



INSTALLATION & OPERATION MANUAL



MODELS

1200 G 1300 G 1900 G

For additional information on Thermodyne Foodservice Products, Inc.,
or to locate an authorized parts and service provider in your area,
visit our website at www.tdyne.com.

Please visit our website to Register your Thermodyne unit. Registration ensures that you
get up-to-date warranty and product information, along with fast and convenient service.

<http://www.tdyne.com/register.aspx>

Thermodyne Foodservice Products, Inc.
4418 New Haven Avenue
Fort Wayne, IN 46803

1-800-526-9182
www.tdyne.com

IMPORTANT FOR YOUR SAFETY

WARNING

IMPROPER INSTALLATION, ADJUSTMENT, ALTERATION, SERVICE OR MAINTENANCE CAN CAUSE PROPERTY DAMAGE, INJURY OR DEATH.

READ THE INSTALLATION, OPERATING AND MAINTENANCE INSTRUCTIONS THOROUGHLY BEFORE INSTALLING OR SERVICING THIS EQUIPMENT. SERVICE WORK SHOULD BE PERFORMED BY A LICENSED PROFESSIONAL, QUALIFIED TO SERVICE AND REPAIR ELECTRIC FOOD SERVICE EQUIPMENT.

IN THE EVENT OF A POWER FAILURE, DO NOT ATTEMPT TO OPERATE THIS DEVICE.



CAUTION

These models have glass doors. Remove carton carefully.



CAUTION

Packaging may have sharp edges and banding material; use leather work gloves and safety glasses when unpacking.

TABLE OF CONTENTS

IMPORTANT FOR YOUR SAFETY	2
INTRODUCTION	4
GENERAL.....	4
SPECIFICATIONS	4
DIMENSIONAL DRAWINGS	5
UNPACKING.....	6
Thermodyne Damaged Goods Policy.....	6
INSTALLATION CODES AND STANDARDS	7
INSTALLATION.....	7
LOCATION.....	7
ELECTRICAL CONNECTION	8
ELECTRICAL SPECIFICATIONS.....	8
OPERATION.....	9
STARTUP	9
TEMPERATURE CONTROLLER SET UP PROCEDURES	9
Keypad Operation.....	9
Unlock the Controller	9
Set-Up.....	10
To Toggle Between °F and °C Readout	10
Preheating	10
FLUID REPLENISHMENT.....	10
CLEANING AND MAINTENANCE.....	11
WHEN TO CLEAN.....	11
HOW TO CLEAN	11
Cleaning Safeguards	11
Sterilizing Stainless Steel	11
Cleaning Heat Transfer Shelves.....	11
Stainless Steel Cabinet.....	12
Door Gasket.....	12
CHANGING FLUID	12
TROUBLESHOOTING	14
SCHEMATIC WIRING DIAGRAMS	15
WARRANTY	16
HEAT TRANSFER FLUID MSDS	16

INTRODUCTION

GENERAL

Thermodyne cabinets are produced with quality workmanship and materials. Thoroughly read this manual and carefully follow all instructions to ensure proper installation, operation and maintenance, which will result in many years of satisfactory performance.

The cabinets described in this manual are programmable for the desired holding temperature. The factory setting is 185° F (85°C) unless otherwise specified. Each shelf in the cabinet maintains an exact temperature, allowing for extended holding times without sacrificing appearance or taste.

SPECIFICATIONS

DIMENSIONS AND MAXIMUM TEMPERATURE								
Model	Ext. Width inches	Ext. Depth inches	Ext. Height inches	Int. Width inches	Int. Depth inches	Int. Height inches	Max Oper. Temp °F	Max Oper. Temp °C
1200 G	26.00	34.75	43.75	22.00	27.63	30.25	230	110
1300 G	26.00	34.75	54.00	22.00	27.63	40.50	230	110
1900 G	26.00	34.75	77.00	22.00	27.63	63.50	230	110

WEIGHT		
Model	Net Weight lbs	Shipping Weight lbs
1200 G	259	350
1300 G	299	360
1900 G	424	510

FLUID CAPACITIES (STANDARD SHELF CONFIGURATION)

MODEL	GALLONS	LITERS	PER SHELF (OZ)
125 OC	1.5	3.78	14
200 NDNL	1.75	6.62	6
200 CT	1.75	6.62	6
250 OC	1.65	6.62	20
250 PNDT	2.1	7.95	6
BW 3	1.65	6.25	6
BW 4	1.7	6.44	6
300 NDNL	1.91	7.23	6
300 CT	1.91	7.23	6
700 NDNL	2.25	8.52	14
700 CT	2.25	8.52	14
950 NDNL	2.16	8.18	20
300 OC	2.24	8.48	14

MODEL	GALLONS	LITERS	PER SHELF (OZ)
1200 G	2.22	8.40	13
1200 DW	2.3	8.71	14
1300 G	2.32	8.78	13
1600 NDNL	2.1	7.95	6
1900 G	3.02	11.43	13
1900 DW	3.06	11.58	14
2100 DW	3.59	13.59	20
6000 P	4.95	18.74	23.8
700 DP	2.25	8.52	14
1500 DP	3.01	11.39	14
742 HW	2.45	9.27	14
744 HW	3	11.36	28
1600 HZ	2.5	9.46	Top-14; Bottom-6

DIMENSIONAL DRAWINGS

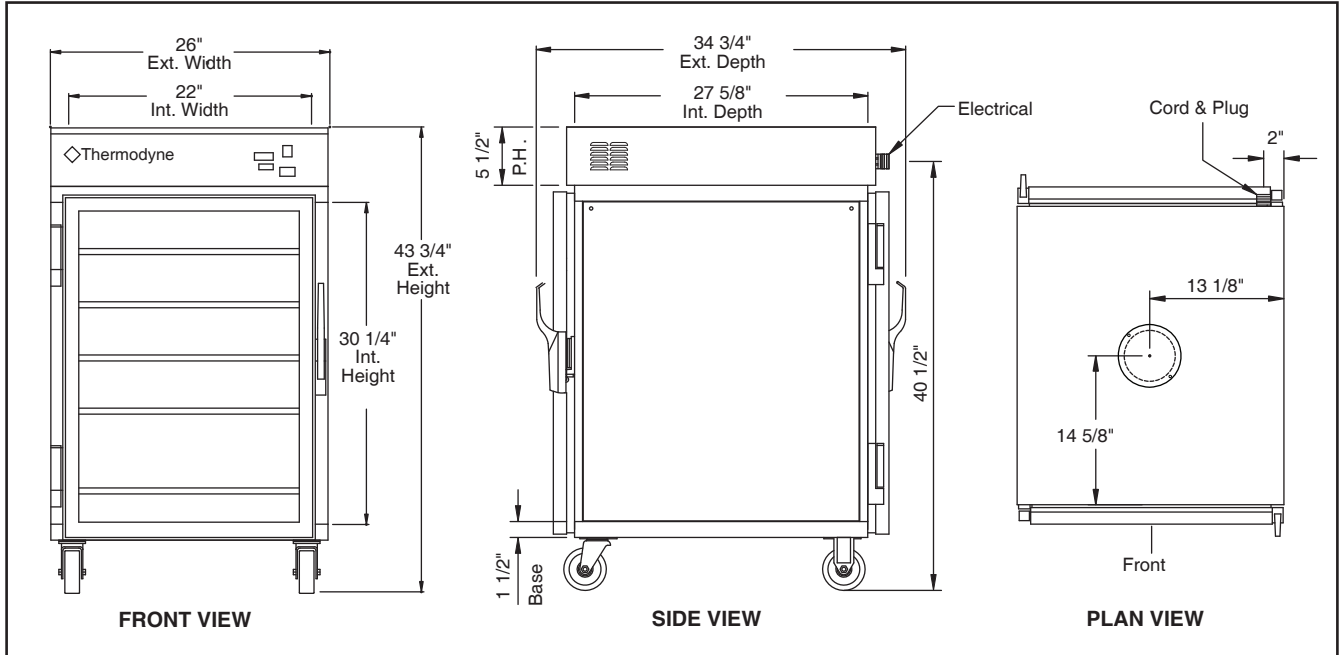


Figure 1. Outline Dimensional Drawing, 1200 G

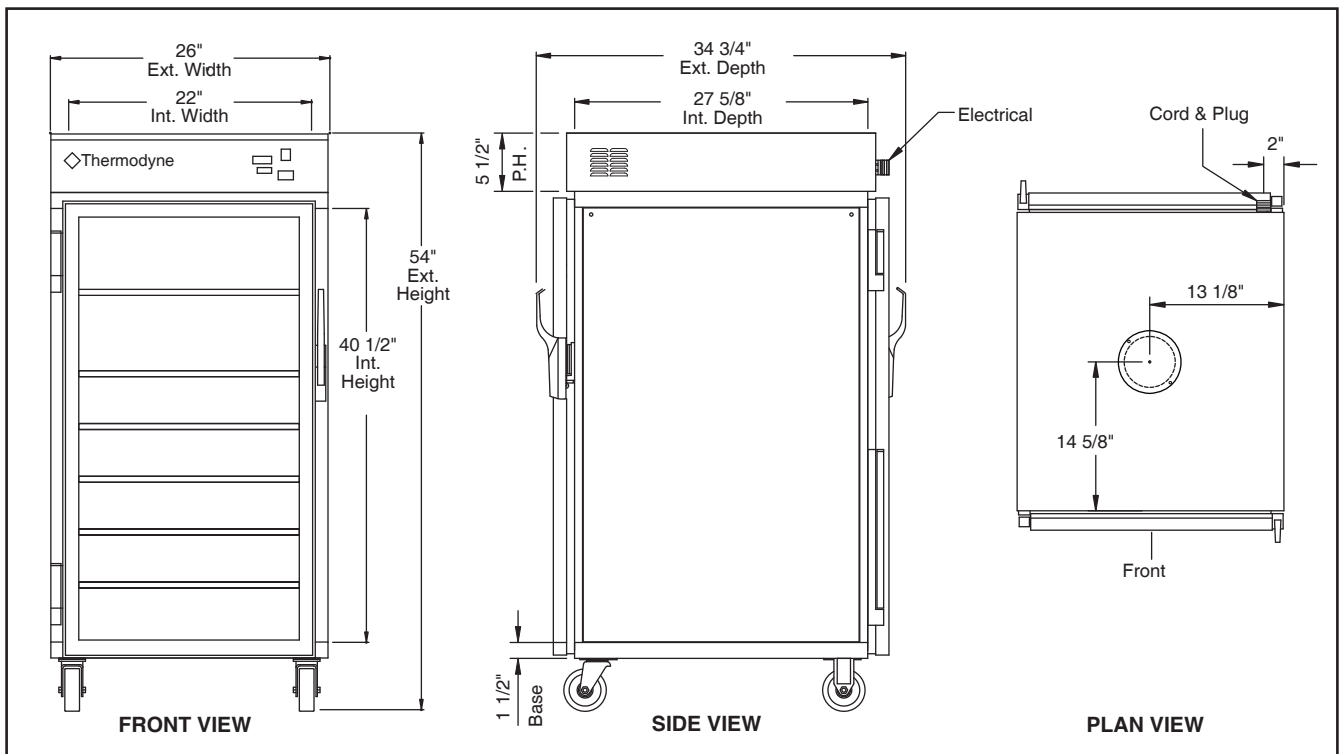


Figure 2. Outline Dimensional Drawing, 1300 G

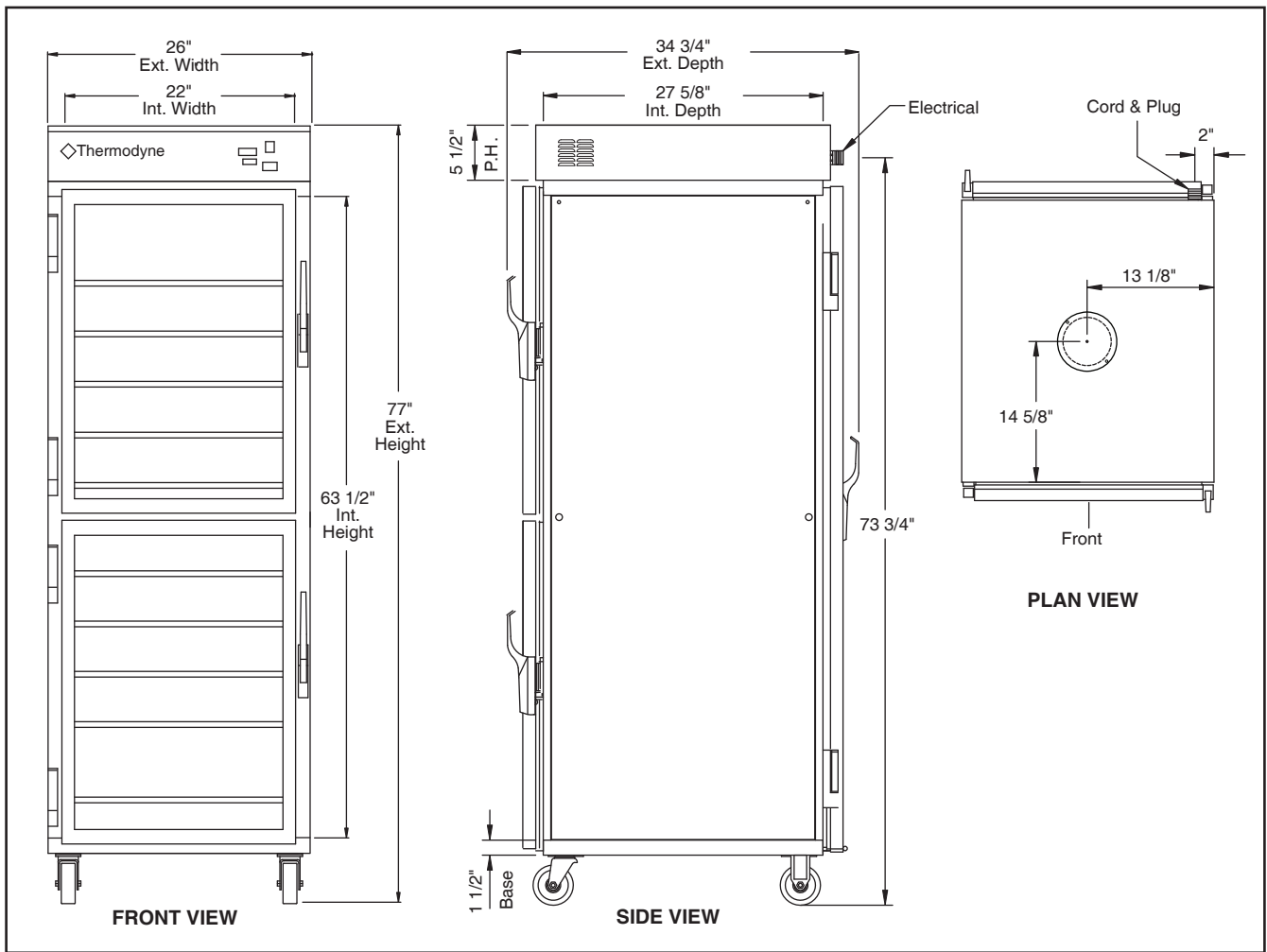


Figure 3. Outline Dimensional Drawing, 1900 G

UNPACKING

NOTE: All Thermodyne cabinets are factory tested for performance and certified free from defects.

Thermodyne Damaged Goods Policy

There are two types of damaged merchandise: A. Visible Damage, and B. Concealed Damage.

A. Visible Damage: The product being received is visibly damaged.

1. The receiver should refuse the damaged merchandise.
2. Receiver should sign the bill of lading indicating that merchandise is being refused due to damage.

3. Contact a Thermodyne Customer Service Representative immediately.

B. Concealed Damage: Damaged merchandise cannot be externally detected.

Your receiving operation should inspect for this type of damage. Please inspect your delivery carefully.

If the product is damaged:

1. Save all packing material.
2. Contact a Thermodyne Customer Service Representative immediately.
3. Receiver must call the carrier to schedule an inspection of the damaged merchandise within 5 business days.

INSTALLATION CODES AND STANDARDS

In the United States, the Thermodyne cabinet must be installed in accordance with:

1. State and local codes.
2. National Electrical Code (ANSI/NFPA No. 70, latest edition) available from the National Fire Protection Association, Batterymarch Park, Quincy, MA 02269.

In Canada, the cabinet must be installed in accordance with:

1. Local codes.
2. Canadian Electrical Code (CSA C22.2 No. 3, latest edition) available from the Canadian Standards Association, 5060 Spectrum Way, Mississauga, Ontario, Canada L4W 5N6.

INSTALLATION

Before installing, verify the required electrical supply agrees with the specifications on the Serial Tag located on the back or side of the unit. If the supply and equipment requirements do not agree, do not proceed with installation. Contact your dealer or Thermodyne Customer Service immediately.



CAUTION

Use leather work gloves and safety glasses when unpacking. Be aware of sharp edges and banding material.



CAUTION

These models have glass doors. Remove carton carefully.

1. Allow ample overhead clearance for removal of carton.
2. Cut nylon banding.

3. To remove cabinet from carton, slide carton up and off the cabinet.
4. Check packing list against items received:
 - A. Thermodyne Heat Transfer Fluid
 - B. Installation & Operation Manual
5. Use proper lifting equipment to raise the cabinet.
6. Remove the plastic covering from glass door frames and hinges.
7. Mount doors on cabinet as depicted in Figure 4.
8. Set cabinet on a level surface

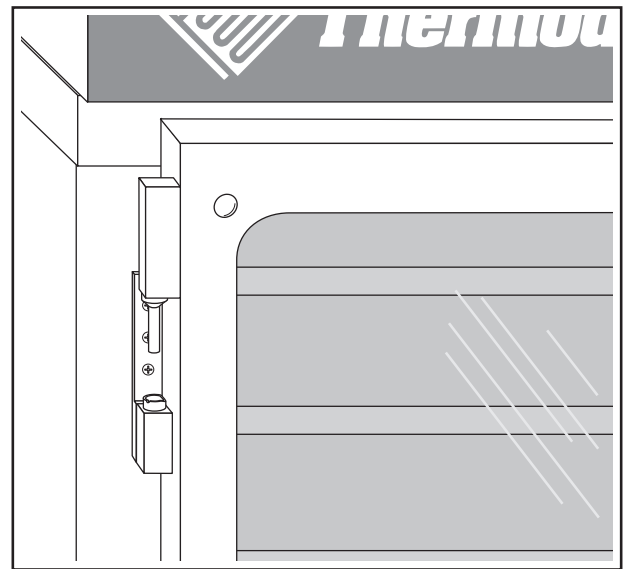


Figure 4. Mounting the doors

LOCATION

Allow adequate space for electrical connections. The electrical cord and plug are located at the right rear of the unit. The minimum clearance for proper air circulation on back should be 4", and 2" on at least one side. Allow adequate access space for operating and servicing the unit.

NOTICE; Louvers on the sides of the oven are used to circulate cool air throughout the electrical components. The unit must not be placed where extensive airborne grease is present, such as near deep fryers or griddles.

ELECTRICAL CONNECTION



WARNING

ELECTRICAL AND GROUNDING CONNECTIONS MUST COMPLY WITH APPLICABLE PORTIONS OF THE NATIONAL ELECTRICAL CODE AND/OR OTHER LOCAL ELECTRICAL CODES.



WARNING

DISCONNECT THE ELECTRICAL POWER TO THE THERMODYNE UNIT AND FOLLOW LOCKOUT/TAGOUT PROCEDURES.

Refer to the wiring diagrams in this manual for wiring information.

ELECTRICAL SPECIFICATIONS

Model	Volts	Hertz	Phase	Watts	Amps	Plug Type US
1200 G	208 / 240	60	1	5250 / 7000	25 / 29	NEMA L14-30
1300 G	208 / 240	60	1	5250 / 7000	25 / 29	NEMA L14-30
1900 G	208 / 240	60	1	5250 / 7000	25 / 29	NEMA L14-30

OPERATION

STARTUP



WARNING

THE THERMODYNE CABINET AND ITS PARTS ARE HOT. USE CARE WHEN OPERATING, CLEANING, OR SERVICING THE CABINET.

Once the cabinet is installed and electrical connections have been made, thoroughly test the Thermodyne cabinet before operation.

1. Check that all packing materials and other items have been removed from the cabinet.
2. Press the Power On/Off Switch to the ON position. The operating temperature will be reached in approximately 30 minutes.
3. Check ADD FLUID Light. If the light remains on or flickers continuously, it indicates that some fluid was lost during shipment. Add fluid as described in the **FLUID REPLENISHMENT** section.

NOTE: The controller has an OUT light (red lamp). This light blinks as the controller maintains the Thermodyne Heat Transfer Fluid at the desired temperature.

Size, weight, pan loading, and product quality will affect cooking times and should be adjusted to fit the requirements of your operation.

TEMPERATURE CONTROLLER SET UP PROCEDURES

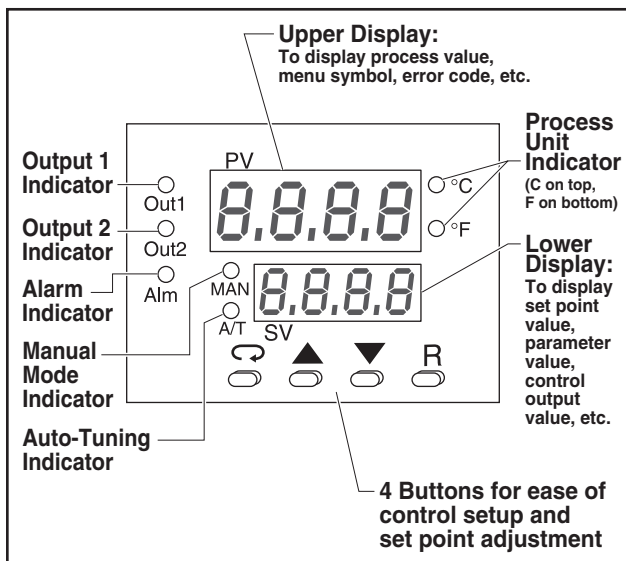


Figure 5: Controller

Keypad Operation

Scroll Key:

This key is used to select a parameter to be viewed or adjusted.

Up Key:

This key is used to increase the value of the selected parameter.

Down Key:

This key is used to decrease the value of the parameter.

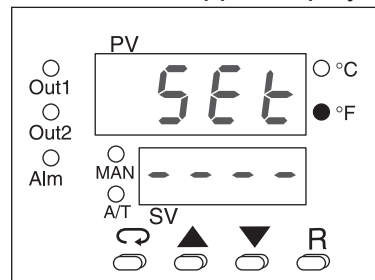
Return / Reset Key: **R**

This key is used to:

1. Return the display to indicate the Process Value (PV) and Set Value (SV).
2. Reset a Latching Alarm once the alarm condition has cleared.
3. Discontinue Manual Control, Auto-Tuning and Calibration Modes.
4. Clear error messages indicating communication and auto-tuning errors.
5. Re-set the dwell timer function.
6. Enter the manual control menu if the sensor has failed.

Unlock the Controller

1. Follow the LOCKOUT/TAGOUT procedure using the procedures provided in the **LOCKOUT/TAGOUT Procedures** of this manual.
2. Remove the Power Head Lid following the instructions provided in the **Panels and Covers** section of this manual.
3. Enter the Set-Up Menu. With the unit under power, press the "Scroll" key for approximately 5 seconds until the upper display reads:



- Press the “Scroll” key once. The upper display will read: “LOCK”. Press the “Down” key until the lower display reads: “nonE”. The controller is now unlocked. Press the “R” button to return controller to the home position of reading Process Value & Set Value.
- Test the controller by trying to change the set temperature up and down.

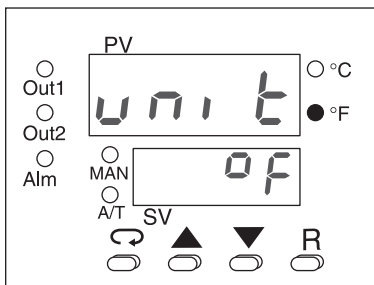
Set-Up

- Press the “Up” and “Down” key as needed to adjust the displayed set-point temperature.
- The “OUT1” LED will be lit up solid during warm up. (normal operation)
- When the “OUT1” LED is blinking, the unit has reached the desired temperature.

NOTE: This controller is not an indicator of fluid level in the Heater or Reservoir Tanks.

To Toggle Between °F and °C Readout:

- Press the “Scroll” key 2-3 times until the upper display reads: “unit”.
- Press the “Up” or “Down” key to choose.



Preheating

Preheat the Thermodyne cabinet when first used for the day or whenever the unit is cold. Preheating takes approximately 30 minutes at which time the temperature set point and the actual temperature will display the same temperature. If the cabinet has door(s), keep the doors closed during the preheat cycle.

FLUID REPLENISHMENT



CAUTION
Use only supplied Thermodyne Heat Transfer Fluid.

- Remove the 1 screw securing the fill cap cover, and turn cover 180°.
- Remove the reservoir tank cap.
- Fill reservoir tank until ADD FLUID light turns off.
- Re-install the reservoir tank cap and fill cap cover.

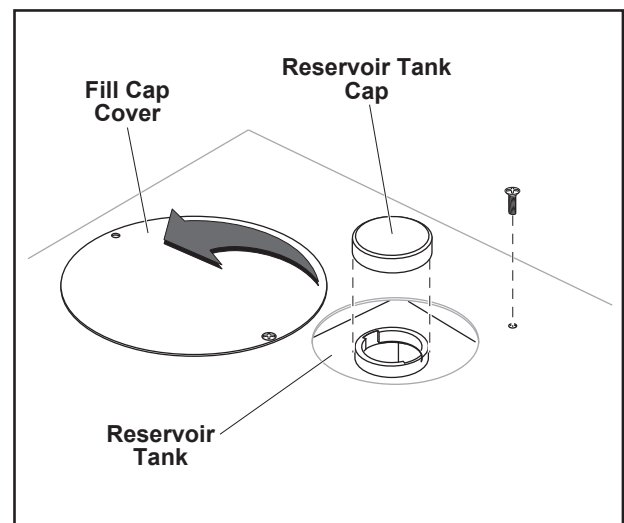


Figure 6. Reservoir Tank Replenishment

NOTE: If the ADD FLUID light remains on after the Thermodyne unit has been filled, refer to TROUBLESHOOTING.

CLEANING AND MAINTENANCE



WARNING

DISCONNECT ELECTRICAL POWER TO THE THERMODYNE UNIT AND FOLLOW LOCKOUT/TAGOUT PROCEDURES BEFORE CLEANING.

WHEN TO CLEAN

It is recommended that all stainless steel equipment be cleaned on a regular basis. Any piece of stainless steel equipment that is soiled should be cleaned daily to ensure the long life of the equipment. Routine cleaning will also lessen stainless steel abrasion.

HOW TO CLEAN

To remove most soil, use a non-abrasive, non-chlorinated soap solution. Rinse thoroughly with warm water and wipe dry using an absorbent cloth. To remove heavy soil, rub the area with a non-metallic, fine-grain scouring cloth. Be sure to rub in the same direction as the metal grain. Rinse thoroughly with warm water and wipe using a soft absorbent cloth. As a final step, a stainless steel polish may be applied. The polish will shine the stainless steel and provide a protective finish to reduce future soiling.

Cleaning Safeguards

1. Always rub in the direction of the metal grain. Never use steel wool or metallic scouring cloths. These two measures will help prevent scratching and possible damage to the surface finish.
2. Use the recommended dilution. Do not exceed concentration levels as this may cause long-term deterioration of the surface. Be certain to rinse surface thoroughly to prevent buildup of cleanser.
3. Never use chlorine or bleach solutions. Check the ingredients of cleaning solutions or disinfectants used, as they may contain chlorinated solvents.

4. Always read the label of the cleaning solutions. Check for warnings about use on stainless steel or aluminum products. Repeated use of chlorinated solvents may cause a chemical reaction with stainless steel or aluminum, resulting in damage to the surface and rusting.

Sterilizing Stainless Steel

When sterilizing stainless steel equipment, pay particular attention to agents containing chlorine compounds, such as potassium hypochlorite. These compounds may break down and release free chlorine or hydrolyze to form hydrochloric acid. Stainless steel can resist attack by the compounds for up to two hours. Severe localized pitting may occur with longer exposure. For safe use of the agents, keep contact time short, flush thoroughly with water, and operate equipment normally between applications. Using these precautions, the sterilization process can be repeated as often as necessary.

Cleaning Heat Transfer Shelves

The Thermodyne unit operates on the principle of conduction, rather than convection. Therefore, it is very important to keep the heat transfer shelves clean, so heat transfer may take place with maximum efficiency. It is also very important to keep the bottom contact surfaces of pots and pans as clean as possible to ensure even and complete heat transfer. The surface and flat coating of the thermal heat transfer shelf is extremely hard, but will react with strong caustic cleaning solutions and deteriorate.



CAUTION

Most concentrated soaps and ammonia cleaners are too caustic to be used on the Thermodyne unit.



CAUTION

If the coating is destroyed, the heat transfer shelves will lose their non-stick properties and their surface hardness.

The cleaners should always be used at the recommended concentrations. In the case of dry powders, the powders must not be placed directly on the surface of the heat transfer plate. Care must be taken to not scratch the shelf surfaces when using brushes or pads. If harsh scouring is needed, use a nylon-type scouring pad. Never use steel wool.

It is recommended that a weekly cleaning schedule be followed to avoid the buildup of heavy food product deposits. In the event heavy deposits occur that are difficult to remove with ordinary cleaning procedures, stronger chemical cleaning agents may be applied if the products are intended for food service use and are also compatible with hard coat anodized aluminum surfaces. When using these stronger solvents, it is very important that heat transfer shelves are rinsed thoroughly with clean, potable water after cleaning. Be sure to remove all traces of the cleaning agent. Between the regularly scheduled cleaning, wipe off the anodized aluminum surfaces periodically with a soft, clean damp cloth.

Stainless Steel Cabinet

1. Any pot and pan detergent acceptable for food service cleaning and compatible with aluminum and stainless steel may be used on shelf and cabinet surfaces.
2. A #20 plastic bristled brush used with the appropriate detergent is acceptable for cleaning. It is very important, when cleaning the heat transfer shelves, that the undersides of the shelves are thoroughly cleaned also.
3. Hot water hose rinsing is preferred. If a hose is not available, rinsing with a sponge or soft cloth and clean, hot water is acceptable. Be sure all surfaces are completely rinsed during the rinsing procedure. Do not allow water to come in contact with the powerhead located on the top of the Thermodyne unit.
4. The glass doors can be cleaned with any commercial window-cleaning product, provided they are free of ammonia or chlorine and are food service compatible.

Door Gasket

For maximum gasket life, clean the gasket-sealing surface of the Thermodyne doors to remove food product acids. Do not use any solvents or sharp instruments, as these will damage the gasket. Wash with a cloth moistened in a solution of mild detergent and warm water. Rinse with a fresh, soft cloth moistened with warm water to remove all traces of detergent. Wipe dry with a clean, soft cloth. Never apply food product oils or petroleum lubricants directly to the door gasket, as these will reduce gasket life.

CHANGING FLUID

NOTE: The Thermodyne Heat Transfer Fluid has lubricating additives, anticorrosion additives, and heat transfer properties that may decrease with the passing of time. Thermodyne Heat Transfer Fluid will protect the unit indefinitely if the fluid is changed on an annual basis.



WARNING

DISCONNECT THE ELECTRICAL POWER TO THE THERMODYNE UNIT AND FOLLOW LOCKOUT /TAGOUT PROCEDURES.



CAUTION

The following procedure is to be performed by a qualified service technician only.



CAUTION

Stainless Steel Powerhead Lids may have sharp edges; handle with extreme care.

1. Disconnect the unit from its power source and ***allow the unit to cool completely.***
2. Remove the stainless steel panel covering the left side of the unit.
3. Remove the Powerhead Lid; 4 screws.

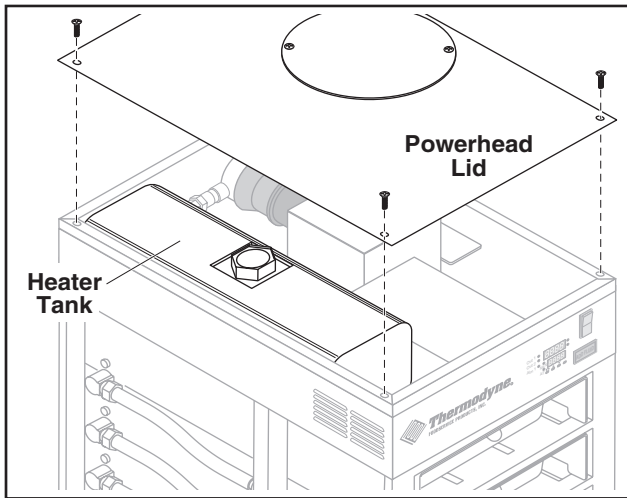


Figure 7. Powerhead Lid

4. Place a pan or bucket beside drain hose in order to catch drained fluid.

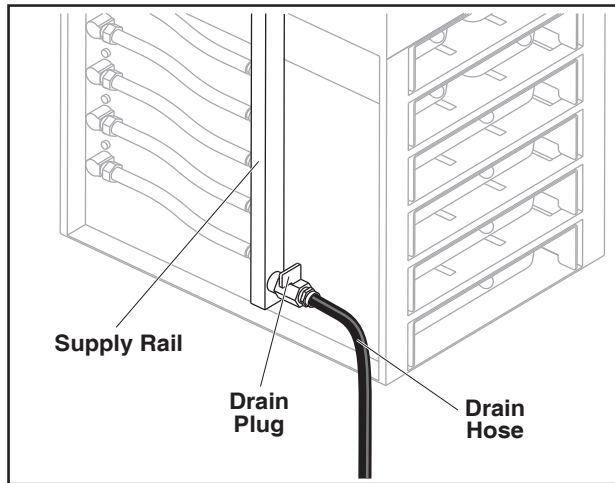


Figure 9. Drain Hose

5. Aim drain hose into pan or bucket and turn valve to open position.
6. Locate heater tank and remove cap.

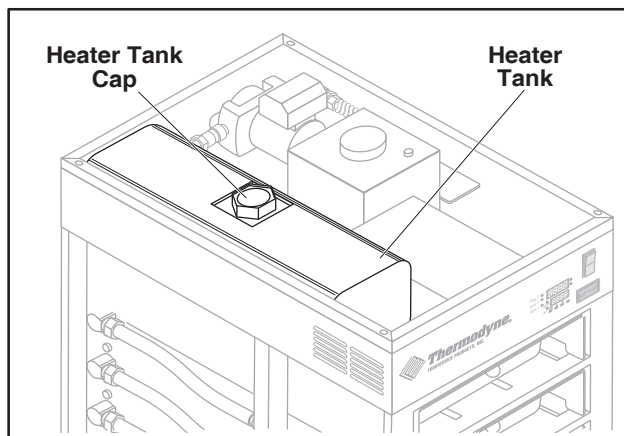


Figure 8. Heater Tank Cap

7. Once oven has drained completely, turn valve to closed position and place drain hose back in cabinet.
8. Return stainless steel panel to left side.
9. Refill the unit with Thermodyne Heat Transfer Fluid only. Never substitute with water or other liquids.
10. Return heater tank cap.
11. Place lid back on, but do not tighten screws.
12. Plug unit in and place the Power ON/OFF switch in its ON position.
13. Unit will run briefly and shut off due to low fluid level.
14. Remove powerhead lid and heater tank cap and fill heater tank.

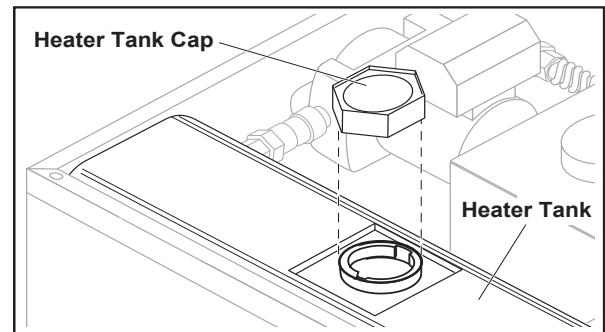


Figure 10. Heater Tank Fill

15. Repeat steps 11-15 until unit is completely full of fluid.
16. Once unit is completely filled, place powerhead lid back on unit and tighten screws snug.
17. If ADD FLUID light is on, add fluid to reservoir tank until light goes out.
18. Let unit run until maximum temperature is reached.
19. Once full temperature is reached, shut unit down and let it cool down to at least 100°F.
20. Turn unit back on. If ADD FLUID light is on again, continue adding fluid to reservoir tank until light goes out.

TROUBLESHOOTING

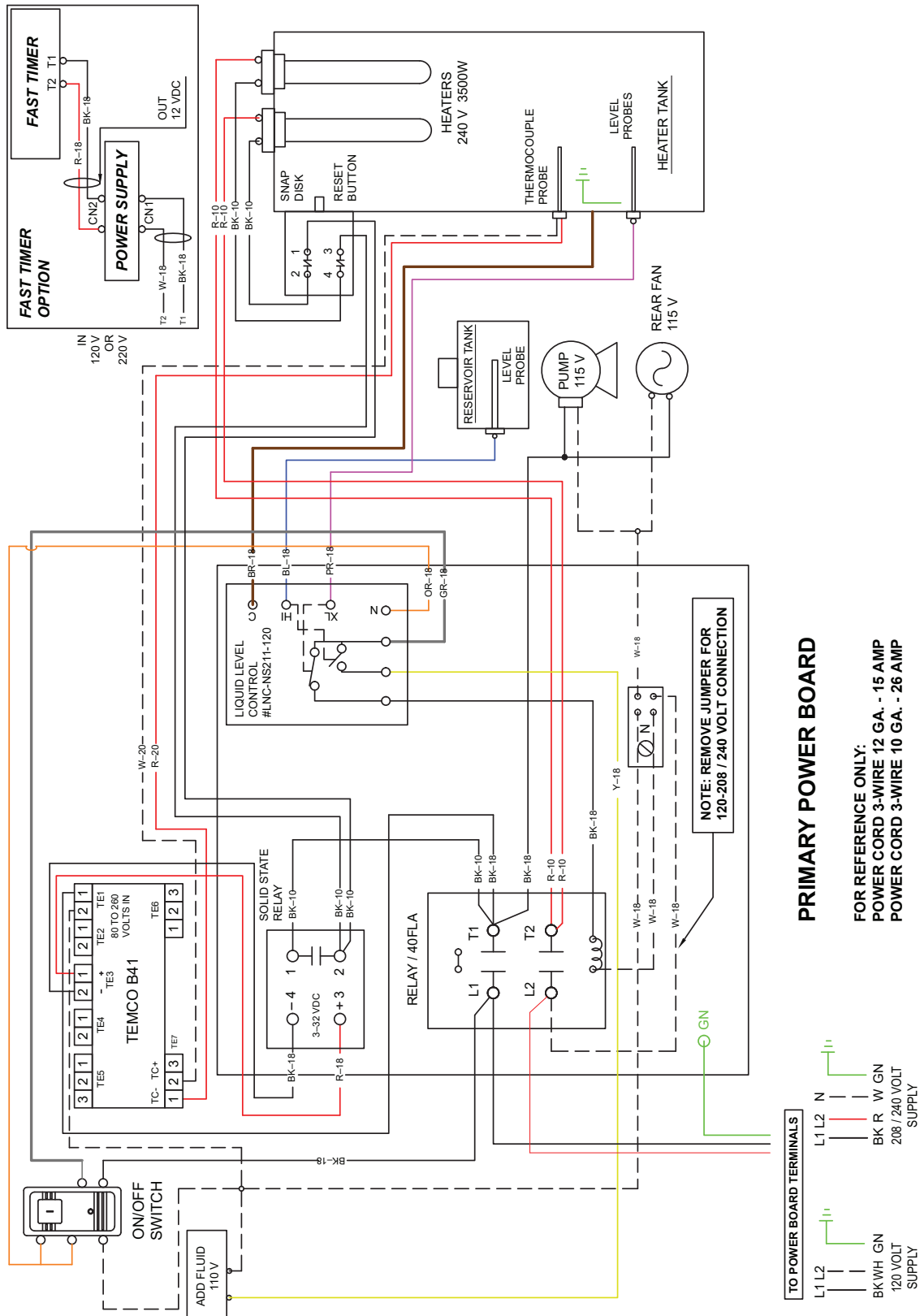
Most problems associated with the holding unit are due to low fluid level. Always check fluid level first.

PROBLEM	POSSIBLE CAUSE	SOLUTION
No Power	<ol style="list-style-type: none"> 1. Main power switch off. 2. Not plugged in. 3. Breaker off or tripped. 4. Bad contactor. 	<ol style="list-style-type: none"> 1. Turn Power On/Off Switch on. 2. Check plug. 3. Check breaker. 4. Replace Contactor.
ADD FLUID light is on - Oven heating properly	<ol style="list-style-type: none"> 1. Oven is low on fluid. 	<ol style="list-style-type: none"> 1. Add Thermodyne Heat Transfer Fluid per instructions.
ADD FLUID light is on - Oven not heating properly	<ol style="list-style-type: none"> 1. Oven disabled due to low fluid level cut out. 2. Fluid level probe defective. 3. System leak. 	<ol style="list-style-type: none"> 1. Main heater tanks low on fluid. Add Thermodyne Heat Transfer Fluid and determine cause of fluid loss. 2. Repair or replace.* 3. Repair leak.*
Heater(s) not working	<ol style="list-style-type: none"> 1. Unit not properly wired. 2. Bad heater(s). 3. Contactor or solid state relays not working. 4. Off due to low fluid cut out. 5. Failed temperature controller. 6. High limit snap disc tripped. 	<ol style="list-style-type: none"> 1. Check wiring.* 2. Replace heater(s).* 3. Repair or replace.* 4. Add Thermodyne Heat Transfer Fluid per instructions. 5. Replace temperature controller.* 6. Reset snap disc and check for cause.*
Shelves hotter than set point	<ol style="list-style-type: none"> 1. Temperature controller out of calibration. 2. Thermocouple defective. 3. Solid state relay(s) stuck on. 4. Failed temperature controller. 	<ol style="list-style-type: none"> 1. Recalibrate temperature controller. * 2. Replace thermocouple.* 3. Replace solid state relay(s).* 4. Replace temperature controller.*
Shelves colder than set point	<ol style="list-style-type: none"> 1. Low fluid in tank. (ADD FLUID light should be lit) 2. Failed temperature controller. 3. Heater(s) not working. 4. Pump failure. 5. Thermocouple failure. 	<ol style="list-style-type: none"> 1. Add Thermodyne Heat Transfer Fluid per instructions. 2. Replace temperature controller.* 3. See "Heater(s) not working". 4. Repair or replace pump.* 5. Replace thermocouple.*
Oven heats up too slow	<ol style="list-style-type: none"> 1. Heater(s) not working. 	<ol style="list-style-type: none"> 1. See "Heater(s) not working".

*Recommended to be done by a qualified service agency.

NOTE: Most problems associated with the Thermodyne cabinet are due to failure to add Thermodyne Heat Transfer Fluid. Check fluid level first. In the event service is required on your Thermodyne, call our 24hr service line: (800) 526-9182.

SCHEMATIC WIRING DIAGRAMS



G Series Wiring

WARRANTY

Thermodyne Foodservice Products, Inc. warrants to the original purchaser for use of each new Thermodyne Conductive Cooking/Holding Oven the following: Any part which proves to be defective in materials or workmanship within the warranty period will, subject to the terms of this warranty, be repaired or replaced at Thermodyne Foodservice, Inc.'s option. Claims under this warranty must be presented to Thermodyne Foodservice Products, Inc. in writing, promptly.

Thermodyne stainless steel cabinets are warranted for 5 years and all other original equipment parts such as heat transfer plates, doors, casters, fluid system components and electrical components are warranted against defect for 2 years from the date of purchase.

This warranty applies only to Thermodyne Conductive Cooking/Holding Ovens in the Continental United States. This warranty shall not apply if the oven or any part is subjected to accident, casualty, alteration, misuse, abuse, neglect, faulty installation, or if the date of manufacture is altered or removed.

The obligation of Thermodyne Foodservice Products, Inc. is limited specifically to the aforementioned. No additional guarantees or warranty, expressed or implied, to include without limitation warranties of Fitness or Merchantability with respect to Thermodyne Conduction Ovens and Thermodyne Foodservice Products, Inc. regarding other liability with respect thereto including, without limitation, liability for incidental, special, or consequential damages.

RESPONSIBILITIES OF PURCHASER

It is the responsibility of the purchaser to:

1. Arrange on site electrical services in accordance with Thermodyne specifications.
2. Receive shipment of Thermodyne conduction oven to include unloading, uncrating, inspecting for damage in shipment, and installation of the oven in its proper location; in accordance with installation instructions.
3. Arrange that the electric services are connected properly by a qualified technician. All such connections must be in accordance with applicable code requirements and Thermodyne installation procedures.

Please note the specific details on the Warranty and make certain that service connections are made to the proper utility services. This warranty and purchasers responsibility information should be retained for future reference.

For assistance please call:

Toll Free: (800) 526-9182

Local: (260) 428-2535

HEAT TRANSFER FLUID MSDS

Dow Chemical U.S.A.
Midland, MI 48674
Emergency Phone: 517-636-4400
Product Code: 23545
Product Name: PROPYLENE GLYCOL
HEAT TRANSFER FLUID
Effective Date: 03-02-88
Date Printed: 06/02/88
MSDS: 000130

1. **INGREDIENTS:**
Propylene glycol CAS# 000057-55-6 95%
Dipotassium phosphate CAS# 007758-11-4 <5%
Deionized water CAS#007732-18-5 <5%

This document is prepared pursuant to the OSHA Hazard Communication Standard (29CFR 1910.1200). In addition, other substances not 'Hazardous' per this OSHA Standard may be listed. Where proprietary ingredient shows, the identity may be made available as provided in this standard.

2. **PHYSICAL DATA:**
BOILING POINT: 370F, 188C
VAP. PRESS: 0.22 mmHg @ 20C, 68F
VAP. DENSITY: 2.62
SOL. IN WATER: Complete
SP. Gravity: 1,050 @ 60/60F, 16C
APPEARANCE: Colorless.
ODOR: Odorless liquid.

3. **FIRE AND EXPLOSION HAZARD DATA:**
FLASH POINT: 215F, 102C
METHOD USED: COC
FLAMMABLE LIMITS
LFL: 2.6% @ 100C
UFL: 12.5% @ 130C
EXTINGUISHING MEDIA: Water fog, alcohol foam, dry chemical
FIRE AND EXPLOSION HAZARDS: None.
FIRE-FIGHTING EQUIPMENT: None.

4. **REACTIVITY DATA:**
STABILITY: (CONDITIONS TO AVOID)
Stable over normal
Operating temperature range of -30F to 250F.
INCOMPATIBILITY: (SPECIFIC MATERIALS TO AVOID)

Oxidizing material.

- HAZARDOUS DECOMPOSITION PRODUCTS: None
HAZARDOUS POLYMERIZATION: Will not occur,

5. **ENVIRONMENTAL AND DISPOSAL INFORMATION:**
ACTION TO TAKE FOR SPILLS/LEAKS: Cover with absorbent material, soak up and sweep into bag.

6. **HEALTH HAZARD DATA:**
EYE: May cause slight transient eye irritation. Corneal injury is unlikely.
SKIN CONTACT: Essentially nonirritating to skin on prolonged contact.
SKIN ABSORPTION: A single prolonged skin exposure is not likely to result in

absorption of harmful amounts. The LD50 for skin absorption in rabbits is >10,000 mg/kg.

Repeated exposures may cause slight flaking, tenderness and softening of skin.
INGESTION: Single does oral toxicity is low. The LD50 for female rats is about 20.3 g/kg

INHALATION: A single prolonged (hours) inhalation exposure is not likely to cause adverse side effects. Mists are not to be hazardous.

SYSTEMIC & OTHER EFFECTS:
Repeated excessive ingestion may cause central nervous system effects. No carcinogenic effects have been seen in long-term animal studies. Birth defects are unlikely. Exposures having no adverse effects on the mother should have no effect on the fetus. In animal studies, has been shown not to interfere with reproduction. Results of mutagenicity tests in vitro (test tube) and in animals have been negative.

7. **FIRST AID**
EYES: Irrigate immediately with water for at least 5 minutes.

SKIN: wash off in flowing water or shower
INGESTION: Induce vomiting if large amounts are ingested, consult medical
INHALATION: Remove to fresh air if effects occur. Consult medical.

- NOTE TO PHYSICIAN: No specific antidote. Supportive care. Treatment based on judgment of the physician in response to reactions of the patient.

8. **HANDLING PRECAUTIONS:**
EXPOSURE GUIDELINE (S): Dow IHG is 10mg/m3 for propylene glycol mist. Dow IHG 440 ppm for propylene glycol vapors.

VENTILATION: Good general ventilation sufficient.

RESPIRATORY PROTECTION: No respiratory protection should be needed.
SKIN PROTECTION: No precautions other than clean body covering should be needed.

EYE PROTECTION: Use safety glasses.

9. **ADDITIONAL INFORMATION:**
REGULATORY REQUIREMENTS:
SARA HAZARD CATEGORY: This product has been reviewed according to the EPA 'Hazard Categories' promulgated under Section 311 and 312 of the Superfund Amendment and Reauthorization Act of 1986 (SARA Title III) and is considered, under applicable definitions, to meet the following categories: A delayed hazard.
SPECIAL PRECAUTIONS TO BE TAKEN IN HANDLING AND STORAGE: Exercise reasonable care and caution.
MSDS STATUS: Revised Section 9