

Models 1839

Forma Laminar Airflow Workstation Class 100
Operating and Maintenance Manual 7001839 Rev. 6



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A printed copy of the operating manual is available from Technical Services.

MANUAL NUMBER 7001839

6	29120	9/25/12	Added note for online warranty	ccs
5	25439/HD-1597	3/27/09	Added required UL info	ccs
4	23871/SI-9779	4/3/07	Black 460022 outlet (low volume) replaced by white 460024, schematics	ccs
3	21732/HD-1464	8/15/05	Updated parts list	ccs
--	21077/HD-1376	9/20/02	Removed certifiers list , added reference to website	ccs
2	19029/HD-1295	6/19/00	Changed 9 FLA on schematic to 4 with exclusion	ccs
1	18826/HD-1286	2/25/00	Added mercury disposal warning	ccs
--	18582/HD-1269	11/4/99	Added air flow test sheet to Certification Testing Procedures section	ccs
--	--	7/99	Revised Specifications Section 10	aks
0	--	3/95	Standard Manual	
REV	ECR/ECN	DATE	DESCRIPTION	By



Important Read this instruction manual. Failure to read, understand and follow the instructions in this manual may result in damage to the unit, injury to operating personnel, and poor equipment performance. ▲

Caution All internal adjustments and maintenance must be performed by qualified service personnel. ▲

Warning Lamps, thermometers, and thermoregulators contain mercury. Do not put in trash. Recycle or dispose as hazardous waste. ▲

Material in this manual is for information purposes only. The contents and the product it describes are subject to change without notice. Thermo Scientific makes no representations or warranties with respect to this manual. In no event shall Thermo be held liable for any damages, direct or incidental, arising out of or related to the use of this manual.

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Important operating and/or maintenance instructions. Read the accompanying text carefully.



Potential electrical hazards. Only qualified persons should perform procedures associated with this symbol.



Potential biological hazards. Proper protective equipment and procedures must be used when following instructions associated with this symbol. Reference O.S.H.A. Regulation 1910-1030.



Equipment being maintained or serviced must be turned off and locked off to prevent possible injury.



Skin damage and/or eye injury can result from the light produced by ultraviolet light (UV) sources installed in this equipment. Never work in this unit with the UV light operating.



Marking of electrical and electronic equipment, which applies to electrical and electronic equipment falling under the Directive 2002/96/EC (WEEE) and the equipment that has been put on the market after 13 August 2005.



This product is required to comply with the European Union's Waste Electrical & Electronic Equipment (WEEE) Directive 2002/96/EC. It is marked with the WEEE symbol. Thermo Scientific has contracted with one or more recycling/disposal companies in each EU Member State European Country, and this product should be disposed of or recycled through them. Further information on Thermo's compliance with this directive, the recyclers in your country and information on Thermo products will be available at www.thermofisher.com.

- ✓ Always use the proper protective equipment (clothing, gloves, goggles, etc.)
- ✓ Always dissipate extreme cold or heat and wear protective clothing.
- ✓ Always follow good hygiene practices.
- ✓ Each individual is responsible for his or her own safety.

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Our **Service Support** staff can supply technical information about proper setup, operation or troubleshooting of your equipment. We can fill your needs for spare or replacement parts or provide you with on-site service. We can also provide you with a quotation on our Extended Warranty for your Thermo Scientific products.

Whatever Thermo Scientific products you need or use, we will be happy to discuss your applications. If you are experiencing technical problems, working together, we will help you locate the problem and, chances are, correct it yourself...over the telephone without a service call.

When more extensive service is necessary, we will assist you with direct factory trained technicians or a qualified service organization for on-the-spot repair. If your service need is covered by the warranty, we will arrange for the unit to be repaired at our expense and to your satisfaction.

Regardless of your needs, our professional telephone technicians are available to assist you Monday through Friday from 8:00 a.m. to 6:00 p.m. Eastern Time. Please contact us by telephone or fax. If you wish to write, our mailing address is:

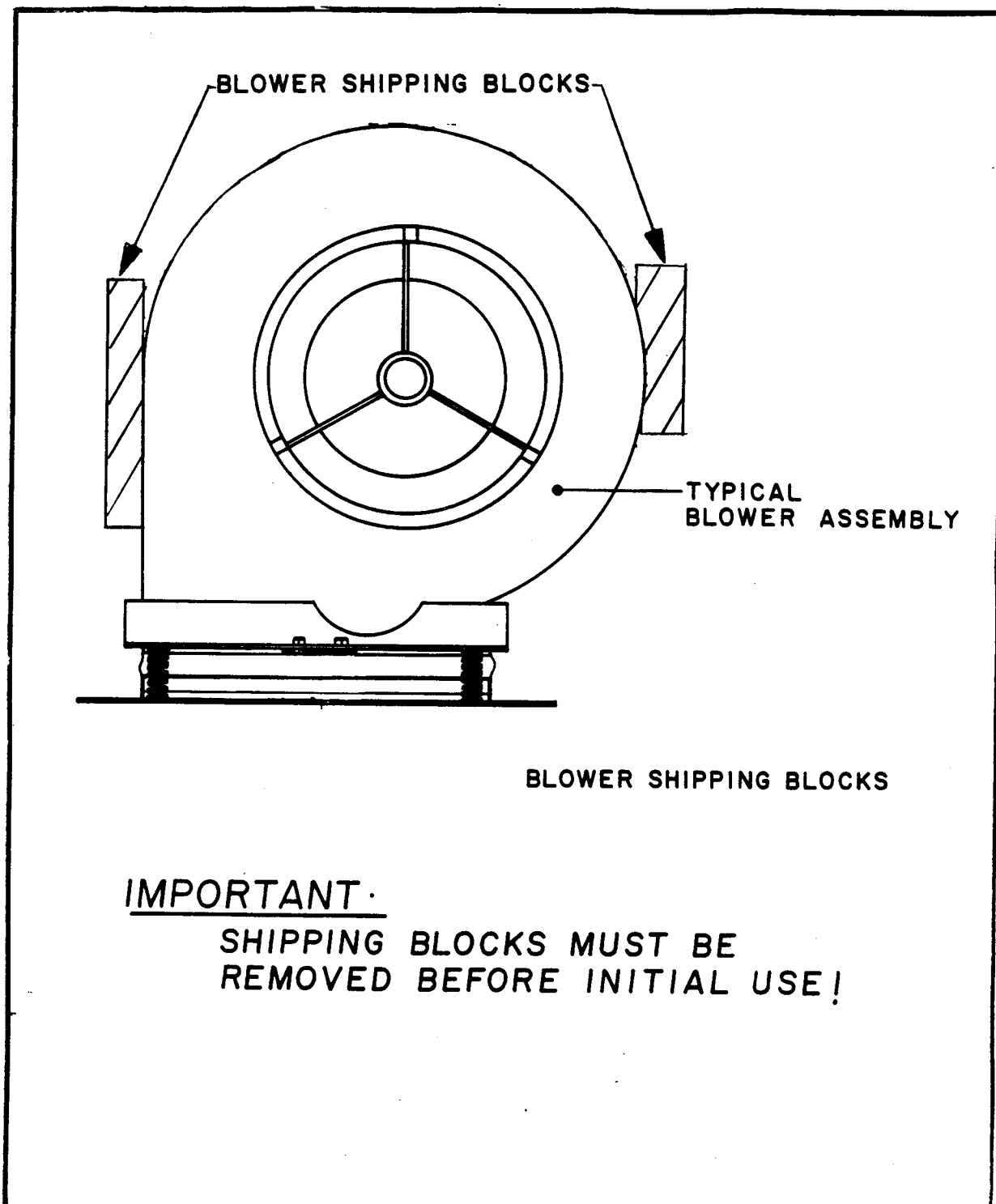
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International customers, please contact your local Thermo Scientific distributor.

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Section 1 Introduction

The Laminar Airflow work stations exceed Federal Standard 209 for Class 100 clean air. The cabinet provides ultraclean areas for operations requiring particle-free environments. Most aseptic procedures may be performed safely with the cabinet.

The operator/technician is exposed to any particulate, aerosol or gas released from the work procedures. The cabinet must not be used for procedures involving viable agents. Work involving drugs or chemicals which produce a toxic, allergic or carcinogenic response in humans should not be performed with this unit.

The operator/technician is responsible for decontamination if hazardous material is spilled on or in equipment.

Consult an institutional bio-safety officer or industrial hygienist before beginning any procedure which might endanger the operator or result in environmental contamination. This unit is to be used as described in this manual and for its intended purpose only.

Section 2 Installation

The cardboard shipping blocks must be removed as follows, before starting the clean air bench. Refer to the illustration on page vii.

1. Remove the pre-filter.
2. Remove the pre-filter grille.
3. Remove the two cardboard shipping blocks (one on the back and one on the front) of the blower.
4. Reassemble the pre-filter grille and pre-filter to the unit.

Install “Stick-On” Feet

Before placing the unit in its permanent location, install the 8 white “stick-on” feet that are included in the packing list.

Location

Locate the cabinet on a firm level surface in an area of minimum ambient temperature fluctuation. The cabinet should be placed in a somewhat remote area of the laboratory, away from disruptive air currents caused by excessive personnel traffic, air-conditioning or heating ductwork, and/or laboratory windows and doors.

The cabinet may be placed on an existing table or counter with enough depth to avoid forward tilting. The table or countertop should measure at least 36” in depth to properly accommodate the cabinet and must be able to support the weight of the cabinet. Refer to the Specifications section.

Allow a minimum of 4” clearance between the top of the cabinet and the laboratory ceiling to ensure adequate air supply to the blower.

Warning The shipping weight of this cabinet is approximately 290 lbs. (132kg). Have sufficient personnel available when moving this unit. ▲

Leveling

Place a bubble-type level on the work surface and verify that the cabinet is level. Adjust the stand until the cabinet is level and the most comfortable working height is achieved.

Using the Optional Stand

If the optional stand is to be used, it must be the correct size for the cabinet. Refer to the Accessories section of the manual. Adjust the levelers on the bottom of the stand to the correct work surface height (30" to 36"). All four levelers must be fully flush against the floor to prevent vibration.

Power Connection

Connect the power cord to a grounded dedicated power source. Refer to Specification section or the electrical data plate mounted on the unit for exact electrical requirements.

The power cord is the mains disconnect. Make sure the power outlet is accessible at all times.

Section 3 Cabinet Start-Up

- Keep activity in the room to a minimum when the cabinet is in use.
- Keep all laboratory doors closed to prevent drafts that will disturb critical airflow characteristics.
- Pre-plan cabinet use, and place everything required for the complete procedure a minimum of 6” inside the cabinet.
- Place all sterile and/or particulate free objects nearest the HEPA filter.
- Segregate clean and dirty materials.
- Practice good aseptic technique to insure safe use of the cabinet.
- HEPA filters are fragile. Do not puncture the filter or get it wet. Avoid discharging syringes toward the filter.
- Check the prefilter regularly and replace as necessary. This will increase the life of the HEPA filter.

Use of Auxiliary Equipment in Cabinet

The use of auxiliary equipment in the cabinet is acceptable only if the proper precautions are taken. Any appliance used in the work area will cause turbulence and disturb airflow. Use of such equipment should be carefully managed. The equipment should be placed at the rear of the work space where air turbulence will have a minimal effect.

Cabinet Check

Check the supply and exhaust filters for leaks. Follow the leak check procedure.

Start-Up Procedure

1. Turn on the lights.
2. Check the intake and exhaust grilles to ensure that they are not blocked.
3. Turn on the blower to purge the work area of contaminated air.
4. Wash your hands and lower arms with germicidal detergent.
5. Disinfect the entire work area.
6. Place everything needed in the cabinet.
 - Do not block the intake or exhaust grilles.
 - Place everything at least 6" inside the work area.
 - Segregate clean and contaminated items.

Cabinet Shut-Down

1. Surface decontaminate with the appropriate disinfectant, and/or enclose all equipment that has been in direct contact with the research agent.
2. Cover trays of discarded pipettes and glassware.
3. Allow the cabinet to run for at least thirty minutes with no activity to allow time for all airborne contaminants to be purged from work area.
4. Remove all equipment.
5. Wipe down all interior surfaces with a disinfectant appropriate to the work being performed.

Caution Before using any cleaning or decontamination procedure not recommended by the manufacturer, users should check with the manufacturer that the proposed method will not damage the equipment. ▲

Section 4 Operation

Before operating the cabinet, the user should become familiar with the cabinet controls.

Control and Indicating Devices

- **Blower Switch**

The blower switch controls the on/off power to the blower.

- **Light Switch**

The light switch controls power to the fluorescent lights in the work area or the optional ultra-violet light.

- **Optional Static Pressure Gauge (In. W.G.)**

The static pressure gauge, located on the control panel, measures the air pressure differential across the filters, providing an indication of filter “loading”. As the filters become loaded, the resistance to air passage increases, and the reading on the static pressure gauge increases accordingly. When the reading increases by 50% (from original measurement), cabinet airflow should be checked with a thermoanemometer by a qualified service technician. The filters must be replaced if proper airflow cannot be obtained. Note that the static pressure gauge should not be used as a direct measure of airflow.

- **Blower Speed Control**

The blower speed control, located on the printed circuit control board, is used to adjust the air velocity from the blower motor. Refer to Figure 4-1. A clockwise turn of the screw adjustment (as viewed from the top of the control panel) will increase air velocity.

Caution Blower speed was preset at the factory and should only be changed by a qualified technician. ▲

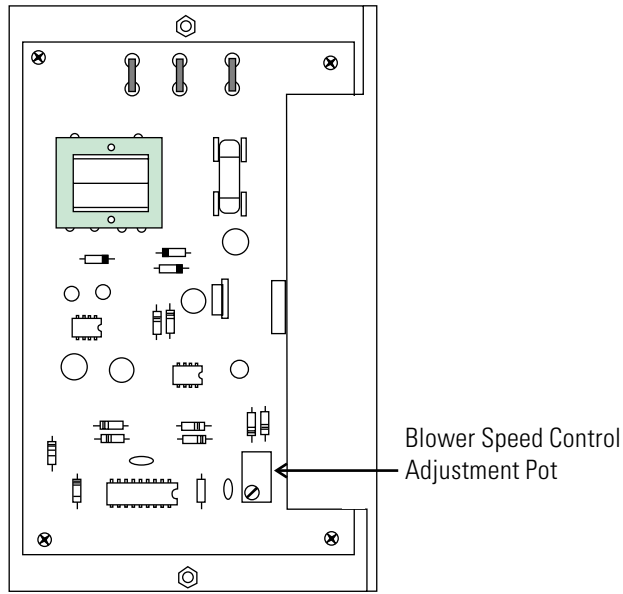


Figure 4-1. Circuit Control Board

Measuring Blower Motor Voltage

Both blower motor voltage and line voltage are measured at the three terminal connectors at the top of the circuit board. Refer to Figure 4-2.

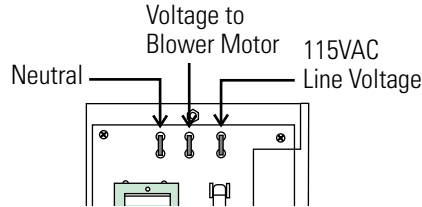


Figure 4-2. Circuit Board Voltage Terminals

Warning Live voltage is present on the control terminals of the switches and dials on the front of the blower panel. Use extreme care to avoid touching these controls when reaching into the drawer and making any adjustments. ▲

Reset Button

The Reset button is an in-line circuit breaker. If an overload condition occurs the circuit breaker trips, and the button protrudes from the panel. Depress the button to reset the circuit breaker.

Section 5 Certification Testing Procedure

A list of certification companies is included on the Thermo website, or call the Technical Services department. See Page iv.

Certification of the Cabinet

Caution Shipping stress can affect the integrity of the cabinet. Certification by qualified certification personnel only is necessary after installation. ▲

Certification is recommended:

- ~ On installation,
- ~ Annually,
- ~ If cabinet is moved,
- ~ After HEPA filter(s) replacement,
- ~ After inside cabinet service work.

On-site Certification

Due to the stress of shipping and handling and the fragile nature of the HEPA filters, the cabinet must be thoroughly tested when it has been placed in its final location. The following tests should be performed for Standard 209B:

- HEPA Filter Leak Test (DOP Test)
- Air Velocity Profile Test

These tests must be performed by qualified service specialists who are familiar with the methods and procedures of certifying biological safety cabinets.

The certification should be performed upon installation, annually thereafter, after filter changes, and after cabinet relocation.

Note Unless this certification was expressly called for in the specification, quotes and/or purchase order, the cost for this on-site testing is to be paid for by the customer. ▲

LAMINAR AIR WORK STATION TEST REPORT FORM

MODEL (S): 1839, 1840

S/N: _____ **TRANSFER TO S/N:** _____

HEPA FILTER LEAK TEST: Aerosol penetration shall not exceed 0.01% [] Yes

Filter scanned by: _____ **Repairs made by:** _____ **# of holes** _____
Supply filter size: 30 x 36 x 6
Manufacturer: DONALDSON Resistance (s): _____ @ _____ CFM or LFM
 or _____

GROUND CONTINUITY RESISTANCE:

(0.1 ohms max.) **Cabinet:** _____ Ohms **Receptacle:** _____ Ohms

GROUND LEAKAGE TEST:

(500 ma max.)

	<u>Cabinet</u>	<u>Receptacles</u>
Normal, neutral open, switches on	_____	_____
Reverse, neutral open, switches on	_____	_____
Normal, neutral closed, switches on	_____	_____
Reverse, neutral closed, switches on	_____	_____

POLARITY: Meets N.E.C. [] Yes [] N/A

TEST VOLTAGE: 120 or 220 (circle one) **FLA:** _____

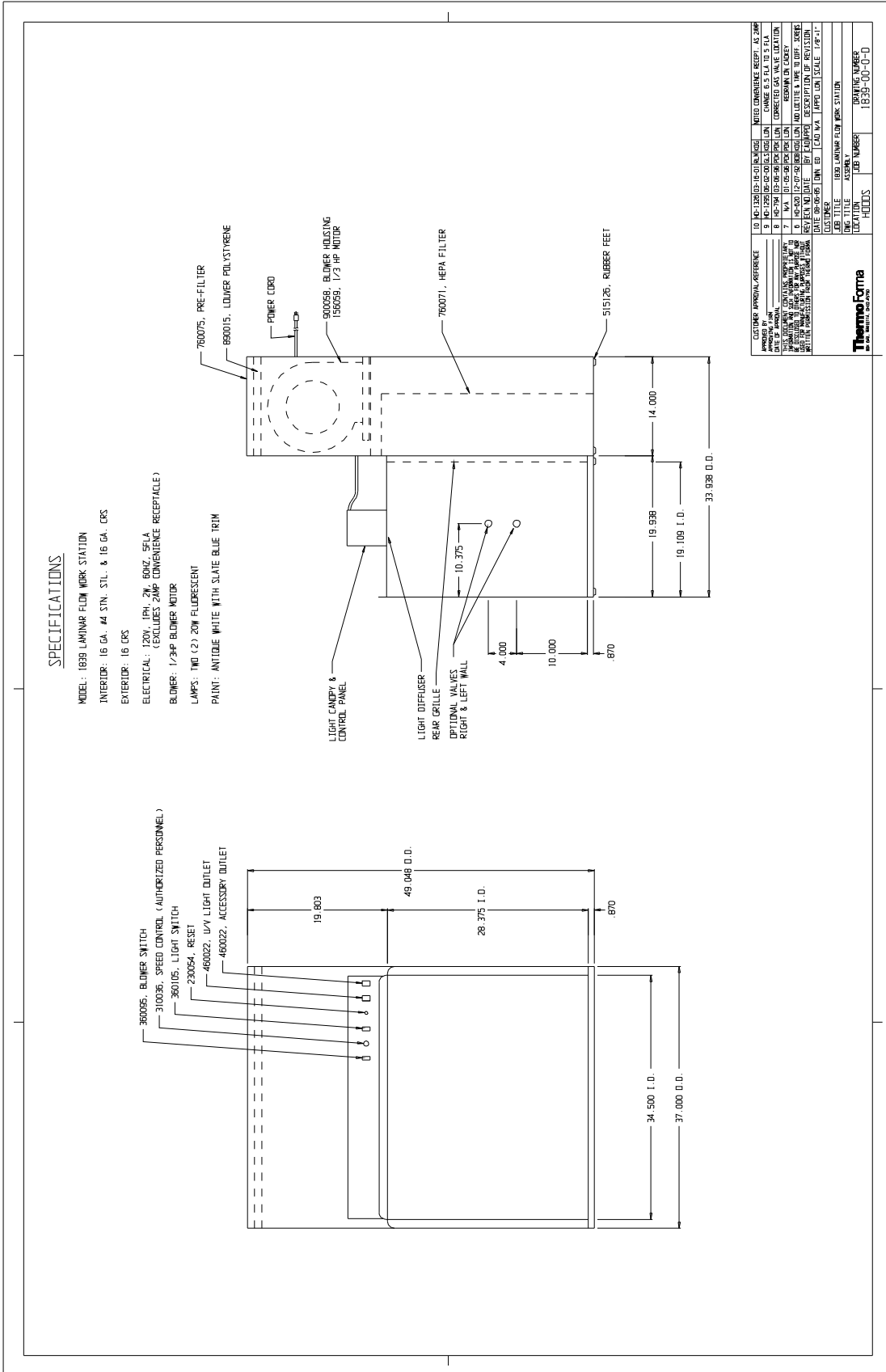
VELOCITY PROFILE: 6.0 Inches from cage sides with successive points 11.25 inches apart.
 6.0 Inches from cage top or bottom with successive points 8.25 inches apart.
 6.0 Inches from protective grille on a parallel plane

TOTAL SUM _____ + 9 = **Average air flow velocity** _____ **LFPM.**

ACCEPTABLE AIR FLOW RANGE: 85 - 95 in linear feet per minute.

TESTED BY: _____ **DATE:** _____

(LAW1839; Rev.4, 03/31/98 - Form Approval Bob M. 4-3-98)



Section 6 Routine Maintenance

Recommended routine maintenance information follows.

Check Static Pressure Gauge “Zero”

Note In order to provide an accurate reading, the indicating needle of the static pressure gauge should be precisely at zero when the cabinet is completely shut off. If the cabinet is connected to a central exhaust system, the exhaust system must also be shut off. ▲

Following HEPA filter replacement, the static pressure gauge should be rechecked for proper zeroing when the cabinet is shut off. When the cabinet is started up and the proper air flow balance has been attained, take a reading on the gauge and record it. This initial reading will serve as a baseline indication of subsequent filter loading. When the reading increases by approximately 50%, recheck the airflow balance. Filter replacement will likely be required.

Replace the Pre-Filter

A pre-filter is used in biological safety cabinets to extend the life of the HEPA filters. The pre-filter is located on top of the unit under the air intake grille. The pre-filter should be replaced three times a year, depending upon environmental conditions.

Warning Do not turn the cabinet off. Allow it to run during the pre-filter replacement procedure. ▲

Replace Fluorescent Light Bulb

Warning De-energize all potential sources of energy to this unit and lockout/tagout their controls. (O.S.H.A. Regulation, Section 1910-147.) ▲

1. Remove the screws securing the control panel.
2. Slide the control panel out.
3. Grasp the fluorescent light bulb on the right end by the socket and gently push the left socket to release the bulb.
4. Replace with a new bulb.

Section 7 Service

Refer to illustration at the end of this section.

Warning Service to the unit must be performed by qualified personnel. The cabinet should then be recertified. ▲

Warning Before filters are replaced or any service is performed on the cabinet, decontaminate the unit! ▲

Warning De-energize all potential sources of energy to this unit and lockout/tagout their controls. (O.S.H.A. Regulation, Section 1910-147.) ▲

Replace the Supply HEPA Filter

Note Access to the exhaust HEPA filter is through the back of the unit at the top. Set the unit on the floor if possible. ▲

1. Remove the plastic pre-filter grille (egg crate) and the pre-filter.
2. Remove the 8 screws securing the blower motor assembly.
3. Remove the tie wrap on the back wall.
4. Remove the blower motor and set it aside.
5. Remove the screws securing the motor blower mounting plate and lift the entire assembly out of the unit.
6. Carefully remove the wooden “drive” wedges that hold the HEPA filter in place. Lift the filter out of the top of the unit and place it in a heat-sealable polyethylene bag for disposal
7. With a vacuum cleaner, clean all the filter seat surfaces.
8. Slide the new filter in place, check to see that it is properly seated, and the gasket seal evenly distributed.
9. Set the longer wedge back into the cabinet with the straight side against the back of the filter. Set the shorter drive wedge into position with its straight side facing the back of the cabinet. Drive the wedge a little at a time on each side of the cabinet until the filter is sealed. The neoprene gasket seal should be compressed at least 50%.

Replace the Blower and/or Motor

Note Access to the blower is through the pre-filter grille and pre-filter. ▲

1. Loosen the set bolt on the blower shaft wheel from inside the left side of the scroll (as viewed from the back).
2. Remove the (3) bolts and washers securing the motor to the scroll on the right side of the blower assembly.
3. Disconnect the green ground wire.
4. Disconnect the wiring, making note of the wiring configuration.
5. Remove the blower motor and replace it with a new motor. Align the blower wheel and tighten it.
6. Connect the wiring in the same configuration as the old blower motor and reconnect the green ground wire.
7. Replace the pre-filter and pre-filter grille.

Warning After blower motor replacement, recertify the cabinet. ▲

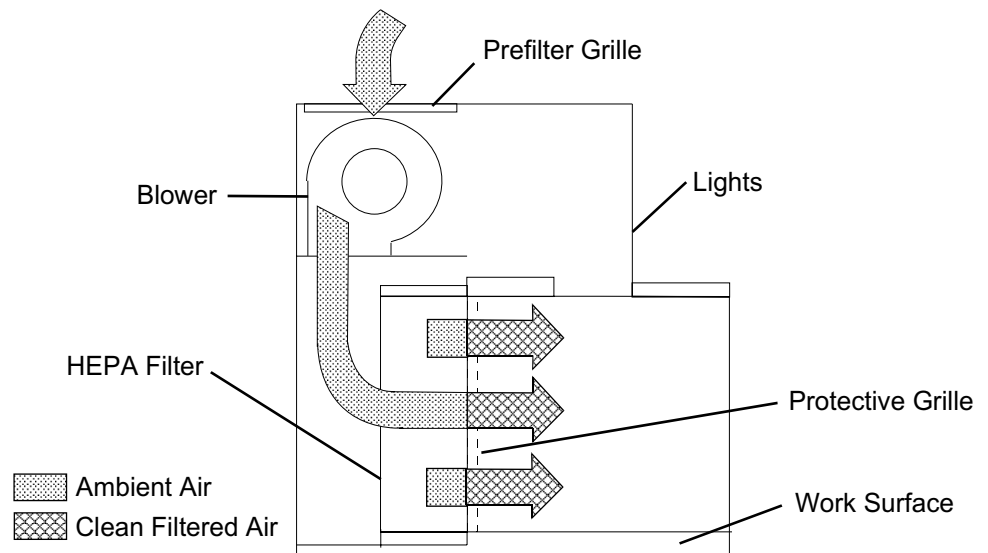


Figure 8-1. Side View

Replace the Blower Speed Control

1. Remove the screws securing the control panel.
2. Pull out the control panel, and locate the blower speed control on the right side of the control box.
3. Disconnect the wiring to the control, and make note of the wiring configuration.
4. Remove the speed control from the inside of the control box.
5. Install the new blower speed control by reversing the above procedure.

Warning After blower speed control replacement, recertify the cabinet. ▲

Section 8 Troubleshooting

The following is a guide to troubleshooting the safety cabinet system.

Warning Actual servicing of the unit must be performed by specialized service personnel only. ▲

Problem: No air flow in the cabinet work area.

Possible Causes:

1. Unit is not plugged in. Plug the unit into a proper power source.
2. Blower motor overheated due to low electrical voltage to the blower motor.
3. Step up voltage or increase the speed of the control.
4. Blower motor overheated due to excessive heat load in work area.
5. Blower motor or speed control is defective.
6. If the static pressure gauge reading has increased approximately 50% from its initial readings, the filter has likely loaded with dirt and the speed control must be adjusted. If proper airflow cannot be reached by adjusting the speed control, decontaminate the cabinet and replace all HEPA filters.
7. Defective motor bearings or blower motor.

Problem: Fluorescent light malfunction

Possible Causes:

1. Verify that the lamp is properly installed into the fixture.

Problem: Non-functioning static pressure gauge

Possible Causes:

1. Verify that the hose is tightly attached to a high pressure port of the gauge and to the cabinet (front top right of the service box). If properly tightened, the static pressure gauge is likely defective and should be replaced.

Problem: Loud screeching noise

Possible Causes:

1. Bad bearings in the motor blower unit.
2. Blower scroll rubbing against housing.

Section 9 Specifications

Type3' Benchtop
Airflow(Horizontal)
Work Area Dimensions 34.5"W x 28.4"H x 19.1" F-B(87.6cm x 72.1cm x 48.5cm)
Exterior Dimensions 37"W x 49.1"H x 34" F-B(94.0cm x 124.7cm x 86.4cm)
Electrical115V, 60Hz, 7 FLA
Shipping Weight290 lbs. (132kg)

The workstation is designed to be electrically safe in the following environmental conditions:

- Indoors
- Altitude: Up to 2,000 meters
- Temperature: 5°C to 43°C
- Humidity: 80% RH at or below 31°C, decreasing linearly to 50% RH at 40°C
- Mains Supply Fluctuations: $\pm 10\%$ of nominal.
- Installation Category II ¹
- Pollution Degree 2 ²
- Class of Equipment I

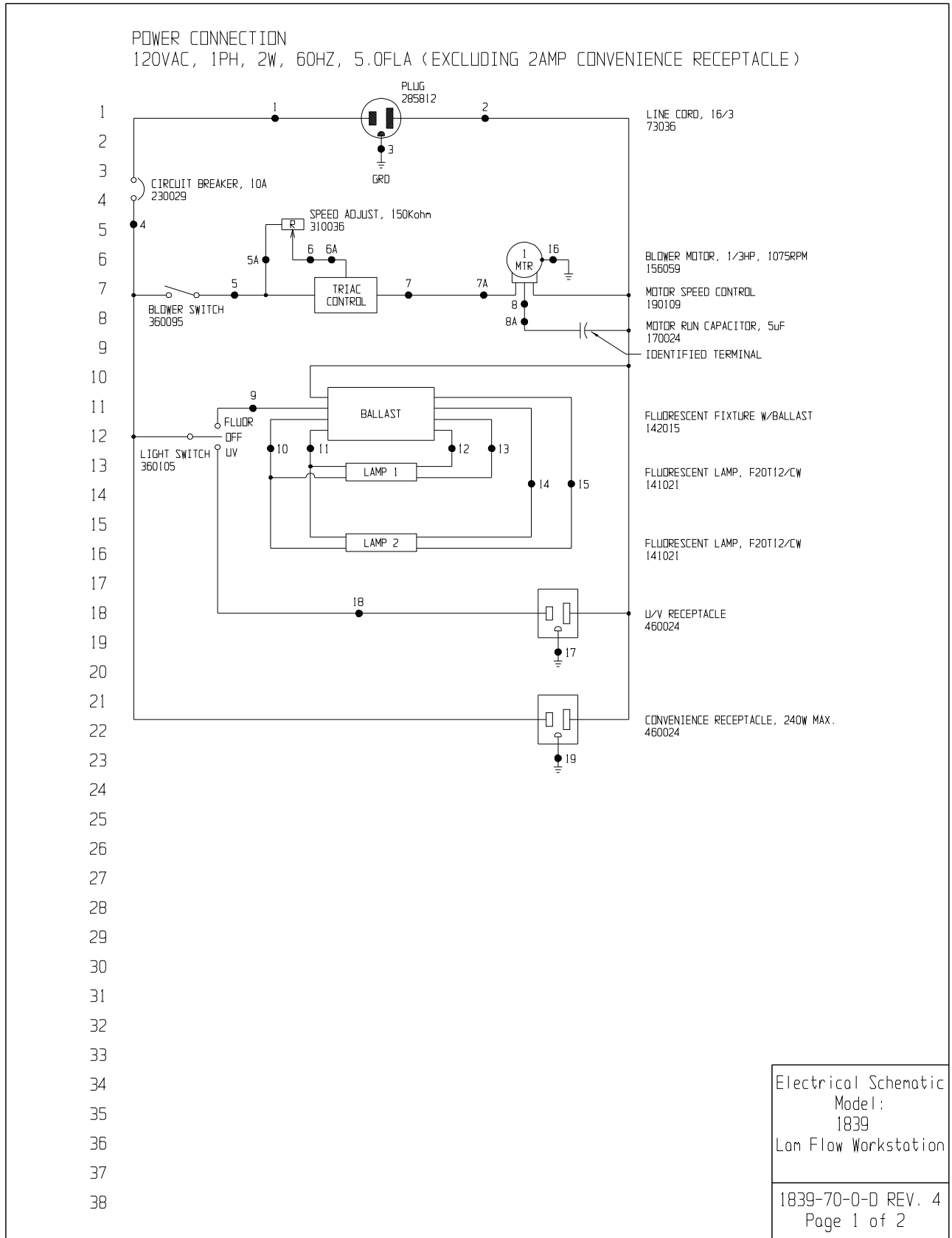
¹ Installation category (overvoltage category) defines the level of transient overvoltage which the instrument is designed to withstand safely. It depends on the nature of the electricity supply and its overvoltage protection means. For example, in CAT II which is the category used for instruments in installations supplied from a supply comparable to public mains such as hospital and research laboratories and most industrial laboratories, the expected transient overvoltage is 2500V for a 230V supply and 1500V for a 120V supply.

² Pollution degree describes the amount of conductive pollution present in the operating environment. Pollution degree 2 assumes that normally only non-conductive pollution such as dust occurs with the exception of occasional conductivity caused by condensation.

Continuing research and improvements may result in specification changes at any time.

Section 10 Parts List

Stock #	Description
156059	Motor, 1/3 HP, 115V, 1075 RPM
900058	Blower
170024	Capacitor, Motor, 5MFD, 370V
285812	Plug, 15A, 3-wire, Hospital Grade
141021	Lamp, Fluorescent, (F40T12/CW)
142015	F20-T12 Lamp Fixture
28003	Gasket, 1/8 x 1 Neoprene Tape
460024	Outlet, 3W Snap-in
73036	Line Cord 16/3
760071	Filter, HEPA, 30 x 36 x 6
760075	Pre-filter 13.75 x 36.75 x 1



Electrical Schematic
Model:
1839
Lam Flow Workstation

1839-70-0-D REV. 4
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Section 11
Electrical Schematics

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WIRE REFERENCE CHART

WIRE NO.	GAUGE	COLOR
1	16	BLACK
2	16	WHITE
3	16	GREEN
4	16	BROWN
5	16	BLACK
5A	16	BLACK
6	20	ORANGE
6A	16	ORANGE
7	16	RED
7A	16	BLACK
8	16	BROWN
8A	16	RED
9	16	BLACK
10	20	YELLOW
11	20	YELLOW
12	20	RED
13	20	RED
14	20	BLUE
15	20	BLUE
16	16	GREEN
17	16	GREEN
18	16	YELLOW
19	16	GREEN

NOTES:													
⊗ Denotes Terminal Strip Connection	Parts List Reference Number		4	SI-9779	03-02-07	CLK	SAG	CCS	RECEPT. 460024 WAS 460022			Electrical Schematic Model: 1839 Lam Flow Workstation	
N/A Last Relay Number	○ Assembly		3	HD-1295	04-24-00	GLS	KDG	LON	CHANGED 6.5FLA TO 5.0FLA				
N/A Last Terminal Number	○ Panel	THIS DOCUMENT CONTAINS PROPRIETARY INFORMATION AND SUCH INFORMATION IS NOT TO BE DISCLOSED TO OTHERS FOR ANY PURPOSE NOR USED FOR MANUFACTURING PURPOSES WITHOUT WRITTEN PERMISSION FROM THERMO FISHER SCIENTIFIC	2	HD-246	07-23-07	BOB	N/A	LON	CHG. BLWR MOTOR FROM 993611				
19 Last Wire Number	○ Refrigeration		1	HD-103	11-21-05	RIT	N/A	LON	ADD I/V RECEPTACLE				
	□ Wiring		REV	ECR NO.	DATE	BY	CAD	APPD	DESCRIPTION OF REVISION				
				DATE	08-09-05	DWN	RIT	CAD	N/A	APPD	LON	SCALE NTS	
		<p>ThermoFisher SCIENTIFIC</p> <p>BOX 649, MARJETTA, OHIO 45750</p>	CUSTOMER										
			JOB TITLE	1839 LAMINAR FLOW WORK STATION									
			DWG TITLE	ELECTRICAL SCHEMATIC									
			LOCATION	JOB NUMBER	DRAWING NUMBER 1839-70-0-D								
			HOODS01										1839-70-0-D REV. 4 Page 2 of 2

THERMO FISHER SCIENTIFIC LAMINAR FLOW EQUIPMENT WARRANTY USA

The Warranty Period starts two weeks from the date your equipment is shipped from our facility. This allows shipping time so the warranty will go into effect at approximately the same time your equipment is delivered. The warranty protection extends to any subsequent owner.

During the first thirty-six (36) months, component parts proven to be non-conforming in material or workmanship will be repaired or replaced at Thermo's expense, including labor. Installation, calibration and certification is not covered by this warranty agreement. The Technical Services Department must be contacted for warranty determination and direction prior to performance of any repairs. Expendable items, glass, filters and gaskets are excluded from this warranty.

Replacement or repair of component parts or equipment under this warranty shall not extend the warranty to either the equipment or to the component part beyond the original warranty period. The Technical Services Department must give prior approval for return of any component or equipment. At Thermo's option, all non-conforming parts must be returned to Thermo postage paid and replacement parts are shipped FOB destination.

THIS WARRANTY IS EXCLUSIVE AND IN LIEU OF ALL OTHER WARRANTIES, WHETHER WRITTEN, ORAL, OR IMPLIED. NO WARRANTIES OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE SHALL APPLY.
Thermo shall not be liable for any indirect or consequential damages including, without limitation, damages to lost profits or loss of products.

Your local Thermo Sales Office is ready to help with comprehensive site preparation information before your equipment arrives. Printed instruction manuals carefully detail equipment installation, operation and preventive maintenance.

If equipment service is required, please call your Technical Services Department at 1-800-438-4851 (USA and Canada) or 1-740-373-4763. We're ready to answer your questions on equipment warranty, operation, maintenance, service, and special applications. Outside the USA, contract your local distributor for warranty information.



Rev. 5 4/09

THERMO FISHER SCIENTIFIC LAMINAR FLOW EQUIPMENT WARRANTY INTERNATIONAL

The Warranty Period starts two months from the date your equipment is shipped from our facility. This allows shipping time so the warranty will go into effect at approximately the same time your equipment is delivered. The warranty protection extends to any subsequent owner.

During the first thirty six (36) months, component parts proven to be non-conforming in material or workmanship will be repaired or replaced at Thermo's expense, excepting labor. Installation, calibration and certification is not covered by this warranty agreement. The Technical Services Department must be contacted for warranty determination and direction prior to performance of any repairs. Expendable items, glass, filters and gaskets are excluded from this warranty.

Replacement or repair of component parts or equipment under this warranty shall not extend the warranty to either the equipment or to the component part beyond the original warranty period. The Technical Services Department must give prior approval for return of any component or equipment. At Thermo's option, all non-conforming parts must be returned to Thermo postage paid and replacement parts are shipped FOB destination.

THIS WARRANTY IS EXCLUSIVE AND IN LIEU OF ALL OTHER WARRANTIES, WHETHER WRITTEN, ORAL, OR IMPLIED. NO WARRANTIES OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE SHALL APPLY.
Thermo shall not be liable for any indirect or consequential damages including, without limitation, damages to lost profits or loss of products.

Your local Thermo Sales Office is ready to help with comprehensive site preparation information before your equipment arrives. Printed instruction manuals carefully detail equipment installation, operation and preventive maintenance.

If equipment service is required, please call your Technical Services Department at 1-800-438-4851 (USA or Canada) or 1-740-373-4763. We're ready to answer your questions on equipment warranty, operation, maintenance, service, and special applications. Outside the USA, contract your local distributor for warranty information.



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Locating a Certification Company

Biological safety cabinet certification consists of a series of tests designed to verify that the cabinet is performing within operating parameters established by the manufacturer.

To assure that a biological safety cabinet is operating as intended, each cabinet should be field-tested at the time of installation and at least annually thereafter. Cabinets should be re-certified whenever HEPA filters are changed, internal maintenance is performed, or is relocated.

Three industry-related organizations maintain lists of companies and individuals who are active in the certification industry. You may contact these organizations at the addresses listed below.

NSF International (NSF) and International Air Filtration Certifiers Association (IAFCA) sponsor certifier accreditation programs. Accredited certifiers have demonstrated proficiency at testing biological safety cabinets by successfully completing written and/or practical examinations.

Biohazard Cabinet Field Certifier Program
NSF International
PO Box 130140
789 N. Dixboro Rd
Ann Arbor, MI 48113-0140
Telephone (734) 769-8010 Or (800) NSF-MARK
Fax (734) 769-0109
<http://www.nsf.org/Certified/Biohazard-Certifier>

IAFCA
PO Box 12155
Columbus, OH 43212
Telephone (888) 679-1904
Fax (614) 486-1108
<http://www.iafca.com/certifier.html>

The Controlled Environment Testing Association (CETA) is a trade association devoted to promoting and developing quality assurance within the controlled environment testing industry. A list of active members is available by contacting the organization.

Controlled Environment Testing Association
1500 Sunday Drive
Suite 102
Raleigh, NC 27607
Telephone (919) 787-5181
Fax (919) 787-4916
http://www.cetainternational.org/members/corp_indiv.htm

For your convenience we have included a partial list of agencies that perform certification on our website. If you do not find someone listed in your area, please contact Thermo's Technical Services department for additional references.

Thermo Fisher Scientific
401 Millcreek Road
Marietta, Ohio 45750
United States

www.thermofisher.com