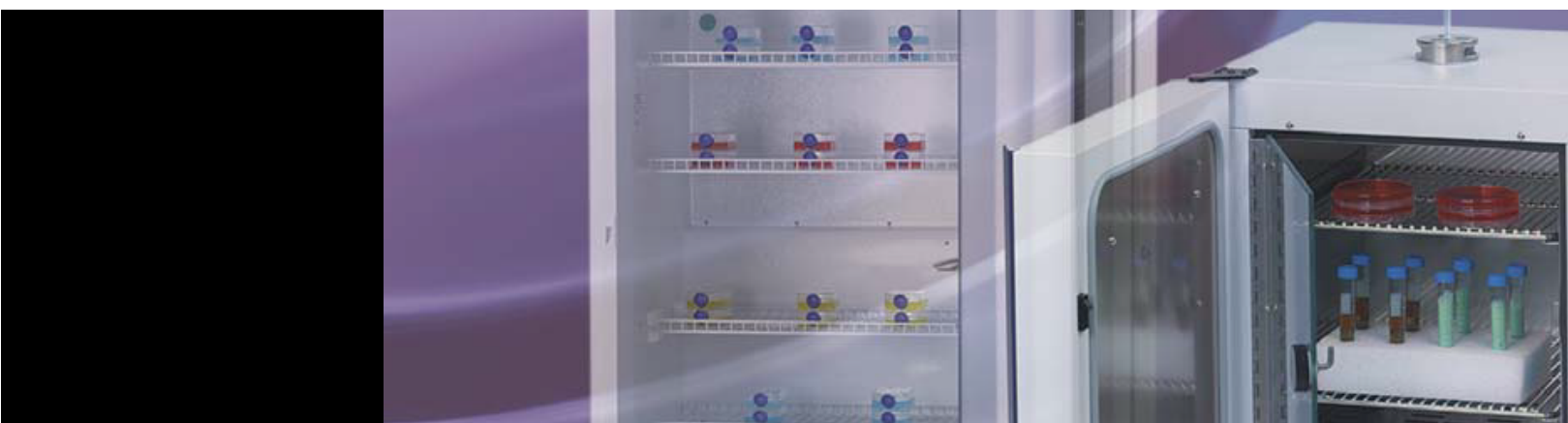


Thermo Scientific Precision 30 cu ft Incubator

Standard or Low Temperature

Operating and Maintenance Manual 3177878 Rev. M



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Standard Temperature		
Model 30M	Voltage	Door
3971	120V, 50/60 Hz., 1450W	Solid
3973	120V, 50/60 Hz., 1450W	Glass

Low Temperature (Refrigerated)		
Model 30MR	Voltage	Door
3975	120V, 60 Hz., 2150W	Solid
3977	120V, 60 Hz., 2150W	Glass

MANUAL NUMBER 3177878

M	41670	7/17	Updated uniformity pg 4-2, electrical connections pg 6-1	bpg
L	--	9/10	3175235 to 3175237 t-stat on pgs 10-14	
K	--	8/10	Parts List - pg 10	
J	--	4/09	3975-70-1-D to rev 2, corrected 3175235 to 3175237 - pgs 13 & 14	
I	24002/IN-3770	2/09	3175274 to 3185253, 3175277 to 3185254-Parts List pg 10, reformat schematics	
H	23717/IN-3733	12/06	3173630 relay to 300175	
G	--	1/06	P/N 3167106 to 3166985, 3174933 to 3174924 - pg 10	
F	--	6/05	Manual number and manufacture location - was 36100113	
E	--	6/03	Add notices page, update instructions for setting safety and control thermostats-pg 7	
D	--	11/01	Add environmental conditions - pgs. 2-3	
C	--	2/01	Add part numbers for new doors and gasket - pg 10	
B	--	8/99	Update parts list for new kit numbers - pg 10	
A	--	6/99	Initial Release	
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. ▲

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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.



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



Hot surface(s) present which may cause burns to unprotected skin, or to materials which may be damaged by elevated temperatures.



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.



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- ✓ 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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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:

Thermo Fisher Scientific (Asheville) LLC
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International customers, please contact your local Thermo Scientific distributor.

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Section 1 Cautions and Warnings

Caution Read these notices before installing the unit. ▲

General



As a routine laboratory precaution, always wear safety glasses when working with this apparatus.

Allow the incubator to cool to approximately 100°F (38°C) before changing from HEAT to COOL switch positions.

The uniformity will be adversely affected if air circulation is obstructed.

DO NOT place any explosive, combustible, or flammable materials in the chamber.

DO NOT place sealed containers in the chamber. Sealed containers, filled with materials, do not provide room for expansion and can develop dangerous vapor pressure as the temperature increases.

Avoid spillage of large volumes of liquids.

DO NOT evaporate noxious fumes.

The liquid level in the container should be checked daily to prevent overflow.

Allow a 4°C differential between the desired operating temperature and the safety temperature.

Section 1

Cautions and Warnings

Electrical



For personal safety, this apparatus must be properly grounded.

Be sure that the power supply is of the same voltage as specified on the nameplate.

DO NOT connect an instrument, or a second instrument, to the convenience outlet that exceeds a total of 15 amps, as circuit overload will result

DO NOT, under any circumstances, cut or remove the third (ground) prong from the power cord. DO NOT use a two-prong adapter plug.

Hazardous high voltage conditions exist inside the control compartment. Disconnect all electrical power to the incubator before removing the cover. Only qualified electrical instrument personnel are authorized to perform troubleshooting and/or servicing.

Section 2 Introduction

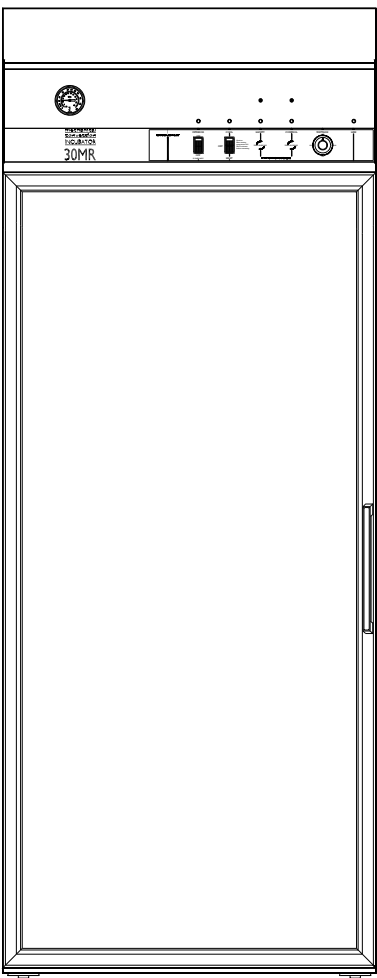
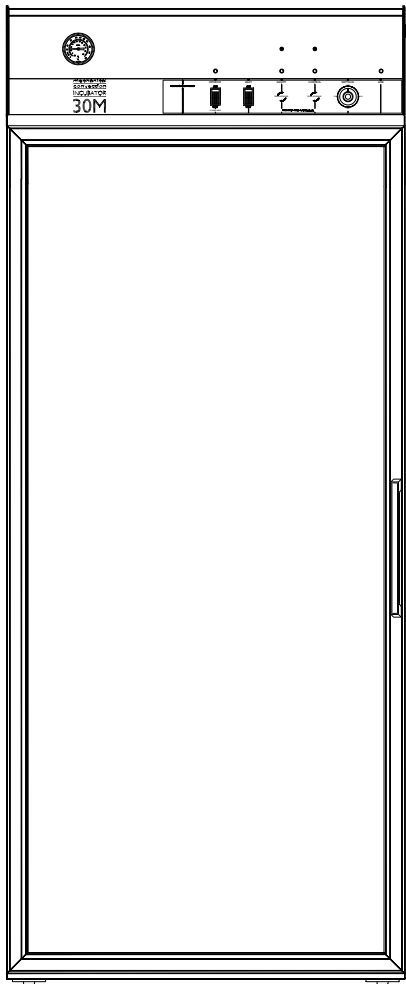


Figure 2-1. Standard Temperature Model 30M (3971, 3973) **Figure 2-2.** Low Temperature Model 30MR (3975, 3977)

Your satisfaction and safety are important to Thermo and a complete understanding of this unit is necessary to attain these objectives.

As the ultimate user of this apparatus, it is your responsibility to understand its proper function and operational characteristics. This instruction manual should be thoroughly read and all operators given adequate training before attempting to place this unit in service. Awareness of the stated cautions and warnings, and compliance with recommended operating parameters--together with maintenance requirements--are important for safe and satisfactory operation. The unit should be used for its intended application; alterations or modifications will void the warranty.

Warning As a routine laboratory precaution, always wear safety glasses when working with this apparatus. ▲

Caution This product is not intended, nor can it be used, as a sterile or patient connected device. In addition, this apparatus is not designed for use in Class I, II, or III locations as defined by the National Electrical Code. ▲

Section 3 Unpacking and Damage

Save all packing material if apparatus is received damaged. This merchandise was carefully packed and thoroughly inspected before leaving our factory.

Responsibility for its safe delivery was assumed by the carrier upon acceptance of the shipment; therefore, claims for loss or damage sustained in transit must be made upon the carrier by the recipient as follows:

Visible Loss or Damage: Note any external evidence of loss or damage on the freight bill, or express receipt, and have it signed by the carrier's agent. Failure to adequately describe such external evidence of loss or damage may result in the carrier's refusing to honor your damage claim. The form required to file such a claim will be supplied by the carrier.

Concealed Loss or Damage: Concealed loss or damage means loss or damage which does not become apparent until the merchandise has been unpacked and inspected. Should either occur, make a written request for inspection by the carrier's agent within 15 days of the delivery date; then file a claim with the carrier since the damage is the carrier's responsibility.

By following these instructions carefully, we guarantee our full support of your claim to be compensated for loss from concealed damage.

DO NOT — FOR ANY REASON — RETURN THIS UNIT WITHOUT FIRST OBTAINING AUTHORIZATION. In any correspondence to Thermo, please supply the nameplate data, including catalog number and serial number.

Section 4 General Information

The following instructions encompass the incubators listed below:

Model No.	Description	Electrical Characteristics
3971	Standard Temperature Model (30M) Incubator, w/solid door	120V, 50/60 Hz., 1450W
3975	Low Temperature Model (30MR) Incubator, w/solid door	120V, 60 Hz., 2150W
3973	Standard Temperature Model (30M) Incubator, w/glass door	120V, 50/60 Hz., 1450W
3977	Low Temperature Model (30MR) Incubator, w/glass door	120V, 60 Hz., 2150

The standard temperature model (non-refrigerated) has a temperature range of ambient +5°C to 70°C. The low temperature model (refrigerated) has a temperature range of 5° to 70°C.

These incubators occupy less than 8 sq. ft. of floor space. The huge chamber offers 30 cu. ft. of working capacity.

The 6 shelves furnished give 5 sq. ft. of space each, and can support 100 lbs. Shelf height, adjustable on 1/2" centers, can be varied to accommodate an innumerable variety of laboratory utensils from petri dishes to carboys.

A duplex electrical outlet is supplied within the chamber to accept electrical devices such as roller drums, stirrers, and shakers. The outlet is activated by an "On-Off" switch with accompanying pilot light located on the control panel.

Section 4
General Information

	Model 30M Standard Model	Model 30MR Refrigerated Model
Temperature Range	ambient +5°C to 70°C	5°C to 70°C
Dimensions (W x D x H)		
Overall	36 x 30 x 88 inches (910 x 760 x 2240mm)	30 x 24 x 72 inches (760 x 610 x 1830mm)
Chamber	36 x 30 x 93 inches (910 x 760 x 2360mm)	30 x 24 x 72 inches (760 x 610 x 1830mm)
Heat-up Time		
from 29° to 37°C	60 minutes	90 minutes
from 24° to 70°C	60 minutes	90 minutes
Cool-down Time		
from 24° to 10°C	--	45 minutes
Uniformity (±) @ 37°C	1°C or better	1°C or better
Capacity		
Shelf Area (sq. ft.)	5 (6 supplied)	
300ml BOD bottles	528/6 shelves	
500ml BOD bottles	378/6 shelves	
1 gal bottle	48/6 shelves	
5 gal carboy	9/3 shelves	

Environmental Conditions:

This instrument is designed to operate safely under the following conditions :

- Indoor use.
- Temperature : 15°C to 30°C.
- Maximum relative humidity of 80% for temperatures up to 22°C.
- Maximum altitude : 2000 m.

Maximum performance is assured across the following temperature range : 15°C to 25°C.

Section 5 Explanation of Controls

All Models:

Dial Thermometer - Chamber temperatures are visually displayed by a direct reading thermometer located on the left-hand side of the control panel. The thermometer contains a temperature range of -20 to 80°C and 0 to 180°F.

Although the thermometer has been factory calibrated, recalibration after shipment may be necessary (see Thermometer Calibration).

INTERIOR "On-Off" Switch - This switch controls electrical power to the interior duplex outlet located on the upper rear wall of the chamber. The pilot light located above this switch will be energized after the line cord supplied is inserted into the electrical outlet and the switch is in the "On" position.

SAFETY Thermostat - A safety thermostat is provided which will control the chamber temperature at a slightly higher temperature than that desired if the control thermostat becomes inoperative. When the safety pilot light glows, the heater is "Off" and the safety thermostat contacts are in the "Open" position.

The safety pilot light is "Out" and the heaters are energized when the safety thermostat contacts are "Closed".

CONTROL Thermostat - A control thermostat is supplied to control and maintain the desired chamber temperature. The control pilot light glows when the heater is energized and the control thermostat contacts are closed.

WATTAGE Selection Switch - This four-position switch is supplied to allow the operator to select the required wattage to maintain the desired chamber temperature. The four switch positions are "Off", 350 Watts, 700 Watts, and 1400 Watts.

Usually, the 1400 watt position is used for quick chamber heat-up, depending on the nature of the load and desired operating temperature. The switch may later be placed in its appropriate position for normal operation.

All Models (continued):

LINE Pilot Light - This light will glow after electrical power is connected to the terminal strip per the installation instructions and attached wiring diagram.

Interior Light Switch - This is located on the right-hand side of the chamber and is actuated by opening or closing the door. When the door is open, the light inside the chamber will glow; and when the door is closed, the light is out.

Standard Temperature Model Only:

Heat "On-Off" Switch - This switch controls electrical power to the heater, relay, and blower motor. It does not de-energize the internal chamber light or the convenience outlet electrical circuits.

Low Temperature Model Only:

COOL-HEAT Switch - A three-position (Cool-Heat-Off) switch is supplied. This switch allows the operator to change the chamber temperature to meet the given application. The recommended switch positions for a given temperature range are as follows:

<u>Switch Position</u>	<u>Temperature Range</u>
COOL	5°C to ambient plus 10°C
HEAT	Ambient plus 10°C to 70°C
"OFF"	None - no electrical power to heater or compressor

When the COOL pilot light glows, the compressor is actuated; and when the CONTROL pilot light glows, the heaters are energized.

Compressor Cutoff Switch - A thermal switch is provided above the ceiling panels and in the rear of the control compartment. This switch (normally closed) will open on temperature rise, approximately 125°F (52°C), and it will prevent damage to the compressor due to excessive pressures created by high temperature in the chamber.

NOTE Allow the incubator to cool to approximately 100°F (38°C) before changing from HEAT to COOL switch positions. ▲

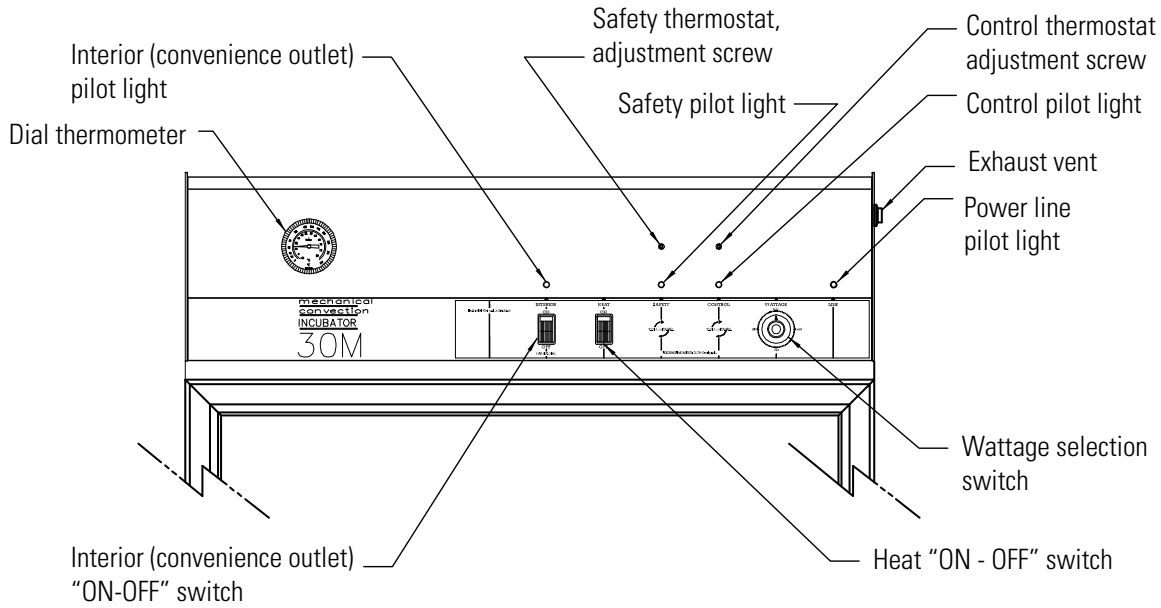


Figure 5-1. Standard Model 30M

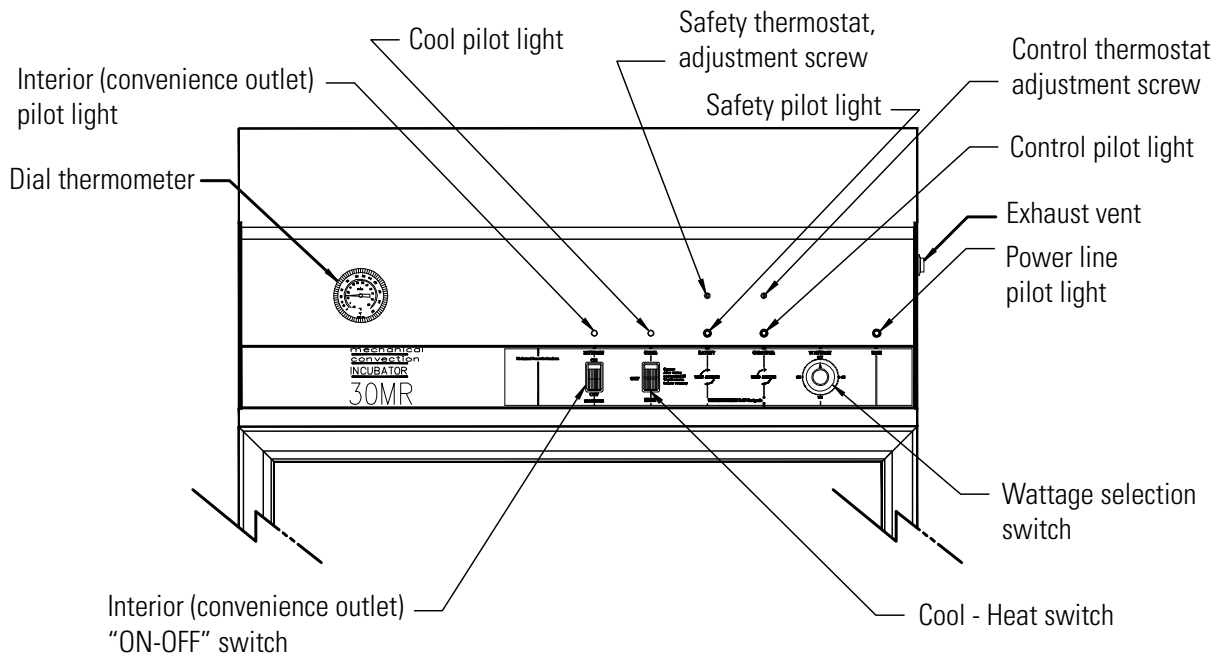


Figure 5-2. Refrigerated Model 30MR

Section 6 Installation

Location: To assure proper ventilation, allow a minimum of 4 inches of clearance between the rear, top, and sides of the incubator and adjacent walls.

Caution An exhaust vent is located at the top right side of the cabinet. it is not adjustable and should never be obstructed. ▲

If two or more incubators are positioned side by side, allow a minimum of 8 inches between cabinets. Adjust the front leveling feet of the incubator so that the front is higher than the rear. This will assist in door closing. Choose a site free from rapidly changing ambient temperature conditions or one which will experience high rises in ambient temperature during the summer months.

Radiators, air-conditioning outlets, other ventilating system outlets, and drafts can affect the operation of the incubator by a sudden inrush of air that is at a temperature different than operating conditions.

Electrical Connections:

Important, please read carefully.

Caution Be sure that the power supply is of the same voltage as specified on the nameplate. ▲

The incubator is supplied with mains power leads located beneath the control compartment cover, and must be permanently connected to an electrical source by a qualified electrician.

Warning The National Electrical Code should be observed for proper fusing and the size of the service wires. For personal safety, this apparatus must be properly grounded. ▲

A power cord is provided at the rear of the cabinet for the Convenience Outlet, 15 amps maximum, located inside the chamber.

Caution Do not connect an instrument, or a second instrument, to this outlet that exceeds a total of 15 amps, as circuit overload will result. ▲

The convenience outlet power cord of this instrument is equipped with a three-prong (grounding) plug, which mates with a standard three-prong (grounding) wall receptacle to minimize the possibility of electric shock hazard from this apparatus. The customer should have the wall receptacle and circuit checked by a qualified electrician to make sure the receptacle is properly grounded.

Where a two-prong wall receptacle is encountered, it is the personal responsibility and obligation of the user to have it replaced with a properly grounded three-prong receptacle.

Warning DO NOT, under any circumstances, cut or remove the third (ground) prong from the power cord. DO NOT use a two-prong adapter plug. ▲

Determine the total amount of current presently being used by other apparatus connected to the circuit that will be used for this power cord.

It is critical that the added current demand and other equipment on the circuit not exceed the rating of the fuse or circuit breaker in use.

Loading Procedure: These incubators depend upon heated or cooled air being circulated within the chamber by means of a blower fan located above the chamber ceiling. The air flow enters the chamber from the bottom diffuser panel.

DO NOT place any objects on the chamber floor or substitute solid shelves for the shelves provided, as these procedures will obstruct the air flow and temperature uniformity.

When loading the incubator, a space of 1/2" must be allowed between adjacent items. This will allow maximum air circulation, which is necessary for proper temperature uniformity.

Caution The uniformity will be adversely affected if air circulation is obstructed. ▲

Do not exceed 100 lbs. load per shelf, as weight in excess of this will cause the shelf to sag.

WARNING: SAFETY PRECAUTIONS

1. DO NOT place any explosive, combustible, or flammable materials in the chamber.
2. DO NOT place sealed containers in the chamber. Sealed containers, filled with materials, do not provide room for expansion and can develop dangerous vapor pressure as the temperature increases.
3. Avoid spillage of large volumes of liquids.
4. DO NOT evaporate noxious fumes.

Low Temperature Model Only

A plastic container is provided to collect condensate from the cooling coil. A piece of 7/16" I.D. plastic tubing is used to connect the condensate drip tube (located at the rear center of the chamber ceiling) to this container.

Note The liquid level, in the container, should be checked daily to prevent overflow. ▲

Section 7 Operation

Standard Model Only

1. Place the HEAT "On-Off" switch in the "On" position.
2. Place the WATTAGE selection switch in the "1400" watts position for fast chamber heat-up.

Allow the chamber temperature to rise to within 5°C of the desired temperature; then select the appropriate heater wattage.

<u>Wattage Setting</u>	<u>Desired Chamber Temperature °C</u>
350	37 to 45
700	46 to 60
1400	61 to 70

Low Temperature Model Only

1. Place the COOL-HEAT switch in the switch positions indicated below to maintain the desired chamber temperature.

<u>Switch Position</u>	<u>Desired Temp. Range</u>
COOL	5°C to ambient plus 10°C
HEAT	Ambient plus 10°C to 70°C

2. When the HEAT position is employed, place the WATTAGE selection switch in the "1400" watts position for fast chamber heat-up.

Allow the chamber temperature to rise to within 5°C of the desired temperature; then select the appropriate heater wattage.

<u>Wattage Setting</u>	<u>Desired Chamber Temperature °C</u>
350	37 to 45
700	46 to 60
1400	61 to 70

3. When the COOL position is employed, place the WATTAGE switch in the "Off" position.

Allow the chamber temperature to decrease to within 5°C of the desired temperature; then select the appropriate heater wattage.

<u>Wattage Setting</u>	<u>Desired Chamber Temperature °C</u>
700	5 to 20
1400	21 to 37

All Models

Deviations from the above temperature wattage recommendations may be necessary, due to low voltage, extreme ambient conditions, or unusually large loads. For these conditions, select the wattage which allows an approximate 50% heating cycle [Heat "On" (Control Pilot Lamp "On") 50% of the time, and "Off" 50% of the time]. With each wattage setting, allow the unit to operate for at least 30 minutes; then determine the percent of heat cycle.

Setting the SAFETY and CONTROL Thermostats:

For Model 30M:

1. Using a small screwdriver, turn both the temperature control and safety temperature thermostat adjustment screws fully clockwise. The temperature control pilot lamp should now be illuminated.
2. When the incubator reaches the desired temperature, slowly turn the safety thermostat adjustment screw counter-clockwise until the safety pilot light is illuminated.
3. Turn the safety thermostat adjustment screw approximately ¼ turn in a clockwise direction. The safety thermostat light should now be off. The thermostat is now set a few degrees above the desired incubator temperature.
4. Turn the Control thermostat adjustment screw counterclockwise until both pilot lamps are off. Next turn the control thermostat adjustment screw clockwise until the control pilot lamp just comes on.
5. Allow the unit to stabilize then readjust or fine tune the control thermostat as necessary. The chamber temperature is stabilized when the Control pilot light cycles (50% of the time on and 50% of the time off).

For Model 30MR:

1. Place the cool-Heat switch in the Cool position and allow the chamber temperature to cool 6 to 8 degrees below the desired operating temperature.
2. Using a small screwdriver, turn both the temperature control and safety temperature thermostat adjustment screws fully clockwise. The temperature control pilot lamp should now be illuminated.
3. When the incubator reaches the desired temperature, slowly turn the safety thermostat adjustment screw counter-clockwise until the safety pilot light is illuminated.
4. Turn the safety thermostat adjustment screw approximately $\frac{1}{4}$ turn in a clockwise direction. The safety thermostat light should now be off. The safety thermostat is now set a few degrees above the desired incubator temperature.
5. Turn the Control thermostat adjustment screw counterclockwise until both pilot lamps are off. Next turn the control thermostat adjustment screw clockwise until the control pilot lamp just comes on.
6. Allow the unit to stabilize then readjust or fine tune the control thermostat as necessary. The chamber temperature is stabilized when the Control pilot light cycles (50% of the time on and 50% of the time off).

Note Allow a 4°C differential between the desired operating temperature and the safety temperature. Example: Set operating temperature at 20°C and safety temperature at 24°C. ▲

Section 8 Service

Thermometer Calibration: The chamber must be stabilized at a desired temperature before calibrating.

Place a certified thermometer (mercury in glass type) into a beaker filled with glycerol. Position the beaker on a shelf approximately in the center of the chamber. Allow the glycerol to equilibrate at the chamber temperature before reading the thermometer. If the dial thermometer reading differs from that of the certified thermometer, adjust as follows. Gently pry the retaining ring off the dial thermometer. The ring holds the thermometer glass in place. Adjust the calibration screw located on the dial face to allow the two thermometers to agree.

Refrigeration Service: If it is ascertained, after review of the Troubleshooting section, that refrigeration service is needed, contact the Technical Services Department.

In any communication with Thermo Fisher Scientific, include the catalog and serial numbers from the nameplate located on the rear of the control compartment.

Compressor Charging Specifications:

- ~ 8 oz. of R134a
- ~ Low Side = 9 - 13 Psig @ 5 °C
- ~ High Side = 120 -135 Psig

Troubleshooting

Problems encountered with any constant temperature chamber will most frequently be related to temperature control. Before proceeding with detailed troubleshooting, be certain that the Control and Safety controls are adjusted properly. If the Safety control is set too close to the operating temperature, the incubator temperature may be controlled by this thermostat rather than by the Control thermostat. This will result in erratic temperature control.

Warning Hazardous high voltage conditions exist inside the control compartment. Disconnect all electrical power to the incubator before removing the cover. Only qualified electrical instrument personnel are authorized to perform troubleshooting and/or servicing. ▲

Loss of Heat Control:

If the incubator temperature rises above the Control thermostat setting and the Safety thermostat controls the chamber temperature, replace the Control thermostat. When the Safety thermostat is controlling the chamber temperature, the Safety pilot light will cycle “On” and “Off” .

Operation of a motor-driven accessory within the chamber may produce enough heat to raise the chamber temperature above that set on the CONTROL thermostat.

If the room temperature is too close to the desired temperature setting on the non-refrigerated model, erratic chamber temperature will result.

Temperature Variance or Fluctuation:

1. Make sure the exhaust vent is not closed or obstructed.
2. Test the incubator when empty. If results are satisfactory, the incubator was not properly loaded— redistribute the load.

Allow ample time for an empty chamber to stabilize at a temperature setting. It could take one to two hours to equilibrate, depending upon the difference between ambient and operating temperatures. The mass of the load can also affect stabilization time.

3. Make certain that all wire terminal connections are secure.
4. Make certain an intermittent failure of the switches, thermostats, heater, or wiring has not occurred. If so, isolate the cause, repair, or replace.

Troubleshooting (continued)

Heat Loss:

Inspect the magnetic door gasket to make certain it seals against the cabinet at all points. Place a sheet of paper between the door and cabinet; then close the door. There should be some resistance when removing the paper.

The vinyl door gasket can be heated with a hot air gun and pulled slightly away from the door frame to retain its original shape. This procedure can be used to help secure proper door sealing.

The door can be adjusted by loosening the screws that mount the door hinge to the door.

No Heat:

1. Be sure line voltage is the same as shown on the nameplate.
2. Check switches and electrical connections.
3. Check heater resistance, which should be 41 ohms per heater coil.

Loss of Cooling Efficiency:

The heat exchange coils of the compressor must be kept clean and free of dust. Periodic inspection and cleaning is important.

Parts Replacement

Remove mounting screws that fasten the control compartment cover to the top of the chamber. Lift cover off the cabinet to gain access to electrical components such as switches, pilot lights, heater, and thermostats.

Pilot Light Replacement:

1. Remove clip that fastens the pilot light to rear of panel.
2. Tag wires for identification; then disconnect.
3. Remove pilot light and replace in reverse order.

Parts Replacement (continued)

Switch Replacement:

1. Tag wires for identification, then disconnect.
2. Compress spring clip on the sides of switch and push the switch outward from the back of the panel.
3. Replace switch and rewire.

Thermostat Replacement:

1. Remove two screws which hold thermostat to control panel.
2. Tag and disconnect wires from terminals.
3. Remove top diffuser panel inside incubator chamber. (Remove thermometer capillary and bulb of the thermostat you wish to replace from its holder, and lift its capillary through the hole leading into the control compartment.
4. Install the new thermostat by reversing the above steps, exercising care that a crimp or severe bend is not put into the thermostat capillary.

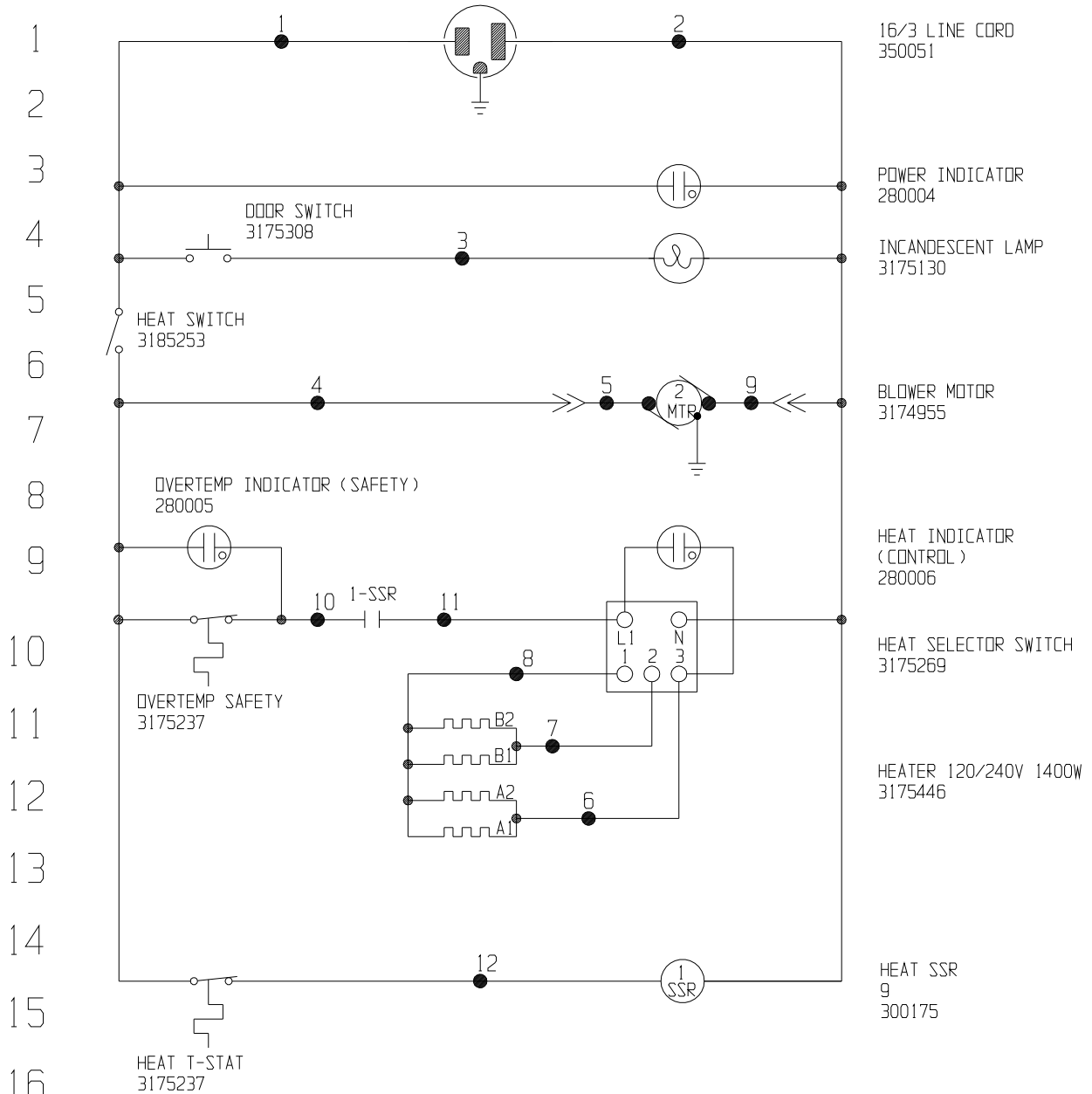
Heater Replacement:

1. Remove the top diffuser panel inside the incubator chamber. (Remove thermometer capillary and bulb from the panel prior to removal.)
2. Tag and remove the wires at the heater terminals.
3. Remove the screws at the brackets which hold the heater in place.
4. Install the new heater by following the reverse of the above steps.

Parts List

	MODEL	STANDARD	REFRIGERATED
	Model Number	3971 3973	3975 3977
Wiring Symbol	Description	Part Number	
S1	Switch, D.P.S.T.	3185253	
S2	Switch Kit, 4-position	3167201	
S3	Switch	3185253	3185254
S5, 6	Thermostat	3175237	
S7	Thermodisc, Compressor	N/A	3175271
HR1, 2	Heater	3175446	
DS5	Light, Bulb	33175103	
B1	Motor, Blower	3166985	3174924
	Shaft Extension, Motor	3177264	3177321
	Wheel, Blower	3175896	3175894
COMP.	Compressor, 1/4 HP	N/A	3180355
K1	Relay Kit	3162118	
	Shelf Kit	3166190	
	Thermometer, Dial	3175995	
	Wood Container (Packaging) Kit	3174256	
	Hinge Kit , Right Hand	3167202	
	Hinge Kit , Left Hand	3167203	
	Leveling Kit	3167204	
	Switch, Cheat In	3175308	
	Door, Glass, Old (pre June2000)	3176314	
	Door, Glass, New (after June2000)	3176317	
	Door, Solid, Old (pre May 2000)	3176315	
	Door, Solid, New (after May 2000)	3176318	
	Gasket, Door, Old (pre May 2000)	3176316	
	Gasket, Door, New (after May 2000)	3176319	
	Pillar, Shelf	3163415	
	Cooling Coil	N/A	3174760
	Gasket, Neoprene	N/A	3175055
	Seal Gasket	3175098	100130
	Coil Seal	N/A	3175099
	Drain Tube	N/A	317732
	Teflon Washer Seal	N/A	73012

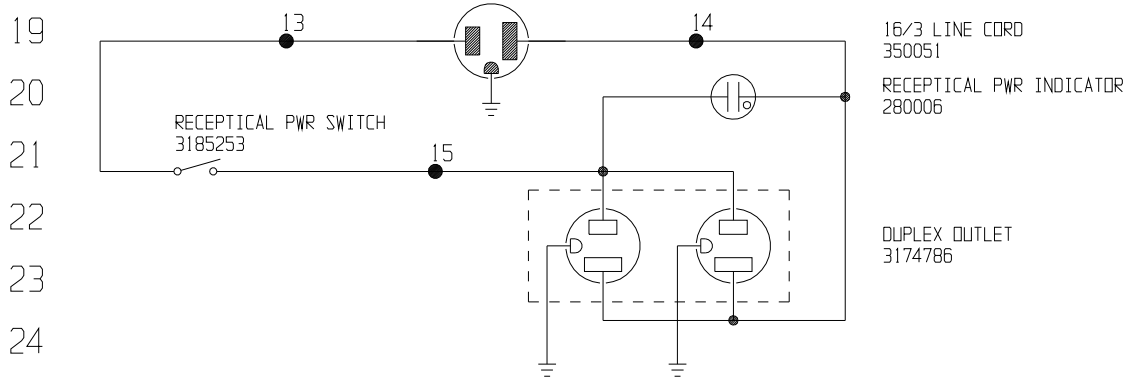
POWER REQUIREMENTS:
120V, 1PH, 3W (INCLUDING GROUND), 60HZ, 12.1FLA



Electrical Schematic
Model:
3971 and 3973
Standard Temp
30 cu ft Incubators

3971-70-1-D REV. 1
Page 1 of 2

REV	ECN NO.	DATE	BY	CAD	APPD	DESCRIPTION OF REVISION
0	IN-3770	2/26/09	GLS	GLS	D.G.	REDRAWN IN CADKEY
1	IN-4008	06/08/10	GLS	GLS	CCS	CHG 3175235 TO 3175237



WIRE REFERENCE CHART

WIRE #	GAUGE	COLOR
1	14	BLK
2	14	WHT
3	18	BLK
4	14	BLK
5	16	BLK
6	14	WHT
7	14	RED
8	14	BLK
9	16	DRG
10	14	BLK
11	14	BLK
12	18	BLK
13	14	BLK
14	14	WHT
15	14	BLK

120 VOLTS	
HEATER CONNECTIONS	WATTS
A1, A2, B1, B2 - PARALLEL	1400W
A1, A2 PARALLEL	700W
(A1, A2) - (B1, B2) SERIES	350W



ATTENTION
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SCIENTIFIC

BOX 649, MARIETTA, OHIO 45750

MODEL/PART NAME: 3971 & 3973 PRECISION INCUBATOR 30M

DWG TITLE: ELECTRICAL SCHEMATIC

DWN: ADL CAD: ADL APPD: D.G. DATE: 1/31/01 SCALE: N/A

MATERIAL: N/A

PAINT COLOR: N/A

TOLERANCE UNLESS OTHERWISE SPECIFIED
ANGLES: DECIMAL: .XX=t
DECIMAL: .XXX=t

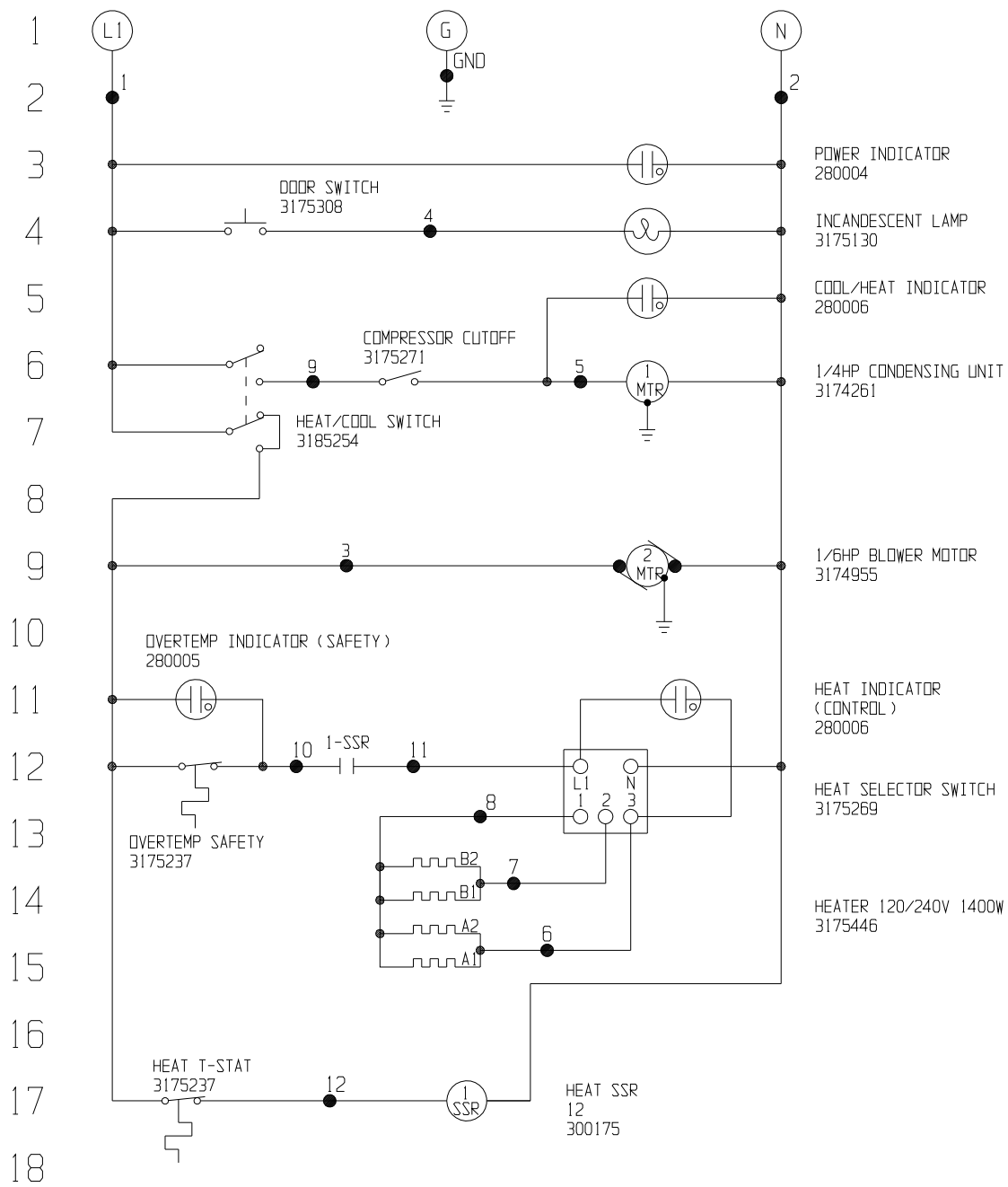
DRAWING NUMBER
3971-70-1

SIZE
B

Electrical Schematic
Model:
3971 and 3973
Standard Temp
30 cu ft Incubators

3971-70-1-D REV. 1
Page 2 of 2

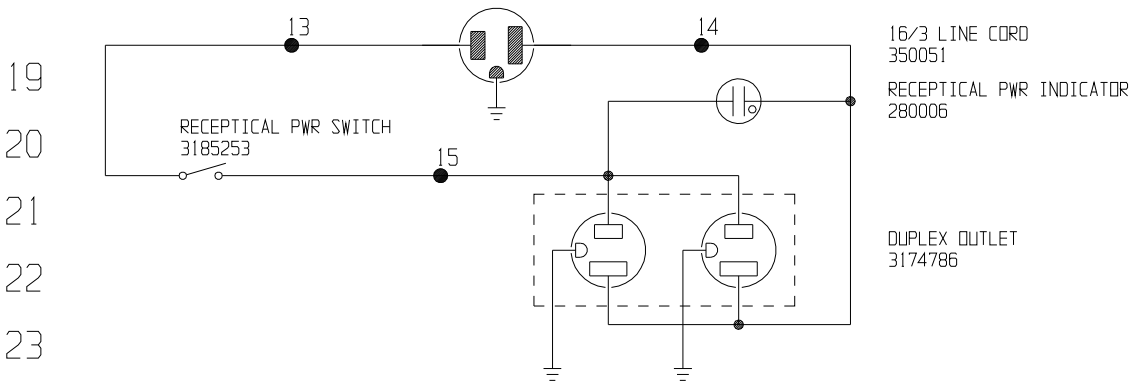
POWER REQUIREMENTS:
120V, 1PH, 3W (INCLUDING GROUND), 60HZ, 17.9FLA



Electrical Schematic
Model:
3975 and 3977
Low Temp Refrigerated
30 cu ft Incubators

3975-70-1-D REV. 2
Page 1 of 2

REV	ECN NO.	DATE	BY	CAD	APPD	DESCRIPTION OF REVISION
0	IN-3770	02-26-09	GLS	GLS	D.G.	REDRAWN IN CADKEY
1	IN-3920	03-27-09	CCS	SAG	LDN	3175237 WAS 3175235
2	IN-4008	06-08-10	GLS	GLS	CCS	SAFETY WAS 3175235 CHG TO 3175235



WIRE REFERENCE CHART

WIRE #	GAUGE	COLOR
1	14	BLK
2	14	WHT
3	14	BLK
4	18	BLK
5	14	BLK
6	14	WHT
7	14	RED
8	14	BLK
9	14	BLK
10	14	BLK
11	14	BLK
12	18	BLK
13	14	BLK
14	14	WHT
15	14	BLK

120 VOLTS	
HEATER CONNECTIONS	WATTS
A1, A2, B1, B2 - PARALLEL	1400W
A1, A2 PARALLEL	700W
(A1, A2) - (B1, B2) SERIES	350W



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SCIENTIFIC

BOX 649, MARIETTA, OHIO 45750

MODEL/PART NAME: 3975 & 3977 PRECISION INCUBATOR 30MR

DWG TITLE: ELECTRICAL SCHEMATIC

DWN: ADL CAD: ADL APPD: D.G. DATE: 2/14/01 SCALE: N/A

MATERIAL: N/A

PAINT COLOR: N/A

TOLERANCE UNLESS OTHERWISE SPECIFIED

ANGLES: DECIMAL: .XXX±

DRAWING NUMBER
3975-70-1

SIZE
B

Electrical Schematic
Model:
3975 and 3977
Low Temp Refrigerated
30 cu ft Incubators

3975-70-1-D REV. 2
Page 2 of 2

THERMO FISHER SCIENTIFIC STANDARD PRODUCT WARRANTY

The Warranty Period starts two weeks from the date your equipment is shipped from our facility. This allows for 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 year warranty period.

During the first year, component parts proven to be non-conforming in materials or workmanship will be repaired or replaced at Thermo's expense, labor included. Installation and calibration are 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 components 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 components or equipment. At Thermo's option, all non-conforming parts must be returned to Thermo Fisher Scientific postage paid and replacement parts are shipped FOB destination.

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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 application. Outside the USA, contact your local distributor for warranty information.



Rev. 4 4/09

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