

# RV Owner's and Installation Manual

#### RV Coach Toilet Installation

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**Warning!** Read and understand the warnings listed in this document before you install, operate, or service this system. If you do not obey these warnings, there is a risk of property loss, injury, or electrocution. Do not make any changes to this unit as this could result in property damage, injury, or electrocution.

Thetford Corporation accepts no responsibility or liability for damage to equipment, injury, or death that may result from the system's improper installation, service, or operation. Thetford Corporation recommends that plumbing and electrical work be performed by a licensed tradesperson. Local permit and code compliance is required.

## Congratulations...

...on your purchase of Tecma, the finest RV toilet available. Please read this Manual completely to ensure satisfaction.

The Tecma Technical Support Team is committed to providing quality service and parts for your high-tech, RV toilet.

## **General Information**

Silence Plus models may be installed anywhere in the bathroom area. Openings at back and below toilet allow for both plumbing and electrical connection flexibility.

Overall dimension from the wall is 20 inches for Silence Plus. (See Dimensions.)

- Always use RVIA-RECOMMENDED CIRCUIT BREAKER/FUSE AND WIRE GAUGE.
- Always be sure unit's ELECTRICAL POWER is TURNED OFF before beginning work.
- IF WATER DOES NOT FLOW INTO TOILET DURING THE FIRST TWO OR THREE FLUSH CYCLES, it has been improperly installed or has malfunctioned. Discontinue use of toilet until installation has been corrected or repairs are made. Please review this manual's Installation section or refer to the Troubleshooting section.
- Use ONLY STAINLESS STEEL mounting hardware. DO NOT INSTALL WITHOUT PLASTIC MOUNTING HOLE INSERTS IN PLACE. Failure to properly mount toilet may result in toilet becoming loose or damaged.
- Only human waste and toilet paper should be put into the toilet. Never flush FOREIGN MATERIALS (e.g., paper towels, pre-moistened wipes, condoms, feminine hygiene products, dental floss, household garbage, etc.).

## **Required Tools**

- Flat Screw Driver
- Philips Screw Driver
- Adjustable Wrench

### Parts List

Please begin by checking to see that all parts/accessories were included in your product package. Refer to Fig. C.

- 1 Assembled Tecma Silence seat/cover toilet (12V/24V)
  - Flush Water Inlet
  - 5' Power Pigtail
  - 6" Power Pigtail
  - Flush Water Service Inlet Kit
  - Solenoid Valve
  - Discharge Pipe
  - Pump/Motor / Discharge Pipe
  - Nozzle Kit
  - Short Inlet Kit
  - 1 Wall switch and controller
  - 1 Wall switch bezel
- 4 Hex Head Closet Bolt Washers, Screws
- 4 Cap and Bushings
- Installation / Owner's Manual

### **Required Supplies & Materials**

#### **Plumbing Components**

- 1-1/2" straight coupling (as needed)
- 1-1/2" 90° coupling (as needed)

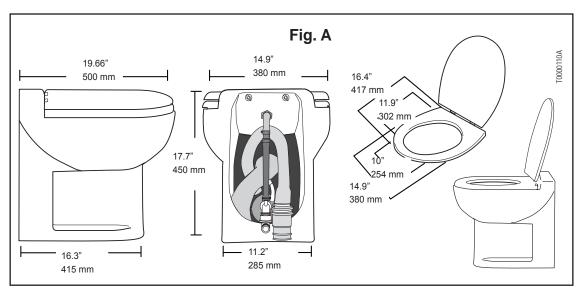
#### **Electrical Components**

- Wiring to toilet system power
- Wiring to Full Tank Sensor
- Wiring to Tank Mid-Level Sensor
- Wiring from electronic controller to water pump (raw water installations)
- Wiring Harness Connectors (Model Dependant)

#### Supplies

Silicone caulk (white or clear)

## Dimensions



## Fig. A

Silence Plus		
Weight	62 lbs.	
Height	18″	
Seat	15″	
Depth from wall	20"	
Footprint	11.2" x 16"	



**Note:** Ceramic base dimensions may vary slightly in size.

## Wiring Harness Connectors Required Included

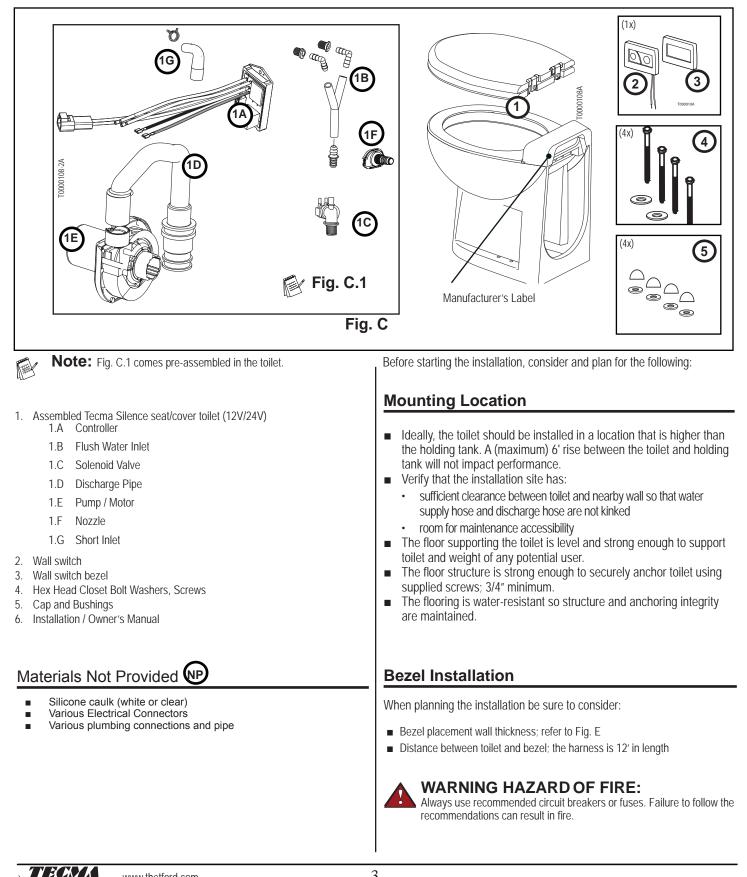
Sensor Wiring Harness (Ful	I Tank Sensor Only)	
Manufacturer Connector	Item/Description	Qty.
C Deutsch	Socket Contact, 0462-201-16141	2
	Plug, DT06-2S	1
	Wedge Lock, W2S	1
D Deutsch	Pins, 0460-202-16141	2
	Receptacle, DT04-2P	1
	Wedge Lock, W2P	1
Sensor Wiring Harness (Bo	th Full & Mid-Level Tank Sensor)	
C Deutsch	Socket Contact, 0462-201-16141	4
	Plug, DT06-2S	2
	Wedge Lock, W2S	2
D Deutsch	Pins, 0460-202-16141	4
	Receptacle, DT04-2P	2
	Wedge Lock, W2P	2
Power Harness		
F Deutsch	Pin Contact, 0460-204-08141	1
	Receptacle, DTHD04-1-8P	1
G Deutsch	Socket Contact, 0462-203-08141	1
	Plug Housing, DTHD06-1-8S	1

Fig. B



## Soft Close Seat

If equipped, this product comes with a mechanism that gently controls the closing speed of the cover, avoiding possible damage to the toilet or noise that could disturb a quest's sleep and comfort.



## Electrical System

	Wire Gaug	je Size Chart		
If Wire Gauge for distance from source* is:	0-20 feet	20-32 Feet	33-50 feet	Circuit Breaker
12 VOLTS - Install	10 Gauge	8 Gauge	6 Gauge	30 amp
24 VOLTS - Install	16 Gauge	14 Gauge	12 Gauge	30 amp
* Distance measured assumes power and ground wires				
* Distance measured assumes power and ground wires				



## **Vehicle Electrical Requirements**

Installation requirements:

- All circuits must follow RVIA standards.
- Wire gauge sizes must follow Wire Gauge Size Chart.
- Always use crimp-style connectors with Sealing provisions to avoid corrosion.
- Every toilet requires a 12-VDC/40-AMP dedicated circuit with 8-gauge wire and 40-AMP breaker or fuse between the main bus or battery and a terminal located near the toilet.

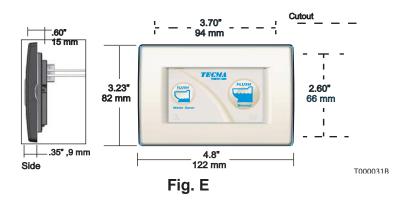


### WARNING HAZARD OF FIRE:

Always use recommended circuit breakers or fuses. Failure to follow the recommendations can result in fire.

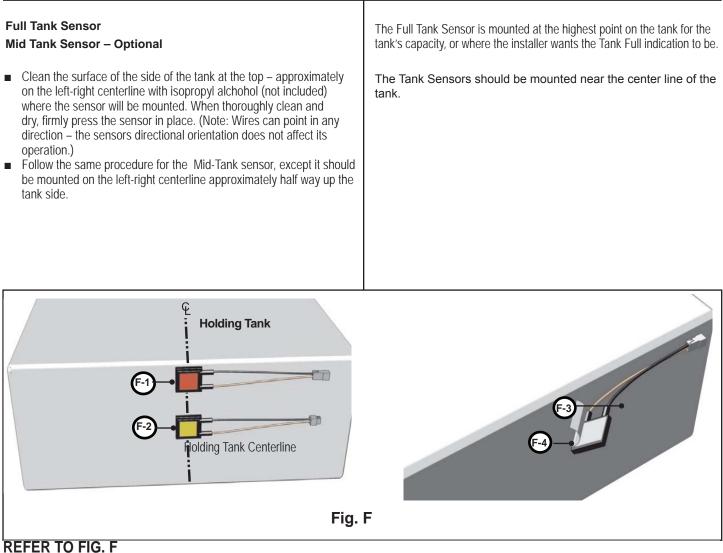
## Wall Switch & Wiring

Select wall switch location convenient to toilet. Cut hole 2- 5/8" x 3-3/4" and drill holes for mounting screws.





## Mount Tank Sensors



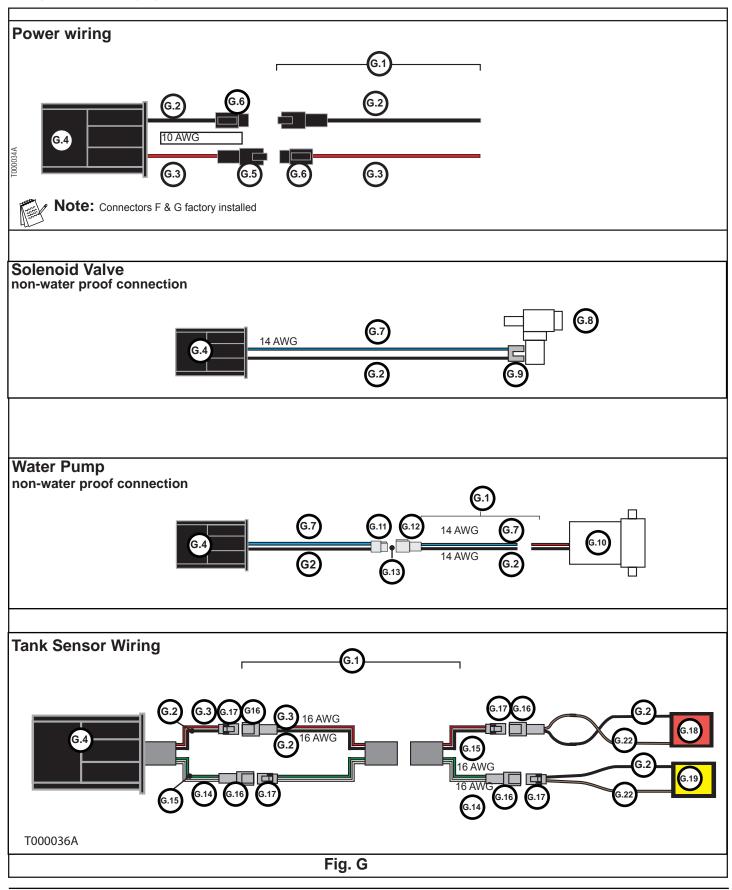
### NEFER TO FIG. F

- F.1 Tank FULL sensor
- F.2 Optional Mid Tank sensor
- F.3 The area for adhesion should be thoroughly cleaned with alcohol or equivalent, and dried, prior to mounting the sensor.
- F.4 The sensor has a removable cover over the pressure-sensitive adhesive pad.



## **Wiring Information**

See Fig. D for correct wire gauge and circuit breaker sizes.



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## **REFER TO FIG. G**

See Fig. D. for correct wire gauge and circuit breaker sizes

- G.1 Customer Supplied Wiring Parts
- G.2 Black
- G.3 Red
- G.4 Tecma Controller
- G.5 Pin Contact: 0460-204-08141 Receptacle: DTHD04-1-8P
- G.6 Socket Contact: 0462-203-08141 Plug Housing: DTHD06-1-8S
- G.7 Blue
- G.8 Solenoid Valve
- G.9 27139 (AMP)
- G.10 Water Pump
- G.11 Columbo 27131 (Installed)
- G.12 Parts included in Wiring Connection Kit
- G.13 Apply dielectric grease to wire terminals before terminals are installed in housings. Grease is included in the wiring connection kit.
- G.14 White
- G.15 Green
- G.16 Pins: 0460-202-16141, Plug DT04-2P, Wedge Lock W2P
- G.17 Socket Contact: 0462-201-16141, Plug DT06-2S, Wedge Lock W2S
- G.18 Full Tank Sensor
- G.19 Mid Tank Sensor
- G.20 16 AWG Green
- G.21 16 AWG White
- G.22 Brown



**CAUTION!** Dielectric Grease is a possible eye irritant. If contact occurs, rinse eyes with water for 15 minutes. Keep out of reach of children.



**Warning!** Water Pumps must be powered by toilet controller as shown above. Do not wire pump directly to a power source so that it is controlled by its pressure-activated switch. If a leak were to occur when wired directly, the pump would run continuously and create the risk of sinking the boat and loss of life.

## Wiring Schematic

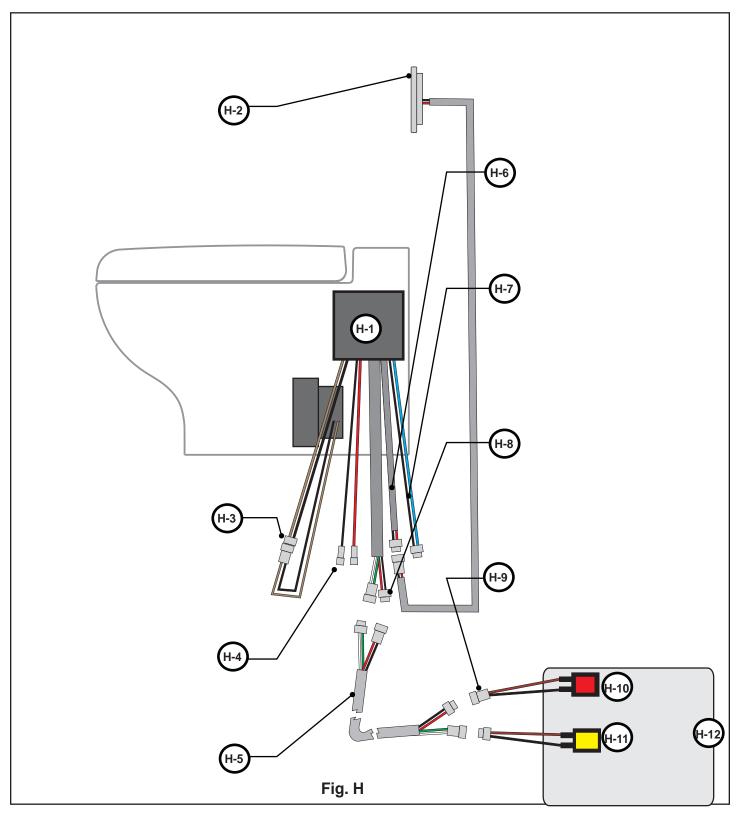
## REFER TO FIG. H

- H.1 Control Box
- H.2 Wall Switch (Sheathed 18 gauge, 12 foot) Black and Red, two-wire cable provided by Thetford, permanently attached to Wall Switch board, from the Wall Switch to the Control Box harness with a male terminal connector on the cable end.
- H.3 Motor Two wires-Black and Brown, from the Control Box harness to the Motor/Pump wiring, with a female terminal connector on the toilet harness end. Connections are made during Thetford factory assembly.
- H.4 Power Two wires- Red and Black, from the Control Box harness for power, with a male terminal connector on the toilet harness end. Reference the Silence wiring information.
- H.5 Sensor Wiring Harness Must be 16 gauge, not provided with toilet, connector information is available in this manual.
- H.6 Wall Switch Sheathed two-wire cable- Red and Black, from the Control Box harness to the Wall Switch cable, with a female terminal connector on the toilet harness end.
- H.7 Solenoid or Pump Connection Solenoid (Fresh water models only),or Pump (Raw water models only) 15A Max.

Two wires- Blue and Black, from the Control Box harness to the solenoid wiring, with a female terminal connector on the toilet harness end.

- H.8 Sensor Output Cable Sheathed four-wire cable from Control Box to Tank Sensor wiring, two pairs of wires- Red and Black, with a female terminal connector on the toilet harness end for the Full Tank Sensor, and Green and White, with male terminal connector on the toilet harness end for the Optional Mid-level Tank Sensor.
- H.9 Sensor and Wiring Terminals Two-wires from sensor to installed tank sensor wire sets.
- H.10 Tank Full Sensor
- H.11 Optional MID Tank Sensor
- H.12 Holding Tank







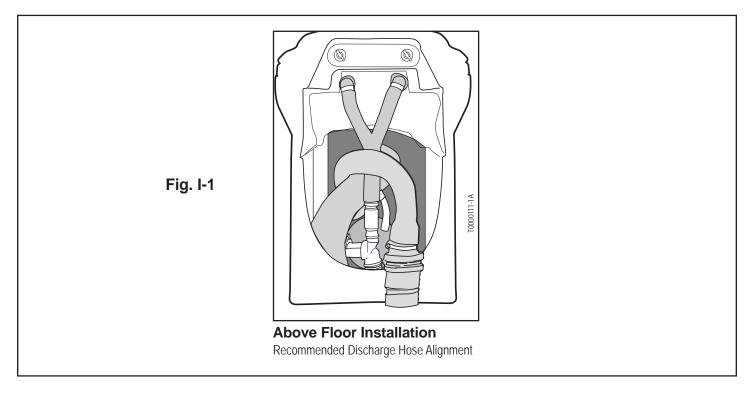
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TV BOXXK

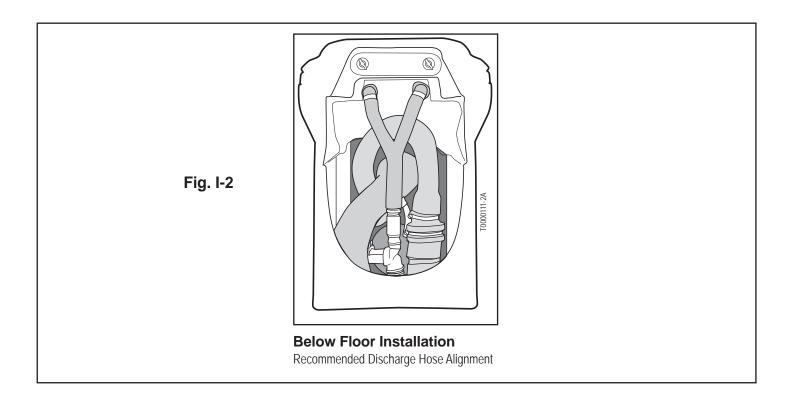
Installation and Owner's Manual - con't.

#### **Installation Options**

Choose the method that best fits your installation needs:

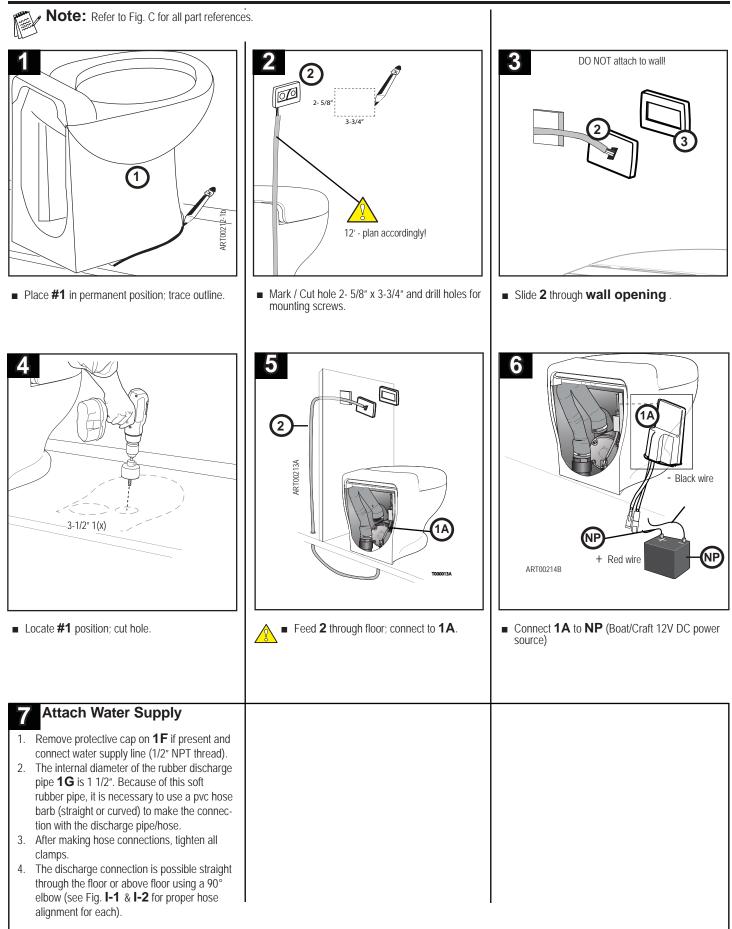


**CAUTION:** Discharge tube position in back of Tecma is critical. Pulling top of Tube below the water level in bowl during installation results in water improperly draining from bowl. Also avoid pinching or kinking hoses.



T PORX K

## Installation



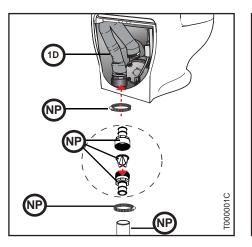


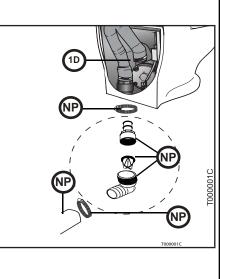
## 8 Refer to Fig. I-1 and Fig. I-2.

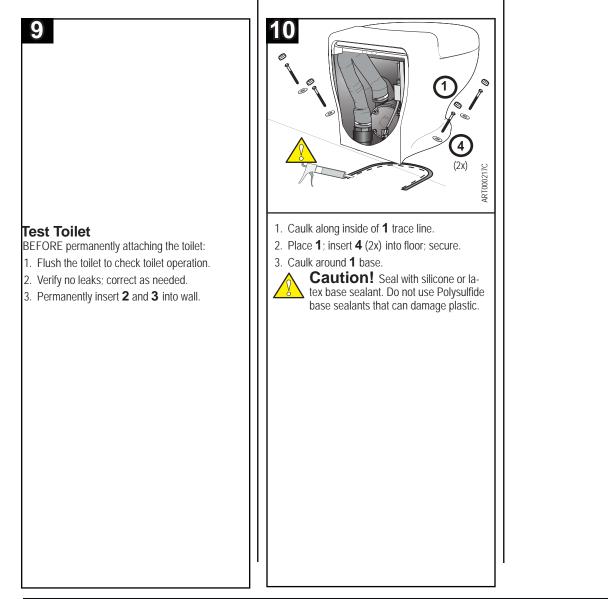
- 1. Choose installation method.
- 2. Run NP; assemble parts as shown.
- 3. Tighten **3** to secure in place.

Vertical Installation

Horizontal Installation









## Operation

CAUTION: To avoid damage to Silence Plus, an electric macerating toilet, flush only organic material and toilet paper.

The product plus has the WATER SAVING FLUSH and NORMAL FLUSH buttons. The tank sensor indicator is located below the FLUSH button.



Fig. J

## Flush Modes

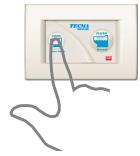
The toilet's wall switch control has two primary functions:

- A FLUSH NORMAL button Starts an add water and macerate sequence that runs the motor and adds water twice for maximum cleansing and minimum water usage. Sequence ends with a small amount of water added to the bowl to provide an odor trap. Recommended for flushing solids and toilet paper.
- A FLUSH WATER SAVER button Only recommended for flushing liquids and small amounts of toilet paper.

**CAUTION:** To avoid damage to Silence Plus, an electric macerating toilet, flush only organic material and toilet paper.

#### Water Saver Flush

Press and release left button. Recommended for flushing liquids and small amounts of toilet paper only.



#### NORMAL FLUSH

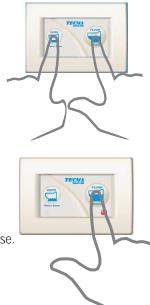
Press and release right button. Recommended for flushing solids and toilet paper.





## **EMPTY BOWL**

Press both buttons simultaneously and release. This empties the bowl and leaves it dry for travel. Press either button once to add water, run motor and return to normal use.



## SLEEP MODE

- Lighting turns off after 8 hours of non-use.
- In sleep-mode the switch LEDs will turn OFF until next use.
- Pushing either button will return lighting to full brightness.

## Lighting

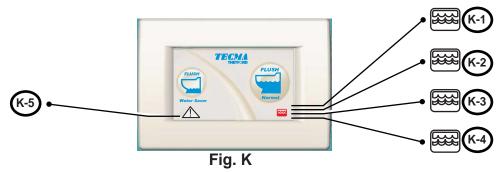
#### NIGHT LIGHTING

Blue back-lighting of the buttons provides identification at night. Buttons shut off to preserve power if not used for an extended interval.

FULL TANK LOCKOUT: For the safety of your system, the toilet will not flush when the Full Tank Sensor senses a full tank (LED is red).

#### EMERGENCY OVERRIDE:

If the tank is full (LED is red) and an emergency flush is needed, press and hold either flush button for 6 seconds to flush toilet. CAU-TION: This may cause overfilling of a waste tank and system back up will flash.



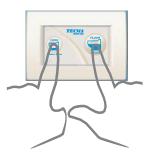
- K.1 Symbol not lighted: toilet system is OFF or not receiving power.
- K.2 Symbol lighted Green: toilet system is ON and the holding tank is less than full.
- K.3 Symbol lighted Yellow: toilet system is ON and the holding tank is at least half full.
- K.4 Symbol lighted Red: toilet system is ON and the holding tank is full.
- K.5 Diagnostic LED warning lights during over-ride.

NXMX

## Enter Water Refill Programming Mode

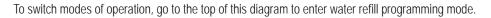
Sets empty bowl mode after flush.

- Press and hold both buttons for 3 seconds.
- LEDs will flash, programming mode will be entered.
- As water enters bowl, release fingers from buttons to set the level of standing water in the bowl.
- The level you set remains constant after each flush until reprogram water level.



## Recommended water level depth

Approx. 5", 13 cm from the top of the rim



## **Correct Water Level Usage**

The recommended water level in the Residential Mode is 5" below the toilet rim. To set this in the programming mode, release your fingers 4-5 seconds after water begins flowing into the toilet. Setting the water deeper than this level creates excessive water use and fills the holding tank too quickly.

Simultaneously press and release (0.5<, <3.0 sec.)

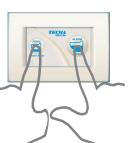
- The toilet empties but no water is added.
- Pushing either button will activate its normal function.



CAUTION! Refill the toilet as soon as possible after emptying the bowl. Leaving water out of the plumbing trap can result in objectionable odors.

## Flush Lockout

This toilet is equipped with an electronic holding tank level sensing feature that automatically prevents FLUSH button operation when the holding tank is full and, thus, prevents waste overflow.





## Single Flush Override of Flush Lockout

- If holding tank is full, system will not allow a flush to occur. (If a flush is taking place, it will be completed.) This can be overridden by holding the FLUSH button for about 8 seconds.
- This override function is intended for emergency use only. Because the sensor is not located at the exact top of a tank, the override function can be used about 5 times before overflowing. Size and shape of the holding tank determine the actual number of times it can be used. Contact manufacturer for more detailed information.

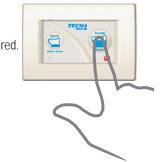


WARNING! An excess of flushes after flush lockout is disabled can cause waste to overflow tank through plumbing. Thetford Corporation accepts no responsibility or liability for damage to equipment, or injury or death for overflow of waste holding tank when full-tank lockout is overridden. Waste holding tank should be checked after using toilet in override mode.

## Single Flush Override of Flush Lockout

Toilet will not flush automatically when tank level indicator is red.

- Press and Hold (>8.0 sec.)
- Initiates one flush.
- Flush Lockout reactivates.



CAUTION! This single flush over-ride function can cause over filling of a waste tank. For Emergency Use Only.

## **Disabling/Re-enabling Lockout Protection**

Flush Lockout normally occurs when the holding tank becomes almost full. When this occurs, pushing the flush button causes tank symbol to flash, but does not cause a flush.

## **Enabling Lockout**

- Press both buttons twice
- (0.5<, <1.0 sec. 2 times) Lockout ENABLED
- Unlock symbol light turns OFF

CAUTION! Disabling the Toilet Lockout Function can cause overflowing of the waste tank. Emergency Use Only.

### Disabling Lockout

- Press both buttons twice
- (0.5<, <1.0 sec. 2 times) Lockout DISABLED

- Unlock symbol light turns ON.



Dte: This red symbol will remain on as long as lockout is disabled, even if the holding tank is emptied.



## Cleaning

- Use only non-abrasive, non-petroleum products to clean the pump. Thetford's Aqua-Clean is a non-abrasive, all-purpose cleaner specially formulated to be safe for all components of your toilet system.
- Never use household cleaners, which can contain bleach, in the toilet system. Household toilet bowl cleaners contain harsh acids. Bleach, petroleum-based products, strong acids and abrasives can cause irreversible damage to the toilet system and components.

## Winterizing

- Use only propylene glycol based, non-toxic antifreeze when storing toilet during freezing conditions.
- Never use automotive antifreeze or windshield washer solvent to winterize.
- Make sure that both the entire supply and discharge systems are thoroughly winterized to ensure complete protection for your system.

## Storage

When storing the system for more than two weeks, thoroughly clean toilet and hoses by flushing with Thetford's Aqua-Kem, EcoSmart or Aqua-Clean.

## Seasonal Start-Up

Test toilet before using by flushing to check operation. Verify that there are no leaks.

## Tissue

To facilitate flushing, it is recommended that you only use toilet tissues specifically designed to disintegrate rapidly (unlike household tissues), such as Thetford's Aqua-Soft<sup>®</sup> (2-ply) and RV/Marine Toilet Tissue (1 ply).

## Warranty

- All Tecma finished products have a warranty of 2 years from the date of registration of the boat.
- All Tecma replacement parts have a warranty of 2 years from date of purchase.
- This warranty does not apply to products which have been subjected to misuse, negligence, accident, fire, improper repair, improper installation, or any other unreasonable use deviating from the manufacturer recommendations.

## Warranty parts request

- Claims under warranty must be filed only through the authorized Tecma service centers.
  - Copy of the certificate of registration of the boat / purchase invoice
  - Brief description of the fault / problem
- The complete list of Tecma authorized service centers can be downloaded from our website www.thetford.com or can be obtained from our Customer service at the following contacts:

www.thetford.com

Tel. 1-800-543-1219



## Troubleshooting

PROBLEM	CAUSE	ACTION/SOLUTION
Toilet does not flush or flush perfor-	Waste tank is full	Empty waste tank before continuing to use toilet.
mance is poor	Clog at pump inlet	Clear clog. DO NOT flush foreign objects.
	Solid object in macerator	DISABLE power. Attempt to remove object. If unsuccessful, contact Thetford Cus- tomer Service. DO NOT flush foreign objects.
	Low voltage	Check that toilet supply voltage is 12V+/-2V (24V+/-2V) AND that there is no more than a 10% decrease in voltage when macerator is running. If voltage decreases more than this, there may be a wiring problem in the boat.
Water does not enter bowl during flush or water add cycle	Water supply line kinked or not con- nected	Check that supply line is properly connected to fresh water supply. Check for kinks in the supply line.
	No power to water pump	Check that fuse/circuit breaker has not tripped. Ensure all electrical connectors to water pump are fully mated.
	Water supply has been turned off	Open water supply valves or reconnect power to supply pump.
	Solenoid not plugged into relay mod- ule (where applicable)	Ensure wiring harness to solenoid is fully connected.
Water continues dripping briefly into bowl after flush cycle is complete	Toilet is installed below water line with vented loop in water supply line	Normal operation – if only a small amount of water drips from nozzle.
Toilet is noisy	Pump may be partially blocked if a solid object other than toilet paper has been flushed	Flush repeatedly. If problem persists, open and inspect macerator pump. If unsuccess- ful, contact Thetford Customer Service.
Water added, but pump fails to flush	Potential problem with motor or control panel.	Use tester to verify current is running from panel to motor. Verify operating pressure of the system is within specified range.
Water remains in bowl	The check valve requires a water column of at least 20 cm to function properly.	Verify solenoid valve closes properly. NOTE: Water in bowl is NORMAL when using an all-in-one control panel with one button.
Control panel LED is always red	Verify sensor is installed and wired properly.	TECMA uses pneumatic sensors. If ventilation of blackwater tank is not sized prop- erly, pressure inside tank will increase triggering the sensor with every flush. If LED remains on after removing grey/black connector connecting sensor to the control unit, there is a potentially a problem with the control panel. contact Thetford Customer Service.
Bowl drains dry after flush	Water is siphoning out of bowl due to discharge hose pulled down	Discharge hose from macerator pump is pulled down. Straighten hose so that top of discharge hose is in line with toilet nozzle.



**NOTE:** This Troubleshooting Guide is intended to provide a basic service aid in the case of incorrect toilet operation. If the suggested actions above do not resolve the issue, it may be necessary to bring unit in for professional service. Thetford Customer Service: 1-800-543-1219.

## **Service Kits**

T00010804A Fig. L							
	#	Description					
1	36082 36387	Control Panel – Single Switch (Pre-April 2006) Control Panel – 2-Button Wall Switch (April 2006 to Present)					
2	38185 38186 36396 36397	Wall Switch Bezel – Black (Pre-April 2006)   Wall Switch Bezel – Bone (Pre-April 2006)   Wall Switch Bezel – Bone (April 2006 to Present)   Wall Switch Bezel – Black (April 2006 to Present)					
3	36504 36503 38134 38133 38132 38132 38176 98109	Seat & Cover – White (Chrome Hinges) Seat & Cover – Bone (Chrome Hinges) Seat & Cover – Bone (Gold Hinges) Seat & Cover – Black (Gold Hinges) Seat & Cover – Black (Chrome Hinges) Seat & Cover – White (Gold Hinges) Slow Close Seat					
4	36398	Controller (April 2006 to Present)					
5	36512	5' Power Pigtail (April 2006 to Present)					
6	36399	6" Pigtail (April 2006 to Present)					
7	38200	Flush Water Inlet Service Kit (non-Flush Nozzle models)					
8	38064 38649 38650	Solenoid Valve – Old RV units Solenoid Valve – 12V Solenoid Valve – 24V					
9	38066 38067 38260	Hex Head Closet Bolts – White (4) Hex Head Closet Bolts – Bone (4) Hex Head Closet Bolts – Black (4)					
10	36508 38139 36509	Cap and Bushings – White Cap and Bushings – Gold Cap and Bushings – Chrome					
11	38061	Discharge Pipe (1-1/2" Connection)					
12	38056	Pump/Motor with Discharge Pipe – 12V					
13	38190	Discharge Pipe Service Kit					
14	36743	Holding Tank Sensors (April 2006 to Present)					
15	36746 36747	Nozzle Kit – White Nozzle Kit – Bone					
16	38651	Short Inlet Tube Kit					
17	36251 36252 36253	25' Wire Harness for Tank Sensor 35' Wire Harness for Tank Sensor 45' Wire Harness for Tank Sensor					

