System Tachometer/Speedometer Gauges

90-8M0070297 412

Product Overview

System Tachometer/Speedometer

System Tach/Speed Descriptive Text

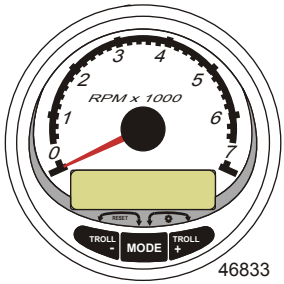
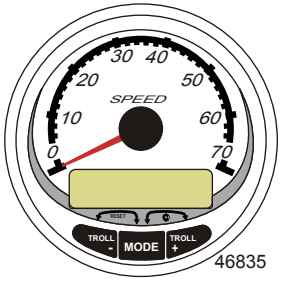
Smart Tow Tach/Speed GPS

System Tach/Speed Version 6.0

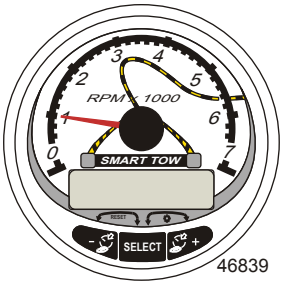
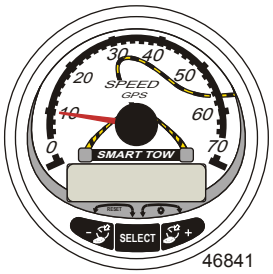
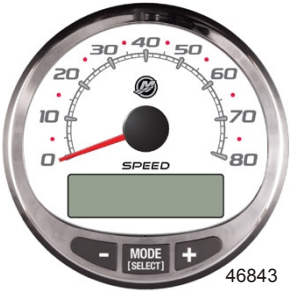
PRODUCT OVERVIEW

System Tachometer and Speedometer Product Identification

The SmartCraft tachometer and speedometer are constantly changing in design appearance, and software. The various versions of the SmartCraft tachometer and speedometer, basically function the same when you are selecting the setup options and when paging through the menu item windows. The following graphic illustrations will identify the various different SmartCraft System Tachometer and System Speedometer that are part of the SC 1000 family products, starting with the early version and progressing to the latest version.

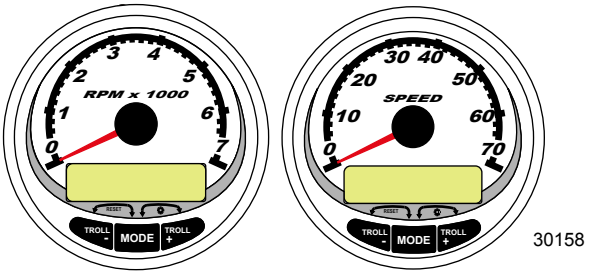
Tachometer and Speedometer Identification	
 46833	The earliest SmartCraft tachometer. Originally identified by what was referred to as eyebrows above the buttons. The eyebrows were a visual representation for some of the functions with the gauge navigation and commands. Descriptive text alarm warning screens are displayed with Gen I (2007) engines and newer. Digital control of the engine RPM is available for Troll Control features.
 46835	The earliest SmartCraft speedometer. Originally identified by what was referred to as eyebrows above the buttons. The eyebrows were a visual representation for some of the functions with the gauge navigation and commands. Descriptive text alarm warning screens are displayed with Gen I (2007) engines and newer. Digital control of the vessel speed is available for Troll Control features.

PRODUCT OVERVIEW

Tachometer and Speedometer Identification	
 46839	The second generation of the SmartCraft tachometer known as Smart Tow. The external appearance changed with a rope on the gauge face and the buttons show a symbol for cruise control. Digital control of the engine above trolling RPM is available.
 46841	The second generation of the SmartCraft speedometer known as Smart Tow. The external appearance changed with a rope on the gauge face and the buttons show a symbol for cruise control. Digital control of the engine above trolling RPM is available. The SmartCraft GPS puck is introduced and can be connected directly to the gauge harness or a junction box.
 46842	The third generation of the SmartCraft tachometer. The external appearance changed with the Mercury logo in the center of the gauge face, the removal of text on the left and right buttons, and the removal of the eyebrows. The release of this gauge coincides with the availability of onboard diagnostics also known as OBD. OBD feature is only available on specific power package models.
 46843	The third generation of the SmartCraft speedometer. The external appearance changed with the Mercury logo in the center of the gauge face, the removal of text on the left and right buttons, and the removal of the eyebrows. The release of this gauge coincides with the availability of onboard diagnostics also known as OBD. OBD feature is only available on specific power package models.

SYSTEM TACHOMETER/SPEEDOMETER

Basic Operation and Features



System Tachometer System Speedometer

Power up: Each gauge will power up when the ignition is turned on. The gauges will stay on as long as the ignition is on.

Lights: Adjusts the brightness and contrast of the gauge.

Buttons: The "MODE/SELECT" button is used for selecting information screens. The "+" and "-" buttons are used for setting engine speed for troll control, and setting gauge calibrations.

Troll control: Sets and controls the idle speed of the engine for trolling without using the throttle.

Engine Guardian System: Monitors the critical sensors on the engine for any early indication of problems. The system will respond to a problem by reducing engine speed and alerting the operator to a potentially damaging situation.

Warning system: The system sounds the warning horn and displays the warning message.

IMPORTANT: Optional sensors such as depth, fuel, paddle wheel, and steering angle, should always be connected to the starboard engine when using SmartCraft gauges version 4.0 or later.

Automatic Engine Detection Feature

The System Tachometer/Speedometer has an automatic engine detection feature. This feature automatically detects which engine type is used and configures the gauge to match that engine type.

SYSTEM TACHOMETER/SPEEDOMETER

The first power up of the gauge, or after a Master Reset, the gauge will display "AUTODETECT". Press the "MODE/SELECT" button to start the automatic engine detection feature and the gauge will determine the engine type. This will preset the data monitoring screens to make the initial setup easier.

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If the gauge shows a warning of "NO STARBOARD ENGINE" or "MULTIPLE STARBOARD ENGINES", the engine location (port and starboard) must be selected by an authorized dealer equipped with the computer diagnostic system (CDS) tool.

Master Reset

Returns the gauge to the factory defaults through the Master Reset command.

IMPORTANT: Performing a Master Reset will reset the unit to the factory defaults, thus eliminating any installation and calibrations performed during set up of product.

Press the "-" and "+" buttons simultaneously for approximately 10 seconds (until the graphic bars collide) to restore the unit to factory default settings. Press the "MODE/SELECT" button to confirm.

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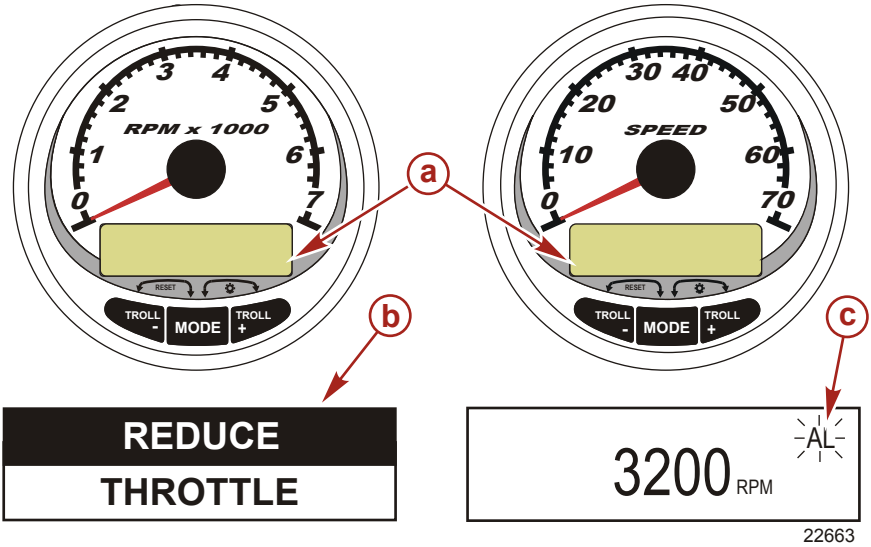
SYSTEM TACHOMETER/SPEEDOMETER

Alarm Warnings

NOTE: *Alarm warnings are displayed, as shown, when used with engines prior to Gen I (2007).*



a - Display screen
b - Engine Guardian System
c - Alarm signal

When a problem is detected, the name of the offending alarm appears on the display.

If the problem can cause immediate engine damage, the Engine Guardian System will respond to the problem by limiting engine power. Immediately reduce the throttle speed and refer to the warning messages on the following pages. Refer to the engine **Operation, Maintenance, and Warranty Manual** for further explanation of the problem and the correct action to take.

The alarm message will stay displayed until the "MODE/SELECT" button is pressed. If there are multiple alarms, these will cycle on the display at five second intervals.

If the "MODE/SELECT" button is pressed to display a different screen, the flashing alarm signal "AL" will appear in the upper right corner to indicate there still is a problem.

SYSTEM TACHOMETER/SPEEDOMETER

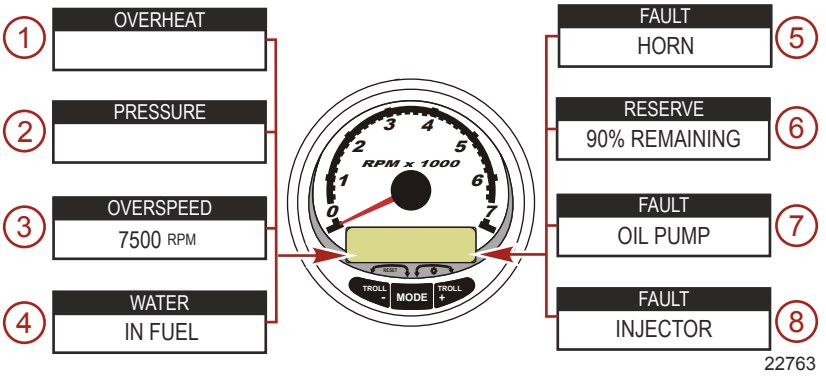
Warning Display Screens

When a problem is detected with the engine, the warning display screens will alert the operator to the potential problem. Refer to the engine **Operation, Maintenance, and Warranty Manual** for an explanation of the problem and the correct action to take.

PROBLEM	TACHOMETER DISPLAY	SPEEDOMETER DISPLAY
BATTERY	×	
ENGINE DATA BUS	×	
FAULT- HORN	×	
FAULT- IGNITION	×	
FAULT- INJECTOR	×	
FAULT- OIL PUMP	×	
FAULT- SENSOR	×	
FAULT- WATER TEMP	×	
LOW FUEL		×
LOW OIL		×
OIL TEMP	×	
OIL PSI	×	
OVERHEAT	×	
OVERSPEED	×	
PRESSURE	×	
RESERVE OIL	×	
WATER IN FUEL	×	
MAP	×	
MAT	×	
TPS	×	

SYSTEM TACHOMETER/SPEEDOMETER

NOTE: *Depending on the engine type, not all screens will apply.*

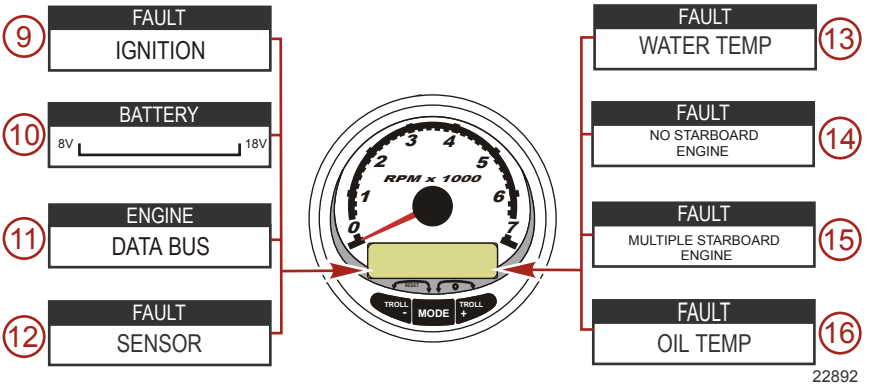


IMPORTANT: Refer to the engine Operation, Maintenance, and Warranty Manual for further explanation of the problem and the correct action to take. Contact the dealer if the problem persists.

1. **OVERHEAT**: The engine has overheated.
2. **PRESSURE**: There is insufficient water pressure in the cooling system.
3. **OVERSPEED**: Engine speed exceeded the maximum allowable RPM.
4. **WATER IN FUEL**: Water in the water separating fuel filter reached the full level.
5. **FAULT - HORN**: The warning horn is not functioning correctly.
6. **RESERVE OIL LOW - 2-Stroke outboard only**: Oil level is critically low in the engine-mounted oil reservoir tank.
7. **FAULT - OIL PUMP**: The oil pump has stopped functioning electrically. No lubricating oil is being supplied to the engine.
8. **FAULT - INJECTOR**: One or more of the fuel injectors have stopped functioning electrically.

SYSTEM TACHOMETER/SPEEDOMETER

NOTE: *Depending on the engine type, not all screens will apply.*



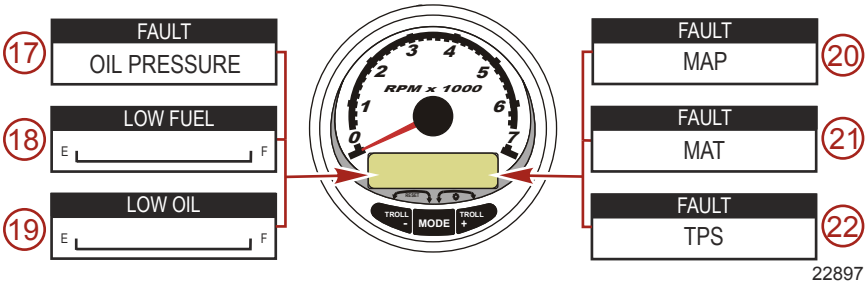
9. **FAULT - IGNITION**: A problem has developed in the ignition system.
10. **BATTERY**: The electrical system is not charging or the battery charge is low.
11. **ENGINE DATA BUS**: The data communication link between the tachometer and engine is not connected.
12. **FAULT - SENSOR**: One of the sensors is not functioning correctly.
13. **FAULT - WATER TEMP**: The sensor for measuring outside lake/seawater temperature is not functioning correctly.
14. **NO STARBOARD ENGINE**: The instrument does not detect the starboard engine computer. This usually indicates that no data is being transferred from the engine's computer to the gauge. Check the wiring. Make sure both terminator resistors are installed in the bus. Make sure the PCM/ECM's are not configured for the same location using computer diagnostic system (CDS).
15. **MULTIPLE STARBOARD ENGINE**: SmartCraft gauges are recognizing multiple engines as starboard.

NOTE: *In multiple engine applications, each engine must be assigned a position (starboard, port, starboard2, or port2) with a CDS before the system will function properly.*

16. **OIL TEMPERATURE**: The engine oil is overheating.

SYSTEM TACHOMETER/SPEEDOMETER

NOTE: *Depending on the engine type, not all screens will apply.*



17. **OIL PRESSURE**: There is insufficient oil pressure.
18. **LOW FUEL LEVEL**: The fuel level in the fuel tank is critically low. Stop for fuel immediately to avoid running out.
19. **LOW OIL LEVEL - 2-Stroke outboard only**: The oil level in the remote oil tank is low. Stop and refill the oil tank immediately to avoid running out.
20. **FAULT - MAP**: Engine problem occurred. Have the engine checked by a dealer.
21. **FAULT - MAT**: Engine problem occurred. Have the engine checked by a dealer.
22. **FAULT - TPS**: Engine problem occurred. Have the engine checked by a dealer.

SYSTEM TACHOMETER/SPEEDOMETER

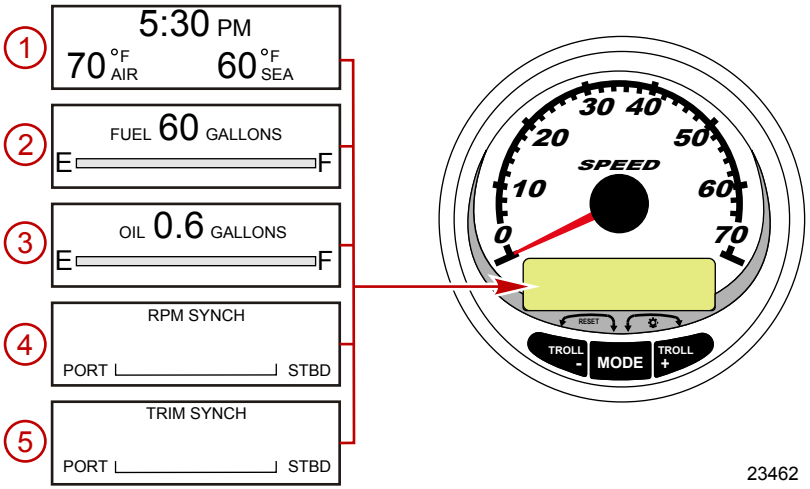
Display Screens

Tachometer Display Screen	Speedometer Display Screen
Engine Break-in (2-Stroke outboard only)	Speed
Engine Temperature	Fuel Used
Oil Temperature	Cog/Sog - If there is a GPS input
Oil PSI	Distance and Fuel to Waypoint
Trim and RPM	Clock - Air/Sea Temp
Trim and Water Pressure	Instant and Average Fuel Economy
Water Pressure	Trip Odometer
Battery Voltage and Engine Hours	Fuel Tank Levels
Fuel Flow and Fuel Used	Oil Tank Levels
Speed and Sea Temperature	Fresh Water Levels
Battery Voltage	Waste Water levels
% Fuel Remaining (Fuel Tank 1)	Steering Angle (MerCruiser only)
Depth	
Trim Position	**Dual Engine**
Fuel PSI	Trim and RPM Synchronizer
Trailer and RPM	
RPM	
Quick Reference Screen Battery, Temperature, PSI	

SYSTEM TACHOMETER/SPEEDOMETER

System Speedometer Display Screens

NOTE: *Depending on the engine type, not all screens will apply.*



When the ignition is turned on, the speedometer will show the last screen that was displayed before the ignition was turned off.

Press "MODE/SELECT" to change display screens. Revert back to the previous screen by pressing and holding "MODE/SELECT" for two seconds.

NOTE: *Readings can be displayed in English (U.S.) or metric. Refer to* ***Speedometer Cal 1 Calibrations****.*

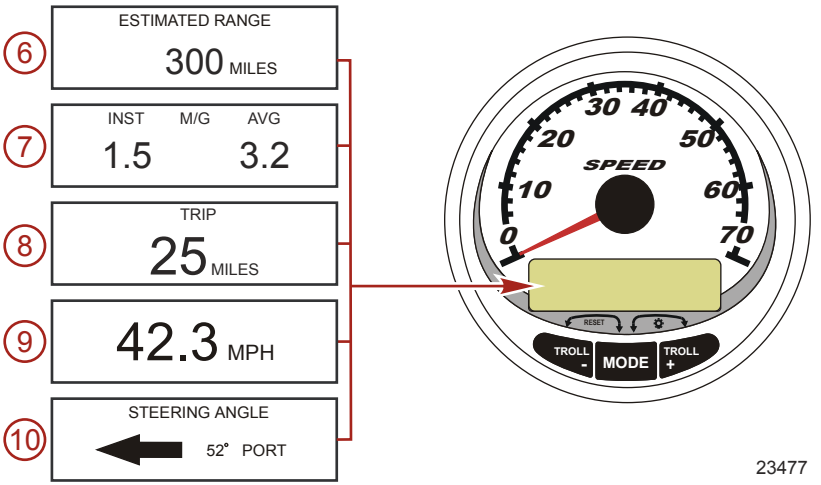
NOTE: *The descriptions may not be in order on the gauge. The order may change depending on engine type.*

1. **Clock - Temp:** Clock, air temperature, and water temperature. The air and water temperature sensors must be connected to obtain display readings.
2. **Fuel Level:** Displays the amount of fuel remaining.
3. **Oil Level:** Displays the amount of engine oil remaining (2-Stroke outboard only), or water/waste tank level (if attached).
4. **RPM Synchronizer:** Dual engines only - Monitors the revolutions of both engines.

SYSTEM TACHOMETER/SPEEDOMETER

5. **Trim Synchronizer:** Dual engines only - Displays the trim position of both engines. Simplifies keeping trim levels equal.

NOTE: *Depending on the engine type, not all screens will apply.*

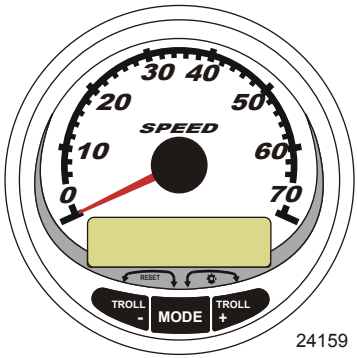


6. **Range:** The estimated range is based on boat speed, fuel consumption, and fuel remaining in the tank. The numbers displayed are an estimate of the distance you can travel with the remaining fuel. Speed input required (paddle wheel, pitot pressure or GPS).
7. **Fuel Economy:** Displays the average "AVG" fuel consumption as well as instantaneous "INST" fuel economy. The numbers displayed indicate miles per gallon "M/G" or kilometers per liter "KM/L." **Fuel Reset:** To reset, select the display screen and press "MODE/SELECT" and "–" simultaneously.
8. **Trip Odometer:** Displays the distance traveled since the gauge was last reset to zero. **Trip Reset:** To reset, select the display screen and press "MODE/SELECT" and "–" simultaneously.

SYSTEM TACHOMETER/SPEEDOMETER

9. **Digital Speedometer:** Displays the boat speed in miles per hour, kilometers per hour, or nautical miles per hour. The speedometer will use the paddle wheel for its low-speed readings, but will switch to the pitot or GPS (if connected) for high-speed readings. The transition point setting is described in Cal 2.
10. **Steering Angle:** Displays the relative position of the steering system. Available on Mercury MerCruiser models only. A steering angle sensor must be installed on the engine.

Speedometer Quick CAL Calibration



SC1000 System Speedometer

This calibration is for setting the lighting and contrast.

1. Press the "MODE/SELECT" and "+" buttons simultaneously for two seconds to bring up the "Quick Cal" display screen.
2. Press the "-" or "+" button to select the option choice displayed in the [ ] brackets on the screen.
3. Press "MODE/SELECT" to save the setting and advance through the calibration selections.

Quick CAL	
LIGHT [DOWN] [SAVE] [UP] 23517	Adjusts the brightness of the gauge lighting.

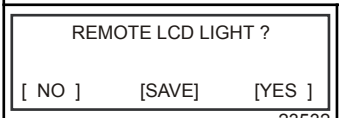
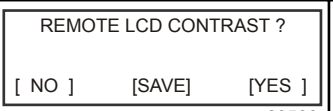
Quick CAL	
 23519	Adjusts the contrast of the display screen.

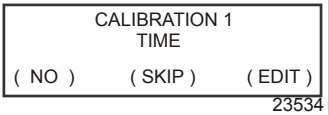
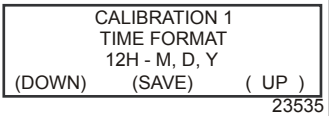
Speedometer CAL 1 Calibration

This calibration turns the system display screens on and off.

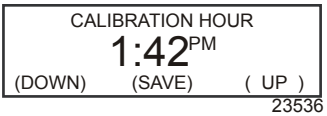
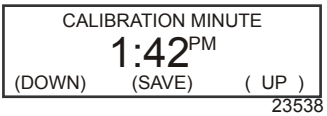
NOTE: Depending on the engine type, not all screens will apply.

1. Press the "MODE/SELECT" and "+" buttons simultaneously for approximately six seconds to bring up the "Cal 1" display screen.
2. Press the "-" or "+" button to select the option choice displayed in the [ ] brackets on the screen.
3. Press "MODE/SELECT" to save the setting and advance through the calibration selections.

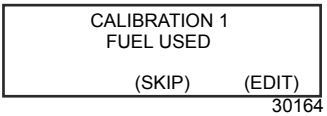
Remote Lighting and Contrast	
 23532	Adjusts the lighting levels on all gauges simultaneously from this gauge.
 23533	Adjusts the contrast of another System Tachometer/Speedometer simultaneously from this gauge.

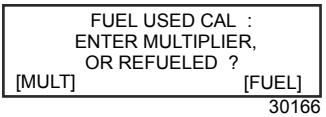
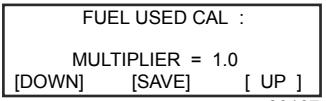
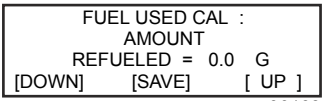
Time	
 23534	Sets the time. Select "EDIT" to format the time or "SKIP" to advance to the next screen.
 23535	Formats the time as either 12 hour month-day-year or as 24 hour day-month-year. Select "DOWN" or "UP" to change the format.

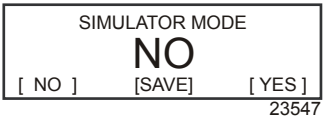
SYSTEM TACHOMETER/SPEEDOMETER

Time	
 23536	Adjusts the hours to match your local time. Select "DOWN" or "UP" to change the hour setting.
 23538	Adjusts the minutes to match your local time. Select "DOWN" or "UP" to change the minute setting.

Display Units	
 23539	Changes units of measurement between English or metric. Select "DOWN" or "UP" to change between English or metric units.
 23540	Changes the units in which speed is displayed. Choose from: MPH (Miles Per Hour), KN (Knots), or KMH (Kilometers Per Hour).

Display Screens	
 23542	The steering angle is displayed "YES" or off "NO". The steering angle sensor must be set to "YES" in the tachometer "CAL 2" external sensors calibration.
 23543	The split screen showing air temperature and time is displayed "YES" or off "NO".
 23544	The fuel used screen is displayed "YES" or off "NO".
 30164	Selects how fuel used is calibrated. Press "+" to select "EDIT" or "SELECT" to by-pass how the fuel used is calibrated.

Display Screens	
 30166	Selects how fuel used is calibrated with a multiplier or with refueling. Press "-" to select multiplier "MULT" or "+" to select refueling "FUEL."
 30167	Adjusts multiplier between 0.50 and 1.50. Press "-" to select "DOWN", or "+" to select "UP."
 30168	Adjust fuel used calibration using the amount of fuel replaced. Press "-" to select "DOWN", or "+" to select "UP."
 23545	The trip screen is displayed "YES" or off "NO".
 23546	The fuel management screen is displayed "YES" or off "NO".

Simulator Mode	
 23547	Enables the simulation mode. (Used for demonstration purposes only.)

Exit	
 23549	Press "MODE/SELECT" to exit. Press "-" to go to the start of CAL 1. Press "+" to continue to "CAL 2".

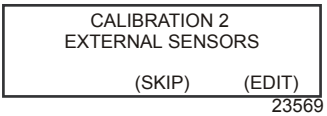
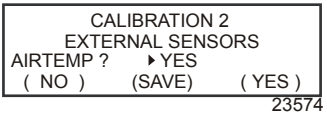
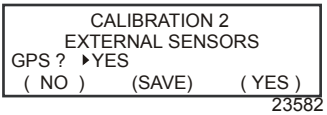
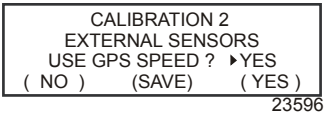
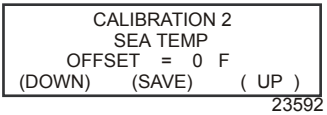
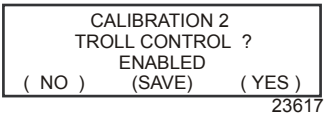
Speedometer CAL 2 Calibration

This calibration configures the system sensor inputs.

SYSTEM TACHOMETER/SPEEDOMETER

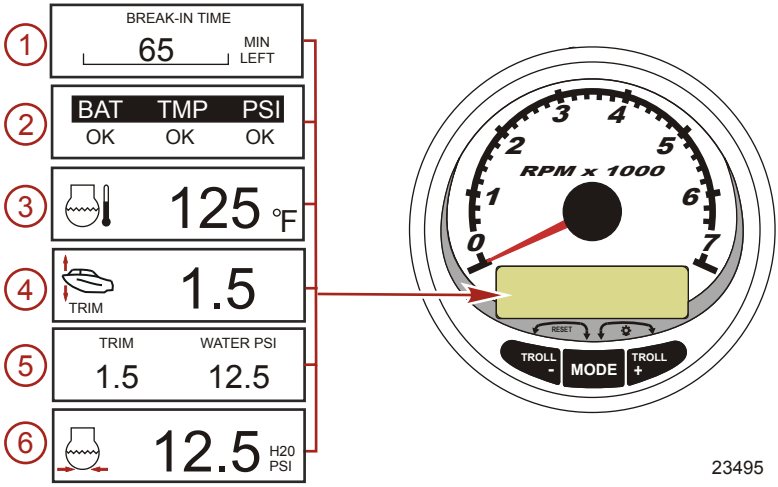
NOTE: *Screens may vary depending upon the version of the gauge and the engine type.*

1. Press and hold the "MODE/SELECT" and "+" buttons simultaneously for approximately nine seconds until the "CAL 2" display screen appears.
2. Press the "-" or "+" button to select the option choice displayed in the [ ] brackets on the screen.
3. Press "MODE/SELECT" to save the setting and advance through the calibration selections.

External Sensors	
 23569	Selects and calibrates external sensors that are installed in the system. Select (SKIP) to proceed to the next selection. Select (EDIT) to proceed to external sensor selection.
 23574	Is an air temperature sensor installed? Press "-" to select "NO" or "+" to select "YES".
 23582	Is a GPS sensor installed? Press "-" to select "NO" or "+" to select "YES".
 23596	Use the GPS input to drive the speed display? Press "-" to select "NO" or "+" to select "YES".
 23592	Adjust the seawater temperature sensor to correct display readings that are too high/low. Press "-" or "+" to calibrate the temperature display "DOWN" or "UP".
 23617	To enable troll control select "YES", to disable select "NO".

External Sensors	
CALIBRATION 2 EXIT ? (NO) (SAVE) (CAL1) 23618	Press "MODE/SELECT" to exit. Press "-" to go to the start of CAL 2. Press "+" to continue to "CAL 1".

System Tachometer Display Screens



When the ignition is turned on, the tachometer will display the last screen that was displayed before the ignition was turned off.

Press "MODE/SELECT" to change display screens. Revert back to the previous screen by pressing and holding "MODE/SELECT" for two seconds.

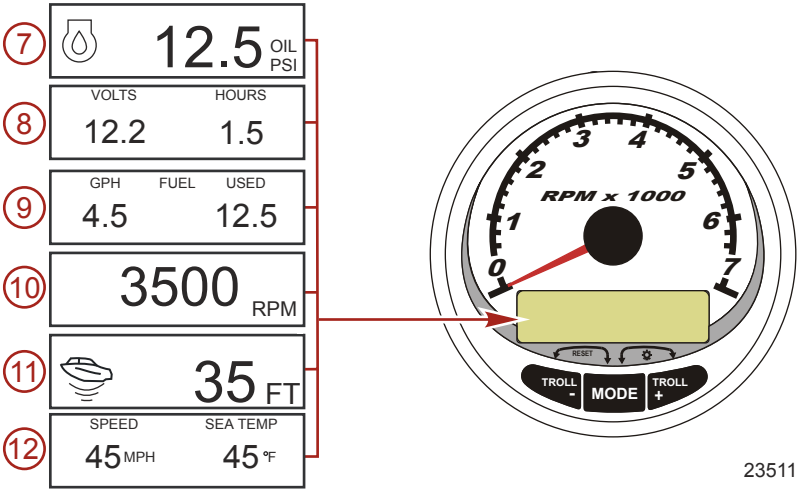
NOTE: *Readings can be displayed in English (U.S.) or metric. Refer to* ***Tachometer Calibration****.*

1. **Engine Break-in:** Displays the time remaining on the break-in period of a new engine. This screen will automatically disappear after the break-in period is complete.
2. **Quick Reference Screen:** Indicates that the battery, engine temperature, and pressures are operating properly.
3. **Temperature:** Displays the engine coolant temperature.

SYSTEM TACHOMETER/SPEEDOMETER

4. **Power Trim Angle:** Displays the trim angle of the outboard or sterndrive up to the maximum trim angle and then displays the trailer angle. 0 = down, 10 = maximum trim, and 25 = full trailer.
5. **Power Trim Angle/Water Pressure:** Displays the trim angle of the engine and cooling system water pressure.
6. **Water Pressure:** Displays the cooling system water pressure at the engine.

NOTE: *Depending on the engine type, not all screens will apply.*



7. **Oil Pressure:** Displays the engine oil pressure in "PSI" or "BAR".
8. **Battery Voltage:** Displays the voltage level (condition) of the battery. Also records the running time of the engine.
9. **Fuel Flow:** Displays the engine fuel use in gallons per hour or liters per hour.
10. **Digital Tachometer:** Displays the engine speed in revolutions per minute (RPM).

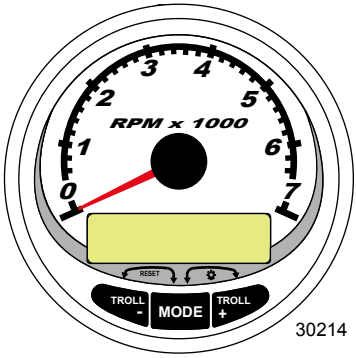
11. **Water Depth:** Displays the depth of water under the transducer if connected. The water depth screen can be turned on or off in CAL 1 calibration. The alarm can be set to trigger whenever the boat moves into water shallower than the alarm level. Refer to CAL 2 calibration for water depth alarm and offset settings.

NOTE: *A depth transducer (purchased separately) must be connected to the system for this screen to operate.*

12. **Speed/Temp:** Displays a split screen of seawater temperature and vessel speed.

NOTE: *A speed input sensor must be connected to the system for this screen to operate.*

Tachometer Quick CAL Calibration



SC1000 System Tachometer

This calibration is for setting lighting and contrast.

1. Press the "MODE/SELECT" and "+" buttons simultaneously for approximately two seconds or until the "QUICK CAL" screen appears.
2. Press the "-" or "+" button to select the option choice displayed in the [ ] brackets on the screen.
3. Press "MODE/SELECT" to save the setting and advance through the calibration screens.

SYSTEM TACHOMETER/SPEEDOMETER

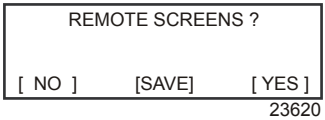
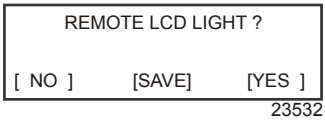
Quick CAL	
 23517	Adjusts the brightness of the gauge lighting.
 23519	Adjusts the contrast of the display screen.

Tachometer CAL 1 Calibration

This calibration turns the system screens on and off.

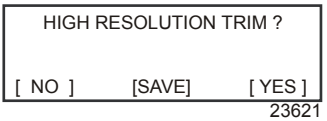
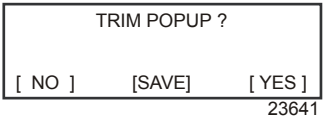
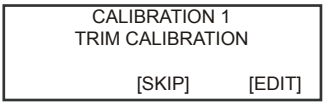
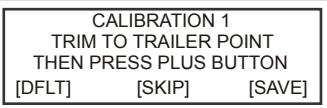
NOTE: *The screens may vary depending upon the version of the gauge.*

1. Press and hold the "MODE/SELECT" and "+" buttons for approximately seven seconds until the "CAL 1" screen appears.
2. Press the "-" or "+" button to select the option choice displayed in the [ ] brackets on the screen.
3. Press "MODE/SELECT" to save the setting and advance through the calibration screens.

Tachometer CAL 1 Calibration - Remote Light and Contrast	
 23620	If "YES" is selected, then screen changes made on this tachometer will effect all tachometers in the system. All tachometers need the screen set to "YES" for this function to work.
 23532	Adjusts the lighting levels on all gauges simultaneously from this gauge. If "YES" is selected, then lighting level changes made on this tachometer will effect all tachometers in the system. All tachometers need the screen set to "YES" for this function to work.

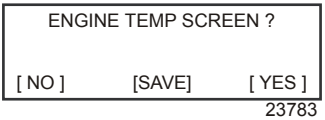
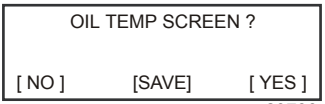
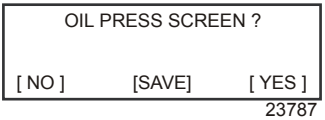
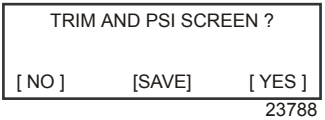
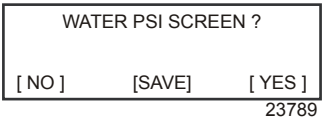
SYSTEM TACHOMETER/SPEEDOMETER

Tachometer CAL 1 Calibration - Remote Light and Contrast	
 23533	Adjusts the contrast of another System/Smart Tow Tachometer simultaneously from this gauge. If "YES" is selected, then contrast level changes made on this tachometer will effect all tachometers in the system. All tachometers need the screen set to "YES" for this function to work.

Tachometer CAL 1 Calibration - Trim	
 23621	Enables the trim angle to be displayed in 0.1° increments if "YES" is selected.
 23641	The trim display screen pops up when the trim setting is changed if "YES" is selected.
 23910	Select "EDIT" to calibrate the gauge to the standard 0 - 10° unit trim and 11 - 25° trailer position scale. Select "SKIP" to advance to the next selection.
 23911	Trim the system to the full down position, then press the "+" button to save the setting.
 23912	Trim the system to the full up position, then press the "+" button to save the setting.
 23919	Trim the system to the trailer point, then press the "+" button to save the setting.

SYSTEM TACHOMETER/SPEEDOMETER

Tachometer CAL 1 Calibration - Display Units	
 23539	Changes units of measure between English or metric. Select "DOWN" or "UP" to change between "ENGLISH" or "METRIC" units of measure.
 23540	Changes the units in which speed is displayed. Choose from: MPH (Miles Per Hour), KN (Knots), or KMH (Kilometers Per Hour).

Tachometer CAL 1 Calibration - Display Screens	
 23978	The quick reference screen is displayed "YES" or off "NO".
 23783	The engine temperature screen is displayed "YES" or off "NO".
 23786	The oil temperature screen is displayed "YES" or off "NO".
 23787	The oil pressure screen is displayed "YES" or off "NO".
 23788	The split screen showing trim angle and water pressure is displayed "YES" or off "NO".
 23789	The water pressure screen is displayed "YES" or off "NO".

Tachometer CAL 1 Calibration - Display Screens	
TRIM AND RPM SCREEN ? [NO] [SAVE] [YES] 23979	The split screen showing trim angle and engine RPM is displayed "YES" or off "NO".
RPM SCREEN ? [NO] [SAVE] [YES] 23980	The engine RPM screen is displayed "YES" or off "NO".
FUEL USED SCREEN ? [NO] [SAVE] [YES] 23981	The fuel used screen is displayed "YES" or off "NO".
VOLT / HOUR SCREEN ? [NO] [SAVE] [YES] 23982	The split screen showing volts and engine hours is displayed "YES" or off "NO".
SPEED / SEA SCREEN ? [NO] [SAVE] [YES] 23983	The split screen showing speed and sea temperature is displayed "YES" or off "NO".
DEPTH SCREEN ? [NO] [SAVE] [YES] 23984	The depth screen is displayed "YES" or off "NO".
SIMULATOR MODE NO [NO] [SAVE] [YES] 23547	Enables the simulation mode. (Used for demonstration purposes only.)
SIMULATOR MODE EXIT ? [NO] [YES] [CAL 2] 23549	Press "MODE/SELECT" to exit. Press "-" to go to the start of CAL 1. Press "+" to continue to "CAL 2".

Tachometer CAL 2 Calibration

This calibration configures the system sensor inputs.

SYSTEM TACHOMETER/SPEEDOMETER

NOTE: The screens may vary depending upon the version of the gauge.

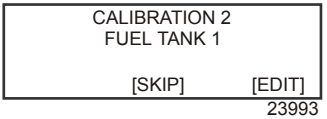
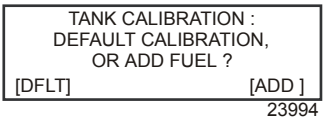
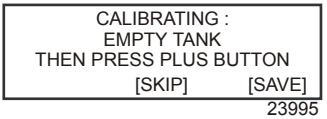
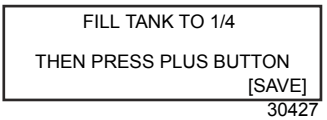
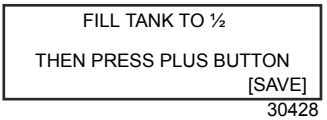
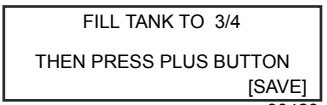
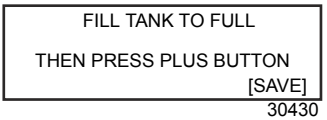
1. Press and hold the "MODE/SELECT" and "+" buttons for approximately ten seconds until the "CAL 2" screen appears.
2. Press the "-" or "+" button to select the option choice displayed in the [ ] brackets on the screen.
3. Press "MODE/SELECT" to save the setting and advance through the calibration screens.

FUEL TANK CALIBRATION

There are three methods for calibrating the fuel tank level monitoring feature:

1. Do nothing. The linear readout is based on raw sensor values. This mode does not factor in irregular tank shapes.
2. Performing the tank calibration procedure without adding fuel; the System Tachometer/Smart Tow Tachometer will supply an estimated range value based on linear interpolation of the sensor range values. This mode does not factor in irregular tank shapes. You must edit the tank calibration by entering a numerical value for the capacity of the fuel tank. The linear readout is based on raw sensor values.
3. Performing the tank calibration procedure with adding fuel at each calibration point; the System Tachometer/Smart Tow Tachometer will display an estimated range value that factors in the tank shape. You must edit the tank calibration by adding fuel for 1/4, 1/2, 3/4, and full. Failure to edit the tank calibration will automatically default the fuel level to the liter/gallon capacity.

CAL 2 Tachometer Calibration - Tank 1 and 2 Level Calibration	
CALIBRATION 2 FUEL TANK 1 CAPACITY CAPACITY = 26.2 G [DOWN] [SAVE] [UP] 23992	Enter the capacity of the tank. Select "DOWN" or "UP" to set the tank capacity. Then press "SAVE". This option is the same for tank 1 as it is for tank 2.

CAL 2 Tachometer Calibration - Tank 1 and 2 Level Calibration	
 23993	Select "EDIT" to enter the calibration mode of the fuel tank. The calibration procedure is the same for tank 1 as it is for tank 2. Select "EDIT" to begin tank level calibration.
 23994	Select "DFLT" to let SmartCraft calibrate the tank levels. Select "ADD" to calibrate the tank levels by adding fluid to the tank.
 23995	Empty the tank. Select "SAVE" to calibrate the tank level to empty.
 30427	Fill the tank to 1/4 full. Select "SAVE" to calibrate the tank level to 1/4 full.
 30428	Fill the tank to 1/2 full. Select "SAVE" to calibrate the tank level to 1/2 full.
 30429	Fill the tank to 3/4 full. Select "SAVE" to calibrate the tank level to 3/4 full.
 30430	Fill the tank to full. Select "SAVE" to calibrate the tank level to full.
 24148	Select tank 2 input: oil tank, fuel tank 2, water tank, waste tank, or not installed.

SYSTEM TACHOMETER/SPEEDOMETER

EXTERNAL SENSORS

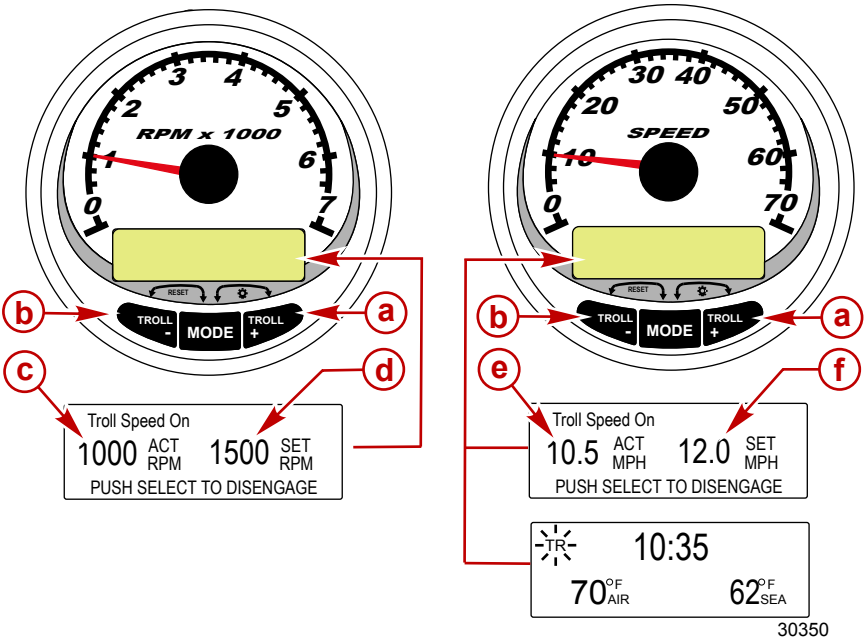
CAL 2 Tachometer Calibration - External Sensors	
CALIBRATION 2 EXTERNAL SENSORS ? [SKIP] [EDIT] 24006	Selects and calibrates external sensors that are installed in the system. Select "SKIP" to proceed to the speed options. Select "EDIT" to proceed to external sensor selection.
CALIBRATION 2 EXTERNAL SENSORS PITOT SENSOR ? ▶ YES [NO] [SAVE] [YES] 24007	Is the boat equipped with a pitot sensor to measure boat speed? Press "-" to select "NO" or "+" to select "YES".
CALIBRATION 2 EXTERNAL SENSORS PADDLE SENSOR ? ▶YES [NO] [SAVE] [YES] 24008	Is the boat equipped with a paddle wheel to measure boat speed? Press "-" to select "NO" or "+" to select "YES".
CALIBRATION 2 EXTERNAL SENSORS TRIM SENSOR ? ▶YES [NO] [SAVE] [YES] 24009	Is the boat equipped with a trim sensor? Press "-" to select "NO" or "+" to select "YES".
CALIBRATION 2 EXTERNAL SENSORS SEA TEMP ? ▶YES [NO] [SAVE] [YES] 24010	Is the boat equipped with a seawater temperature sensor? Press "-" to select "NO" or "+" to select "YES".
CALIBRATION 2 EXTERNAL SENSORS STEERING SENSOR ? ▶YES [NO] [SAVE] [YES] 24011	Is the boat equipped with a steering sensor? Press "-" to select "NO" or "+" to select "YES".
CALIBRATION 2 EXTERNAL SENSORS INVERT STEERING ? ▶YES [NO] [SAVE] [YES] 30432	Changes the position (direction) of the steering display. Press "-" to select "NO" or "+" to select "YES".
CALIBRATION 2 SPEED OPTION [SKIP] [EDIT] 24012	This section configures the following speed sensors. Select "EDIT" to calibrate the sensors. Select "SKIP" to proceed to the depth sensor screen.

CAL 2 Tachometer Calibration - External Sensors	
CALIBRATION 2 PITOT SENSOR 100 PSI TYPE [NO] [SAVE] [YES] 24014	Select pitot transducer type. Choose between 100 or 200 psi. (100 psi is the most common.)
CALIBRATION 2 PITOT SENSOR MULTIPLIER = 1.00 [DOWN] [SAVE] [UP] 24018	Adjust the pitot pressure sensor to correct display readings that are too high/low. Press "-" or "+" to calibrate the pitot sensor multiplier "DOWN" or "UP".
CALIBRATION 2 PADDLE SENSOR PULSEFACTOR = 3.0 [DOWN] [SAVE] [UP] 24021	Adjust paddle wheel frequency to correct display readings that are too high/low. Press "-" or "+" to calibrate the paddle sensor pulse factor "DOWN" or "UP".
CALIBRATION 2 TRANSITION SPEED TRANSITION = 30 MPH [DOWN] [SAVE] [UP] 24022	Set the speed at which the gauge stops reading the paddle wheel and starts using pitot sensor to measure boat speed. Press "-" or "+" to calibrate the transition speed "DOWN" or "UP".
CALIBRATION 2 DEPTH SENSOR OFFSET = 3 FEET [DOWN] [SAVE] [UP] 24023	Electronically configure a depth offset. Entering a negative number gives you a waterline offset. A positive number gives you a keel offset. Press "-" or "+" to calibrate the depth sensor offset "DOWN" or "UP".
CALIBRATION 2 DEPTH ALARM LEVEL = 2.5 FEET [DOWN] [SAVE] [UP] 24024	Enter a depth value. When the depth transducer reads that value or below, the shallow water alarm will sound. Press "-" or "+" to calibrate the depth alarm level "DOWN" or "UP".
CALIBRATION 2 EXIT ? [NO] [YES] [CAL 1] 24025	Press "MODE/SELECT" to exit. Press "-" to go to the start of CAL 2. Press "+" to continue to "CAL 1."

SYSTEM TACHOMETER/SPEEDOMETER

Troll Control Operation

NOTE: *The troll control feature is only available on the System Tachometer and Speedometer.*



- **a -** Increase troll speed
- **b -** Decrease troll speed
- **c -** Actual RPM
- **d -** Set RPM
- **e -** Actual MPH
- **f -** Set MPH

NOTE: *Troll control may not be available on all engine models.*

NOTE: *The troll control minimum and maximum range may change depending on engine type.*

Set the troll control by using the System Tachometer or Speedometer. The speedometer will set the speed in MPH, KPH, or KN, while the tachometer will set the speed in RPM.

SYSTEM TACHOMETER/SPEEDOMETER

The troll control can be shut off at anytime by adjusting the throttle or by pushing the "MODE/SELECT" button when in the troll display screen.

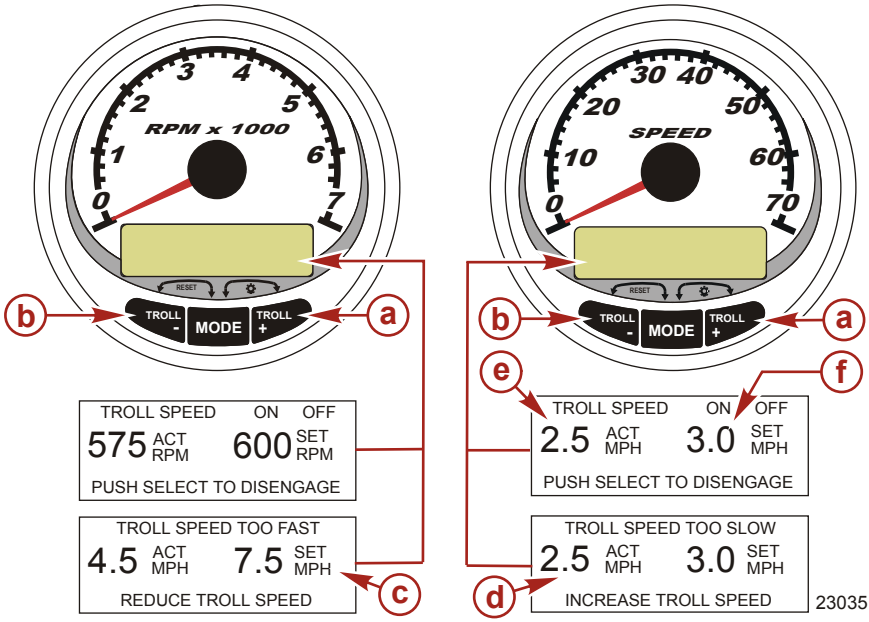
When the troll control is shut off, the system will remember the set speed. When the troll control is engaged, it will return to the set speed.

The display screen will revert back to the previous screen after five seconds of inactivity. Push the "+" or "-" button to reactivate the troll control display screen.

When the troll control is engaged and not in the troll control display screen, a flashing "TR" signal will appear in the upper left corner of the screen to indicate the troll control is still active.

SYSTEM TACHOMETER/SPEEDOMETER

SETTING TROLL CONTROL



a - Increase troll set speed
b - Decrease troll set speed
c - Setting is too fast, reduce set troll speed
d - Setting is too slow, increase set troll speed
e - Actual speed
f - Set speed

1. With the engine running, shift the engine into gear. Set the engine speed at idle.
2. Push in either the "+" or "-" buttons to bring up the troll control display screen.
3. Press "MODE/SELECT" to engage the troll control.
4. Use the "+" and "-" buttons to set the desired speed. Use "+" to increase the set speed and use "-" to decrease the set speed.
5. If the troll speed is set to a higher speed than the troll control can maintain, the "TROLL SPEED TOO FAST" display will appear. Reduce the set troll speed.

6. If the troll speed is set to a slower speed than the troll control can maintain, the "TROLL SPEED TOO SLOW" display will appear. Increase the set troll speed.

CANCELING TROLL CONTROL

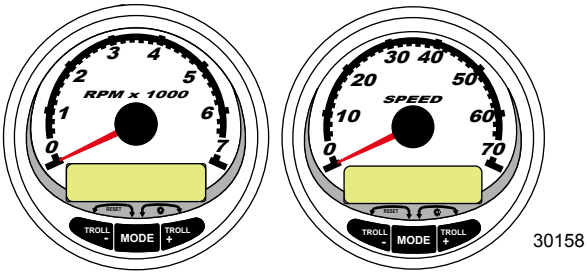
There are three ways to cancel the troll control:

- Press the "MODE/SELECT" button when in the troll display screen.
- Move the throttle to a different speed.
- Shift the engine into neutral.

SYSTEM TACH/SPEED DESCRIPTIVE TEXT

Basic Operation and Features

NOTE: *Descriptive text alarm warning screens are displayed with Gen I (2007) engines and newer.*



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System Tachometer

System Speedometer

Power up: Each gauge will power up when the ignition is turned on. The gauges will stay on as long as the ignition is on.

Lights: Adjusts the brightness and contrast of the gauge.

Buttons: The "MODE/SELECT" button is used for selecting information screens. The "+" and "-" buttons are used for setting engine speed for troll control, and setting gauge calibrations.

Troll control: Sets and controls the idle speed of the engine for trolling without using the throttle.

Engine Guardian System: Monitors the critical sensors on the engine for any early indication of problems. The system will respond to a problem by reducing engine speed and alerting the operator to a potentially damaging situation.

Warning system: The system sounds the warning horn and displays the warning with descriptive text.

IMPORTANT: Optional sensors such as depth, fuel, paddle wheel, and steering angle, should always be connected to the starboard engine when using SmartCraft gauges version 4.0 or later.

SYSTEM TACH/SPEED DESCRIPTIVE TEXT

Automatic Engine Detection Feature

The System Tachometer/Speedometer has an automatic engine detection feature. This feature automatically detects which engine type is used and configures the gauge to match that engine type.

The first power up of the gauge, or after a Master Reset, the gauge will display "AUTODETECT". Press the "MODE/SELECT" button to start the automatic engine detection feature and the gauge will determine the engine type. This will preset the data monitoring screens to make the initial setup easier.

24298

If the gauge shows a warning of "NO STARBOARD ENGINE" or "MULTIPLE STARBOARD ENGINES", the engine location (port and starboard) must be selected by an authorized dealer equipped with the computer diagnostic system (CDS) tool.

Master Reset

Returns the gauge to the factory defaults through the Master Reset command.

IMPORTANT: Performing a Master Reset will reset the unit to the factory defaults, thus eliminating any installation and calibrations performed during set up of product.

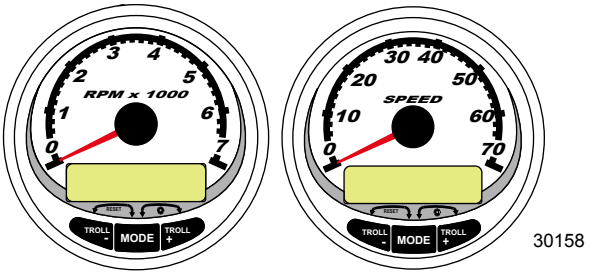
Press the "-" and "+" buttons simultaneously for approximately 10 seconds (until the graphic bars collide) to restore the unit to factory default settings. Press the "MODE/SELECT" button to confirm.

22660

SYSTEM TACH/SPEED DESCRIPTIVE TEXT

Alarm Warnings with Descriptive Text

NOTE: *Descriptive text alarm warning screens are displayed with Gen I (2007) engines and newer.*



30158

System Tachometer System Speedometer

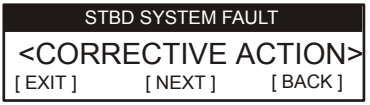
When a problem is detected, the "SYS FAULT" alarm appears on the display. Press the "+" button to show the faulty component. The upper bar in this screen displays the system where the fault is located. The faulty component is described in the scrolling text. Press the "+" button for more information. This screen gives a detailed description of the fault in the scrolling text. Press the "+" button to view the required corrective action.

The alarm message will stay displayed until the "-" button is pressed. If there are multiple alarms, press the "MODE/SELECT" button to display.

If a problem can cause immediate engine damage, the Engine Guardian System will respond to the problem by limiting engine power. Immediately reduce the throttle speed to idle and refer to the warning messages on the following pages. Refer to the appropriate service manual for further explanation of the problem and the correct action to take.

If the "MODE/SELECT" button is pressed to display a different screen, the flashing alarm signal "AL" will appear in the upper right corner to indicate there still is a problem.

SYSTEM TACH/SPEED DESCRIPTIVE TEXT

Alarm Warning with Descriptive Text	
 24184	The "SYS FAULT" bar indicates there is a problem in the system. "SHOW" displays the faulty component.
 24186	The top bar indicates the system with the faulty component. The scrolling text displays the faulty component. "NEXT" displays the next fault. "MORE" displays a detailed description of the fault.
 24187	The scrolling text explains in detail the description of the fault. "ACTION" displays the course of action required by the operator.
 24189	The scrolling text displays the course of action required by the operator.

SYSTEM TACH/SPEED DESCRIPTIVE TEXT

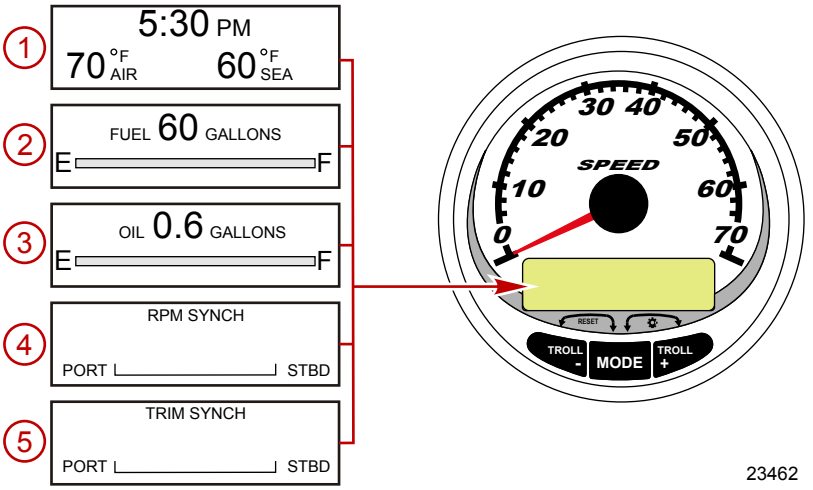
Display Screens

Tachometer Display Screen	Speedometer Display Screen
Engine Break-in (2-Stroke outboard only)	Speed
Engine Temperature	Fuel Used
Oil Temperature	Cog/Sog - If there is a GPS input
Oil PSI	Distance and Fuel to Waypoint
Trim and RPM	Clock - Air/Sea Temp
Trim and Water Pressure	Instant and Average Fuel Economy
Water Pressure	Trip Odometer
Battery Voltage and Engine Hours	Fuel Tank Levels
Fuel Flow and Fuel Used	Oil Tank Levels
Speed and Sea Temperature	Fresh Water Levels
Battery Voltage	Waste Water levels
% Fuel Remaining (Fuel Tank 1)	Steering Angle (MerCruiser only)
Depth	
Trim Position	**Dual Engine**
Fuel PSI	Trim and RPM Synchronizer
Trailer and RPM	
RPM	
Quick Reference Screen Battery, Temperature, PSI	

SYSTEM TACH/SPEED DESCRIPTIVE TEXT

System Speedometer Display Screens

NOTE: *Depending on the engine type, not all screens will apply.*



When the ignition is turned on, the speedometer will show the last screen that was displayed before the ignition was turned off.

Press "MODE/SELECT" to change display screens. Revert back to the previous screen by pressing and holding "MODE/SELECT" for two seconds.

NOTE: *Readings can be displayed in English (U.S.) or metric. Refer to* ***Speedometer Cal 1 Calibrations****.*

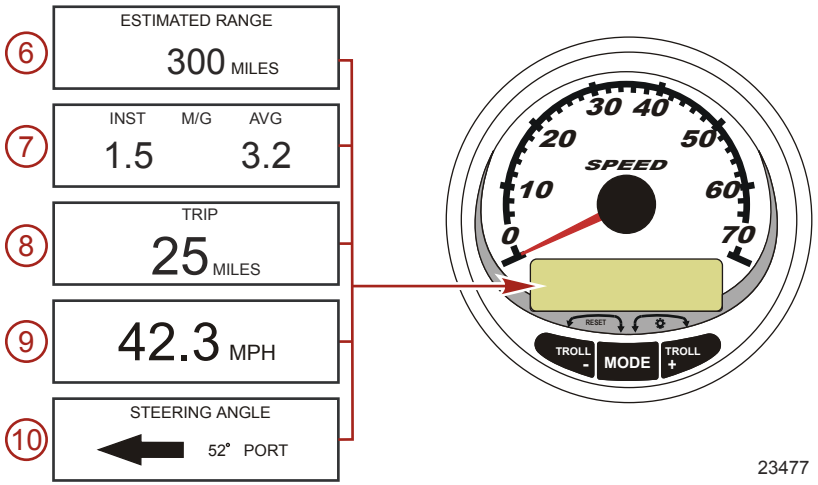
NOTE: *The descriptions may not be in order on the gauge. The order may change depending on engine type.*

1. **Clock - Temp:** Clock, air temperature, and water temperature. The air and water temperature sensors must be connected to obtain display readings.
2. **Fuel Level:** Displays the amount of fuel remaining.
3. **Oil Level:** Displays the amount of engine oil remaining (2-Stroke outboard only), or water/waste tank level (if attached).
4. **RPM Synchronizer:** Dual engines only - Monitors the revolutions of both engines.

SYSTEM TACH/SPEED DESCRIPTIVE TEXT

5. **Trim Synchronizer:** Dual engines only - Displays the trim position of both engines. Simplifies keeping trim levels equal.

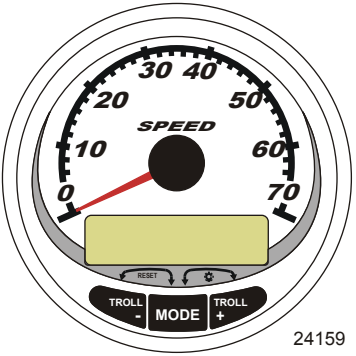
NOTE: *Depending on the engine type, not all screens will apply.*



6. **Range:** The estimated range is based on boat speed, fuel consumption, and fuel remaining in the tank. The numbers displayed are an estimate of the distance you can travel with the remaining fuel. Speed input required (paddle wheel, pitot pressure or GPS).
7. **Fuel Economy:** Displays the average "AVG" fuel consumption as well as Instantaneous "INST" fuel economy. The numbers displayed indicate miles per gallon "M/G" or kilometers per liter "KM/L". **Fuel Reset:** To reset, select the display screen and press "MODE/SELECT" and "-" simultaneously.
8. **Trip Odometer:** Displays the distance traveled since the gauge was last reset to zero. **Trip Reset:** To reset, select the display screen and press "MODE/SELECT" and "-" simultaneously.

9. **Digital Speedometer:** Displays the boat speed in miles per hour, kilometers per hour, or nautical miles per hour. The speedometer will use the paddle wheel for its low speed readings, but will switch to the speedometer or GPS (if connected) for high speed readings. The transition point setting is described in Cal 2.
10. **Steering Angle:** Displays the relative position of the steering system. Available on Mercury MerCruiser models only. A steering angle sensor must be installed on the engine.

Speedometer Quick CAL Calibration



SC1000 System Speedometer

This calibration is for setting the lighting and contrast.

1. Press the "MODE/SELECT" and "+" buttons simultaneously for two seconds to bring up the "Quick Cal" display screen.
2. Press the "-" or "+" button to select the option choice displayed in the [ ] brackets on the screen.
3. Press "MODE/SELECT" to save the setting and advance through the calibration selections.

Quick CAL	
LIGHT [DOWN] [SAVE] [UP] 23517	Adjusts the brightness of the gauge lighting.

SYSTEM TACH/SPEED DESCRIPTIVE TEXT

Quick CAL	
 23519	Adjusts the contrast of the display screen.

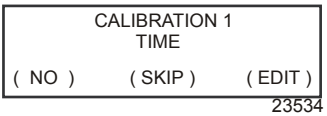
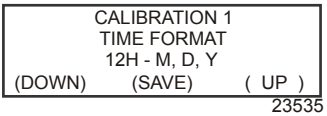
Speedometer CAL 1 Calibration

This calibration turns the system display screens on and off.

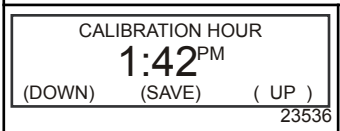
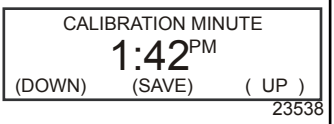
NOTE: *Depending on the engine type, not all screens will apply.*

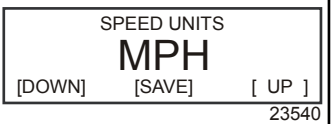
1. Press the "MODE/SELECT" and "+" buttons simultaneously for approximately six seconds to bring up the "Cal 1" display screen.
2. Press the "-" or "+" button to select the option choice displayed in the [ ] brackets on the screen.
3. Press "MODE/SELECT" to save the setting and advance through the calibration selections.

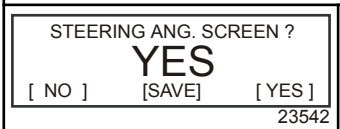
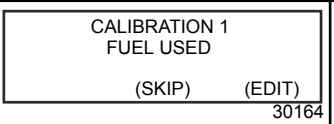
Remote Lighting and Contrast	
 23532	Adjusts the lighting levels on all gauges simultaneously from this gauge.
 23533	Adjusts the contrast of another System Tachometer/Speedometer simultaneously from this gauge.

Time	
 23534	Sets the time. Select "EDIT" to format the time or "SKIP" to advance to the next screen.
 23535	Formats the time as either 12 hour month-day-year or as 24 hour day-month-year. Select "DOWN" or "UP" to change the format.

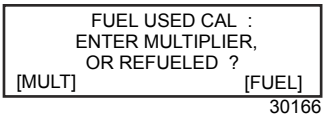
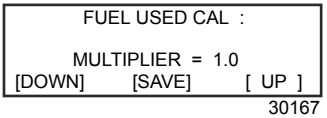
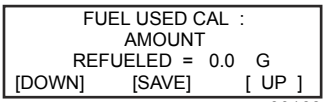
SYSTEM TACH/SPEED DESCRIPTIVE TEXT

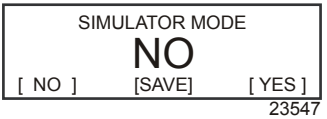
Time	
 23536	Adjusts the hours to match your local time. Select "DOWN" or "UP" to change the hour setting.
 23538	Adjusts the minutes to match your local time. Select "DOWN" or "UP" to change the minute setting.

Display Units	
 23539	Changes units of measurement between English or metric. Select "DOWN" or "UP" to change between English or metric units.
 23540	Changes the units in which speed is displayed. Choose from: MPH (Miles Per Hour), KN (Knots), or KMH (Kilometers Per Hour).

Display Screens	
 23542	The steering angle is displayed "YES" or off "NO". The steering angle sensor must be set to "YES" in the tachometer "CAL 2" external sensors calibration.
 23543	The split screen showing air temperature and time is displayed "YES" or off "NO".
 23544	The fuel used screen is displayed "YES" or off "NO".
 30164	Selects how fuel used is calibrated. Press "+" to select "EDIT" or "SELECT" to by-pass how the fuel used is calibrated.

SYSTEM TACH/SPEED DESCRIPTIVE TEXT

Display Screens	
 30166	Selects how fuel used is calibrated with a multiplier or with refueling. Press "-" to select multiplier "MULT" or "+" to select refueling "FUEL."
 30167	Adjusts multiplier between 0.50 and 1.50. Press "-" to select "DOWN", or "+" to select "UP."
 30168	Adjust fuel used calibration using the amount of fuel replaced. Press "-" to select "DOWN", or "+" to select "UP."
 23545	The trip screen is displayed "YES" or off "NO".
 23546	The fuel management screen is displayed "YES" or off "NO".

Simulator Mode	
 23547	Enables the simulation mode. (Used for demonstration purposes only.)

Exit	
 23549	Press "MODE/SELECT" to exit. Press "-" to go to the start of CAL 1. Press "+" to continue to "CAL 2".

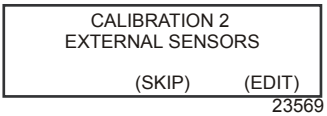
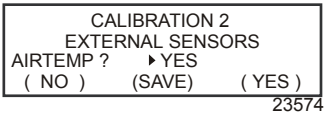
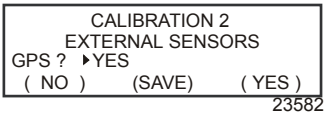
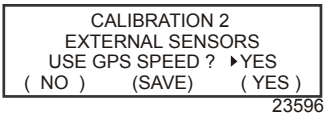
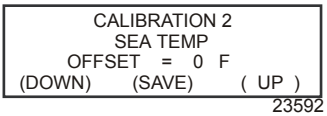
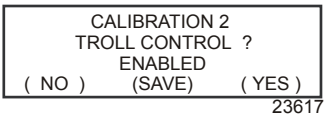
Speedometer CAL 2 Calibration

This calibration configures the system sensor inputs.

SYSTEM TACH/SPEED DESCRIPTIVE TEXT

NOTE: *Screens may vary depending upon the version of the gauge and the engine type.*

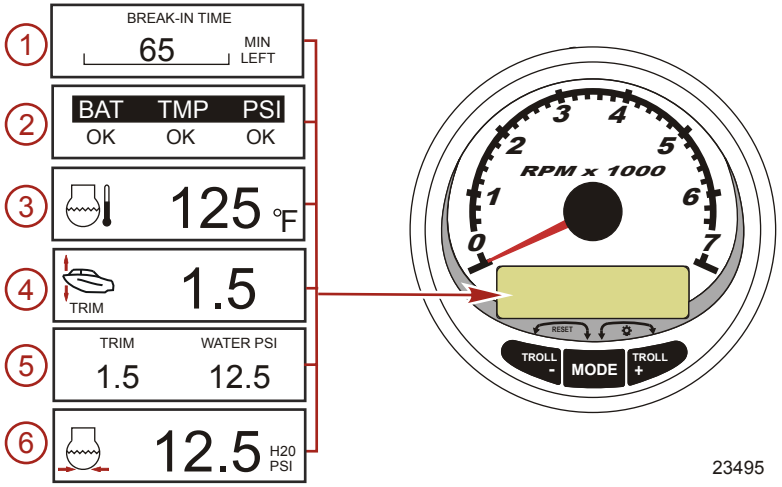
1. Press and hold the "MODE/SELECT" and "+" buttons simultaneously for approximately nine seconds until the "CAL 2" display screen appears.
2. Press the "-" or "+" button to select the option choice displayed in the [ ] brackets on the screen.
3. Press "MODE/SELECT" to save the setting and advance through the calibration selections.

External Sensors	
 23569	Selects and calibrates external sensors that are installed in the system. Select (SKIP) to proceed to the next selection. Select (EDIT) to proceed to external sensor selection.
 23574	Is an air temperature sensor installed? Press "-" to select "NO" or "+" to select "YES".
 23582	Is a GPS sensor installed? Press "-" to select "NO" or "+" to select "YES".
 23596	Use the GPS input to drive the speed display? Press "-" to select "NO" or "+" to select "YES".
 23592	Adjust the seawater temperature sensor to correct display readings that are too high/low. Press "-" or "+" to calibrate the temperature display "DOWN" or "UP".
 23617	To enable troll control select "YES", to disable select "NO".

SYSTEM TACH/SPEED DESCRIPTIVE TEXT

External Sensors	
CALIBRATION 2 EXIT ? (NO) (SAVE) (CAL1) 23618	Press "MODE/SELECT" to exit. Press "-" to go to the start of CAL 2. Press "+" to continue to "CAL 1".

System Tachometer Display Screens



When the ignition is turned on, the tachometer will display the last screen that was displayed before the ignition was turned off.

Press "MODE/SELECT" to change display screens. Revert back to the previous screen by pressing and holding "MODE/SELECT" for two seconds.

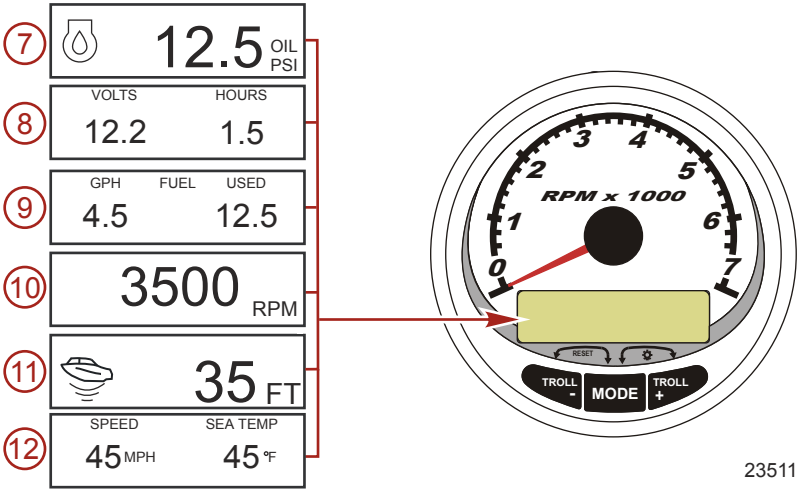
NOTE: *Readings can be displayed in English (U.S.) or metric. Refer to* ***Tachometer Calibration****.*

1. **Engine Break-in:** Displays the time remaining on the break-in period of a new engine. This screen will automatically disappear after the break-in period is complete.
2. **Quick Reference Screen:** Indicates that the battery, engine temperature, and pressures are operating properly.
3. **Temperature:** Displays the engine coolant temperature.

SYSTEM TACH/SPEED DESCRIPTIVE TEXT

4. **Power Trim Angle:** Displays the trim angle of the outboard or sterndrive up to the maximum trim angle and then displays the trailer angle. 0 = down, 10 = maximum trim, and 25 = full trailer.
5. **Power Trim Angle/Water Pressure:** Displays the trim angle of the engine and cooling system water pressure.
6. **Water Pressure:** Displays the cooling system water pressure at the engine.

NOTE: *Depending on the engine type, not all screens will apply.*



7. **Oil Pressure:** Displays the engine oil pressure in "PSI" or "BAR".
8. **Battery Voltage:** Displays the voltage level (condition) of the battery. Also records the running time of the engine.
9. **Fuel Flow:** Displays the engine fuel use in gallons per hour or liters per hour.
10. **Digital Tachometer:** Displays the engine speed in revolutions per minute (RPM).

SYSTEM TACH/SPEED DESCRIPTIVE TEXT

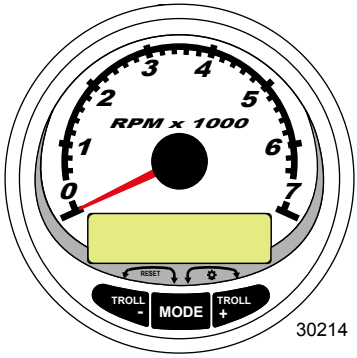
11. **Water Depth:** Displays the depth of water under the transducer if connected. The water depth screen can be turned on or off in CAL 1 calibration. The alarm can be set to trigger whenever the boat moves into water shallower than the alarm level. Refer to CAL 2 calibration for water depth alarm and offset settings.

NOTE: *A depth transducer (purchased separately) must be connected to the system for this screen to operate.*

12. **Speed/Temp:** Displays a split screen of seawater temperature and vessel speed.

NOTE: *A speed input sensor must be connected to the system for this screen to operate.*

Tachometer Quick CAL Calibration



SC1000 System Tachometer

This calibration is for setting lighting and contrast.

1. Press the "MODE/SELECT" and "+" buttons simultaneously for approximately two seconds or until the "QUICK CAL" screen appears.
2. Press the "-" or "+" button to select the option choice displayed in the [ ] brackets on the screen.
3. Press "MODE/SELECT" to save the setting and advance through the calibration screens.

SYSTEM TACH/SPEED DESCRIPTIVE TEXT

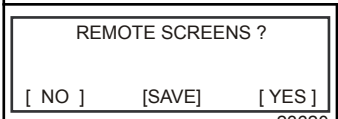
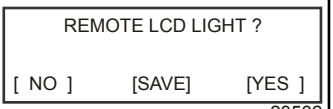
Quick CAL	
 23517	Adjusts the brightness of the gauge lighting.
 23519	Adjusts the contrast of the display screen.

Tachometer CAL 1 Calibration

This calibration turns the system screens on and off.

NOTE: *The screens may vary depending upon the version of the gauge.*

1. Press and hold the "MODE/SELECT" and "+" buttons for approximately seven seconds until the "CAL 1" screen appears.
2. Press the "-" or "+" button to select the option choice displayed in the [ ] brackets on the screen.
3. Press "MODE/SELECT" to save the setting and advance through the calibration screens.

Tachometer CAL 1 Calibration - Remote Light and Contrast	
 23620	If "YES" is selected, then screen changes made on this tachometer will effect all tachometers in the system. All tachometers need the screen set to "YES" for this function to work.
 23532	Adjusts the lighting levels on all gauges simultaneously from this gauge. If "YES" is selected, then lighting level changes made on this tachometer will effect all tachometers in the system. All tachometers need the screen set to "YES" for this function to work.

SYSTEM TACH/SPEED DESCRIPTIVE TEXT

Tachometer CAL 1 Calibration - Remote Light and Contrast	
REMOTE LCD CONTRAST ? [NO] [SAVE] [YES] 23533	Adjusts the contrast of another System/Smart Tow Tachometer simultaneously from this gauge. If "YES" is selected, then contrast level changes made on this tachometer will effect all tachometers in the system. All tachometers need the screen set to "YES" for this function to work.

Tachometer CAL 1 Calibration - Trim	
HIGH RESOLUTION TRIM ? [NO] [SAVE] [YES] 23621	Enables the trim angle to be displayed in 0.1° increments if "YES" is selected.
TRIM POPUP ? [NO] [SAVE] [YES] 23641	The trim display screen pops up when the trim setting is changed if "YES" is selected.
CALIBRATION 1 TRIM CALIBRATION [SKIP] [EDIT] 23910	Select "EDIT" to calibrate the gauge to the standard 0 - 10° unit trim and 11 - 25° trailer position scale. Select "SKIP" to advance to the next selection.
CALIBRATION 1 TRIM FULL DOWN THEN PRESS PLUS BUTTON [DFLT] [SKIP] [SAVE] 23911	Trim the system to the full down position, then press the "+" button to save the setting.
CALIBRATION 1 TRIM FULL UP THEN PRESS PLUS BUTTON [DFLT] [SKIP] [SAVE] 23912	Trim the system to the full up position, then press the "+" button to save the setting.
CALIBRATION 1 TRIM TO TRAILER POINT THEN PRESS PLUS BUTTON [DFLT] [SKIP] [SAVE] 23919	Trim the system to the trailer point, then press the "+" button to save the setting.

SYSTEM TACH/SPEED DESCRIPTIVE TEXT

Tachometer CAL 1 Calibration - Display Units	
DISPLAY UNITS ENGLISH [DOWN] [SAVE] [UP] 23539	Changes units of measure between English or metric. Select "DOWN" or "UP" to change between "ENGLISH" or "METRIC" units of measure.
SPEED UNITS MPH [DOWN] [SAVE] [UP] 23540	Changes the units in which speed is displayed. Choose from: MPH (Miles Per Hour), KN (Knots), or KMH (Kilometers Per Hour).

Tachometer CAL 1 Calibration - Display Screens	
QUICK REF SCREEN ? [NO] [SAVE] [YES] 23978	The quick reference screen is displayed "YES" or off "NO".
ENGINE TEMP SCREEN ? [NO] [SAVE] [YES] 23783	The engine temperature screen is displayed "YES" or off "NO".
OIL TEMP SCREEN ? [NO] [SAVE] [YES] 23786	The oil temperature screen is displayed "YES" or off "NO".
OIL PRESS SCREEN ? [NO] [SAVE] [YES] 23787	The oil pressure screen is displayed "YES" or off "NO".
TRIM AND PSI SCREEN ? [NO] [SAVE] [YES] 23788	The split screen showing trim angle and water pressure is displayed "YES" or off "NO".
WATER PSI SCREEN ? [NO] [SAVE] [YES] 23789	The water pressure screen is displayed "YES" or off "NO".

SYSTEM TACH/SPEED DESCRIPTIVE TEXT

Tachometer CAL 1 Calibration - Display Screens	
TRIM AND RPM SCREEN ? [NO] [SAVE] [YES] 23979	The split screen showing trim angle and engine RPM is displayed "YES" or off "NO".
RPM SCREEN ? [NO] [SAVE] [YES] 23980	The engine RPM screen is displayed "YES" or off "NO".
FUEL USED SCREEN ? [NO] [SAVE] [YES] 23981	The fuel used screen is displayed "YES" or off "NO".
VOLT / HOUR SCREEN ? [NO] [SAVE] [YES] 23982	The split screen showing volts and engine hours is displayed "YES" or off "NO".
SPEED / SEA SCREEN ? [NO] [SAVE] [YES] 23983	The split screen showing speed and sea temperature is displayed "YES" or off "NO".
DEPTH SCREEN ? [NO] [SAVE] [YES] 23984	The depth screen is displayed "YES" or off "NO".
SIMULATOR MODE NO [NO] [SAVE] [YES] 23547	Enables the simulation mode. (Used for demonstration purposes only.)
SIMULATOR MODE EXIT ? [NO] [YES] [CAL 2] 23549	Press "MODE/SELECT" to exit. Press "-" to go to the start of CAL 1. Press "+" to continue to "CAL 2".

Tachometer CAL 2 Calibration

This calibration configures the system sensor inputs.

SYSTEM TACH/SPEED DESCRIPTIVE TEXT

NOTE: *The screens may vary depending upon the version of the gauge.*

1. Press and hold the "MODE/SELECT" and "+" buttons for approximately ten seconds until the "CAL 2" screen appears.
2. Press the "-" or "+" button to select the option choice displayed in the [ ] brackets on the screen.
3. Press "MODE/SELECT" to save the setting and advance through the calibration screens.

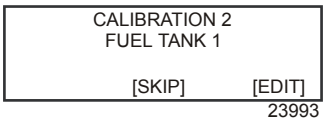
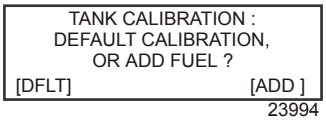
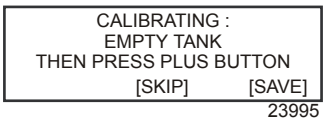
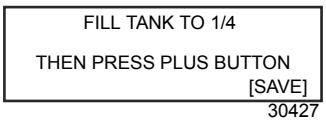
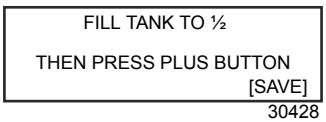
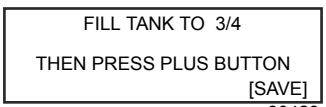
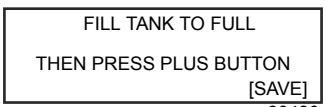
FUEL TANK CALIBRATION

There are three methods for calibrating the fuel tank level monitoring feature:

1. Do nothing. The linear readout is based on raw sensor values. This mode does not factor in irregular tank shapes.
2. Performing the tank calibration procedure without adding fuel; the System Tachometer/Smart Tow Tachometer will supply an estimated range value based on linear interpolation of the sensor range values. This mode does not factor in irregular tank shapes. You must edit the tank calibration by entering a numerical value for the capacity of the fuel tank. The linear readout is based on raw sensor values.
3. Performing the tank calibration procedure with adding fuel at each calibration point; the System Tachometer/Smart Tow Tachometer will display an estimated range value that factors in the tank shape. You must edit the tank calibration by adding fuel for 1/4, 1/2, 3/4, and full. Failure to edit the tank calibration will automatically default the fuel level to the liter/gallon capacity.

CAL 2 Tachometer Calibration - Tank 1 and 2 Level Calibration	
CALIBRATION 2 FUEL TANK 1 CAPACITY CAPACITY = 26.2 G [DOWN] [SAVE] [UP] 23992	Enter the capacity of the tank. Select "DOWN" or "UP" to set the tank capacity. Then press "SAVE". This option is the same for tank 1 as it is for tank 2.

SYSTEM TACH/SPEED DESCRIPTIVE TEXT

CAL 2 Tachometer Calibration - Tank 1 and 2 Level Calibration	
 23993	Select "EDIT" to enter the calibration mode of the fuel tank. The calibration procedure is the same for tank 1 as it is for tank 2. Select "EDIT" to begin tank level calibration.
 23994	Select "DFLT" to let SmartCraft calibrate the tank levels. Select "ADD" to calibrate the tank levels by adding fluid to the tank.
 23995	Empty the tank. Select "SAVE" to calibrate the tank level to empty.
 30427	Fill the tank to 1/4 full. Select "SAVE" to calibrate the tank level to 1/4 full.
 30428	Fill the tank to 1/2 full. Select "SAVE" to calibrate the tank level to 1/2 full.
 30429	Fill the tank to 3/4 full. Select "SAVE" to calibrate the tank level to 3/4 full.
 30430	Fill the tank to full. Select "SAVE" to calibrate the tank level to full.
 24148	Select tank 2 input: oil tank, fuel tank 2, water tank, waste tank, or not installed.

SYSTEM TACH/SPEED DESCRIPTIVE TEXT

EXTERNAL SENSORS

CAL 2 Tachometer Calibration - External Sensors	
CALIBRATION 2 EXTERNAL SENSORS ? [SKIP] [EDIT] 24006	Selects and calibrates external sensors that are installed in the system. Select "SKIP" to proceed to the speed options. Select "EDIT" to proceed to external sensor selection.
CALIBRATION 2 EXTERNAL SENSORS PITOT SENSOR ? ▶ YES [NO] [SAVE] [YES] 24007	Is the boat equipped with a pitot sensor to measure boat speed? Press "-" to select "NO" or "+" to select "YES".
CALIBRATION 2 EXTERNAL SENSORS PADDLE SENSOR ? ▶YES [NO] [SAVE] [YES] 24008	Is the boat equipped with a paddle wheel to measure boat speed? Press "-" to select "NO" or "+" to select "YES".
CALIBRATION 2 EXTERNAL SENSORS TRIM SENSOR ? ▶YES [NO] [SAVE] [YES] 24009	Is the boat equipped with a trim sensor? Press "-" to select "NO" or "+" to select "YES".
CALIBRATION 2 EXTERNAL SENSORS SEA TEMP ? ▶YES [NO] [SAVE] [YES] 24010	Is the boat equipped with a seawater temperature sensor? Press "-" to select "NO" or "+" to select "YES".
CALIBRATION 2 EXTERNAL SENSORS STEERING SENSOR ? ▶YES [NO] [SAVE] [YES] 24011	Is the boat equipped with a steering sensor? Press "-" to select "NO" or "+" to select "YES".
CALIBRATION 2 EXTERNAL SENSORS INVERT STEERING ? ▶YES [NO] [SAVE] [YES] 30432	Changes the position (direction) of the steering display. Press "-" to select "NO" or "+" to select "YES".
CALIBRATION 2 SPEED OPTION [SKIP] [EDIT] 24012	This section configures the following speed sensors. Select "EDIT" to calibrate the sensors. Select "SKIP" to proceed to the depth sensor screen.

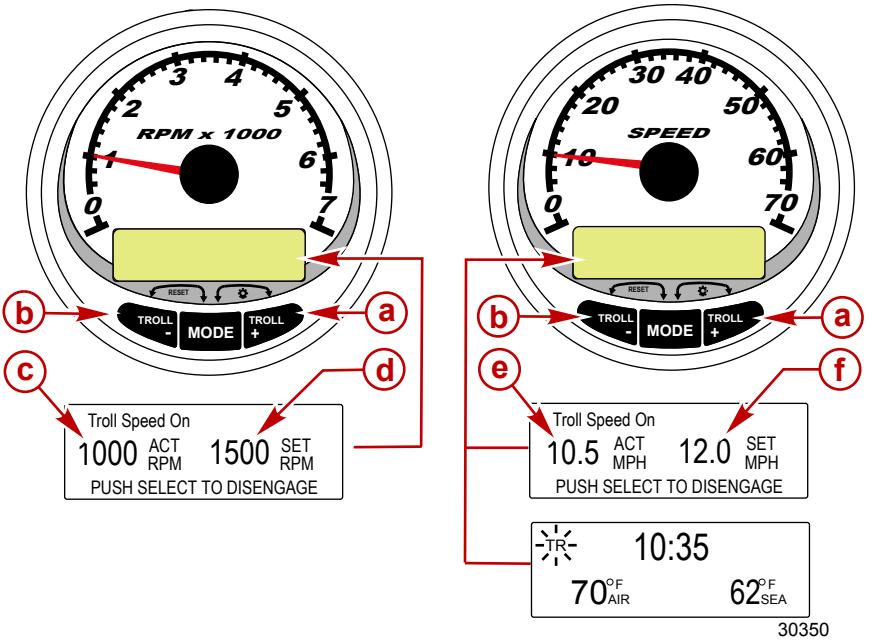
SYSTEM TACH/SPEED DESCRIPTIVE TEXT

CAL 2 Tachometer Calibration - External Sensors	
CALIBRATION 2 PITOT SENSOR 100 PSI TYPE [NO] [SAVE] [YES] 24014	Select pitot transducer type. Choose between 100 or 200 psi. (100 psi is the most common.)
CALIBRATION 2 PITOT SENSOR MULTIPLIER = 1.00 [DOWN] [SAVE] [UP] 24018	Adjust the pitot pressure sensor to correct display readings that are too high/low. Press "-" or "+" to calibrate the pitot sensor multiplier "DOWN" or "UP".
CALIBRATION 2 PADDLE SENSOR PULSEFACTOR = 3.0 [DOWN] [SAVE] [UP] 24021	Adjust paddle wheel frequency to correct display readings that are too high/low. Press "-" or "+" to calibrate the paddle sensor pulse factor "DOWN" or "UP".
CALIBRATION 2 TRANSITION SPEED TRANSITION = 30 MPH [DOWN] [SAVE] [UP] 24022	Set the speed at which the gauge stops reading the paddle wheel and starts using pitot sensor to measure boat speed. Press "-" or "+" to calibrate the transition speed "DOWN" or "UP".
CALIBRATION 2 DEPTH SENSOR OFFSET = 3 FEET [DOWN] [SAVE] [UP] 24023	Electronically configure a depth offset. Entering a negative number gives you a waterline offset. A positive number gives you a keel offset. Press "-" or "+" to calibrate the depth sensor offset "DOWN" or "UP".
CALIBRATION 2 DEPTH ALARM LEVEL = 2.5 FEET [DOWN] [SAVE] [UP] 24024	Enter a depth value. When the depth transducer reads that value or below, the shallow water alarm will sound. Press "-" or "+" to calibrate the depth alarm level "DOWN" or "UP".
CALIBRATION 2 EXIT ? [NO] [YES] [CAL 1] 24025	Press "MODE/SELECT" to exit. Press "-" to go to the start of CAL 2. Press "+" to continue to "CAL 1."

SYSTEM TACH/SPEED DESCRIPTIVE TEXT

Troll Control Operation

NOTE: *The troll control feature is only available on the System Tachometer and Speedometer.*



- **a -** Increase troll speed
- **b -** Decrease troll speed
- **c -** Actual RPM
- **d -** Set RPM
- **e -** Actual MPH
- **f -** Set MPH

NOTE: *Troll control may not be available on all engine models.*

NOTE: *The troll control minimum and maximum range may change depending on engine type.*

Set the troll control by using the System Tachometer or Speedometer. The speedometer will set the speed in MPH, KPH, or KN, while the tachometer will set the speed in RPM.

SYSTEM TACH/SPEED DESCRIPTIVE TEXT

The troll control can be shut off at anytime by adjusting the throttle or by pushing the "MODE/SELECT" button when in the troll display screen.

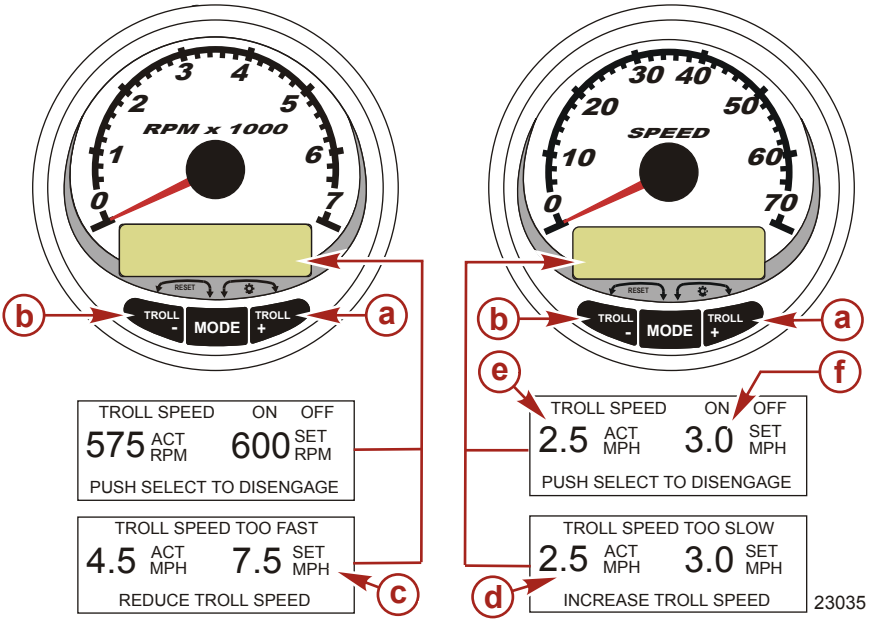
When the troll control is shut off, the system will remember the set speed. When the troll control is engaged, it will return to the set speed.

The display screen will revert back to the previous screen after five seconds of inactivity. Push the "+" or "-" button to reactivate the troll control display screen.

When the troll control is engaged and not in the troll control display screen, a flashing "TR" signal will appear in the upper left corner of the screen to indicate the troll control is still active.

SYSTEM TACH/SPEED DESCRIPTIVE TEXT

SETTING TROLL CONTROL



a - Increase troll set speed
b - Decrease troll set speed
c - Setting is too fast, reduce set troll speed
d - Setting is too slow, increase set troll speed
e - Actual speed
f - Set speed

1. With the engine running, shift the engine into gear. Set the engine speed at idle.
2. Push in either the "+" or "-" buttons to bring up the troll control display screen.
3. Press "MODE/SELECT" to engage the troll control.
4. Use the "+" and "-" buttons to set the desired speed. Use "+" to increase the set speed and use "-" to decrease the set speed.
5. If the troll speed is set to a higher speed than the troll control can maintain, the "TROLL SPEED TOO FAST" display will appear. Reduce the set troll speed.

6. If the troll speed is set to a slower speed than the troll control can maintain, the "TROLL SPEED TOO SLOW" display will appear. Increase the set troll speed.

CANCELING TROLL CONTROL

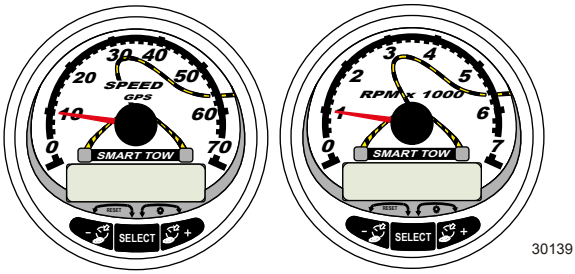
There are three ways to cancel the troll control:

- Press the "MODE/SELECT" button when in the troll display screen.
- Move the throttle to a different speed.
- Shift the engine into neutral.

SMART TOW TACH/SPEED GPS

Basic Operation and Features

NOTE: *Descriptive text alarm warning screens are displayed with Gen I (2007) engines and newer.*



Smart Tow Speedometer with GPS

Smart Tow Tachometer

Power up: Each gauge will power up when the ignition is turned on. The gauges will stay on as long as the ignition is on.

Lights: Adjusts the brightness and contrast of the gauge.

Buttons: The "SELECT" button is used for selecting information screens. The "+" and "-" buttons are used for setting engine speed for cruise control, launch control, and setting gauge calibrations.

Cruise control: Sets and controls the speed of the engine for cruising on Smart Tow Tachometer and Speedometer.

Launch control: Sets and controls the speed of acceleration from idle to set cruise speed for Smart Tow Tachometer and Speedometer.

Engine Guardian System: Monitors the critical sensors on the engine for any early indication of problems. The system will respond to a problem by reducing engine speed and alerting the operator to a potentially damaging situation.

Warning system: The system sounds the warning horn and displays the warning with descriptive text.

IMPORTANT: Optional sensors such as depth, fuel, paddle wheel, and steering angle, should always be connected to the starboard engine when using SmartCraft gauges version 4.0 or later.

Automatic Engine Detection Feature

IMPORTANT: Multiple engine applications using only one Smart Tow Tachometer, must have the Smart Tow Tachometer connected to the starboard engine. Multiple Smart Tow Tachometer applications must have the Smart Tow Tachometers programed for their specific engine location manually or through the automatic engine detection feature.

The System Tachometer/Speedometer has an automatic engine detection feature. This feature automatically detects which engine type is used and configures the gauge to match that engine type.

The first power up of the gauge, or after a Master Reset, the gauge will display "AUTODETECT". Press the "MODE/SELECT" button to start the automatic engine detection feature and the gauge will determine the engine type. This will preset the data monitoring screens to make the initial setup easier.

24298

If the gauge shows a warning of "NO STARBOARD ENGINE" or "MULTIPLE STARBOARD ENGINES", the engine location (port and starboard) must be selected by an authorized dealer equipped with the computer diagnostic system (CDS) tool.

Master Reset

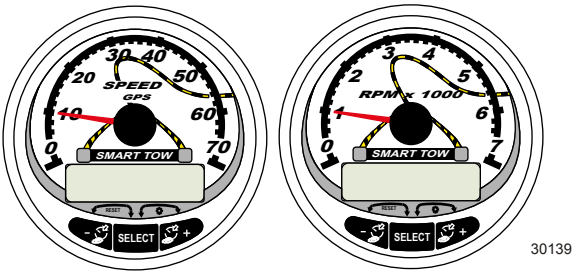
Returns the gauge to the factory defaults through the Master Reset command.

IMPORTANT: Performing a Master Reset will reset the unit to the factory defaults, thus eliminating any installation and calibrations performed during set up of product.

Press the "-" and "+" buttons simultaneously for approximately 10 seconds (until the graphic bars collide) to restore the unit to factory default settings. Press the "MODE/SELECT" button to confirm.

Alarm Warnings with Descriptive Text

NOTE: *Descriptive text alarm warning screens are displayed with Gen I (2007) engines and newer.*



Smart Tow Speedometer with GPS **Smart Tow Tachometer**

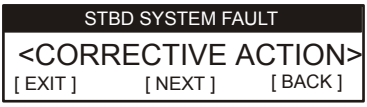
When a problem is detected, the "SYS FAULT" alarm appears on the display. Press the "+" button to show the faulty component. The upper bar in this screen displays the system where the fault is located. The faulty component is described in the scrolling text. Press the "+" button for more information. This screen gives a detailed description of the fault in the scrolling text. Press the "+" button to view the required corrective action.

The alarm message will stay displayed until the "-" button is pressed. If there are multiple alarms, press the "SELECT" button to display.

SMART TOW TACH/SPEED GPS

If a problem can cause immediate engine damage, the Engine Guardian System will respond to the problem by limiting engine power. Immediately reduce the throttle speed to idle and refer to the warning messages on the following pages. Refer to the appropriate service manual for further explanation of the problem and the correct action to take.

If the "SELECT" button is pressed to display a different screen, the flashing alarm signal "AL" will appear in the upper right corner to indicate there still is a problem.

Alarm Warning with Descriptive Text	
 24184	The "SYS FAULT" bar indicates there is a problem in the system. "SHOW" displays the faulty component.
 24186	The top bar indicates the system with the faulty component. The scrolling text displays the faulty component. "NEXT" displays the next fault. "MORE" displays a detailed description of the fault.
 24187	The scrolling text explains in detail the description of the fault. "ACTION" displays the course of action required by the operator.
 24189	The scrolling text displays the course of action required by the operator.

SMART TOW TACH/SPEED GPS

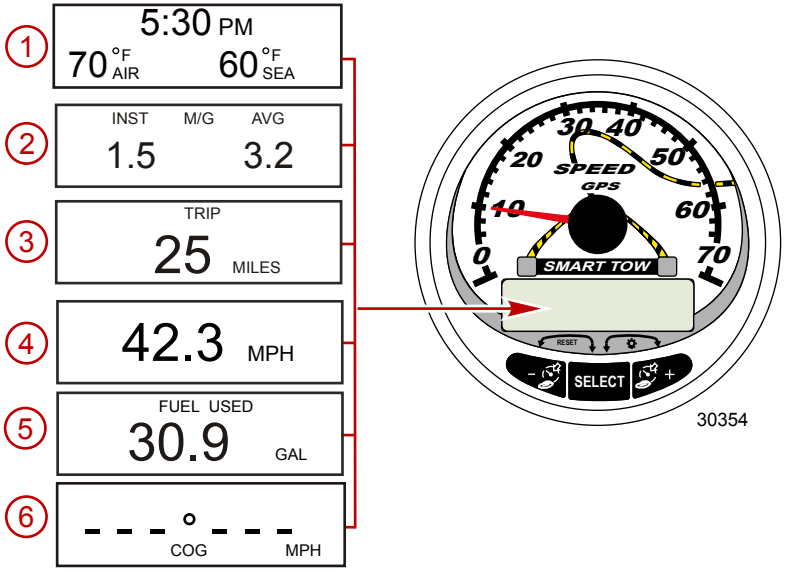
Display Screens

Tachometer Display Screen	Speedometer Display Screen
Engine Break-in (2-Stroke outboard only)	Speed
Engine Temperature	Fuel Used
Oil Temperature	Cog/Sog - If there is a GPS input
Oil PSI	Distance and Fuel to Waypoint
Trim and RPM	Clock - Air/Sea Temp
Trim and Water Pressure	Instant and Average Fuel Economy
Water Pressure	Trip Odometer
Battery Voltage and Engine Hours	Fuel Tank Levels
Fuel Flow and Fuel Used	Oil Tank Levels
Speed and Sea Temperature	Fresh Water Levels
Battery Voltage	Waste Water levels
% Fuel Remaining (Fuel Tank 1)	Steering Angle (MerCruiser only)
Depth	
Trim Position	**Dual Engine**
Fuel PSI	Trim and RPM Synchronizer
Trailer and RPM	
RPM	
Quick Reference Screen Battery, Temperature, PSI	

SMART TOW TACH/SPEED GPS

Smart Tow Speedometer with GPS Display Screens

NOTE: *Depending on the engine type, not all screens will apply.*



When the ignition is turned on, the speedometer will show the last screen that was displayed before the ignition was turned off.

Press "SELECT" to change display screens. Revert back to the previous screen by pressing and holding "SELECT" for two seconds.

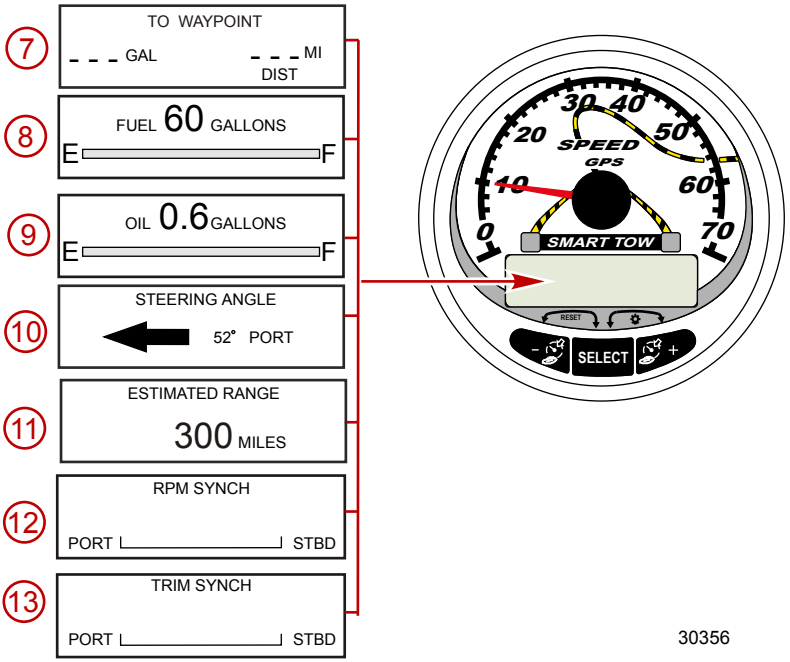
NOTE: *Readings can be displayed in English (U.S.) or metric. Refer to* ***Smart Tow Speedometer with GPS CAL 1 Calibration****.*

NOTE: *The descriptions may not be in order on the gauge. The order may change depending on engine type.*

1. **Clock - Temp:** Clock, air temperature, and water temperature. The air and water temperature sensors must be connected to obtain display readings.

2. **Fuel Economy:** Displays the average "AVG" fuel consumption and instantaneous "INST" fuel economy. The numbers displayed indicate miles per gallon "M/G" or kilometers per liter "KM/L". **Fuel Reset:** To reset, select the display screen and press "SELECT" and "-" simultaneously.
3. **Trip Odometer:** Displays the distance traveled since the gauge was last reset to zero. **Trip Reset:** To reset, select the display screen and press "SELECT" and "-" simultaneously.
4. **Digital Speedometer:** Displays the boat speed in miles per hour, kilometers per hour, or nautical miles per hour. The speedometer will use the paddle wheel for its low speed readings and will switch to the pitot pressure or GPS (if connected) for high speed readings. The transition point setting is described in Cal 2.
5. **Fuel Used:** Displays the amount of fuel used. This is determined by the PCM.

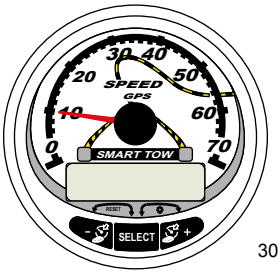
6. **Course Over Ground (COG)**: Displays the direction of travel and current speed through a GPS.



7. **To Waypoint:** Displays the amount of fuel to the waypoint and the distance to the waypoint. A GPS unit with waypoints capability must be installed to display the distance to the waypoint.
8. **Fuel Level:** Displays the amount of fuel remaining.
9. **Oil Level:** Displays the amount of engine oil remaining (2-Stroke outboard only), or water/waste tank level or second fuel tank.
10. **Steering Angle:** Displays the relative position of the steering system. Available on Mercury MerCruiser models only. A steering angle sensor must be installed on the engine.

11. **Range:** The estimated range is based on boat speed, fuel consumption, and fuel remaining in the tank. The numbers displayed are an estimate of the distance you can travel with the remaining fuel. Speed input is required from the paddle wheel, pitot pressure, or GPS.
12. **RPM Synchronizer:** Dual engines only - Monitors the revolutions of both engines.
13. **Trim Synchronizer:** Dual engines only - Displays the trim position of both engines. Simplifies keeping trim levels equal.

Smart Tow Speedometer with GPS Quick CAL Calibration



Smart Tow Speedometer with GPS

This calibration is for setting the lighting and contrast.

1. Press the "SELECT" and "+" buttons simultaneously for two seconds to bring up the "Quick Cal" display screen.
2. Press the "-" or "+" button to select the option choice displayed in the [ ] brackets on the screen.
3. Press "SELECT" to save the setting and advance through the calibration selections.

Quick CAL	
LIGHT [DOWN] [SAVE] [UP] 23517	Adjusts the brightness of the gauge lighting.

Quick CAL	
 23519	Adjusts the contrast of the display screen.

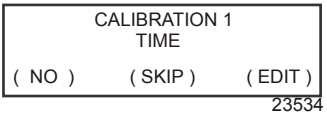
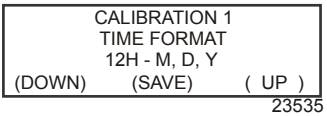
Smart Tow Speedometer with GPS CAL 1 Calibration

This calibration turns on and off the system display screens.

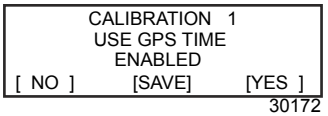
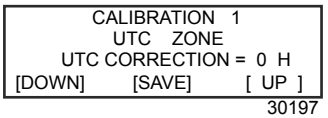
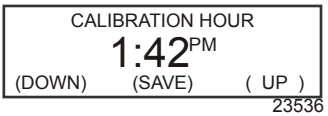
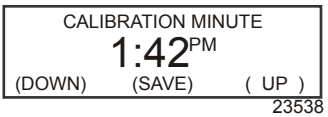
NOTE: *Depending on the engine type, not all screens will apply.*

1. Press the "SELECT" and "+" buttons simultaneously for approximately six seconds to bring up the "Cal 1" display screen.
2. Press the "-" or "+" button to select the option choice displayed in the [ ] brackets on the screen.
3. Press "SELECT" to save the setting and advance through the calibration selections.

Remote Lighting and Contrast	
 23532	Adjusts the lighting levels on all gauges simultaneously from this gauge.
 23533	Adjusts the contrast of another System Tachometer/Speedometer simultaneously from this gauge.

Time	
 23534	Sets the time. Select "EDIT" to format the time or "SKIP" to advance to the next screen.
 23535	Formats the time as either 12 hour month-day-year or as 24 hour day-month-year. Select "DOWN" or "UP" to change the format.

SMART TOW TACH/SPEED GPS

Time	
	Enables or disables time displayed through the GPS. Press "-" to select "NO", or "+" to select "YES."
	Changes the UTC zone corrections from -13 H to 13 H. Press "-" to select "DOWN", or "+" to select "UP."
	Adjusts the hours to match your local time. Select "DOWN" or "UP" to change the hour setting.
	Adjusts the minutes to match your local time. Select "DOWN" or "UP" to change the minute setting.

Display Units	
	Changes units of measurement between English or metric. Select "DOWN" or "UP" to change between English or metric units.
	Changes the units in which speed is displayed. Choose from: MPH (Miles Per Hour), KN (Knots), or KMH (Kilometers Per Hour).

Waypoint Display	
	Activates or disables the "TO WAYPOINT" screen. Press "-" to select "NO", or "+" to select "YES."
	Activates or disables the "WAYPOINT ALARM." Press "-" to select "NO", or "+" to select "YES."

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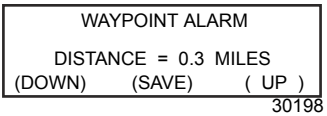
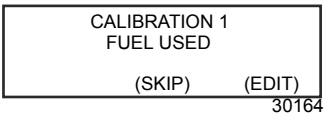
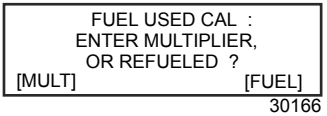
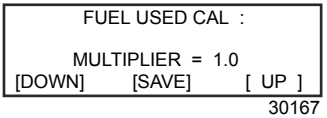
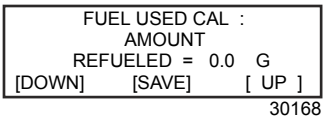
Waypoint Display	
 30198	Sets the distance from the waypoint when the alarm will be activated. Press "-" to select "DOWN", or "+" to select "UP."

Display Screens	
 23542	The steering angle is displayed "YES" or off "NO". The steering angle sensor must be set to "YES" in the tachometer "CAL 2" external sensors calibration.
 23543	The split screen showing air temperature and time is displayed "YES" or off "NO".
 23544	The fuel used screen is displayed "YES" or off "NO".
 30164	Selects how fuel used is calibrated. Press "+" to select "EDIT" or "SELECT" to by-pass how the fuel used is calibrated.
 30166	Selects how fuel used is calibrated with a multiplier or with refueling. Press "-" to select multiplier "MULT" or "+" to select refueling "FUEL."
 30167	Adjusts multiplier between 0.50 and 1.50. Press "-" to select "DOWN", or "+" to select "UP."
 30168	Adjusts fuel used calibration using the amount of fuel replaced. Press "-" to select "DOWN", or "+" to select "UP."

Display Screens	
 23545	The trip screen is displayed "YES" or off "NO".
 23546	The fuel management screen is displayed "YES" or off "NO".

Simulator Mode	
 23547	Enables the simulation mode. (Used for demonstration purposes only.)

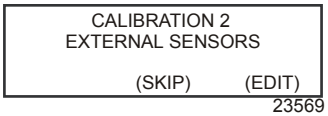
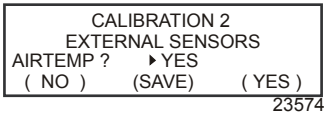
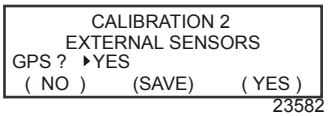
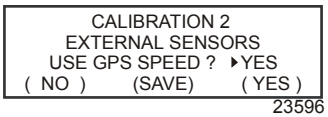
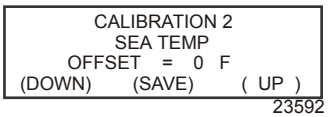
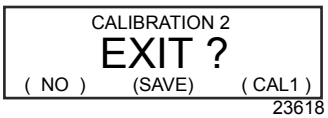
Exit	
 23549	Press "SELECT" to exit. Press "-" to go to the start of CAL 1. Press "+" to continue to "CAL 2."

Smart Tow Speedometer with GPS CAL 2 Calibration

This calibration configures the system sensor inputs.

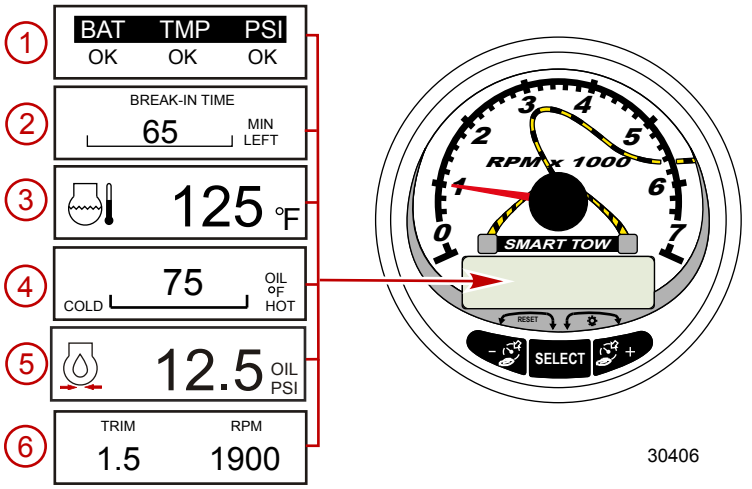
NOTE: *Screens may vary depending on the version of the gauge and engine type.*

1. Press and hold the "SELECT" and "+" buttons simultaneously for approximately nine seconds until the "CAL 2" display screen appears.
2. Press the "-" or "+" button to select the option choice displayed in the [ ] brackets on the screen.
3. Press "SELECT" to save the setting and advance through the calibration selections.

External Sensors	
	Selects and calibrates external sensors that are installed in the system. Select [SKIP] to proceed to the next selection. Select [EDIT] to proceed to external sensor selection.
	Is an air temperature sensor installed? Press "-" to select "NO" or "+" to select "YES".
	Is a GPS sensor installed? Press "-" to select "NO" or "+" to select "YES".
	Use the GPS input to drive the speed display? Press "-" to select "NO" or "+" to select "YES".
	Adjust the seawater temperature sensor to correct display readings that are too high/low. Press "-" or "+" to calibrate the temperate display "DOWN" or "UP".
	Press "SELECT" to exit. Press "-" to go to the start of CAL 2. Press "+" to continue to "CAL 1."

Smart Tow Tachometer Display Screens

NOTE: *Depending on the engine type, not all screens will apply.*



When the ignition is turned on, the tachometer will display the last screen that was displayed before the ignition was turned off.

Press "SELECT" to change display screens. Revert back to the previous screen by pressing and holding "SELECT" for two seconds.

NOTE: *Readings can be displayed in English (U.S.) or metric. Refer to* ***Smart Tow Tachometer Cal 1 Calibration****.*

1. **Quick Reference Screen:** Indicates that the battery, engine temperature, and pressures are operating properly.
2. **Engine Break-in:** Displays the time remaining on the break-in period of a new engine. This screen will automatically disappear after the break-in period is complete.
3. **Temperature:** Displays the engine coolant temperature.
4. **Oil Temperature:** Displays the engine oil temperature.
5. **Oil Pressure:** Displays the engine oil pressure in "PSI" or "BAR".

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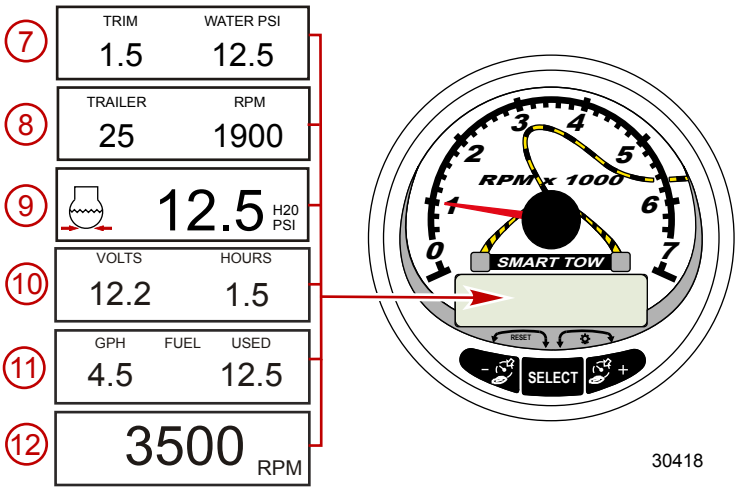
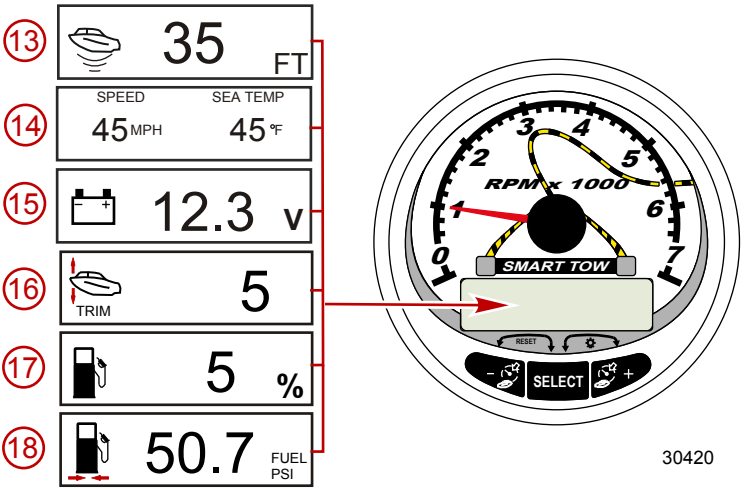
6. **Trim Position/RPM:** Displays the trim angle of the outboard or sterndrive up to the maximum trim angle and the engine RPM.



7. **Trim Position/Water Pressure:** Displays the trim angle of the engine or drive system and cooling system water pressure.
8. **Trailer Position/RPM:** Displays the trailer position and the engine RPM.
9. **Water Pressure:** Displays the cooling system water pressure at the engine.
10. **Battery Voltage/Engine Run Time:** Displays the battery voltage level and the running time of the engine.
11. **Fuel Flow:** Displays the engine fuel use per hour and total amount of fuel used.

12. **Digital Tachometer:** Displays the engine speed in revolutions per minute (RPM).



13. **Water Depth:** Displays the depth of water under the transducer if connected. The water depth screen can be turned on or off in CAL 1 calibration. The alarm can be set to trigger whenever the boat moves into water shallower than the alarm level. Refer to CAL 2 calibration for water depth alarm and offset settings.

NOTE: *A depth transducer (purchased separately) must be connected to the system for this screen to operate.*

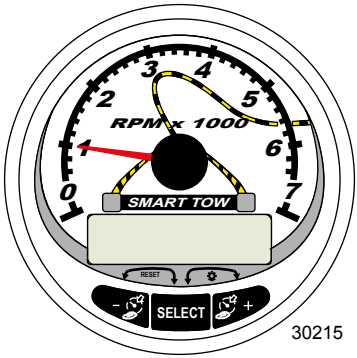
14. **Speed/Temp:** Displays a split screen of seawater temperature and vessel speed.

NOTE: *A speed input sensor (purchased separately) must be connected to the system for this screen to operate.*

15. **Battery Voltage:** Displays the battery voltage level.
16. **Trim Position:** Displays the trim angle of the engine or drive system.
17. **Fuel Percentage:** Displays the estimated amount of fuel remaining.
18. **Fuel Pressure:** Displays the pressure of the fuel.

SMART TOW TACH/SPEED GPS

Smart Tow Tachometer Quick CAL Calibration



Smart Tow Tachometer

This calibration is for setting lighting and contrast.

1. Press the "SELECT" and "+" buttons simultaneously for approximately two seconds or until the "QUICK CAL" screen appears.
2. Press the "-" or "+" button to select the option choice displayed in the [ ] brackets on the screen.
3. Press "SELECT" to save the setting and advance through the calibration screens.

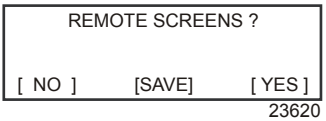
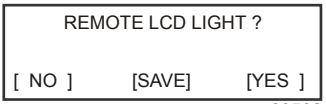
Quick CAL	
	Adjusts the brightness of the gauge lighting.
	Adjusts the contrast of the display screen.

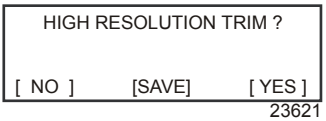
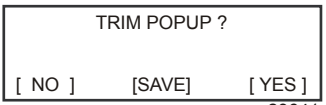
Smart Tow Tachometer CAL 1 Calibration

This calibration turns the system screens on and off.

NOTE: *The screens may vary depending upon the version of the gauge.*

1. Press and hold the "SELECT" and "+" buttons for approximately seven seconds until the "CAL 1" screen appears.
2. Press the "-" or "+" button to select the option choice displayed in the [ ] brackets on the screen.
3. Press "SELECT" to save the setting and advance through the calibration screens.

Tachometer CAL 1 Calibration - Remote Light and Contrast	
 23620	If "YES" is selected, then screen changes made on this tachometer will effect all tachometers in the system. All tachometers need the screen set to "YES" for this function to work.
 23532	Adjusts the lighting levels on all gauges simultaneously from this gauge. If "YES" is selected, then lighting level changes made on this tachometer will effect all tachometers in the system. All tachometers need the screen set to "YES" for this function to work.
 23533	Adjusts the contrast of another System/Smart Tow Tachometer simultaneously from this gauge. If "YES" is selected, then contrast level changes made on this tachometer will effect all tachometers in the system. All tachometers need the screen set to "YES" for this function to work.

Tachometer CAL 1 Calibration - Trim	
 23621	Enables the trim angle to be displayed in 0.1° increments if "YES" is selected.
 23641	The trim display screen pops up when the trim setting is changed if "YES" is selected.

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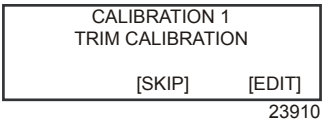
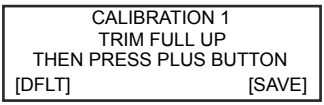
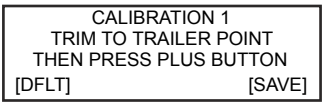
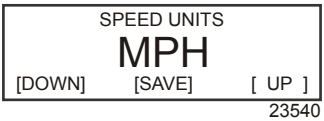
Tachometer CAL 1 Calibration - Trim	
 23910	Select "EDIT" to calibrate the gauge to the standard 0 - 10° unit trim and 11 - 25° trailer position scale. Select "SKIP" to advance to the next selection.
 23911	Trim the system to the full down position, then press the "+" button to save the setting.
 30217	Trim the system to the full up position, then press the "+" button to save the setting.
 30219	Trim the system to the trailer point, then press the "+" button to save the setting.

Tachometer CAL 1 Calibration - Display Units	
 23539	Changes units of measure between English or metric. Select "DOWN" or "UP" to change between "ENGLISH" or "METRIC" units of measure.
 23540	Changes the units in which speed is displayed. Choose from: MPH (Miles Per Hour), KN (Knots), or KMH (Kilometers Per Hour).

Tachometer CAL 1 Calibration - Display Screens	
 23978	The quick reference screen is displayed "YES" or off "NO".

Tachometer CAL 1 Calibration - Display Screens	
ENGINE TEMP SCREEN ? [NO] [SAVE] [YES] 23783	The engine temperature screen is displayed "YES" or off "NO".
OIL TEMP SCREEN ? [NO] [SAVE] [YES] 23786	The oil temperature screen is displayed "YES" or off "NO".
OIL PRESS SCREEN ? [NO] [SAVE] [YES] 23787	The oil pressure screen is displayed "YES" or off "NO".
TRIM AND PSI SCREEN ? [NO] [SAVE] [YES] 23788	The split screen showing trim angle and water pressure is displayed "YES" or off "NO".
WATER PSI SCREEN ? [NO] [SAVE] [YES] 23789	The water pressure screen is displayed "YES" or off "NO".
TRIM AND RPM SCREEN ? [NO] [SAVE] [YES] 23979	The split screen showing trim angle and engine RPM is displayed "YES" or off "NO".
RPM SCREEN ? [NO] [SAVE] [YES] 23980	The engine RPM screen is displayed "YES" or off "NO".
FUEL USED SCREEN ? [NO] [SAVE] [YES] 23981	The fuel used screen is displayed "YES" or off "NO".

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Tachometer CAL 1 Calibration - Display Screens	
CALIBRATION 1 FUEL USED [SKIP] [EDIT] 30221	Adjusts the calculation for determining fuel used based on the size of the fuel tank.
FUEL USED CAL : ENTER MULTIPLIER, OR REFUELED ? [MULT] [FUEL] 30166	Selects how fuel used is calculated with a multiplier or with refueling.
FUEL USED CAL : MULTIPLIER = 1.0 [DOWN] [SAVE] [UP] 30167	Adjusts multiplier between 0.50 and 1.50.
FUEL USED CAL : AMOUNT REFUELED = 0.0 G [DOWN] [SAVE] [UP] 30168	Adjusts fuel used calibration using the amount of fuel replaced.
FUEL PSI SCREEN ? [NO] [SAVE] [YES] 30653	Fuel pressure is displayed "YES" or off "NO".
VOLT / HOUR SCREEN ? [NO] [SAVE] [YES] 23982	The split screen showing volts and engine hours is displayed "YES" or off "NO".
SPEED / SEA SCREEN ? [NO] [SAVE] [YES] 23983	The split screen showing speed and seawater temperature is displayed "YES" or off "NO".
SEA TEMP OFFSET = 0 °F (DOWN) (SAVE) (UP) 30654	Adjusts the temperature difference between sensor and what the gauge displays.

Tachometer CAL 1 Calibration - Display Screens	
DEPTH SCREEN ? [NO] [SAVE] [YES] 23984	The depth screen is displayed "YES" or off "NO".
SIMULATOR MODE NO [NO] [SAVE] [YES] 23547	Enables the simulation mode. (Used for demonstration purposes only.)
SIMULATOR MODE EXIT ? [NO] [YES] [CAL 2] 23549	Press "SELECT" to exit. Press "-" to go to the start of CAL 1. Press "+" to continue to "CAL 2".

Smart Tow Tachometer CAL 2 Calibration

This calibration configures the system sensor inputs.

NOTE: *The screens may vary depending upon the version of the gauge.*

1. Press and hold the "SELECT" and "+" buttons for approximately ten seconds until the "CAL 2" screen appears.
2. Press the "-" or "+" button to select the option choice displayed in the [ ] brackets on the screen.
3. Press "SELECT" to save the setting and advance through the calibration screens.

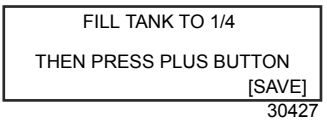
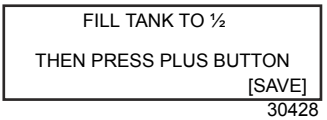
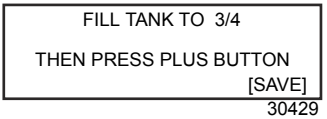
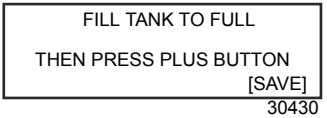
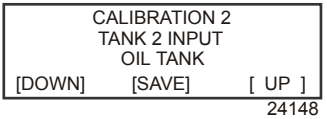
FUEL TANK CALIBRATION

There are three methods for calibrating the fuel tank level monitoring feature:

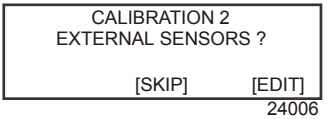
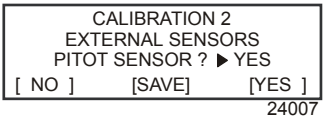
1. Do nothing. The linear readout is based on raw sensor values. This mode does not factor in irregular tank shapes.

2. Performing the tank calibration procedure without adding fuel; the System Tachometer/Smart Tow Tachometer will supply an estimated range value based on linear interpolation of the sensor range values. This mode does not factor in irregular tank shapes. You must edit the tank calibration by entering a numerical value for the capacity of the fuel tank. The linear readout is based on raw sensor values.
3. Performing the tank calibration procedure with adding fuel at each calibration point; the System Tachometer/Smart Tow Tachometer will display an estimated range value that factors in the tank shape. You must edit the tank calibration by adding fuel for 1/4, 1/2, 3/4, and full. Failure to edit the tank calibration will automatically default the fuel level to the liter/gallon capacity and will not factor in irregular tank shapes.

CAL 2 Tachometer Calibration - Tank 1 and 2 Level Calibration	
CALIBRATION 2 FUEL TANK 1 CAPACITY CAPACITY = 26.2 G [DOWN] [SAVE] [UP] 23992	Enter the capacity of the tank. Select "DOWN" or "UP" to set the tank capacity. Then press "SAVE". This option is the same for tank 1 as it is for tank 2.
CALIBRATION 2 FUEL TANK 1 [SKIP] [EDIT] 23993	Select "EDIT" to enter the calibration mode of the fuel tank. The calibration procedure is the same for tank 1 as it is for tank 2. Select "EDIT" to begin tank level calibration.
TANK CALIBRATION : DEFAULT CALIBRATION, OR ADD FUEL ? [DFLT] [ADD] 23994	Select "DFLT" to let SmartCraft calibrate the tank levels. Select "ADD" to calibrate the tank levels by adding fluid to the tank.
CALIBRATING : EMPTY TANK THEN PRESS PLUS BUTTON [SKIP] [SAVE] 23995	Empty the tank. Select "SAVE" to calibrate the tank level to empty.

CAL 2 Tachometer Calibration - Tank 1 and 2 Level Calibration	
 30427	Fill the tank to 1/4 full. Select "SAVE" to calibrate the tank level to 1/4 full.
 30428	Fill the tank to 1/2 full. Select "SAVE" to calibrate the tank level to 1/2 full.
 30429	Fill the tank to 3/4 full. Select "SAVE" to calibrate the tank level to 3/4 full.
 30430	Fill the tank to full. Select "SAVE" to calibrate the tank level to full.
 24148	Select tank 2 input: oil tank, fuel tank 2, water tank, waste tank, or not installed.

EXTERNAL SENSORS

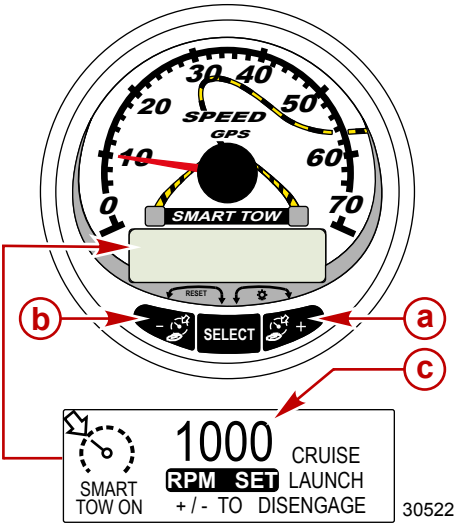
CAL 2 Tachometer Calibration - External Sensors	
 24006	Selects and calibrates external sensors that are installed in the system. Select "SKIP" to proceed to the speed options. Select "EDIT" to proceed to external sensor selection.
 24007	Is the boat equipped with a pitot sensor to measure boat speed? Press "-" to select "NO" or "+" to select "YES".

CAL 2 Tachometer Calibration - External Sensors	
CALIBRATION 2 EXTERNAL SENSORS PADDLE SENSOR ? ▶YES [NO] [SAVE] [YES] 24008	Is the boat equipped with a paddle wheel to measure boat speed? Press "-" to select "NO" or "+" to select "YES".
CALIBRATION 2 EXTERNAL SENSORS TRIM SENSOR ? ▶YES [NO] [SAVE] [YES] 24009	Is the boat equipped with a trim sensor? Press "-" to select "NO" or "+" to select "YES".
CALIBRATION 2 EXTERNAL SENSORS SEA TEMP ? ▶YES [NO] [SAVE] [YES] 24010	Is the boat equipped with a seawater temperature sensor? Press "-" to select "NO" or "+" to select "YES".
CALIBRATION 2 EXTERNAL SENSORS STEERING SENSOR ? ▶YES [NO] [SAVE] [YES] 24011	Is the boat equipped with a steering sensor? Press "-" to select "NO" or "+" to select "YES".
CALIBRATION 2 EXTERNAL SENSORS INVERT STEERING ? ▶YES [NO] [SAVE] [YES] 30432	Changes the position (direction) of the steering display. Press "-" to select "NO" or "+" to select "YES".
CALIBRATION 2 SPEED OPTION [SKIP] [EDIT] 24012	This section configures the following speed sensors. Select "EDIT" to calibrate the sensors. Select "SKIP" to proceed to the depth sensor screen.
CALIBRATION 2 PITOT SENSOR 100 PSI TYPE [NO] [SAVE] [YES] 24014	Select pitot transducer type. Choose between 100 or 200 psi. (100 psi is the most common.)
CALIBRATION 2 PITOT SENSOR MULTIPLIER = 1.00 [DOWN] [SAVE] [UP] 24018	Adjust the pitot pressure sensor to correct display readings that are too high/low. Press "-" or "+" to calibrate the pitot sensor multiplier "DOWN" or "UP".

CAL 2 Tachometer Calibration - External Sensors	
CALIBRATION 2 PADDLE SENSOR PULSEFACTOR = 3.0 [DOWN] [SAVE] [UP] 24021	Adjust paddle wheel frequency to correct display readings that are too high/low. Press "-" or "+" to calibrate the paddle sensor pulse factor "DOWN" or "UP".
CALIBRATION 2 TRANSITION SPEED TRANSITION = 30 MPH [DOWN] [SAVE] [UP] 24022	Set the speed at which the gauge stops reading the paddle wheel and starts using pitot sensor to measure boat speed. Press "-" or "+" to calibrate the transition speed "DOWN" or "UP".
CALIBRATION 2 DEPTH SENSOR OFFSET = 3 FEET [DOWN] [SAVE] [UP] 24023	Electronically configure a depth offset. Entering a negative number gives you a water line offset. A positive number gives you a keel offset. Press "-" or "+" to calibrate the depth sensor offset "DOWN" or "UP".
CALIBRATION 2 DEPTH ALARM LEVEL = 2.5 FEET [DOWN] [SAVE] [UP] 24024	Enter a depth value. When the depth transducer reads that value or below, the shallow water alarm will sound. Press "-" or "+" to calibrate the depth alarm level "DOWN" or "UP".
CALIBRATION 2 EXIT ? [NO] [YES] [CAL 1] 24025	Press "MODE/SELECT" to exit. Press "-" to go to the start of CAL 2. Press "+" to continue to "CAL 1."

Cruise Control Operation

NOTE: *Cruise control is only available with Gen I (2007) and newer DTS engines.*



a - Increase set cruise RPM

b - Decrease set cruise RPM

c - Set cruise RPM

NOTE: *The cruise control minimum maximum range may change depending on engine type.*

There are two modes of cruise control: "RPM MODE" and "SPEED MODE". Set the cruise control to "RPM MODE" with either the Smart Tow Tachometer or Smart Tow Speedometer. Launch control will inherit the mode of control selected.

Press and hold the "SELECT" button for approximately three seconds to toggle between "SPEED MODE" and "RPM MODE".

IMPORTANT: Only the Smart Tow Speedometer can toggle between cruise control "RPM MODE" and "SPEED MODE". Smart Tow Tachometer can change from "SPEED MODE" to "RPM MODE" only.

The cruise control can be shut off at anytime by pushing the "+" and "-" buttons simultaneously.

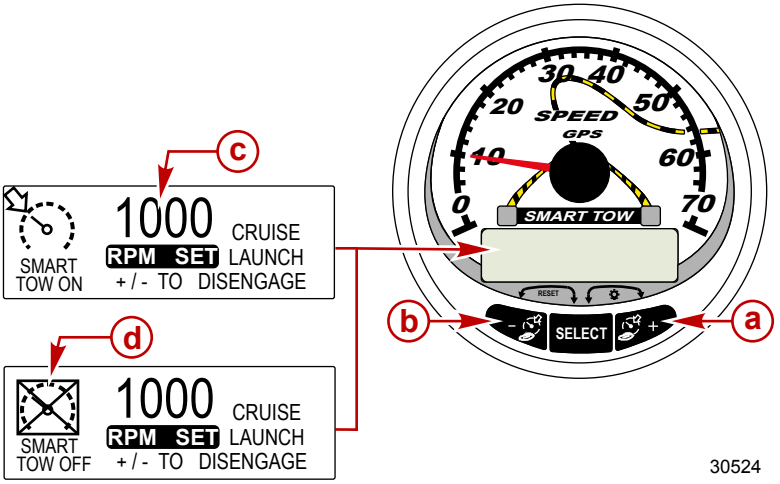
SMART TOW TACH/SPEED GPS

When the cruise control is engaged and the throttle is moved below the set cruise engine RPM or speed, the engine RPM will decrease with the throttle movement. When the throttle is moved above the set cruise speed, the cruise control will actively control the engine speed to the set cruise speed.

When the cruise control is disengaged it will remember the set speed. It will return to that speed when the cruise control is engaged and the throttle is positioned beyond the set cruise speed.

Press "SELECT" twice to exit the cruise control screen.

TURNING THE SYSTEM ON/OFF



a - Increase set cruise RPM
b - Decrease set cruise RPM
c - Set cruise RPM
d - Cruise control off

SETTING CRUISE CONTROL

To set the cruise control RPM:

1. Push either the "+" or "-" button to bring up the cruise control display screen.

2. Set desired cruise RPM. When the throttle is in the wide open throttle position, the set RPM will be the maximum speed.
3. Push "+" and "-" button simultaneously to engage the cruise control.

NOTE: *The cruise control must be engaged for both gauges to display the active cruise control setting.*

CANCELING CRUISE CONTROL

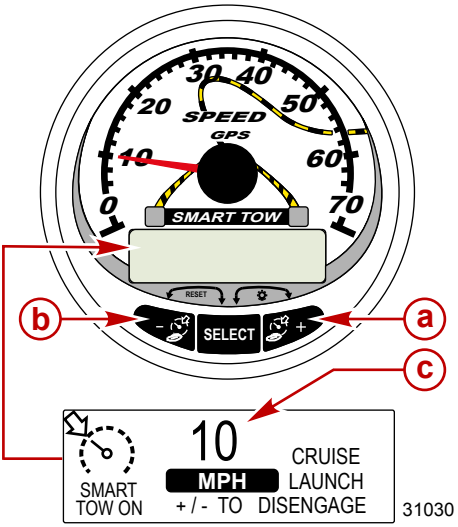
To cancel the cruise control: press the "+" and "-" buttons simultaneously.

Precise Speed Control Calibration (Optional)

The Smart Tow with GPS speedometer is capable of maintaining the speed within 0.8 km/h (0.5 MPH) of the cruise control setting. It is not mandatory to complete this tutoring exercise for the speed control to function, it will calibrate itself during normal operation.

PRECISE SPEED CONTROL CALIBRATION

NOTE: *Cruise control is only available with Gen I (2007) and newer DTS engines.*



a - Increase set cruise speed
b - Decrease set cruise speed
c - Set cruise speed

There are two modes of cruise control: "RPM MODE" and "SPEED MODE". Set the cruise control to "SPEED MODE" with the Smart Tow Speedometer. Launch control will inherit the mode of control selected.

Press and hold the "SELECT" button for approximately three seconds to toggle between "SPEED MODE" and "RPM MODE".

IMPORTANT: Only the Smart Tow Speedometer can toggle between cruise control "RPM MODE" and "SPEED MODE". Smart Tow Tachometer can change from "SPEED MODE" to "RPM MODE" only.

ENGAGING THE CRUISE CONTROL

1. Push either the "+" or "-" button to bring up the cruise control display screen.
2. Set the speed to 10 MPH.
3. Push "+" and "-" button simultaneously to engage the cruise control. When the throttle is in the wide open throttle position, the engine RPM will increase until the set speed is attained.
4. After cruising at 10 MPH for 20 seconds, increase the speed 1 MPH.
5. After cruising at 11 MPH for 20 seconds, increase the speed 1 MPH.
6. Continue this speed increment process until the craft has reached its maximum speed.

CANCELING THE CRUISE CONTROL

To cancel the cruise control: press the "+" and "-" buttons simultaneously.

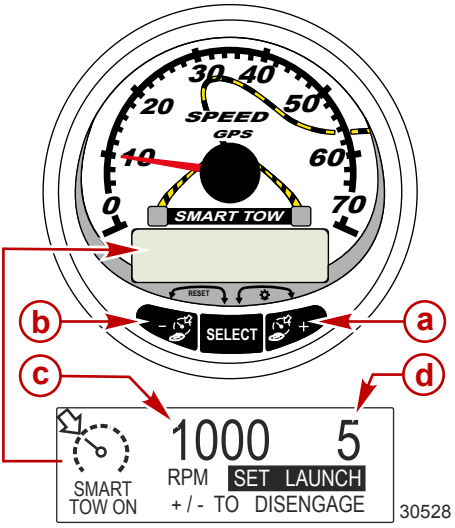
When the cruise control is disengaged, it will remember the set speed. It will return to that speed when the cruise control is engaged and the throttle is positioned beyond the set cruise speed.

Press "SELECT" twice to exit the cruise control screen.

IMPORTANT: Performing a Master Reset will return all the calibrations to the factory default settings.

Launch Control Operation

NOTE: *Launch control is only available with Gen I (2007) and newer DTS engines.*



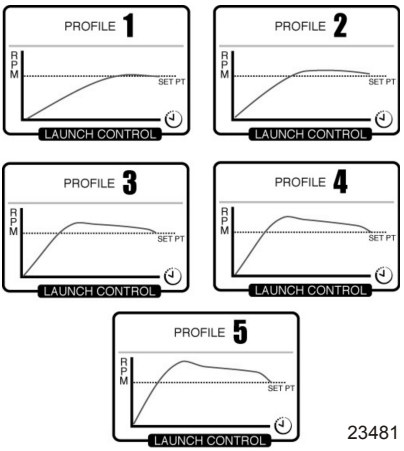
a - Raise launch control setting
b - Lower launch control setting
c - Set cruise RPM
d - Launch control setting

BASIC OPERATION

Launch control determines how fast the engine accelerates to a set cruise speed.

SMART TOW TACH/SPEED GPS

Set the launch control with either the Smart Tow Tachometer or Smart Tow Speedometer. The settings are 1, 2, 3, 4, and 5, with 1 the most gradual acceleration and 5 the most aggressive. Press "SELECT" once to highlight the launch control setting. Press "+" to increase launch control setting and "–" to decrease the launch control setting. This can be accomplished in either "RPM MODE" or "SPEED MODE." The launch control setting will remain until changed.



If the cruise control is engaged and none of the numerical launch control settings are selected ("CRUISE" is displayed), launch acceleration is controlled by the PCM up to the RPM set point.

The display screen will revert back to the "RPM SET" screen after five seconds of inactivity. Push the "SELECT" button to highlight the launch control display screen.

SETTING LAUNCH CONTROL

There are two modes of launch control: "RPM MODE" and "SPEED MODE." Set the launch control to "SPEED MODE" with Smart Tow Speedometer. Cruise control will inherit the mode of control selected.

Press and hold the "SELECT" button for approximately three seconds to toggle between "SPEED MODE" and "RPM MODE."

IMPORTANT: Only the Smart Tow Speedometer can toggle between cruise control "RPM MODE" and "SPEED MODE." Smart Tow Tachometer can change from "SPEED MODE" to "RPM MODE" only.

1. Press "+" or "–" to bring up the cruise control display screen.
2. Push the "SELECT" button to highlight "SET LAUNCH."
3. Push "+" to raise the setting and push "–" to lower the setting.
4. Launch control will automatically turn on with the cruise control.

If the cruise control is engaged and none of the numerical or customized launch control settings are selected ("CRUISE" is displayed), launch acceleration is controlled by the throttle up to the RPM set point.

The display screen will revert back to the "RPM SET" screen after five seconds of inactivity. Push the "SELECT" button to highlight the "SET LAUNCH."

CANCELING LAUNCH CONTROL

The launch control will turn off when the cruise control is turned off.

Creating a Customized Launch Setting

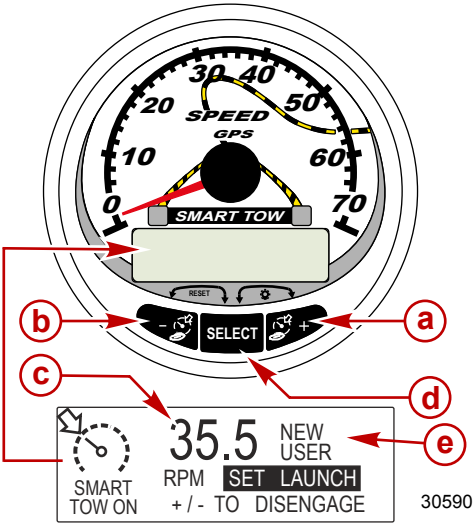
Beyond launch setting number 5 are eight customized launch settings. Each customized launch setting name can have up to seven alpha characters to identify the custom launch. The custom launch setting can be controlled by RPM or speed. To use the speed setting control, GPS must be interfaced with the SmartCraft gauge through a junction box.

NOTE: *If the Smart Tow set point is changed while the customized launch is active, the set point will automatically be saved for that user .*

1. Press the "SELECT" button to highlight "SET LAUNCH."
2. Advance the launch control setting beyond number 5. After number 5 the "NEW USER" launch control setting will activate.

SMART TOW TACH/SPEED GPS

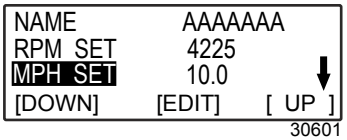
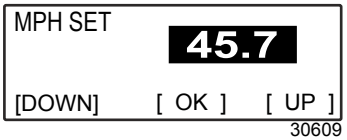
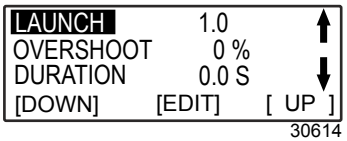
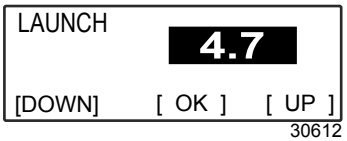
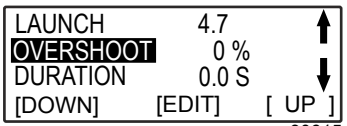
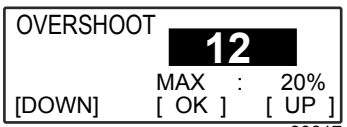
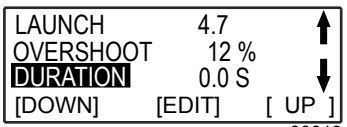
3. Press and hold the "SELECT" button for approximately three seconds to edit the customized launch setting.

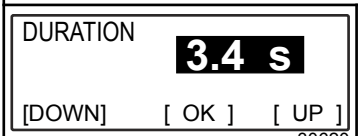
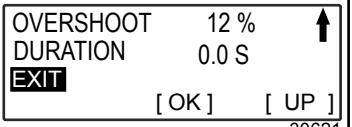


a - Raise launch control setting
b - Lower launch control setting
c - Set cruise RPM
d - "SELECT" button
e - Launch control setting

Customized Launch Settings	
NAME AAAAAAA RPM SET 1000 MPH SET 10.0 [DOWN] [EDIT] 30595	Press the "SELECT" button to edit the name.
AAAAAAA [SAVE] [SCRL] [NEXT] [SCRL] 30597	Press the "-" or "+" to scroll through the alpha characters. Press the "SELECT" button to save the character and move to the next set of alpha characters. Press the "-" and "SELECT" buttons to save the customized launch name.
NAME AAAAAAA RPM SET 1000 MPH SET 10.0 [DOWN] [EDIT] [UP] 30598	Press the "-" to move the cursor to "RPM SET". Press the "SELECT" button to edit the RPM.
RPM SET 1000 [DOWN] [OK] [UP] 30599	Press "-" or "+" to change the RPM set point. Press the "SELECT" button to exit the RPM edit.

SMART TOW TACH/SPEED GPS

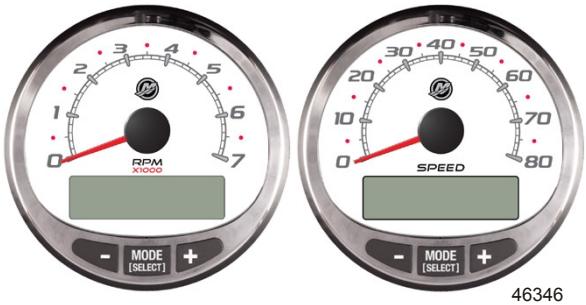
Customized Launch Settings	
 30601	Press the "-" to move the cursor to "MPH SET". Press the "SELECT" button to edit the speed.
 30609	Press "-" or "+" to change the speed setting. Press the "SELECT" button to exit the MPH edit.
 30614	Press the "-" to move the cursor to "LAUNCH". Press the "SELECT" button to edit the level of acceleration.
 30612	Press "-" or "+" to edit the level of acceleration between 1.0 and 5.0. Press the "SELECT" button to exit the "LAUNCH" edit.
 30615	Press the "-" to move the cursor to "OVERSHOOT". Press the "SELECT" button to edit the percentage.
 30617	Press "-" or "+" to edit the percentage to exceed the level of speed or RPM between 0 and 20%. Press the "SELECT" button to exit the "OVERSHOOT" edit.
 30619	Press the "-" to move the cursor to "DURATION". Press the "SELECT" button to edit the seconds.

Customized Launch Settings	
 30620	Press "-" or "+" to edit the duration of seconds the overshoot percentage is activated. The number of seconds is between 0 and 4. Press the "SELECT" button to exit the "DURATION" edit.
 30621	Press the "-" to move the cursor to "EXIT". Press the "SELECT" button to exit the launch setting or press the "+" to review and edit the customized launch settings.

SYSTEM TACH/SPEED VERSION 6.0

Basic Operation and Features

NOTE: Descriptive text alarm warning screens are displayed with Gen I (2007) engines and newer.



System Tachometer

System Speedometer

Power up: Each gauge will power up when the ignition is turned on. The gauges will stay on as long as the ignition is on.

Lights: Adjusts the brightness and contrast of the gauge.

Buttons: The "MODE/SELECT" button is used for selecting information screens. The "+" and "–" buttons are used for setting engine speed for troll control, and setting gauge calibrations.

Troll control: Sets and controls the idle speed of the engine for trolling without using the throttle.

Engine Guardian System: Monitors the critical sensors on the engine for any early indication of problems. The system will respond to a problem by reducing engine speed and alerting the operator to a potentially damaging situation.

Warning system: The system sounds the warning horn and displays the warning with descriptive text.

IMPORTANT: Optional sensors such as depth, fuel, paddle wheel, and steering angle, should always be connected to the starboard engine when using SmartCraft gauges version 4.0 or later.

SYSTEM TACH/SPEED VERSION 6.0

PRODUCTS WITH EMISSIONS CONTROL

After the ignition is turned on, the tachometer will display the name of the gauge and the version of the software for approximately two seconds. In the upper left-hand corner of the display, a small engine icon will also be visible. The icon is a representation the power package has emissions control onboard diagnostics, also known as OBD. The icon will only be seen during the key up process unless a system fault is detected. When a fault is detected, the OBD icon will be displayed in the upper left-hand corner on all system screens.

a - OBD icon
b - Software version

Automatic Engine Detection Feature

The System Tachometer/Speedometer has an automatic engine detection feature. This feature automatically detects which engine type is used and configures the gauge to match that engine type.

The first power up of the gauge, or after a Master Reset, the gauge will display "AUTODETECT". Press the "MODE/SELECT" button to start the automatic engine detection feature and the gauge will determine the engine type. This will preset the data monitoring screens to make the initial setup easier.

If the gauge shows a warning of "NO STARBOARD ENGINE" or "MULTIPLE STARBOARD ENGINES", the engine location (port and starboard) must be selected by an authorized dealer equipped with the computer diagnostic system (CDS) tool.

Master Reset

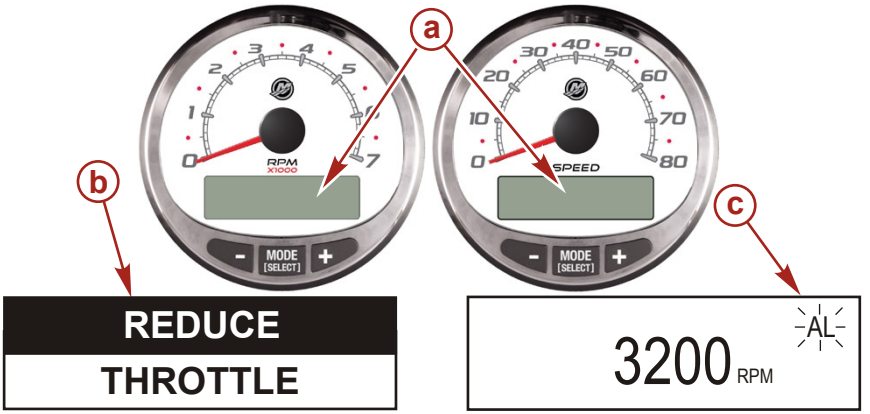
Returns the gauge to the factory defaults through the Master Reset command.

IMPORTANT: Performing a Master Reset will reset the unit to the factory defaults, thus eliminating any installation and calibrations performed during set up of product.

Press the "-" and "+" buttons simultaneously for approximately 10 seconds (until the graphic bars collide) to restore the unit to factory default settings. Press the "MODE/SELECT" button to confirm.

Alarm Warnings With Descriptive Text

NOTE: *Descriptive text alarm warning screens are displayed with Gen I (2007) engines and newer.*



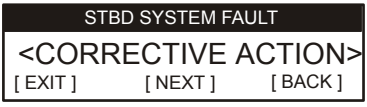
a - Display screen
b - Engine Guardian System
c - Alarm signal

When a problem is detected, the name of the offending alarm appears on the display.

If the problem can cause immediate engine damage, the Engine Guardian System will respond to the problem by limiting engine power. Immediately reduce the throttle speed and refer to the warning messages on the following pages. Refer to the engine **Operation, Maintenance, and Warranty Manual** for further explanation of the problem and the correct action to take.

The alarm message will stay displayed until the "MODE/SELECT" button is pressed. If there are multiple alarms, these will cycle on the display at five second intervals.

If the "MODE/SELECT" button is pressed to display a different screen, the flashing alarm signal "AL" will appear in the upper right corner to indicate there still is a problem.

Alarm Warning with Descriptive Text	
 24184	The "SYS FAULT" bar indicates there is a problem in the system. "SHOW" displays the faulty component.
 24186	The top bar indicates the system with the faulty component. The scrolling text displays the faulty component. "NEXT" displays the next fault. "MORE" displays a detailed description of the fault.
 24187	The scrolling text explains in detail the description of the fault. "ACTION" displays the course of action required by the operator.
 24189	The scrolling text displays the course of action required by the operator.

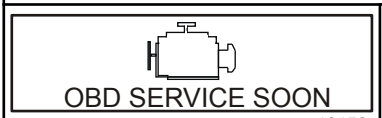
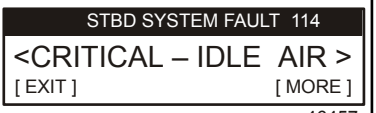
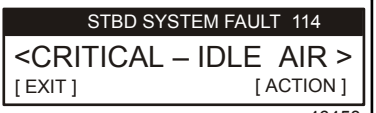
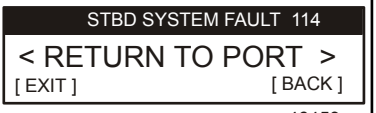
EMISSION CONTROL FAULTS WITH DESCRIPTIVE TEXT

When a problem is detected with the Emission control system, the screen will flash between an engine icon that shows the text "**OBD SERVICE SOON**" and the system fault screen. These two screens will continue to flash until the "+" button is pressed to display the control fault.

If the problem can cause immediate engine damage, the Engine Guardian System will respond to the problem by limiting engine power. Immediately reduce the throttle speed and refer to the warning messages on the following pages. Refer to the engine **Operation, Maintenance, and Warranty Manual** for further explanation of the problem and the correct action to take.

The alarm message will stay displayed until the "MODE/ SELECT" button is pressed. If there are multiple alarms, these will cycle on the display at five-second intervals.

If the "MODE/SELECT" button is pressed to display a different screen, the engine emission fault alarm icon will appear in the upper left hand corner. The engine icon will be visible on all screens. A servicing dealer must diagnose the emission control faults and correct the problem prior to the next use of the vessel.

Emission Control Faults With Descriptive Text	
 46456	An engine icon will appear in the middle of the screen with text stating "OBD SERVICE SOON." The screen will flash to the "SYS FAULT" screen approximately every three seconds
 46455	The "SYS FAULT" bar indicates there is a problem in the system. Under the bar "OBD SERVICE SOON" is displayed. "SHOW" displays the faulty component.
 46457	The top bar indicates the system with the faulty component and the fault number. The scrolling text displays the severity of the fault and the faulty component. "MORE" displays a detailed description of the fault.
 46458	The scrolling text explains in detail the description of the fault. "ACTION" displays the course of action required by the operator.
 46459	The scrolling text displays the course of action required by the operator.

Warning Display Screens

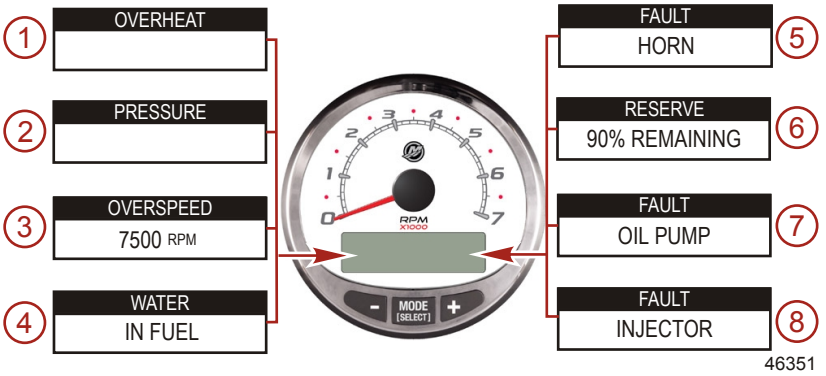
When a problem is detected with the engine, the warning display screens will alert the operator to the potential problem. Refer to the engine **Operation, Maintenance, and Warranty Manual** for an explanation of the problem and the correct action to take.

SYSTEM TACH/SPEED VERSION 6.0

PROBLEM	TACHOMETER DISPLAY	SPEEDOMETER DISPLAY
BATTERY	×	
ENGINE DATA BUS	×	
FAULT- HORN	×	
FAULT- IGNITION	×	
FAULT- INJECTOR	×	
FAULT- OIL PUMP	×	
FAULT- SENSOR	×	
FAULT- WATER TEMP	×	
LOW FUEL		×
LOW OIL		×
FAULT - OIL TEMP	×	
OIL PSI	×	
OVERHEAT	×	
OVERSPEED	×	
FAULT - OIL PRESSURE	×	
RESERVE OIL	×	
SYSTEM FAULT – OBD SERVICE SOON	×	
WATER IN FUEL	×	
FAULT - MAP	×	
FAULT - MAT	×	
FAULT - TPS	×	

SYSTEM TACH/SPEED VERSION 6.0

NOTE: *Depending on the engine type, not all screens will apply.*

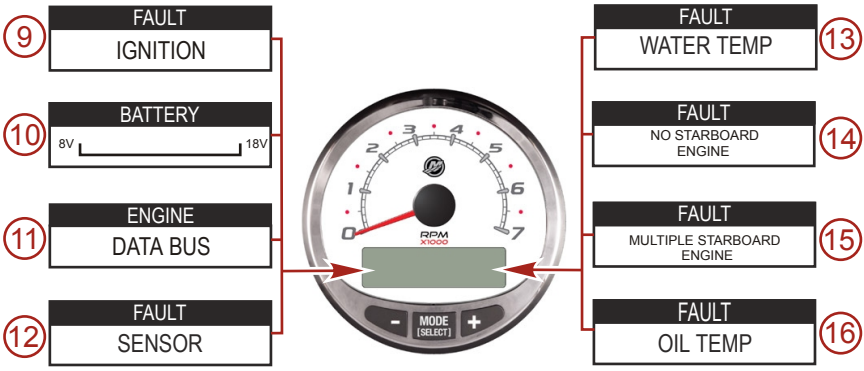


IMPORTANT: Refer to the engine Operation, Maintenance, and Warranty Manual for further explanation of the problem and the correct action to take. Contact the dealer if the problem persists.

1. **OVERHEAT**: The engine has overheated.
2. **PRESSURE**: There is insufficient water pressure in the cooling system.
3. **OVERSPEED**: Engine speed exceeded the maximum allowable RPM.
4. **WATER IN FUEL**: Water in the water separating fuel filter reached the full level.
5. **FAULT - HORN**: The warning horn is not functioning correctly.
6. **RESERVE OIL LOW - 2-Stroke outboard only**: Oil level is critically low in the engine-mounted oil reservoir tank.
7. **FAULT - OIL PUMP**: The oil pump has stopped functioning electrically. No lubricating oil is being supplied to the engine.
8. **FAULT - INJECTOR**: One or more of the fuel injectors have stopped functioning electrically.

SYSTEM TACH/SPEED VERSION 6.0

NOTE: *Depending on the engine type, not all screens will apply.*



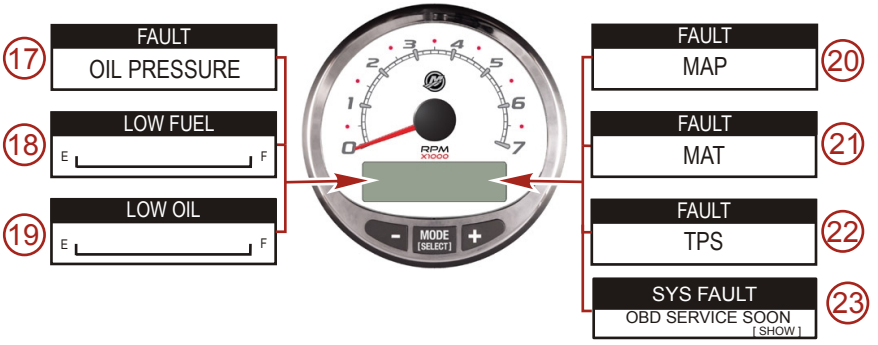
9. **FAULT - IGNITION**: A problem has developed in the ignition system.
10. **BATTERY**: The electrical system is not charging or the battery charge is low.
11. **ENGINE DATA BUS**: The data communication link between the tachometer and engine is not connected.
12. **FAULT - SENSOR**: One of the sensors is not functioning correctly.
13. **FAULT - WATER TEMP**: The sensor for measuring outside lake/seawater temperature is not functioning correctly.
14. **FAULT - NO STARBOARD ENGINE**: The instrument does not detect the starboard engine computer. This usually indicates that no data is being transferred from the engine's computer to the gauge. Check the wiring. Make sure both terminator resistors are installed in the bus. Make sure the PCM/ECM's are not configured for the same location using computer diagnostic system (CDS).
15. **FAULT - MULTIPLE STARBOARD ENGINE**: SmartCraft gauges are recognizing multiple engines as starboard.

NOTE: *In multiple engine applications, each engine must be assigned a position (starboard, port, starboard2, or port2) with a CDS before the system will function properly.*

16. **OIL TEMP**: The engine oil is overheating.

SYSTEM TACH/SPEED VERSION 6.0

NOTE: *Depending on the engine type, not all screens will apply.*



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17. **FAULT - OIL PRESSURE**: There is insufficient oil pressure.
18. **LOW FUEL LEVEL**: The fuel level in the fuel tank is critically low. Stop for fuel immediately to avoid running out.
19. **LOW OIL LEVEL - 2-Stroke outboard only**: The oil level in the remote oil tank is low. Stop and refill the oil tank immediately to avoid running out.
20. **FAULT - MAP**: Engine problem occurred. Have the engine checked by a dealer.
21. **FAULT - MAT**: Engine problem occurred. Have the engine checked by a dealer.
22. **FAULT - TPS**: Engine problem occurred. Have the engine checked by a dealer.
23. **SYSTEM FAULT - OBD SERVICE SOON**: A problem has occurred with the engine emissions control system. Have the engine check by a dealer.

SYSTEM TACH/SPEED VERSION 6.0

Display Screens

Tachometer Display Screen	Speedometer Display Screen
Engine Break-in (2-Stroke outboard only)	Clock - Air/Sea Temp
Engine Temperature	Fuel Used
Oil Temperature	Cog - If there is a GPS input
Oil PSI	Distance and Fuel to Waypoint
Trim and RPM	Speed
Trim and Water Pressure	Estimated Range
Water Pressure	Instant and Average Fuel Economy
Battery Voltage and Engine Hours	Trip Odometer
Fuel Flow and Fuel Used	Fuel Tank Levels
Speed and Sea Temperature	Oil Tank Levels
Battery Voltage	Fresh Water Levels
% Fuel Remaining (Fuel Tank 1)	Waste Water levels
Depth	Steering Angle (MerCruiser only)
Trim Position	Tabs
Fuel PSI	**Dual Engine**
RPM	Trim and RPM Synchronizer
Maintenance	
Quick Reference Screen Battery, Temperature, PSI	

System Tachometer Display Screens

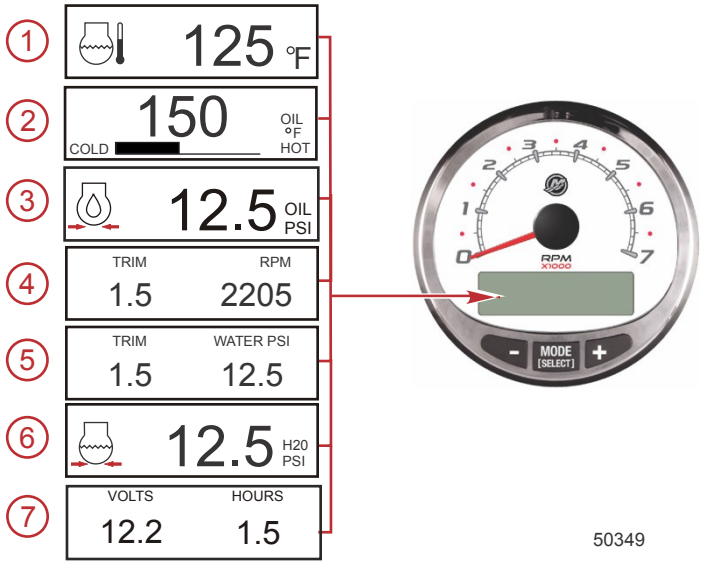
When the ignition is turned on, the tachometer will display the last screen that was visible before the ignition was turned off.

Press "MODE/SELECT" to change display screens. Revert back to the previous screen by pressing and holding "MODE/SELECT" for two seconds.

NOTE: *Readings can be displayed in English (U.S.) or metric. Refer to* ***Tachometer Calibration****.*

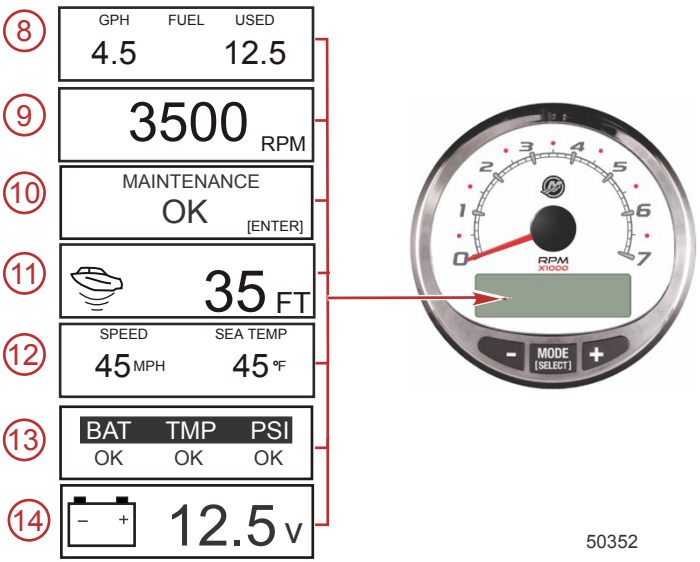
SYSTEM TACH/SPEED VERSION 6.0

NOTE: *Depending on the engine type, not all screens will apply.*



1. **Temperature:** Displays the engine coolant temperature.
2. **Oil Temperature:** Displays the engine oil temperature.
3. **Oil Pressure:** Displays the engine oil pressure in "PSI" or "BAR."
4. **Trim and RPM:** Displays the engine RPM and trim position.
5. **Power Trim Angle:** Displays the trim angle of the outboard or sterndrive up to the maximum trim angle and then displays the trailer angle. 0 = down, 10 = maximum trim, and 25 = full trailer.
6. **Water Pressure:** Displays the cooling system water pressure at the engine.

7. **Battery Voltage:** Displays the voltage level (condition) of the battery. Also records the running time of the engine.



8. **Fuel Flow:** Displays fuel use in gallons or liters per hour, and overall amount of fuel used.
9. **Digital Tachometer:** Displays the engine speed in revolutions per minute (RPM).
10. **Maintenance:** Displays if the engine is "OK" or that it requires scheduled maintenance. This maintenance screen is based on a 100 hour maintenance cycle. Follow the maintenance schedule recommendation in the owner's manual.

NOTE: *The scheduled maintenance cycle should be reset following maintenance performed at the Once a Year and Before Storage recommendation that is indicated in the owner's manual.*

11. **Water Depth:** Displays the water depth under the transducer if connected. The water depth screen can be turned on or off in CAL 1 calibration. The alarm can be set to trigger whenever the boat moves into water shallower than the alarm level. Refer to CAL 2 calibration for water depth alarm and offset settings.

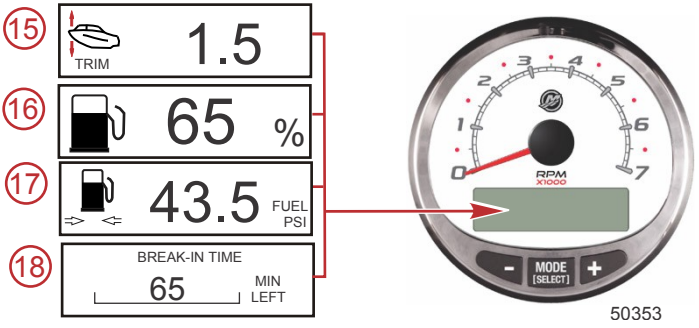
SYSTEM TACH/SPEED VERSION 6.0

NOTE: A depth transducer (purchased separately) must be connected to the system for this screen to operate.

12. **Speed/Temp:** Displays a split screen of seawater temperature and vessel speed.

NOTE: A speed input sensor must be connected to the system for this screen to operate.

13. **Quick Reference Screen:** Indicates that the battery, engine temperature, and pressures are operating properly.
14. **Battery Voltage:** Displays in large numbers the current voltage of the battery.

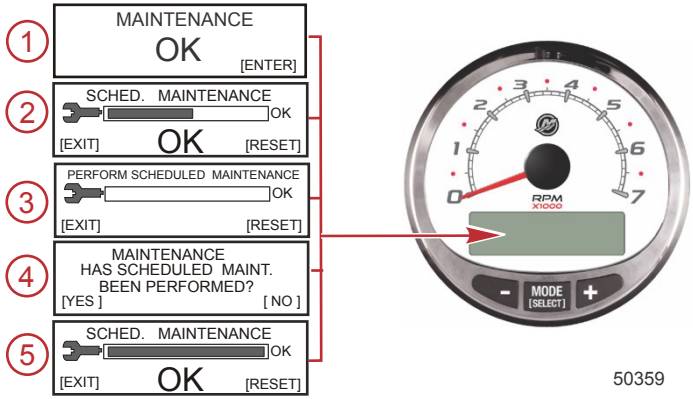


15. **Power Trim Angle/Water Pressure:** Displays the trim angle of the engine and cooling system water pressure.
16. **Fuel Percentage:** Displays the percentage of fuel that is in the fuel tank.
17. **Fuel Pressure:** Displays the engine fuel pressure.
18. **Engine Break-in:** Displays the time remaining on the break-in period of a new engine. This screen will automatically disappear after the break-in period is complete.

Maintenance Screen

Some 4-stroke power package models have the ability to estimate the amount of run time the engine accumulated since the last scheduled maintenance. Normal scheduled maintenance for the engine is 100 hours. The maintenance screen shows a bar graph approximating the amount of time remaining before a scheduled maintenance is required. When the maintenance screen is reset, the bar graph will change to represent the scheduled maintenance has 100 hours remaining. The maintenance screen must be turned on for this screen to be displayed. Your owner's manual maintenance schedule should be followed regardless of what the gauge displays. To turn this feature on, refer to **Tachometer CAL 1 Calibration**.

1. When the maintenance screen is displayed, press "ENTER" to see the approximate amount of time remaining before a scheduled maintenance is recommended.



2. The scheduled maintenance screen displays a bar graph indicating the estimated time remaining on the scheduled maintenance cycle. Press "EXIT" to return to the previous screen or "RESET" after the scheduled maintenance has been performed.

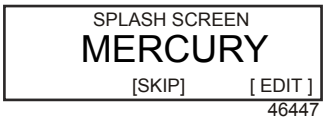
3. If the amount of time since the last scheduled maintenance has passed 100 hours, the screen will show "PERFORM SCHEDULED MAINTENANCE" and the bar graph will not be visible. Press "EXIT" to return to the previous screen or "RESET."
4. After pressing "RESET" the screen goes to the "MAINTENANCE" screen. The "MAINTENANCE" screen will display "HAS SCHEDULED MAINT. BEEN PERFORMED?" Press "YES" to reset the maintenance schedule, or press "NO" to return to the previous screen.
5. After pressing "YES" the screen will show the bar graph has been reset to represent 100 hours of operation before the next scheduled maintenance. Press "EXIT" to return the "MAINTENANCE OK" screen.

Tachometer Quick CAL Calibration

SC1000 System Tachometer Version 6.0

This calibration is for setting lighting and contrast.

1. Press the "MODE/SELECT" and "+" buttons simultaneously for approximately two seconds or until the "QUICK CAL" screen appears.
2. Press the "–" or "+" button to select the option choice displayed in the [ ] brackets on the screen.
3. Press "MODE/SELECT" to save the setting and advance through the calibration screens.

Quick CAL	
 23517	Adjusts the brightness of the gauge lighting.
 23519	Adjusts the contrast of the display screen.
 46447	You can edit the name of the splash screen. Press "+" to edit the name, or press "MODE/SELECT" to skip changing the splash screen name.
 30246	The splash screen name has nine spaces for characters. 59 characters, including an empty character, is available for each space. Press the "–" or "+" button to change the character. Press the "MODE/SELECT" button to move to the next space. All nine splash screen name spaces must be selected before exiting the splash screen option.

Tachometer CAL 1 Calibration

This calibration turns the system screens on and off.

NOTE: *The screens may vary depending upon the version of the gauge.*

1. Press and hold the "MODE/SELECT" and "+" buttons for approximately seven seconds until the "CAL 1" screen appears.
2. Press the "–" or "+" button to select the option choice displayed in the [ ] brackets on the screen.
3. Press "MODE/SELECT" to save the setting and advance through the calibration screens.

Tachometer CAL 1 Calibration - Remote Light and Contrast	
REMOTE SCREENS ? [NO] [SAVE] [YES] 23620	If "YES" is selected, then screen changes made on this tachometer will effect all tachometers in the system. All tachometers need the screen set to "YES" for this function to work.
REMOTE LCD LIGHT ? [NO] [SAVE] [YES] 23532	Adjusts the lighting levels on all gauges simultaneously from this gauge. If "YES" is selected, then lighting level changes made on this tachometer will effect all tachometers in the system. All tachometers need the screen set to "YES" for this function to work.
REMOTE LCD CONTRAST ? [NO] [SAVE] [YES] 23533	Adjusts the contrast of another System Tachometer simultaneously from this gauge. If "YES" is selected, then contrast level changes made on this tachometer will effect all tachometers in the system. All tachometers need the screen set to "YES" for this function to work.

Tachometer CAL 1 Calibration - Trim	
HIGH RESOLUTION TRIM ? [NO] [SAVE] [YES] 23621	Enables the trim angle to be displayed in 0.1° increments if "YES" is selected.
TRIM POPUP ? [NO] [SAVE] [YES] 23641	The trim display screen pops up when the trim setting is changed if "YES" is selected.
CALIBRATION 1 TRIM CALIBRATION [SKIP] [EDIT] 23910	Select "EDIT" to calibrate the gauge to the standard 0–10° unit trim and 11–25° trailer position scale. Select "SKIP" to advance to the next selection.
CALIBRATION 1 TRIM FULL DOWN THEN PRESS PLUS BUTTON [DFLT] [SKIP] [SAVE] 23911	Trim the system to the full down position, then press the "+" button to save the setting.

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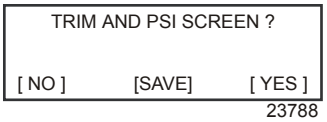
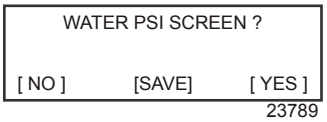
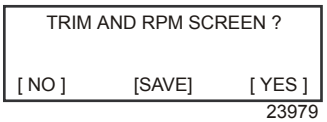
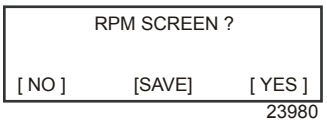
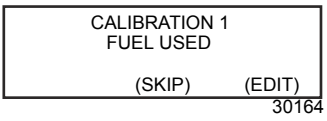
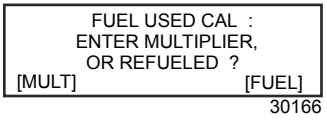
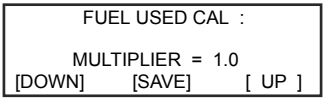
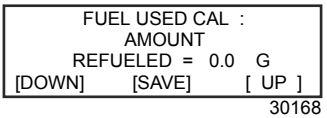
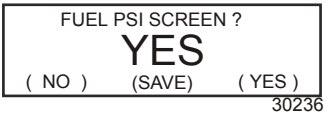
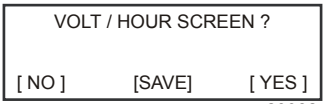
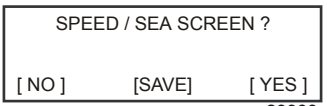
Tachometer CAL 1 Calibration - Trim	
CALIBRATION 1 TRIM FULL UP THEN PRESS PLUS BUTTON [DFLT] [SKIP] [SAVE] 23912	Trim the system to the full up position, then press the "+" button to save the setting.
CALIBRATION 1 TRIM TO TRAILER POINT THEN PRESS PLUS BUTTON [DFLT] [SKIP] [SAVE] 23919	Trim the system to the trailer point, then press the "+" button to save the setting.

Tachometer CAL 1 Calibration - Display Units	
DISPLAY UNITS ENGLISH [DOWN] [SAVE] [UP] 23539	Changes units of measure between English or metric. Select "DOWN" or "UP" to change between "ENGLISH" or "METRIC" units of measure.
SPEED UNITS MPH [DOWN] [SAVE] [UP] 23540	Changes the units in which speed is displayed. Choose from: MPH (Miles Per Hour), KN (Knots), or KMH (Kilometers Per Hour).

Tachometer CAL 1 Calibration - Display Screens	
QUICK REF SCREEN ? [NO] [SAVE] [YES] 23978	The quick reference screen is displayed "YES" for on or off "NO."
ENGINE TEMP SCREEN ? [NO] [SAVE] [YES] 23783	The engine temperature screen is displayed "YES" for on or off "NO."
OIL TEMP SCREEN ? [NO] [SAVE] [YES] 23786	The oil temperature screen is displayed "YES" for on or off "NO."
OIL PRESS SCREEN ? [NO] [SAVE] [YES] 23787	The oil pressure screen is displayed "YES" for on or off "NO."

SYSTEM TACH/SPEED VERSION 6.0

Tachometer CAL 1 Calibration - Display Screens	
	The split screen showing trim angle and water pressure is displayed "YES" for on or off "NO."
	The water pressure screen is displayed "YES" for on or off "NO."
	The split screen showing trim angle and engine RPM is displayed "YES" for on or off "NO."
	The engine RPM screen is displayed "YES" for on or off "NO."
	The fuel used screen is displayed "YES" for on or off "NO."
	Selects how fuel used is calibrated. Press "+" to select "EDIT" or "SELECT" to bypass how the fuel used is calibrated.
	Selects how fuel used is calibrated with a multiplier or with refueling. Press "–" to select multiplier "MULT" or "+" to select refueling "FUEL."

Tachometer CAL 1 Calibration - Display Screens	
 30167	Adjusts multiplier between 0.50 and 1.50. Press "–" to select "DOWN," or "+" to select "UP." The multiplier is used to fine-tune the fuel gauge sender to correct for fuel used errors. If the gauge indicates that 10 gallons of fuel was used, but the actual fuel that was added is 14 gallons, change the multiplier to 1.40. If the gauge indicates that 10 gallons of fuel was used, but the actual fuel that was added is only 8 gallons, change the multiplier to 0.80.
 30168	Adjusts fuel used calibration using the amount of fuel replaced. Press "–" to select "DOWN," or "+" to select "UP." The fuel option functions the same as the multiplier. If the gauge indicates that 10 gallons of fuel was used, but the actual fuel that was added is 14 gallons, change the amount refueled to 14.0. If the gauge indicates that 10 gallons of fuel was used, but the actual fuel that was added is only 8 gallons, change the amount refueled to 8.0 gallons. The gauge will calculate the multiplier and will automatically change the number in the multiplier option.
 30236	Fuel pressure screen is displayed "YES" for on or off "NO."
 23982	The split screen showing volts and engine hours is displayed "YES" for on or off "NO."
 23983	The split screen showing speed and sea temperature is displayed "YES" for on or off "NO."

Tachometer CAL 1 Calibration - Display Screens	
SEA TEMP OFFSET = °F (DOWN) (SAVE) (UP) 30242	Sea temperature sensor error correction is made. Press "DOWN" or "UP."
DEPTH SCREEN ? [NO] [SAVE] [YES] 23984	The depth screen is displayed "YES" for on or off "NO."
MAINTENANCE SCREEN ? YES [NO] [SAVE] [YES] 50362	The maintenance screen is displayed on "YES" for on or off "NO." Some 4-stroke power package models have the ability to estimate the amount of run time the engine oil has accumulated. This screen must be turned on to monitor the run time on the engine. ***NOTE:*** *Scheduled maintenance must be performed every 100 hours of use or once a year, whichever comes first.*
SIMULATOR MODE NO [NO] [SAVE] [YES] 23547	Enables the simulation mode. (Used for demonstration purposes only.)
CALIBRATION 1 EXIT ? [NO] [YES] [CAL 2] 43372	Press "MODE/SELECT" to exit. Press "–" to go to the start of CAL 1. Press "+" to continue to "CAL 2."

Tachometer CAL 2 Calibration

This calibration configures the system sensor inputs.

NOTE: *The screens may vary depending upon the version of the gauge.*

1. Press and hold the "MODE/SELECT" and "+" buttons for approximately ten seconds until the "CAL 2" screen appears.
2. Press the "–" or "+" button to select the option choice displayed in the [ ] brackets on the screen.
3. Press "MODE/SELECT" to save the setting and advance through the calibration screens.

SMART TOW

Power packages that have Smart Tow options, you can change how the gauge receives the vessel speed information, and how quickly the throttle response is when Smart Tow is engaged.

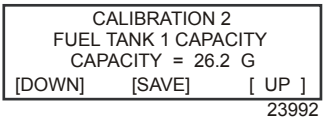
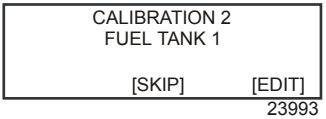
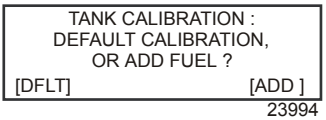
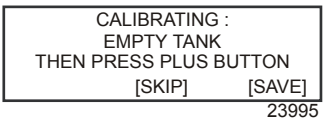
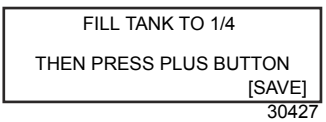
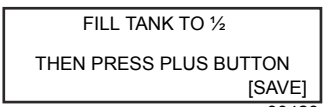
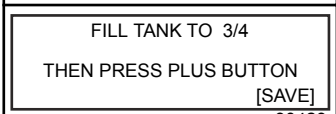
Smart Tow System Calibrations	
CALIBRATION 2 SMARTTOW OPTIONS [SKIP] [EDIT] 50364	Select "EDIT" to change options available with Smart Tow, or select "SKIP" if Smart Tow is not available.
CALIBRATION 2 SMARTTOW SPEED INPUT PADDLE [DOWN] [SAVE] [UP] 50365	Select "DOWN" or "UP" to change the Smart Tow speed input to "PADDLE" or "GPS."
CALIBRATION 2 SMARTTOW SPEED FILTER [DOWN] [SAVE] [UP] 50366	Select "DOWN" or "UP" to change the Smart Tow speed filter to "OFF," "LOW," "MED" (medium), or "HIGH."

FUEL TANK CALIBRATION

There are three methods for calibrating the fuel tank level monitoring feature:

1. Do nothing. The linear readout is based on raw sensor values. This mode does not factor in irregular tank shapes.
2. Performing the tank calibration procedure without adding fuel; the System Tachometer/Smart Tow Tachometer will supply an estimated range value based on linear interpolation of the sensor range values. This mode does not factor in irregular tank shapes. You must edit the tank calibration by entering a numerical value for the capacity of the fuel tank. The linear readout is based on raw sensor values.

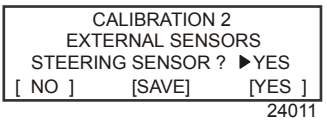
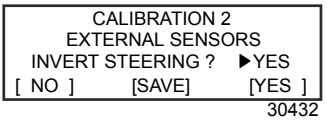
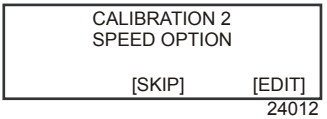
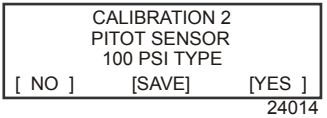
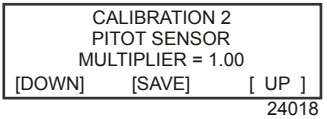
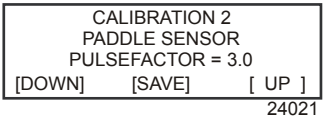
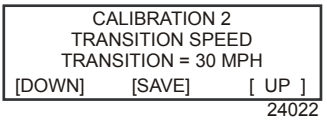
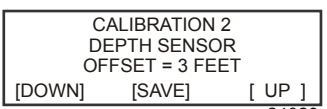
3. Performing the tank calibration procedure with adding fuel at each calibration point; the System Tachometer/Smart Tow Tachometer will display an estimated range value that factors in the tank shape. You must edit the tank calibration by adding fuel for 1/4, 1/2, 3/4, and full. Failure to edit the tank calibration will automatically default the fuel level to the liter/gallon capacity.

CAL 2 Tachometer Calibration - Tank 1 and 2 Level Calibration	
 23992	Enter the capacity of the tank. Select "DOWN" or "UP" to set the tank capacity. Then press "SAVE." This option is the same for tank 1 as it is for tank 2.
 23993	Select "EDIT" to enter the calibration mode of the fuel tank. The calibration procedure is the same for tank 1 as it is for tank 2. Select "EDIT" to begin tank level calibration.
 23994	Select "DFLT" to let SmartCraft calibrate the tank levels. Select "ADD" to calibrate the tank levels by adding fluid to the tank.
 23995	Empty the tank. Press the "+" button to save the calibration level to empty.
 30427	Fill the tank to 1/4 full. Press the "+" button to save the calibration level to 1/4 full.
 30428	Fill the tank to 1/2 full. Press the "+" button to save the calibration level to 1/2 full.
 30429	Fill the tank to 3/4 full. Press the "+" button to save the calibration level to 3/4 full.

CAL 2 Tachometer Calibration - Tank 1 and 2 Level Calibration	
FILL TANK TO FULL THEN PRESS PLUS BUTTON [SAVE] 30430	Fill the tank to full. Press the "+" button to save the calibration level to full.
CALIBRATION 2 TANK 2 INPUT OIL TANK [DOWN] [SAVE] [UP] 24148	Select tank 2 input: oil tank, fuel tank 2, water tank, waste tank, or not installed.

EXTERNAL SENSORS

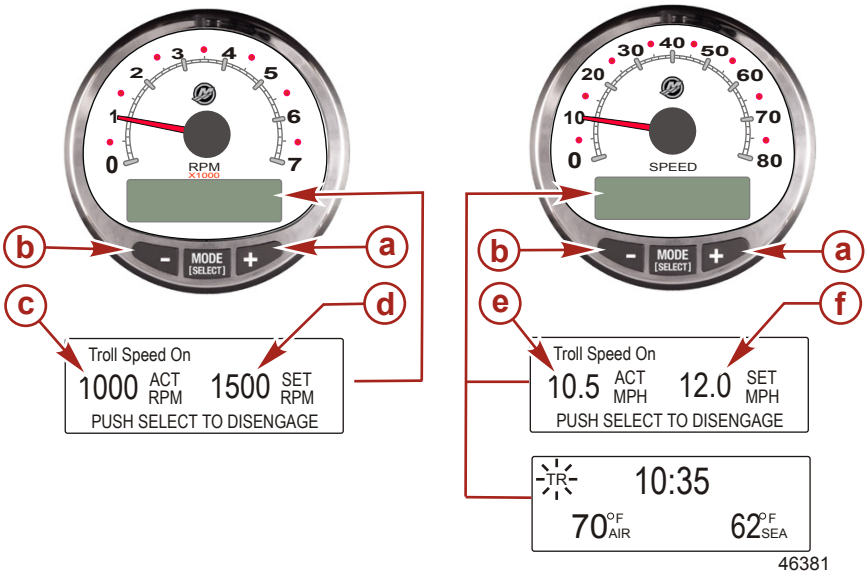
CAL 2 Tachometer Calibration - External Sensors	
CALIBRATION 2 EXTERNAL SENSORS ? [SKIP] [EDIT] 24006	Selects and calibrates external sensors that are installed in the system. Select "SKIP" to proceed to the speed options. Select "EDIT" to proceed to external sensor selection.
CALIBRATION 2 EXTERNAL SENSORS PITOT SENSOR ? ▶ YES [NO] [SAVE] [YES] 24007	Is the boat equipped with a pitot sensor to measure boat speed? Press "–" to select "NO" or "+" to select "YES."
CALIBRATION 2 EXTERNAL SENSORS PADDLE SENSOR ? ▶YES [NO] [SAVE] [YES] 24008	Is the boat equipped with a paddle wheel to measure boat speed? Press "–" to select "NO" or "+" to select "YES."
CALIBRATION 2 EXTERNAL SENSORS TRIM SENSOR ? ▶YES [NO] [SAVE] [YES] 24009	Is the boat equipped with a trim sensor? Press "–" to select "NO" or "+" to select "YES."
CALIBRATION 2 EXTERNAL SENSORS SEA TEMP ? ▶YES [NO] [SAVE] [YES] 24010	Is the boat equipped with a seawater temperature sensor? Press "–" to select "NO" or "+" to select "YES."

CAL 2 Tachometer Calibration - External Sensors	
 24011	Is the boat equipped with a steering sensor? Press "–" to select "NO" or "+" to select "YES."
 30432	Changes the position (direction) of the steering display. Press "–" to select "NO" or "+" to select "YES."
 24012	This section configures the following speed sensors. Select "EDIT" to calibrate the sensors. Select "SKIP" to proceed to the depth sensor screen.
 24014	Select pitot transducer type. Choose between 100 or 200 psi. (100 psi is the most common.)
 24018	Adjust the pitot pressure sensor to correct display readings that are too high/low. Press "–" or "+" to calibrate the pitot sensor multiplier "DOWN" or "UP."
 24021	Adjust paddle wheel frequency to correct display readings that are too high/low. Press "–" or "+" to calibrate the paddle sensor pulse factor "DOWN" or "UP."
 24022	Set the speed at which the gauge stops reading the paddle wheel and starts using pitot sensor to measure boat speed. Press "–" or "+" to calibrate the transition speed "DOWN" or "UP."
 24023	Electronically configure a depth offset. Entering a negative number gives you a waterline offset. A positive number gives you a keel offset. Press "–" or "+" to calibrate the depth sensor offset "DOWN" or "UP."

CAL 2 Tachometer Calibration - External Sensors	
CALIBRATION 2 DEPTH ALARM LEVEL = 2.5 FEET [DOWN] [SAVE] [UP] 24024	Enter a depth value. When the depth transducer reads that value or below, the shallow water alarm will sound. Press "–" or "+" to calibrate the depth alarm level "DOWN" or "UP."
CALIBRATION 2 EXIT ? [NO] [YES] [CAL 1] 24025	Press "MODE/SELECT" to exit. Press "–" to go to the start of CAL 2. Press "+" to continue to "CAL 1."

Troll Control Operation

NOTE: *The troll control feature is only available on the System Tachometer and Speedometer.*



- **a -** Increase troll speed
- **b -** Decrease troll speed
- **c -** Actual RPM
- **d -** Set RPM
- **e -** Actual MPH
- **f -** Set MPH

NOTE: *Troll control may not be available on all engine models.*

NOTE: *The troll control minimum and maximum range may change depending on engine type.*

Set the troll control by using the System Tachometer or Speedometer. The speedometer will set the speed in MPH, KPH, or KN, while the tachometer will set the speed in RPM.

The troll control can be shut off at anytime by adjusting the throttle or by pushing the "MODE/SELECT" button when in the troll display screen.

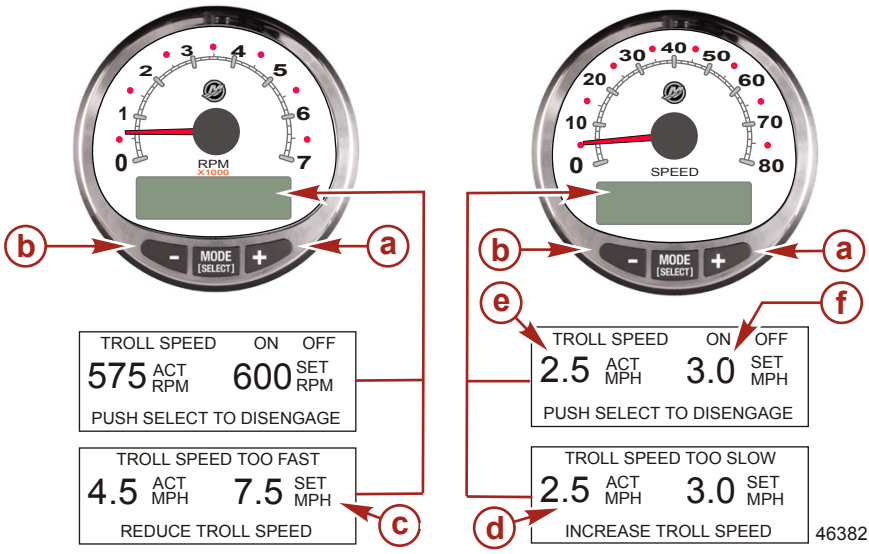
When the troll control is shut off, the system will remember the set speed. When the troll control is engaged, it will return to the set speed.

The display screen will revert back to the previous screen after five seconds of inactivity. Push the "+" or "–" button to reactivate the troll control display screen.

When the troll control is engaged and not in the troll control display screen, a flashing "TR" signal will appear in the upper left corner of the screen to indicate the troll control is still active.

SYSTEM TACH/SPEED VERSION 6.0

SETTING TROLL CONTROL



a - Increase troll set speed
b - Decrease troll set speed
c - Setting is too fast, reduce set troll speed
d - Setting is too slow, increase set troll speed
e - Actual speed
f - Set speed

1. With the engine running, shift the engine into gear. Set the engine speed at idle.
2. Push in either the "+" or "–" buttons to bring up the troll control display screen.
3. Press "MODE/SELECT" to engage the troll control.
4. Use the "+" and "–" buttons to set the desired speed. Use "+" to increase the set speed and use "–" to decrease the set speed.
5. If the troll speed is set to a higher speed than the troll control can maintain, the "TROLL SPEED TOO FAST" display will appear. Reduce the set troll speed.

6. If the troll speed is set to a slower speed than the troll control can maintain, the "TROLL SPEED TOO SLOW" display will appear. Increase the set troll speed.

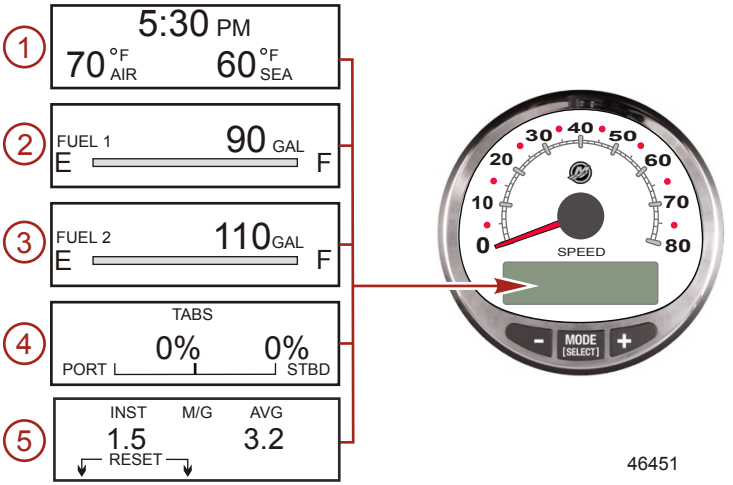
CANCELING TROLL CONTROL

There are three ways to cancel the troll control:

- Press the "MODE/SELECT" button when in the troll display screen.
- Move the throttle to a different speed.
- Shift the engine into neutral.

Speedometer Display Screens

NOTE: *Depending on the engine type, not all screens will apply.*



When the ignition is turned on, the speedometer will show the last screen that was displayed before the ignition was turned off.

Press "MODE/SELECT" to change display screens. Revert back to the previous screen by pressing and holding "MODE/SELECT" for two seconds.

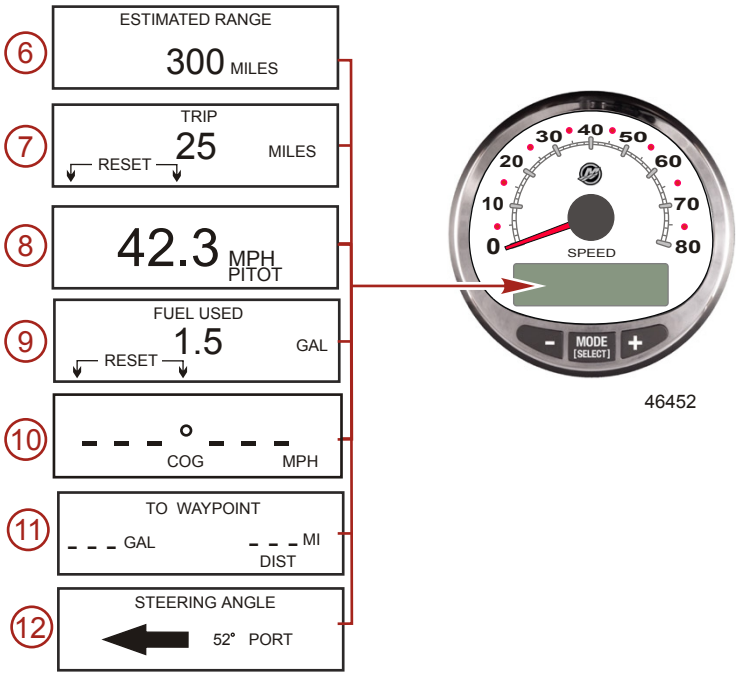
NOTE: *Readings can be displayed in English (U.S.) or metric. Refer to* ***Speedometer Cal 1 Calibrations****.*

NOTE: *The descriptions may not be in order on the gauge. The order may change depending on engine type.*

SYSTEM TACH/SPEED VERSION 6.0

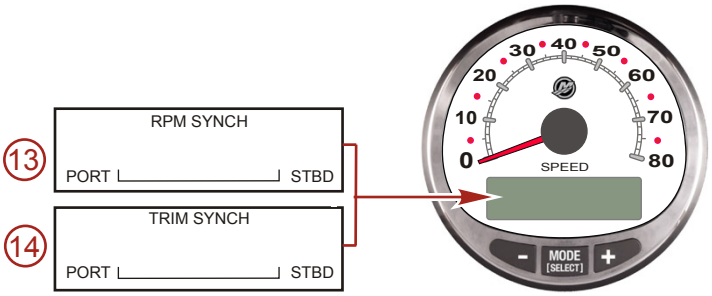
1. **Clock - Temp:** Clock, air temperature, and water temperature. The air and water temperature sensors must be connected to obtain display readings.
2. **Fuel 1:** Displays the amount of fuel remaining in fuel tank 1.
3. **Fuel 2:** Displays the amount of fuel remaining in fuel tank 2, water/waste tank level (if applicable.) This screen will automatically display engine oil tank for an OptiMax outboard.
4. **Tabs:** Shows the position of the port and starboard tab viewed as a percentage.
5. **Fuel Economy:** Displays the average "AVG" fuel consumption as well as instantaneous "INST" fuel economy. The numbers displayed indicate miles per gallon "M/G" or kilometers per liter "KM/L." **Fuel Reset:** To reset, select the display screen, press "MODE/SELECT" and "–" simultaneously.

NOTE: *Depending on the engine type, not all screens will apply.*



6. **Estimated Range:** The estimated range is based on boat speed, fuel consumption, and fuel remaining in the tank. The numbers displayed are an estimate of the distance you can travel with the remaining fuel. Speed input required (paddle wheel, pitot pressure, or GPS).
7. **Trip:** Displays the distance traveled since the gauge was last reset to zero. **Reset:** To reset, select the display screen and press "MODE/SELECT" and "–" simultaneously.
8. **Speedometer:** Displays the boat speed in miles per hour, kilometers per hour, or nautical miles per hour. The speedometer will use the paddle wheel for its low-speed readings and will switch to the pitot or GPS (if connected) for high-speed readings. The transition point setting is described in Cal 2.
9. **Fuel Used:** Displays the amount of fuel used since the gauge was last reset to zero. **Reset:** To reset the fuel used screen, press "MODE/SELECT" and "–" simultaneously.
10. **Course Over Ground:** Displays the direction of travel and current speed through a GPS.
11. **To Waypoint:** Displays the amount of fuel to the waypoint and the distance to the waypoint. A GPS unit with waypoints capability must be installed to display the distance to the waypoint.
12. **Steering Angle:** Displays the relative position of the steering system. Available on Mercury MerCruiser models only. A steering angle sensor must be installed on the engine.

13. **RPM Synchronizer:** Dual engines only - Monitors the revolutions of both engines.



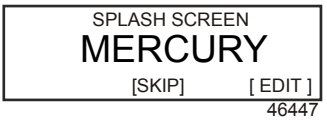
14. **Trim Synchronizer:** Dual engines only - Displays the trim position of both engines. Simplifies keeping trim levels equal.

Speedometer Quick CAL Calibration

SC1000 System Speedometer Version 6.0

This calibration is for setting the lighting and contrast.

1. Press the "MODE/SELECT" and "+" buttons simultaneously for two seconds to bring up the "Quick Cal" display screen.
2. Press the "–" or "+" button to select the option choice displayed in the [ ] brackets on the screen.
3. Press "MODE/SELECT" to save the setting and advance through the calibration selections.

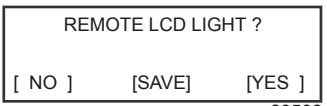
Quick CAL	
 23517	Adjusts the brightness of the gauge lighting.
 23519	Adjusts the contrast of the display screen.
 46447	You can edit the name of the splash screen. Press "+" to edit the name, or press "MODE/ SELECT" to skip changing the splash screen name.
 30246	The splash screen name has nine spaces for characters. 59 characters, including an empty character, is available for each space. Press the "–" or "+" button to change the character. Press the "MODE/SELECT" button to move to the next space. All nine splash screen name spaces must be selected before exiting the splash screen option.

Speedometer CAL 1 Calibration

This calibration turns the system display screens on and off.

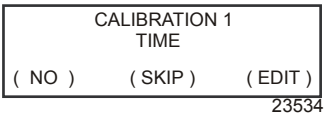
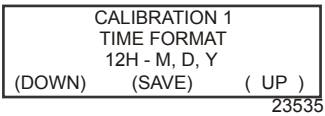
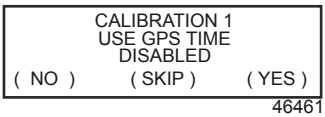
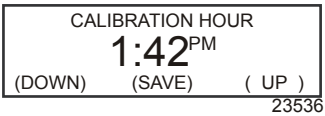
NOTE: *Depending on the engine type, not all screens will apply.*

1. Press the "MODE/SELECT" and "+" buttons simultaneously for approximately six seconds to bring up the "Cal 1" display screen.
2. Press the "–" or "+" button to select the option choice displayed in the [ ] brackets on the screen.
3. Press "MODE/SELECT" to save the setting and advance through the calibration selections.

Remote Lighting and Contrast	
 23532	If "YES" is selected, then screen changes made on this tachometer will effect all tachometers in the system. All tachometers need the screen set to "YES" for this function to work.

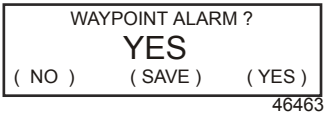
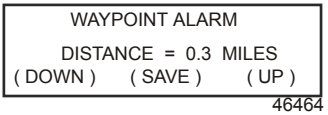
SYSTEM TACH/SPEED VERSION 6.0

Remote Lighting and Contrast	
 23533	Adjusts the contrast of another System/Smart Tow Tachometer simultaneously from this gauge. If "YES" is selected, then contrast level changes made on this tachometer will effect all tachometers in the system. All tachometers need the screen set to "YES" for this function to work.

Time	
 23534	Sets the time. Select "EDIT" to format the time or "SKIP" to advance to the next screen.
 23535	Formats the time as either 12 hour month-day-year or as 24 hour day-month-year. Select "DOWN" or "UP" to change the format.
 46461	When a GPS is installed and the GPS is enabled, the speedometer will display time received by the GPS. This is useful to automatically update the time when crossing time zones.
 30197	When the GPS time is enabled, the UTC zone can be changed from -13 H to 13 H. Press "–" to select "DOWN", or "+" to select "UP."
 23536	Adjusts the hours to match your local time. Select "DOWN" or "UP" to change the hour setting.
 23538	Adjusts the minutes to match your local time. Select "DOWN" or "UP" to change the minute setting.

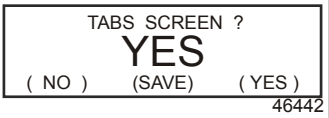
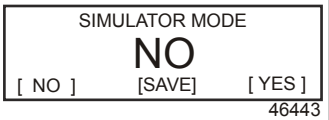
SYSTEM TACH/SPEED VERSION 6.0

Display Units	
	Changes units of measurement between English or metric. Select "DOWN" or "UP" to change between English or metric units.
	Changes the units in which speed is displayed. Choose from: MPH (Miles Per Hour), KN (Knots), or KMH (Kilometers Per Hour).

Display Screens and Calibrations	
	To waypoint screen is displayed "YES" or off "NO." GPS screens must be turned on for this screen to be activated.
	Waypoint alarm is displayed "YES" or off "NO." GPS screens must be turned on for this screen to be activated.
	Set the distance from the waypoint when the alarm will become active. Press the "–" button to decrease the distance or "+" to increase the distance. The default distance setting is 0.3 mile
	The steering angle is displayed "YES" or off "NO."
	The split screen showing air temperature and time is displayed "YES" or off "NO."
	The fuel used screen is displayed "YES" or off "NO."

SYSTEM TACH/SPEED VERSION 6.0

Display Screens and Calibrations	
CALIBRATION 1 FUEL USED (SKIP) (EDIT) 30164	Selects how fuel used is calibrated. Press "+" to select "EDIT" or "SELECT" to bypass how the fuel used is calibrated.
FUEL USED CAL : ENTER MULTIPLIER, OR REFUELED ? [MULT] [FUEL] 30166	Selects how fuel used is calibrated with a multiplier or with refueling. Press "–" to select multiplier "MULT" or "+" to select refueling "FUEL."
FUEL USED CAL : MULTIPLIER = 1.0 [DOWN] [SAVE] [UP] 30167	Adjusts multiplier between 0.50 and 1.50. Press "–" to select "DOWN," or "+" to select "UP." The multiplier is used to fine-tune the fuel gauge sender to correct for fuel used errors. If the gauge indicates that 10 gallons of fuel was used, but the actual fuel that was added is 14 gallons, change the multiplier to 1.40. If the gauge indicates that 10 gallons of fuel was used, but the actual fuel that was added is only 8 gallons, change the multiplier to 0.80.
FUEL USED CAL : AMOUNT REFUELED = 0.0 G [DOWN] [SAVE] [UP] 30168	Adjusts fuel used calibration using the amount of fuel replaced. Press "–" to select "DOWN," or "+" to select "UP." The fuel option functions the same as the multiplier. If the gauge indicates that 10 gallons of fuel was used, but the actual fuel that was added is 14 gallons, change the amount refueled to 14.0. If the gauge indicates that 10 gallons of fuel was used, but the actual fuel that was added is only 8 gallons, change the amount refueled to 8.0 gallons. The gauge will calculate the multiplier and will automatically change the number in the multiplier option.
TRIP SCREEN YES (NO) (SAVE) (YES) 23545	The trip screen is displayed "YES" or off "NO."

Display Screens and Calibrations	
	The fuel management screen is displayed "YES" or off "NO."
	The tabs screen is displayed "YES" or off "NO."
	Enables the simulation mode. (Used for demonstration purposes only.)
	Press "SELECT" to exit. Press "–" to go to the start of CAL 1. Press "+" to continue to "CAL 2."

Speedometer CAL 2 Calibration

This calibration configures the system sensor inputs.

NOTE: *Screens may vary depending upon the version of the gauge and the engine type.*

1. Press and hold the "MODE/SELECT" and "+" buttons simultaneously for approximately nine seconds until the "CAL 2" display screen appears.
2. Press the "-" or "+" button to select the option choice displayed in the [ ] brackets on the screen.
3. Press "MODE/SELECT" to save the setting and advance through the calibration selections.

External Sensors	
	Selects and calibrates external sensors that are installed in the system. Select (SKIP) to proceed to the next selection. Select (EDIT) to proceed to external sensor selection.

SYSTEM TACH/SPEED VERSION 6.0

External Sensors	
CALIBRATION 2 EXTERNAL SENSORS AIRTEMP ? ▸YES (NO) (SAVE) (YES) 23574	Is an air temperature sensor installed? Press "-" to select "NO" or "+" to select "YES".
CALIBRATION 2 EXTERNAL SENSORS GPS ? ▸YES (NO) (SAVE) (YES) 23582	Is a GPS sensor installed? Press "-" to select "NO" or "+" to select "YES".
CALIBRATION 2 EXTERNAL SENSORS USE GPS SPEED ? ▸YES (NO) (SAVE) (YES) 23596	Use the GPS input to drive the speed display? Press "-" to select "NO" or "+" to select "YES".
CALIBRATION 2 SEA TEMP OFFSET = 0 F (DOWN) (SAVE) (UP) 23592	Adjust the seawater temperature sensor to correct display readings that are too high/low. Press "-" or "+" to calibrate the temperature display "DOWN" or "UP".
CALIBRATION 2 TROLL CONTROL ? ENABLED (NO) (SAVE) (YES) 23617	To enable troll control select "YES", to disable select "NO".
CALIBRATION 2 EXIT ? (NO) (SAVE) (CAL1) 23618	Press "MODE/SELECT" to exit. Press "-" to go to the start of CAL 2. Press "+" to continue to "CAL 1".