

MARINE INTERNATIONAL PTE LTD



QUALITY MARINE EQUIPMENT SINCE 1970

VOL. 3





MARINE INTERNATIONAL PTE LTD

Marine International Pte Ltd has over 50 years of experience in delivering solutions for quality marine equipment and industrial products. The experience and competence we have built over the years translate into high value for our customers and partners. We are dedicated to satisfying our customers by striving to exceed their expectations in affordability, quality and on-time delivery.

Delivering quality marine equipment since 1970

Distributor of some of the world's finest marine brands



Buoys & Fenders



Hatches







**MARINE INTERNATIONAL
PTE LTD**

STEERING

Mechanical Steering

How To Measure Steering Cables

Replacement of existing cables

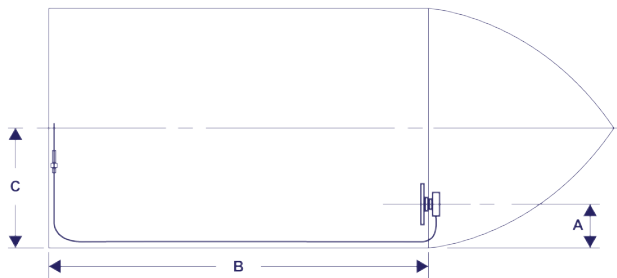
If possible, find the part number stamps on the plastic jacket of the old cable. If you removed the old cable, measure for the replacement cable as follows : For Rotary Steering Cable replacement : Measure plastic cable jacket ("Y" dimension, shown in below drawing) in inches, add 18", and round up to the next foot. Order that length cable.



New Installation

Measure Cable routing path from wheel center line to engine connection as follows :

- A = Center line of wheel to gunwale (or deck, if routed downward).
- B = Dash to transom
- C = Gunwale to centerline of cable connection at centered tiller



A single cable, starboard drive push-pull mechanical cable system is shown in this diagram. If your mechanical system is different than the one depicted and/ or you have any questions about mechanical steering after viewing this guide, please contact Marine International Pte Ltd. Cable routings (such as those found on pontoon boats) may vary from this drawing. Confirm length by laying a garden hose (or similar object) along cable path and measure run from wheel to engine connection point.

The total of A + B + C is your basic measurement, from that total deduct 4" for every 90 degree bend in the cable. For Cable installation through the Engine Tilt Tube: Add A, B & C + 6", and round up to the next foot. For Cables Mounted to Transom, Splashwell or Stringer: Add A, B & C, then subtract 6" and round up to the next foot.

Example : A = 20" B = 104" C = 28"

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 not 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-tolls-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.

Recommend No FeedBack steering for all dual cable steered, non-power-assisted outboards and sterndrives.

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.



Mechanical Steering

Complete System	
Safe-T QC Steering Kit (Single Cable)	SS137XX
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 Guard (fits most tilt tubes)	SA39329P
Service Items	
QC Cable (For most Dometic rotary helms)	SSC62XX
QC Cable	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.**

Dometic Transom Support Mount

SA27255P - Stainless Steel Transom Mount Kit

Universal Stainless Steel Transom Mount.

Stainless Steel Transom mount kit contains clamp block, support tube, and clevis for engine connection. 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.



SA27256P - Corrosion Resistant Transom Mount Kit

Corrosion resistant transom mount kit.

Corrosion Resistant Transom mount kit contains clamp block, support tube, and clevis for engine connection. 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.



Mechanical Steering Hardware

Dometic Splashwell Mounting Kit, 15 Degrees

Outboard steering splashwell kit with 15° brackets.

Take control of steering without sacrificing splash protection. The Dometic SeaStar splashwell mounting kit is available with 15° or 90° brackets. Not for through-transom use.

SA27253P



Dometic Splashwell Mounting Kit, 90 Degrees

Outboard steering splashwell kit with 90° brackets.

Take control of steering without sacrificing splash protection. The Dometic SeaStar splashwell mounting kit is available with 15° or 90° brackets. Not for through-transom use.

SA27254P



Dometic Threaded Tube/Ball Splashwell Kit

Replacement support tube and ball for splashwell kits.

A corrosion-resistant replacement to keep your splashwell mount safely and securely in place. Only suitable for SA27253P and SA27254P splashwell kits.

SA36316P



Dometic Support Tube Kit

Aluminum:

Lightweight yet highly reliable, this aluminum support tube kit has your steering cable covered. Available in aluminum or stainless steel.

SA27274P

Stainless Steel :

The perfect balance of heft and strength, this stainless steel support tube kit has your steering cable covered. Available in aluminum or stainless steel.

SA27275P - Stainless Steel

SA27274P - Aluminium



Dometic Spent Travel Tube

Spent travel tube with large plastic nut.

For replacement of plastic tubes with plastic nuts on Big-T, Safe-T, and Safe-T Twin Rotary steering heads. Suitable for SH5000P, SH5094P and SH5023P helms.

SA35680P



Dometic Dual Outboard Tie Bar Kit

Tie bar kit for dual Johnson & Evinrude outboards, stainless steel.

Dometic quality and Johnson & Evinrude reliability combine in this universal tie bar kit. Suitable for Johnson & Evinrude dual outboards.

SA27252P



Dometic Inboard Kit

Inboard, Tall Bracket.

Complete your transom mount with this tall bracket. Suitable for use with our inboard Volvo kit.

300616



Dometic Clevis Kit - Stainless Steel

Clevis kit, short tiller shoulder bolt (1.812").

Steer with confidence knowing that everything is fastened securely into place. This stainless steel clevis kit contains a short tiller shoulder bolt.

SA27314P - Short Bolt

SA27329P - Long Bolt



Mechanical Steering Hardware

Dometic Inboard Clevis Kit (Short Bolt)

Ski boat clevis kit, short bolt (1.8125").

Steer with confidence knowing that everything is fastened securely into place. This stainless steel clevis kit contains a short tiller shoulder bolt.

SA27576P - Short Bolt
SA27577P - Long Bolt



Dometic Inboard Clevis Kit (Long Bolt)

Ski boat clevis kit, long bolt (2.1875").

Steer with confidence knowing that everything is fastened securely into place. This stainless steel clevis kit contains a long tiller shoulder bolt.

SA27577P



Dometic Rod End Kit - Steel

Stainless steel rod end kit with 1/2-20 thread for tie bars.

Secure your tie bar with the Dometic SeaStar rod end kit and enjoy the ride! Available in steel or stainless steel, you can explore with confidence, knowing you've got your steering under control.

SA27277P - Stainless Steel
SA27276P - Steel



Dometic Short Ball Post Mounting Kit

Inboard / Ski boat clamp block 2.25" stand off.

Your grip on your steering system has never felt so secure. This mounting kit features a heavy-duty clamp block with a black metal flake finish. Mounting area is in the middle of the clamp.

SA27578P



Dometic Long Ball Post Mounting Kit

Inboard / Ski boat clamp block 4.50" stand off.

Your grip on your steering system has never felt so secure. This mounting kit features a heavy-duty clamp block with a black metal flake finish. Mounting area is in the middle of the clamp.

SA27579P



Dometic Outboard Clamp Block Kit

Corrosion-resistant outboard clamp block.

Value and hardness meet in this corrosion-resistant clamp block. The Dometic SeaStar outboard clamp block is available in stainless steel and corrosion-resistant versions. Brave the elements knowing that your equipment will too!

SA27055P - Corrosion Resistant
SA27149P - Stainless Steel



Dometic Steering Kit

OB E&J Steering Kit.

This adapter bracket kit is suitable for use with Johnson & Evinrude 40 hp and under.

300612



Dometic Steering Wheel Hardware Kit

Steering wheel mounting hardware kit.

This kit contains all the hardware you need to ensure your steering wheel is mounted perfectly: 1/2 Washer, #9 woodruff key and 1/2-20 lock nut. With everything firmly in place, you're free to explore.

SA27454P



Mechanical Steering Hardware

Dometic DC Control

DC Control 33C.

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

301916



Dometic Handle

Handle, 10-32 Black.

This black plastic T-handle is suitable for use with 30 series utility cables.



Dometic Mounting Bracket

DC Control Cable Angle Mounting Bracket.

Opt for this stainless steel bracket when mounting your DC control. The angled design allows for mounting nearly anywhere.

048210



Dometic Adapter

Bulkhead Adapter 30 Series.

Use this bulkhead adapter kit to mount 30 series utility cables in either bulkhead or clamp type applications.

300673



Dometic Clamp Adapter

Clamp Adapter 30 Series.

Use this clamp adapter kit to mount 30 series utility cables in either bulkhead or clamp type applications.

302485



Dometic Stop Collar

Stop Collar 30 Series.

Use this conduit fitting kit to mount your 30 series utility cables. Suitable for bulkhead or clamp applications.

037693



Dometic Cable Brake

Cable Brake 30/40/60 Series.

Add this adjustable throttle cable brake to your ST/STB for enhanced control. Suitable for 3300, 4300, and 60 series cables.

044386



Dometic Mercury Kit

Mercury 260 Kit 3300.

This connection kit is suitable for 3300/33C style cables.

302123



Mechanical Controls

Controls



Control Features	Twin S	MT3 Top	MT3 Single	CH2200 / CH2300	CHX8000 / CHX8500	CHX8300 / CHX8800	CHX8100 / CHX8600	CHX8200 / CHX8700	I7800
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	1	1	1	2	2
Control Cables									
33C/3300 Universal Type	●	●	●	●	●	●	●	●	●
43 Series Cable	●		●						

● Standard | ● Optional | *Optional for ski version, CH2200

Hydraulic Steering

SeaStar Solutions manual hydraulic steering systems are simple and efficient. The basic system consists of three main components as stated below. These basic components are necessary in all applications. However as the system variables increase (i.e: multiple engines, rudders, steering stations, power assist and autopilots), additional components may be required.

1) The Helm Unit

The helm pump is an axial piston pump specifically designed for manual steering. It has a built-in lock valve to prevent the steering load from feeding back to the driver. The lock valve will not allow the rudder or drive unit to move until you move it with the steering wheel. The lock valve section of the helm also includes a relief valve. This relief valve provides over-pressure protection for mechanical components and hydraulic hoses and fittings.

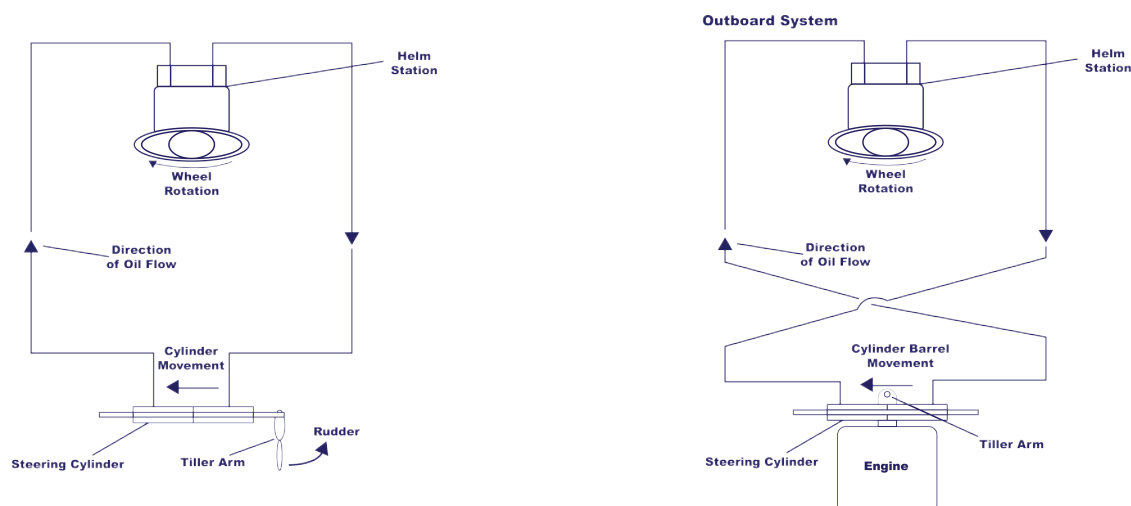
2) The Cylinder

The most important differences between the variety of steering systems available is the cylinder selection. Both BayStar and SeaStar systems have a cylinder for most steering applications

3) Hoses and Tubes

Required to provide a path for the fluid to flow under pressure from the helm pump to the cylinder.

NOTE : Recommendations made in this selection guide are based on SeaStar Solutions experience with typical installations, applications and usage. DO NOT use products in applications that they were not intended for. It is the boat manufacturer and the installer's responsibility to ensure the components selected are sufficiently validated on the boat application for safe and acceptable operation.



How The System Works :

The system is a two-line system. This makes operation very simple.

- 1) The steering wheel, which is attached to the helm pump, is rotated in the desired direction (i.e: a turn to starboard or clockwise rotation).
- 2) Oil is pumped out the corresponding port from the rear of the helm into the starboard line and then into the cylinder.
- 3) This causes the cylinder rod, which is attached to the vessels rudder or drive unit, to move (i.e: rod moves to port) thus causing the vessel to alter course
- 4) Oil displaced from the opposite end (i.e: the port end) of the cylinder flows (i.e: into the port line) back to the helm pump.
- 5) For steering in the opposite direction, simply turn the helm other way.
- 6) When no course corrections are required, the integral lock valve holds the rudder or drive unit stationary.

Selecting The System :

The objective is to match the steering system to the requirements of the vessel. This depends on four things:

- 1) Hull type (i.e: planing or displacement)
- 2) Type of propulsion system in the vessel (i.e: Inboard, Outboard, Sterndrive, etc.)
- 3) The number of engines or rudders
- 4) The total power of the engines (i.e: horsepower)

Once the system and the cylinder has been selected, the size of the helm pump must be determined, SeaStar systems also allows the following options to be specified:

- 1) The number of steering stations
- 2) Helm configuration (i.e: standard or tilt helm)
- 3) Additional features such as autopilots
- 4) Power assist

Hydraulic Steering

Notes On Steering Response Versus Steering Effort :

Steering wheel effort is directly proportional to the number of wheel turns lock-to-lock.

The number of wheel turns lock-to-lock is dependent on three things:

- 1) The volume of the cylinder
- 2) The displacement of the helm pump
- 3) The allowable movement of the rudder or drive unit

Less wheel turns lock-to-lock results in more steering effort. More wheel turns lock-to-lock results in less steering effort. However, additional factors that can influence steering effort are:

- 1) Vessel speed
- 2) Rudder size
- 3) Unusual propeller selections
- 4) Hull Type (i.e: displacement, planing, etc.)
- 5) Improperly aligned counter balance skeg
- 6) Trim/position
- 7) Propeller height relative to water

How To Measure Hydraulic Hoses

New Installation

Measure hose routing path from wheel center line to engine connection, as follows:

A = Center line of wheel to gunwale (or deck, if routed downward)

B = Dash to transom

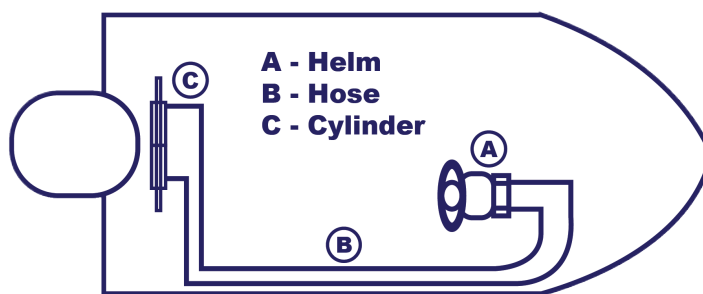
C = Gunwale to centerline of cable connection at centered tiller

Most cylinder move with the engine/rudder; enough slack must be left in hoses/tubing to prevent sharp bends (less than 3" radius) and/or kinking. Where rigid tubing is used, flexible hoses must be installed between tubing and cylinder, to allow cylinder articulation. For most cylinders, add A, B & C + 24", round up to the next even foot. Order that length hose kit, or twice that length ins tubing. Hose routings (such as those found on pontoon boats) may vary from this drawing. Confirm length by laying a garden hose along cable path and measure run from wheel to engine connection point.

Replacement of Hydraulic Steering

If you removed the old hoses, measure for replacement as follows:

Measure existing hose from tip to tip, round-up to next even foot. Order that length hose kit, or twice that length in tubing.



Typical Single Station Routing
A single, front-mount outboard Cylinder system is shown in this diagram

Due to performance and safety concerns, Dometic recommends that ONLY SeaStar or SeaStar PRO steering hoses and Hydraulic Steering Fluid be used in SeaStar Steering Systems.

Hydraulic Steering Fluid

The use of SeaStar Steering Fluid ONLY in SeaStar hydraulic steering systems.



SeaStar Hydraulic Hose



Hydraulic Helms

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 60MPH.



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

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.

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

Hydraulic Helms

Dometic Capilano Helm

Helm, 1250v 1.7-3.4, HH5250 /
Helm, 1275v 2.7-5.4, HH5275

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.

Features :

- Designed for heavy-duty marine use
- Variable displacement allows for variable number of turns lock-to-lock
- Suitable for a wide range of applications
- Easy installation on single and dual rudder vessels
- Standard 3/4" tapered steering shaft
- Meets ABS requirements



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

Dometic SeaStar Power Assist

SeaStar Power Assist unit, PA1200-2 /
SeaStar Power Assist unit, 25' harness

The marine industry is continually introducing heavier, more powerful outboard engines. The Dometic SeaStar Steering Power Assist lets you steer these bigger, faster boats with the same comfort and ease that you'd expect when driving a car. Recommended for any boat that is 200 hp and above.

The Dometic SeaStar Power Assist Steering System is comprised of two circuits: a hand operated manual system, which is the control element, and a hydraulic power pump, which is the working element. The manual system consists of a helm pump with internal relief and check valves, and a built in reservoir. The power system is an electronically controlled hydraulic pump that boosts the fluid being sent from the helm pump to the steering cylinder, resulting in much easier effort at the wheel.

Features :

- Easy installation, suitable for wall or floor mount
- Dramatically increases steering comfort
- Reduced wheel effort
- Compatible with Dometic SeaStar Power Purge system and autopilots
- Wiring harness included
- ABYC, CE, NMMA, ISO 10592 Approved
- Automatically recognizes system voltage (12 V or 24 V)



Dometic Power Assist Autopilot Pump

Power assist autopilot

The Dometic Autopilot Pump, combined with our Power Assist system, provides power assisted steering when the autopilot is in standby mode. Available in type 1 or type 2, the Dometic 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 12V and 24V configurations.

Features :

- Converts manual hydraulic steering to power steering
- Dramatically reduces steering wheel torque
- Easy installation
- OEM or retrofit
- Suitable for Dometic helm pumps 1.4-2.4
- Compatible with Power Purge system
- Ignition protected



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	AR4502RSI
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

Hydraulic Cylinder

BayStar Outboard Cylinder

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 (Total). Combine this with the superior design, right ISO quality control and teamed with the finest materials and precision manufacturing - BayStar continues the tradition bringing comfort and safety to boating.

HC4645-3

Steering cylinder, front mount, HC4645-3.

This outboard cylinder is designed to be compact and balanced, fitting most splashwells and providing full engine movement.

Features :

- Balanced cylinder
- Precision manufacturing
- Rigid ISO quality control
- Compact design that fits most splashwells



HC4647-3

Steering cylinder, front mount, Honda, HC4647-3.

This outboard cylinder is designed to be compact and balanced, fitting most splashwells and providing full engine movement.



HC4648-3

Steering cylinder, front mount, short, HC4648-3.

This outboard cylinder is designed to be compact and balanced, fitting most splashwells and providing full engine movement.



HC4658-3

Steering cylinder, front mount, inverted plate, HC4658-3.

This outboard cylinder is designed to be compact and balanced, fitting most splashwells and providing full engine movement.



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.

Features :

- New Look :
 - Updated styling and branding
 - Robust barrel
- ORB Fittings :
 - Adjustable stainless steel O-ring seal (ORB) fittings
- New Sealing System :
 - State of the art proprietart seal material
 - Similar to Tournament 2
 - Excellent resistance to compression set
 - 8 hole end gland design for improved serviceability



Description	Part No.
Outboard FM Cylinder	HC5345-3
Outboard FM Cylinder (Honda)	HC5347-3
Outboard FM Cylinder	HC5348-3
Outboard FM Cylinder	HC5358-3

Hydraulic Cylinder

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 oriented 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

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.

Features :

- Stainless steel wear washer
- Secondary end gland retention using plate bolts
- Robust wipers and seals
- Adjustable 90° stainless steel ORB elbow fittings
- Stainless steel rod ends
- Anodized aluminium body
- Adjustable threaded design maximum stroke indicator
- Robust barrel / shaft / support brackets



Description	Part No.
Outboard Tournament Series Cylinder, Front Mount	HC6845
Outboard Tournament Series Cylinder, Front Mount, c/w Single Engine Hardware Kit	HC6845

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



SeaStar Splashwell Mount Outboard Cylinders

This cylinder is a light duty alternative to front and 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 and 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.
O/B Cylinder Kit, Side Mount, Unbalanced	HC5370-3



SeaStar Catamaran Cylinders

Outboard Cylinders

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.

Description	Part No.
Catamaran Outboard Front Mount C/W Rodend	HC5375-3
Catamaran Inboard Cylinder	HC5314-3
Catamaran Inboard Cylinder	HC5319-3



Hydraulic Cylinder

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.

Features :

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



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

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 cylinder. Two-axis articulation. Easy installation for single or dual rudder vessels.

Features :

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



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 BA200-11TMC	HC5379

SeaStar Sterndrive Cylinders

This cylinder fits 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



Dometic Hydraulic Cylinder Seal Kit

Screw-in pivot/front mount seal kit, HS5157.

Repair leaking or weeping cylinders with the Dometic hydraulic cylinder seal kit. This kit includes 2 seal glands, a pin wrench, and a guide tool, all designed specifically for durability in the marine environment.

Fits front mount cylinders:

HC5340, HC5341, HC5342, HC5343, HC5344, HC5345, HC5346, HC5347, HC5348, HC5358, HC5365, HC5375, HC5394, HC5445, HC6750, HC6751, HC6752, HC6753, HC6754, HC6755.

Features :

- Replacement front seal kit for Dometic pivot/front mount cylinders
- Kit contains 2 seal glands, pin wrench, and seal gland assembly guide tool
- High quality marine-grade materials suitable for harsh marine environments



Hydraulic Fittings & Hardware Kits

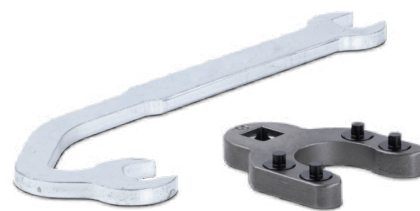
Dometic Hydraulic Cylinder Service Kit

Cylinder bleeder wrench & end gland wrench pin, HS5300

Make servicing the hydraulic cylinder easier with this service kit. Specially designed for Dometic SeaStar steering systems, the kit includes bleeder wrench, end gland wrench pin and instruction sheet.

Features :

- Compact bleeder wrench designed to reach cylinder bleeder fittings in tight spaces.
- Heavy-duty end gland pin wrench is adaptable to fit 4-hole and 8-hole end glands.
- Kit includes bleeder wrench, end gland wrench pin and instruction sheet.
- Save 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 aluminium adjustable tie bar with built in maximum stroke indicator
- High strength forged aluminium drive bracket
- Eliminates the need for cut-to-length traditional tie bars



Twin Engine - Dual Cylinder (HA5520)



Twin Engine - Single Cylinder (HA5521)

SeaStar Twin Engine Tournament Tie Bar Application Guide

Application Guide						
Engine / Cylinder Configuration	Hardware Kit		Tie Bar			
	Part No.	Qty	Engine Center to Center Distance (inches)	Engine Center to Center Distance (mm)	Part No.	Qty
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 - 875	HO6822	1
	HA5520	1	38.5 - 47.1	977 - 1196	HO6823	1
	HA5520	1	47.2 - 62.2	1199 - 1580	HO6824	1

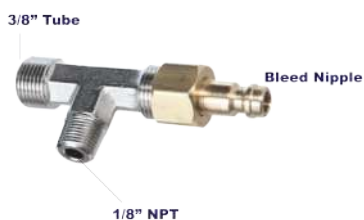
Hydraulic Fittings & Hardware Kits

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

2 per kit



Bleed Nipple

Part No. : HF5548
1998 - Date Cylinders
For use with fFront Mount Cylinder ONLY

2 per kit (Includes O-ring)



Union Coupling Fitting

Part No. : HF5527

3 per kit



Straight Fitting

Part No. : HF5528
NOT for use with -3 cylinders/helms

3 per kit



Connector Fitting

Part No. : HF5532

3 per kit



Elbow Fitting

Part No. : HF5529
NOT for use with -3 cylinders/helms

3 per kit



Elbow Fitting

Part No. : HF5534

3 per kit



Street Elbow

Part No. : HF5538

3 per kit



Hydraulic Fittings & Hardware Kits

45° Fitting

Part No. : HF5540
NOT for use with -3 cylinders/helms



Tee Fitting

Part No. : HF5533



Tee Fitting

Part No. : HF5531
NOT for use with -3 cylinders/helms



Tee Fitting

Part No. : HF5530



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



Hydraulic Fittings & Hardware Kits

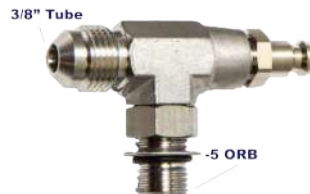
ORB Fitting Kits

Part No. : HF6002



ORB Fitting Kits

Part No. : HF6003



ORB Fitting Kits

Part No. : HF6004



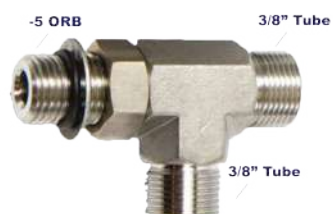
ORB Fitting Kits

Part No. : HF6005



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



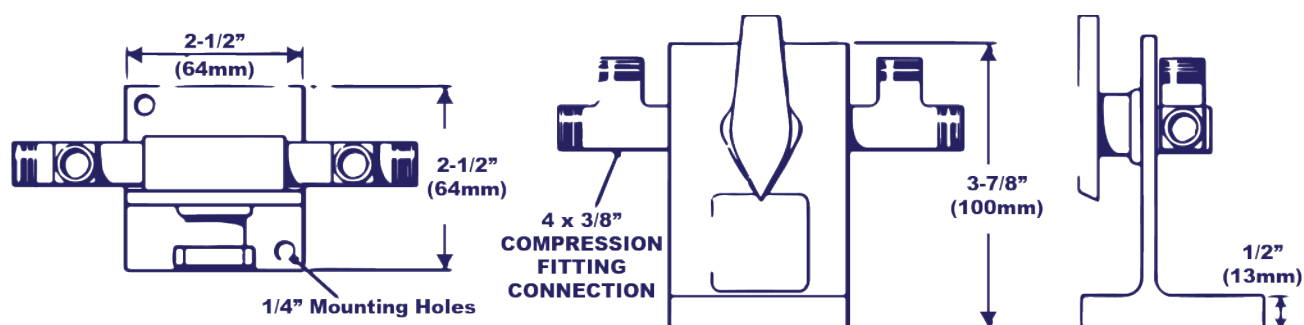
HA5471-2, Liquid Tie Bar Valve

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

Alignment Valve for Hydraulic Tie Bar (When a Mechanical Tie Bar Cannot Be Used)

The SeaStar Cylinder Alignment Valve (part no. : 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 must use the SeaStar PRO Helm Pump (part no. : HH5770) and SeaStar PRO Kevlar Hoses.



SmartStick AR4502



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

Features :

- Non-contact sensing, as there are no moving parts that wear out
- Easy installation, as no linkages or external parts need to be mounted
- Corrosion resistant
- Electronics integrated into sensor body, making cable easy to route through rigging with no splicing
- 35" cable, which can be trimmed and jacket is labeled
- Digital electronics immune to electromagnetic interference (EMI), which allows the autopilot to perform better
- Part numbers are autopilot specific, there are no jumpers to cut
- Convenient installation of sensor

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

Optimus

Electronic Helm, EH1512

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



Smart Cylinder, EC6810

Key Benefits :

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



Hydraulic Steering Pump, EP1500

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, ED1700

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



Dometic Optimus 360 Joystick

Optimus 360 Joystick Control.

The Dometic Optimus 360 Joystick Control brings a whole new level of precision to your boat's steering. This intuitive, retrofittable joystick allows you to move not only forward and back, but also sideways. With additional features including a sensitive touch function and Take Command mode, the Optimus 360 lets you direct and rotate your boat with confidence and control.

There's nothing it can't do. An addition to your Optimus system, the Dometic Optimus 360 Joystick Control gives your boat a whole new dimension of control. With progressive throttling, the joystick becomes a natural extension of your hand. A light push to 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.

Features :

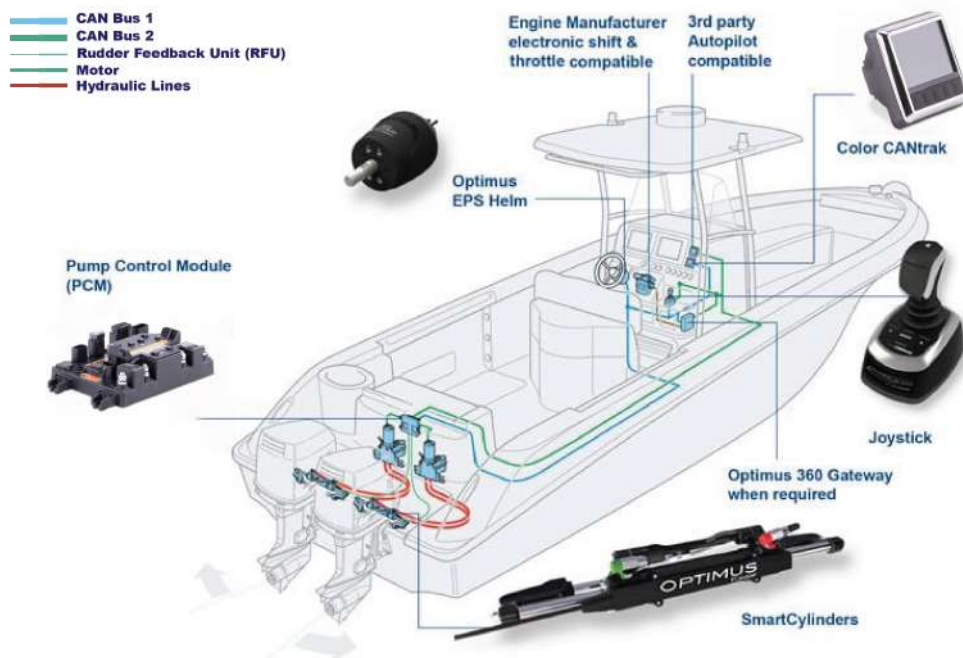
- Intuitive joystick design, which allows you to move sideways and rotate with a single twist
- Sensitive touch function, for high precision response
- Designed for low speed manoeuvring.
- Compatible with third party autopilot systems
- Compatible with twin, triple and quad engine applications
- Available for retrofit
- All the benefits of Optimus EPS



EJ1400

Installation - Optimus 360 Joystick

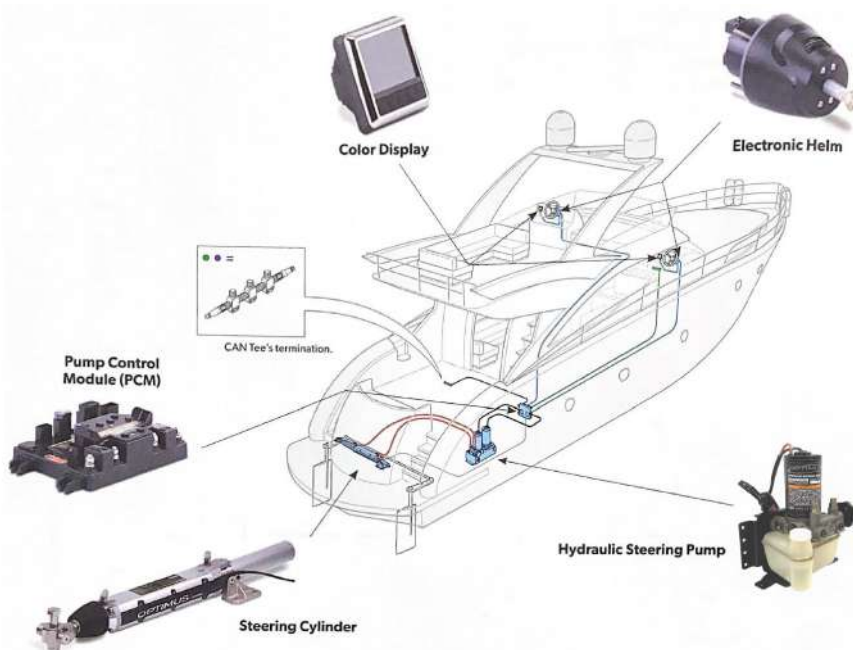
System Schematic - Electronic Shift & Throttle Engines



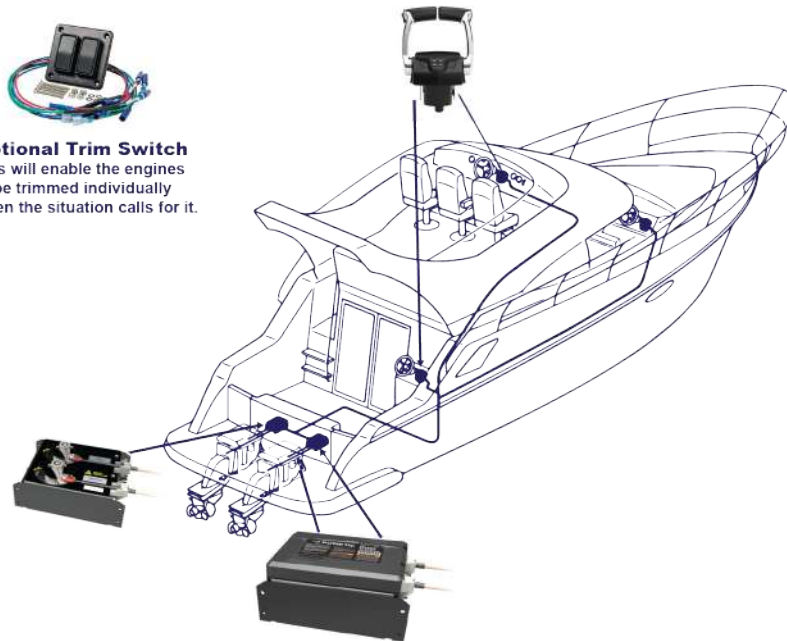
For reference only and subject to change

The Technology - Inboard Engines

System Components



For reference only and subject to change



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

Electronic Controls i7800

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

Features :

- Two cable actuators in a single chassis for complete shift and throttle control
- Utilizes automotive high speed CAN network (250 kbps)
- Maximum programable 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 thro



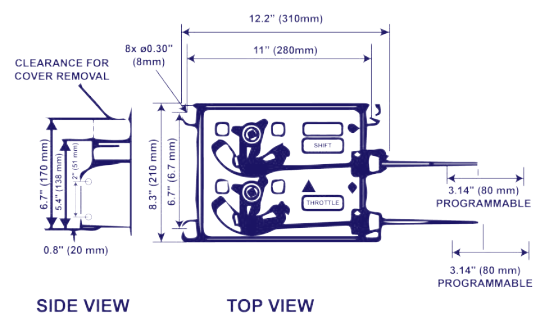
Dometic i7800

Actuator, shift and throttle, AC7700

The i7800 actuator contains both the shift and throttle actuator within one compact housing. It's not only powerful enough to manage the shift and throttle functions on the most extreme applications, it is also extremely responsive and robust.

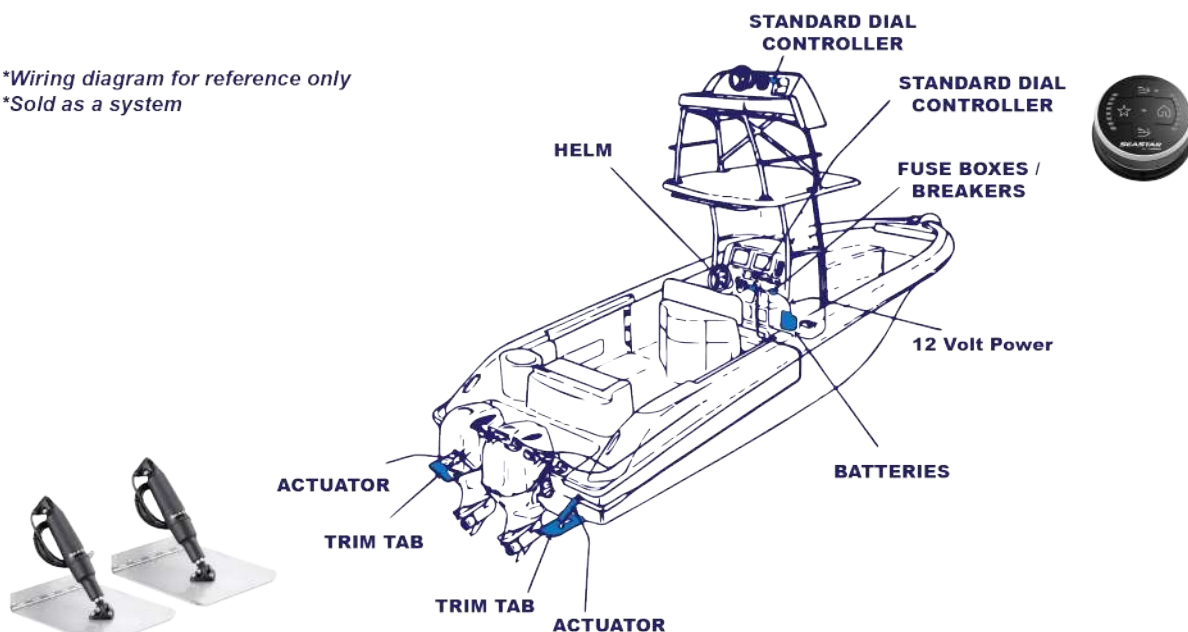
Features :

- Mechanical backup "get home" feature to allow manual control
- Linked to control heads via a single 1/4" cable for easy cable routing



Standard Trim Tab Schematic

**Wiring diagram for reference only
Sold as a system



Standard Dial Controller

Controller dial, CON1000

The Dometic Trim Tab Controller offers a completely customizable user experience. Programmable settings (Home and Favorite) make it easy to get the boat in the preferred position.

Features :

- Intuitive and robust dial controller
- Links with Optimus Joystick, EPS steering and shift & throttle controls
- Easy user interface



Actuator

Features :

- 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

Features :

- 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



Jackplates

Mega Jackplate

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 Mega Jackplate is rated to 600 HP and is an extension of the existing product line.

Benefits :

- Rated up to 600 Hp
- 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



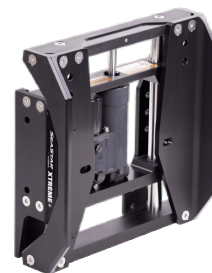
Mega Jackplate Options						
Model	JP6060	JP7060	JP6080	JP7080	JP6100	JP7100
SKU	9600050077	9600050836	9600050834	9600050837	9600050835	9600050838
Bolt Pattern	Standard	Wide	Standard	Wide	Standard	Wide

SeaStar Xtreme Jackplate

Dometic Xtreme Jackplates utilize 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 Xtreme Jackplates can adjust the engine height in just 8.5 seconds, even while the boat is moving at full speed.

Features :

- Xtreme Jackplates is using high strength materials and is easily capable of handling up to 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



Xtreme Jackplate Options					
Model	JP5040X*	JP5060X	JP5080X	JP5100X	JP5120X
Size	4" Setback	6" Setback	8" Setback	10" Setback	12" Setback

Note : *Accessory adapter DK4600 is required for installation of anchoring systems JP5040X

SeaStar Manual Jackplate

The Dometic Manual Jackplate comes in 4", 6", 8", and 10" setbacks to help you find the best match for your boat and optimize performance, with 3" of available lift.

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



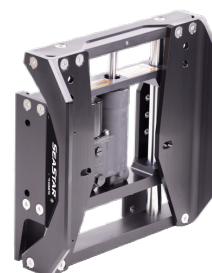
Manual Jackplate Options				
Model	JP1040SS	JP1060SS	JP1080SS	JP1100SS
Size	4" Setback with Side Locks	6" Setback with Side Locks	8" Setback with Side Locks	10" Setback with Side Locks

SeaStar Standard Jackplate

Dometic's 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. The Standard Jackplate features sleek, bold styling that is redefining the look for Jackplates. The SeaStar Jackplate is rated for 300 horsepower and it is designed to maximize engine tilt when used with Dometic steering cylinders.

Features :

- 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 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



Standard Jackplate Options					
Model	JP5040R*	JP5060R	JP5080R	JP5100R	JP5120R
Size	4" Setback	6" Setback	8" Setback	10" Setback	12" Setback

Note : *Accessory adapter DK4600 is required for installation of anchoring systems JP5040R

Steering Wheels



T4
PD776/01
Material : Hard black plastic
Diameter : 350mm



Tanegum
VN7360/01
Material : Black tanegum
Diameter : 360 mm



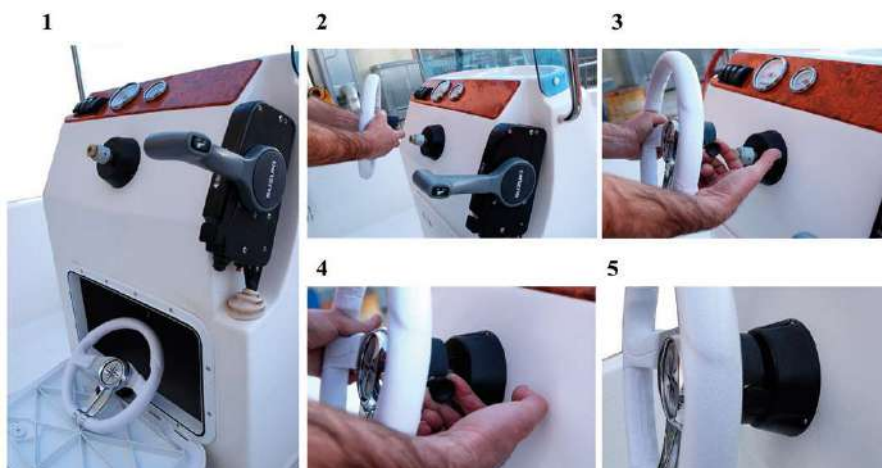
Leader Inox
VN7400/22
Material : Inox
Diameter : 400 mm

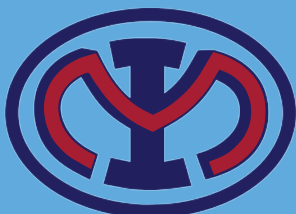


Riviera
VN8001/01
Material : Black hard plastic
Diameter : 350 mm



Mozzo Con Quick Release
9222





MARINE INTERNATIONAL PTE LTD

623 ALJUNIED ROAD, #04-10 ALJUNIED INDUSTRIAL COMPLEX,
SINGAPORE 389835

Tel : +65 64473004 | Fax : +65 6447 4110 | Email : salesinfo@marine-intl.com.sg

www.marine-intl.com.sg | www.facebook.com/MIPL2017 | Instagram : [marineintl](https://www.instagram.com/marineintl)