

SERVICE REPORT

Rungtiva Biomass Company Limited



FIELD INSPECTION AND TEST RECORD

PREVENTIVE MAINTENANCE

DANFOSS INVERTER & SOFT STARTER



BLACKBOX AUTOMATION CO.,LTD (HEAD OFFICE)

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NO	Equipment	Procedure & Result / Problem	Status	Comment
9	DANFOSS MCD500 280KW Tag No. : BFP-01	1.Visual inspection of components 2.Checking of connections and tightening - Power cable input, output of Soft Start - Control terminal of Soft Start - Magnetic Modules - Control terminals 3.Measurment the ohm of Soft Start	OK OK OK OK OK OK OK	
10	DANFOSS MCD500 280KW Tag No. : BFP-02	1.Visual inspection of components 2.Checking of connections and tightening - Power cable input, output of Soft Start - Control terminal of Soft Start - Magnetic Modules - Control terminals 3.Measurment the ohm of Soft Start	OK OK OK OK OK OK OK	
11	DANFOSS MCD500 132KW Tag No. : MCP-7001	1.Visual inspection of components 2.Checking of connections and tightening - Power cable input, output of Soft Start - Control terminal of Soft Start - Magnetic Modules - Control terminals 3.Measurment the ohm of Soft Start	OK OK OK OK OK OK OK	
12	DANFOSS MCD500 132KW Tag No. : MCP-7002	1.Visual inspection of components 2.Checking of connections and tightening - Power cable input, output of Soft Start - Control terminal of Soft Start - Magnetic Modules - Control terminals 3.Measurment the ohm of Soft Start	OK OK OK OK OK OK OK	

NO	Equipment	Procedure & Result / Problem	Status	Comment
13	DANFOSS MCD500 132KW Tag No. : MCP-7003	1.Visual inspection of components	OK	
		2.Checking of connections and tightening	OK	
		- Power cable input, output of Soft Start	OK	
		- Control terminal of Soft Start	OK	
		- Magnetic Modules	OK	
		- Control terminals	OK	
		3.Meurment the ohm of Soft Start	OK	



FIELD INSPECTION AND TEST RECORD

BLACKBOX AUTOMATION CO.,LTD

Customer : บริษัท รุ่งทิวา ไซโอแมส จำกัด
Location : 47/10 หมู่ที่ 2 ตำบลสะบ้าย้อย อำเภอสบ้าย้อย จังหวัดสงขลา 90210
Panel Name : GDU-2001 (VIBRATING GRATE DRIVING MOTOR NO.1)

REPORT PM INVERTER

Brand :	DANFOSS
Model :	FC-360H22KT4AE20H2BXCDXXSXXXXXAXBX
S/N :	672202A260
Equipment Tag :	GDU-2001 (VIBRATING GRATE DRIVING MOTOR NO.1)
Location :	EE ROOM
Software version :	-
Input filter type :	-
Output filter type :	-
Ambient temp :	Ambient temp of VFD room 23-25 °C

1. Without Voltage Condition

1.1 Visual inspection of components

Pass	Fail	Remark
☒	☐	

1.2 Checking of connections and tightenings

- Power input terminal
- Motor Cable
- DC Bus terminal
- Power capacitor terminal
- IGBT terminal
- I/O terminal
- Connection cable inside

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1.3 Inspection of fan control board and Ventilation fans

1.4 Inspection of Connection cable inside

1.5 Inspection of control board

1.6 Inspection of power board

1.7 Measure the ohm value of Inverter

Measure the ohm value between terminal input and output of inverter

Terminal Inverter	Terminal Inverter	Ohm Value
R	S	OL
S	T	OL
T	R	OL
U	V	OL
V	W	OL
W	U	OL

☒
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Customer :		Maintenance :
Signature :		Service Engineering : Mr.Pariya Songkroh
		Service date : 24-26/06/25



FIELD INSPECTION AND TEST RECORD

BLACKBOX AUTOMATION CO.,LTD

Customer : บริษัท รุ่งทิวา ไบโอมเมส จำกัด
 Location : 47/10 หมู่ที่ 2 ตำบลสะบ้าย้อย อำเภอสบ้าย้อย จังหวัดสงขลา 90210
 Panel Name : GDU-2001 (VIBRATING GRATE DRIVING MOTOR NO.1)

REPORT PM INVERTER

Measure the ohm value between PE (ground) and Terminal input / output of VSD

PE and Terminal	Ohm Value	PE and Cable	Ohm Value
PE-R	OL	PE-R	OL
PE-S	OL	PE-S	OL
PE-T	OL	PE-T	OL
PE-U	OL	PE-U	OL
PE-V	OL	PE-V	OL
PE-W	OL	PE-W	OL

✓
✓
✓
✓
✓
✓

Measure the diode value between PE (ground) and Terminal input / output of VSD

PA+ and Terminal	Vdc value		PA+ and Terminal	Vdc value	
PA+(+)			PA+(-)		
Terminal of VSD(-)	(1-OL)		Terminal of VSD(+)	0.320V+/-	
PA-R	OL	✓	PA-R	0.476	✓
PA-S	OL	✓	PA-S	0.476	✓
PA-T	OL	✓	PA-T	0.475	✓
		(1-OL)			0.320V+/-
PA-U	OL	✓	PA-U	0.391	✓
PA-V	OL	✓	PA-V	0.391	✓
PA-W	OL	✓	PA-W	0.391	✓

Measure the diode value between PE (ground) and Terminal input / output of VSD

PA+ and Terminal	Vdc value		PA+ and Terminal	Vdc value	
PC-(-)			PC-(+)		
Terminal of VSD(+)	(1-OL)		Terminal of VSD(-)	0.320V+/-	
PC-R	OL	✓	PC-R	0.476	✓
PC-S	OL	✓	PC-S	0.476	✓
PC-T	OL	✓	PC-T	0.477	✓
		(1-OL)			0.320V+/-
PC-U	OL	✓	PC-U	0.391	✓
PC-V	OL	✓	PC-V	0.390	✓
PC-W	OL	✓	PC-W	0.391	✓

Note : OL " Over the scale of measurd equipment (>60 MΩ)

Customer :		Maintenance :	
Signature :		Service Engineering : Mr.Pariya Songkroh	
		Service date : 24-26/06/25	



FIELD INSPECTION AND TEST RECORD

BLACKBOX AUTOMATION CO.,LTD

Customer : บริษัท รุ่งทิวา ไปโอแมส จำกัด
Location : 47/10 หมู่ที่ 2 ตำบลสะบ้าย้อย อำเภอสะบ้าย้อย จังหวัดสงขลา 90210
Panel Name : GDU-2001 (VIBRATING GRATE DRIVING MOTOR NO.1)

REPORT PM INVERTER

2.With Voltage Condition

Pass

2.1 Measure DC Bus value559..... Vdc (537-679 Vdc)

✓

DC Bus discharge time-..... Second (≥ 900 Second)

-

2.2 Checking on running condition

✓

2.3 Checking of auxiliary power supply

✓

2.4 Inspection of air flow and notice for any unordinary sound

✓

2.5 Checking of parameters setting and back up of parameters setting

✓

2.6 Checking of fault logger

2.7 Monitoring of Speed ,Current ,Torque and Temperature



Comment :

Customer :		Maintenance :
Signature :		Service Engineering : Mr.Pariya Songkroh
		Service date : 24-26/06/25



FIELD INSPECTION AND TEST RECORD

BLACKBOX AUTOMATION CO.,LTD

Customer : บริษัท รุ่งทิวา ไซโอแมส จำกัด
 Location : 47/10 หมู่ที่ 2 ตำบลสะบ้าย้อย อำเภอสบ้าย้อย จังหวัดสงขลา 90210
 Panel Name : SAF (SECONDARY AIR FAN)

REPORT PM INVERTER

Brand :	DANFOSS
Model :	FC-360Q45KT4E20H2XXCDXXSXXXXAXBX
S/N :	155202A529
Equipment Tag :	SAF (SECONDARY AIR FAN)
Location :	EE ROOM
Software version :	-
Input filter type :	-
Output filter type :	-
Ambient temp :	Ambient temp of VFD room 22-23 °C

1. Without Voltage Condition

1.1 Visual inspection of components

Pass	Fail	Remark
☒	☐	

1.2 Checking of connections and tightenings

- Power input terminal
- Motor Cable
- DC Bus terminal
- Power capacitor terminal
- IGBT terminal
- I/O terminal
- Connection cable inside

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1.3 Inspection of fan control board and Ventilation fans

1.4 Inspection of Connection cable inside

1.5 Inspection of control board

1.6 Inspection of power board

1.7 Measure the ohm value of Inverter

Measure the ohm value between terminal input and output of inverter

Terminal Inverter	Terminal Inverter	Ohm Value
R	S	OL
S	T	OL
T	R	OL
U	V	OL
V	W	OL
W	U	OL

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Customer :		Maintenance :
Signature :		Service Engineering : Mr.Pariya Songkroh
		Service date : 24-26/06/25



FIELD INSPECTION AND TEST RECORD

BLACKBOX AUTOMATION CO.,LTD

Customer : บริษัท รุ่งทิวา ไปโอแมส จำกัด

Location : 47/10 หมู่ที่ 2 ตำบลสะบ้าย้อย อำเภอสบ้าย้อย จังหวัดสงขลา 90210

Panel Name : SAF (SECONDARY AIR FAN)

REPORT PM INVERTER

Measure the ohm value between PE (ground) and Terminal input / output of VSD

PE and Terminal	Ohm Value	PE and Cable	Ohm Value
PE-R	OL	PE-R	OL
PE-S	OL	PE-S	OL
PE-T	OL	PE-T	OL
PE-U	OL	PE-U	OL
PE-V	OL	PE-V	OL
PE-W	OL	PE-W	OL

✓
✓
✓
✓
✓
✓

Measure the diode value between PE (ground) and Terminal input / output of VSD

PA+ and Terminal	Vdc value		PA+ and Terminal	Vdc value	
PA+(+)			PA+(-)		
Terminal of VSD(-)	(1-OL)		Terminal of VSD(+)	0.320V+/-	
PA-R	OL	✓	PA-R	0.445	✓
PA-S	OL	✓	PA-S	0.447	✓
PA-T	OL	✓	PA-T	0.448	✓
		(1-OL)			0.320V+/-
PA-U	OL	✓	PA-U	0.342	✓
PA-V	OL	✓	PA-V	0.342	✓
PA-W	OL	✓	PA-W	0.342	✓

Measure the diode value between PE (ground) and Terminal input / output of VSD

PA+ and Terminal	Vdc value		PA+ and Terminal	Vdc value	
PC(-)			PC(+)		
Terminal of VSD(+)	(1-OL)		Terminal of VSD(-)	0.320V+/-	
PC-R	OL	✓	PC-R	0.446	✓
PC-S	OL	✓	PC-S	0.448	✓
PC-T	OL	✓	PC-T	0.448	✓
		(1-OL)			0.320V+/-
PC-U	OL	✓	PC-U	0.343	✓
PC-V	OL	✓	PC-V	0.342	✓
PC-W	OL	✓	PC-W	0.342	✓

Note : OL " Over the scale of measurd equipment (>60 MΩ)

Customer :		Maintenance :	
Signature :		Service Engineering : Mr.Pariya Songkroh	
		Service date : 24-26/06/25	



FIELD INSPECTION AND TEST RECORD

BLACKBOX AUTOMATION CO.,LTD

Customer : บริษัท รุ่งทิวา ไปโอแมส จำกัด
 Location : 47/10 หมู่ที่ 2 ตำบลสะบ้าย้อย อำเภอสะบ้าย้อย จังหวัดสงขลา 90210
 Panel Name : SAF (SECONDARY AIR FAN)

REPORT PM INVERTER

2.With Voltage Condition

Pass

2.1 Measure DC Bus value569..... Vdc (537-679 Vdc)

✓

DC Bus discharge time-..... Second (≥ 900 Second)

-

2.2 Checking on running condition

✓

2.3 Checking of auxiliary power supply

✓

2.4 Inspection of air flow and notice for any unordinary sound

✓

2.5 Checking of parameters setting and back up of parameters setting

✓

2.6 Checking of fault logger

2.7 Monitoring of Speed ,Current ,Torque and Temperature



Comment :

Customer :		Maintenance :	
Signature :		Service Engineering : Mr.Pariya Songkroh	
		Service date : 24-26/06/25	



FIELD INSPECTION AND TEST RECORD

BLACKBOX AUTOMATION CO.,LTD

Customer : บริษัท รุ่งทิวา ไซโอแมส จำกัด
Location : 47/10 หมู่ที่ 2 ตำบลสะบ้าย้อย อำเภอสบ้าย้อย จังหวัดสงขลา 90210
Panel Name : FSF-2001 (FUEL SCREW FEEDER NO.1)

REPORT PM INVERTER

Brand :	DANFOSS
Model :	FC-360H4K0T4E20H2BXCDXXSXXXXXAXBX
S/N :	861602A010
Equipment Tag :	FSF-2001 (FUEL SCREW FEEDER NO.1)
Location :	EE ROOM
Software version :	-
Input filter type :	-
Output filter type :	-
Ambient temp :	Ambient temp of VFD room 22-25 °C

1. Without Voltage Condition

1.1 Visual inspection of components

Pass

Fail

Remark

☒ ☐

1.2 Checking of connections and tightenings

- Power input terminal

☒ ☐

- Motor Cable

☒ ☐

- DC Bus terminal

☒ ☐

- Power capacitor terminal

☒ ☐

- IGBT terminal

☒ ☐

- I/O terminal

☒ ☐

- Connection cable inside

☒ ☐

1.3 Inspection of fan control board and Ventilation fans

☒ ☐

1.4 Inspection of Connection cable inside

☒ ☐

1.5 Inspection of control board

☒ ☐

1.6 Inspection of power board

☒ ☐

1.7 Measure the ohm value of Inverter

Measure the ohm value between terminal input and output of inverter

Terminal Inverter	Terminal Inverter	Ohm Value
R	S	OL
S	T	OL
T	R	OL
U	V	OL
V	W	OL
W	U	OL

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Customer :		Maintenance :
Signature :		Service Engineering : Mr.Pariya Songkroh
		Service date : 24-26/06/25



FIELD INSPECTION AND TEST RECORD

BLACKBOX AUTOMATION CO.,LTD

Customer : บริษัท รุ่งทิวา ไซโอแมส จำกัด
 Location : 47/10 หมู่ที่ 2 ตำบลสะบ้าย้อย อำเภอสบ้าย้อย จังหวัดสงขลา 90210
 Panel Name : FSF-2001 (FUEL SCREW FEEDER NO.1)

REPORT PM INVERTER

Measure the ohm value between PE (ground) and Terminal input / output of VSD

PE and Terminal	Ohm Value	PE and Cable	Ohm Value
PE-R	OL	PE-R	OL
PE-S	OL	PE-S	OL
PE-T	OL	PE-T	OL
PE-U	OL	PE-U	OL
PE-V	OL	PE-V	OL
PE-W	OL	PE-W	OL

✓
✓
✓
✓
✓
✓

Measure the diode value between PE (ground) and Terminal input / output of VSD

PA+ and Terminal	Vdc value		PA+ and Terminal	Vdc value	
PA+(+)			PA+(-)		
Terminal of VSD(-)	(1-OL)		Terminal of VSD(+)	0.320V+/-	
PA-R	OL	✓	PA-R	0.516	✓
PA-S	OL	✓	PA-S	0.515	✓
PA-T	OL	✓	PA-T	0.516	✓
		(1-OL)			0.320V+/-
PA-U	OL	✓	PA-U	0.433	✓
PA-V	OL	✓	PA-V	0.433	✓
PA-W	OL	✓	PA-W	0.433	✓

Measure the diode value between PE (ground) and Terminal input / output of VSD

PA+ and Terminal	Vdc value		PA+ and Terminal	Vdc value	
PC-(-)			PC-(+)		
Terminal of VSD(+)	(1-OL)		Terminal of VSD(-)	0.320V+/-	
PC-R	OL	✓	PC-R	0.520	✓
PC-S	OL	✓	PC-S	0.516	✓
PC-T	OL	✓	PC-T	0.516	✓
		(1-OL)			0.320V+/-
PC-U	OL	✓	PC-U	0.433	✓
PC-V	OL	✓	PC-V	0.433	✓
PC-W	OL	✓	PC-W	0.433	✓

Note : OL " Over the scale of measurd equipment (>60 MΩ)

Customer :		Maintenance :	
Signature :		Service Engineering : Mr.Pariya Songkroh	
		Service date : 24-26/06/25	



FIELD INSPECTION AND TEST RECORD

BLACKBOX AUTOMATION CO.,LTD

Customer : บริษัท รุ่งทิวา ไปโอแมส จำกัด
Location : 47/10 หมู่ที่ 2 ตำบลสะบ้าย้อย อำเภอสะบ้าย้อย จังหวัดสงขลา 90210
Panel Name : FSF-2001 (FUEL SCREW FEEDER NO.1)

REPORT PM INVERTER

2. With Voltage Condition

Pass

2.1 Measure DC Bus value563..... Vdc (537-679 Vdc)

✓

DC Bus discharge time-..... Second (≥ 900 Second)

-

2.2 Checking on running condition

✓

2.3 Checking of auxiliary power supply

✓

2.4 Inspection of air flow and notice for any unordinary sound

✓

2.5 Checking of parameters setting and back up of parameters setting

✓

2.6 Checking of fault logger

2.7 Monitoring of Speed ,Current ,Torque and Temperature



Comment :

Customer :		Maintenance :	
Signature :		Service Engineering : Mr.Pariya Songkroh	
		Service date : 24-26/06/25	



FIELD INSPECTION AND TEST RECORD

BLACKBOX AUTOMATION CO.,LTD

Customer : บริษัท รุ่งทิวา ไซโอแมส จำกัด
Location : 47/10 หมู่ที่ 2 ตำบลสะพานชัย อำเภอสบบ้าย้อย จังหวัดสงขลา 90210
Panel Name : FSF-2002 (FUEL SCREW FEEDER NO.2)

REPORT PM INVERTER

Brand :	DANFOSS
Model :	FC-360H4K0T4E20H2BXCDXXSXXXXXAXBX
S/N :	861702A010
Equipment Tag :	FSF-2002 (FUEL SCREW FEEDER NO.2)
Location :	EE ROOM
Software version :	-
Input filter type :	-
Output filter type :	-
Ambient temp :	Ambient temp of VFD room 23-25 °C

1. Without Voltage Condition

1.1 Visual inspection of components

Pass	Fail	Remark
☒	☐	

1.2 Checking of connections and tightenings

- Power input terminal
- Motor Cable
- DC Bus terminal
- Power capacitor terminal
- IGBT terminal
- I/O terminal
- Connection cable inside

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☒	☐	
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☒	☐	
☒	☐	
☒	☐	
☒	☐	
☒	☐	

1.3 Inspection of fan control board and Ventilation fans

1.4 Inspection of Connection cable inside

1.5 Inspection of control board

1.6 Inspection of power board

1.7 Measure the ohm value of Inverter

Measure the ohm value between terminal input and output of inverter

Terminal Inverter	Terminal Inverter	Ohm Value
R	S	OL
S	T	OL
T	R	OL
U	V	OL
V	W	OL
W	U	OL

☒
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Customer :		Maintenance :
Signature :		Service Engineering : Mr.Pariya Songkroh
		Service date : 24-26/06/25



FIELD INSPECTION AND TEST RECORD

BLACKBOX AUTOMATION CO.,LTD

Customer : บริษัท รุ่งทิวา ไซโอแมส จำกัด
 Location : 47/10 หมู่ที่ 2 ตำบลสะบ้าย้อย อำเภอสบ้าย้อย จังหวัดสงขลา 90210
 Panel Name : FSF-2002 (FUEL SCREW FEEDER NO.2)

REPORT PM INVERTER

Measure the ohm value between PE (ground) and Terminal input / output of VSD

PE and Terminal	Ohm Value	PE and Cable	Ohm Value
PE-R	OL	PE-R	OL
PE-S	OL	PE-S	OL
PE-T	OL	PE-T	OL
PE-U	OL	PE-U	OL
PE-V	OL	PE-V	OL
PE-W	OL	PE-W	OL

✓
✓
✓
✓
✓
✓

Measure the diode value between PE (ground) and Terminal input / output of VSD

PA+ and Terminal	Vdc value		PA+ and Terminal	Vdc value	
PA+(+)			PA+(-)		
Terminal of VSD(-)	(1-OL)		Terminal of VSD(+)	0.320V+/-	
PA-R	OL	✓	PA-R	0.515	✓
PA-S	OL	✓	PA-S	0.515	✓
PA-T	OL	✓	PA-T	0.516	✓
		(1-OL)			0.320V+/-
PA-U	OL	✓	PA-U	0.436	✓
PA-V	OL	✓	PA-V	0.435	✓
PA-W	OL	✓	PA-W	0.434	✓

Measure the diode value between PE (ground) and Terminal input / output of VSD

PA+ and Terminal	Vdc value		PA+ and Terminal	Vdc value	
PC(-)			PC(+)		
Terminal of VSD(+)	(1-OL)		Terminal of VSD(-)	0.320V+/-	
PC-R	OL	✓	PC-R	0.515	✓
PC-S	OL	✓	PC-S	0.515	✓
PC-T	OL	✓	PC-T	0.516	✓
		(1-OL)			0.320V+/-
PC-U	OL	✓	PC-U	0.435	✓
PC-V	OL	✓	PC-V	0.436	✓
PC-W	OL	✓	PC-W	0.434	✓

Note : OL " Over the scale of measurd equipment (>60 MΩ)

Customer :		Maintenance :	
Signature :		Service Engineering : Mr.Pariya Songkroh	
		Service date : 24-26/06/25	



FIELD INSPECTION AND TEST RECORD

BLACKBOX AUTOMATION CO.,LTD

Customer : บริษัท รุ่งทิวา ไปโอแมส จำกัด
 Location : 47/10 หมู่ที่ 2 ตำบลสะบ้าย้อย อำเภอสะบ้าย้อย จังหวัดสงขลา 90210
 Panel Name : FSF-2002 (FUEL SCREW FEEDER NO.2)

REPORT PM INVERTER

2.With Voltage Condition

Pass

2.1 Measure DC Bus value567..... Vdc (537-679 Vdc)

✓

DC Bus discharge time-..... Second (≥ 900 Second)

-

2.2 Checking on running condition

✓

2.3 Checking of auxiliary power supply

✓

2.4 Inspection of air flow and notice for any unordinary sound

✓

2.5 Checking of parameters setting and back up of parameters setting

✓

2.6 Checking of fault logger

2.7 Monitoring of Speed ,Current ,Torque and Temperature



Comment :

Customer :		Maintenance :	
Signature :		Service Engineering : Mr.Pariya Songkroh	
		Service date : 24-26/06/25	



FIELD INSPECTION AND TEST RECORD

BLACKBOX AUTOMATION CO.,LTD

Customer : บริษัท รุ่งทิวา ไซโอแมส จำกัด
Location : 47/10 หมู่ที่ 2 ตำบลสะบ้าย้อย อำเภอสบ้าย้อย จังหวัดสงขลา 90210
Panel Name : SPF-2001 (SPREADER FAN)

REPORT PM INVERTER

Brand :	DANFOSS
Model :	FC-360Q11KT4E20H2BXCDXXSXXXXXAXBX
S/N :	366002A519
Equipment Tag :	SPF-2001 (SPREADER FAN)
Location :	EE ROOM
Software version :	-
Input filter type :	-
Output filter type :	-
Ambient temp :	Ambient temp of VFD room 22-25 °C

1. Without Voltage Condition

1.1 Visual inspection of components

Pass	Fail	Remark
☒	☐	

1.2 Checking of connections and tightenings

- Power input terminal
- Motor Cable
- DC Bus terminal
- Power capacitor terminal
- IGBT terminal
- I/O terminal
- Connection cable inside

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☒	☐	

1.3 Inspection of fan control board and Ventilation fans

1.4 Inspection of Connection cable inside

1.5 Inspection of control board

1.6 Inspection of power board

1.7 Measure the ohm value of Inverter

Measure the ohm value between terminal input and output of inverter

Terminal Inverter	Terminal Inverter	Ohm Value
R	S	OL
S	T	OL
T	R	OL
U	V	OL
V	W	OL
W	U	OL

☒
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Customer :		Maintenance :
Signature :		Service Engineering : Mr.Pariya Songkroh
		Service date : 24-26/06/25



FIELD INSPECTION AND TEST RECORD

BLACKBOX AUTOMATION CO.,LTD

Customer : บริษัท รุ่งทิวา ไปโอแมส จำกัด

Location : 47/10 หมู่ที่ 2 ตำบลสะบ้าย้อย อำเภอสบ้าย้อย จังหวัดสงขลา 90210

Panel Name : SPF-2001 (SPREADER FAN)

REPORT PM INVERTER

Measure the ohm value between PE (ground) and Terminal input / output of VSD

PE and Terminal	Ohm Value	PE and Cable	Ohm Value
PE-R	OL	PE-R	OL
PE-S	OL	PE-S	OL
PE-T	OL	PE-T	OL
PE-U	OL	PE-U	OL
PE-V	OL	PE-V	OL
PE-W	OL	PE-W	OL

✓
✓
✓
✓
✓
✓

Measure the diode value between PE (ground) and Terminal input / output of VSD

PA+ and Terminal	Vdc value		PA+ and Terminal	Vdc value	
PA+(+)			PA+(-)		
Terminal of VSD(-)	(1-OL)		Terminal of VSD(+)	0.320V+/-	
PA-R	OL	✓	PA-R	0.492	✓
PA-S	OL	✓	PA-S	0.493	✓
PA-T	OL	✓	PA-T	0.493	✓
		(1-OL)			0.320V+/-
PA-U	OL	✓	PA-U	0.412	✓
PA-V	OL	✓	PA-V	0.413	✓
PA-W	OL	✓	PA-W	0.412	✓

Measure the diode value between PE (ground) and Terminal input / output of VSD

PA+ and Terminal	Vdc value		PA+ and Terminal	Vdc value	
PC(-)			PC(+)		
Terminal of VSD(+)	(1-OL)		Terminal of VSD(-)	0.320V+/-	
PC-R	OL	✓	PC-R	0.494	✓
PC-S	OL	✓	PC-S	0.493	✓
PC-T	OL	✓	PC-T	0.493	✓
		(1-OL)			0.320V+/-
PC-U	OL	✓	PC-U	0.415	✓
PC-V	OL	✓	PC-V	0.416	✓
PC-W	OL	✓	PC-W	0.418	✓

Note : OL " Over the scale of measurd equipment (>60 MΩ)

Customer :		Maintenance :	
Signature :		Service Engineering : Mr.Pariya Songkroh	
		Service date : 24-26/06/25	



FIELD INSPECTION AND TEST RECORD

BLACKBOX AUTOMATION CO.,LTD

Customer : บริษัท รุ่งทิวา ไปโอแมส จำกัด
 Location : 47/10 หมู่ที่ 2 ตำบลสะบ้าย้อย อำเภอสะบ้าย้อย จังหวัดสงขลา 90210
 Panel Name : SPF-2001 (SPREADER FAN)

REPORT PM INVERTER

2. With Voltage Condition

Pass

2.1 Measure DC Bus value567..... Vdc (537-679 Vdc)

√

DC Bus discharge time-..... Second (≥ 900 Second)

-

2.2 Checking on running condition

√

2.3 Checking of auxiliary power supply

√

2.4 Inspection of air flow and notice for any unordinary sound

√

2.5 Checking of parameters setting and back up of parameters setting

√

2.6 Checking of fault logger

2.7 Monitoring of Speed ,Current ,Torque and Temperature



Comment :

Customer :		Maintenance :	
Signature :		Service Engineering : Mr.Pariya Songkroh	
		Service date : 24-26/06/25	



FIELD INSPECTION AND TEST RECORD

BLACKBOX AUTOMATION CO.,LTD

Customer : บริษัท รุ่งทิวา ไซโอแมส จำกัด
Location : 47/10 หมู่ที่ 2 ตำบลสะบ้าย้อย อำเภอสบ้าย้อย จังหวัดสงขลา 90210
Panel Name : PAF (PRIMARY AIR FAN)

REPORT PM INVERTER

Brand :	DANFOSS
Model :	FC-102P90KT4E20H2XGXXXXXXXAXBXCXXXXDX
S/N :	026324G070
Equipment Tag :	PAF (PRIMARY AIR FAN)
Location :	EE ROOM
Software version :	-
Input filter type :	-
Output filter type :	-
Ambient temp :	Ambient temp of VFD room 22-23 °C

1. Without Voltage Condition

1.1 Visual inspection of components

Pass	Fail	Remark
☒	☐	

1.2 Checking of connections and tightenings

- Power input terminal
- Motor Cable
- DC Bus terminal
- Power capacitor terminal
- IGBT terminal
- I/O terminal
- Connection cable inside

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1.3 Inspection of fan control board and Ventilation fans

1.4 Inspection of Connection cable inside

1.5 Inspection of control board

1.6 Inspection of power board

1.7 Measure the ohm value of Inverter

Measure the ohm value between terminal input and output of inverter

Terminal Inverter	Terminal Inverter	Ohm Value
R	S	OL
S	T	OL
T	R	OL
U	V	OL
V	W	OL
W	U	OL

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Customer :		Maintenance :
Signature :		Service Engineering : Mr.Pariya Songkroh
		Service date : 24-26/06/25



FIELD INSPECTION AND TEST RECORD

BLACKBOX AUTOMATION CO.,LTD

Customer : บริษัท รุ่งทิวา ไปโอแมส จำกัด

Location : 47/10 หมู่ที่ 2 ตำบลสะบ้าย้อย อำเภอสบ้าย้อย จังหวัดสงขลา 90210

Panel Name : PAF (PRIMARY AIR FAN)

REPORT PM INVERTER

Measure the ohm value between PE (ground) and Terminal input / output of VSD

PE and Terminal	Ohm Value	PE and Cable	Ohm Value
PE-R	4.7 MΩ	PE-R	50MΩ
PE-S	5.91 MΩ	PE-S	50MΩ
PE-T	4.61 MΩ	PE-T	50MΩ
PE-U	3.21 MΩ	PE-U	50MΩ
PE-V	3.35 MΩ	PE-V	50MΩ
PE-W	3.37 MΩ	PE-W	50MΩ

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Measure the diode value between PE (ground) and Terminal input / output of VSD

PA+ and Terminal	Vdc value		PA+ and Terminal	Vdc value	
PA+(+)			PA+(-)		
Terminal of VSD(-)	(1-OL)		Terminal of VSD(+)	0.320V+/-	
PA-R	OL	√	PA-R	OL	√
PA-S	OL	√	PA-S	OL	√
PA-T	OL	√	PA-T	OL	√
		(1-OL)			
PA-U	OL	√	PA-U	0.331	√
PA-V	OL	√	PA-V	0.331	√
PA-W	OL	√	PA-W	0.331	√

Measure the diode value between PE (ground) and Terminal input / output of VSD

PA+ and Terminal	Vdc value		PA+ and Terminal	Vdc value	
PC(-)			PC(+)		
Terminal of VSD(+)	(1-OL)		Terminal of VSD(-)	0.320V+/-	
PC-R	OL	√	PC-R	0.417	√
PC-S	OL	√	PC-S	0.419	√
PC-T	OL	√	PC-T	0.418	√
		(1-OL)	0.320V+/-		
PC-U	OL	√	PC-U	0.334	√
PC-V	OL	√	PC-V	0.334	√
PC-W	OL	√	PC-W	0.334	√

Note : OL " Over the scale of measurd equipment (>60 MΩ)

Customer :		Maintenance :	
Signature :		Service Engineering : Mr.Pariya Songkroh	
		Service date : 24-26/06/25	



FIELD INSPECTION AND TEST RECORD

BLACKBOX AUTOMATION CO.,LTD

Customer : บริษัท รุ่งทิวา ไปโอแมส จำกัด
 Location : 47/10 หมู่ที่ 2 ตำบลสะบ้าย้อย อำเภอสะบ้าย้อย จังหวัดสงขลา 90210
 Panel Name : PAF (PRIMARY AIR FAN)

REPORT PM INVERTER

2. With Voltage Condition

Pass

2.1 Measure DC Bus value573..... Vdc (537-679 Vdc)

✓

DC Bus discharge time-..... Second (≥ 900 Second)

-

2.2 Checking on running condition

✓

2.3 Checking of auxiliary power supply

✓

2.4 Inspection of air flow and notice for any unordinary sound

✓

2.5 Checking of parameters setting and back up of parameters setting

✓

2.6 Checking of fault logger

2.7 Monitoring of Speed ,Current ,Torque and Temperature



Comment :

Customer :		Maintenance :	
Signature :		Service Engineering : Mr.Pariya Songkroh	
		Service date : 24-26/06/25	



FIELD INSPECTION AND TEST RECORD

BLACKBOX AUTOMATION CO.,LTD

Customer : บริษัท รุ่งทิวา ไซโอแมส จำกัด
Location : 47/10 หมู่ที่ 2 ตำบลสะบ้าย้อย อำเภอสบ้าย้อย จังหวัดสงขลา 90210
Panel Name : RGF (FLUE GAS RESIR FAN)

REPORT PM INVERTER

Brand :	DANFOSS
Model :	FC-360Q75KT4E20H2XXCDXXSXXXXAXBX
S/N :	109402A529
Equipment Tag :	RGF (FLUE GAS RESIR FAN)
Location :	EE ROOM
Software version :	-
Input filter type :	-
Output filter type :	-
Ambient temp :	Ambient temp of VFD room 22-25 °C

1. Without Voltage Condition

1.1 Visual inspection of components

Pass	Fail	Remark
☒	☐	

1.2 Checking of connections and tightenings

- Power input terminal
- Motor Cable
- DC Bus terminal
- Power capacitor terminal
- IGBT terminal
- I/O terminal
- Connection cable inside

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1.3 Inspection of fan control board and Ventilation fans

1.4 Inspection of Connection cable inside

1.5 Inspection of control board

1.6 Inspection of power board

1.7 Measure the ohm value of Inverter

Measure the ohm value between terminal input and output of inverter

Terminal Inverter	Terminal Inverter	Ohm Value
R	S	OL
S	T	OL
T	R	OL
U	V	OL
V	W	OL
W	U	OL

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Customer :		Maintenance :
Signature :		Service Engineering : Mr.Pariya Songkroh
		Service date : 24-26/06/25



FIELD INSPECTION AND TEST RECORD

BLACKBOX AUTOMATION CO.,LTD

Customer : บริษัท รุ่งทิวา ไซโอแมส จำกัด

Location : 47/10 หมู่ที่ 2 ตำบลสะบ้าย้อย อำเภอสบ้าย้อย จังหวัดสงขลา 90210

Panel Name : RGF (FLUE GAS RESIR FAN)

REPORT PM INVERTER

Measure the ohm value between PE (ground) and Terminal input / output of VSD

PE and Terminal	Ohm Value	PE and Cable	Ohm Value
PE-R	OL	PE-R	OL
PE-S	OL	PE-S	OL
PE-T	OL	PE-T	OL
PE-U	OL	PE-U	OL
PE-V	OL	PE-V	OL
PE-W	OL	PE-W	OL

✓
✓
✓
✓
✓
✓

Measure the diode value between PE (ground) and Terminal input / output of VSD

PA+ and Terminal	Vdc value		PA+ and Terminal	Vdc value	
PA+(+)			PA+(-)		
Terminal of VSD(-)	(1-OL)		Terminal of VSD(+)	0.320V+/-	
PA-R	OL	✓	PA-R	0.429	✓
PA-S	OL	✓	PA-S	0.428	✓
PA-T	OL	✓	PA-T	0.424	✓
		(1-OL)			0.320V+/-
PA-U	OL	✓	PA-U	0.338	✓
PA-V	OL	✓	PA-V	0.338	✓
PA-W	OL	✓	PA-W	0.338	✓

Measure the diode value between PE (ground) and Terminal input / output of VSD

PA+ and Terminal	Vdc value		PA+ and Terminal	Vdc value	
PC(-)			PC(+)		
Terminal of VSD(+)	(1-OL)		Terminal of VSD(-)	0.320V+/-	
PC-R	OL	✓	PC-R	0.427	✓
PC-S	OL	✓	PC-S	0.430	✓
PC-T	OL	✓	PC-T	0.425	✓
		(1-OL)			0.320V+/-
PC-U	OL	✓	PC-U	0.338	✓
PC-V	OL	✓	PC-V	0.338	✓
PC-W	OL	✓	PC-W	0.338	✓

Note : OL " Over the scale of measurd equipment (>60 MΩ)

Customer :		Maintenance :	
Signature :		Service Engineering : Mr.Pariya Songkroh	
		Service date : 24-26/06/25	



FIELD INSPECTION AND TEST RECORD

BLACKBOX AUTOMATION CO.,LTD

Customer : บริษัท รุ่งทิวา ไปโอแมส จำกัด
 Location : 47/10 หมู่ที่ 2 ตำบลสะบ้าย้อย อำเภอสะบ้าย้อย จังหวัดสงขลา 90210
 Panel Name : RGF (FLUE GAS RESIR FAN)

REPORT PM INVERTER

2.With Voltage Condition

Pass

2.1 Measure DC Bus value566..... Vdc (537-679 Vdc)

✓

DC Bus discharge time-..... Second (≥ 900 Second)

2.2 Checking on running condition

✓

2.3 Checking of auxiliary power supply

✓

2.4 Inspection of air flow and notice for any unordinary sound

✓

2.5 Checking of parameters setting and back up of parameters setting

✓

2.6 Checking of fault logger

2.7 Monitoring of Speed ,Current ,Torque and Temperature



Comment :

Customer :		Maintenance :	
Signature :		Service Engineering : Mr.Pariya Songkroh	
		Service date : 24-26/06/25	



FIELD INSPECTION AND TEST RECORD

BLACKBOX AUTOMATION CO.,LTD

Customer : บริษัท รุ่งทิวา ไซโอแมส จำกัด
Location : 47/10 หมู่ที่ 2 ตำบลสะบ้าย้อย อำเภอสบ้าย้อย จังหวัดสงขลา 90210
Panel Name : IDF (INDUCED DRAFT FAN)

REPORT PM INVERTER

Brand :	DANFOSS
Model :	FC-102N200T4E20H2XGCXXXSXXXXXAXBXCXXXXDX
S/N :	021006H519
Equipment Tag :	IDF (INDUCED DRAFT FAN)
Location :	EE ROOM
Software version :	
Input filter type :	
Output filter type :	
Ambient temp :	Ambient temp of VFD room 22-23 °C

1. Without Voltage Condition

1.1 Visual inspection of components

Pass	Fail	Remark
☒	☐	

1.2 Checking of connections and tightenings

- Power input terminal
- Motor Cable
- DC Bus terminal
- Power capacitor terminal
- IGBT terminal
- I/O terminal
- Connection cable inside

☒	☐	
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☒	☐	

1.3 Inspection of fan control board and Ventilation fans

1.4 Inspection of Connection cable inside

1.5 Inspection of control board

1.6 Inspection of power board

1.7 Measure the ohm value of Inverter

Measure the ohm value between terminal input and output of inverter

Terminal Inverter	Terminal Inverter	Ohm Value
R	S	OL
S	T	OL
T	R	OL
U	V	OL
V	W	OL
W	U	OL

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Customer :		Maintenance :
Signature :		Service Engineering : Mr.Pariya Songkroh
		Service date : 24-26/06/25



FIELD INSPECTION AND TEST RECORD

BLACKBOX AUTOMATION CO.,LTD

Customer : บริษัท รุ่งทิวา ไปโอแมส จำกัด

Location : 47/10 หมู่ที่ 2 ตำบลสะบ้าย้อย อำเภอสบ้าย้อย จังหวัดสงขลา 90210

Panel Name : IDF (INDUCED DRAFT FAN)

REPORT PM INVERTER

Measure the ohm value between PE (ground) and Terminal input / output of VSD

PE and Terminal	Ohm Value	PE and Cable	Ohm Value
PE-R	50 MΩ	PE-R	50MΩ
PE-S	50 MΩ	PE-S	50MΩ
PE-T	50 MΩ	PE-T	50MΩ
PE-U	50 MΩ	PE-U	50MΩ
PE-V	50 MΩ	PE-V	50MΩ
PE-W	50 MΩ	PE-W	50MΩ

✓
✓
✓
✓
✓
✓

Measure the diode value between PE (ground) and Terminal input / output of VSD

PA+ and Terminal	Vdc value		PA+ and Terminal	Vdc value	
PA+(+)			PA+(-)		
Terminal of VSD(-)	(1-OL)		Terminal of VSD(+)	0.320V+/-	
PA-R	OL	✓	PA-R	OL	✓
PA-S	OL	✓	PA-S	OL	✓
PA-T	OL	✓	PA-T	OL	✓
		(1-OL)			0.320V+/-
PA-U	OL	✓	PA-U	0.317	✓
PA-V	OL	✓	PA-V	0.315	✓
PA-W	OL	✓	PA-W	0.317	✓

Measure the diode value between PE (ground) and Terminal input / output of VSD

PA+ and Terminal	Vdc value		PA+ and Terminal	Vdc value	
PC-(-)			PC-(+)		
Terminal of VSD(+)	(1-OL)		Terminal of VSD(-)	0.320V+/-	
PC-R	OL	✓	PC-R	0.454	✓
PC-S	OL	✓	PC-S	0.459	✓
PC-T	OL	✓	PC-T	0.451	✓
		(1-OL)			0.320V+/-
PC-U	OL	✓	PC-U	0.310	✓
PC-V	OL	✓	PC-V	0.310	✓
PC-W	OL	✓	PC-W	0.310	✓

Note : OL " Over the scale of measurd equipment (>60 MΩ)

Customer :		Maintenance :	
Signature :		Service Engineering : Mr.Pariya Songkroh	
		Service date : 24-26/06/25	



FIELD INSPECTION AND TEST RECORD

BLACKBOX AUTOMATION CO.,LTD

Customer : บริษัท รุ่งทิวา ไปโอแมส จำกัด
 Location : 47/10 หมู่ที่ 2 ตำบลสะบ้าย้อย อำเภอสะบ้าย้อย จังหวัดสงขลา 90210
 Panel Name : IDF (INDUCED DRAFT FAN)

REPORT PM INVERTER

2.With Voltage Condition

Pass

2.1 Measure DC Bus value558..... Vdc (537-679 Vdc)

√

DC Bus discharge time-..... Second (≥ 900 Second)

-

2.2 Checking on running condition

√

2.3 Checking of auxiliary power supply

√

2.4 Inspection of air flow and notice for any unordinary sound

√

2.5 Checking of parameters setting and back up of parameters setting

√

2.6 Checking of fault logger

√

2.7 Monitoring of Speed ,Current ,Torque and Temperature



Comment :

Customer :		Maintenance :	
Signature :		Service Engineering : Mr.Pariya Songkroh	
		Service date : 24-26/06/25	



FIELD INSPECTION AND TEST RECORD

BLACKBOX AUTOMATION CO.,LTD

Project Name :	PM DANFOSS SOFTSTARTER	Panel Name :	BFP-01 (BOILER FEED PUMP NO.1)
Custome :	บริษัท รุ่งทิวา ไปโอแมส จำกัด	Device Name :	MCD500 280KW
Location :	47/10 หมู่ที่ 2 ตำบลสะบ้าย้อย อำเภอสะบ้าย้อย จังหวัดสงขลา 90210	Serial Number :	-

RESISTANCE MEASUREMENT

Tester Name : Multimeter

Brand/Model : FLUKE 87V

- | | |
|---|-------------------------------------|
| 1. Visual inspection of components | ☒ |
| 2. Checking of connections and tightening | |
| - Power cable input, output of Soft Start | ☒ |
| - Control terminal of Soft Start | ☒ |
| - Magnetic Modules | ☒ |
| - Control terminals | ☒ |
| 3. Measurement of the ohm of Soft Start | |

RESISTANCE CHECK OF GATE - CATHODE SCR

SCR STACK	Resistance (Ω)				
Test Connection	A-B Heatsink	A1 - K1	A2 - K2	G1 - K1	G2 - K2
L1 Phase (V1-V2)	OL	OL	OL	10.3	10.5
L2 Phase (V3-V4)	OL	OL	OL	10.9	9.6
L3 Phase (V5-V6)	OL	OL	OL	10.3	10.7

Position	Resistance ($M\Omega$)	Remark
1L1 - 3L2	OL	✓
3L2 - 5L3	OL	✓
5L3 - 1L1	OL	✓
1L1 - G	OL	✓
3L2 - G	OL	✓
5L3 - G	OL	✓

Position	Resistance ($M\Omega$)	Remark
U - V	OL	✓
V - W	OL	✓
W - U	OL	✓
U - G	OL	✓
V - G	OL	✓
W - G	OL	✓

Note : Measurement resistance should be $> 100k\Omega$ OL " Over the scale of measured equipment ($> 60 M\Omega$)

Responsibility	Tested by	Approved by	Witnessed by
Company	BLACKBOX AUTOMATION CO.,LTD		
Name	Mr.Pariya Songkroh		
Date	24-26/06/25		



FIELD INSPECTION AND TEST RECORD

BLACKBOX AUTOMATION CO.,LTD

Project Name : PM DANFOSS SOFTSTARTER

Customer : บริษัท รุ่งทิวา ไปโอเมส จำกัด

Location : 47/10 หมู่ที่ 2 ตำบลสะบ้าย้อย อำเภอสะบ้าย้อย
จังหวัดสงขลา 90210

Panel Name : BFP-01 (BOILER FEED PUMP NO.1)

Device Name : MCD500 280KW

Serial Number :

RESISTANCE MEASUREMENT

Tester Name : Multimeter

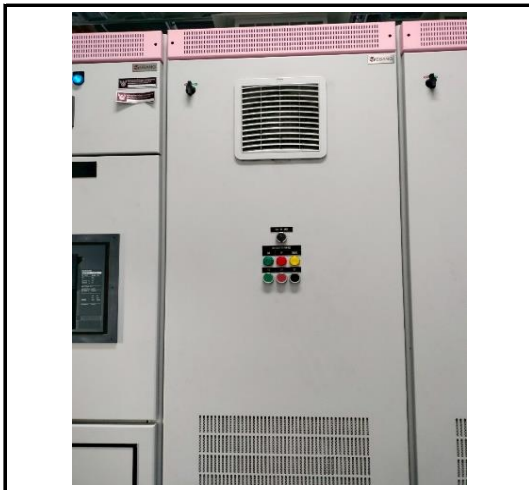
Brand/Model : FLUKE 87V

4.Test run



- Voltage	396	V
- Current	465	A
- Power	283	KW

Picture Test run



Comment : - Power on control source and check status ➡ Ready

- Test run mechanic load ➡ Complete

- Measure voltage and current ➡ Balance

Responsibility	Tested by	Approved by	Witnessed by
Company	BLACKBOX AUTOMATION CO.,LTD		
Name	Mr.Pariya Songkroh		
Date	24-26/06/25		



FIELD INSPECTION AND TEST RECORD

BLACKBOX AUTOMATION CO.,LTD

Project Name : PM DANFOSS SOFTSTARTER	Panel Name : BFP-02 (BOILER FEED PUMP NO.2)
Custome : บริษัท รุ่งทิวา ไปโอแมส จำกัด	Device Name : MCD500 280KW
Location : 47/10 หมู่ที่ 2 ตำบลสะบ้าย้อย อำเภอสะบ้าย้อย จังหวัดสงขลา 90210	Serial Number : -

RESISTANCE MEASUREMENT

Tester Name : Multimeter

Brand/Model : FLUKE 87V

- | | |
|---|-------------------------------------|
| 1. Visual inspection of components | ☒ |
| 2. Checking of connections and tightening | |
| - Power cable input, output of Soft Start | ☒ |
| - Control terminal of Soft Start | ☒ |
| - Magnetic Modules | ☒ |
| - Control terminals | ☒ |
| 3. Measurement the ohm of Soft Start | |

RESISTANCE CHECK OF GATE - CATHODE SCR

SCR STACK	Resistance (Ω)				
Test Connection	A-B Heatsink	A1 - K1	A2 - K2	G1 - K1	G2 - K2
L1 Phase (V1-V2)	OL	OL	OL	8.8	10.2
L2 Phase (V3-V4)	OL	OL	OL	9.3	10.0
L3 Phase (V5-V6)	OL	OL	OL	9.2	10.1

Position	Resistance (M Ω)	Remark
1L1 - 3L2	OL	✓
3L2 - 5L3	OL	✓
5L3 - 1L1	OL	✓
1L1 - G	OL	✓
3L2 - G	OL	✓
5L3 - G	OL	✓

Position	Resistance (M Ω)	Remark
U - V	OL	✓
V - W	OL	✓
W - U	OL	✓
U - G	OL	✓
V - G	OL	✓
W - G	OL	✓

Note : Measurement resistance should be $> 100k\Omega$ OL " Over the scale of measurd equipment ($> 60 M\Omega$)

Resonsibility	Tested by	Approved by	Witnessed by
Company	BLACKBOX AUTOMATION CO.,LTD		
Name	Mr.Pariya Songkroh		
Date	24-26/06/25		



FIELD INSPECTION AND TEST RECORD

BLACKBOX AUTOMATION CO.,LTD

Project Name : PM DANFOSS SOFTSTARTER

Customer : บริษัท รุ่งทิวา ไปโอเมส จำกัด

Location : 47/10 หมู่ที่ 2 ตำบลสะบ้าย้อย อำเภอสะบ้าย้อย
จังหวัดสงขลา 90210

Panel Name : BFP-02 (BOILER FEED PUMP NO.2)

Device Name : MCD500 280KW

Serial Number : -

RESISTANCE MEASUREMENT

Tester Name : Multimeter

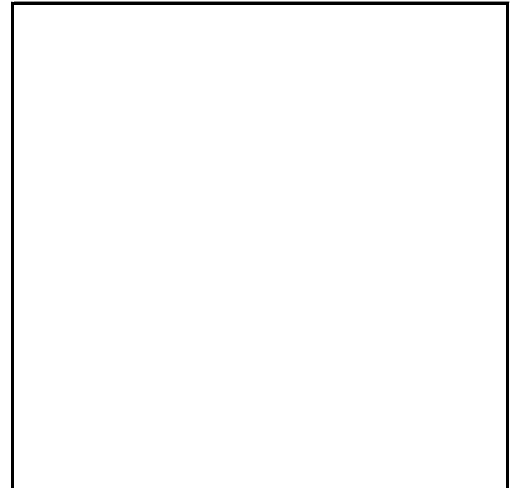
Brand/Model : FLUKE 87V

4.Test run

☐

- Voltage	-	V
- Current	-	A
- Power	-	KW

Cannot test run



Comment : - Cannot test run because machanic not complete for test

- Test power on of control source and visual check status ➡ Ready

Resonsibility	Tested by	Approved by	Witnessed by
Company	BLACKBOX AUTOMATION CO.,LTD		
Name	Mr.Pariya Songkroh		
Date	24-26/06/25		



FIELD INSPECTION AND TEST RECORD

BLACKBOX AUTOMATION CO.,LTD

Project Name : PM DANFOSS SOFTSTARTER	Panel Name : MCP-7001 (MAIN COOLING WATER PUMP NO.1)
Custome : บริษัท รุ่งทิวา ไปโอแมส จำกัด	Device Name : MCD500 132KW
Location : 47/10 หมู่ที่ 2 ตำบลสะบ้าย้อย อำเภอสะบ้าย้อย จังหวัดสงขลา 90210	Serial Number : -

RESISTANCE MEASUREMENT

Tester Name : Multimeter

Brand/Model : FLUKE 87V

1. Visual inspection of components ☒
2. Checking of connections and tightening
- Power cable input, output of Soft Start ☒
 - Control terminal of Soft Start ☒
 - Magnetic Modules ☒
 - Control terminals ☒
3. Measurement the ohm of Soft Start

RESISTANCE CHECK OF GATE - CATHODE SCR

SCR STACK	Resistance (Ω)				
Test Connection	A-B Heatsink	A1 - K1	A2 - K2	G1 - K1	G2 - K2
L1 Phase (V1-V2)	OL	OL	OL	14.4	15.6
L2 Phase (V3-V4)	OL	OL	OL	14.9	15.9
L3 Phase (V5-V6)	OL	OL	OL	14.6	15.1

Position	Resistance ($M\Omega$)	Remark
1L1 - 3L2	OL	✓
3L2 - 5L3	OL	✓
5L3 - 1L1	OL	✓
1L1 - G	OL	✓
3L2 - G	OL	✓
5L3 - G	OL	✓

Position	Resistance ($M\Omega$)	Remark
U - V	OL	✓
V - W	OL	✓
W - U	OL	✓
U - G	OL	✓
V - G	OL	✓
W - G	OL	✓

Note : Measurement resistance should be $> 100k\Omega$ OL " Over the scale of measurd equipment ($> 60 M\Omega$)

Responsibility	Tested by	Approved by	Witnessed by
Company	BLACKBOX AUTOMATION CO.,LTD		
Name	Mr.Pariya Songkroh		
Date	24-26/06/25		



FIELD INSPECTION AND TEST RECORD

BLACKBOX AUTOMATION CO.,LTD

Project Name : PM DANFOSS SOFTSTARTER

Customer : บริษัท รุ่งทิวา ไบโอสเมส จำกัด

Location : 47/10 หมู่ที่ 2 ตำบลสะบ้าย้อย อำเภอสะบ้าย้อย
จังหวัดสงขลา 90210Panel Name : MCP-7001 (MAIN COOLING WATER
PUMP NO.1)

Device Name : MCD500 132KW

Serial Number : -

RESISTANCE MEASUREMENT

Tester Name : Multimeter

Brand/Model : FLUKE 87V

4.Test run

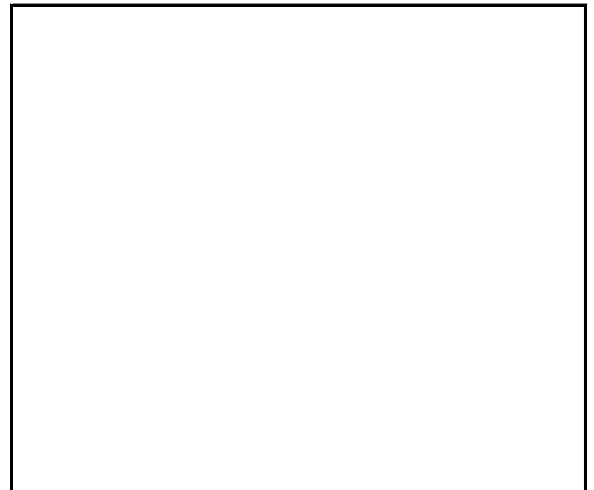
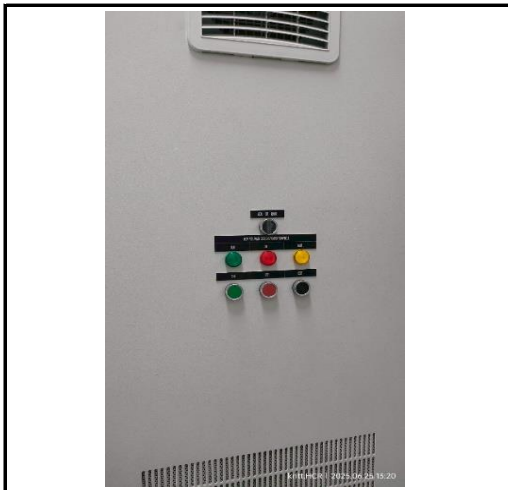
☐

- Voltage - V

- Current - A

- Power - KW

No test run



Comment : - No test run because motor not complete, Test power on control source.

Responsibility	Tested by	Approved by	Witnessed by
Company	BLACKBOX AUTOMATION CO.,LTD		
Name	Mr.Pariya Songkroh		
Date	24-26/06/25		



FIELD INSPECTION AND TEST RECORD

BLACKBOX AUTOMATION CO.,LTD

Project Name : PM DANFOSS SOFTSTARTER

Custome : บริษัท รุ่งทิวา โปไอแมส จำกัด

Location : 47/10 หมู่ที่ 2 ตำบลสะบ้าย้อย อำเภอสะบ้าย้อย
จังหวัดสงขลา 90210Panel Name : MCP-7002 (MAIN COOLING WATER
PUMP NO.2)

Device Name : MCD500 132KW

Serial Number :

RESISTANCE MEASUREMENT

Tester Name : Multimeter

Brand/Model : FLUKE 87V

1. Visual inspection of components



2. Checking of connections and tightening

- Power cable input, output of Soft Start



- Control terminal of Soft Start



- Magnetic Modules



- Control terminals



3. Measurement the ohm of Soft Start

RESISTANCE CHECK OF GATE - CATHODE SCR

SCR STACK	Resistance (Ω)				
Test Connection	A-B Heatsink	A1 - K1	A2 - K2	G1 - K1	G2 - K2
L1 Phase (V1-V2)	OL	OL	OL	14.1	13.4
L2 Phase (V3-V4)	OL	OL	OL	14.9	15.0
L3 Phase (V5-V6)	OL	OL	OL	13.1	13.9

Position	Resistance ($M\Omega$)	Remark
1L1 - 3L2	OL	✓
3L2 - 5L3	OL	✓
5L3 - 1L1	OL	✓
1L1 - G	OL	✓
3L2 - G	OL	✓
5L3 - G	OL	✓

Position	Resistance ($M\Omega$)	Remark
U - V	OL	✓
V - W	OL	✓
W - U	OL	✓
U - G	OL	✓
V - G	OL	✓
W - G	OL	✓

Note : Measurement resistance should be $> 100k\Omega$ OL " Over the scale of measurd equipment ($> 60 M\Omega$)

Resonsibility	Tested by	Approved by	Witnessed by
Company	BLACKBOX AUTOMATION CO.,LTD		
Name	Mr.Pariya Songkroh		
Date	24-26/06/25		



FIELD INSPECTION AND TEST RECORD

BLACKBOX AUTOMATION CO.,LTD

Project Name : PM DANFOSS SOFTSTARTER

Custome : บริษัท รุ่งทิวา ไปโอแมส จำกัด

Location : 47/10 หมู่ที่ 2 ตำบลสะบ้าย้อย อำเภอสะบ้าย้อย
จังหวัดสงขลา 90210Panel Name : MCP-7002 (MAIN COOLING WATER
PUMP NO.2)

Device Name : MCD500 132KW

Serial Number :

RESISTANCE MEASUREMENT

Tester Name : Multimeter

Brand/Model : FLUKE 87V

4.Test run

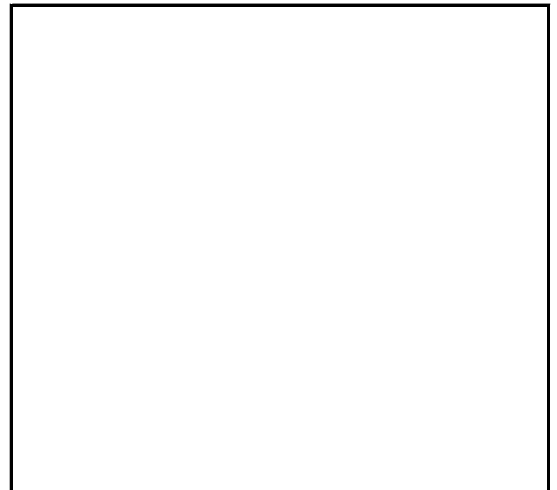
☐

- Voltage - V

- Current - A

- Power - KW

Picture Test Run



Comment : - No test run because motor not complete, Test power on control source.

Resonsibility	Tested by	Approved by	Witnessed by
Company	BLACKBOX AUTOMATION CO.,LTD		
Name	Mr.Pariya Songkroh		
Date	24-26/06/25		



FIELD INSPECTION AND TEST RECORD

BLACKBOX AUTOMATION CO.,LTD

Project Name : PM DANFOSS SOFTSTARTER	Panel Name : MCP-7003 (MAIN COOLING WATER PUMP NO.3)
Custome : บริษัท รุ่งทิวา ไบโอแมส จำกัด	Device Name : MCD500 132KW
Location : 47/10 หมู่ที่ 2 ตำบลสะบ้าย้อย อำเภอสะบ้าย้อย จังหวัดสงขลา 90210	Serial Number : 553314-379

RESISTANCE MEASUREMENT

Tester Name : Multimeter

Brand/Model : FLUKE 87V

1. Visual inspection of components ☒
2. Checking of connections and tightening
- Power cable input, output of Soft Start ☒
 - Control terminal of Soft Start ☒
 - Magnetic Modules ☒
 - Control terminals ☒
3. Measurement the ohm of Soft Start

RESISTANCE CHECK OF GATE - CATHODE SCR

SCR STACK	Resistance (Ω)				
Test Connection	A-B Heatsink	A1 - K1	A2 - K2	G1 - K1	G2 - K2
L1 Phase (V1-V2)	OL	OL	OL	15.5	14.8
L2 Phase (V3-V4)	OL	OL	OL	15.9	17.0
L3 Phase (V5-V6)	OL	OL	OL	14.9	15.0

Position	Resistance (M Ω)	Remark
1L1 - 3L2	OL	✓
3L2 - 5L3	OL	✓
5L3 - 1L1	OL	✓
1L1 - G	OL	✓
3L2 - G	OL	✓
5L3 - G	OL	✓

Position	Resistance (M Ω)	Remark
U - V	OL	✓
V - W	OL	✓
W - U	OL	✓
U - G	OL	✓
V - G	OL	✓
W - G	OL	✓

Note : Measurement resistance should be $> 100k\Omega$ OL " Over the scale of measurd equipment ($> 60 M\Omega$)

Resonsibility	Tested by	Approved by	Witnessed by
Company	BLACKBOX AUTOMATION CO.,LTD		
Name	Mr.Pariya Songkroh		
Date	24-26/06/25		



FIELD INSPECTION AND TEST RECORD

BLACKBOX AUTOMATION CO.,LTD

Project Name : PM DANFOSS SOFTSTARTER

Custome : บริษัท รุ่งทิวา ไบโอมเมส จำกัด

Location : 47/10 หมู่ที่ 2 ตำบลสะบ้าย้อย อำเภอสะบ้าย้อย
จังหวัดสงขลา 90210Panel Name : MCP-7003 (MAIN COOLING WATER
PUMP NO.3)

Device Name : MCD500 132KW

Serial Number : 553314-379

RESISTANCE MEASUREMENT

Tester Name : Multimeter

Brand/Model : FLUKE 87V

4.Test run

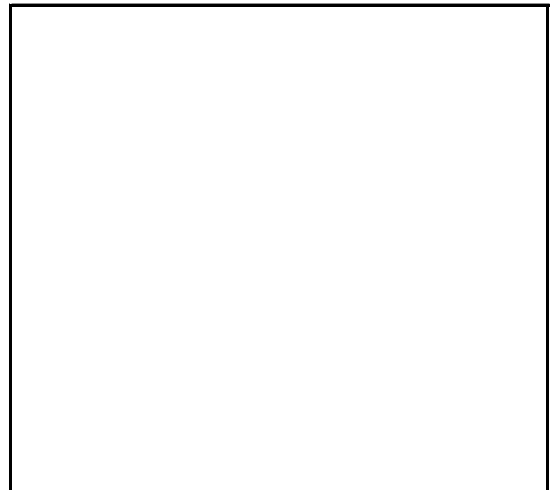
☐

- Voltage - V

- Current - A

- Power - KW

No test run



Comment : - No test run because motor not complete, Test power on control source.

Resonsibility	Tested by	Approved by	Witnessed by
Company	BLACKBOX AUTOMATION CO.,LTD		
Name	Mr.Pariya Songkroh		
Date	24-26/06/25		



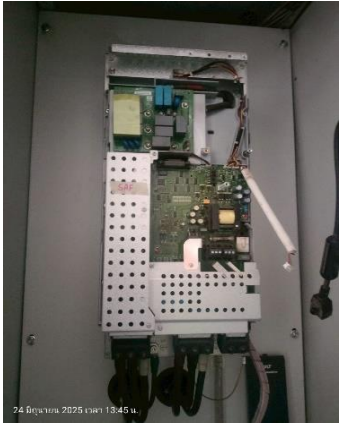
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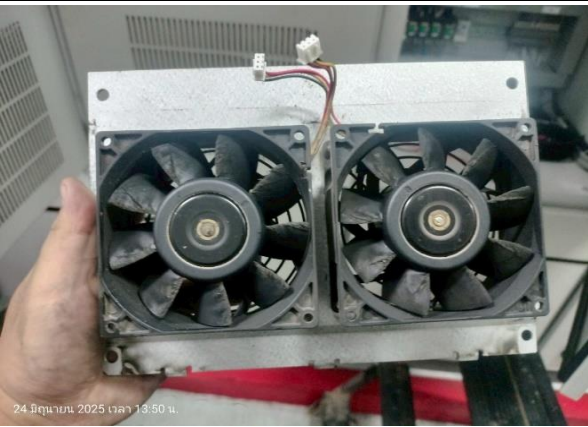
Tag No. : GDU-2001 (VIBRATING GRATE DRIVING MOTOR NO.1)

Before	After
 	 
Inverter มีฝุ่นมาก	เป่าฝุ่นและเช็ดทำความสะอาด

Before	After
	
ภายในอินเวอร์เตอร์มีฝุ่นมาก	เป่าฝุ่นและเช็ดทำความสะอาด

Before	After
	
พัดลมมีฝุ่นมาก	เป่าฝุ่นและเช็ดทำความสะอาด

Before	After
	
Inverter มีฝุ่นมาก	เป่าฝุ่นและเช็ดทำความสะอาด

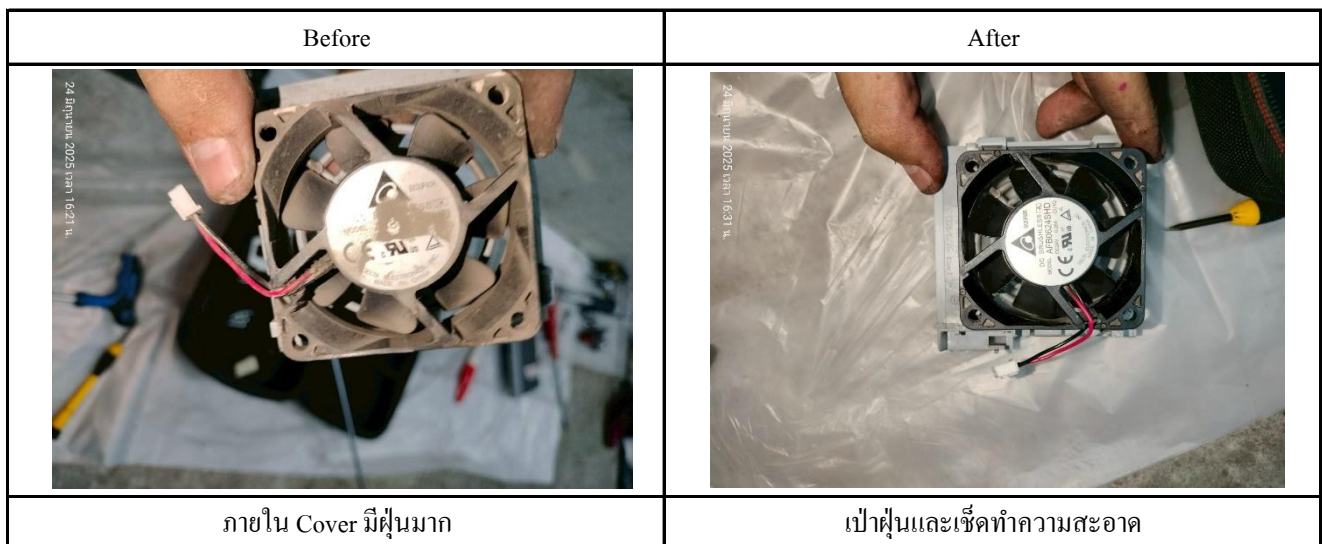
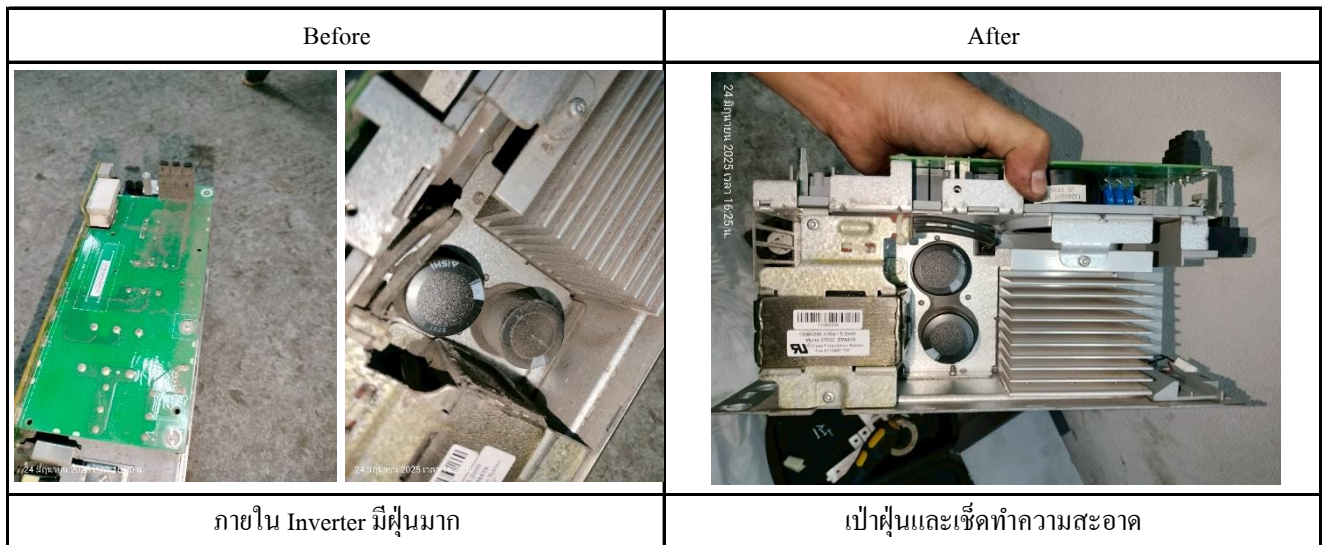
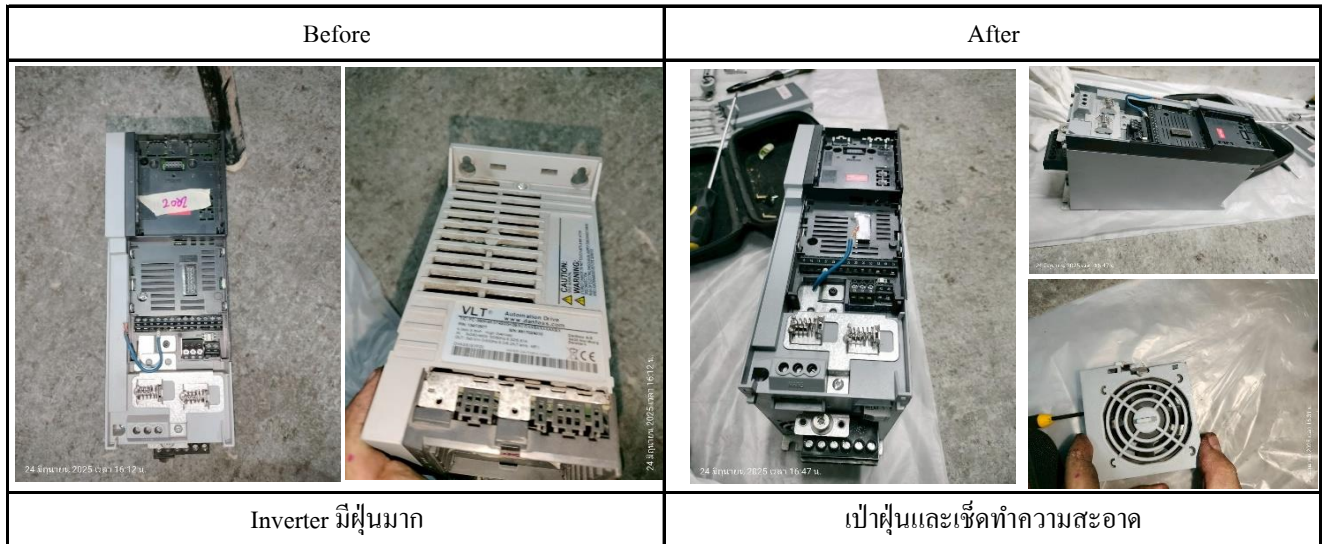
Before	After
	
พัดลมมีฝุ่นมาก	เป่าฝุ่นและเช็ดทำความสะอาด

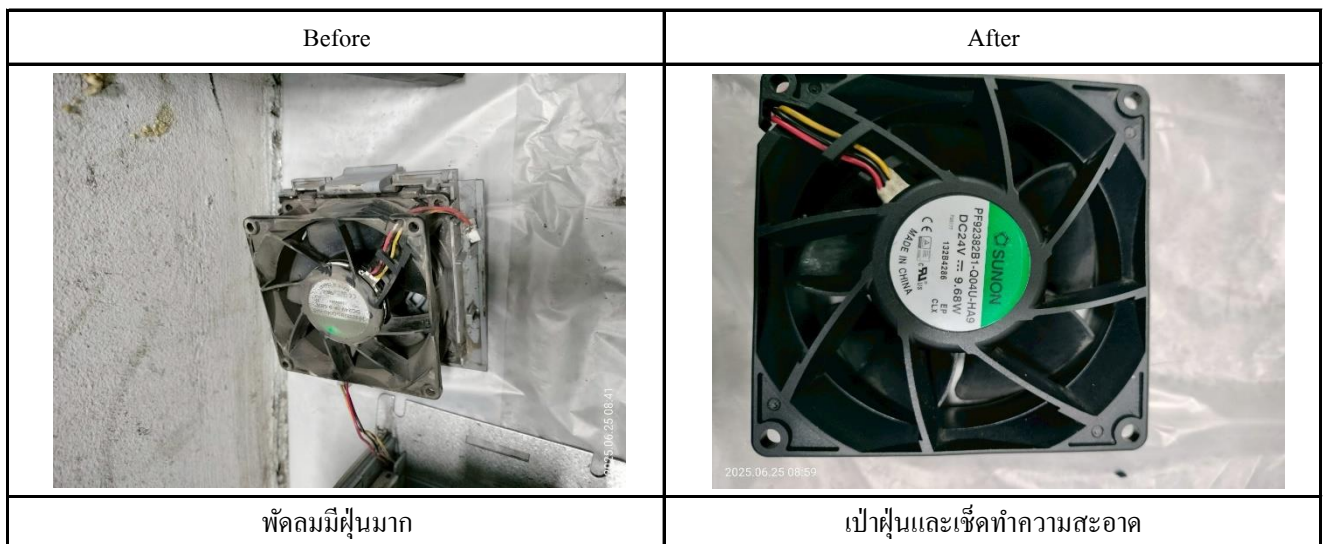
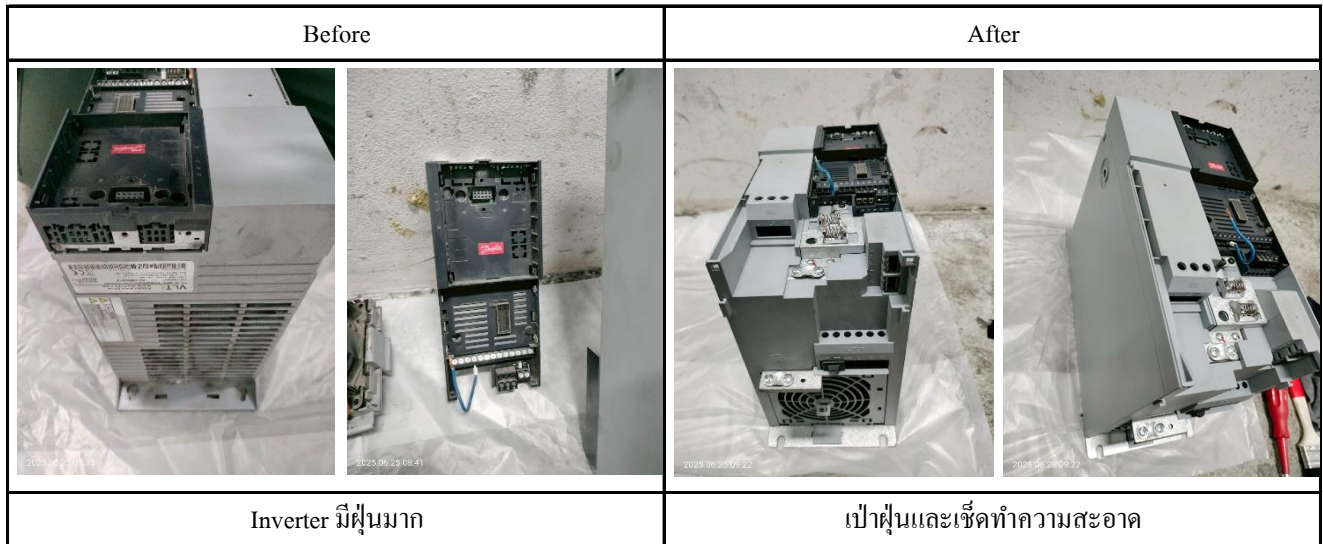
Before	After
	
ด้านหน้า Cover พัดลม มีฝุ่นมาก	เป่าฝุ่นและเช็ดทำความสะอาด

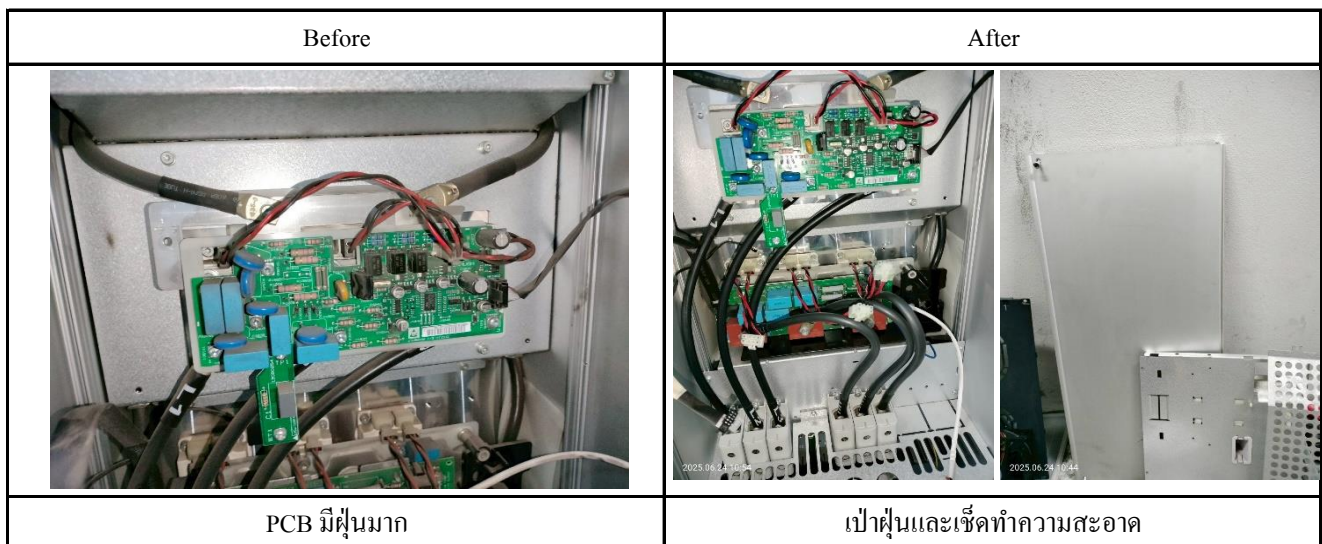
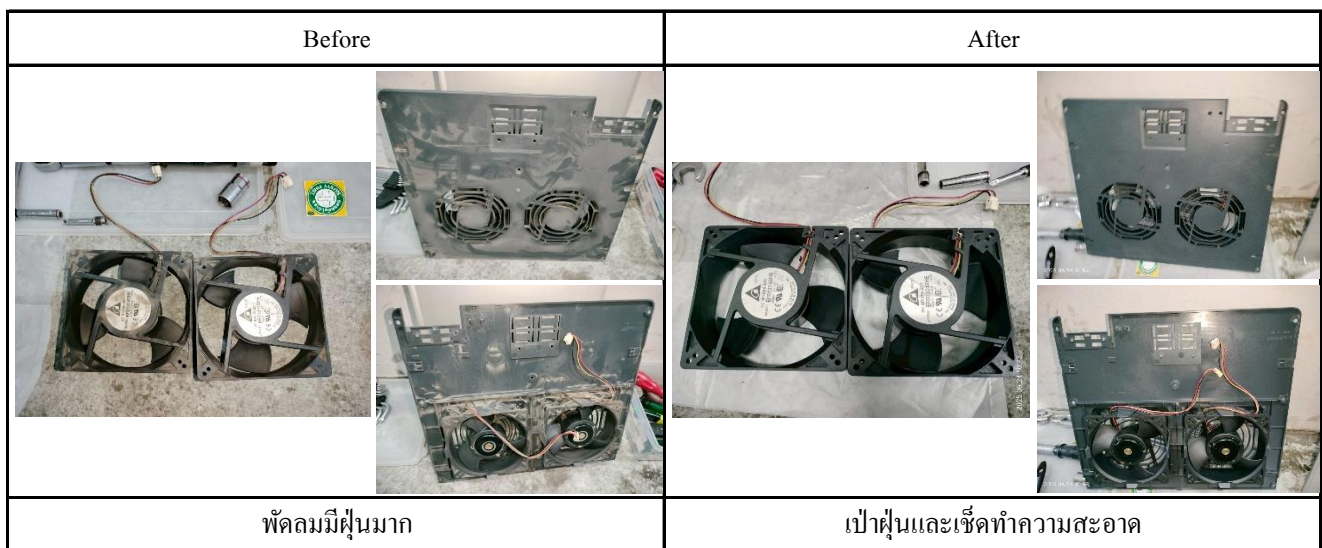
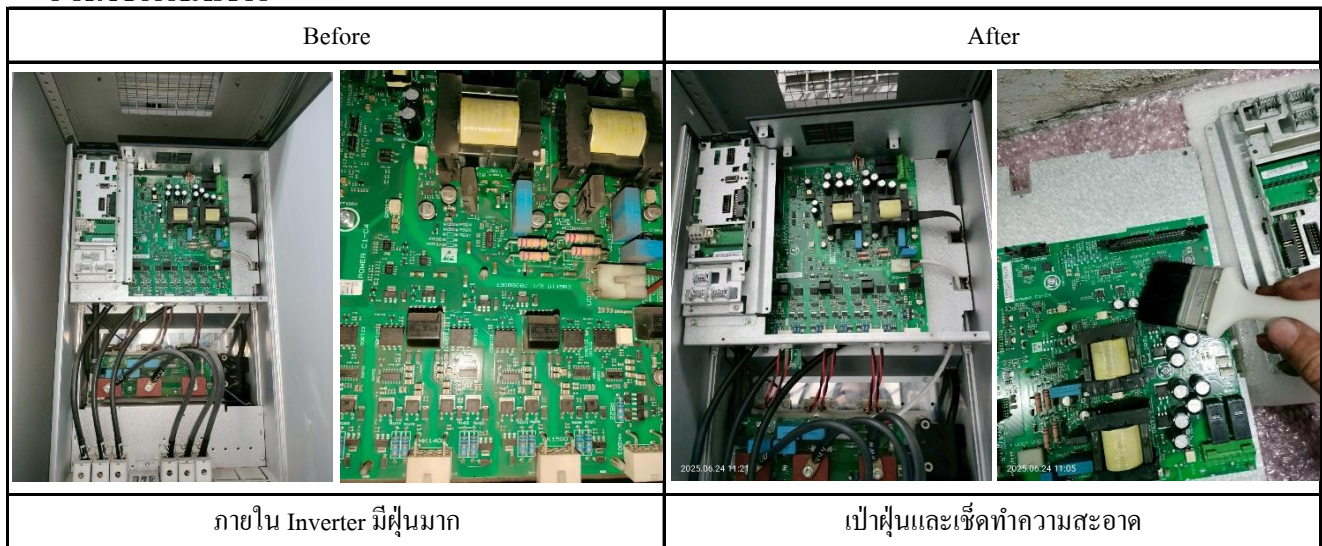
Before	After
	
Inverter และ พัดลมมีฝุ่นมาก	เป่าและเช็ดทำความสะอาด

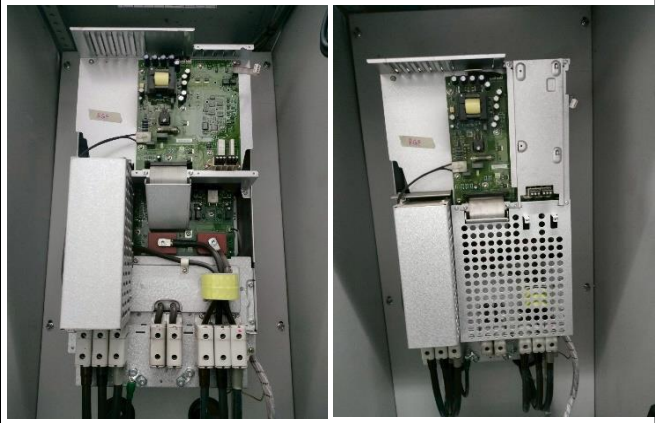
Before	After
	
ภายใน Inverter มีฝุ่นมาก	เป่าและเช็ดทำความสะอาด

Before	After
	
ภายใน Cover มีฝุ่นมาก	เป่าและเช็ดทำความสะอาด



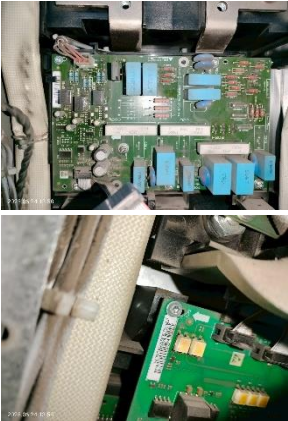




Before	After
	
Inverter มีฝุ่นมาก	เป่าฝุ่นและเช็ดทำความสะอาด

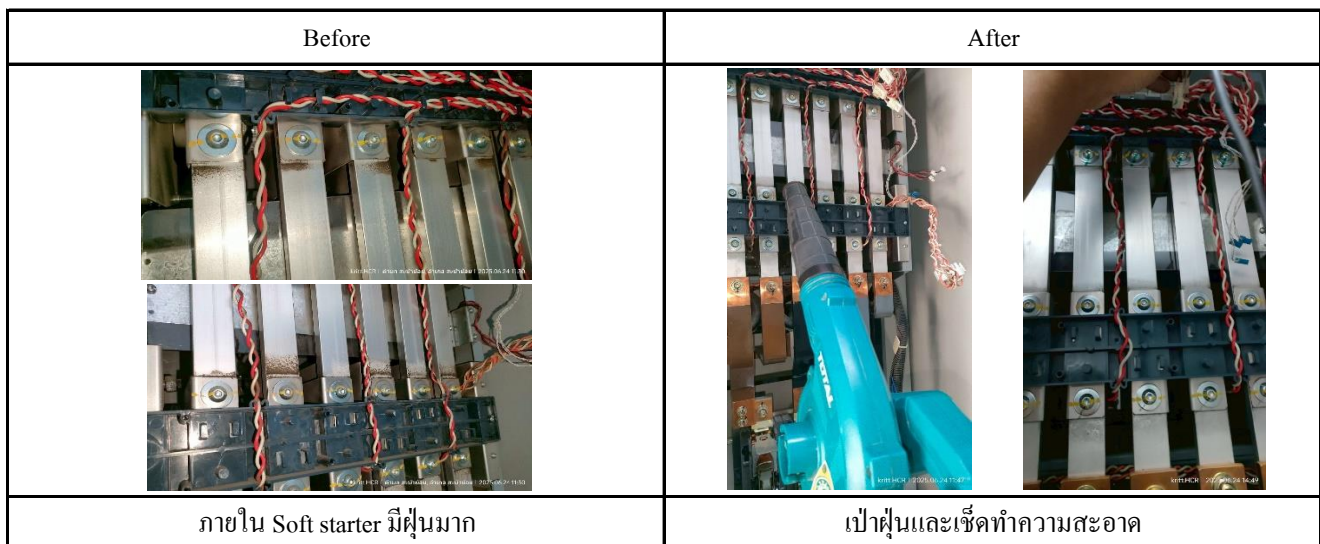
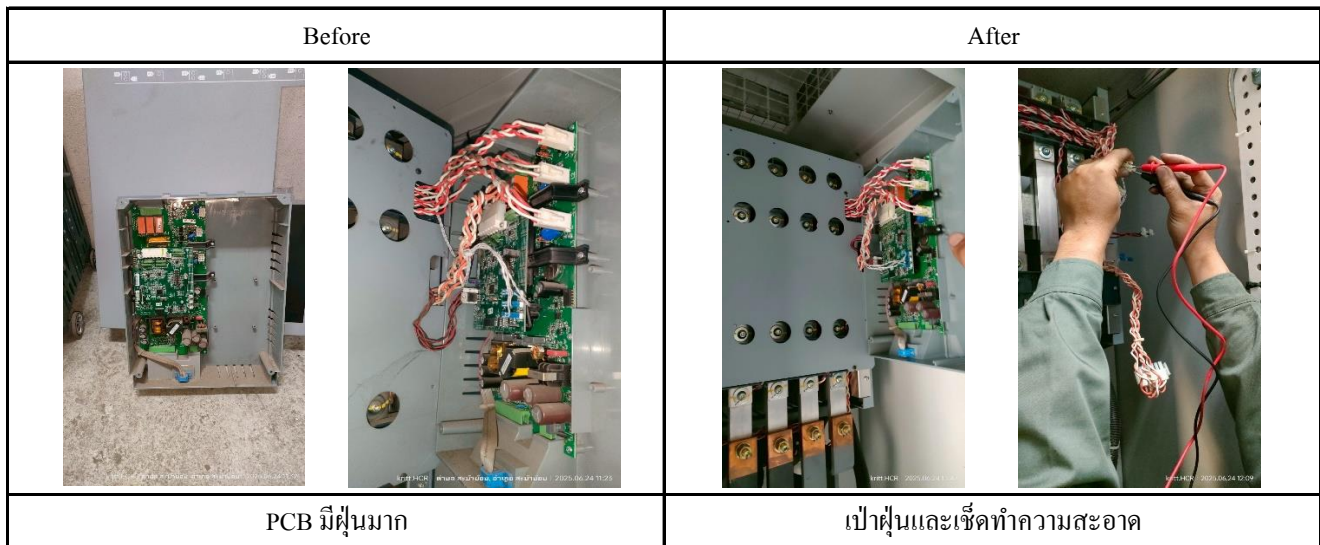
Before	After
	
Cover มีฝุ่นมาก	เป่าฝุ่นและเช็ดทำความสะอาด

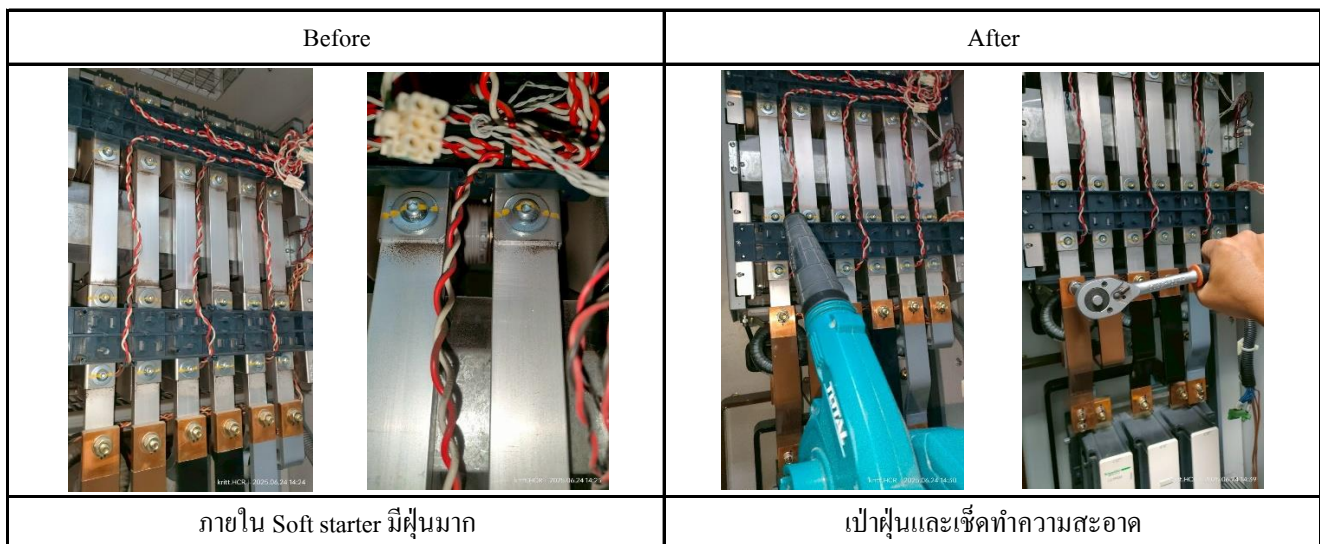
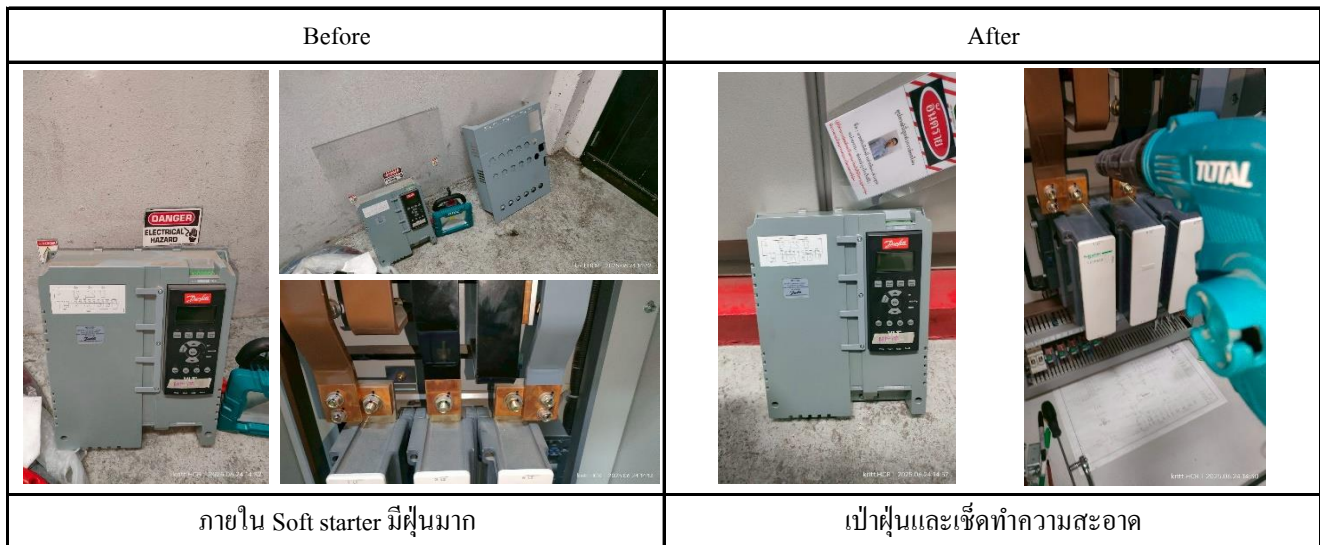
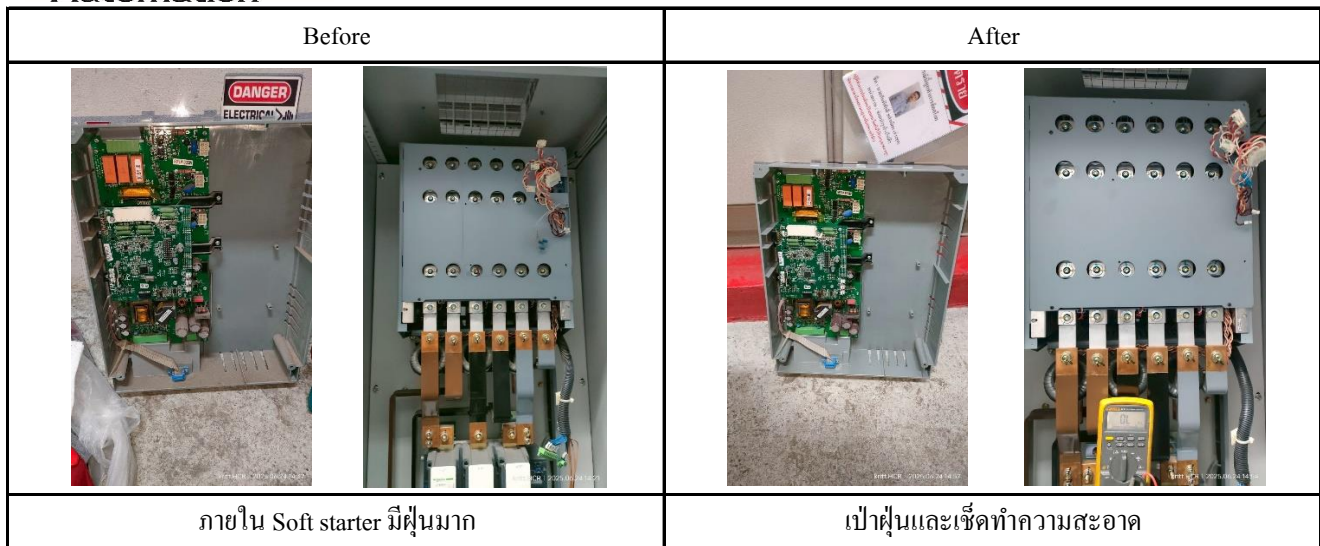
Before	After
	
พัดลมมีฝุ่นมาก	เป่าฝุ่นและเช็ดทำความสะอาด

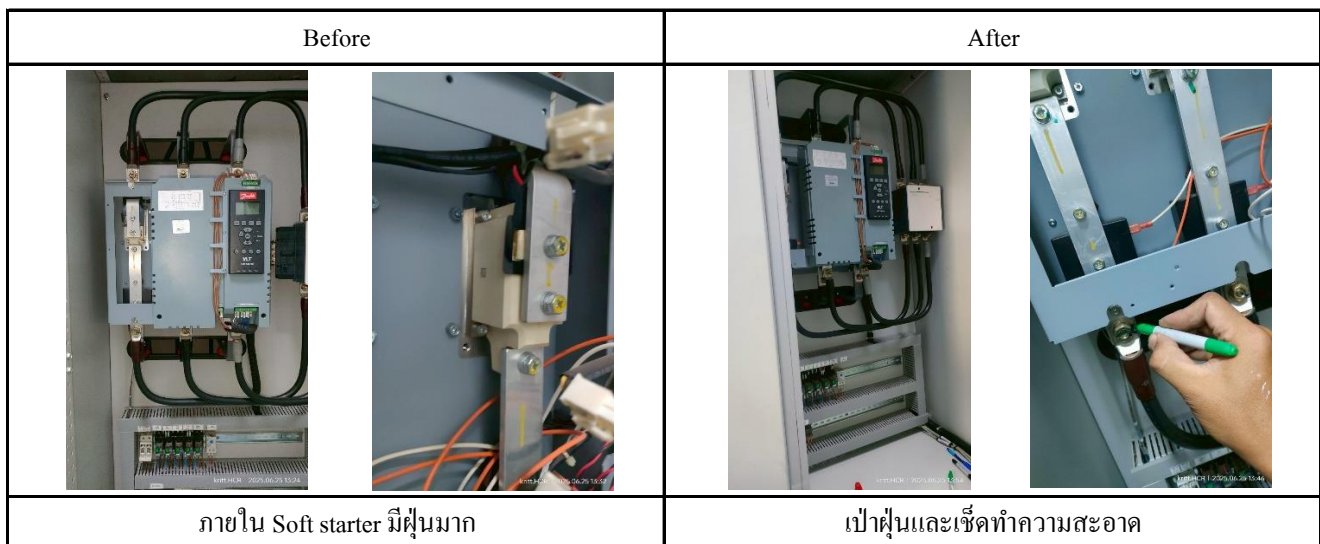
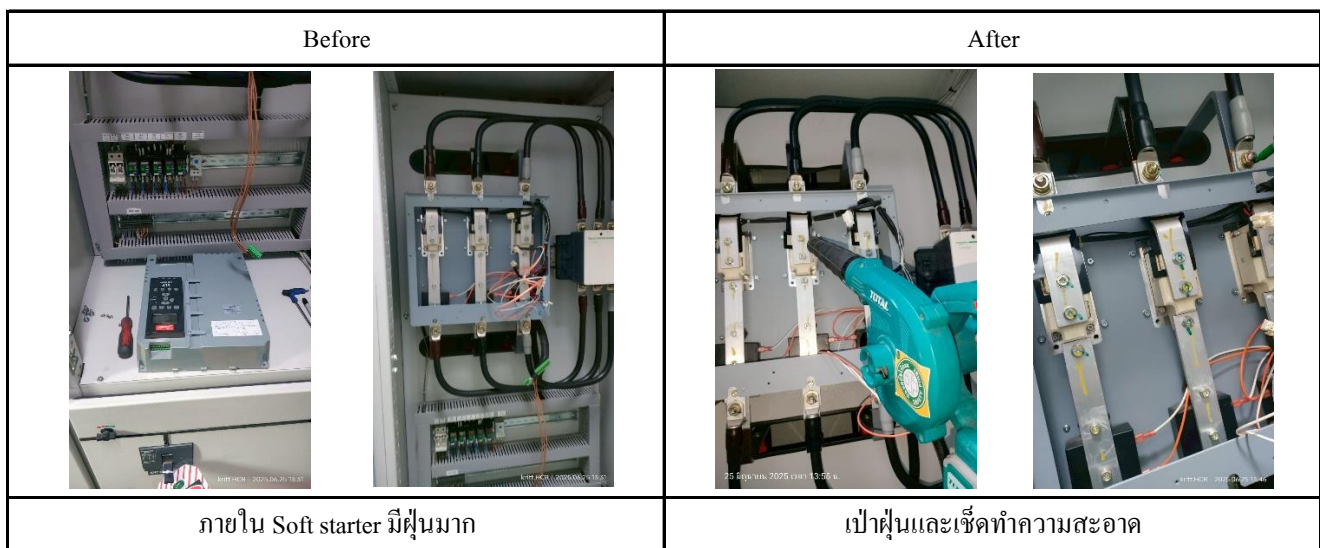
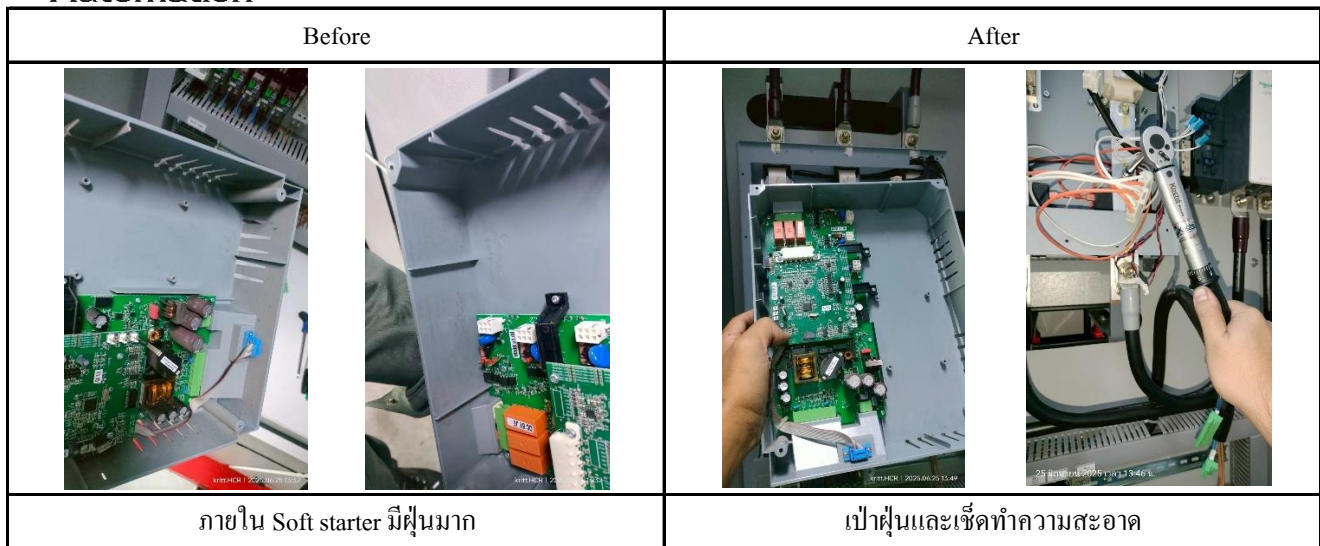
Before	After
 	 
ภายใน Inverter มีฝุ่นมาก	เป่าฝุ่นและเช็ดทำความสะอาด

Before	After
 	 
Cover มีฝุ่นมาก	เป่าฝุ่นและเช็ดทำความสะอาด

Before	After
	
พัดลมมีฝุ่นมาก	เป่าฝุ่นและเช็ดทำความสะอาด

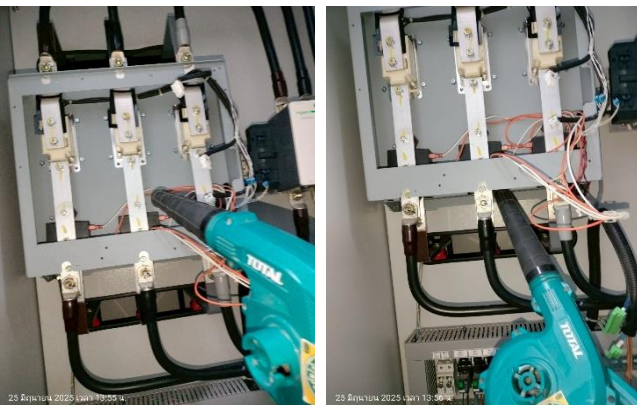






Before	After
	
ภายใน Soft starter มีฝุ่นมาก	เช็ดทำความสะอาด และขันน็อต Terminal

Before	After
	
ภายใน Soft starter มีฝุ่นมาก	เป่าฝุ่นและเช็ดทำความสะอาด

Before	After
	
ภายใน Soft starter มีฝุ่นมาก	เป่าฝุ่นและเช็ดทำความสะอาด

