



*Aladdin*TM



ALADDIN4XX VIDEO COACH SYSTEMS MONITOR
MARQUIS, PATRIOT AND MONTEREY

ALADDIN™ VIDEO COACH MONITOR 4XX USER'S GUIDE

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The Aladdin™ Video Coach Monitor (VCM) system is designed to monitor various chassis and house systems, providing the operator with up to date and accurate information. This allows the operator to make informed decisions regarding operations of the motorhome.

Chassis information comes from the engine and transmission electronics. House information is obtained from a number of sensor modules distributed throughout the motorhome.

The Aladdin™ system also automatically selects one of a number of cameras that can be used to aid the driver. When the system is turned **ON**, placing the transmission in reverse will cause the backup camera to be selected. For unit equipped with side cameras, activating a turn signal will select the corresponding side view camera.

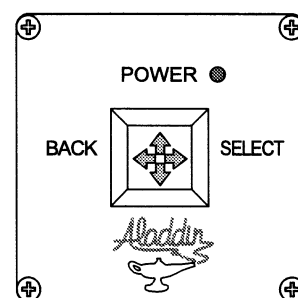
Video Coach Monitor Control Module:

The brain of the Aladdin™ system is the Control Module. The control module interconnects with the engine/transmission data, and with the coach sensor data. The control module also has inputs for four audio/video sources. These inputs are backup camera and aux video or optional left and right side view cameras. The Aladdin™ video outputs are connected to one or more video displays or televisions. No dedicated display is required. It also has a connector for providing power to the video cameras and up to two monitors, and another connector to monitor the turn signals.

Joystick Module:

The Joystick Module is the operator interface to the Aladdin™ system through either the monitor or television display. Multiple joystick modules may be attached to the Aladdin™. Each joystick module allows the operator to control cursor movements. Pushing the joystick to the right typically selects a menu item, pushing the joystick left typically takes the operator back to the previous menu. Likewise, pushing the joystick up or down enables the operator to scroll through or change information. An LED provides system-on power indication. When the joystick is moved, the LED turns off briefly ("blinks") indicating that the joystick command has been transferred to the Aladdin™. During normal operation, the LED also blinks approximately every four seconds.

System Components and Features



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Bus Tap Module:

The Bus Tap Module is simply a connector module for easily interfacing the various other modules. The bus tap module has five connectors in parallel: any bus cable can be connected to any bus tap module connector.

Tank Interface Module:

The Tank Interface Module (TIM) module monitors levels in the holding tanks and LP-Gas tank of the motorhome. It connects to the coach data bus and to sensors on the fresh, gray and black holding tanks, and the gauge sensor on the LP-Gas tank. It will provide percentage full and gallons, with gallons based on user-specified tank capacity. The tank capacity and sensor calibration information is retained within the module and is not lost if power is removed (but calibration must be redone if module or sensors are replaced).

For the Marquis only, the TIM also can control the automatic fill of the fresh water tank, initiating fill when the tank drops below 80% and stopping when the tank is full. Tank fill can also be controlled manually.

Temperature and Compass Module:

The Temperature and Compass Module (TCM) monitors outside and basement temperatures and compass heading. The outside temperature sensor is located within the hollow of the passenger side mirror (in the shade, but exposed to outside air).

The electronic Compass - Provides direction of travel N, E, S, W, NE, SE, SW, NW.

Direct Current Interface:

The Direct Current Interface (DCI) monitors both house and chassis batteries and solar panels, providing voltage and current information to the system.

Alternating Current Interface:

The Alternating Current Interface (ACI) monitors Leg 1 and Leg 2 of the motorhome AC power. The ACI provides RMS voltage, current and frequency for each leg.

Compare alarm:

Allows the operator to specify a number of compares with current chassis and house parameters, to provide the operator with an alarm when the comparison is true. The comparison function and compare value are specified by the operator. The concept is for the Aladdin™ to monitor various parameters continuously, so the operator does not have to.

Real Time Clock:

Providing date, time of day and time alarm functions.

Trip Meter:

Provides the operator with trip information for 10 different trips, plus dedicated trip leg status and fuel status screens. Trip screens selected by the operator are independent of each other and can be started, paused, resumed, cleared, and provide time and distance information as well as average speed and fuel mileage. Trip leg status gives trip information as well, plus distance-to-go and time-to-go based on trip leg averages. Fuel status provides estimated fuel remaining and range based on current averages.

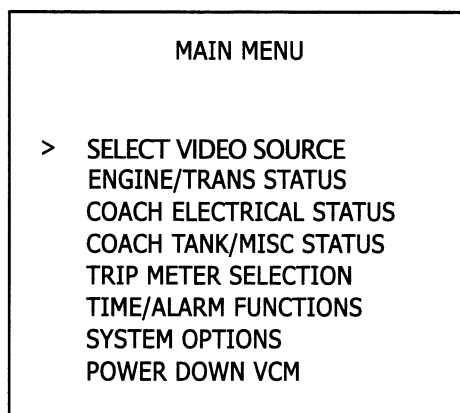
Preventive Maintenance Scheduler:

Provides a mileage countdown to three maintenance item schedules. The operator can specify maintenance intervals for engine or transmission.

The Aladdin™ is turned on either with the motorhome ignition switch or a joystick movement. Likewise, the Aladdin™ will power down when ignition is turned off, unless the operator selects the Aladdin™ to remain **ON**. If the Aladdin™ is left on, the operator can power it down manually via joystick control. Any joystick operation or turning ignition back on will turn the Aladdin™ on.

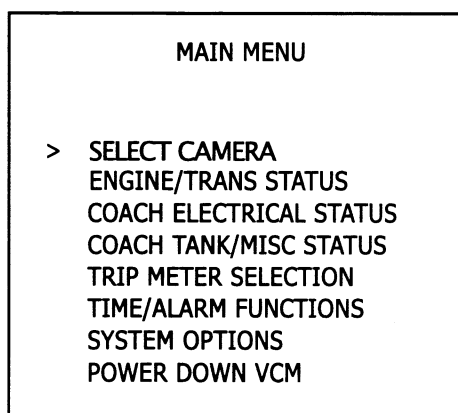
OPERATIONS - Main Menu

When the Aladdin™ is powered up, the main menu appears. The operator can choose any of the items by pressing the joystick up or down. An arrow indicates the current menu item. Pressing the joystick right will select that menu item.



Marquis

020195C



Patriot, Monterey

020195D



NOTE: The Coach Power switch must be ON for the Aladdin™ screen to be displayed.

Select Camera

The Aladdin™ operator can manually select one of the three video cameras that can be attached to the Aladdin™. When this sub menu item is first selected after initial power up, the Aladdin™ will display the video from the previously selected video source. A specific camera can be manually select by moving the joystick up or down. A right joystick movement will activate the scanning of the cameras, sequentially changing camera view once every six seconds. A left joystick movement will turn off the video and return to the **MAIN MENU**. The camera selected and scanning mode remains set when returning to the **MAIN MENU** so when **SELECT CAMERA** is again selected the view will be the same. Thus if the operator was looking at the left camera in non-scan mode when returning to the **MAIN MENU**, when returning to **SELECT CAMERA** the left camera would still be selected in non-scan mode.



NOTE: Each camera displayed is identified using a text overlay on the screen.



NOTE: The Backup Camera is automatically selected when the transmission is placed in reverse and the side cameras are activated by the turn signals. If both turn signals are active (hazard lights) then the backup camera will be selected.

If a turn signal is activated while in reverse, the side camera will override the backup camera. This will aid backup maneuvering by flipping between the left and right turn signals while backing. look left, look behind, look right, look behind, etc.

Select Video Source

Here is where the Aladdin™ user selects the video source displayed by the Aladdin™ output when it isn't displaying motorhome information. Backup Camera selects the backup camera video, and Aux Video selects the VCR, Satellite or DVD player, depending on how a particular motorhome is configured.

SELECT VIDEO SOURCE

> BACKUP CAMERA
AUX 1: VCR
AUX 2: SATELLITE
AUX 3: DVD

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The Engine/Trans status provides the operator with a single screen display of current available engine and transmission data. The display is updated as the information changes. Compass heading and time are displayed on each screen.

ENGINE/TRANS STATUS

If the operator moves the joystick Right in this screen, an enlarged engine and transmission screen is displayed, this one showing only four parameters at a time, with five screens available. These screens are scanned automatically approximately every six seconds. Moving the joystick up or down will manually scan through the screens and disable automatic scanning. Moving the joystick Right resumes automatic scanning, while moving the joystick Left will return to the previous all-in-one screen. A Left/Back from this original status screen will return the operator to the main menu.

ENGINE/TRANS STATUS	
ROAD SPEED	XX.X MPH
CRUISE INACTIVE	XX.X MPH
ENGINE	TRANS
XXXX RPM	X GEAR SEL
XXX PCT LOAD	XX GEAR ATT
XXX F TEMP	XXX F TEMP
XX PSI OIL	
XX.X PSI BOOST	BATTERY
XX.X MPG	XX.X VDC

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XX HEADING	hh:mm XM
ROAD SPEED	XXXX MPH
CRUISE INACTIVE	XXXX MPH
TRANS GEAR SELECTED	X
TRANS GEAR ATTAINED	XX

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The **COACH ELECTRICAL STATUS** screen provides the operator with a display of AC leg 1 and leg 2 volts, amps and frequency, House battery volts and amps, and solar panel voltage and amps.

COACH ELECTRICAL STATUS



NOTE: AC volts and amps are in the RMS value.

COACH ELECTRICAL STATUS			
	VAC	AMP	FRQ
AC LEG1	XXXX	XXXX	XX
AC LEG2	XXXX	XXXX	XX
	VDC	AMP	
SOLAR	XXXX	XXXX	XX
HOUSE BAT	XXXX	XXXX	XX

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COACH TANK/MISC STATUS

The **COACH TANK/MISC STATUS** screen gives fresh, gray and black tank percentage full and corresponding gallons, LP-Gas tank percentage full. Basement and outside temperatures as well as compass heading will be displayed.



NOTE: Compass heading is magnetic, and is not adjusted for current magnetic declination.

COACH TANK/MISC STATUS		
	PCT	GAL
FRESH TANK AF	XXXX	XXXXX
GRAY TANK	XXXX	XXXXX
BLACK TANK	XXXX	XXXXX
LP TANK	XXXX	XXXXX
BASEMENT TEMP	XXXXX	F
OUTSIDE TEMP	XXXXX	F
COMP HEADING	XX	

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During calibrations when the tanks are empty and full, fresh, gray and black percentages are determined by tank sensor calibrations. (see **SYSTEM OPTIONS/SYSTEM SETUP/TANK CALIBRATION**). Gallons given is the percentage full applied to the holding tank capacity (see **SYSTEM OPTIONS/SYSTEM SETUP/TANK CALIBRATION**).

Fresh Tank Autofill (Marquis)

If the Fresh Tank Autofill solenoid is enabled, the **COACH TANK/MISC STATUS** screen includes an "AF" text string. This text string blinks while the tank is filling. The fresh tank starts filling if the tank level drops below 80%.

If it is desired to fill the tank (top off), and the tank level is above 80%, simply turn the Autofill Enable Switch off and back to the Automatic Fill position again. Powering down the Aladdin™ and waking it up again will also top off the tank.

If the tank fails to fill while the fill solenoid valve is activated while in Automatic Fill mode (perhaps because an external water valve is inadvertently shut), after one minute the fill solenoid valve will be deactivated to prevent heat damage, and the displayed "AF" string will stop blinking and be colored red. Turning the Autofill Enable Switch off and back on will reset the Autofill control and allow the tank fill to try again.

The Autofill Enable Switch has two positions: Automatic Fill and Off.

This submenu is for selecting a numbered trip, trip leg statistics or trip fuel statistics. It also displays engine totals as reported from the ECM, including total engine hours, total miles and total fuel usage.

TRIP METER SELECTION

> NUMBERED TRIP SELECT
 TRIP LEG STATISTICS
 TRIP FUEL STATISTICS

ENGINE TOTALS

TOTAL HOURS XXXXXX
 TOTAL MILES XXXXXX
 TOTAL FUEL GAL XXXXXX

TRIP METER SELECTION

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This submenu allows viewing the active status of the ten numbered trips, or select one for viewing.

TRIP SELECTION

> TRIP 1 Active
 TRIP 2 Active
 TRIP 3 Inactive
 TRIP 4 Active
 TRIP 5 Inactive
 TRIP 6 Inactive
 TRIP 7 Inactive
 TRIP 8 Inactive
 TRIP 9 Inactive
 TRIP 10 Inactive

Numbered Trip Select

020201

Select one of ten available trips for viewing. Information showing the distance and duration of a selected trip since it was started, amount of fuel used, speed and fuel mileage averages will be displayed. Trip start and stop times are also shown. A trip is labeled "**ACTIVE**" if it the trip has been started using the on-screen menu.

Trip Number

Trip is "**STOPPED**" if the operator selects the **STOP TRIP** option. This suspends or pauses the trip, and can be is resumed by selecting **RESUME TRIP**. A stopped trip does not affect trip averages. The data collection is stopped.

Resets the trip to zero and makes it "**INACTIVE**."

Clear Trip



NOTE: All trip meter screens, **DURATION** is the time the engine was running, not the clock time since the start of a trip. **DURATION** is the time value used in calculating average MPH.

TRIP 1 Active	
START	XX:XX AM XX/XX/XX
STOP	XX:XX AM XX/XX/XX
AVERAGES	XX.X MPG XX.X MPH
DISTANCE	XXXXX.X MILE
DURATION	XXXX.X HOUR
ENG FUEL USED	XXXX.X GAL
> STOP TRIP	
CLEAR TRIP	

020202

All fuel usage data is only for the engine and applies to fuel used and average MPG. Fuel used by a generator or heater, while using fuel from the same tank, does not affect average MPG. However, the estimated fuel remaining in the tank will be affected.

Any or all of the numbered trips may be active simultaneously, although only one can be displayed at any time. They can be used for many purposes, for example to keep track of a vacation's individual trip legs, or a vacation's over-all statistics versus a vacation's on-the-highway statistics (stop a trip while visiting or driving around town). A numbered trip could also be used to keep track of maintenance items; such as how long it has been since the oil was changed.

Trip Leg Statistics

The **TRIP LEG STATISTICS** screen shows information similar to the numbered trip screens, but with additional distance to go and time left to go information. A trip leg is "started" by resetting the trip (by selecting **RESET**), then specifying the length of the trip in miles using **ADJUST DISTANCE TO GO**. By default, a trip length of 100 miles is set when **RESET** is selected. The time/date displayed to the right of "**RESET**" is the trip start time and is only changed with **RESET**.

The **ADJUST DISTANCE TO GO** screen allows the operator to specify a trip distance. Moving the joystick left or right selects the digit in the trip length. Moving the joystick up and down modifies that digit. For example, a trip leg length of 857 miles could be entered at the start of the vacation.

Viewing the **TRIP LEG STATISTICS** screen provides distance to go and time to go which answers the classic question "Are we there yet?"

A trip length can be specified up to 9999.9 miles long. The trip length can be adjusted at any time without affecting the data collected since **RESET**.

TRIP LEG STATISTICS	
AVERAGES	XX.X MPG XX.X MPH
DISTANCE	XXXXX.X MILE
DURATION	XXXX.X HOUR
FUEL USED	XXXX.X GAL
DISTANCE TO GO	XXXXX.X MILE
TIME TO GO	XXXXX.X HOUR
> ADJUST DISTANCE TO GO	
RESET	XX:XX AM XX/XX/XX

020203

ADJUST DISTANCE TO GO
ENTER NEW DISTANCE:
0000.0 MILES
^

020218B

Provides statistics similar to the other trip screens, but with fuel remaining and fuel range data as well. Two commands are available, **RESET** will return the fuel remaining value to the fuel tank capacity limit and reset the time and date this "trip" started and **ADJUST FUEL REMAINING** which can be used to set the fuel remaining amount to a specific amount. Since the Aladdin™ bases its fuel usage on numbers reported by the engine alone, the amount of fuel remaining might be less with a generator or diesel heater sharing the same fuel tank.

Trip Fuel Statistics

FUEL TANK STATISTICS		
AVERAGES	XX.X MPG	XX.X MPH
DISTANCE	XXXXX.X MILE	
DURATION	XXXX.X HOUR	
FUEL USED	XXXX.X GAL	
FUEL REMAINING	XXX.X GAL	
FUEL RANGE	XXXX.X MILE	
> ADJUST FUEL REMAINING		
RESET	XX:XX AM XX/XX/XX	

020205

The **SET FUEL AMOUNT** command could be used to bring estimated fuel remaining back in sync with the dash fuel gage.

Example, estimated fuel remaining might be 37 gallons on a 100 gallon tank; but the generator and heater usage has brought the fuel gage down to 25% or 25 gallons. **SET FUEL AMOUNT** could be used to reset the fuel remaining to 25 gallons and thus provide a more accurate fuel range calculation.

ADJUST FUEL REMAINING
ENTER AMOUNT OF FUEL:
XXX.X GALLONS
ESTIMATED FUEL REMAINING:
XXX.X GALLONS

020206



NOTE: ADJUST FUEL REMAINING value cannot be greater than previously set fuel tank capacity; such values will be reset to the tank limit

Changes made to any of the Trip Meter selections, with the single exception of clearing a numbered trip, should be done while the ignition is on to enable the Aladdin™ to collect necessary information from the engine. If the ignition is off, the last available information from the ECM will be used.

When a change is made to a trip the status screen display may take several minutes before it starts updating values. In the case of **DURATION**, the display will not update for six minutes, because **DURATION** is displayed to the tenth of an hour or six minutes. The Aladdin™ requests engine statistics periodically from the engine for use with trip calculations. After such a change the next valid engine data won't be available for approximately a minute. Additionally, the rate of change of data is influenced by motorhome speed, fuel rate, and time.

Data used to make trip statistics calculations is maintained internally to a higher accuracy than displayed. This fact, and the actual method of making the calculations will account for any differences between displayed averages and what you might calculate using the same displayed numbers, particularly when the values are small. For example, if the **DISTANCE** displayed is 9.2 miles and **DURATION** displayed is 0.3, the average speed might be displayed as 26.2 MPH while your calculations would give 30.66 MPH...but if you used 0.351 hours in your calculations you'd get the same answer as displayed.

TIME/ALARM FUNCTIONS

TIME AND ALARM FUNCTIONS

VIEW CURRENT TIME
> SET DATE AND TIME
SET ALARM CLOCK
ALARM CLOCK ON/OFF
SET COMPARE ALARM
MAINTENANCE SCHEDULER

020208B

The Aladdin™ is designed to provide the operator with a number of alarms. The idea is for the Aladdin™ to monitor various parameters continuously, so the operator does not have to. When an alarm condition is detected, the Aladdin™ is reset to **MAIN MENU**, and the Alarm Activation window displayed. This blinking display indicates that an alarm was activated, and the source of the activation. Moving a joystick controller in any direction turns off the alarm tone and leaves the alarm screen displayed. A second joystick movement will cause the Aladdin™ to return to **MAIN MENU**, allowing the operator to check the parameter that was the source of the alarm if desired. **TIME/ALARM FUNCTIONS** is a submenu allowing the operator to view and set the clock, the alarm, and the compare alarms.

Set Date And Time screen allows setting the current time and date. Joystick Left or Right selects the various digits, whereas joystick Up and Down changes the value.

Example, when first entering this screen, the hours' tens digit will be selected; Joystick Right selects the hours' ones digit. Moving the joystick Up changes the digit value, a value of 5 would increase to 6.

SET DATE AND TIME

hh:mm:ss AM MM/DD/YY
^

DAY OF THE WEEK: MON

020209

As the date is modified, the corresponding day of the week is displayed.

Exiting this screen either by going Left from the hours' tens digit or going Right from the year's ones digit will cause the time entered to be set into the real time clock.



NOTE: Should incorrect input be given, for example setting the date to February 30, the incorrect value for the date will be rejected and prompt the operator to correct.



NOTE: The clock information is lost if power is disconnected for more than four minutes, such as when a battery is replaced, or if the chassis disconnect switch is turned off. Compare alarm and trip information are unaffected; simply reset the date and time when power is restored. Powering down the Aladdin™ via the joystick or ignition switch will not cause clock information to be lost.

The alarm can be set to achieve an alarm condition based on the following real time clock parameters:

Hours
Minutes
Day of the Week
Day of the Month

ALARM SET OPTIONS	
ALARM SETTINGS	
02:23 PM	THU DATE: 22
^	
ALARM ENABLES	
HOURS	NO
MINUTES	NO
DAY OF WEEK	NO
DATE	NO

020210

Set Alarm Clock

Each parameter has an individual alarm enable which will activate the alarm when all conditions are met. It is possible to set the alarm to go off every 13 minutes past the hour if only minutes are enabled, 4:15 PM every day if the hours and minutes set are enabled, 5:30 AM Saturday if the hours, minutes and day of week are enabled or 12:00 PM Friday 13th with all values set and enabled.

Move the joystick Left or Right to select the hours, minutes, AM/PM, day of the week and date. Move the Joystick Up or Down to change a value. The digit or field currently selected will be highlighted. Moving the Joystick Left from the left-most screen position returns to the **TIME/ALARM FUNCTIONS** screen. Moving the Joystick Right from the right-most screen position causes the Aladdin™ to change to the Alarm Enable Options screen.

In the Alarm Enable Options screen the hours, minutes, day of week and date enables are individually selected using the joystick Up or Down movement. Moving the Joystick Right changes the value. Moving the joystick Left from this screen returns to **TIME AND ALARM FUNCTIONS** screen.

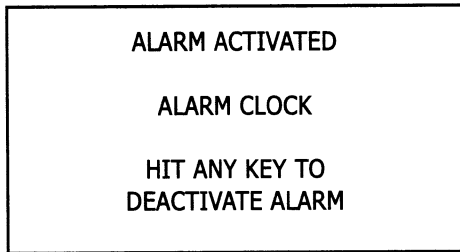


NOTE: When an alarm occurs, an **ALARM ACTIVATED** screen is displayed and a beeping tone is sounded. The source of the alarm condition is identified by the flashing text. Any joystick action will turn off the alarm tone, while retaining the **ALARM ACTIVATED** screen. A second joystick action will return the operator to the **MAIN MENU**.

ALARM ENABLE OPTIONS	
ALARM SETTINGS	
02:23 PM	THU DATE: 22
ALARM ENABLES	
> HOURS	YES
MINUTES	NO
DAY OF WEEK	NO
DATE	NO

020211

Alarm Clock On/Off



020212

The alarm can be enabled or disabled at the Alarm Enable Options screen without changing the value of the alarm itself.

Set Compare Alarm

There are eighteen different parameters that can be specified and individually enabled for an alarm. These parameters are:

1. Road Speed
2. Engine Load
3. Engine Speed
4. Coolant Temperature
5. Transmission Oil Temperature
6. Oil Pressure
7. Chassis Battery Voltage
8. Fuel Remaining in Tank
9. Fresh Tank Percentage Full
10. Gray Tank Percentage Full
11. Black Tank Percentage Full
12. LP-Gas Tank Percentage Full
13. House Battery Voltage
14. Basement Temperature
15. Outside Temperature
16. Miles to PM1
17. Miles to PM2
18. Miles to PM3

The operator enters an item to monitor and what comparison is made to sound an alarm. Select one of the following compare options:

GT	Greater Than
GE	Greater Than or Equal To
EQ	Equal To
NEQ	Not Equal To
LE	Less Than or Equal To
LT	Less Than

While there are many options for setting an alarm condition, not all possibilities are valid or sensible. An alarm condition of Road Speed Not Equal To 0 MPH would be activated as soon as the motorhome started moving. Additionally, while some options are reasonable, such as compare engine speed EQ 2000 rpm, in reality the alarm may not go off. The data being compared may never equal 2000, and instead may alternate between 1999 and 2001. Setting the compare option GT would likely produce the desired result. A compare less than zero (LT 000) is not allowed, and will be converted to less than or equal to zero (LE 000).

Each enabled alarm is checked frequently as the Aladdin™ is operating. Any of the enabled alarms, once the comparison is made, activates the alarm. Once an alarm is activated, any joystick movement will cancel the alarm tone and disable further activation. It is necessary to re-enable the alarm for it to activate again.



NOTE: Any other alarms enabled but not activated are still enabled and will activate when their respective comparisons value is reached.

Example: Selecting an alarm condition of Full Tank Percentage LT 25%, or Gray Tank GE 85%. Upon entering a Compare Alarm Setup screen, the first field, parameter Name is automatically selected. Various parameters selections are made using the Aladdin™ joystick Up or Down to move through the list of choices.

COMPARE ALARM SETUP	
NAME	ENABLED
> ROAD SPEED	YES
COMPARE	
GT 060 MPH	
ITEM 1 OF 18	

020213

Moving the joystick Right from Name selects the Enable field.

Moving the joystick Up or Down in the Enable field scrolls the choices **NO** disabled, **YES** enabled or **IGN OFF** enabled. However, the alarm will not sound while the ignition is turned on, instead waits until the ignition is turned off. From the Enable field, moving the joystick Left returns to the Name field, and moving the joystick Right continues to the Compare field. In the Compare field, moving the joystick Up or Down sequences through the list of compare options. Moving the joystick Left returns to the Name field and moving the joystick Right continues to the Value field. Each digit of the value is adjusted moving the joystick Up or Down. Each digit selection is made moving the joystick Left or Right. Another Right from the one's value will return to the Name field selection.



NOTE: The PM alarms are designed to notify the operator of pending Preventative Maintenance tasks. These PM tasks are intended to match those specified by the engine OEM recommendations, however the operator can modify them as desired in the MAINTENANCE SCHEDULER screen. The alarm compare is performed against the miles remaining before the PM task is due, and as such the only valid compare selections would be LT (less than), LE (less than or equal) or EQ (equal); furthermore, if the miles remaining before the PM task is due is greater than 999 miles, the compare will not be done. Regardless of the PM alarm status, any PM performed is the responsibility of the operator/owner.

MAINTENANCE SCHEDULER

The MAINTENANCE SCHEDULER screen displays statistics for three Preventive Maintenance items: PM1, PM2 and PM3. Each PM item displays two values: the first is the number of miles to go before each PM is scheduled (MTG) and the second is the interval in miles for that PM item (INT).

Each PM item can be selected (joystick Right), and its maintenance interval can be modified per the requirement of a particular engine, or as the operator chooses. Immediately below each PM item also is its associated RESET, which when selected, will reset the PM miles to go back to the maintenance interval.

MAINTENANCE SCHEDULER		
	MTG	INT
> PM1:	000125/010000	MILES
RESET		
PM2:	012785/125000	MILES
RESET		
PM3:	137785/250000	MILES
RESET		

020207B

Example: PM1 has an interval of 10,000 miles, and is performed with 125 miles to go. Selecting RESET will set the miles to go back to 10,000 interval in preparation for the next PM1 service.



INFORMATION: Refer to the OEM manual for its recommended preventive maintenance schedule.



NOTE: A compare alarm can set for the PM miles to go. Modifying the maintenance interval will not automatically update the miles to go value. Miles to go will continue to count down until it reaches zero or is reset. Modifying maintenance intervals and resetting miles to go should be done with the ignition on so engine information is available for recording.

Selecting **POWER DOWN** Aladdin™ will cause the Aladdin™ and the joystick modules to enter low power mode, and turn off sensor modules. The Aladdin™ also enters low power mode when the ignition is turned off. In the power down or "sleep" mode the Aladdin™ will "wake up" when any joystick module is touched or if the motorhome ignition is turned on.



NOTE: When power is first applied to the Aladdin™ using the main power switch or if power is interrupted (e.g., if a battery is changed), the Aladdin™ will wake up, display the "Hello" screen and then go to power down sleep mode. This prevents the system from turning on completely and being left on inadvertently. Any joystick operation or turning the ignition on will wake the system back up.

POWER DOWN

IGNITION OFF:
SHUTTING DOWN IN
10 SECONDS

020218D

The **SYSTEM OPTIONS** screen provides the operator with a submenu for Aladdin™ functions that are less frequently used, and includes screen appearance (background and text color) adjust. Only service personnel should use **SYSTEM SETUP** to set up a new coach. To assist the service technician in troubleshooting system problems, the **SENSOR MODE** may be used.

Screen and text colors are selected by first selecting the menu item using joystick up and down, then successive joystick rights will sequence through the seven available colors. Colors selected will be displayed immediately to allow the operator to set colors for personal preferences. Colors selected will be stored and remain in effect until changed even if the Aladdin™ is powered down.

The usual sensor mode is **NORMAL**; additional options are **RAW** and **VERSION**. **RAW** mode causes the sensor modules to display raw, unmodified/calibrated data from their sensors, and might be used by technicians troubleshooting the system. **VERSION** mode causes the sensor modules to display their internal software version numbers.

Compass calibration is used to match the compass module to the motorhome, and may be performed as needed.

SYSTEM OPTIONS

SYSTEM OPTIONS
ALADDIN MODEL 431 VER 2.00
JOYSTICK F / W VERSION 1.02

SCREEN COLOR: 0
TEXT COLOR: 1
SENSOR MODE: NORMAL
SYSTEM SETUP
COMPASS CALIBRATION

020217D

System Setup

The **SYSTEM SETUP** screen contains menu items for setting up the sensor modules on the motorhome.

SYSTEM SETUP MAINT CODE

ENTER CODE:

0000

020195E

SYSTEM SETUP

SET TANK CAPACITIES

TANK CALIBRATION

ELECTRICAL CALIBRATION

020214C



NOTE: SYSTEM SETUP is protected with a maintenance code, so calibrations will not be accidental. The maintenance code must be entered correctly before proceeding to the SYSTEM SETUP screen. Qualified service personnel should only enter the access code 1218.

Set Tank Capacities

Enables programming the Aladdin™ with fuel tank size and to program the Tank Interface Module (TIM) with the capacities of the holding tanks. The fuel tank capacity information is used in the fuel remaining calculations. The TIM, once calibrated, provides percentage of full information. Setting the tank capacity allows it to provide an equivalent number of gallons.

SET TANK CAPACITIES

> FUEL TANK = 148 GAL 109

FRESH TANK = 100 GAL 100

GRAY TANK = 80 GAL 58

BLACK TANK = 80 GAL 58

020216B



NOTE: Any change made to a tank capacity, the new value will blink until confirmed by the TIM module.

The capacities for the fuel tank, fresh, gray and black holding tanks are set here. Each individually selected from the **SET TANK CAPACITIES** screen.

SET FRESH TANK CAPACITIES

ENTER TANK CAPACITY:

098 GALLONS

^

020218C



NOTE: QUALIFIED SERVICE PERSONNEL SHOULD ONLY PERFORM ANY OF THE FOLLOWING CALIBRATION PROCEDURES.

Some sensor modules require calibration after installation to provide maximum accuracy.

Tank Calibration

The Tank Interface Module (TIM) uses three sensors, one each for the fresh, gray and black tanks. The sensors must be calibrated individually so the TIM knows the characteristics and the height of the tank.

The **TANK CALIBRATION** screen displays the current value of each calibration parameter, and the current raw data returned from TIM. This raw data value is used in setting the calibration values.



NOTE: Uncalibrated sensors or incorrectly calibrated sensors will not be damaged, but will provide incorrect readings.



NOTE: The calibration information is retained within the Tank Interface Module even when powered down; calibration should only be required when the motorhome is new, and if a sensor or the Tank Interface Module is replaced.



NOTE: When calibrated, the difference between the Full calibration value and Empty calibration value will give the sensor-measured height of the tank, in millimeters.

Empty Calibration:

Empty calibration must be done with the tank empty. All that is necessary is to enter the value of the raw data (displayed on the bottom of the calibration screen).

TANK CALIBRATION	
>	CAUTION: SEE MANUAL
	EMPTY FRESH TANK = 14 90
	GRAY TANK = 15 71
	BLACK TANK = 15 87
	FULL FRESH TANK = 89 556
	GRAY TANK = 174 395
	BLACK TANK = 174 411
RAW	Fxxxx Gxxxx Bxxxx

020218F

FRESH	TANK	FULL	CAL
ENTER FCAL VALUE:			
xxxx			
^			
FCAL = RAW AT FULL TANK			
FCAL = ECAL + THmm - 19			
RAW: xxxx ECAL xxx			

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Full Calibration:

Full calibration can be performed at any time. If the tank is full (verified by visual tank inspection), it is only required to enter the current raw value. If the tank is not full, it is necessary to measure the tank height (from centerline of the sensor to the top of the tank, in millimeters). Add this value to the empty cal value, and subtract 19; then enter this number for the full calibration value.

FRESH	TANK	EMPTY	CAL
ENTER ECAL VALUE:			
xxxx			
^			
ECAL = RAW			
TANK *MUST* BE EMPTY			
RAW: xxxx			

020218G

10/7/07: Set Fresh Full to 1023
 10/3/07: Set Black full to 1023
 " Gray " " "
 " Black empty to 446
 " Gray " " "
 " Fresh " " "

Electrical Calibration

ELECTRICAL CALIBRATION

CAUTION: SEE MANUAL

> SOLAR AMPS xx
HOUSE BATT AMPS xx

020218J

SOLAR AMPS CALIBRATION

SOLAR AMPS MUST BE ZERO
WHEN CALIBRATING -- PULL
SOLAR FUSE FIRST -- THEN
SELECT CALIBRATE

> CALIBRATE

020218I

HOUSE BATT AMPS CAL

USE UP/DOWN TO ADJUST
DISPLAYED VALUE SO IT
MATCHES CLAMP-ON METER
THE SELECT CALIBRATE

BATT AMPS xxx.x

> CALIBRATE

020218L

Current sensors, being a separate item from the sensor modules, also require calibration after installation on the coach. Once calibrated at the factory, recalibration shouldn't be necessary.

Solar Amps:

Selecting **SOLAR AMPS** from the **ELECTRICAL CALIBRATION** screen will cause the calibration to be performed.

House Batt Amps:

Selecting **HOUSE BATT AMPS** from the **ELECTRICAL CALIBRATION** screen brings up the **HOUSE BATT AMPS CALIBRATION** screen.

Compass Calibration

COMPASS CALIBRATION

START CALIBRATION AND THEN
DRIVE COACH IN ONE OR MORE
COMPLETE CIRCLES TO ENSURE
COMPASS ACCURACY.
STOP CALIBRATION TO END.

START CALIBRATION

020218K

The **COMPASS CALIBRATION** system allows the owner to match the motorhome to the compass module. This allows the compass to compensate for the metal with the coach to increase accuracy. Calibration is accomplished by selecting **START CALIBRATION**, then driving the coach in a full 360-degree circle. At the end of driving this loop, select **STOP CALIBRATION**. A successful calibration will cause a "Calibration Successful" message to be displayed. A calibration that fails will display "Calibration Fail" and a failure code.