

SeaStar cat/pontoon steering



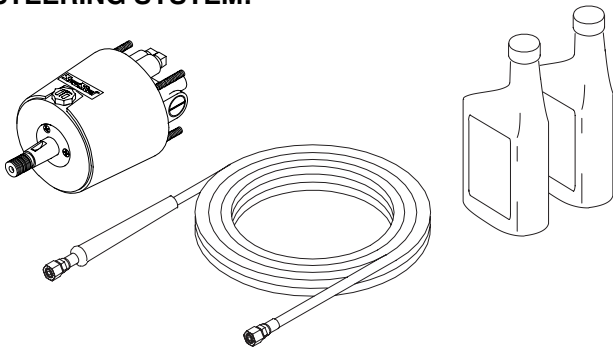
Unmatched comfort and control. Only with SeaStar, offering smooth, super-efficient steering designed for today's catamarans and pontoon boats with dual outboards up to 600 HP combined.

Applications:

The components listed in this section are ideal for outboard-powered catamarans and pontoon boats with dual non-power-assisted outboard engines up to 450 HP (600 combined HP for counter-rotating duals) that have ABYC standard engine tilt tubes.

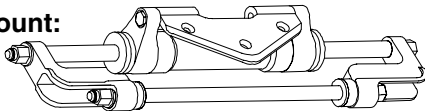
These systems are suitable for speeds up to 75 MPH and dual station use as noted (with purchase of extra helm, hose & fittings). All systems allow for independent engine tilt.

SEASTAR CATAMARAN/PONTOON STEERING SYSTEM:

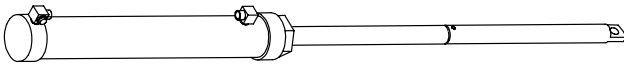


THREE BASIC CYLINDER TYPES OFFERED:

Pivot Mount:



Side Mount:



Fixed Mount:



(turns lock-to-lock vary)

DIMENSIONS: pages 160-162
HOW TO MEASURE: page 108
PARTS: pages 148-156
SUPPORT: www.teleflexmarine.com
or call 604-270-6899

NOTE: When properly installed, this steering system will connect to outboard engines with ABYC standard tilt tubes, using the engine's tiller arm (and possibly an adapter, depending on engine). Use only SeaStar outboard steering hoses (HO51/HO57 type) with SeaStar outboard steering systems. **The use of nylon tubing is not recommended for SeaStar outboard steering. For SeaStar PRO, see the "Pro Series Outboard Steering" section of this catalog.**

SeaStar *PRO*™ available!

Tilt™ STEERING available!

Features:

- Patented steering lock valves.
- Low friction hydraulic steering system.
- Configurations to suit nearly any boat
- Compact helm has only a 4-7/16" footprint — needs only 3" dash hole (Tilt requires larger hole).
- Standard 3/4" tapered steering shaft.
- Fast, easy installation.
- Meets A.B.Y.C. standards and N.M.M.A. certification requirements.

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.

3 Configurations:

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

1. 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.

2. Drag Link System (Fixed-mount cylinders required)

An HC5343/HC5374 cylinder can be used where boat design allows. This requires 2 drag links (not supplied by SeaStar) to connect the engines to the cylinder.

NOTE: To establish whether or not this type of cylinder is suitable for your application, the following points should be considered:
1.) Fore and aft alignment of cylinder. If not mounted in line, each motor will have a different turning radius. 2.) Distance between motors. 3.) Distance of travel in tilt arc. 4.) Horizontal alignment of cylinder.

3. "Hydraulic Tie Bar" System (Pivot mount or side mount cylinders and alignment valve required)

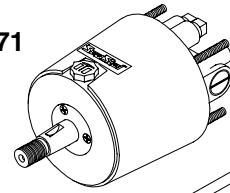
"Hydraulic Tie Bar" — SeaStar Alignment Valve may be used in conjunction with a cylinder mounted to each engine (only if a tie bar or drag links cannot be used).

NOTE: The 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. Boats exceeding 55 mph must use the SeaStar Pro Helm Pump (part #HH5770) and SeaStar Pro Kevlar® Hoses.

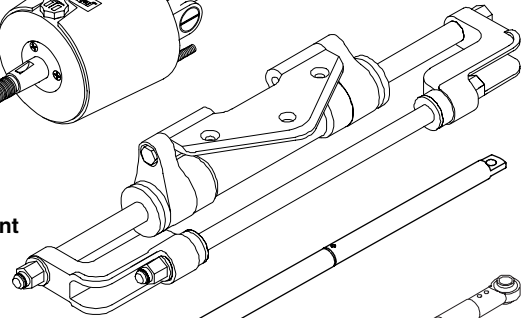
For more information about SeaStar Pontoon/Catamaran steering, order (or download) SeaStar Selection Guide, Manual #9.1 and Document #705343-A. If you have questions, please contact technical service at www.teleflexmarine.com or 604-270-6899.

CATAMARAN/PONTOON COMPONENTS:

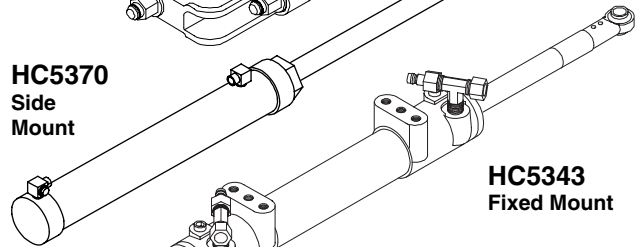
HH5271



HC5345
Pivot Mount

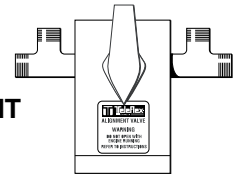


HC5370
Side Mount

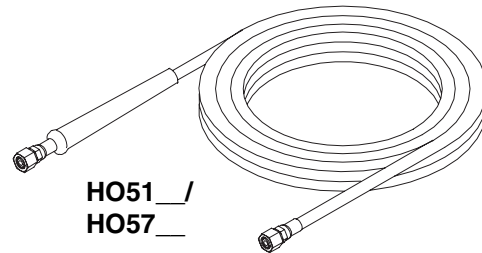


HC5343
Fixed Mount

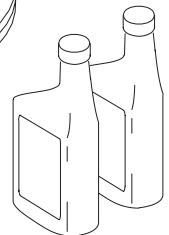
HA5471-2
ALIGNMENT
VALVE



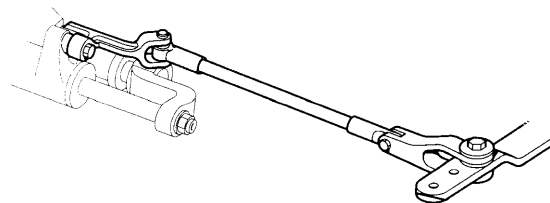
HO51_/
HO57_



HA5430
(2 shown)

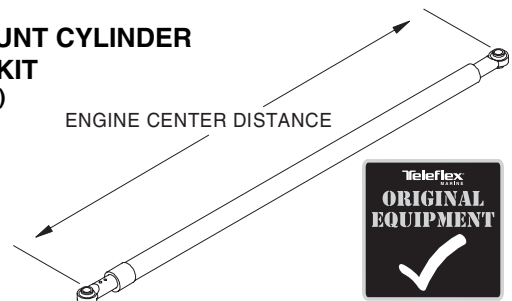


TYPICAL TIE BAR KIT FOR HC5345 FRONT MOUNT CYLINDER (HO6001/HO6002/HO6003)



HO5009
SIDE MOUNT CYLINDER
TIE BAR KIT
(all engines)

ENGINE CENTER DISTANCE



SeaStar cat/pontoon steering

Tie Bar Type System:

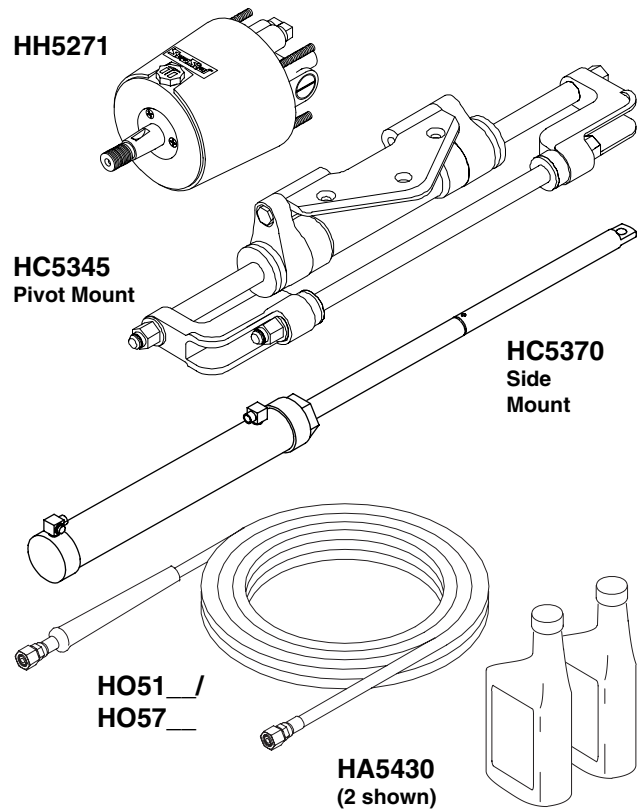
(26"-36" engine center distance required for SeaStar tie bars)

SeaStar 1.7 HelmHH5271 or
SeaStar 2.4 HelmHH5272
(2.4 Helm recommended if two cylinders are being utilized.)

Pivot Mt. Outboard Cylinder (Black) . HC5345* or
(See SeaStar Pivot Mount Application Guide earlier in this catalog
for some engines which may require HC5347, HC5348 or HC5358.
When using two HC5370 cylinders, the rods must face each other.)
Side Mount Outboard Cylinder HC5370

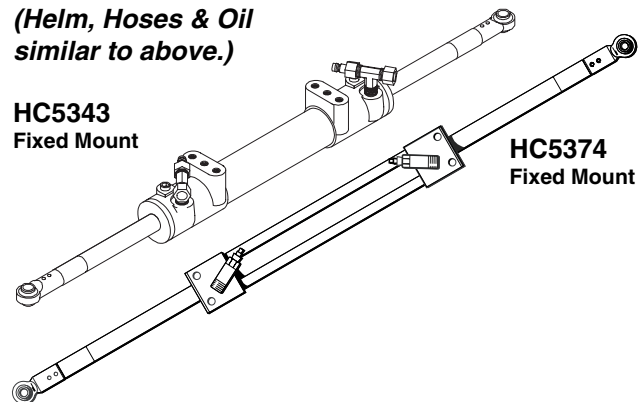
SeaStar Hose Kit (2 hoses)HO51__
SeaStar Oil
(1 Quart Mil Spec H5606).....HA5430 (x2)

Tie Bar for Pivot Mount Cylinder..... HO600_ or
Tie Bar for Side Mount CylinderHO5009
(For pivot mount cylinder, see dual engine application guide in
SeaStar pivot mount cylinder section.)



Drag Link Type System:

SeaStar 1.7 HelmHH5271
Catamaran Twin O/B Fixed Mount Cylinder
(7" wide mounting hole pattern)HC5343
Catamaran Twin O/B Fixed Mount Cylinder
(13.25" wide mounting hole pattern)..... HC5374
SeaStar Hose Kit (2 hoses)HO51__
SeaStar Oil (1 Quart).....HA5430 (x2)
Drag Link (not available from SeaStar)(x2)

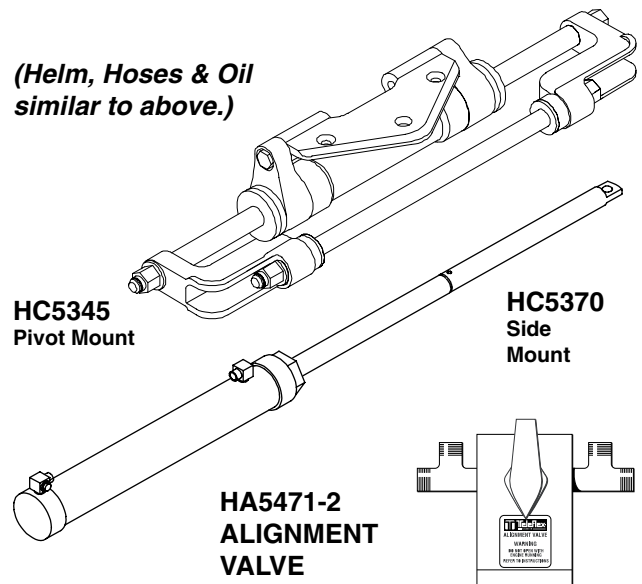


"Hydraulic Tie Bar" System (to 55 MPH):

SeaStar 1.7 HelmHH5271 or
SeaStar 2.4 HelmHH5272
(Use 2.4 Helm if two cylinders are being utilized.)

Pivot Mt. Outboard Cylinder (Black) . HC5345* or
(See SeaStar Pivot Mount Application Guide earlier in this catalog
for some engines which may require HC5347, HC5348 or HC5358.
When using two HC5370 cylinders, the rods must face each other.)
Side Mount Outboard Cylinder HC5370

Cylinder Alignment ValveHA5471-2
SeaStar Hose Kit (2 hoses)HO51__
(5 hoses are needed; using Alignment Valve diagrams, plot hose
routings and order in pairs.)
SeaStar Oil (1 Quart).....HA5430 (x3)



"Hydraulic Tie Bar" System (55 MPH+):

- SeaStar PRO Helm HH5770
- Pivot Mt. Outboard Cylinder (Black) . HC5345* *or*
(See SeaStar Pivot Mount Application Guide earlier in this catalog for some engines which may require HC5347, HC5348 or HC5358. When using two HC5370 cylinders, the rods must face each other.)
- Side Mount Outboard Cylinder HC5370
- Cylinder Alignment Valve HA5471-2
- SeaStar PRO Hose Kit (2 hoses) HO57__
(5 hoses are needed; using Alignment Valve diagrams, plot hose routings and order in pairs.)
- SeaStar Oil (1 Quart)..... HA5430 (x3)

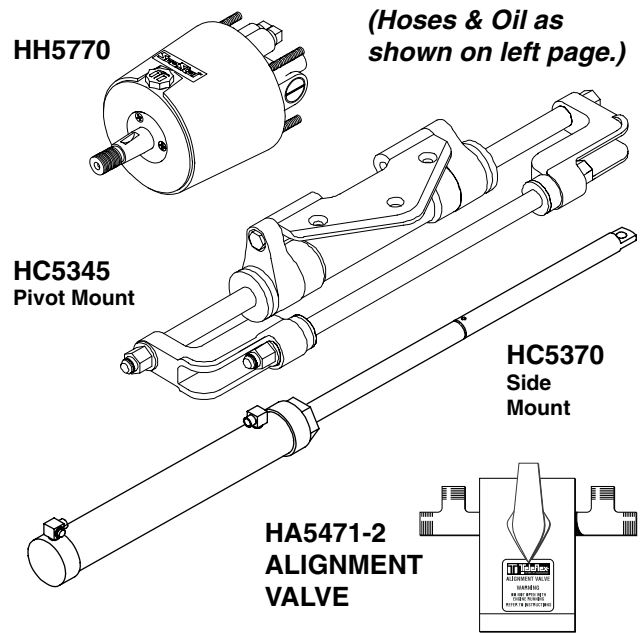
Options:

- SeaStar 1.7 Sport Tilt Helm/Mech. HH5291
- SeaStar 1.7 Traditional Tilt Helm/Mech. HH5741
- SeaStar 1.7 Rear Mount Helm HH5261
- SeaStar 2.4 Front Mount Helm..... HH5272
- SeaStar 2.4 Rear Mount Helm HH5262
- SeaStar 2.4 Sport Tilt Helm/Mech. HH5292
- SeaStar 2.4 Traditional Tilt Helm/Mech. HH5742
- SeaStar PRO Sport Tilt Helm/Mech. HH5290
- SeaStar PRO Traditional Tilt Helm/Mech HH5774
- SeaStar 1.7 Commercial Duty Helm..... HH5217
- SeaStar 2.4 Commercial Duty Helm..... HH5224
(Commercial Duty helms are designed for small Lobster and Crabbing vessels, these helms have a stainless steel shaft with heavy duty seal and wiper, which help protect the helm from the abrasive effects of sediment brought on board with traps or pots.)
- Pivot Mount Cylinder (Silver) HC53__SIL
- Pivot Mount Cylinder — PRO (Black) HC63__
- Pivot Mt. Cylinder — PRO (Red) ... HC63__RED
(Silver & PRO Pivot Mount Cylinder P/Ns: Second two digits are the same as standard black pivot mount cylinders. For example, silver equivalent of HC5345 is HC5345SIL; black PRO equivalent of HC5345 is HC6345; red PRO equivalent of HC5345 is HC6345RED. For cylinder applications, see those for HC53__ series in Pivot Mount Application Guide, earlier in this catalog.)
- SeaStar Round Bezel Kit HA5417
(Reduces helm protrusion by 3.75")
- SeaStar Backplate Kit..... HA5418
(Reduces helm protrusion by thickness of dash and allows clean retrofit of SeaStar helm where following helms were previously installed: pre-1991 SeaStar, SyTen, and mechanical rotary steering.)
- SeaStar 20° Dash Mounting Wedge Kit HA5419
- SeaStar Bulkhead Hose Kit (2 hoses) ...HO81__
(Allows through-bulkhead installation without additional fittings.)
- Add-A-Station/Autopilot Fitting Kit HF5501

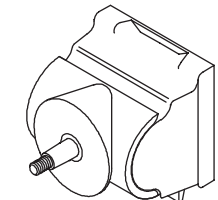
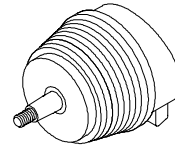
Service Items:

- SeaStar Oil (1 Gallon) HA5440
 - Steering Wheel Locknut 747521
- NOTE:** Use only SeaStar outboard steering hoses (HO51HO57 type) with SeaStar outboard steering systems. **Use of nylon tubing is not recommended for SeaStar outboard steering.**

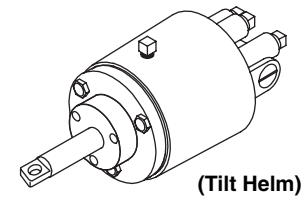
HH5770 (Hoses & Oil as shown on left page.)



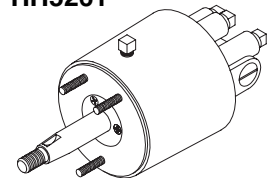
HH5291/HH5292 (includes Tilt Helm)



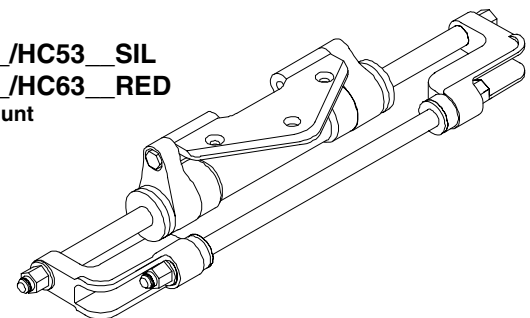
HH5741/HH5742 (includes Tilt Helm)



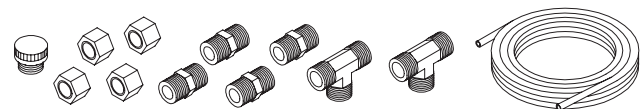
HH5261



HC53__/HC53__SIL
HC63__/HC63__RED
Pivot Mount



HF5501



747521



SeaStar cat/pontoon steering

Ordering Guide:

Catamaran/Pontoon Dual Engines

ENGINE/CYLINDER CONFIGURATION	COMPONENT DESCRIPTION	QTY. REQ'D	MODEL	PART NO.
(MECHANICAL TIE BAR SYSTEM DUAL ENGINES, SINGLE CYLINDER:)				
(SINGLE PIVOT MOUNT CYLINDER) Non-Counter-Rotating Applications to 450 HP max; Counter-Rotating Applications to 600 HP maximum. <u>NUMBER OF TURNS: 5</u>	CYLINDER	1	PIVOT MOUNT*	HC53__
	TIE BAR KIT (26-36" center distance)	1	SEE APPLICATION GUIDE***	H060__
	HELM	1	SEASTAR 1.7	HH5271
	HOSE KIT	1	OUTBOARD HOSE	H051__
	OIL	2	SEASTAR OIL (QT.)	HA5430
(SINGLE SIDE MOUNT CYLINDER) Non-Counter-Rotating Applications to 300 HP max; Counter-Rotating Applications to 600 HP maximum. <u>NUMBER OF TURNS: 4.8/5.7</u>	CYLINDER	1	SIDE MOUNT**	HC5370
	TIE BAR KIT (26-36" center distance)	1	TIE BAR ONLY	H05009
	HELM	1	SEASTAR 1.7	HH5271
	HOSE KIT	1	OUTBOARD HOSE	H051__
	OIL	2	SEASTAR OIL (QT.)	HA5430
(MECHANICAL TIE BAR SYSTEM (TWIN ENGINES, TWIN CYLINDERS:)				
(DUAL PIVOT MOUNT CYLINDERS) Non-Counter-Rotating Applications to 600 HP max; All Counter-Rotating Engine Applications <u>NUMBER OF TURNS: 7</u>	CYLINDER	2	PIVOT MOUNT*	HC53__
	TIE BAR KIT (26-36" center distance)	1	SEE APPLICATION GUIDE***	H060__
	HELM	1	SEASTAR 2.4	HH5272
	HOSE KIT	3	OUTBOARD HOSE	H051__
	FITTING KIT	1	TEE FITTINGS	HF5530
	OIL	3	SEASTAR OIL (QT.)	HA5430
(DUAL SIDE MOUNT CYLINDERS) Non-Counter-Rotating Applications to 600 HP max; All Counter-Rotating Engine Applications <u>NUMBER OF TURNS: 7.5</u>	CYLINDER	2	SIDE MOUNT**	HC5370
	TIE BAR KIT (26-36" center distance)	1	TIE BAR ONLY	H05009
	HELM	1	SEASTAR 2.4	HH5272
	HOSE KIT	3	OUTBOARD HOSE	H051__
	FITTING KIT	1	TEE FITTINGS	HF5530
	OIL	3	SEASTAR OIL (QT.)	HA5430
(DRAG LINK SYSTEM (TWIN ENGINES, SINGLE CYLINDER:)				
(SINGLE CATAMARAN CYLINDER) Non-Counter-Rotating Applications to 450 HP max; Counter-Rotating Applications to 600 HP maximum. <u>NUMBER OF TURNS: 5</u>	CYLINDER	1	CATAMARAN TYPE	HC5343
	HELM	1	SEASTAR 1.7	HH5271
	HOSE KIT	1	OUTBOARD HOSE	H051__
	OIL	3	SEASTAR OIL (QT.)	HA5430
	DRAG LINKS	2	CUSTOMER-SUPPLIED	N/A
	(SINGLE CATAMARAN CYLINDER) Non-Counter-Rotating Applications to 450 HP max; Counter-Rotating Applications to 600 HP maximum. <u>NUMBER OF TURNS: 5.5</u>	CYLINDER	1	CATAMARAN TYPE
HELM		1	SEASTAR 2.4	HH5272
HOSE KIT		1	OUTBOARD HOSE	H051__
OIL		3	SEASTAR OIL (QT.)	HA5430
DRAG LINKS		2	CUSTOMER-SUPPLIED	N/A

Recommendations shown on these two pages apply to factory stock outboards only. Modified installations may require a higher capacity steering system. If in doubt, contact our Teleflex Canada tech service for assistance. (Cylinder volume/helm displacement = number of turns.)

hydraulic steering, catamaran/pontoon outboards

Ordering Guide (continued): Catamaran/Pontoon Dual Engines

ENGINE/CYLINDER CONFIGURATION	COMPONENT DESCRIPTION	QTY. REQ'D	MODEL	PART NO.
"HYDRAULIC TIE BAR" SYSTEM TO 55 MPH (TWIN ENGINES, TWIN CYLINDERS:)				
(DUAL PIVOT MOUNT CYLINDERS) Non-Counter-Rotating Applications to 600 HP max; All Counter-Rotating Engine Applications <u>NUMBER OF TURNS: 6.7</u>	CYLINDER	2	PIVOT MOUNT*	HC53__
	TIE BAR KIT (26-36" center distance)	1	SEE APPLICATION GUIDE***	H060__
	HELM	1	SEASTAR 2.4	HH5272
	HOSE KIT	3	OUTBOARD HOSE	H051__
	ALIGNMENT VALVE	1	TIE BAR VALVE	HA5471-2
	OIL	3	SEASTAR OIL (QT.)	HA5430
(DUAL SIDE MOUNT CYLINDERS) Non-Counter-Rotating Applications to 600 HP max; All Counter-Rotating Engine Applications <u>NUMBER OF TURNS: 7.5</u>	CYLINDER	2	SIDE MOUNT**	HC5370
	TIE BAR KIT (26-36" center distance)	1	TIE BAR ONLY	H05009
	HELM	1	SEASTAR 2.4	HH5272
	HOSE KIT	3	OUTBOARD HOSE	H051__
	ALIGNMENT VALVE	1	TIE BAR VALVE	HA5471-2
	OIL	3	SEASTAR OIL (QT.)	HA5430
"HYDRAULIC TIE BAR" SYSTEM FOR 55+ MPH (TWIN ENGINES, TWIN CYLINDERS:)				
(DUAL PIVOT MOUNT CYLINDERS) Non-Counter-Rotating Applications to 600 HP max; All Counter-Rotating Engine Applications <u>NUMBER OF TURNS: 8</u>	CYLINDER	2	PIVOT MOUNT*	HC53__
	TIE BAR KIT (26-36" center distance)	1	SEE APPLICATION GUIDE***	H060__
	HELM	1	SEASTAR PRO	HH5770
	HOSE KIT	3	SEASTAR PRO HOSE	H057__
	ALIGNMENT VALVE	1	TIE BAR VALVE	HA5471-2
	OIL	3	SEASTAR OIL (QT.)	HA5430
(DUAL SIDE MOUNT CYLINDERS) Non-Counter-Rotating Applications to 600 HP max; All Counter-Rotating Engine Applications <u>NUMBER OF TURNS: 9</u>	CYLINDER	2	SIDE MOUNT**	HC5370
	TIE BAR KIT (26-36" center distance)	1	TIE BAR ONLY	H05009
	HELM	1	SEASTAR PRO	HH5770
	HOSE KIT	3	SEASTAR PRO HOSE	H057__
	ALIGNMENT VALVE	1	TIE BAR VALVE	HA5471-2
	OIL	3	SEASTAR OIL (QT.)	HA5430

NOTES:

* See SeaStar Outboard Pivot Mount Cylinder application guide earlier in this catalog for some engines which may require HC5347, HC5348 or HC5358.

** When using two HC5370 cylinders, the rods must face each other.

*** For HC5345, HC5347, HC5348 and HC5358 cylinders, tie bars vary by engine make & model (see application guide in the SeaStar Outboard Pivot Mount Cylinder section) or use engine manufacturer's tie bar.

For HC5370 cylinders, use SeaStar tie bar HO5009.

For dual engines with engine center distances from 26-36", use the appropriate SeaStar tie bar. For dual engines with center distances greater than 36", obtain longer tie bar, use HC5343/HC5374 cylinder with drag links, or use "Hydraulic Tie Bar" system with SeaStar Alignment Valve.

For speeds over 55 MPH, use SeaStar PRO helm #HH5770. (Must NOT be used with single side mount [unbalanced] cylinder.)

For information on additional steering stations or other optional helms, refer to the ordering guides in the SeaStar Outboard Pivot Mount Cylinder and/or Side Mount Cylinder steering sections.

SeaStar Power Assist (P/A) is an option for most of these systems. For SeaStar helms, use SeaStar P/A systems; for SeaStar PRO helms, use SeaStar P/A PRO systems.

HYDRAULIC STEERING SeaStar O/B

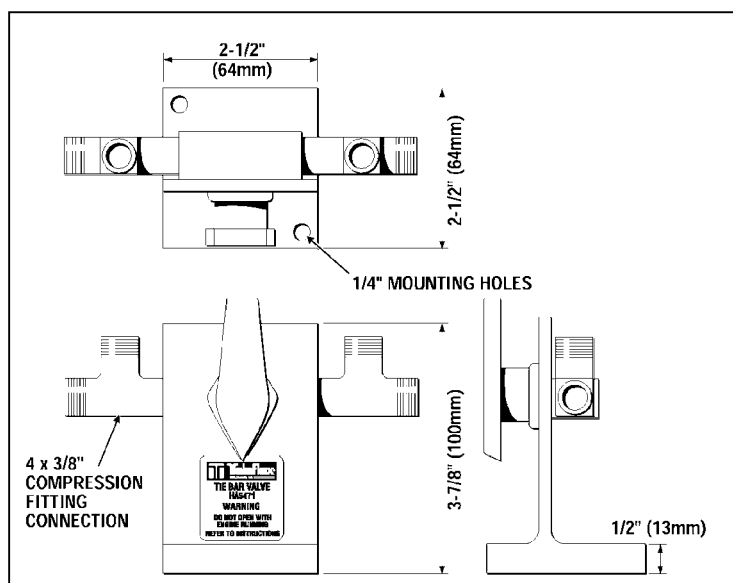


SeaStar cat/pontoon steering *Alignment Valve for "Hydraulic Tie Bar"* (when a mechanical tie bar cannot be used)

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



Bleeding Instructions:

NOTE: See diagrams at right for bleed fitting numbers.

1. Fill helm with oil and attach filler device/container to helm.
2. Open valve.
3. Open bleed fitting no. 1 and pull cylinder shaft all the way out on fitting no. 1 side of cylinder.
4. Turn steering wheel clockwise until an air free stream of oil comes forth from bleed fitting no. 1. **DO NOT ALLOW SHAFT TO MOVE BACK INTO CYLINDER. DO NOT USE A WRENCH TO HOLD SHAFT.**
5. Close bleed fitting no. 1.
6. Open bleed fitting no. 2 and pull cylinder shaft all the way out on fitting no. 2 side of cylinder.
7. Turn steering wheel counter-clockwise until an air free stream of oil comes forth from bleed fitting no. 2, then close bleed fitting no. 2.
8. Open bleed fitting no. 3 and pull cylinder shaft all the way out on fitting no. 3 side of cylinder.
9. Turn steering wheel counter-clockwise until an air free stream of oil comes forth from bleed fitting no. 3, then close bleed fitting no. 3.
10. Open bleed fitting no. 4 and pull cylinder shaft all the way out on fitting no. 4 side of cylinder.
11. Turn steering wheel counter-clockwise until an air free stream of oil comes forth from bleed fitting no. 4, then close bleed fitting no. 4.
12. Turn steering wheel back and forth from hardover to hardover a couple of times. Align cylinders by pulling cylinder rod all the way out on the same side of each cylinder and close valve.

Realignment Instructions:

Engines Toed Outwards (propellers too far apart):

1. Turn the wheel hard over to Starboard. (Both cylinders move; cylinder B reaches hard over first).
2. Open the valve.
3. Continue to turn the wheel hard over to Starboard. (Only cylinder A moves and reaches hard over).
4. Close the valve.

Engines Toed Inwards (propellers too close together):

1. Turn the wheel hard over to Port. (Both cylinders move; cylinder B reaches hard over first).
2. Open the valve.
3. Continue to turn the wheel hard over to Port. (Only cylinder A moves and reaches hard over).
4. Close the valve.

NOTE: Due to the potential for leakage across the piston seals, it is possible for the engines to get out of synchronization. We are unable to predict, due to circumstances beyond our control, the frequency that misalignment may occur, therefore **engine alignment should be checked and corrected as required before leaving the dock.**

CAUTION: Side Mount or Unbalanced Cylinders, such as SeaStar cylinder HC5370 can only be used with the valve by re-orienting the port engine tilt tube, to allow for mounting cylinder on the port (left) side of the port engine. Cylinder rods must face each other.

WARNING: The use of a standard helm at high speed (55 MPH+) or a high load, e.g.: full throttle forward/reverse, may cause a vacuum in the liquid tie bar and cause engine/rudders to misalign, resulting in momentary loss of steering control. This will not occur if a SeaStar Pro Helm Pump (part # HH5770) is used.

