



**Table Top**  
Horizontal Laminar Flow Module  
**OPERATION MANUAL**

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**Installation & Service Manual**

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**■ Limited Warranty**

LIMITED WARRANTY: Unless otherwise expressly stated in ENVIRCO's published specifications for the Goods, ENVIRCO warrants that Goods are free from defects in material and workmanship, except for services which are warranted to be performed in a competent and diligent manner in accordance with any mutually agreed specifications. The foregoing warranty shall apply for eighteen (18) months from the date of shipment from ENVIRCO's facility, except for services for which the warranty shall apply for ninety (90) days from the date of performance (the "Warranty Period"). Provided Buyer informs ENVIRCO in writing of any breach of warranty prior to the expiration of the applicable Warranty Period, ENVIRCO shall, as its sole obligation and Buyer's sole and exclusive remedy for any breach of this warranty, repair or replace/re-perform the Goods which gave rise to the breach or, at ENVIRCO' option, refund the amounts paid by Buyer for the Goods which gave rise to the breach. Any repair, replacement or re-performance by ENVIRCO hereunder shall not extend the applicable Warranty Period. The parties shall mutually agree on the specifications of any test to determine the presence of a defect. Unless otherwise agreed upon by ENVIRCO in writing, Buyer shall bear the costs of access, de-installation, re-installation and transportation of Goods to ENVIRCO and back to Buyer. These warranties and remedies are conditioned upon (a) the proper storage, installation, operation, and maintenance of the Goods and conformance with the proper operation instruction manuals provided by ENVIRCO or its suppliers or subcontractors, (b) Buyer keeping proper records of operation and maintenance during the applicable Warranty Period and providing ENVIRCO access to those records, and (c) modification or repair of the Goods only as authorized by ENVIRCO. ENVIRCO does not warrant the Goods or any repaired or replacement parts against normal wear and tear or damage caused by misuse, accident, or use against the instructions of ENVIRCO. Any modification or repair of any of the Goods not authorized by ENVIRCO shall render the warranty null and void. EXCEPT AS EXPRESSLY SET FORTH HEREIN, ENVIRCO MAKES NO OTHER WARRANTIES, EXPRESS OR IMPLIED, INCLUDING, BUT NOT LIMITED TO, ANY IMPLIED WARRANTIES OF MERCHANTABILITY, NON-INFRINGEMENT OR FITNESS FOR A PARTICULAR PURPOSE WHICH ARE HEREBY DISCLAIMED TO THE EXTENT PERMITTED BY APPLICABLE LAW.

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## Installation & Service Manual

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### ■ Uncrating Instructions

The ENVIRCO equipment should be uncrated and inspected for shipping damage immediately upon arrival. If any damage is observed, a claims report should be filled out and promptly sent to the responsible carrier. Otherwise, uncrate and examine for internal damage.

If shipping damage is discovered inside the crating, file claim with the responsible carrier immediately. Shipping components list and actual material.

NOTE: Remove shipping blocks Inside blower housing from motor/blower assembly(s).

### ■ Introduction

The Table Top Horizontal laminar Flow Module is a completely self-contained Air Supply Module that supplies a laminar flow pattern of HEPA filtered air. The module may be used as an independent unit or may be combined with the EVL enclosure to form a Class 100, Federal Standard 2090 horizontal work station.

The Table Top Horizontal Laminar Flow Module may be supported horizontally or suspended from the ceiling to serve as a down flow compartment or booth. The Module can be easily positioned behind stationary equipment to provide clean areas. Addition of a work deck with enclosure transforms it into a simple, economical crossflow work station or clean bench. An optional support stand is available for use with Module/Work Enclosure Assembly.

Air enters the Table Top Horizontal Laminar Flow Module through a prefilter which removes most of the large particles. The air is then evenly distributed across the High Efficiency Particulate Air (HEPA) filters by blowers. The HEPA filters remove 99.99% of all particles 0.3 microns and larger in size and imparts an unidirectional or laminar flow pattern to the air. The air moves through the work area at a uniform velocity carrying away all airborne contamination generated by activities within the work area. All samples or equipment within the work area are continually bathed in the ultra-clean air.

**Installation & Service Manual****■ Features of the TT**

- Fulfills requirements of FEDERAL STANDARD 209, 90 FPM plus or minus 20% at static pressures of 0.5" w.g. to 1.0" w.g., "CLASS 100" air.
- Washable polyurethane foam prefilter, easily removed for maintenance. All air must pass through the large prefilter area before going through the HEPA filter.
- "HEPA" final filter, 99.99% efficient on particulate 0.3 microns and larger by D.O.P. test. Designed to use a permanent non-hardening flexible compound sealant in conjunction with a neoprene gasket.
- Quiet operation at 65 ± 3 DBA operator stations with 45 DBA ambient.
- Vibration level is less than 30 micro inches.
- Dynamically balanced direct drive blower mounted on vibration dampened, shock absorbent rubber mounts with additional resilient cushion faced mating surfaces.
- Continuous duty motor(s) with sealed-for-life bearings and built-in thermal overload protection.
- Solid state speed control provides rate of flow adjustment from 50% to full output of blower.
- Three prong grounded electrical plug for standard 115 volt receptacle.
- Blower housing is constructed of 16 gauge and filter housing is constructed of 18 gauge metal, both are painted with a nonparticulating white polyurethane paint. All seams are sealed.
- Units are compatible for a continuous infinite line of dean air.
- All units are factory tested for: leaks, sound level, vibrations, air flows, light level and mechanical function.
- The TT is a horizontal flow work station, designed for product protection only.
- The units are designed to sit on standard work surfaces or benches. Tubular support stand is an optional item.
- The work surface is constructed of pressed wood laminated on top and sides with a nonparticulating, non-glare white formica and sealed on the bottom. (Stainless Steel is Optional.)
- All trim and supports in the work area are constructed of metal for durability.

**■ Applications**

The high performance, economical TT Table Top Work Station has successfully demonstrated its versatility in a wide variety of applications and industries:

- Microelectronic Fabrication and Assembly.
- Pharmaceutical Preparation.
- Optical Assembly.
- Tissue Culture.
- Critical Sample Preparation.
- Microscopy Analysis.
- Quality Control Inspection Station.

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## Installation & Service Manual

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### ■ Assembly

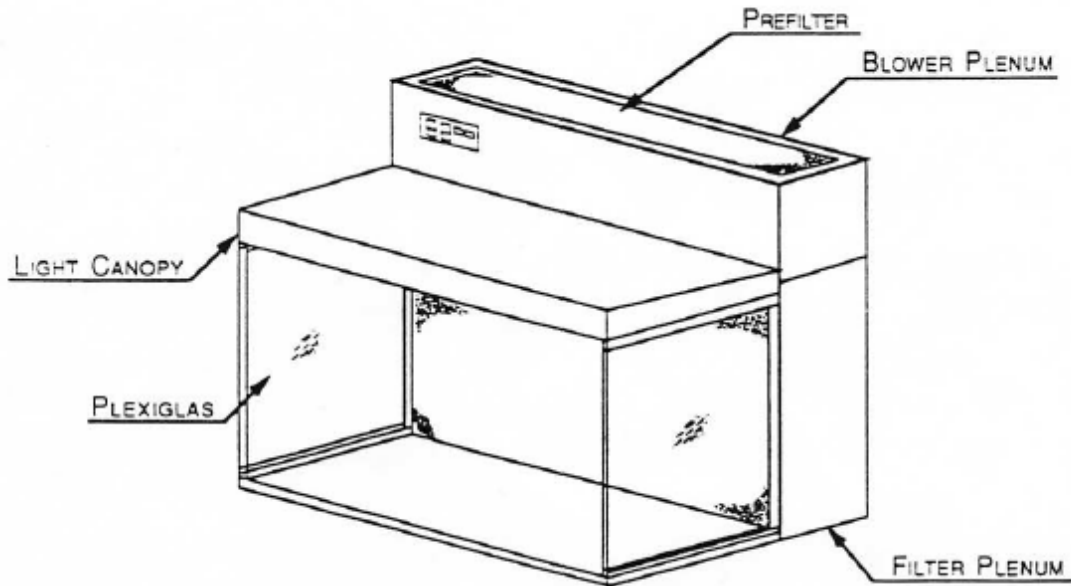
1. The TT comes completely assembled in a single open framed crate.
2. Carefully remove the top and four sides of the crate.
3. Remove the protective plastic covering from the unit.
4. Cut and carefully remove binding straps.
5. Remove wooden block from work surface.
6. Remove prismatic light diffuser taped to top of light canopy .
7. Remove unit from shipping skid.
8. Move the unit to its permanent location. It may be necessary to remove Plexiglas side panels and turn unit on its side to fit through doorway. If unit does not fit through your doorway, refer to page 7 for disassembly instructions.
9. Install plastic light diffuser utilizing metal center support channel.
10. Plug into a 115 volt AC grounded receptacle.
11. Turn on unit and run for 15 minutes before using as a “Class 100” clean environment. Repeat this procedure if unit is turned off and not used for an extended period of time.

NOTE: If you encounter any problems or need technical assistance, please call ENVIRCO Technical Support at (800) 884-0002.

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■ **Disassembly**

1. Remove prefilter.
2. Disconnect wires in blower plenum from light canopy, pull wires through from inside of light canopy.
3. Remove Plexiglas sides by pulling forward.
4. Remove diffuser screen by lifting up and out.
5. Remove screws (8) from under side of work surface.
6. Remove work surface.
7. Clean sealant from edge of work surface and apply new sealant before reassembling unit.
8. Reverse the above procedure to re-assemble unit.

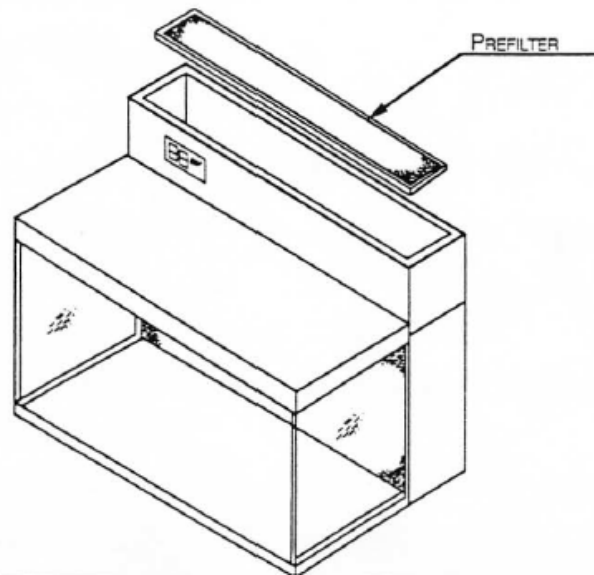


## Installation &amp; Service Manual

## ■ Service - Prefilter

**IMPORTANT: DISCONNECT ELECTRICAL CORD BEFORE ATTEMPTING ANY SERVICE**

1. The prefilter may be washed with soap and water, vacuumed or replaced as soon as dirt can be seen accumulating on the outside. If caution is taken to keep the prefilter in good clean condition, extreme long life can be obtained for the HEPA filter. Never operate the unit without a prefilter or very short HEPA filter life will result.
2. Lift the polyurethane foam prefilter out and wash, vacuum or replace as required.
3. Reassemble by reversing the above procedure.



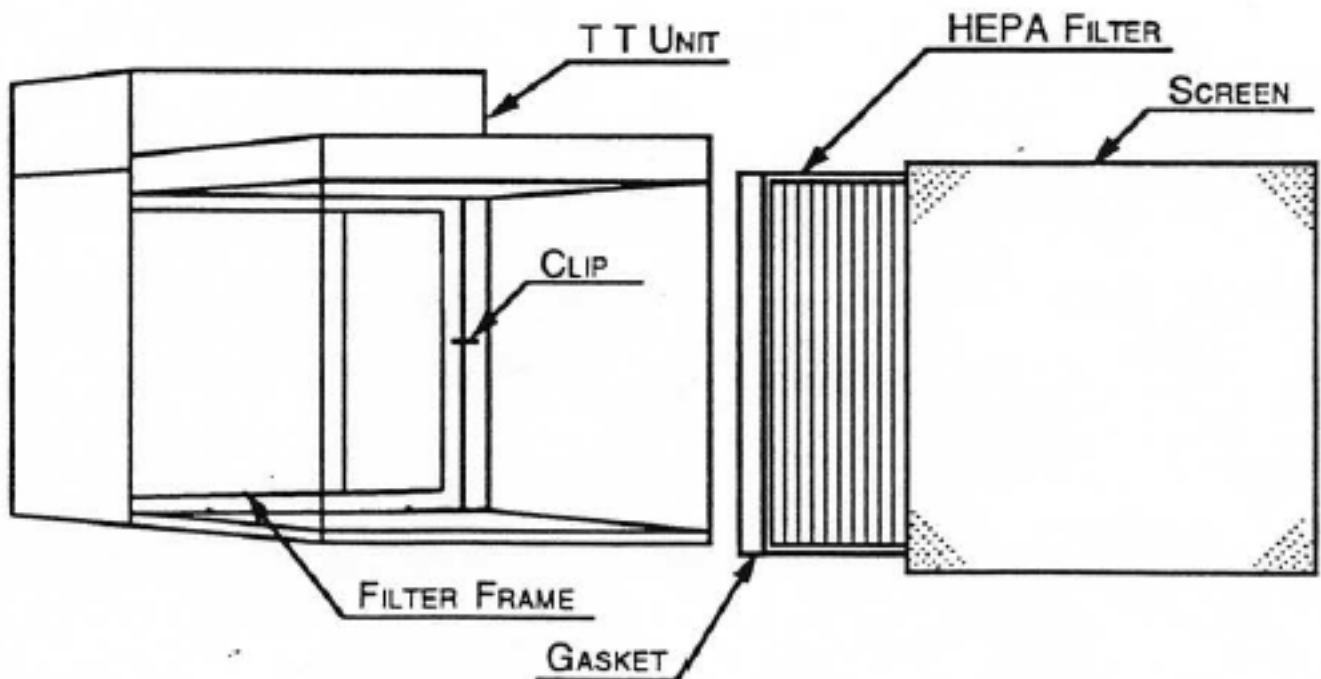


Installation & Service Manual

■ Service - HEPA Filter

NOTE: Extreme care must be taken when replacing a new filter so as not to puncture media. Filter should be handled by its sides at all times. The life of the HEPA filter depends on prefilter maintenance and the ambient conditions. If the prefilter is clean; the speed control turned all the way up and if the air flow drops below 72 FPM, the filter should be changed.

1. Slide the diffuser screen up and pull out.
2. Remove clips holding filter in place.
3. Slide filter straight out.
4. Clean sealant from the filter mounting frame.
5. Replace with new filter by reversing the above procedure.
6. Gasket on filter goes against filter frame.
7. To verify if filter is sealed, a D.O.P. test is recommended.

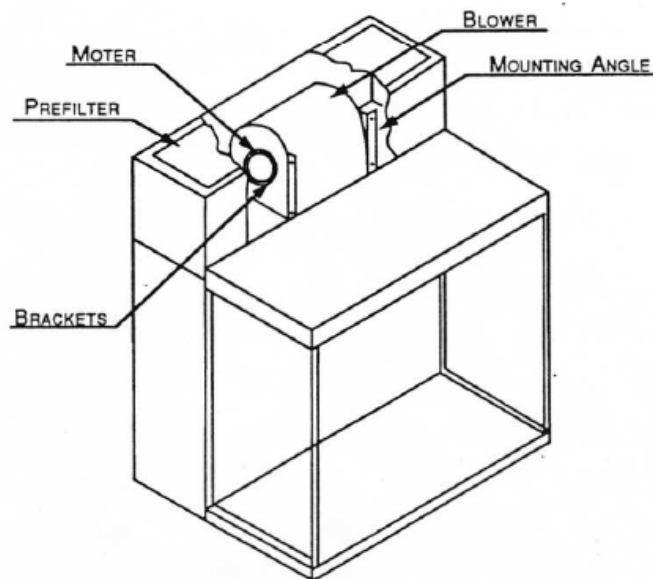


## Installation & Service Manual

### ■ Service - Blower Motor

#### IMPORTANT: DISCONNECT ELECTRICAL CORD BEFORE ATTEMPTING ANY SERVICE

1. Disconnect electrical cord.
2. Remove prefilter. (See page 9).
3. Disconnect necessary wiring to free blower motor from all other electrical components. (See Electrical Wiring Diagram on Page 13.)
4. Remove bolts from mounting angles in the side of the blower.
5. Lift out blower motor.
6. Separate motor from blower by removing screws from brackets holding motor to blower housing and loosen set screw on motor shaft
7. Replace new blower motor by reversing the above procedure.

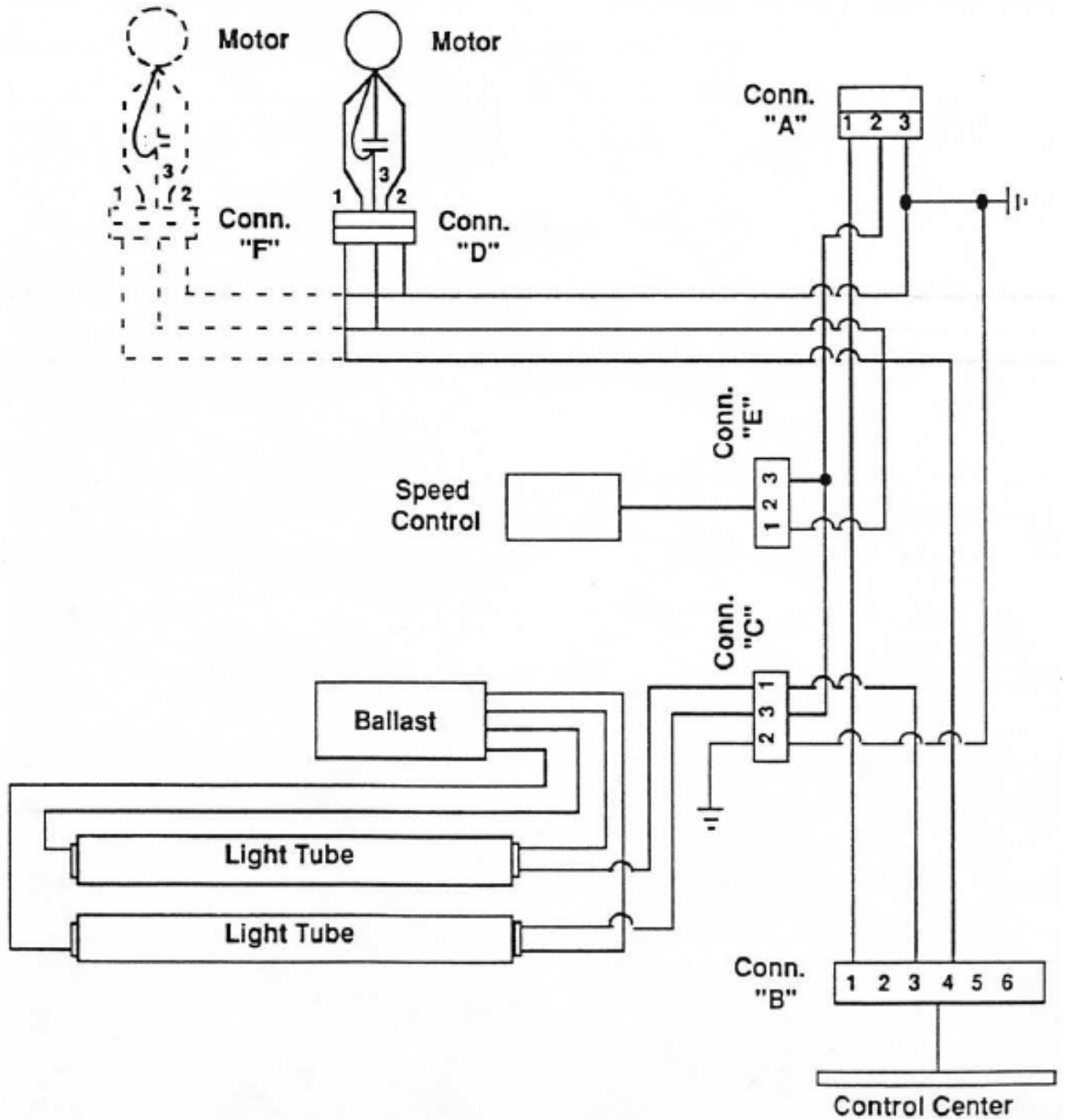


### ■ Service - Solid State Speed Control

1. Disconnect electrical cord.
2. Remove prefilter.
3. Speed control is located inside blower plenum next to blower.
4. Remove wires connected to speed control.
5. Remove screws holding speed control bracket.
6. Remove speed control and replace with a new one by reversing the above procedure.
7. Adjust the speed control to the desired rate of flow before operating unit. Turn clockwise to increase, counter clockwise to decrease. (Federal Standard 2090 = 90 FPM: +/- 20%.)

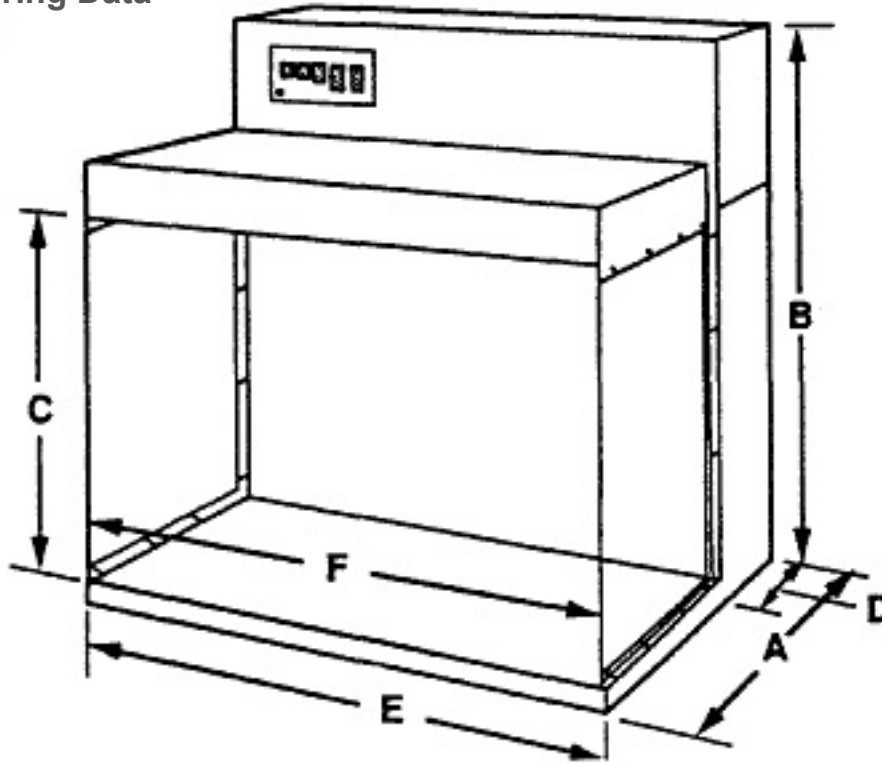
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■ **Wiring Diagram**



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■ Engineering Data



Model #	Dimensions in Inches (cm)						Avg cfm @ 90fpm	BTU/Hr	Power Req. AMPS @115V	Ship Weight lbs (kg)
	A	B	C	D	E	F				
TT3624	38.00 (96.52)	41.00 (104.14)	24.50 (62.23)	14.00 (35.56)	38.125 (96.837)	36.50 (92.71)	540	2900	7.5	260 (117.93)
TT3630	38.00 (96.52)	47.00 (119.38)	30.50 (77.47)	14.00 (35.56)	38.125 (96.837)	36.50 (92.71)	675	2900	7.5	280 (127.01)
TT3636	38.00 (96.52)	53.00 (134.62)	36.50 (92.71)	14.00 (35.56)	38.125 (96.837)	36.50 (92.71)	810	2900	7.5	300 (136.17)
TT4824	38.00 (96.52)	41.00 (104.14)	24.50 (62.23)	14.00 (35.56)	50.125 (127.32)	48.50 (123.19)	720	2960	7.6	315 (142.88)
TT4830	38.00 (96.52)	47.00 (119.38)	30.50 (77.47)	14.00 (35.56)	50.125 (127.32)	48.50 (123.19)	900	2960	7.6	330 (149.68)
TT4836	38.00 (96.52)	53.00 (134.62)	36.50 (92.71)	14.00 (35.56)	50.125 (127.32)	48.50 (123.19)	1080	5650	13.6	350 (158.76)
TT4848	38.00 (96.52)	65.00 (165.10)	48.50 (123.19)	14.00 (35.56)	50.125 (127.32)	48.50 (123.19)	1440	5650	13.6	370 (167.83)
TT7224	38.00 (96.52)	41.00 (104.14)	24.50 (62.23)	14.00 (35.56)	74.125 (188.28)	72.50 (184.15)	1080	5750	14.0	520 (235.87)

SPECIFICATIONS ARE SUBJECT TO CHANGE WITHOUT NOTICE AND WITHOUT INCURRING LIABILITY FOR MODIFICATIONS TO EQUIPMENT PREVIOUSLY SOLD.

**Installation & Service Manual**
**■ Parts List, Model TT3624 (#10565)**

Designation	Part No.	Description	Qty Req.
A	62981-006	Prefilter	1
B	62442	Blower	1
C	60077	Capacitor	1
D	63982-002	Solid State Speed Control	1
E	266484-001	Motor	1
F	B-6054	Blower Support Bracket (L&R)	1 PR.
G	62642	Vibration Isolators	4
H	20079	Power Cord	1
I	66354	On/Off Switch	2
J	69262-001	HEPA Filters	1
K	269747-001	Filter Clips	6
L	269616-001	Diffuser Screen	1
M	33190	Plexiglas Sides	2
N	B-6302	Work Surface	1
O	23092	Light Canopy	1
P	63849-003	Light Tube Bulbs	2
Q	33141	Plex Light Diffuser Lens	2
R	33191	Support Side Channel	4
S	62500-002	Ballast Fixture	1

## Installation &amp; Service Manual

■ **Parts List, Model TT3630 (#10562)**

Designation	Part No.	Description	Qty Req.
A	62981-006	Prefilter	1
B	62442	Blower	1
C	60077	Capacitor	1
D	63982-002	Solid State Speed Control	1
E	266484-001	Motor	1
F	B-6054	Blower Support Bracket (L&R)	1 PR
G	62642	Vibration Isolators	3
H	20079	Power Cord	1
I	66354	On/Off Switch	2
J	69262-009	HEPA Filter	1
K	269747-001	Filter Clips	6
L	33160	Diffuser Screen	1
M	32755	Plexiglas Sides	2
N	B-6302	Work Surface	1
O	23092	Light Canopy	1
P	63849-002	Light Tube Bulbs	2
Q	33141	Plex Light Diffuser Lens	2
R	32750	Support Channel	2
S	62500-002	Ballast Fixture	1

**Installation & Service Manual**
**■ Parts List, Model TT3636 (#10589)**

Designation	Part No.	Description	Qty Req.
A	62981-006	Prefilter	1
B	62442	Blower	1
C	60077	Capacitor	1
D	63982-002	Solid State Speed Control	1
E	266484-001	Motor	1
F	B-6054	Blower Support Bracket (L&R)	2 PR
G	62642	Vibration Isolators	4
H	20079	Power Cord	1
I	66354	On/Off Switch	2
J	69262-005	HEPA Filter	1
K	269474-001	Filter Clips	6
L	33174	Diffuser Screen	1
M	33805	Plexiglas Sides	2
N	B-6302	Work Surface	1
O	23092	Light Canopy	1
P	63849-002	Light Tube Bulbs	2
Q	33141	Plex Light Diffuser Lens	2
R	33804	Support Side Channel	2
S	62500-002	Ballast Fixture	1

## Installation &amp; Service Manual

■ **Parts List, Model TT4824 (#10563)**

Designation	Part No.	Description	Qty Req.
A	62981-004	Prefilter	1
B	62442	Blower	1
C	60077	Capacitor	1
D	63982-002	Solid State Speed Control	1
E	266484-001	Motor	1
F	B-6054	Blower Support Bracket (L&R)	1 PR
G	62642	Vibration Isolators	4
H	20079	Power Cord	1
I	66354	On/Off Switch	2
J	69262-008	HEPA Filter	1
K	269747-001	Filter Clips	6
L	33180	Diffuser Screen	1
M	33190	Plexiglas Sides	2
N	B-6085	Work Surface	1
O	33129	Light Canopy	1
P	63849-002	Light Tube Bulbs	2
Q	33156	Plex Light Diffuser Lens	2
R	33191	Support Channel	2
S	62599-002	Ballast Fixture	1



**Installation & Service Manual**
**■ Parts List, Model TT4830 (#10564)**

Designation	Part No.	Description	Qty Req.
A	62981-004	Prefilter	1
B	62442	Blower	1
C	60077	Capacitor	1
D	63982-002	Solid State Speed Control	1
E	266484-001	Motor	1
F	B-6054	Blower Support Bracket (L&R)	2 PR
G	62642	Vibration Isolators	4
H	20079	Power Cord	1
I	66354	On/Off Switch	2
J	69262-008	HEPA Filter	1
K	269747-001	Filter Clips	6
L	32747	Diffuser Screen	1
M	32755	Plexiglas Sides	2
N	B-6085	Work Surface	1
O	33129	Light Canopy	1
P	63849-002	Light Tube Bulbs	2
Q	33156	Plex Light Diffuser Lens	2
R	32750	Support Channel	2
S	62599-002	Ballast Fixture	1

## Installation &amp; Service Manual

■ **Parts List, Model TT4836 (#10576)**

Designation	Part No.	Description	Qty Req.
A	62981-004	Prefilter	1
B	62442	Blower	1
C	60077	Capacitor	1
D	23132-25	Solid State Speed Control	1
E	266484-001	Motor	1
F	B-6054	Blower Support Bracket (L&R)	4 PR
G	62642	Vibration Isolators	12
H	20079	Power Cord	1
I	66354	On/Off Switch	2
J	69262-002	HEPA Filter	1
K	269747-001	Filter Clips	6
L	33175	Diffuser Screen	1
M	33805	Plexiglas Sides	2
N	B-6085	Work Surface	1
O	33129	Light Canopy	1
P	63849-002	Light Tube Bulbs	2
Q	33156	Plex Light Diffuser Lens	2
R	33804	Support Channel Plex	2
S	62599-002	Ballast Fixture	1

**Installation & Service Manual**
**■ Parts List, Model TT4848 (#10590)**

Designation	Part No.	Description	Qty Req.
A	62981-004	Prefilter	1
B	62442	Blower	1
C	60077	Capacitor	1
D	23132-25	Solid State Speed Control	1
E	266484-001	Motor	2
F	B-6054	Blower Support Bracket (L&R)	4 PR
G	62642	Vibration Isolators	11
H	20079	Power Cord	1
I	66354	On/Off Switch	2
J	69262-012	HEPA Filter	2
K	269747-001	Filter Clips	6
L	23531	Diffuser Screen	1
M	23426	Plexiglas Sides	2
N	B-6085	Work Surface	1
O	33129	Light Canopy	1
P	63849-002	Light Tube Bulbs	2
Q	33156	Plex Light Diffuser Lens	2
R	23425	Support Channel Side Plex	2
S	62599-002	Ballast Fixture	1

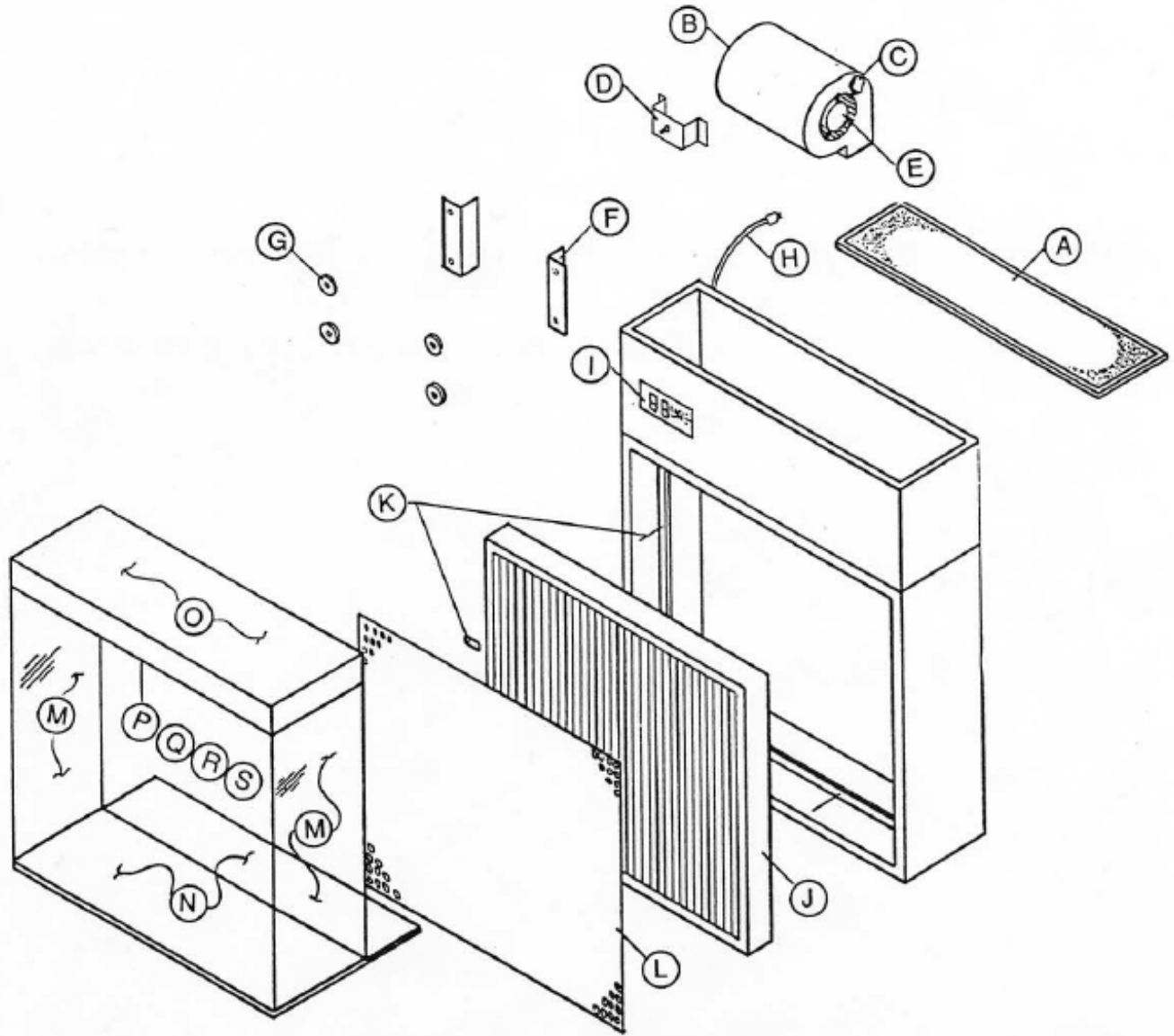
## Installation &amp; Service Manual

■ **Parts List, Model TT7224 (#10591)**

Designation	Part No.	Description	Qty Req.
A	62981-006	Prefilter	2
B	62442	Blower	1
C	60077	Capacitor	1
D	23132-25	Solid State Speed Control	1
E	266484-001	Motor	2
F	B-6054	Blower Support Bracket (L&R)	4 PR
G	62642	Vibration Isolators	11
H	20079	Power Cord	1
I	66354	On/Off Switch	2
J	69262-010	HEPA Filter	1
K	269747-001	Filter Clips	6
L	33758	Diffuser Screen	1
M	33190	Plexiglas Sides	2
N	23417	Work Surface	1
O	23418	Light Canopy	1
P	63849-004	Light Tube Bulbs	2
Q	23412	Plex Light Diffuser	2
R	33191	Support Channel Side Plex	2
S	62613-002	Ballast Fixture	1

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■ **Parts Locations**



# Clean air solutions built for you.

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## Industrial

### Cleanroom Products

- » MAC 10<sup>®</sup> Original
- » MAC 10<sup>®</sup> IQ™
- » MAC 10<sup>®</sup> IQ™ LAF
- » MAC 10<sup>®</sup> LEAC™
- » MAC 10<sup>®</sup> LEAC2™
- » MAC 10<sup>®</sup> LEDC™
- » Ducted Ceiling Module:  
DCM & RSR
- » AC or DC Control Systems
- » MAC-T Ceiling Grid System

## Hospital & Healthcare

### Hospital & Healthcare

- » IsoClean<sup>®</sup> and IsoClean  
with Ultraviolet Light
- » AirCeil<sup>®</sup>
- » Hospi-Gard<sup>®</sup> Room  
Pressure Monitor

### Enviramedic Products

- » HOR Horizontal Flow  
Enclosure
- » HCF Horizontal Flow  
Surgery Room
- » VOR Vertical Flow Surgery  
Isolator

## Pharmaceutical

### Pharmaceutical & Medical Device

- » Unimodule M2 Vertical  
Laminar Flow Workstation
- » METD 100% Exhausted  
Vertical Flow Workstation
- » Laminar Downflow Module

## Laboratory & Research

### Laboratory & Research

- » 100-Plus Horizontal or  
Vertical Flow Clean Bench
- » Unidirectional Flow  
Horizontal Flow Bench (LF)
- » TT Table Top Horizontal  
Flow Clean Bench
- » EnviraLab Sterility Module:  
ESM

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