

RIDE & HANDLING

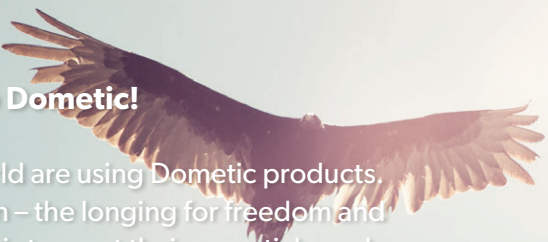
MARINE STEERING, CONTROLS & FUEL SOLUTIONS



 **DOMETIC** **OUTDOOR**

MOBILE LIVING MADE EASY.

Welcome to Dometic!



Millions of people around the world are using Dometic products. They all have one thing in common – the longing for freedom and independence on the move. Our job is to meet their essential needs on the journey. Like cooking, keeping food fresh, taking care of personal hygiene and maintaining a pleasant temperature. We also create solutions to make driving safer and more convenient and innovative electronic devices for smart use of precious battery power.

Welcome to our new catalog! We invite you to go on a journey of discovery. Explore the Dometic world and let us know what we can do for you.



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dometic.com

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STEE



RING



MARINE STEERING SYSTEMS

Take command of your vessel with Optimus Electronic Power Steering Systems or command the sea with any of our SeaStar, BayStar, or Xtreme™ steering products. Dometic SeaStar offers the most reliable, safe, and easy to use steering products on the marine market.

Mechanical

Innovating the most advanced mechanical steering, Dometic SeaStar Mechanical Steering components are engineered with precision to perform effortlessly. Feel the superior driving performance from the best mechanical steering system on the market. Our system and components are American-built and fit a wide range of outboard powered boats.

Hydraulic

Have full confidence when you take the helm, with knowledge that you have complete control of your vessel. Dometic SeaStar's hydraulic steering systems, with options for most applications, ensure you will always have a comfortable boating experience.

Electronic

Enjoy your time on the water with full command of your boat, thanks to Dometic SeaStar's Optimus Electronic Power Steering. Ensuring responsive steering control, reliable performance and comfort, this system allows you to take command of your boat without having to arm-wrestle for control.

NMMA TYPE ACCEPTED LIST FOR DOMETIC STEERING

STEERING SYSTEM NAME	NMMA #
Xtreme™ Steering	
NFB (No Feedback) Helms Rotary Steering Systems: Includes No FeedBack / Non No Feedback helms, Tilt helms, Bezels and Cables	2541379
NFB No Feedback Mechanical Steering	
Safe-T II (No FeedBack) Rotary Steering Systems: Includes No FeedBack standard helms, Tilt helms, bezels and cables.	855582
NFB Rack/Pro Rack Rack & Pinion Steering Systems: Includes No FeedBack standard helms, Tilt helms, Dual Cable Systems, bezels and cables.	2511762
NFB 4.2 (No FeedBack) Rotary Steering Systems: Includes No FeedBack standard helms, Tilt helms, Dual Cable Systems, bezels and cables	855575
Xtreme™	2541379
HPS High Performance Steering	
HPS Rotary Steering Systems: Includes Quick Connect standard helms, Tilt helms, bezels and cables.	855582
HPS Rack & Pinion Steering Systems: Includes standard helms, Tilt helms, bezels and cables.	2511762
Traditional Mechanical Steering	
Safe-T Rotary Steering Systems: Includes standard helms, Quick Connect helms, Tilt helms, bezels and cables.	2511769
Safe-T Dual Cable Rotary Steering Systems: Includes standard helms, Quick Connect helms, Tilt helms, bezels and cables.	855480
“The Rack” Rack & Pinion Steering Systems: Includes standard helms, Tilt helms, Dual Cable Systems, bezels and cables.	2511771
“Back Mount Rack” Rack & Pinion Steering Systems: Includes standard helms, Tilt helms, Dual Cable Systems, bezels and cables.	2511762
Big-T Rotary Steering Systems: (obsolete) Includes standard helms, Tilt helms, Dual Station Systems, bezels and cables.	855475
JBS by Dometic Jet Boat Steering Systems	
Includes standard helms, Tilt helms, Dual Cable Systems, bezels and cables.	855580
Jet Boat Mini Rack: Includes standard helm, Tilt helm, bezel, Single/Dual cable	2511721
BayStar Hydraulic Steering	
BayStar Hydraulic Steering Systems: Includes all BayStar Systems.	855592
SeaStar Hydraulic Steering Systems	
SeaStar/SeaStar PRO Hydraulic Steering Systems: Includes all SeaStar outboard, sterndrive and inboard Systems as well as SeaStar PRO Systems.	855560
SeaStar P/A Hydraulic Steering Systems	
Includes all SeaStar P/A and SeaStar P/A PRO Power Assist add-on Systems.	2457010
Capilano Large Vessel/Specialty Craft Steering Systems	
SeaStar Capilano 250V/275V Hydraulic Steering Systems: Includes all Capilano 250V/275V Systems.	855555
SeaStar Capilano 1250V Hydraulic Steering Systems: Includes all Capilano 1250V Systems.	855565
SeaStar Capilano 1275V Hydraulic Steering Systems: Includes all Capilano 1275V Systems.	855570
SeaStar Power Steering Large Vessel Hydraulic Steering Systems	
Includes all SeaStar Power Steering Systems.	2457545

STEERING OPTIONS BASED ON ENGINE TYPE

ALL OUTBOARDS & HYDRAULIC POWER-ASSISTED STERN DRIVES ⓘ denotes Tilt Steering available for this product.

NOTE: “turns” in parentheses refers to number of steering wheel turns lock-to-lock. Higher number means lower turning effort. Lower number means quicker steering response.

		Up to V-4 & V-6 50 MPH or less	Up to V-6 to 55 MPH	V-6 & Larger (to 300 HP) 60 MPH+	Hydraulic Power-Assisted Outboards/Stern drives Inboards
CURRENT STEERING TYPE	Rotary Mechanical (cable)	Xtreme™ SSX176 ⓘ (5 turns) NFB™ Safe-T II ⓘ SS132XX (3 turns) or NFB™ 4.2 Rotary Single Cable ⓘ SS147XX (4.2 turns)	NFB™ 4.2 Rotary No FeedBack Dual Cable ⓘ (4.2 turns) (best for lower speeds)	Upgrade to SeaStar® PRO ⓘ HK73XXA-3 or HK75XXA-3 (no hoses) (both: 4.25 turns)	Safe-T QC® ⓘ SS137XX (single cable, 3 turns)
	Rack & Pinion Mechanical (cable)	NFB™ No FeedBack Rack Single Cable ⓘ SS151XX (4 turns) (use SeaStar for multi- engines & autopilots)	NFB™ No FeedBack Pro Rack Dual Cable ⓘ SS152XX (4 turns) (use SeaStar for multi- engines & autopilots)	NFB™ No FeedBack Pro Rack Dual Cable ⓘ SS152XX (4 turns) (use SeaStar for multi- engines & autopilots)	HPS® Rack & Pinion ⓘ (order by components) or The Rack™ ⓘ SS141XX (both: single cable, 4 turns) (use SeaStar for multi- engines & autopilots)
	Hydraulic	BayStar™ ⓘ HK4200/4230 (O/B to 150 HP; 4.5 turns) or SeaStar® ⓘ HK63XX-3/ HK6400-3 (5 turns) or SeaStar® P/A* ⓘ	BayStar™ ⓘ or SeaStar® ⓘ HK63XX/ HK6400-3 (no hoses) or SeaStar® P/A* ⓘ (order by components)	SeaStar® PRO ⓘ HK73XXA or HK75XXA-3 (no hoses) (both: 4.25 turns) or SeaStar® P/A* ⓘ (must use P/A Pro with SeaStar Pro helm)	SeaStar® Steering ⓘ or SeaStar® P/A* ⓘ (both: best for autopilots, cylinders are drive-specific)

*SeaStar® P/A is a power-assist add-on subsystem which requires presence or purchase of a complete SeaStar steering system (SeaStar PRO helms require use of SeaStar P/A Pro). NOTE: Some high performance boats/engine combinations develop instability at high speed. Instability becomes more prevalent in boats faster than 50 MPH. Dual-cable steering or SeaStar PRO systems are recommended by Dometic and engine makers for these boats. IMPORTANT: No FeedBack Steering must not be used in dual station, hydraulically, power assisted, or autopilot installations!

Notes:

Xtreme™ Power assist can be use with “MOST” single cable outboard steering system to greatly reduce steering loads at the wheel. Xtreme™ Steering cannot replace dual cable steering.

Will it Fit?

MECHANICAL CONSIDERATIONS:

Mounting hardware for Xtreme™, NFB 4.2, Safe-T II helms fits the Safe-T dash cutout. NFB Rack helms fit 1984-date “The Rack” mounting holes. 1996-date “back mount” rack helms use a wider rack cable and will not work with old style rack cable (SSC124XX).

HYDRAULIC CONSIDERATIONS:

SeaStar helms retrofit into most boats. The SeaStar front mount cylinder is best for outboards with 22” splashwells or wider. Side/

splashwell mount cylinders are offered, but require more room. Check splashwell dimensions before ordering outboard cylinders.

Outboards (without power steering): No FeedBack™ (NFB™ - mechanical), BayStar®, SeaStar® or SeaStar Pro® (hydraulic) is recommended as replacement steering for all non-power-assisted outboards.

For high performance boats or other applications in which there may be engine flutter or some steering instability, dual cable NFB (4.2/ Pro Rack) mechanical systems or SeaStar PRO® hydraulic systems are recommended. **For most rotary steered boats made after 1993, upgrading to NFB can be as simple as a helm and bezel change.**

Stern Drives & Outboards (with power steering): HPS™

High Performance Steering is recommended for power-steered stern drives and other power-assisted applications. The rack versions feature unique, coated core construction for minimal backlash at the wheel. Traditional mechanical systems (Safe-T QC® & Back Mount Rack & Pinion) may also be used for power-assisted applications. SeaStar® is recommended for all vessels using autopilots.

STEERING OPTIONS BASED ON ENGINE TYPE

ALL INBOARDS & NON-HYDRAULIC POWER ASSISTED STERN DRIVES ⓘ denotes Tilt Steering available for this product.

NOTE: "turns" in parentheses refers to number of steering wheel turns lock-to-lock. Higher number means lower turning effort. Lower number means quicker steering response.

		STERN DRIVES	INBOARD POWERED BOATS, INCLUDING MULTIPLE STATIONS		
		(non power-assisted)	Up to 34 feet (most engines)	Up to 50 feet (single or dual engines)	Over 50 feet (most engines)
CURRENT STEERING TYPE	Mechanical (cable)	NFB™ 4.2 Rotary Single Cable ⓘ SS147XX (4.2 turns) or NFB™ Rack Single Cable ⓘ SS151XX (4 turns)	4.2 Non NFB™ ⓘ (single cable; order by components; (4 turns)	–	–
	Hydraulic General Purpose (number of turns varies with helm & cylinder)	SeaStar® ⓘ Stern Drive Steering ⓘ or SeaStar® P/A* ⓘ (order system by components; dual station versions available; best for boats with autopilots; cylinders are drive-specific)	SeaStar® ⓘ or Hynautic® Inboard or SeaStar® P/A* ⓘ (order system by components; dual station version available; best for autopilots; many cylinder options)	SeaStar® or Capilano™ Inboard Steering (order system by components) or SeaStar® or Hynautic® Inboard Steering (order by components)	SeaStar® Power Steering ⓘ (order system by components; dual station version available; best for autopilots; many cylinder options)
	Hydraulic Heavy Duty (turns vary)	SeaStar® Hynautic® (Twin External Cylinders) (order components; dual station version available)	SeaStar® Capilano™ or SeaStar® Hynautic® (order components; dual station version available)	SeaStar® Capilano™ SeaStar® Hynautic® or SeaStar® Power Steering ⓘ (order by components)	NOTE: Boats over 50 feet should have steering loads reviewed. Please contact Dometic Canada Tech Service for assistance.

Please use these guides to assist in making your selection, but remember that **the recommendations are general in nature. Any boat/steering system combination should be water-tested by the installer to ensure safe and dependable steering.**

Displacement hulls do react differently than planing hulls. As a result, the type of hull on the boat, as well as the horsepower, may affect steering system selection.

Stern Drives (without hydraulic power steering): SeaStar or NFB 4.2 No FeedBack Steering is recommended for **non-power-assisted** stern drives and small inboards. **SeaStar is recommended for all vessels using autopilots.**

INBOARDS: Safe-T QC®, SeaStar, SeaStar Capilano™, and SeaStar Power Steering are available for various inboard and sail boats. SeaStar® is recommended for vessels with dual stations and those using autopilots.

JET BOATS: Dometic has supplied many versions of steering for jet boats. If you are replacing jet boat steering, please get the part number from your old cable and refer to the Dometic catalog or contact Technical Service for assistance.

TILT STEERING: You can upgrade to the comfort and convenience of Tilt steering with all Dometic systems except Capilano.

MULTIPLE ENGINE TIE BARS: Installation of a new steering system may require the replacement of tie bars for dual or triple engines. Please refer to the SeaStar Selection Guide to make sure you order the proper one.



MECHA STEE

A scenic view of a lake with a wooden house on a hill, a gazebo on a pier, and a boat's wake in the foreground. The house has a brown roof and large windows, surrounded by trees and a deck. The pier has a gazebo and is surrounded by pink flowers. The water is blue with a white wake from a boat.

NICAL RING

MECHANICAL STEERING IDENTIFICATION GUIDE

Original System Name (Version)	Dates Used & Cable Color(s)	Replacement (Non-Hydraulic Power-Assist Outboards & I/OS)	Replacement (Power-Assist & Small Inboards)
Teleflex® and Morse® Traditional-Technology ROTARY Steering Systems To Dometic			
Big-T® (older) SSC72XX/SC69XX Cable	1963-1972 White, Blue or Black	NFB 4.2 (SS147xx)	Safe-T QC (SS137xx)
Big-T®	1972-2021 White, Blue or Black	NFB 4.2 (SS147xx)	Safe-T QC (SS137xx)
Easy-T SC89XX Cable	1968-1972 Silver	Safe-T II (SS132XX)† or NFB 4.2 (SS147XX) Xtreme™ (SSX176XX)	Safe-T QC (SS137XX)
HPS Rotary SSC62XX Cable	1999-date Black		Safe-T QC (SS137XX)
Midi-T** SC75XX Cable	1969-1972 Green	Safe-T II (SS132XX)† or NFB 4.2 (SS147XX) Xtreme™ (SSX176XX)	Safe-T QC (SS137XX)
Mini-T SC74XX Cable	1969-1972 Black	Safe-T II (SS132XX)† or NFB 4.2 (SS147XX) Xtreme™ (SSX176XX)	Safe-T QC (SS137XX)
Morse® Command 2 Rotary 300622/300623/300624	OBSOLETE Red	Safe-T II (SS132XX)† or NFB 4.2 (SS147XX) Xtreme™ (SSX176XX)	Safe-T QC (SS137XX)
Morse® Command 290 304411-00-XXX.0 SSC52xx (2000-2008) SSC290xx (2008-2021) Morse® Command 250 300962/312020	OBSOLETE Red or Black OBSOLETE	Safe-T II (SS132XX)† or NFB 4.2 (SS147XX) Xtreme™ (SSX176XX) Safe-T II (SS132XX)† or NFB 4.2 (SS147XX) Xtreme™ (SSX176XX)	Safe-T QC (SS137XX) Safe-T QC (SS137XX)
Morse® Command 290 Dual Cable Systems (2) 304411 Cables	TO 2000 Red or Black	NFB 4.2 NFB Dual † or SeaStar (components) (see SeaStar Selection Guide)	4.2 Non-NFB (components)
Safe-T® (Version 1) SC89XX Cable	1968-1972 White or Black	Safe-T II (SS132XX)† or NFB 4.2 (SS147XX) Xtreme™ (SSX176XX)	Safe-T QC (SS137XX)
Safe-T® "TS" (Version 2)* SC69XX/SSC72XX	1972-date White or Black	Safe-T II (SS132XX)† or NFB 4.2 (SS147XX) Xtreme™ (SSX176XX)	Safe-T QC (SS137XX)
Direct replacement cable for these systems is SSC62XX plus adapter SA27620P			
Safe-T® QC (Quick Connect) SSC62XX	1990-1996 Black	Safe-T II (SS132XX)† or NFB 4.2 (SS147XX) Xtreme™ (SSX176XX)	Safe-T QC (SS137XX)
Direct Replacement Cable for these systems is SSC62XX			
Safe-T® QC (Quick Connect)* SSC62XX	1996-date Black	Safe-T II (SS132XX)† or NFB 4.2 (SS147XX) Xtreme™ (SSX176XX)	Safe-T QC (SS137XX)
Direct Replacement Cable for these systems is SSC62XX			
Safe-T® Dual Cable systems SSC62XX	1975-2008 White or Black	NFB 4.2 Dual Cable or SeaStar (components)	4.2 Non-NFB (components)
Direct Replacement Cable for these systems is SSC62XX			

* ** † For footnotes indicated by these symbols, please See Page 15

MECHANICAL STEERING IDENTIFICATION GUIDE

Original System Name (Version)	Dates Used & Cable Color(s)	Replacement (Non-Hydraulic Power-Assist Outboards & I/OS)	Replacement (Power-Assist & Small Inboards)
Teleflex® NFB™ NO-FEEDBACK™ & Morse® NFS™ ROTARY Steering Systems To Dometic			
Morse® NFS 304415 Cable	To 2001 Red or Black	NFB 4.2 (SS147XX) Xtreme™ (SSX176XX)	(NFB not for hydraulic power steering or inboard)
Morse® NFS Dual Cable (2) 304415 Cable	To 2001 Red or Black	NFB 4.2 Dual Cable (Components)	(NFB not for hydraulic power steering or inboard)
NFB 4.2 SSC62XX Cable	1990-date Black	NFB 4.2 (SS147XX) Xtreme™ (SSX176XX)	(NFB not for hydraulic power steering or inboard)
Direct Replacement Cable for these systems is SSC62XX			
NFB 4.2 Dual Cable (2) SSC62XX Cable	1990-date Black	NFB 4.2 Dual Cable (Components) Xtreme™ (SSX176XX)	(NFB not for hydraulic power steering or inboard)
Direct Replacement Cable for these systems is SSC62XX			
NFB Safe-T II SSC62XX Cable	1996-date Black	Sate-T II (SS132XX)	(NFB not for hydraulic power steering or inboard)
Direct Replacement Cable for these systems is SSC62XX			
Morse® Command 200 Rack 300619XX	To 2001 Red or Black	NFB Rack (SS151XX)	HPS Rack (components) or The Rack (SS141XX)
Morse® Rack Dual Cable (2) 300619XX	To 2001 Red or Black	NFB Pro Rack (SS152XX)	The Rack dual (components)
TR211 (Rack & Pinion) SC98XX Cable	1973-1975 Blue	NFB Rack (SS151XX)	HPS Rack (components) or The Rack (SS141XX)
TR188 (Rack & Pinion) SC54XX Cable	1975-1978 Brown	NFB Rack (SS151XX)	HPS Rack (components) or The Rack (SS141XX)
TR188 (Rack & Pinion) SC105XX Cable	1978-1986 Black	NFB Rack (SS151XX)	HPS Rack (components) or The Rack (SS141XX)
"The Rack" (Rack & Pinion) SSC124XX Cable	1984-1996 Black	NFB Rack (SS151XX)	HPS Rack (components) or The Rack (SS141XX)
"The Rack" (Back Mount) SSC134XX Cable	1996-date Black	NFB Rack (SS151XX)	HPS Rack (components) or The Rack (SS141XX)
Direct Replacement Cable for these systems is SSC134XX/SSCX154XX			
"The Rack" Dual Cable System (2) SSC124XX Cable	To 1996 Black	NFB Pro Rack (SS152XX)	The Rack dual (components)
"The Rack" Dual (Back Mount) 2 Cable SSC135XX Cable	1996-date Black	NFB Pro Rack (SS152XX)	The Rack dual (components)
Direct Replacement Cable for these systems is SSC135XX			

* ** † For footnotes indicated by these symbols, please See Page 15

MECHANICAL STEERING IDENTIFICATION GUIDE

Original System Name (Version)	Dates Used & Cable Color(s)	Replacement (Non-Power-Assist Outboards & I/OS)	Replacement (Power-Assist & Small Inboards)
Teleflex® NFB™ NO-FEEDBACK™ RACK & PINION Steering Systems To Dometic			
NFB Rack (Back Mount)* SSC134XX Cable	1996-date Black	NFB Rack (SS151XX)	(NFB not for power steering or Inboard)
		Direct Replacement Cable for these systems is SSC134XX/SSCX154XX	
NFB Pro Rack (Back Mount)* Dual Cable System SSC135XX	1996-up Black	NFB Pro Rack (SS152XX)	(NFB not for power steering or Inboard)
		Direct Replacement Cable for these systems is SSC135XX	
Competitive Brand ROTARY Steering Systems To Dometic			
ACCO® Steermaster® MK II 56-8226 (Morse® ARC 305396)	Obsolete	4.2 NFB (SS147XX)	Safe-T QC (SS137XX) or 4.2 Non NFB (components)
ACCO Steermaster® MK III	Obsolete	4.2 NFB (SS147XX)	Safe-T QC (SS137XX) or 4.2 Non
Mercury® Ride Guide®	Obsolete	4.2 NFB (SS147XX) 4.2 NFB (SS147XX)	Safe-T QC (SS137XX) or 4.2 Non NFB (components)
Morse® Command 290®		Safe-T II NFB (SS132XX)† or NFB 4.2 (SS147XX)†	HPS or Safe-T QC (SS137XX)
Morse® TRC Cable 304415	Obsolete	Safe-T II (SS132)† or NFB 4.2 (SS147XX)	Safe-T QC (SS137XX)
OMC® (not Tru-Course)	Obsolete	Safe-T II (SS132)† or NFB 4.2 (SS147XX)†	HPS or Safe-T QC (SS137XX)
OMC Tru-Course® Drumstyle 2 Cables	Obsolete	SeaStar see SeaStar Selection Guide)	SeaStar see SeaStar Selection Guide)
OMC Thru-Transom I/O	Obsolete	N/A	N/A
U-Flex® OLD style Cable M47 Cable	TO DATE	SS132XX or SS147XX Xtreme™ (SSX176XX)	SS137XX
U-Flex NEW style Cable M66 Cable	TO DATE	SS132XX or SS147XX Xtreme™ (SSX176XX)	SS137XX
U-Flex Single Cable M47/M66 Cable	TO DATE	Safe-T II (SS132XX/SS147XX)† Xtreme™ (SSX176XX)	Safe-T QC (SS137XX)
U-Flex Tilt Single Cable M47/M66 Cable	TO DATE	Safe-T II Tilt†/SSX177 Xtreme™ Tilt (components)	Safe-T QC Tilt (components)
U-Flex Dual Cable M47/M66 Cable	TO DATE	4.2 NFB (components)	4.2 Non NFB (components)
U-Flex Tilt Dual Cable M47/M66 Cable	TO DATE	NFB 4.2 Dual Tilt† (components)	4.2 Non NFB Dual Tilt (components)
U-Flex NR Single Cable M47/M66 Cable	TO DATE	Safe-T II (SS132XX)† or NFB 4.2 (SS147XX)† Xtreme™ (SSX176XX)	NFB not for hydraulic power steering)
U-Flex NR Tilt Single Cable M47/M66 Cable	TO DATE	Safe-T II Tilt (components)† or NFB 4.2 Tilt (Components)† Xtreme™ tilt (SSX177XX	NFB not for hydraulic power steering)
U-Flex NR Dual Cable M47/M66 Cable	TO DATE	NFB 4.2 Dual Cable (Components)†	NFB not for hydraulic power steering)
U-Flex NR Tilt Dual Cable M47/M66 Cable	TO DATE	NFB 4.2 Dual CableTilt† components)	(NFB not for hydraulic power steering)

* ** † For footnotes indicated by these symbols, please See Page 15

MECHANICAL STEERING IDENTIFICATION GUIDE

Original System Name (Version)	Dates Used & Cable Color(s)	Replacement (Non-Hydraulic Power-Assist Outboards & I/OS)	Replacement (Hydraulic Power-Assist & Small Inboards)
Competitive Brand Rack & Pinion Steering Systems To Dometic			
ACCO 58-8724 (Morse® ARC Cable 305396)	Obsolete	NFB Rack (SS151XX)† No Replacement Cable	HPS Rack (components) or The Rack (SS141XX)
DetMar® (Detroit Marine) Cables 4-200/4-400/4-600/DMS500 (Morse® DRC 305013)	Obsolete	NFB Rack (SS151XX)† No Replacement Cable	HPS Rack (components) or The Rack (SS141XX)
Mercury Ride Guide and Quicksilver®	Obsolete	NFB Rack (SS151XX)† No Replacement Cable	HPS Rack (components) or The Rack (SS141XX)
Morse® Command 200 Cable Only 300619-XXX		NFB Rack (SS151XX)† No Replacement Cable	HPS Rack (components) or The Rack (SS141XX) No Replacement Cable
Morse® Command 401® 47209 Cable	Obsolete	NFB Rack (SS151XX)† No Replacement Cable	HPS Rack or The Rack (SS141XX)
OMC Rack & Pinion 1719/2805/200	Obsolete	NFB Rack (SS151XX)† (NOTE: Thru-transom cable not avail.)	HPS Rack or The Rack (SS141XX) (NOTE: Thru-transom cable not avail.)
U-Flex old style cable M86	TO DATE	SS151XX Single/SS152XX Dual	SS141XX
U-Flex Rack & Pinion	TO DATE	NFB Rack (SS151XX)†	HPS Rack (components) or The Rack (SS141XX)

FOOTNOTES TO PREVIOUS CHARTS

MECHANICAL STEERING IDENTIFICATION DOMETIC AND MORSE® BRANDS

* Since this may be relatively new, replacement of entire system may not be necessary. Please consult your dealer/distributor to determine which part of the system may need to be replaced. If engine is hydraulic power-assisted, NFB steering cannot be used. Note that only difference between 1990-1996 and 1996-date Safe-T QC helms is shape of the helm housing castings.

** Slight dash modification required for installation of recommended new helm. If engine is power-assisted, NFB steering cannot be used.

† Safe-T II is for engines up to and including V-4's. For manually steered outboards larger than V-4, use NFB 4.2 or Xtreme™ NFB.

KEY TO CHART HEADINGS: Rotary Steering has a rounded diecast helm (steering gear case) behind dash; Rack & Pinion Steering has a long metal tubular rack housing behind dash; Hydraulic Steering has 2 or 3 hoses (or tubing sections) attached to helm behind dash.

MECHANICAL STEERING IDENTIFICATION COMPETITIVE BRANDS

* Cable only can be replaced if Dometic helm is present. ** Some dashboard modifications required to install helm.

† No FeedBack steering is recommended for non-hydraulic power-assisted engines only. Safe-T II is for engines up to and including V-4's. For manually steered outboards larger than V-4, use NFB 4.2 (single or dual cable) or NFB Rack (single or dual cable). If engine is power-assisted, NFB steering cannot be used.

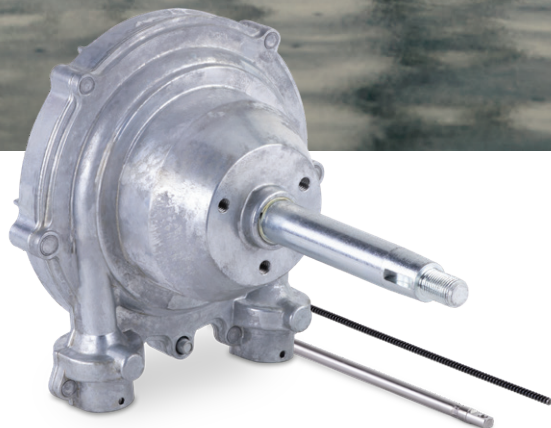
NOTE: When a Rack system is being replaced by a Rotary system (or vice-versa), you must measure for the replacement system using Dometic catalog measuring instructions. See steering cable measurement section for information on how to measure for replacement cables. The U-Flex (P/N M66) "universal" replacement cables for rotary steering systems are not recommended for use with Dometic helms. In accordance with A.B.Y.C. recommended practices, Dometic recommends that engine maker connection kits be used with all outboard motors.

UNPARALLELED SMOOTHNESS AND EFFICIENCY

XTREME™ STEERING

This complete new steering system includes new helm, high efficiency Xtreme™ cable and new-style bezel. It is also available in a tilt version that can be used with Sport or Sport Plus tilt mechanism.

Xtreme™ delivers unparalleled smoothness and efficiency - with hardly any lost motion - even in the longest and most complex cable routes. This gives superior feel at the control, performance that until now was considered "impossible".



THE SMOOTHEST & LOWEST STEERING EFFORT MECHANICAL HELM

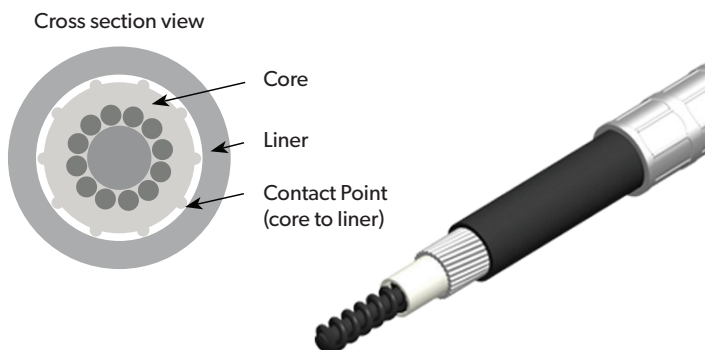
Features

- Smoothest and lowest steering effort mechanical helm offered in the marine industry yet still offers easy installation
- Complete steering system including new helm, high efficiency Xtreme™ steering cable design and new style bezel
- Quick connect feature on both steering cable and spent travel tube for easy quick installation
- Installs in same mounting pattern and bracket location as current Dometic Rotary steering systems
- Smallest footprint possible to accommodate small/tight dash helm stations
- Made, designed and assembled in the USA
- Based on the current industry leading Xtreme™ technology
- Splined ridges on the inner liner allow close contact with core
- With minimum contact, the core glides freely
- Tight fit for minimal lost motion
- Reduced friction for extended cycle life
- Robust construction supports the highest steering loads in the mechanical range

DOMETIC XTREME™ CABLE

A brand new Xtreme™ steering cable was designed specifically for the Xtreme™ helms. This cable offers lower backlash and is more efficient than a standard steering cable. It provides the lowest ease of effort, a close "fit" of the core to liner for lowest lost motion. The concept provides the "tight" fit of core to liner yet allows area for lubrication. The design of the helm allows higher loads to be placed into the cable requiring this new design cable. There is a quick connect feature on both the steering cable and spent travel tube for easy, quick installation.

Note: The SSCX64xx Xtreme™ steering cable is designed to ONLY fit Xtreme™ Rotary helms.



XTREME™ POWER ASSIST

The Xtreme™ Power Assist is engineered to bring the smooth, easy control of electric power-assisted steering to a wide range of popular boats, including pontoons, runabouts, RIBS, aluminum fishing boats and center consoles.

**REDUCED STEERING
EFFORT**

SIMPLE INSTALLATION
PLUG-AND-PLAY SYSTEM

SAFE AND SECURE
BUILT IN FAIL-SAFE SYSTEM



XTREME™ POWER ASSIST

Experience Smooth Handling With Your Current Mechanical Steering System

The Xtreme™ Power Assist Steering is engineered to bring the smooth, easy control of electric power-assisted steering to a wide range of popular boats, including pontoons, runabouts, RIBS, aluminum fishing boats and center consoles. This is an affordable, easy-to-install solution that offers a more enjoyable driving experience.

Strong and Durable

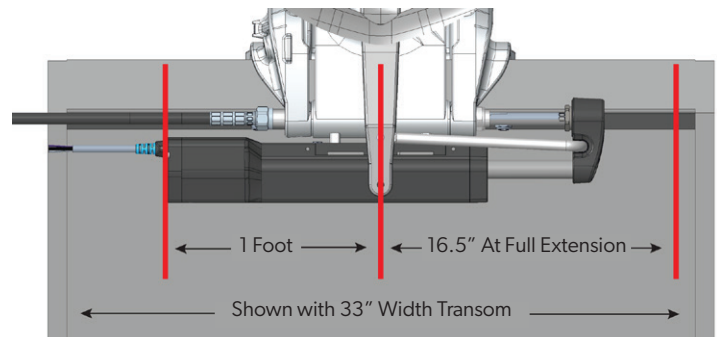
This system differs vastly from competitive “electric helm” systems on the market, because it does not increase the load on the mechanical steering helm or cable. Once this system is installed, the mechanical steering cable now only turns the power assist unit, while the electric steering actuator actually turns the engine load. This ensures reliable long-term performance in real-world, on-the-water conditions.

Key Benefits:

- Significantly reduced steering effort provides a car-like driving experience for mechanically steered boats
- Engineered to fit a wide range of single engine, mechanically steered outboard boats from 90-200HP with the 4 mounting holes on the tilt tube area
- Integrates with any existing SeaStar rack or rotary cable steering system, so there is no need to install new steering to take advantage of this new technology
- Designed as a self-contained, plug-and-play system which easily mounts to all major outboard brands and integrates with the boat's existing mechanical steering in less than 60 minutes
- Built in Fail-safe System automatically reverts to mechanical steering in the event of a system failure

ORDER INFORMATION

Part No.	Description
XPA1012P	Xtreme™ Power Assist
SA27715P	BRP Body Spacer Plate and Mounting Hardware



Reduced Steering Effort



Simple Installation

Plug-And-Play system



Safe and secure

Built in fail-safe system

STEERING CABLES

All Dometic steering cables exceed ABYC safety standards and ISO/IMCI/NMMA certification requirements. Dometic steering cables are designed with a rotary or rack and pinion design to fit various helm space and application requirements.

All Dometic steering cables feature:

- A tightly controlled core to conduit fit to offer precise steering.
- Outer jacket is constructed with HDPE, high density polyethylene material that is abrasion resistant and provides a high resistance to water penetration.
- All cables feature output ends constructed of stainless steel material for corrosion resistance.

DOMETIC ROTARY STEERING CABLES



SSC62XX

Standard quick connect rotary cable fits SH5150P, SH4910P, SH4920P, SH5094-1P, SH91190P, SH91526P, SH91527P, SH91523-1P, SH5180P and SH91650P



SSC62XX (with SA27620P adaptor)

Old Safe T (SH5023P, SH5075P, SH91075P and SH91077P) and Big T helms (SH5000P and SH91525P) use with SSC62xx steering cable and **helm converter SA27620P**



DOMETIC JET BOAT STEERING CABLES



SSC219XX

JBS steering cable for the Dometic Jet boat steering helms; SH5087P, SH5088P, SH91691P, SH91692P (the following are obsolete) SH91678P, SH91679P

***Note: Direct Replacement for SSC229XX**



SSC144XX

Dual Cable Assembly - Yamaha



SSC146XX

Single Cable Assembly - Yamaha



SSC145XX

Single Cable Assembly - BRP



SSC149XX

Dual Cable Assembly - BRP

NOTE: Jet boat mini Rack cables are measured from the middle of the rack to the end of the threads.

DOMETIC RACK STEERING CABLES



SSC134XX

Standard rack cable fits SH5210P, SH5230P, SH91610P, and SH91630P

- For single cable steering only



SSC135XX

Twin rack cable fits SH5210P, SH5230P, SH91610P, and SH91630P



SSCX154XX

Xtreme™ rack cable fits SH5210P, SH91610P, SH5230P, and SH91630P. Upgrade replacement for SSC134XX Single Cable
- For single cable steering only

MECHANICAL STEERING HELMS

This is an overview of Dometic ROTARY steering helms likely to be encountered.



SHX7606P



SHX97606

Xtreme™ NFB™

- Quick connect feature on both the cable and spent travel tube side.
- Improved NFB feature for smoother release.

Kits: SSX176XX (Xtreme™ NFB)
SSX177XX (Xtreme™ Tilt NFB)



SH4910P (Single Cable)

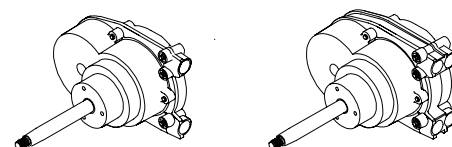


SH4920P (Dual Cable)

NFB™ 4.2

- Two bolts secure QC cable to helm.
- One bolt holds spent travel tube.
- Cast finish helms have No FeedBack™ feature.

Kits: SS147XX (4.2 Single Cable) 4.2 dual is sold as components



SH5150P (Safe-T II – cast finish)

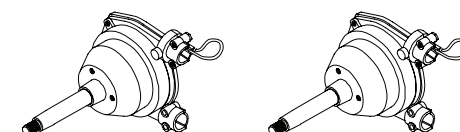


SH5180P (HPS – gold finish)

NFB™ Safe-T II & HPS Rotary™

- Collet & hitch pin secure QC cable to helm.
- Two bolts hold spent travel tube.
- Safe-T II cast finish helm has No FeedBack™ feature; HPS gold-finish helm does not.

Kit: SS132XX (Safe-T II Single Cable); HPS Rotary is sold as components only.



MECHANICAL STEERING HELMS

This is an overview of Dometic ROTARY steering helms likely to be encountered.



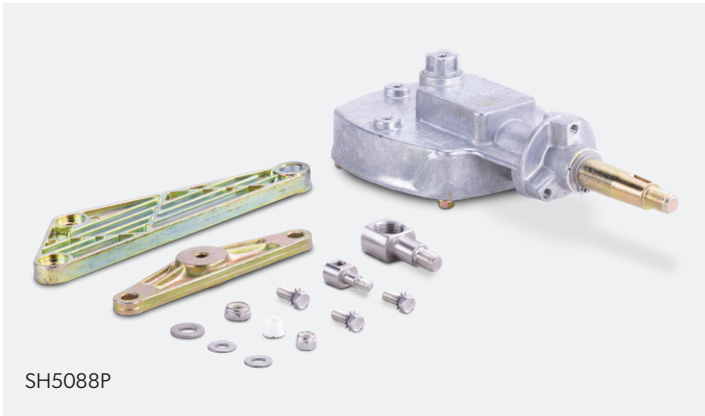
SH5094-1P

Safe-T® QC

- Collet & hitch pin secure QC cable and the spent travel tube to the helm.
- Conical plastic nut holds spent travel tube.

Kit: SS137XX (Safe-T QC Single Cable)

Note: The old style helm has a threaded spent travel tube. The SH5094-1P is a quick connect spent travel tube. Both use the same cable.



SH5088P

JBS Helms

Just for Jets! JBS by Dometic means Jet Boat Steering. Designed exclusively for jet boats, JBS features a choice of two steering arcs, a special steering cable (not a control cable) plus an assortment of mounting options for virtually any boat. Nobody knows steering like Dometic.

JBS HELMS	
Helm Description	Part No.
JBS Helm (135° Turning Arc)	SH5087P
JBS Helm (270° Turning Arc)	SH5088P



SB27150P

(90° Bezel)
NFB 4.2, Safe-T II



SB27483P

(20° Bezel)
NFB 4.2, Safe-T II & HPS, Xtreme™, Safe-T QC, Safe-T TS



SB27484P

(90° Bezel)
HPS, Safe-T QC, Safe-T TS, 4.2 Non-NFB

HELM VISUAL IDENTIFICATION GUIDE

THIS IS AN OVERVIEW OF DOMETIC RACK AND PINION STEERING HELMS LIKELY TO BE ENCOUNTERED.

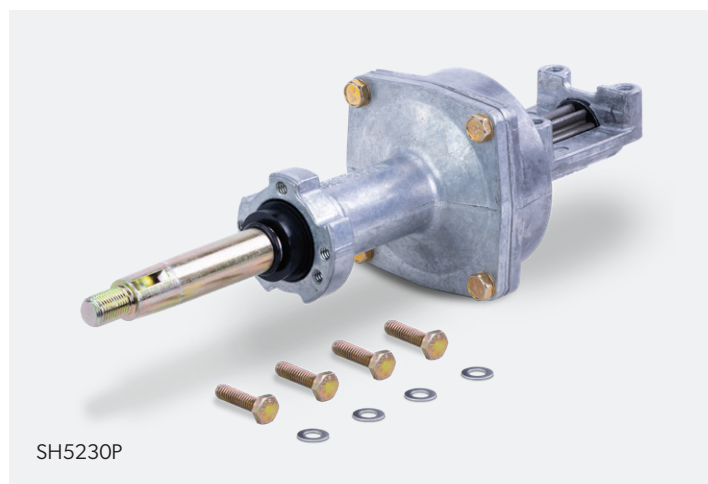


The Rack™ & HPS Rack™ (“Back Mount” Rack)

Note: Rack steering requires 2 1/4” hole in the dash.

- Four bolts and washers secure cable’s rack housing to helm.
 - Helm/cable install as unit from back of dash.
 - Helm requires current generation rack cables (will not bolt up to older style cables).
 - Dual cable has one rack housing with two cables attached. Single helm works on both single and dual cable applications
 - NFB recommended for non-hydraulic power-assist outboards.
 - One bezel is offered; angle to dash is changed by adding wedges.
- See below:

Kit: SS141XX (Rack Single Cable);
HPS Rack is sold as components only.



NFB™ Rack & NFB™ Pro Rack™ (“Back Mount” Rack)

- Four bolts and washers secure cable’s rack housing to helm.
 - Helm has No FeedBack™ feature.
 - Helm/cable install as unit from back of dash.
 - Helm requires current generation rack cables (will not bolt up to older style cables).
 - Dual cable has one rack housing with two cables attached. Single helm works on both single and dual cable applications.
 - One bezel is offered; angle to dash is changed by adding wedges.
- See below:

Kits: SS151XX (NFB Rack Single Cable),
SS152XX (NFB Pro Rack Dual Cable).

Rack Wedge Kits



SB39526P

(90° Bezel)

The Rack, HPS Rack



SB39544P

(90° Bezel)

NFB Rack, NFB Pro Rack



SB27449P

(20° Wedge Kit)

The Rack, HPS Rack, NFB Rack & NFB Pro Rack

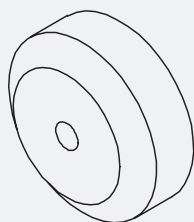
MECHANICAL HELM MOUNTING OPTIONS

Dometic offers several helm mounting options to accommodate nearly any preference. These options are available for all helms, except as noted. Please take a moment to familiarize yourself with these options before ordering replacement steering systems or components.

Mechanical (cable) steering typically comes with 90° mounting hardware for the helm. (Steering shaft is perpendicular to dash). 20° mounting kits (steering shaft 20° from perpendicular) can be purchased as options. Rack steering allows variations from 90° mounting in two settings: 10° and 20° from perpendicular.

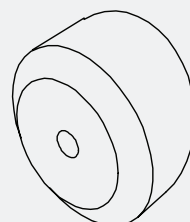
Mechanical Steering Bezel Mounts:

TYPICAL ROTARY BEZEL FOR 90° MOUNT
(steering wheel parallel to dash)



Note: Requires 3 1/4" center hole.

TYPICAL ROTARY BEZEL FOR 20° MOUNT
(steering wheel 20° from parallel to dash) SB27483P



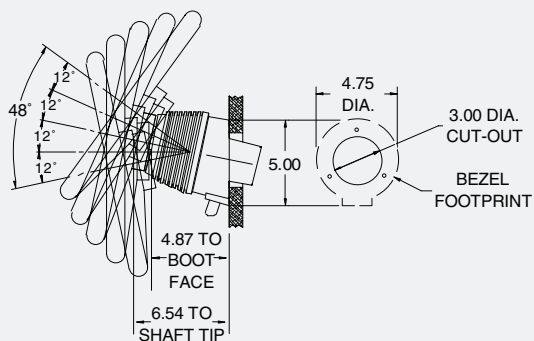
Note: Requires 3 1/4" center hole.

TILT STEERING

Tilt Steering is an option for all mechanical steering systems. Tilt allows the wheel to be moved in 48° arc, in five positive lock positions. When ordering mechanical Tilt Steering, note that a special Tilt version of the helm must be ordered. Also, a Tilt Mechanism must be ordered. The best way to order is the tilt module kit.

Tilt helms are similar in appearance to standard mechanical helms, except for the steering shaft. Tilt helms have a flat ended shaft with a cross hole for connection to the "universal joint" in the tilt mechanism. (Standard helm shafts have a threaded end.) Please also see the "Dimensions" section for more information.

PERFORMANCE TILT
(available for all Dometic mechanical systems)

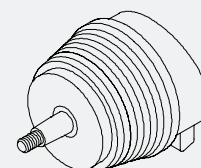
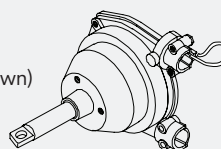


TILT STEERING MECHANISM
SH91800P
(requires purchase of tilt helm)

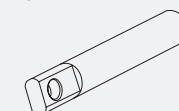
SH91900P



TILT HELM
(SH91650P shown)



TILT HELM
SHAFT DETAIL



XTREME™ NFB™ TILT MECHANICAL ROTARY STEERING SYSTEM



COMPLETE SYSTEMS	
Xtreme™ NFB Tilt Steering Kit	SSX177XX
Components	
Xtreme™ Tilt NFB Helm	SHX97606
Sport Tilt Mechanism	SH91800
Xtreme™ QC Steering Cable	SSCX64XX
Options	
Xtreme™ Non-NFB Helm, Bezel and Hardware Kit	SHX7626
Xtreme™ Tilt Non-NFB Helm	SHX97626
Service Items	
Xtreme™ QC Steering Cable	SSCX64XX
Xtreme™ Bezel and Hardware Kit NFB	SBX76061
Xtreme™ Bezel and Hardware Kit Non-NFB	SBX76261
Note: Cannot replace dual cable steering	
Note: Cannot be used with SSC62xx steering cable	

System Overview:

New Helm - The patented helm has a complete new gear train designed to provide smooth feel minimal backlash and low effort at the wheel. It also offers the smoothest NFB clutch release and has a smaller footprint than the current 4.2 helm. All castings are designed to reduce weight while offering superior strength.

The Xtreme™ tilt steering system uses the SH91800P tilt mechanism which should require no dash modifications from the old style Teleflex Marine or Seastar Solutions tilt steering systems.

SSCX64 Xtreme™ Cable - A brand new Xtreme™ steering cable was designed specifically for this system. This cable offers lower backlash and is more efficient than a standard steering cable. It provides the lowest ease of effort, a close "fit" of the core to liner for lowest lost motion. The concept provides the "tight" fit of core to liner yet allows area for lubrication. The design of the helm allows higher loads to be placed into the cable requiring this new design cable. There is a quick connect feature on both the steering cable and spent travel tube for easy, quick installation.

Applications:

Xtreme™ single cable steering systems are suitable for most single-station boats with a single non-hydraulic power-assisted outboard engine up to V6 and minimal engine flutter or steering instability.

Xtreme™ steering accepts steering wheels up to 16" diameter.

Use either the 4.2 NFB dual rotary or Pro Rack dual cable systems for boats with engine flutter or steering instability.

Replaces nearly all Dometic Rotary steering systems without dash modifications.

Features:

- Smoothest and lowest steering effort mechanical helm offered in the market place yet still offers easy installation.
- Complete steering system including new helm, high efficiency Xtreme™ steering cable design and new style bezel.
- Quick connect feature on both steering cable and spent travel tube for easy quick installation.
- Installs in same mounting pattern and bracket location as most current Dometic rotary steering systems.
- Smallest footprint possible to accommodate small, tight dash helm stations.
- Made, designed and assembled in the USA.

NOTE: SSCX64xx cables are designed to fit only Xtreme™ helms.

XTREME™ NFB™ MECHANICAL ROTARY STEERING SYSTEM



System Overview:

New Helm - The patent pending helm has a complete new gear train designed to provide smooth feel minimal backlash and low effort at the wheel. It also offers the smoothest NFB clutch release and has a smaller footprint than the current 4.2 helm. All castings are designed to reduce weight while offering superior strength.

New Bezel - New style, bezel keeping with the design of the SH91900 tilt and hydraulic helm pump designs.

SSCX64 Xtreme™ Cable - A brand new Xtreme™ steering cable was designed specifically for this system. This cable offers lower backlash and is more efficient than a standard steering cable. It provides the lowest ease of effort, a close "fit" of the core to liner for lowest lost motion. The concept provides the "tight" fit of core to liner yet allows area for lubrication. The design of the helm allows higher loads to be placed into the cable requiring this new design cable. There is a quick connect feature on both the steering cable and spent travel tube for easy, quick installation.

Applications:

Xtreme™ single cable steering systems are suitable for most single-station boats with a single non-hydraulic power-assisted outboard engine up to V6 and minimal engine flutter or steering instability.

Xtreme™ steering accepts steering wheels up to 16" diameter.

Use either the 4.2 NFB dual rotary or Pro Rack dual cable systems for boats with engine flutter or steering instability.

Replaces nearly all Dometic Safe-T steering systems without dash modifications.

Features:

- Smoothest and lowest steering effort mechanical helm offered in the market place yet still offers easy installation.
- Complete steering system including new helm, high efficiency Xtreme™ steering cable design and new style bezel.
- Quick connect feature on both steering cable and spent travel tube for easy quick installation.
- Installs in same mounting pattern and bracket location as most current Dometic rotary steering systems.
- Smallest footprint possible to accommodate small, tight dash helm stations.
- Made, designed and assembled in the USA.

Note: SSCX64XX cables are designed to fit only Xtreme™ helms.

COMPLETE SYSTEM

Xtreme™ NFB Steering Kit	SSX176XX
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Components

Xtreme™ NFB Helm, Bezel and Hardware Kit	SHX7606 **
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Xtreme™ QC Steering Cable	SSCX64XX **
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Options

Xtreme™ Tilt NFB Helm	SHX97606 **
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Xtreme™ NON-NFB Helm, Bezel and Hardware Kit	SHX7626 **
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Xtreme™ Tilt Non-NFB Helm	SHX97626 **
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Xtreme™ Tilt NFB Steering Kit	SSX177XX
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Service Items

Xtreme™ QC Steering Cable	SSCX64XX **
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Xtreme™ Bezel and Hardware Kit NFB	SBX76061 **
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Xtreme™ Bezel and Hardware Kit Non-NFB	SBX76261 **
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** Only offered as a special order for separate items.

Note: Can not be used with SSC62xx steering cable.

NFB™ 4.2 MECHANICAL ROTARY STEERING (DUAL) SYSTEM



COMPONENTS	
NFB 4.2 Dual Helm	SH4920P
(2) QC Cables	SSC62XX
Rotary NFB Bezel (90°)	SB27150P
Options	
NFB 4.2 Dual Tilt Helm	SH91527P*
Sport Tilt Mechanism	SH91800P
Sport Plus Tilt Mechanism	SH91900P
Bezel (20°)	SB27483P
Cable Gard (fits most tilt tubes)	SA39329P
Service Items	
QC Cable (for most Dometic rotary)	SSC62XX
Steering Wheel Hardware Kit (Old #2745417P)	SA27454P
Spent Travel Tube (Rotary NFB)	SA38603P
* Requires tilt mechanism to complete Tilt Steering system installation.	

System Overview:

Patented No FeedBack dual cable rotary steering helm is an up grade replacement for the old fashion dual cable rotary helms. With the advantage of 4.2 turns lock-to-lock and our patented No FeedBack steering to lock out steering loads, Dometic’s 4.2 Rotary NFB Steering is the ideal system for most non-power-steered boats. This rugged dual cable system is made for applications with engine flutter or steering instability. The helm is a drop-in replacement for current generation Safe-T with no dash modifications required. (See next page for single cable system.)

Applications:

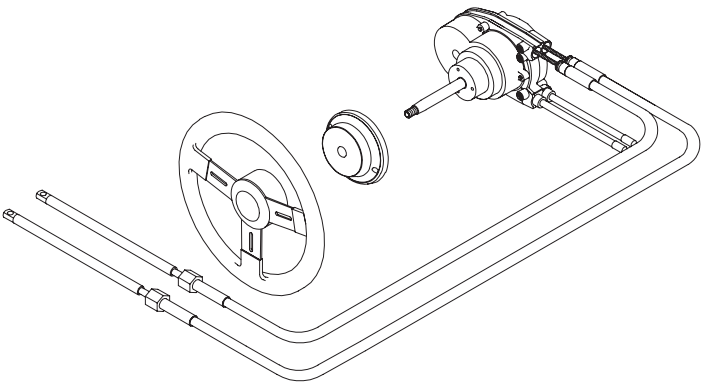
NFB 4.2 dual-cable systems are suitable for most single-station boats with a single non-hydraulic power-assisted outboard engine up to V-6 in which engine flutter or steering instability is present. 4.2 accepts wheels up to 16” diameter.

Replaces nearly all Dometic Safe-T twin cable steering systems with out dash modifications.

Features:

- Patented No FeedBack™ Steering mechanism.
- Twin cable system for maximum control.
- Comfortable 4.2 turns from lock-to-lock.
- Minimal clutch free play.
- Standard 3/4” round tapered steering shaft.
- Stainless steel cable output ends.
- Fast, easy installation: uses Dometic Quick Connect (QC) steering cable.
- Meets A.B.Y.C. standards.
- Meets N.M.M.A. certification requirements.
- Made, designed and assembled in the USA.

NFB™ 4.2 Dual Cable System



(STEERING WHEEL NOT INCLUDED.)

NFB™ 4.2 MECHANICAL ROTARY STEERING (SINGLE) SYSTEM



System Overview:

Patented No FeedBack rotary steering helm is an upgrade replacement for the old fashion rotary helms. With the advantage of 4.2 turns lock-to-lock and our patented No FeedBack steering to lock out steering loads, Dometic 4.2 Rotary NFB Steering is the ideal single-cable system for most non-hydraulic power-steered boats. The helm is a drop-in replacement for current generation Safe-T with no dash modifications required.

(See previous page for twin cable system.)

Applications:

NFB 4.2 single-cable systems are suitable for most single-station boats with a single non-hydraulic power-assisted outboard engine up to V-6 and minimal engine flutter or steering instability. 4.2 accepts wheels up to 16" diameter.

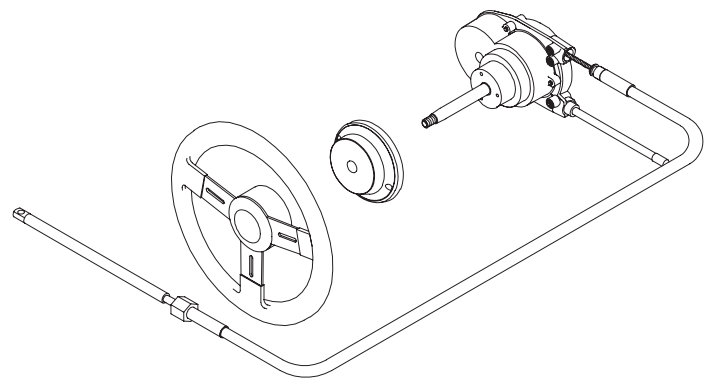
Use dual cable system for boats with engine flutter or steering instability. (See next page.)

Replaces nearly all Dometic Safe-T® steering systems without dash modification.

Features:

- Patented No FeedBack™ Steering mechanism.
- Comfortable 4.2 turns from lock-to-lock.
- Minimal clutch free play.
- Standard 3/4" round tapered steering shaft.
- Stainless steel cable output ends.
- Fast, easy installation: uses Dometic Quick Connect (QC) steering cable.
- Kits include: cable, helm, 90° bezel and hardware.
- Meets A.B.Y.C. standards.
- Meets N.M.M.A. certification requirements.
- Made, designed and assembled in the USA.

NFB™ 4.2 Single Cable System



(STEERING WHEEL NOT INCLUDED.)

COMPLETE SYSTEMS

NFB 4.2 Steering Kit (Single Cable)	SS147XX
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Components

NFB 4.2 Helm	SH4910P
QC Cable	SSC62XX
Rotary NFB Bezel (90°)	SB27150P

Options

NFB 4.2 Single Tilt Dash Module Each Kit Includes Tilt Helm & Tilt Mechanism	SHT91526
NFB 4.2 Single Tilt Helm	SH91526P*
Sport Tilt Mechanism	SH91800P
Sport Plus Tilt Mechanism	SH91900P
Bezel (20°)	SB27483P
Cable Gard (fits most tilt tubes)	SA39329P

Service Items

QC Cable (for most Dometic rotary)	SSC62XX
Steering Wheel Hardware Kit (Old #2745417P)	SA27454P
Spent Travel Tube (Rotary NFB)	SA38603P

* Requires tilt mechanism to complete Tilt Steering system installation.

NFB™ MECHANICAL RACK STEERING (SINGLE) SYSTEM



System Overview:

The easy-to-sell, easy-to-install upgrade to the most popular Rack and Pinion steering system in boating. Dometic has applied its patented No FeedBack technology to the incredible precision of a rack and pinion system, and engineered-in serious advances in steering comfort and control. And — it's a drop-in replacement for Dometic "The Rack".

Applications:

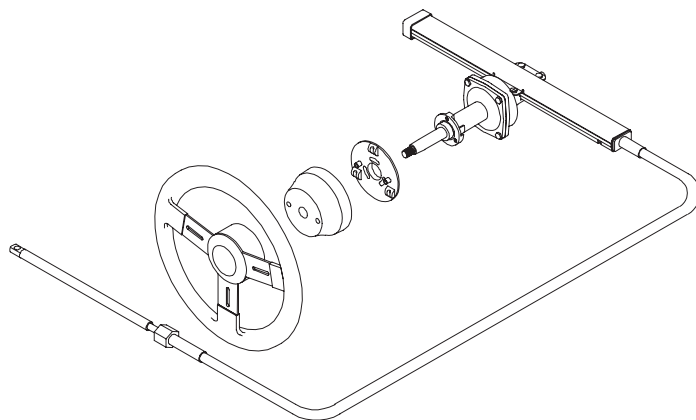
NFB Rack single-cable systems are suitable for most single-station boats with a single non-hydraulic power-assisted outboard engine up to V-6 and minimal engine flutter or steering instability. NFB Rack accepts wheels up to 16" diameter.

New Back Mount design means easy installation; helm & cable are installed as a unit from behind dash and replace standard Dometic rack steering without dash modifications.

Features:

- Patented No FeedBack™ Steering mechanism.
- Precise feel of 4 turns from lock-to-lock.
- Minimal clutch free play.
- Standard 3/4" round tapered steering shaft.
- Stainless steel cable output ends.
- Fast, easy installation; back mount design allows quick placement in dash PLUS mounting hardware fits industry-standard Dometic rack holes.
- Kits include: cable, helm, 90° bezel and hardware.
- Meets A.B.Y.C. standards.
- Meets N.M.M.A. certification requirements.
- Made, designed and assembled in the USA.

NFB™ Rack Single Cable System



(STEERING WHEEL NOT INCLUDED.)

COMPLETE SYSTEMS

NFB Rack Steering Kit (Single Cable)	SS151XX
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Components

NFB Rack Helm (single/dual)	SH5230P
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Rack Single Cable	SSC134XX
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Rack NFB Bezel (90°)	SB39544P
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Options

NFB Rack Tilt Dash Module (single/dual) Each Kit Includes Tilt Helm & Tilt Mechanism	SHT91630
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NFB Rack Tilt Helm (single/dual)	SH91630P*
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Sport Tilt Mechanism	SH91800P
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Sport Plus Tilt Mechanism	SH91900P
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Dash Wedge Kit (10°)	SB27448P
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Dash Wedge Kit (20°)	SB27449P
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Xtreme™ Rack Single Cable	SSCX154XX
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Cable Gard (fits most tilt tubes)	SA39329P
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Steering Wheel Hardware Kit (Old #2745417P)	SA27454P
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* Requires tilt mechanism to complete Tilt Steering system installation.

NFB™ PRO MECHANICAL RACK STEERING (DUAL) SYSTEM



System Overview:

The only Rack and Pinion steering system for the high performance boater. Dometic combines its patented No FeedBack technology with the incredible precision and control of a dual cable rack and pinion system. Now more than ever, NFB means performance! Dometic offers Pro Rack for high performance hulls and motors — boats which have engine flutter, experience instability or simply need that extra margin of control at the helm. It's a drop-in replacement for Dometic "The Rack".

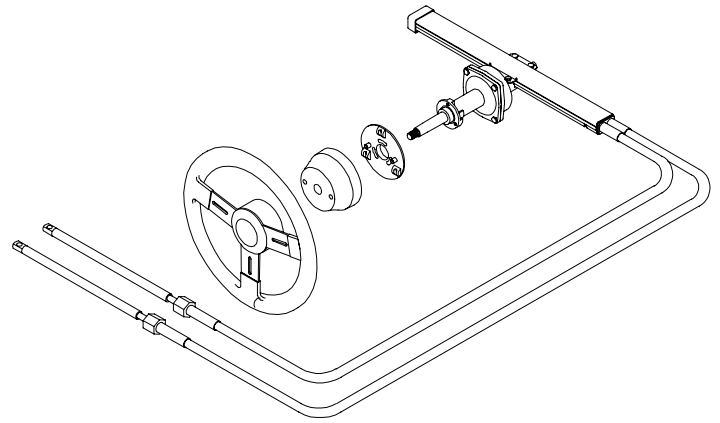
Applications:

NFB Pro Rack systems are suitable for single-station, high performance boats equipped with a single non-power-assisted outboard (up to V-6) in which engine flutter or steering instability is present. NFB Pro Rack accepts wheels up to 16" diameter. Back Mount design installs easily and replaces standard Dometic rack steering without dash modifications.

Features:

- Patented No FeedBack™ Steering mechanism.
- Dual cables minimize lost motion in system.
- Precise feel of 4 turns from lock-to-lock.
- Minimal clutch free play.
- Standard 3/4" round tapered steering shaft.
- Stainless steel cable output ends.
- Fast, easy installation; back mount design allows quick placement in dash PLUS mounting hardware fits industry-standard Dometic rack holes.
- Kits include: cables, helm, 90° bezel and hardware.
- Meets A.B.Y.C. standards.
- Meets N.M.M.A. certification requirements.
- Made, designed and assembled in the USA.

Pro Rack NFB™ Twin Cable System



(STEERING WHEEL NOT INCLUDED.)

COMPLETE SYSTEMS

NFB Pro Rack Steering Kit (Dual Cable)	SS152XX
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COMPONENTS

NFB Rack Helm (single/dual)	SH5230P
Rack Dual Cable (as pictured below)	SSC135XX
Rack NFB Bezel (90°)	SB39544P

OPTIONS

NFB Rack Tilt Dash Module (single/dual) Each Kit Includes Tilt Helm & Tilt Mechanism	SHT91630
NFB Rack Tilt Helm (single/dual)	SH91630P*
Sport Tilt Mechanism	SH91800P
Sport Plus Tilt Mechanism	SH91900P
Dash Wedge Kit (10°)	SB27448P
Dash Wedge Kit (20°)	SB27449P
Cable Gard (fits most tilt tubes)	SA39329P
Steering Wheel Hardware Kit (Old #2745417P)	SA27454P

* Requires tilt mechanism to complete Tilt Steering system installation.

NFB™ SAFE-T® II MECHANICAL ROTARY STEERING SYSTEM



COMPLETE SYSTEMS	
NFB Safe-T II Steering Kit	SS132XX
Components	
NFB Safe-T II Helm	SH5150P
QC Cable	SSC62XX
Rotary NFB Bezel (90°)	SB27150P
Options	
FB Safe-T II Tilt Dash Module Each Kit Includes Tilt Helm & Tilt Mechanism	SHT91190
NFB Safe-T II Tilt Helm	SH91190P*
Sport Tilt Mechanism	SH91800P
Sport Plus Tilt Mechanism	SH91900P
Bezel (20°)	SB27483P
Cable Gard (fits most tilt tubes)	SA39329P
Service Items	
QC Cable (for most Dometic rotary)	SSC62XX
Steering Wheel Hardware Kit (Old #2745417P)	SA27454P
Spent Travel Tube (Rotary NFB)	SA38603P
Hitch Pin for Quick Connect Helms (Old #2727514P)	SA27245P
*Requires tilt mechanism to complete Tilt Steering system installation.	

System Overview:

Major OEMs use Dometic Safe-T II, and so will your customers. It's the next generation of Safe-T, the world's #1 rotary steering system — rugged, compact, lightweight, and with Dometic No FeedBack technology. This ultra-smooth, 3-turn system takes the work out of steering most V-4 outboard powered boats. The Safe-T II helm is a drop-in replacement for current generation Safe-T QC with no dash modifications!

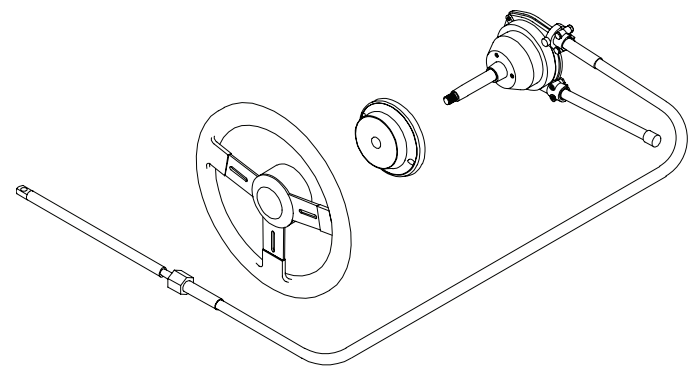
Applications:

NFB Safe-T II single-cable systems are suitable for most single-station boats with a single non-hydraulic power-assisted outboard engine up to V-4 and minimal engine flutter or steering instability. Safe-T II accepts wheels up to 16" diameter. (NFB Safe-T II is available in single cable configuration only). Replaces nearly all standard Safe-T® steering without dash modifications.

Features:

- Patented No FeedBack™ Steering mechanism.
- Quick response of 3 turns lock-to-lock.
- Minimal clutch free play.
- Standard 3/4" round tapered steering shaft.
- Stainless steel cable output ends.
- Fast, easy installation: uses Dometic Quick Connect (QC) cable.
- Kits include: cable, helm, 90° bezel and hardware.
- Meets A.B.Y.C. standards.
- Meets N.M.M.A. certification requirements.
- Made, designed and assembled in the USA.

NFB™ Safe-T II Single Cable System



(STEERING WHEEL NOT INCLUDED.)

4.2 NON NFB ROTARY STEERING



COMPONENTS	
4.2 NON NFB Helm (Single Cable)	SH4951P
90 Degree Bezel Kit	SB27484P
Steering Cable	SSC62XX
Options	
4.2 NON NFB Single Tilt Helm*	SH4971P
4.2 NON NFB Dual Tilt Helm*	SH94952P
4.2 NON NFB Dual Cable Helm	SH4952P
Sport Tilt Mechanism	SH91800P
Sport Plus Tilt Mechanism	SH91900P
20 Degree Bezel Kit	SB27483P
Cable Guard	SA39329P
Service Items	
Steering Wheel Hardware Kit	SA27454P
Spent Travel Tube	SA38603P

*Requires tilt mechanism to complete Tilt Steering system installation.

System Overview:

For the boat owner that likes the ease of the 4.2 mechanical advantage and does not want the NFB clutch in the helm.

Great for pontoon boats, and sail boats.

This system will fit most old Teleflex and Dometic rotary mounting holes with no dash modification.

Applications:

Ideal for boats that do not require the NFB clutch, yet want the ease of 4.2 rotary steering. Inboards, pontoons, where the steering loads may make three turn steering systems hard to turn. Uses the same steering cable and mounting holes.

Features:

- 4 turn lock to lock, providing more mechanical steering advantage over the three turn systems.
- Standard 3/4 round taper steering wheel shaft.
- Stainless Steel steering cable output end.
- Fast easy installation using the quick connect steering cable SSC62XX.
- Meets ABYC standards.
- Meets N.M.M.A. certification requirements.
- Made, designed & assembled in the U.S.A.

HPS™ MECHANICAL ROTARY STEERING SYSTEM



COMPLETE SYSTEMS	
This steering system is sold by components. Select helm, bezel and cable or Tilt helm, Tilt Mechanism and cable from items listed below.	
COMPONENTS	
HPS Rotary Helm	SH5180P
HPS Rotary Cable (QC interface)	SSC62XX
Bezel (90°)	SB27484P
OPTIONS	
HPS Rotary Tilt Helm	SH91650P*
Sport Tilt Mechanism	SH91800P
Sport Plus Tilt Mechanism	SH91900P
Bezel (20°)	SB27483P
Cable Gard (fits most tilt tubes)	SA39329P
SERVICE ITEMS	
Steering Wheel Hardware Kit (Old #2745417P)	SA27454P
Spent Travel Tube	SA38603P
Hitch Pin for Quick Connect Helms (Old #2724514P)	SA27245P
*Requires tilt mechanism to complete Tilt Steering system installation.	

System Overview:

HPS™ Rotary High Performance Steering by Dometic is the best 3-turn way to steer a power-assisted sterndrive! Designed exclusively for power-steered boats, HPS reduces backlash (free-play at the wheel) associated with power steered boats.

Applications:

HPS™ Rotary is ideal for all power-assisted sterndrives that can accept a mechanical steering cable.

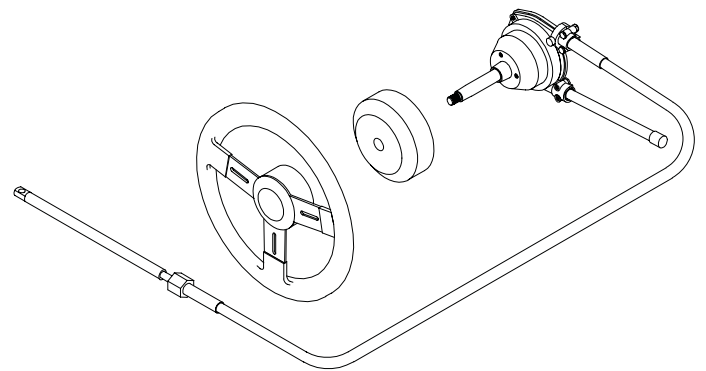
It replaces standard current generation Safe-T® steering without dash modifications and most other rotary steering systems with minimal dash modifications.

HPS Rotary is available in single cable configuration and is for single station use only. It accepts wheels up to 16" diameter.

Features:

- Designed for boats with power-assisted steering.
- Unique 3-turn helm with planetary gears and helical steering cable combine to deliver a compact helm with incredible response and minimal lost motion!
- HPS Rotary helms fit industry-standard Dometic dash cutouts.
- Compact helm takes up little room behind the dash.
- Designed to handle normal steering loads.
- Standard 3/4" round tapered steering shaft.
- Stainless steel cable output ends.
- Fast, easy installation: uses Dometic Quick Connect™ (QC) cable & standard Safe-T mounting hardware.
- Meets A.B.Y.C. standards.
- Meets N.M.M.A. certification requirements.
- Made, designed and assembled in the USA.

HPS Rotary™ Single Cable System



(STEERING WHEEL NOT INCLUDED.)

HPS™ MECHANICAL RACK & PINION STEERING SYSTEM



System Overview:

HPS™ Rack by Dometic is the best 4-turn way to steer a power-assisted sterndrive and is ideal for small inboards too, HPS reduces backlash (free-play at the wheel) associated with power steered boats by up to 50%! A great choice for ski boats, too!

Applications:

HPS™ Rack is ideal for all power-assisted sterndrives that can accept a mechanical steering cable and have adequate room for a rack & pinion steering cable behind the dash.

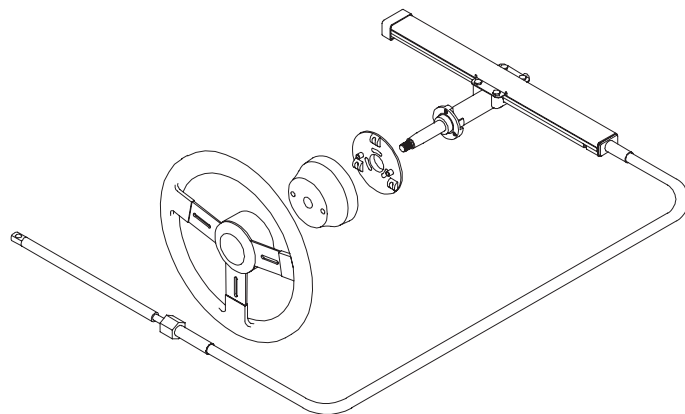
It replaces most standard Dometic Rack & Pinion steering without dash modifications.

HPS Rack is available in single cable configuration and is for single station use only. It accepts wheels up to 16" diameter.

Features:

- Designed for boats with power-assisted steering.
- Unique Xtreme™ core steering cable technology delivers incredible response and minimal lost motion!
- Precise, 4-turn response of Rack & Pinion steering.
- Designed to handle normal steering loads.
- Standard 3/4" round tapered steering shaft.
- Stainless steel cable output ends.
- Fast, easy installation: back mount design allows quick placement in dash PLUS mounting hardware fits Dometic rack holes.
- Meets A.B.Y.C. standards.
- Meets N.M.M.A. certification requirements.
- Made, designed and assembled in the USA.

HPS Rack™ Single Cable System



(STEERING WHEEL NOT INCLUDED.)

COMPLETE SYSTEM

This steering system is sold by components. Select helm, bezel and cable or Tilt helm, Tilt Mechanism and cable from items listed below.

COMPONENTS

Back Mount Rack Helm (single/dual)	SH5210P
Xtreme™ Rack Single Cable	SSCX154xx
Back Mount Rack Bezel (90°)	SB39526P

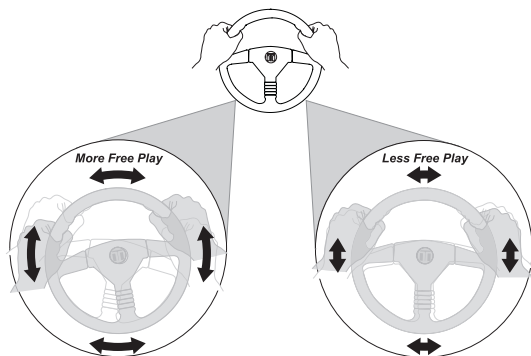
OPTIONS

BM Rack Tilt Dash Module Each Kit Includes Tilt Helm & Tilt Mechanism	SHT91610
BM Rack Tilt Helm (single/dual)	SH91610P*
Sport Tilt Mechanism	SH91800P
Sport Plus Tilt Mechanism	SH91900P
Dash Wedge Kit (10°)	SB27448P
Dash Wedge Kit (20°)	SB27449P
Cable Gard (fits most tilt tubes)	SA39329P

SERVICE ITEMS

Steering Wheel Hardware Kit (Old #2745417P)	SA27454P
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*Requires tilt mechanism to complete Tilt Steering system installation.



UP TO 50% LESS FREE-PLAY AT WHEEL VS. CONVENTIONAL STEERING.

THE RACK MECHANICAL RACK STEERING SYSTEM



System Overview:

Traditional Dometic mechanical steering is still the choice for sterndrives, inboards and other power assisted applications. It's just right for power steered boats in which No FeedBack™ systems are not required. Our Rack Steering features the precision and comfort of four turns lock-to-lock with a cable and helm that install easily from behind the dash. In single cable configurations, this is the best 4-turn choice for power-steered boats.

APPLICATIONS:

Virtually all power assisted sterndrive boats with wheels up to 16" diameter.

Dometic's Back Mount Rack Replaces 1984-1996 "The Rack" steering without dash modification. (Requires use of SSC134XX Back Mount Rack cable.)

For single station use only. Components are available for dual cable systems, but we recommend No FeedBack steering for all dual cable steered, non-hydraulic-power assisted outboards and sterndrives. See the NFB Pro Rack Dual Cable and SeaStar PRO hydraulic steering section of this catalog.

FEATURES:

- Precise, easy 4 turns lock-to-lock.
- Kits include: cable, helm, 90° bezel and hardware.
- Standard 3/4" round tapered steering shaft.
- Stainless steel cable output ends.
- Fast, easy installation: back mount design allows quick placement in dash PLUS mounting hardware fits industry-standard Dometic rack holes.
- Meets A.B.Y.C. standards.
- Meets N.M.M.A. certification requirements.
- Made, designed and assembled in the USA.

DISCLAIMER:

This system is only recommended as replacement for the original system as installed by the boat manufacturer. Dometic always recommends NFB helms for outboard applications. NFB helms lock out steering loads caused by propeller torque eliminating the driver fatigue normally experienced with a standard helm. Patented Dometic steering helms are a drop in replacement for standard rack system.

COMPLETE SYSTEM

BM Rack Steering Kit (single cable)	SS141XX
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COMPONENTS

Back Mount Rack Helm (single/dual)	SH5210P
Back Mount Rack Single Cable	SSC134XX
Back Mount Bezel (90°)	SB39526P

OPTIONS

BM Rack Tilt Dash Module Each Kit Includes Tilt Helm & Tilt Mechanism	SHT91610
BM Rack Tilt Helm (single/dual)	SH91610P*
Sport Tilt Mechanism	SH91800P
Sport Plus Tilt Mechanism	SH91900P
Xtreme™ Rack Single Cable	SSCX154XX
Dash Wedge Kit (10°)	SB27448P
Dash Wedge Kit (20°)	SB27449P
Cable Gard (fits most tilt tubes)	SA39329P

SERVICE ITEMS

Back Mount Rack Dual Cable	SSC135XX†
Steering Wheel Hardware Kit (Old #2745417P)	SA27454P

*Requires tilt mechanism to complete Tilt Steering system installation.

†For dual rack & pinion steered boats. If steering is NOT power-assisted, upgrading to NFB 4.0 Pro Rack is recommended.

SAFE-T® QC MECHANICAL ROTARY STEERING SYSTEM



System Overview:

Traditional Dometic mechanical steering is still the choice for sterndrives, inboards and other power assisted applications.

It's just right for power steered boats in which No FeedBack™ systems are not required.

Safe-T® QC offers the quick response of three-turn steering, and easy installation with a patented, no-tools-required cable connection at the helm.

Applications:

Virtually all power-assisted sterndrive boats with wheels up to 16" diameter. Safe-T QC® replaces all Dometic Safe-T helms made since 1968 with little or no dash modifications. (Requires use of SSC62 QC steering cable.)

For single station use only. Safe-T QC accepts wheels up to 16" diameter.

We recommend No FeedBack steering for all dual cable steered, non-power-assisted outboards and sterndrives. See the NFB 4.2 Dual Cable and SeaStar PRO hydraulic steering section of this catalog.

Features:

- Quick-response of 3 turns lock-to-lock.
- Kits include: cable, helm, 90° bezel and hardware.
- Standard 3/4" round tapered steering shaft.
- Stainless steel cable output ends.
- Fast, easy installation: uses simple snap-in cable connection, Dometic Quick Connect (QC) cable, and industry-standard Safe-T mounting hardware.
- Meets A.B.Y.C. standards.
- Meets N.M.M.A. certification requirements.
- Made, designed and assembled in the USA.

Disclaimer:

This system is only recommended as replacement for the original system as installed by the boat manufacturer. Dometic always recommends NFB helms for outboard applications. NFB helms lock out steering loads caused by propeller torque eliminating the driver fatigue normally experienced with a standard helm. Patented Dometic steering helms are a drop in replacement for Safe-T systems.

COMPLETE SYSTEM

Safe-T QC Steering Kit (single cable)	SS137XX
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Components

Safe-T QC Single Helm	SH5094-1P
QC Cable	SSC62XX
Safe-T QC Bezel (90°)	SB27484P

Options

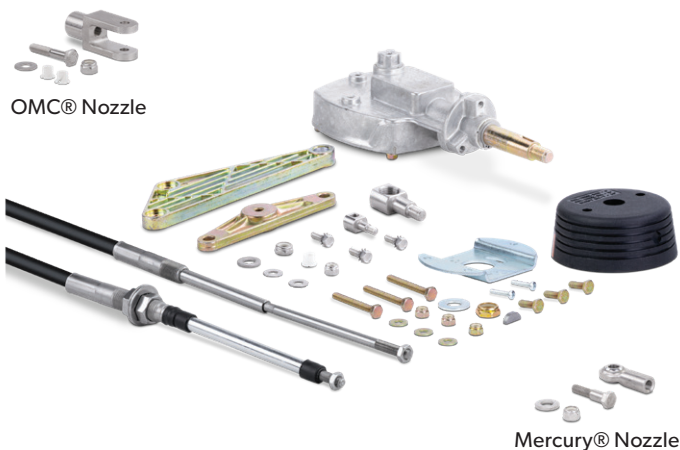
Safe-T QC Sgl. Tilt Dash Module Each Kit Includes Tilt Helm & Tilt Mechanism	SHT91523
Sport Tilt Mechanism	SH91800P
Sport Plus Tilt Mechanism	SH91900P
Safe-T QC Single Tilt Helm	SH91523-1P*
Safe-T QC Bezel (20°)	SB27483P
Cable Gard (fits most tilt tubes)	SA39329P

Service Items

QC Cable (For most Dometic rotary helms)	SSC62XX
QC II Threaded Helm Converter	SA27620P
Steering Wheel Hardware Kit (Old #2745417P)	SA27454P
Hitch Pin for Quick Connect Helms (Old #2724514P)	SA27245P

* Requires tilt mechanism to complete Tilt Steering system installation.

JBS JET BOAT MECHANICAL STEERING SYSTEM



System Overview:

Just for Jets! JBS™ by Dometic means Jet Boat Steering! Designed exclusively for jet boats, JBS features a choice of two steering arcs, a special steering cable (not a control cable) plus an assortment of mounting options for virtually any boat! Nobody knows steering like Dometic!

Applications:

Dometic JBS is recommended for use in most jet boat applications powered by Mercury® Sport Jet or OMC® Turbo Jet drives that meet ABYC P-23.

Features:

- Ultra-compact helm with stylish 4.4" bezel is easy to install and very rugged.
- 135° or 270° turning arc lock-to-lock.
- Uses a special steering cable.
- 90° dash mount. (Tilt Steering option available!)
- 90° or 180° cable entry into helm allows alternate cable routing. (Looking at dash, options are 9:00, 12:00 or 3:00 routing positions.)
- Built-in steering stops prevent additional cable stress in hard over positions.
- Standard 3/4" round tapered steering shaft, 3.5" total allowable cable travel.
- Mercury® & OMC® nozzle/gate connection kits.
- Stainless steel cable output ends.
- Meets A.B.Y.C./N.M.M.A. requirements.
- Made, designed and assembled in the USA.

COMPLETE SYSTEM

This steering system is sold by components. Select helm, bezel and cable or Tilt helm, and cable from items listed below. Note engine type and desired steering arc.

Components

JBS Helm (135° turning arc)	SH5087P or
JBS Helm (270° turning arc)	SH5088P
JBS Steering Cable (XX = length in feet; measurement is length from tip to tip)	SSC219XX
JBS Bezel & Mounting Hardware Kit	SB39452P
Nozzle Connection Kit (Mercury)	SA27591P or
Nozzle Connection Kit (OMC)	SA27590P

Options

JBS Tilt Steering Helm (135° arc) Sport Tilt Mechanism Included	SH91691P
JBS Tilt Steering Helm (270° arc) Sport Tilt Mechanism Included	SH91692P

Service Items

Steering Wheel Hardware Kit (Old #2745417P)	SA27454P
Dual Cable Kit	3946214

Helm Parts (see diagram at right)

1. Pivot – cable conduit fitting	3941615
2. Bushing for cable cond. ftg. pivot	3604811
3. Pivot – cable terminal end	3941117
4. Bushing for cable term. end pivot	3828412

Helm Cable Bracket Hardware Kit Contents	3962715
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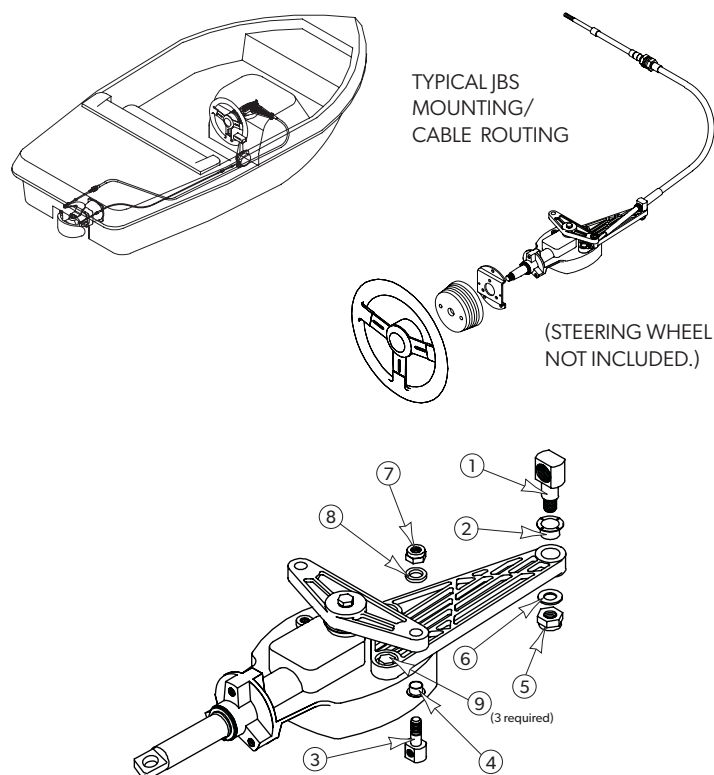
5. Locknut (3/8-24) – conduit fitting pivot
6. Lock Washer for 3/8-24 Locknut
7. Locknut (1/4-20) – cable terminal end pivot
8. Lock Washer for 1/4-20 Locknut
9. 3 Hex Bolts (anti-vibratory patch) – bracket

If you are replacing a jet boat steering cable, you must determine the part number of the existing steering cable. SSC219 cables are ONLY for JBS systems shown on this page.

***Note: SSC219XX replaces SSC229XX cables.**

Use only genuine Dometic replacement hardware specifically designed for this product. Do not substitute other parts.

JBS - JET Boat Steering System



JET BOAT MINI RACK STEERING SYSTEM



COMPLETE SYSTEM

This steering system is sold by components. Select helm, bezel and cable or tilt helm, tilt mechanism and cable from items listed below.

Components

Standard Jet Boat Rack Helm	SH5220P
Back Mount Rack Bezel	SB39526P
Dual Cable Assembly - Yamaha	SSC144XX
Single Cable Assembly - Yamaha	SSC146XX
Dual Cable Assembly - BRP	SSC149XX
Single Cable Assembly - BRP	SSC145XX

Options

Tilt Jet Boat Rack Helm	SH91620P*
Sport Tilt Mechanism	SH91800P
Sport Plus Tilt Mechanism	SH91900P

Service Items

Steering Wheel Hardware Kit	SA27454P
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* Requires tilt mechanism to complete Tilt Steering system installation.

System Overview:

This mechanical steering system is designed to deliver the smoothest and most efficient steering available for twin engine jet boats. Developed for twin jet engine boats, this new product combines the mechanical advantage of a four turn steering system with the responsiveness of a 1 ½ turn system.

Featuring Dometic pioneered Xtreme™ cable technology, the system has a small behind-dash profile and independently routed steering cables mounted to each bucket of the twin engine system. The robust, high performance armor wrapped cable core features splined ridges molded on the core for minimal contact between the liner and core. This design allows the core to glide freely, for minimal lost motion and smoother, easier steering. The resulting reduction in cable friction not only improves performance, it keeps the entire steering system running smoother, longer. The new system is also easier to install than other jet boat steering systems. Ease of installation combined with decreased driver fatigue make Mini Rack unmatched by other mechanical jet steering systems.

Utilizing proven rack and pinion gear design mated with Xtreme™ cable technology, the Mini-Rack has been rigorously validated through both laboratory and on-water testing. The system is fully approved and compliant with ABYC P-23 and NMMA.

This competitively priced system is available in both standard-helm and tilt-helm options.

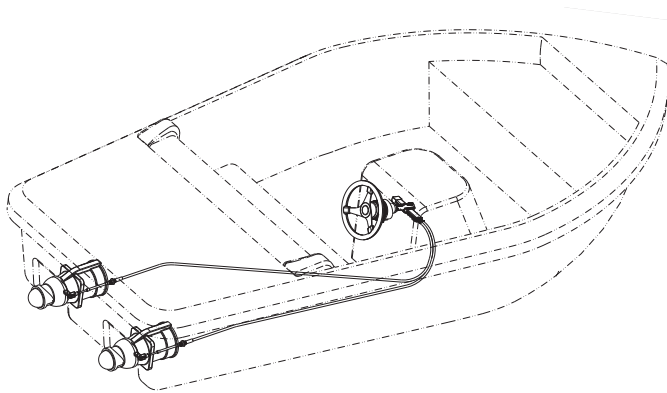
Applications:

Dometic jet boat mini rack is recommended for inboard jet boats that meet ABYC P-23 specifications. Not for use with larger jet pumps using V8 engines or outboards using lower unit jet pumps. Minimum dash space is 19 1/2 inches. Accepts steering wheels up to 16 inch diameter maximum.

Features:

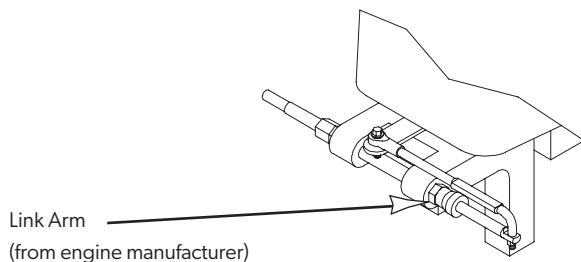
- 1 ½ turns lock-to-lock travel with four turn mechanical advantage.
- 90° dash mount (Tilt steering option available).
- Standard ¾" round taper steering shaft, 3.5" cable travel.
- Stainless steel cable output ends.
- Fast, easy installation: back mount design allows quick placement in dash, PLUS mounting hardware fits industry-standard Dometic rack mounting holes.
- Meets A.B.Y.C. standards.
- Meets N.M.M.A. certification requirements

JBS - JET Boat Mini Rack Steering System



MECHANICAL CONNECTION KITS

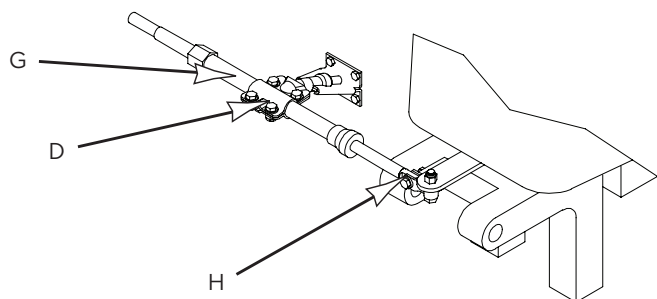
There are four basic types of connections for mechanical steering.



Tilt Tube Mount

This is the most popular steering cable-to-engine connection method for outboards with an ABYC standard tilt tube. This installation requires the use of a link arm which can be purchased from the engine manufacturer.

Parts Required: Engine Manufacturer's Link Arm



Transom Support Mount

This cable connection is used for older model outboards without tilt tubes, low HP outboards or applications where transom design interferes with standard tilt tube mounting.

Parts Required; B, H (90°) or A, H (15°)

Master Kits (Include D, G & H):

Stainless Steel Transom Mount Kit

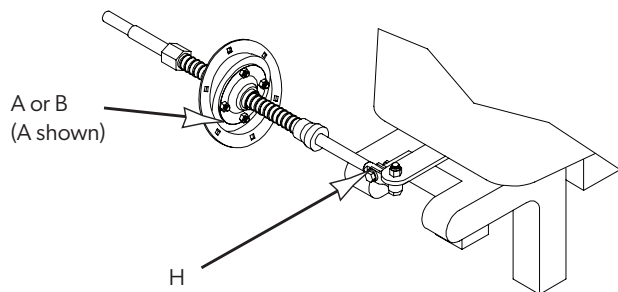
SA27255P or

Corrosion Resistant Transom Mount Kit

SA27256P

(See following pages for individual components.)

*** In salt or brackish water only use Stainless Steel kit**



Splashwell Mount

This cable connection is used on boats where standard tilt tube or transom support mounting methods are precluded by a splashwell box or lack of engine tilt tube. The mounting surface is usually near perpendicular to the transom and between 12 and 16 inches from the center line of the boat and/or tiller (25-33" total splashwell width).

PARTS REQUIRED; B, H (90°) OR A, H (15°)

Master Kits (Include H & A/B):

90° Splashwell Mount Kit

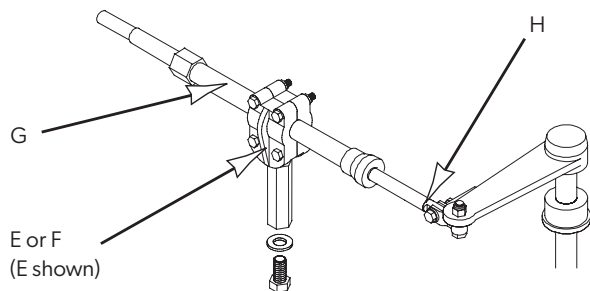
SA27254P or

15° Splashwell Mount Kit

SA27253P

(See following pages for individual components.)

Note: Not for thru hull applications.



Inboard Stringer Support Mount

This connection is used on inboards and is attached to a stringer or suitable mounting bracket below deck. The cable is perpendicular to the centered tiller and in half stroke for proper operation. An additional bracket may be needed to support the ball post. Available in heavy duty "Ski Boat" versions, with either long (4.5") or short (2.25") post standoff to center of support tube.

Parts Required

E,G,H (long post) or

F,G,H (short post)

(See following pages for individual components.)

MECHANICAL CONNECTION KITS

Note: Parts shown on this page are available in kit form ONLY.



(A) Splashwell Mount Kit**

Part No. SA27253P

15° Corrosion Resistant

(NOTE: OUTER RING NOT SOLD SEPARATELY)

(BOOT ONLY P/N: SA37868P)



(D) Clamp Block — Outboard

Stainless Steel SA27149P *

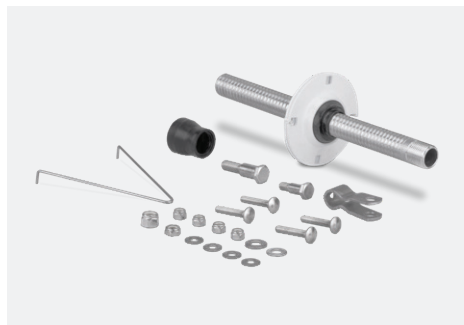
Corrosion Resistant SA27055P



(G) Support Tube

Aluminum SA27274P

Stainless Steel SA27275P *



(B) Splashwell Mount Kit**

Part No. SA27254P

90° Corrosion Resistant

(BOOT ONLY P/N: SA37868P)

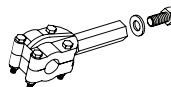


(E) Clamp Block — Ski Boat Inboard

Part No. SA27579P

4-1/2" Stand-Off

(Heavy Duty with Black Metal Flake Finish)



(H) Clevis Kit — Stainless Steel

With Short Bolt SA27314P

With Long Bolt SA27329P

NOTE: SA27313P Bushing should be ordered with SA27329P



(C) Splashwell Threaded Tube With Ball**

Part No. SA36316P

Corrosion Resistant

(BOOT ONLY P/N: SA37868P)

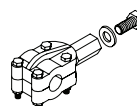


(F) Clamp Block — Ski Boat Inboard

Part No. SA27578P

2-1/4" Stand-Off

(Heavy Duty with Black Metal Flake Finish)



(H) Clevis Kit — Ski Boat

(Stainless Steel)

With Short Bolt SA27576P

With Long Bolt SA27577P

* Using stainless steel in salt or brackish water is recommended, **Not for through-transom use

MECHANICAL CONNECTION KITS

Note: Parts shown on this page are available in kit form ONLY.



(I) Rod End Kit

Steel: SA27276P

Stainless Steel: SA27277P
(1/2-20 THD.)



(N) Universal Tie Bar Kit

Part No. SA27252P

(Maximum length: 25-1/2")



(Q) QC II Helm Converter

Part No. SA27620P

For Helms with Threaded Spigots
(Upgrades older rotary helms to Quick-Connect cable interface, for SSC62 QC cable usage.)



(J) Bushing Kit - Inboard Tiller Arm

Part No. SA27313P



(O) CABLE GARD

Part No. SA39329P

For Most Outboards with Tilt Tube
(Helps to keep the tilt tube clean.)



(R) Hitch Pin & Tag For Quick Connect Helm and QC II Helm Converter

Part No. SA27245P

(Replacement hitch pin for all Dometic helms with the Quick Connect cable attachment port and for all Dometic SA27620P QC II Helm Converters.)



(M) Spent Travel Tubes For Rotary Helms

Part No. SA35680P (top)

SAFE-T QC/SAFE-T "TS"/BIG-T Helms

Part No. SA38603P (bottom)

NFB 4.2 /NFB SAFE-T II /HPS Rotary Helms



(P) Steering Wheel Hardware Kit

Part No. SA27454P

(For All Dometic Mechanical Helms with standard marine round 3/4" Tapered Shaft.)



Adapter Bracket

Part No. 300612

For Johnson/Evinrude 40 hp and under
(not pictured)

(See also Dometic outboard clamp block kits on preceding pages.)



HYDR STEE

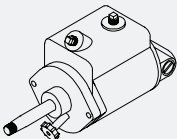
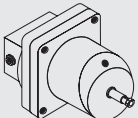
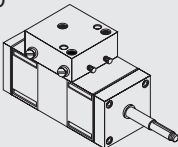
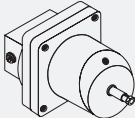
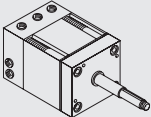
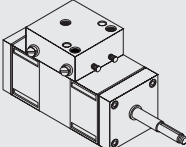
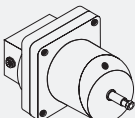
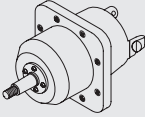
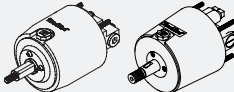
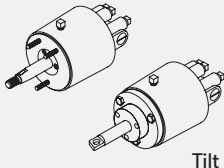
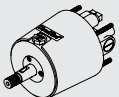
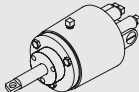
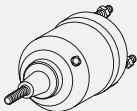


AULIC RING

HYDRAULIC STEERING IDENTIFICATION GUIDE

Original System Name (Version)	Dates Used	Part Numbers and / or Special Characteristics
Capilano	1973-DATE	Large heavy duty cast iron rear mount helm; variable displacement knob.
Hynautic Stern Drive Steering	TO DATE	Transom or guide tube-mount cylinder; 80 Series round helm w/square flange (looks like 1984 SeaStar helm). Large or twin drives may use H-40 series square block type helm.
Hynautic Inboard 2-line	TO DATE	HC5323-3 (ball joints) or K-51 (trunnion) cylinder; 80 Series round helm w/square flange (looks like 1984 SeaStar helm).
Hynautic Inboard 3-line	TO DATE	K-1, K-2, K-3, K-4 (trunnion mount) cylinders; H-20, H-40 or H-50 square machined block type helm.
Hy-Trac Outboard Hy-Trac Outboard Hy-Trac Outboard	TO DATE TO DATE TO DATE	K-6 drag-link type cylinder; 80 Series round helm w/square flange. K-10 front-mount type cylinder; 80 Series round helm w/square flange. K-13 side-mount type cylinder; 80 Series round helm w/square flange.
SeaStar (Version 1)	1984-1990	Round black helm with square flange; HC5340, HC5370-3, HC5365, HC5380 cylinders used.
SeaStar (Version 2)	1990-DATE	Round black helm with domed or flat shaft seal (3-screws); HC5340/HC5342/ HC5345-3/HC5347-3/HC5348-3/HC5358-3/HC5365 (outboard front mount); HC5370-3 (outboard side mount), HC5380 (outboard splashwell mount); HC5343 HC5375-3 (catamaran/pontoon); and many stern drive/inboard cylinder models used.
SeaStar PRO	1993-DATE	Looks like SeaStar helm, has "SeaStar PRO" decal; HC5365, HC5345-3/47/48/58 cylinders used.
Competitive Brands	TO DATE	Hydraulic steering (including power steering by Hynautic & other brands) for boats up to 100 feet in length.
Hynautic Tubing & Hose	TO DATE	Synflex® 5/16" O.D. Nylon Tubing; 3/8" Nylon Tubing; 1000 PSIW 5/16" I.D. Hose; 1000 PSIW 3/8" I.D. Hose & others.

HYDRAULIC STEERING IDENTIFICATION GUIDE

Helms Looks Like This		Recommended Replacement System
		Capilano (see selection guide)
H-80 	H-40 	SeaStar, Capilano or Hynautic as available (see selection guide for best option)
		SeaStar (see selection guide for best option)
H-20 		Hynautic as available or SeaStar (see selection guide AND: Hynautic-SeaStar Cross Reference in the Tech Reference section)
		SeaStar or BayStar (see selection guide for best option) SeaStar or BayStar (see selection guide for best option) SeaStar with side mount cylinder(s) (see selection guide)
H-50 		SeaStar or BayStar (see selection guide for best option)
Front Mount 	Rear Mount  Tilt	SeaStar or BayStar (see selection guide for best option)
		SeaStar Pro (see selection guide)
	SyTen® Identified by the stainless steel band that wraps around the base of the unit.	SeaStar or BayStar (see selection guide for best option)
Tilt Steering is available as an option for BayStar, SeaStar and SeaStar PRO systems. It is not offered for Capilano and Hynautic systems. For an overview of Tilt Steering see page 25. Other helm mounting options, see pages 25 & 50.		SeaStar (see selection guide for best option) SeaStar tubing/hose (may require purchase of appropriate fittings to complete connection)

HYDRAULIC HELMS



BayStar Helms

BayStar hydraulic steering is brought to you by the manufacturers of SeaStar, the most trusted name in pleasure boat steering. BayStar allows you to install all of the safety, reliability and comfort of hydraulic steering onto your boats rated to a MAXIMUM of 150 HP. Combine this with a superior design rigid ISO quality control, finest materials and precision manufacturing—BayStar continues the tradition of bringing comfort and safety to boating.

BAYSTAR HELMS		
Helm Description	Helm Part No.	Seal Kit Part No.
BayStar 1.1 - Front Mount	HH4311-3	HP6032
BayStar 1.4 - Front Mount	HH4314-3	HP6032
BayStar 1.4 - Sport Tilt*	HH4315-3	HP6032
Baystar 1.4 - Sport Plus Tilt*	HH4316-3	HP6032
BayStar Plus 1.4 - Front Mount	HH4514-3	HP6032
BayStar Plus 1.4 - Sport Tilt*	HH4513-3	HP6032
BayStar Plus Helms offer superior overall performance to BayStar due to an enhanced internal design.		
* Refer to page 25 for additional tilt steering information.		



SeaStar Helms

Unmatched comfort and control only with SeaStar Steering. The world's most popular hydraulic steering system – offering smooth, efficient No Feedback Steering for single and multi-outboard engines up to 350Hp (700HP combined for counter rotating twins) for speeds up to 60 MPH.

SEASTAR HELMS		
Helm Description	Helm Part No.	Seal Kit Part No.
SeaStar 1.4 - Front Mount	HH5269-3	HP6032
SeaStar 1.4 - Rear Mount	HH5260-3	HP6032
SeaStar 1.4 - Rear Mount 1" Straight Shaft	HH5279-3	HS5201
SeaStar 1.4 - Rear Mount 1" Taper Shaft	HH5280-3	HS5201
SeaStar 1.4 - Classic Tilt*	HH6544-3	HP6032
SeaStar 1.7 - Front Mount	HH5271-3	HP6032
SeaStar 1.7 - Front Mount Commercial	HH5217-3	HP6037
SeaStar 1.7 - Rear Mount	HH5261-3	HP6032
SeaStar 1.7 - Rear Mount 1" Taper Shaft	HH5281-3	HS5201
SeaStar 1.7 - Sport Tilt*	HH6191-3	HP6032
SeaStar 1.7 - Classic Tilt*	HH6541-3	HP6032
SeaStar 1.7 - Sport Plus Tilt*	HH6491-3	HP6032
SeaStar 2.0 - Front Mount	HH5273-3	HP6032
SeaStar 2.0 - Sport Tilt*	HH6145-3	HP6032
SeaStar 2.0 - Classic Tilt*	HH6543-3	HP6032
SeaStar 2.0 - Sport Plus Tilt*	HH6445-3	HP6032
SeaStar 2.0 - Sport Plus (Spline Shaft)	HH6345-3	HP6032
SeaStar 2.0 - Rear Mount	HH5263-3	HP6032
SeaStar 2.4 - Front Mount	HH5272-3	HP6032
SeaStar 2.4 - Front Mount Commercial	HH5224-3	HP6037
SeaStar 2.4 - Rear Mount	HH5262-3	HP6032
SeaStar 2.4 - Sport Tilt*	HH6192-3	HP6032
SeaStar 2.4 - Classic Tilt*	HH6542-3	HP6032
SeaStar 2.4 - Sport Plus Tilt*	HH6492-3	HP6032
SeaStar 3.0 - Rear Mount	HH5265-3	HP6032
SeaStar 3.0 - Front Mount	HH5285-3	HP6032

HYDRAULIC HELMS



SeaStar PRO Helms

Designed for the performance boater, SeaStar PRO is the ultimate steering system for high-speed single engine outboards. As the premier Dometic No Feedback System, SeaStar PRO delivers uncompromising steering control! Suited for all those critical high speed outboard powered boat applications like Bass, Flats, Combo Race and Ski, and other performance boats capable of speeds in excess of 60 MPH. SeaStar PRO has steered the Bass Masters since 1994 and is the choice of high performance outboard boat builders.

SEASTAR HELMS		
Helm Description	Helm Part No.	Seal Kit Part No.
SeaStar PRO 1.4 - Classic Tilt*	HH6575-3	HP6032
SeaStar PRO 1.7 - Front Mount	HH5779-3	HP6032
SeaStar PRO 1.7 - Front Mount Commercial	HH5218-3	HP6037
SeaStar PRO 1.7 - Rear Mount	HH5778-3	HP6032
SeaStar PRO 1.7 - Sport Tilt*	HH6189-3	HP6032
SeaStar PRO 1.7 - Classic Tilt*	HH6573-3	HP6032
SeaStar PRO 1.7 - Sport Plus Tilt*	HH6489-3	HP6032
SeaStar PRO 2.0 - Front Mount	HH5770-3	HP6032
SeaStar PRO 2.0 - Rear Mount	HH5771-3	HP6032
SeaStar PRO 2.0 - Sport Tilt*	HH6190-3	HP6032
SeaStar PRO 2.0 - Classic Tilt*	HH6574-3	HP6032
SeaStar PRO 2.0 - Sport Plus Tilt*	HH6490-3	HP6032
SeaStar PRO 2.4 - Front Mount	HH5772-3	HP6032



Capilano Helms

For extra heavy duty/commercial vessels, Dometic's Capilano steering system offers extremely rugged and reliable 'variable flow' rear-mount helms and heavy duty brass cylinders with stainless steel and bronze mounting hardware.

CAPILANO HELMS		
Helm Description	Helm Part No.	Seal Kit Part No.
Capilano 1250V	HH5250	HS5161
Capilano 1275V	HH5275	HS5161



Bellows Tilt Helm Cover For New Sport Tilt Helms (6 per kit)

Part No. HP6046

HYDRAULIC HELM MOUNTING OPTIONS

SeaStar offers a variety of helm mounting options to accommodate nearly any preference. These options are available for all helms, except Capilano and Hynautic helms. Please take a moment to familiarize yourself with these options before ordering replacement steering systems or components.

SeaStar hydraulic steering helms typically mount on the dash surface with the steering shaft at 90° to the dash. A SeaStar rear mount helm is also available for concealed (behind the dash) mounting. Capilano and Hynautic helms are available in only one mounting style: behind the dash at 90°.

Optional kits are available to reduce SeaStar helm protrusion from the dash, or to cover dash holes left by previously installed steering systems.

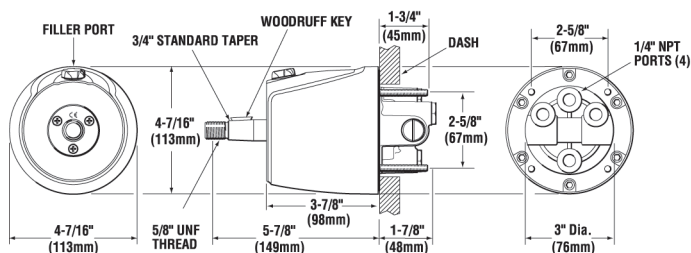
The Round Bezel Kit (HA5478) reduces SeaStar helm protrusion from the front of the dash by 3.75". (Not for BayStar.)

The Backplate Kit (HA5418) reduces SeaStar helm protrusion from the front by the thickness of the dash and allows clean retrofit of SeaStar helm where following helms were previously installed: pre-1991 SeaStar, SyTen, H-50 and H-80, or mechanical rotary steering. (Not for BayStar.)

The 20° Dash Mounting Wedge Kit (HA5419) allows a SeaStar helm to be mounted 20° from perpendicular in any or four configurations. (Not for BayStar.)

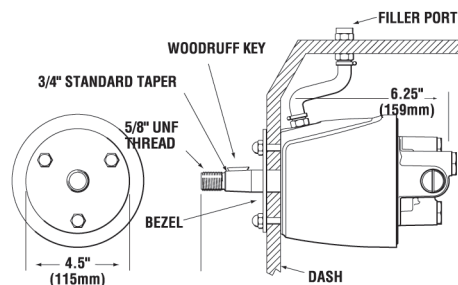
SeaStar Front Mount Helm

(mounts on front of dash)

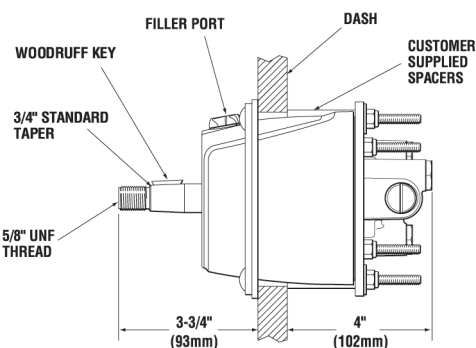


SeaStar Rear Mount Helm

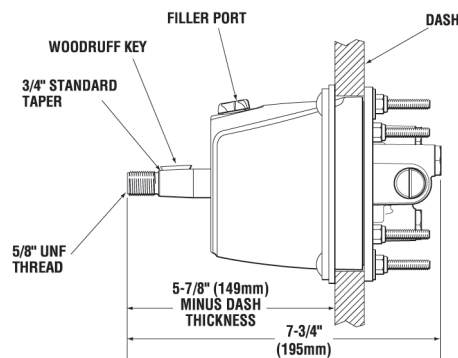
(mounts behind dash)



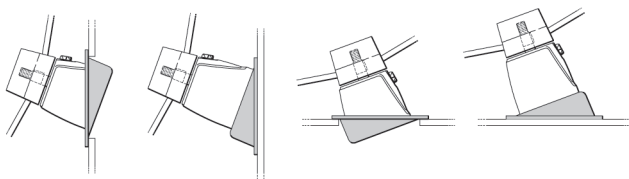
SeaStar Helm Mounting Kits: HA5478 Round Bezel Kit



HA5418 Back Plate Kit



HA5419 20° Dash Wedge Kit



NOT FOR USE WITH BAYSTAR HELMS

HYDRAULIC CYLINDERS

BayStar Outboard Cylinders

This balanced cylinder features a compact design that fits most splashwells. BayStar allows you to install all of the safety, reliability and comfort of hydraulic steering onto your boats rated up to MAX. 150HP. Combine this with the superior design, rigid ISO quality control, the finest materials and precision manufacturing—BayStar continues the tradition bringing comfort and safety to boating.

DESCRIPTION	PART NO.
Outboard Compact Cylinder	HC4645-3
Outboard Compact Cylinder - Honda	HC4647-3
Outboard Compact - short plate	HC4648-3
Outboard Compact Cylinder	HC4658-3



NOTE: Mercury Optimax should use SeaStar cylinders. Not recommended for use on high performance engines.

SeaStar Front Mount Outboard Cylinders

SeaStar Outboard Hydraulic Steering offers three models of steering cylinders to suit most applications. The standard and most commonly used model is the Front Mount Steering Cylinder HC5345-3/47/48/58. Before ordering it is necessary to determine the best possible application for your boat, taking into account the hull design, speed and usage of the boat. Keep in mind that engines today have become larger, more powerful and heavier than in the past.

DESCRIPTION	PART NO.
Outboard FM Cylinder	HC5345-3
Outboard FM Cylinder (Honda)	HC5347-3
Outboard FM Cylinder	HC5348-3
Outboard FM Cylinder	HC5358-3

NEW LOOK

- Updated styling & branding
- Robust barrel



ORB FITTINGS

- Adjustable stainless steel O-ring seal (ORB) fittings

NEW SEALING SYSTEM

- State of the art proprietary seal material
- Similar to Tournament 2
- Excellent resistance to compression set
- 8 hole end gland design for improved serviceability

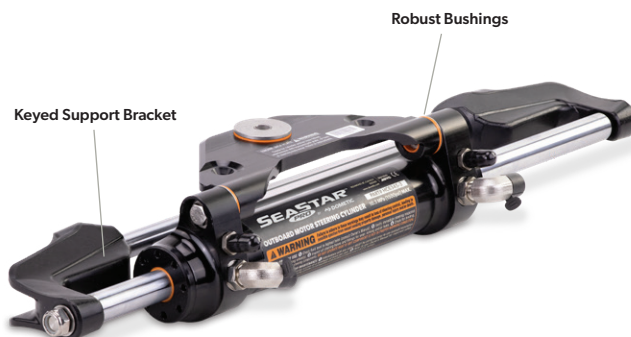
Want precise control of engine trim without taking your hands off the wheel? Check out our Pro-Trim on page 168-169.

SeaStar PRO Front Mount Outboard Cylinders

The SeaStar PRO Front Mount Outboard Cylinders have keyed support brackets to prevent racking of the cylinder which gives it a more solid feel and more robust bushings.

These cylinders are suited for all those critical high speed, single powered outboard boats, like Bass, Flats, combo Race/Ski and other performance orientated boats capable of speeds in excess of 65mph. All SeaStar PRO systems require the use of a SeaStar PRO helm and SeaStar PRO (1500psi) reinforced Kevlar hoses only!

DESCRIPTION	PART NO.
O/B Pro FM PP Cylinder	HC6345-3
O/B Pro FM PP Cylinder	HC6358-3



Keyed Support Bracket

Robust Bushings

HYDRAULIC CYLINDERS

SeaStar Commercial Grade Outboard Cylinder

The SeaStar commercial grade steering cylinder is a direct replacement for vessels or applications using the current HC5345-3 cylinder. Enhanced features and improved salt water corrosion resistance make it commercial grade.

DESCRIPTION	PART NO.
O/B Commercial Grade Steering Cylinder	HC5345-3CM

NOTE: If you require assistance with applications, parts or information please contact Dometic Technical Support.



SeaStar Tournament Series Cylinders



Extreme heavy duty cylinders and tie bars designed for primarily high performance multiple engine applications. Also available for single engine applications. This heavy duty universal cylinder features reversible bolt on stainless steel tie bar plates that are suitable for use with all SeaStar Helms and SeaStar Power Assist.

DESCRIPTION	PART NO.
Outboard Tournament Series Cylinder, Front Mount	HC6845
Outboard Tournament Series Cylinder, Front Mount, c/w Single Engine Hardware Kit	HC6845S

SeaStar Side Mount Outboard Cylinders

This cylinder is suitable for installation in shallow splashwells and use on engines fitted with power steering. This unbalanced cylinder is 4.8/5.7 turns lock-to-lock. Typical applications include center console fishboats and cruisers. For single and multiple outboard engine installations with total power to 600 HP in counter rotating application. **NOTE: Not for use with SeaStar PRO helms.**

DESCRIPTION	PART NO.
O/B Cylinder Kit, Side Mount, Unbalanced	HC5370-3



HYDRAULIC CYLINDERS

SeaStar Splashwell Mount Outboard Cylinders

This cylinder is a light duty alternative to front & side mount cylinders. It is unbalanced with 5.5/6.5 turns lock-to-lock and fits engines with/without support (steering) tube. The splashwell mount cylinder is for single & multiple engine capability and has total power to 600 HP in counter rotating application. It can be transom or hull mounted.

NOTE: Not for use with SeaStar PRO helms.



DESCRIPTION	PART NO.
Outboard Splashwell Mount Cylinder	HC5380-3

SeaStar Catamaran Cylinders

OUTBOARD CYLINDER

This SeaStar Front Mount Pivot Cylinder is for Catamaran designs. This cylinder will fit ALL engines that require HC5375-3 steering cylinder. The internal o-ring is designed to limit the amount of fluid bypass decreasing the amount of re-alignment. This cylinder is best used in applications that require a liquid tie bar.

NOT recommended for single engine applications.



HC5375-3
PICTURED

DESCRIPTION	PART NO.
Catamaran Outboard Front Mount C/W Rodend	HC5375-3
Catamaran Inboard Cylinder	HC5314-3
Catamaran Inboard Cylinder	HC5319-3



HYDRAULIC CYLINDERS

SeaStar Inboard Cylinders

These cylinders are for single and dual rudder vessels with two axis articulation and easy autopilot interface. Cylinders are also supplied with bleeder fittings.

DESCRIPTION	PART NO.
SeaStar Cylinder, BA125 ATM, Inboard Type	HC5312-3
SeaStar Cylinder, BA135 ATM, Inboard Type	HC5313-3
SeaStar Cylinder, BA150 ATM, Inboard Type	HC5314-3
SeaStar Cylinder, BA175-7TM, Inboard Type	HC5319-3
SeaStar Cylinder, BA1.75" x9TM, Inboard Type	HC5373-3



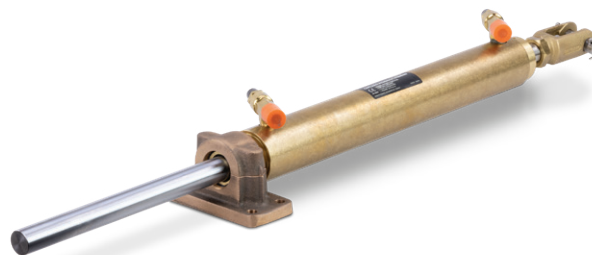
FEATURES:

- All anodized aluminum construction
- Adjustable o-ring sealed ports
- Common components (i.e. end glands, pistons, seals)

Capilano Inboard Cylinders

A wide choice of cylinder configurations make it easy to spec a system which can handle a variety of large boat performance requirements and accommodate most user preferences. Heavy duty brass cylinders. Two-axis articulation. Easy installation for single or dual rudder vessels.

DESCRIPTION	PART NO.
Cyl BA 200-7 TMB Bronze - Brass, Rod end ball joint type	HC5351
Cylinder BA 200-7 TMC, Rod end clevis type	HC5357
Cylinder BA200-11TMB	HC5378
Cylinder BA200-11 TMC	HC5379



FEATURES:

- All anodized aluminum construction
- Adjustable o-ring sealed ports
- Common components (i.e. end glands, pistons, seals)

Inboard Cylinder Updates

CYLINDER TO BE OBSOLETE		REPLACEMENT
HC5318	BA150-7 TM	HC5312-3
HC5319	BA175-7 TM	HC5313-3
HC5319-A	BA175-7 TM	HC5314-3
HC5349	BA150-7 TM c/w Tees	HC5319-3
HC5350	BA175-7TM c/w Tees	HC5373-3
HC5355	BA150-7 TM Clevis/Tee	

CYLINDER TO BE OBSOLETE		CYLINDER REPLACEMENT
HC5356	BA175-7TM Clevis/Tee	HC5319-3
HC5369	BA150-9TM	HC5373-3
HC5373	BA175-9TM c/w Tees	HC5373-3
HC5318CAT	BA150-7 TM Catamaran	HC5319-3 or HC5314-3
HC5319CAT	BA175-7TM Catamaran	HC5319-3

SeaStar Sterndrive Cylinders

This cylinder fits most most power and non-power assist sterndrives. It can be used on single and multiple drives with multiple steering station connection. This cylinder features simple autopilot interface.

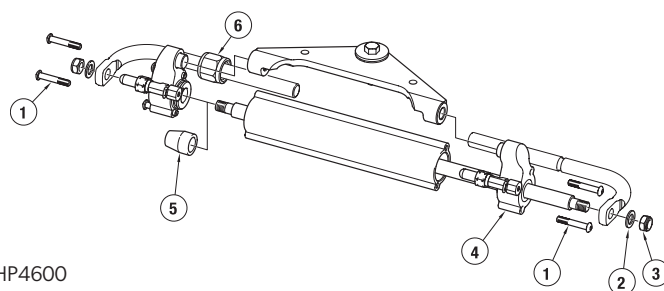
DESCRIPTION	PART NO.
SeaStar Cylinder, BA 150-7EM, Sterndrive Type	HC5326-3
SeaStar Cylinder, 125-8VEM	HC5329-3
SeaStar Cylinder, BA 135-8EM, Sterndrive Type	HC5327-3
SeaStar Cylinder, 125-8EM	HC5328-3
SeaStar Cylinder, BA125-8EMV, Sterndrive Type	HC5330-3
SeaStar Cylinder, I/O Model 92VPS	HC5331-3
SeaStar Cylinder, Stern Drive (Mercruiser & Volvo SX nonPA)	HC5332



OUTBOARD CYLINDER SERVICE PARTS

BayStar Cylinder HC46_ _ (HC4645H, HC4647H, HC4648H, HC4658H) Service Kits

DESCRIPTION	ITEM	QTY	PART NO.
Socket Head Screw - Bracket	1	4	HP4600
Locknut	2	2	HP6050
Washer	3	2	HP6050
Gland End/Bracket, Right Side	4	1	HP4600
Gland End/Bracket, Left Side		1	HP4600
Seal Gland Assembly Guide Tool	6	1	HP4600
Nut - Support Rod	6	1	HP6050
Bleed - Tube Fitting	7	2	HF4202



HP4600
Seal Kit

Individual part numbers cannot be ordered at this time. All parts are only available in kit form.

BayStar Cylinder HC4600

(Cylinder Not Shown)

HC4600 & HC4600H are obsolete. ONLY seal kits are available.
GLAND KIT 'A' (HP5607) PORT SIDE KIT

INCLUDES ITEMS AS FOLLOWS:

Complete assembled end gland with replacement retaining wire

GLAND KIT 'B' (HP5608) STARBOARD SIDE KIT

INCLUDES ITEMS AS FOLLOWS:

Complete assembled end gland with replacement retaining wire.

HP5607

PORT SIDE GLAND

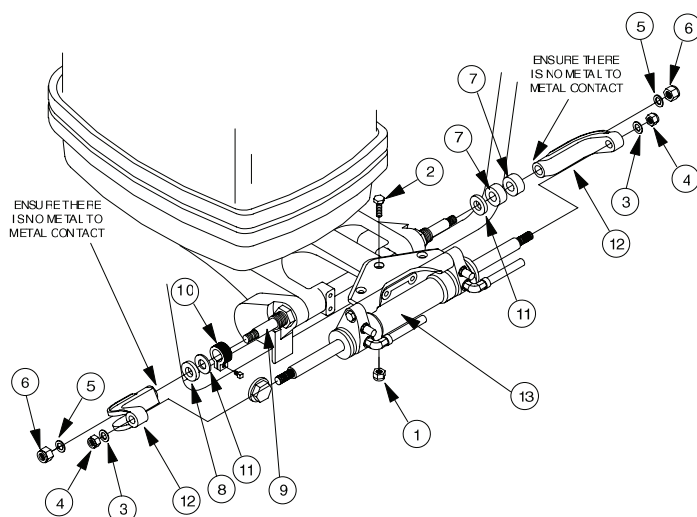


HP5608
STARBOARD
SIDE GLAND

SeaStar Pivot Mount Parts

The pivot front mount cylinder (P/N HC5345-3) fits most single-engine applications without requiring additional connection hardware.

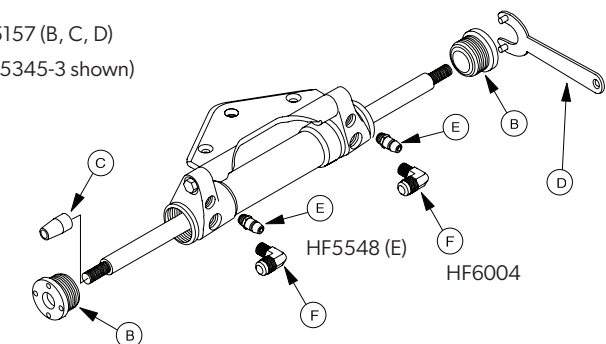
DESCRIPTION	ITEM	QTY	PART NO.
Nut 3/8" NF Nylock S.S.	1	1	HA5822
Screw 3/8" x 1-1/4" Hex Head S.S.	2	1	HA5822
Washer 7/16" dia. S.S.	3	2	HP6036
Nut 7/16" NF Nylock S.S.	4	2	HP6036
Washer 1/2" dia. S.S.	5	2	HP6036
Nut 1/2" NF Nylock (nickel plated brass)	6	2	HP6036
Spacer (Thick)	7	2	HP6031
Spacer (Thin)	8	1	HP6031
Support Rod	9	1	HP6016
Adjusting Nut & Screw	10	1	HP6031
Washer 5/8" dia. S.S.	11	2	HP6031
Support Bracket	12	2	HP6018



HC5345-3 CYLINDER PARTS

STEERING SERVICE PARTS: SEASTAR FRONT MOUNT PARTS

HS5157 (B, C, D)
(HC5345-3 shown)



Front Mount Cylinder Seal Kit

(HS5157) Replacement front seal for kit for SeaStar pivot/front mount cylinders. Includes 2 seal glands, pin wrench and guide tool. Available separately: (B) Seal Gland, (C) Seal Gland Assembly Guide Tool, (D) Pin Wrench. (Includes items B, C & D in illustration.)
Note: HS5167 ships without wrench

Front Mount Cylinder Elbow Fitting

(HF6004) Elbow fitting for HC5345-3/HC5347-3/HC5348-3/HC5358-3/HC5445-3 SeaStar front mount cylinder. (Item F in illustration.)

NOTICE: NOT for use with ANY -3 steering cylinder (i.e. HC5345-3). -3 steering cylinders use HF6004.

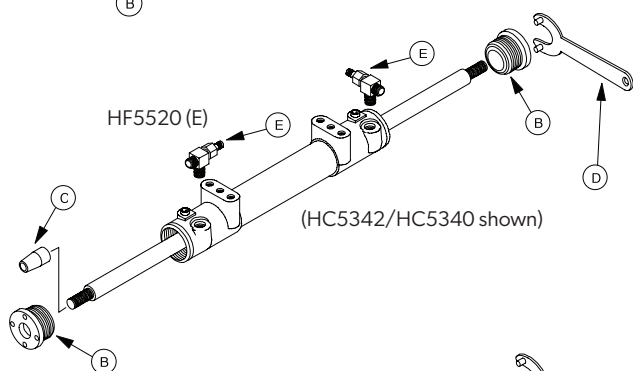
Front Mount Cylinder Bleed Fitting

(HF5548) (formerly 828980) Contains: 2 bleed fittings, 2 o-rings and 2 soft caps for applicable cylinders: HC5345-3/HC5347-3/HC5348-3/HC5358-3/HC5445-3.

(Note: Soft caps for item E not shown in illustration.)

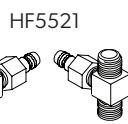
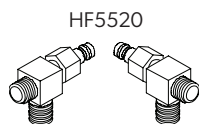
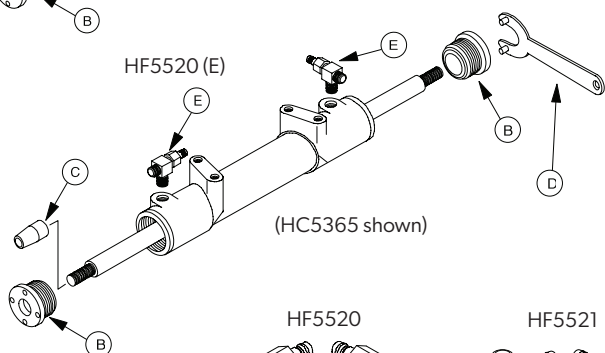
HF5520 (E)

(HC5342/HC5340 shown)



HF5520 (E)

(HC5365 shown)



Cylinder Bleeder Tee Fitting Set

(HF5520) Pair of bleeder tee fittings for older-style standard and compact SeaStar front mount cylinders (HC5342/HC5340/HC5365), side mount cylinders (HC5370), and splashwell mount cylinders (HC5380).

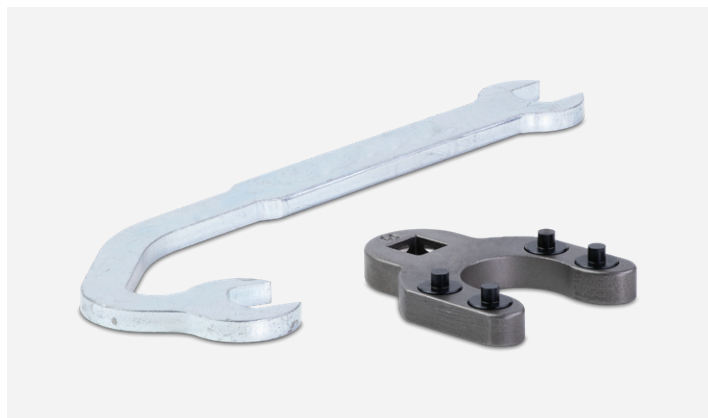
NOTICE: NOT for use with ANY -3 steering cylinder (i.e.. HC5370-3. -3 steering cylinders use HF6002.

Vertical Bleeder Fitting Set (HF5521)

Pair of 90° fittings with integrated vertical bleeders for use where clearances are tight.

HS5300 HEAVY DUTY CYLINDER SERVICE KIT

END GLAND / BLEEDER WRENCH SERVICE KIT



The End Gland / Bleeder Service Kit is designed to make servicing the hydraulic cylinder easier. This is a perfect tool kit for a dealer mechanic who works on SeaStar steering systems on a regular basis.

Features:

- Heavy-Duty bleeder wrench designed to reach cylinder bleeder fittings in tight spaces
- Heavy-Duty end gland pin wrench intended to easily remove end gland during servicing. Adaptable to fit 4-hole and 8-hole end glands
- Kit includes bleeder wrench, end gland wrench pin and instruction sheet
- Saves you money as you can now purchase the service kits without the older 2 pin wrenches

TOURNAMENT DRIVE BRACKET KIT

Tournament Drive Bracket Kit & Adjustable Tie Bar

The Tournament Drive Bracket kit is for use with our Adjustable Tie Bars on standard SeaStar steering cylinders. This new series of hardware kits will allow the consumer to take full advantage of all the features and benefits of our heavy-duty adjustable tie bar products for twin engine applications up to 600 HP.

Features:

- Meets/exceeds all applicable standards
- Designed and assembled in North America.
- Utilizes proven Tournament series adjustable tie bars
- Anodized aluminum adjustable tie bar with built in maximum stroke indicator
- High strength forged aluminum drive bracket
- Eliminates the need for cut-to-length traditional tie bars



Twin Engine – Single Cylinder (HA5521)

Twin Engine – Single Cylinder (HA5522)

Twin Engine – Dual Cylinder (HA5520)

SEASTAR TWIN ENGINE TOURNAMENT TIE BAR APPLICATION GUIDE

APPLICATION GUIDE						
Engine/Cylinder Configuration	Hardware Kit		Tie Bar		Part No.	Qty
	Part No.	Qty	Engine Center to Center Distance (inches)	Engine Center to Center Distance (mm)		
Twin Engine Single Cylinder (STBD)	HA5521	1	25.0 - 25.7	635 - 653	HO6821	1
	HA5521	1	25.8 - 30.7	655 - 780	HO6822	1
	HA5521	1	30.8 - 39.3	782 - 998	HO6823	1
	HA5521	1	39.4 - 54.5	1000 - 1384	HO6824	1
	HA5522	1	25.0 - 26.2	635 - 667	HO6821	1
	HA5522	1	26.3 - 31.2	668 - 794	HO6822	1
	HA5522	1	31.3 - 40.0	795 - 1016	HO6823	1
	HA5522	1	40.1 - 55.0	1017 - 1397	HO6824	1
Twin Engine Dual Cylinder	HA5520	1	28.0 - 29.0	771 - 737	HO6819	1
	HA5520	1	29.1 - 30.6	739 - 777	HO6820	1
	HA5520	1	30.7 - 33.4	779 - 848	HO6821	1
	HA5520	1	33.5 - 38.4	850 - 975	HO6822	1
	HA5520	1	38.5 - 47.1	977 - 1196	HO6823	1
	HA5520	1	47.2 - 62.2	1199 - 1580	HO6824	1



OUTBOARD

HYDRAULIC STEERING SYSTEMS



BAYSTAR OUTBOARD STEERING



COMPLETE SYSTEMS

BayStar Steering Kit (20' tubing run)	HK4200A-3
BayStar Steering Kit (30' tubing run)	HK4230A-3
BayStar Steering Kit (Without tube)	HK4300A-3
BayStar Plus Steering Kit (Without tube)	HK4500A-3

Components

BayStar 1.4 Front Mount Helm	HH4314-3
BayStar Compact Cylinder	HC4645-3
BayStar Compact Cylinder	HC4647-3
BayStar Compact Cylinder	HC4648-3
BayStar Compact Cylinder	HC4658-3
HK4200 Tubing (2 x 20' lengths)	HT4420-3
HK4230 Tubing (2 x 30' lengths)	HT4430-3
SeaStar Oil (1 Quart)	HA5430 (x2)
BayStar Filler Kit (Ships with Steering Kit)	HA5438

Options

BayStar 1.1 - Front Mount Helm	HH4311-3
BayStar 1.4 - Sport Tilt Helm	HH4315-3
BayStar Plus Tilt	HH4316-3

Service Items

Helm Service Kit Comes with wheel shaft nut, key, shaft seal & seal plate	HP6032
Cylinder Support Rod Kit (ships with 2 rods, nut and clip)	HP6050
Cylinder Tee/Bleeder Fitting	HF4202
Cylinder Tiller Bushing Kit	HA5820

Note: SeaStar Outboard Steering hoses (Part No. HO51xx) can be used to plumb a BayStar Steering System and provide 20% less effort.

System Overview:

With mechanical steering you sacrifice a degree of comfort. Traditional hydraulic systems may be more than is needed on lower horsepower outboard engines. Built in the tradition of SeaStar, BayStar brings the same efficiency and durability you would expect from Dometic Hydraulic steering to smaller outboards up to 150 HP. A compact form and affordable price make it an ideal upgrade for mechanically steered boats up to 150 total HP.

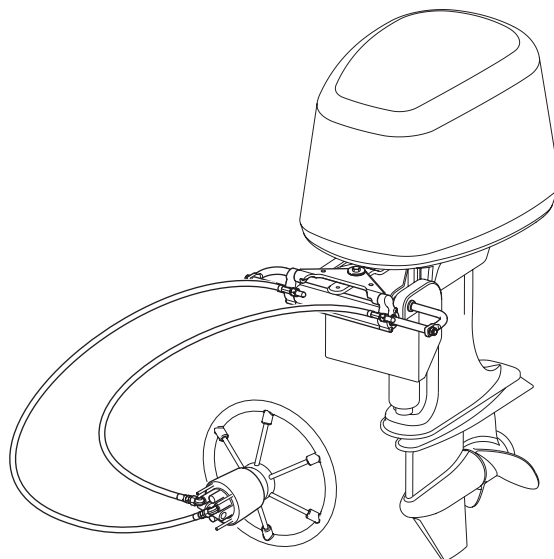
Applications:

BayStar is for single-outboard powered boats rated up to 150 HP, including runabouts and inflatables — and outboard engines with ABYC standard engine tilt tubes up to 150 HP (total). For single station, single engine use only.

BayStar is not intended for high speed, high performance type boats, such as Bass Boats.

Features:

- Designed just for smaller outboards.
- Low friction hydraulic steering system.
- 5.2 turns from lock-to-lock.
- Balanced cylinder, featuring a compact design that fits most splashwells and provides full engine movement.
- Optional five position tilt helm available.
- Compact helm has only a 5" footprint; needs only 3" dash hole (standard or Tilt).
- Packaged complete with helm, cylinder, fittings, tubing, oil, fill kit and detailed instructions.
- Standard 3/4" tapered steering shaft.
- Fast, easy installation.
- Meets A.B.Y.C. standards.
- Meets N.M.M.A. certification requirements.



WE RECOMMEND

The use of SeaStar Steering Fluid ONLY in our hydraulic steering systems. See page 84.

STEERING

HYDRAULIC STEERING / STEERING KITS / OUTBOARD

*BAYSTAR CYLINDER PIVOT PLATES

HC4645H compact cylinder is included in the BayStar steering kits. This cylinder can be converted to HC4658-3 by following instructions included with the product. If your engine requires use of a cylinder other than HC4645-3 or HC4658-3, please refer to the figure below for the appropriate replacement pivot plate, which must be purchased separately. NOTE: read and understand all related product instructions before performing any work on a hydraulic steering system.

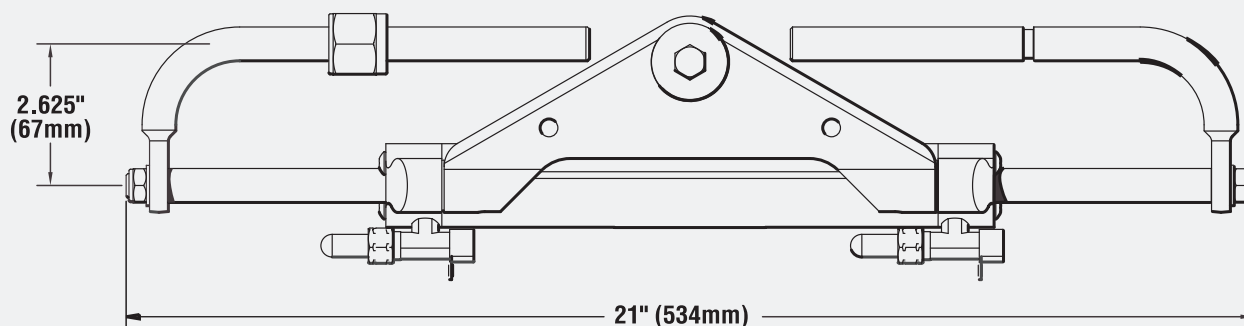


HA4641
(Install onto HC4645H
to make HC4647H)



HA4642
(Install onto HC4645H
to make HC4648H)

BAYSTAR CYLINDER DIMENSIONS: HC4645-3/HC4647-3/HC4648-3/HC4658-3



SEASTAR STEERING SYSTEM (FRONT MOUNT PIVOT CYLINDER)



System Overview:

Unmatched comfort and control. Only with SeaStar steering. The world's most popular outboard hydraulic system offers smooth, super-efficient steering for today's high performance hulls with single or multiple outboards up to 600 HP combined. It's the OEM Choice for center consoles, cruisers and more.

Applications:

Single and dual non-power-assisted outboard engines up to 350 HP (600 combined HP for counter-rotating duals) that have ABYC standard engine tilt tube.

Ideal for cruisers, runabouts, center console boats, offshore fishing boats and many more. Suitable for speeds up to 60 MPH and dual station use (with purchase of extra helm, hose & fittings). Allows independent engine tilt in dual engine installations. Dual engines require purchase of a tie bar kit and extra hardware.

Features:

- Patented steering lock valves
- Low friction hydraulic steering system
- 5 turns from lock-to-lock (single cylinder) when using 1.7 helms
- Compact helm has only a 4-7/16" footprint; needs only 3" dash hole (Tilt requires larger dash cut out)
- Packaged complete with helm, cylinder, fittings, oil, bleeder kit and detailed instructions
- Standard 3/4" tapered steering shaft
- Fast, easy installation
- Meets A.B.Y.C. standards
- Meets N.M.M.A. certification requirements

Service Items

Pivot Cylinder Support Bracket Kit	HP6014
Pivot Cylinder Spacer Kit	HP6033
Pivot Cylinder Elbow Hose Fitting Kit (for -3 cylinders only)	HF6004
Pivot Cylinder Mounting Hardware Kit	HP6036
Pivot Cylinder Seal Kit	HS5157
Pivot Cylinder Tiller Bushing Kit	HA5829

* Helms dated 2008-Earlier use

**The Commercial Helm Pumps are designed with a stainless steel shaft and heavy duty shaft seal and wiper.



WE RECOMMEND

The use of SeaStar Steering Fluid ONLY in our hydraulic steering systems. See page 84.

COMPLETE SYSTEMS

SeaStar 1.7 Steering Kit (with Hoses)	HK63XXA-3
SeaStar 1.7 Steering Kit (no Hoses)	HK6400A-3
SeaStar 1.7 Tilt Steering Kit (Classic)	HK6400TC-3
SeaStar 1.7 Tilt Steering Kit (Sport)	HK6400TS-3

Components

SeaStar 1.7 - Front Mount Helm	HH5271-3
Pivot Mount Outboard Cylinder (Black)	HC5345-3/58-3
SeaStar Hose Kit (2 hoses) (Not included in HK6400A-3)	HO51xx
SeaStar Oil (1 Quart)	HA5430 (x2)

Options

SeaStar 1.7 - Front Mt. Commercial Helm	HH5217-3**
SeaStar 1.7 - Rear Mount Helm	HH5261-3
SeaStar 1.7 - Sport Tilt Helm	HH6191-3
SeaStar 1.7 - Classic Tilt Helm	HH6541-3
SeaStar 1.7 - Sport Plus Tilt Helm	HH6491-3
SeaStar 2.4 - Front Mount Helm	HH5272-3
SeaStar 2.4 - Front Mt. Commercial Helm	HH5224-3
SeaStar 2.4 - Sport Tilt Helm	HH6192-3
SeaStar 2.4 - Classic Tilt Helm	HH6542-3
Power Assist, 15' Harness	PA1200-2
Pivot Mount Cylinder — Pro (Black)	HC6345-3
SeaStar Round Bezel Kit	HA5478*
SeaStar Backplate Kit	HA5418
SeaStar 20° Dash Wedge Kit	HA5419
SeaStar Bulkhead Hose Kit (2 hoses)	HO81xx
SeaStar Twin Engine Tie Bar Kit	HO6xxx
Add-A-Station/Autopilot Fitting Kit	HF6007

SEASTAR PRO STEERING SYSTEM (FRONT MOUNT CYLINDER)



System Overview:

The ultimate steering for high speed single outboards, SeaStar PRO, is designed for the high speed and performance of today's top-end bass boats. Recommended for single outboards up to 350 HP (even with jackplates and performance props), SeaStar PRO has steered the Bassmaster Classic® since 1994 and it's the choice of high performance outboard boatbuilders.

Applications:

SeaStar PRO is for high-performance boats with single non-power-assisted outboards up to 300 HP, especially those capable of speeds over 60 MPH, which demand maximum steering control and comfort. It is suitable for use with high-performance propellers and jack plates.

COMPLETE SYSTEMS

SeaStar PRO Steering System, 14 Ft Pro Hoses	HK7514A-3
SeaStar PRO Steering System, 16 Ft Pro Hoses	HK7516A-3
SeaStar PRO Steering System, 18 Ft Pro Hoses	HK7518A-3
SeaStar PRO Steering System, 20 Ft Hoses	HK7520A-3
SeaStar PRO Steering System, 22 Ft Hoses	HK7522A-3
SeaStar PRO Steering System, 24 Ft Hoses	HK7524A-3
SeaStar PRO Steering System, No Hoses	HK7500A-3

Components

SeaStar PRO 2.0 - Front Mount Helm	HH5770-3
Pivot Mt. Cylinder — PRO (Black)	HC6345-3
SeaStar PRO Hose Kit (2 hoses)	HO57xx
SeaStar Oil (1 Quart)	HA5430 (x2)

Options

SeaStar PRO 1.7 - Front Mount Helm	HH5779-3
SeaStar PRO 2.0 - Sport Tilt Helm	HH6190-3
SeaStar PRO 2.0 - Classic Tilt Helm	HH6574-3
SeaStar PRO 2.4 - Front Mount	HH5772
PRO Power Assist	PA1315-2
SeaStar Round Bezel Kit	HA5478
SeaStar Backplate Kit	HA5418
SeaStar 20° Dash Wedge Kit	HA5419
Pro Bulkhead Hose Kit (2 hoses)	HO82xx

Features:

- Patented steering lock valves.
- Low friction hydraulic steering system.
- 4.25 turns from lock-to-lock.
- Compact helm has only a 4-7/16" footprint — needs only 3" dash hole (Tilt requires larger hole).
- Optional PRO Cylinders with longer shaft bushings and larger pivot bushings for an even more solid feel!
- Optional hoses with through-bulkhead fittings; multiple helm mounting options
- Factory swaged hoses are Kevlar® reinforced.
- Packaged complete with helm, cylinder, fittings, oil, bleeder kit and detailed instructions.
- Standard 3/4" tapered steering shaft.
- Fast, easy installation.
- Meets A.B.Y.C. standards.
- Meets N.M.M.A. certification requirements.

Service Items

Helm Service Kit - Wheel Shaft Nut, Key, Shaft Seal & Seal Plate	HP6032
Keyed Support Rod	HP6111
Keyed Support Bracket	HP6101



WE RECOMMEND

The use of SeaStar Steering Fluid ONLY in our hydraulic steering systems. See page 84.

SEASTAR PRO LOCK VALVE SYSTEM

SeaStar Pro's unique valve system keeps pressures in the two hydraulic lines about equal, so the wheel feels solid and sure at all times.

SeaStar Pro is the only hydraulic steering system uniquely designed to give you maximum steering comfort and control of your high-performance bass boat.

SeaStar Pro has been installed on premium bass boats as original equipment for many years. It's the ideal upgrade for twin-cable mechanical steering.

Want precise control of engine trim without taking your hands off the wheel? Check out our Pro-Trim on page 168.



PT2000-2P (pictured)



SEASTAR OUTBOARD STEERING SYSTEM (SPLASHWELL MOUNT)



(Splashwell Mount)

COMPLETE SYSTEMS	
System components sold separately. See application and ordering guides to select appropriate components.	
Components	
SeaStar 1.7 Helm	HH5271-3
Splashwell Mount Outboard Cylinder	HC5380-3
Hose Kit (2 hoses)	HO51xx
SeaStar Oil (1 Quart)	HA5430
Options	
SeaStar 1.7 - Front Mount Commercial Helm	HH5217-3**
SeaStar 1.7 - Rear Mount Helm	HH5261-3
SeaStar 1.7 - Sport Tilt Helm	HH6191-3
SeaStar 1.7 - Classic Tilt Helm	HH6541-3
Power Assist, 15' Harness	PA1200-2
SeaStar Round Bezel Kit	HA5478
SeaStar Backplate Kit	HA5418
SeaStar 20° Dash Wedge Kit	HA5419
SeaStar Bulkhead Hose Kit (2 hoses)	HO81xx
SeaStar Twin Engine Tie Bar Kit	HO5010
Add-A-Station/Autopilot Fitting Kit	HF6007
Service Items	
Cylinder seal kit	N/A
Cylinder tee/bleeder hose fitting	HF6002
** Stainless steel shaft/robust shaft seal area	



WE RECOMMEND
The use of SeaStar Steering Fluid ONLY in our hydraulic steering systems. See page 84.

System Overview:

A Very Economical Hydraulic Steering Alternative, SeaStar splashwell mount steering is ideal for engines which do not have threaded engine tilt tubes (cannot use front or side mount cylinders). The splashwell mount cylinder typically attaches to an anchor point on or near the inside of the boat's transom.

Applications:

An ideal hydraulic steering solution for engines without tilt tubes.

Single and dual non-power-assisted outboard engines up to 300 HP (600 combined HP for counter-rotating duals).

Suitable for speeds up to 60 MPH and dual station use (with purchase of extra helm, hose & fittings). Dual engines require purchase of a tie bar kit and extra hardware. Not suitable for engines fitted with factory power steering.

Features:

- Ideal for outboard engines which do not have a tilt tube.
- Design allows wide variety of mountings.
- Light duty alternative to front mount cylinder where space allows.
- Suitable for installation in shallow splashwells.
- 5.5/6.5 turns lock-to-lock using SeaStar 1.7 helm (unbalanced cylinder).
- Compact helm has only a 4-7/16" footprint — needs only 3" dash hole (Tilt requires larger hole).
- Standard 3/4" tapered steering shaft.
- HC5380-3 features a compact 9" stroke for tight applications.
- Meets A.B.Y.C. standards.
- Meets N.M.M.A. certification requirements.

UPGRADE WITH SEASTAR POWER ASSIST



SEASTAR OUTBOARD STEERING SYSTEM (SIDE MOUNT CYLINDER)



(Side Mount)

COMPLETE SYSTEMS

System components sold separately. See application and ordering guides to select appropriate components.

Components

SeaStar 1.7 Helm	HH5271-3
Side Mount Outboard Cylinder	HC5370-3
Hose Kit (2 hoses)	HO51xx
SeaStar Oil (1 Quart Mil Spec H5006)	HA5430

Options

SeaStar 1.7 - Front Mt. Commercial Helm	HH5217-3**
SeaStar 1.7 - Rear Mount Helm	HH5261-3
SeaStar 1.7 - Sport Tilt Helm	HH6191-3
SeaStar 1.7 - Classic Tilt Helm	HH6541-3
SeaStar 2.4 - Front Mount Helm	HH5272-3
SeaStar 2.4 - Front Mt. Commercial Helm	HH5224-3
SeaStar 2.4 - Sport Tilt Helm	HH6192-3
SeaStar 2.4 - Classic Tilt Helm	HH6542-3
Power Assist, 15' Harness	PA1200-2
SeaStar Round Bezel Kit	HA5478
SeaStar Backplate Kit	HA5418
SeaStar 20° Dash Wedge Kit	HA5419
SeaStar Bulkhead Hose Kit (2 hoses)	HO81xx
SeaStar Twin Engine Tie Bar Kit	HO5009
Add-A-Station/Autopilot Fitting Kit	HF6007

Service Items

Cylinder seal kit	HP6088
Cylinder tee/bleeder hose fitting	HF6002
Extension rod/pin kit	HP6055

**Stainless steel shaft/robust shaft seal area

System Overview:

A great alternative for wide, shallow splashwells. SeaStar side mount steering is a good choice for engines with threaded tilt tubes that comply with ABYC P17/NMMA/BIA standards for mechanical steering. The cylinder attaches to an engine tilt tube which meets the above standards.

APPLICATIONS:

Single and dual non-power-assisted outboard engines up to 300 HP (600 combined HP for counter-rotating duals) that have standard engine tilt tube.

Suitable for speeds up to 60 MPH and dual station use (with purchase of extra helm, hose & fittings).

Dual engines require purchase of a tie bar kit and extra hardware. For power steered engines, contact Dometic Technical Service.

FEATURES:

- Drag link design fits most engines with threaded tilt tubes. Fast, easy installation.
- Alternative to front mount cylinder where space allows, especially useful in boats with shallow splashwells.
- Suitable for use on engines with power steering.
- 4.8/5.7 turns lock-to-lock using SeaStar 1.7 helm (unbalanced cylinder).
- Compact helm has only a 4-7/16" footprint — needs only 3" dash hole (Tilt requires larger hole).
- Standard 3/4" tapered steering shaft.
- Meets A.B.Y.C. standards.
- Meets N.M.M.A. certification requirements.



WE RECOMMEND

The use of SeaStar Steering Fluid ONLY in our hydraulic steering systems. See page 84.

UPGRADE WITH SEASTAR POWER ASSIST



INBOARD & STERNDRIVE

HYDRAULIC STEERING SYSTEMS



SEASTAR STERNDRIVE STEERING



COMPLETE SYSTEMS

System components sold separately. See application and ordering guides to select appropriate components.

Components

SeaStar 1.7 - Front Mount Helm	HH5271-3
Sterndrive Cylinder Cylinder part numbers vary, see application chart	HC53xx-3

Hose Kit (2 hoses)	HO51xx
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SeaStar Oil (2 Quarts)	HA5430
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Options

SeaStar 1.7 - Front Mt. Commercial Helm	HH5217-3
SeaStar 1.7 - Rear Mount Helm	HH5261-3
SeaStar 1.7 - Sport Tilt Helm	HH6191-3
SeaStar 1.7 - Classic Tilt Helm	HH6541-3
SeaStar 2.0 - Front Mount Helm	HH5273-3
SeaStar 2.4 - Front Mount Helm	HH5272-3
SeaStar 2.4 - Front Mt. Commercial Helm	HH5224-3
SeaStar 2.4 - Rear Mount Helm	HH5262-3
SeaStar 2.4 - Sport Tilt Helm	HH6192-3
SeaStar 2.4 - Classic Tilt Helm	HH6542-3
SeaStar Round Bezel Kit	HA5478
SeaStar Backplate Kit	HA5418
SeaStar 20° Dash Wedge Kit	HA5419
SeaStar Bulkhead Hose Kit (2 hoses)	HO81__
Add-A-Station Kit (Nylon/Copper Tube)	HF6010
Add-A-Station Kit (Hose)	HF6007
3/8" Tubing (see ordering guide)	HT5xxx

Service Items

SeaStar Oil (1 Qt.)	HA5430
Helm Service Kit	HP6032

System Overview:

SeaStar Sterndrive Steering is the best choice for non-power assisted sterndrives. The system is based upon the SeaStar helm family, which allows for dual station and autopilot use. Cylinders are specific to drive brands and models.

Applications:

Ideal for most sterndrives, especially non-power-assisted units, SeaStar is suitable for single and multiple drives and dual stations.

Features:

- Best and Most Economical autopilot interface for sterndrives! Easy installation.
- Simple multiple steering station connection.
- Optional SeaStar 2.0 & 2.4 helms for quicker steering response.
- Standard 3/4" tapered steering shaft.
- Fast, easy installation.
- Meets A.B.Y.C. standards.
- Meets N.M.M.A. certification requirements.

SeaStar Autopilot Interface

SeaStar is the best steering choice to interface with most autopilots. If you are installing an autopilot on a mechanically steered boat, we recommend you upgrade to SeaStar for performance reasons. If you're upgrading to SeaStar, plan ahead: future installation of an autopilot or extra steering station can be simplified by installing two pairs of shorter hose kits. Connect them with union coupling fittings, part no. HF5527. Tee fittings can be installed with ease at a later date. Bulkhead union fitting kits are available to facilitate hose runs through transoms and splashwells:

HF5512 up to 3/4" (19mm) splashwell, 1 cylinder
 HF5513 up to 3" (76mm) transom, 1 cylinder
 HF5514 up to 3/4" (19mm) splashwell, 2 cylinders
 HF5515 up to 3" (76mm) transom, 2 cylinders

For an autopilot installation, a third (compensating) line must be installed and identified. (SeaStar helm ports marked "R" are for connection of additional helm and/or autopilot compensating lines.) Use HF6007 (outboards) or HF5502 (sterndrives and inboards) fitting kits when adding an autopilot to your SeaStar system.



WE RECOMMEND

The use of SeaStar Steering Fluid ONLY in our hydraulic steering systems. See page 84.

SEASTAR 2-LINE INBOARD STEERING



System Overview:

The most popular inboard hydraulic steering system offers unmatched comfort and control for today's inboards up to 50 feet. A wide range of helm and cylinder displacements covers most applications.

Applications:

Most inboard powered boats with single or dual engines: single engine planing/displacement hull craft from 26-44 feet; dual engine planing hull craft from 26-50 feet; dual engine displacement hull & sail craft from 26-44 feet. Suitable for dual station use with purchase of extra hardware.

Features:

- Low friction hydraulic steering system.
- Configurations for most inboards.
- Compact helm has only a 4-7/16" foot print — needs only 3" dash hole (Tilt requires larger hole).
- Standard 3/4" tapered steering shaft.
- Easy installation on single or dual rudders.
- Cylinders supplied with bleeder fittings.
- Regular duty aluminum or heavy duty brass cylinders. Two-axis articulation.
- Meets A.B.Y.C. standards.
- Meets N.M.M.A. certification requirements.
- Accepts steering wheels to 28" (20" for Tilt)

How to Spec a System:

1. From the application guide, select the System Number appropriate for the vessel based on:
 - a) hull type — displacement or planing;
 - b) length of vessel;
 - c) number of rudders; and
 - d) usage of vessel.
2. From the ordering guide select the appropriate helm and accessory hardware for each steering station.
3. Select fitting/hose kits required from the ordering guide.
4. Confirm that there is sufficient space available in the dash and engine compartment(s) for the steering components. Review helm and cylinder dimensions at the end of this section.



WE RECOMMEND

The use of SeaStar Steering Fluid ONLY in our hydraulic steering systems. See page 84.

COMPLETE SYSTEMS

System components sold separately. See application and ordering guides to select appropriate components.

COMPONENTS

SeaStar 1.7 - Helm	HH5271-3 or
SeaStar 2.4 Helm	HH5272-3
Inboard Cylinder	HC5313-3*
3/8" Tubing	HT5xx or copper
Fitting Kit (for Copper Tubing/1.7 helm)	HF5507
UnionHose Kit for Copper Tubing (2 hoses)	HF5508
SeaStar Oil	HA5430

OPTIONS

SeaStar 1.7 - Front Mt. Commercial Helm	HH5217-3
SeaStar 1.7 - Rear Mount Helm	HH5261-3
SeaStar 1.7 - Sport Tilt Helm	HH6191-3
SeaStar 1.7 - Classic Tilt Helm	HH6541-3
SeaStar 2.4 - Front Mt. Commercial Helm	HH5224-3*
SeaStar 2.4 - Sport Tilt Helm	HH6192-3*
SeaStar 2.4 - Classic Tilt Helm	HH6542-3*
SeaStar Round Bezel Kit	HA5478
SeaStar Backplate Kit	HA5418
SeaStar 20° Dash Wedge Kit	HA5419
Ball Joint Mount Cylinder (7 cu. in.)	HC5322-3
Ball Joint Mount Cylinder (9 cu. in.)	HC5323-3
Fixed Mount Cylinder (13.3 cu. in.) (two ball joint ends)	K-22
Add-A-Station/Autopilot Fittings Kit (Tube Only)	HF6010
Add-A-Station/Autopilot Fittings Kit (Tube Only)	HF6007
SeaStar Hose Kit (2 hoses)	HO51xx

SERVICE ITEMS

SeaStar Oil (1 Gallon)	HA5440
Steering Wheel Locknut	HP6032

* 2.4 helms require use of 3/8" copper, OR, SeaStar Steering hoses. Use of nylon tubing with a 2.4 helm may result in increased steering effort

CAPILANO 2-LINE HEAVY DUTY INBOARD STEERING



System Overview:

Uncompromising Design. Capilano steering stands for ruggedness and reliability worldwide. Helms include a variable displacement feature enabling the helmsman to adjust the number of steering wheel turns to suit maneuvering and weather conditions. Capilano systems install easily and give years of dependable service.

Applications:

Most inboard powered boats with single or dual engines including planing/displacement hull craft from 30-55 feet in length. Suitable for dual station use with the purchase of extra helm, tubing/hose & fittings. Capilano systems use Dexron II® type ATF fluid.

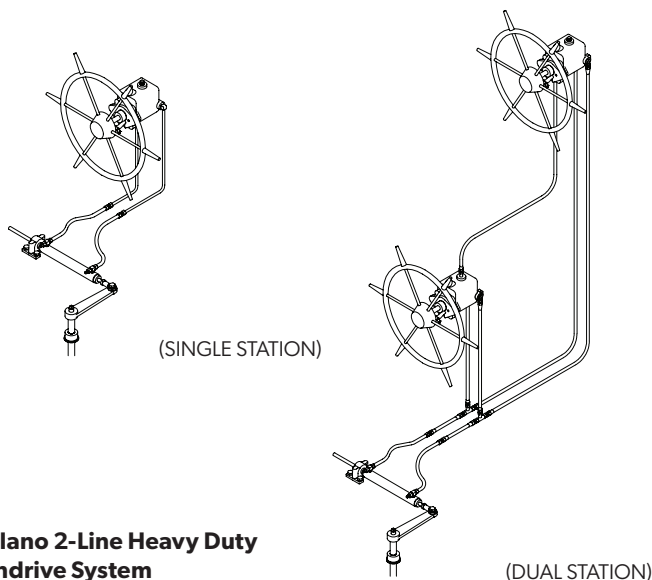
Features:

- Variable displacement helms for adjustable number of steering wheel turns.
- Heavy duty brass cylinders with bleed fittings; chrome-plated stainless steel rods.
- Stainless steel and bronze mounting hardware.
- Easy installation on single and dual rudder vessels.
- Systems are not air-pressurized; no air leaks or pressure drops; separate reservoir not needed.
- Built-in pressure relief in helm protects system from effects of thermal expansion.
- Standard 3/4" tapered steering shaft.
- Meets ABS/Lloyd/Det Norske Veritas specifications.



WE RECOMMEND

The use of SeaStar Steering Fluid ONLY in our hydraulic steering systems. See page 84.



Capilano 2-Line Heavy Duty Sterndrive System

(DUAL STATION)

COMPLETE SYSTEMS

System components sold separately. See application and ordering guides to select appropriate components.

Components

Capilano 1250V Helm	HH5250
Capilano 1275V Helm	HH5275
Inboard Cylinder BA200-7TM	HC5351
Copper Tubing	1/2" or 5/8" OD
Fitting Kit (for 1/2" Copper Tubing)	HF5590 or
Fitting Kit (for 5/8" Copper Tubing)	HF5592
Hose Kit for Copper Tubing (2 hoses)	HA5731
Capilano Steering Fluid	Dexron II® ATF

Options

Dual Cylinder Hose 2' (.6m)	HA5732
Dual Cylinder Hose 3' (.9m)	HA5733
Dual Cylinder Hose 4' (1.2m)	HA5734
Dual Cylinder Hose 5' (1.5m)	HA5735
Dual Cylinder Hose 6' (1.8m)	HA5736
Add-A-Station Fitting Kit (1/2" tubing)	HF5591
Add-A-Station Fitting Kit (5/8" tubing)	HF5593
Helm Remote Fill Kit (through-dash)	HA5450

Service Items

Steering Fluid	Dexron II® ATF
----------------	----------------

SEASTAR CATAMARAN HYDRAULIC SYSTEM

Dometic always recommends a mechanical tie bar between engines where possible. In applications where a mechanical tie bar cannot be fitted, it is recommended that you use a "Liquid Tie Bar Valve". This valve will serve two purposes; assisting with the air removal from the system and allows the user to re-align the engines when they come out of sync. Regardless of the application, a mechanical, or, liquid tie bar must be fitted. Due to the potential of leakage across the piston seals, use of standard SeaStar Outboard cylinders may require frequent engine realignment. If you must use a "Liquid Tie Bar", Dometic recommends that you order the following parts below. Doing so will decrease the amount of re-alignment required.

STEERING CYLINDERS



HA5471-2, LIQUID TIE BAR VALVE

This valve assists with air removal and re-alignment of the engines when required without having to break into the hydraulic system.

HC5375-3, CATAMARAN STEERING CYLINDER

The HC5375-3 steering cylinder has the same mounting and design properties as the HC5345-3 front mount cylinder. The internal piston seals are different. This difference decreases the amount of engine re-alignment that you may encounter.

SEASTAR PRO HELM

Use of a SeaStar PRO helm coupled with the HC5375-3 steering cylinders will drastically reduce the amount of engine realignment that you may encounter. For other engines not using the HC5345-3 please call Dometic Technical Service at 604-248-3858.

SEASTAR PRO HOSE (KEVLAR)

To further reduce engine misalignment, and increase system performance, Dometic recommends the use of SeaStar PRO steering hoses.

NOTICE:

Due to plumbing requirements, all "Liquid Tie Bar" systems should use a 1.4 cu.in. or 1.7 cu.in. helm pump. Even though there are physically two cylinders in the system, the total volume of the system is that of one cylinder. Use of a 2.4 helm will result in heavier steering effort.

NOTICE:

As with all other, high horsepower engines, SeaStar Power Assist is recommend to reduce steering effort.

NOTICE:

Bleeding of a "Liquid Tie Bar System" is different than a system fitted with a mechanical tie bar. Please refer to your Installation and Owner's Manual that is shipped with the liquid tie bar valve.

ALIGNMENT VALVE FOR HYDRAULIC TIE BAR (WHEN A MECHANICAL TIE BAR CANNOT BE USED)

The SeaStar Cylinder Alignment Valve (part # HA5471-2) will allow for the periodic required realignment of two outboard motors or rudders that are linked together with a Hydraulic Tie Bar as opposed to a solid link or a Mechanical Tie Bar.

A standard helm and SeaStar hoses may be used on vessels not exceeding speeds of 55 MPH. Boats exceeding 55 MPH must use the SeaStar PRO Helm Pump (part # HH5770) and SeaStar PRO Kevlar® Hoses.

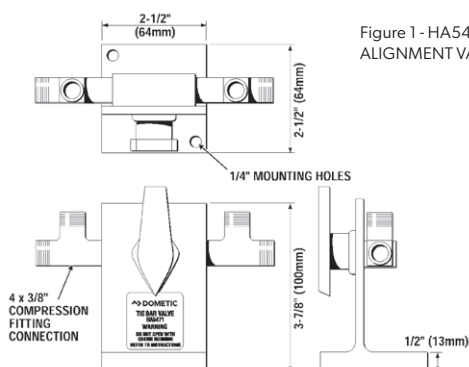


Figure 1 - HA5471-2 ALIGNMENT VALVE

TWO CONFIGURATIONS

There are three ways to steer dual engine pontoon boats and catamarans with SeaStar, summarized below in order of preference:



Pivot Mount

MECHANICAL TIE BAR SYSTEM

(PIVOT MOUNT OR SIDE MOUNT CYLINDERS REQUIRED)

Dual engines should be connected with a mechanical tie bar whenever possible. This is the preferred method. Single or dual cylinders (pivot or side mount) can be used depending on steering effort and mounting space.

HOW TO MEASURE HOSES FOR CATAMARANS & PONTOON BOATS

For a New Installation:

Measure Hose Routing Path in Boat as follows:

- A)** Center line of wheel to gunwale
- B)** Dash to transom
- C)** Gunwale to centerline of cylinder connection at centered tiller.

Outboard cylinders move with engine; enough slack must be left in hoses to prevent sharp bends (less than 3" radius) and/or kinking.

For Tilt Tube Mounting only, add A, B & C + 24", round up to next even foot. Order that length hose kit.

For "Hydraulic Tie Bar" installations only, note locations of helm, cylinders and alignment valve. (See diagram on Alignment Valve page for typical hose routing.) Hoses are sold in pairs.

SEASTAR KICKER CABLE TIE BAR

This product allows a user to manually steer an auxiliary engine (kicker motor) using their existing SeaStar hydraulic steering system. Today this is accomplished with a variety of solid mechanical linkages between the main engine and the auxiliary engine. A patent pending design incorporates a cable as the linkage between the two engines.

UNIVERSAL
PORT OR STARBOARD BRACKET

SIMPLE
INSTALLATION

PATENTED
XTREME™ CABLE TECHNOLOGY



MANUALLY STEER AN AUXILIARY ENGINE USING HYDRAULIC SYSTEM

The Dometic SeaStar Kicker Cable Tie Bar has been engineered for easy and secure installation on outboard powered vessels with popular Dometic SeaStar hydraulic steering. By using a universal ABYC steering connection on the kicker motor, Dometic has made it simpler than ever for builders, dealers and boaters to rig, operate and steer both motors simultaneously.

NOTE: NOT for use with Dometic BayStar steering systems. The Kicker Cable Tiebar will ONLY work with Dometic SeaStar HC5345-3, HC5358-3 and HC5348-3 steering cylinders HC5445-3 steering cylinder will also work with optional HP6156 drive bracket.

Features

- Flexible cable allows for adjustable locations of kicker motor.
- Allows independent trim/tilt of both engines.
- Allows full steering stroke of both engines.
- Simplified installation using universal ABYC steering connection (as per ABYC P17 & P21 standards) on kicker motor.
- Retrofittable to Dometic SeaStar Front Mount Cylinders.
- Incorporates unique patented Xtreme™ cable technology.

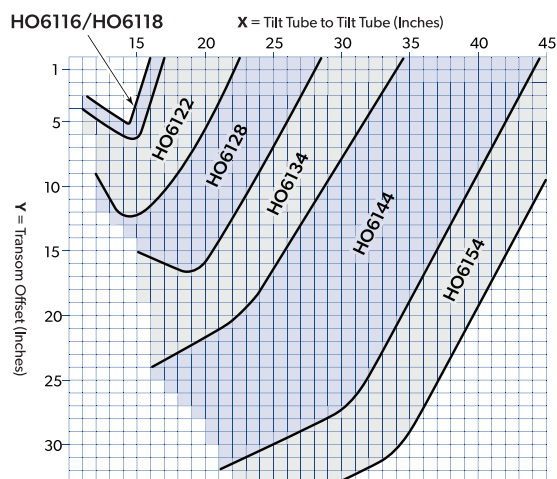
ORDER INFORMATION

Part No.	Max Engine Horsepower	Cable Length (nominal)	Cable Type
HO6116	20HP	16 inches	Xtreme™ 40 series
HO6118	20HP	18 inches	Xtreme™ 40 series
HO6122	20HP	22 inches	Xtreme™ 40 series
HO6128	20HP	28 inches	Xtreme™ 40 series
HO6134	20HP	34 inches	Xtreme™ 40 series
HO6144	20HP	44 inches	Xtreme™ 40 series
HO6154	20HP	54 inches	Xtreme™ 40 series

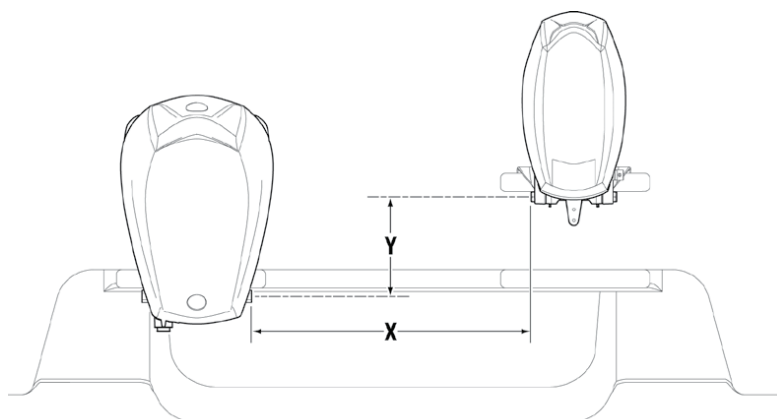
INSTALLATION NOTES:

- Kicker Cable Tie Bar systems require a minimum clearance of 14" from the end of the tilt tube towards the motor side well or gunnel.
- Includes universal bracket for port or starboard mounted kicker.
- Requires link arm from engine manufacturer.

Kicker Cable Tie Bar Selection



1. For a Kicker installed on a motor bracket, add additional length to X dimension.
2. For Main engine installed on a motor bracket add additional 2" to X dimension.
3. Kicker cable tie bar systems require a minimum clearance of 14" from the end of the tilt tube towards the motor side well/gunnel.



SEASTAR POWER ASSIST

Power assisted steering delivers exceptional performance and unparalleled levels of safety and comfort, even in the most extreme conditions.

INCREASED COMFORT

REDUCE STEERING LOADS AND
DRIVER FATIGUE

AUTOPILOT COMPATIBLE

EASILY INTEGRATES WITH
AUTOPILOT SYSTEMS

SIMPLE INSTALLATION

SIMPLE ADD-ON TO AN EXISTING
SEASTAR STEERING SYSTEM



WHY USE POWER ASSIST STEERING?

System Overview:

The SeaStar Power Assist unit can be installed on new SeaStar steering installations or as an easy retro-fit to existing systems.

Suitable for most boat types, the SeaStar Power Assist uses an electronically controlled hydraulic pump to provide on-demand power steering. It is installed into the hydraulic steering circuit between the helm and steering cylinder. The Power Assist unit is powered from the boat's battery and adjusts automatically to the input voltage (12V or 24V).

The SeaStar Power Assist can be used on boats with multiple engines and rudders, multiple steering stations and autopilots.

If power to the unit is interrupted for any reason, the steering system will automatically return to manual operation without any change to the number of lock-to-lock turns. In this case, the steering will of course be heavier than with the Power Assist activated.

SEASTAR POWER ASSIST PRO

Specifically designed for high torque single engine outboard applications fitted with SeaStar Pro helms, such as performance bass boats.

Features:

- Dramatically reduces steering effort
- Wall or Floor mount
- Easy to install
- Simple add-on to an existing SeaStar Steering system (From 1.4 to 2.4 SeaStar Helms)
- OEM or retro-fit
- Compatible with power purge system
- Return to manual in failure mode
- Suitable for use with autopilots
- 12V or 24V operation
- Wiring harness included
- Ignition protected (SAE J1171)
- ABYC, CE, NMMA, ISO 10592 Approved



COMPLETE SYSTEMS

Power Assist, 15' Harness	PA1200-2
Power Assist, 15' Harness (Dual prop engines and high load applications)	PA1200-2HP
Power Assist, 25' Harness	PA1225-2
Power Assist Pro, 15' Harness	PA1315-2

OPTIONS

Dual Ignition Control Kit	HA1201
Harness Fuse Kit	HA1206
Replacement Motor	HA1203



WE RECOMMEND

The use of SeaStar Steering Fluid ONLY in our hydraulic steering systems. See page 84.

SEASTAR POWER ASSIST AUTOPILOT

The SeaStar Power Assist Autopilot pump is the standard power assist product with the addition of a Type 1 or Type 2 autopilot pump. The SeaStar Autopilot pump is a fixed flow, reversible pump set that uses an internal hydraulic gear pump, producing very little vibration or noise.

MINIMAL
NOISE OR VIBRATION

DRAMATIC
STEERING WHEEL TORQUE

12 & 24 VOLT
CONFIGURATIONS



REDUCE STEERING EFFORTS IN HEAVY, HIGH TORQUE APPLICATIONS

System Overview:

The SeaStar Autopilot pump, combined with our SeaStar Power Assist system, provides power assisted steering when the autopilot is in standby mode. Available in type 1 or type 2 the SeaStar Autopilot pump is a fixed flow, reversible pump set that uses a high efficiency hydraulic gear pump, producing very little vibration or noise. It is offered in 12 and 24 volt configurations.

FEATURES:

- Autopilot pump combined with SeaStar power assist in one easy to fit package
- Converts manual hydraulic steering to power steering
- Dramatic reduction in steering wheel torque
- Easy installation
- OEM or Retrofit
- Simple add on to an existing SeaStar manual system
- From 1.4-2.4 SeaStar helm pumps
- Compatible with power purge system
- Ignition protected (SAE J-1171)
- ABYC, CE, NMMA, ISO 10592 Approved
- Replaces other 12 & 24 volt systems



SmartStick AR4502

Only available for SeaStar Pivot Cylinder part numbers, HC5345-3, HC5348-3, HC5358-3, HC6345-3 and HC6358-3.

COMPLETE SYSTEMS

Standard SPA + type 1 12V Autopilot pump	PA6010
Standard SPA + type 2 12V Autopilot pump	PA6020
Standard SPA + type 1 24V Autopilot pump	PA7010
Standard SPA + type 2 24V Autopilot pump	PA7020

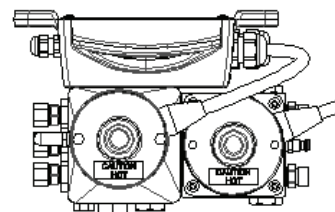
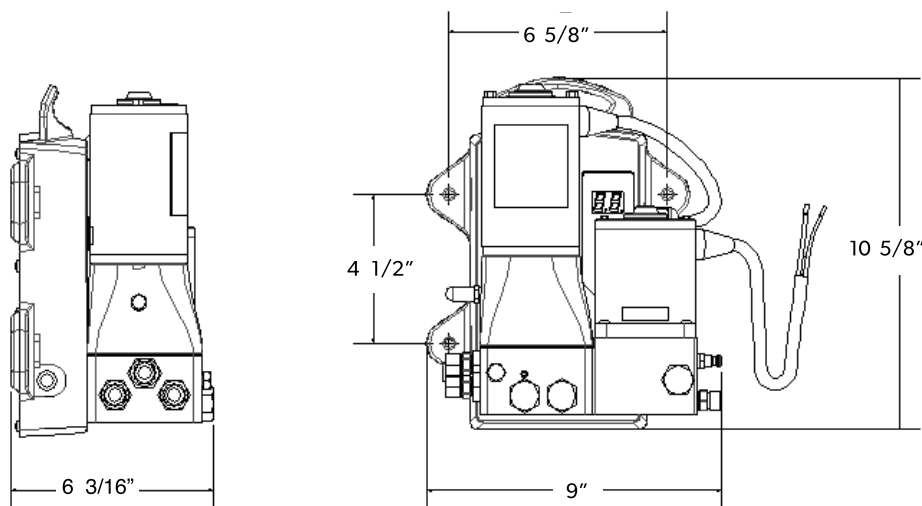
OPTIONS

SmartStick (Ray Marine) Installations Only 2.2V - 2.8V	AR4502RM
SmartStick (Simrad) Installations Only 2.8kHz - 4.0kHz	AR4502SI
SmartStick 0.5V - 4.5V	AR4502
Hydraulic Fluid 1 Liter	HA5430
Hydraulic Fluid 4 Liter	HA5440
Hydraulic Hose Kit	H051xx
Nylon Tubing (25ft roll) - Return Line ONLY	HT5092



WE RECOMMEND

The use of SeaStar Steering Fluid ONLY in our hydraulic steering systems. See page 84.



SEASTAR AUTOPILOT PUMP

The SeaStar Autopilot pump is a fixed flow, reversible type set that uses an internal hydraulic gear pump, producing very little vibration or noise.

COMPACT
DESIGN

MINIMAL
POWER CONSUMPTION

LONG LIFE
DC MOTOR



HIGH EFFICIENCY, FIXED FLOW, MINIMAL VIBRATION PUMP

System Overview:

The SeaStar Autopilot pump is a high efficiency, fixed flow, reversible type Pump set producing very little vibration or noise. It is offered in 12 and 24 volt configurations, as well as two different pump sizes (type 1 & type 2). It can be used as a stand alone pilot pump or can be mounted to a previously installed SeaStar Power Assist unit and can prevent the need to break into the hydraulic lines.

FEATURES:

- Long life DC Motor (i.e. long life brushes)
- Compact design
- Simplified installation
- Low power consumption
- ABYC, CE and J1171 compliant
- Superior corrosion resistance
- Quiet operation
- Mounting bracket included
- Stand alone or mounts to SeaStar Power Assist unit
- Replaces other 12 & 24 volt pumps



WE RECOMMEND

The use of SeaStar Steering Fluid ONLY in our hydraulic steering systems. See page 84.



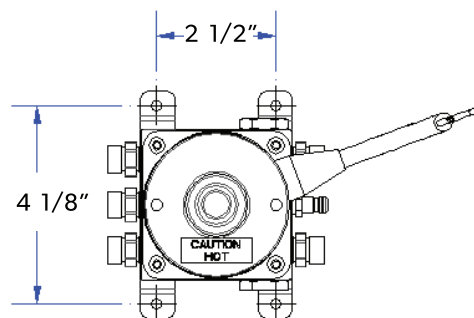
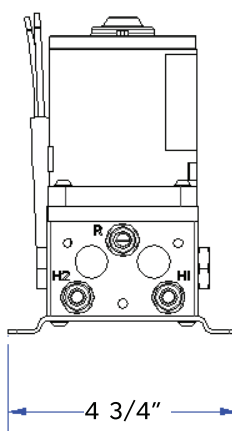
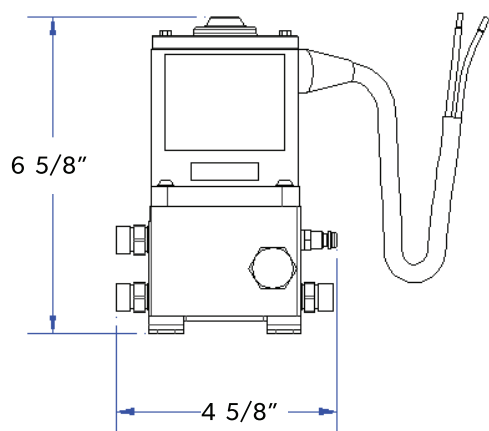
COMPLETE SYSTEMS

Type 1 - 12V - 60cu"/min	AP1219
Type 2 - 12V - 100cu"/min	AP1233
Type 1 - 24V - 60cu"/min	AP2419
Type 2 - 24V - 100cu"/min	AP2433

OPTIONS

SPA Retrofit kit	HA1205
Add a Station kit	HF6007
Nylon Return Line Required	HT5092
Additional Steering Hose Required	HO51xx

Stand alone pilot pump - can be retrofit to a PA unit



HOSE AND TUBING

Overview:

SeaStar Steering hoses are a custom multi-layered composite design, engineered specifically for our systems. They are designed to exceed SAE and ABYC specifications and provide precise steering control not achievable with hydraulic industry standard hoses.

SeaStar Hoses are engineered to provide the system with very low thermal expansion properties and are kink and abrasion resistant. Our hoses also feature a swaged solid fitting connection with an O-ring seal and a metal to metal backup to the primary seal. Due to performance and safety concerns, Dometic recommends that ONLY SeaStar or SeaStar PRO steering hoses be used in SeaStar Steering Systems.



BAYSTAR TUBING KIT HT44xxH

BayStar Tubing (HT4420H/HT4430H)

Can be used with all BayStar helms with appropriate fittings. Kit contains two cut lengths of tubing.

BAYSTAR TUBING KITS	PART NO.
20' Kit (2 x 20' lengths tubing)	HT4420H
30' Kit (2 x 30' lengths tubing)	HT4430H
(NOTE: BayStar Cylinders with H suffix must use tubing part number with H suffix.)	

* Decrease effort by installing SeaStar HO51xx Outboard hose



OUTBOARD HOSE KIT HO51xx

SeaStar Outboard Hose Kit (HO51xx*)

Includes two hoses - can be used with all SeaStar systems, except SeaStar PRO, Capilano and 3-line inboard systems.



OUTBOARD HOSE KIT HO57xx

SeaStar Pro Outboard Kevlar Hose Kit (HO57xx*)

Includes two hoses - can be used with all SeaStar / BayStar Steering Systems.

* SeaStar and SeaStar PRO Hose Kits are available in 2', 3', 4', 5' and in 2' increments from 6'-30'. 40 foot hose kits are special order only.



Nylon Tubing (HT5xxx)

Can be used with SeaStar 1.7 helms on stern drives (except with HC5332 cylinder) and small inboards with fitting kit; do not use on outboard systems.

LENGTH x OD	PART NO.
25' x 3/8"	HT5092
50' x 3/8"	HT5095
75' x 3/8"	HT5097
100' x 3/8"	HT5100

SeaStar Bulkhead Hose Kits (HO81xx*)

SeaStar Bulkhead Hose Kits assure a neat hydraulic steering installation. Each hose has an integral bulkhead fitting for tidy routing of hoses through a splashwell bulkhead, helping to eliminate excess loose hose, kinking or chafing. Includes two hoses - can be used with all SeaStar / BayStar Steering Systems.

BOXED HOSE SETS	PART NO.
SeaStar Bulkhead Hose Kit (2 hoses)	HO81xx
SeaStar Pro Bulkhead Hose Kit (2 hoses)	HO82xx
BULK-PACKED HOSE PAIRS	PART NO.
SeaStar Bulkhead Hose Kit (2 hoses)	HO83xx
SeaStar Pro Bulkhead Hose Kit (2 hoses)	HO84xx



BULKHEAD HOSE KIT HO81xx

Stainless Steel Bulkhead Hose Kits

SeaStar Stainless Steel Bulkhead Hoses assures a neat and clean steering installation. These hose assemblies have integral 316 stainless steel bulkhead plate(s) and 316 stainless steel fittings which allow for tidy hose routing while preventing hose kinking or chafing.

DESCRIPTION	PART NO.
SeaStar Single Stainless Steel Bulkhead Hose Kit (2 hoses)	HO86XX
SeaStar Single Stainless Steel Pro Kevlar Bulkhead Hose Kit (2 hoses)	HO87XX
SeaStar Double Stainless Steel Bulkhead Hose Kit (2 hoses)	HO88XX
SeaStar Double Stainless Steel Pro Kevlar Bulkhead Hose Kit (2 hoses)	HO89XX



SINGLE BULKHEAD HOSE KIT HO86xx



DOUBLE BULKHEAD HOSE KIT HO88xx

Field Installable Hose Bulkhead Kits

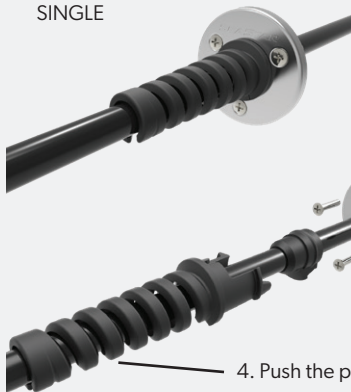
HOW DOES IT WORK?

1. Wind-on split pigtail on the hose.



2. Attach split grommet to the hose and push into the pigtail.

SINGLE



DUAL



3. Attach base plate to the transom (Stainless steel cover optional).

4. Push the pigtail and grommet into base plate until it snaps in.

See next page for more information.

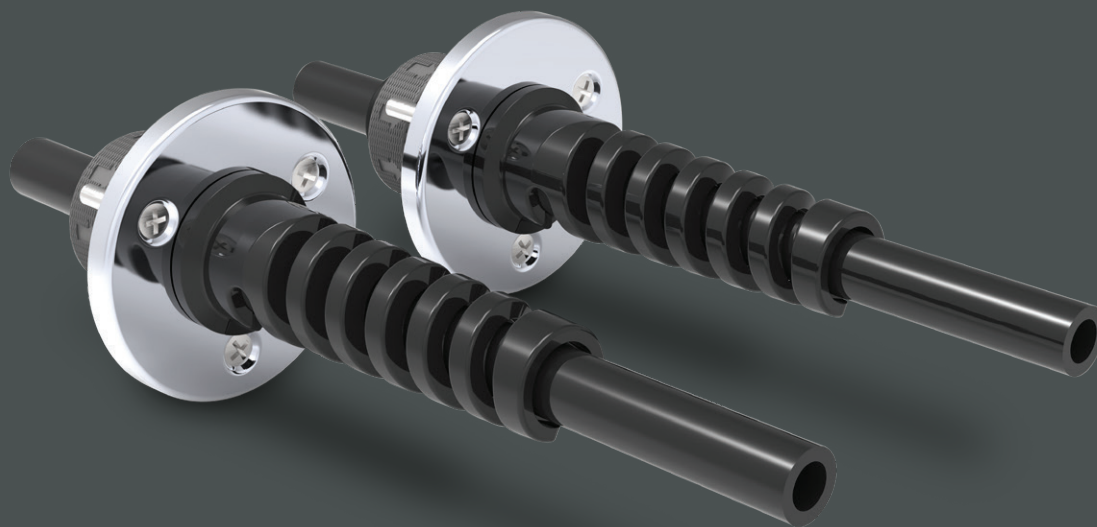
REMOTE BULKHEAD FITTINGS

Our remote bulkhead fittings offer boaters a simple solution to cleanly route hoses through the hull while maintaining safety and aesthetics.

SPLIT GROMMET DESIGN
SIMPLIFIES INSTALLATION

SINGLE AND DUAL HOSE
APPLICATIONS

STAINLESS STEEL
COVERS AVAILABLE



A SIMPLE SOLUTION TO CLEANLY ROUTE HOSES



Our remote bulkhead fittings offer boaters a simple solution to cleanly route hoses through the hull while maintaining safety and aesthetics. Dometic's remote bulkhead fittings come in both single and dual hose applications for ultimate customization. Stainless steel options provide cleaner styling and corrosion resistance while blending in with your boat's stainless trim.

Key Benefits:

- Field installable series of products reduces the amount of stocking hose SKU's by allowing the user to install these on a standard hose kit
- Split grommet design allows for easy installation onto a hose assembly
- Increased inner diameter of plastic base plate simplifies fitting installation by allowing crimped hose fitting to pass through the base plate
- Stainless steel cover plates available for both single and dual applications provide cost effective cosmetic upgrade

PART NO.	DESCRIPTION
HO7100	Kit field installed bulkhead, single hose, stainless
HO7105	Kit field installed bulkhead, single hose, plastic
HO7200	Kit field installed bulkhead, dual hose, stainless
HO7205	Kit field installed bulkhead, dual hose, plastic
HO7150	Kit field installed bulkhead, single hose, stainless, 50 pack
HO7155	Kit field installed bulkhead, single hose, plastic, 50 pack
HO7250	Kit field installed bulkhead, dual hose, stainless, 50 pack
HO7255	Kit field installed bulkhead, dual hose, plastic, 50 pack



SEASTAR HYDRAULIC STEERING FLUID

ANY NON-APPROVED FLUID MAY CAUSE SERIOUS DAMAGE TO THE STEERING SYSTEM RESULTING IN POSSIBLE LOSS OF STEERING, CAUSING PROPERTY DAMAGE, PERSONAL INJURY AND/OR DEATH.

Due to recent upgrades in our steering system components, Dometic recommends use of SeaStar Steering Fluid ONLY in our hydraulic steering systems. SeaStar Steering Systems have been engineered and validated using our proprietary SeaStar Hydraulic Steering Fluid. SeaStar Steering fluid is engineered with a special additive package that contains anti-foaming and anti-rusting agents, anti-oxidants, viscosity stabilizers, corrosion inhibitors and wear additives as well as water emulsification additives. It is highly recommended that SeaStar Steering Fluid be used to ensure optimum system performance and safety.

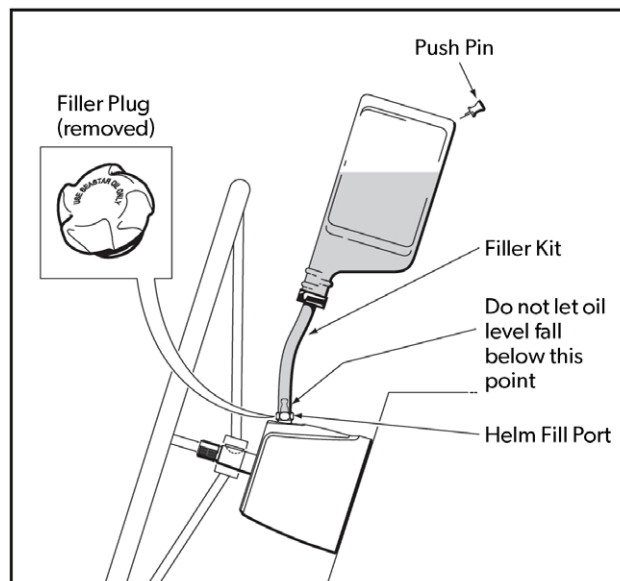


USE OF ANY NON-APPROVED FLUID MAY RESULT IN THE FOLLOWING;

- Higher steering effort, particularly at ambient or lower temperatures and/or over time due to oil degradation and breakdown.
- Increased steering slip and/or drift resulting in lost motion
- Foaming or air entrainment causing a bumpy feel during steering
- High rates of moisture absorption causing internal component corrosion.
- Scratched steering cylinder bores and shafts due to contamination or elevated wear rates.
- Seal degradation – incompatibility with various proprietary seal compounds used in our products.

In an emergency, SeaStar EPS Fluid, any MD-3/4 rated ATF or MIL-PRF-5606H equivalent fluid that is filtered through a fine mesh screen can be used. The system MUST be thoroughly flushed as soon as possible with genuine SeaStar Steering Fluid after using an emergency fluid. In an EXTREME emergency, any non-toxic, non-flammable fluid that is filtered through a fine mesh screen may provide temporary steering.

Optional Filler Kit Part # HA5438



WARNING

Use of non-standard fluids will require an immediate and complete system flush using approved fluids, by an approved steering technician.



WARNING

NEVER FILL OR MIX BRAKE FLUIDS, TRIGLYCERIDES OR POLYALKYLENE GLYCOLS WITHIN A HYDRAULIC STEERING SYSTEM.

NOTICE

SeaStar Hydraulic Steering Fluid can be used in Hynautic, BayStar and BayStar Plus steering systems.

NOTICE

Help protect your boating environment by ensuring that all used oil is disposed of properly.

HYDRAULIC FITTINGS & HARDWARE KITS

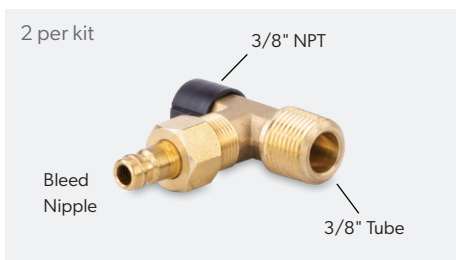
All SeaStar Manual Hydraulic steering systems utilize the same style of fittings for all applications. These are 3/8" compression fittings which utilize a 9/16"-24 extra fine thread. * NPT fittings CANNOT be used with any -3 helms or cylinders. Damage will occur. Only use ORB fittings with -3 helms and cylinders.



Horizontal Bleeder Tee

Part No. HF4202

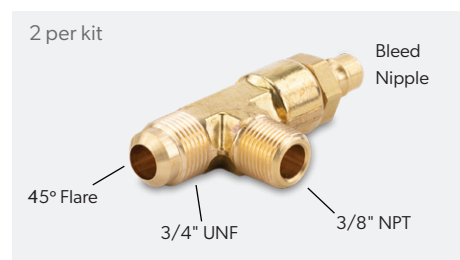
For BayStar Systems Only



Vertical Bleeder Tee

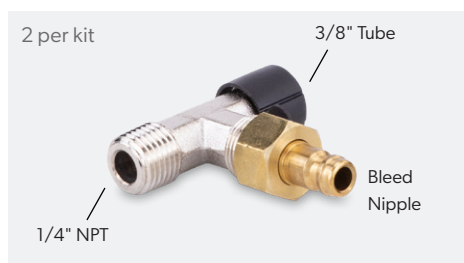
Part No. HF5518

NOT for use with -3 cylinders/helms



Bleed Tee (TM Cylinders)

Part No. HF5519



Vertical Bleeder Tee

Part No. HF5521

Not for use with BayStar

NOT for use with -3 cylinders/helms

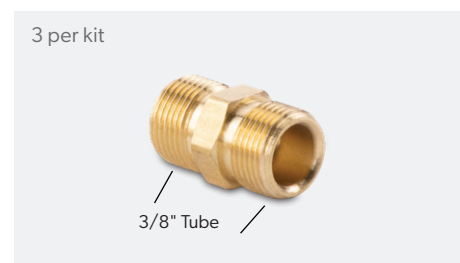


Bleed Nipple

Part No. HF5548

1998 - Date Cylinders

For use with Front Mount Cylinder ONLY



Union Coupling Fitting

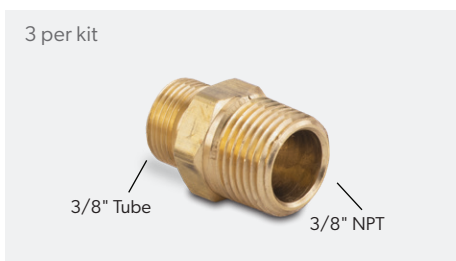
Part No. HF5527



Straight Fitting

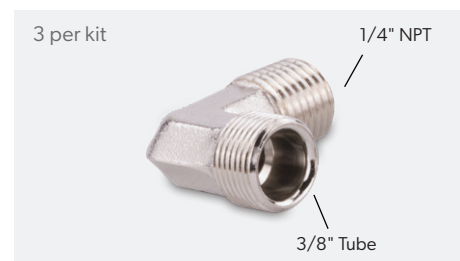
Part No. HF5528

NOT for use with -3 cylinders/helms



Connector Fitting

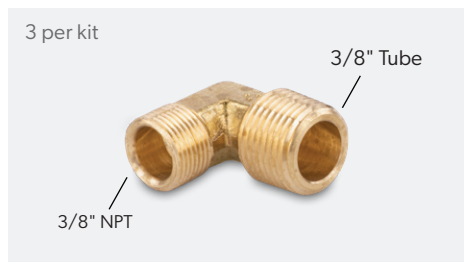
Part No. HF5532



Elbow Fitting

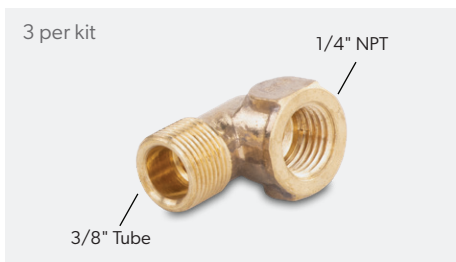
Part No. HF5529

NOT for use with -3 cylinders/helms



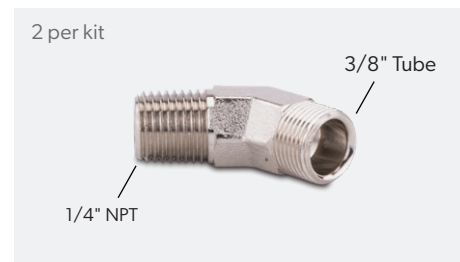
Elbow Fitting

Part No. HF5534



Street Elbow

Part No. HF5538



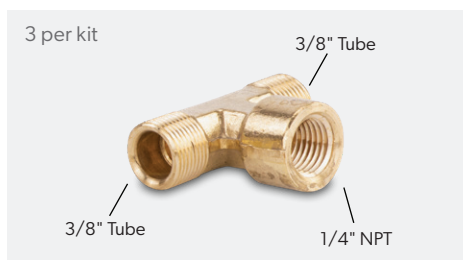
45° Fitting

Part No. HF5540

NOT for use with -3 cylinders/helms

HYDRAULIC FITTINGS & HARDWARE KITS

All SeaStar Manual Hydraulic steering systems utilize the same style of fittings for all applications. These are 3/8" compression fittings which utilize a 9/16"-24 extra fine thread. * NPT fittings CANNOT be used with any -3 helms or cylinders. Damage will occur. Only use ORB fittings with -3 helms and cylinders.



Tee Fitting

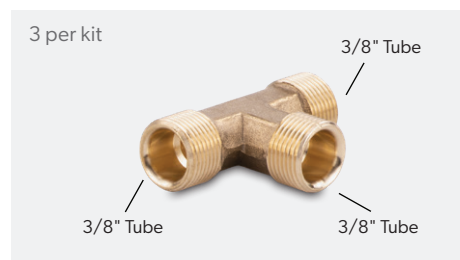
Part No. HF5533



Tee Fitting

Part No. HF5531

NOT for use with -3 cylinders/helms



Tee Fitting

Part No. HF5530



Tee Fitting

Part No. HF5536

NOT for use with -3 cylinders/helms



Adapter Fitting

Part No. HF5566

NOT for use with -3 cylinders/helms



Cap Plug Nut

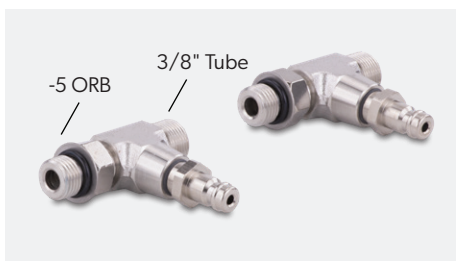
Part No. HF5524



Tube Nut

Part No. HF5526

For use with 3/8" Nylon &/or 3/8" copper tubing



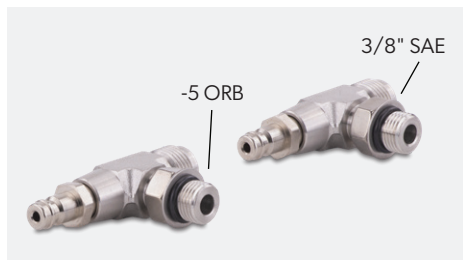
ORB Fitting Kits

Part No. HF6001



ORB Fitting Kits

Part No. HF6002



ORB Fitting Kits

Part No. HF6003



ORB Fitting Kits

Part No. HF6004



ORB Fitting Kits

Part No. HF6005

HYDRAULIC FITTINGS & HARDWARE KITS

All SeaStar Manual Hydraulic steering systems utilize the same style of fittings for all applications. These are 3/8" compression fittings which utilize a 9/16"-24 extra fine thread. * NPT fittings CANNOT be used with any -3 helms or cylinders. Damage will occur. Only use ORB fittings with -3 helms and cylinders.



ORB Fittings

Part No. HF6006



ORB Fitting Kits

Part No. HF6007



ORB Fittings

Part No. HF6009



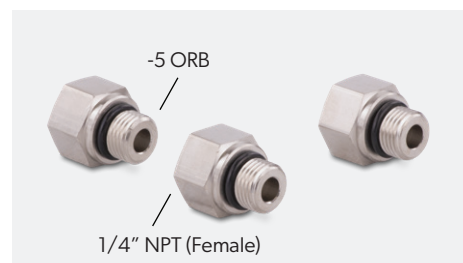
ORB Fitting Kits

Part No. HF6010



ORB Fitting Kits

Part No. HF6011



ORB Fitting Kits

Part No. HF6012



Outlet Checkvalve

Part No. HP0962

For Capilano 250V/275V



Outlet Checkvalve

Part No. HP0964

For Capilano 1250V/1275V



BayStar Compact Cylinder Gland Kit

Part No. HP4600



Mounting Hardware

Part No. HP5603

Steel



BayStar Cylinder Gland Kit

Part No. HP5607



BayStar Cylinder Gland Kit

Part No. HP5608

Starboard side

HYDRAULIC HARDWARE KITS

DESCRIPTION	OLD NO.	NEW NO.
Ball Joint	670030	HP6039
Washer 5/16 Flat 3/4od Ss	10924	HP6130
Service Kit, SeaStar Commercial Helm	747521	HP6037
Service Kit, SeaStar Commercial Helm	225226	HP6037
Service Kit, SeaStar Commercial Helm	260130	HP6037
Service Kit, SeaStar Commercial Helm	793687	HP6037
Service Kit, SeaStar Commercial Helm	798567	HP6037
Service Kit, SeaStar Commercial Helm	827926	HP6037
Service Kit, SeaStar Commercial Helm	798676	HP6037
Service Kit, SeaStar Commercial Helm	826025	HP6037
Service Kit, SeaStar Commercial Helm	67424	HP6037
Service Kit, SeaStar Commercial Helm	210429	HP6037
Elbow Fitting N11249f-6-4	690051	HF6089
Tie Bar, Kicker Engine	961501	HP6083
Quad Ring #214	225320	HS6038
Bushing, 3/8" Volvo Adapt.	833657	HP6115
Kit Gland B/S Compact	590025	HP4600
Kit Gland B/S Compact	590027	HP4600
Ss S/P Cyl. Mtg. Hardware & Slide Plate	724529	HP6031
Kit Gland, BayStar Cyl. Hp5607 Port Side, Hp5608 Stb. Side	441300	HP5607 or HP5608
Gland Kit, BayStar Cyl, Hp5608 Stb. Side	440620	HP5608
Trunion Mtn. Kit Alum.	371422	HP5611
Trunion Mtn. Kit Alum.	371225	HP5611
Trunion Mtn. Kit Alum.	371329	HP5611
Clevis And Pins. 5x8 X 5/8	112225	HP5615
Bezel Kit, V Series Capilano Helms	312020	HP5632
Bezel Kit, V Series Capilano Helms	68821	HP5632
Bezel Kit, V Series Capilano Helms	13020	HP5632
Bezel Kit, V Series Capilano Helms	515321	HP5632
Oil Filter, Power Steering	825522	HP5815
Oil Filter, White, Power Steering	825633	HP5815-W
Auto Flow Valve	582103	HP5821
Auto Flow Valve	582325	HP5821
SeaStar Non-Vent Plug 5ea	58733	HP6000
SeaStar Hex Bolt, 3/8nfx1-1/4 + Nut Ss, 3 Ea.	113222	OBSOLETE
SeaStar Hex Bolt, 3/8nfx1-3/8 + Nut, 3 Ea.	113330	HP6001
SeaStar Tie Bar Ball Joint	116527	HP6003
Hynautic Bottom Mount Pressure Gage 0-60psi	160012	HP6004
Hynautic Rear Mount Pressure Gage 0-60psi	160042	HP6005
Hynautic K-22, K-27, K-31 And K-33 Shaft Boot Cover	170001	HP6006
SeaStar Hex Bolt, 3/8nfx1-5/8 + Nut Ss, 3 Ea.	185921	HP6007
SeaStar Nut 1/2nf Nylk Brass Np 6ea	192126	HF6008
SeaStar Hose Swage End Fitting	287825	HP6010
SeaStar Hose, Bend Restrictor	432720	HP6011
SeaStar Hose, Bend Restrictor	432720	HP6012
SeaStar/Capilano Brass Cylinder Rod End Ball	560930	HP6013

DESCRIPTION	OLD NO.	NEW NO.
Hynautic Msh-6 Hose End, Sae 45	690941	HF6014
SeaStar Washer 5/8 Ss Ms15795-820	202121	HP6015
SeaStar Slide Cylinder Mtg Hardware	729221	HP6031
SeaStar Slide And Front Mount Support Rod	730229	HP6016
SeaStar Washer 5/8 Ss An960c1016	202300	HP6017
SeaStar Frount Mount, Support Brkts	839120	HP6018
All Systems, Large Rod End Ball, Cylinder Specific	928137	HP6019
SeaStar Outboard Hose, Dust Caps	954410	HP6020
SeaStar Outboard Hose, Dust Caps	954420	HP6021
Shcs 1/4nfx 7/8 Ss 4ea	241297	HP6022
SeaStar Elbow Fitting, 3/8" Comp X 1/4" Npt	600606	HF6023
Hynautic Tee Fitting, Flared Style	653220	HF6024
Hynautic Straight Fitting, 1/4" Npt X 3/8" Flared	690011	HF6025
Hynautic Tee Fitting, 1/4"Npt X 2 Sides 3/8" Flared	690011	HF6026
Hynautic Union Fitting, 3/8" Flared	690751	HF6027
Hynautic Helm Fitting	691231	HF6028
SeaStar Bleed Tube Nut	794926	HF6029
Slave Bracket	961241	HP6143
SeaStar Slide Cylinder Mtg Hardware	721126	HP6031
SeaStar Slide Cylinder Mtg Hardware	721220	HP6031
SeaStar Slide Cylinder Mtg Hardware	721427	HP6031
SeaStar Slide Cylinder Mtg Hardware	722222	HP6031
SeaStar Slide Cylinder Mtg Hardware	724021	HP6031
SeaStar Slide Cylinder Mtg Hardware	809900	HP6035
SeaStar Slide Cylinder Mtg Hardware	736028	HP6031
SeaStar Slide Cylinder Mtg Hardware	202121	HP6031
SeaStar Helm Service Kit	747521	HP6032
SeaStar Helm Service Kit	67424	HP6032
SeaStar Helm Service Kit	201429	HP6032
SeaStar Helm Service Kit	260130	HP6032
SeaStar Helm Service Kit	225226	HP6032
SeaStar Front Mount Cylinder Spacer Kit	828020K	HP6033
SeaStar Front Mount Cylinder Spacer Kit	828085	HP6033
SeaStar Front Mount Cylinder Spacer Kit	731720	HP6036
SeaStar Front Mount Cylinder Spacer Kit	731625	HP6036
SeaStar Front Mount Cylinder Spacer Kit	202300	HP6033
SeaStar Front Mount Cylinder Spacer Kit	995876	HP6033
SeaStar Front Mount Cylinder Spacer Kit	996689	HP6033
SeaStar Front Mount, Adjusting Nut	HP6034	828085
SeaStar Slide Mount Cylinder Support Bkt	HP6035	809900
Part Of Ss Helm Service Kit	763721	HP6032
Mtg Kit Pkg. BayStar Helms	760735	HP6104
All Hynautic Reservoirs/Reser Valves	380020	HP6040
Extension Plate Hardware Kit 6ea, No Plates	722829	HP6041
Extension Plate Hardware Kit 6ea, No Plates	113600	HP6041
Extension Plate Hardware Kit 6ea, No Plates	203123	HP6041
Extension Plate Hardware Kit 6ea, No Plates	753428	HP6041

HYDRAULIC HARDWARE KITS

DESCRIPTION	OLD NO.	NEW NO.
Extension Plate Hardware Kit 6ea, No Plates	191424	HP6041
Merc/Hon Bolt & Bush	961193	HP6042
Merc/Hon Bolt & Bush	186530	HP6042
Bleed Nipple Cap, All SeaStar Cylinders	800126	N/A
Bleed Nipple Cap, All SeaStar Cylinders	293721	HP6044
Hynautic K-6 Drag Link Assembly	680197	HP6045
Hynautic K-6 Drag Link Assembly	270307	HP6045
SeaStar Sport Tilt, Rubber Bellows Cover	279047	HP6046
Socket Head Cap Screw #10 X 24	757927	HP6047
Hhcs 3/8nfx1-1/2 Ss	116320	HP6048
Tie Rod Nut	340061	HP6049
BayStar O/B Cyl.support Rods Bent	590040	HP6050
Fhscs 3/8nfx1-1/4 Ss Dwg	186000	HP6051
SeaStar Classic Tilt Covers Top And Bottom	750928	HP6052
SeaStar Classic Tilt Covers Top And Bottom	750824	HP6052
SeaStar Sport Tilt Lower Bezel, No Bellows Included	157477	HP6053
Hhcs 3/8nfx2-1/4 Ss	186426	HP6054
Side Mount Cyl. Service Kit	449721	HP6055
SeaStar Old Catamaran Clevis Connection	122229	HP6056
Hynautic H20/40 Series Shaft Acorn Nut	340041	HP6057
BayStar Compact Support Rod Clip & Nut	590044	HP6058
BayStar Compact Support Rod Clip & Nut	590042	HP6058
SeaStar Tie Bar Standoff Spacers, Various Applications	710921	HP6059
Hose Assy - Cylinder End	470410	HP6060
Hose Assy - Cylinder End	470416	HP6060
Hose Assy - Cylinder End	470419	HP6060
BayStar Compact Cylinder Service Kit	441410	N/A
Shcs 1/4ncx 3/8 Ss	240317	N/A
Part Of New Hyn Cyl Service Kit	560381	N/A
Part Of New Hyn Cyl Service Kit	740011	N/A
Hynautic Reser valve Fill / Air Plug Assembly 950psi	860028	HP6064
Washer Locking Tab - M10	823673	HP6065
Side Mount Cyl. Service Kit	449824	N/A
SeaStar Hc5801/03 P/S Cylinder Boot Covers & Clamp	823203	HP6067
SeaStar Hc5801/03 P/S Cylinder Boot Covers & Clamp	823204	HP6067
SeaStar And Capilano I/B Cyl Mounting Foot	135725	HP6068
Shaft Wheel Bushing 3/4 T - 1" Straight	337826	HB0573
SeaStar R/Mount Helm Trim Plate	840100	HP6070
Hynautic Trim Cyl Rod End Tk-01/02	680107	HP6072
Hynautic Relief Valve Rv60 950psi	860047	HP6074
Washer 1/4 Flat Ss 5/8 Od	67528	HP6075
Hynautic Clevis Pin, K-33 Cyl	680067	HP6076
SeaStar Aluminum I/B Cyl Rod End Ball	292127	HP6077
SeaStar Rear Mount Helm Mtg. Hardware Kit	833529	HP6081
SeaStar P/S Reservoir, Fill / Air Valve	168625	HP6082
SeaStar P/S Reservoir, Fill / Air Valve	330315	HP6082
Hynautic Trim Power Pump -Relay Switch-Tp-01/03	870360	HP6084

DESCRIPTION	OLD NO.	NEW NO.
Hynautic Trim Power Pump -Relay Switch-Tp-02	870371	HP6085
Hyn Helm Shaft Key, H-29/30	650036	HP6090
Hyn Helm Shaft Kit, H-20/40 Series	650047	HP6091
SeaStar Hc5331 Tube Support Kit	785255K	HP6092
Rod End Ball 5/8" Ss 17-4	560948	HP6093
Hhcs 5/16nf X 1-1/4 Ss	750027	HP6098
	800107	N/A
SeaStar Hc5805 Shaft, Boot Cover	823207	HP6100
SeaStar Front Mount Pro Cyl Support Bkt	839121	HP6101
Hynautic K-6h Mounting Kit, Honda 115-130 Only	860071	HP6102
Kit Assy, Relays, Tp-02	870300	HP6103
Review, Power Purge Service Kit	800123	N/A
Cb 1/4-Uncx2 Gr5 Ft Zp	984829	HP6106
SeaStar P/S Cyl, Old Style Rod End Ball	82021	HP6107
Hynautic H-20/40 Series Trim Plate	520061	HP6108
SeaStar Hc5380 Cyl End Gland, Transom Side	641222	HP6110
SeaStar Front Mount Pro Cyl Support Rod	730230	HP6111
SeaStar P/S Cyl Shaft Shield	823105	HP6112
SeaStar Power Purge Jr. Replacement Pump	470500	HP6116
Hynautic K-6 Mounting Hardware Kit	860066	HP6117
SeaStar Hc5805 Shaft Shield	823115	HP6118
SeaStar Tibar Drive Bkt Ext., Cyl Connect Side	961650	HP6119
Hynautic K-6 Drag Link Connection	680080A	HP6120
SeaStar P/S Reservoir, Bottom Mount Gage 0-60psi	825128	HP6121
Hynautic Reservoir Fill / Valve Assembly	160041	HP6122
Capilano, Clevis Connection, 7/8" Nf Thread	345324	HP6123
Rod End, Ss, 1/2 Nf Thread	961685	HP6124
Capilano Cylinder Rod End Ball, 7/8" Nf Thread	962626	OBSOLETE
SeaStar Helm Vent Plugs	HA5431	HP6126
Nut 5/16nc Nyloc Thin Ss	113021	HP6131
Shcs 3/8odx1-1/4 Shldr Ss	186540	HP6132
Bulkhead Nut 6ea	192324	HP6133
Washer 1/2idx1-1/16od Ss	202027	HP6134
Woodruff Key 606 Ss 20ea	260126	HP6135
Woodruff Key 20ea	260130	HP6136
Rodend Ball 1/2" Ss	292135	N/A
Filter Element Ps	821723	HP6140
Hhcs 5/16nfx3-1/2 Ss 12ea	752021	HP6142
Pkg Slave Brkt And Comps	961490	HP6143
Pkg Drive Brkt And Comps	961660	HP6144
Ftg 90 Deg Elbow 2ea	600620	HP6145
Nut 5/16nc Nyloc Ss 12ea	704525	HP6146
Ftg 139-8b Elbow 6ea	652123	HP6147
Kit-Clevis & Pins 1/2x5/8	112249	HP6024
Kit-Clevis & Pins 1/2x5/8	80926	HP6024
Kit-Clevis & Pins 1/2x5/8	270071	HP6024
Assy Ftg P. Purge Helm	800136	HP6148

POWER PURGE JR. AIR PURGING KIT

The EASY way to 100% purge air out of BayStar and SeaStar hydraulic steering systems. Reduce installation and warranty costs while enhancing the quality of the boat to the end user.

A typical manual fill and purge takes the average experienced installer or service technician about 30 minutes per boat - by using the Power Purge Jr. this can be reduced to 10 minutes or less.

SAVES TIME

REDUCES INSTALLATION

EASY TO USE

QUICK & EFFICIENT SETUP

100% PORTABLE

EASY CARRY CASE



FAST, EASY & EFFICIENT AIR PURGING



- Features:**
- Makes bleeding systems simple, ensuring steering feel is solid every time
 - 100% portable
 - Powered by 12v battery
 - Fast and efficient set up
 - Quick connect fittings
 - Easy to operate
 - Filter screens help keep contamination out of your steering system
 - Complete Fill & Purge in 10 minutes or less

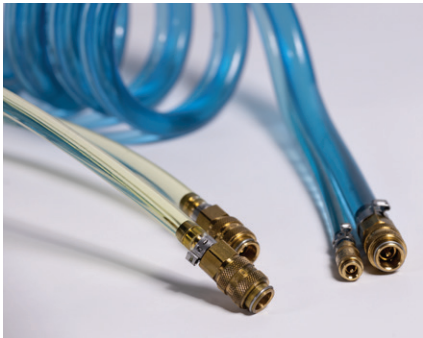
Bleeding tool for all SeaStar and BayStar steering systems.

- Special Options:**
- Optional Dual Cylinder Purging Kit HA5461 available

ORDER INFORMATION	
COMPONENTS	PART NO.
Power Purge Jr.	HA5445-2
50 ft Hose Extension Kit	HA5462
Dual Cylinder Purging Kit	HA5461
Heavy Duty Cylinder Service Kit	HS5300
Low Profile Hose Fitting Kit	HP6149
SPARE PARTS	
Motor Replacement Kit	HP6116
Helm Adapter Kit	HP6148
Quick Connect Hose Ends	HP6170
Hose/Quick Connect Replacement Kit	HP6171
Power Purge Service Kit	HP6125



Easy To Operate



Quick Connect Fittings



Fast & Efficient Set Up



RONIC RING



OPTIMUS ELECTRIC STEERING ACTUATOR

THE FIRST ALL ELECTRIC STEERING ACTUATOR FOR OUTBOARDS



The Optimus Electric Steering Actuator mounts directly on the outboard in place of the present hydraulic cylinder. The powerful drive train, position sensor, brake and electronics are all embedded in the electric steering actuator. This means no Pump Control Module, no hydraulic pump, no hoses, hydraulic cylinders and fluid, and no more purging the system.

The first all electric steering actuator will be compatible with Optimus 360 Joystick Control as well as SeaStation (GPS Anchor) and SeaWays (built-in autopilot).



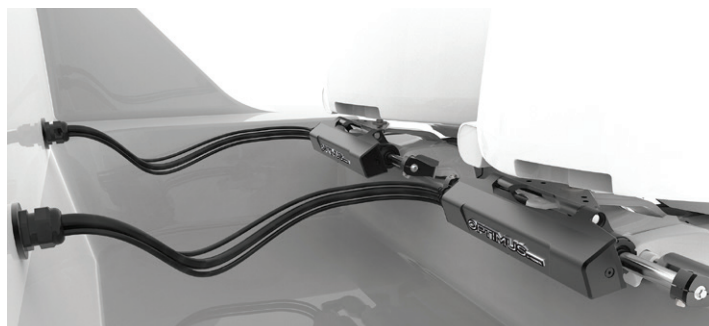
NEXT GENERATION ALL ELECTRIC POWER STEERING

The Optimus Electronic Steering Actuator is the first complete bolt on electronic steering for outboard engines, compatible for twin, triple and quad engines 150 horsepower and up.

The steering control unit, communication and actuator are integrated into one electro-mechanical actuator, making this the next evolution in electronic power steering.

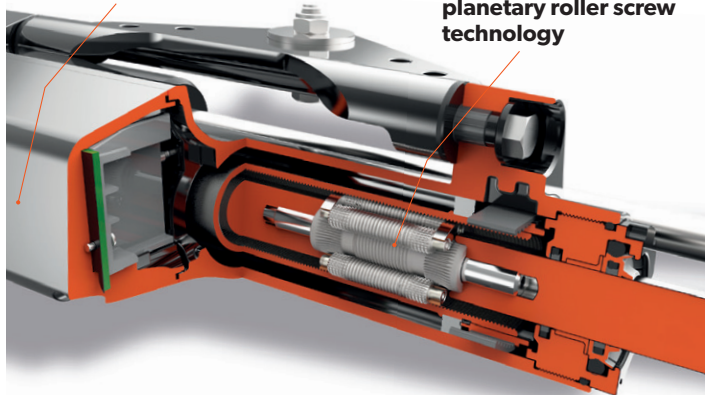
Features:

- First all electric remote mount steering actuator for outboard engines
- Integrated Electronics
 - The steering control unit is a fully potted assembly of electronics that is integrated directly to the electric actuator
- Compact and High Performance
 - Direct connect to electronic helms and joysticks
- Superior Steering for Power Boats

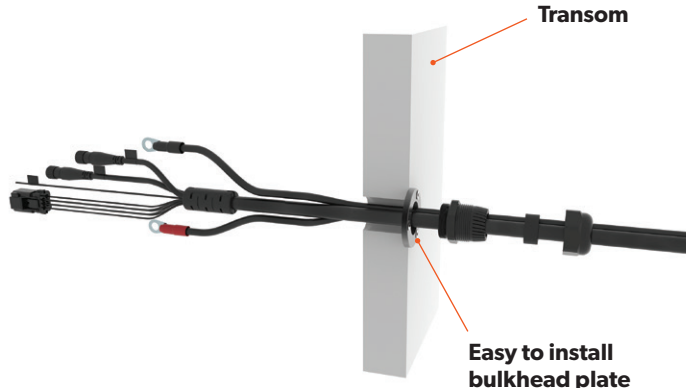


Fully sealed controller is integrated in the actuator

Reliable, efficient planetary roller screw technology



Transom



Easy to install bulkhead plate



Easy Installation

Customer installable molded harness



Worry-Free Compatibility

Compatible with Optimus 360 Joystick Control as well as SeaStation (GPS Anchor) and SeaWays (built-in autopilot)



Durable Design

Ultra corrosion-resistant shafts

ADVANTAGES OF OPTIMUS ELECTRIC STEERING ACTUATOR

- Compatible with Optimus Helm, CANtrak display, and Joystick
- Similar in size to the tournament Optimus cylinder
- Compatible with drive by wire autopilot systems from Garmin, SIMRAD & Raymarine
- Adjustable speed sensitive turns lock to lock
- Adjustable speed sensitive wheel effort
- Ackerman steering (ideal for pontoon and catamarans)
- Speed sensitive rudder angle limits for safe vessel steering
- Longest life, compact planetary roller screw
- Wear resistant end glands and shaft scrapers that are triple sealing
- Proven corrosion resistant coatings on aluminum parts
- Compact brushless DC motor for demanding applications
- Innovative sealed single bulkhead plate houses all the harnesses
- Compatible with NMEA 2000
- NMMA, ABYC, CE, ISO and SAE electrical & environmental requirements

Maintenance

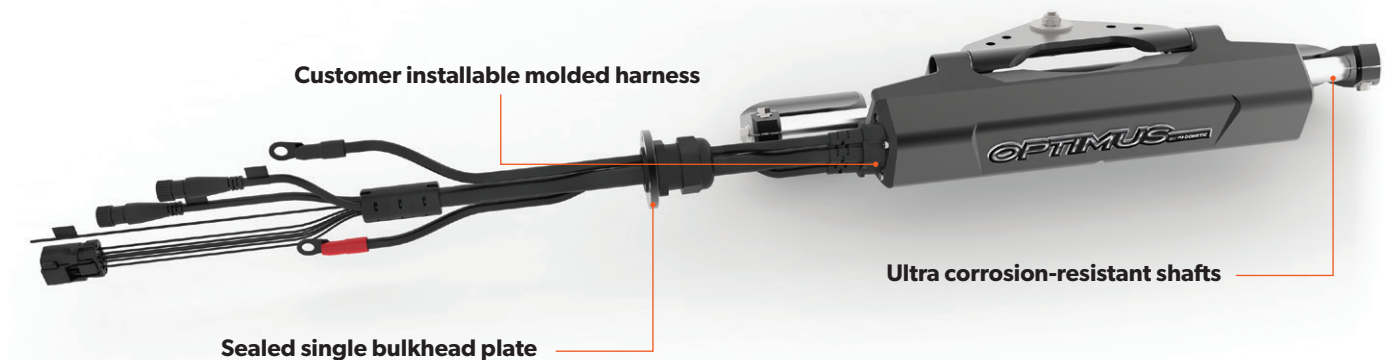
- Drastically reduced maintenance, no hydraulic fluid required
- Harness is a stand alone replacement item

Manual Override

- Loosen the 2x support bracket pinch bolts and rotate the cylinder shaft to center engine(s) with the supplied wrench via the external hex on the port side shaft

Simple To Install

- Directly connect to electronic helms and joysticks
- Potential to remove 16 holes that would be drilled for bulkhead plates if harnesses are routed using the integrated single bulkhead plate
- CAN harness available in 12' and 18' lengths
 - Harness lengths 12' for the battery
- Only three 3 CANbus connections, positive and negative battery and system wake-up
- Less space and weight compared to Optimus electro-hydraulic system
- No oil purge

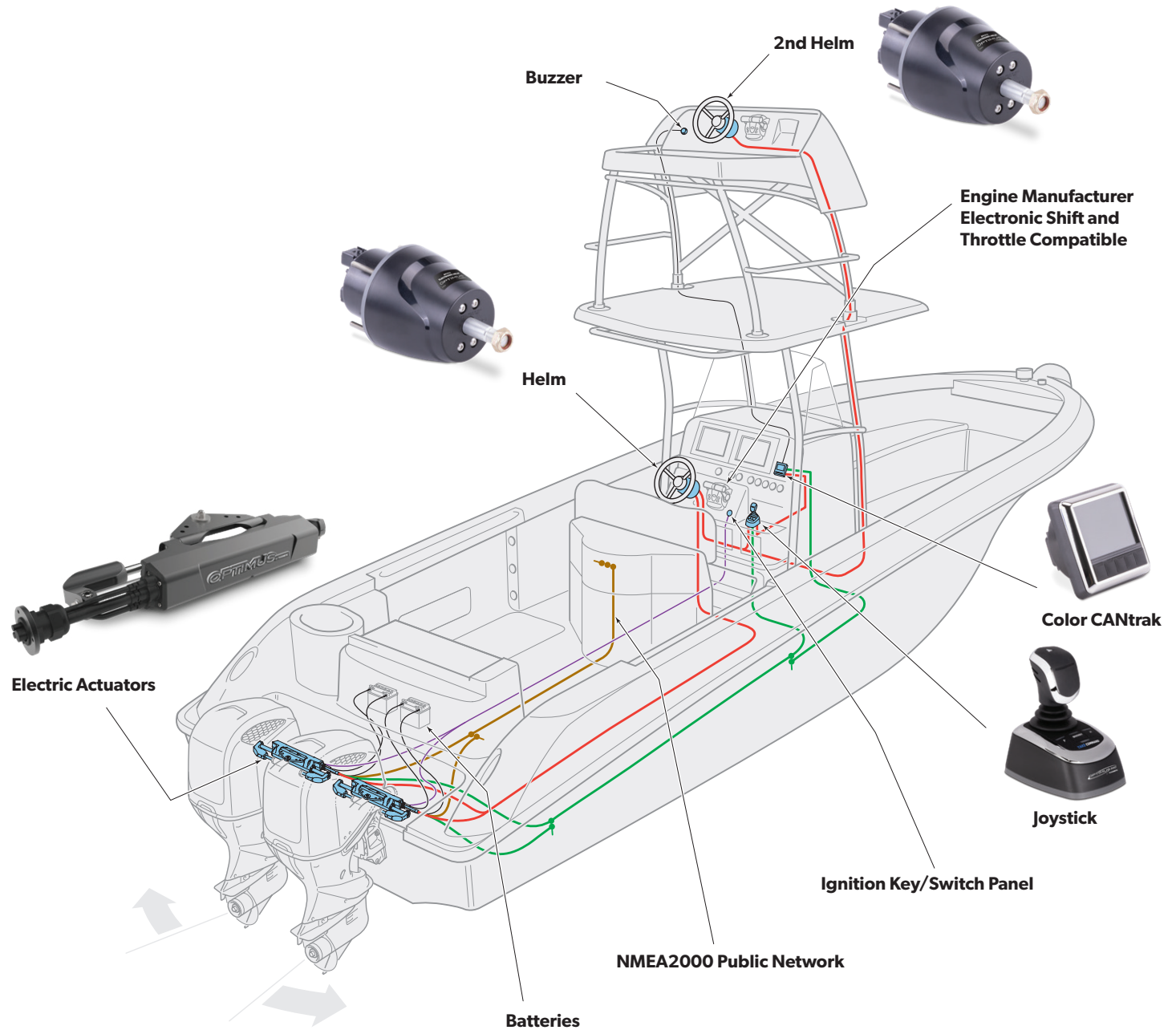


180 ° Harness Option Available



INSTALLATION - ELECTRIC STEERING ACTUATOR & JOYSTICK SYSTEM

System Schematic - Twin Engine, 2nd Station



For reference only and subject to change.

APPLICATIONS FOR OPTIMUS ELECTRIC STEERING

Compatibility Information

Popular engine brands: Yamaha®, Suzuki®, BRP® (Evinrude®), Mercury®, Honda®

	POPULAR ENGINE BRANDS (MST)	YAMAHA® EST (NON 425)	YAMAHA® EX (NON 425)	MERCURY® VERADO™ (L6)	SUZUKI® SPC1	SUZUKI® SPC2	OXE DIESEL	COX MARINE	HONDA IST (2)	MERCURY® V6 (CMS)	MERCURY® V8 (CMS)
Optimus EPS											
Single Engine	•	•	•	NA	•	•	NA	NA	•	•	•
Twin Engine	•	•	•	NA	•	•	NA	NA	•	•	•
Triple Engine	•	•	•	NA	•	•	NA	NA	NA	•	•
Quad Engine	•	•	•	NA	•	•	NA	NA	NA	•	•
Optimus 360 Joystick											
Twin Engine	•	•	•	NA	•	•	NA	NA	•	• ***	NA
Triple Engine	NA	•	•	NA	•	•	NA	NA	NA	NA	NA
Quad Engine	NA	•	NA	NA	•	•	NA	NA	NA	NA	NA
JS Upgrade	•	•	•1	NA	•	•	NA	NA	•	NA	NA

- 1 Twin and Triple Only
- 2 Honda iST control only (current iST control)
- *** Available from Mercury®
- Please check Optimus BOM tool for Optimus Joystick & Mercury® Electronic Control Compatibility
- NA - Currently not available, please contact sales representative
- MST - Mechanical Shift and Throttle Engines
- EST - Electronic Shift and Throttle Engines
- JS Upgrade - Can add joystick control to an existing Optimus EPS vessel
- Optimus 360 is not compatible with Mercury® Next Gen Control System

* Information is subject to change.



OPTIMUS EPS

SPECIFICALLY DESIGNED FOR BASS BOATS



THE BEST STEERING SYSTEM FOR BASS BOATS

Dometic has taken the Optimus electric steering actuator and tuned it specifically for BASS boats to get the following steering performance. Dometic spent countless hours working with BASS boat builders to develop the BEST steering system for this segment

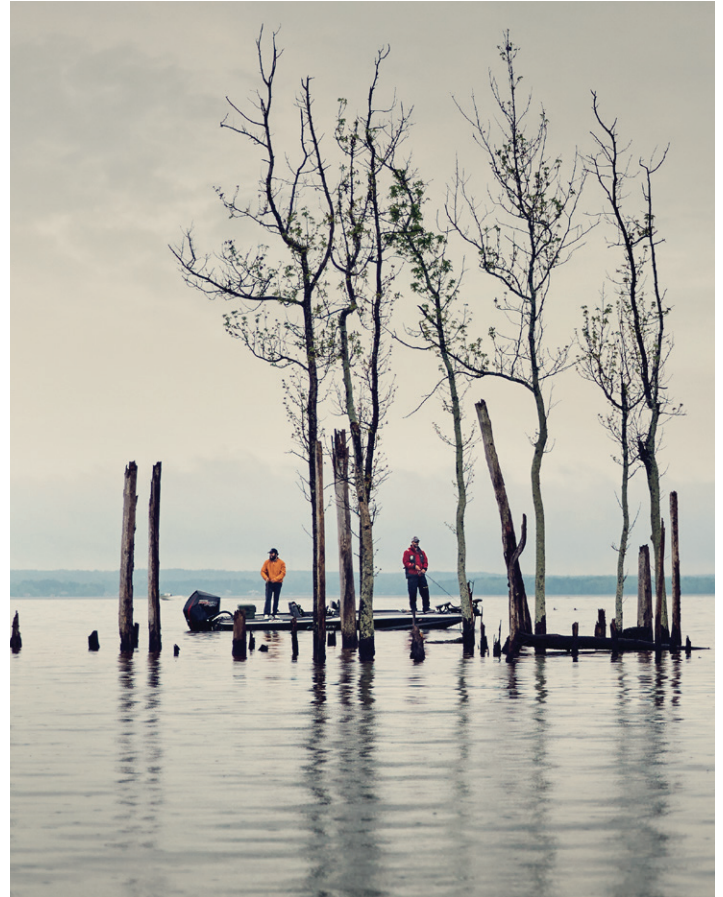
Specifications

Environmental

- Steering System Weight
 - Helm 4 lbs, Cylinder 17 lbs, harness 8 lbs, display 1 lb
 - Total 30 lbs
- Current draw
 - Low speed 4 amps average
 - Medium speed 8 amps average
 - High speed 12 amps average
- Speed 3.5 turns LTL:
 - 30 degrees a second: center to hard over 1 second
- Reaction time at load
 - 100 Milli seconds from movement at helm to movement at cylinder
- Running Dead Band
 - 1 degrees
- Symmetric Helm Feel
 - Yes
- Running Backlash
 - 0 degrees
- Servicing
 - Annual greasing of support rod and brackets

Features

- The electric steering system removes all hydraulic steering fluid from the boat (No bleeding).
- Simpler & Faster installation with fewer splash well perforations
- Number of turns default set to 3.5 no variation due to load
- Faster steering response with no load dependent variation
- Higher precision control which means no steering creep
- Higher position holding power against back driving load
- Programed helm resistance for highspeed steering wheel stability
- Symmetric helm feel when turning to port or starboard
- Steering response time and speed is much quicker with little effort
- Very low free play at steering wheel – helps control chime walk



ENGINE MANUFACTURER	MODEL	BASS BOAT ACTUATOR
Yamaha®	VF150-VF250 SHO	EA1300
Mercury®	All 150 ProXS-250 ProXS	EA1300
Suzuki®	DF250SSTL	EA1400

- Single Only
- Please check Optimus BOM tool for more details

* Information is subject to change.



The CANtrak color display is required unless the following Garmin screens are fitted:

- GSPMAP® 74xx/7600
- GSPMAP® 7x2/9x2 & 12x2
- GSPMAP® 10 x2/12x2 (Keyed)
- GSPMAP® 8400/8600
- GSPMAP® 7x2/9x2 & 12x2 Plus
- GSPMAP® 8700 Black Box
- Yamaha CL7

OPTIMUS 360

JOYSTICK CONTROL SYSTEM



Optimus 360 gives your boat a whole new dimension of control. By developing the joystick function to be intuitive, Optimus 360 allows you to move your boat not only forward and back, but also sideways, by pushing the joystick to the left, or to the right, and even, rotate on a dime, all with a simple twist of the joystick.

Optimus 360 is designed for low speed maneuvering, and really excels in the marina, when pulling in and out of your slip, or when docking. Intelligent programming minimizes the amount of shifting required to complete a maneuver.

With progressive throttling, the joystick becomes a natural extension of your hand. A light push on the joystick provides minimal thrust while more thrust can be applied by pushing harder on the joystick. The boost mode increases the RPM to give you more thrust when needed.



THERE'S NOTHING IT CAN'T DO!

Optimus 360 steering/shift/throttle control system is engineered for powerboats with electronic shift and throttle engines, allowing you to use the existing electronic controls.

Optimus 360 connects to the existing control head with closed loop processing, providing a very seamless integration.

Each component has been designed to complement the other, resulting in a seamless experience of steering control in virtually every situation on the water. The high level of engineering also extends to the reliability of the system, with quality materials, careful manufacturing and redundant systems, all to stand up to the rigors of life on the water.

Features:

- Intuitive high precision Joystick docking with confidence
- Seamless integration with electronic controlled engines
- Autopilot ready - just a simple connection
- Dual station compatible
- Tiebar engines (triple/quad) – less components, simple installation, less cost
- Available as a retrofit or for new engine installation
- All the benefits of Optimus EPS, including auto adjusting steering effort and steering turns lock to lock



Intuitive

Boost and Take Command Modes



Easy To Use

Designed for everyone

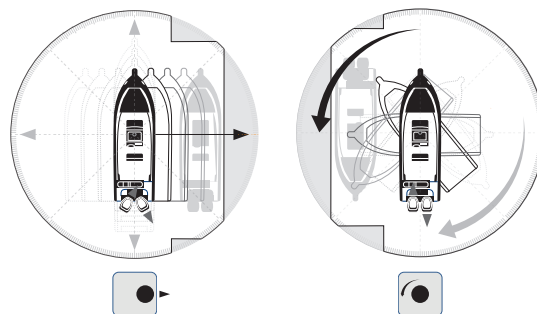


Attractive

3 axis joystick with guided feel

Applications for Optimus 360

- Most twin, triple and quad engine outboard boats - electronic and mechanical controlled (twin only)
- Single and twin helm station yachts
- High performance powerboats, saltwater fishing vessels, RIBS, catamarans, houseboats and pontoon boats



SPECIFICATIONS

Electrical

- Operating voltage: 9-16 VDC [SAE J1455]
- Dual CAN bus
 - CAN bus 1: High Speed CAN 250 kbps [SAE J1939]
 - CAN bus 2: Fault Tolerance CAN 125 kbps [ISO 11898-3]
- Protected from reverse polarity, power interruption.
- Power transient protection: Switching transient, starter motor disturbance, and load dump. [SAE J1113-11]
- Conducted Immunity: 10 Vrms, Criteria A [IEC 60945]
- Radiated Immunity: 10 V/m, Criteria A [IEC 60945]
- Electrostatic discharge protection: 6kV contact, 8 kV air [IACS E10]
- Compass safe distance: 50 cm, at 1° deflection [IEC 60945]

Mechanical For X, Y Axes

- Mechanical angle of movement: $\pm 18^\circ$ ($\pm 2^\circ$)
- Actuator force: 1.0 $\pm$ 0.2 lbf
- Typical current drawn: Less than 300mA
- Square limiting plate
- Guided feel for primary X, Y directions
- Durability: Minimum 500,000 cycles

Mechanical For Z Axis

- Mechanical angle of movement: ± 40 degree

Connection

- 2 x 6-Pin male, FCI Apex-2.8 connectors
- Built in CAN network tee for multi-station connection
- Connector tensile pull resistance: 60 lbf [ISO 10133]

Environmental

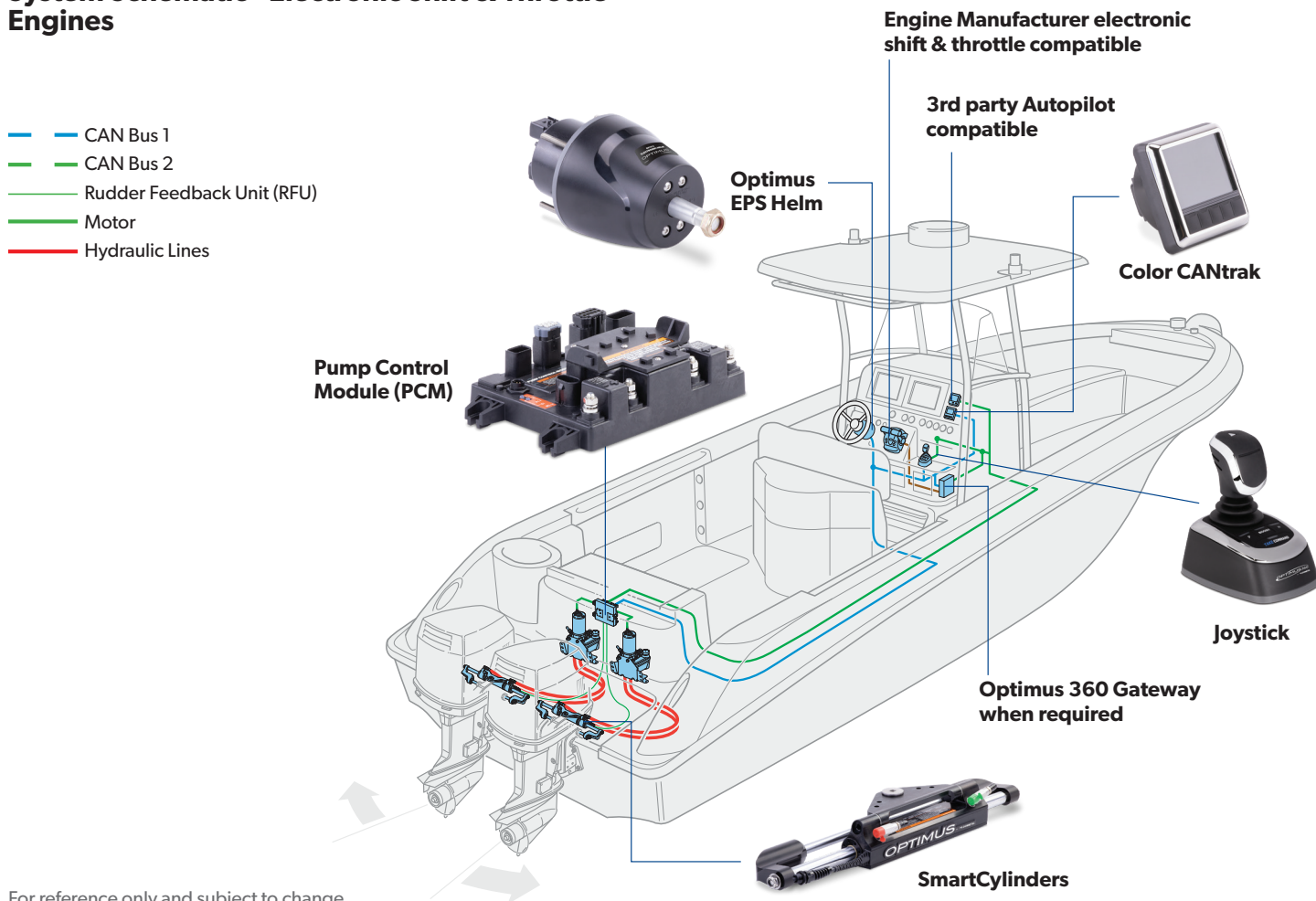
- Operating temperature: -18°C to $+77^\circ\text{C}$ [ISO 25197]
- Storage temperature: -40°C to $+85^\circ\text{C}$ [ISO 25197]
- Corrosion resistance: 1000 hours salt spray [ASTM B117]
- Water ingress protection: IPX7 [IEC 60529]

Shock & Vibration

- Random vibration: $0.0284 \text{ g}^2/\text{Hz}$ [ABYC P-27]
- Resonant vibration: 4 G zero-peak, 20-2000 Hz [ABYC P-27]
- Thermal shock: 100 cycles
- Mechanical shock: 50 G, 11 msec half-sine shape [ISO 25197]

INSTALLATION - OPTIMUS 360 JOYSTICK

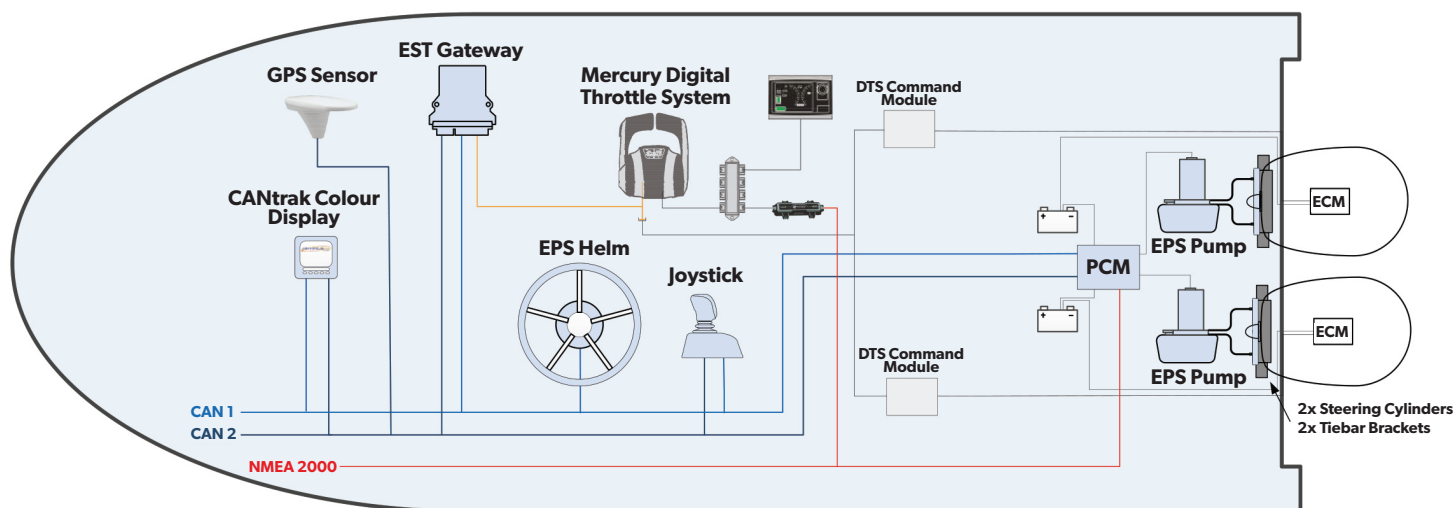
System Schematic - Electronic Shift & Throttle Engines



For reference only and subject to change.

INSTALLATION - OPTIMUS 360 JOYSTICK

System Schematic - For Mercury® Verado™ 6 Cylinder Engines



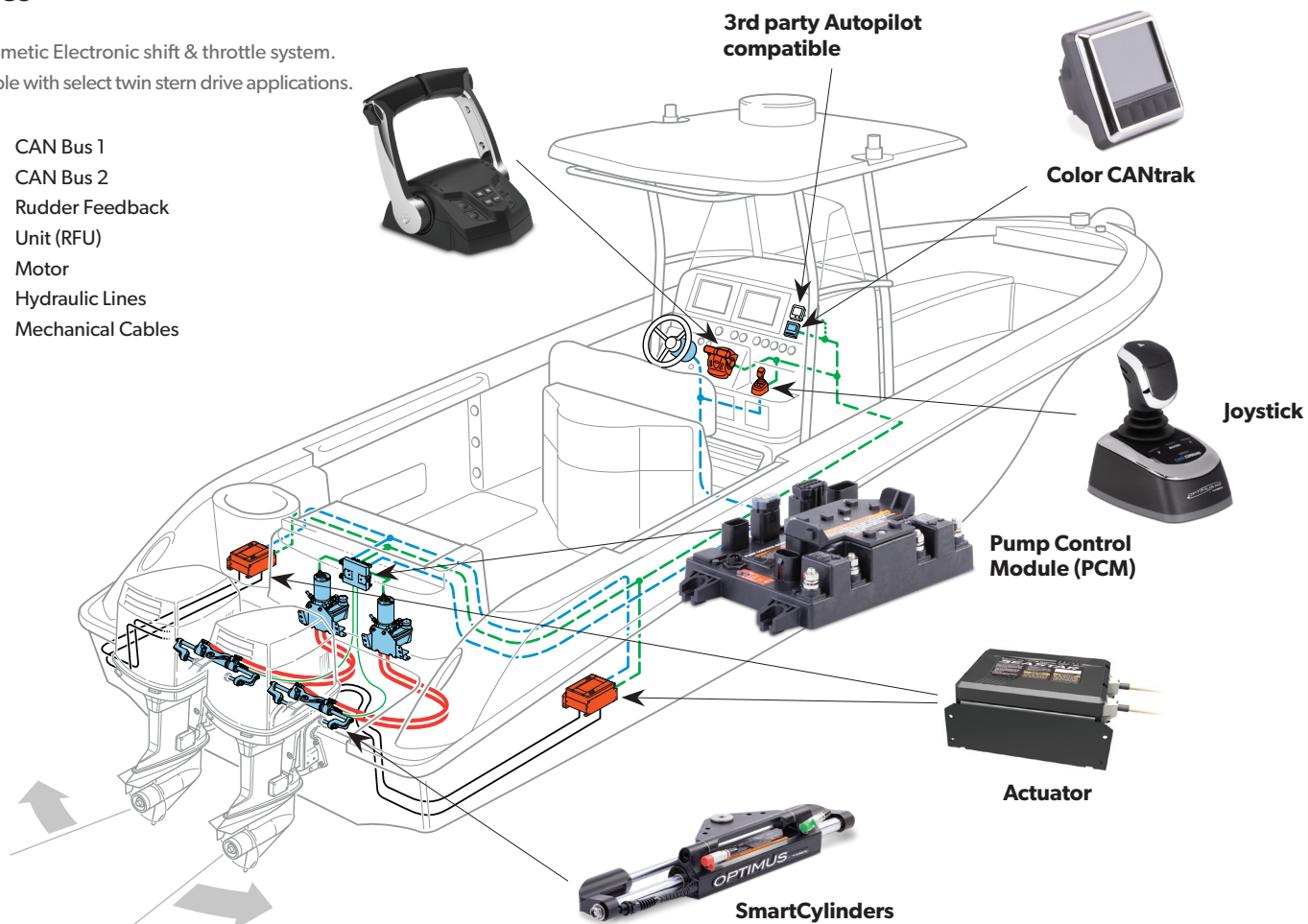
For reference only and subject to change.

INSTALLATION - OPTIMUS 360 JOYSTICK

System Schematic - Mechanical Shift & Throttle Engines

Using Dometic Electronic shift & throttle system.
Compatible with select twin stern drive applications.

- CAN Bus 1
- CAN Bus 2
- Rudder Feedback Unit (RFU)
- Motor
- Hydraulic Lines
- Mechanical Cables



For reference only and subject to change.

SEASTATION

HOLDS POSITION & HEADING VIA GPS

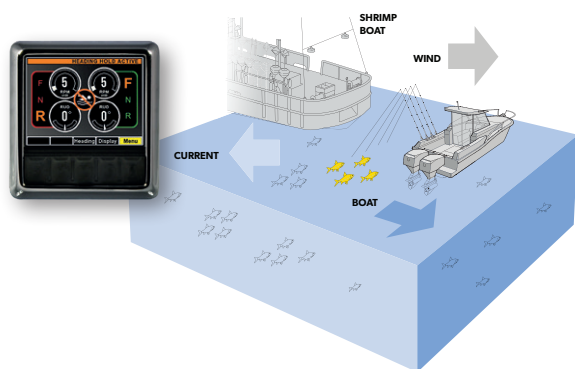


EASY ADD-ON TO YOUR OPTIMUS 360 BOAT

When you are trying to locate that ideal spot over a reef or a wreck, SeaStation is ideal. Just hold your position and heading, drop your lines and see if you have success, if not, simply move to another location and engage SeaStation. No physical anchor required.

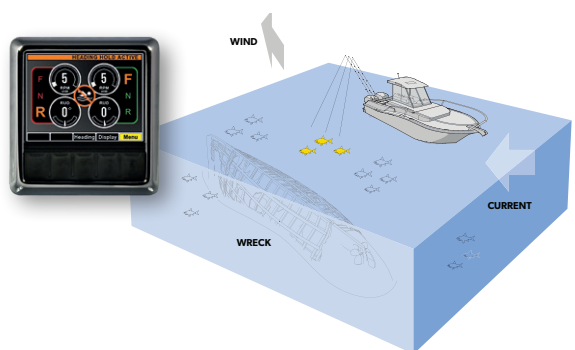
Dometic has applied the same smart algorithms to SeaStation as you have experienced with Optimus 360 joystick control to reduce unnecessary shifting and jockeying of the engines while providing superior position and heading functions for a large selection of engine platforms.

Captains have told us that we can't have the jarring from the engines shifting and unnecessary movement as it does not sound good and also could impact the fishing outcome. We took this input seriously and we are confident SeaStation will be a fishing enabler.



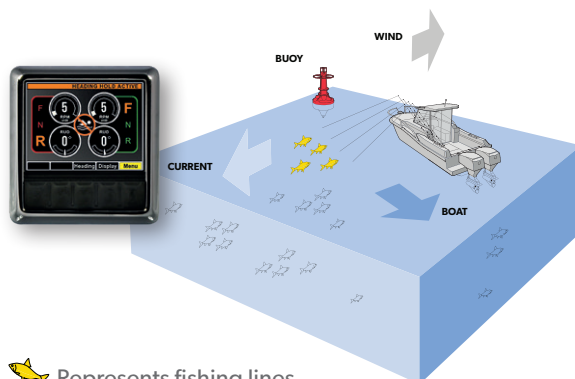
Mode 1: Heading Hold

Hold heading regardless of position.
Applications include kite fishing/drift fishing.
Easier setup - Maximize fishing time.



Mode 2: Position Hold

Hold position regardless of heading.
Applications include bait fishing and wreck/reef fishing. Finding the natural heading when in position hold could be the best option.



Mode 3: Heading and Position Hold

Stay in position and hold heading.
Applications include waiting for a bridge to open, a spot at the dock to become available and bait fishing near a structure.

 Represents fishing lines

SYSTEM REQUIREMENTS

OPTIMUS 360 JOYSTICK CONTROL SYSTEM

SeaStation Kits EPSK1625 & EPSK1630

Includes: Dual antenna GPS sensor
DeviceNet CAN2 harness and T-connector
Software and sensor license activation code
Warning decals are provided to be placed near all boarding access points

Accuracy (target) ± 3 Meters Position hold
 $\pm 10^\circ$ Heading hold

Sensor and mounting information:

Dimensions without mount: 25.9 L x 12.9 W x 4.5 H (cm)
10.2 L x 5.1 W x 1.8 H (in)
with mount: 25.9 L x 12.9 W x 12.8 H (cm)
10.2 L x 5.1 W x 5.0 H (in)

Weight without mount: 0.42 kg (0.9 lb)
with mount: 0.51 kg (1.1 lb)

SeaStation Kits

EPSK1625 - SeaStation compass sensor core pack pole mount

EPSK1630 - SeaStation compass sensor core pack surface mount



SeaStation Modes

This is a safety step to make sure that all precautions have been taken to make sure there is nothing in the water when SeaStation is engaged. After pressing the A and C buttons on the joystick, the captain will be prompted to engage SeaStation by pushing the button on the CANtrak display.

A - Position
C - Heading



Heading Adjustment

Jog buttons have been created to adjust heading in five degree increments.

This feature allows heading adjustment without disengaging SeaStation to align the vessel stern to wind and current to reduce engine activity.

Another common use for SeaStation will be when you are waiting for a spot to open at the dock or waiting for a bridge to lift. Simply push the A button or A&C buttons on the joystick, acknowledge via the Color CANtrak display and the boat will hold its position.

When ready to take command, simply toggle the A and/or C button off for control with the joystick.

As Dometic adds more functions and features to SeaStation they will be available with s/w updates. Please contact your OEM or Optimus Certified dealer for more information.

WARNING: THIS IS NOT TO BE USED FOR ANY KIND OF SWIMMING AND DIVING.



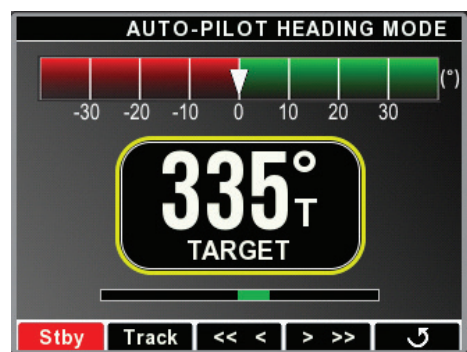


SET YOUR DESTINATION AND GO!

SeaWays autopilot is a simple enhancement (update) to the Optimus 360 system using the CANtrak display and can use the same heading and position sensor as SeaStation.

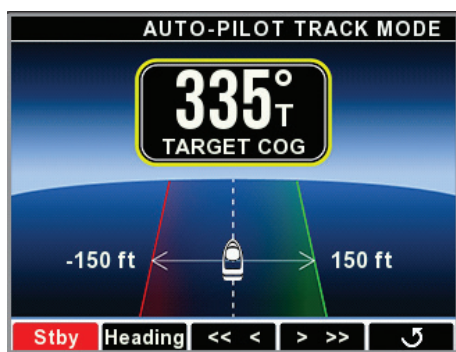
Features:

- SeaWays is included with SeaStation and is accessible using the CANtrak display that is part of the Optimus 360 system
- The display image is simple, making it easy to engage one of the 3 modes and understand what the boat is doing
- Track mode will compensate for wind and current keeping the boat on course
- Uses GPS-compass technology
- Heading not affected by boat roll and pitch
- Always provides true north
- Now you have SeaStation (GPS anchor) and Autopilot all in one System from Dometic



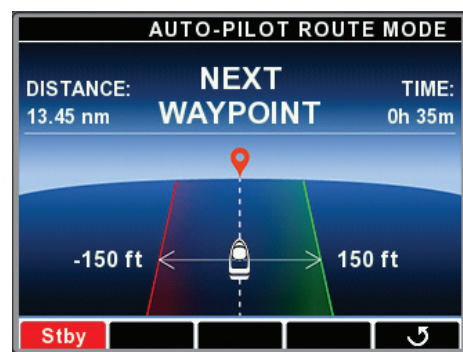
Heading Mode

Autopilot holds a desired heading. Boat may drift with wind and current



Track Mode

Autopilot holds a desired course over ground. Boat heading may be changed by the autopilot to hold the desired course



Route Mode

Autopilot follows waypoints provided by third party chart plotter. Boat heading will be changed by the autopilot to follow the waypoints

Override

Autopilot is temporarily disabled when the helm is turned. The autopilot re-engages automatically when the helm is no longer turned and the boat heading is stable. When the autopilot re-engages, the current heading becomes the new desired heading.

What Makes SeaWays Autopilot Simple?

- No additional Course Control Unit (CCU) or display to install
- The autopilot CCU resides inside the steering controller (PCM) and has access to all the steering characteristics for optimum performance
- All the steering commands are sent internally providing a more integrated system, unlike 3rd party autopilot systems where communication is external
- Tuning is simple as all SeaWays has to do is determine how the boat responds to the rudder, providing accurate autopilot performance

Easy Heading Change

Instead of changing your heading via the CANtrak display, you can easily change your heading by tapping the joystick to get 1 degree or 10 degree changes in heading.

Tap the joystick port or starboard for 1 degree change or hold it for 2 seconds for 10 degree change.

The SeaWays autopilot Heading and Track modes can be activated via the CANtrak display. If you desire Route Mode, a third party chartplotter is required for setting the waypoints.

SEAWAYS GO AUTOPILOT

Affordable point and GO autopilot that is easy to install.

COST EFFECTIVE

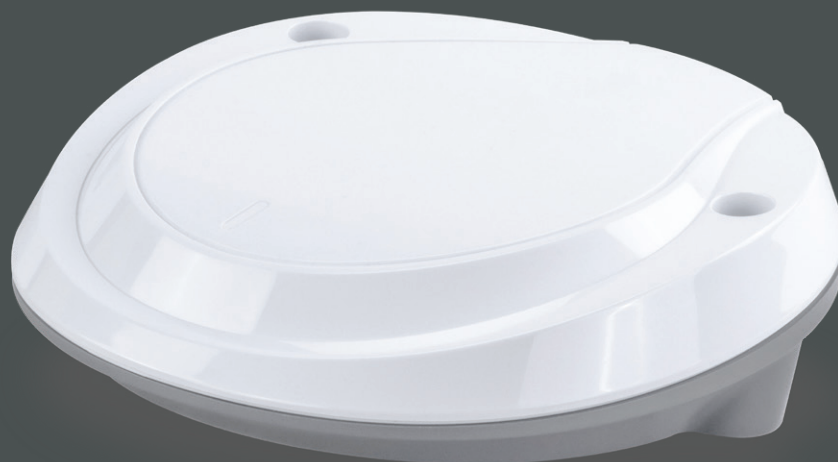
NO NEED FOR ADDITIONAL PUMPS

EASY TO USE

POINT AND GO

COMPATIBILITY

OPTIMUS EPS OUTBOARD
STEERING



Applications:

- Single or multi-engine Optimus EPS outboard vessels
- Affordable point and GO autopilot system
- Display heading information on compatible multi-functional displays (MFD)
- Holds magnetic heading only

Autopilot for Optimus EPS

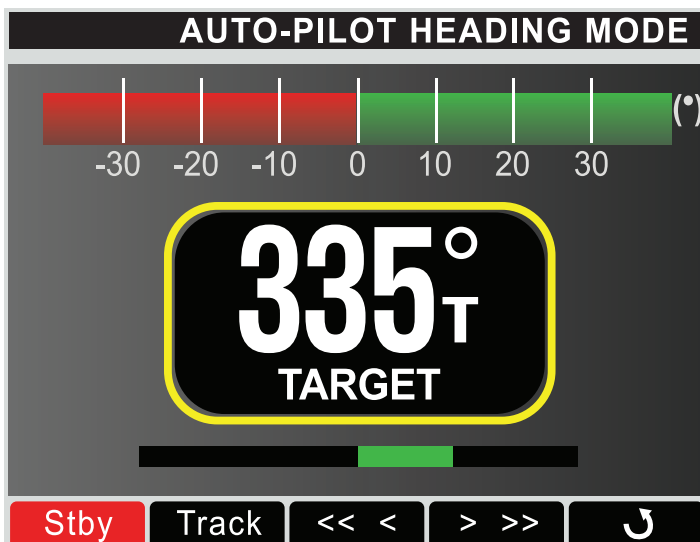
- Kit contains a 15' harness, tee connector, mounting hardware, install/ operators manual
- Connects to either CAN2 (private CAN) or CAN3 (public CAN)
- SeaWays GO requires a license code activation that is entered via the Optimus CANtrak display
- Simple single step calibration

**Dometic Innovation**

- Smart algorithms are used to prevent constant correction and movement to provide a smoother more comfortable journey
- Takes advantage of the components that make up the Optimus EPS system, resulting in no additional parts
- Designed to work with both Optimus electro-hydraulic and electric outboard steering systems

Specifications

DOMETIC MODEL	EPSK1700
Supply Voltage	8-16 VDC
Operating Temperature	-25C to 65C
Approvals Compliance	CE under EMC directive 2014/30/EU
Warranty	2 Years
Waterproof Rating	IPx7
Technology	Solid State, 9 Axis Sensor



CANtrak display





A HIGHER LEVEL OF ENGINEERING SOPHISTICATION

For centuries, people have been steering boats by brute force. While cable steering, and more recently hydraulics, have made steering easier, the prime mover is still the arms and hands of the captain at the wheel. But all of that has changed. Dometic revolutionizes boat handling with Optimus Electronic Power Steering (EPS) for single, twin, triple and quad outboard engine boats. With Optimus EPS, you can take command of your boat without having to arm-wrestle for control.

Optimus EPS truly raises the bar when it comes to comfort, control and maneuverability, especially for the new breed of high performance powerboats, saltwater fishing vessels, catamarans, RIBs and high end

pontoon boats. It's unlike anything you've ever experienced when it comes to steering. We know you will be impressed.

Take things a step further and give your boat a whole new dimension of control. By developing the joystick function to be intuitive, Optimus 360 allows you to move your boat not only forward and back, but also sideways, by pushing the joystick to the left, or to the right, and even, rotate on a dime, all with a simple twist of the joystick.

THE TECHNOLOGY BEHIND THE SYSTEM

The incredible feel you get when you're behind the wheel of a boat equipped with Optimus EPS is the result of an innovative array of technology and engineering. Each component has been designed to complement the other, resulting in a seamless experience of steering control in virtually every situation on the water. The high level of engineering also extends to the reliability of the system, with quality materials, careful manufacturing and redundant systems, all to stand up to the rigors of life on the water.

System Components:

Electronic Helm



Key Benefits

- Adjustable steering for maximum comfort
- Driver comfort, control and performance as speed varies
- Provides redundancy for reliable operation
- No hydraulic oil at helm
- Adjustable position of steering wheel for personal comfort

SmartCylinder



Key Benefits

- System reliability and operation
- No additional RFU required for autopilot system
- Fits most outboard engines

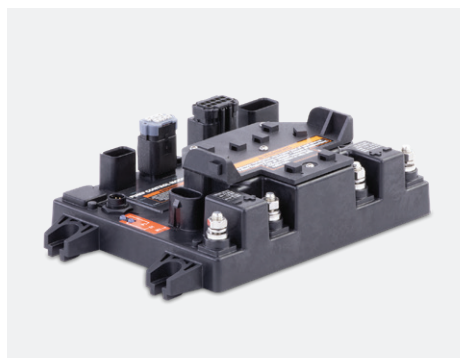
Hydraulic Steering Pump



Key Benefits

- Significantly reduces overall power consumption
- No oil cooler required for hydraulic fluid
- Allows user to purge system with existing components
- Meets Coast Guard requirement for ignition protection
- A separate auto-pilot pump is not required
- Limp home mode on remaining functional engine(s)

Pump Control Module



Key Benefits

- Ensures system reliability and operation
- Ensures reliable cable protection from vibration
- No additional autopilot pump and RFU
- Ensures system operates at peak performance

CanTrak Display



Key Benefits

- Interface to setup steering and joystick system
- Installer adjustable steering settings
- Real-time system status rudder direction and RPM
- No additional device or computer required to get the system functional
- Interface to activate both SeaStation and SeaWays

*System components can differ in appearance depending on engine application.

APPLICATIONS FOR OPTIMUS EPS

Outboard Applications

All single, twin, triple and quad outboard engine boats

- Electronic and mechanical controlled
- Single and multi-helm station boats
- Performance powerboats, bay boats, center console, saltwater fishing vessels, RIBs, catamarans, houseboats and pontoon boats

Inboard & Sterndrive Applications (Under 40')

Most single and twin inboard engine boats – electronic and mechanical controlled

- Single, twin and triple helm station yachts
- Competition ski boats, cruisers, and sport fishing yachts

Inboard Applications (40-100'+)

Most single and twin inboard engine boats – electronic and mechanical controlled

- Single, twin and triple helm station yachts
- Performance motor yachts, express convertibles, and sport yachts

Compatibility Information

Popular engine brands: Yamaha®, Suzuki®, BRP® (Evinrude®), Mercury®, Honda®

	POPULAR ENGINE BRANDS (MST)	YAMAHA® EST (NON 425)	YAMAHA® EX (NON 425)	MERCURY® VERADO™ (L6)	SUZUKI® SPC1	SUZUKI® SPC2	OXE DIESEL	COX MARINE	HONDA iST (2)	MERCURY® V6 (CMS)	MERCURY® V8 (CMS)
Optimus EPS											
Single Engine	•	•	•	•	•	•	•	•	•	•	•
Twin Engine	•	•	•	•	•	•	•	•	•	•	•
Triple Engine	•	•	•	•	•	•	NA	NA	•	•	•
Quad Engine	•	•	•	•	•	•	NA	NA	•	•	•
Optimus 360 Joystick											
Twin Engine	•	•	•	•	•	•	•	NA	•	• ***	NA
Triple Engine	NA	•	•	•	•	•	NA	NA	NA	NA	NA
Quad Engine	NA	•	NA	•	•	•	NA	NA	NA	NA	NA
JS Upgrade	•	•	•1	•	•	•	•	NA	•	NA	NA

- 1 Twin and Triple Only
- 2 Honda iST control only (current iST control)
- *** Available from Mercury®
- Please check Optimus BOM tool for Optimus Joystick & Mercury® Electronic Control Compatibility
- NA - Currently not available, please contact sales representative
- MST - Mechanical Shift and Throttle Engines
- EST - Electronic Shift and Throttle Engines
- JS Upgrade - Can add joystick control to an existing Optimus EPS vessel
- Optimus 360 is not compatible with Mercury® Next Gen Control System

* Information is subject to change.

Advantages of Optimus EPS

- No oil at helm
- Boat that steers like a sports car
- Plug and play autopilot compatibility with drive by wire systems
- No autopilot pump or rudder feedback unit
- Adjustable speed sensitive wheel effort
- Adjustable speed sensitive turns lock to lock
- Can be retrofitted to existing mechanical controlled engines
- No tie-bars (twin configuration)
- No liquid tie-bar (CAT)
- On demand pumps which extend battery life
- Components based on existing Dometic reliability and quality
- NMEA 2000 Certified. Meets or exceeds NMMA, ABYC, CE, ISO, and SAE electrical & environmental requirements

Options for Optimus EPS

- Multi-station electronic helm
- Heavy-duty tournament cylinders
- Triple with tie-bar
- Quad with tie-bars

Specifications

Features & Benefits of the Optimus EPS System

- Optimus EPS is designed to be Optimus 360 ready
- ABYC, CE, ISO and SAE compliant - adheres to established safety standards
- Compatible with select autopilot models from Slimrad®, Garmin® and Raymarine®
- When adding 2nd or 3rd station helm, no oil, just electrical connection

Autopilot Interface

The Optimus EPS electronic control system interfaces directly with the latest generation of autopilots from Garmin®, Raymarine® and Simrad®, without the need for a second pump and the lengthy installation and purging procedure.

Redundancy

Optimus EPS has multiple levels of redundancy using a fault tolerant CAN network and each component has at least 2 sensors that are continually monitored.

Ackerman Steering

Intelligent programming allows the Optimus EPS system to separately control the steering angle of inner and outer outboards. This eliminates under-steer caused by the outside outboard “pushing” against the curve of the turn. Ackerman steering is especially important in power catamarans where the engines are located farther apart.

Active Sensitivity

Lock-to-lock turns and wheel effort are programmed to change with engine RPM. At slow speeds, Optimus EPS can be set to reduce the number of turns lock-to-lock, and make it easier to steer. When you’re negotiating through traffic or in a tight spot, those smaller moves of the wheel give you precise control. When you’re running at speed in open water, Optimus EPS can be set to increase lock-to-lock turns, for example, and increase steering effort giving the driver more stability to comfortably keep on course. And through it all, Optimus EPS does the work, so you can relax and take it easy.



OPTIMUS EPS

FOR OUTBOARD ENGINE APPLICATIONS



APPLICATIONS FOR OPTIMUS EPS

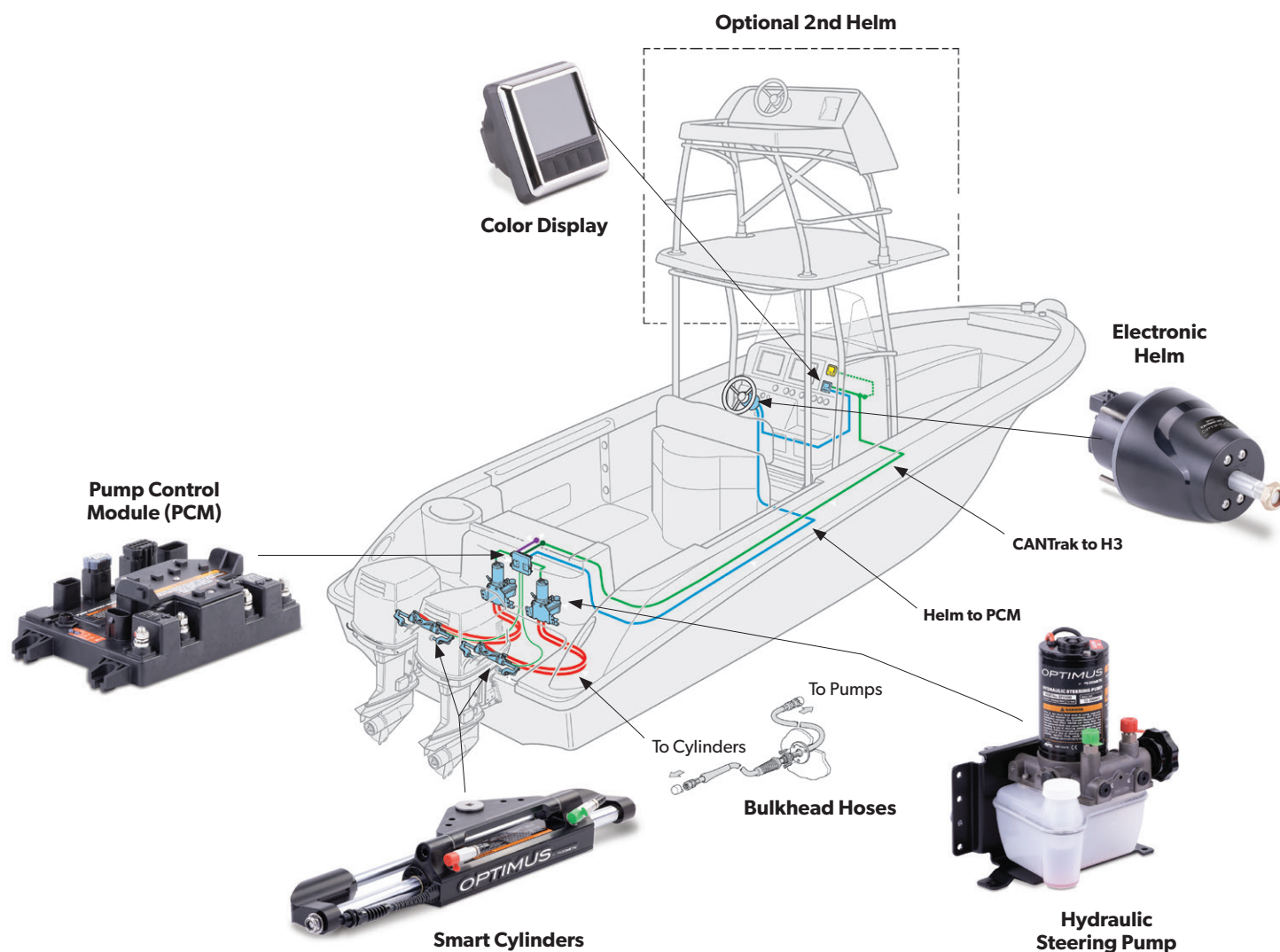
Outboard Applications

All single, twin, triple and quad outboard engine boats

- Electronic and mechanical controlled
- Single and multi-helm station boats
- Performance powerboats, bay boats, center console, saltwater fishing vessels, RIBS, catamarans, houseboats and pontoon boats

The Technology - Outboard Engines

System Components



*For reference only and subject to change.

OPTIMUS EPS FOR MERCURY® VERADO™ ENGINES

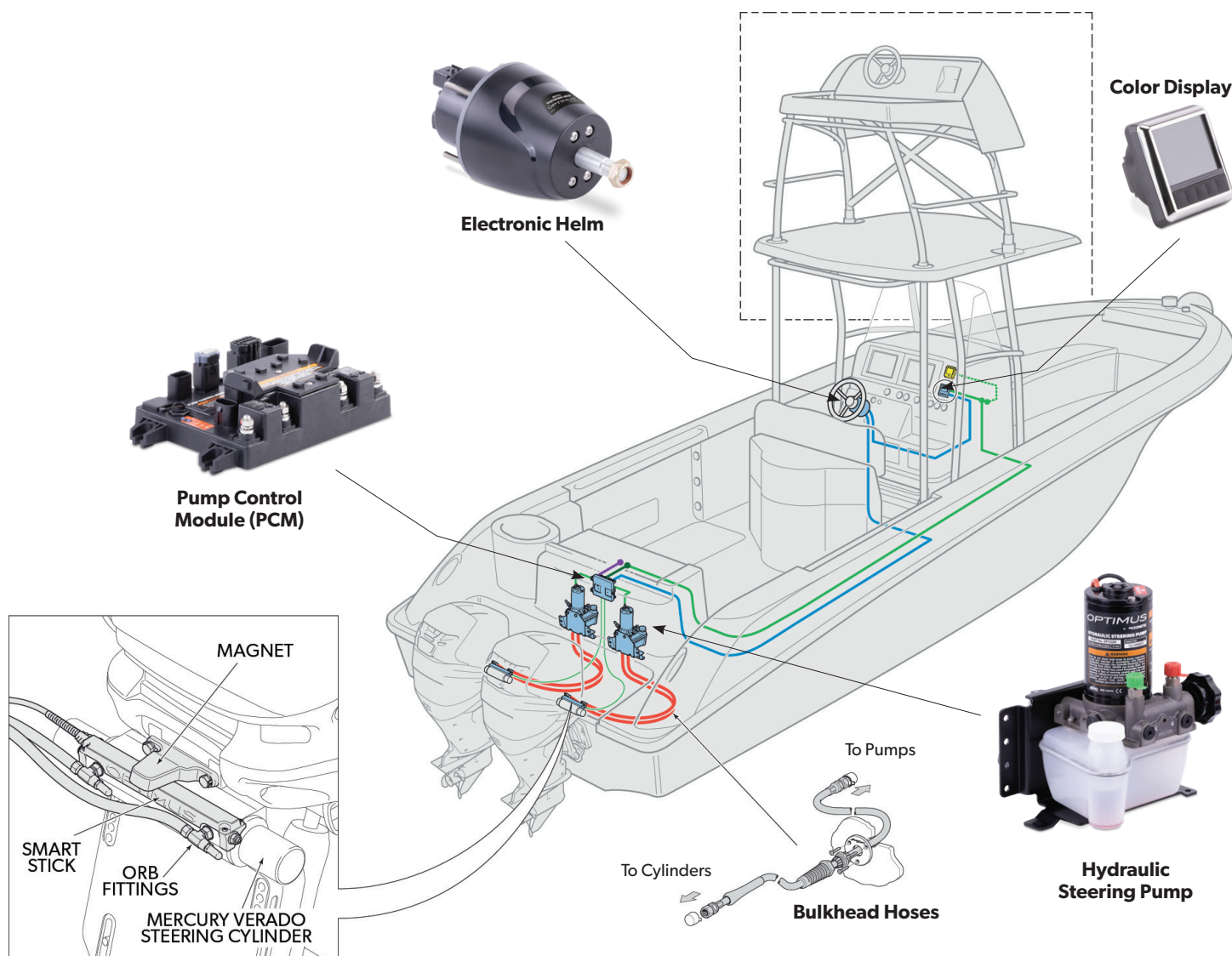
Challenges Hatch Innovation

The incredible feel you get when you are behind the wheel of a boat equipped with Optimus EPS can now steer Mercury® Verado™ engines. Dometic has creatively designed a custom molded smartstick and magnet assembly that adapts to the existing built-in Verado™ steering cylinder. The electronic helm, hydraulic steering pump, CANtrak display, and PCM are the same components you have grown to trust to steer your vessel over the past several years. Now you can get the comfort, steering performance and control you expect.

The biggest challenge was finding a creative way to adapt the smartstick and magnet components to provide the rudder reference signal without impacting the integrity of the Verado™ steering cylinder. This ingenuity in design adapts these components to the steering cylinder with the same level of redundancy available in all Optimus EPS systems.

INSTALLATION - OUTBOARD ENGINES

System Schematic Mercury® Verado™ Engines

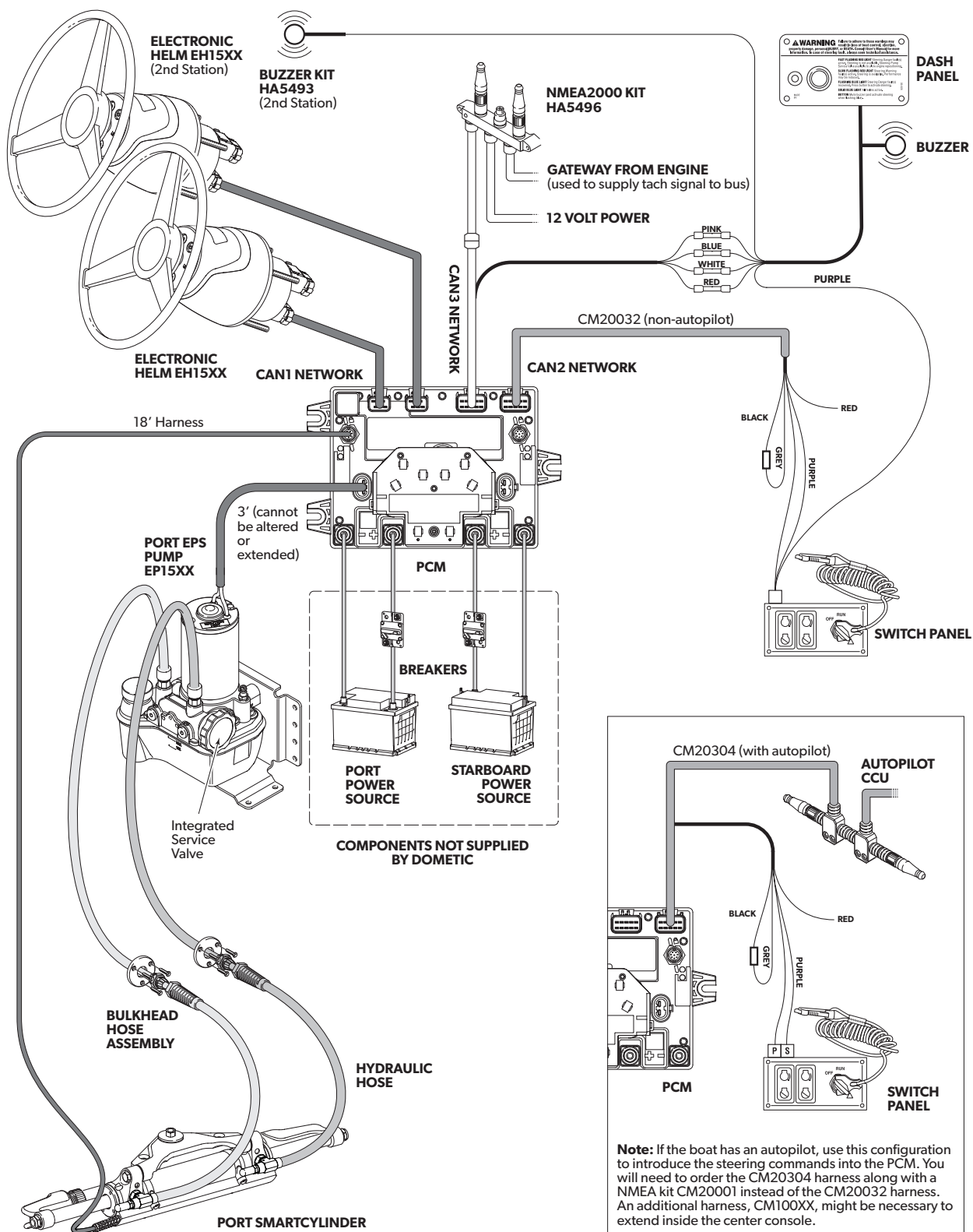


*For reference only and subject to change.

Components based on existing Dometic reliability and quality.

INSTALLATION - OUTBOARD ENGINES

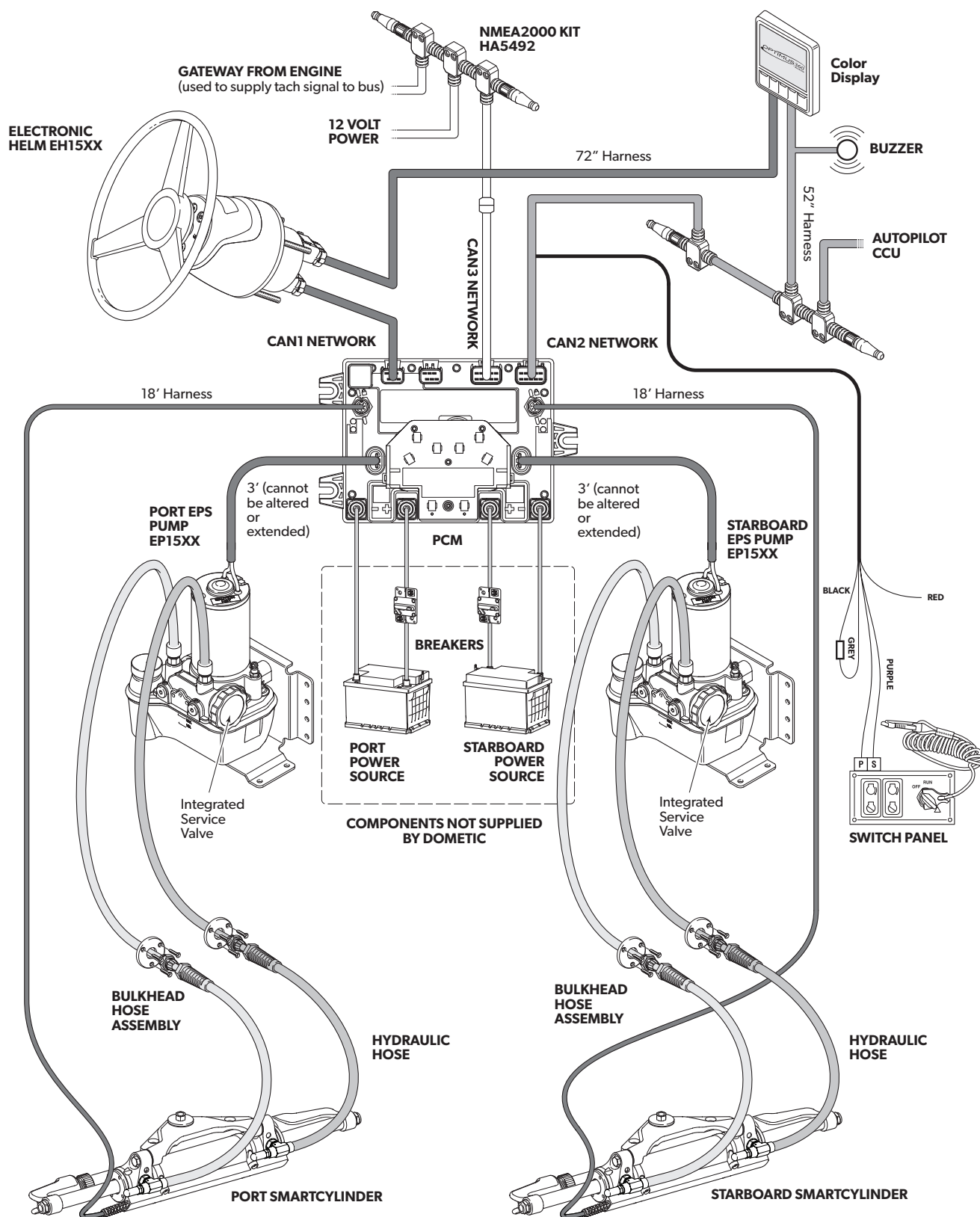
System Schematic - Single Engine



For reference only and subject to change.

INSTALLATION - OUTBOARD ENGINES

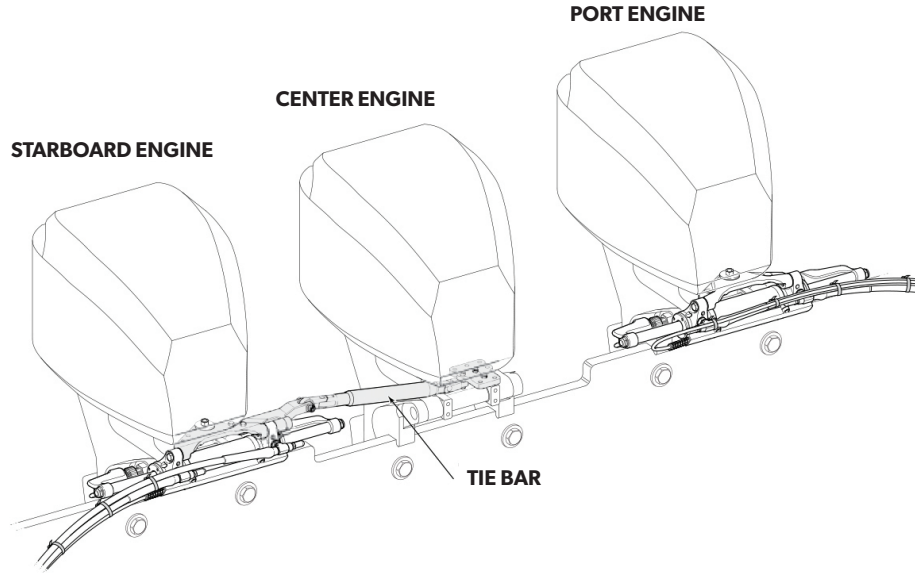
System Schematic - Dual Engine



For reference only and subject to change.

INSTALLATION - OUTBOARD ENGINES

Tie Bar Arrangement - Triple Engine

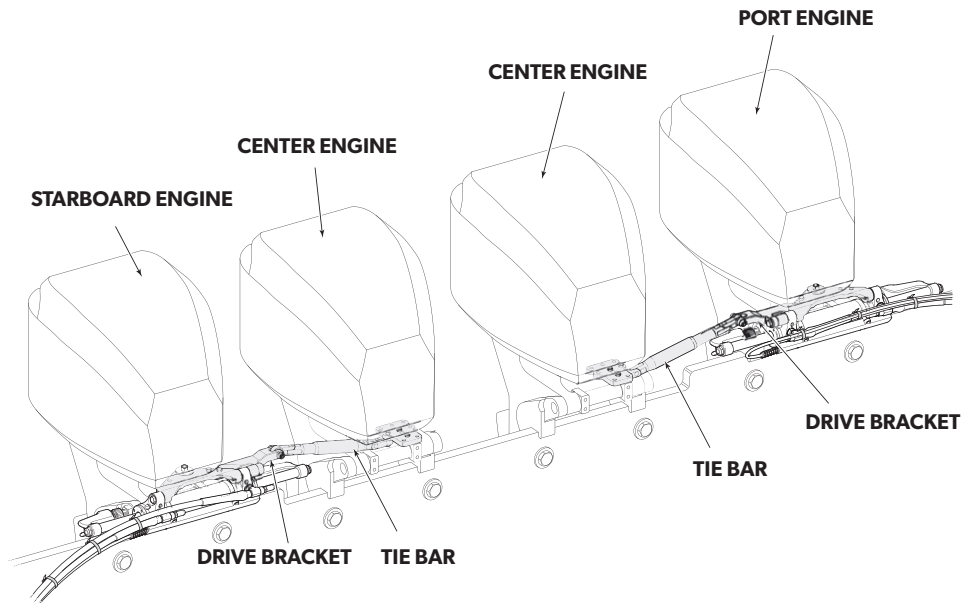


For reference only and subject to change.

Tie Bar Arrangement - Quad Engine

Configuration shown with Drive Brackets.

Tiller extension option available.



For reference only and subject to change.

OPTIMUS EPS

5000 SERIES
FOR INBOARD ENGINE APPLICATIONS 40-100+'



APPLICATIONS FOR OPTIMUS EPS

Inboard Applications 40-100' +

- Most single and twin inboard engine boats – electronic and mechanical controlled
- Single, twin and triple helm station yachts
- Performance motor yachts, express convertibles, and sport yachts

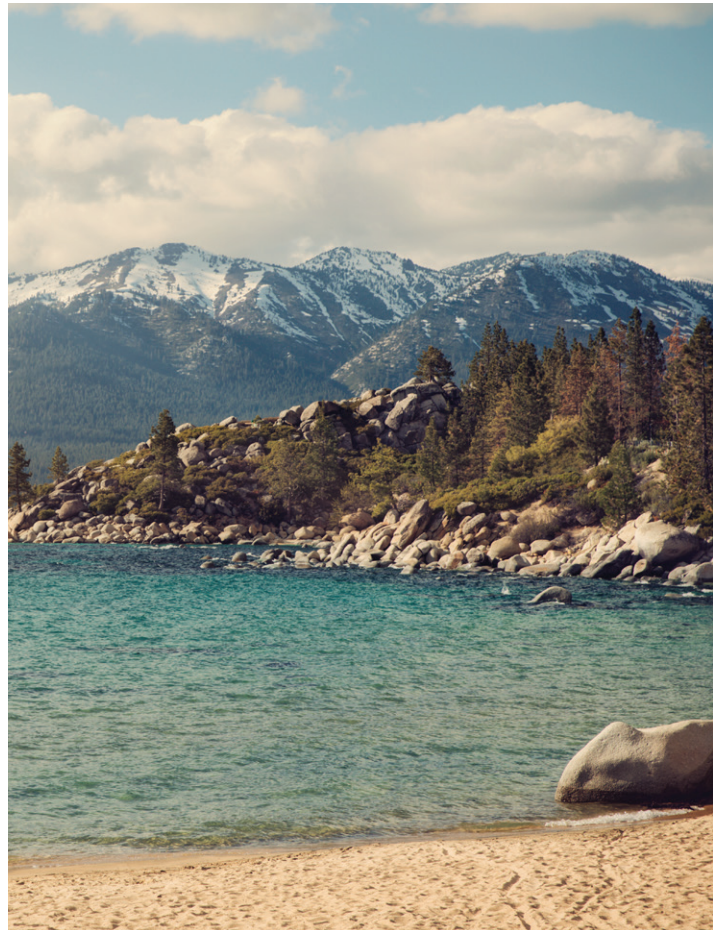
Specifications

Environmental

- Operating temperature: -18°C to +77°C [ISO 25197]
- Storage temperature: -40°C to +85°C [ISO 25197]
- Corrosion resistance: 300 hours salt spray [ASTM B117]
- Water ingress protection: IPX7 [IEC 60529]
- Random vibration: $0.0284 \text{ g}^2/\text{Hz}$ [ABYC P-27]
- Resonant vibration: 4 G zero-peak, 20-2000 Hz [ABYC P-27]
- Mechanical shock: 50 G, 11 m-sec half-sine shape [ISO 25197]
- Ignition protection: SAEJ-1171
- Meets EN60945 electro-magnetic compatibility requirement

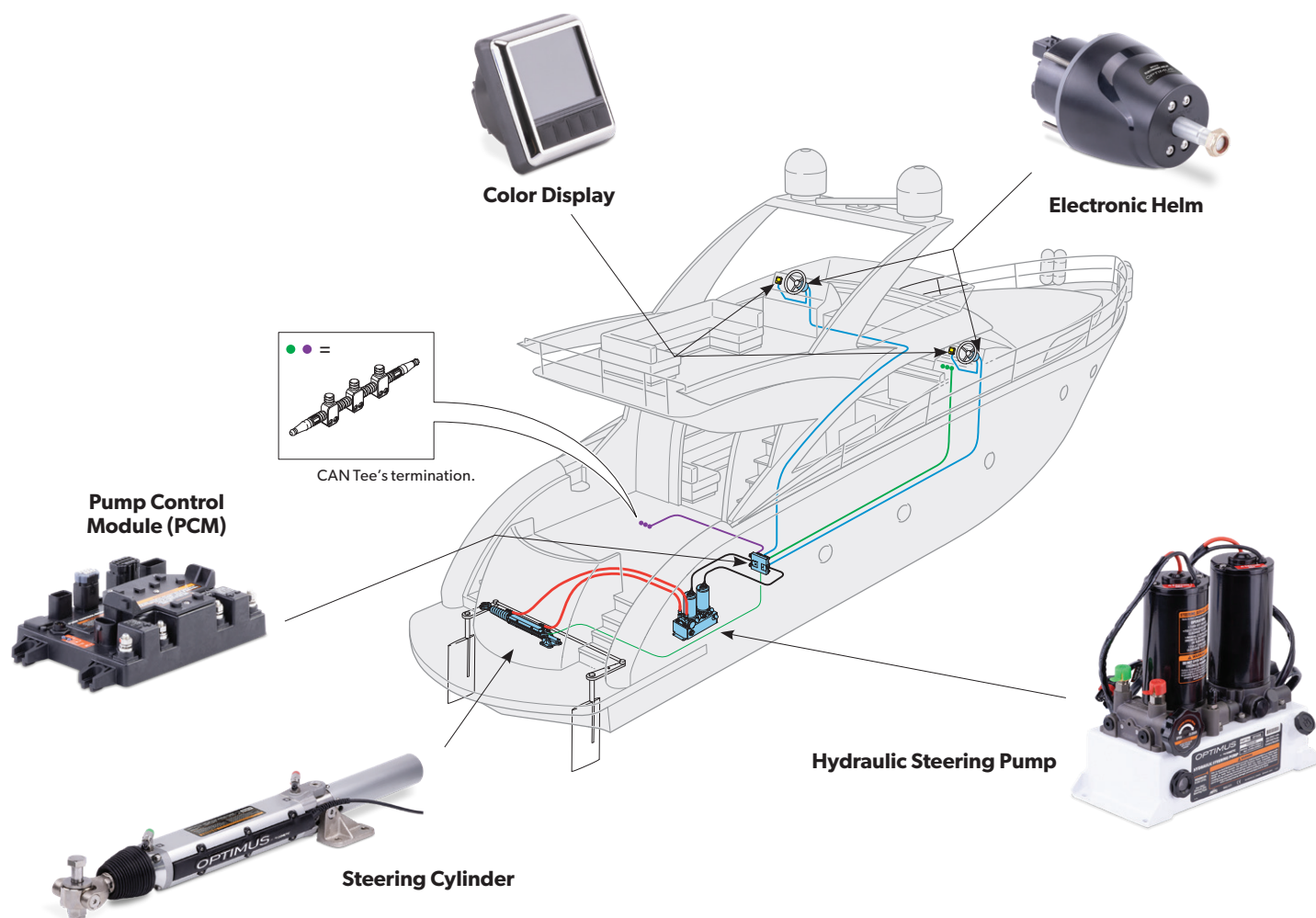
Features

- Up to three helm stations
- Automatic battery management with sensing, warnings & best battery selection
- On demand hydraulic steering pump minimizing power consumption
- No oil at the helm
- Rugged electronics for 24 VDC applications
- Color dash display showing rudder command and rudder position
- Displays system health
- Display provides system setup interface
- Communicates faults and any handling instructions to the operator
- No requirement for tie-bars depending on rudder loads.
- Simple software updating via USB port
- Programmable number of turns lock to lock with speed
- Auto-adjusting steering end stops and resistance with speed
- Dual redundant position sensing on all moving components
- Helm offers both 3/4" taper or 1" straight shaft options
- Utilizes fault tolerant CAN network
- Full autopilot CANbus connectivity and integration. No additional pumps or sensors required
- Adjustable max rudder hard over angle with speed range 25° to 40° Center to hard over
- Rudder toe in or out up to 5° with speed
- Position proportional rudder gain for faster steering response near neutral rudder position
- RPM input: NMEA 2000, J1939 or analog pulse compatible
- Pump features an Integrated service/bypass valve allows a limp home mode
- Meets or exceeds ABYC, ISO and SAE electrical and environmental requirements



THE TECHNOLOGY - INBOARD ENGINES

System Components

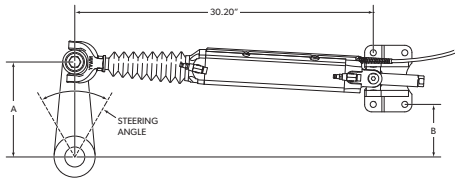


For reference only and subject to change.

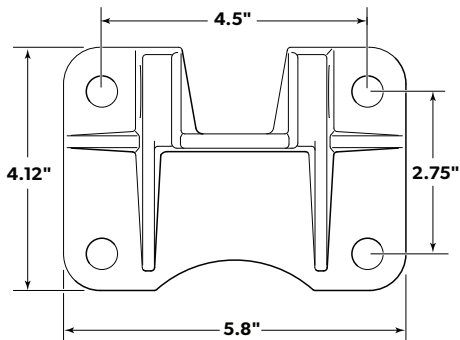


INSTALLATION - INBOARD ENGINES

System Schematic - Yachts 80 Feet & Up



Cylinder at mid-stroke.



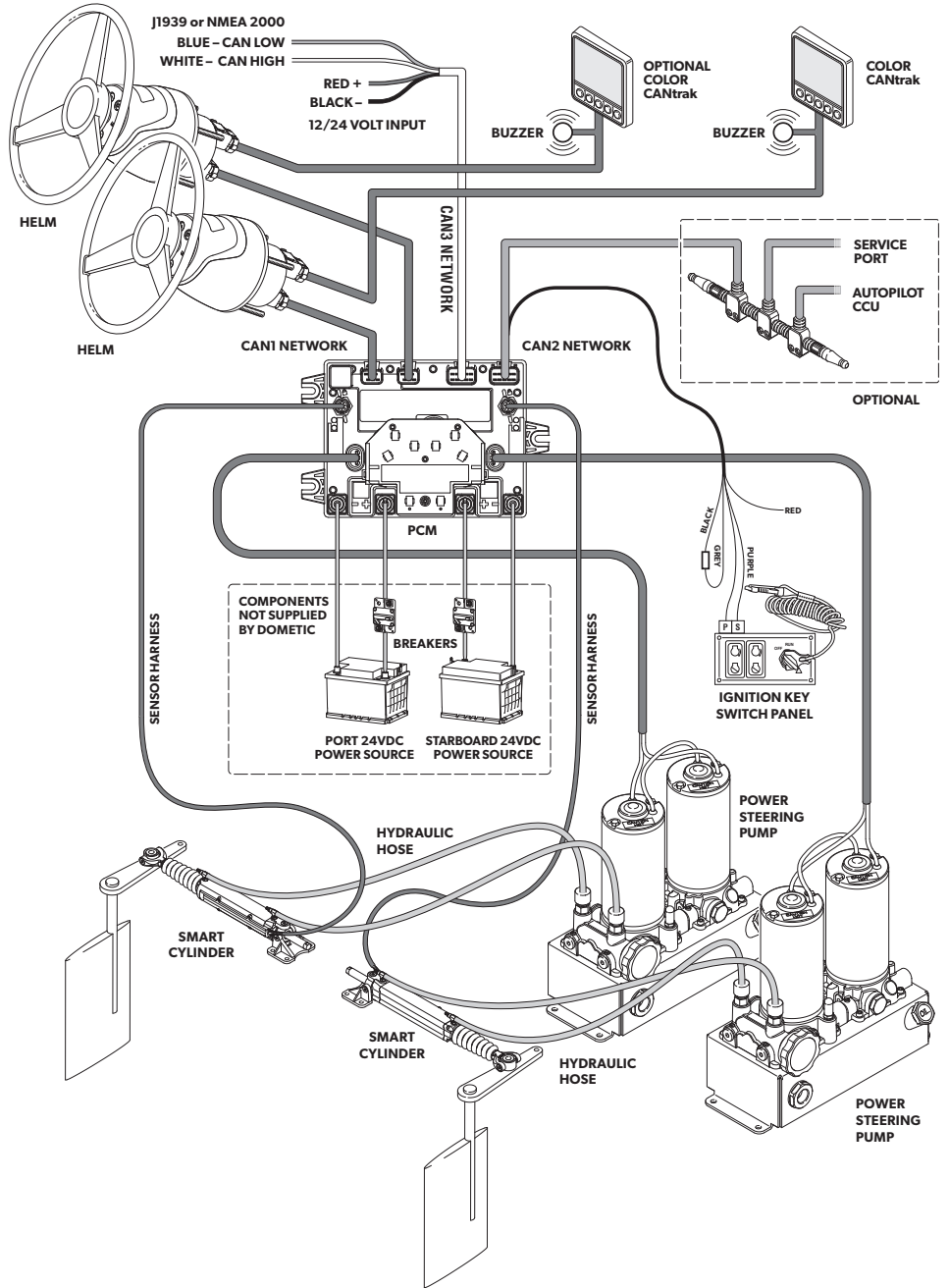
Mounting foot.

MOUNTING CONFIGURATIONS & SYSTEM SCHEMATIC

While using the table below be sure that your steering cylinder is at mid-stroke as shown in the figure above to ensure the cylinder operates correctly.

MODEL EC5850			
Steering Angles			
50°		60°	
A	B	A	B
14.20"	10.62"	12.00"	8.14"
70,800 in-lb		57,200 in-lb	

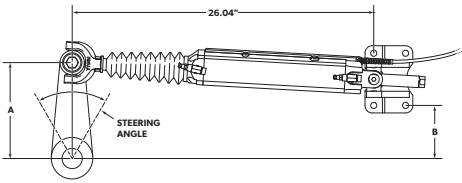
Steering Angles			
70°		80°	
A	B	A	B
10.46"	6.32"	9.33"	4.90"
47,100 in-lb		39,300 in-lb	



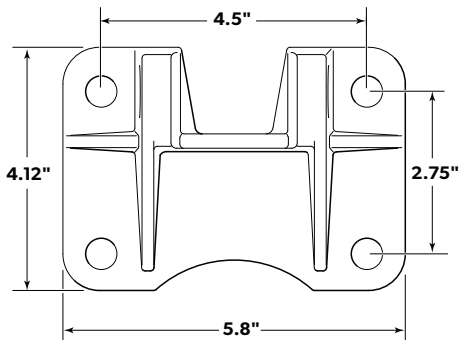
For reference only and subject to change.

INSTALLATION - INBOARD ENGINES

System Schematic - Yachts 60-100 Feet Range



Cylinder at mid-stroke.



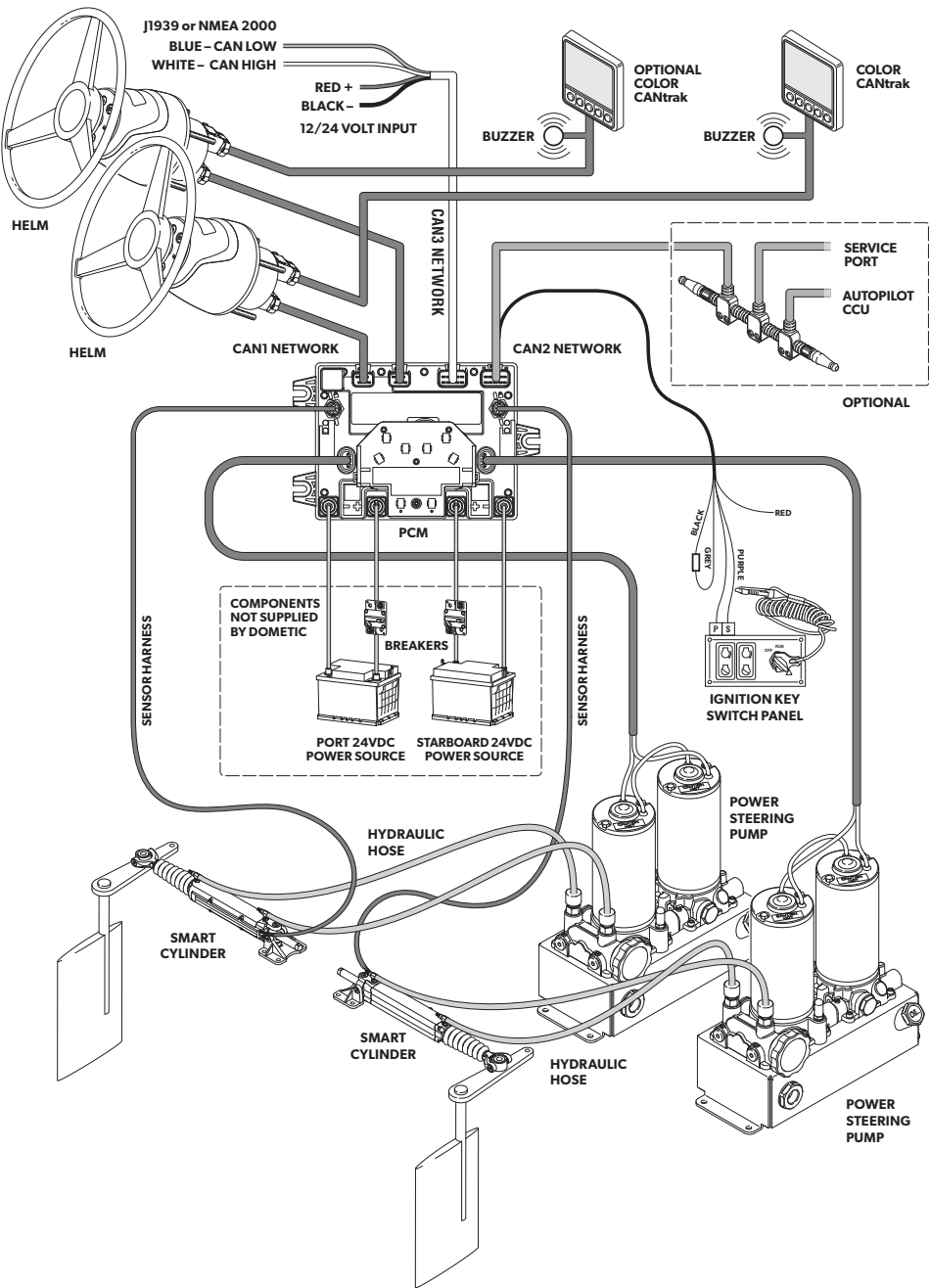
Mounting foot.

Mounting Configurations & System Schematic

While using the table below be sure that your steering cylinder is at mid-stroke as shown in the figure above to ensure the cylinder operates correctly.

MODEL EC5810			
Steering Angles			
50°		60°	
A	B	A	B
11.27"	7.96"	9.50"	5.98"
56,300 in-lb		45,400 in-lb	

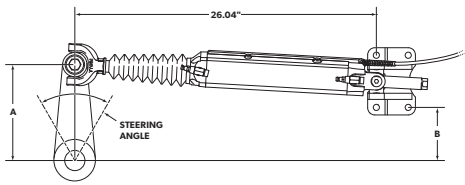
Steering Angles			
70°		80°	
A	B	A	B
8.25"	4.50"	7.40"	3.41"
37,400 in-lb		31,200 in-lb	



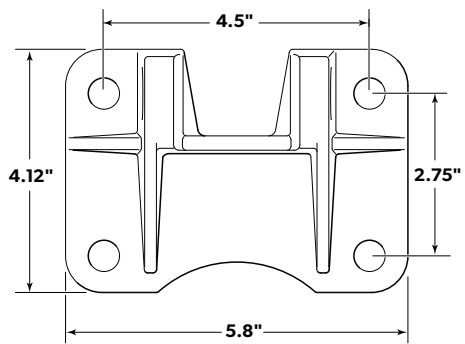
For reference only and subject to change.

INSTALLATION - INBOARD ENGINES

System Schematic - Yachts Approx. 55-70 Feet Range



Cylinder at mid-stroke.



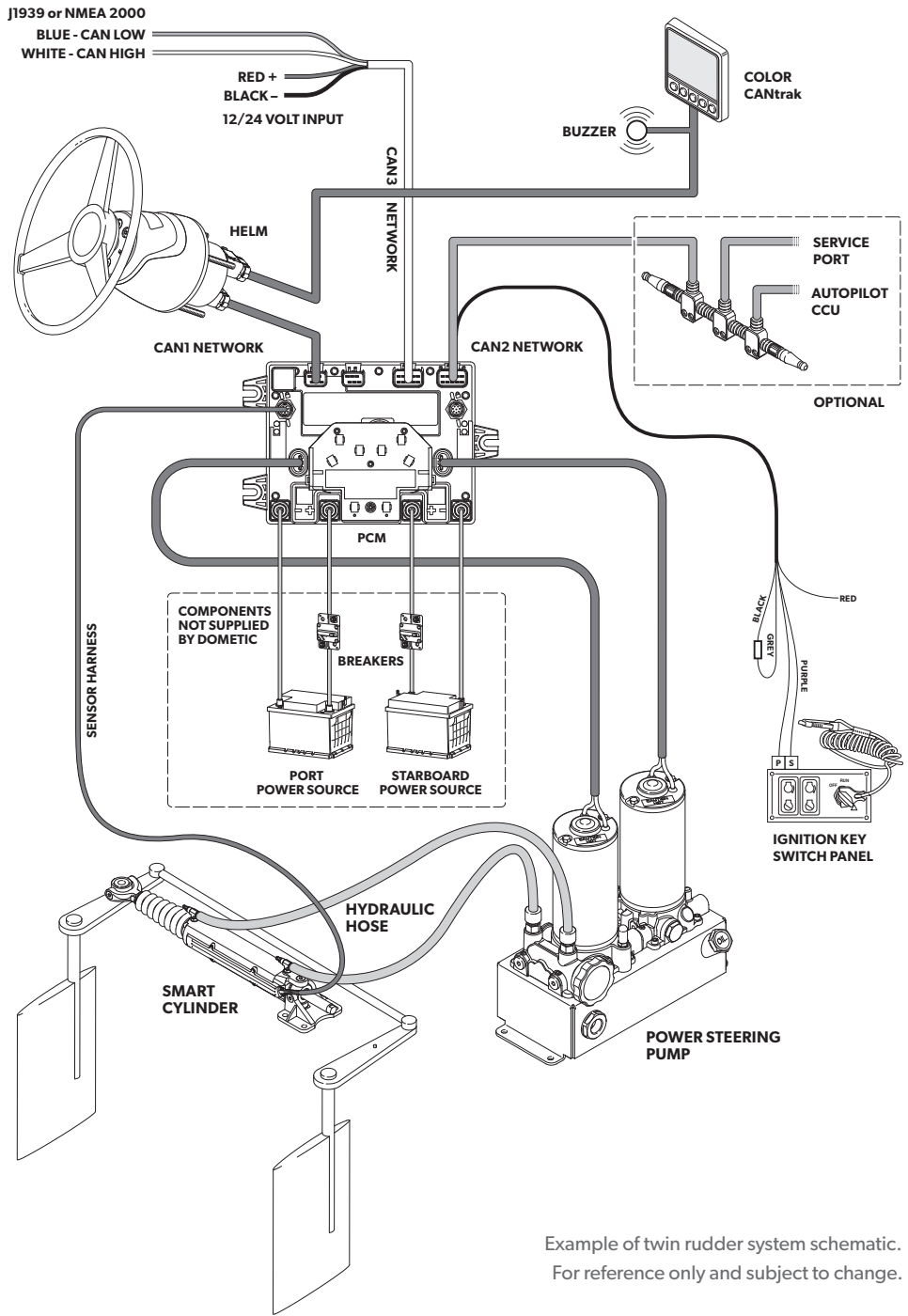
Mounting foot.

Mounting Configurations & System Schematic

While using the table below be sure that your steering cylinder is at mid-stroke as shown in the figure above to ensure the cylinder operates correctly.

MODEL EC5810			
Steering Angles			
50°		60°	
A	B	A	B
11.27"	7.96"	9.50"	5.98"
56,300 in-lb		45,400 in-lb	

Steering Angles			
70°		80°	
A	B	A	B
8.25"	4.50"	7.40"	3.41"
37,400 in-lb		31,200 in-lb	



Example of twin rudder system schematic.
For reference only and subject to change.

OPTIMUS EPS

FOR VESSELS REQUIRING CLASS CERTIFICATION



FOR CLASS CERTIFIED VESSELS LESS THAN 500 GROSS TONNES

The class certified Optimus EPS 5000 series system meets RINA's and ABS' stringent "fit for purpose" safety standard.

With type approval this class certified system is ready to install out of the box, simplifying vessel inspection and the final sign off process.

The incredible feel you get when you're behind the wheel of a boat equipped with Optimus EPS is the result of an innovative array of technology and engineering. Each component has been designed to complement the other, resulting in a seamless experience of steering control in virtually every situation on the water. The high level of engineering also extends to the reliability of the system, with quality materials, careful manufacturing and redundant systems, all to stand up to the rigors of life on the water.

As the captain of your vessel you know how important it is to have command of your yacht. Optimus EPS gives you the steering control, performance and comfort you expect. With Optimus EPS, you can take command of your yacht without having to arm-wrestle for control.

Specifications

Environmental

Operating temperature: -18°C to +77°C [ISO 25197]

Storage temperature: -40°C to +85°C [ISO 25197]

Corrosion resistance: 300 hours salt spray [ASTM B117]

Water ingress protection: IPX7 [IEC 60529]

Random vibration: 0.0284 g²/Hz [ABYC P-28]

Resonant vibration: 4 G zero-peak, 20-2000 Hz [ABYC P-28]

Mechanical shock: 50 G, 11 m-sec half-sine shape [ISO 25197]

Ignition protection: SAEJ-1171

Meets EN60945 electro-magnetic compatibility requirement

Flammability tested: IEC 60332-1-2, IEC 60332-1-3, SAE J1128



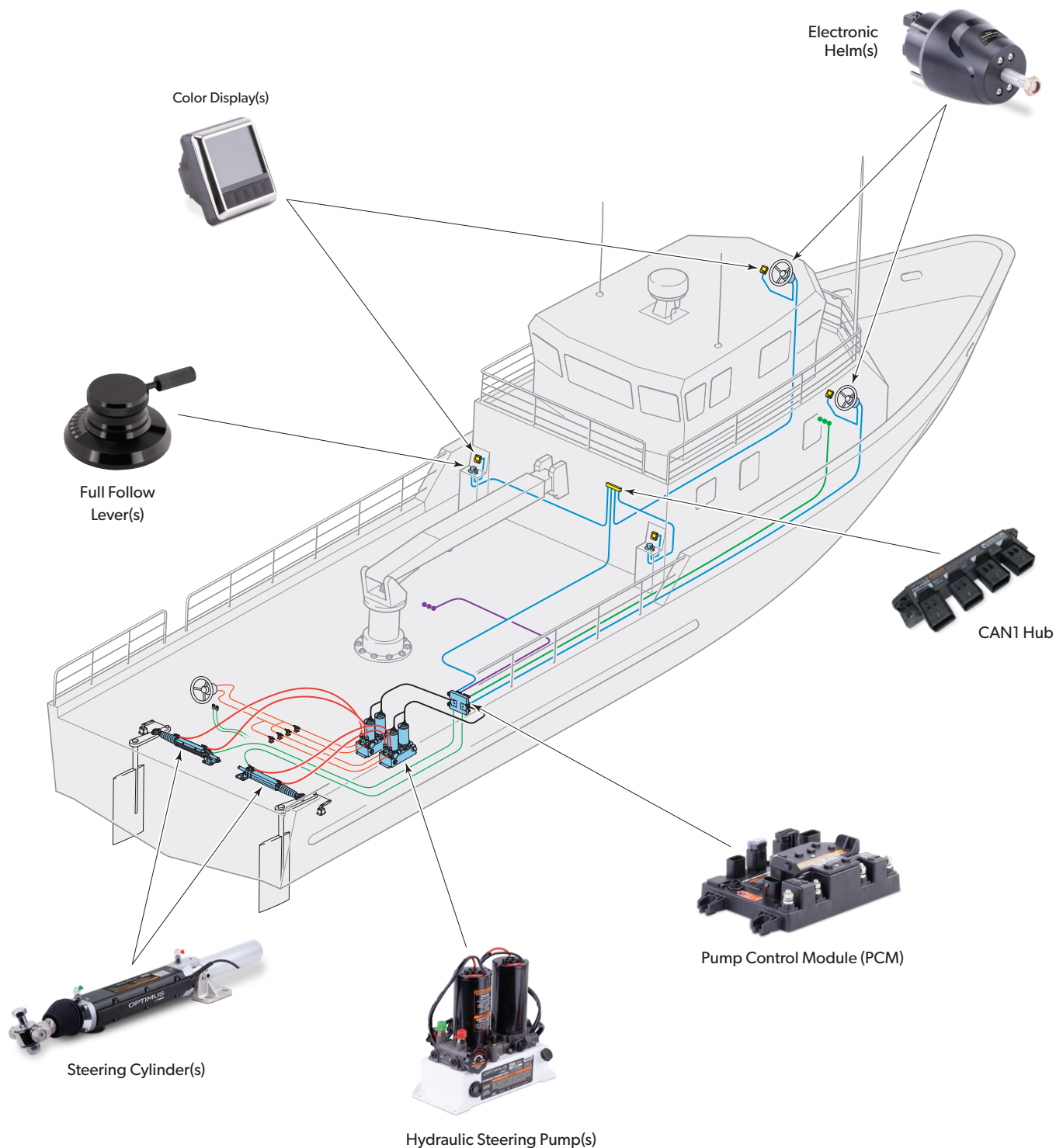
Features

- Up to a maximum four helm/full follow up lever stations
 - 1 helm 3 full follow up levers
 - 2 helms 2 full follow up levers
 - 3 helms 1 full follow up lever
 - 3 helms only
- Automatic battery management with sensing, warnings and best battery selection
- On demand hydraulic steering pump minimizes power consumption
- Rugged electronics for 24 VDC applications
- Color dash display showing rudder command and rudder position graphic
- Displays system health and provides setup interface
- Communicates faults and any special handling instructions to the operator
- Simple software updating via USB port
- Programmable number of turns lock to lock with speed
- Auto-adjusting steering end stops and resistance with speed
- Dual redundant position sensing on all moving components
- Helm offers both 3/4" taper or 1" straight shaft options
- Utilizes fault tolerant CAN network
- Full autopilot CANbus connectivity and integration
 - No additional pumps or sensors required
- Adjustable with speed, maximum rudder angle to 70°
- Rudder toe in or out up to 5° auto adjusts with speed
- Position proportional rudder gain for faster steering response near neutral rudder position
- RPM input: NMEA 2000, J1939 or analog pulse compatible
- Pump features an integrated service/bypass valve for manual rudder centering
- Meets or exceeds ABYC, ISO requirements.



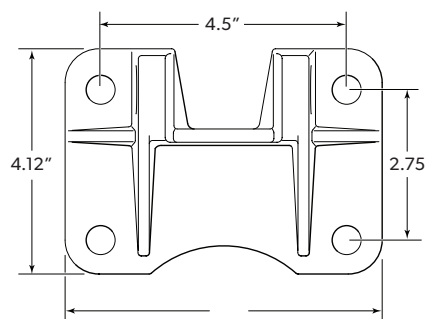
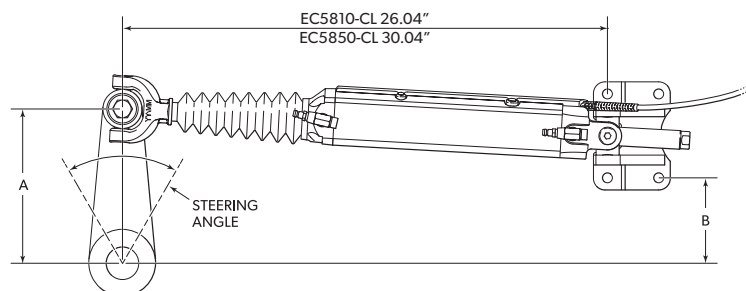
THE TECHNOLOGY - INBOARD ENGINES

System Components



INSTALLATION - INBOARD ENGINES

System Schematic - For RINA Class Certified Vessels Less Than 500 Gross Tonnes



MODEL EC5810-CL

70° Steering Angle

A	B
8.25" (210 mm)	4.50" (114 mm)

37,400 in-lbs* (4,191 Nm)*

MODEL EC5850-CL

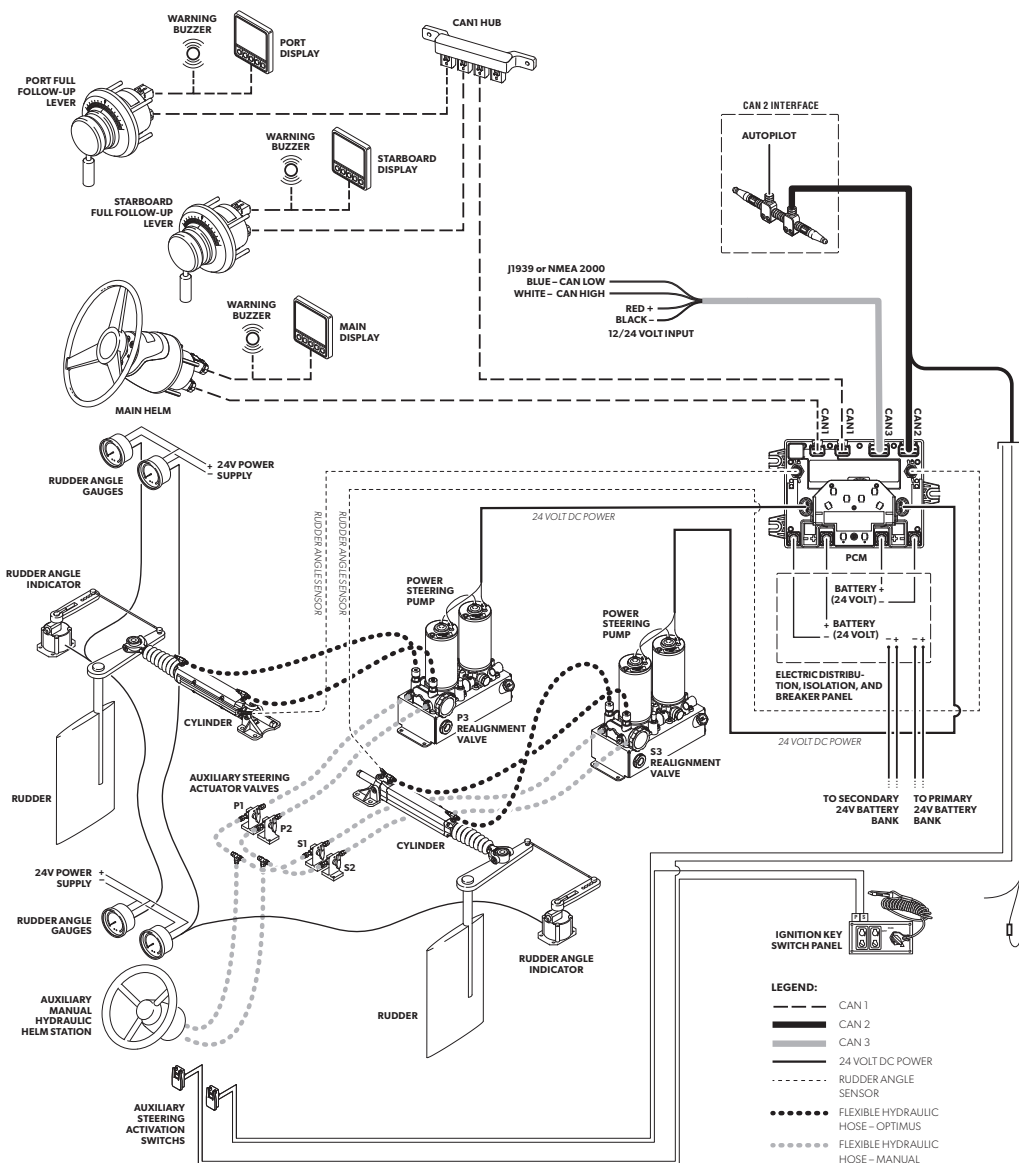
70° Steering Angle

A	B
10.46" (266 mm)	6.32" (166 mm)

47,100 in-lbs* (5,320 Nm)*

Manual hydraulic steering system shown in schematic. Kit number HA6501 contains:

- HH5271-3 hydraulic helm
- 214457 shut off valve kit inc fittings
- 682684 electrical switch
- 60065 Hydraulic Tee
- 343088 Straight Hydraulic fitting



Example of class system with port and starboard wing stations.

Dometic reserves the right to make changes to specifications without notice.

OPTIMUS EPS

4000 SERIES
FOR INBOARD PERFORMANCE YACHTS APPLICATIONS 40-60'



APPLICATIONS FOR OPTIMUS EPS

Inboard Applications 40-60'

- Most single and twin inboard engine boats – electronic and mechanical controlled
- Single, twin and triple helm station yachts
- Performance motor yachts, express convertibles, and sport yachts

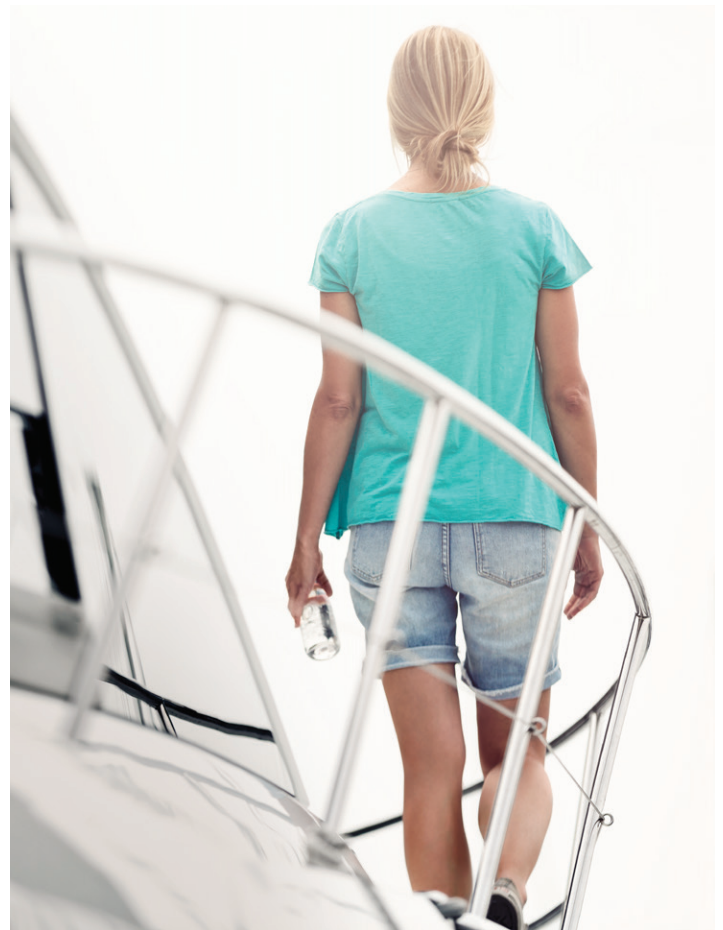
Specifications

Environmental

- Operating temperature: -18°C to +77°C [ISO 25197]
- Storage temperature: -40°C to +85°C [ISO 25197]
- Corrosion resistance: 300 hours salt spray [ASTM B117]
- Water ingress protection: IPX7 [IEC 60529]
- Random vibration: $0.0284 \text{ g}^2/\text{Hz}$ [ABYC P-27]
- Resonant vibration: 4 G zero-peak, 20-2000 Hz [ABYC P-27]
- Mechanical shock: 50 G, 11 m-sec half-sine shape [ISO 25197]
- Ignition protection: SAEJ-1171
- Meets EN60945 electro-magnetic compatibility requirement

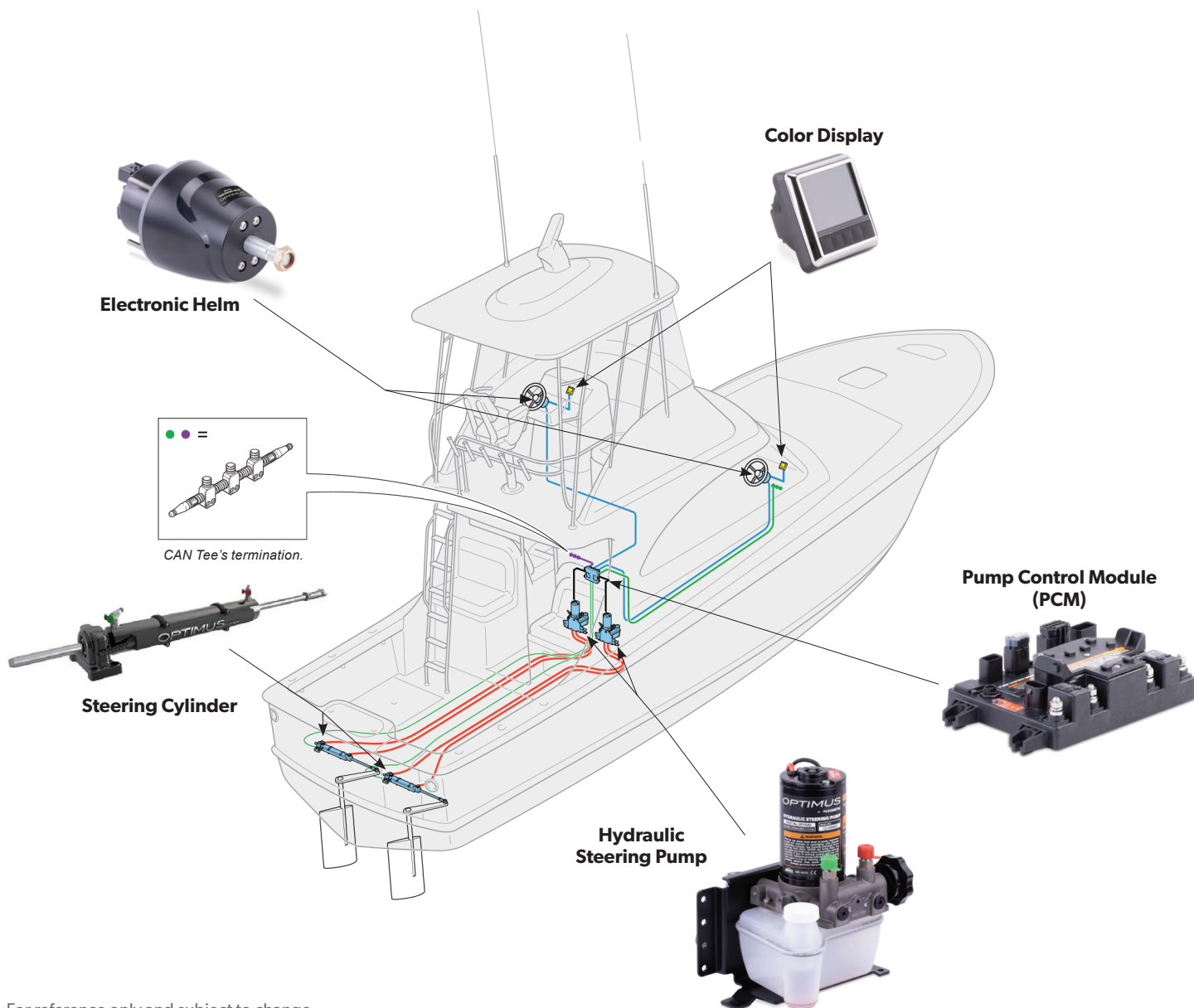
Features

- Up to three helms stations
- Automatic battery management with sensing, warnings & best battery selection
- On demand hydraulic steering pump minimizing power consumption
- No oil at the helm
- Rugged electronics for 12 or 24 VDC applications
- Color dash display showing rudder command and rudder position graphic
- Displays system health
- Display provides system setup interface
- Communicates faults and any special handling instructions to the operator
- No requirement for tie-bars depending on rudder loads
- Simple software updating via USB port
- Programmable number of turns lock to lock with speed
- Auto-adjusting steering end stops and resistance with speed
- Dual redundant position sensing on all moving components
- Helm offers both 3/4" taper or 1" straight shaft options
- Utilizes fault tolerant CAN network
- Full autopilot CANbus connectivity and integration. No additional pumps or sensors required
- Adjustable max rudder hard over angle with speed range 25° to 40° Center to hard over
- Rudder toe in or out up to 5° with speed
- Position proportional rudder gain for faster steering response near neutral rudder position
- RPM input: NMEA 2000, J1939 or analog pulse compatible
- Pump features an Integrated service/bypass valve allows a limp home mode
- Meets or exceeds ABYC, ISO and SAE electrical and environmental requirements



THE TECHNOLOGY - INBOARD ENGINES

System Components

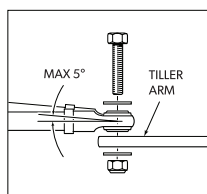


For reference only and subject to change.

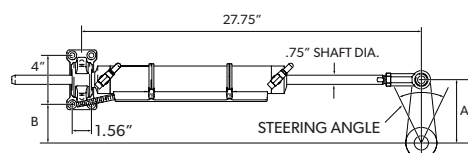


INSTALLATION - INBOARD ENGINES

System Schematic - Yachts 40-60 Feet Range



Attachment to Tiller Arm, recommended per ABYC.



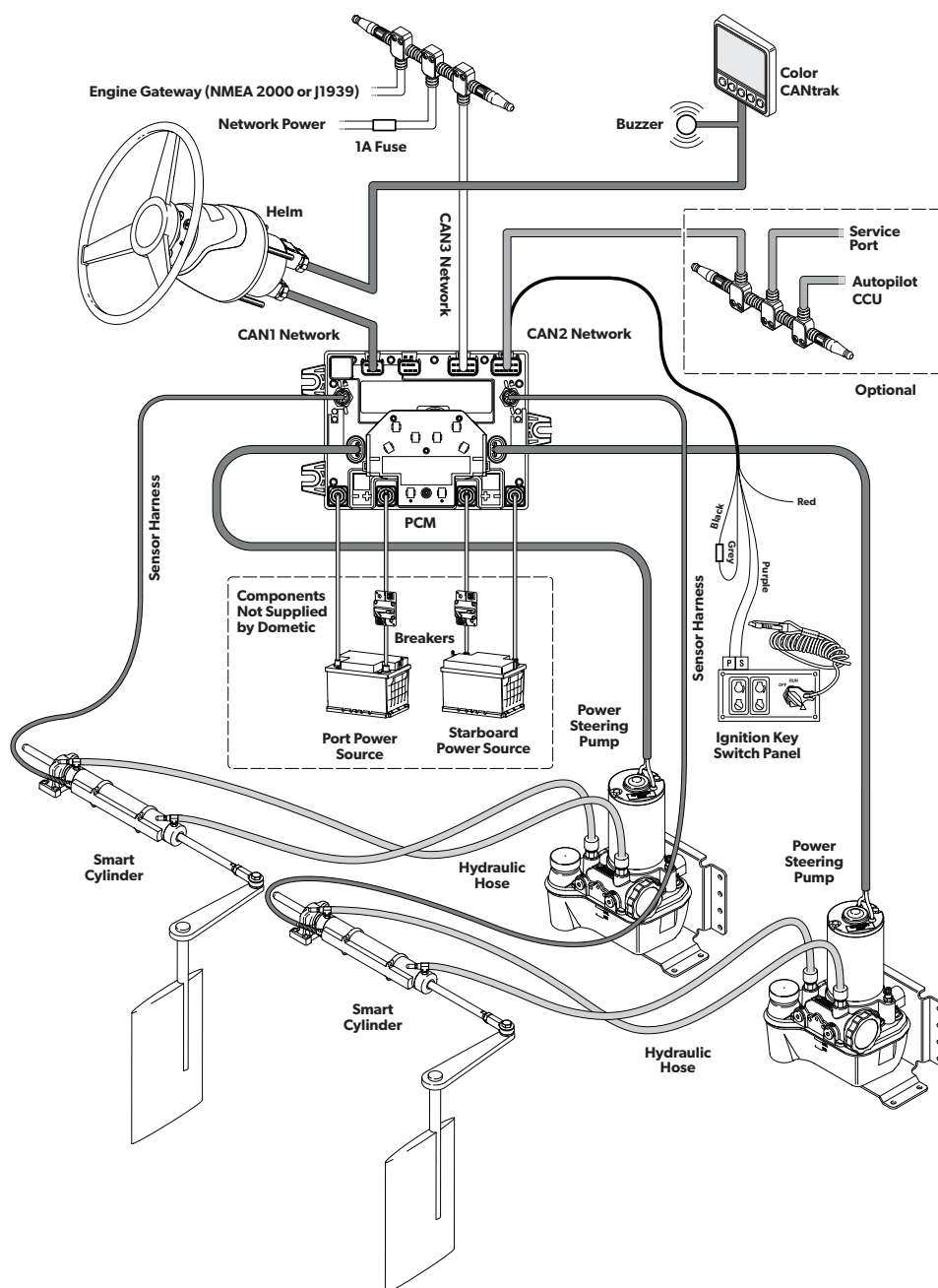
Cylinder at mid-stroke.

Mounting Configurations & System Schematic

While using the table below be sure that your steering cylinder is at mid-stroke as shown in the figure above to ensure the cylinder operates correctly.

MODEL EC5390 (9" Stroke)			
Steering Angles			
50°		60°	
A	B	A	B
10.64"	7.65"	9.00"	5.79"
37,782 in-lb		30,515 in-lb	

Steering Angles			
70°		80°	
A	B	A	B
7.84"	4.247"	9.33"	4.90"
25,161 in-lb		20,996 in-lb	



Example of twin rudder system schematic.
For reference only and subject to change.

OPTIMUS EPS

3000 SERIES
FOR INBOARD & STERNDRIVE APPLICATIONS UNDER 40'



APPLICATIONS FOR OPTIMUS EPS

Inboard & Sterndrive Applications Under 40'

- Most single and twin inboard & sterndrive engine boats - electronic and mechanical controlled
- Single and twin helm station boats
- Competition ski boats, cruisers, sport fishing yachts

Specifications

Environmental

- Operating temperature: -18°C to +77°C [ISO 25197]
- Storage temperature: -40°C to +85°C [ISO 25197]
- Corrosion resistance: 300 hours salt spray [ASTM B117]
- Water ingress protection: IPX7 [IEC 60529]
- Random vibration: $0.0284 \text{ g}^2/\text{Hz}$ [ABYC P-27]
- Resonant vibration: 4 G zero-peak, 20-2000 Hz [ABYC P-27]
- Mechanical shock: 50 G, 11 m-sec half-sine shape [ISO 25197]
- Ignition protection: SAEJ-1171
- Meets EN60945 electro-magnetic compatibility requirement

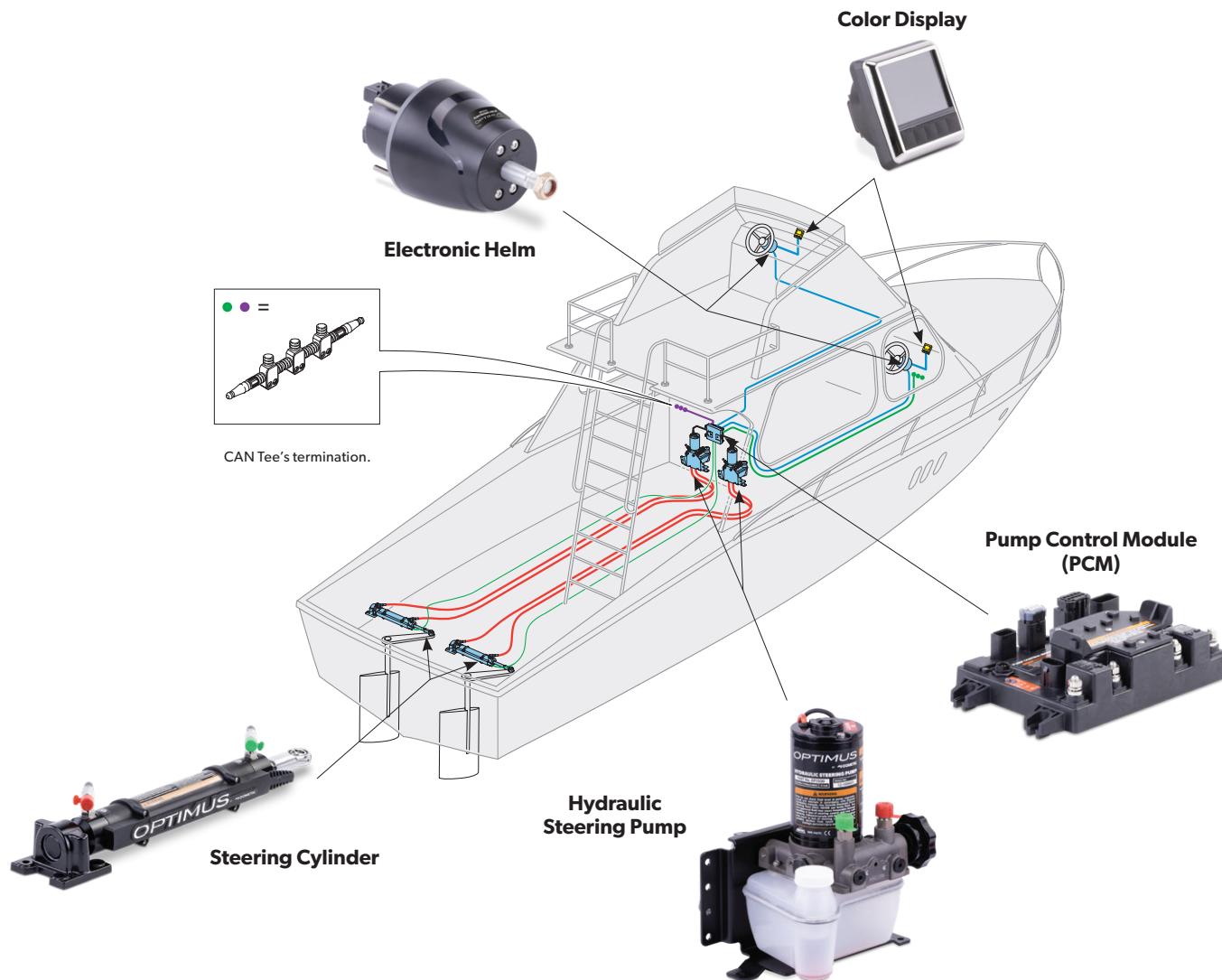
Features

- Up to three helms stations
- Automatic battery management with sensing, warnings & best battery selection
- On demand hydraulic steering pump minimizing power consumption
- No oil at the helm
- Rugged electronics for 12 or 24 VDC applications
- Color dash display showing rudder command and rudder position graphic
- Displays system health
- Display provides system setup interface
- Communicates faults and any special handling instructions to the operator
- Simple software updating via USB port
- Programmable number of turns lock to lock with speed
- Auto-adjusting steering end stops and resistance with speed
- Dual redundant position sensing on all moving components
- Helm shaft: 3/4" taper
- Utilizes fault tolerant CAN network
- Full autopilot CANbus connectivity and integration. No additional pumps or sensors required
- Adjustable max rudder hard over angle with speed range 20° to 30° Center to hard over
- Position proportional rudder gain for faster steering response near neutral rudder position
- RPM input: NMEA 2000, J1939 or analog pulse compatible
- Pump features an Integrated service/bypass valve allows a limp home mode
- Meets or exceeds ABYC, CE, ISO and SAE electrical and environmental requirements



THE TECHNOLOGY - INBOARD & STERNDRIVE ENGINES

System Components

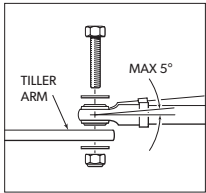


For reference only and subject to change.

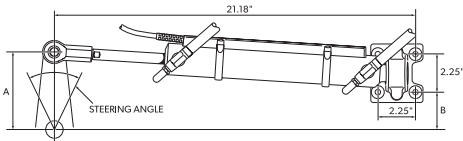


INSTALLATION - INBOARD & STERNDRIVE ENGINES

System Schematic - Inboard Yachts 18-34 Feet Range

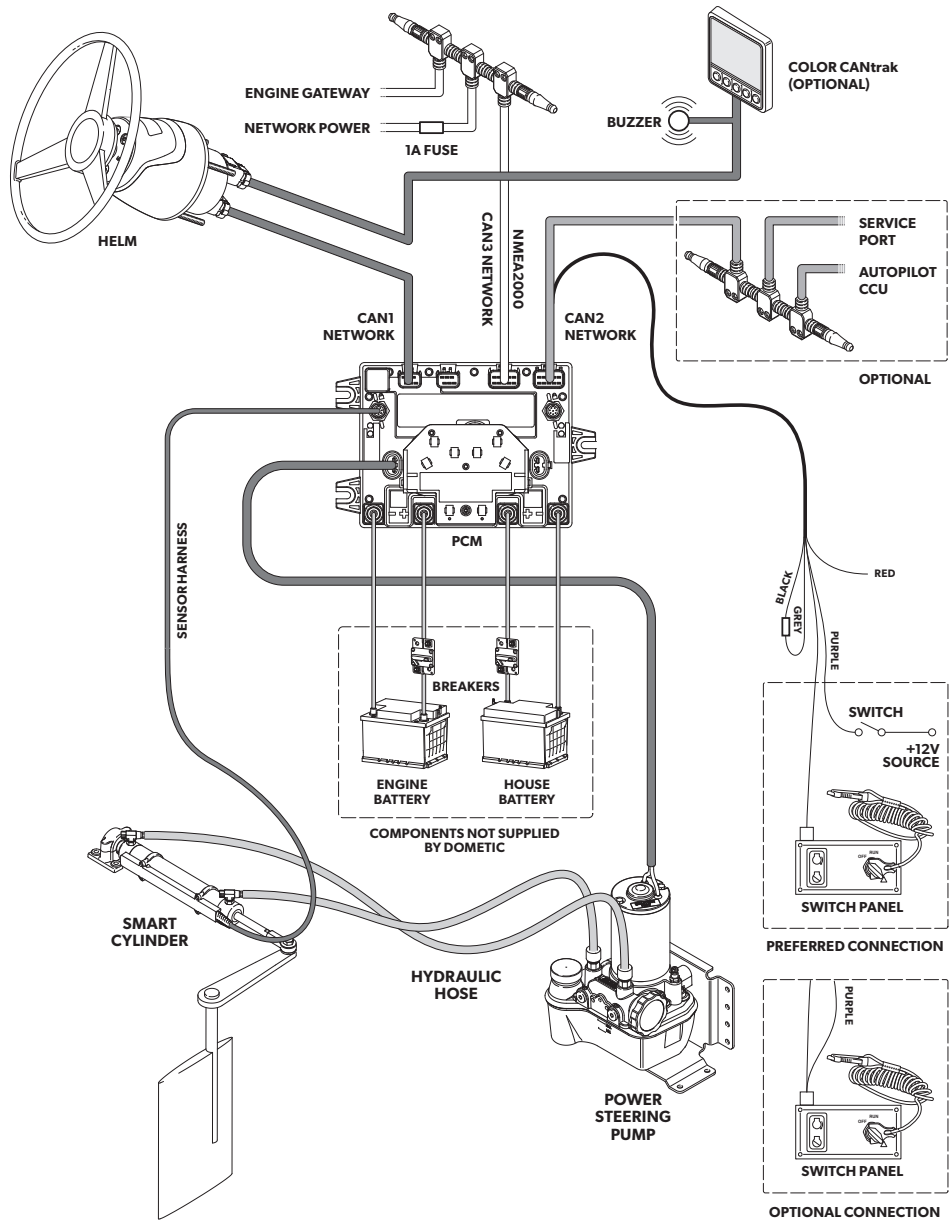


Attachment to Tiller Arm, recommended per ABYC.



MODEL EC5380			
Steering Angles			
50°		60°	
A	B	A	B
8.33"	6.34"	7.04"	4.98"
11,004 in-lb		8,887 in-lb	

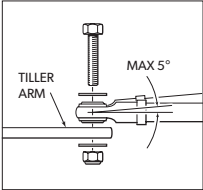
Steering Angles			
70°		80°	
A	B	A	B
6.14"	3.91"	5.48"	3.07"
7,328 in-lb		6,115 in-lb	



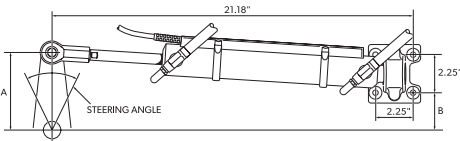
Example of single rudder system schematic.
For reference only and subject to change.

INSTALLATION - INBOARD & STERNDRIVE ENGINES

System Schematic - Inboard Yachts 30-50 Feet Range

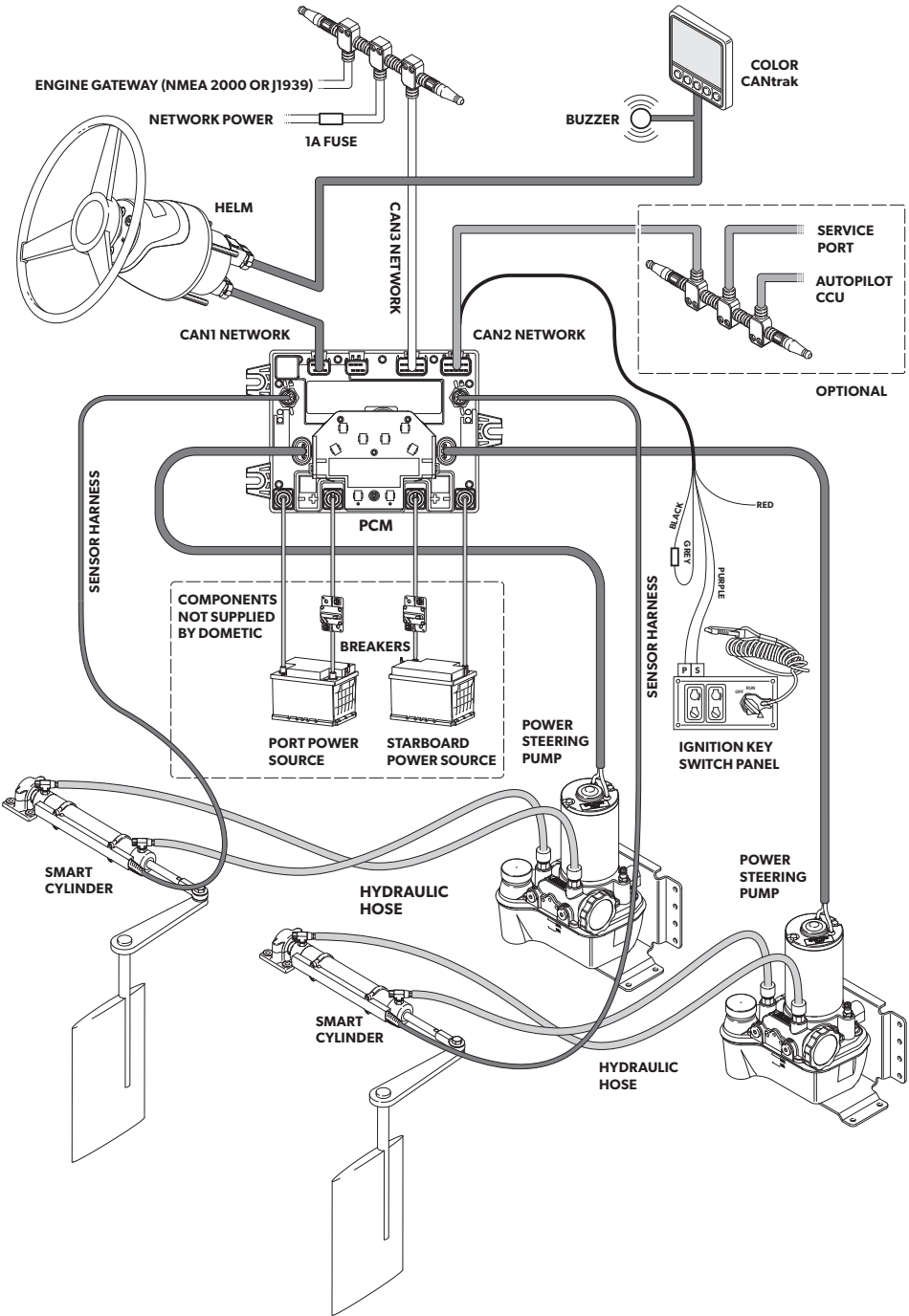


Attachment to Tiller Arm, recommended per ABYC.



MODEL EC5380			
Steering Angles			
50°		60°	
A	B	A	B
8.33"	6.34"	7.04"	4.98"
11,004 in-lb		8,887 in-lb	

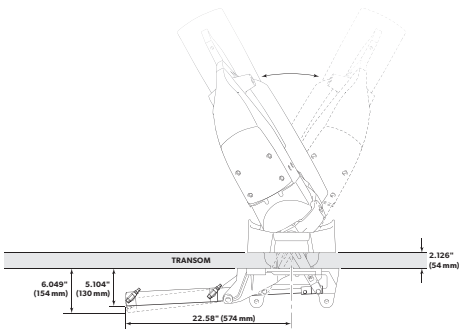
Steering Angles			
70°		80°	
A	B	A	B
6.14"	3.91"	5.48"	3.07"
7,328 in-lb		6,115 in-lb	



Example of twin rudder system schematic.
For reference only and subject to change.

INSTALLATION - INBOARD & STERNDRIVE ENGINES

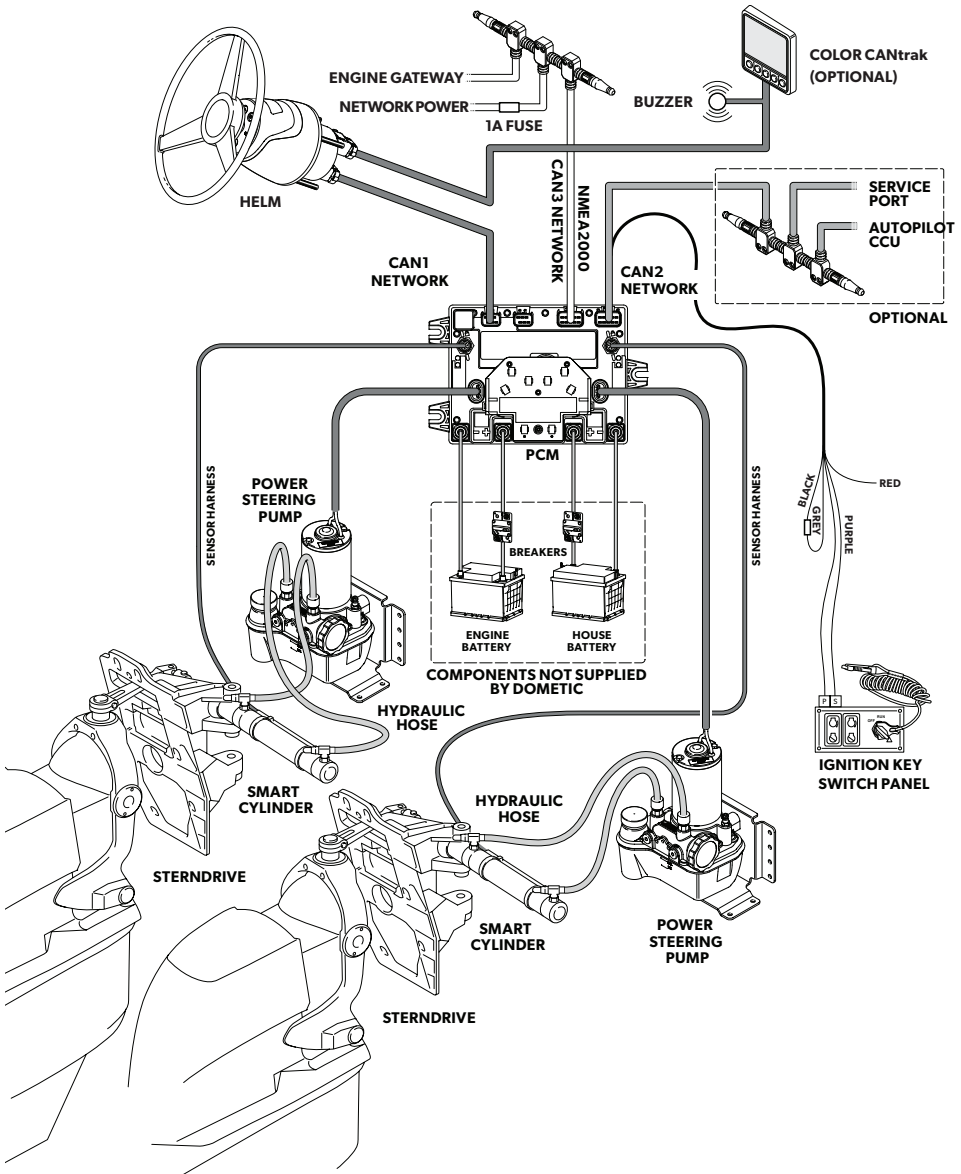
System Schematic - Sterndrive Vessels



VOLVO	
DPH DUOPROP	No
DPR DUOPROP	No
DPS DUOPROP	Yes
DPS-A	Yes
DPS-A OXI	Yes
DPS-B	Yes
DPS-B1	Yes
DPS-M	Yes
DP-E	No
DP-G	No
DP-X	No
OCEAN X (DPS-B OXI)	Yes
XDP	Yes
XDP-B	Yes
SX	Yes
SX-A	Yes

MERCURY	
BRAVO 1	Yes
BRAVO 11	Yes
BRAVO 111	Yes
ALPHA 1 GEN 1	Yes
ALPHA 1 GEN 2	Yes
BRAVO X 1	Yes
BRAVO X 11	Yes
BRAVO X 111	Yes
BRAVO X R	Yes
BRAVO X R ITS	No
BRAVO X SPORTSMAN	Yes

YANMAR	
ZT 370	Yes
ZT 350	Yes



Example of twin sterndrive schematic.
For reference only and subject to change.

/ Mechanical
/ Pro-Pedal
/ Pro-Trim
/ Electronic



CONT



ROLS



MARINE CONTROLS

Take command of your vessel and enjoy peace of mind out on the water with the finest, most reliable selection of mechanical and electronic marine controls on the market. Our controls are smooth and balanced to the touch and offer an incomparable comfort for steering.

Mechanical

In dual or single action, Dometic mechanical controls are available for most any application. Our controls are smooth and balanced to the touch and offer an incomparable comfort in mechanical steering.

Electronic

Expect maximum comfort and control when using Dometics electronic controls for your vessel. Ergonomically designed, our controls offer maximum comfort with a stylish aesthetic. Installation is a breeze with a variety of controls for most any application.



MECHANICAL CONTROLS



ELECTRONIC CONTROLS



An underwater photograph with a teal-green color cast. A hand is visible in the upper right corner, holding a metal chain that extends downwards. The background shows a sandy seabed with patches of green seagrass. The text 'MECHA CONT' is overlaid in large white letters.

MECHA CONT

NICAL ROLS

CONTROLS - SELECTION GUIDE

Product Range Controls

CONTROL FEATURES				
	TWIN S	MT3 TOP	MT3 SINGLE	CH2200/CH2300
Start-In-Gear Protection	•	•	•	•*
Neutral Interlock				•
Engine Warm-Up Provision	•	•	•	•
Engine Cut-Off Switch				
Adjustable Throttle Brake	•			•
Trim & Tilt Switch				
Adjustable Travel Stops	•			
Maximum Number of Engines	1	2	1	1

CONTROL CABLES

33C/3300 Universal Type	•	•	•	•
43 Series Cables	•		•	

KEY:

• Standard • Optional * Optional for ski version, CH2200

General Controls Cables



CCX633XX (33C Xtreme™)



CC179XX



CC189XX

Gen II type cable designed specifically to be used with Mercury 4000 series controls and Mercury/MerCruiser engines.



CC205XX

33C/3300 (1ft increments)	Color	Part No.
Xtreme™	Black	CCX633XX
Mercury/MerCruiser (1ft increments)		
Standard (600A Type)	Black	CC179XX
Standard (Gen II Type)	Black	CC189XX
BRP-OMC-Johnson/Evinrude 1979 to date (1ft increments)		
Standard (479 type)	Black	CC205XX

XX = Length in feet

CONTROLS - SELECTION GUIDE

				
CHX8000/CHX8500	CHX8300/CHX8800	CHX8100/CHX8600	CHX8200/CHX8700	I7800
•	•	•	•	•
•	•	•		
•	•	•	•	•
•	•			
•	•	•	•	•
•	•	•	•	•
1	1	1	2	2

•	•	•	•	•

KEY:

• Standard • Optional * Optional for ski version, CH2200

Xtreme™ Controls Cables

	CCX633XX
	CCX179XX
	CCX630XX
	CCX189XX
	CCX205XX

Xtreme™ control cables are simply the best cable in the business.

Unique splined-core design gives you maximum performance with no lost motion. Recommended for long cable runs.

33C/3300 (1ft increments)	Color	Part No.
Premium (universal)	Black	CCX633XX
Mercury/Mercuriser (1ft increments)		
Premium Xtreme™ (600A Type)	Black	CCX179XX
Premium Xtreme™ (3600 Type)	Black	CCX630XX
Premium Xtreme™ (Gen II Type)	Black	CCX189XX
BRP-OMC-Johnson/Evinrude (1ft increments)		
Premium Xtreme™ (479 Type)	Black	CCX205XX

XX = Length in feet

XTREME™ SIDE MOUNT CONTROLS



CHX8050P (Pictured)

ENGINE CONTROLS	
Xtreme™ Side Mount, Chrome, Engine Cut Off Switch	CHX8050P
Xtreme™ Side Mount, Chrome with Engine Cut Off Switch, Trim Switch	CHX8051P
Xtreme™ Side Mount, Chrome with Engine Cut Off Switch, Trim Switch, Tilt Switch	CHX8052P
Xtreme™ Side Mount, Black, Engine Cut Off Switch	CHX8550P
Xtreme™ Side Mount, Black, Engine Cut Off Switch, Trim Switch	CHX8551P
Xtreme™ Side Mount, Black, Engine Cut Off Switch, Trim Switch, Tilt Switch	CHX8552P
Xtreme™ Side Mount, Black	CHX8553P
Xtreme™ Side Mount, Black, Trim Switch	CHX8554P
Xtreme™ Side Mount, Black, Trim Switch, Tilt Switch	CHX8555P

Overview:

Xtreme™ side mount controls are the most sure handling and comfortable you can buy. The shapely, balanced grip provides a very smooth yet solid feel. This side mount control is designed for Starboard (right side) gunwale mounting only. These controls come with the standard features of neutral safety switch, neutral lock out, neutral warm up and the safety stop switch with lanyard. You can also get the optional trim switch (most outboards) or trim and tilt (most stern drives). These controls can not only use the 3300/33C style control cables, they can also use Mercury style cables from 1965 to date, including the Gen II, OMC/Johnson/Evinrude/BRP control cables from 1979 to date. This makes it one of the most desirable replacement controls in the market today.

Applications:

Dual-function control — one lever controls throttle AND shift. For nearly any engine.

Features:

- Superior feel and function for most outboards, stern drives & inboards.
- Dual function lever controls both throttle and shift of one engine.
- Neutral interlock and start-in-gear protection (standard).
- Optional Trim in the handle.
- Neutral engine warm-up feature (standard).
- Optional tilt switch available.
- Standard lanyard-style cut-off switch for emergency engine shutdown.
- Friction adjustment feature included.
- “Easy-On” cable design accepts virtually every type of OEM and 3300/33C type cable.
- Easily adapted to push or pull cable actuation mode.
- Mechanical advantage 2.38:1.
- Meets/exceeds all applicable standards.
- Made in the U.S.A.

Dometic Recommends Using Xtreme™ Cables with this Control

NOTE: When properly installed, these engine controls will connect to outboard, stern drive and inboard engines, utilizing Mercury/Mariner® and OMC® OEM type control cables as well as universal 3300/33C type cables and engine connection kits.

XTREME™ CENTER CONSOLE MOUNT CONTROLS



CHX8350P (Pictured)

Overview:

The ergonomics and features of our Xtreme™ controls are advanced beyond those of any other control on the market.

A shapely, balanced handle design provides an incredibly smooth yet positive feel. Neutral interlock, throttle warm-up, and start-in-gear protection features are standard on all Xtreme™ Side mount models, with power trim/tilt, emergency cut off switches offered as an option. In addition, the cosmetics of these controls can be configured to suit many tastes on center console or port side mounted boats.

Xtreme™ center console controls are suitable for use with both 3300/33C universal or OEM type control cables without adaptation at the control.

Applications:

Dual-function control — one lever controls throttle AND shift. For nearly any engine.

Features:

- Superior feel and function for most outboards, stern drives & inboards.
- Dual function lever controls both throttle and shift of one engine.
- Neutral safety offers start-in-gear protection (standard).
- Optional Trim in the handle for each model.
- Neutral engine warm-up feature (standard).
- Optional tilt switch available.
- Friction adjustment feature included.
- “Easy-On” cable design accepts virtually every type of OEM and 3300/33C type cable.
- Easily adapted to push or pull cable actuation mode.
- Mechanical advantage 2.38:1
- Meets/exceeds all applicable standards.
- Made in the U.S.A.

Dometic Recommends Using Xtreme™ Cables with this Control

NOTE: When properly installed, these engine controls will connect to outboard, stern drive and inboard engines, utilizing Mercury/Mariner® and OMC® OEM type control cables as well as universal 3300/33C type cables and engine connection kits.

ENGINE CONTROLS

SINGLE CENTER SIDE MOUNT CENTER CONSOLE CONTROL

Xtreme™ Side Mount, Chrome, Engine Cut Off Switch	CHX8350P
Xtreme™ Side Mount, Chrome with Engine Cut Off Switch, Trim Switch	CHX8351P
Xtreme™ Side Mount, Chrome with Engine Cut Off Switch, Trim Switch, Tilt Switch	CHX8352P
Xtreme™ Side Mount, Black, Engine Cut Off Switch	CHX8850P
Xtreme™ Side Mount, Black, Engine Cut Off Switch, Trim Switch	CHX8851P
Xtreme™ Side Mount, Black, Engine Cut Off Switch, Trim Switch, Tilt Switch	CHX8852P

XTREME™ TOP MOUNT CONTROLS

CHX8140P (Pictured)



Overview:

Xtreme™ top mount controls offer options that most top mount controls in the market do not. Options include trim (most outboards), trim and tilt (most stern drives) or the neutral lock out button. The lock out button is great for center console boats where there is a possibility the control can be bumped while passing by knocking it into gear. The standard items on these controls are the shapely and balanced hand grip that gives you a very smooth yet solid feel, the neutral safety switch, and the neutral warm up button. These controls can not only use the 3300/33C style control cables they can also use Mercury style cables from 1965 to date including the Gen II, OMC/Johnson/ Evinrude/BRP control cables from 1979 to date. This makes it one of the most desirable replacement controls in the market today.

Applications:

Dual-function control — one lever controls throttle AND shift. For nearly any engine.

Features:

- Superior feel and function for most outboards, stern drives & inboards.
- Dual function lever controls both throttle and shift of one engine.
- Neutral interlock (optional) and start-in-gear protection (standard).
- Optional Trim in the handle.
- Neutral engine warm-up feature (standard).
- Optional tilt switch available.
- Friction adjustment feature included.
- “Easy-On” cable design accepts virtually every type of OEM and 3300/33C type cable.
- Easily adapted to push or pull cable actuation mode.
- Mechanical advantage 2.38:1.
- Meets/exceeds all applicable standards.
- Made in the U.S.A.

Dometic Recommends Using Xtreme™ Cables with this Control

Note: When properly installed, these engine controls will connect to outboard, stern drive and inboard engines, utilizing Mercury/Mariner® and OMC® OEM type control cables as well as universal 3300/33C type cables and engine connection kits.

ENGINE CONTROLS

SINGLE TOP-MOUNT CONTROL - LEVER ON THE LEFT

Xtreme™ Top Mount, Chrome	CHX8140P
Xtreme™ Top Mount, Chrome, Trim Switch	CHX8141P
Xtreme™ Top Mount, Chrome, Trim Switch Tilt Switch	CHX8142P
Xtreme™ Top Mount, Chrome, Neutral Interlock	CHX8150P
Xtreme™ Top Mount, Chrome Neutral Interlock, Trim Switch	CHX8151P
Xtreme™ Top Mount, Chrome, Neutral Interlock, Trim Switch, Tilt Switch	CHX8152P
Xtreme™ Top Mount, Black	CHX8640P
Xtreme™ Top Mount, Black Trim Switch	CHX8641P
Xtreme™ Top Mount, Black Trim Switch Tilt Switch	CHX8642P
Xtreme™ Top Mount, Black Neutral Interlock	CHX8650P
Xtreme™ Top Mount, Black Neutral Interlock, Trim Switch	CHX8651P
Xtreme™ Top Mount, Black Neutral Interlock, Trim Switch, Tilt Switch	CHX8652P

XTREME™ DUAL TOP MOUNT CONTROLS

CHX8242P (Pictured)



Overview:

The ergonomics and features of our controls are the most advanced available and are suitable for most types of boat with dual engine applications. The shapely, balanced handle provides a very comfortable feel and the state of the art mechanism guarantees a smooth yet solid action, assuring you have maximum control at all times. This control is designed for twin engine applications. Xtreme™ dual top mount controls are suitable for use with both universal type (3300) or OEM type control cables without the need for adaptation.

These controls not only use the 3300/33C style control cables they can also use Mercury style cables from 1965 to date including the Gen II, OMC/Johnson/Evinrude/BRP control cables from 1979 to date. This makes it one of the most desirable replacement controls in the market today.

Features:

- Superior feel and function for most outboards, stern drives & inboards.
- All controls include start in gear protection.
- Designed for use with both universal and OEM shift and throttle cable connections.
- Suitable for most boat/dual engine combinations.
- Dual action levers (throttle and shift control in each handle).
- Trim, Tilt, options available.
- Easy installation and set up.
- Throttle friction adjustment is included for each handle.

Dometic Recommends Using Xtreme™ Cables with this Control

Note: When properly installed, these engine controls will connect to outboard, stern drive and inboard engines, utilizing Mercury/Mariner® and OMC® OEM type control cables as well as universal 3300/33C type cables and engine connection kits.

ENGINE CONTROLS DUAL TOP MOUNT ENGINE CONTROL

Xtreme™ Dual Top Mount, Chrome	CHX8240P
Xtreme™ Dual Top Mount, Chrome, Trim Switch	CHX8241P
Xtreme™ Dual Top Mount, Chrome, Trim Switch, Tilt Switch	CHX8242P
Xtreme™ Dual Top Mount, Black	CHX8740P
Xtreme™ Dual Top Mount, Black, Trim Switch	CHX8741P
Xtreme™ Dual Top Mount, Black, Trim Switch, Tilt Switch	CHX8742P
Neutral Safety Switch	051801-033

CH2200P / CH2300P SKI & JET BOAT CONTROLS



ENGINE CONTROLS	
Side Mount Ski Boat Control	CH2200P
Side Mount Jet Boat Control	CH2300P
Side Mount CH2200 Electronic Control (for MEFI V GM based engines only)	CH2200ENCP
Options/Service Items	
CH2200P Ski	
Optional Neutral Safety Switch (Ski)	CA27090P
CH2300P Jet	
Neutral Safety Switch (Jet)	CA27100P
CH2200P or CH2300P	
Stainless Steel Knob (red-grooved)	CA69052P
Stainless Steel Knob (smooth)	CA69051P
Cable Connection Kit	190008
Special Order	
Handle For CH2200P & CH2300P	0223019
Neutral Warm Up Button	0220913
Gate cable with 4300 shift gate end	CCX317xx
Pivot for CCX317xx cable	7695002

Overview:

Considered the best by boat builders, these controls feature superior styling, a compact design, positive lockout and smoothest feel available — and they're standard equipment on ski and jet boats. The ski boat unit includes superior neutral warm-up action, while the jet boat version features a waterproof neutral safety switch.

Applications:

Dual-function control — each lever controls throttle AND shift. Ski version: inboard ski boats and other single station craft requiring super smooth, precise throttle control. Jet version: jet boats powered by Mercury® Sport Jet 90 & early 120, OMC® Turbo Jet, or similar propulsion systems. Single lever, dual action design controls both throttle and shift with one lever using 3300/33C type cables or special gate cable CCX317xx and pivot 7695002, which lets you connect to jet gates requiring a 4300 bulkhead connection.

Features:

- Single lever, dual action for throttle & shift.
- Superior neutral engine warm-up control (ski version).
- Flush mount design for quick, tidy installation.
- Includes hardware for two 3300/33C type cables.
- Crisp shifting ball grip for a solid, sure feel.
- Neutral safety switches are standard on the CH2300P and optional on the CH2200P.
- Meets/exceeds all applicable industry standards.

Please note that while the CH2200P and CH2300P are similar in appearance, they have different neutral safety switches and internal mechanisms.

They are NOT interchangeable. Do not substitute CH2200P for CH2300P or vice-versa.

Dometic Recommends Using Xtreme™ Cables with this Control

Electronic Control:

Electrified side mount Ski boat control designed to operate electronic throttle and mechanical shift engine and drive. This control is based on the CH2200P control. This control is designed to operate MEFI V GM based "throttle by wire" marine engines.

The non-contact Hall Effect sensor is programmed for these engines and has no "wear" items to provide the best reliability.

MT-3 TOP MOUNT CONTROLS

CH5300P (Pictured)



Overview:

Ideal for inboards, stern drives and outboards, MT-3 combines classic binnacle control styling with dual function levers, a neutral safety switch and an engine warm-up feature! Control throttle and shift with one lever instead of two. MT-3 Twin can control two engines using the 3300/33C cables.

Applications:

Dual-function control — each lever controls throttle AND shift. Great for single station inboards stern drives and outboards, single or dual engine. Perfect for applications in which a binnacle control appearance is desired, but one-lever throttle/shift control is preferred. Also a great choice when space is at a premium. This control uses 3300/33C type cables (single and dual lever) and 4300/43 type cables (single lever version only). Not suitable for use with Mercury® and OMC® OEM type control cables.

Features:

- Binnacle styling with the advanced features of a dual-function control: one-handle engine control, neutral warm-up.
- Neutral safety switch to help prevent starting in gear (standard).
- Mechanical advantage - shift 2.77:1/throttle 3.57:1.
- Can be used in a dual station application with the DS unit.
- Meets/exceeds all applicable industry standards.

Dometic Recommends Using Xtreme™ Cables with this Control

ENGINE CONTROLS

SINGLE LEVER: Pull Shift, Push Throttle MT-3 Single (Old No. 308601, 309075)	CH5310P
TWIN LEVER: Pull Shift, Push Throttle MT-3 Twin (Old No. 308602, 309076)	CH5300P
SINGLE LEVER: Pull Shift/Throttle MT-3 Single (Old No. 308731, 309077)	CH5330P
TWIN LEVER: Pull Shift/Throttle MT-3 Twin (Old No. 308732, 309078)	CH5320P

Options/Service Items

Optional Neutral Safety Switch	305499
Hand Lever	032778-002
Ball Knob, Red	4009912
Stainless Steel Knob (red-grooved)	CA69052P
Hardware Kit for MT-3 single lever	308599
Hardware Kit for MT-3 twin lever	308727
43 Cable Heavy Duty Connection Kit (Must be used when connecting a 4300/43CC or 4300/43BC cable to the control. (43 series cables can only be used with the single-lever model.)	308742

Engine Connection Kits
(see Connection Kits section)

Note: 4300/43 type cables cannot to be used on MT-3 Twin, as interference will occur.

CONTROLS

MECHANICAL CONTROLS / DUAL FUNCTION

MT-3 TOP MOUNT CONTROLS

MT-3 Single

CH5310P (Pictured)

Neutral
Warm-up
(pull lever out
from dome)



MT-3 Twin

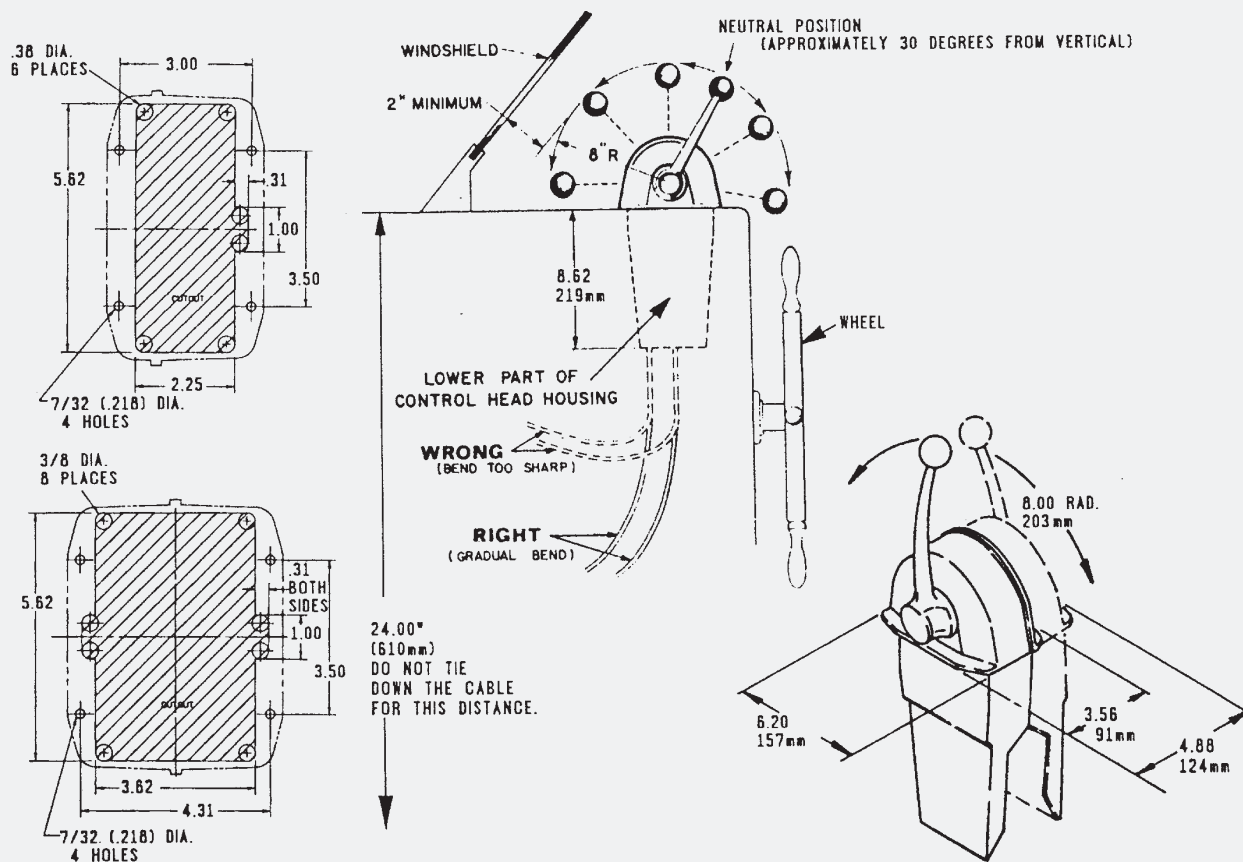
CH5300P (Pictured)

Neutral
Warm-Up
(pull lever out
from dome)



Controls are shown with levers in partial forward throttle positions. At neutral, the control levers are about 30° aft from vertical to provide more forward throttle lever arc.

Mounting Cutout Dimensions:





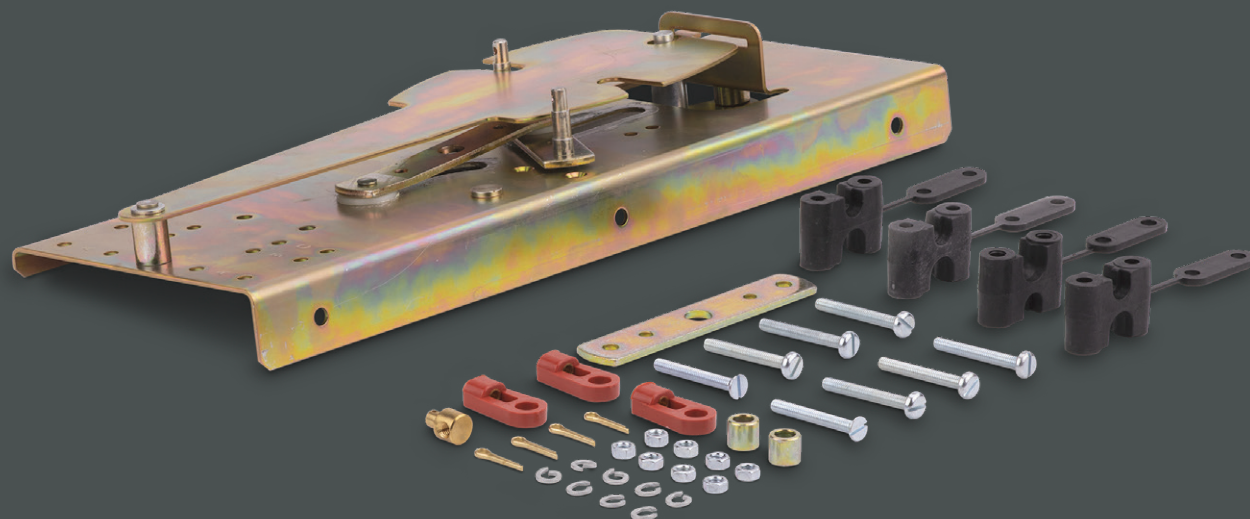
DS UNIT DUAL FUNCTION CONTROLS IN A DUAL STATION BOAT

The dual function DS unit is great for dual station boats without a lot of room on the dash or if you wanted to use side mounted controls in two stations.

DUAL STATION SOLUTION
FOR DUAL FUNCTION CONTROLS

SMOOTH
CONTROL OPERATION

ACCOMMODATING
DUAL FUNCTION CONTROLS



OUTBOARD DS UNIT

Overview:

The DS unit is designed for those boaters that like using one lever to do both throttle and shift in their dual station boat. The Station Selector allows smooth operation of dual function controls in a dual station application.

Applications:

The dual function DS unit is great for dual station boats without a lot of room on the dash or if you wanted to use side mounted controls in two stations. Just put both levers in neutral, turn the selector switch and you have changed stations.

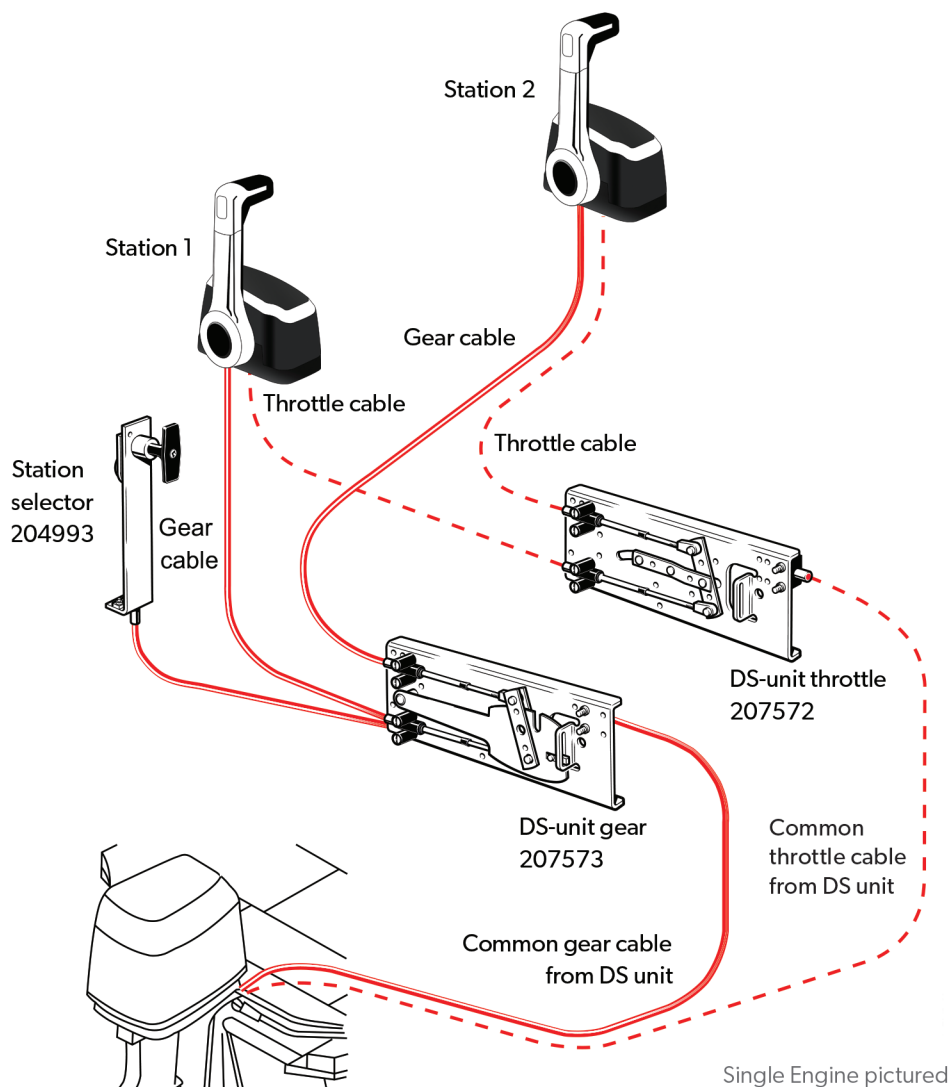
Dometic recommends that you only use the Xtreme™ 33C cable part number CCX633XX with the DS unit.

Features:

- Allows dual function mechanical controls to be used in a dual station boat.
- Side mount controls can now be used in dual station boats.
- You only require one station selector for both a single engine or dual station boats.
- Using the recommended Xtreme™ control cables allow smooth control operation.

Dometic Recommends using CCX633XX Xtreme™ Cables with this Control

See ordering information on the next page.



OUTBOARD DS UNIT

SINGLE ENGINE OUTBOARD

Quantity	Part Number	Description	Notes
1	207573	DS Gear Unit	Two Cables in one Cable to Shifter
1	204993	Station Selector Unit	One Cable from Unit to Gear DS Unit
1	207572	DS Throttle Unit	Two Cables in one Cable to Throttle
1	CCX633XX	Cable to go from selector to gear DS Unit	xx = cable length in feet
1	CCX633XX	Cable from station 1 to gear DS Unit	xx = cable length in feet
1	CCX633XX	Cable from station 2 to gear DS Unit	xx = cable length in feet
1	CCX633XX	Cable from gear unit to transmission	xx = cable length in feet
1	CCX633XX	Cable from station 1 to throttle DS Unit	xx = cable length in feet
1	CCX633XX	Cable from station 2 to throttle DS Unit	xx = cable length in feet
1	CCX633XX	Cable from throttle unit to engine	xx = cable length in feet
1 engine adapter kit for the control cables unless provided by the engine manufacturer			
1 dual action control per station = 2 total controls that must use 3300/33C Xtreme™ style control cables CCX633xx			

DUAL ENGINE OUTBOARDS

Quantity	Part Number	Description
2	207573	DS Gear Unit
1	204993	Station Selector Unit
2	207572	DS Throttle Unit
2	CCX633XX	Cable to go from selector to gear DS Units
1	CCX633XX	Cable from port station 1 to gear DS Unit
1	CCX633XX	Cable from starboard station 1 to gear DS Unit
1	CCX633XX	Cable from port station 2 to gear DS Unit
1	CCX633XX	Cable from starboard station 2 to gear DS Unit
2	CCX633XX	Cable from gear DS Units to transmissions
1	CCX633XX	Cable from port station 1 to throttle DS Unit
1	CCX633XX	Cable from starboard station 1 to throttle DS Unit
1	CCX633XX	Cable from port station 2 to throttle DS Unit
1	CCX633XX	Cable from starboard station 2 to throttle DS Unit
2	CCX633XX	Cable from throttle DS Units to engines
2 engine adapter kit for the control cables unless provided by the engine manufacturer		
1 dual action twin lever control per station = 2 total controls that must use 3300/33C Xtreme™ style control cables CCX633xx		

INBOARD OR STERNDRIVE DS UNIT

Overview:

The DS Unit is designed for those boaters that like using one lever to do both throttle and shift in their dual station boat. The Station Selector allows smooth operation of dual function controls in a dual station application.

Application:

The dual function DS Unit is great for dual station boats without a lot of room on the dash or if you wanted to use side mounted controls in two stations. Just put both levers in neutral, turn the selector switch and you have changed stations.

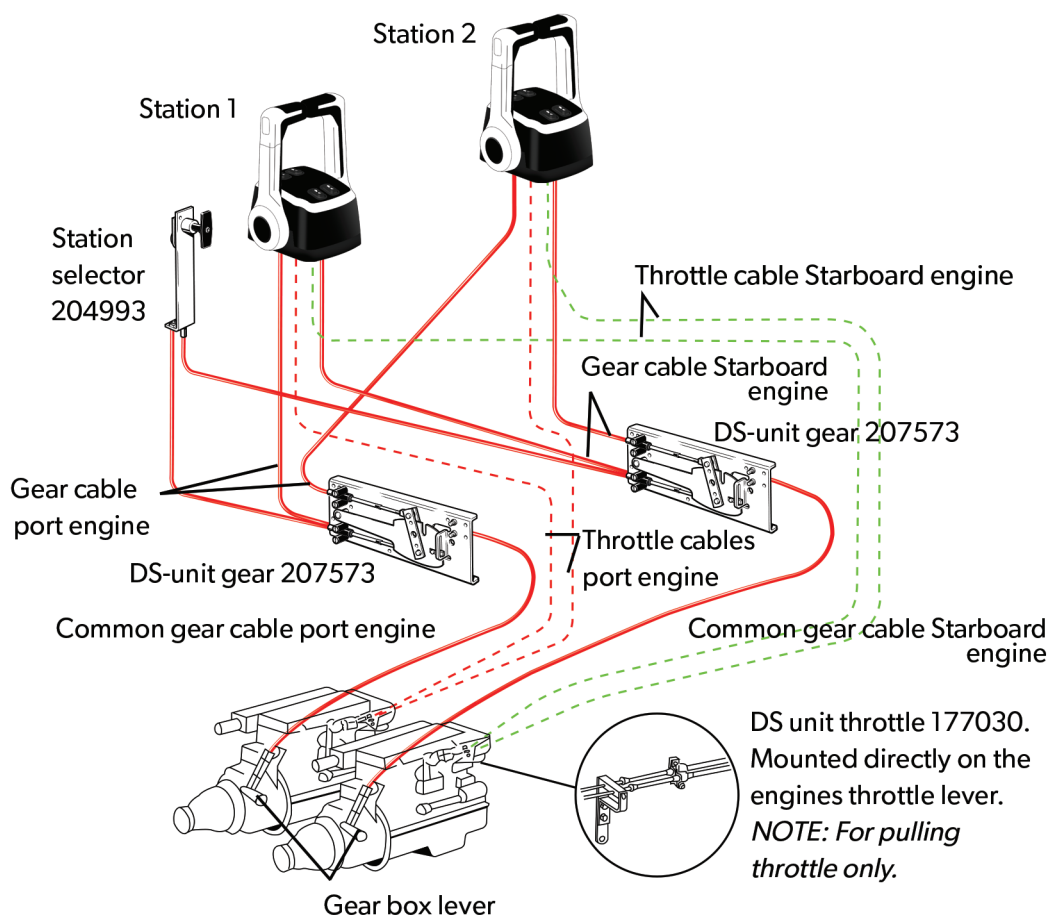
Dometic recommends that you only use the Xtreme™ 33C cable part number CCX633XX with the DS unit.

Features:

- Allows dual function mechanical controls to be used in a dual station boat.
- Side mount controls can now be used in dual station boats.
- You only require one station selector for both a single engine or dual station boats.
- Using the recommended Xtreme™ control cables allow smooth control operation.
- This DS throttle unit is a pull only set up. For a push throttle use the outboard DS throttle unit.

Dometic Recommends Using CCX633XX Xtreme™ Cables with this Control

See ordering information on the next page.



Dual Engine pictured

INBOARD OR STERNDRIVE DS UNIT

SINGLE ENGINE DUAL STATION INBOARD OR STERNDRIVE

Quantity	Part Number	Description	Notes
1	207573	DS Gear Unit	Two Cables in one Cable to Shifter
1	204993	Station Selector Unit	One Cable from Unit to Gear DS Unit
1	177030	DS Throttle Unit	Mounts to Throttle Lever
1	CCX633XX	Cable to go from selector to gear DS Unit	xx = cable length in feet
1	CCX633XX	Cable from station 1 to gear DS Unit	xx = cable length in feet
1	CCX633XX	Cable from station 2 to gear DS Unit	xx = cable length in feet
1	CCX633XX	Cable from gear unit to transmission	xx = cable length in feet
1	CCX633XX	Cable from station 1 to throttle DS Unit	xx = cable length in feet
1	CCX633XX	Cable from station 2 to throttle DS Unit	xx = cable length in feet

The throttle cables should be a pull to advance throttle set up or use the outboard throttle DS Units

1 engine adapter kit for the control cables unless provided by the engine manufacturer

1 dual action control per station = 2 total controls that must use 3300/33C Xtreme™ style control cables CCX633XX

DUAL ENGINE DUAL STATION INBOARD OR STERNDRIVE

Quantity	Part Number	Description
2	207573	DS Gear Units
1	204993	Station Selector Unit
2	177030	DS Throttle Units
2	CCX633XX	Cable to go from selector to gear DS units
1	CCX633XX	Cable from port station 1 to gear DS unit
1	CCX633XX	Cable from starboard station 1 to gear DS unit
1	CCX633XX	Cable from port station 2 to gear DS unit
1	CCX633XX	Cable from starboard station 2 to gear DS unit
2	CCX633XX	Cable from gear DS units to transmissions
1	CCX633XX	Cable from port station 1 to throttle DS unit
1	CCX633XX	Cable from starboard station 1 to throttle DS unit
1	CCX633XX	Cable from port station 2 to throttle DS unit
1	CCX633XX	Cable from starboard station 2 to throttle DS unit

THE THROTTLE CABLES SHOULD BE A PULL TO ADVANCE THROTTLE SET UP OR USE THE OUTBOARD THROTTLE DS UNITS

2 engine adapter kit for the control cables unless provided by the engine manufacturer

1 dual action twin lever control per station = 2 total controls that must use 3300/33C Xtreme™ style control cables CCX633xx

CH5210P / CH5200P S & TWIN S TOP MOUNT CONTROLS

Single S Control
CH5210P (Pictured)



Overview:

This classic control is great for inboards, single or dual station. The time-proven design of Twin S means years of reliable operation. Accepts universal control cables. Optional lever extension, detent kits and neutral safety switch available. Additional hardware is required for twin station use.

Applications:

Single-function control — each lever controls throttle OR shift. Ideal for inboards, stern drives and outboards. The S controls are suitable for single or dual station use. These single function engine controls are available in both one or two-lever models. Both S controls use 3300/33C and 4300 type cables. Not suitable for use with Mercury® and OMC® OEM type control cables. 4300 cables require the additional 40 series hardware kit.

Features:

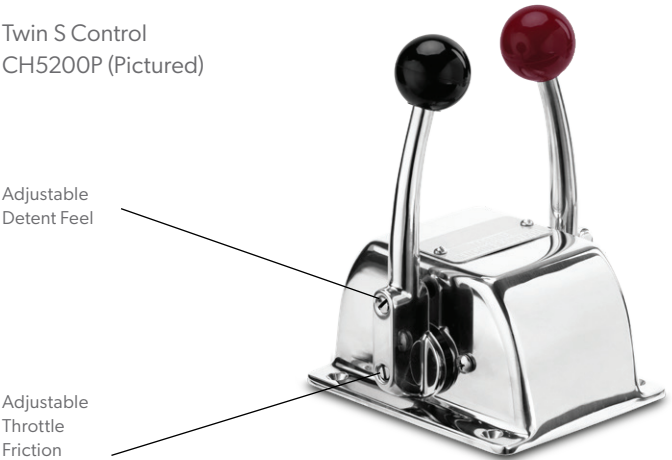
- Highly polished stainless steel cover.
- Simple, rugged, compact design.
- Easily adjustable throttle friction and shift detent feel.
- Optional neutral safety switch to prevent starting in gear.
- Optional hand lever extension.
- Optional shift detent kit (if used in dual stations; use on main station only).
- Option throttle hold kit.
- Uses 3300/33C and 4300 type cables.
- Mechanical advantage - shift 2.77:1/throttle 2.77:1.
- Meets/exceeds all applicable industry standards.

Dometic Recommends Using Xtreme™ Cables with this Control

Options:

The Dual Station Transfer Unit from Dometic is recommended where long or difficult cable paths make parallel installations costly and/or difficult. When single function two lever controls are used in a parallel, dual station application, some installations may cause the clutch or throttle levers to operate "stiff". Adding a transfer unit can improve control performance in these cases.

Twin S Control
CH5200P (Pictured)



ENGINE CONTROLS	
Single S (Old No. 031002-001)	CH5210P
Twin S (Old No. 031001-001)	CH5200P
Options/Service Items	
Single S - Hardware & Bearing Kit , 3300 Cables	CA67868P
Twin S - Hardware & Bearing Kit, 3300 Cables	CA67869P
Single S - Handle Replacement	CA67866P
Twin S - Handle Replacement	CA67867P
Single S - Cover Replacement	CA67864P
Twin S - Cover Replacement	CA67865P
Clutch Detent Kit	022328
In-Series Dual Station Kit, 3300/33C (2 required for twin)	039489-002
In-Series Dual Station Kit, 40 Series (2 required for twin)	042152
Neutral Safety Switch Kit	047307
Lever Extension	036773
Throttle Hold Kit (one per lever, prevents throttle creep)	306997
Ball Knob, Red	035232-001
Ball Knob, Black	035232-004
Stainless Steel Throttle Knob (grooved)	CA69052P**
Stainless Steel Shift Knob (smooth)	CA69051P**
Cable Mounting Hardware Kit 3300, Twin	061001
Dual Station Transfer Unit	061371
Connection Kits (see Connection Kits section)	
** Fits most controls with 3/8-24 threaded levers.	

PRO-PEDAL

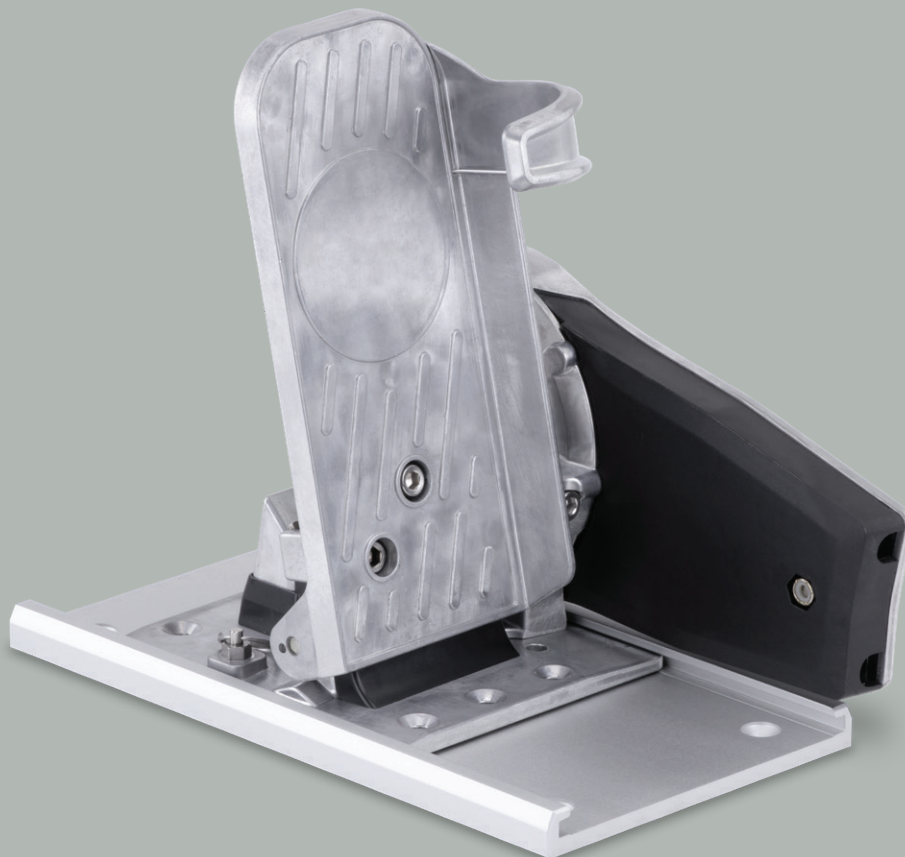
Dometic's Pro-Pedal foot throttle meets the individual requirements of a high performance bass boat driver.

Offering significant advantages in terms of customization and comfort, its compact design keeps the boat floor uncluttered and allows for more room around the pedal. The adjustable pedal angle allows a driver to set up their boat for the perfect driving position. An integrated slide makes it easy to adjust the position of the pedal to suit different drivers.

EASY TO INSTALL
QUICK CABLE CONNECTION

CUSTOMIZABLE POSITION
ADJUSTABLE PEDAL

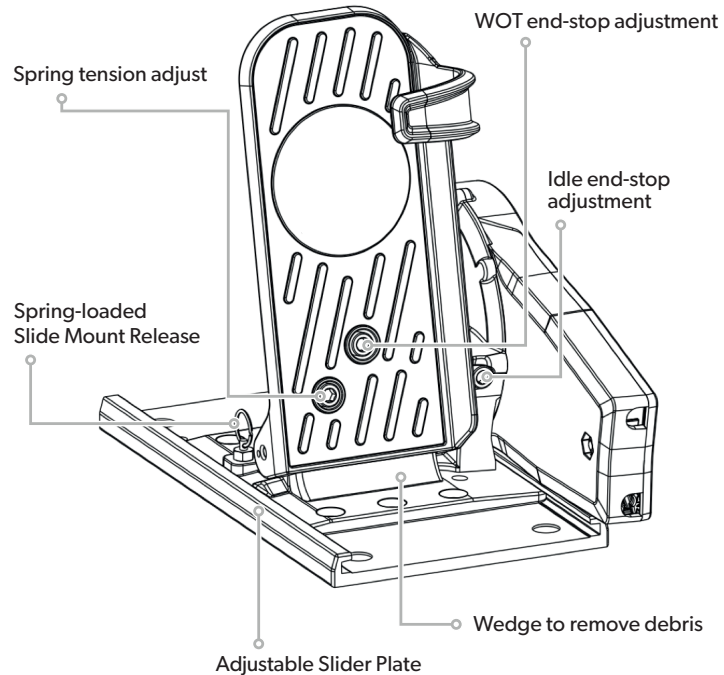
SECURE RETURN TO IDLE
ROBUST TORSION SPRING DESIGN
PROVIDES SECURE OPERATION



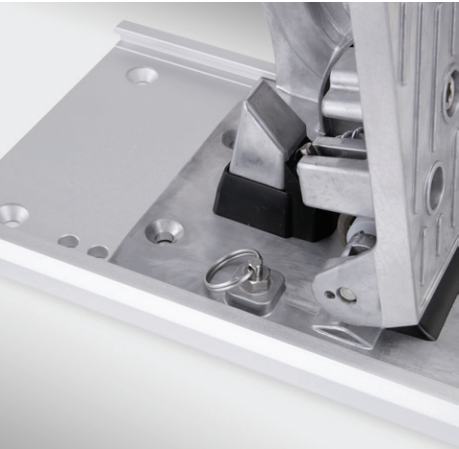
COMPACT AND FLEXIBLE TO ENSURE YOUR COMFORT

Features:

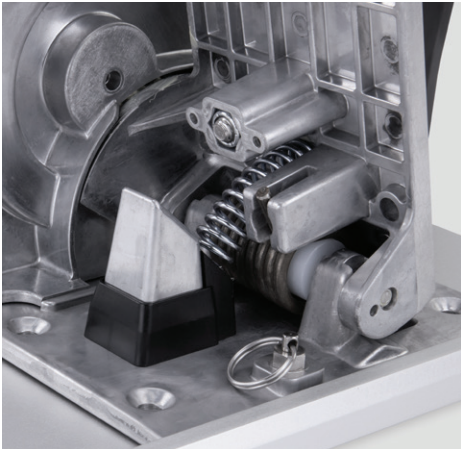
- Allows the throttle cable to be routed from the front, back or above
- Locking fasteners hold a tight fit even under stress
- The enclosed mechanism and unique wedge prevents debris from inhibiting pedal function
- The mechanism is “universal” meaning it will accept any OEM style or 33C series engine specific sized cable
- Pedal position and travel can be easily adjusted to match the ergonomics of the driver while still providing full idle-to-WOT control
- Compact design keeps the boat floor uncluttered and allows for more room around the pedal
- Toe hook at the top of the pedal to allow the driver to manually pull the throttle back to idle if required
- These combined features of the Pro-Pedal amount to a 40% time savings during installation



DESCRIPTION	PART NO.
Foot Throttle with Adjustable Slider	FT7000P
Foot Throttle	FT7050P
Slider Base Plate	FT7051P



Adjustable Slider Plate



Stainless Steel Torsion Spring to Provide a Long Life



Made of Reliable A380 Aluminium

PRO-TRIM ENGINE TRIM CONTROL

Trim control the way it's meant to be . . . at your fingertips. With Pro-Trim, you can keep both hands on the wheel and concentrate on your driving. Its clean, modern design looks at home in any cockpit and there are no cords to tangle around the steering wheel, a big plus for boats with hydraulic steering!

The Pro-Trim single-switch controls one function (engine trim or jackplate) Pro-Trim Dual controls two functions (trim and jackplate).

SINGLE OR DUAL
FUNCTION

CLEAN & MODERN
DESIGN

NEAT & EASY
INSTALLATION



TRIM CONTROL AT YOUR FINGERTIPS

Engine trim control - single or dual function.

Control any one of these functions... Engine Trim/Tilt, Jackplate, Horn... or any two with Pro-Trim Dual!

Pro-Trim is a "bolt-on" for most Dometic steering systems and is attractively packaged, with everything you need.

Also suitable for use with Command 200 rack & pinion steering, and it's the only trim switch recommended for our hydraulic steering systems!

Features:

- Momentary-on switch is off in its center "at-rest" position; actuates in up and down directions
- UV-Stabilized ABS switch cover blends with dash
- Strong stainless steel bracket fits most steering systems and adjusts for regular or deep-dish wheels
- Heavy duty marine wiring harness, color-coded to match existing trim and jackplate wiring
- Durable Mylar® decals allow labelling of switch functions
- All mounting hardware and complete, user-friendly instructions included

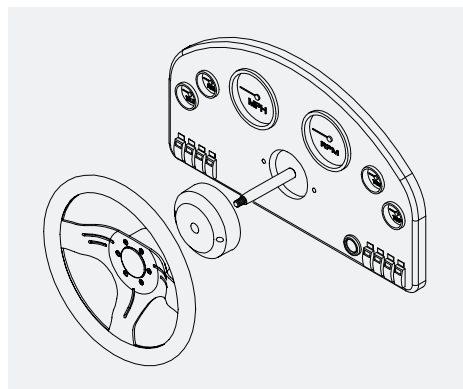
PRO-TRIM CONTROLS	PART NO.
Pro-Trim Single Function	PT1000-2P
Pro-Trim Dual Function	PT2000-2P

Pro-Trim fits most boats using one of the following Dometic steering systems:

- Safe-T mechanical steering
- Rack & Pinion mechanical steering
- NFB No FeedBack steering (all helms)
- SeaStar hydraulic steering
- SeaStar PRO hydraulic steering
- Command 200 Rack & Pinion
- BayStar
- Sport, Sport Plus or Classic Tilt Mechanism

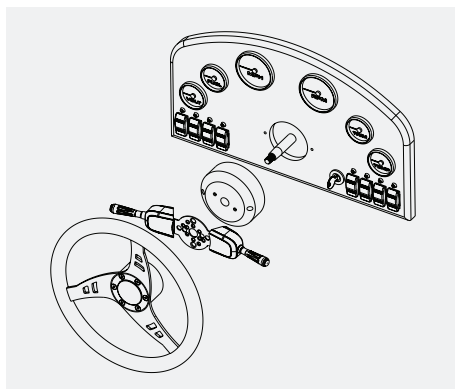
Installation Overview

1. Remove steering wheel

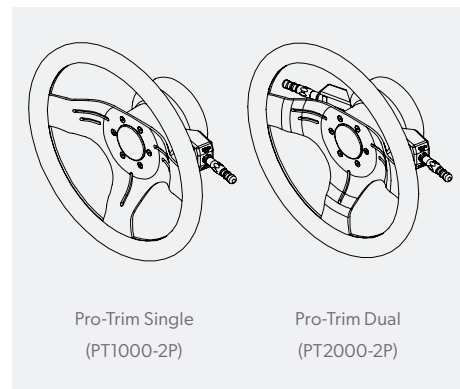


Mechanical Steering shown

2. Install Pro-Trim



3. Re-install steering wheel



Pro-Trim Single
(PT1000-2P)

Pro-Trim Dual
(PT2000-2P)

ELECT CONT



RONIC ROLS

i7800 ELECTRONIC CONTROL

The i7800 electronic control system combines advanced electronics with over 50 years of mechanical engine control “know-how” into a system that’s the perfect enhancement to nearly any boat/engine combination.

UP TO 3 STATIONS
KITS AVAILABLE FOR 2ND OR
3RD STATIONS

TROLLING MODE
ABILITY TO INCREASE THROTTLE
RESOLUTION FOR IMPROVED CONTROL

**ENGINE RPM
SYNCHRONIZATION**
CONTROL CRUISE SPEED WITH
SINGLE LEVER OPERATION



ELECTRONIC CONTROLS

Available in single or twin handle with or without universal trim. System kits are available based on the number of engines to be controlled and for single station applications. When a second or third station is needed, kits are available that include the parts for that 2nd or 3rd station. Connectivity is simply made via the CANbus harness. Additional stations can be added by selecting from the 'Additional Stations' list.

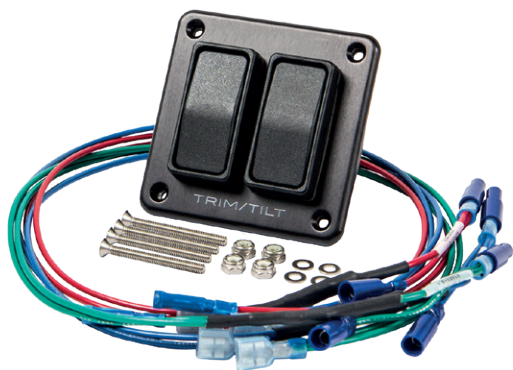
The control heads are ergonomically designed for maximum comfort and control. Available with or without universal trim switches, they each also include easily adjustable drag and detent adjustment pins to suit the operator's preference.

Applications:

- Suitable for all engines with mechanical shift and mechanical throttle.
- Single or twin engine applications.
- Inboard, IO and Outboard.
- Supports up to three stations.

Environmental

- Operating temperature: -18°C to +77°C [ISO 25197]
- Storage temperature: -40°C to +85°C [ISO 25197]
- Corrosion resistance: 300 hours salt spray [ASTM B117]
- Water ingress protection: IPX7 [IEC 60529]
- Random vibration: 0.0284 g²/Hz [ABYC P-24]
- Resonant vibration: 1 G zero-peak, 20-2000 Hz [ABYC P-24]
- Mechanical shock: 50 G, 11 m-sec half-sine shape [ISO 25197]
- Ignition protection: SAE-J1171
- Meets EN60945 electromagnetic compatibility requirement



Optional Trim Switch

This will enable the engines to be trimmed individually when the situation calls for it.



Features:

- Two cable actuators in a single chassis for complete shift and throttle control
- Utilizes automotive high speed CAN network (250 kbps)
- Maximum programmable cable travel: 3.14" (80 mm)
- Maximum load capability: 135 lbs [600 N]
- Maximum cable speed: 4.72 in/s [120 mm/s]
- Unit weight: 15 lbs [6.75 kg]
- Programmable home position
- Standard or customizable throttle curves forward and reverse
- Compatible with SeaStar's Xtreme™ family of control cables (CCX633XX series)
- Dual redundant position sensing on all moving components
- Rugged electronics for 12 VDC applications
- Integrated neutral start protection (NSP) switch
- Low backlash position control
- Meets or exceeds ABYC, CE, ISO and SAE electrical and environmental requirements
- RPM input: NMEA 2000 or analog pulse compatible
- User settable trolling mode
- Single lever operation syncs both engine RPM's
- Control head features universal trim switch model built into port handle
- Independent trim switches available (dash mount kit HA5491)
- Maximum of three control heads per vessel
- Single or twin engine applications
- Override feature provides simple shift and throttle emergency engagement

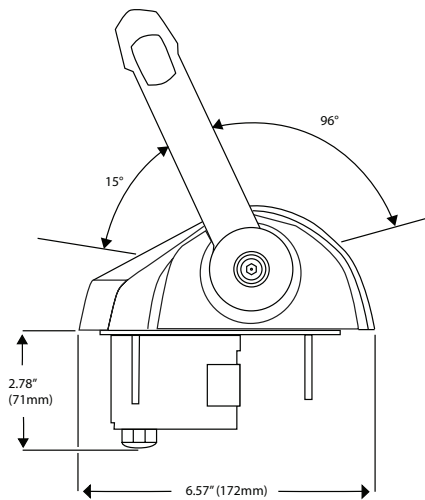
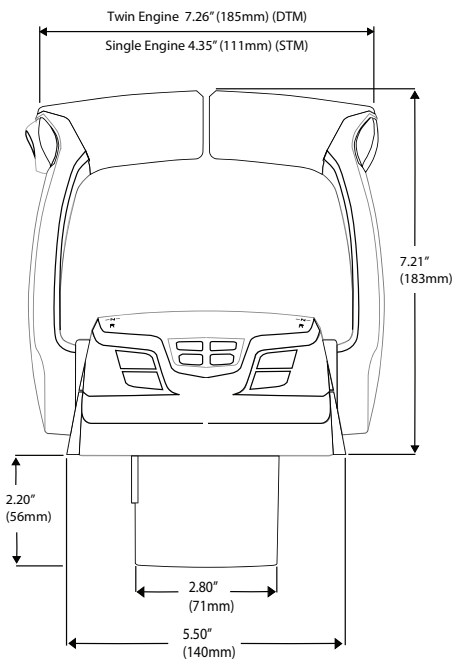
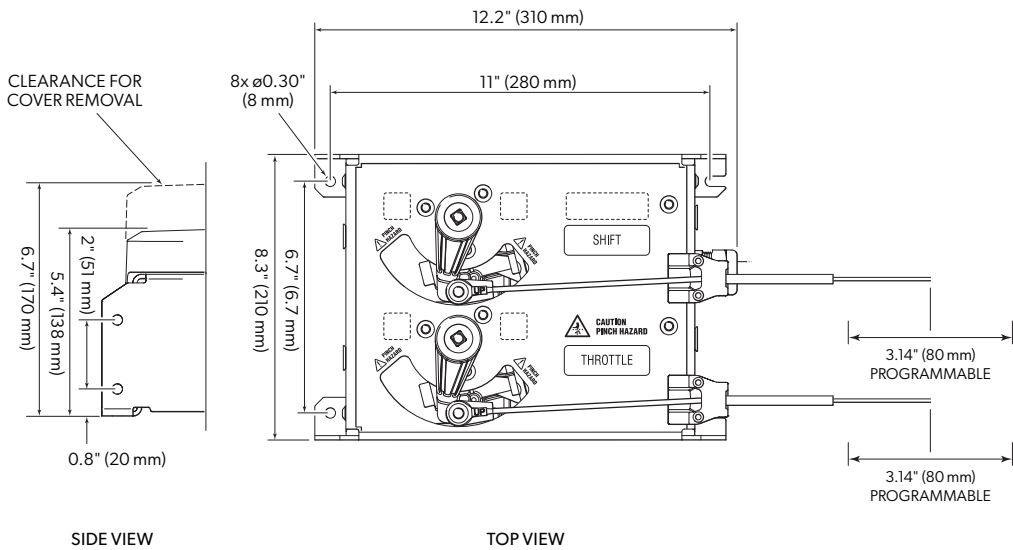
Note: Requires Setup Tool EPSK1207 for installation.

Shift and Throttle Actuators

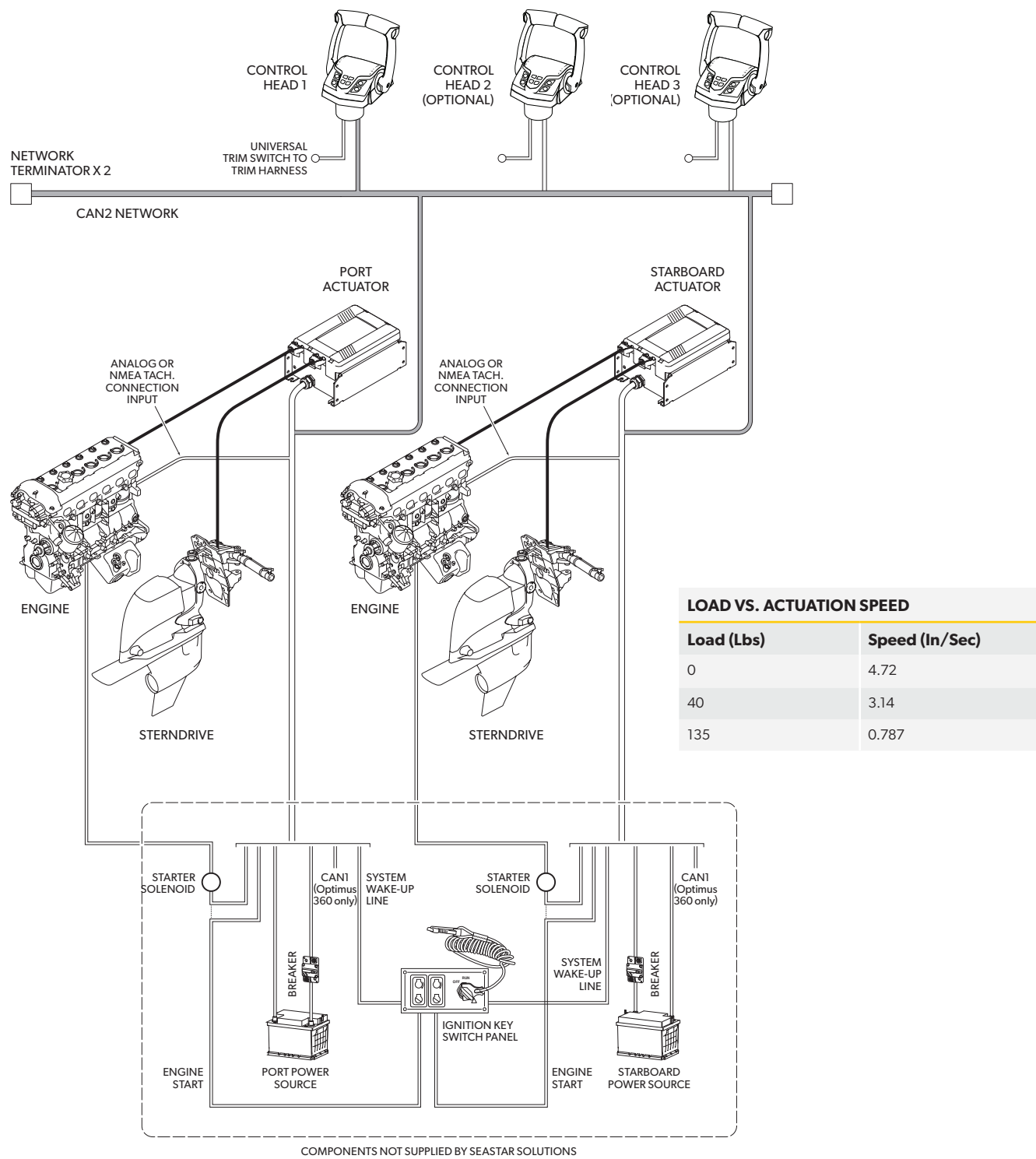
The i7800 actuator contains both the shift and throttle actuator within one compact housing and are not only powerful enough to manage the shift and throttle functions on the most extreme applications, they are also exceedingly responsive and robust.

The actuators are linked to the control heads via a single 1/4" (6mm) CANbus cable making cable routing incredibly easy. In addition, the i7800 actuators have a mechanical back up "get home" feature which allows simple manual control should the need arise.

Dimensional Data



Specifications



Example of a twin engine sterndrive system.

i7800 ELECTRONIC ENGINE CONTROL

TOOL REQUIRED TO SET UP SYSTEM		Requires EST Display setup tool for configuration (EPSK1207)							
Base Systems – Single Station Kits	Kit Part #	i7811	i7811-BE	i7851	i7851-BE	i7812	i7812-BE	i7852	i7852-BE
		Chrome Single Engine	Black Single Engine	Chrome Single Engine w/ Trim	Black Single Engine w/ Trim	Chrome Dual Engine	Black Dual Engine	Chrome Dual Engine w/ Trim	Black Dual Engine w/ Trim
Actuators									
Actuator, i7700 Universal	AC7700	1	1	1	1	2	2	2	2
Control Head Kits									
Single Top Mount, Control Head Kit	CH7810NT	1	-	-	-	-	-	-	-
Single Top Mount, Control Head Kit, black	CH7810NT-BE	-	1	-	-	-	-	-	-
Single Top Mount, Control Head Kit, with Trim	CH7810	-	-	1	-	-	-	-	-
Single Top Mount, Control Head Kit, with Trim, Black	CH7810-BE	-	-	-	1	-	-	-	-
Dual Top Mount Control Head Kit	CH7800NT	-	-	-	-	1	-	-	-
Dual Top Mount Control Head Kit, Black	CH7800NT-BE	-	-	-	-	-	1	-	-
Dual Top Mount Control Head Kit, with Trim	CH7800	-	-	-	-	-	-	1	-
Dual Top Mount Control Head Kit, with Trim, Black	CH7800-BE	-	-	-	-	-	-	-	1
Harnesses/Tees									
NMEA Communication Kit (2 tees, 1 male and 1 female terminator)	CM20001	1	1	1	1	1	1	1	1
Single CanBus Tee	CM10060	-	-	-	-	1	1	1	1
Micro C Ext, M-F (6ft CAN bus harness)	CM10006	1	1	1	1	1	1	1	1
Micro C Ext, M-F (12ft CAN bus harness)	CM10012	1	1	1	1	1	1	1	1
Micro C Ext, M-F (20ft CAN bus harness)	CM10020	1	1	1	1	1	1	1	1
Manuals									
Book # 79 i7700 User Manual (stand alone)	710465	1	1	1	1	1	1	1	1
Book # 77 i7700 Installation Manual	710351	1	1	1	1	1	1	1	1
Quick Ref. – Single	710038	1	1	1	1	-	-	-	-
Quick Ref. – Dual	710013	-	-	-	-	1	1	1	1
Optional Accessories									
Dual trim switch panel for independent operation	HA5491	-	-	-	-	-	-	-	-
Additional Stations Kits									
	Kit Part #	i7811A	i7811A-BE	i7851A	i7851A-BE	i7812A	i7812A-BE	i7852A	i7852A-BE
		Chrome Single Engine	Black Single Engine	Chrome Single Engine w/Trim	Black Single Engine w/ Trim	Chrome Dual Engine	Black Dual Engine	Chrome Dual Engine w/ Trim	Black Dual Engine w/ Trim
Control Head Kits									
Single Top Mount, Control Head Kit	CH7810NT	1	-	-	-	-	-	-	-
Single Top Mount, Control Head Kit, Black	CH7810NT-BE	-	1	-	-	-	-	-	-
Single Top Mount, Control Head Kit, with Trim	CH7810	-	-	1	-	-	-	-	-
Single Top Mount, Control Head Kit, with Trim, Black	CH7810-BE	-	-	-	1	-	-	-	-
Dual Top Mount Control Head Kit	CH7800NT	-	-	-	-	1	-	-	-
Dual Top Mount Control Head Kit, Black	CH7800NT-BE	-	-	-	-	-	1	-	-
Dual Top Mount Control Head Kit, with Trim	CH7800	-	-	-	-	-	-	1	-
Dual Top Mount Control Head Kit, with Trim, Black	CH7800-BE	-	-	-	-	-	-	-	1
Harnesses/Tees									
Single Tee	CM10060	1	1	1	1	1	1	1	1
Micro C Ext, M–F (30ft CAN bus harness)	CM10030	1	1	1	1	1	1	1	1

ADDITIONAL NMEA HARNESS LENGTHS		ADDITIONAL NMEA HARNESS LENGTHS	
Part No.	Length (feet)	Part No.	Length (feet)
CM10001	1’	CM10012	12’
CM10003	3’	CM10020	20’
CM10006	6’	CM10030	30’
CM10009	9’		



/ Xtreme™ Cables

/ OEM Cables

/ Universal Cables

/ Jet Boat Cables

/ Panel Cables

/ Connection Kits

CON CAB





TROL LES

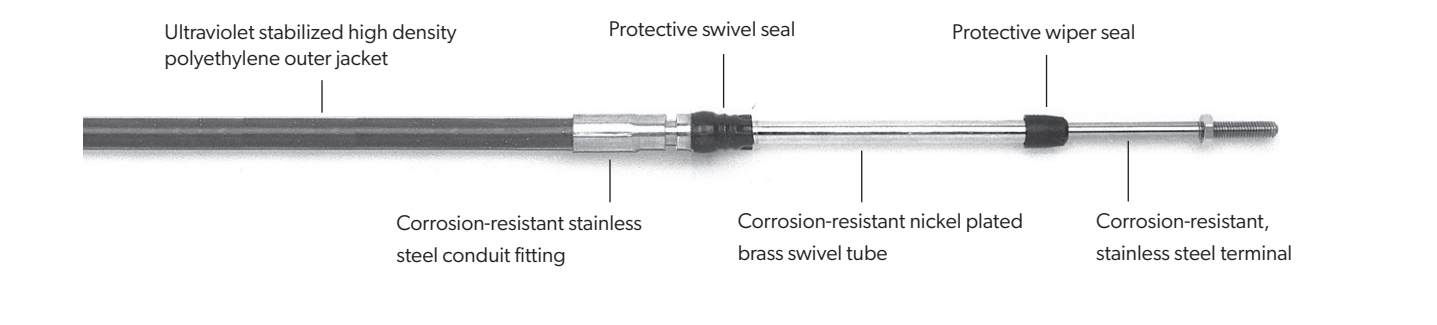
SHIFT AND THROTTLE CONTROL CABLES

The control cable is a very important component in the control system. It is the vital link between the control head and the propulsion unit. Employing the best cable helps insure that your shift and throttle system operates smoothly and efficiently. The design, technology and materials, which are used in Dometic cables, have literally set the standard for the entire marine industry.

Our control cables are environmentally tested for marine applications. They have stainless steel terminals and conduit fittings, as well as stainless or nylon covered core wires with moisture protective seals for added corrosion protection and longer life.

Their durable HDPE outer jackets resist abrasion and withstand the effects of UV, salt water, chemicals, gasoline and oil. Each Dometic cable is lifetime lubricated at the factory.

Dometic pioneered the development of high efficiency control cables. Since not all cables utilize this technology there can be significant operating differences between Dometic cables and other brands.



How to Choose the Right 3300/33C Cable

Dometic offers Xtreme™ Universal 3300/33C type cables suited for most operating conditions and installation parameters. Below are key variables that affect how cables perform:

Backlash: the lost motion between the amount of movement put in (input end of the cable) and the amount of movement which occurs at the output end of the cable. Some motion is generally lost in “take up” between the inner wire (core) of the cable and the outer casing (conduit). Backlash manifests itself as free play (slop) felt at the control handle.

Efficiency: the percentage of input force that is transmitted through the cable as output force. For example, if a 10-pound force was exerted on the cable at its input end and resulted in the cable exerting an 8-pound output force, the cable would be 80% efficient.

Breakaway: the “feel” of the cable when put into motion; the breakaway threshold is the force that must be applied to the cable’s input end before something happens at the output end. An example of excessive breakaway: a control that would have to be moved to half-throttle before the engine responded.

Cable Routing: the shorter and straighter the cable routing, the better the cable will perform. With increased length and bends, cable efficiency is reduced, while breakaway and backlash rise.

Environment: generally, the more rugged the cable construction, the longer the cable will last. In harsh environments such as heavy salt and UV exposure, control cables with thicker conduits and stainless steel fittings will generally outlast those with thinner conduits and brass or steel fittings.

Cable design, manufacturing tolerances, length and installation care are additional factors to consider.

3300/33C CABLE TYPE	BACKLASH	BREAKAWAY EFFICIENCY	LONG/COMPLEX ROUTINGS	HARSH ENVIRONMENT
CCX633 Xtreme™	Superior	Superior	Superior	Superior

WHAT TO CONSIDER WHEN SELECTING CABLES

Dometic makes engine control cables for a wide variety of applications. We recommend their use with our controls as well as in engine manufacturers' control systems.

We offer two grades of cable: **Standard and Xtreme™**.

Two Performance Grades

Xtreme™ Control cables can be used in any boat. They are by far the best choice for long runs, twin stations or other difficult routings with multiple cable bends.

Standard cables are suitable for most applications with short, simple cable routings.

Four Application Types

OEM Replacement Type

Dometic offers a direct replacement cable for almost every engine manufacturer's control. Most of our OEM type cables are available in both standard and Xtreme™ versions.

Universal (3300/33C) Type

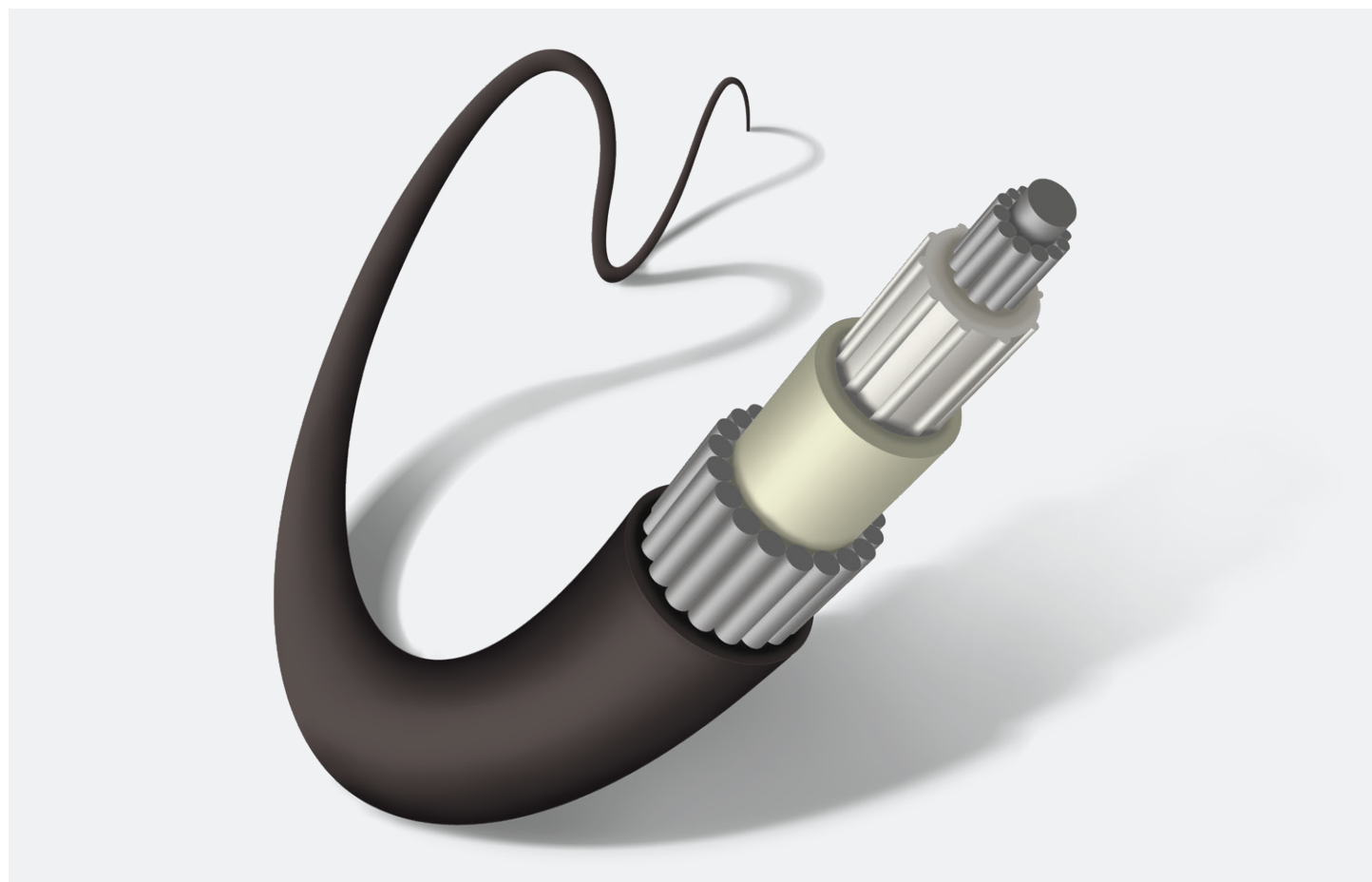
Universal (or 3300/33C) type throttle/shift control cables are direct replacements for many boats using aftermarket controls or most engine manufacturer's controls with the correct adapter kit. Universal 3300/33C cables can be connected to most engines. These cables are offered in both grades: Standard and Xtreme™.

Universal (4300/43 6400/64) Types

Heavy duty universal type control cables are available in Xtreme™ versions only. These are drop-in replacements for 43C, 43BC, 64C and 64BC style cables.

Jet Boat Gate Control Cables

Three styles of drive-specific jet boat gate control cables are available for: Mercury SportJet® 175s and OMC Turbo Jet®. Our Xtreme™ 43BC cable is used for shifting on most other popular jet drives. Replacement throttle control cables are generally an OEM.



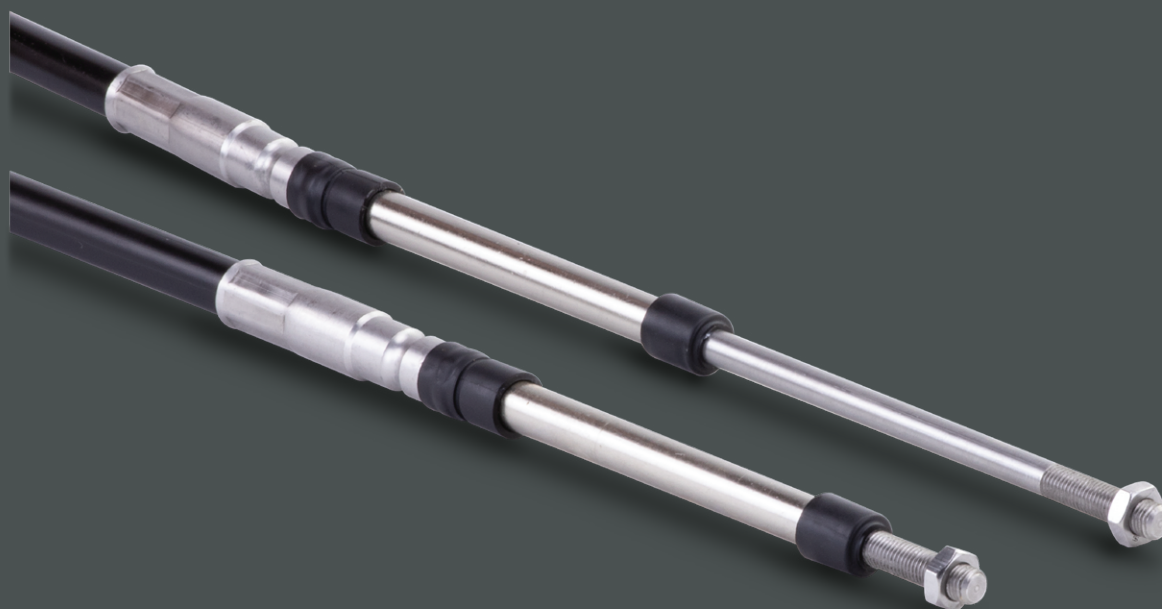
XTREME™ ENGINE CONTROL CABLES

Xtreme™ delivers unparalleled smoothness and efficiency - with hardly any lost motion - even in the longest and most complex cable routes. This gives superior feel at the control, performance that until now was considered "impossible".

UNIQUE
DESIGN

SUPERIOR
FEEL

SEVERAL
STYLE OPTIONS



UNPARALLELED SMOOTHNESS AND EFFICIENCY

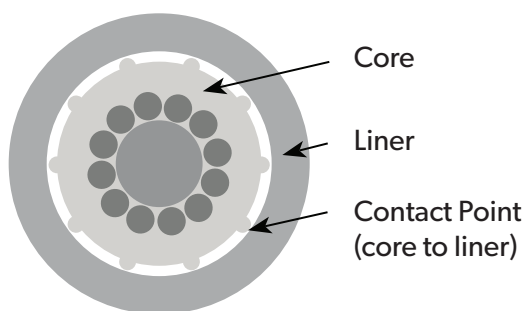
With its unique splined core, Xtreme™ delivers unparalleled smoothness and efficiency - with hardly any lost motion - even in the longest and most complex cable routes. This gives superior feel at the control with performance that until now was considered "impossible".

Features:

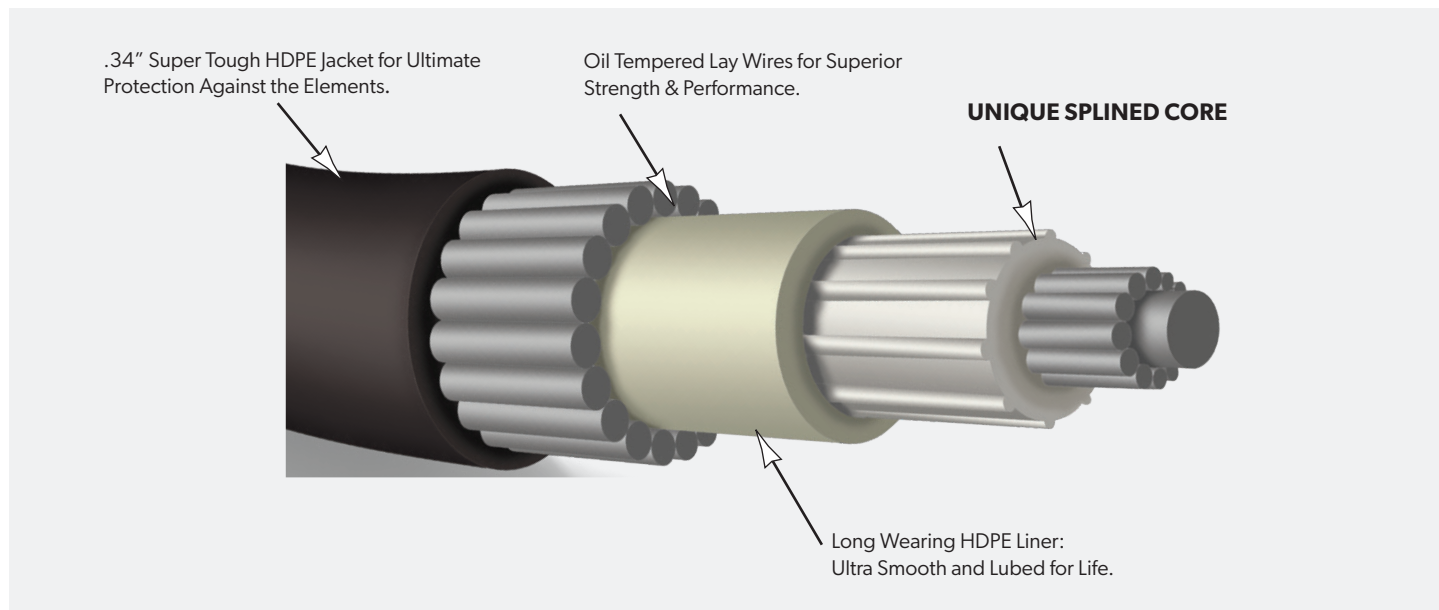
- Xtreme™'s unique design incorporates a spline core which allows easy movement and minimum lost motion
- Designed for complex and/or long cable runs (or to simply create a superior feel)
- Available in several style options avoiding the need for adaptor kits
- All Xtreme™ cables are available in 1ft increments up to 30 feet then even foot increments from 30 feet up (32,34,36)
- Gen II type suits Mercury 4000 series controls



Cross section view



The Core Difference



A COMPLETE FAMILY OF CABLES

Xtreme™ technology cables are the **ONLY** high performance cable family with a **FULL RANGE** of universal cables and **ALL** popular direct replacement OEM type cables.



CCX633XX

3300/33C Type
10-32 Threaded End, 3" Travel



CCX179XX

600A Style
Mercury/Mercruiser



CCX630XX

(3600) 10-32 Control End Mercury,
Mercruiser Engine End



CCX189XX

Mercury/Mercruiser Gen II control box to
Mercury Mercruiser engine



CCX205XX

Johnson/Evinrude/OMC
1979 to date



CCX430XX

43BC Series cables with 1/4 - 28 Ends
3" Travel



CCX433XX

43C Type with 1/4-28 threaded end
3" Travel



CCX640XX

64BC Type cables with 5/16 - 24 Ends
4" Travel



CCX643XX

64C Type cables with 5/16 - 24 Ends
4" Travel

NOTE: XX = Cable length in feet



OEM CABLE APPLICATIONS

OEM direct-replacement type cables are designed to fit BRP®, Mercury®, Mariner®, OMC®, Volvo® and similar OEM engine control heads which use a proprietary control cable connection. Xtreme™ versions of the most popular cables are offered for demanding applications in which a smooth feel at the control is essential.

For These Controls

Mercury®, MerCruiser®, Mariner®, Force®, OMC®, Evinrude®, Johnson®, Volvo®, and Dometic's Xtreme™ control series.

MERCURY/MARINER/FORCE/U.S.MARINE	
Mercury Gen II type (standard)	CC189XX
Mercury Gen II type (premium)	CCX189XX
Mariner®/Mercury®/MerCruiser® and other engines using Mercury 2003-date 4000 series controls. CCX189XX is a Xtreme™ cable.	
Mercury 600A type (standard)	CC179XX
Mercury 600A type (premium)	CCX179XX
Mariner®/Mercury®/MerCruiser® (1965-date); Force® (1993-date) with Mercury controls. All Mariner engines with Mercury/Mariner controls (except pre-1993 40 HP & lower models). All 1993-date Force (US Marine) with Force/US Marine/Mercury controls. CCX179XX is a Xtreme™ cable.	
Mariner 630 type (standard)	CC210XX
Mariner® (pre-1993 40 HP & less) with Mariner/Mercury controls.	
Mercury 3600 type (premium)	CCX630XX
Mercury®products (1965-date); Force® (1993-date) using controls which accept 10-32 threaded ends or using most aftermarket controls. Mercury style engine end connection.	

Features:

- Drop-in replacement cables are engineered as replacements for original equipment cables
- Cables use the existing connection components
- Stainless steel and brass fittings
- Standard cables use stainless steel Lubri-Core™ core wire for smooth operation and long life (8" minimum bend radius)
- Premium cables have a heavy jacket and the Xtreme™ splined, coated core element for maximum smoothness with minimal lost motion (4" min. bend radius)
- Black HDPE outer casing for durability and best resistance to UV and chemicals
- Red conduit international only

BRP, OMC, JOHNSON, EVINRUDE, VOLVO/OMC	
400 type (standard)	CC170XX
Pre-1979 OMC®/Johnson®/Evinrude® with BRP/OMC controls. Exceeds engine manufacturer's specifications.	
479 type (standard)	CC205XX
479 type (premium)	CCX205XX
1979-date BRP®/OMC®/Johnson®/Evinrude®/Gale® with BRP/OMC controls. Exceeds engine manufacturer's specifications. CCX205XX is a Xtreme™ cable.	
Volvo/OMC cable (premium)	CCX214XX
Volvo engines using BRP/OMC side mount controls.	
Volvo/OMC cable (premium)	CCX740XX
Volvo engines using top mount BRP/OMC controls.	



CONTROL CABLES OEM CROSS REFERENCE

EXISTING PART NUMBER	DESCRIPTION	PART NUMBER TO REORDER		CONDUIT COLOR/ END METAL
		STD	PREMIUM	
CC179XX Mercury/Mariner - Standard Cable	600A Series Control Cable Assembly			black/brass
6' - 9' specialty length cables (N/A - all markets) use premium Xtreme™ cables		N/A	CCX179XX	black/brass
10' - 24' length cables (Aftermarket)		CC179XX	CCX179XX	black/brass & stainless
10' - 24' length cables use premium Xtreme™ cables		N/A	CCX179XX	black/stainless
25' - up specialty length cables (N/A - all markets) use premium Xtreme™ cables		N/A	CCX179XX	black/stainless
CC189XX	Gen II Series Control Cable			black/brass
6' - 9' specialty length cables (N/A - all markets) use premium Xtreme™ cables		N/A	CCX189XX	black/brass
10' - 24' length cables (Aftermarket)		CC189XX	CCX189XX	black/brass & stainless
10' - 24' length cables use premium Xtreme™ cables		N/A	CCX189XX	black/stainless
25' - up specialty length cables (N/A - all markets) use premium Xtreme™ cables		N/A	CCX189XX	black/stainless
CC210XX	630 Mariner Series Control Cable			black/brass & stainless
6' - 9' specialty length cables (N/A - all markets)		N/A	CCX633XX & 301074	
10' - 24' length cables (Aftermarket)		CC210XX	N/A	black/brass & stainless
25' - up specialty length cables (N/A - all markets)		N/A	CCX633XX & 301074	
Mercury/Mariner - Premium Cable CC630XX (N/A) use CCX630XX	3600 Control Cable Assembly			black/stainless
All lengths (all markets) superceded to new part number		N/A	CCX630XX	black/stainless
CC635XX (N/A) use CCX179XX	600A Control Cable Assembly			black/stainless
All lengths (all markets) superceded to new part number		N/A	CCX179XX	black/stainless
CC679XX (N/A) use CCX189XX	Gen II Control Cable			black/stainless
All lengths (all markets) superceded to new part number		N/A	CCX189XX	black/stainless
BRP, OMC, Evinrude, Johnson - Standard Cables CC205XX (1979 To Date)	479 Series Control Cable Assembly			black/brass
6' - 9' specialty length cables (N/A - all markets) use premium Xtreme™ cables		N/A	CCX205XX	black/brass
10' - 24' length cables (Aftermarket)		CC205XX	CCX205XX	black/brass & stainless
25' - up specialty length cables (N/A - all markets) use premium Xtreme™ cables		N/A	CCX205XX	black/stainless
CC170XX (pre-1979)	400 Series Control Cable Assembly			black/brass
6' - 24' specialty length cables (Aftermarket)		CC170XX	N/A	black/brass
25' - up specialty length cables (N/A - all markets)		N/A	N/A	
BRP, OMC, Evinrude, Johnson - Premium Cables CC636XX (N/A) use CCX205XX	479 Series Control Cable Assembly			black/stainless
All lengths (all markets) superceded to new part number		N/A	CCX205XX	black/stainless
CC214XX (N/A) use CCX214XX	OMC, Volvo Penta, Side Mount Control Cable			black/brass
All lengths (North America Aftermarket) superceded to new part number		N/A	CCX214XX	black/brass & stainless
CC740XX (N/A) use CCX740XX	OMC, Volvo Penta, Top Mount Control Cable			black/brass
All lengths (North America Aftermarket) superceded to new part number		N/A	CCX740XX	black/brass & stainless

NOTES: XX = Length in feet

CONTROL CABLES BASED ON ENGINE TYPE

OUTBOARD ENGINES	STANDARD GRADE USING ENG. MFR. CONTROLS	STANDARD GRADE USING AFTMKT. CONTROLS
Chrysler®	N/A (see Premium)	N/A (see Premium)
Force® pre-1993	N/A (see Premium)	N/A (see Premium)
Force® 1993-date	CC179XX (600A type)	N/A (see Premium)
Johnson®/Evinrude® 1979-date	CC205XX (479 type)	N/A (see Premium)
Johnson®/Evinrude® pre-1979	CC170XX (400 type)	N/A (see Premium)
Mariner® 40 HP & below pre-1993	CC210XX (630 type)	N/A (see Premium)
Mariner® 40 HP & below 1993-date	CC179XX (600A type)	N/A (see Premium)
Mariner® all above 40 HP	CC179XX (600A type)	N/A (see Premium)
Mercury® 1965-date	CC179XX (600A type)	N/A (see Premium)
Mercury® products 2003-date (4000 series Gen II controls)	CC189XX (Gen II type)	N/A
Honda®, Nissan®, Suzuki®, Tohatsu®, Yamaha®	N/A (see Premium)	N/A (see Premium)
Sterndrive (I/O) and some Inboard		
Chrysler®, All Inboards	CC230XX	N/A (see Premium)
MerCruiser®, All Stern Drives (except 4000 series controls)	CC179XX (600A type)	N/A (see Premium)
MerCruiser® 2003-date (using 4000 series controls)	CC189XX (Gen II type)	N/A
Mercury®, All Inboards (except 4000 series controls)	CC179XX (600A type)	N/A (see Premium)
Mercury® Inboards 2003-date (using 4000 series controls)	CC189XX (Gen II type)	N/A
OMC® 1979-date	CC205XX (479 type)	N/A (see Premium)
OMC® pre-1979	CC170XX (400 type)	N/A (see Premium)
Volvo® using Volvo® controls	CC230XX	N/A (see Premium)
Volvo® using OMC® controls N/A	N/A	N/A
Volvo® Turbo, SX, new-gen OMC drives w/OMC® controls	N/A	N/A
Others	N/A (see Premium)	N/A (see Premium)
Heavy Duty Applications, including some Inboard & Jet Engines		
1/4-28 terminal, 1 bulkhead, 1 clamp fitting (43BC)	(see Premium Grade)	(see Premium Grade)
1/4-28 terminal, 2 clamp fittings (43C)	(see Premium Grade)	(see Premium Grade)
5/16-24 terminal, 1 bulkhead, 1 clamp fitting (64BC)	(see Premium Grade)	(see Premium Grade)
5/16-24 terminal, 2 clamp fittings (64BC)	(see Premium Grade)	(see Premium Grade)
Jet Engines (Mercury Sport Jet®, OMC Turbo Jet® & similar)		
Mercury® Sport Jet 175 (gate cable)	N/A	N/A
OMC® Turbo Jet (throttle control cable)	CC205XX (479 type)	N/A (see Premium)
OMC® Turbo Jet (gate control cable)	N/A	N/A

*Proprietary ball joint type cable adapter kit required to complete connection to the engine. This part (formerly P/N CA27019P) is no longer available from Dometic. Please consult with Mercury Marine for more information about Chrysler and early model Force engines using this type of cable connection.

**Cable adapter kits listed are required to complete connection to the engine. Consult engine manufacturer, dealer or distributor if kit is not listed.

General rule: use direct replacement type cable whenever possible; use Xtreme™ cables for difficult routings/multiple stations.

MIDRANGE GRADE USING ENG. MFR. CONTROLS	MIDRANGE GRADE USING AFTMKT. CONTROLS	PREMIUM GRADE (Xtreme™) USING ENG. MFR. CONTROLS	PREMIUM GRADE (Xtreme™) USING AFTMKT. CONTROLS
		CCX633XX + ball joint kit*	CCX633XX + ball joint kit*
N/A		CCX633XX + ball joint kit*	CCX633XX + ball joint kit*
		CCX179XX (600A type)	CCX630XX
N/A		CCX205XX (479 type)	CCX633XX + CA27320P kit**
N/A	** (For connection kit	N/A	CCX633XX + CA27321P kit**
N/A	number see premium grade	N/A	CCX633XX
N/A	listing at right for same	CCX179XX (600A type)	CCX630XX
N/A	engine/control.)	CCX179XX (600A type)	CCX630XX
N/A		CCX179XX (600A type)	CCX630XX
N/A	N/A	CCX189XX (Gen II type)	N/A
N/A		CCX633XX/ Xtreme™**	CCX633XX**
N/A	N/A	CCX633XX	CCX633XX
N/A	N/A	CCX179XX (600A type)	CCX630XX
N/A	N/A	CCX189XX (Gen II type)	N/A
N/A	** (For connection kit	CCX179XX (600A type)	CCX630XX
N/A	number see premium grade	CCX189XX (Gen II type)	N/A
N/A	listing at right for same	CCX205XX (479 type)	CCX633XX + CA27320P kit**
N/A	engine/control.)	N/A	CCX633XX + CA27321P kit**
N/A	N/A	CCX633XX	CCX633XX
N/A	N/A	CCX214XX*** or CCX740XX	N/A
N/A	N/A	CCX214XX*** or CCX740XX	N/A
N/A	N/A	CCX633XX	CCX633XX
(see Premium Grade)	(see Premium Grade)	CCX430XX (replaces Morse® 43BC)	CCX430XX (replaces Morse® 43BC)
(see Premium Grade)	(see Premium Grade)	CCX433XX (replaces Morse® 43CC)	CCX433XX (replaces Morse® 43CC)
(see Premium Grade)	(see Premium Grade)	CCX640XX (replaces Morse® 64BC)	CCX640XX (replaces Morse® 64BC)
(see Premium Grade)	(see Premium Grade)	CCX643XX (replaces Morse® 64CC)	CCX643XX (replaces Morse® 64CC)
CC400XX	CC400XX	CCX630XX	CCX630XX
N/A		N/A	N/A
N/A		CCX205XX (479 type)	CCX633XX + CA27320P kit**
N/A		CCX214XX*** or CCX740XX***	CCX633XX

***Cable part numbers shown are for OMC side-mount controls (CCX214XX); OMC binnacle-top mount controls (CCX740XX).

NOTE: Most control cables are available in lengths from 6 to 50 feet. See the Dometic list price sheet for current offering. Where Part Numbers are indicated, XX = length in feet for Dometic cables. Lengths above 30 feet are only available in two-foot increments (32, 34, 36, etc.)

UNIVERSAL 3300/33C

Universal 3300/33C Applications:

Universal type cables are designed to fit aftermarket engine controls as well as OEM units from BMW®, Chrysler®, Honda®, Nissan®, Suzuki®, Volvo®, Yamaha® and others. Several versions of the 3300/33C type are available, including a Xtreme™ model.

Xtreme™ versions of the 3300/33C cables are offered for demanding applications in which a smooth feel at the control is essential.

3300/33C TYPES (10-32 ENDS)		
Xtreme™ 3300 cable (premium)	CCX633XX	Stainless Fittings
Cable has a 10-32 threaded terminal and a clamp-type fitting at each end. 3" nominal travel. 4" minimum bend radius.		

- Features:**
- Cables can use the existing connection components
 - Stainless steel and brass fittings
 - Premium 3300/33C cables have a heavy jacket and the Xtreme™ splined, coated core element for maximum smoothness with minimal lost motion (4" min. bend radius)
 - Black HDPE outer casing for durability and best resistance to UV and chemicals

For These Controls:

Dometic and other brands which accept "universal" type control cables.



* Only offered internationally

Cable Construction

The Core Difference

.34" Super Tough HDPE Jacket for Ultimate Protection Against the Elements.

Oil Tempered Lay Wires for Superior Strength & Performance.

Unique Splined Core!

Long Wearing HDPE Liner: Ultra Smooth and Lubed for Life.

Construction CC230XX*

- 16 Lay wires
- Stainless Steel conduit fittings

UNIVERSAL 3300/33C

EXISTING PART NUMBER	DESCRIPTION	PART NUMBER TO REORDER		CONDUIT COLOR/END METAL
		STD	PREMIUM	
CC230XX*	3300 Series Control Cable Assembly			
6' - 9' specialty length cables (N/A - all markets) use premium Xtreme™ cables		N/A	CCX633XX	black/stainless
10' - 24' length cables (Aftermarket Only)		N/A	CCX633XX	CC230XX* black/stainless CCX633XX black/stainless
25' - up specialty length cables (N/A - all markets) use premium Xtreme™ cables		N/A	CCX633XX	black/stainless
CC330XX (OBSOLETE)	3300 Series Control Cable Assembly			black/stainless
6' - 9' specialty length cables (N/A - all markets) use premium Xtreme™ cables		N/A	CCX633XX	black/stainless
10' - 24' length cables		N/A	CCX633XX	CCX633XX black/stainless
25' - up specialty length cables (N/A - all markets) use premium Xtreme™ cables		N/A	CCX633XX	black/stainless
032377-03-XXX.0 (OBSOLETE)	33C Control Cable			red/stainless
6' - 9' specialty length cables (N/A - all markets) use premium Xtreme™ cables		N/A	CCX633XX	CCX633XX black/stainless
10' - 24' length cables (N/A - Aftermarket)		N/A	CCX633XX	CCX633XX black/stainless
10' - 24' length cables use premium Xtreme™ cables		N/A	CCX633XX	CCX633XX black/stainless
25' - up specialty length cables (N/A - all markets) use premium Xtreme™ cables		N/A	CCX633XX	CCX633XX black/stainless
301947-03-XXX.0 (OBSOLETE)	33C Supreme Control Cable			red/stainless
All lengths (N/A - North America Aftermarket) use premium Xtreme™ cables		N/A	CCX633XX	black/stainless
CC633XX	3300 Premium Xtreme™ Control Cable Assembly			black/stainless
All lengths (N/A - all markets) superceded to new part no.		N/A	CCX633XX	black/stainless

NOTES
 XX = Length in feet
 Red text denotes red conduit cable
 * Only available internationally

3300/33C type cables (10-32 end threads)
 Engines and connection kits that accept a 10-32 threaded end may require a connection kit from Dometic or the engine manufacturer
 N/A = No Longer Available

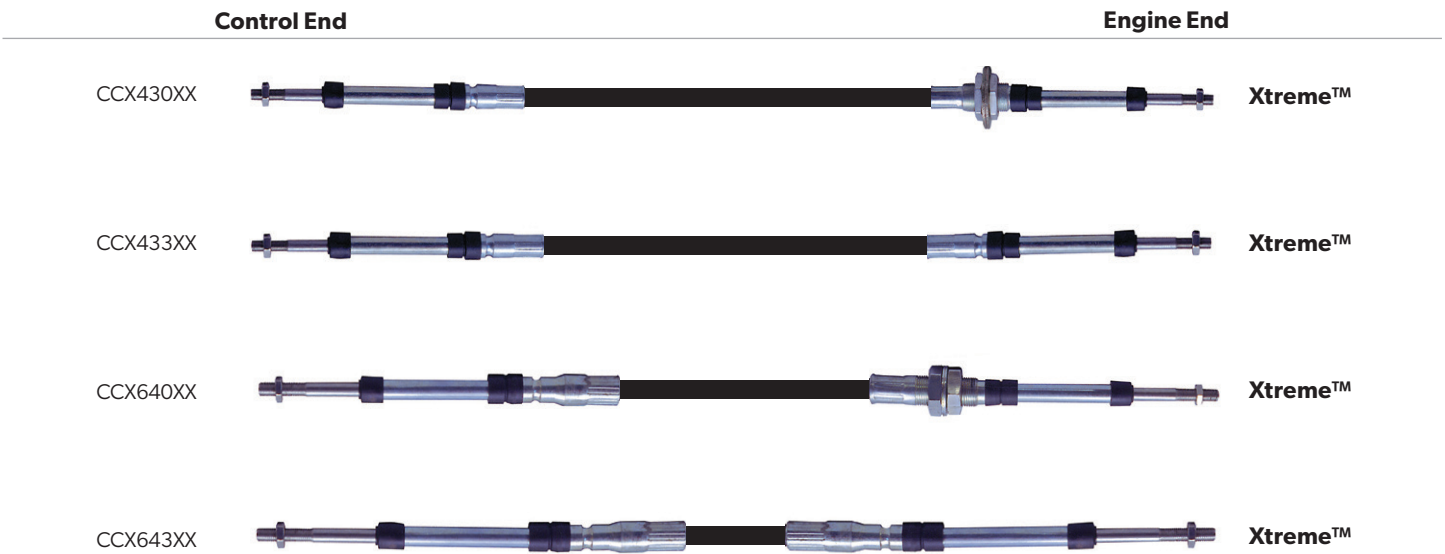
UNIVERSAL 4300/43 & 6400/64 APPLICATIONS

Universal type cables are designed to fit aftermarket engine controls as well as OEM units from BMW®, Chrysler®, and others. For heavy duty applications, Dometic offers 4300/43 and 6400/64 series Xtreme™ cables.

4300/43 TYPES (1/4-28 ENDS)	
Xtreme™ 4300 BC cable	CCX430XX
Cable has one bulkhead and one clamp fitting. There is a 1/4-28 threaded terminal at each end. 3" nominal travel. 5" minimum bend radius.	
Xtreme™ 4300 CC cable	CCX433XX
Cable has a 1/4-28 threaded terminal and a clamp-type fitting at each end. 3" nominal travel. 5" minimum bend radius.	
6400/64 TYPES (5/16-24 ENDS)	
Xtreme™ 6400 BC cable	CCX640XX
Cable has one bulkhead and one clamp fitting. One 5/16-24 threaded terminal at each end. 4" nominal travel. 8" minimum bend radius.	
Xtreme™ 6400 CC cable	CCX643XX
Cable has a 5/16-24 threaded terminal and a clamp-type fitting at each end. 4" nominal travel. 8" minimum bend radius.	
*NOTE: 64 Series cables cannot be replaced by 63 Series cables.	

- Features:**
- 4300/43 type cables have stainless steel conduit fittings (5" minimum bend radius)
 - 6400/64 type cables have stainless steel conduit fittings (8" minimum bend radius.)
 - Black HDPE outer casing for durability and best resistance to UV and chemicals.
 - Cables meet/exceed all applicable industry standards

For These Controls:
Dometic and other brands which accept "universal" type control cables.



4300/43 TYPE HEAVY DUTY

EXISTING PART NUMBER	DESCRIPTION	PART NUMBER TO REORDER		CONDUIT COLOR/END METAL
		STD	PREMIUM	
CC692XX (N/A)*	Xtreme™ 4300BC Control Cable Assembly			black/stainless
All lengths (all markets) superceded to premium Xtreme™ cable		N/A	CCX430XX*	black/stainless
CC693XX (N/A)*	Xtreme™ 4300CC Control Cable Assembly			black/stainless
All lengths (all markets) superceded to premium Xtreme™ cable			CCX433XX*	black/stainless

CONTROL CABLES - 6400/64 TYPE HEAVY DUTY

EXISTING PART NUMBER	DESCRIPTION	PART NUMBER TO REORDER		CONDUIT COLOR/END METAL
		STD	PREMIUM	
CC694XX (N/A)*	Xtreme™ 6400BC Control Cable Assembly			black/stainless
All lengths (all markets) superceded to premium Xtreme™ cable		N/A	CCX640XX*	black/stainless
CC695XX (N/A)*	Xtreme™ 6400CC Control Cable Assembly			black/stainless
All lengths (all markets) superceded to premium Xtreme™ cable		N/A	CCX643XX*	black/stainless

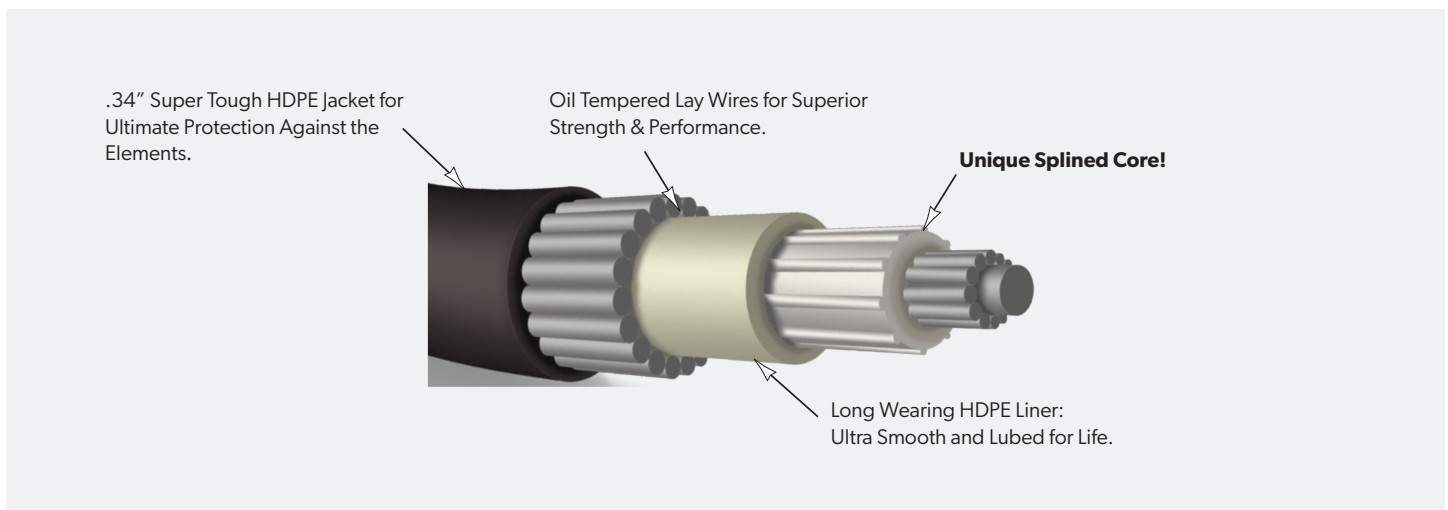
NOTES

XX = Length in feet

4300/43 type cables (1/4-28 end thread) + 3" Travel
 6400/64 type cables (5/16-24 end thread) + 4" Travel
 64 Series cables cannot be replaced by 63 Series cables.

*Part Number Change Only.

The Core Difference



JET BOAT APPLICATIONS

BRP/OMC TURBO JET®

Throttle Cables

479 type cable (Xtreme™)	CCX205XX
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479 type cable (standard)	CC205XX
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For OMC Turbo Jets with OMC side mount controls that accept OMC “snap in” O.E.M. type cable. Drop-in replacement cable; uses existing connection components.

Gate Cables

Turbo Jet cable (Xtreme™)	CCX214XX
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For OMC Turbo Jets with OMC **side mount** controls that accept OMC “snap in” O.E.M. type cable. Drop-in replacement cable; uses existing connection components.

Turbo Jet cable (Xtreme™)	CCX740XX
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For OMC Turbo Jets with OMC **top mount** controls that accept OMC “snap in” O.E.M. type cable. Drop-in replacement cable; uses existing connection components.

Throttle/Gate Cables (10-32)

3300/33C cable	Use CCX633XX Xtreme™
----------------	----------------------

(For OMC Turbo Jets with OMC binnacle mount, Dometic or other controls that accept a cable with 10-32 threaded ends. Drop-in replacement cable; uses existing connection components.



Just for Jets! Two families of jet boat control cables are available for replacement of Mercury Sport Jet® and OMC Turbo Jet® throttle and reverse-gate cables. Xtreme™ versions of the three most popular cables are offered for demanding applications in which a smooth feel at the control is essential.

Features:

- Drop-in replacement cables are engineered as replacements for original equipment cables.
- Cables use the existing connection components.
- Stainless steel and brass fittings.
- Standard cables use stainless steel Lubri-Core™ core wire for smooth operation and long life. (8" minimum bend radius.)
- Midrange cables use a heavier jacket and a stainless steel Lubri-Core™. (8" minimum bend radius for Lubri-Core construction)
- Premium cables have a heavy jacket and the Xtreme™ splined, coated core element for maximum smoothness with minimal lost motion. (4" min. bend radius.)
- 4300/43 type cables have stainless steel conduit fittings (5" minimum bend radius.)
- Black HDPE outer casing for durability and best resistance to UV and chemicals.

For These Controls:

Mercury SportJet®, OMC TurboJet® Dometic® *CH2300, and others.

MERCURY SPORT JET®

Throttle Cables

3300 cable (standard)	CC230XX**
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3300 cable (Xtreme™)	CCX633XX
----------------------	----------

3300/33C cables are for Mercury Sport Jets with controls that accept a cable with 10-32 threaded ends. Drop-in replacement cable; requires connection kit #CA27319P for engine end.

Mercury 3600 Type Cable (Xtreme™)	CCX630XX
--	----------

Cable has a 10-32 threaded terminal at control end and Mercury type engine end. CA27319 kit is **not** required.

175 HP

Sport Jet 175 (midrange)	CC400XX
--------------------------	---------

For Mercury Sport Jets with controls which accept a 40BC high-load, stainless steel cable with 1/4-28 threaded end at the control. Drop-in replacement; uses existing connection components.

* CH2300 Control uses 3300/33C style cable or CCX317xx control cable with pivot 7695002 for gate cables requiring 4300 end at gate.

** Only available internationally

JET BOAT CROSS REFERENCE

EXISTING PART NUMBER	DESCRIPTION	PART NUMBER TO REORDER		CONDUIT COLOR/ END METAL
		STD	PREMIUM	
311748-00-XXX.0 (N/A)	40BC Mercury (9-21 feet) Control Cable	CC400XX	N/A	black/stainless
All lengths (all markets) superceded to new part number	Threaded Terminal Control End	CC400XX	N/A	black/stainless
312240-00-XXX.0 (N/A)	Mercury Sport Jet Control Cable	CC401XX	N/A	black/stainless
All lengths (all markets) superceded to new part number	Eye Terminal Control End	CC401XX	N/A	black/stainless
CC692XX (N/A)	Xtreme™ 4300 BC Control Cable Assembly	N/A	CCX430XX	black/stainless
All lengths (all markets) superceded to premium Xtreme™ cable		N/A	CCX430XX	black/stainless
CC694XX (N/A)	Xtreme™ 6400BC Control Cable Assembly	N/A	CCX640XX	black/stainless
All lengths (all markets) superceded to premium Xtreme™ cable		N/A	CCX640XX	black/stainless

NOTES

XX = Length in feet N/A = No Longer Available



PANEL - UTILITY & VERNIER APPLICATIONS

UTILITY

With Knob and T-Handle

Utility Cable (5')	CC34305
Utility Cable (10')	CC34310
Utility Cable (15')	CC34315
Utility Cable (20')	CC34320
Utility Cable (25')	CC34325
Utility Cable (30')	CC34330
Utility Cable (35')	CC34335
Utility Cable (40')	CC34340

VERNIER

The vernier cable requires ordering 2 part numbers: a Vernier Cable Head (which includes knob, button, panel body and fine adjustment mechanism) PLUS a Cable, which attaches to the Cable Head.

Vernier Cable Head	317310
Vernier Cable (5')	CC34505
Vernier Cable (10')	CC34510
Vernier Cable (15')	CC34515
Vernier Cable (20')	CC34520
Vernier Cable (25')	CC34525
Vernier Cable (30')	CC34530
Vernier Cable (35')	CC34535
Vernier Cable (40')	CC34540

CONDUIT FITTING KITS

Use these (formerly known as Hub Adapter Kits) to mount utility cables to mount in either bulkhead or clamp type applications.

Bulkhead Adapter Kit	300673
Clamp Adapter Kit	302485
Stop Collar	037693

DC CONTROL

Converts standard 3300/33C cable into a utility control. Install through a panel or mount nearly anywhere with optional bracket.

DC Control	301916
Uses CCX633XX *	3300/33C Type Cable
Mounting Bracket (stainless steel)	048210

* CCX633 is the recommended 3300/33C cable for use with the DC control

Utility Cable

An easy-to-install, easy to operate, flexible push-pull cable for remote control of choke, throttle, shut off, fuel valves, vents and many other applications.

- Available with both knob and T-handle.
- Solid stainless steel core wire resists corrosion, moves easily in HDPE liner.
- HDPE outer casing for durability and best resistance to UV and chemicals.

Vernier Cable

Great for throttles or other applications where precise control is desired. Push the button for fast easy setting of approximate position, then turn the knob for micro adjustment.

- Positive, adjustable brake maintains settings regardless of vibration or governor back pressure.
- HDPE outer casing for durability and best resistance to UV and chemicals.

For Use On:

Remote control of choke, governor, throttle, fuel valves, vents and other applications.



Bulkhead Adapter Kit

Part No. 300673



Clamp Adapter Kit

Part No. 302485



Mounting Bracket

Part No. 048210



DC Control

Part No. 301916



3300/33C Cable

PANEL CABLES CROSS REFERENCE

EXISTING PART NUMBER	DESCRIPTION	PART NUMBER TO REORDER		CONDUIT COLOR/END METAL
		STD	PREMIUM	
018872-00-XXX.0	33LU Utility Control Cable w/Knob	CC343XX*	N/A	black/brass
All lengths (NLA - all markets)		CC343XX*	N/A	black/brass
018873-00-XXX.0	33LU Utility Control Cable w/T-handle	CC343XX*	N/A	black/brass
All lengths (NLA - all markets)		CC343XX*	N/A	black/brass
043820-03-XXX.0	33LPL Control Cable, No Hub	N/A	N/A	black/brass
All lengths (NLA - all markets)		OBSOLETE	N/A	
307141-00-XXX.0	33LV Vernier Control Cable No Hub	CC345XX **	N/A	black/aluminum
All lengths (NLA - all markets)		CC345XX **	N/A	black/aluminum
307941-003	Vernier Cable Head	317310***	N/A	N/A
No longer available all markets		317310***	N/A	N/A

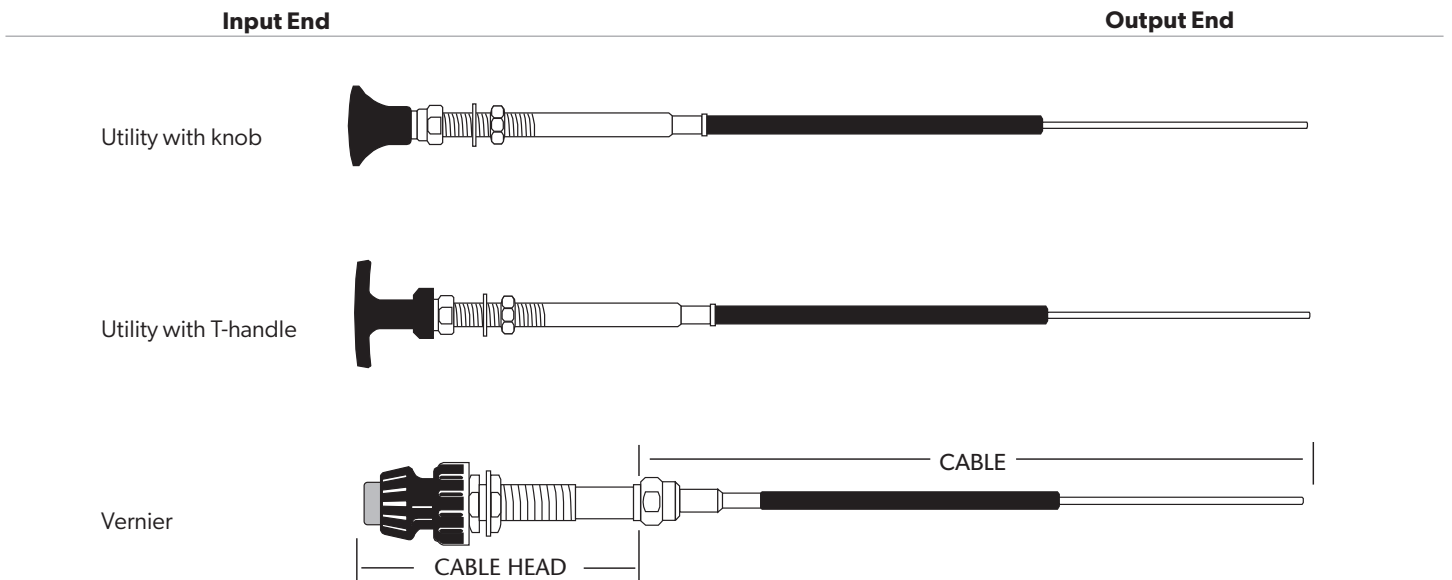
NOTES

XX = Length in feet

* Contains knob and t-handle

** CC345XX cables use 317310 Vernier Control Head

*** Part number change only



Note: The Marine Utility and Vernier control cable has a bare conduit at the output end with a .075 stainless steel wire.

CROSS-REFERENCE FOR OTHER BRANDS OF CONTROL CABLES

NAME AND MODEL NUMBER	DESCRIPTION (PART NUMBER)	REPLACEMENT (STANDARD)	REPLACEMENT (MIDRANGE)	RECOMMENDED REPLACEMENT (PREMIUM)
MORSE®				
Type KM	Mercury 1965-date (063732-000) N/A	CC179XX	N/A	CCX179XX
Mercury Sport Jet up to 120	(310530) N/A	CC213XX	N/A	N/A
Mercury Sport Jet 175	(311748-000) N/A	N/A	CC400XX	N/A
Type OS	OMC 1979-date (048296-000) N/A	CC205XX	N/A	CCX205XX
Type O	OMC pre-1979 (302029-000) N/A	CC170XX	N/A	N/A
Type OC	OMC/Volvo new gen. (310048-000) N/A	N/A	N/A	CCX214XX (side mt.) CCX740XX (top mt)
33C	(032377-003) N/A	CC230XX***	N/A	CCX633XX
33C Supreme	(301947-003) N/A	N/A		CCX633XX
43BC SST & 43BC	(046348-003/038013-003) N/A	N/A	N/A	CCX430XX
43C SST & 43C	(065885-003/038012-003) N/A	N/A	N/A	CCX433XX
63BC XL & 63BC*	(304263-003/037913-003) N/A (3" stroke)	N/A	N/A	N/A
64BC XL & 64BC	(304263-004/037913-004) N/A (4" stroke)	N/A	N/A	CCX640XX
63C XL & 63C*	(304262-003/037912-003) N/A (3" stroke)	N/A	N/A	(4" stroke)
64C XL & 64C	(304262-004/037912-004) N/A (4" stroke)	N/A	N/A	CCX643XX (4" stroke)
Positive Lock (3300TL)	Positive Lock (Turn-To-Lock) (043820) N/A	N/A	N/A	N/A
Utility (3300 UT)	Utility Cable (with knob) (018872-00-XXX.0) N/A	N/A	CC343XX**	N/A
Utility (3300 UT)	Utility Cable (with T-handle) (018873-00-XXX.0) N/A	N/A	CC343XX**	N/A
Vernier (3300 VC)	Vernier Cable & Head (separate) (Cable 307141-00-XXX.0 + Head 307941-03) N/A	N/A	CC345XX + Head 317310	N/A
ACCO®				
OMTS	OMC pre-1979	CC170XX	N/A	N/A
KMTS	Mercury 1965-date	CC179XX	N/A	CCX179XX
M330L	3300CC or 33C type	CC230XX***	N/A	CCX633XX
M430C	4300CC or 43C type	N/A	N/A	CCX433XX
M430CB	4300BC or 43BC type	N/A	N/A	CCX430XX
M640C	6400CC or 64C type	N/A	N/A	CCX643XX

NOTES:

* 64 Series cables cannot be used as replacements for 63 Series cables.

** Has both round and T-handle knobs.

*** Only available internationally.

N/A = No Longer Available

General rule: use direct replacement type cable whenever possible; use XTREME™ cables for difficult routings/multiple stations.

NAME AND MODEL NUMBER	DESCRIPTION (PART NUMBER)	REPLACEMENT (STANDARD)	REPLACEMENT (MIDRANGE)	RECOMMENDED REPLACEMENT (PREMIUM)
HI-LEX® (TSK)				
CC33-30-00	3300CC or 33C type	CC230XX*	N/A	CCX633XX
Mercury®, Most Mariner®, Late Model Force®				
Control Cable	(C34555A)	CC179XX	N/A	CCX179XX
NW Controls®				
O Style	OMC pre-1979 (A5119)	CC170XX	N/A	N/A
O2 Style	OMC 1979-date (A6523)	CC205XX	N/A	CCX205XX
M3 Style	Mercury 1965-date (A5153)	CC179XX	N/A	CCX179XX
WW Style	CC172 type (A5124)	CC230XX*	N/A	CCX633XX
Series 75 W-W	CC330/33C type (A5797)	CC230XX*	N/A	CCX633XX
Series 95 W-W	33C performance cable (A5805)	N/A		CCX633XX
Series 125 W-W	43C type (A5773)	N/A	N/A	CCX433XX
Series 125 W-WB	43BC type (A5804)	N/A	N/A	CCX430XX
Series 185 W-W	64CC type (A6057)	N/A	N/A	CCX643XX (4" stroke)
Series 185 WB-WB	64BC type (A6064)	N/A	N/A	CCX640XX (4" stroke)
OMC®, BRP®, Evinrude®, Johnson®, Gale®				
Long-Life Cable	OMC 1979-date (3773-) (3798-)	CC205XX	N/A	CCX205XX
Snap-In Cable	OMC pre-1979 (1731-)	CC170XX	N/A	N/A
OMC/Volvo New Gen	With OMC controls (M-10)	N/A	N/A	CCX214XX (side mount) CCX740XX (top mount)
Volvo®				
Volvo Old Style	With controls that accept 10-32 end	CC230XX*	N/A	CCX633XX
OMC/Volvo New Gen.	With OMC controls (M-10)	N/A	N/A	CCX214XX (side mount)
OMC/Volvo New Gen.	With OMC controls (M-10)	N/A	N/A	CCX740XX (top mount)

* Only available internationally.

DOMETIC UNIVERSAL CONTROL CABLES IDENTIFICATION GUIDE

STANDARD	MIDRANGE	PREMIUM
3300/33 Universal (10-32 Ends)	3300/33 Universal (10-32 Ends)	3300/33 Universal (10-32 Ends)
** CC172XX/CC230XX	CC332XX N/A	CCX633XX
	CC199XX (N/A) USE PREMIUM CABLE	CCX633XX
	CC223XX (N/A) USE PREMIUM CABLE	CCX633XX
	CC215XX (N/A) USE PREMIUM CABLE	CCX633XX
4300/43 Universal (1/4-28 Ends)	4300/43 Universal (1/4-28 Ends)	4300/43 Universal (1/4-28 Ends)
038012-03-LENGTH 43C (N/A)	065885-03-LENGTH 43C (N/A)	CCX433XX (4300CC)
CC193XX (4300CC) (N/A) CC693XX (4300CC) (N/A)	USE PREMIUM CABLE	CCX433XX (4300CC)
038013-03-LENGTH 43BC (N/A)	046348-03-LENGTH 43BC (N/A)	CCX430XX (4300BC)
CC192XX (4300BC) (N/A) CC692XX (4300BC) (N/A)	USE PREMIUM CABLE	CCX430XX (4300BC)
311748-00-LENGTH 40BC 175 JET CABLE (N/A)	USE CC400XX	N/A
63/6400/64 Series (5/16-24 Ends)	63/6400/64 Series "XL" (5/16-24 Ends)	6400/64 Series (5/16-24 Ends)
037912-03-LENGTH 63C (N/A)	304262-03-LENGTH 63CXL (N/A)*	N/A
037912-04-LENGTH 64C (N/A)	304262-04-LENGTH 64CXL (N/A)	CCX643XX (6400CC)
CC195XX (6400CC) (N/A) CC695XX (6400CC) (N/A)	USE PREMIUM CABLE	CCX643XX (6400CC)
037913-03-LENGTH 63BC (N/A)	304263-03-LENGTH 63BCXL (N/A)*	N/A
037913-04-LENGTH 64BC (N/A)	304263-04-LENGTH 64BCXL (N/A)	CCX640XX (6400BC)
CC194XX (6400BC) (N/A) CC694XX (6400BC) (N/A)	USE PREMIUM CABLE	CCX640XX (6400BC)

NOTE:

* 64 Series control cables cannot replace 63 Series cables.

** CC172 is no longer available. Replaced directly by CC230XX, which is international only - use CCX633xx

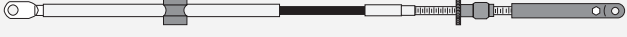
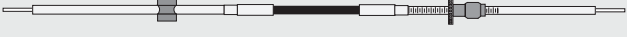
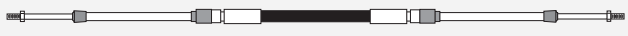
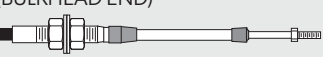
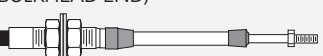
N/A = No Longer Available

CONTROL CABLES IDENTIFICATION GUIDE

PANEL MOUNT TYPE CABLES		
Utility (with knob: 018872-00-XXX.0) NLA (with T-handle: 018873-00-XXX.0) NLA USE CC343XX. Has both the round and T-handle knobs		
Vernier (micro-adjustable; CC345XX + 317310 Control Head)		

Continued on next page

CONTROL CABLES IDENTIFICATION GUIDE

CABLE TYPE	CONTROL END FITS	ENGINE END FITS
Oem Direct Replacement Type Cables		
Mercury®/Mariner® Gen II (2003 to date) Standard: CC189XX, Premium: CCX189XX	  	Mercury® 4000 series Gen II single lever controls Mercury®, most MerCruiser®, most Mariner® & late model Force®
Mercury®/Mariner® type 600A (1965 to date) Standard: CC179XX, Premium: CCX179XX	  	Mercury®/Mariner® single lever controls Mercury®, most MerCruiser®, most Mariner® & late model Force®
BRP®/OMC®/Johnson®/Evinrude® type 479 (1979-date) Standard: CC205XX, Premium: CCX205XX	  	BRP®/OMC®/Johnson®/Evinrude® type single lever controls BRP®/OMC® engines
BRP®/OMC®/Johnson®/Evinrude® type 400 (pre-1979) Standard: CC170XX	  	BRP®/OMC®/Johnson®/Evinrude® type twin lever controls BRP®/OMC® engines
Mariner® type 40 HP & below (pre-1993) Standard: CC210XX	  	Mercury®/Mariner® single lever controls (1965-date) Mariner® pre-1993 low engines (40 HP & below)
Mercury Sport Jet® (175 HP) Midrange: 312240-00-XXX.0 (NLA) USE CC401XX	  	Mercury® Sport Jet® 175 controls Mercury® Sport Jet® 175
Volvo® engines w/OMC® controls, OMC Turbo Jet® Premium: CCX214XX (side mount), Premium: CCX740XX (top mount)	  	BRP®/OMC® controls Volvo® I/O, Turbo, SX; new-gen BRP®/OMC drives; TurboJet® gate cable
Mercury®/Mariner® type 3600 (1965-date) Premium: CCX630XX	  	Controls accepting 10-32 cable ends Mercury®, most MerCruiser®, Most Mariner® & late model Force®
Universal Type Cables		
3300/33C type (Dometic 3300CC, Morse® 33C/33C Supreme (N/A - use CCX633xx)) Standard: CC172XX**/CC230XX Premium: CCX633XX	  	Controls accepting 10-32 cable ends Engines and connection kits that accept a 10-32 threaded end May require connection kit from Dometic or Engine Manufacturer
4300/43 type (heavy duty applications) Premium: 4300BC (bulkhead-clamp): CCX430XX Premium: 4300CC (bulkhead clamp): CCX433XX	   	Controls accepting 1/4-28 cable ends Engines and connection kits that accept a 1/4-28 threaded end
6400/64 type (heavy duty applications) Premium: 6400BC (bulkhead-clamp): CCX640XX Premium: 6400CC (bulkhead clamp): CCX643XX	   	Controls accepting 5/16-24 cable ends Engines and connection kits that accept a 5/16-24 threaded end

** No longer available

CONTROL CABLE CONNECTION KITS

Control Connection Kits

OEM CONTROL - SPECIFIC CONNECTION KITS FOR 3300/33C CABLES

Description	Part No.
Merc/Mariner Control Adapter - 3300/33C cable	301074
OMC/J/E Control Adapter - 3300/33C cable	304939



301074



304939

Engine Connection Kits

ENGINE-SPECIFIC CONNECTION KITS FOR 1973-1978 OMC OEM ("400" TYPE) CABLES WITH BARE WIRE ENDS

Description	Part No.
Evinrude/Johnson O/B Kit (35HP & less)	CA27208P
Evinrude/Johnson O/B Kit (over 35HP)	CA27247P
OMC Stern Drive Kit (all)	CA27247P

(NOTE: included clip is not used on stern drives.)



CA27208P



CA27247P

ENGINE-SPECIFIC CONNECTION KITS FOR 3300/33C CABLES

Description	Part No.
Evinrude/Johnson O/B Kit (1979-date)	CA27320P
Evinrude/Johnson O/B Kit (pre-1979)	CA27321P
Mercury Outboard Kit (1965-date)	CA27319P
Mercury Stern Drive Kit (all)	CA27319P
Mercury Inboard Kit (all)	CA27373P
OMC Stern Drive Kit (all)	CA27320P
Yamaha Outboard Kit	CA38383P



CA27320P



CA27373P

UNIVERSAL BALL JOINT KITS

Description	Part No.
Univ. 3300/33C Ball Joint (1/4-28) (1)	CA37701P
Univ. 3300/33C Ball Joint (10-32) QR (1)	031799-001
Univ. 3300/33C Ball Joint (5/16-24) QR (1)	035242
Univ. 4300/43 Ball Joint (1/4-28) (1)	CA28014P
Univ. 4300/43 Ball Joint (1/4-28) QR (1)	029104
Univ. 4300/43 Ball Joint (5/16-24) QR (1)	032267
Univ. 6400/64 Ball Joint (5/16-24) (1)	CA28021P
Univ. 6400/64 Ball Joint (5/16-24) QR (1)	029108
Univ. 6400/64 Ball Joint (5/16-24) ST (1)	038491

(NOTE: QR type has external spring over ball receptor; ST does not.)



CA37701P



038491



029104

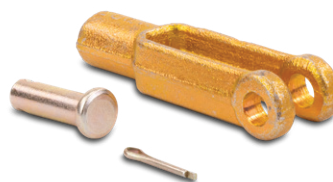
Cable Connection Kits

For two cables, except where otherwise noted.

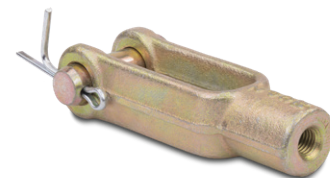
(1) = for use with one cable.

UNIVERSAL CLEVIS KITS

Description	Part No.
Univ. 3300/33C Clevis (10-32, 1/4" pin) (1)	031125
Univ. 3300/33C Clevis (10-32, 3/16" pin) (1)	031800
Univ. 3300/33C Clevis (10-32, 5/16" pin) (1)	033395
Univ. 4300/43 Clevis (1/4-28, 1/4" pin) (1)	029025
Univ. 4300/43 Clevis (1/4-28, 5/16" pin) (1)	042212
Univ. 4300/43 Clevis (1/4-28, 3/8" pin) (1)	045985
Univ. 6400/64 Clevis (5/16-24, 5/16" pin) (1)	029132-001
Univ. 6400/64 Clevis (5/16-24, 3/8" pin) (1)	042034



031125



045985

OTHER UNIVERSAL CABLE CONNECTION KITS

Pivots – 3300/33C Series

	A	B	C	D	E	Part No.
in	3/16	7/16	3/8	9/64	11/16	045583
mm	4.8	11.1	9.5	3.6	17.5	
in	1/4	7/16	21/64	9/64	5/8	031029
mm	6.4	11.1	8.3	3.6	15.9	
in	1/4	7/16	3/8	.191	23/32	031539
mm	6.4	11.1	9.5	4.9	18.3	
in	1/4	7/16	21/64	.295	25/32	032392
mm	6.4	11.1	8.3	7.5	19.8	
in	1/4	7/16	3/8	.316	15/16	039890
mm	6.4	11.1	9.5	8.0	23.8	
in	1/4	1/2	3/8	.376	15/16	043939
mm	6.4	12.7	9.5	9.6	23.8	
in	5/16	7/16	3/8	13/32	1 1/16	037691
mm	7.9	11.1	9.5	10.3	27.0	
in	5/16	7/16	3/8	7/16	1	039471
mm	7.9	11.1	9.5	11.1	25.4	

Pivots – 4300/43 Series

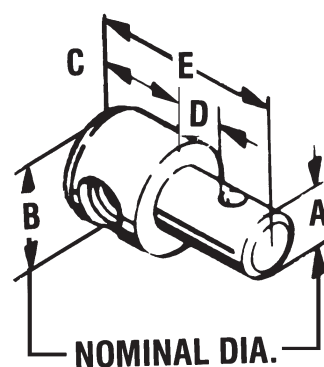
in	1/4	1/2	7/16	9/64	3/4	039110
mm	6.4	12.7	11.1	3.6	19.1	
in	1/4	1/2	1/2	13/64	7/8	031537
mm	6.4	12.7	12.7	5.2	22.2	
in	1/4	1/2	1/2	17/64	15/16	036361
mm	6.4	12.7	12.7	6.7	23.8	
in	5/16	1/2	9/16	9/64	29/32	045199
mm	7.9	12.7	14.3	3.6	23.0	



045583



304939



031537



045199

CONTROL CABLES CONNECTION KITS

Cable Connection Kits Cont.

OTHER UNIVERSAL CABLE CONNECTION KITS CONT.

Description	Part No.
3300/33C Series	
Eye Terminal (Metal) – 3300 (10-32, 5/16" pin) (1)	317413
Eye Terminal (Red Nylon) – 3300 (10-32, 5/16" pin) (1)	300646
4300/43 Series	
Eye Terminal – 4300/43 (1/4-28, 5/16" pin) (1)	041134
6400/64 Series	
Eye Terminal – 6400/64 (5/16-24, 5/16" pin) (1)	045428
Pin for Eye Terminal (1.5", 5/16" dia.) (pin only)	300965
Terminal Pin Kit (300965, ring, nut, washer)	301456
Univ. 3300/33C Clamp & Shim Kit (1)	CA28020P
Univ. 3300/33C Clamp (1)	032010
3300/33C Clamp – 4 bolt holes (for bare conduit) (1)	037664
3300/33C Clamp (for bare cond. or ftg.) (1)(2 Bolt)	031509
3300/33C Clamp Shim for 032010 (1)	035777
Univ. 4300/43 Clamp & Shim Kit (1)	CA28018P
Univ. 4300/43 Clamp – 2 Holes (1)	031532
4300/43 Clamp Shim for 031532	031538
Univ. 6400/64 Clamp & Shim Kit (1)	CA28019P
Heavy Duty 6400/64 Clamp (1)	036733
6400/64 Clamp Shim (1)	037884
Univ. 3300/33C Inboard Connection Kit (2)	CA27024P
(Above contains: (2) CA37701P Ball Joints & (2) 031419 Brackets.)	
Univ. 3300/33C Inboard Connection Bracket (1)	036174
(Old Morse® description: "Cable Hook Clip – Single")	
Univ. 3300/33C Inboard Connection Bracket (1)	031419
(Old Morse® description: "Cable Clip – 30 Series Only")	
Univ. 3300/33C Cable Clip DS (Old Morse® description: "Cable Hook Clip – Dual")	035531
Other Cable Kits/Accessories	
Anti-Vibration Cable Mount – 3300/33C	294200-001
Anti-Vibration Cable Mount – 4300/43	294201-001
Stop Collar – 3300/33C	037693
Cable Brake – 3300/33C, 4300/43 & 6400/64 cables	044386



317413



300646



300965



032010



CA28018P



031532



CA27024P



036174



294200-001



035531



037693



044386

Cable Connection Kits Cont.

CONDUIT FITTING [HUB] ADAPTER KITS FOR PANEL/UTILITY AND VERNIER CABLES

Description	Part No.
Bulkhead Adapter Kit – Panel Cables	300673
Clamp Adapter Kit – Panel Cables	302485



300673



302485

ALL-PURPOSE CLUTCH & THROTTLE KITS – BY PART NUMBER

Description	Part No.
Connection Kit – 3300/33C Cable	036680
Connection Kit – 4300/43 Cable	040773
Connection Kit – Dual Station 3300/33C (TwinDisc)	042577



036680



042577

Pre-Engineered Clutch & Throttle Kits – By Engine Application

FOR SINGLE STATION 3300/33C CABLES

Caterpillar 334, 3304 & 3306	036680
Caterpillar 343, 3406 & 3408	036680
Cummins (all with MVSGOV)	036680
GM (2, 3 & 4-53 w/left & right hand gov.)	036680
GM (GV-53 rear & front entry)	036680
GM (6 & 8V-71 front entry shutdown kit)	036680
Universal (Atomic 4)	036680
Universal (Atomic 1&2 63C clutch & 33C throttle)	036680

FOR DUAL STATION 4300/43C CABLES

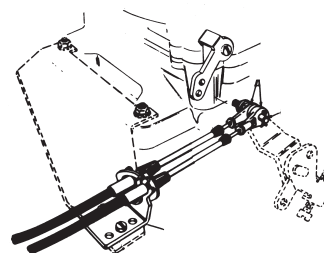
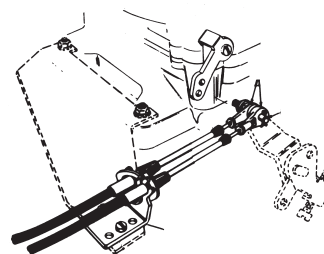
Caterpillar 334, 3304 & 3306	036680
Caterpillar 343, 3406 & 3408	036680
Cummins (all with MVSGOV)	036680
GM (2, 3 & 4-53 w/left & right hand gov.)	036680
GM (GV-53 rear & front entry)	036680
GM (6 & 8V-71 front entry shutdown kit)	036680
Universal (Atomic 4)	036680
Universal (Atomic 1&2 63C clutch & 33C throttle)	036680

TO CONVERT FROM 3300/33C DUAL STATION TO 4300/43C DUAL STATION, ADD

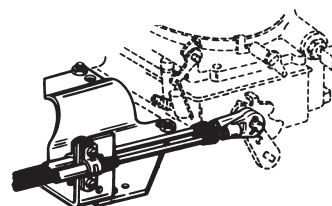
Caterpillar 334, 3304 & 3306	040773
Caterpillar 343, 3406 & 3408	040773
Cummins (all with MVSGOV)	040773

(listing continued on next page)

For two cables, except where otherwise noted. (1) = for use with one cable.

036680
300580

036680

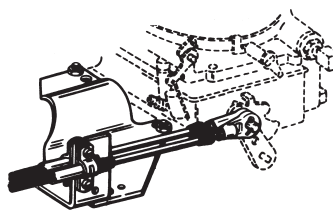
040773
300665

CONTROL CABLES CONNECTION KITS

Pre-Engineered Clutch & Throttle Kits – By Engine Application

TO CONVERT FROM 3300/33C DUAL STATION TO 4300/43C DUAL STATION, ADD

DESCRIPTION	PART NO.
Cummins (V, VT, KT, KTA 1975-up)	300665
GM (3,4 & 6-71 w/var. spd. Gov.)	300665
GM (6, 8 & 12 V-71, 6 & 8 V-92 w/v.s.g.)	300665
GM (2, 3 & 4-53 w/left & right hand gov.)	040773
GM (GV-53 rear & front entry)	040773
GM (6 & 8V-71 front entry shutdown kit)	040773
Universal (Atomic 4)	040773
Universal (Atomic 1&2 63C clutch & 33C throttle)	040773

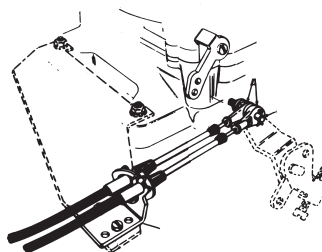
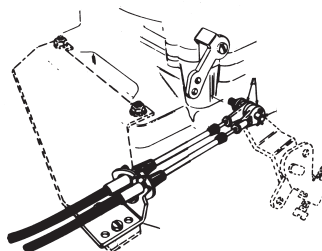


300665

Pre-Engineered Clutch & Throttle Kits – By Transmission

FOR DUAL STATION 3300/33C CABLES

Borg-Warner (70, 71 & 72 inline-red gear)	301474
Capital (12400, 2, 3 & 4 HD & HE)	036680
Paragon (HF-7)	036680
Twin Disc (MG, 508, 509, 510, 510A, 512)	042577
Twin Disc (514C, 514CHP, 518, 521, 527)	042577
Twin Disc (530 & 540)	042577



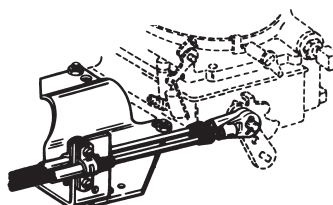
036680

FOR DUAL STATION 4300/43C CABLES

Borg-Warner (70, 71 & 72 inline-red gear)	301474
Capital (12400, 2, 3 & 4 HD & HE)	036680
Paragon (HF-7)	036680

TO CONVERT FROM 3300/33C DUAL STATION TO 4300/43C DUAL STATION, ADD

Borg-Warner (70, 71 & 72 inline-red gear)	300665
Borg-Warner (71C & 72C drop center)	300665
Capital (12400, 2, 3 & 4 HD & HE)	040773
Paragon (HF-7)	040773
Twin Disc (MG, 508, 509, 510, 510A, 512)	300665
Twin Disc (514C, 514CHP, 518, 521, 527)	300665
Twin Disc (530 & 540)	300665
Twin Disc (MG502, 506 & 507)	300665



For two cables, except where otherwise noted. (1) = for use with one cable.



/ Optimus Adaptive

/ Adaptive

/ Standard

TRIM



TABS





DOMETIC TRIM TABS

Keep both hands on the wheel and concentrate on driving with trim control at your fingertips with Dometic Trim Tabs. With a clean, modern design, our trim tabs look at home in any cockpit. Now made in stainless steel for robust performance in saltwater applications.

Optimus Adaptive Trim Tabs

Improve your safety and comfort on the water with the Optimus Joystick and Electronic Power Steering system. Providing position feedback and complete integration with the on board shift and throttle, you can quickly and efficiently get the boat on plane for an optimum ride. Automatic features and an intuitive dial controller with one-touch buttons make the system easy to use. While the robust, all electric design ensures reliability in a harsh marine environment.

Adaptive Trim Tabs

Optimize the performance of your boat with the Adaptive Trim Tab System. Featuring position feedback and complete integration with on-board shift and throttle systems, get your boat on plane quickly and efficiently. Easy to use, the system has an intuitive dial controller with one touch buttons and is fully programmable. While an innovative, rugged design and auto-retract feature, ensure reliability and safety on the water, whatever the conditions.

Standard Trim Tabs

Dometic has redefined the ease of use and practicality of a basic trim tab system. Featuring an intuitive dial controller, you can easily adjust the pitch and roll to get your boat on plane quickly and efficiently. A programmable favorites button makes for effortless operation. While its innovative, rugged design and auto-retract feature, ensure reliability and safety on the water, whatever the conditions.



SEASTAR OPTIMUS ADAPTIVE TRIM TAB SYSTEM

Sophisticated design provides accurate position feedback and complete integration with the Optimus Joystick and Electronic Power Steering systems

**INNOVATIVE RUGGED
DESIGN**
INCREASED RELIABILITY

**INTUITIVE DIAL
CONTROLLER**
EASY USER INTERFACE

**INTEGRATED ACTUATOR
SYSTEM**
DIGITAL POSITIONING COMMANDS



INTELLIGENT DESIGN FOR INTUITIVE CONTROL



Actuator

- Sealed and potted wiring and electronics
- Built-in power electronics, position sensing and CAN communication
- High torque DC Motor
- Rugged & stylish housing
- Planetary gearbox and inverted lead-screw design provides ultra-efficient and reliable high load transfer and quiet operation
- Dual housing seals
- Scratch resistant ground and chromed solid actuation shaft
- Rear seal in protected bushing area
- Wiper removes particles from shaft and protects rear seal
- Thrust bearings fore and aft provide efficient, high load capability in extension and retraction

Smart Integration With Joystick And EPS

The Trim Tabs are integrated with the Optimus Joystick and Optimus EPS systems

- With Hole Shot Mode enabled, tabs automatically adjust at takeoff to get boat on plane efficiently
- Tabs move to Favorite position once set RPM or speed are achieved for optimum ride performance
- When throttle goes into reverse, or Joystick Mode is enabled, tabs automatically fully retract for safety and control
- Easy setup using the Optimus CANtrak display or the dial controller
- Easy connection to existing Optimus steering network
- 2nd station is an easy addition



ALL ELECTRIC DESIGN REDUCES COMPLEXITY AND INCREASES RELIABILITY.



Trim Tabs

- Heavy duty 12 GA 304 stainless steel plate, electro polished
- Trim tab kits contain marine grade stainless steel 316 fasteners
- Thick 1/4" hinge pin to eliminate tab warping
- Heavy duty 14 GA stainless steel hinge to ensure robust tab performance
- Custom tabs available (volume required)
- Available in a variety of standard and edge mount sizes

Adaptive Dial Controller

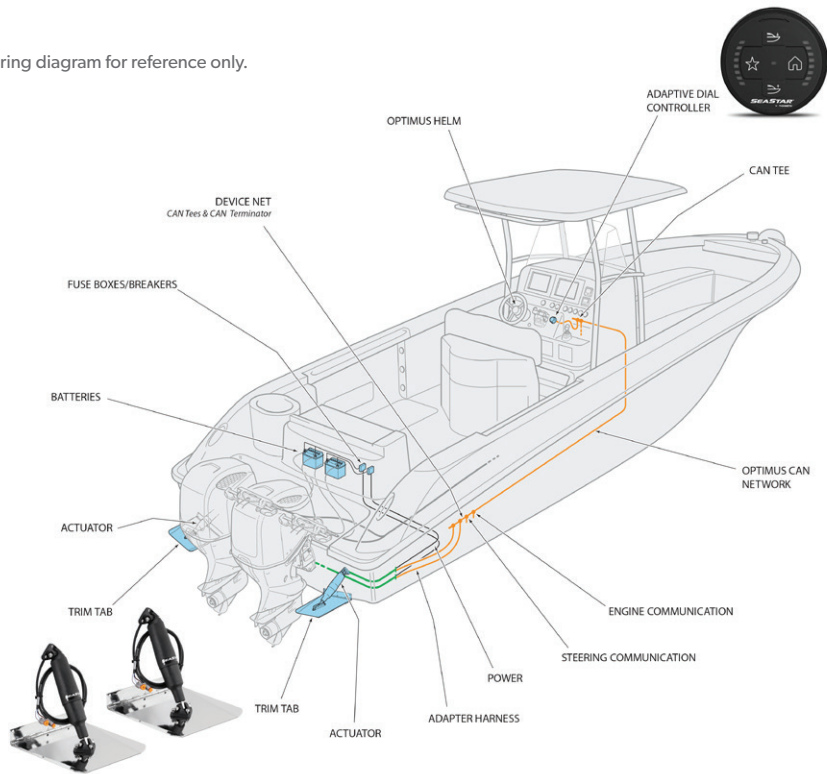


- LEDs accurately indicate Trim Tab positions
- Turn dial manually to level boat as conditions change
- Each button push lowers bow in precise increments
Hold button to lower bow quickly
- Multi-color LEDs indicate power and status of Trim Tab system User adjustable LED brightness
- Quickly move tabs to fully retracted home position
- Enable automatic Hole Shot feature that helps to plane the boat faster and limit bow rise
- Automatically learns and moves your tabs to your favorite tab position during cruising
- Program your favorite position manually, and push button to quickly move the boat to the preferred position
- Each button push raises bow in precise increments
Hold button to raise bow quickly
- Adjustable pitch and roll control sensitivity

OPTIMUS ADAPTIVE TRIM TAB SCHEMATIC

Get the ultimate boating experience with a truly connected boat where the Trim Tabs receive inputs from Joystick and engine control

* Wiring diagram for reference only.



Trim tab position can be displayed on capable MFD's when adaptive dial controller is connected to public NMEA network

SPECIFICATIONS	SUMMARY
Stroke length	2.25" and 4.25"
Positional accuracy	+/- 0.050"
Operating voltage	9-16 VDC (SAE J1455)
Max Push/Pull Load Capability	1000 lbs
Impact Resistance	50G in Z-axis (ABYC P-27 / IEC60068)
Operating temperature	-18 to 77 C (ISO 25197)
Storage temperature	-40 to 85 C (ISO 25197)
Actuator power consumption under typical load	120 W (10 A)
Actuator water ingress protection	IP66M, IP68M, IP69K (High Pressure Wash Down)
Dial controller water ingress protection	IP56
Connections to tab actuator	3pin Deutsch for CAN 2pin Deutsch for power (Pos & Neg)
Dial controller	Private CAN network, 250 kbps (SAE J1939), position LED indicators Public CAN network
Regulatory	American Boat and Yacht Council (ABYC) European Union (EU) recreational craft directive 2013/53/EU (replacing 94/25/EC) CE,
Trim tabs	304 stainless steel, 12 gauge, electro-polished, and custom sizes/designs available with volume
Note: Subject to change	

SEASTAR ADAPTIVE TRIM TAB SYSTEM

Intuitive control provides accurate position feedback and complete connectivity with shift and throttle controls on the public NMEA network providing a superior boating experience.

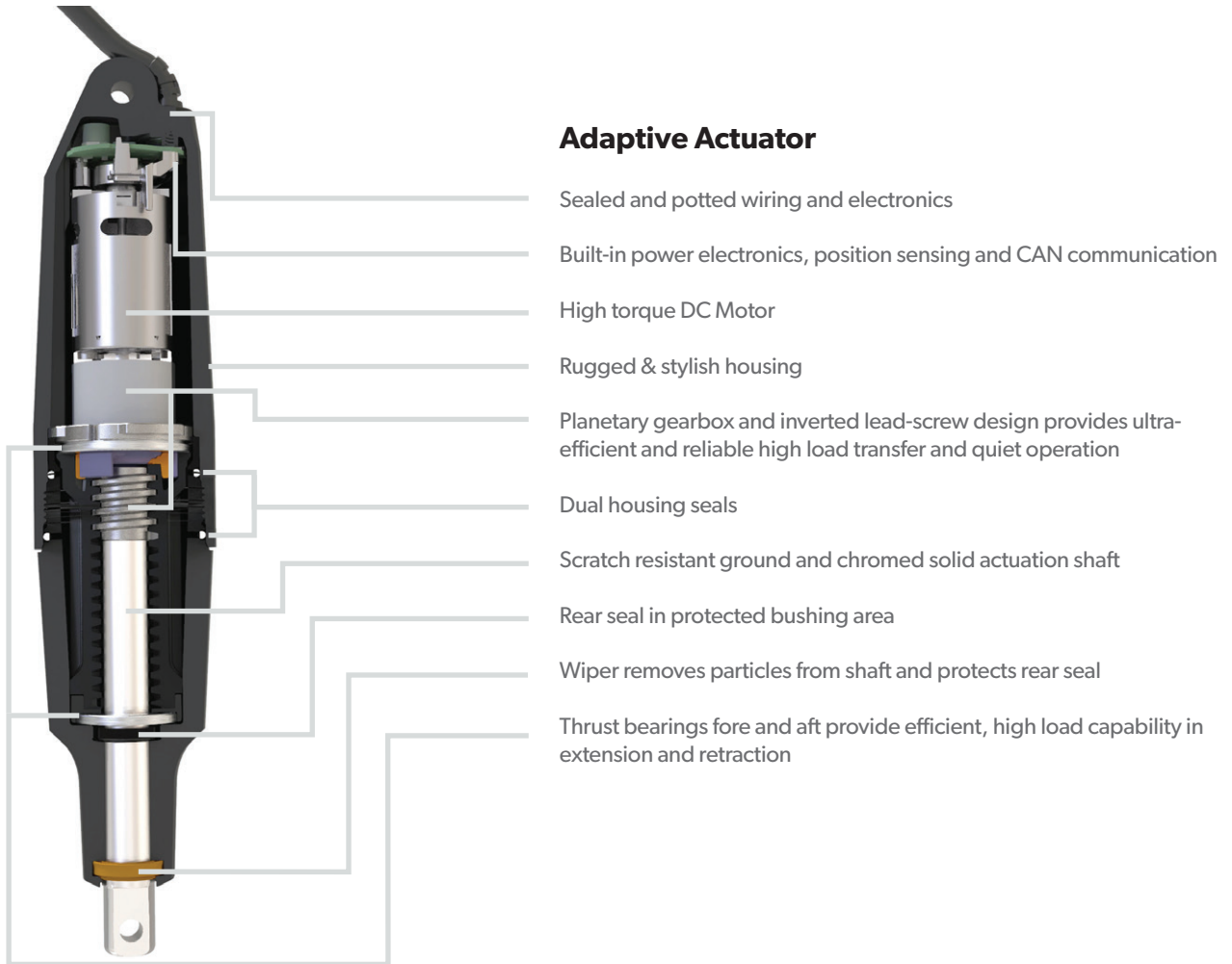
**INNOVATIVE RUGGED
DESIGN**
INCREASED RELIABILITY

**INTUITIVE DIAL
CONTROLLER**
EASY USER INTERFACE

**INTEGRATED ACTUATOR
SYSTEM**
INTEGRATES WITH N2K



INTELLIGENT DESIGN FOR INTUITIVE CONTROL



Smart Integration With Engine Manufacturers Shift And Throttle Controls

The adaptive trim tab system integrates with the 3rd party electronic shift and throttle controls over the public N2K network to give the following functions:

- Hole shot mode, tabs will automatically fully extend at takeoff and adjust to get the boat on plane quickly
- Tabs move to favorite position once set RPM or speed are achieved for optimum ride performance
- When throttle goes into reverse, tabs automatically fully retract for safety and control
- System setup can be intuitively done using the adaptive dial controller or the CANtrak display
- 2nd station is an easy addition

ALL ELECTRIC DESIGN REDUCES COMPLEXITY AND INCREASES RELIABILITY.

Trim Tabs



- Heavy duty 12 GA 304 stainless steel plate, electro polished
- Trim tab kits contain marine grade stainless steel 316 fasteners
- Thick 1/4" hinge pin to eliminate tab warping
- Heavy duty 14 GA stainless steel hinge to ensure robust tab performance
- Custom tabs available (volume required)
- Available in a variety of standard and edge mount sizes

Adaptive Dial Controller

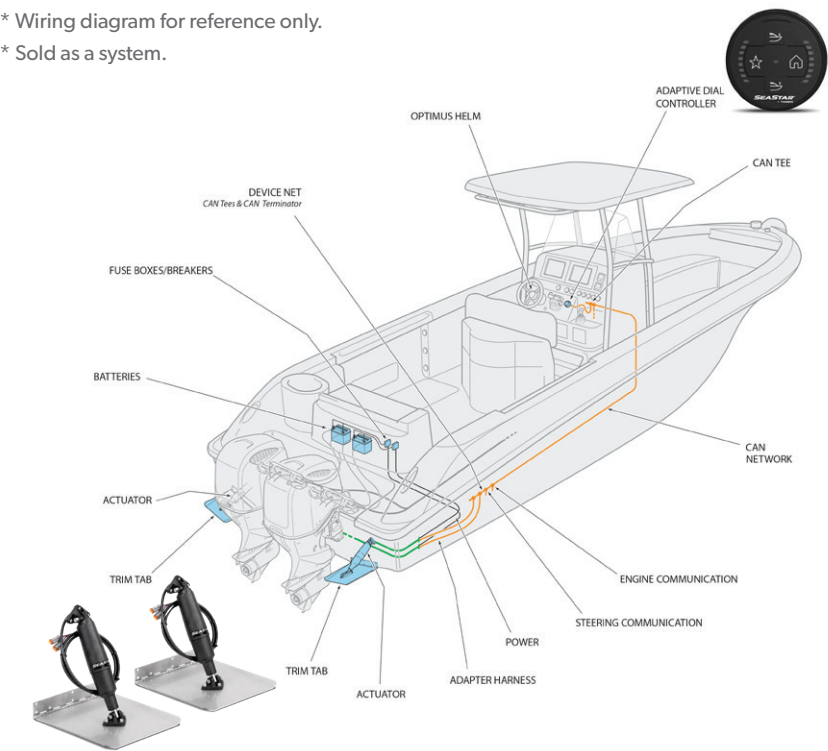


- LEDs accurately indicate Trim Tab positions
- Turn dial manually to level boat as conditions change
- Each button push lowers bow in precise increments
Hold button to lower bow quickly
- Multi-color LEDs indicate power and status of Trim Tab system
User adjustable LED brightness
- Quickly move tabs to fully retracted home position
- Enable automatic Hole Shot feature that helps to plane the boat faster and limit bow rise
- Automatically learns and moves your tabs to your favorite tab position during cruising
- Program your favorite position manually, and push button to quickly move the boat to the preferred position
- Each button push raises bow in precise increments
Hold button to raise bow quickly
- Adjustable pitch and roll control sensitivity

ADAPTIVE TRIM TAB SCHEMATIC

Get the ultimate boating experience with a truly connected boat where the Trim Tabs receive inputs from shift and throttle controls.

- * Wiring diagram for reference only.
- * Sold as a system.



Trim tab position can be displayed on capable MFD's

SPECIFICATIONS	SUMMARY
Stroke length	2.25" and 4.25"
Positional accuracy	+/- 0.050"
Operating voltage	9-16 VDC (SAE J1455)
Max Push/Pull Load Capability	1000 lbs
Impact Resistance	50G in Z-axis (ABYC P-27 / IEC60068)
Operating temperature	-18 to 77 C (ISO 25197)
Storage temperature	-40 to 85 C (ISO 25197)
Actuator power consumption under typical load	120 W (10 A)
Actuator water ingress protection	IP66M, IP68M, IP69K (High Pressure Wash Down)
Dial controller water ingress protection	IP56
Connections to tab actuator	3pin Deutsch for CAN 2pin Deutsch for power (Pos & Neg)
Dial controller	Private CAN network, 250 kbps (SAE J1939), position LED indicators Public CAN network
Regulatory	American Boat and Yacht Council (ABYC) European Union (EU) recreational craft directive 2013/53/EU (replacing 94/25/EC) CE, 
Trim tabs	304 stainless steel, 12 gauge, electro-polished, and custom sizes/designs available with volume
Note: Subject to change	

SEASTAR STANDARD TRIM TAB SYSTEM

The intuitive dial controller makes this the simplest trim tab system on the market to plane your boat.

**INNOVATIVE RUGGED
DESIGN**
INCREASED RELIABILITY

**INTUITIVE DIAL
CONTROLLER**
EASY USER INTERFACE

**INTEGRATED ACTUATOR
SYSTEM**
REPEATABLE POSITIONING



A SMART CONTROLLER THAT KEEPS YOU DIALED IN

Tactile Switches Cannot Provide The Precision That Boaters Demand

The INTUITIVE dial makes its super easy to plane your boat quickly by providing instant feedback and a superior user experience.

- The ability to adjust pitch independent of the roll and roll independent of pitch
- Turn the dial in the direction you need to change the roll of the boat so it is level
- Press the bow up or down button to adjust the pitch of the boat to get the desired position
- Favorites button makes it easy to plane your boat with previously set tab position
- 2nd station is an easy addition

Standard Dial Controller



Performance Technology
Leds Indicate Position Of Trim Tabs

Auto Brightness
Will Sense Ambient Light And Adjust Brightness

Bow Down Button
Quickly Move Port And Starboard Tabs To Desired Position

Power Indicator
Indicates There Is Power To The System
Led Will Indicate If There Is An Error

Home Button
Quickly Move Both Tabs To The Home Position

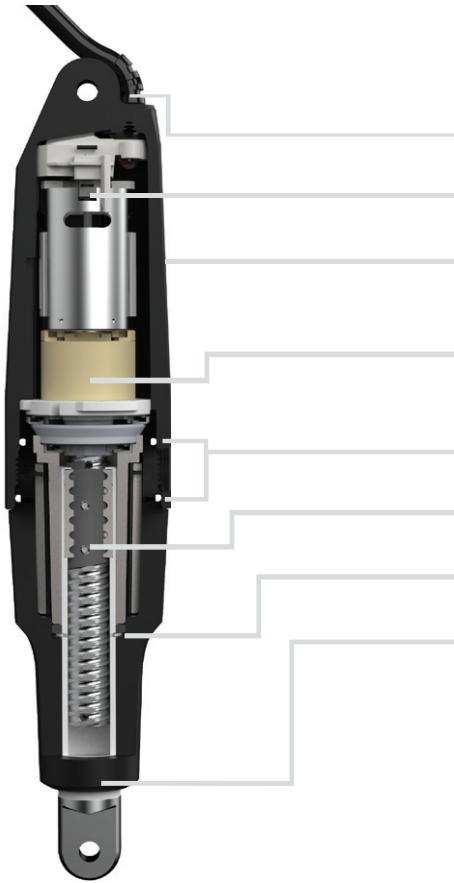
Favorite Button
Hold For 3 Seconds To Save Desired Tab Position

Bow Up Button
Quickly Move Port And Starboard Tabs To Desired Position

Intuitive Technology
Turn Smart Dial To Quickly Level Your Boat

ENGINEERED FOR DURABILITY

All electric design reduces complexity and increases reliability.



Actuator

- Sealed and potted wiring
- High torque DC motor
- Rugged & stylish housing, simple 2 piece design minimizes possible water ingress points
- Planetary gearbox provides ultra efficient and reliable high load transfer and quiet operation.
- Dual housing seals to prevent leakage
- Free wheeling ball screw technology
- Rear seal in protected bushing area
- Wiper removes particles from shaft and protects rear seal



Trim Tabs

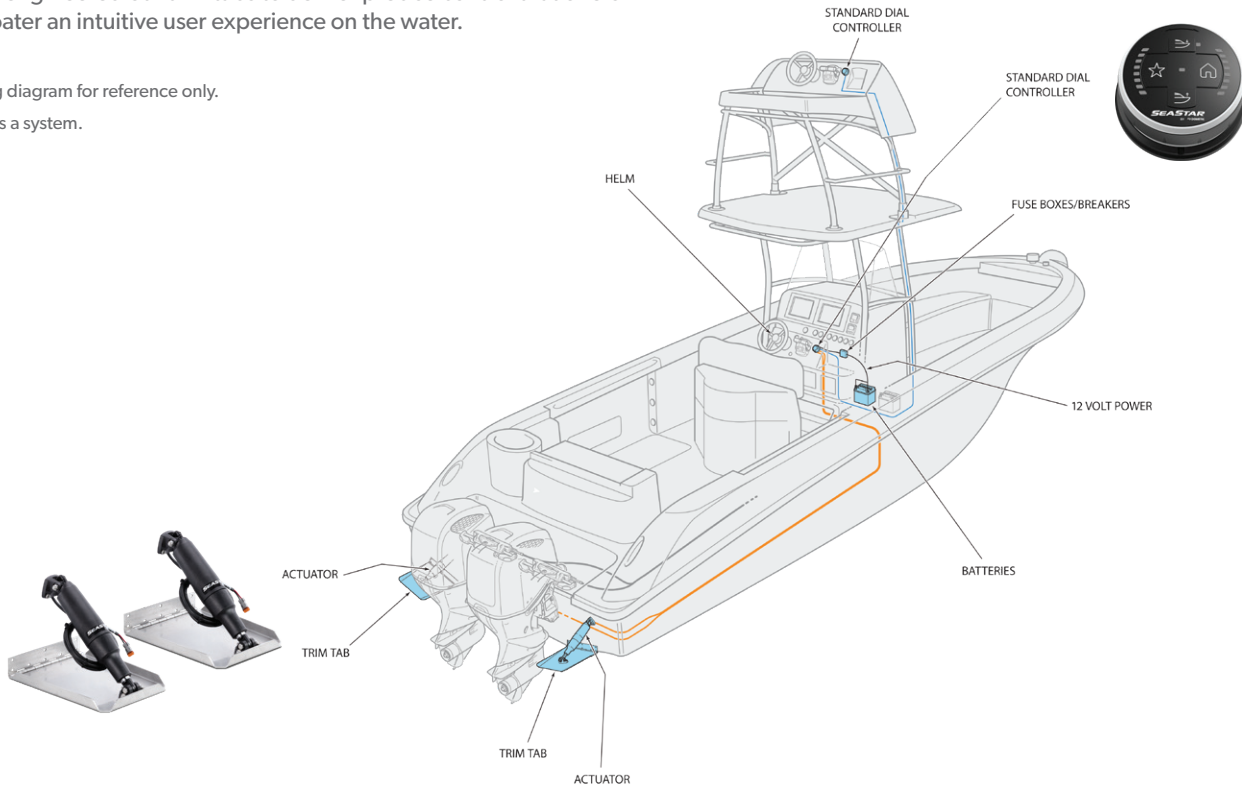
- Heavy duty 12 GA 304 stainless steel tabs, Optional electro polished
- Trim tab kits contain marine grade stainless steel 316 fasteners
- Thick 1/4" hinge pin for added strength
- Heavy duty 14 GA stainless steel hinge to ensure robust tab performance
- Custom tabs available (volume based)
- Tabs available in a variety of standard and edge mount sizes

STANDARD TRIM TAB SCHEMATIC

We've engineered our trim tabs to deliver precise control that offers the boater an intuitive user experience on the water.

* Wiring diagram for reference only.

* Sold as a system.



SPECIFICATIONS	SUMMARY
Stroke length	2.25" and 4.25"
Operating voltage	9-16 VDC (SAE J1455)
Maximum Push Load Capability	1000 lbf
Impact Resistance	50G in Z-axis (ABYC P-27 / IEC60068)
Operating temperature	-18 to 77 C (ISO 25197)
Storage temperature	-40 to 85 C (ISO 25197)
Actuator power consumption under typical load	5 A
Actuator water ingress protection	IP66M, IP68M, IP69K (High Pressure Wash Down)
Dial controller water ingress protection	IP56
Tab actuator connections	2pin Deutsch for power (Pos & Neg)
Dial controller connections	1x 2pin Deutsch DTP for power (Pos & Neg) 2x 2pin Deutsch DT to control two actuators 1x 4pin Deutsch DTM for wake-up and second station
Regulatory	American Boat and Yacht Council (ABYC) European Union (EU) recreational craft directive 2013/53/EU (replacing 94/25/EC) CE, 
Trim tabs	304 stainless steel, 12 gauge, electro-polished available, and custom sizes/designs available (based on volume)
Note: Subject to change	

- / MEGA Jackplates
- / Xtreme Jackplates
- / Standard Jackplates
- / Manual Jackplates

JACKP



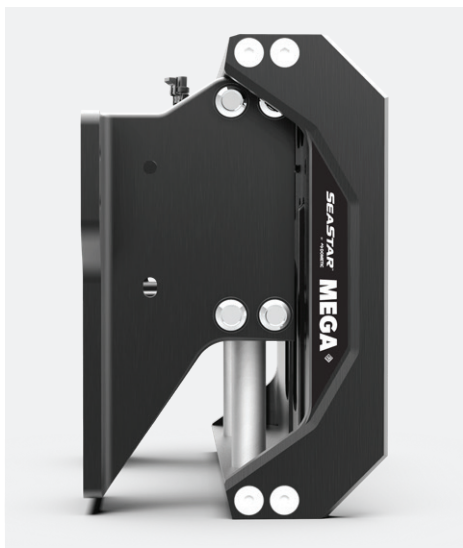


LATES

SEASTAR JACKPLATES

MORE HEAVY LOADS, SMOOTH EXACT MOVEMENTS





MEGA Jackplates

Developed to withstand the power of high performance engines, Dometic's Mega Jackplate allows boaters to maximize the output of their engines while offering more flexibility in shallow water. The Dometic Mega Jackplate is rated to 600 HP and is an extension of the existing product line.

Xtreme Jackplates

The Dometic Xtreme Jackplate utilizes high strength materials to handle some of the strongest engines on the water. The heavy-duty frames are capable of handling engines up to 400 HP. Designed with speed and durability in mind, the Dometic Xtreme Jackplates can adjust the engine height in just 8.5 seconds, even while the boat is moving at full speed.



Standard Jackplates

The Dometic Standard Jackplate is rated for 300 horsepower gasoline engines and is designed to maximize engine tilt when used with Dometic SeaStar steering cylinders.

Manual Jackplates

The Dometic Manual Jackplates are rated to 200HP and are an ideal accessory to help you optimize your boat's performance.



SEASTAR MEGA JACKPLATE

Dometic's Mega Jackplate has been developed to withstand the power of high performance engines and provide boaters with the ability to maximize the output of their engines while offering more flexibility in shallow water. The Mega Jackplate is rated to 600 HP and is an extension of existing product line.

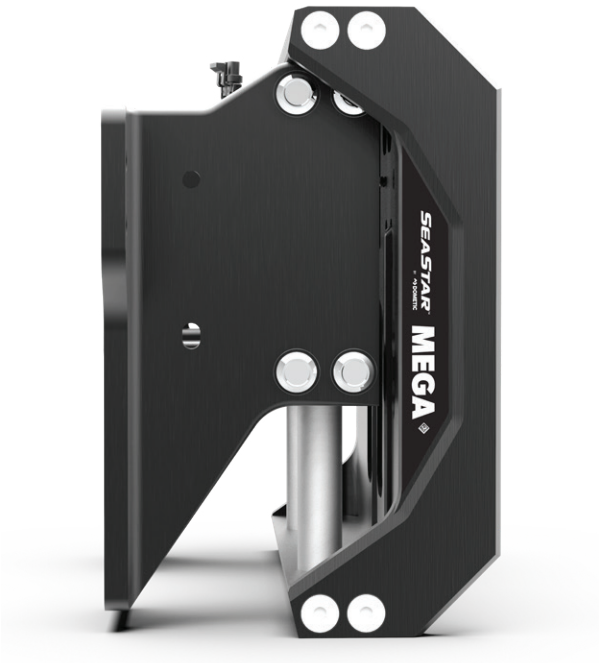
SETBACKS OFFERED
6", 8" & 10" IN BOTH VERSIONS

HIGHER ENGINE RATING
UP TO 600 HP

TWO VERSIONS
STANDARD & WIDE BOLT PATTERN



ENGINEERED TO HANDLE THE STRONGEST OUTBOARD ENGINES ON THE MARKET



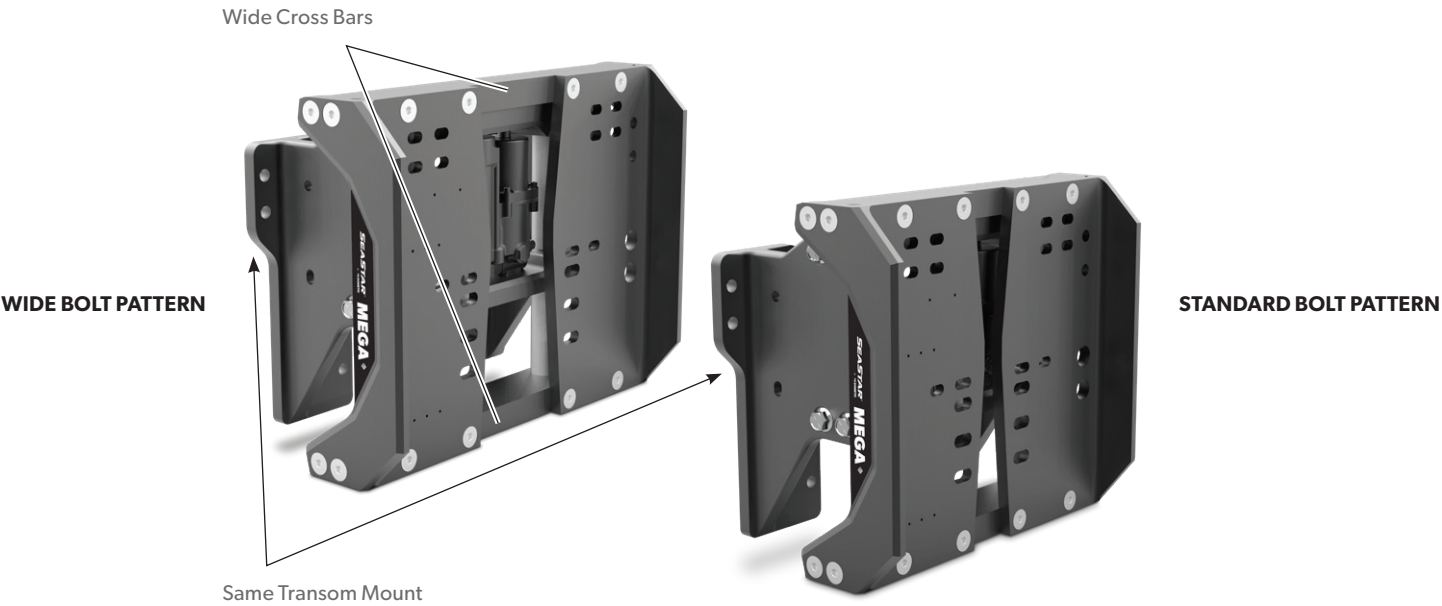
Mega Plate — a meticulously engineered and robustly built electric jackplate system designed for today’s large, heavy and powerful outboard motors. It is offered in 6”, 8” and 10” setbacks. There are 2 versions available, a standard bolt pattern designed to fit engines like Yamaha XTO and a wide bolt pattern designed to fit Merc 500/600.

Benefits:

- Rated up to 600HP
- Can fit all outboard engines on the market
- Rigorously designed and tested for high impact and cyclic loads
- Comes with corrosion protection anodes
- Built in linear position sensor easily integrates with Dometic Digital Switching

MEGA JACKPLATE OPTIONS						
MODEL	JP6060	JP7060	JP6080	JP7080	JP6100	JP7100
SKU	9600050077	9600050836	9600050834	9600050837	9600050835	9600050838
Bolt Pattern	Standard	Wide	Standard	Wide	Standard	Wide

Differences Between Standard and Wide Versions



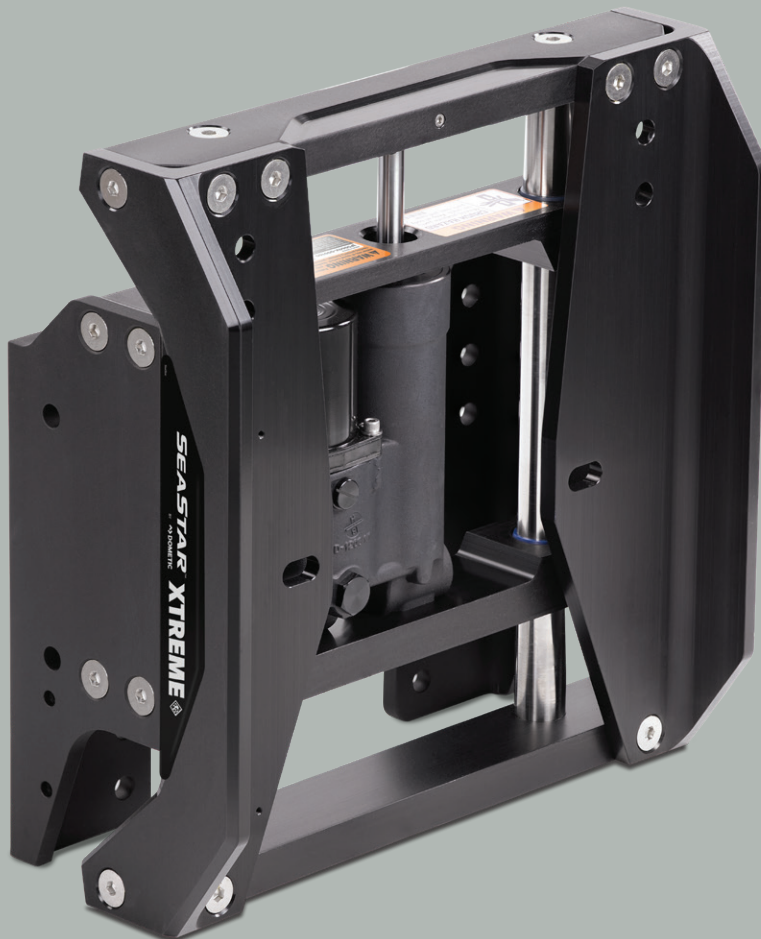
SEASTAR XTREME JACKPLATES

The Dometic SeaStar Xtreme Jackplate is rated for 400 horsepower gasoline engines and is designed to maximize engine tilt when used with Dometic SeaStar steering cylinders.

RIGID
ENGINE SUPPORT

RAPID RESPONSE
8.5 SECONDS

SLEEK, BOLD
STYLING



ONE OF THE MOST DURABLE ENGINE JACKPLATES AVAILABLE

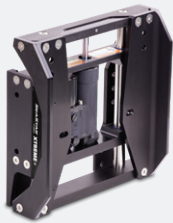
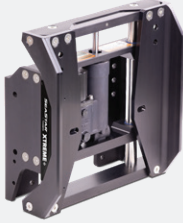
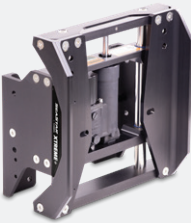
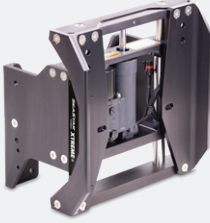
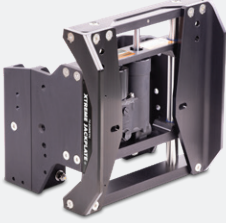


Features:

- Xtreme Jackplate is using high strength materials and is easily capable of handling up 400 horsepower engines
- Rapid hydraulic response in 8.5 seconds
- Complete rigid engine support at full thrust
- Easily moves engine up or down at full thrust
- Smooth operation with composite bushings
- Easy wrench access to engine bolts from the side
- Compatible with all shallow water anchors
- High output integrated actuator to lift and lower engines in all conditions
- Environmentally sealed non-contact SmartStick position sensor kit available for precise height information
- Designed to maximize engine tilt with Dometic SeaStar steering cylinders
- High visibility lift scale for quick glance operation
- Integrated circuit breaker gives electrical protection right at the battery post
- All hydraulic Jackplates come with basic rocker switch DK4020

The Dometic SeaStar Xtreme Jackplate is one of the sleekest and most durable engine Jackplates available. This essential performance accessory allows for higher speed, gains in fuel economy and the ability to run in shallow water.

Available in 4, 6, 8, 10 and 12 inch setbacks. Jackplates are equipped with an integrated hydraulic actuator that lifts engines 5.6" in 8.5s. The Dometic SeaStar Xtreme Jackplate is designed to maximize engine tilt when used with Dometic SeaStar steering cylinders.

XTREME JACKPLATE OPTIONS				
4" Setback	6" Setback	8" Setback	10" Setback	12" Setback
				
JP5040X*	JP5060X	JP5080X	JP5100X	JP5120X

Note: * Accessory adapter DK4600 is required for installation of anchoring systems on JP5040X.

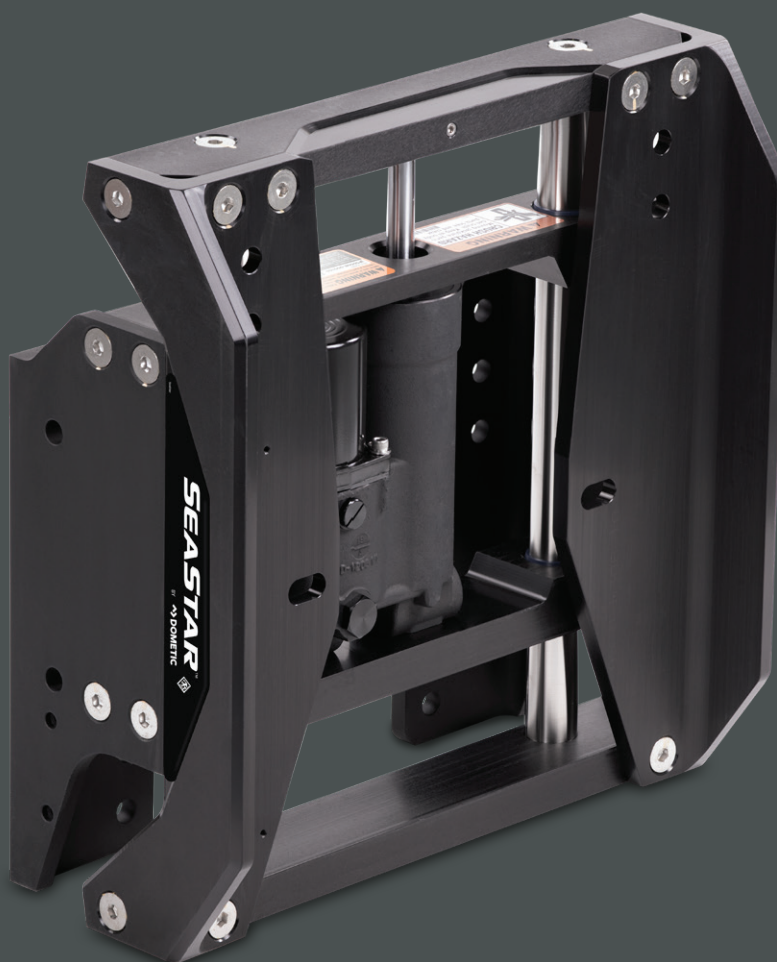
SEASTAR STANDARD JACKPLATES

The Dometic SeaStar Standard Jackplate is rated for 300 horsepower gasoline engines and is designed to maximize engine tilt when used with Dometic SeaStar steering cylinders.

RIGID
ENGINE SUPPORT

RAPID RESPONSE
8.5 SECONDS

SLEEK, BOLD
STYLING



ONE OF THE MOST DURABLE ENGINE JACKPLATES AVAILABLE

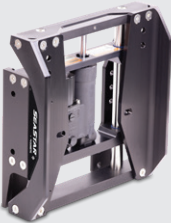
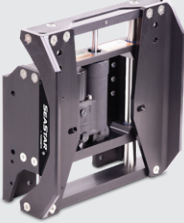
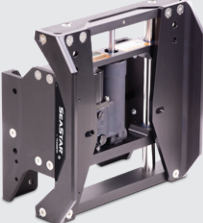
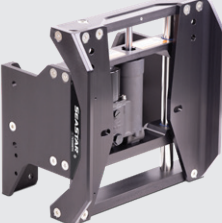
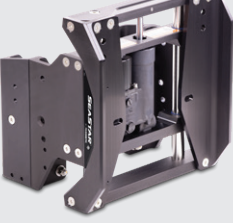


Features:

- Our Standard Jackplate is easily capable of handling up to 300 horsepower gasoline engines
- Rapid hydraulic response in 8.5 seconds
- Complete rigid engine support at full thrust
- Easily moves engine up or down at full thrust
- Smooth operation with composite bushings
- Easy wrench access to engine bolts from the side
- Compatible with all shallow water anchors
- High output integrated actuator to lift and lower engines in all conditions
- Environmentally sealed non-contact SmartStick position sensor kit available for precise height information
- Designed to maximize engine tilt with Dometic SeaStar steering cylinders
- High visibility lift scale for quick glance operation
- Integrated circuit breaker gives electrical protection right at the battery post
- All hydraulic Jackplates come with basic rocker switch DK4020

The Dometic SeaStar Standard Jackplate is one of the sleekest and most durable engine Jackplates available. This essential performance accessory allows for higher speed, gains in fuel economy and the ability to run in shallow water.

Available in 4, 6, 8, 10 and 12 inch setbacks. Jackplates are equipped with an integrated hydraulic actuator that lifts engines 5.6" in 8.5s. The Dometic SeaStar Standard Jackplate is designed to maximize engine tilt when used with Dometic SeaStar steering cylinders.

STANDARD JACKPLATE OPTIONS				
4" Setback	6" Setback	8" Setback	10" Setback	12" Setback
				
JP5040R*	JP5060R	JP5080R	JP5100R	JP5120R

Notes: * Accessory adapter DK4600 is required for installation of anchoring systems on JP5040R.

SEASTAR MANUAL JACKPLATES

The JP1000 Series Jackplate comes in 4", 6", 8", and 10" setbacks to help you find the best match for your boat and optimize performance.

**STAINLESS STEEL LEAD
SCREW**

CORROSION RESISTANT

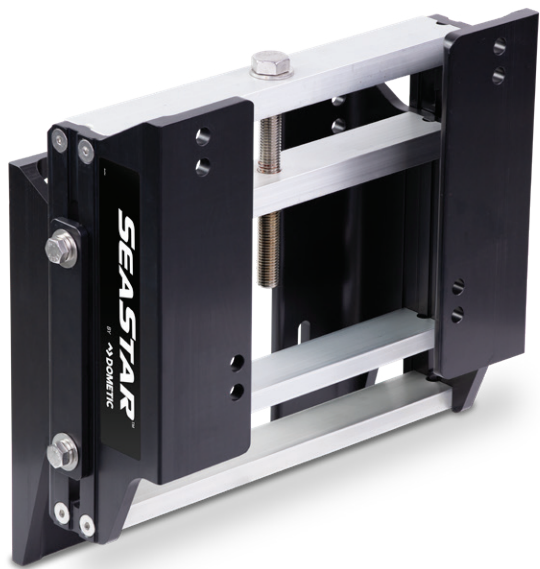
**3 INCHES
AVAILABLE LIFT**

**INTERLOCKING SLIDE
GUIDES**

SMOOTH BIND-FREE TRAVEL



SEASTAR MANUAL JACKPLATES

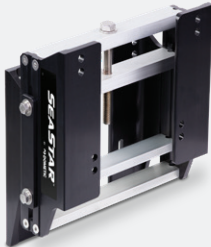
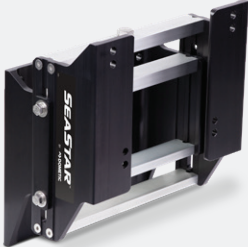


The JP1000 Series Jackplate comes in 4", 6", 8", and 10" setbacks to help you find the best match for your boat and optimize performance.

FEATURES:

- The interlocking slide guides offer enhanced strength while providing smooth, bind-free travel.
- The lead screw assembly sets the plate height and the Side Locks are used to hold the position.
- The stainless steel lead screw is resistant to corrosion and pre-greased for smooth operation.
- The maximum supported engine weight of 585 lbs is capable of handling the most demanding outboard engines, including the latest generation of 4-strokes.



MANUAL JACKPLATE OPTIONS			
4" Setback with Side Locks	6" Setback with Side Locks	8" Setback with Side Locks	10" Setback with Side Locks
			
JP1040SS	JP1060SS	JP1080SS	JP1100SS

PARTS AND ACCESSORIES FOR STANDARD AND XTREME JACKPLATES

ACCESSORIES	PART NO.
ProTrim Switch Single Function	PT1000-2P
ProTrim Switch Dual Function	PT2000-2P
SmartStick and Gauge Kit	DK4220
Gauge and Harness Kit	DK4320
Accessory Adapter*	DK4600
Kit, Anode	DK4850
4x SS bolts, brass nylock nuts and SS washers. 1/2"-13 UNC X 2-1/2" L	DK6125
4x SS bolts, brass nylock nuts and SS washers. 1/2"-13 UNC X 3-1/2" L	DK6135
4x SS bolts, brass nylock nuts and SS washers. 1/2"-13 UNC X 4-1/2" L	DK6145
4x SS bolts, brass nylock nuts and SS washers. 1/2"-13 UNC X 6-1/2" L	DK6165
SPARE PARTS	PART NO.
Smartstick Replacement Kit	DK4250
Jackplate Wire Harness	DK4420
Actuator Kit, 3/8" Mount Bolt, 5/16" socket	DK4710
Actuator Kit, 7/16" Mount Bolt, 3/8" socket	DK4720
Basic Rocker Switch**	DK4020

Notes: * Accessory adapter DK4600 is required for installation of anchoring systems on JP5040R.

** Included with Jackplate harness.

PARTS AND ACCESSORIES FOR STANDARD AND XTREME JACKPLATES



HSP5060

Hole Shot Kits

Features:

- Get on plane faster using SeaStar Hole Shot Kits.
- Available for 6", 8", 10" and 12" setbacks
- Fits both Standard and Xtreme Hydraulic Jackplates

DESCRIPTION	PART NO.
Hole Shot Kit, 6" Setback	HSP5060
Hole Shot Kit, 8" Setback	HSP5080
Hole Shot Kit, 10" Setback	HSP5100
Hole Shot Kit, 12" Setback	HSP5120



ProTap Controller

Features:

- Gets your boat to max speed at the touch of a button
- Memorize your favorite Jackplate and engine trim positions
- Quickly tap control switch for fine adjustment of both Jackplate and engine trim in set increments
- Don't have to adjust your boat every time when on plane. Set it and forget it!
- Synchronizes 2 engines to each other
- Provides 0-5V Jackplate height signal
- CAN expandability and MFD integration

DESCRIPTION	PART NO.
ProTap Controller	JC4010
ProTap Controller/Smartstick Kit	JC4110



Trim Signal Harnesses

DESCRIPTION	PART NO.
Harness, ProTap, NMEA 2000	PTK5010
Harness, Yamaha, 2 wire sender	PTK5020
Harness, Yamaha, 3 wire sender	PTK5021
Harness, Mercury, Smartcraft Digital Sender	PTK5040
Harness, Mercury, Verado	PTK5041
Harness, Mercury, Verado V8	PTK5045

- / Custom Molded Fuel Tanks
- / Diurnal Fuel Systems
- / Ullage Valves
- / Carbon Canisters
- / Deck Fills
- / System Accessory Components

FUEL SOL





UTIONS

WHAT IS ROTATIONAL MOLDING?

Rotational plastic molding is an extremely versatile and economic process that relies on bi-axial rotation and heat to produce parts with exceptional strength. The finished result is a stress-free, lightweight and seamless design that is very durable.

A variety of plastic resins are available to use, depending upon the product specifications, strength requirements and resistance to other substances required. Materials that may be selected include polyethylene, nylon, polycarbonate, polypropylene, polyvinylchloride (PVC) and custom formulated compounds. Multi-layer options combine various materials to open more applications

The flexibility of Dometic's process allows for a wide range of shapes and sizes to be manufactured. The company also offers products in a wide range of colors. In addition, graphics can be molded directly in the product.

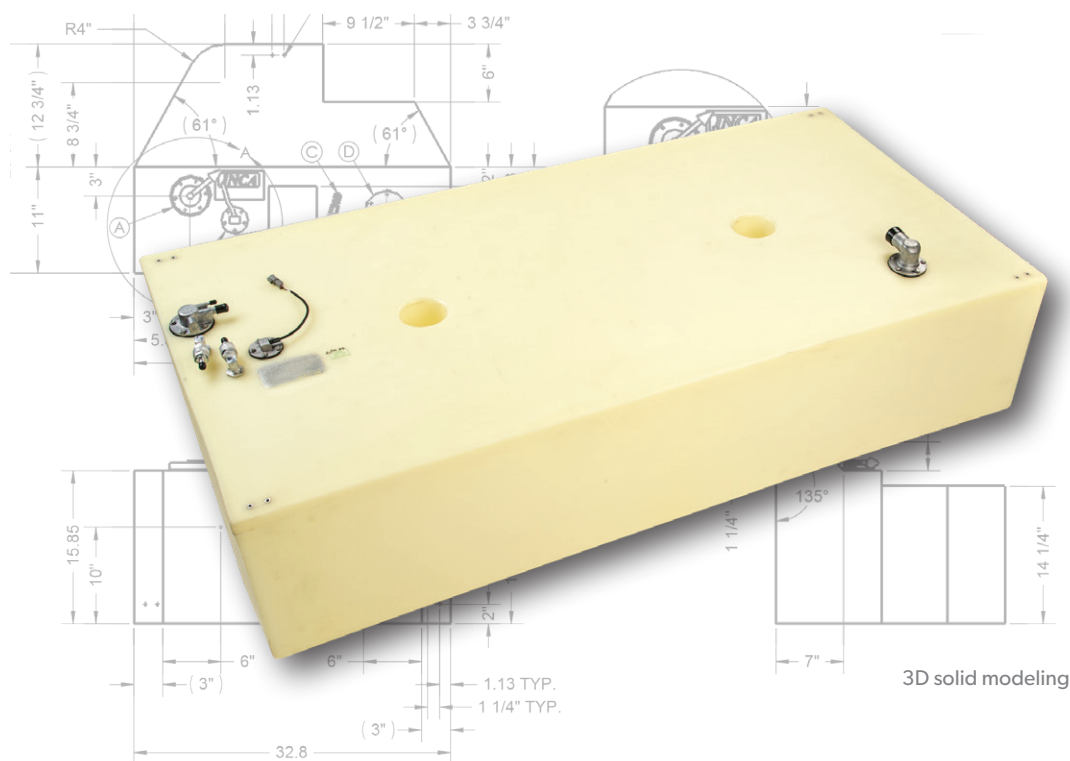
RotoLoPerm® - Multi-Layer Marine Fuel Tank Technology

RotoLoPerm® is Your Best Evaporative Emissions Solution To Reach Marine Fuel Tank Compliance.

Dometic Fuel Systems has an exclusive marine licensing agreement with Centro Inc. of North Liberty, Iowa, to produce marine fuel tanks using its patented multi-layer RotoLoPerm® process.

RotoLoPerm® complies with Clean Air Act and Marine Fuel Tank Permeation regulations.

Dometic Fuel Systems customizes the application of RotoLoPerm® to the precise manufacturing specifications of each customer and has in-house engineering expertise to assist in developing the best design with special fittings for each marine fuel tank manufactured.



RotoLoPerm® Advantages

The RotoLoPerm® patented process XLPE/Barrier/XLPE combination technology offers these advantages over the traditional plastic marine fuel tank, metal fuel tank, and other competing low permeation technologies:

- Certified by design - Not subject to recall
- Ultra-low permeation levels
- Successfully passed standard marine fire test

- Excellent hot and low temperature impact strength properties
- Abrasion resistance
- Moldability
- Uses same rotomolding tooling with minor adjustments
- Cost-effective
- Retains the overall value of proven crosslink polyethylene fuel tank technology

WHY USE ROTATIONAL MOLDING?

Many advantages make rotational molding the best choice for fuel tanks. One of the greatest advantages is the reduced cost of tooling.

The cost of having a mold built for rotomolding is significantly less than for most other plastics processes.

Benefits:

- Capable of meeting EPA/CARB requirements
- Design flexibility to meet specifications
- One-piece seamless construction
- Metal inserts and fittings as integral parts
- Uniform wall thickness
- Resistance to corrosion
- Ribs and cones for stiffening
- Variety of colors and finishes
- Lightweight
- Excellent load-bearing properties
- U.V. resistance
- Product longevity

WHAT IS ROTOLOPERM®?

The RotoLoPerm® technology uses a special barrier layer between inner and outer layers of crosslinked polyethylene.

This material meets these standards for marine fuel tanks:

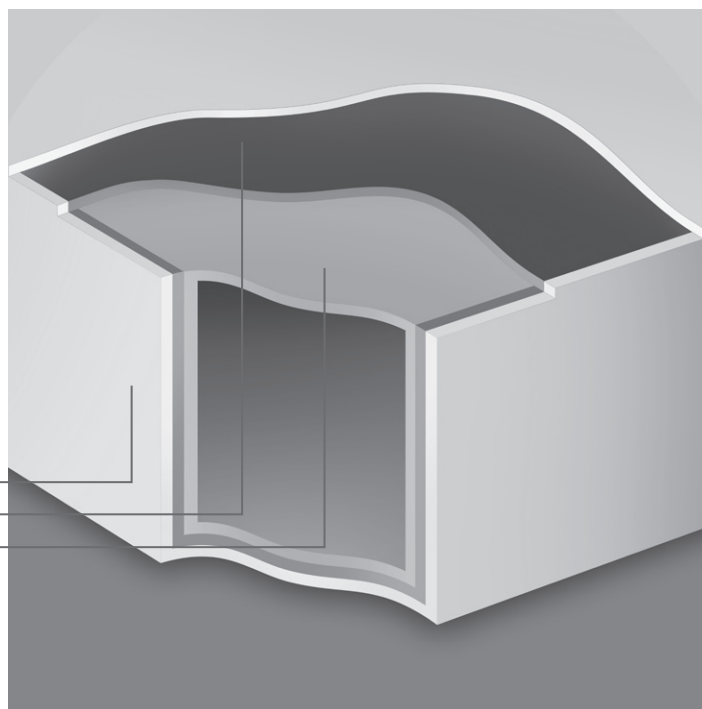
- EPA Evaporative Emissions standard
- CARB Executive Order
- U.S. Coast Guard and ABYC requirements

No additional permeation testing is needed for marine fuel tanks using RotoLoPerm®.

RotoLoPerm® is certified by design - Not subject to recall.

RotoLoPerm® Layers:

- 1 Outer XLPE Layer — UV/abrasion resistance
- 2 Middle Barrier Layer — Permeation resistance
- 3 Inner XLPE Layer — Impact/moisture and fuel resistance



Custom tank configuration

CROSSLINK POLYETHYLENE ADVANTAGES

Dometic pioneered the development of custom rotationally molded plastic fuel tanks for the marine industry. Today, Dometic has manufactured over 1.5 million fuel tanks for marine, agricultural, and industrial use.

The Crosslink Polyethylene tank technology offers many advantages over fuel tanks made of metal or other materials:

- Custom design and engineering, using Solid Works 3D Solid Modeling
- Design flexibility and configured to customers' requirements
- Uniform wall thickness
- Crosslink Polyethylene Resin (XLPE)—For fuel tanks of all types, gas and oil storage tank—to improve impact strength, provide higher stress crack resistance and enhance weatherability. (Contains a crosslinking agent that interacts in the molding cycle to form a crosslinked molecular structure that is ideal for gas and oil storage tanks, as well as trash containers and parts requiring maximum toughness or durability in cold temperatures. This material meets U.S.Coast Guard fire test requirements.)
- Impact strength
- Environmental stress-crack resistance
- UV stabilization for long-term outdoor protection
- Inserts and fittings able to be incorporated as integral components
- Integrally molded fill and vent
- Variety of colors and textures
- Economical tooling cost
- Hold down features
- Design-based testing—Fire test, shock test, pressure impulse test
- 100% pressure check on all tanks
- Product longevity
- Ready for finishing and installation

WARRANTY

**Dometic offers a two year warranty
on each fuel tank.**



INTEGRATED FUEL SYSTEMS

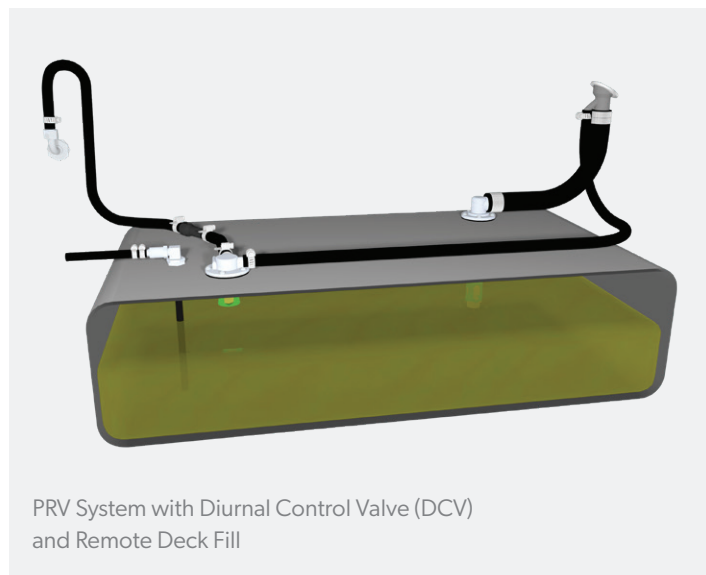
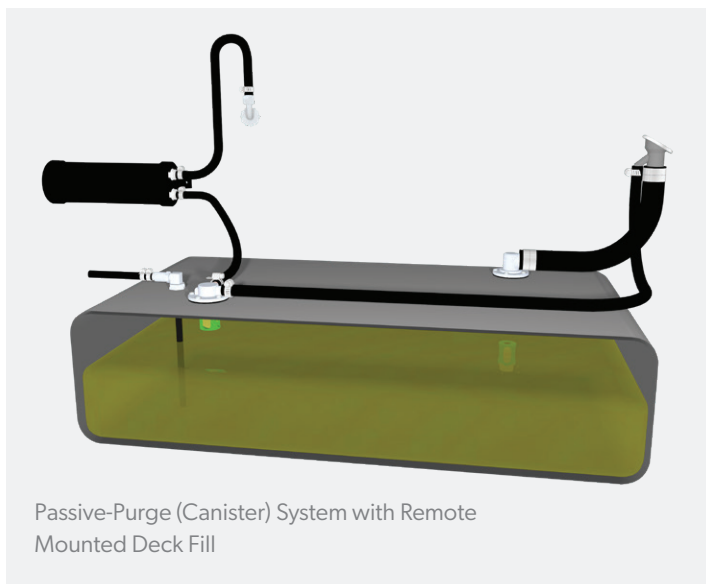
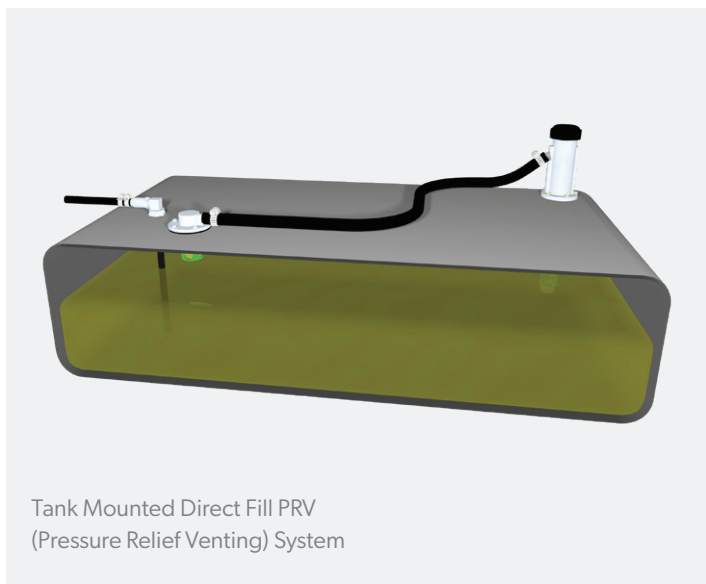
An integrated fuel system consists of:

- A low permeation fuel tank, RotoLoPerm®
- Tank mounted vent valve(s)
- Tank mounted fluid level vent valve
- Inlet check valve
- Carbon canister system or pressure relief system

This system controls diurnal emissions as well as the fuel level of the tank. Overfilling of the tank, fuel spit back through the fill neck and vent tube are eliminated. These systems meet the requirements of the EPA, CARB, and ABYC H-24. Dometic works with all of the major fuel system integrators to develop compliant integrated fuel systems.

- Automotive style refueling, automatic nozzle shut-off, fuel nozzle retention and CARB compatibility
- Maximum engine fuel flow
- Overfill protection is included with each system, preventing the possibility of accidental system over-pressurization
- Each system is engineered to ensure a lifetime of performance and virtually eliminate service and maintenance

New Pressure Relief Fuel Systems Components



Custom fuel lines also available.

COMPLIANT MARINE FUEL SYSTEM

What is a compliant marine fuel system?

A compliant marine fuel system is one that meets the performance, safety and environmental criteria outlined in government regulations and marine industry standards and practices. Due to these regulatory changes Dometic has developed a series of new technologies to assist boat builders in establishing “diurnal” compliant marine fuel systems. These diurnal fuel systems manage fuel vapor containment, release and fuel delivery in a host of different installed system applications. A summary of sources of these standards are listed below.

Environmental Protection Agency (EPA) Rule Summary

1. EPA regulations require that all fuel system components (including fuel tanks) be low permeation rated.
2. EPA regulations require that fuel vapor (hydrocarbons) emissions (or venting) be captured or treated prior to release to the atmosphere and fuel in a system should not reach areas that are non-low permeation rated.
3. EPA regulations require that no spit-back or well-beck event occur during refueling and the operator should be alerted when the fuel system is sealed.
4. EPA regulations and CARB certification covers plastic fuel tanks, hoses, fill caps, canisters and whole systems.

United States Coast Guard (USCG) Rule Summary

1. USCG regulations require that all fuel tanks & system components be made from appropriate materials.
2. USCG regulations require that all fuel tanks & system components be installed in a safe manner using sound engineering practices.
3. USCG regulations require all fuel tanks & system components be installed in such a manner as to provide operators and the boating public with the safest possible boating environment and user experience.

American Boat & Yacht Council (ABYC) Standard Summary

1. ABYC publish safety and sound boat building practices standards based upon CFR33 & CFR40 for the purpose of interpretation and homologation.
2. These standards categorize CFR’s into simple implementable methods for boat builders to follow.
3. These standards address installation, testing, fuel venting, refueling protocols etc., in an effort to assist boat builders to meet CFR’s with minimal effort and expense.

ABYC H-24 (Gasoline)

1. ABYC safety and sound boat building practices standards for gasoline fuel systems include CFR40 1060 homologation.
2. This interpretation categorizes CFR40 into simple implementable methods regarding hydrocarbon (fuel vapor emissions).
3. This interpretation combines testing protocols to address both CFR 40 & 33.

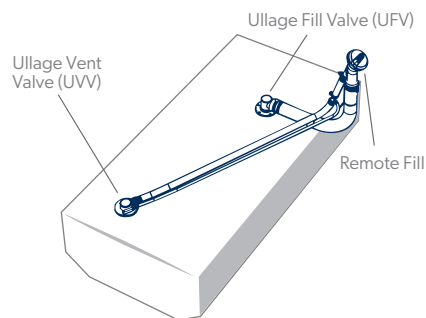
ABYC H-33 (Diesel)

1. ABYC safety and sound boat building practices standards for diesel fuel systems include CFR33 homologation.
2. This interpretation categorizes CFR33 into simple implementable methods transferable to diesel systems.
3. This interpretation includes requirements for expected diesel fuel system performance.

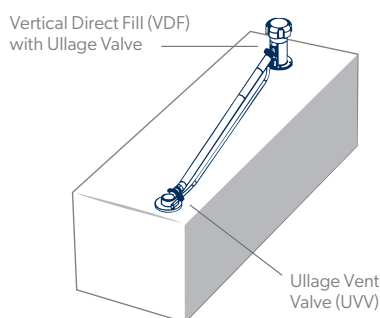
DOMETIC FUEL SYSTEMS OVERVIEW

Compliant marine fuel system architectures can be broken down into 2 basic system categories (Passive Purge and Vapor Relief (Pressure)). Dometic subsequently offers 6 basic iterations as identified on this page.

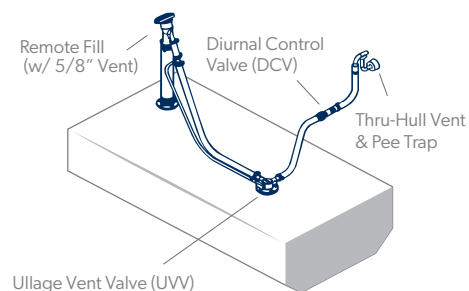
1. Pressure relief venting (PRV) using a remotely mounted deck-fill



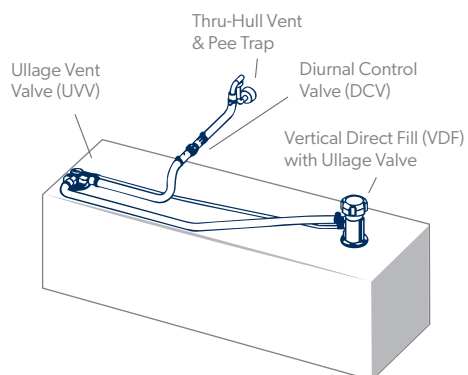
2. Pressure relief venting (PRV) using a direct tank mounted Vertical Direct Fill (VDF)



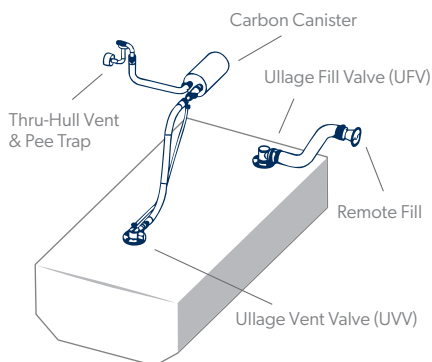
3. Pressure relief venting (PRV) using a Diurnal Control Valve (DCV) and a remotely mounted deck-fill



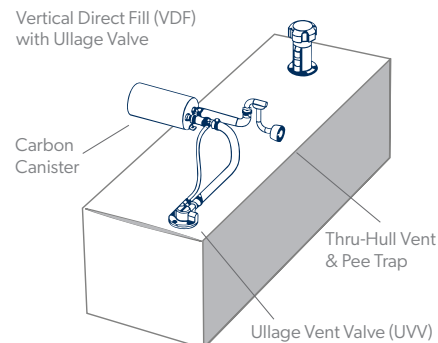
4. Pressure relief venting (PRV) using a Diurnal Control Valve (DCV) and a Vertical Direct Fill (VDF)



5. Passive purge (or carbon canister) using a remotely mounted deck-fill



6. Passive purge (or carbon canister) using a Vertical Direct Fill (VDF)



In most cases the simplest and most cost effective system is the vapor relief system. These systems hold back the vapors that can occur during diurnal temperature cycles (<1PSIG) with strategically placed valves, usually in the cap. These systems are most beneficial when there is little or no room for carbon canister installation.

If the boat is produced to meet American Boat & Yacht Council (ABYC) standards, then the fuel tank & system must be designed so venting will be able to occur when the boat is tilted or listing. In many cases additional components such as grade vent valves and multiple outlet vent ullage valves may be needed based upon the individual system requirements.

DOMETIC DIURNAL FUEL SYSTEMS OPERATION

Emissions And Vapor Management

Based upon the location and time of year, the sun, during its orbital path around the USA subsequently causes the ambient temperature to rise and fall. This is referred to as the diurnal temperature cycle. If this diurnal temperature cycle creates sufficient heat to cause the temperature of gasoline in a gasoline tank to rise, then the gasoline will expand up to a maximum rate of ~5%. Additionally this event causes fuel vapors (or hydrocarbons) to vent off to atmosphere.

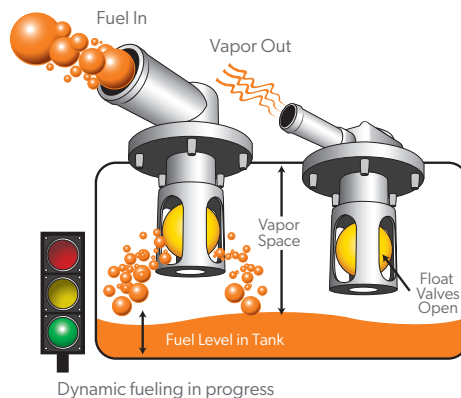
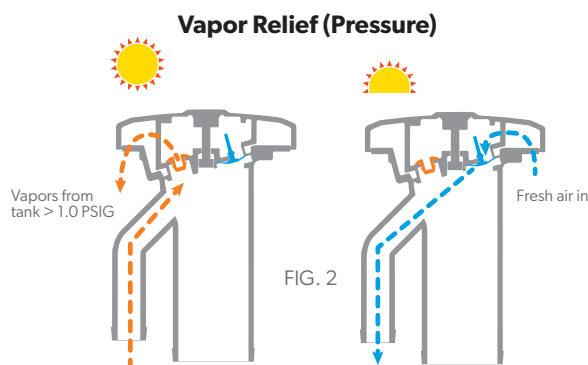
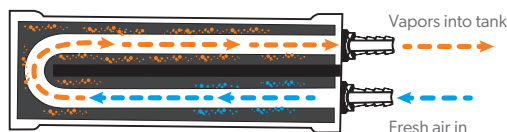
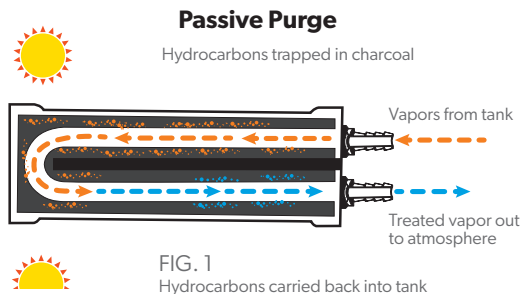
For marine fuel tanks/systems to be compliant to the Environmental Protection Agency (EPA) regulations, fuel vapors (emissions) from boats must not be allowed to evaporate unfettered through a fuel system vent during the heat of a diurnal temperature cycle. To manage these emissions boat builders have two basic options: 1. They can passively purge (FIG.1) the vapors by installing a series of charcoal filled canisters that treat/capture vapor (hydrocarbons) during diurnal venting. 2. They can manage these vapors via a vapor relief (FIG. 2) system that allows vapors to be released ~1PSIG (~2inHg). Both options create a small pressure (or back pressure) build up at diurnal peak temperature cycles and both options must carry a "Certificate Of Compliance" issued by the EPA.

Vapor Space (Ullage) And Refueling Management

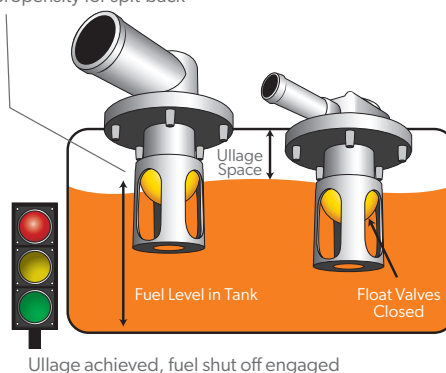
Another fuel system necessity to remain EPA compliant is to keep elevated temperature gasoline from expanding into fuel system areas that are not low permeation rated or otherwise sensitive to raw fuel. A vapor (or ullage) space must be produced at the completion of the filling or refueling operation to ensure systems remain EPA compliant during the diurnal temperature cycle. To effectively manage this system function, BluSkies has created a series of valves that can mount to any marine fuel tank to achieve the appropriate fill level while maintaining ullage space of ~5%. Additionally these valves eliminate the propensity for refueling "spit-back" or tank "well-back", which is another requirement of the EPA regulation. BluSkies primary ullage valves replace the existing fill an vent locations, while additional grade or tip level valves can be added to any tank to meet American Boat And Yacht Council standards (H-24) which allows vapor venting for boats slanting or sloping when stored, moored, parked or trailered.

The final decision on which system type and ullage valve type and placement that is best for your application should be based on application specific factors such as type and configuration of fuel tank, how much room there is on board for added components, how are the boats likely to be used and stored and of course cost.

Choose individual components to create a compliant system from the following pages or you can turn to our specialists for sound guidance and direction as you go through the process of choosing the appropriate system for your particular vessel application.



This ball valve eliminates the propensity for spit-back



ULLAGE (VAPOR SPACE) VALVES

Dometic patented “ullage valves” provide 3 functions for a compliant marine fuel system.

- The primary function is to drive fuel up the fill hose to activate the automatic fuel nozzle shut off during refueling.
- Their secondary function is to maintain an exact expansion space within installed marine fuel tanks. This space allows for fuel expansion as the diurnal temperature rises and protects sensitive system components from contamination.
- Additionally, BluSkies ullage valves provide the best spit-back and well-back protection of any marine fuel system. Lastly they provide adequate venting for vessels to meet ABYC H-24 Standards.



BK58200000

Vent, 90° Body

Dual Outlet

BK59200000

Composite, Black



BK58100000

Vent, 90° Body

Single Outlet

BK59100000

Composite, Black



BK04200000*

Fill, 45° Body

BK05300000

With grounding location

BK05900000

Composite, Black - 6 hole mounting



BK04100000*

Fill, 90° Body

BK05200000

With grounding location

BK05800000

Composite, Black - 6 hole mounting



BK04000000

Fill, Vertical Body

BK05100000

With grounding location

BK05700000

Composite, Black - 6 hole mounting

* Metal components in the fill system which are in contact with the fuel shall be grounded. (ABYC H-24)

DIRECT FILLS

- Maintains expansion space within installed marine fuel tanks.
- Activates automatic fuel nozzle shut off
- Built in anti spit-back chamber
- Easy access for "Jerry Can" filling
- Valved cap manages vapor and vacuum equilibrium (Eliminates the need for additional valves in many instances)
- Meets and exceeds all EPA, CARB & USCG regulations.
- Meets and exceeds all ABYC and marine industry standards

Tethered Ratcheting Self-Venting Cap



PART NO.	SIZE
DF52500000	5.25" Pressure-Relief Vertical Direct Fill Assembly with Single 5/8" Hose Barb and Gasket
DF85000000	8.50" Pressure-Relief Vertical Direct Fill Assembly with Single 5/8" Hose Barb and Gasket
DG52500000	5.25" Pressure-Relief Vertical Direct Fill Assembly with 5/8" Hose Barb, Gasket and Threaded Hole
DG85000000	8.50" Pressure-Relief Vertical Direct Fill Assembly with 5/8" Hose Barb, Gasket and Threaded Hole
DS52500000	5.25" Vertical Direct Fill Assembly with Single 5/8" Hose Barb, Gasket and Sealed Cap
DS85000000	8.50" Vertical Direct Fill Assembly with Single 5/8" Hose Barb, Gasket and Sealed Cap

DIRECT FILL CAPS



PART NO.	DESCRIPTION
BK0700169	Pressure-Relief Direct Fill Cap with Tether
BK0700065	Direct Fill Cap Tether
BK0700170	Sealed Direct Fill Cap with Tether

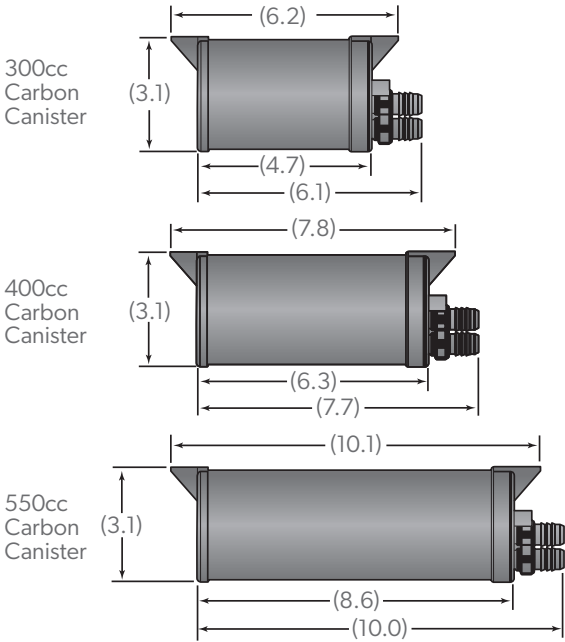
CARBON CANISTERS



PART NO.	DESCRIPTION
BK0550001	52/182 Gallons Maximum Capacity 300CC
BK0550002	69/242 Gallons Maximum Capacity 400CC
BK0550003	95/333 Gallons Maximum Capacity 550CC
A001500	70/110 Gallons Maximum Capacity w/ Heat Shield
A001501	220/350 Gallons Maximum Capacity w/ Heat Shield

Features:

- Designed to meet stringent CARB and EPA requirements.
- Superior efficient use of Carbon Bed to allow for OE packaged smaller canisters.
- Canisters and ports can be designed/configured to meet your specific needs.
- Carbon canisters are designed to be compatible with the harsh marine environment.
- Insulated models available for engine compartment mounting.



DECK FILLS



Selecting a Diurnally Managed Deck Fill

Another fuel system necessity to remain EPA compliant is to keep elevated temperature gasoline from expanding into fuel system areas that are not low permeation rated or otherwise sensitive to raw fuel.

1. 30° Body (Model Yr. 2015)
15° Body
Straight Body
2. Stainless Steel Body
Composite Body
3. Composite Black Cap
Stainless Steel Cap
4. Gas, Diesel, Waste or Water

Selecting an Always Sealed Deck Fill

Another fuel system necessity to remain EPA compliant is to keep elevated temperature gasoline from expanding into fuel system areas that are not low permeation rated or otherwise sensitive to raw fuel.

1. Standard
Stainless Steel Body
Stainless Steel Cap
2. Straight Body
30° Body
3. With 5/8" Vent
W/O 5/8" Vent

Deck Fill - Gas Size 1.5"

PART NO.	DESCRIPTION	BODY STYLE	CAP STYLE SS GAS	CAP STYLE COMP GAS
BK0110001	Deck Fill-Vent Combo w/PRV	15 degree Composite Body		X
BK0110004	Deck Fill-Vent Combo w/PRV	15 degree Composite Body	X	
BK0110011	Deck Fill-Vent Combo w/PRV	Straight Composite Body	X	
BK0110015	Deck Fill-Vent Combo w/PRV	Straight Composite Body		X
BK0110020	Deck Fill-Vent Combo w/PRV	35 degree Composite Body		X
BK0110025	Deck Fill-Vent Combo w/PRV	35 degree Composite Body	X	
BK0160001	Deck Fill-Vent Combo w/PRV	Straight SS Body	X	
BK0160005	Deck Fill-Vent Combo w/PRV	15 degree SS Body	X	
BK0170001	Deck Fill	Straight SS Body -Handle Cap		
BK0170002	Deck Fill	30 degree SS Body Handle Cap		
BK0170003	Deck Fill-Vent Combo	Straight SS Body -Handle Cap		
BK0170004	Deck Fill-Vent Combo	30 degree SS Body Handle Cap		

Deck Fill - Diesel Size 1.5"

PART NO.	DESCRIPTION	BODY STYLE	CAP STYLE SS GAS	CAP STYLE COMP GAS
BK0110008	Deck Fill-Vent Combo w/PRV	15 degree Composite Body	X	
BK0110014	Deck Fill-Vent Combo w/PRV	Straight Composite Body	X	
BK0160002	Deck Fill-Vent Combo w/PRV	Straight SS Body	X	
BK0160008	Deck Fill-Vent Combo w/PRV	15 degree SS Body	X	

DECK FILLS

Deck Fill - Water Size 1.5"

PART NO.	DESCRIPTION	BODY STYLE	CAP STYLE SS GAS	CAP STYLE COMP GAS
BK0110009	Deck Fill-Vent Combo w/PRV	15 degree Composite Body	X	
BK0110013	Deck Fill-Vent Combo w/PRV	Straight Composite Body	X	
BK0160003	Deck Fill-Vent Combo w/PRV	Straight SS Body	X	
BK0160006	Deck Fill-Vent Combo w/PRV	15 degree SS Body	X	
BK0160007	Deck Fill-Vent Combo w/PRV	15 degree SS Body	X	

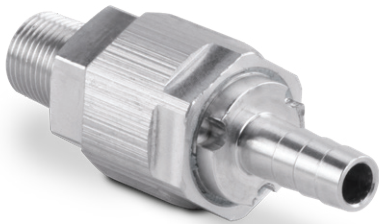
Deck Fill - Waste Size 1.5"

PART NO.	DESCRIPTION	BODY STYLE	CAP STYLE SS GAS	CAP STYLE COMP GAS
BK0110012	Deck Fill w/PRV	Straight Composite Body	X	
BK0160004	Deck Fill w/PRV	Straight SS Body	X	



SYSTEM ACCESSORY COMPONENTS

The accessory items listed in this section are critical miscellaneous items needed to build a complete compliant system. Additional versions / styles / sizes of the items shown may also be available.



High Flow Fuel Valves

(For use with vapor relief systems)

PART NO.	DESCRIPTION
BK0280004	1PSI Anti Siphon Demand Valve (ASDV) 3/8" NPT, 3/8" Barb
BK0280005	1PSI Anti Siphon Demand Valve (ASDV) 1/2" NPT, 3/8" Barb
BK0280006	1PSI Anti Siphon Demand Valve (ASDV) 1/2" NPT, 1/2" Barb
BK0280009	1 PSI Anti Siphon Valve 1/2" NPT 1/2" Barbed

Grade Vent Valves

PART NO.	DESCRIPTION
BK0280010	Grade Vent Valve 1/4" Hose Barb with Gasket (GVV)
BK0280015	Grade Vent Valve 3/8" NPT x 5/8" Hose Barb, Inline
BK0280016	Grade Vent Valve 3/8" NPT x 5/16" Hose Barb

Barbed Tee Fittings

PART NO.	DESCRIPTION
BK0280037	1/4" x 1/4" x 1/4" N White
BK0280039	5/8" x 5/8" x 1/4" N White
BK0280043	5/8" x 5/8" x 5/8" N White
A001710	5/16" x 5/16" x 5/16" Black
A002176	5/8" x 5/8" x 5/8" Brass

Fuel Demand Valves

PART NO.	DESCRIPTION
A000796	Permanently mounted in fuel tank, sold with or without FDV (fuel demand valve - A001663) and ASV (anti-siphon valve)
A002092	Inline from tank to engine with 3/8" barbs



BK0280025

Diurnal Control Valve



BK0280010



BK0280043

Note: Hoses can be added to fuel tanks during assembly depending on tank design, making installation easier for builders.

MOTORIZED BALL VALVE

When used as part of a compliant fuel system, these high quality motorized ball valves (MBV's) ensure adherence to ABYC marine safety standards.

Strength

While the durable polymer housing ensures IP rating, the stainless steel body makes the MBV's ideal for high moisture and corrosive salt water environment applications.

Motor

12 Volt, fast operating and extremely reliable, these MBV's have visual indication of open and closed positions.

Safety

The MBV's automatically default to closed position in the event of power loss or when the ignition is turned off.

Seal

Viton seals make these MBV's ideal for high ethanol fuel blends.

Robust

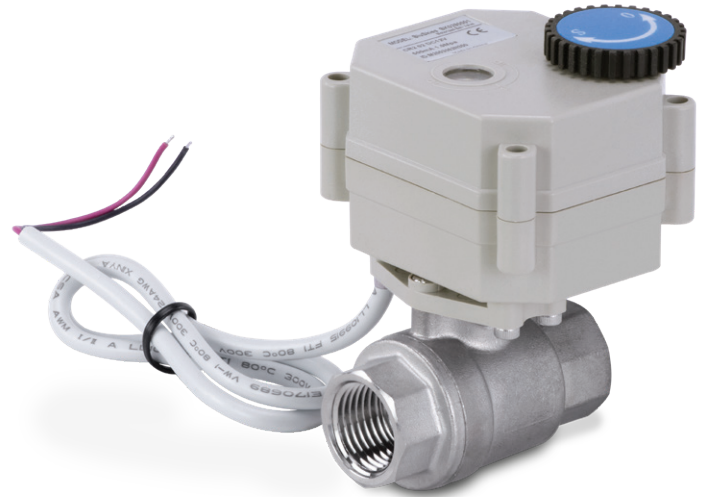
Up to 50,000 cycles.

Benefits:

- Essential for marine systems, these MBV's come standard with manual override
- With a standard 1/2" internal diameter, these MBV's are ideal for high flow applications as seen on today's large horse power motors with high GPH fuel consumption rates
- Installed at or close to the fuel tank these MBV's prevent potential head or diurnal pressure from being transferred to the fuel supply line

How To Operate The Manual Override Feature

1. Manual override is only permitted to use when the power is off.
2. "O"- open, "S"- close.
3. Lift the button and turn it left or right, gently.
4. Press the button back down after power on.
5. Visual indicator valve position; the line is parallel (with pipe), when the valve is open and vertical when the valve closed.



BK0290001

MOTORIZED BALL VALVE 1/2" P# TBA

Product Size	NPT 1/2"
Maximum Working Pressure	188 PSI
Rated Voltage	DC12V
Wiring Control Method	CR2 02 for Spring Return Valve, Signal Feedback Function
Working Current	≤80MA (500 mA shown on the label reflects the minimum current of external power)
Open/Close Time	≤3-5S
Life Time	50,000 cycles
Valve Body Material	304 Stainless Steel
Actuator Material	Proprietary Engineered Plastics
Sealing Material	Viton
Actuator Rotation	90°
Max. Torque Force	1.5 lbf.ft
Cable Length	12 inches
Environment Temperature	5°F - 122°F
Liquid temperature	36°F - 248°F
Manual override	Yes
Indicator	Yes
Protection class	IP67
Wire length	12"
End connector	'Optional' Deutsch (Female)

GASOLINE FUEL SYSTEM VALIDATION & TESTING SERVICES

Dometic offers one of the marine industry's most comprehensive validation and compliant fuel capacity optimization services. These comprehensive evaluations include the following value added services for fuel tanks designed and built by Dometic or for parts only to be used on tanks built by you:

- Calculation of tank and system capacity, identification and indication of optimum fuel ullage component placement to maximize capacity with minimal or zero deck/tool modification or vessel structural intrusion.
- Computer simulation modeling to ensure that each fuel systems operational design criteria meets American Boat & Yacht Council (ABYC) H-24 tip study and venting protocols including system safety and functional design standards.
- Dometic will provide you comprehensive reports to keep on file, which includes a certificate of compliance for each fuel system (family) needed for boat builders to comply with CFR 40 (EPA regulation).

DIESEL FUEL SYSTEMS

Dometic's ullage valves can be a simple viable solution in the development of ABYC compliant diesel fuel system. System matching is available with one of our many deck fill options. The system can be designed to function like those required for gasoline but can be used in a diesel system.

ABYC H33 States That:

The installed fuel system shall be designed so that a fuel temperature rise of 60°F (33°C) shall not cause liquid fuel to spill into the boat or the environment(A fuel system designed to contain five percent fuel expansion is one method of meeting this requirement).

The fuel vent system shall be designed to prevent spilling liquid fuel into the boat, or the environment, when tested while fueling the boat in accordance with the boat manufacturer's instructions.

There must be no blow back of fuel through the fill fitting when filling at a rate of 9 gpm (34 lpm) from 1/4 to 3/4 of the capacity on the tank label. For fuel tanks of 25 gallons (95 liters) capacity or less, the fill rate may be reduced to 6 gpm (23 lpm).

Call for additional information on Dometic Diesel Systems.

ABYC H33 Compliant:



FUEL SYSTEM COMPATIBILITY

Dometic components perform beyond the operational parameters required to meet Environmental Protection Agency (EPA) and American Boat & Yacht Council (ABYC) refueling, spit-back, ullage, venting and fuel supply protocols.

Dometic's ullage valves function to effectively manage refueling requirements when used in conjunction with a Dometic deck fill per CFR40 Part 1060.101(f) (3) (i) & (ii). Dometic Anti-Siphon Demand Valve (ASDV) keeps fuel in the fuel tank during pressure cycles per ABYC H24.15.9. When used in conjunction with a Dometic deck-fill the ASDV has a combined maximum KPa value of 6. It is not known what the KPa value is used with a non Dometic deck fill.

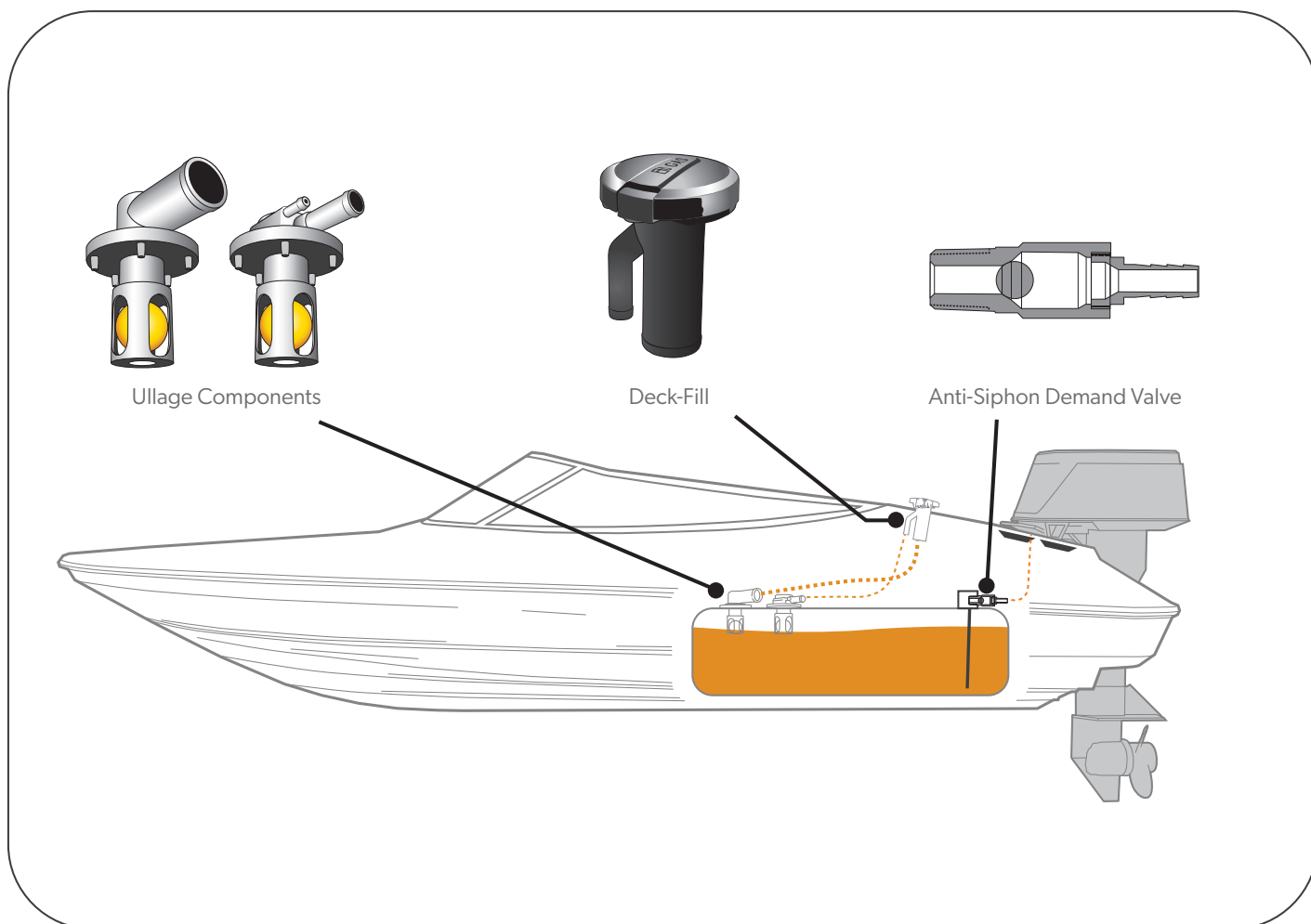
BluSkies fuel system components have not been tested or validated used in conjunction with non-BluSkies fuel systems.

Use of BluSkies individual components on non-BluSkies fuel systems is NOT recommended and may:

1. Void warranty protection.
2. Invalidated EPA compliance.
3. Impede engine performance.
4. Impede fuel system performance.

BluSkies fuel systems are not limited by fuel tank/boat type or size. These systems are installed on runabouts, pontoon boats, cruisers and fishing boats of all kinds etc. including some of the largest and fastest power boats in the US.

Because of BluSkies fuel components are system matched, BluSkies boasts the highest refueling rates of any system currently available, which results in a user experience with the highest rated customer satisfaction.







NOTES

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Dometic

1 Sierra Place

Litchfield, IL 62056

Phone: 877-663-8396

Fax: 217-441-8340

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dometic.com

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