resistance									
Breaker Minimus	Voltage Rating 60 m Test Voltage 100		ase		Tempe	Insulation Te rature Correc		25 1.25	°C
Tes	t Voltage Used 100	0 kVDC			Minimu	ım Insulation	Resistance	100	ΜΩ
Test Duration	on per Reading 60	Seconds							
State	Points	Measurements MΩ	Corrected fo MΩ	or °C	Pass or Fail				
Closed	A to B	285	356.25		PASS				
Closed Closed	B to C C to A	300	325 375		PASS PASS				
Closed	A to G	160	200		PASS				
<u>Closed</u> Closed	B to G C to G	150 140	187.5 175		PASS PASS				
Open Open	A Line - Load B Line - Load	650 620	812.5 775		PASS PASS				
Open	C Line - Load	610	762.5		PASS				
Any	Control Wiring	2200	2750		PASS		<u>OVE</u>	RALL PASS/FAI	L: PASS
Comments									
Deficiencies									

						ELECTRO TEST					ACCREDITED COMPANY	
					Insulated	Case Circuit Breaker T ATS 4	Test and Inspection					
Customer American Ele	ectric				Site Lih t	ue International Air	oort		Agreement ET22-121			
Date 3/24/2022		Technician Jared Helminen	1		Lihu	ation ue, HI			Equipment ATS 4			
Manufacturer General Elect	tric					ver Break			SERIAL NU V76643			
MEGGER DD	nt Used (Calibration A 1600 (Fluke 1587					Equipment Last Ca 1/2020	libration Date		Substation Primary			
Nameplate								-				
Am	nbient Temperature Humidity		25 60	°C %	Trip Unit Typ Frip Unit Catalog Numbe	er TP9VT	30SLG		Cub	T number icle Code	TPVVF7625R N/A	
	Breaker Type se Catalog Number		wer Breaker N/A		Frame Siz		500]Amps	Ser Cond Size	nsor Taps and Type	2500 N/A	
	Counter as Found Counter As Left		N/A N/A	Mounti Draw-0		Thermal Memory OFF		ZONE IN	ITERLOCK OFF			
								GF	ON			
Inspection												
	Pro Conductors Mate	oper Mounting ch Single Line	Inspected YES	Pass Pass	No Action Needed No Action Needed		Insulating Me Structural Me		Inspected Inspected	Pass Pass	No Action Needed No Action Needed	
Fe	eeder Designation M Casing Intact wit		Inspected Inspected	Pass Pass	No Action Needed No Action Needed		Contact F Arcing Co		Inspected Inspected	Pass Pass	No Action Needed No Action Needed	
	Bolt Torque Le		NA/DLRO Inspected		No Action Needed No Action Needed			Chutes	Inspected Inspected	Pass Pass	No Action Needed No Action Needed	
	Frame Size & Tri Terminals Suitable	p Unit Correct	Inspected Inspected	Pass	No Action Needed No Action Needed		vercurrent Device E		No battery	NA	NA	
		ual Inspection PA	•	<u>.</u>	I NO ACHOII NEEUEU		voroundik Devide E	oution y	ino balloty	INC	1 W/ V	
Settings as Fo		uai ilispection Pi	ASSED INSPEC	ZHON								
Settings as FO	Juliu	Rating Plug	2500	Function Long	1 X	Pickup 2500 A	= 2500]^ [Delay 3			
GroundFault		Sensor Tap		Short	5 X	2500 A	= 12500	A	Int			
3W				Instantaneous Ground Fault	10 X 0.3 X	2500 A 2500 A	= <u>25000</u> = 750	A	Max			
Settings as Le	eft			Function		Pickup			Delay			
GroundFault		Rating Plug Sensor Tap		Long Short	1 X 5 X	2500 A 2500 A	= <u>2500</u> = <u>12500</u>	A A	3 Int			
3W				Instantaneous Ground Fault	10 X 0.3 X	2500 A 2500 A	= <u>25000</u> = 750	A A	Max			
Timing Tests Trip Cu	urve (TCC) Number	GES-9910										
Fu	unction	Test Amps C	urrent Multiple	Time Minimum	Band Maximum	As Found seconds	As Left seconds					
Lor	ng Time	7500 LTPU (amps)	3XIr	40	60	49.8 2550	49.8 2550					
Sho	ort Time	18750 STPU (amps)	7.5Xlr	0.22	0.32	0.29 12650	0.29 12650	1				
Insta	antaneous	25000 IPU (amps)	8XIn	0.01	0.07	0.05 25100	0.05 25100	1				
Grou	und Fault	1800 GFPU (amps)	0.45XIn	0.7	1.2	0.83 770	0.83 770	-				
Contact Resis	stance Across Close					770	770					
	aker Current Rating			Amps	Measuren	nents	Daviation		Deviation		Overall	
IVIAXII	mum Percent Load Maximum Load]% Phase			Deviation 0.00%		Pass or Fail PASS		Pass or Fail	
				Phase Phase			0.00% 0.00%		PASS PASS		PASS	
Insulation Res	sistance											
	Breaker \	/oltage Rating	600	VAC Phase t	o Phase				n Temperature	25	°C	
	Test	n Test Voltage Voltage Used	1000 1000	kVDC kVDC					rrection Factor ion Resistance	1.25 100	ΜΩ	
	Test Duration	n per Reading	60	Seconds								
	State	Poir	nts	Measurements MΩ	Corrected MΩ	for °C	Pass or Fail					
	Closed Closed	A to	В	1200 2200	1500 2750		PASS PASS					
	Closed	C to	Α	2200 2200 210	2750 2750 262.5		PASS PASS					
	Closed Closed	B to	G	140	175		PASS					
	Closed Open	C to	- Load	1200 2200	1500 2750		PASS PASS					
	Open Open	B Line C Line	- Load	2200 2200	2750 2750		PASS PASS					
	Any	Control	Wiring	2200	2750		PASS		OVE	RALL PASS/FA	AIL: PASS	
Comments												
Deficiencies						-			-			

			ELECTRO TEST OAHU, HAWAII			ACCREDITED COMPANY
		Insu	lated Case Circuit Breaker Test a SBA	and Inspection		
Customer			Site		Agreement Number	
American Electric	Tachnician		Lihue International Airport		ET21-121	
Date 3/24/2022	Technician Jared Helminen		Location Lihue, HI		Equipment Tag ID SBA	
Manufacturer			Model		SERIAL NUMBER	
General Electric Test Equipment Used (Calibration	n Numbers)		Power Break Test Equipment Last Calibrat	ion Date	50150 Substation	
MEGGER DDA 1600 (Fluke 158)			8/20/2020		Primary	
Nameplate						
Ambient Temperature		°C Trip Un			CAT number	PP1616TT
Humidity Breaker Type		% Trip Unit Catalog N	lumber C216LSIC ne Size 1600	Amps	Cubicle Code Sensor Taps	N/A 1600
Fuse Catalog Number	N/A					1000
Counter as Found Counter As Left		Mounting Draw-Out	ON		INTERLOCK OFF	
Counter As Lett	IN/A	Diaw-Out	ON	GF	ON	
Inspection						
	oper Mounting Inspected	Pass No Action Nee		Insulating Members	Inspected Pass	No Action Needed
Conductors Mat Feeder Designation N		Pass No Action Nee		Structural Members Contact Fingers	Inspected Pass Inspected Pass	No Action Needed No Action Needed
Casing Intact wit	th no Cracking Inspected	Pass No Action Nee	eded	Arcing Contacts		No Action Needed
	evels Checked NA/DLRO rates Correctly Inspected	Pass No Action Nee		Arc Chutes Auxiliary Devices	Inspected Pass Inspected Pass	No Action Needed No Action Needed
Frame Size & Tri		Pass No Action Nee		Additiary Devices	inspected 1 ass	No Action Needed
Terminals Suitable	e for 75deg C Inspected	Pass No Action Nee	eded Overcu	rrent Device Battery	Inspected Pass	No Action Needed
Overall Vis	sual Inspection PASSED INSPEC	TION				
	•					
Settings as Found		Function	Pickup		Delay	
	Rating Plug 1600	Long 1	X 1600 A =	, , , , , ,	4	
GroundFault 3W		Short 3 Instantaneous 6	X 1600 A = X 1600 A =	1000	2 (Out)	
		Ground Fault 0.46	X 1600 A =		1 (Out)	
Settings as Left		Function	Pickup		Delay	
	Rating Plug 1600	Long 1		= 1600 A	4	
GroundFault 3W		Short 3	X 1600 A =	1000	2 (Out)	
300		Instantaneous 6 Ground Fault 0.46		= 9600 A = 736 A	1 (Out)	
Timing Tests Trip Curve (TCC) Number	CES 0013					
Function		Time Band	As Found	As Left		
Function		Minimum Maximum	seconds s	econds		
Long Time	LTPU (amps)					
Short Time	7200 4.5Xlr					
	STPU (amps) 9600 6XIn					
Instantaneous	IPU (amps)					
Ground Fault	GFPU (amps)					
Contact Resistance Across Close						
Breaker Current Rating	1600	Amps Mea	surements	T	Deviation	Overall
Maximum Percent Load		%	μΩ	Deviation	Pass or Fail	Pass or Fail
Maximum Load	1600	Phase A	•	#NUM!	PASS	DACC
		Phase B Phase C		#NUM! #NUM!	PASS PASS	PASS
Insulation Desistance			•		•	
Insulation Resistance						
Breaker \	/oltage Rating 600	VAC Phase to Phase			tion Temperature 25	°C
Minimun Test	n Test Voltage 1000 Voltage Used 1000	kVDC kVDC		Temperature C Minimum Insula	Correction Factor 1.25 ation Resistance 100	$M\Omega$
Test Duratio	n per Reading 60	Seconds		William Indan		
	<u> </u>	Measurements Corre	ected for °C			
State	Points	MΩ		Pass or Fail		
Closed	A to B		0	PASS		
Closed Closed	B to C C to A		0	PASS PASS		
Closed	A to G		0	PASS		
Closed Closed	B to G C to G		0	PASS PASS		
Open	A Line - Load		0	PASS		
Open	B Line - Load		0	PASS		
Open Any	C Line - Load Control Wiring		0	PASS PASS	OVERALL PASS/FA	AIL: FAIL
	. •	·	'		<u> </u>	
Comments						
Deficiencies Will not rack out. Mus	<u>st de-energize bus and troublesho</u>	oot to repair.				

Adobe Acrobat Sign Transaction Number: CBJCHBCAABAAVCMzSsTl1kkgaoBeymKYTm0Z3Zzli95B

						ELECTRO TEST	-				ACCREDITED COMPANY	
					Insulat	ed Case Circuit Breaker SBB	Test and Inspection					
Customer American Ele	ctric					Site Lihue International Ai	rport		Agreement Numb	per		
Date 3/24/2022	<u> </u>	Technician Jared Helmine	n		L	ocation Lihue, HI	.,		Equipment Tag II SBB)		
Manufacturer		Jaieu Heilille	! !		ı	Model			SERIAL NUMBEI	R		
	nt Used (Calibration					Power Break Test Equipment Last C	alibration Date		50151 Substation			
MEGGER DDA Nameplate	A 1600 (Fluke 1587	',AEMC 6240)				3/20/2020			Primary			
Am	nbient Temperature		25	°C	Trip Unit		1VT+		CAT num	ber	PP1616TT	
	Humidity Breaker Type		60 ower Breaker	%	Trip Unit Catalog Nur Frame		16LSIG 1600	Amps	Cubicle Co Sensor T		N/A 1600	\exists
	se Catalog Number Counter as Found		N/A N/A	Mour		Thermal Memory		'				
	Counter As Left		N/A		v-Out	ON		ZONE I GF	NTERLOCK OFF ON			
								GF	ON			
Inspection	_											
	Pro Conductors Mate	pper Mounting ch Single Line	Inspected YES	Pass Pass	No Action Need No Action Need		Insulating M Structural M			ass ass	No Action Needed No Action Needed	-
Fe	eder Designation M Casing Intact wit	latch Drawing	Inspected Inspected		No Action Need No Action Need		Contact Arcing C		Inspected P	ass ass	No Action Needed No Action Needed	_
	Bolt Torque Le	vels Checked	NA/DLRO	Pass	No Action Need	ed	Arc	Chutes	Inspected P	ass	No Action Needed	
	Frame Size & Tri		Inspected Inspected	Pass	No Action Need No Action Need	ed	Auxiliary I		•	ass	No Action Needed	
	Terminals Suitable	e for 75deg C	Inspected	Pass	No Action Need	ed (Overcurrent Device	Battery _	Inspected P	ass	No Action Needed	
	Overall Vis	ual Inspection P	ASSED INSPEC	CTION								
Settings as Fo	ound			Function		Pickup			Delay			
		Rating Plug		Long	1	X 1600 A	= 1600	A [4			
GroundFault 3W		Sensor Tap	1600	Short Instantaneous	6	X 1600 A X 1600 A	= 4800 = 9600	A	2 (Out)			
Settings as Le	eft			Ground Fault	0.46	X 1600 A	= 736	Α	1 (Out)			
		Rating Plug	1600	Function Long	1 1	Pickup X 1600 A	= 1600		Delay 4			
GroundFault		Sensor Tap		Short	3	X 1600 A	= 4800		2 (Out)			
3W				Instantaneous Ground Fault	0.46	X 1600 A X 1600 A	= 9600 = 736	A A	1 (Out)			
Timing Tests Trip Cu	ırve (TCC) Number	GES-9913										
Fu	unction	Test Amps (Current Multiple	Minimum Tim	ne Band Maximum	As Found seconds	As Left seconds					
Lor	ng Time	4800 LTPU (amps)	3XIr	80	120	94.99	94.99					
Sho	ort Time	7200	4.5XIr	0.22	0.32	0.25	0.25					
Insta	intancous	STPU (amps) 9600	6XIn	0.01	0.07	0.05	0.05					
		IPU (amps) 1100	1XIn	0.08	0.17	0.12	0 0.12	-				
	und Fault tance Across Close	GFPU (amps)					0					
	aker Current Rating		600	Amps	Measu	rements			Deviation		Overall	\neg
	mum Percent Load	10	0%] %	<u> </u>	Ω	Deviation 19.490/		Pass or Fail		Pass or Fail	_
	Maximum Load	16	500	」 Phas Phas	se B	26 22	18.18% 0.00%		PASS PASS		PASS	
				Phas	e C	23	4.55%		PASS			
Insulation Res	istance											
	Breaker V	oltage Rating Test Voltage	600 1000	VAC Phase kVDC	e to Phase		Temp			25 .25		
	Test	Voltage Used	1000	kVDC						00 MΩ		
	lest Duration	n per Reading	60	Seconds								
	State	Po	ints	Measurements MΩ		ed for °C //Ω	Pass or Fail					
	Closed	A t	o B o C	155 110	19	3.75 37.5	PASS PASS					
	Closed Closed	C t	о А	225	28	1.25	PASS					
<u> </u>	Closed Closed		o G o G	105 100		1.25 25	PASS PASS					
	Closed Open	C t	o G - Load	115 2200		3.75 750	PASS PASS					
	Open	B Line	- Load	330	41	12.5	PASS					
	Open Any		- Load I Wiring	453 2200		6.25 750	PASS PASS		OVERALL	PASS/FAIL:	PASS	
Comments												
Deficiencies												٦





AUTOMATIC TRANSFER SWITCHES



 $Adobe\,Acrobat\,Sign\,Transaction\,Number:\,CBJCHBCAABAAVCMzSsTI1kkgaoBeymKYTm0Z3Zzli95B$



		AUTOMATIC TRANSFER SWITCH TEST			
		ATS 1			
Customer		Site	Agreement Number		
American Electric		Lihue International Airport	ET22-121		
Date	Technician	Location	Equipment Tag ID		
3/21/2022	Brad Helminen	Lihue, HI	ATS 1		
Manufacturer		Model	Serial Number		
CAT		MX 250	TSC01892		
Test Equipment Used (Calibration Numbers)		Test Equipment Last Calibration Date	Test Equipment Last Calibration Date		
MEGGER MPRT 8430		Sep-21			

CATALOG NO. 2502265
WIRING NO. CFS
AMBIENT TEMP. 25 °C HUMIDITY: 66 % MICROPROCESSOR
INSTALLED OPTIONS

TYPE MX
SYSTEM VOLTAGE L-L 480
MICROPROCESSOR

DESCRIPTION	INSPECTED	CONDITION	CLEAN/LUBE
OVERALL CLEANLINESS	YES	GOOD	C/L
INSULATING MEMBERS	YES	GOOD	C/L
MECHANICAL CONNECTIONS	YES	GOOD	C/L
STRUCTURAL MEMBERS	YES	DIRTY	C/L
MAIN CONTACTS	YES	EXCELLENT	NA

DESCRIPTION	INSPECTED	CONDITION	CLEAN/LUBE
ARCING CHUTES	YES	DIRTY	С
OPERATING MECHANISM	YES	GOOD	C/L
CONTACT SEQUENCE	YES	GOOD	С
GROUND CONNECTION	YES	GOOD	С
AUXILIARY DEVICES	YES	GOOD	С

-	TIME DELAYS	<u> </u>	T	SPECIFIED)	AS FOUI	ND I	AS LEFT	1
OVERRIDE MOMENTARY		,			<u>, </u>				
FACTORY SET @	3	SEC		3 SEC		3.178		3.178	
TRANSFER TO EMERGEN	CY ADJUSTM	ENT		1 SEC		1.631		1.631	
FACTORY SET @	1 + 5	SEC		1020		1.001		1.001	
NO LOAD ENGINE COOL D				300 SEC		301.5 SE	EC	301.5 SEC	
FACTORY SET @	5 AL AD ILICTAI	MIN							
RE-TRANSFER TO NORMA	AL ADJUSTIVII	MIN		1800 SEC		1801.41 S	SEC	1801.41 SE	C
SENSOR SETTINGS	NOMINAL V			VOLTS & HZ	%	VOLTS & HZ	%	VOLTS & HZ	%
NORMAL SOURCE PICKUR		<u> </u>	PHASE A	432	90	433.5	90.31%	433.5	90.31%
ADJUSTMENT RANGE:			PHASE B	432	90	433.5	90.31%	433.5	90.31%
FACTORY SET @	90	%	PHASE C	432	90	433.5	90.31%	433.5	90.31%
NORMAL SOURCE DROPO	OUT VOLTAG		PHASE A	384	80	384.9	80.19%	384.9	80.19%
ADJUSTMENT RANGE:			PHASE B	384	80	384.9	80.19%	384.9	80.19%
FACTORY SET @	80	%	PHASE C	384	80	384.9	80.19%	384.9	80.19%
EMERGENCY SOURCE VO	DLTAGE		PICKUP	432	90	437.1	91.06%	437.1	91.06%
FACTORY SET @	80	%	DROPOUT	384	80	386.3	80.48%	386.3	80.48%
EMERGENCY SOURCE FR	REQUENCY		PICKUP	57	95	57.06	95.10%	57.06	95.10%
FACTORY SET @	90	%	DROPOUT	54	90	53.78	89.63%	53.78	89.63%

Contact Resistance Normal A = 69 B = 65 C = 71 Contact Resistance Emergency A = 88 B = 81 C = 86

Deficiencies: Several bulbs need to be replaced on the indicating panel of the door. This does not affect the operation of the switch.





		AUTOMATIC TRANSFER SWITCH TEST					
ATS 2							
Customer		Site	Agreement Number				
American Electric		Lihue International Airport	ET22-121				
Date	Technician	Location	Equipment Tag ID				
3/21/2022	Brad Helminen	Lihue, HI	ATS 2				
Manufacturer		Model	Serial Number				
CAT		MX 250	TSC01593				
Test Equipment Used (Cal	ibration Numbers)	Test Equipment Last Calibration Date					
MEGGER MPRT 8430		Sep-21					

CATALOG NO.	2502265				TYPE	MX	AMPACITY 1200 Amps
WIRING NO.	CFS			SYSTE	M VOLTAGE L-L	480	
AMBIENT TEMP.	25	°C	HUMIDITY:	66	%	MICROPROCESSOR	
INSTALLED OPTIONS							

DECODIDATION	INIOPEOTED	CONDITION	OLEAN/LUDE
DESCRIPTION	INSPECTED	CONDITION	CLEAN/LUBE
OVERALL CLEANLINESS	YES	GOOD	C/L
INSULATING MEMBERS	YES	GOOD	C/L
MECHANICAL CONNECTIONS	YES	GOOD	C/L
STRUCTURAL MEMBERS	YES	DIRTY	C/L
MAIN CONTACTS	YES	EXCELLENT	NA

DESCRIPTION	INSPECTED	CONDITION	CLEAN/LUBE
ARCING CHUTES	YES	DIRTY	С
OPERATING MECHANISM	YES	GOOD	C/L
CONTACT SEQUENCE	YES	GOOD	С
GROUND CONNECTION	YES	GOOD	С
AUXILIARY DEVICES	YES	GOOD	С

Ті	SPECIFIED)	AS FOL	JND	AS LEI	=T			
OVERRIDE MOMENTARY OU				3 SEC				3 SE(
FACTORY SET @	3	SEC		3 3 5 5 6		3 SE	C	3 350	,
TRANSFER TO EMERGENCY	' ADJUSTMEI	TV		1 SEC		1 SE	<u></u>	1 SE	`
FACTORY SET @	1	SEC		1 000		1 OL		I OLO	
NO LOAD ENGINE COOL DO	WN ADJUSTI	MENT		300 SEC		300 SI	=C	300 SE	C
FACTORY SET @	5	MIN				000 0.		000 02	
RE-TRANSFER TO NORMAL				600 SEC		600 SI	=C	600 SE	C
FACTORY SET @	10	MIN							
SENSOR SETTINGS		_ VOLTAGE:		VOLTS & HZ	%	VOLTS & HZ	%	VOLTS & HZ	%
NORMAL SOURCE PICKUP V	/OLTAGE		PHASE A	432	90	*	'*	*	'*
ADJUSTMENT RANGE:			PHASE B	432	90	*	'*	*	'*
FACTORY SET @	90	%	PHASE C	432	90	*	'*	*	'*
NORMAL SOURCE DROPOU	T VOLTAGE		PHASE A	384	80	*	'*	*	'*
ADJUSTMENT RANGE:			PHASE B	384	80	*	'*	*	'*
FACTORY SET @	80	%	PHASE C	384	80	*	'*	*	'*
EMERGENCY SOURCE VOLT	TAGE ADJUS	TMENT	PICKUP	432	90	*	'*	*	'*
FACTORY SET @	80	%	DROPOUT	384	80	*	'*	*	'*
EMERGENCY SOURCE FREC	QUENCY		PICKUP	57	95	*	'*	*	'*
FACTORY SET @	90	%	DROPOUT	54	90	*	'*	*	'*

•	
Comments:	

Deficiencies:

The ATS was functional tested by simulating an outage, but could not be fully tested as the automatic portion of the bypass-isolation switch will not rack out. Several bulbs need to be replaced on the indicating panel of the door. This does not affect the operation of the switch.





		AUTOMATIC TRANSFER SWITCH TEST							
ATS 4									
Customer		Site	Agreement Number						
American Electric		Lihue International Airport	ET22-121						
Date	Technician	Location	Equipment Tag ID						
1/26/2021	Brad Helminen	Lihue, HI	ATS 4						
Manufacturer		Model	Serial Number						
WESTINGHOUSE		ATC-600	52359						
Test Equipment Used (C	alibration Numbers)	Test Equipment Last Calibration Date							
MEGGER MPRT 8430		Sep-21							

CATALOG NO.	2D78589G50				TYPE	ATVSP		AMPACITY 3000 Amps
WIRING NO.	5724B09			SYSTE	M VOLTAGE L-L	480		<u> </u>
AMBIENT TEMP.	25	°C	HUMIDITY:	66	%	MICROPROCE	SSOR	
INSTALLED OPTIONS		_						

DESCRIPTION	INSPECTED	CONDITION	CLEAN/LUBE
OVERALL CLEANLINESS	YES	GOOD	C/L
INSULATING MEMBERS	YES	GOOD	C/L
MECHANICAL CONNECTIONS	YES	GOOD	C/L
STRUCTURAL MEMBERS	YES	DIRTY	C/L
MAIN CONTACTS	YES	EXCELLENT	NA
		_	

DESCRIPTION	INSPECTED	CONDITION	CLEAN/LUBE
ARCING CHUTES	YES	DIRTY	С
OPERATING MECHANISM	YES	GOOD	C/L
CONTACT SEQUENCE	YES	GOOD	С
GROUND CONNECTION	YES	GOOD	С
AUXILIARY DEVICES	YES	GOOD	С

TIME DELAYS				SPECIFIED		AS FOUND		AS LEFT	
OVERRIDE MOMENTARY OU	OVERRIDE MOMENTARY OUTAGES			3 SEC		3.21 9	SEC	2 24 850	
FACTORY SET @	3	SEC		3 350		3.21	SEC	3.21 SEC	
TRANSFER TO EMERGENCY	/ ADJUSTM	ENT		6 SEC		6.18 \$	SEC	6.18 SEC	
FACTORY SET @	1 + 5	SEC		0.3EC		0.10 3	BEC		
NO LOAD ENGINE COOL DOWN ADJUSTMENT				120 SEC		110.68	SEC	110 68 9	SEC
FACTORY SET @	FACTORY SET @ 2 MIN			120 SLC		119.68 SEC		119.68 SEC	
RE-TRANSFER TO NORMAL ADJUSTMENT				300 SEC		300.4 SEC		300.4 SEC	
FACTORY SET @	5	MIN		300 SEC		300.4	SLO	300.4 3	LC
SENSOR SETTINGS	NOMINAL	VOLTAGE:		VOLTS & HZ	%	VOLTS & HZ	%	VOLTS & HZ	%
NORMAL SOURCE PICKUP V	/OLTAGE		PHASE A	432	90	435.60	90.75%	435.6	90.75%
ADJUSTMENT RANGE:			PHASE B	432	90	435.60	90.75%	435.6	90.75%
FACTORY SET @	90	%	PHASE C	432	90	435.60	90.75%	435.6	90.75%
NORMAL SOURCE DROPOU	T VOLTAGE		PHASE A	384	80	389.50	81.15%	389.5	81.15%
ADJUSTMENT RANGE:			PHASE B	384	80	389.50	81.15%	389.5	81.15%
FACTORY SET @	80	%	PHASE C	384	80	389.50	81.15%	389.5	81.15%
EMERGENCY SOURCE VOLT	ΓAGE		PICKUP	432	90	435.1	90.65%	435.1	90.65%
FACTORY SET @	80	%	DROPOUT	384	80	387.3	80.69%	387.3	80.69%
EMERGENCY SOURCE FREG	QUENCY		PICKUP	57.6	95	57.58	95.97%	57.58	95.97%
FACTORY SET @	90	%	DROPOUT	56.4	90	56.42	94.03%	56.42	94.03%

Comments:	
Deficiencies:	





			AUTOMATIC TRA	NSFER SWITCH TEST	
			Maintenanc	e Baseyard ATS	
Customer			Site		Agreement Number
American Electric			Lihue I	nternational Airport	ET22-121
Date	Technician		Locatio	n	Equipment Tag ID
3/22/2022	Brad Helminen		Lihue,	HI	Maintenance Baseyard ATS
Manufacturer			Model		Serial Number
CAT			MX 150		TSA12651
Test Equipment Used (C	alibration Numbers)		Test Ed	uipment Last Calibration Date	
MEGGER MPRT 8430			Sep-21		
CATALOG NO.	1526846		T	PE MX	AMPACITY 400 Amps
WIRING NO.	CTG		SYSTEM VOLTAGE		
AMBIENT TEMP.	24 °C	HUMIDITY:	67 %	MICROPROCESSOR	
INSTALLED OPTIONS					
_	°C	HUMIDITY:	67 %	MICROPROCESSOR	

DESCRIPTION	INSPECTED	CONDITION	CLEAN/LUBE
OVERALL CLEANLINESS	YES	DIRTY	C/L
INSULATING MEMBERS	YES	DIRTY	C/L
MECHANICAL CONNECTIONS	YES	GOOD	C/L
STRUCTURAL MEMBERS	YES	DIRTY	C/L
MAIN CONTACTS	YES	EXCELLENT	NA

DESCRIPTION	INSPECTED	CONDITION	CLEAN/LUBE
ARCING CHUTES	YES	DIRTY	С
OPERATING MECHANISM	YES	GOOD	C/L
CONTACT SEQUENCE	YES	GOOD	С
GROUND CONNECTION	YES	GOOD	С
AUXILIARY DEVICES	YES	YES GOOD	
			<u> </u>

TIME DELAYS				SPECIFIED		AS FOUND		AS LEFT	
OVERRIDE MOMENTAR	Y OUTAGI	ES		5 SEC		5.200 SEC		E 200 CEC	
FACTORY SET @	3	SEC		5 SEC		5.200 3	DEC	5.200 SEC	
TRANSFER TO EMERGE	ENCY			1 SEC		1 262 6	CEC .	1.263 SEC	
FACTORY SET @	1	SEC		I SEC		1.263 S	DEC	1.203 36	
NO LOAD ENGINE COO	L DOWN			300 SEC		301.5 9	CEC .	301.5 SE	-
FACTORY SET @	5	MIN		300 SEC		301.33	BEC	301.3 35	
RE-TRANSFER TO NOR	MAL			900 SEC		900.0 \$	SEC.	900.0 SE	-
FACTORY SET @	15	MIN		900 SEC		900.0 3	BEC	900.0 35	
SENSOR SETTINGS	NOMINA	L VOLTAGE:		VOLTS & HZ	%	VOLTS & HZ	%	VOLTS & HZ	%
NORMAL SOURCE PICK	(UP VOLTA	AGE	PHASE A	432	90	434.5	90.52%	434.5	90.52%
ADJUSTMENT RANGE:			PHASE B	432	90	434.5	90.52%	434.5	90.52%
FACTORY SET @	90	%	PHASE C	432	90	434.5	90.52%	434.5	90.52%
NORMAL SOURCE DRO	POUT VO	LTAGE	PHASE A	384	80	386.1	80.44%	386.1	80.44%
ADJUSTMENT RANGE:			PHASE B	384	80	386.1	80.44%	386.1	80.44%
FACTORY SET @	80	%	PHASE C	384	80	386.1	80.44%	386.1	80.44%
EMERGENCY SOURCE	VOLTAGE		PICKUP	456	95	451.7	94.10%	451.7	94.10%
FACTORY SET @	85	%	DROPOUT	408	85	405.5	84.48%	405.5	84.48%
EMERGENCY SOURCE	FREQUEN	ICY	PICKUP	57	95	56.7	94.50%	56.7	94.50%
FACTORY SET @	90	%	DROPOUT	54	90	53.9	89.83%	53.9	89.83%

Comments:	Contact Resistance Normal A = 240	B = 285	C = 235	Contact Resistance Emergency A = 672	B = 528	C = 498
Deficiencies:						
Deliciencies.						





	AUTOMATIC TRANSFER SWITCH TEST								
	Control Tower (Airfield) ATS								
Customer		Site	Agreement Number						
American Electric		Lihue International Airport	ET22-121						
Date	Technician	Location	Equipment Tag ID						
3/23/2022	Jesse Helminen/Brad Helminen	Lihue, HI	Control Tower (Airfield) ATS						
Manufacturer		Model	Serial Number						
ASCO		7000 Series	134670						
Test Equipment Us	ed (Calibration Numbers)	Test Equipment Last Calibration Date							
MEGGER MPRT 8	430	Sep-21							

CATALOG NO.	E7ADTBA3260N5XC				TYPE	7000	AMPACITY 260 Amps
WIRING NO.	617427-015			SYSTE	M VOLTAGE L-L	480	····
AMBIENT TEMP.	20	°C	HUMIDITY:	41	%	MICROPROCESSOR	
INSTALLED OPTI		=					

DESCRIPTION	INSPECTED	CONDITION	CLEAN/LUBE
OVERALL CLEANLINESS	YES	GOOD	C/L
INSULATING MEMBERS	YES	GOOD	C/L
MECHANICAL CONNECTIONS	YES	GOOD	C/L
STRUCTURAL MEMBERS	YES	DIRTY	C/L
MAIN CONTACTS	YES	EXCELLENT	NA

DESCRIPTION	INSPECTED	CONDITION	CLEAN/LUBE
ARCING CHUTES	YES	DIRTY	С
DPERATING MECHANISM	YES	FAILED	C/L
CONTACT SEQUENCE	YES	POOR	С
GROUND CONNECTION	YES	GOOD	С
AUXILIARY DEVICES	YES	FAILED	С

TIME DE	SPECIFIED		AS FOUND		AS LEFT				
OVERRIDE MOMENTARY OUTAG	ES		2.000		0.404.050		2.104.850		
FACTORY SET @ 2	SEC		2 SEC		2.104 SEC		2.104 SEC		
TRANSFER TO EMERGENCY ADJ	USTMENT		0 SEC		0.020.850		0.028.8EC		
FACTORY SET @ 0	SEC		0.350		0.028 SEC		0.026 3	0.028 SEC	
NO LOAD ENGINE COOL DOWN			60 SEC		58.70 S	SEC	58.70 S	EC	
FACTORY SET @ 1	MIN		00 3LC		36.70 3	, LC	30.70 3		
RE-TRANSFER TO NORMAL ADJUSTMENT			1900 SEC		1799 SEC		1799 SEC		
FACTORY SET @ 30	FACTORY SET @ 30 MIN			1800 SEC		1799 320		1799 SEC	
SENSOR SETTINGS NOMINAL VOLTAGE:			VOLTS & HZ	%	VOLTS & HZ	%	VOLTS & HZ	%	
NORMAL SOURCE PICKUP VOLTA	\GE	PHASE A	432	90	434.8	90.58%	434.8	90.58%	
ADJUSTMENT RANGE:		PHASE B	432	90	434.8	90.58%	434.8	90.58%	
FACTORY SET @ 90	%	PHASE C	432	90	434.8	90.58%	434.8	90.58%	
NORMAL SOURCE DROPOUT VOI	_TAGE	PHASE A	408	85	409.1	85.23%	409.1	85.23%	
ADJUSTMENT RANGE:		PHASE B	408	85	409.1	85.23%	409.1	85.23%	
FACTORY SET @ 80	%	PHASE C	408	85	409.1	85.23%	409.1	85.23%	
EMERGENCY SOURCE VOLTAGE PIC		PICKUP	432	90	434.8	90.58%	434.8	90.58%	
FACTORY SET @ 85	%	DROPOUT	360	75	360.4	75.08%	360.4	75.08%	
EMERGENCY SOURCE FREQUEN	CY	PICKUP	57	95	57.000	95.00%	57	95.00%	
FACTORY SET @ 90	%	DROPOUT	54	90	54.000	90.00%	54	90.00%	

Comments:

The controller was able to be tested, but the mechanical switch has failed on this unit.

Deficiencies:

During bypass operation to test this switch, the operating mechanism failed. The bypass mechanism of the switch cannot be inserted back into the main contacts without repairs or replacement. The manufacture date on this switch is 02/2001 and due to the age and corrosion in the unit we recommend replacement with a modern switch. One of the (2) transfer coils has failed on this unit also.





	AUTOMATIC TRANSFER SWITCH TEST								
	ARFF ATS								
Customer		Site	Agreement Number						
American Electric		Lihue International Airport	ET22-121						
Date	Technician	Location	Equipment Tag ID						
3/22/2022	Brad Helminen	Lihue, HI	ARFF ATS						
Manufacturer		Model	Serial Number						
ASCO		Group 7 Series 940 962	693253004						
Test Equipment Used (Calibration Numbers)		Test Equipment Last Calibration Date							
MEGGER MPRT 8430		Sep-21							

CATALOG NO.	E7623600471C				TYPE	ASCO	AMPACITY 600	Amps	
WIRING NO.	459666-002H			SYSTEM V	OLTAGE L-L	208		<u> </u>	
AMBIENT TEMP.	20	$^{\circ}$ C	HUMIDITY:	80	% <u>N</u>	MICROPROCESSOR			
INSTALLED OPT									

DESCRIPTION	INSPECTED	CONDITION	CLEAN/LUBE
OVERALL CLEANLINESS	YES	DIRTY/CORRODED	C/L
INSULATING MEMBERS	YES	DIRTY/CORRODED	C/L
MECHANICAL CONNECTIONS	YES	DIRTY/CORRODED	C/L
STRUCTURAL MEMBERS	YES	DIRTY	C/L
MAIN CONTACTS	YES	GOOD	NA

DESCRIPTION	INSPECTED	CONDITION	CLEAN/LUBE
ARCING CHUTES	YES	DIRTY	С
OPERATING MECHANISM	YES	DIRTY/CORRODED	C/L
CONTACT SEQUENCE	YES	DIRTY/CORRODED	С
GROUND CONNECTION	YES	GOOD	С
AUXILIARY DEVICES	YES	DEFECTIVE NON WORKING	С

TIME DELAYS	SPECIFIED		AS FOUND		AS LEFT			
OVERRIDE MOMENTARY OUTAGES		3 SEC		NA		NA		
FACTORY SET @ 3 SEC	FACTORY SET @ 3 SEC		3 350		IVA		INA	
TRANSFER TO EMERGENCY		0 SEC		NA		NA		
FACTORY SET @ 0 SEC		0 020		147 (14/ (
NO LOAD ENGINE COOL DOWN		300 SEC		NA	NΔ		NA	
FACTORY SET @ 5 MIN		000 020		147 (14/ (
RE-TRANSFER TO NORMAL		300 SEC		NA		NA		
FACTORY SET @ 5 MIN								
SENSOR SETTINGS NOMINAL VOLTAGE:		VOLTS & HZ	%	VOLTS & HZ	%	VOLTS & HZ	%	
NORMAL SOURCE PICKUP VOLTAGE	PHASE A	187.2	90	0	0.00%	0	0.00%	
ADJUSTMENT RANGE:	PHASE B	187.2	90	0	0.00%	0	0.00%	
FACTORY SET @ 90 %	PHASE C	187.2	90	0	0.00%	0	0.00%	
NORMAL SOURCE DROPOUT VOLTAGE	PHASE A	166.4	80	0	0.00%	0	0.00%	
ADJUSTMENT RANGE:	PHASE B	166.4	80	0	0.00%	0	0.00%	
FACTORY SET @ 80 %	PHASE C	166.4	80	0	0.00%	0	0.00%	
EMERGENCY SOURCE VOLTAGE	PICKUP	187.2	90	0	0.00%	0	0.00%	
FACTORY SET @ 80 %	DROPOUT	166.4	80	0	0.00%	0	0.00%	
EMERGENCY SOURCE FREQUENCY	PICKUP	57	95	0	0.00%	0	0.00%	
FACTORY SET @ 90 %	DROPOUT	51	85	0	0.00%	0	0.00%	

Comments:

Deficiencies:

 $Adobe\ Acrobat\ Sign\ Transaction\ Number:\ CBJCHBCAABAAVCMzSsTI1kkgaoBeymKYTm0Z3Zzli95B$

THIS SWITCH DOES NOT OPERATE MECHANICALLY OR ELECTRICALLY AND WILL NEED TO BE REPLACED. THE BYPASS MECHANISM IS INOPERABLE SO TESTING CANNOT BE COMPLETED.

AIR-EM 22.0325 BK1321-53 Addendum No. 1 (Rev. 1)

Final Audit Report 2022-10-05

Created: 2022-10-04

By: Tiffany Kapoi (tiffany.i.kapoi@hawaii.gov)

Status: Signed

Transaction ID: CBJCHBCAABAAVCMzSsTl1kkgaoBeymKYTm0Z3Zzli95B

"AIR-EM 22.0325 BK1321-53 Addendum No. 1 (Rev. 1)" History

- Document created by Tiffany Kapoi (tiffany.i.kapoi@hawaii.gov) 2022-10-04 0:33:45 AM GMT
- Document emailed to Benton Ho (benton.ho@hawaii.gov) for approval 2022-10-04 0:40:13 AM GMT
- Email viewed by Benton Ho (benton.ho@hawaii.gov) 2022-10-04 7:50:57 PM GMT
- Document approved by Benton Ho (benton.ho@hawaii.gov)

 Approval Date: 2022-10-04 7:51:06 PM GMT Time Source: server
- Document emailed to AIR-E eSign (DOTA) (dot.air.esign.air-e@hawaii.gov) for approval 2022-10-04 7:51:11 PM GMT
- Email viewed by AIR-E eSign (DOTA) (dot.air.esign.air-e@hawaii.gov) 2022-10-04 9:08:38 PM GMT
- Document approval delegated to Brenda Strimpfel (brenda.strimpfel@hawaii.gov) by AIR-E eSign (DOTA) (dot.air.esign.air-e@hawaii.gov)

2022-10-04 - 9:08:46 PM GMT

- Document emailed to Brenda Strimpfel (brenda.strimpfel@hawaii.gov) for approval 2022-10-04 9:08:46 PM GMT
- Email viewed by Brenda Strimpfel (brenda.strimpfel@hawaii.gov) 2022-10-04 9:28:22 PM GMT
- Document approval delegated to Sandra Kam (sandra.j.kam@hawaii.gov) by Brenda Strimpfel (brenda.strimpfel@hawaii.gov)

2022-10-04 - 9:29:36 PM GMT



Document emailed to Sandra Kam (sandra.j.kam@hawaii.gov) for approval 2022-10-04 - 9:29:36 PM GMT

Email viewed by Sandra Kam (sandra.j.kam@hawaii.gov) 2022-10-04 - 11:49:35 PM GMT

of Document approved by Sandra Kam (sandra.j.kam@hawaii.gov)

Approval Date: 2022-10-04 - 11:52:40 PM GMT - Time Source: server

Document emailed to dot.admin.dep-s_esign@hawaii.gov for approval 2022-10-04 - 11:52:41 PM GMT

Email viewed by dot.admin.dep-s_esign@hawaii.gov 2022-10-05 - 0:09:52 AM GMT

Document approval delegated to Deborah Kuwaye (deborah.k.kuwaye@hawaii.gov) by dot.admin.dep-s_esign@hawaii.gov

2022-10-05 - 0:10:02 AM GMT

Document approval delegated to dot.admin.dir_esign@hawaii.gov by Deborah Kuwaye (deborah.k.kuwaye@hawaii.gov)

2022-10-05 - 0:11:03 AM GMT

Document emailed to Deborah Kuwaye (deborah.k.kuwaye@hawaii.gov) for approval 2022-10-05 - 0:11:04 AM GMT

Document emailed to dot.admin.dir_esign@hawaii.gov for approval 2022-10-05 - 0:11:04 AM GMT

Email viewed by dot.admin.dir_esign@hawaii.gov 2022-10-05 - 1:05:44 AM GMT

Document approval delegated to Leslie Ah Sam (leslie.ahsam@hawaii.gov) by dot.admin.dir_esign@hawaii.gov 2022-10-05 - 1:05:47 AM GMT

Document approval delegated to Grace Ichikawa (grace.ichikawa@hawaii.gov) by Leslie Ah Sam (leslie.ahsam@hawaii.gov)

2022-10-05 - 1:05:59 AM GMT

Document emailed to Leslie Ah Sam (leslie.ahsam@hawaii.gov) for approval 2022-10-05 - 1:05:59 AM GMT

Document emailed to Grace Ichikawa (grace.ichikawa@hawaii.gov) for approval 2022-10-05 - 1:05:59 AM GMT

Email viewed by Grace Ichikawa (grace.ichikawa@hawaii.gov) 2022-10-05 - 1:08:05 AM GMT



Document approval delegated to Jade Butay (jade.butay@hawaii.gov) by Grace Ichikawa (grace.ichikawa@hawaii.gov)

2022-10-05 - 1:08:19 AM GMT

Document emailed to Jade Butay (jade.butay@hawaii.gov) for approval

2022-10-05 - 1:08:20 AM GMT

Email viewed by Jade Butay (jade.butay@hawaii.gov)

2022-10-05 - 1:08:34 AM GMT

Document approved by Jade Butay (jade.butay@hawaii.gov)

Approval Date: 2022-10-05 - 1:08:44 AM GMT - Time Source: server

Document emailed to dot.admin.dir_esign@hawaii.gov for signature 2022-10-05 - 1:08:45 AM GMT

웝 Email viewed by dot.admin.dir_esign@hawaii.gov

2022-10-05 - 2:00:54 AM GMT

- Document signing delegated to Leslie Ah Sam (leslie.ahsam@hawaii.gov) by dot.admin.dir_esign@hawaii.gov 2022-10-05 2:00:57 AM GMT
- Document signing delegated to Grace Ichikawa (grace.ichikawa@hawaii.gov) by Leslie Ah Sam (leslie.ahsam@hawaii.gov)

2022-10-05 - 2:01:04 AM GMT

Document emailed to Grace Ichikawa (grace.ichikawa@hawaii.gov) for signature 2022-10-05 - 2:01:05 AM GMT

Document emailed to Leslie Ah Sam (leslie.ahsam@hawaii.gov) for signature

2022-10-05 - 2:01:05 AM GMT

Email viewed by Grace Ichikawa (grace.ichikawa@hawaii.gov)

2022-10-05 - 2:35:15 AM GMT

Document signing delegated to Jade Butay (jade.butay@hawaii.gov) by Grace Ichikawa (grace.ichikawa@hawaii.gov)

2022-10-05 - 2:35:22 AM GMT

Document emailed to Jade Butay (jade.butay@hawaii.gov) for signature

2022-10-05 - 2:35:22 AM GMT

Email viewed by Jade Butay (jade.butay@hawaii.gov)

2022-10-05 - 3:07:01 AM GMT

Document e-signed by Jade Butay (jade.butay@hawaii.gov)

Signature Date: 2022-10-05 - 3:07:23 AM GMT - Time Source: server



Agreement completed. 2022-10-05 - 3:07:23 AM GMT

