

REVISION A: November 16, 2009

REPORT NO. 52431-01

INSPECTION, TEST AND EVALUATION
OF

Interlock Kits

SUBMITTED TO

MASTER ELECTRICAL SERVICES
3107 LANVALE AVENUE
RICHMOND, VA 23230

****Now Known as Generator Interlock Technologies LLC.****

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WYLE LABORATORIES, INC.

WYLE is a Nationally Recognized Testing Laboratory (NRTL)

**TEST AND EVALUATION REPORT
WYLE LABORATORIES, INC.**

7800 Highway 20 West, Huntsville, Alabama 35806

Purchase Order No. 0002094

REPORT NO. 52431-01
INSPECTION, TEST AND EVALUATION
OF

Interlock Kits

GENERAL: This report gives the result of the inspection, test, and evaluation of four models of the Generator Interlock Technologies, Generator Interlock Kit for suitability as an accessory intended for use with panelboards listed to UL Standard for Safety for Panelboards, UL 67 Eleventh Edition. Mr. Ben Waldrup, General Operating Manager, authorized this investigation. Four samples in good condition were provided by the client mounted into electrical panel boards according to the instructions included. These samples were subsequently tested and evaluated at Wyle Laboratories Huntsville, Alabama facility.

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Applicant: MASTER ELECTRICAL SERVICES LLC
3107 LANVALE AVENUE
RICHMOND, VA 23230

Contact: Ben Waldrup
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Email: bwaldrup@master-electrical.com

Manufacturer: SAME AS APPLICANT

Revisions

REVISION A

REPORT NO. T52431-01

DATE November 16, 2009



REV.	DATE	PAGE OR PARAGRAPH AFFECTED	BY	APPL.	DESCRIPTION OF CHANGES
A	11/16/09	Title Page	<i>PO</i> 11/17/09	<i>ROK</i> 11/17/09 <i>BM</i> 11/17/09	Removed Wyle Laboratories NRTL logo.
A	11/16/09	Page 2 GENERAL	<i>PO</i> 11/17/09	<i>ROK</i> 11/17/09 <i>BM</i> 11/17/09	Replaced this section.
A	11/16/09	Page 5 PRODUCT DESCRIPTION	<i>PO</i> 11/17/09	<i>ROK</i> 11/17/09 <i>BM</i> 11/17/09	Replaced last sentence.
A	11/16/09	Page 5 TEST PERFORMANCE	<i>PO</i> 11/17/09	<i>ROK</i> 11/17/09 <i>BM</i> 11/17/09	Replaced first sentence.
A	11/16/09	Page 7 CONDITIONS OF ACCEPTABILITY	<i>PO</i> 11/17/09	<i>ROK</i> 11/17/09 <i>BM</i> 11/17/09	Added this section.

Revisions

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REV.	DATE	PAGE OR PARAGRAPH AFFECTED	BY	APPL	DESCRIPTION OF CHANGES
A	11/16/09	Page 7 SUITABILITY STATEMENT AUTHORIZATION	<i>AD</i> 11/17/09	<i>RA</i> 11/17/09 <i>EM</i> 11/16/09	Added this section.
A	11/16/09	Page 7 TEST REPORT NUMBER	<i>AD</i> 11/17/09	<i>RA</i> 11/17/09 <i>EM</i> 11/16/09	Added this section.
A	11/16/09	Page 7 SUITABILITY STATEMENT USE	<i>AD</i> 11/17/09	<i>RA</i> 11/17/09 <i>EM</i> 11/16/09	Added this section.
A	11/16/09	Page 8 FOLLOW-UP SERVICE	<i>AD</i> 11/17/09	<i>RA</i> 11/17/09 <i>EM</i> 11/16/09	Added this section.

PRODUCT DESCRIPTION**PRODUCT COVERED:**

K-XXXX, X representing any number 0-9

PRODUCT DESCRIPTION:

The Interlock Kit is a mechanical device consisting of two plates, one which sits on the face of the panel cover. One plate slides between the main and generator breaker positions to prevent one of the breakers from being in the on position when the other breaker is on. The device has been evaluated for suitability as an accessory intended for use with panelboards listed to UL Standard for Safety for Panelboards, UL 67 Eleventh Edition.

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MODEL DIFFERENCES:

The difference between the models is the shape and physical size of the interlock kit. The interlock kits are shaped and sized differently to be installed on panel covers of various types, manufacturers, and models of panelboards.

ELECTRICAL RATINGS:

Not Applicable

TEST PERFORMANCE

Two representative samples of the product were tested for suitability as an accessory intended for use with panelboards listed to UL Standard for Safety for Panelboards, UL 67 Eleventh Edition.

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Testing was performed on a representative sample of two different model Interlock Kits, which were determined to represent the worst case conditions.

The following tests were performed:

Description	Clause
Temperature Test	19
Bonding Resistance Test	24

Results of the tests indicate the specimen conforms to the applicable test criteria.

The panels utilized for the testing of the interlock kits contained eight appropriately sized breakers, including the main and generator breakers. The breakers directly opposite and below the interlock were loaded as follows:

Interlock Kit	Interlock Position	Breaker Location	Load
K-6010	Mains On	50 A Breaker on Left Side (Directly Opposite Generator Breaker)	34 A
K-6010	Mains On	15 A Breaker on Right Side (Directly Below Breaker)	14 A
K-6010	Generator On	50 A Breaker on Left Side (Directly Opposite Generator Breaker)	21 A
K-6010	Generator On	15 A Breaker on Right Side (Directly Below Breaker)	6 A
K-5010	Mains On	15 A Breaker on Left Side (Directly Opposite Generator Breaker)	14 A
K-5010	Mains On	15 A Breaker on Right Side (Directly Below Breaker)	14 A
K-5010	Generator On	15 A Breaker on Left Side (Directly Opposite Generator Breaker)	14 A
K-5010	Generator On	15 A Breaker on Right Side (Directly Below Breaker)	14 A

CONCLUSION

Representative samples of the product covered by this report have been evaluated and found to be suitable for use with UL 67 listed panelboards provided the Conditions of Acceptability are met.

STATE OF ALABAMA }
COUNTY OF MADISON }

Robert D. Hardy, being duly sworn, deposes and says The information contained in this report is the result of complete and carefully conducted testing and is to the best of his knowledge true and correct in all respects.

SUBSCRIBED and sworn to before me this _____ day of _____, 2005

Notary Public in and for the State of Alabama at Large

My Commission expires _____, 200__

Wyle shall have no liability for damages of any kind to person or property, including special or consequential damages, resulting from Wyle's providing the services covered by this report.

TEST BY: _____
Holly R. Foster, Sr. Engineering Aide Date

APPROVED BY: _____
Barbara A. Brooks, Test Supervisor Date

(bab)



MANUFACTURING AND PRODUCTION TESTS:

There are no manufacturing or production tests required.

CONDITIONS OF ACCEPTABILITY

The components evaluated in this report must meet certain requirements when installed in end use. These conditions are as follows:

- In end use, the product evaluated in this report, must be installed on the specific brand of UL 67 listed panelboard as intended according to the manufacturers documentation.
- The product, in end use must be installed in accordance with the manufacturers' installation instructions.
- The product must be installed in end use by a qualified installer and in accordance with the current National Electrical Code (NFPA 70).

SUITABILITY STATEMENT AUTHORIZATION

Based on the data presented in this report, the subject of this report is authorized to display the Wyle statement below. The subject of this report should bear the statement shown as evidence of suitability for use with UL 67 Listed Panelboards. If the product size prevents the statement from being applied to the product, the statement must appear in the accompanying instructions for use.

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Tested for use with UL 67 Listed Panelboards Ref. Wyle Laboratories Test Report T52431-01
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TEST REPORT NUMBER

This product will be considered as a suitable accessory under Wyle Laboratories' Report Number T52431-01 as long as the periodic site inspections demonstrate conformance to the mechanical and electrical configuration as delineated in this document. Revocation of the approval voids the authorization above.

SUITABILITY STATEMENT USE

The Wyle suitability statement applied to the products shall either be separable in form, such as a product nameplate or other media only as specifically authorized by Wyle Laboratories. Use of the suitability statement is subject to the control of Wyle Laboratories.

FOLLOW-UP SERVICE

Wyle Laboratories shall conduct random, quarterly, unannounced inspections to ensure conformance with the test and evaluation report, test standards, field inspections, and to monitor and ensure proper use of the Wyle Suitability Statement. Special attention will be given to the following:

1. Conformance of the manufactured products to the descriptions in the report.
2. Conformance of the use of the Wyle Suitability Statement with the requirements of this report and the Follow-Up Services Agreement.
3. In-plant quality control procedures and personnel.
4. Manufacturing changes.
5. Performance of specified Manufacturing and Production Tests (if applicable).

In the event that the Wyle representative identifies non-conformance(s) to any provision of this report, the Applicant shall take one or more of the following actions:

1. Correct the non-conformance.
2. Remove the Wyle Suitability Statement from the non-conforming product.
3. Contact the issuing product safety evaluation center for instructions.

GENERAL REQUIREMENTS AND DEFINITIONS:

Recognized – Identifies any component, part, or subassembly covered under the recognition service of an NRTL (US) or a CO (Canada) and intended for use in Listed, Certified, or Recognized products.

Listed – Identifies any product covered under the Listing or Certification service of an NRTL or a CO.

Construction Details – For specific construction details, reference should be made to the following photographs and descriptions. All dimensions are approximate unless specified as exact or within a tolerance. In addition to the specific construction details described in this Report, the following general requirements also apply.

1. **Mechanical Assembly** – Components such as switches and wiring terminals are reliably mounted and prevented from shifting or rotating by screws or the mounting format.
2. **Corrosion Protection** – All ferrous metal parts are suitably protected against corrosion by painting, plating, or the equivalent.

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3. **Internal Wiring** – Internal wiring is reliably routed away from sharp or moving parts. Internal wiring leads terminate in soldered connections made mechanically secure prior to soldering.
4. **Current Carrying Parts** – All current carrying parts are of silver, copper, or a copper base alloy.
5. **Accessibility of Live Parts** – All uninsulated live parts are housed within an enclosure and are adequately protected from contact by the articulated finger probe.
6. **Over-Voltage/Overload Protection** – The models are all protected against overvoltage by an overcurrent protection inherent in the power supply.
7. **Markings** – The unit is marked with the manufacturer's name, model number, electrical ratings, and cautionary markings where required.

GENERAL REQUIREMENTS AND DEFINITIONS (Continued):

8. **Instruction Manual** – An instruction manual is provided with each unit that is shipped from the factory. The instruction may be in the form of a separate booklet, or sheet, or may be part of the instruction manual, but in any case, they shall be separated in format from other instructions and shall appear before any operating instructions. The letters in text and illustrations in the instructions shall be clearly legible. “IMPORTANT SAFETY INSTRUCTIONS” and “SAVE THESE INSTRUCTIONS” shall be emphasized and clearly distinguishable from the rest of the text.
9. **Definitions** – Unless specifically stated otherwise, the following general definitions, terminology, and construction details apply:
 - a) **Dimensions** – All dimensions specified are approximate and are within plus or minus one-tenth of the base unit, unless stated otherwise.
 - b) **Listed** – Listed or certified by an accredited Certification Organization.
 - c) **Component** – Accepted by an accredited Certification Organization with certain restrictions, and appears in that organization’s list of accepted components.
 - d) **Recognized (or Listed) Equivalent** – A recognized (or listed) component of similar physical characteristics with electrical ratings that are the same as or lower than those specified for the base components identified in the report.
 - e) **Unlisted components** – No recognized third-party certification.

CONSTRUCTION DETAILS:

The construction details listed below are representative of the InterLock Kit product line.

The total weight of the Model K-6010 is approximately 358.3 g and measures approximately 166 mm high by 102 mm wide.

The total weight of the Model K-6510 is approximately 111.6 g and measures approximately 162 mm high by 54 mm wide.

The total weight of the Model K-5010 is approximately 192.3 g and measures approximately 124 mm high by 79 mm wide.

The total weight of the Model K-8010 is approximately 342.5 g. and measures approximately 151 mm high by 108 mm wide.

The Interlock Kits are constructed of aluminum, measuring approximately 3 mm thick and are secured to the panel board with a minimum of three screws and locktite.

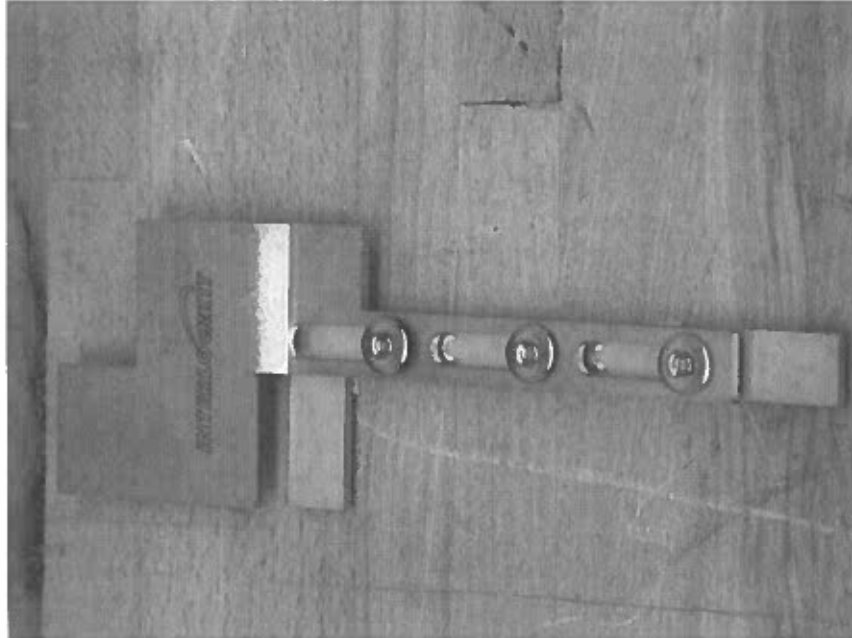
WYLE LABORATORIES, INC.
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MASTER ELECTRICAL SERVICES

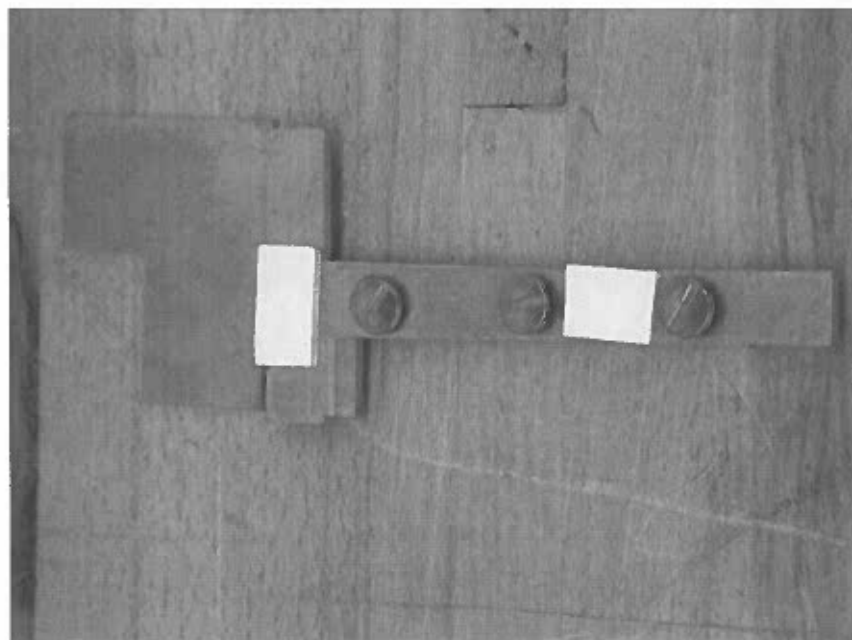
Issued: 8/10/2005

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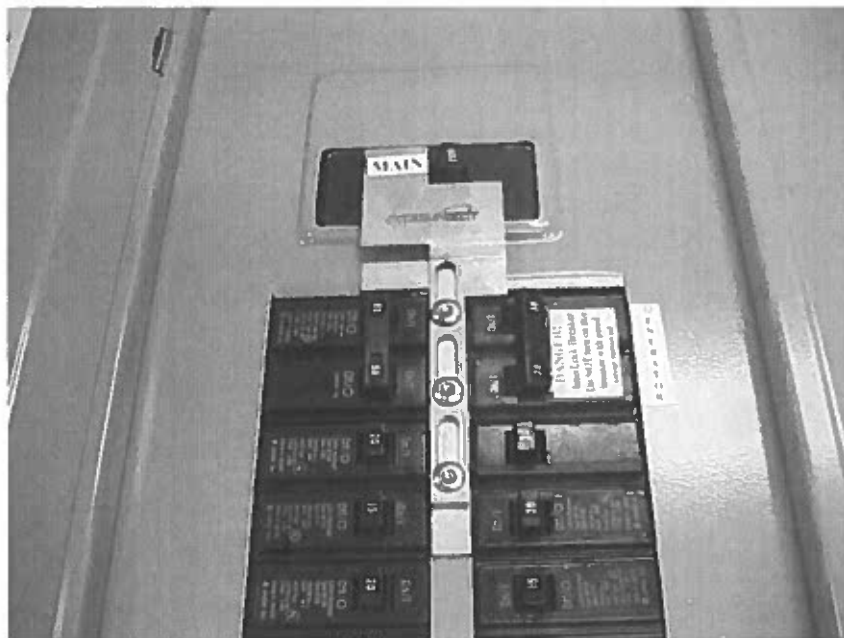
**ATTACHMENT A
PHOTOGRAPHS**



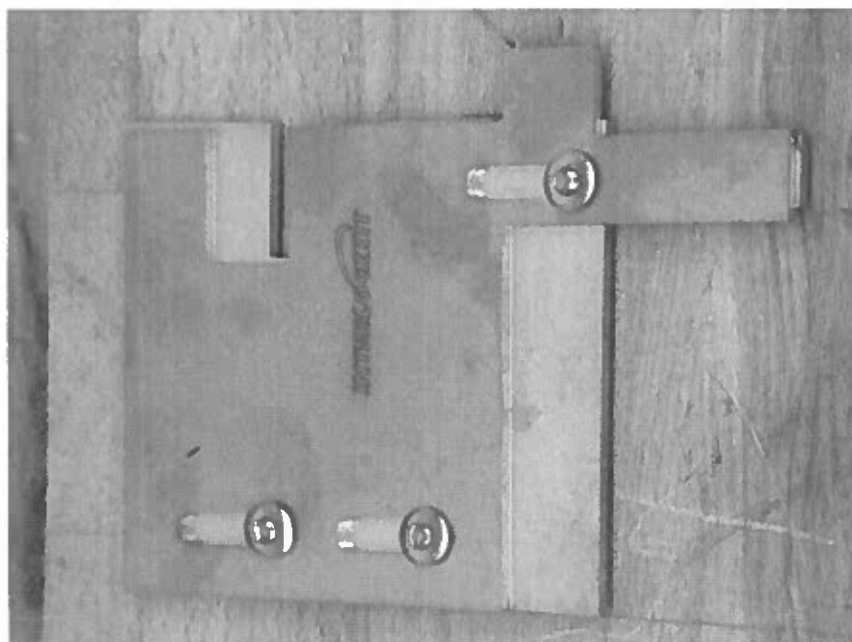
Photograph A-1
K-6510 INTERLOCK KIT (Front View)



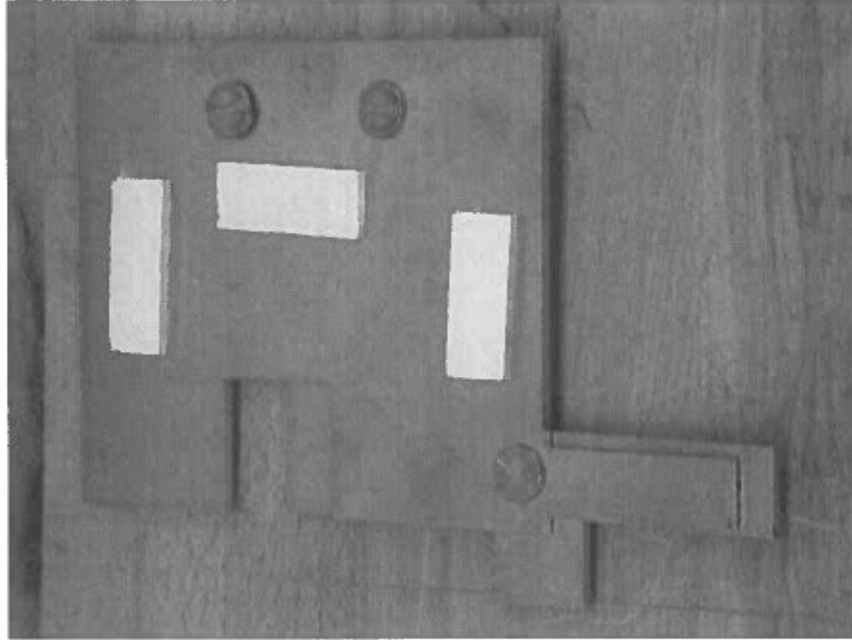
Photograph A-2
K-6510 INTERLOCK KIT (Rear View)



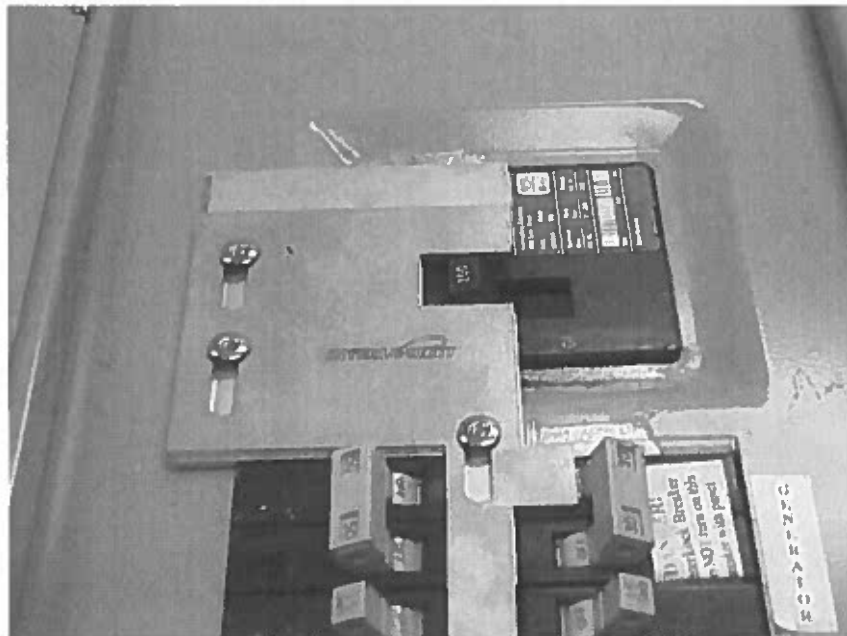
Photograph A-3
K-6510 INTERLOCK KIT (As installed)



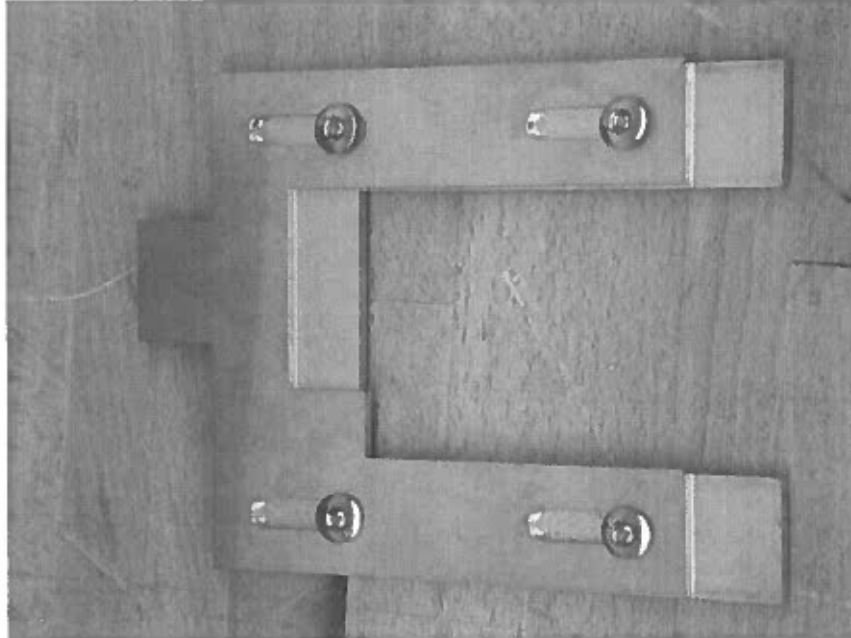
Photograph A-4
K-6010 INTERLOCK KIT (Front View)



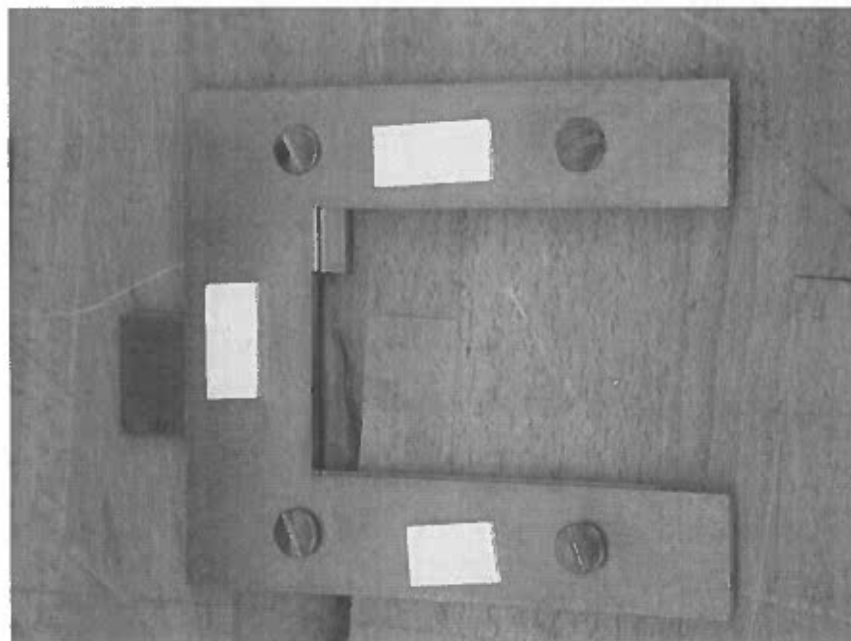
Photograph A-5
K-6010 INTERLOCK KIT (Rear View)



Photograph A-6
K-6010 INTERLOCK KIT (As Installed)



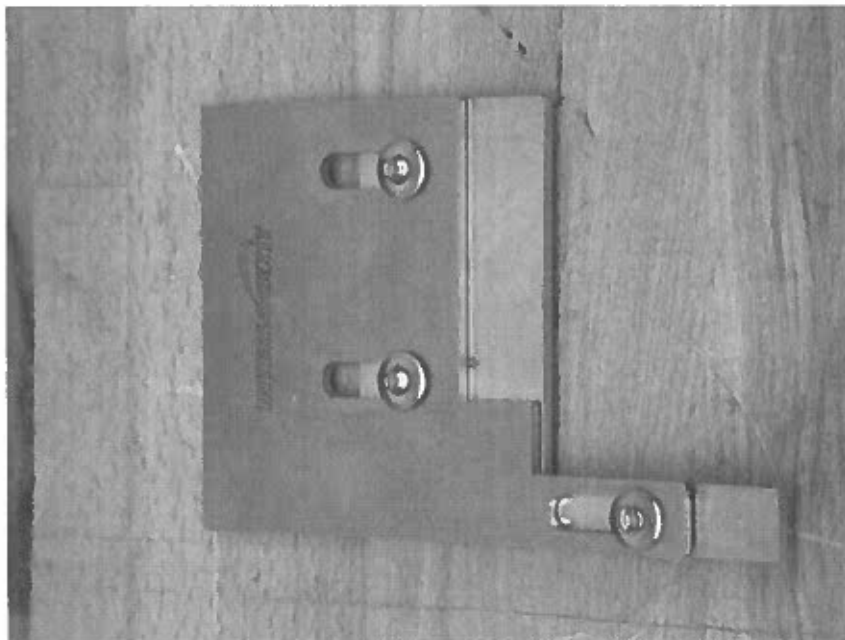
Photograph A-7
K-8010 INTERLOCK KIT (Front View)



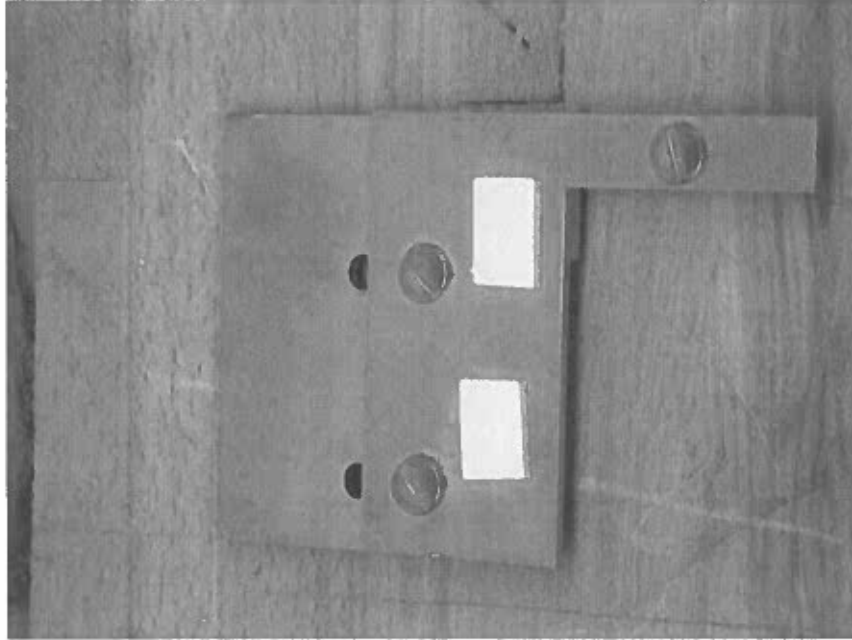
Photograph A-8
K-8010 INTERLOCK KIT (Rear View)



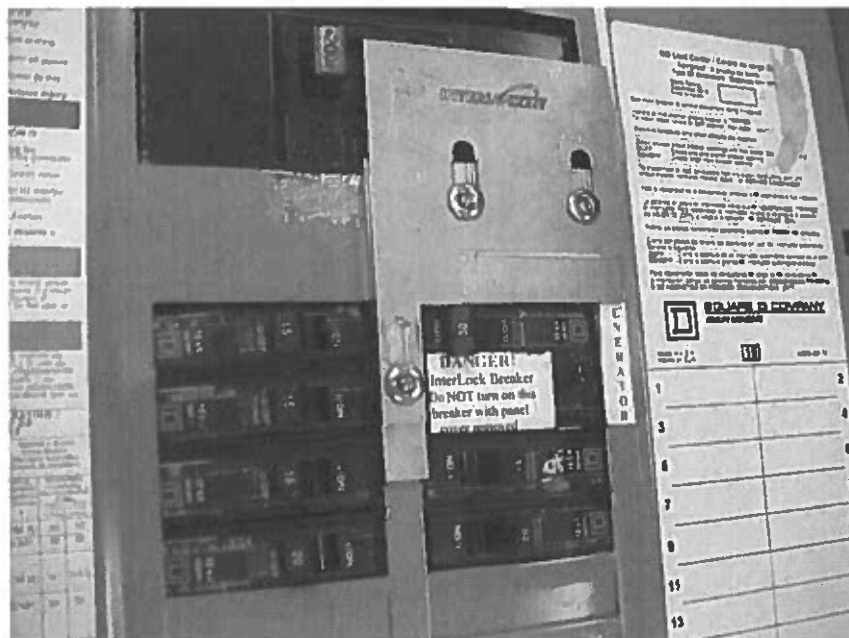
Photograph A-9
K-8010 INTERLOCK KIT (As Installed)



Photograph A-10
K-5010 INTERLOCK KIT (Front View)



Photograph A-11
K-5010 INTERLOCK KIT (Bottom View)



Photograph A-12
K-5010 INTERLOCK KIT (As Installed)

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Master Electrical Services

Issued: 8/10/2005

REVISION A

ATTACHMENT B
SAFETY WARNINGS AND LABELS

INTRODUCTION INTERLOCK KIT K-6010

INTERLOCKKIT

This manual provides instructions for safe installation of the *InterLock* Kit onto a Cutler Hammer panel. The back plate sits securely on the face of the panel cover while allowing the front plate to slide between the main and generator breaker positions. The *InterLock* Kit will only allow one of these breakers to be in the "ON" position meeting the requirements of Article 702 of the National Electric Code ANSI/NFPA 70.

SAFETY PRECAUTIONS

WARNING: HAZARD OF ELECTRIC SHOCK OR EXPLOSION

- This kit must be installed and serviced only by qualified electrical personnel
- Turn off all power supplying the equipment where this kit will be installed before working on or inside the equipment
- Always use a properly rated voltage sensing device to confirm that all power is off
- Replace all devices, doors, and covers after installing this kit before turning on power to the equipment
- Always wear safety eyewear while drilling or working around electrical equipment

FAILURE TO FOLLOW THESE INSTRUCTIONS CAN RESULT IN SERIOUS INJURY OR DEATH

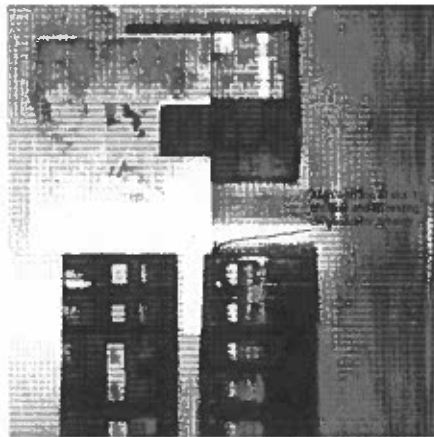
INSTALLATION INSTRUCTIONS

- 1) Disconnect power to the panel
- 2) Separate plates. Remove backing from the double stick tape. Align back plate (P-6011) with the top of the slot 1 breaker with the lip resting on the top of the slot 2 breaker on the front of the panel cover. See **Figure I** (Do not drill holes at this time)
- 3) Remove panel cover
- 4) Relocate breakers from slots 2 and 4 (top 2 spaces of the right breaker column) utilizing piggyback breakers as necessary to create the needed spaces
- 5) Install generator breaker in the 2,4 slot.
- 6) On suitable surface use included 11/64 drill bit (H-6015) to drill holes in the panel cover through the predrilled holes on the back plate (P-6011)
- 7) Use file to smooth surface around holes and remove the burrs on back of panel cover. **On the back of the panel cover file away paint to allow entire screw head to sit with metal to metal contact.** The binder screws (H-6014) must sit flush with the back of the panel cover
- 8) Insert binder screws (H-6014) through the back of the panel cover, back plate (P-6011), and front plate (P-6012). Use the binder post (H-6013) to attach to front of binder screws (H-6014). Handhold binder post (H-6013) while using screwdriver

to tighten the binder screws (H-6014). Back plate should sit firmly and the front plate should slide easily. Be careful not to over-tighten.

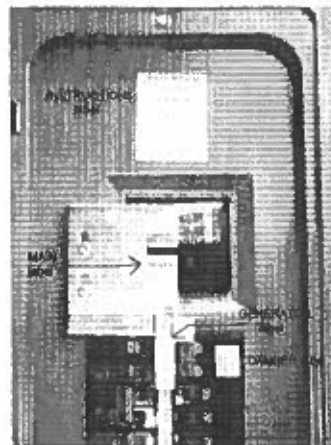
- 9) Set generator and main breakers in the "OFF" position and reattach panel cover

Figure I




- 10) With the panel cover firmly in place test the *InterLock* to make sure that it transfers easily between positions. BOTH BREAKERS SHOULD NOT BE ABLE TO BE IN THE "ON" POSITION AT THE SAME TIME. Even with moderate pressure you should not be able to engage both breakers at once.
- 11) Apply thread lock (H-6016) to all four binder posts (H-6013) as per instructions included with the thread lock
- 12) Attach labels as shown in **Figure II**
- 13) Reconnect power to the panel

Figure II



<u>KIT CONTENTS</u>			<u>TOOLS NEEDED TO INSTALL</u>
Description	Quantity	Part #	
Back plate	1	P-6011	- Drill or cordless drill
Front plate	1	P-6012	- Flathead screwdriver
Binder post	5	H-6013	- Metal file
Binder screw	5	H-6014	- Accurate voltage sensor
Drill bit 11/64	1	H-6015	
Thread lock pipette	1	H-6016	
Instruction booklet	1	W-6017	
Main label	1	W-6018	
DANGER label	1	W-6019	
Generator label	1	W-6020	
Instructions label	1	W-6021	

CONTACTING US
You can contact us by phone at (804) 726-2448 or by fax at (804) 231-1984
Questions or comments:
questions@interlockkit.com

<u>OPERATION INSTRUCTIONS</u>	<u>STATEMENT OF LIABILITY</u>
<p>TO SWITCH OPERATION FROM MAIN TO GENERATOR</p> <ol style="list-style-type: none">1) Turn main breaker to the "OFF" position2) Turn all branch circuits to the "OFF" position3) Slide <i>InterLock</i> plate up4) Connect and start generator5) Turn generator breaker to the "ON" position6) Turn on essential circuits one at a time WARNING: Allow appliances to start before engaging next circuit <p>TO RETURN TO MAIN POWER REVERSE PROCEDURE</p>	<p>Electrical equipment should be installed, operated, serviced, and maintained by qualified personnel. No responsibility is assumed by Generator InterLock Technologies, LLC for any consequences arising out of the misuse of this material.</p> <p>Listed to UL 67 by</p>  <p>File # 52431</p>

**ATTACHMENT C
TEST DATA**

Maximum Temperatures Data Sheet **wyle**
Laboratories

Job No.:	52431	Date:	07/14/05			
Customer:	Master Electric					
Specimen ID:	Interlock Kit for Square D Panel					
Serial No.:	K - 5010					
Standard(s)	UL 67					
Clause	19					
Rated Voltage or Voltage Range	208 (Input)					
Rated Freq. or Freq. Range	60					
Upper Limit (+10%)		x 1.10 V =	0.00 V			
Lower Limit (- 10%)		x 0.9 V =	0.00 V			
Duty Cycle/Operating Condition	Operational (Mains Breaker On)					
Thermocouple Type	J - Type					
T.C. Locations	T.C. Wyle #	Measured (°C)			Allowed Δ from Ambient	
		120 V 60 Hz	120 V 60 Hz	120 V 60 Hz		
1	Upper Left Corner of Interlock Panel	110699	27.8	27.9	27.9	----
2	Lower Left Corner of Interlock Panel	110700	28.6	28.5	28.6	----
3	Upper Right Corner of Interlock Panel	110701	27.6	27.6	27.6	----
4	Lower Right Corner of Interlock Panel	110702	28.8	27.7	27.9	----
5	Center of Interlock Panel	110703	27.9	27.9	27.9	----
6	Not Used	110704	N/A	N/A	N/A	----
7	Right Side next to Interlock Panel	110705	26.8	26.7	26.7	----
8	15 Amp Breaker on Left Side	110706	30.4	29.4	29.2	----
9	15 Amp Breaker on Right Side	110707	28.6	28.5	28.4	----
10	Above Interlock Panel	110708	26.5	26.5	26.3	----
Ambient Temperature			22°C	23°C	23°C	
Ambient Humidity			69%	61%	60%	
Start Date/Time:			7-14/1330	7-14/1525	7-14/1530	
Stop Date/Time:			7-14/1520	7-14/1530	7-14/1535	
Compliance	X	Yes	Tested By: <i>[Signature]</i>		Date: 7/20/05	
		No	Approved By: <i>[Signature]</i>		Date: 10 Aug 05	

Maximum Temperatures Data Sheet **wyle**
Laboratories

Job No.:	52431	Date:	07/15/05			
Customer:	Master Electric					
Specimen ID:	Interlock Kit for Square D Panel					
Serial No.:	K - 5010					
Standard(s)	UL 67					
Clause	19					
Rated Voltage or Voltage Range	208 (Input)					
Rated Freq. or Freq. Range	60					
Upper Limit (+10%)		x 1.10 V =	0.00 V			
Lower Limit (- 10%)		x 0.9 V =	0.00 V			
Duty Cycle/Operating Condition	Operational (GENERATOR BREAKER ON)					
Thermocouple Type	J - Type					
T.C. Locations	T.C. Wyle #	Measured (°C)			Allowed Δ from Ambient	
		120 V 60 Hz	120 V 60 Hz	120 V 60 Hz		
1	Upper Left Corner of Interlock Panel	110699	25.7	25.7	25.8	----
2	Lower Left Corner of Interlock Panel	110700	26.4	26.4	26.6	----
3	Upper Right Corner of Interlock Panel	110701	26.4	26.3	26.5	----
4	Lower Right Corner of Interlock Panel	110702	28.1	28.3	28.3	----
5	Center of Interlock Panel	110703	26.7	26.7	26.7	----
6	Left Side next to Interlock Panel	110704	26.0	26.0	26.0	----
7	Right Side next to Interlock Panel	110705	25.3	25.3	25.4	----
8	30 Amp Breaker on Right Side	110706	36.1	36.0	35.9	----
9	15 Amp Breaker on Left Side	110707	27.3	27.5	27.4	----
10	Above Interlock Panel	110708	23.1	23.1	23.2	----
Ambient Temperature			17°C	20°C	20°C	
Ambient Humidity			68%	64%	63%	
Start Date/Time:			7-15/0835	7-15/1050	7-15/1055	
Stop Date/Time:			7-15/1045	7-15/1055	7-15/1100	
Compliance	X	Yes	Tested By: <i>James Kenton</i>		Date: 7/20/05	
		No	Approved By: <i>Paul Brock</i>		Date: 10 Aug 05	

Maximum Temperatures Data Sheet **wyle**
Laboratories

Job No.:	52431	Date:	07/18/05			
Customer:	Master Electric					
Specimen ID:	Generator Interlock Kit for Cutler Hammer Panel					
Serial No.:	K - 6010					
Standard(s)	UL 67					
Clause	19					
Rated Voltage or Voltage Range	208 (Input)					
Rated Freq or Freq. Range	60					
Upper Limit (+10%)		x 1.10 V =	0.00 V			
Lower Limit (- 10%)		x 0.9 V =	0.00 V			
Duty Cycle/Operating Condition	Operational (MAINS BREAKER ON)					
Thermocouple Type	J - Type					
T.C. Locations	T.C. Wyle #	Measured (°C)			Allowed Δ from Ambient	
		120 V 60 Hz	120 V 60 Hz	120 V 60 Hz		
1	Upper Left Corner of Interlock Panel	110699	30.4	30.7	31.1	----
2	Lower Left Corner of Interlock Panel	110700	32.4	32.9	33.5	----
3	Upper Right Corner of Interlock Panel	110701	30.0	30.3	30.8	----
4	Interlock Between 15 Amp and 30 Amp Breaker	110702	30.0	30.2	31.1	----
5	Interlock Next to 200 Amp Breaker	110703	30.4	30.7	31.2	----
6	Left Side next to Interlock Panel	110704	28.7	28.6	28.9	----
7	Right Side next to Interlock Panel	110705	30.7	31.1	31.8	----
8	Above Interlock Panel	110706	31.2	31.5	31.9	----
9	50Amp Breaker on Left Side	110707	39.5	40.2	41.0	----
10	15 Amp Breaker on Right	110708	31.3	31.8	32.8	----
Ambient Temperature			23°C	25°C	25°C	
Ambient Humidity			62%	56%	56%	
Start Date/Time:			7-18/1100	7-18/1205	7-18/1210	
Stop Date/Time:			7-18/1200	7-18/1210	7-18/1215	
Compliance	X	Yes	Tested By: <i>James A. M...</i> Date: 7/20/05			
		No	Approved By: <i>Barbara A. Black</i> Date: 10 Aug 05			

Maximum Temperatures Data Sheet **wyle**
laboratories

Job No.:	52431	Date:	07/19/05			
Customer:	Master Electric					
Specimen ID:	Generator Interlock Kit for Cutler Hammer Panel					
Serial No.:	K - 6010					
Standard(s)	UL 67					
Clause	19					
Rated Voltage or Voltage Range	208 (input)					
Rated Freq. or Freq. Range	60					
Upper Limit (+10%)		x 1.10 V =	0.00 V			
Lower Limit (- 10%)		x 0.9 V =	0.00 V			
Duty Cycle/Operating Condition	Operational (GENERATOR BREAKER ON)					
Thermocouple Type	J - Type					
T.C. Locations	T.C. Wyle #	Measured (°C)			Allowed Δ from Ambient	
		120 V 60 Hz	120 V 60 Hz	120 V 60 Hz		
1	Upper Left Corner of Interlock Panel	110699	22.9	23.0	23.1	----
2	Lower Left Corner of Interlock Panel	110700	23.0	23.1	23.1	----
3	Upper Right Corner of Interlock Panel	110701	22.9	23.1	23.1	----
4	30 Amp Generator Breaker	110702	27.3	27.5	27.5	----
5	Interlock Next to 200 Amp Breaker	110703	23.1	23.3	23.3	----
6	Left Side next to Interlock Panel	110704	23.0	23.3	23.3	----
7	Right Side next to Interlock Panel	110705	23.9	24.0	24.0	----
8	Above Interlock Panel	110706	23.0	23.0	23.1	----
9	15 Amp Breaker on Left Side	110707	24.8	25.0	25.0	----
10	50 Amp Breaker on Right Side	110708	24.0	24.1	24.1	----
Ambient Temperature			20°C	22°C	22°C	
Ambient Humidity			65%	64%	63%	
Start Date/Time:			7-19/1245	7-19/1350	7-19/1355	
Stop Date/Time:			7-19/1345	7-19/1355	7-19/1400	
Compliance	<input checked="" type="checkbox"/>	Yes	Tested By: <i>Jennifer Thomas</i> Date: <i>7/20/05</i>			
	<input type="checkbox"/>	No	Approved By: <i>Bernhard Block</i> Date: <i>10 Aug 05</i>			

WYLE LABORATORIES, INC.
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Report No. 52431-01
Master Electrical Services

Issued: 8/10/2005

REVISION A

**ATTACHMENT D
INSTRUMENTATION EQUIPMENT SHEET**



INSTRUMENTATION EQUIPMENT SHEET

DATE: 7/14/05 JOB NUMBER: 52431 TEST AREA: PRO SAFETY
TECHNICIAN: J. THOMAS CUSTOMER: MASTER ELECTRIC TYPE TEST: UL 67

NO.	INSTRUMENT	MANUFACTURER	MODEL #	SERIAL #	WYLE #	RANGE	ACCURACY	CAL DATE	CAL DUE
1	IMP MTR	PSC INC	30D	3166	112726	50AMP	1%	9/14/04	9/14/05
2	TEMP IND	OMEGA	MDSS41-TC	K0108078	116841	MULTI	±0.3°F	11/2/04	11/2/05
3	T/C	MEDTHERM	TC-J	1396510	396510	32 TO 1400°F	±2°F	3/18/05	3/17/06
4	T/C	MEDTHERM	TC-J	139659	139659	32 TO 1400°F	±2°F	3/18/05	3/17/06
5	T/C	MEDTHERM	TC-J	139658	139658	32 TO 1400°F	±2°F	3/18/05	3/17/06
6	T/C	MEDTHERM	TC-J	139657	139657	32 TO 1400°F	±2°F	3/18/05	3/17/06
7	T/C	MEDTHERM	TC-J	139656	139656	32 TO 1400°F	±2°F	3/18/05	3/17/06
8	T/C	MEDTHERM	TC-J	139655	139655	32 TO 1400°F	±2°F	3/18/05	3/17/06
9	T/C	MEDTHERM	TC-J	139654	139654	32 TO 1400°F	±2°F	3/18/05	3/17/06
10	T/C	MEDTHERM	TC-J	139653	139653	32 TO 1400°F	±2°F	3/18/05	3/17/06
11	T/C	MEDTHERM	TC-J	139652	139652	32 TO 1400°F	±2°F	3/18/05	3/17/06
12	T/C	MEDTHERM	TC-J	139651	139651	32 TO 1400°F	±2°F	3/18/05	3/17/06
13	TEMP IND	OMEGA	MDSS41-TC	4203D6	116000	MULTI	±0.2°	1/5/05	1/5/06
14	T/C	MEDTHERM	TC-J	1390910	110699	32 TO 1400°F	±2°F	2/23/05	2/23/06
15	T/C	MEDTHERM	TC-J	139091	110700	32 TO 1400°F	±2°F	2/23/05	2/23/06
16	T/C	MEDTHERM	TC-J	139092	110701	32 TO 1400°F	±2°F	2/23/05	2/23/06
17	T/C	MEDTHERM	TC-J	139093	110702	32 TO 1400°F	±2°F	2/23/05	2/23/06
18	T/C	MEDTHERM	TC-J	139094	110703	32 TO 1400°F	±2°F	2/23/05	2/23/06
19	T/C	MEDTHERM	TC-J	139095	110704	32 TO 1400°F	±2°F	2/23/05	2/23/06
20	T/C	MEDTHERM	TC-J	139096	110705	32 TO 1400°F	±2°F	2/23/05	2/23/06
21	T/C	MEDTHERM	TC-J	139097	110706	32 TO 1400°F	±2°F	2/23/05	2/23/06
22	T/C	MEDTHERM	TC-J	139098	110707	32 TO 1400°F	±2°F	2/23/05	2/23/06
23	T/C	MEDTHERM	TC-J	139099	110708	32 TO 1400°F	±2°F	2/23/05	2/23/06
24	DNM	FLUKE	87 CAT III	74260258	115802	MULTI	.05%, 1%, .2%	1/11/05	1/11/06
25	TAPE MEASURER	LUFKIN	ELISSI	116893	116893	15meter	±1mm	4/29/05	4/29/08
26	STOP WATCH	HANHART	STRATOSI	110130	110130	10HR	±0.5sec	6/6/05	9/2/05
27	TEMP RECORDER	DICKSON	THDX	6348805	113410	20-120°F	1.8°F	9/21/04	9/21/05

This is to certify that the above instruments were calibrated using state-of-the-art techniques with standards whose calibration is traceable to the National Institute of Standards and Technology.

INSTRUMENTATION Jennifer Thomas 7/14/05 CHECKED & RECEIVED BY Ruby Faeth 7/14/05

Q.A. Brenda Maxwell 7/14/05