SUPER FLO™ GI-2000

FULLY AUTOMATED GREASE RECOVERY DEVICE (G.R.D.)

OPERATION, INSTALLATION AND MAINTENANCE MANUAL

VERSION 2.4
10/2007

PLEASE READ CAREFULLY

Grease Recovery Device will operate efficiently only when properly installed. Do not discard this manual. This manual is to be distributed to installer, operator and maintenance department.

⚠ **WARNING:** Cancer and Reproductive Harm - www.p65warnings.ca.gov

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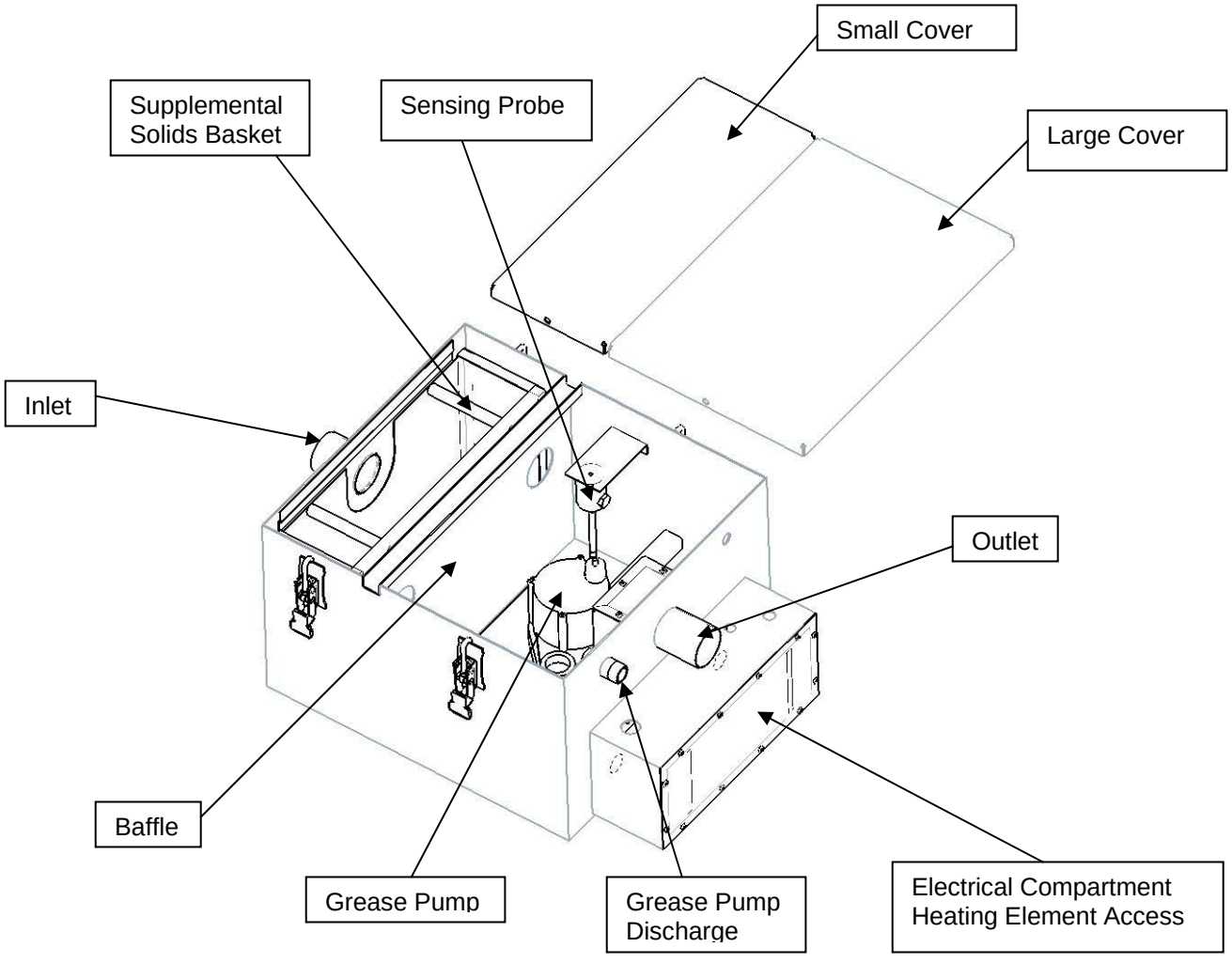
1.0 UNPACKING

1.1 After unpacking the GI-2000, the unit should be checked for any damage that may have occurred during shipment. Any damage should be reported to Josam Company immediately.

The following items should be included with the shipment:

QTY	DESCRIPTION
1	GI-2000 G.R.D.Unit
1	GI-2000 Flow Control
1	GI-2000 Manual
1	15' Controller Cable
1	GI-2000 Controller
1	Reclaim Tank

GI-2000 UNIT
DIAGRAM "A"



2.0 INSTALLATION INFORMATION

2.1 Unit Sizing

Ensure that you have selected the proper size JOSAM GI-2000 so that it can never exceed the maximum rating of the grease recovery device to suit your particular requirements. Size is based on Flow Rate per PDI G-101 and ASME A112 14.4.

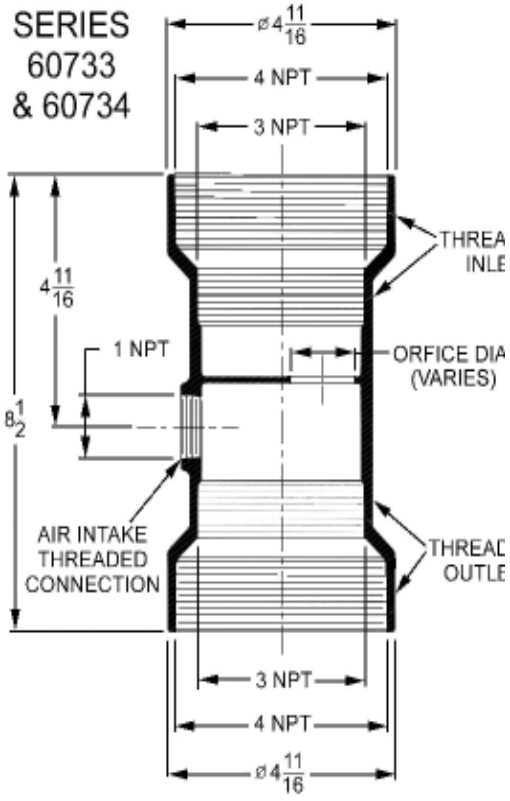
SIZING TABLE		
Fixture-Equipment Drain Outlet or Trap Size	**Drainage Fixture-Unit Value**	**Drainage G.P.M. Equivalent**
1-1/4"	1	7.5
1-1/2"	2	15.0
2"	3	22.5
2-1/2"	4	30.0
3"	5	37.5
4"	6	45.0

Model	Flow Rate (GPM)	Grease (Lbs.)	Inlet Size
60306A	25	50	3"
60307A	35	70	3"
60308A	50	100	4"
60309A	75	150	4"
60310A	100	200	4"
60311A	150	300	4"
60312A	200	400	6"
60313A	250	500	6"
60315A	500	1000	6"

2.2 FLOW CONTROL SELECTION

Josam Company has shipped the proper flow control fitting to suit the GRD that you have ordered. Ensure that the proper flow control fitting is included with your shipment. Changing the flow control fitting is not recommended and will affect the performance and warranty of the GRD.

Flow Control Rating (GPM)	Orifice Diameter
25	1-1/4”
35	1-1/2”
50	1-3/4”
75	2-1/8”
100	2-7/16”
150	3”
200	3-7/16”
250	3-3/4”
500	5-1/8”



3.0 WARNINGS

3.1 The GI-2000 uses heating elements in its operation. Therefore, the unit must always be filled with water. Elements damaged by electricity prior to the unit being filled with water will void any said warranties.

3.2 To maintain optimum system performance and accuracy it is necessary to remove solids accumulations in the tank on a regular basis.

4.0 PLUMBING INSTALLATION

4.1 INSTALLER

Installation is to be performed by a licensed and certified plumber.

4.2 LOCATION OF GRD

The Plumbing & Drainage Institute (PDI) recommends that the unit be located within 25' or as close as possible to the source of grease being served. The unit may be set on the floor, partially recessed or completely recessed below the floor. If the unit is to be recessed you must have proper installation of the electrical hook-up, drain line and LCD control unit.

4.3 CLEARANCE

When installing, ensure that there is 6" minimum clearance per side for latch removal. Also provide a minimum of 24" on the outlet end in the event that the heating elements require service. Provide adequate space on the inlet side for installation or flow control servicing. When installing the GI-2000 in a pit/vault provide a drain or a sump pump to prevent water damage.

4.4 LEVELING THE UNIT

The GRD must be leveled from front to back and from side to side. The unit must be leveled prior to calibration.

4.5 IMPORTANCE OF FLOW CONTROL FITTING

Extensive test reports conclude that both satisfactory operation and maximum efficiency of the GI-2000 is dependant on the proper rate of flow for the GI-2000 connected, which is accomplished by a flow control fitting. As a result, a specially designed Josam flow control fitting with a 3", 4", 5" or 6" threaded inlet and outlet connection, depending on size of unit, and a threaded air intake is furnished with every GI 2000 at no extra cost. The flow control must be installed to prevent overloading the trap and to maintain maximum grease retention efficiency.

4.6 FLOW CONTROL LOCATION

The GI 2000 must be correctly installed with the flow control as per model plumbing codes or the local authority having jurisdiction. The GI-2000 must have a flow control device properly vented at the inlet or in close to proximity to the GRD inlet, thus allowing the fixtures to be plumbed and vented as required without having any negative impact on the GRD or flow control device whose purpose is integral to the performance of the GRD. (See Diagram B)

4.7 FLOW CONTROL INSTALLATION

Install air intake vent from flow control to outside opening and fit elbow, turned down; or intersect a common vent or vent stack without a trap as permitted by local codes. Top of air intake from Flow Control is to be at least 6” above flood rim level of the lowest fixture served. (See Diagram B) It is recommended that the air intake be tied to the vent stack.

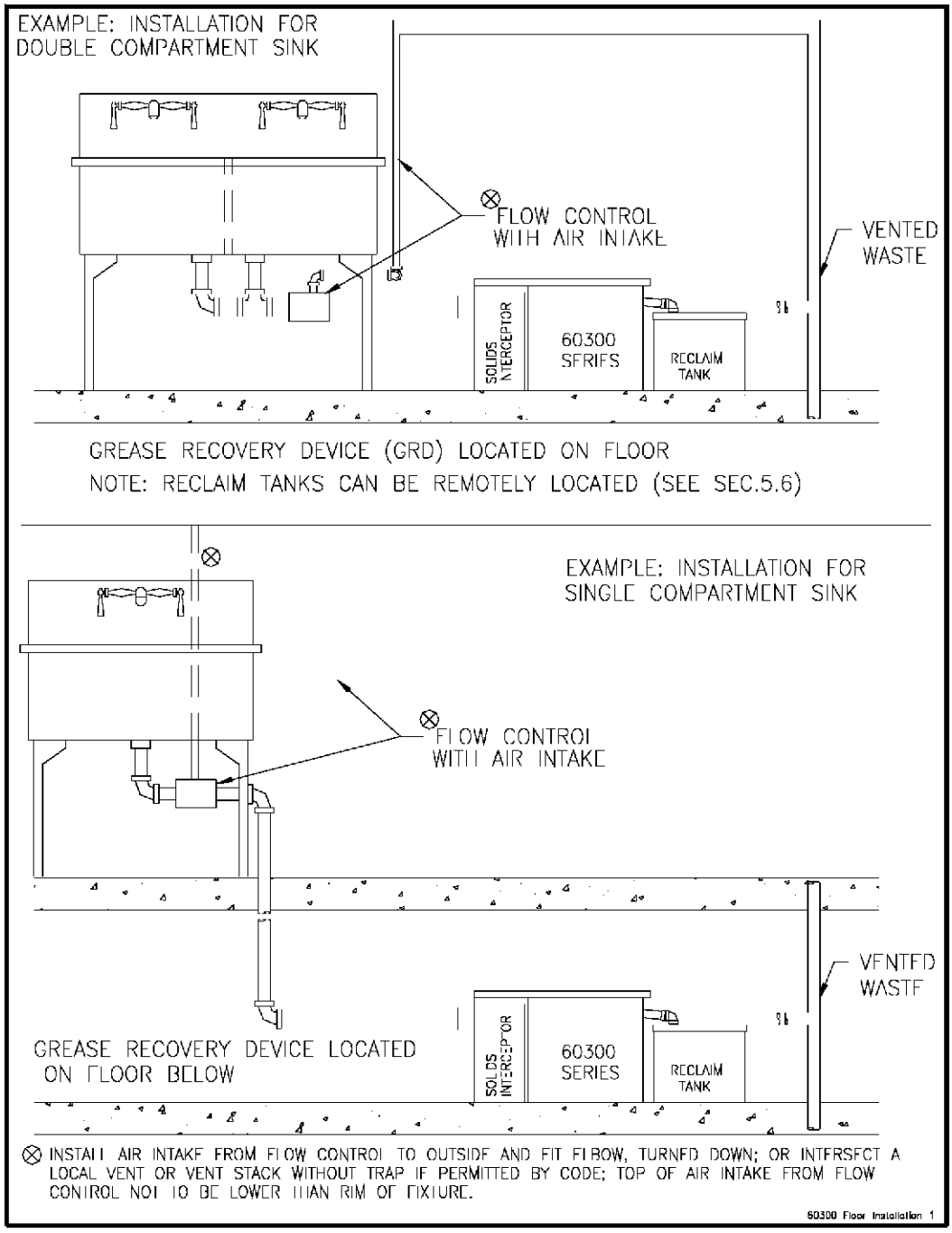
4.8 VENTED WASTE

The GI 2000 must have a vented waste (outlet), sized as required by local code or local authority having jurisdiction for venting traps to retain water seal and prevent siphoning. (See Diagram B)

4.9 ADDITIONAL REQUIREMENTS

When local codes require floor drains to flow through a GRD, the flow control must be accessible and installed prior to the inlet of the unit.

DIAGRAM “B”



ILLUSTRATIONS ARE JOSAM'S RECOMENDATIONS AND ARE INTENDED TO ASSIST THE INSTALLER OF THE JOSAM GI–2000 GRD. IF YOU HAVE AN UNUSAL SITE CONDITION OR REQUIRE ASSISTANCE, PLEASE CONTACT OUR TECHNICAL ASSISTANCE DEPT.

Locate the installation diagram, which most closely suits your requirement. Install the flow control and GI-2000 as shown.

5.0 ELECTRICAL INSTALLATION

5.1 INSTALLER

The electric service and connections to the GRD must be installed by a licensed certified electrician.

5.2 POWER HOOKUP

The following table lists the electrical power requirements for the various models of GI-2000 units. **Note**: A 4-Wire GFI Circuit Breaker is required.

MODEL	VOLTAGE	HEATING WATTS	GFI BREAKER
60306A	220/208 VAC	4000 Watts	25 AMP
60307A	220/208 VAC	7000 Watts	40 AMP
60308A	220/208 VAC	7000 Watts	40 AMP
60309A	220/208 VAC	7000 Watts	40 AMP
60310A	220/208 VAC	9000 Watts	50 AMP
60311A	220/208 VAC	12000 Watts	60 AMP
60312A	220/208 VAC	12000 Watts	60 AMP
60313A	220/208 VAC	12000 Watts	60 AMP
60315A	220/208 VAC	24000 Watts	2x60 AMP

Note: For special order models not listed consult Josam Company for power requirements

WARNING! Do not apply power to the unit until the GI-2000 is completely full of water. Install this unit as any GRD would normally be installed with the exception to provide a 220/208VAC, single phase, Ground Fault Circuit Interrupter (do not apply power to the unit at this point), 4 wire connection hard wired to the GI-2000 via a conduit per code. The electrical installation must conform to NEMA-4 standards. The main power wire cannot be run through a wall and must be wired to the main breaker panel so that it can be viewed from the GI-2000 area.

5.3 POWER WIRING

The GI-2000 units are provided with power exiting the tank through the *wiring conduit port* on the side of the tank. The power wires provided are:

Red: 120VAC (L1)
Black: 120VAC (L2)
White: Neutral
Green: Ground

Typical wiring between the breaker panel and the GI-2000 unit is:

Wire Type: (Type MTW) 10 Awg min.
Conduit Description: 1" Liquid-Tight Flexible Nonmetallic Conduit

Note: Larger GI-2000 models with special configurations are supplied with additional wiring information.

WARNING! System power should be secured to the GI-2000 in a method that conforms to NEMA-4 standards. Wire nuts are used to connect the power wires behind the power conduit port.

5.4 INITIAL POWER TEST

After confirming that the unit is level, fill the GI-2000 with water before applying power to the unit. Apply power to the unit and verify with a current probe that L1 and L2 are below 1 amp. Once confirmed, remove power from the unit.

5.5 CONTROLLER CABLE

Connect the cable from the controller to the round connector near the top of the GRD on the GI-2000 unit (See Diagram A). Should additional length be required use Beldon type 8469 (9 Conductor Cable). DO NOT exceed 200'. The cable extension connections should be done using watertight junction boxes.

5.6 RECLAIM TANK

The GI-2000 is shipped with a ¾" NPT brass outlet fitting. The fitting if removed is a ¾" M.I.P. fitting. Maximum head is 15' (maintain ¾" connection). Appropriate material should be used to accommodate possible temperatures of 140°F, as well as vibrations, when pumping. When applications warrant a distance between the GI-2000 and the reclaim tank, the piping must be sloped toward the reclaim tank. Heat tracing may also be required. **Venting is required.**

5.7 RECLAIM TANK ALARM

The GI-2000 controller has an optional integrated reclaim tank alarm system designed to monitor the state of the reclaim tank, alert the user when the reclaim tank is full and prevent overflow of the reclaim tank. The option consists of the following components provided by Josam:

- Float switch Assembly
- Float Switch Cable

The GI-2000 controller will prevent further grease pump out and alert the user as follows:

- Prior to starting a clean cycle the GI-2000 controller will check the status of the reclaim tank switch.
- If a full reclaim tank is detected the clean cycle will be prevented from starting.
- If a full reclaim tank is detected during a grease pump, the pump will be immediately stopped.
- The horn will sound (distinct dual beep verses the standard clean cycle single beep) to indicate a full reclaim tank situation.
- The LCD display will also indicate a full reclaim tank situation exists.

The GI-2000 controller alarm will continue to sound periodically and the display the reclaim tank full alert until the reclaim tank is no longer full.

Note: See Section 8.9 for details on the GI-2000 controller reclaim tank display.

Installation of the GI-2000 reclaim alarm system consists of:

- Mounting the float switch assembly to the cover of the reclaim tank.
- Attaching one end of the cable provided to the GI-2000 controller via the mating connector.
- Running the cable from the GI2000 controller to a junction box located at the reclaim tank.
- Running wires from the float switch assembly to the junction box using a water tight conduit

Proper operation of the GI-2000 reclaim system can be verified as follows:

- Manually lift the float on the float switch assembly
- The GI-2000 controller alarm should immediately sound and the display switch to the reclaim tank alarm message.
- Release of the float will stop the GI-2000 alarm and the display will return to the normal.

6.0 G.R.D.TESTING

6.1 Leak Check

Confirm that the unit is level and unlatch and lift off the large cover on the GI-2000 tank.

Run water through the drain installation until the unit is full. The unit is considered full when water runs out of the outlet of the GI-2000. Check the system installation for leaks.

6.1 Power On Check

Apply power to the GI-2000. The controller will beep and start the initialization sequence. **Note:** Refer to Section 8.7 for details of the GI-2000 Controller's power ON display sequence. At the end of the initialization sequence the Controller display will indicate the unit is operating in either the Manual or Automatic mode. If the Controller display indicates it is operating in the Automatic Mode press the Manual Mode button until the display indicates the unit is in Manual mode. The Controller initialization sequence takes approximately 15-20 seconds. If after that time period the Controller is not displaying other than a Mode see the Controller Operating Section 8.0 and Troubleshooting Guide Section 9.0 for details on addressing possible problems with the GI-2000.

6.2 Heater Check

The GI-2000 G.R.D. is equipped with heaters to thin the grease prior to pumping out the grease into the reclaim tank.

The GI-2000 Controller provides the ability to test the heater. To access the test controls inside the Controller, loosen the front panel screws and open the Controller door.

Follow the procedure in Section 8.6 to turn the heaters ON. The heater LED indicator should turn ON and a contactor relay on an interface board located in the GI-2000 should close powering the heaters. Observe the heaters for several minutes to see that the water around the heater elements is beginning to heat evidenced by heat waves and bubbles forming around the heater elements.

Follow the procedure in Section 8.6 to turn the heaters OFF. The heater LED indicator should turn OFF and heating activity around the heater elements should begin to cease. Note: The heaters will also automatically shut off after three minutes.

WARNING! Do not run the heater dry! Running the heater dry may cause damage to the heaters and the unit.

6.3 Pump Check

The GI-2000 G.R.D. is equipped a pump to move the grease from the G.R.D into the reclaim tank.

The GI-2000 Controller provides the ability to test the pump. To access the test controls inside the Controller, loosen the front panel screws and open the Controller door.

Follow the procedure in Section 8.6 to turn the pump ON. The pump LED indicator should turn ON and a solid state relay on an interface board located in the GI-2000 should close powering the pump. Observe that the pump is running and water is being pumped into the reclaim tank.

Follow the procedure in Section 8.6 to turn the pump OFF. The pump LED indicator should turn OFF and the pump should stop running. Note: The pump will also automatically shut off after 60 seconds.

WARNING! Do not run the pump dry! Running the pump dry may cause damage to the pump.

6.4 Temperature Sensor Check

The GI-2000 G.R.D. is equipped a temperature sensor to detect when the water has been sufficiently heated by the heaters during a clean cycle to start pumping the grease from the G.R.D into the reclaim tank.

The GI-2000 Controller provides the ability to check the temperature sensor. To access the test controls inside the Controller, loosen the front panel screws and open the Controller door.

Follow the procedure in Section 8.6 to check the state of the temperature sensor. For a tank filled with cold water the temperature sensor should be in the OFF state. For a tank filled with hot water (>100^{O}C) the temperature sensor should be in the ON state.

6.5 Grease Level Sensor Check

The GI-2000 G.R.D. is equipped a grease level sensor to detect when the amount of grease in the tank requires a clean cycle to pump the grease from the G.R.D into the reclaim tank. The grease level sensor is designed to detect a 4” range of water below the bottom of the outlet pipe.

The GI-2000 Controller provides the ability to check the operation and calibration of the grease level sensor. To access the test controls inside the Controller, loosen the front panel screws and open the Controller door.

Follow the procedure in Section 8.6 to check the water level being measured by the grease level sensor. For a tank filled with water (containing little or no grease) up to the bottom of the outlet pipe, the water level test should indicate 4.0” inches of water. For a water level 1.0” inch below the bottom of the outlet pipe, the water level test should indicated 3.0” inches of water. For a water level 4.0” inches below the bottom of the outlet pipe, the water level test should indicated 0.0” inches of water.

If the indicated water levels are not correct, the GI-2000 may need recalibration. See Section 8.4 for instructions on how to recalibrate the system.

6.7 COMPLETION OF TESTING

To exit test mode press *Test/Cancel* button twice.

Carefully close the control front panel and reinstall the locking screws.

Turn the Auto/Manual switch on the front panel to AUTO.

Install the top cover of the grease trap section.

7.0 MAINTENANCE

WARNING! Remove power from the GI-2000 GRD system prior to performing maintenance operations.

7.1 Solids Removal

To maintain optimum system performance and accuracy it is important to remove all solids that have accumulated in the solids interceptor. Do not allow any solids to build up in the GI-2000.

7.2 Sensor Maintenance

The GI-2000 requires that the grease level sensor be periodically cleaned of grease or debris that may be stuck to the sensor.

JOSAM recommends the grease level sensor be cleaned every time the interceptor tank is pumped out. As a minimum, the tank probe should be cleaned every 3 months.

Grease level sensor cleaning can be accomplished by wiping the probe with a soft cloth or sponge. A degreaser (i.e. dish washing soap, etc.) may also be used.

Warning: Do not use an abrasive material (i.e. scouring pad, steel wool, etc.) to clean the tank probe as this may damage the grease level sensor protective covering. Do not bend the grease level sensor during cleaning.

7.3 Periodic Calibration

Recalibration of the system is not typically required after the grease level sensor has been cleaned. JOSAM recommends that system calibration be performed once a year after the interceptor tank is pumped out.

7.4 Controller Maintenance

The controller requires no scheduled maintenance.

7.5 Maintenance Log

It is recommended that owner maintain a daily maintenance log to insure GI-2000 maximum performance. See sample Maintenance Log on next page.

JOSAM GI-2000 MAINTENANCE LOG

PART NUMBER:_____

MONTH:_____

SERIAL NUMBER:_____

CONTACT:_____

PHONE: 1-800-365-6726

Date	Power	Mode	Cycles Completed	Water Level	Cleaned Solids	Reclaim Tank Status	Initial	Time	Comments
Ex.	Y	Auto	0-1-2-3	4.0	Y	Half Full	CT	9:00AM	Temp LED ON
1									
2									
3									
4									
5									
6									
7									
8									
9									
10									
11									
12									
13									
14									
15									
16									
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25									
26									
27									
28									
29									
30									
31									
32									

8.0 CONTROLLER OPERATING PROCEDURES

8.1 GENERAL DESCRIPTION OF OPERATION

8.1.1 CONTROLLER MODES OF OPERATION

The GI-2000 G.R.D. controller provides the following modes of operation:

Automatic Clean Cycle Mode

This operating mode automatically starts the clean cycle that pumps the grease out of the interceptor trap whenever the volume of grease reaches the preset level.

Manual Clean Cycle Mode

Allows the operator to manually start the clean cycle independent of the volume of grease in the interceptor trap. Note: In manual mode operation the Grease Level HI LED indicator will light when the volume of grease reaches the preset level.

Calibration Mode

The calibration mode allows maintenance personnel to calibrate the water level measurement sensor located in the interceptor trap. Calibration consists of filling the trap with water to two (2) predetermined levels that the controller later uses to calculate the water level in the interceptor trap during actual operation. The calibration mode also allows the user to configure system operating parameters.

Clean Cycle Rate Adjust Mode

The clean cycle rate adjustment allows the grease volume threshold at which the clean cycle automatically starts to be adjusted without re-calibration of the system. The normal rate is based on the calibration of the system at installation and setup. Adjustments are made in software to the water level at which the clean cycle starts relative to the results from the initial calibration. The clean cycle rate will increase when the water level value at which the clean cycle starts is raised and the clean cycle rate will decrease when the water level value is decreased. This mode allows maintenance personnel to quickly and easily adjust clean cycle rate to better match the requirements of a specific installation.

Test Mode

The test mode allows maintenance personnel to exercise various system functions to facilitate trouble shooting and repair. Table 1 provides a summary of the available test functions:

Table 1
Test Functions

Time and Date Entry -	Allows maintenance personnel to set the time and date
Heater Test -	Allows maintenance personnel the ability to turn the power on and off to the heater
Pump Test -	Allows maintenance personnel the ability to turn the power on and off to the pump
Temp Switch Test -	Allows maintenance personnel the ability to check the status of the temperature switch.
Water Level Test -	Allows maintenance personnel the ability to display the water level the controller is currently calculating.
Display & LED Test-	Exercises the LCD display and LED indicators for proper operation.

8.1.2 CONTROLS, DISPAYS AND INDICATORS

The following controls, displays and indicators are available on the GI-2000 Controller:

External Controls

The external controls on the controller enclosure available to the operator are summarized in Table 2:

Table 2
External Controls

Auto/Manual Mode Switches -	Allows the operator to select between automatic clean cycle operation and manual clean cycle operation.
Manual Mode Start/Stop Switch -	Allows the operator to start the manual clean cycle operation.

Internal Controls

Table 3 lists the internal controls are available to maintenance personnel when the door to the controller enclosure is open:

Table 3
Internal Controls

Cal Mode/Up Switch -	Initiates the water level sensor calibration mode and increments time and date values in the time and date entry mode.
CC Rate Switch -	Initiates the clean cycle rate adjustment mode.
Test Mode Switch -	Initiates the test mode operation.
Enter Switch -	Mode selection and data entry control switch

Display and Indicators

Table 4 lists the displays and indicators are provided on the GI-2000 controller:

Table 4
Display Indicators

Power On Pilot Light -	External pilot light on the controller enclosure door indicating the unit is powered up.
Clean Cycle Pilot Light -	External pilot light on the controller enclosure door indicating that the clean cycle is in operation.
Manual Mode LED	External pilot light on the controller enclosure door indicating the unit is manual mode operation.
Automatic Mode LED	External pilot light on the controller enclosure door indicating the unit is automatic mode operation.
LCD Display -	Four (4) line X 20 character LCD display provides information and instructions to operators and maintenance personnel. LCD display visible through the controller enclosure door.
LED Indicators -	The following LED indicators are visible through the controller enclosure door: Heaters On Pump On Grease Level High Temperature Switch On Activity 1 - Modem Activity (See Section x.x) Activity 2 - Sign of life flashing once per second to indicate proper firmware is operating properly

Figure 8.1.2-1
Illustration of the external switches and indicators on the front of the controller enclosure

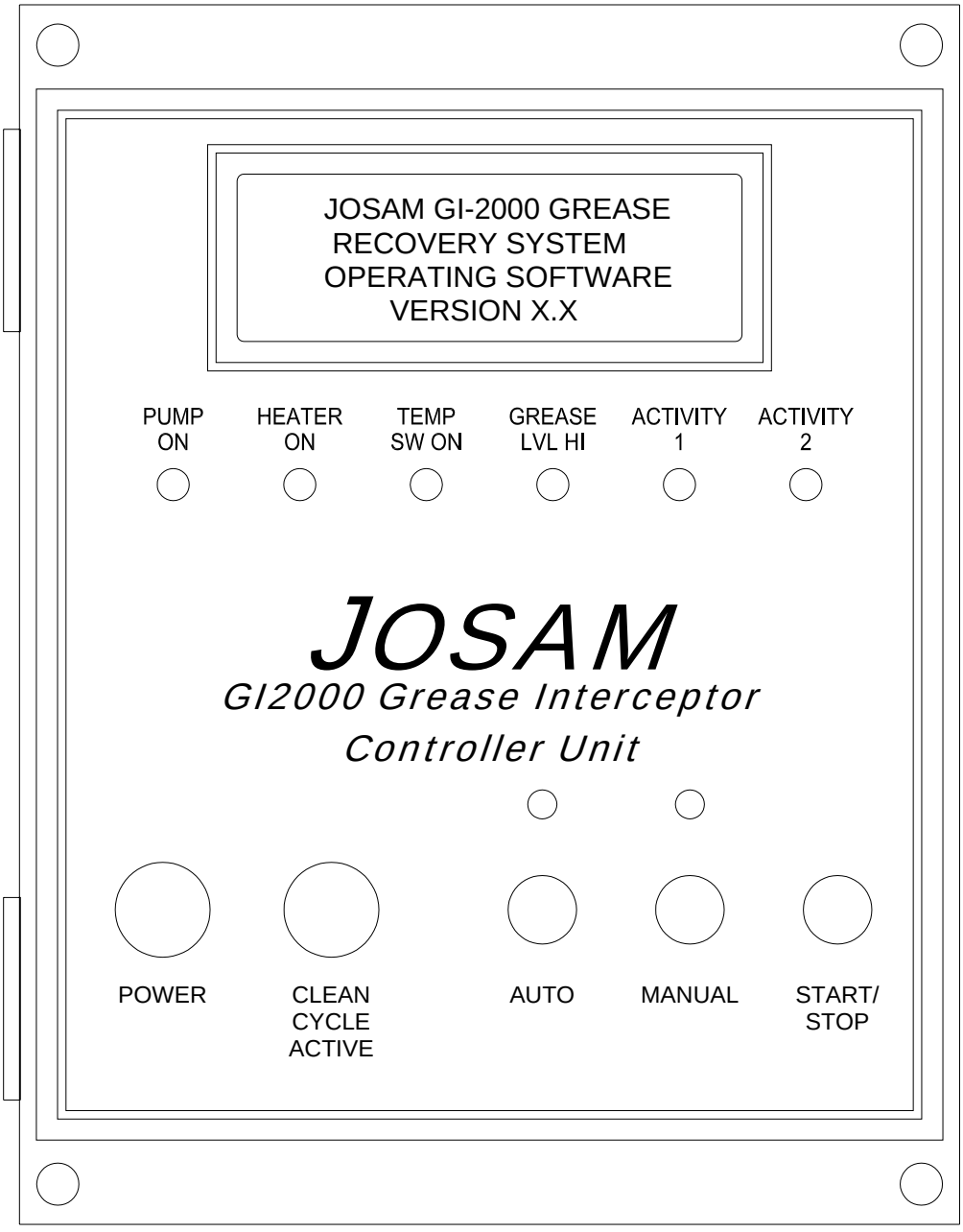
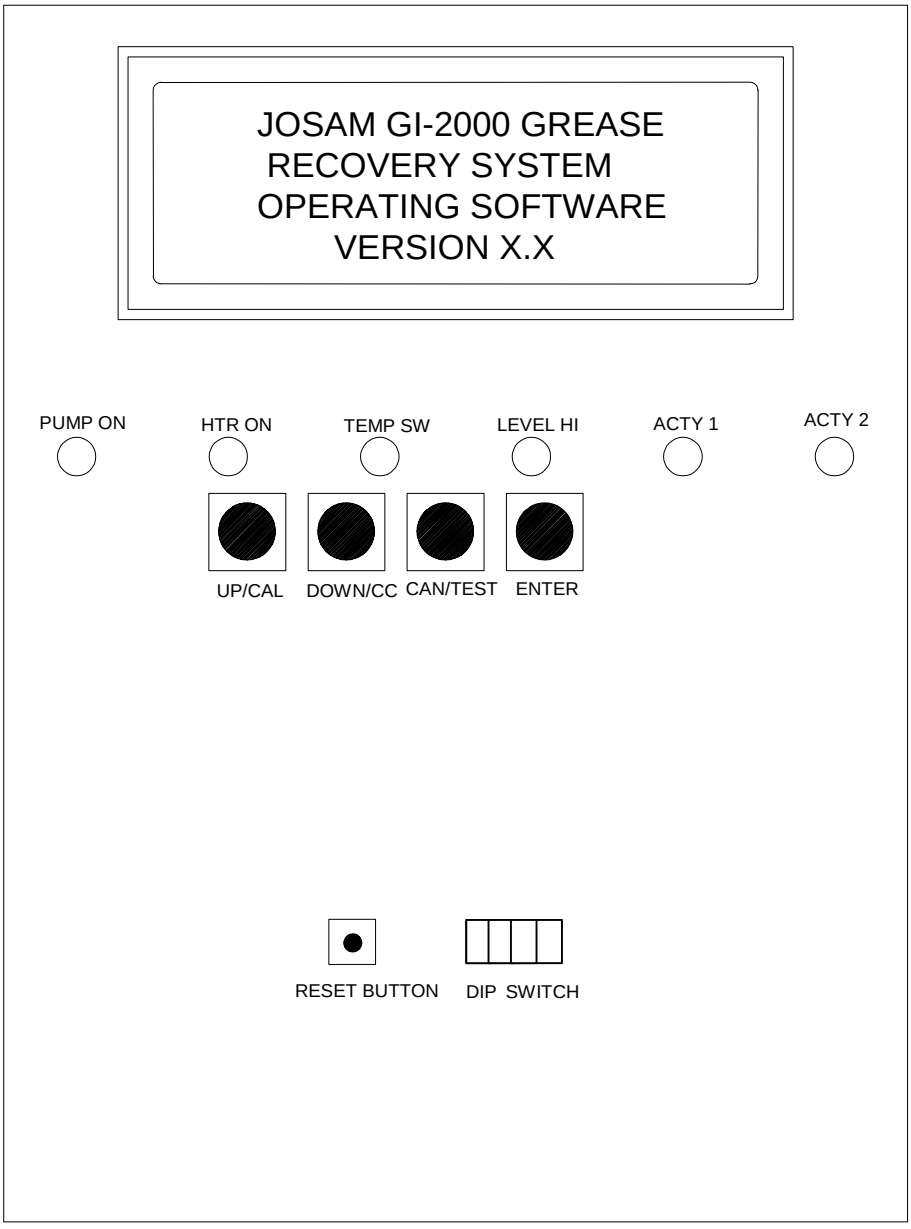


Figure 8.1.2-2
Illustrates the internal switches and indicators inside the controller enclosure.



8.1.3 TYPICAL CONTROLLER OPERATION

The following sections describe typical GI-2000 controller operation:

Typical Controller Power ON

When power is first applied to the GI-2000 the unit will beep and go through internal diagnostics (See Section 8.7 for typical display messages after initial power ON or reset). Should any part of the diagnostics fail, the unit will beep every 5 seconds and display a message about the failure. The critical values of time/date, pump run time, and calibration values are stored in the unit and tested at start up. Should one of the values be determined to be invalid, the unit will wait for the user to re-enter the correct values. See Section 8.4 for a detailed description.

Typical Automatic Cycle

When the unit is in the set to Automatic mode it will perform the entire cleaning cycle automatically. Automatic mode is entered when the front panel *Auto Mode* Switch is pressed and the Auto Mode LED is ON. The controller LCD display indicates the controller is in the Automatic mode. When the grease quantity builds up to the preset level, a horn in the control unit will sound for 10 seconds. This is intended to alert personnel using the sinks that the automatic cleaning cycle is about to start. **Note:** No more water should be introduced into the interceptor drain system during the clean cycle**.** At this point, the user can delay the operation of the unit by hitting the *Start/Stop* button on the controller front panel. If *Start/Stop* button is pressed, the controller will halted the clean cycle for 30 minutes as indicated on the controller's LCD display. If a longer delay period is needed, the unit can be placed in the manual mode by pressing *Manual Mode* Switch. If the automatic clean cycle is allowed to continue the controller LCD display will show a 45-second count down to start of the clean cycle operation. After 45 seconds, the unit will turn on the heaters and the CYCLE ACTIVE indicator on the controller front panel will turn on. The controller LCD display will indicate the heaters are on. The heaters will remain on until the grease temperature is ~120 degrees F or 4 hours. Once the temperature is reached, the interceptor will pump the grease out. If 4 hours pass and the temperature is not reached, the interceptor will pump the grease out. The controller LCD display will indicate the pump is on and the pump time remaining. After the pump cycle is complete, the controller will beep again and the LCD display will indicate the cycle is complete. At this point, normal use of the sink can resume. The controller will not allow an automatic clean cycle to run again for a minimum of 12 hours. **Note**: The automatic cycle can be interrupted at any time by either pressing the Start/Stop button on the front panel of the control unit or by pressing Manual Mode Switch.

Typical Manual Cycle

When the controller's front panel *Manual Mode* Switch is pressed and the Manual Mode LED is ON, the user is required initiate the cleaning cycle. A clean cycle is typically initiated when the grease level reaches the preset level as indicated by the GREASE LEVEL HI indicator on the controller's front panel. Note: The GREASE LEVEL HI indicator is the LED just below the LCD display. The user can start a cycle at any time by pressing the *Start/Stop* button on the front panel of the control unit. When the clean cycle is initiated, the controller will beep and indicate a cycle is about to start. **Note**: The user can stop the cycle at any time by pressing the Start/Stop button at any time during the manual cycle. The controller will then turn on the heaters as indicated on the controller. The heaters will remain on until the grease temperature is ~120 degrees F or 4 hours. Once the temperature is reached, the interceptor will pump the grease out. If 4 hours pass and the temperature is not reached, the interceptor will pump the grease out. The controller LCD display will indicate the pump is on and the pump time remaining. After the pump cycle is complete, the controller will beep again and the LCD display will indicate the cycle is complete. At this point, normal use of the sink can resume.

Warning: Do not run a second manual clean cycle until the water level in the interceptor tank has filled to the bottom of the outlet pipe.

8.2 AUTOMATIC CLEAN CYCLE - FULL DESCRIPTION

The following message is displayed when the unit is operating in Automatic mode:

```
     AUTOMATIC
  OPERATING MODE
DyCyc:XX  WkCyc:XX
MoCyc:XX  YrCyc:XXX
```

When the controller measures a level of water that indicates the clean cycle should begin the following occurs:

a) The Clean Cycle LED turns on and the horn sounds.

b) The following messages are displayed at the start of the clean cycle:

```
 AUTOMATIC CLEAN
CYCLE INITIATED
 XX SECONDS BEFORE
CLEAN CYCLE STARTS
```

and cycles after a few seconds to:

```
 PRESS START/STOP
  BUTTON TO HALT
 XX SECONDS BEFORE
CLEAN CYCLE STARTS
```

and cycles after a few seconds to the previous message.

c) The following messages are displayed as the clean cycle progresses:

The user can press the *Start/Stop* button at any point in the clean cycle to interrupt the cycle. The cycle will be interrupted for 30 minutes or until the *Stop/Start* button is pressed again. See section **e)** below for halt clean cycle display.

```
 AUTOMATIC CLEAN
   IN PROGRESS
    HEATERS ON
```

```
 AUTOMATIC CYCLE
   IN PROGRESS
     WATER AT
   TEMPERATURE
```

Note: This display indicates the desired water temperature has been reached prior to the pump activating.

```
AUTOMATIC CYCLE
  IN PROGRESS
PUMP ON XXXXX
```

Note: This display indicates the pump run time remaining in seconds.

```
 AUTOMATIC CLEAN
 CYCLE COMPLETE
```

d) The unit will not run another clean cycle within for 12 hours unless the clean cycle limit has been disabled (see Section 8.4). The unit display will cycle to the main automatic display mode.

Note: Disabling the clean cycle limit is intended to allow for a second automatic clean cycle occur within 12 hours. Caution should be observed when disabling the clean cycle limit.

e) The unit will display the following message is the user presses *Start/Stop* button at any point in the clean cycle to interrupt the cycle. The restart time is seconds is displayed.

```
AUTOMATIC CYCLE HALT
 PRESS START/STOP
 TO RESTART –OR-
XXXXX SEC TO RESTART
```

8.3 MANUAL CLEAN CYCLE - FULL DESCRIPTION

The following messages are displayed when the unit is operating in Manual mode:

```
      MANUAL
OPERATING MODE
DyCyc:XX WkCyc:XX
MoCyc:XX YrCyc:XXX
```

and cycles every few seconds to:

```
      MANUAL
  OPERATING MODE
   PRESS "START"
  TO BEGIN CYCLE
```

a) Once the operator presses the *Start/Stop* button the *Clean Cycle* LED light turns on and the horn sounds.

b) The following messages are displayed at the start of the clean cycle:

```
    MANUAL CLEAN
   CYCLE INITIATED
  XX SECONDS BEFORE
CLEAN CYCLE STARTS
```

and cycles after a few seconds to:

```
  PRESS START/STOP
   BUTTON TO HALT
  XX SECONDS BEFORE
CLEAN CYCLE STARTS
```

Display cycles after a few seconds to the previous message.

c) The following messages are displayed as the clean cycle progresses:

The user can press the *Start/Stop* button at any point in the clean cycle to interrupt the cycle. See section **e)** below for halt clean cycle display.

```
    MANUAL CLEAN
     IN PROGRESS
     HEATERS ON
```

```
    MANUAL CYCLE
     IN PROGRESS
      WATER AT
     TEMPERATURE
```

Note: This display indicates the desired water temperature has been reached prior to the pump activating.

```
MANUAL CYCLE
 IN PROGRESS
PUMP ON XXXXX
```

Note: This display indicates the pump run time remaining in seconds.

```
MANUAL CLEAN
CYCLE COMPLETE
```

d) The unit display will cycle to the main manual mode**. Note**: Another clean cycle should not be initiated until the water level rises back to the outlet level.

e) The unit will display the following message is the user presses *Start/Stop* button at any point in the clean cycle to interrupt the cycle. After several seconds the unit display will cycle to the main manual mode.

```
MANUAL CYCLE
HALTED BY USER
```

8.4 CALIBRATION MODE

The calibration mode is intended to allow the user to calibrate the grease level sensor and configure system operating parameters. The following table lists the calibration mode functions:

Function	Description
8.4.2 Set Time/Date	Sets the controller's real time clock and date
8.4.3 Sensor Calibration	Calibrates the grease level sensor
8.4.4 Set Auto Clean Days	Sets the maximum days between clean cycles
8.4.5 Set Calibration Offset	Allows for grease level sensor adjustment without full calibration
8.4.6 Clean Cycle Limit	Enable/Disable limiting the automatic clean cycle to once per 12 hours
8.4.7 Long Term Averaging	Enable/Disable averaging the grease level sensor readings over 7 days
8.4.8 Set Pump Time	Sets the run time of the pump during a clean cycle

8.4.1 CALIBRATION MODE ENTRY AND FUNCTION SELECTION

To enter the calibration mode:

First press of *Cal Mode* button and the following message to appear:

```
 PRESS UP/DWN KEYS
  FOR DESIRED CAL
  PRESS ENTER TO
CHANGE TIME AND DATE
```

Note: During calibration sequence, pressing the *Cancel* button TWICE will exit the calibration mode and revert to the previous calibration values. The first press of the *Cancel* button brings up the following message:

```
 PRESS CANCEL AGAIN
 TO EXIT CAL MODE
  PRESS ENTER TO
CHANGE TIME AND DATE
```

Pressing the *Cancel* button again will exit the calibration routine and the calibration data will not be changed.

Pressing *Enter* button will allow setting of the time and date. See section 8.4.2.

Second press of *Cal Mode* button enters the sensor calibration mode with the following display. See section 8.4.3.

```
 PRESS UP/DWN KEYS
  FOR DESIRED CAL
  PRESS ENTER TO
     CAL LEVEL
```

The third press of *Cal Mode* button enters auto clean day setting mode with the following display. See section 8.4.4.

```
 PRESS UP/DWN KEYS
  FOR DESIRED CAL
PRESS ENTER TO SET
  AUTO CLEAN DAYS
```

The fourth press of *Cal Mode* button enters the sensor calibration offset mode with the following display. See section 8.4.5.

```
 PRESS UP/DWN KEYS
  FOR DESIRED CAL
  PRESS ENTER TO
  SET CAL OFFSET
```

The fifth press of *Cal Mode* button enters the clean cycle limit mode with the following display. See section 8.4.6.

```
 PRESS UP/DWN KEYS
FOR DESIRED CAL PRESS
    ENTER TO SET
   CC CYCLE LIMIT
```

The sixth press of the *Cal Mode* button prompts to enter the pump run time entry with the following display. See section 8.4.7.

```
 PRESS UP/DWN KEYS
FOR DESIRED CAL
PRESS ENTER TO SET
LONG TERM AVERAGING
```

The seventh press of the *Cal Mode* button prompts to enter the pump run time entry with the following display. See section 8.4.8.

```
 PRESS UP/DWN KEYS
  FOR DESIRED CAL
PRESS ENTER TO SET
   PUMP TIME ON
```

Pressing the *Cal Mode* button again will restart this sequence at the time and date entry. This sequence of menu displays can also be scrolled through in reverse order by using the *CC Rate* button.

8.4.2 SET TIME/DATE

```
USE UP AND DWN KEYS
TO SET HOUR, PRESS
  ENTER WHEN SET.
     HOUR: XX
```

Pressing the *Enter* button displays:

```
USE UP AND DWN KEYS
TO SET MIN, PRESS
  ENTER WHEN SET.
     MIN: XX
```

Pressing the *Enter* button displays:

```
USE UP AND DWN KEYS
TO SET MONTH, PRESS
 ENTER WHEN SET.
   MONTH: XX
```

Pressing the *Enter* button displays:

```
USE UP AND DWN KEYS
TO SET DAY, PRESS
  ENTER WHEN SET.
    DAY: XX
```

Pressing the *Enter* button displays:

```
USE UP AND DWN KEYS
TO SET DECADE, PRESS
  ENTER WHEN SET.
    YEAR: XXXX
```

Pressing the *Enter* button displays:

```
 USE UP AND DWN KEYS
TO SET CENTURY, PRESS
   ENTER WHEN SET.
    YEAR: XXXX
```

Once the *Enter* button is pressed from this screen, the user is prompted to confirm time and date entry.

```
    TIME: XX:XX
DATE: XX/XX/XXXX
PRESS ENTER TO SET,
CANCEL TWICE EXITS
```

The saved time and date is displayed for a few seconds.

```
   TIME: XX:XX
 DATE: XX/XX/XXXX
  TIME AND DATE
     UPDATED
```

The user is then returned to the cal menu.

8.4.3 SENSOR CALIBRATION

The grease level sensor calibration is based upon sensing the water level in the tank. Therefore, the tank should not have had any grease introduced in the last hour and as much of the grease as possible must be removed before performing the calibration sequence.

Once the calibration mode is entered, a timer starts and if no button presses entries are detected for 30 minutes the unit will go to back to Automatic or Manual mode.

Press of *Cal Mode* button and the following message to appear:

```
LAST CAL.: XX/XX/XX
PRESS ENTER TO START
PRESS ANY OTHER KEY
      TO EXIT
```

Pressing any button other than enter will exit to normal operation.

Pressing the *Enter* button will display:

```
1.FILL TANK TO LEVEL
 ONE MARK (LOWER)
THEN PRESS ENTER TO
 RECORD LEVEL ONE
```

At this point adjust the water level in the tank to the level one calibration mark. Typically the water level is 4” inches below the bottom of the outlet pipe.

After the desired water level is reached press the *Enter* button. The controller will display:

```
READING LEVEL ONE
CALIBRATION –WAIT-
```

Reading the calibration level may take up to 30 seconds. After the level calibration is read, the display cycles to:

```
     LEVEL 1 CAL.
     SUCCESSFUL
```

Display cycles after a few seconds to:

```
2.FILL TANK TO LEVEL
 TWO MARK (UPPER)
THEN PRESS ENTER TO
 RECORD LEVEL TWO
```

At this point fill the tank to the second calibration mark. Typically the water level is at the bottom of the outlet pipe.

Next, press the *Enter* button the display will cycle to:

```
READING LEVEL TWO
CALIBRATION –WAIT-
```

This reading will take longer than level one and may take up to several minutes. After the level calibration is read, the screen cycles to:

```
   LEVEL 2 CAL.
    SUCCESSFUL
```

Display cycles after a few seconds to:

```
CALIBRATION COMPLETE
   RETURNING TO
 NORMAL OPERATION
```

The unit then returns after a few seconds to Automatic or Manual display modes.

8.4.4 SET AUTO CLEAN DAYS

This function allows the user to force a clean cycle every 1 to 90 days if no clean cycle has occurred due to measured grease level. Entering 0 days disables this function.

```
CAL MODE–USE UP/DWN
 KEYS TO SET AUTO
 CLEAN DAYS, PRESS
ENTER TO SET XX DAYS
```

Pressing the *enter* button:

```
CAL MODE–AUTO CLEAN
   DAYS ENTERED
 SET TO: XX DAYS
```

The unit returns after a few seconds to automatic or manual display modes

8.4.5 SET CALIBRATION OFFSET

This function allows the user to adjust offsets in the calibration level when the tank is full of water. Normally the test water level reading with the tank full of water is 4.0 inches. If the test water level is not 4.0 inches use this function to adjust the test water level reading to 4.0 inches. The maximum offset is +/- 2.5 inches of water. Normally after a full calibration this calibration offset will be set to 0.0 inches.

```
CAL MODE–USE UP/DWN
 KEYS TO SET CAL
 OFFSET, ENTER TO
FINISH. +X.X INCHES
```

Pressing the *Enter* button will display:

```
CAL MODE–CAL OFFSET
INCHES ENTERED
SET TO: +X.X INCHES
```

The unit returns after a few seconds to automatic or manual display modes.

8.4.6 CLEAN CYCLE LIMIT

This function allows the user to override the automatic clean cycle limit of no more than one clean cycle every 12 hours. After each clean cycle the clean cycle limit is enabled.

Note: Disabling this function is typically only used for test purposes.

```
CAL MODE–USE UP/DWN
 KEYS TO ENABLE OR
DISBALE CLEAN CYCLE
12HR LIMIT–DISBALED
```

Pressing the *Enter* button will display:

```
CAL MODE–CLEAN CYCLE
12 HR LIMIT SET TO
          -DISABLED
```

The unit returns after a few seconds to automatic or manual display modes

8.4.7 LONG TERM AVERAGING

This function enables or disables averaging of the grease level sensor readings over 7 days. Long term averaging of the measured grease level is intended to prevent short term changes in measured grease level from causing false clean cycle initiations.

```
CAL MODE–USE UP/DWN
 KEYS TO ENABLE OR
DISBALE LT AVERAGE
LT AVERAGE–DISABLED
```

Pressing the *Up* button to enable and *Down* button to disable long term averaging:

```
CAL MODE–USE UP/DWN
 KEYS TO ENABLE OR
DISBALE LT AVERAGE
LT AVERAGE –ENABLED
```

8.4.8 SET PUMP TIME

This function sets the run time of the pump during a clean cycle.

```
CAL MODE-USE UP/DWN
 KEYS TO SET PUMP
ON TIME, ENTER TO
   XXXXX SECS
```

Use the *Up* and *Down* buttons to set the pump run time in seconds. The maximum is 400 seconds and the minimum is 20 seconds. When the desired run time is displayed, press the

Pres the *Enter* button to save the data.

The pump time saved is then displayed as follows:

```
CAL MODE– PUMP ON
  TIME ENTERED
 SET TO: XXX SECS
```

8.5 CLEAN CYCLE RATE ADJUST MODE

The clean cycle rate adjust is provided to easily modify the pumping cycle frequency. This allows the user to quickly adjust the system to operate automatically more or less often. To enter the clean rate cycle adjust mode press the CC Rate button. (Note: If no button activity occurs for ~ 15 minutes the Rate Adjust Mode will time out and the unit returns to either automatic or manual operation.) The first press of CC Rate button causes the following message to appear:

```
CLEAN CYCLE RATE:
XXXXXXXXXXXXXXXX
USE UP/DN KEY, THEN
ENTER TO SELECT RATE
```

The section shown as xxxx… above, shows the present rate setting. The available settings are:

LESS OFTEN-HIGH(88%)	High grease level alarm (3.5" grease present)
LESS OFTEN-MED (76%)	High grease level alarm (3.0" grease present)
LESS OFTEN-LOW (63%)	High grease level alarm (2.5" grease present)
NORMAL (51%)	High grease level alarm (2.0" grease present)
MORE OFTEN-LOW (37%)	High grease level alarm (1.5" grease present)
MORE OFTEN-MED((25%)	High grease level alarm (1.0" grease present)
MORE OFTEN-HIGH(13%)	High grease level alarm (0.5" grease present)

This section may also display a remotely set (via modem) clean cycle rate as follows:
REMOTE SETTING (60%)

Pressing the *Up* and *Down* buttons moves the rate adjust level up or down in the above table. Once the desired rate is displayed, press the enter button to select it. The following message is shown:

```
   RATE SET TO:
  XXXXXXXXXXXXX
PRESS ENTER AGAIN
     TO SAVE.
```

Press the *Enter* button to save the rate adjust or the *Cancel* button twice to exit. After the *Enter* button is pressed the unit display cycles to:

```
 RATE ADJUST SAVED
```

After a few seconds the unit returns to normal automatic or manual mode display.

Notes: If no button activity occurs for ~ 15 seconds the unit returns to either Automatic or Manual operation and uses the current clean cycle rate.

8.6 TEST MODE ENTRY AND FUNCTION SELECTION

8.6.1 TEST MODE ENTRY

Press of the *Test* button and the following message will appear:

```
 PRESS UP OR DOWN
 KEYS UNTIL DESIRED
   TEST APPEARS
```

Press the *Up* or *Down* button to cycle among the available tests.

Note: During the test mode, hitting the *Cancel* button twice will exit to normal operation. If there is no activity at the controller for 15 minutes, the unit will return to Manual or Automatic operation.

8.6.2 HEATER TEST

Press the *Up* or *Down* button until the following display appears:

```
HEATER TEST (DO NOT
RUN DRY):HEATER:OFF
  PRESS ENTER TO
CYCLE HEATER STATUS
```

Pressing the *Enter* button will turn the heater on. Pressing the *Enter*, *Up*, or *Down* button while the heater is on will turn the heater off. The unit will also automatically turn the heater off after 3 minutes.

Note: The heater should not be run dry. Running the heater dry may cause damage to the heaters**.**

8.6.3 PUMP TEST

Press the *Up* or *Down* button until the following display appears:

```
 PUMP TEST (DO NOT
 RUN DRY): PUMP:OFF
  PRESS ENTER TO
 CYCLE PUMP STATUS
```

Pressing the *Enter* button will turn the pump on. Pressing *Enter*, *Up*, or *Down* button while the pump is on will turn the pump off. The unit will also automatically turn the pump off after ~ 1 minute.

Note: The pump should not be run dry. Running the pump dry may cause damage to the pump.

8.6.4 TEMPERATURE SWITCH TEST

Press the *Up* or *Down* button until the following display appears:

```
 TEMP.SWITCH TEST:
SWITCH STATUS: OFF
```

The status of the temperature switch is displayed (OFF = switch open; ON = switch closed).

8.6.5 WATER LEVEL CHECK

Press the *Up* or *Down* button until the following display appears:

```
 WATER LEVEL TEST:
 LEVEL: XX.XINCHES
```

The water level is referenced from the first cal mark typically 4” inches below the bottom of the outlet pipe. Therefore the water level displayed is as follows:

Tank Water Level	Displayed Water level
At the bottom of the outlet pipe	4.0” (no grease)
2” below the bottom of the outlet pipe	2.0” (2.0” grease)
4” below the bottom of the outlet pipe	0.0” (4.0” grease)
>4” below the bottom of the outlet pipe	XX.X

8.6.6 DISPLAY AND LED CHECK

Press the *Up* or *Down* button until the following display appears:

```
DISPLAY & LED TEST:
  PRESS ENTER TO
    START TEST
```

Pressing the *Enter* button will cause the LED's to light and test messages will be displayed on the LCD.

8.7 POWER ON DISPLAYS AND DATA LOGGING RESET

Upon power ON or reset of the GI-2000 controller will display the following messages:

```
CURRENT TIME/DATE
    XX:XX AM
    XX/XX/XX
```

The display cycles after a few seconds to:

```
JOSAM GI-2000 GREASE
  RECOVERY SYSTEM
 OPERATING SOFTWARE
    VERSION X.X
```

The display cycles after a few seconds to::

```
PRESS ENTER TO RESET
    CLEAN CYCLE
   DATA LOGGING
```

The frequency of the clean cycle operation continuously displayed on the LCD is also stored in non-volatile memory by the controller. The ability to reset the data logging memory to zero is provided and operates as follows. If the *Enter* button is not pressed the Automatic or Manual mode display will then appear.

To reset the data logging memory, press the *Enter* button within ~ 5 seconds after the above message is displayed

```
PRESS ENTER AGAIN TO
 RESET CLEAN CYCLE
   DATA LOGGING
```

If the *Enter* button is pressed again within ~ 5 seconds the data logging memory is reset and confirmed by the following message:

```
CLEAN CYCLE DATA
LOGGING HAS BEEN
     RESET
```

After several seconds the Automatic or Manual mode display will appear.

8.8 MODEM OPERATION

The GI-2000 controller can be remotely accessed via a modem for the purpose of remote configuration setup and grease level data monitoring.

This requires an external modem and cable that is supplied by Josam.

To activate the modem capability DIP Switch Position 1 must be set. (See Figure 8.1.2-2 for the Dip Switch location).

If the modem option is set on controller power ON Activity LED 1 will flash three (3) times indicating the modem was found and initialized by the controller. Activity LED 1 will then remain on to indicate the controller has the modem option enabled.

If the modem option is enabled but the controller could not successfully initialize the modem the following message will appear:

```
INIT MODEM FAILURE
```

Note: Activity LED 1 will then remain on to indicate the controller has the modem option enabled, however proper modem operation will not be achieved unless the Activity LED 1 has flashed three (3) times.

8.9 RECLAIM TANK DISPLAY

The GI-2000 controller will display following message whenever a full reclaim tank is detected:

```
-RECLAIM TANK FULL-
RECLAIM TANK MUST BE
 EMPTIED BEFORE NEXT
CLEAN CYCLE CAN RUN
```

9.0 TROUBLESHOOTING GUIDE

PROBLEM	CAUSE	SOLUTION
Circuit Breaker continuously trips upon power up.	Mis-wired	Verify with a digital voltmeter that current between L1 & L2 is below 1 Amp. Wire per section 5.3.
	Wrong style GFI Circuit Breaker	Check that a 3-Wire GFI Circuit Breaker has been installed.
Circuit Breaker continuously trips when heaters are energized.	Wrong size GFI Circuit Breaker	Replace Circuit Breaker with correct size (See section 5.3)
High Grease Level continuously activated.	Pump Failure	Enter Test Mode and initiate Pump Test (See section 8.6). - Check for clogged line. -. Check Fuse (#2) in Controller -. Check Fuse (XF2) on Interface Board
	Solids build up on grease level sensor	Inspect the Grease Interceptor compartment for build up on the level sensor. Clean level sensor per section 7.0.
	Out of Calibration	Enter Test Mode and initiate Water Level Test (See section 8.6). Reading should approximate level of grease in the tank. If not recalibration mat be required (see section section 8.4). Notify factory for assistance
Difficulty in calibrating unit.	Poor Connection to level sensor	Verify connection between level sensor and Interface Board
Temperature Switch LED continuously on.	Temperature in GRD above 110° F	To verify, run cold water thru system until temperature drops below 100° F. NOTE: This process may take approx. 30 minutes.
	Temperature Switch failure.	Meter Upper Thermostat located in electronics compartment for a short or go to J102 cable on Interface Board
Level Sensor Failure	Build up around level sensor	Inspect the Grease Interceptor compartment for build up on the level sensor. Clean level sensor per section 7.0. Enter Test Mode and initiate Water Level Test (See section 8.6). Reading should approximate level of grease in the tank. If not recalibration mat be required (see section section 8.4).2.
	Lost of electrical connection	Check continuity from Probe to Interface Board (J101) using a DVM. Using a DVM with frequency measurement capability check between Pin 2 and 3 of J101 on the Interface Board. The frequency should be between 8kHZ and 30kHZ

10.0 WARRANTY INFORMATION

Josam Company warrants the GI 2000 to be free of defects in workmanship and material for a period of one (1) year following the date of installation, evidenced by the owner's completion and return of the Josam GI 2000 Installation and Operation form. We shall not be responsible for any labor charges or any loss, injury or damages whatsoever, including incidental or consequential damages. The sole and exclusive remedy shall be limited to the replacement or repair of the defective goods at the Seller's discretion. Evidence of vandalism, unauthorized modifications, acts of God, or failure to follow installation and operating instructions will void this warranty.

GI 2000 INSTALLATION & OPERATION FORM

1. FLOW CONTROL
( ) Check for proper size
( ) Check for proper location
( ) Check for air intake

2. SOLIDS INTERCEPTOR
( ) Check for proper orientation
( ) Instruct owner on proper maintenance

3. GREASE RECOVERY DEVICE
( ) Location of unit to source
( ) Check to insure that unit is level
( ) Check for proper orientation
( ) Check for proper electrical connection
( ) Check baffles
( ) Check for proper connection to GI 2000 Controller
( ) Check for Vented Waste connection
( ) Check condition of sensing probe
( ) Check Reclaim Tank and proper connection
( ) Instruct owner on proper maintenance

4. GI 2000 Controller
( ) Instruct owner on Switches, LCD Display, and LED's
( ) Instruct owner different Modes (Automatic, Manual, Calibration, etc.)
( ) Instruct owner on Test Functions
( ) Test Pump: Check for leaks
( ) Test Heating Elements
( ) Test Probe i.e. Water Level Test RECORD WATER LEVEL: _____
( ) Test Display & LED
( ) Check Manual/Automatic Switch RECORD MODE: _____
( ) Instruct owner on Data Logging
( ) Instruct owner on operating sequence

GI 2000 CERTIFICATION

I CERTIFY THAT THIS PRODUCT HAS BEEN INSPECTED AND TESTED, AND THAT TRAINING WAS PERFORMED, AS INDICATED BY THE CHECK MARKS IN THE BOXES.

ESTABLISHMENT _____ TEL NO._____

OWNER_____ DATE_____

JOSAM REP_____ DATE_____