Built on Tradition

Highland Tank

GreaseStopper®

Automatic Grease Interceptors

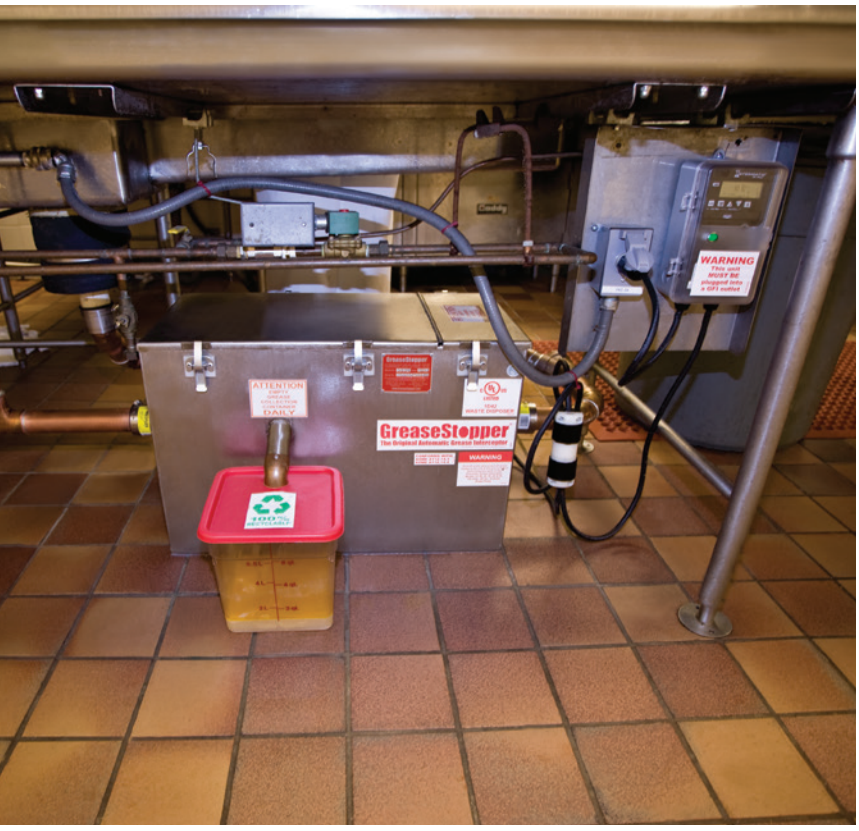
HT-2810

User Manual

Installation, Operation & Maintenance

Carefully read and follow the instructions in this manual.

GreasStopper®
Models 15 to 800
Flush-with-Floor



MADE IN U. S. A.

Warning and Disclaimer

This manual is intended for use only by persons knowledgeable and experienced in grease interceptor installation, operation and maintenance. This manual provides general guidance, and conditions at your site may render inapplicable some or all of the guidance. If you are uncertain, or require clarification or further instruction, please contact Highland Tank prior to commencing any installation, operation or maintenance procedure. You are solely responsible for ensuring compliance with all applicable federal, state and local laws, regulations and ordinances applicable to your installation and operation. Highland Tank disclaims all liability related to any misuse of the interceptor or failure to follow all guidance and instruction provided by Highland Tank.

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Glossary of Terms

AGI - Automatic Grease Interceptor
BMP - Best Management Practices
FOG - Fats, Oil & Grease
FSE - Food Service Establishment
GRD - Grease Recovery Device

Introduction

Thank you for purchasing a Highland Tank Automatic Grease Interceptor (AGI). The AGI combines state-of-the-art technology with time-tested materials, making it the most reliable automatic grease recovery device (GRD) in the industry.

The purpose of this manual is to provide instructions on installation, operation, start-up, maintenance and troubleshooting of the AGI.

Before you begin

Carefully read and follow the instructions in this booklet. All plumbing installations must be performed according to state and/or local requirements. Federal, state and/or local codes may apply. Check with federal, state and local authority having jurisdiction (AHJ) prior to installation of an AGI.

The AGI should be installed in a controlled environment.

Enzyme-based cleaners are not recommended since their use seriously reduces FOG removal efficiency. A biodegradable, non-emulsifying detergent is recommended for use in cleaning and washing applications.

Locate the AGI in an area with sufficient access (top and side clearance) for routine maintenance.

The AGI is equipped with an integral flow control device. Optional external flow controls are available upon request.

Inlet piping should be installed with recommended pitch and diameter, limiting turns to minimize turbulence.

A second screen basket is recommended for single basket models, to ease maintenance without having to turn off the AGI or take it off-line.

IMPORTANT: **Do not modify AGI system in any way. Do not weld on the AGI.**

Effluent Notice **The effluent FOG concentration may exceed desired levels if the AGI is not properly installed, operated or maintained.**

General AGI Cleaning Notice **Over a period of time, grease and fine solids can build up on the walls and bottom of the AGI. It is recommended that any build-up be cleared out regularly. If improperly maintained, the AGI may malfunction.**

IMPORTANT: **An inspection and maintenance log should be kept and be available for ready reference.**

Installation

Typical Plumbing Installations

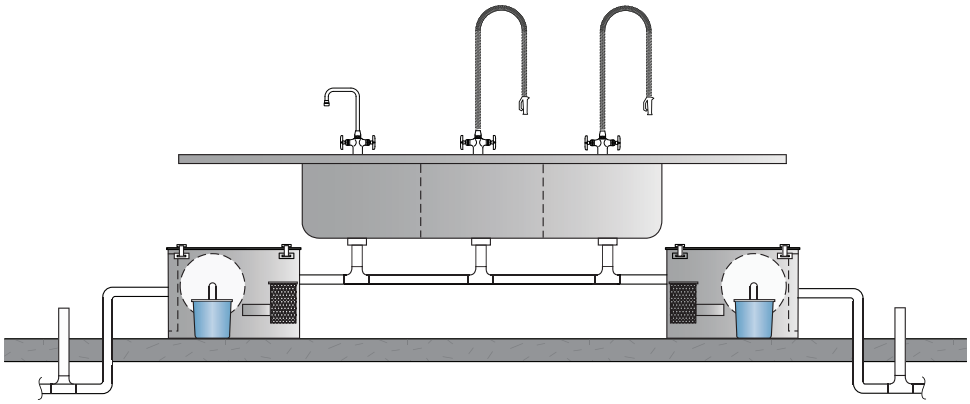
All installations are subject to local codes and regulations. The Highland Tank AGI is available as left-to-right or right-to-left flow direction depending on the location of the unit in relation to the fixture being serviced and available space for proper operation and maintenance.

An outlet vent or approved venting device is required on all installations.

Diagrams are for illustration only. Please refer to applicable AHJ requirements for direct or indirect connections.

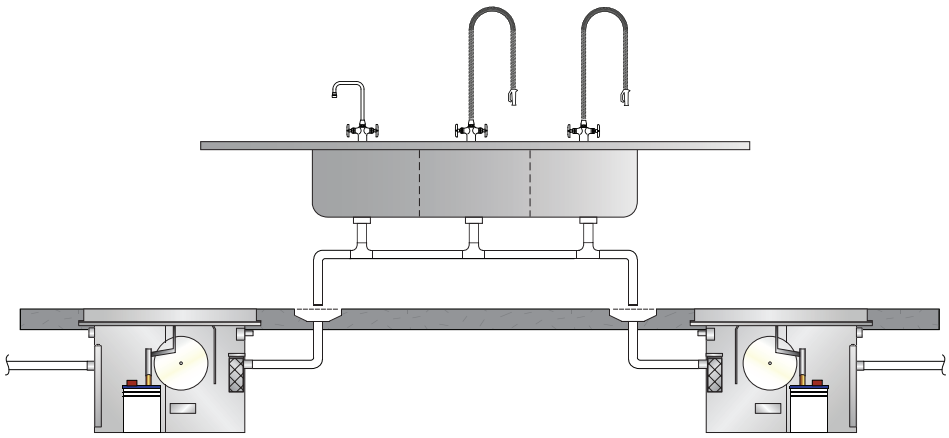
Above-floor AGI Installation

The GreaseStopper AGI is designed for above-floor installation under sink fixtures or other easily accessible area. The interceptor is designed for direct waste connections.



Flush-with-Floor AGI Installation

The Flush-with-Floor GreaseStopper is designed for direct burial or suspended installation via anchoring flanges and cradle. The interceptor is designed for indirect waste connections and/or multiple drainage fixtures. See Appendix C.



Pre-installation Inspection

Carefully remove the AGI covers to avoid damage to the gasket. Inspect the interior of the AGI to insure that all baffles, heating elements, skimming devices and internal piping are secure and have not been damaged during transport.

Placement

The AGI must be installed in a level position. It is recommended that the AGI be located in close proximity to the fixture(s) being serviced to reduce build-up. Check elevations at each end of the unit with a level, and adjust as necessary.

Piping

Piping flow direction is marked at factory as AGI “IN” and “OUT”.

Connect inlet and outlet piping (contractor supplied) to the provided no-hub connections with a code-approved coupling device. Keep piping as straight as possible and utilize sweeps and gradual change in directions.

Inlet and outlet piping must be sloped according to local codes (1/4 inch per foot) to maintain proper gravity flow in and out of the AGI.

IMPORTANT:

The Highland Tank AGI has an internal deep trap seal.

Install a vent after the unit discharge per local and state plumbing/building code.

Electrical Instructions

Standard electrical requirements for all AGI models 15 through 100 on-floor and all Flush-with-Floor models is 120 VAC, single phase, 20 amp.

NOTE: AGI models 150, 200, 250, 300, 400, 600 and 800 are project specific. Please contact factory for power requirements on optional pump applications.

IMPORTANT:

Follow all local and state electrical and safety codes, the National Electrical Code (NEC) and the Occupational Safety Health Act (OSHA).

CAUTION:

Disconnect power before installing or servicing.

UNIT MUST BE PLUGGED INTO A GFI PROTECTED POWER SOURCE.

The Highland Tank AGI is pre-wired at the factory to include one 24-hour digital timer control panel. The timer control device is set by you to operate daily, based on the size (GPM rating) of the unit. The digital timer control device operates the disc skimmer(s) and immersion heater(s). See Appendix A.

Mount the NEMA 3R digital control device (supplied) onto wall. The power cord (supplied) from the digital control device plugs into a properly grounded 3-prong, 120VAC, 20 amp circuit. Power to the unit is indicated by the GREEN light mounted on the digital timer control panel.

Note: The GREEN light indicates that there is power to the unit, not that the unit is in operational mode.

Start-Up Warnings

CAUTION:

Electrical equipment, connections and wiring must be protected from submergence in water and infiltration of water at all times.

You must be certain that final state of wiring is in compliance with all applicable electrical and fire codes for location and intended service.

Filling the Interceptor

Procedure to fill AGI is as follows:

1. Remove top cover and observe filling of interceptor with clean, fresh water via fixtures.
2. Interceptor is full when water flows through the outlet.
3. After filling the interceptor, verify water flow as follows:
   a. Allow water to flow through sink drain leading to unit inlet.
   b. Check outlet pipe to make sure water is passing through the unit and that no blockage or leaks exist.
4. Check inlet pipe and sink drain for any water backup.

Operation

IMPORTANT:

The AGI unit MUST be full of water to operate.

The AGI is designed for gravity separation of fats, oils and grease (FOG) along with food scraps and solids from wastewater discharged from institutional and commercial kitchens. The interceptor removes grease automatically, collecting it neatly in an adjacent container from which it can be disposed and recycled with other grease by a rendering firm.

The AGI unit is usually connected to the drain lines between the pot washing sink, pre-rinse station (prior to the dishwasher) sink, and the sewer drain. AGI models 15-100 can be installed under a sink or other limited space. Daily screen basket maintenance is accomplished via the hinged and latched top cover (see Daily Maintenance for more information).

When greasy water enters the unit, it flows through the screen basket and strikes the inlet baffle. This slows the water velocity, keeping it from disturbing the grease in the retention area. As the water enters the retention area, the grease is separated by gravity flotation.

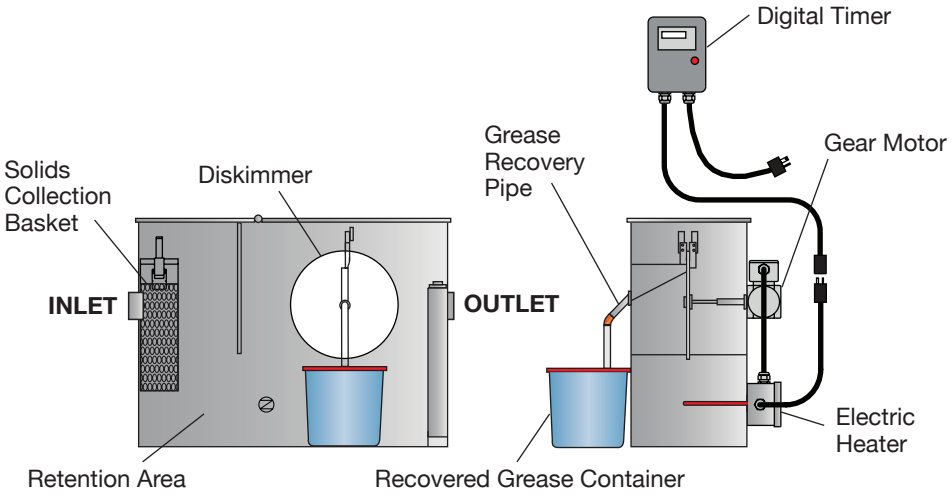
Operation continued

Since grease is lighter than water, it floats and remains in the retention area between the two baffles. The Diskimmer skims the liquefied grease off the top surface of the water.

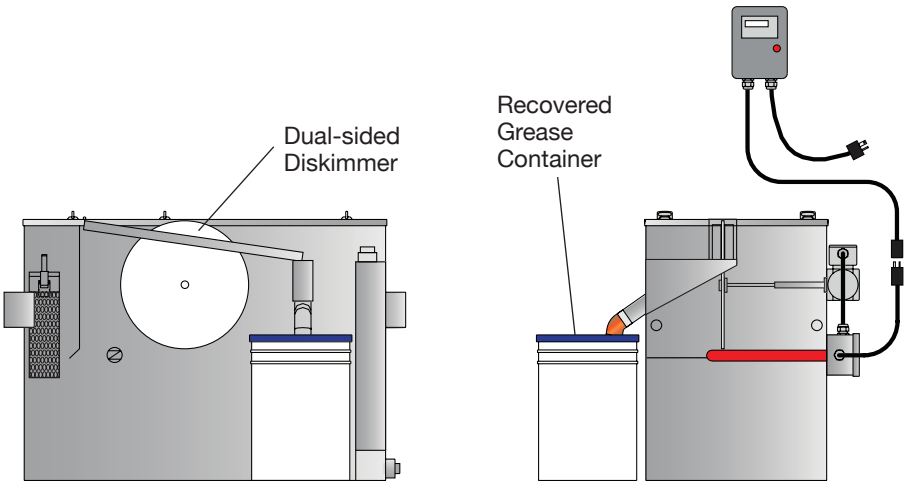
The Diskimmer is an electrically powered grease-skimming device, which operates on a time or event-controlled basis. The oleophilic plastic disc rotates and causes the grease to adhere to it where the disc enters the water. As the disk rotates, the grease is carried with it until it passes between the scraper blades. The skimmed grease is scraped from the disk surface, directed into a trough and drained via a conduit from the interceptor into the disposal container. Clean water flows under the discharge baffle and out of the AGI to the sewer drain. If properly sized and maintained, the AGI is capable of reducing the flotable FOG content in the discharge wastewater to 100 mg/l or less.

The AGI is fitted with thermostatically controlled electric immersion heaters for elevating the temperature in the interceptor to maintain the contained grease in a liquid state for skimming purposes. The unit is also fitted with a 120 volt/60 hertz gear motor to operate the Diskimmer and one 24-hour digital clock timer to control the system.

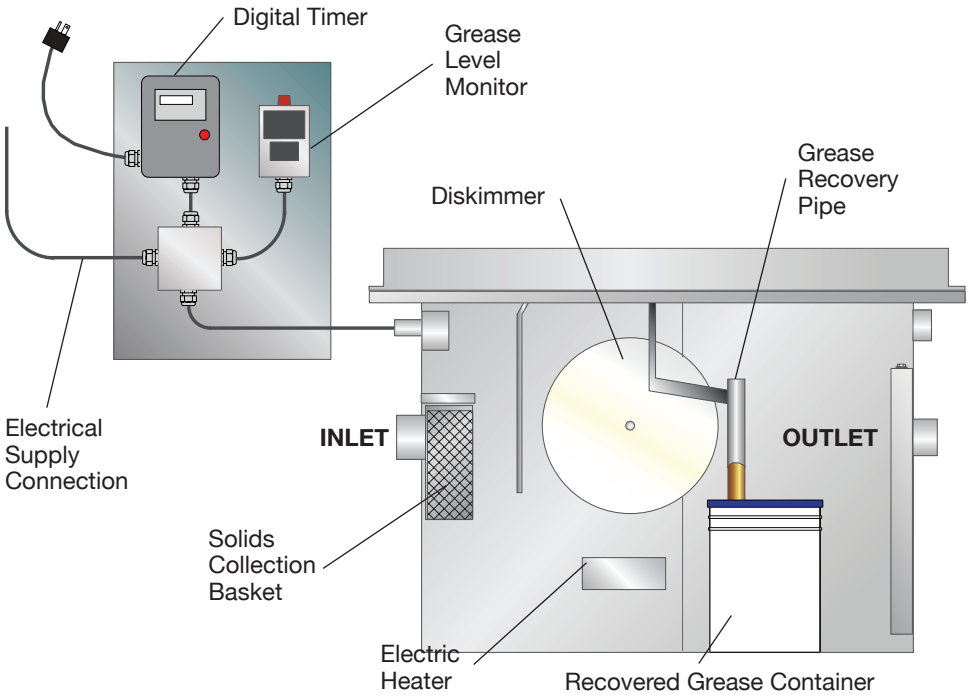
GreaseStopper AGI 15, 20, 25



GreaseStopper AGI 30, 35, 50, 75, 100



Flush-With-Floor GreaseStopper® AGI 20, 25, 30, 35, 50, 75 & 100



Mechanical Sequence of Operation

One (1) 24-hour digital clock timer is supplied to control the AGI. The clock timer must be set by you onsite based on the Food Service Establishment (FSE) and Best Management Practices (BMPs). The recommended run time is 60 minutes daily, and adjust accordingly.

IMPORTANT:

For best results, operating temperature should be between 90-110 degrees. The thermostat was set at the factory. Some applications may require adjustments. (See heater manual to adjust temperature.)

Digital Timer Operation

See Appendix A for complete details for wiring and timer settings.

VERY IMPORTANT:

In case of power failure, the timer has an internal battery that is designed to maintain clock time and retain operating presets (NOTE: Periodically check internal battery to ensure it is not dead).

If the digital control device needs programming, please refer to Appendix B instructions.

BMPs vary with each FSE. We recommend a minimum of 60 minutes daily and adjust accordingly.

Maintenance Optimum Performance

The AGI is designed for long-term, trouble-free operation, but daily maintenance, in addition to keeping the AGI unit free from grease and solids buildup, is required for optimum performance.

IMPORTANT:

An inspection and maintenance log should be available for ready reference.

Make sure that pot sinks have permanent strainers and that the AGI's screen baskets are always cleaned, undamaged and properly placed to avoid blockage.

Always disconnect power to AGI before cleaning or servicing unit.

To avoid blockage, never permit screen basket to become more than half full.

Daily Maintenance

The following maintenance procedures should be performed daily:

1. Screen basket should be checked and emptied, if required, throughout each day. Thoroughly clean and clear out all food particles, then put back in place. If a second screen basket is not available, this must be performed at off-peak hours, to prevent wastewater solids from entering the unit.
   a. To clean strainer, carefully remove unit cover.
   b. Tilt and lift strainer forward until strainer clears intake pipe. (On top-inlet type AGIs, slide strainer out, clean and replace).
   c. Remove strainer lid.
   d. Thoroughly clean strainer and replace.

2. Discharge tube/exterior grease container should be checked daily to verify grease flow without obstructions.

3. If grease is not flowing, do the following:
   a. Check timer to see if AGI unit is running.
   b. Remove large lid to see if there is grease in the AGI.
   c. Make sure disc is rotating.
   d. Make sure scraper blade assembly is in place on the disc.
   e. If disc is rotating, check sump pump discharge tube and scraper blade area for blockage.

4. If excess water appears in grease container, reset timers to run for a shorter period of time.

Annual or Semi-Annual Maintenance

Recommend total pump-out of automatic grease interceptor annually or semi-annually to remove any accumulation on bottom or walls of interceptor. Refill with fresh water and continue recommended operation (NOTE: Monitor usage. Total pump-out and removal of accumulated FOG may need performed more often).

General Maintenance

Remove cover and oil disc shaft bearings yearly. Inspect and replace gasket(s) on cover as necessary. Inspect and replace scraper blades as necessary (NOTE: Monitor usage. Replacement of worn or damaged parts may need performed more often).

Water Discharge

The plastic disc within the AGI unit is oleophilic (oil attracting). When revolving through only a thin sheen of grease, small droplets of water may adhere to disc and discharge into the container.

If the disc is picking up a lot of water, the skimmer motor is running too long. Reduce run time by reprogramming timer.
See Appendix B.

Waste Disposal

A certified waste disposal company should handle disposal of all waste products.

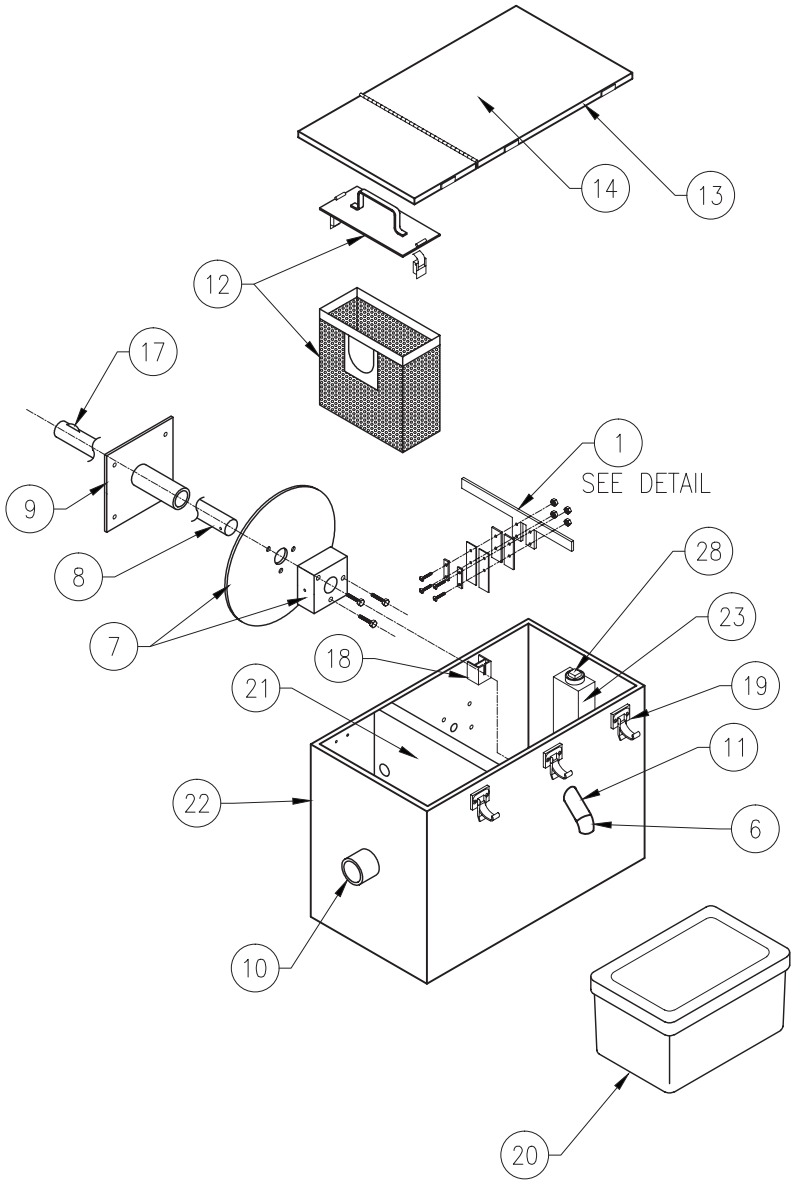
Troubleshooting

Operating problems can be caused by many factors. The following troubleshooting guide lists the most common problems along with their possible causes and suggested remedies. Specific questions can always be directed to Highland Tank at (814)-443-6800.

Problem	Possible Cause	Remedy
No evident grease in AGI discharge	Clog in sump discharge tube	Check tube and remove clog if necessary.
	Floating solids near disc in grease retention area	Check screen basket. Clean and replace screen basket before draining pot sinks. A second screen basket is recommended for single basket units.
Smoking grease or disc burn	Starting the AGI without water in the AGI	Fill AGI with clean, fresh water. See Start-up Instructions.
	Grease buildup extends down to heating element	Check for obstructions, remove accumulated FOG and refill with clean fresh water. See Start-up Instructions.
Excessive FOG in effluent	Flow rate exceeds rated capacity	Decrease flow rate.
	Chemical emulsification	Remove sources of harmful chemicals.
	Grease levels are greater than storage capacity causing separated grease to carry over	Remove grease.
	Excessive flow turbulence within AGI	Check for trash in screen basket or inlet piping.
System back-up	Excessive sludge or debris back-up	Clean out AGI.
	Closed inlet on effluent piping valve	Open piping valves completely.
	Trash	Clean catch basin, trench drains or interceptor.
High suspended solids content in effluent	Excessive sludge or debris build-up	Clean out AGI.

Parts
Repair and Replacement
All models AGI-15 —100

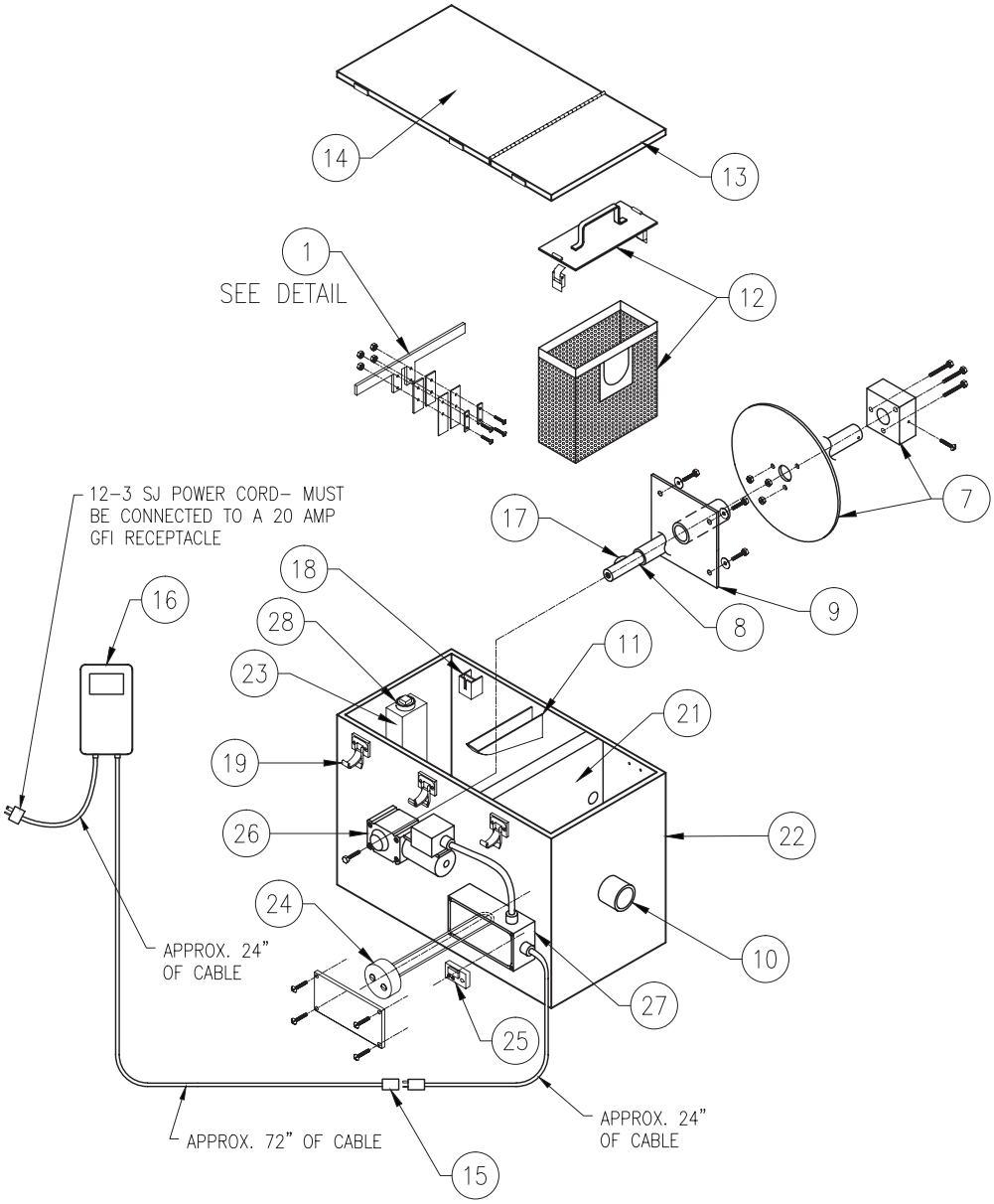
Front View



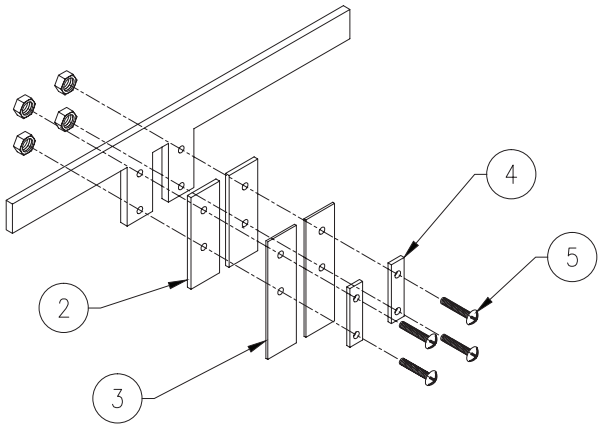
Parts Listing

1. Scraper Bar Assembly
2. Nylon Disc Guides (2 required)
3. Scraper Blades with Nuts & Bolts (2 required)
4. Stainless-steel Hold-down Plates (2 required)
5. Stainless-steel Nuts & Bolts (to attach scraper blades)
6. DWV Street 45º Copper Elbow
7. Plastic Skimmer Disc with Hub
8. 3/4 inch Diameter Solid Stainless-steel Drive Shaft
9. Stainless-steel Shaft Bracket & Flange Assembly with Gasket
10. SCH 40 Stainless-steel Pipe Stub (inlet & outlet)
11. Stainless-steel Grease Sump
12. Removable Stainless-steel Screen Basket with Lid & Latches
13. Closed-cell Foam Lid Gasket
14. Removable Stainless-steel Hinged Lid
15. Twist Lock Connector
16. Digital Timer with Control Box
17. Woodruff Key - Machined into Driveshaft
18. Scraper Bar Assembly Stainless-steel Support Brackets
19. Stainless-steel Lid Clamps
20. Plastic Grease Pail with Lid
21. Stainless-steel Underflow Baffle
22. Tank Shell - 304 Stainless-steel
23. Stainless-steel Deep Trap Seal
24. Immersion Heater (1500 Watt 115 Volt)
25. Thermostat with Bracket
26. Direct Drive Gear Motor
27. Junction Box with Gasket
28. Cleanout Fitting with Plug

Rear View



Scraper Bar Assembly



Automatic Grease Interceptor Accessories

Product Codes	Description
06-1159	Alarm – High Grease (For Grease Waste Container)
06-1008	Digital Timer with Control Box (Including Box Timer, Wiring & Light Indicator)
06-1096	Disc Guides (Pair)
06-1075	Disc with Hub (Models 15,20,25,25H,35)
06-1074	Disc with Hub (Models 25L)
06-1076	Disc with Hub (Models 50 – 800)
06-1186	Dolly: Used with 5 gallon bucket
06-1186	Dolly: Used with 55 gallon drum
06-1031	Drive Shafts: (Models 15 up to 100)
06-1077	Drive Shafts: (Models 150 up to 800)
06-1106	Flow Control – Cast Iron
06-1006	Gasket – Junction Box
06-1144	Gasket – Lid (Models 15, 20 ,25 ,20)
06-1145	Gasket – Lid (Models 35, 50, 75, 100)
06-1146	Gasket – Lid (Models 150 – 800)
06-1032	Gasket – Shaft Bracket
06-1025	Gasket – Sump Bracket
06-1094	Gearmotor – Direct Drive
06-1030	Gearmotor – Chain Driven
06-1147	Gearmotor Transistor
06-1175	Grease Waste Container – (5 QT Pail with Lid for Model 15)
06-1005	Grease Waste Container – (8 QT Pail with Lid for Models 20, 25)
06-1092	Grease Waste Container – (5 Gallon Bucket with Lid for Models AGI 50 – 100)
06-1062	Grease Waste Container – (55 Gallon Drum)
06-1105	Green Indicator Light (Used in digital timer box)
06-1027	Heating Element: (Model 15-50: 3500 Watt) Uses 1 Heater
06-1027	Heating Element (Model 75-100: 3500 Watt) Uses 2 Heaters
06-1101	Heating Element (Model 150-300: 4500 Watt) Uses 4 Heaters
06-1101	Heating Element (Model 400, 600: 4500 Watt) Uses 6 Heaters
06-1101	Heating Element (Model 800: 4500 Watt) Uses 8 Heaters
06-1124	Heater – Mat (For collection tank)
06-1065	Hold Downs (Pair) Stainless Steel
06-1059	Junction Box
02-0300	Label Kit (Includes all standard labels/stickers for AGIs)
06-1033	Latches – Basket Clamps
06-1004	Latches – Lid Clamps (AGI 15 – 30)
06-1056	Latches – Compression (AGI 35 and up)

Automatic Grease Interceptor Accessories

Product Codes	Description
06-1051	Scraper Bar Assembly: (Models 15-35)
06-1070	Scraper Bar Assembly: (Models 50 -100)
06-1071	Scraper Bar Assembly: (Models 150-800)
06-1002	Scraper Blades with Nuts & Bolts: (Models 15 – 75)
06-1072	Scraper Blades with Nuts & Bolts: (Models 100 – 800)
06-1009	Screen Basket (Includes Lid): (Models 15, 20, 25, 25H)
06-1087	Screen Basket (Includes Lid): (Models 25L)
06-1088	Screen Basket (Includes Lid): (Models 35, 50, 75, 100)
06-1089	Screen Basket (Includes Lid): (Models 150 – 600)
06-1090	Screen Basket (Includes Lid): (Model 800)
06-1148	Seal / Plug (Inside AGI Units)
06-1082	Shaft Bearing – Nylon
06-1034	Shaft Bracket Assembly: (Models 20, 25, 25H)
06-1078	Shaft Bracket Assembly: (Models 25L, 35, 50, 75, 100)
06-1079	Shaft Bracket Assembly: (Models 150 – 800)
06-1157	Shaft Bracket Plate
06-1125	Stand Coated Carbon Steel (Up to 36” high)
06-1021	Stand – Stainless Steel (Up to 36” high)
06-1035	Sumps (Models 150 & Up / Stainless Steel)
06-1109	Sump Tube (Plastic)
06-1103	Thermal Overload (Mounted in Timer Box)
06-1135	Thermocouple
06-1029	Thermostat with Bracket
06-1069	Twist Lock Connectors
06-1099	Vent Filter – Carbon (Used in 55 Gallon Drum)
06-1095	Woodruff Key (For Direct Drive Shafts)

Disc Replacement

Disc replacement as follows:

1. Remove 3/16 inch stainless stud #15 from hub and slide shaft out of tank about 2 inches.
2. Remove disc and replace with new disc.

Scraper Blade Replacement

Scraper blade replacement as follows:

1. Remove large lid.
2. Lift scraper blade assembly from tank (#1 on Parts Diagram).
3. Remove 6-32 flat head screws (#5) and scraper blade hold downs (#4) to replace scraper blades (#3).
4. Straddle scraper blades over disc.

IMPORTANT:

Keep scraper blades in proper position.

APPENDIX A

Electronic 1-Circuit 24-Hour Time Switch

With 100-Hour Backup

MODELS ET2105C, ET2105CR, ET2105CP
Installation and Setup Instructions

⚠ WARNING ***Risk of Fire or Electric Shock***

- Disconnect power at the circuit breaker(s) or disconnect switch(es) before installing or servicing.
- More than one circuit breaker or disconnect switch may be required to de-energize the equipment before servicing.
- For plastic enclosures, bonding between conduit connections is not automatic and must be provided as part of the installation.
- Installation and/or wiring must be in accordance with National and Local Electrical Code requirements.
- Use #14-#8 AWG wires, rated at least 105°C - COPPER conductors ONLY.
- If the power disconnect point is out of sight, lock it in the OFF position and tag it to prevent unexpected application power.
- Make sure there is no wire insulation under the terminal plate on the time switch connector. Firmly tighten terminal screws.
- For outdoor locations or wet locations (rain-tight), conduit hubs that comply with requirements of the UL514B (standard for fitting conduit and outlet boxes) are to be used.
- Do not remove insulator that is covering terminals.
- Do NOT exceed maximum current carrying capacity.
- KEEP DOOR CLOSED AT ALL TIMES when not servicing.

NOTICE

- Do NOT touch circuit board components, contact can create a static discharge, which can damage these electronic components.

Description

This document explains the setup and configuration of the Intermatic ET2105 1-Circuit Electronic 24-Hour Time Switch. The ET2105 time switch automatically switches loads according to the entered *daily* schedule. The time switch can support up to 48 fixed ON and 48 fixed OFF events (96 total).

The time switch features an LCD and panel-mounted control buttons to set, review, and monitor the time switch functions, including setting date and time, schedule creation, enabling or disabling Daylight Saving Time (DST) and configuring DST switchover dates.

Follow these instructions to complete the installation and programming of the ET2105 time switch.

Shown in indoor/outdoor lockable metal enclosure

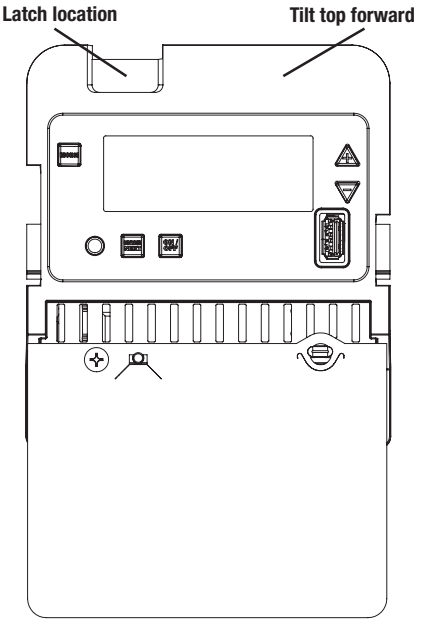
Federal Communications Commission (FCC) Notice for ET2000 Series Time Switches

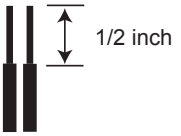
This device complies with part 15 of the FCC rules. Operation of this device is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) This device must accept any interference, including interference that may cause undesired operation. This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses and radiates radio frequency energy and, if not installed and used in accordance with instructions, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference that requires the user to correct at his or her own expense.

Installation

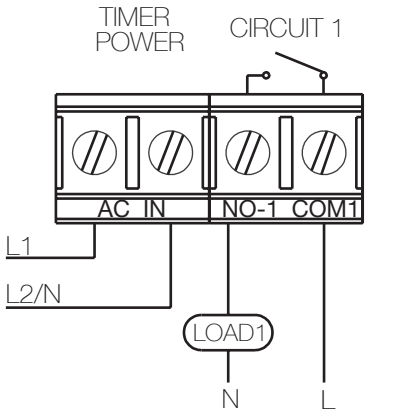
Follow these instructions to install the time switch.

1. Open the time switch enclosure door.
2. Remove and retain the screw that secures the plastic insulator.
3. Lift the left side of the plastic insulator and pivot away to expose the terminal strip.
4. Press the latch at the top of the enclosure and pull out the mechanism from the enclosure.
5. Choose and remove the selected knockout(s) from the enclosure.
   NOTE: There are five 1/2 inch to 3/4 inch combination knockouts available. There are two on the bottom of the enclosure, one on each side, and one on the rear. If a 3/4 inch knockout is needed, remove the 1/2 inch knockout first, then the 3/4 knockout.
6. Place the enclosure in the desired location providing space for the enclosure door to swing open fully.
7. Securely mount enclosure using provided mounting holes.
8. Use appropriately rated fittings for the installation.
9. Snap the mechanism back into the enclosure.
10. Strip 1/2 inch off the supply and load wires. Use AWG #14-#8 copper conductors rated at least 105°C.
11. Connect the wires to the proper terminals on the time switch and tighten the screws firmly (See wiring diagrams).
12. Connect ground wire to grounding terminal at the bottom of metal enclosures.
13. Return the insulator to its original position and replace the screw.
14. Close enclosure door.
15. Apply power to the time switch.





Wiring Diagram



OUTPUT CONFIGURATION: IND
(120/277 VAC LOAD)

Initial Setup

The following sections provide instructions for the initial setup of the time switch.

Programming Overview

The steps to program the time switch include setting the current date, time, fixed events, DST, and holiday events, setting the time switch's operation to AUTO mode, ENERGY SAVER mode or MANUAL mode (only MANUAL mode will appear if there are no scheduled events) and read or write an event schedule from a USB memory stick.

NOTE: If the time switch is left inactive for five minutes in a programming mode, it will return to the AUTO mode screen (**AUTO** icon turned on). If no scheduled events are programmed, the time switch will return to MANUAL mode. If the date has not yet been entered, the time switch will go to the Enter Date Mode.

Setting Date

Follow this procedure below to set the date and time in the time switch.

NOTE: If necessary, hold + or - to scroll through the digits rapidly.

1. Press MODE to scroll through the mode selections until SET and DATE icons appear at the top of the display. The month flashes.
2. Press + or - to select the current month and then press ENTER/NEXT. The day of the month flashes.
3. Press + or - to select the current day of the month, and then press ENTER/NEXT. The year flashes.
4. Press + or - to enter the current year, and press ENTER/NEXT. The month will flash again.
5. Press MODE to move to the next mode selection.

Setting Time

Follow the procedure below to set the time in the time switch.

NOTE: If necessary, hold + or - to scroll through the digits rapidly.

1. Press MODE to advance to the Set Clock mode selection if this selection is not already active. The **SET** and **TIME** icons appear on the display and a flashing 12:00 AM appears (if clock has not been set).
2. Press + or - to select the current time. ***NOTE:*** Seconds can be set to 00 by pressing ENTER/NEXT.
3. Press MODE to save the time and move to the Enable Daylight Saving Time mode selection.

   NOTE: If the time switch programming data is to be read from a USB memory stick, refer to the "Read Time Switch Program Data…" section in these instructions.

Enable/Disable Daylight Saving Time and Setting Daylight Saving Time Rule

Configure the time switch to automatically adjust for Daylight Saving Time (DST). If DST does not apply to your region, disable the option as directed in this procedure. Follow this procedure to enable/disable the Daylight Saving Time feature, and if applicable, set the DST rule.

1. Press MODE to advance to the Set DST mode selection if this selection is not already active. The **SET** and **DST** icons appear on the display.
2. Press + to display ON (enable DST) or press – to display OFF (disable DST) and then press ENTER/NEXT to save.

If DST is	**Then**
Enabled	Go to step 3.
Disabled	Press MODE to save and exit. The procedure is complete.

3. Press + or - to scroll to the desired DST rules for your area.

   NOTE: The DST rules are US2007 (US rules), MX1986 (Mexico rules), and CUSTOM (user-defined start/end dates).

If you select	**Then**
US2007 or MX1986	Go to step 8. ***NOTE:*** To view the start and end dates for a DST rule, press ENTER/NEXT to scroll through the dates and then press MODE.
Custom	Press ENTER/NEXT. The screen displays a flashing **MAR** and **2ND**. Go to step 4.

4. Press + or - to select a starting month for customized DST and press ENTER/NEXT.
5. Press + or - to select a starting week (1ST, 2ND, 3RD, 4TH, or LST) and press ENTER/NEXT.

   NOTE: DST changes at 2:00 A.M. on Sunday of the user-configured starting and ending weeks. Select LST for the fifth Sunday of a month.
6. Press + or - to select an ending month and press ENTER/NEXT.
7. Press + or - to select an ending week and press ENTER/NEXT.
8. Press MODE to save the DST rules and move to the next mode selection.

Setting Fixed Timed Events

Access the Fixed ON/OFF screen to set fixed switching times. Odd-numbered events are for ON switching and even-numbered events are for OFF switching. Follow these steps to set fixed time events (if no fixed events need to be set press MODE to move to the next mode selection):

1. Press MODE to advance until **SET FIXED ON/OFF EVENTS** and **ON@** icons appear on the display (if this selection is not already active). The Event Number and **LOAD** icon are also displayed. Press ENTER/NEXT if this fixed on event is not needed, go to step 9.
2. If an event is not set the time display will show - - - -.
3. Press + or - to set the time for the fixed event to occur.
4. Press ENTER/NEXT to save.
5. The Event Number increments and the **SET FIXED ON/OFF EVENTS** and **OFF@** icons are displayed. Press ENTER/NEXT if this fixed off event is not needed, go to step 9.
6. If an event is not set the time display will show - - - -.
7. Press + or - to set the time for the fixed event to occur.
8. Press ENTER/NEXT to save.
9. The Event Number increments and the **SET FIXED ON/OFF EVENTS** and **ON@** icons are displayed. Press ENTER/NEXT if this fixed off event is not needed.

If	Then
Another fixed event needs to be set	Return to step 2.
All the events are set	Press MODE to save and exit. The procedure is complete.

Setting Holidays

There are 50 Holiday blocks that can be programmed along with a single schedule for each block. For each block there will be a start date and an end date. Within each block one scheduled “on” event and one “off” event can be programmed. Holidays are recognized by an H on the display. During the dates chosen, the relays will remain in the “OFF” state and HOLIdy will show on the display. **NOTE:** During holiday blocks only programmed holiday events will trigger relay operations.

To program holiday blocks follow these guidelines:

1. Press MODE to advance until the **SET, DATE and ON@** icons appear on the display if this selection is not already active. A holiday Number is also displayed on the right side of the display.
2. The time display will flash - - - - and also show 1H.
3. Press the + or – buttons to choose the month that the holiday will start.
4. Press ENTER/NEXT and the day of the month, the 1, will flash.
5. Press the + or – buttons to choose the day that the holiday will start.
6. Press ENTER/NEXT and the **OFF@** icon is displayed.
7. The time display will flash - - - - and also show 1H.
8. Press the + or – buttons to choose the month that the holiday will end.
9. Press the ENTER/NEXT and the day of the month, the 1, will flash.
10. Press the + or – buttons to choose the day that the holiday will end.
11. Press ENTER/NEXT and the **SET ON@ ON/OFF EVENTS** icons are displayed. (Press ENTER/NEXT twice to skip setting an event during the holiday period in which case the circuit will remain off.)
12. The time display shows - - - - and event number 1 is also displayed on the right side of the display.
13. Press the + or – buttons to set the time for this holiday event to start.
14. Press ENTER/NEXT and the **OFF@** icon is displayed.
15. The time display shows - - - - and event number 2 is also displayed on the right side of the display.
16. Press the + or – buttons to set the time for this holiday event to end.
17. Press ENTER/NEXT and the **SET, DATE and ON@** icons appear on the display. The next holiday number is displayed on the right side of the display.

If	Then
Another holiday period needs to be set	Return to step 2.
All the events are set	Press MODE to save and exit. The procedure is complete.

Example: July 4th would have a start date of Jul 4 and an end date of Jul 5. At 12:00 AM on July 4th the circuit will be turned to the OFF state. At 12:00 AM on July 5th the circuit will reconcile and will be turned to the correct state of operation.

Setting Operating Mode

The time switch can be set to one of three operating modes: AUTO (default setting), ENERGY SAVER or MANUAL. Once operating mode is selected the time switch setup is complete.

NOTE: If no scheduled events are programmed, only MANUAL mode is available.

In AUTO mode, the time switch follows the user-programmed events and the circuit turns ON and OFF at the programmed time(s).

- To place in AUTO mode, press MODE and advance until the **AUTO** icon appears on the display.
- In AUTO mode, pressing an ON/OFF button temporarily overrides the current state of the circuit. The time switch returns to the normal schedule at the next programmed event.

In ENERGY SAVER mode the time switch operates similarly to AUTO mode with the following exceptions:

- The ON/OFF buttons manually activate the circuit for only a 2-hour period.
- When a 2-hour period is active, pressing ON/OFF extends the active period by 2 hours.
- Pressing and holding (for 3 seconds) the ON/OFF button will turn OFF the circuit.

For ENERGY SAVER mode, press the MODE button until the **AUTO** icon on the display flashes.

In MANUAL mode the time switch does not follow any programmed events and only activates the circuit when the ON/OFF button is pressed.

- For MANUAL mode, press the MODE button until the **MANUAL** icon appears on the display.

Deleting (Clearing) an Event

Fixed events can be deleted from the time switch. If you need to delete an event, follow this procedure.

1. If necessary, press MODE to scroll through the different mode selections until SET FIXED ON/OFF EVENTS appear on the display.
2. Press ENTER/NEXT as necessary to scroll through the scheduled events until you see the event you want to delete.
3. Press + and – **at the same time** until the display shows --:-- --. This indicates the event is erased.
4. If necessary, press ENTER/NEXT to scroll through the other configured events.
5. Press MODE to save the changes and exit.

Clearing Time Switch Memory

During a “Clear Time Switch Memory” operation, the time switch resets all programmed settings to their factory default value. The following occurs:

- After a brief period of time the time switch model number appears, followed by the USB Boot Loader version, EE Boot Loader version, the firmware revision and finally the Reset Reason Code.
- MEMCLR is displayed followed by DONE when the operation is completed.

To perform a “Clear Time Switch Memory” operation do the following:

1. Press and hold ENTER/NEXT.
2. While pressing and holding ENTER/NEXT, press and release the RESET (round) button. Do not release ENTER/NEXT.
3. Continue to press and hold ENTER/NEXT until **MEM CLEAR** then **DONE** briefly appears.

Writing Time Switch Program Data to a USB Memory Stick

The time switch has the capability to copy its programmed data (event schedules, holidays, output configuration, DST on/off setting, DST rule setting and geographical location) to a USB memory stick. Follow these steps to transfer all programming from the time switch to a USB memory stick:

1. Press MODE to advance until *wr USb* is displayed.
2. Press ENTER and *insUSb* is displayed.
3. Insert a USB memory stick into the USB port on the front face of the time switch.
4. *SCHEdL 01* is displayed. Press + or - to increment/decrement the schedule number on the display (01-99).
5. When the desired number is displayed, press ENTER and this will write the data file to the USB memory stick. The file name will be *SCHEDLxx.TXT* where xx is the schedule number selected in the previous step.
6. After the file is written *REMOVE* is shown on the display.
7. Remove the USB memory stick and the time switch will advance to the next mode selection. If all procedures are completed, press MODE repeatedly until back to the operating mode selection (AUTO, ENERGY SAVER, MANUAL).

Reading Time Switch Program Data from a USB Memory Stick

The time switch has the capability to read program data (event schedules, holidays, output configuration, DST on/off setting, DST rule setting and geographical location) from a USB memory stick. Follow these steps to transfer all programming from a USB memory stick to the time switch:

1. Press MODE to advance until *rd USb* is displayed.
2. Insert a USB memory stick containing the desired data file into the USB port on the front face of the time switch.
3. Press ENTER and *insUSb* is briefly displayed.
4. *SCHEdL.xx* is displayed where xx is the first data file number found on the USB memory stick.
5. Press + or - to scroll through the data files on the USB memory stick (if more than one file is stored on this stick).
6. When the desired number is displayed, press ENTER and the time switch will read the data file from the USB memory stick.
7. After the file is read into the time switch, *DONE* is briefly shown on the display followed by *REMOVE*.
8. Remove the USB memory stick and the time switch will advance to the next mode selection. If all procedures are completed, press MODE repeatedly until back to the operating mode selection (AUTO, ENERGY SAVER, MANUAL).

USB error codes

If a problem occurs when attempting to perform a USB read or write operation the time switch will show an error code on the display. Following is a description of the different error codes:

OPFILE Er	File could not be created on the USB memory stick (stick may be write protected or corrupted)
wrFILE Er	Program data could not be written to the USB memory stick (stick may be full)
oPFILE ER	File could not be opened for reading from the USB memory stick
rdFILE Er	File could not be read from the USB memory stick
MSDH Er	USB device is not a memory type device
FATFS Er	Fat file system error indicating the memory stick contains a data format that is incompatible with the time switch
DEVICE Er	USB memory stick is defective
shCrct Er	The power supply for USB port on the time switch is not functioning

Specifications

Input Voltage: 120-277 VAC, 60 Hz

Power Consumption: 3 W MAX

Switch Configuration: SPST x 1. See wiring diagrams in this manual.

Switch Ratings:

Rating	Load Type	Voltage	Frequency
30 A	Resistive	120-240 VAC	60 Hz
20 A	Resistive	28 VDC	–
30 A	Inductive	120-240 VAC	60 Hz
20 A	Magnetic Ballast	120-277 VAC	60 Hz
10 A	Electronic Ballast	120/277 VAC	60 Hz
5 A	Tungsten	120-277 VAC	60 Hz
1 HP	Motor	120 VAC	60 Hz
2 HP	Motor	240 VAC	60 Hz

Events: Time switch can support up to 48 fixed ON and 48 fixed OFF events.

Clock Backup: 100-hour Supercapacitor

Wire Size: AWG #14-#8

Minimum ON or OFF time: 1 minute

Maximum ON or OFF time: Indefinite

Shipping Weight: 2.5 lb. (1.1 kg)

Enclosures: Rainproof Type 3R indoor/outdoor lockable metal enclosure (ET2105CR), Type 1 indoor lockable metal enclosure (ET2105C), Rainproof Type 3R indoor/outdoor lockable plastic enclosure (ET2105CP)

Knockouts: Combination 1/2-3/4 in. size, 1 on rear and each side, 2 on bottom

If within the warranty period specified, this product fails due to a defect in material or workmanship, Intermatic Incorporated will repair or replace it, at its sole option, free of charge. This warranty is extended to the original household purchaser only and is not transferable. This warranty does not apply to: (a) damage to units caused by accident, dropping or abuse in handling, acts of God or any negligent use; (b) units which have been subject to unauthorized repair, opened, taken apart or otherwise modified; (c) units not used in accordance with instructions; (d) damages exceeding the cost of the product; (e) sealed lamps and/or lamp bulbs, LED's and batteries; (f) the finish on any portion of the product, such as surface and/or weathering, as this is considered normal wear and tear; (g) transit damage, initial installation costs, removal costs, or reinstallation costs.

INTERMATIC INCORPORATED WILL NOT BE LIABLE FOR INCIDENTAL OR CONSEQUENTIAL DAMAGES. SOME STATES DO NOT ALLOW THE EXCLUSION OR LIMITATION OF INCIDENTAL OR CONSEQUENTIAL DAMAGES, SO THE ABOVE LIMITATION OR EXCLUSION MAY NOT APPLY TO YOU. THIS WARRANTY IS IN LIEU OF ALL OTHER EXPRESS OR IMPLIED WARRANTIES. ALL IMPLIED WARRANTIES, INCLUDING THE WARRANTY OF MERCHANTABILITY AND THE WARRANTY OF FITNESS FOR A PARTICULAR PURPOSE, ARE HEREBY MODIFIED TO EXIST ONLY AS CONTAINED IN THIS LIMITED WARRANTY, AND SHALL BE OF THE SAME DURATION AS THE WARRANTY PERIOD STATED ABOVE. SOME STATES DO NOT ALLOW LIMITATIONS ON THE DURATION OF AN IMPLIED WARRANTY, SO THE ABOVE LIMITATION MAY NOT APPLY TO YOU.

This warranty service is available by either (a) returning the product to the dealer from whom the unit was purchased or (b) completing a warranty claim online at www.intermatic.com. This warranty is made by: Intermatic Incorporated, Customer Service 7777 Winn Rd., Spring Grove, Illinois 60081-9698. For warranty service go to: http://www.Intermatic.com or call 815-675-7000.

INTERMATIC INCORPORATED
7777 Winn Road
SPRING GROVE, ILLINOIS 60081-9698
www.intermatic.com

158--01678

GreaseStopper®
Maintenance Instructions

WARNINGS:

The electric heating element MUST be covered with water before operating unit.

The electric supply to the GreaseStopper MUST BE TURNED OFF before cleaning or performing any repair work.

GENERAL NOTE:

A few minutes a day of routine maintenance keeping the GreaseStopper® free from any build up of solids and grease will keep the unit running smoothly and problem free.

Required Daily Maintenance

1. Screen basket should be checked and emptied twice a day, thoroughly cleaned of all food particles and put back in place.

2. Grease should flow daily from the discharge tube into the grease container outside the tank.

3. If grease is not flowing, do the following:
   a. Check the timer to see if the GreaseStopper® is running.
   b. Remove large lid to see if there is grease in the GreaseStopper®.
   c. Make sure the disc is rotating.
   d. Make sure the scraper blade assembly is in place on the disc.
   e. If disc is rotating, check sump pump discharge tube and scraper blade area for blockage.

4. If excess water appears in grease container, reset timers to run for shorter period of time.

Required Weekly Maintenance

1. Remove large lid.

2. Turn on water spigots at pot sink and flush water through the GreaseStopper®. Stir the bottom of the tank while water is running, this will remove any silt or heavy particles that have settled to the bottom.

3. Shut off water from spigot.

4. Make sure clock timers are set and running.

5. Replace large lid.

6. If a large build up of solids collects on the bottom of the tank and can't be removed, the tank should be pumped out.

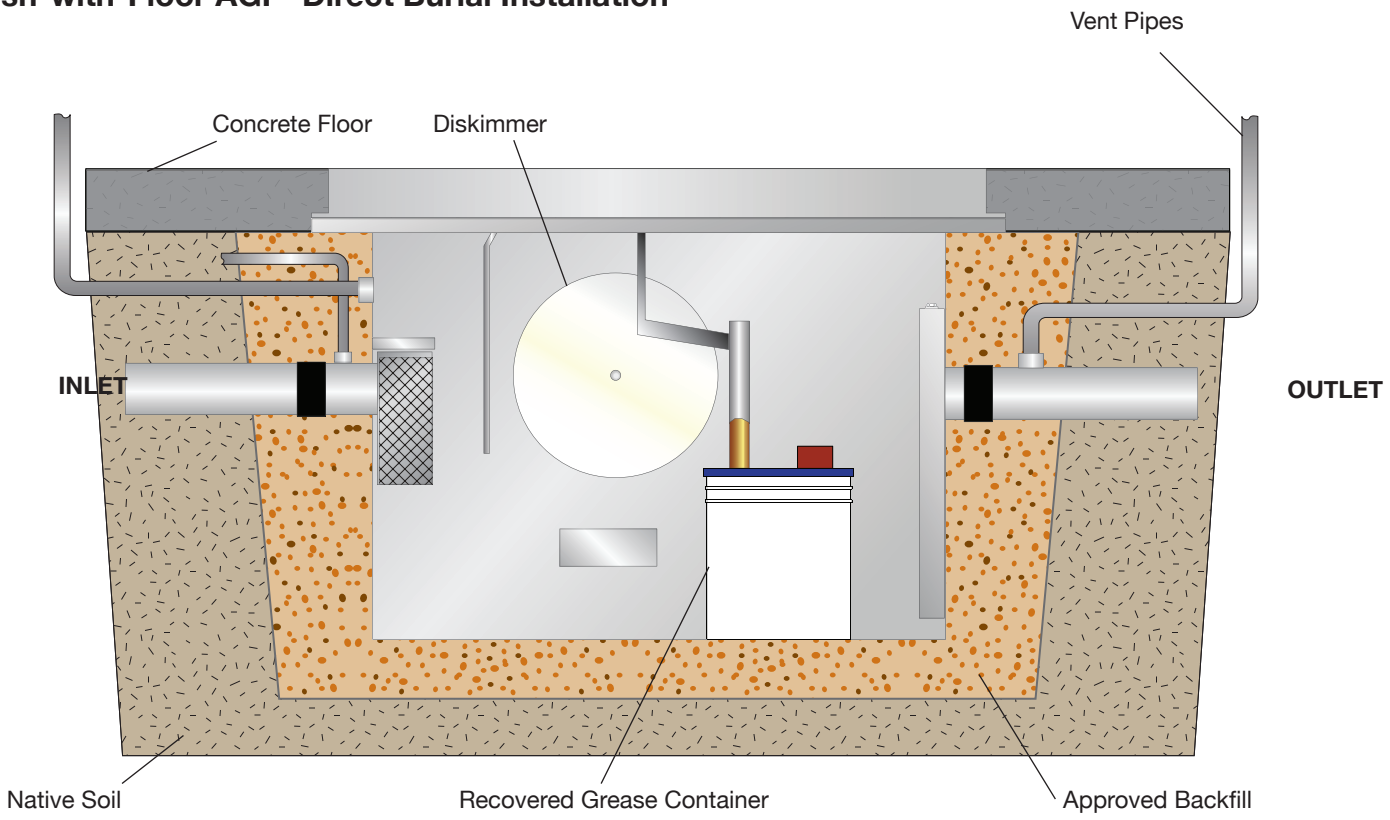
7. Make sure pot sink has strainers. This will help to keep the GreaseStopper® clean.

Highland Tank®
1510 Stoystown Road, Friedens, PA 15541
814.443.6800 • FAX 444.8662

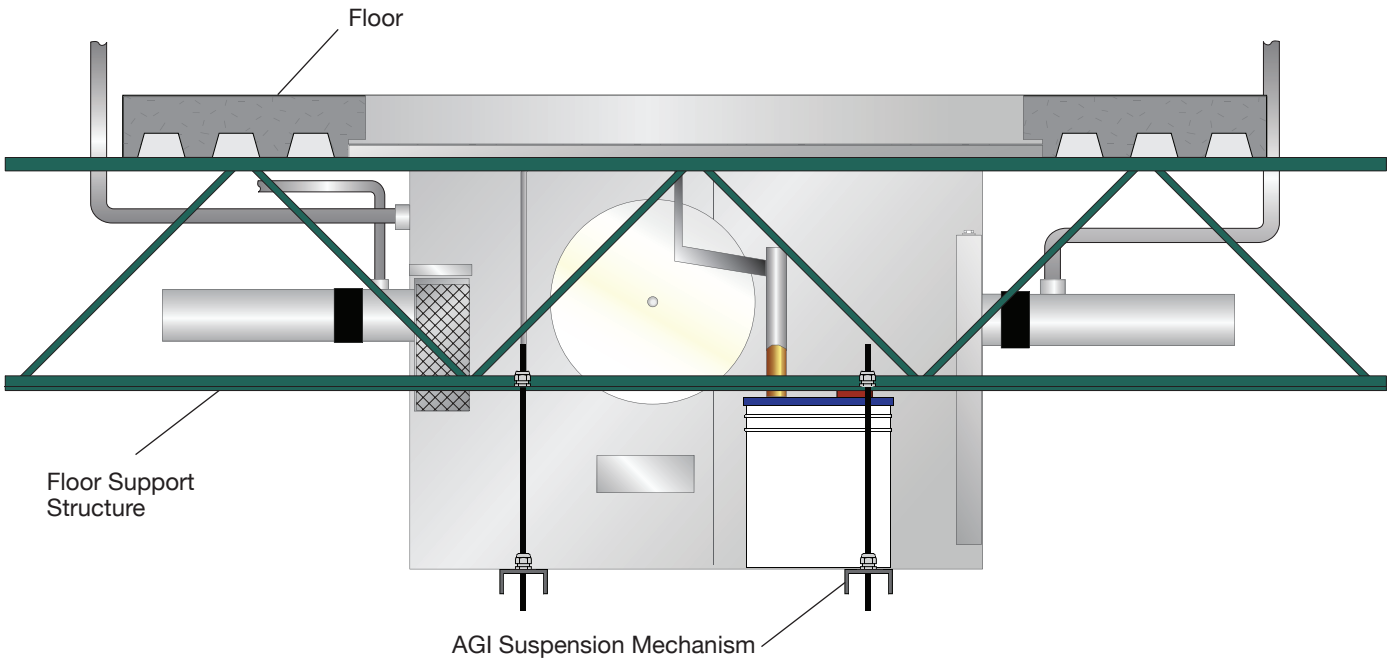
STOP GREASE AT THE SOURCE

Appendix C

Flush-with-Floor AGI - Direct Burial Installation

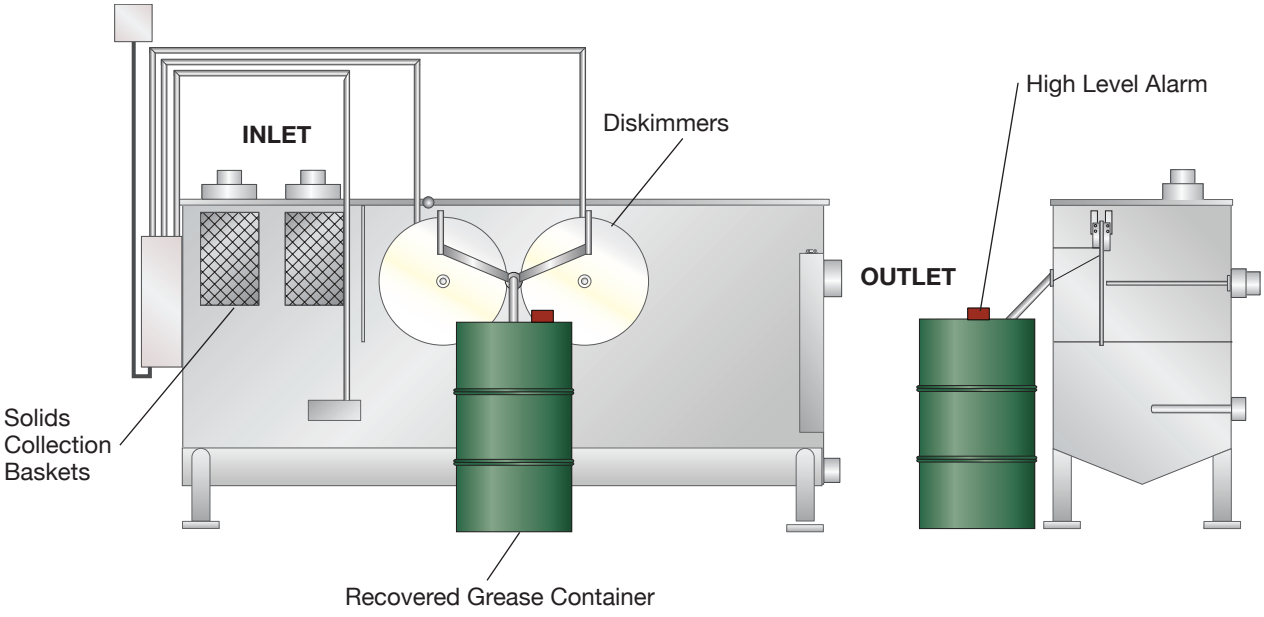


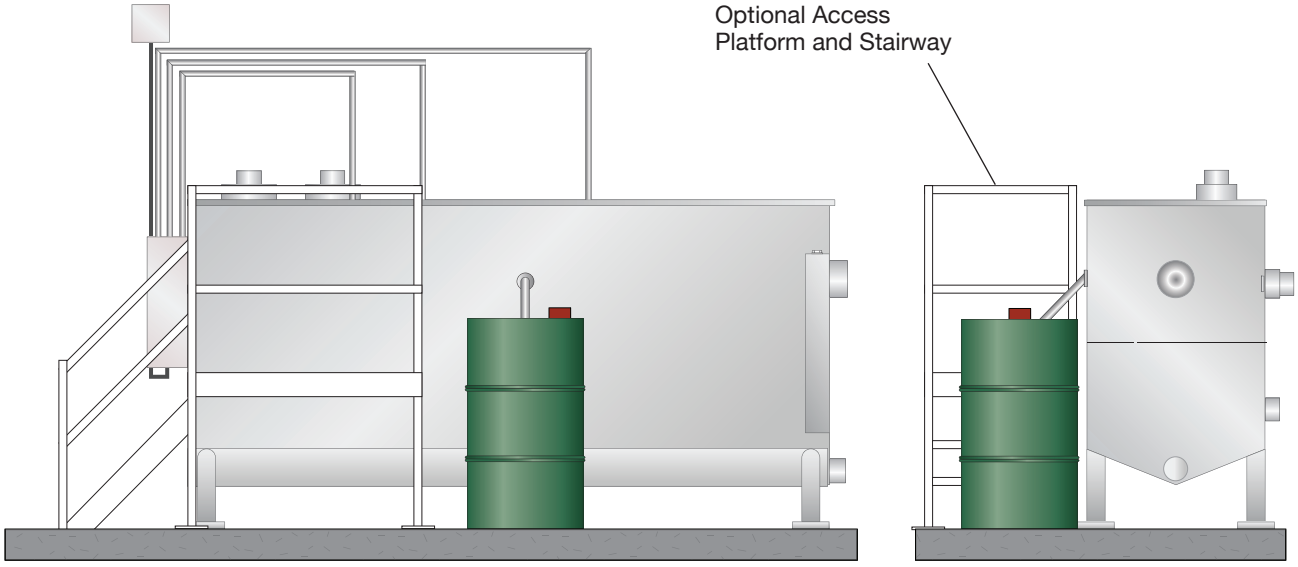
Flush-with-Floor AGI - Suspended Installation



Appendix D

Large AGI - Installation Drawing





Best Management Practices

- **NEVER empty waste from a deep fryer into a floor drain.**
- **Scrape or wipe FOG and other food residue from cookware, utensils, etc. before washing or placing in dish washing machine.**
- **Use paper towels to wipe down work areas.**
- **Use food grade paper to soak up FOG under fryer baskets.**
- **Use cat litter or similar material to absorb spills. Sweep up and dispose in trash.**
- **Collect and empty grill scrapings & fryer vat grease in grease recycling bin.**
- **Do not put food or liquid food, including dairy products, milk shake syrups, batters and gravies down the drain.**
- **Use detergents, not soap (soap contains oil).**
- **Use strainers designed for the sinks in your facility to capture as much of the solid material as possible.**
- **Use garbage grinders as sparingly as possible. Food particles that can pass through the grinder may be trapped in the grease collection tank and will require expensive maintenance.**
- **Food particles that do not get trapped will pass through to the sewer collection system, where they may cause a blockage, and/or may result in fees assessed to your facility.**

Following these simple guidelines along with having a correctly sized and properly functioning grease interceptor will reduce the amount of FOG discharged to the sewer system.

Grease Prevention Tips for Everyone

- **Scrape excess food into garbage can instead of using a garbage disposal.**
- **Wipe out pans with a paper towel before washing them to remove all the grease you can.**
- **Collect cooking grease in a used glass jar and discard into the garbage.**
- **Don't pour cooking grease, bacon grease, butter, or any other melted grease down the sink drain, even if you use hot water.**
- **Don't use chemicals to remove grease clogs. Chemicals damage the piping system and move the problem. It doesn't go away.**
- **Healthy, FAT FREE sewers can do the job they are designed to do if you do your part to keep them clean.**

Don't Trash Your Sewers!

Always

- **Put all solid and liquid food, including dairy products, milk shake syrups, batters and gravies into trash or recycling bin.**
- **Scrape food from plates and utensils into trash or recycling bin before washing or placing in dishwasher.**
- **Use sink basket strainers to collect food waste.**
- **Collect and empty grill scrapings & fryer vat grease in grease recycling container.**
- **Clean grease trap regularly (ask manager).**
- **Follow proper grease trap cleaning procedures (ask manager).**

Never

- **Put food or liquid food down the sink.**
- **Pour grease in the sink.**
- **Use sink when cleaning grease trap.**
- **Pour sanitary sewage or kitchen waste down your outside storm sewer.**

DON'T KNOW? • STOP! • ASK MANAGER

Grease Hauler Manifest

Food Service Establishment

Must be completed by qualified FSE Representative

Business Name: _____ Telephone: ( ) _____-_____

Address: _____ City: _____ State: _____ Zip: _____

Waste removed from: Grease Trap: Yes / No, Grit Trap: Yes / No, Septic Tank Yes / No

Other (Specify): _____

Waste tank or trap capacity: _____ gallons

I certify that the waste material removed from the above premises contains no hazardous materials.

FSE Representative Signature: _____

Print name: _____

Date and time serviced: _____

Transporter Information

Must be completed by transporter

Business Name: _____ Telephone: ( ) _____-_____

Address: _____ City: _____ State: _____ Zip: _____

Waste removed from: Grease Trap: Yes / No, Grit Trap: Yes / No, Septic Tank Yes / No

Other (Specify): _____

Vehicle tag number: _____ Vehicle capacity: _____ gallons Gallons removed: _____

I certify that the information provided above is correct. I am aware that falsification of this trip ticket may result in enforcement action by the appropriate jurisdiction.

Driver's Signature: _____

Print name: _____

Driver's license No.: _____ Date and time waste accepted: _____

Disposal Information

Must be completed by disposer

Business Name: _____ Telephone: ( ) _____-_____

Address: _____ City: _____ State: _____ Zip: _____

Waste disposal site: _____

Waste disposal method (describe): _____

_____

Facility permit No.: _____ Date and time waste accepted: _____

I certify that the disposal facility used is authorized to accept the above specified waste and that I have disposed of the waste in accordance with the requirements outlined in that authorization and in accordance with all applicable federal, state and local laws and regulations.

Site Operator's Signature: _____

Print name: _____

Highland Tank - GreaseStopper® Grease Interceptor Inspection and Maintenance Log - Serial # _____

Use a separate log sheet for each unit

Facility Name: _____

Address: _____ City: _____ State: _____ ZIP: _____

Contact Name: (Please print) _____ Phone ( ) _____-_____

GreaseStopper® Unit Details

Model No.: GS - _____ Flow rate: _____ (GPM) Static water: _____ (GAL) Grease holding capacity: _____ (LBS)

Location of grease interceptor: _____

(Example: Building 1, 2nd floor, under 2-compartment sink in food prep area.)

Service/Maintenance Provider

Company Name: _____ License No.: _____

Address: _____ City: _____ State: _____ ZIP: _____

Contact Name: (Please print) _____ Phone ( ) _____-_____

GreaseStopper® grease interceptor should be inspected on a regular schedule as determined by facility needs. Renderings from the grease interceptor must be recycled or disposed of properly by

AGI Maintenance Log

WEEK - MONTH - YEAR

Date ____/____/_____ Work performed by: _____

Action taken:_____

Volume removed: _____ (gal./lb. Disposal method: _____

Observations/comments: _____

Date ____/____/_____ Work performed by: _____

Action taken:_____

Volume removed: _____ (gal./lb. Disposal method: _____

Observations/comments: _____

Date ____/____/_____ Work performed by: _____

Action taken:_____

Volume removed: _____ (gal./lb. Disposal method: _____

Observations/comments: _____

Date ____/____/_____ Work performed by: _____

Action taken:_____

Volume removed: _____ (gal./lb. Disposal method: _____

Observations/comments: _____

Automatic Grease Interceptors

HT-2810

User Manual

Installation, Operation & Maintenance

www.highlandtank.com
gru@highlandtank.com

Highland Tank

MADE IN U. S. A.

Stoystown, PA
One Highland Rd .
Stoystown, PA 15563
(814) 893-5701

Manheim, PA
4535 Elizabethtown Rd.
Manheim, PA 17545
(717) 664-0600

Watervliet, NY
958 19th St.
Watervliet, NY 12189
(518) 273-0801

Greensboro, NC
2700 Patterson St.
Greensboro, NC 27407
(336) 218-0801

Friedens, PA
1510 Stoystown Rd.
Friedens, PA 15541
(814) 443-6800

Clarkston, MI
4701 White Lake Rd.
Clarkston, MI 48346
(248) 625-8700

Mancelona, MI
9517 Lake St.
Mancelona, MI 49659
(231) 587-8412