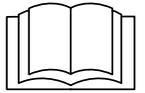




June 2019



OWNER'S MANUAL

ONE-TOUCH CONTROL SYSTEM

OWNER'S MANUAL
For
ILMOR ONE-TOUCH CONTROL SYSTEM



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WELCOME

Ilmor Marine, LLC (Ilmor) is pleased to welcome you to boating enjoyment available only through use of the Ilmor line of products. Ilmor is a recognized leader in the marine industry, having originated through championship-caliber, high-performance engines.

The One-Touch Control System allows for easy vessel maneuverability at low speeds, especially for docking. Ilmor's One-Touch joystick provides smooth, quiet, and responsive shifting exclusively found on the One-Drive® system.

Every effort has been made to ensure accuracy and quality in publication of this document. At the time of printing, content is the most current available. Consumers are encouraged to check www.ilmor.com/home regularly for additional information. The website will also track service bulletins and other technical information that may have impact on the consumer's engine operation. Ilmor's obligation regarding such matters is delineated within the Ilmor Limited Warranty Statement.

Due to technological advancements and continuous improvement of our products and products of our component suppliers, Ilmor reserves the right to change specifications without notification. Photographs and illustrations used in this Owner's Manual are intended only as representative reference views and may not depict actual model component parts.

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INTRODUCTION TO MANUAL

Please read Owner’s Manual completely prior to operating engine and boat for the first time. The Owner’s Manual contains information critical for safe operation and maintenance of your marine products purchased from Ilmor that is required to activate and keep the limited warranty statement in effect throughout the applicable warranty period. Continuing appropriate maintenance and care can ensure long-term enjoyment of the joystick control system. DO NOT OPERATE WITHOUT FIRST READING THE ENTIRE JOYSTICK CONTROL SYSTEM OWNER’S MANUAL AND ALL SUPPORTING DOCUMENTATION, AS WELL AS THE BOAT OWNER’S MANUAL.

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OPERATION MANUAL	MODEL	ONE-TOUCH
	CODE	

SAFETY INSTRUCTIONS

Prior to operating boat for the first time, operators **MUST** read entire Owner's Manual. Reread manual prior to first operation at beginning of the boating season. Keep Owner's Manual onboard the boat in a dry, secure location, such as a glove box, for referral. Read entire boat Owner's Manual, paying particular attention to proper operation and safety concerns addressed within that publication.

It is a boat owner's and operator's responsibility to be aware of safety issues and concerns in the proper operation of the boat. All people on-board, regardless of age, physical limitations, and/or previous boating experience (or lack of experience), bear responsibility for determining the appropriate behavior and safety precautions required on the boat, including care around the engine, engine compartment, transmission, and all moving parts.

Safety and maintenance of the powertrain are best described in this Owner's Manual and at www.ilmor.com/Resources/Warranties-Manuals. For additional information, contact the nearest Ilmor service center or call 844-GO-ILMOR.

The following safety precautions are published for informational purposes only. Ilmor does not, by the publication of these precautions, imply or in any way represent that they are the sum of all dangers present. If installing, operating, or servicing an Ilmor product, it is the owner/operator's responsibility to ensure full compliance with all applicable safety codes and requirements. All requirements of the Federal Occupational Safety and Health (OSH) Act must be met when Ilmor products are operated in areas that are under the jurisdiction of the United States of America. Ilmor products operated in other countries must be installed, operated, and serviced in compliance with any and all applicable safety requirements of that country.

For details on safety rules and regulations in the United States, contact your local office of the Occupational Safety and Health Administration (OSHA).

Failure to adhere to and comply with safety dangers, warnings, cautions, and notices that appear in this manual can lead to serious illness, injury or death, and/or damage to the boat or property of others. Beyond these warnings, boaters have a personal responsibility to utilize a common-sense safety approach to the boating experience, including keeping individuals off or away from the swim platform and stern area of the boat during engine operation, and ensuring everyone wears personal flotation devices.

Ilmor offers many proactive safe approaches to the boating experience, but the consumer is ultimately responsible for the positive and safe operation of the boat.

Please note, safety information statements are categorized for informational purposes only, and are not presented in any particular order of importance. Each statement referenced below and in other sections of this manual provides important safety-related information and must be read and followed to avoid injury or damage, as applicable. The owner/operator is strongly encouraged to read the dangers, warnings, cautions, and notices in the context presented by reading and reviewing those sections.

DANGERS, WARNINGS, CAUTIONS, AND NOTICES

DANGER, WARNING, CAUTION, and NOTICE are used throughout this manual to highlight important information. Be certain that the meanings of these alerts are understood by all who work on or near the equipment. Specific safety information is highlighted with symbols designed to draw particular attention to specific information. These will include:



Safety alert symbol appears with most safety statements. It means attention, become alert, personnel safety is involved! Please read and abide by the message that follows the safety alert symbol.

⚠ DANGER! Indicates an imminently hazardous situation which, if not avoided, will result in death or serious injury.

⚠ WARNING! Indicates a potentially hazardous situation which, if not avoided, could result in death or serious injury.

⚠ CAUTION! Indicates a hazardous situation which, if not avoided, could result in minor or moderate injury.

NOTICE: Indicates a situation that can cause damage to the engine, personal property, and/or the environment, or cause improper operation of equipment.

GENERAL SAFETY CONCERNS

⚠ DANGER! Always avoid exhaust areas and engine compartment during the venting of engine exhaust. Engine exhaust emits carbon monoxide, which is colorless, odorless and poisonous even in small concentration. Carbon monoxide can cause serious injury or death in a short period of time.

The joystick control system is an auxiliary system that can be used to dock, undock, and low-speed navigate in the marina and port. Be sure to comply with the precautions and navigate safely.

⚠ WARNING! Never attempt to stop or slow rotating parts. Keep away from rotating parts. The engine compartment serves as a guard. Be sure the ignition is OFF and the engine is not running whenever the compartment is open, except as directed by the boat manufacturer to vent exhaust fumes or during maintenance. Use extreme care whenever operating the engine with the compartment open. Clothing or body parts can get caught in moving parts, which could result in serious injury or death.

It is the owner/operator's responsibility to perform all safety checks listed in the engine and boats Owner's Manual prior to, during, and after operation. When properly followed, the maintenance schedules listed in the manuals will ensure long-term operation and performance of the equipment. When service and maintenance are required, return the boat to an authorized Ilmor service center. Failure to follow procedures outlined in this Owner's Manual or through published technical information at www.ilmor.com/en may void the warranty.



SAFETY

The precautions listed in this Owner's Manual as well as published technical information are not all-inclusive. Any replacement part, fluid, or substance that is not specified as recommended should not be used as it may result in engine failure. This could lead to voiding the warranty, as well as placing people in an unsafe situation.

⚠ DANGER! Avoid exhaust areas and engine compartment during venting of engine exhaust. Engine exhaust emits carbon monoxide, which is colorless, odorless and poisonous even in small concentration. Carbon monoxide will cause serious injury or death in short periods of time.

SAFETY NOTICES

⚠ WARNING! Always use genuine Ilmor replacement parts. The electrical and ignition components have been designed to comply with U.S. Coast Guard regulations intended to minimize the possibility of fire and/or explosion. The use of non-approved replacement parts from after-market or other sources will void the warranty and could result in fire and/or explosion, which could result in serious injury or death.

⚠ WARNING! Operating, servicing, and maintaining a recreational marine vessel can expose you to chemicals including engine exhaust, carbon monoxide, phthalates, and lead, which are known to the State of California to cause cancer and birth defects or other reproductive harm. To minimize exposure, avoid breathing exhaust, service your vessel in a well ventilated area, and wear gloves or wash your hands frequently when servicing this vessel. For more information go to www.P65warnings.ca.gov/marine.

One-Touch Joystick Operation

⚠ WARNING! Operating the joystick may become difficult when cruising under stormy weather. Do not cruise under unfavorable conditions. Unexpected accidents or injury may result.

⚠ WARNING! Perform the initial setting and adjustment in an environment without obstacles. Do not interfere with other cruising ships and avoid unexpected accidents, such as collision with another ship or obstacle.

⚠ WARNING! During calibration, you cannot navigate or operate the engine with the steering wheel and control head. Do not interfere with other cruising ships and avoid unexpected accidents, such as collision with another ship or obstacle.

⚠ CAUTION! During joystick control system operation, varying streams and propeller-wash thrusts may occur. The operator is responsible to control any wake caused during joystick operation.

⚠ CAUTION! In the joystick control system, it is not possible to navigate with the steering wheel and control head. Pay attention when navigating the boat.

⚠ CAUTION! In the joystick control system, the boat continues to move in the direction of the joystick even when you return the joystick. Operate the joystick to the opposite direction to adjust the boat movement.

⚠ CAUTION! In the joystick control system slow-mode operation, the engine speed is kept lower than under fast-mode operation, so it is more likely to be affected by wind and ocean waves. Pay attention when navigating the ship.

⚠ CAUTION! Be sure to stop the engine before you inspect the joystick control system components.

⚠ CAUTION! Care must be taken not to get your hand caught when you inspect the hydraulic cylinder. As the cylinder fluctuates, you may get caught and injured.

⚠ CAUTION! If you feel any abnormalities in the boat movement during the joystick navigation, switch to the control head navigation.

⚠ CAUTION! In the joystick control system, the boat moves in the horizontal and diagonal directions, which are different from the conventional boat movement. Care must be taken not to let the passengers fall into the water by a sudden operation and movement of the vessel.

Electronic Helm Operation

⚠ CAUTION! In the joystick control system, the normal navigation of a boat is performed by the electronic steering system. The electronic steering system consists of the electronic helm, solenoid valve, and cylinder. Before sailing, start the engine, steer the steering fully on the right and left, and make sure that the drive moves in the intended direction.



TWIN ENGINE THROTTLE CONTROL

The Twin Engine Throttle Control features two throttle levers, four functional buttons, and two individual drive trim buttons.

Twin engine throttle control



MERLIN DISPLAY

The Merlin display is a human machine interface used to display essential engine controls and indicators.

Merlin display



ONE-TOUCH JOYSTICK

The One-Touch joystick allows for detailed progressive-throttle operation of the drives and steering in areas requiring slow and close-quarter maneuvering.

It consists of a stick controller and a top and bottom semicircle shaped button.

One-Touch joystick



POSITION ASSIST

Position assist maximizes the smooth shifting hydraulic clutch of the Ilmor One-Drive by pairing it with precise Global Positioning System (GPS) correction to hold a fixed position while waiting on a draw bridge, fueling, etc.

Position assist consists of three modes:

- Anchor Assist – Fixed heading and GPS coordinates
- Location Assist – Fixed GPS coordinates only
- Heading Assist – Fixed heading only

TILT ADJUST STEERING (OPTIONAL)

Some Ilmor-powered vessels are equipped with optional tilt-adjust steering. This allows the operator to raise or lower the steering helm for comfortable operation.

TACHOMETER GAUGE TOGGLE

Some Ilmor-powered vessels are equipped with round tachometers that include a digital display with an optional tachometer gauge toggle. This toggle aids the operator in monitoring engine data through the tachometer gauge displays instead of the Merlin display.

The toggle consists of an engine selection switch, an up and down toggle button, and a MODE button.

Tachometer Display and Gauge Toggle



BEFORE EACH USE

Perform the following inspections before starting the engine and using the joystick control system.

Carefully read the Ilmor engine and boat manufacturer's Owner's Manual operation section for additional information and details. This is a critical component of safe and enjoyable boating.

If you find any problems, do not operate the engine until the problems are corrected.

Check Power Steering Fluid

⚠ CAUTION! Check power steering fluid before starting engine, or allow engine to cool after shutting down. Failure to do so may result in burns to personnel from hot engine components.

Recommended steering fluid	Automatic Transmission Fluid (ATF DEXRON III)
Steering fluid capacity (tank)	Approximately 0.6 L

1. Center steering and verify engine is shut down.
2. Locate power steering pump on front port side of engine, and remove fill cap with integrated dipstick (level gauge).
3. Verify fluid level is between the MIN and MAX mark.
4. If not, adjust fluid until level is between the MIN and MAX mark. Only use fluid identified in the table above.

NOTICE: If power steering fluid is not visible on the dipstick, contact Ilmor service center immediately. Severe engine damage could occur.

Fill Cap with integrated dipstick (level gauge)



- ① MAX mark
- ② MIN mark

For remote power steering reservoir systems, see boat manufacturer's Owner's manual for proper maintenance instructions, or contact your authorized Ilmor service center for assistance.

Check Engine and Stern Drive

- Oil leaks from the engine steering system.
- Oil leaks from the stern drive steering system.
- Loose or missing wiring terminals.
- Loose or missing bolts.

Check One-Touch Joystick

Jamming of the joystick lever.

Check Electronic Helm

Loose or missing wiring terminals.

TWIN ENGINE THROTTLE CONTROL

Throttle Levers

- Port and starboard throttle levers are used to control engine speed.
- Port-side throttle lever has a tandem trim button that raises and lowers drive trims together.

Tandem trim button



Control Panel

- Green indicators illuminate when functional buttons are activated and when throttles are in Neutral position.

⚠ CAUTION! *The Neutral (NTRL) button is normally used by Service Center Technicians while servicing the engines. Ilmor does not recommend use by the owner/operator. If the NTRL button is used, DO NOT rev the engines beyond 3,000 RPM. Failure to do so could result in damage to equipment not covered under manufacturer's warranty.*

- When the NTRL button is pressed, it allows revving engines with the throttle controls without engaging the drive gear.

⚠ CAUTION! *Ilmor does not recommend operating the vessel while drives are in trailer position. If it is attempted, an alarm will indicate on the Merlin display screen requesting drives are lowered before operation. Failure to do so could result in injury to personnel or damage to equipment.*

- The Trailer (TLR) button is used to raise drives to trailering height for transport, or for any operating state that requires drives to operate elevated on the vessel. To raise the drives, press and hold TLR button while raising drive trim with the tandem trim button located on the port-side throttle lever.
- Drive trim buttons on the center of the console operate the port and starboard trims independently.
- The Synchronization (SYNC) button is used to control both throttle and shift levers from one lever. To use, put both throttle levers in neutral and press the SYNC button. Port-side throttle lever now controls both port and starboard engines. The starboard throttle lever may be moved forward or back to avoid obstruction. To disengage SYNC button, return both throttle levers to neutral. SYNC Light will turn off.

MERLIN DISPLAY Propulsion Screen

When vessel is powered, the Merlin display projects the propulsion screen by default. It displays the following indicators:

- Tachometer
- Speedometer
- Coolant Temperature
- Oil Pressure

- Voltage
- Drive Trim
- Throttle Demand
- Rudder Position
- Gear Position
- Fuel Economy
- EPDM (if equipped)
- Anchor (PRO series only)

Propulsion screen



Engine Information Screens

To see alternate view and additional engine indicators, toggle through engine information screens by pressing the arrow button at the bottom of the propulsion screen, or by toggling the bottom button on the One-Touch joystick (see One-Touch joystick section).

Main Menu

Press the Ilmor Logo (Home) button to go to the main menu. It displays the following functions:

- PROPULSION
- JOYSTICK
- ANCHOR
- FUEL
- UTILITIES

JOYSTICK

Press JOYSTICK to open the One-Touch joystick screen. Press Home button to return to main menu.

Main menu



ANCHOR

Press ANCHOR to open the ANCHOR ASSIST screen. Press Home button to return to main menu.

UTILITIES

Press UTILITIES/OWNER SETUP button to adjust the following:

CAUTION! *The operator accepts all liabilities associated with automatic drive trim control. Ensure vessel is at proper water depth before engaging Planing Assist. Failure to do so could result in accidents that could cause injury or damage to equipment.*

Utilities page



- Disable or enable PLANING ASSIST, if equipped.
1. Press any trim indicator on the One-Touch joystick screen to start Planing Assist.
 2. Press either drive trim button on the twin engine throttle control panel (see Twin Engine Throttle Control section in the Operation chapter) to override Planing Assist. During Planing Assist, drives will trim down under acceleration and trim up once vessel comes on plane. Trim will adjust while on plane to achieve best fuel economy. Drives may trim down when better handling is required.
- Turn JOYSTICK PAGE POPUP on or off.
 - Use BRIGHTNESS to adjust screen illumination.
 - Use TIMEZONE OFFSET to adjust Merlin Display Time.
 - Press Home Button to return the Main Menu.

OPERATION

FUEL

Press FUEL button to display the VIRTUAL FUEL TANK page. This page monitors fuel level and has a fuel-fill function. The fuel monitoring displays fuel usage at the engine level and is more accurate than an analog fuel tank level sensor.

- Fuel level is indicated by CURRENT FUEL in gallons and GALLONS TO FULL.
- Access fuel-fill function by pressing ADD FUEL.

VIRTUAL FUEL TANK page



Buttons that appear allow the operator to adjust indicated fuel levels by marking the tank full or empty, or by adding or subtracting gallons from current level. Tank size should be preset by the vessel manufacturer.

NOTICE: If the operator does not adjust fuel-fill function to indicate a full tank after refill, the Merlin display fuel monitoring will not be accurate. The operator will need to use the analog fuel tank gauge to monitor fuel consumption until next refill.

ADD FUEL page



ALERTS

If any issue with the propulsion system occurs, a red frame will flash around the display. A red engine warning icon will animate and flash in the bottom right corner of the display to indicate an issue with the drives or One-Touch joystick. Many issues are simple to fix, such as drive trim too high for joystick operation or low fuel levels.

1. Press the engine warning icon to view the ONE-DRIVE DIAGNOSTIC INFORMATION screen. It displays the status of the following:

Engine Warning Icon



- Helm controller status for controllers, throttles, electronic control units (ECU), joystick, autopilot, steering helm, and helm HFX controller.
 - System status on both engines for engine speed, transmission, rudder sensors, steering system, drive oil levels, drive angle, and system HFX controllers.
2. Attempt to rectify any identified faults. If unable to do so, record fault and contact an authorized Ilmor Service Center for repair.
 3. Click HIDE to return to previous screen.

NOTICE: It is recommended the datalogger file is captured annually by your nearest certified Ilmor service center to keep an accurate/complete service history for the One-Touch system.

DATALOGGER OUTPUT

Datalogger output allows operators and technicians to share One-Touch run history with Pit Crew members. Pit Crew members and technicians can then thoroughly troubleshoot and diagnose any customer operational or drive-ability concerns. Contact your nearest Ilmor service center or call 844-GO-ILMOR for further information.

ONE-TOUCH JOYSTICK

Engage One-Touch Joystick

1. Place both throttle levers in neutral.
2. Ensure drive trims are down or in the appropriate setting for the surroundings.
3. Press the front button.

One-Touch Joystick front button



4. The One-Touch joystick screen will appear on the Merlin display and the joystick icon will illuminate. The One-Touch joystick screen displays a top-down view graphic of the vessel to assist the operator during joystick operation.

One-Touch Joystick screen

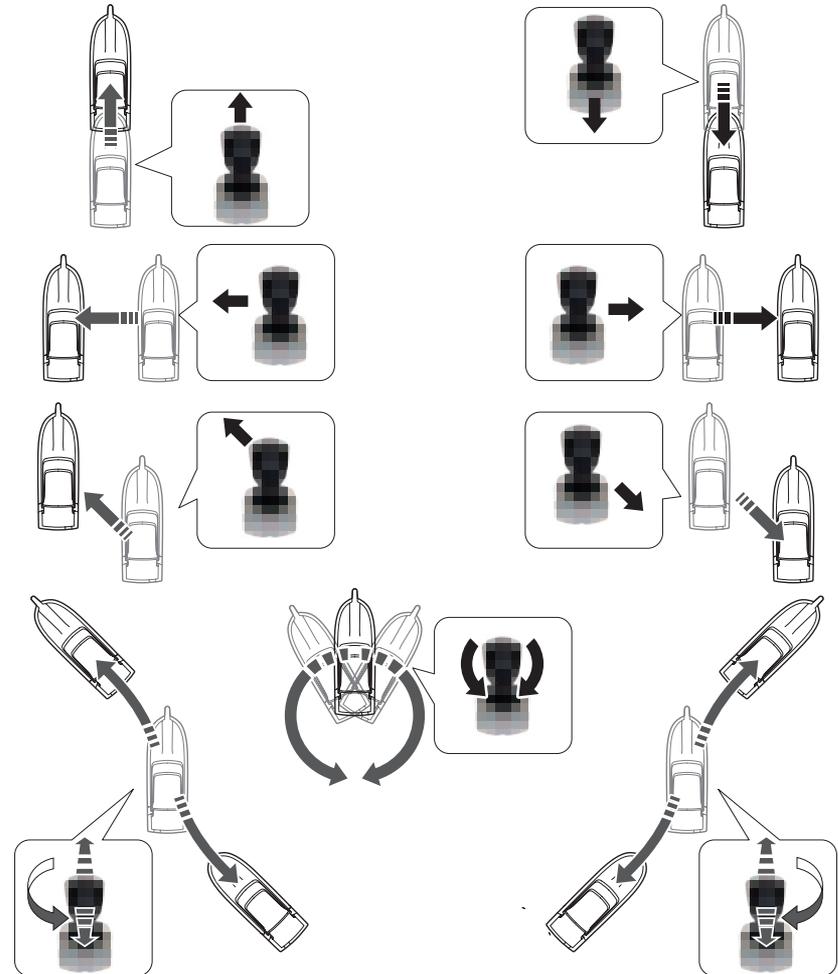


⚠ CAUTION! Practice operating the One-Touch joystick in an open area prior to first use in a congested area. Failure to do so could result in collision with other vessels or obstacles and could cause injury or damage to equipment.

Operate One-Touch Joystick

1. To advance the vessel, push forward on the joystick. An arrow appears on the vessel graphic indicating direction of travel. The arrow length extends when throttle is applied to the vessel, and speed is indicated in the top left corner of the display.
2. Tilt or twist joystick in desired direction to move vessel.
 - Tilt joystick to move vessel sideways, forward diagonally, and reverse.
 - Twist the top of the joystick to rotate the vessel clockwise and counterclockwise.
 - Adjust movement speed by increasing pressure on the joystick.

Joystick direction control



3. Toggle the back button to display various engine status screens.

One-Touch Joystick back button



4. Press the front button to quickly return to the One-Touch joystick screen.

NOTICE: When joystick is returned to center, the vessel will continue to move in the last direction of travel for a while. Tilt joystick in opposite direction of travel to slow or stop movement sooner.

Disengage One-Touch Joystick

1. Ensure both throttle levers are in neutral.
2. Press Select (SEL) button on the twin engine throttle control panel.

POSITION ASSIST

NOTICE: Position Assist mode will terminate if the joystick is activated or moved. Position Assist mode will need manually re-entered if continuing Position Assist is required.

WARNING

DO NOT ENTER THE WATER WHILE ANCHOR ASSIST IS ENGAGED
Failure to comply with this warning may result in severe bodily injury and/or death.



PROPELLER INJURY HAZARD!

This boat is equipped with Anchor Assist, which engages and rotates the propellers automatically. When Anchor Assist is engaged:

- The propellers rotate automatically, even if not noticeably.
- The propellers can injure someone in the water, anywhere around the boat.
- The boat may suddenly move in any direction.
- Do not enter the water. Water currents or wind can move swimmers into the propellers.
- Do not sit or stand where you could fall in the boat or overboard due to sudden boat movement.

Anchor Assist

1. To engage Anchor Assist, ensure throttle levers are in neutral and One-Touch joystick is engaged (see One-Touch Joystick section in this chapter).
2. Go to the Merlin display home screen (see Merlin Display section) and select ANCHOR button.
3. On the ANCHOR ASSIST screen, select ANCHOR ASSIST button.
4. A pop-up screen appears. Read and understand the conditions of the pop-up screen. Once understood, select I Accept.
5. The ANCHOR ASSIST screen will reappear with Anchor Assist highlighted in blue.

OPERATION

- Vessel location in relationship to the anchor can be viewed under DISTANCE FROM ANCHOR.
- If the vessel is within 10 feet of the initial anchor point, a blue screen frame will flash. GOOD will display under CONTROL STATUS.

Anchor Assist enabled



- If the vessel is within 20 feet of the initial anchor point, a blue screen frame will flash. MODERATE will display under CONTROL STATUS. Passengers on the vessel should be cautious of boat movement.
- If the vessel exceeds 20 feet of the initial anchor point, a red screen frame will flash. EXTREME will display under CONTROL STATUS. The operator must resume control of the vessel.
- Anchor Assist will automatically disengage if the vessel exceeds 30 feet of the initial anchor point.
- To disengage Anchor Assist within 30 feet of initial anchor point, move joystick in desired direction of travel or press OFF button on ANCHOR ASSIST screen.

Location Assist

- To engage Location Assist, ensure throttle levers are in neutral (see twin engine throttle control section) and One-Touch joystick is engaged (see One-Touch joystick section).
- On the Merlin display, go to the home screen.
- Select ANCHOR button.
- On the ANCHOR ASSIST screen, select LOCATION ASSIST button.
- A pop-up screen appears. Read and understand the conditions of the pop-up screen. Once understood, select I Accept.
- The ANCHOR ASSIST screen will reappear with LOCATION ASSIST highlighted in blue.
- Vessel heading in relationship to initial GPS reading can be viewed under HEADING CHANGE.
- Vessel may turn with wind or current. Location Assist keeps the vessel within a 30-foot radius of initial vessel GPS coordinate.

Location Assist enabled



9. If the vessel is within 10 feet of the initial GPS reading, a blue screen frame will flash. GOOD will display under CONTROL STATUS.
10. If the vessel is within 20 feet of the initial GPS reading, a blue screen frame will flash. MODERATE will display under CONTROL STATUS. Passengers on the vessel should be cautious of boat movement.
11. If the vessel exceeds 20 feet of the initial GPS reading, a red screen frame will flash. EXTREME will display under CONTROL STATUS. The operator must resume control of the vessel.
12. Location Assist will automatically disengage if the vessel exceeds 30 feet of the initial GPS reading.
13. To disengage Location Assist within 30 feet of initial GPS reading, move joystick in desired direction of travel or press OFF button on ANCHOR ASSIST screen.
8. Vessel may turn with wind or current. Heading Assist keeps the bow of the vessel on a fixed setting but allows wide movement of the stern. This should only be used in large, unobstructed areas.
9. To disengage Heading Assist, move joystick in desired direction of travel or press OFF button on ANCHOR ASSIST screen.

Heading Assist enabled



Heading Assist

1. To engage Heading Assist, ensure throttle levers are in neutral (see twin engine throttle control section) and One-Touch joystick is engaged (see One-Touch Joystick section).
2. On the Merlin display, go to the home screen.
3. Select ANCHOR button.
4. On the ANCHOR ASSIST screen, select HEADING ASSIST button.
5. A pop-up screen appears. Read and understand the conditions of the pop up screen. Once understood, select I Accept.
6. The ANCHOR ASSIST screen will reappear with HEADING ASSIST highlighted in blue.
7. Vessel heading in relationship to initial heading can be viewed under HEADING CHANGE.



TILT-ADJUST STEERING (OPTIONAL)

Some Ilmor-powered vessels are equipped with optional tilt-adjust steering. This allows the operator to raise or lower the steering helm for comfortable operation.

Steering Wheel Height

Do the following to adjust the steering wheel height:

1. Press in and hold adjust lever located underneath the steering wheel.
2. While holding down the adjust lever, raise and lower steering wheel until desired height is set.
3. Release adjust lever to lock steering wheel in place.

Center Steering Wheel

If steering wheel is not centered, do the following:

1. Ensure throttle levers are in neutral and One-Touch Joystick is engaged (see One-Touch Joystick section in this chapter).
2. Press SEL Button on the twin engine throttle control panel (See Twin Engine Throttle Control section in this chapter).

TACHOMETER GAUGE TOGGLE

NOTICE: The Mode button is used by service center technicians to adjust toggle manufacturer settings during repair and service.

To toggle through engine information, do the following:

1. If equipped with two engines, move engine selection switch to either the port or starboard engine.

Gauge toggle up and down buttons



2. Press toggle up or down buttons to change between displaying engine hours, RPM, pressures, temperatures, fuel level, voltage, or trim on the selected engine's tachometer.
3. Once desired monitoring information is selected, change engine selection switch, if applicable, to other engine and repeat previous step.

PERIODIC MAINTENANCE

Periodic maintenance of the joystick control system is performed along with periodic maintenance of the engine and stern drive.

Periodic maintenance of the joystick control system is as follows:

Daily (Before Operation)

Inspect power steering equipment

- Center steering wheel for correct fluid measurement (see Center Steering Wheel section in the operation chapter).
- After preliminary checks, start engine when it is safe to do so.
- Run engine for 3-5 minutes, and slowly turn the steering wheel port to starboard repeatedly during this time.
- Shut down engine and remove the stop lanyard to prevent accidental engine operation.
- Remove the power steering reservoir dipstick and wipe with a clean lint-free towel.
- Insert dipstick into the reservoir.
- Remove dipstick and check level.
- Verify fluid level is between MIN and MAX mark.
- If level is below the MIN mark, inspect engine compartment for fluid leaks from the hydraulic cylinder, connecting hose, hydraulic valve unit, and hydraulic piping. If leaks are detected, repair leaks before adding fluid.
- Add fluid to power steering reservoir through the power steering cap until fluid level is detected on the dipstick between the MIN and MAX mark.

NOTICE: Do NOT allow fluid level to exceed MAX mark on the dipstick.

- Secure power steering cap onto the reservoir.
- Install stop lanyard.
- Start engine to verify operation.

Check Steering Wheel Operation

Check for presence of rattle and play in the electronic helm steering wheel, abnormal operating force, and abnormal noise.

Check One-Touch Joystick Operation

- Check that the top button opens the One-Touch Joystick screen when pressed.
- Check that no alarm indication appears on the display when pressing the top button.

Initial 50 Hours, Every 250 Hours, and Annual

- Inspect the harness.
- Inspect bolts and nuts for looseness.
- Inspection hydraulic hoses for cracks.

Every 2 Years of Operation (Regardless of Operation Hours)

Replace hydraulic hoses.

Every 1,000 Hours of Operation

Replace steering fluid.

TROUBLESHOOTING CHART

The following chart is offered as assistance in identifying and correcting minor issues that may occur. Problems are listed in the order of most likely to least likely. Not all possible problems, causes, and solutions can be listed here.

Problem	Possible Cause	Potential Solution
The button lamp does not turn on when you press the A button on the joystick.	<ul style="list-style-type: none"> • The engines in both sides are not operating. • Joystick failure. • Joystick lamp and internal connection failure. 	<ul style="list-style-type: none"> • Operate the engines in the both sides. • See authorized Ilmor service center. • See authorized Ilmor service center.
The beep does not sound when you press the A button.	<ul style="list-style-type: none"> • Display buzzer and internal connection failure. 	<ul style="list-style-type: none"> • See authorized Ilmor service center.
Joystick lever does not move, is jammed, or is broken.	<ul style="list-style-type: none"> • Joystick failure. 	<ul style="list-style-type: none"> • See authorized Ilmor service center.
During the joystick control system operation, “ALARM” and “WARNING” appear on the display.	<ul style="list-style-type: none"> • Joystick failure. • Electronic helm failure. • Electronic hydraulic cylinder failure. • Joystick/ECU failure. • Hydraulic valve unit failure. • One side engine is stopped. 	<ul style="list-style-type: none"> • See authorized Ilmor service center. • Restart the stopped engine.
The boat does not move when you operate the joystick lever.	<ul style="list-style-type: none"> • The power (A button) for the joystick is not turned on. • There is no steering fluid. • Joystick failure. • Hydraulic valve unit failure. • Hydraulic hose piping failure. • Electronic hydraulic cylinder failure. • Stern drive forward/reverse solenoid failure. 	<ul style="list-style-type: none"> • Turn on the power. • Inspect and refill. • See authorized Ilmor service center.
There is a difference between the joystick lever operation direction and the boat movement.	<ul style="list-style-type: none"> • Calibration is required. • Electronic hydraulic cylinder failure. • One side engine is stopped. 	<ul style="list-style-type: none"> • Calibrate joystick. • See authorized Ilmor service center. • Restart the stopped engine.
Electronic helm does not turn on.	<ul style="list-style-type: none"> • Joystick control system is operating. • Electronic helm failure. • Helm/ECU failure. 	<ul style="list-style-type: none"> • See authorized Ilmor service center. • See authorized Ilmor service center. • See authorized Ilmor service center.
The boat cannot be operated with the steering wheel for electronic helm.	<ul style="list-style-type: none"> • Electronic helm failure 	<ul style="list-style-type: none"> • See authorized Ilmor service center.

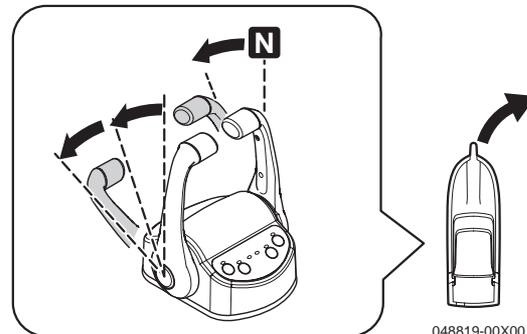
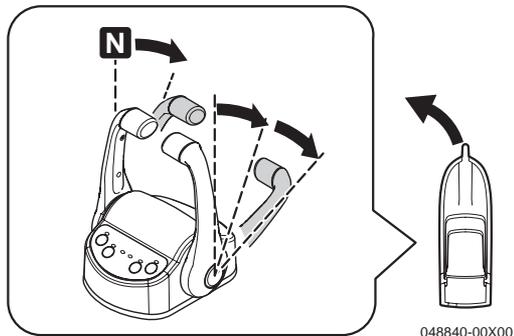


FAILURES AND CORRECTIVE ACTIONS

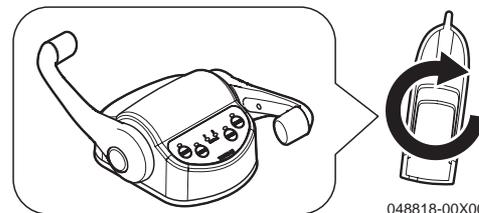
Electronic Helm Failure

If the electronic helm has a malfunction, you can no longer navigate the vessel. In such an emergency, use the joystick to bring both stern drives in a straight position. Then you can navigate the vessel by changing the speed of the port or starboard engine and return to port.

1. Stop the engines in both stern drives and turn off the power.
 2. Remove the cap of the three pins connector from the harness (EPV driver).
 3. Check whether both stern drives are in a straight condition. Then start the engines on both sides. Navigate the vessel by operating the joystick (see operate One-Touch Joystick section in the operation chapter).
 4. If the electronic helm and joystick are unresponsive, use the throttle/shift levers to maneuver the vessel to safety.
- To move right or left, move both stern drives forward and increase the engine speed in the direction you want to move.



- To turn the boat, move the stern drive in the direction you want to turn backward and the opposite stern drive forward.



⚠ CAUTION! In such an emergency, you cannot navigate the boat in the same way as you do with the steering wheel. Be sure to operate the engine at a speed of 2,000 min-1 or less. Navigate the boat very carefully. Be sure to decrease the speed and move slowly when you turn or navigate in narrow passages.

⚠ CAUTION! Be sure to contact your authorized Ilmor dealer or distributor for repair immediately after returning to port.

Engine Stops During One-Touch Joystick Operation

When the engine in one side stops due to any failures during the joystick control system operation, the buzzer sounds and the alarm screen is displayed.

In this case, you can operate the boat in forward and reverse directions. However, the vessel moves in unintended directions when you operate the boat in sideways and diagonal direction or turn the boat on the spot.

Restart the stopped engine, and then you can operate the usual Joystick Control System operation.

In addition, when you press the SEL button on the remote control head, the boat is operated by the steering wheel. The boat cannot be operated by the joystick control system unless the stopped engine is restarted.

