do you need more information?

The following section addresses technical questions often asked about hydraulic steering. It is organized by frequency of question. If you require further assistance, please contact Teleflex Marine Tech Service as noted below.

For Technical Support of Teleflex Hydraulic Products, contact:

Teleflex Canada
3831 #6 Road
Richmond, BC V6V 1P6
Phone: 604-270-6899
FAX: 604-270-7172

For Old or Obsolete Hydraulic Products, contact:

Charmin Enterprises
107 West Harris Street
Eaton, IN 47338
(317)396-9683

For Return Shipments to Teleflex Canada, send to:

Teleflex Canada c/o Panalpina
#8 — 14th Street, Blaine, WA 98230
(this address for UPS shipments only!)

(For truck shipments outside Canada and shipments within Canada, ship directly to Teleflex Canada at address on left.)

For all shipments being returned to Teleflex Canada, you MUST obtain an RGA number prior to shipping. Failure to do so WILL substantially lengthen the time required to address your warranty claim.

The SeaStar Autopilot Interface

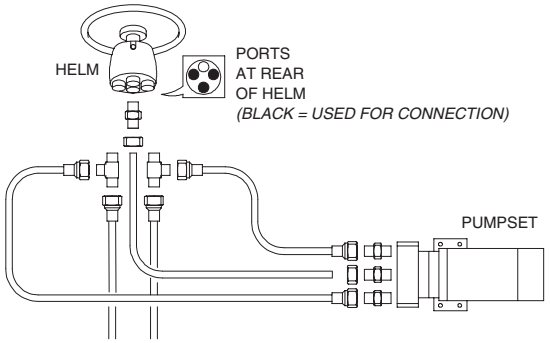
SeaStar is the best steering choice to interface with most autopilots. If you are installing an autopilot on a mechanically steered boat, we recommend you upgrade to SeaStar for performance reasons.

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. HF5530. 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:

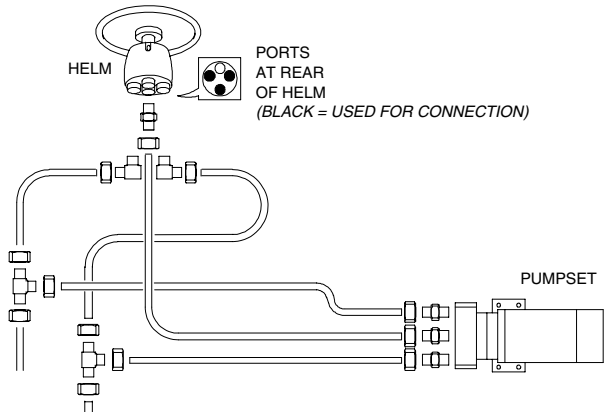
- P/N HF5512 up to 3/4" (19mm) splashwell, 1 cylinder
- P/N HF5513 up to 3" (76mm) transom, 1 cylinder
- P/N HF5514 up to 3/4" (19mm) splashwell, 2 cylinders
- P/N HF5515 up to 3" (76mm) transom, 2 cylinders

For an autopilot installation, a third (compensating) line must be installed and identified. (SeaStar helm Ports marked "R" are for the connection of additional helm and/or auto pilot compensating lines.) Use HF5501 (outboards) or HF5502 (stern drives and inboards) fitting kits when adding an autopilot to your SeaStar system.

AUTOPILOT CONNECTION: HF5501 KIT



AUTOPILOT CONNECTION: HF5502 KIT



Helm/Fittings/Hose Dimensions for SeaStar:

Helm Pump Shaft:
Taper 3/4" Standard, 1" per ft.
Threads: 5/8" NF, Key Size: 3/16"

Fittings: SeaStar outboard helm/cylinder fittings are 3/8" compression type fittings. Threads are 9/16" x 24 UNEF. A brochure on all SeaStar fittings is available from Teleflex Canada.

SeaStar & SeaStar Pro Hose:
Inside diameter: 5/16" (8 mm)

SeaStar Cylinder Model Code:

Example: "BA 175 - 7 TM B"

- ***BA*** = Balanced (*absence* of BA = unbalanced cylinder)
- ***175*** = 1.75" Bore (125 = 1.25", 150 = 1.50", 200 = 2.00")
- ***7*** = 7" Stroke (8 = 8", 9 = 9")
- ***TM*** = Trunnion Mount (EM = Engine Mount, ATM = Aluminum Body, Trunnion Mount)
- ***B*** = Rod End Ball Joint (C = Rod End Clevis)

SeaStar/BayStar/Hynautic Helm Specifications:

HELM DESCRIPTION	PART NUMBER	DISPLACEMENT CU. IN. (cc) PER REVOLUTION	RELIEF VALVE SETTING PSI (BAR)	MAXIMUM WHEEL DIA. Inches (mm)	TUBE/HOSE CONNECTION PORT SIZE
BAYSTAR - FRONT MOUNT	HH4016	1.6 (23.0)	1000 (70)	22 (558)	1/4 NPT
BAYSTAR - SPORT TILT	HH4015	1.6 (23.0)	1000 (70)	20 (508)	1/4 NPT
BAYSTAR PLUS - FRONT MOUNT	HH4514	1.7 (27.8)	1000 (70)	26 (660)	1/4 NPT
BAYSTAR PLUS - SPORT TILT	HH4513	1.7 (27.8)	1000 (70)	20 (508)	1/4 NPT
CAPILANO 1250V	HH5250	1.7-3.4 (27.8-55.7)	1000 (70)	36 (914)	3/8 NPT
CAPILANO 1275V	HH5275	2.7-5.4 (44.2-88.4)	1000 (70)	36 (914)	3/8 NPT
HYNAUTIC H-20 (3/4" SHAFT)	H-26	2.0 (33)	500 (35) or 950 (66)	32 (812)	3/8 & 1/4 NPT
HYNAUTIC H-20 (3/4" SHAFT)	H-25	2.75 (45)	500 (35) or 950 (66)	34 (863)	3/8 & 1/4 NPT
HYNAUTIC H-20 (1" SHAFT)	H-21	2.75 (45)	500 (35) or 950 (66)	34 (863)	3/8 & 1/4 NPT
HYNAUTIC H-40 (3/4" SHAFT)	H-42-02	4.0 (65.5)	500 (35) or 950 (66)	36 (914)	1/2 & 3/8 NPT
HYNAUTIC H-40 (1" SHAFT)	H-42	4.0 (65.5)	500 (35) or 950 (66)	36 (914)	1/2 & 3/8 NPT
HYNAUTIC H-40 (3/4" SHAFT)	H-41-02	5.5 (90.1)	500 (35) or 950 (66)	48 (1219)	1/2 & 3/8 NPT
HYNAUTIC H-40 (1" SHAFT)	H-41	5.5 (90.1)	500 (35) or 950 (66)	48 (1219)	1/2 & 3/8 NPT
SEASTAR 1.4 - FRONT MOUNT	HH5269	1.4 (23.0)	1000 (70)	26 (660)	1/4 NPT
SEASTAR 1.4 - REAR MOUNT	HH5260	1.4 (23.0)	1000 (70)	26 (660)	1/4 NPT
SEASTAR 1.4 - R. MT FULL FEEDBACK	HH5231	1.4 (23.0)	1000 (70)	26 (660)	1/4 NPT
SEASTAR 1.4 - R. MT. 1" STRT. SHAFT	HH5279	1.4 (23.0)	1000 (70)	26 (660)	1/4 NPT
SEASTAR 1.4 - R. MT. 1" TAPER. SHAFT	HH5280	1.4 (23.0)	1000 (70)	26 (660)	1/4 NPT
SEASTAR 1.4 - TILT	HH5744	1.4 (23.0)	1000 (70)	20 (508)	1/4 NPT
SEASTAR 1.7 - FRONT MOUNT	HH5271	1.7 (27.8)	1000 (70)	26 (660)	1/4 NPT
SEASTAR 1.7 - FRONT MT. COMMERCIAL	HH5217	1.7 (27.8)	1000 (70)	26 (660)	1/4 NPT
SEASTAR 1.7 - FT. MT. FULL FEEDBACK	HH5761	1.7 (27.8)	1000 (70)	26 (660)	1/4 NPT
SEASTAR 1.7 - REAR MOUNT	HH5261	1.7 (27.8)	1000 (70)	26 (660)	1/4 NPT
SEASTAR 1.7 - R. MT. 1" TAPER. SHAFT	HH5281	1.7 (27.8)	1000 (70)	26 (660)	1/4 NPT
SEASTAR 1.7 - SPORT TILT	HH5291	1.7 (27.8)	1000 (70)	20 (508)	1/4 NPT
SEASTAR 1.7 - TRADITIONAL TILT	HH5741	1.7 (27.8)	1000 (70)	20 (508)	1/4 NPT
SEASTAR 2.0 - FRONT MOUNT	HH5273	2.0 (33.0)	1000 (70)	26 (660)	1/4 NPT
SEASTAR 2.0 - FT. MT. FULL FEEDBACK	HH5760	2.0 (33.0)	1000 (70)	26 (660)	1/4 NPT
SEASTAR 2.0 - SPORT TILT	HH5745	2.0 (33.0)	1000 (70)	20 (508)	1/4 NPT
SEASTAR 2.0 - TRADITIONAL TILT	HH5743	2.0 (33.0)	1000 (70)	20 (508)	1/4 NPT
SEASTAR 2.4 - FRONT MOUNT	HH5272	2.4 (39.3)	1000 (70)	26 (660)	1/4 NPT
SEASTAR 2.4 - FRONT MT. COMMERCIAL	HH5224	2.4 (39.3)	1000 (70)	26 (660)	1/4 NPT
SEASTAR 2.4 - FT. MT. FULL FEEDBACK	HH5762	2.4 (39.3)	1000 (70)	26 (660)	1/4 NPT
SEASTAR 2.4 - REAR MOUNT	HH5262	2.4 (39.3)	1000 (70)	26 (660)	1/4 NPT
SEASTAR 2.4 - R. MT. 1" TAPER. SHAFT	HH5282	2.4 (39.3)	1000 (70)	26 (660)	1/4 NPT
SEASTAR 2.4 - SPORT TILT	HH5292	2.4 (39.3)	1000 (70)	20 (508)	1/4 NPT
SEASTAR 2.4 -TRADITIONAL TILT	HH5742	2.4 (39.3)	1000 (70)	20 (508)	1/4 NPT
SEASTAR PRO 1.4 - TRADITIONAL TILT*	HH5775	1.4 (23.0)	1500 (103)	20 (508)	1/4 NPT
SEASTAR PRO 1.7 - FRONT MOUNT*	HH5779	1.7 (27.8)	1500 (103)	26 (660)	1/4 NPT
SEASTAR PRO 1.7 - FT. MT. COMMERCIAL*	HH5218	1.7 (27.8)	1500 (103)	26 (660)	1/4 NPT
SEASTAR PRO 1.7 - REAR MOUNT*	HH5778	1.7 (27.8)	1500 (103)	26 (660)	1/4 NPT
SEASTAR PRO 1.7 - SPORT TILT*	HH5289	1.7 (27.8)	1500 (103)	20 (508)	1/4 NPT
SEASTAR PRO 1.7 - TRADITIONAL TILT*	HH5773	1.7 (27.8)	1500 (103)	20 (508)	1/4 NPT
SEASTAR PRO 2.0 - FRONT MOUNT*	HH5770	2.0 (33.0)	1500 (103)	26 (660)	1/4 NPT
SEASTAR PRO 2.0 - REAR MOUNT*	HH5771	2.0 (33.0)	1500 (103)	26 (660)	1/4 NPT
SEASTAR PRO 2.0 - SPORT TILT*	HH5290	2.0 (33.0)	1500 (103)	20 (508)	1/4 NPT
SEASTAR PRO 2.0 - TRADITIONAL TILT*	HH5774	2.0 (33.0)	1500 (103)	20 (508)	1/4 NPT
SEASTAR PRO 2.4 - FRONT MOUNT	HH5772	2.4 (39.3)	1500 (103)	26 (660)	1/4 NPT

** SeaStar PRO helms cannot be used with an unbalanced cylinder. SeaStar PRO Kevlar® reinforced outboard hose MUST be used with ALL SeaStar PRO helms.*

Tech Reference: Hydraulic Steering

SeaStar/BayStar/Hynautic Cylinder Specifications:

CYLINDER MODEL	PART NUMBER	BORE DIA. Inches (mm)	NOM. SHAFT DIA. Inches (mm)	STROKE Inches (mm)	AREA SQUARE Sq.In.(cm)	VOLUME CUBIC IN. (cc)	TORQUE* (SEE NOTE) In.-Lb. (Kg-M)
BAYSTAR UNITS:							
COMPACT FRONT MOUNT	HC4645/47/48/58	1.25 (31.7)	.625 (15.9)	8 (203)	0.92 (5.9)	7.4 (120.7)	N/A
CAPILANO INBOARD UNITS:							
BA150-7 (TMB/TMC)	HC5349/HC5355	1.50 (38.1)	.625 (15.9)	7 (178)	1.46 (9.4)	10.2 (167.5)	7117 (82.0)
BA175-7 (TMB/TMC)	HC5350/HC5356	1.75 (44.4)	.625 (15.9)	7 (178)	2.10 (13.5)	14.7 (240.7)	9569 (110.2)
BA-175-9TMB	HC5373	1.75 (44.5)	.75 (19.1)	9 (229)	1.96 (12.7)	17.7 (289.6)	12600 (145.5)
BA200-7 (TMB/TMC)	HC5351/HC5357	2.00 (50.8)	.75 (19.1)	7 (178)	2.70 (17.4)	18.9 (309.7)	13200 (151.0)
BA200-11 (TMB/TMC)	HC5378/HC5379	2.00 (50.8)	1.00 (25.4)	11 (279)	2.36 (15.2)	25.9 (424.7)	23140 (267.2)
HYNAUTIC INBOARD UNITS (USED IN SEASTAR, CAPILANO & HYNAUTIC SYSTEMS):							
Hynautic Ball Joint Mount	K-18	1.25 (31.7)	.625 (15.9)	7 (178)	0.92 (5.9)	6.4 (105.6)	5972 (68.8)
Hynautic Ball Joint Mount	K-19	1.25 (31.7)	.625 (15.9)	9 (229)	0.92 (5.9)	8.3 (135.7)	7685 (88.5)
Hynautic Fixed Mount	K-22****	1.50 (38.1)	.75 (19.0)	10 (254)	1.33 (8.6)	13.3 (217.2)	8990 (103.5)
Hynautic Fixed Mount	K-27****	1.50 (38.1)	.75 (19.0)	10 (254)	1.33 (8.6)	13.3 (217.2)	8990 (103.5)
Hynautic Univ. Mt. (rod side)	K-5****	1.50 (38.1)	.875 (22.2)	9 (229)	1.17 (7.5)	10.5 (171.9)	10790 (124.3)
Hynautic (piston-only side)***	K-5****				1.77 (11.4)	15.9 (260.6)	10790 (124.3)
Hynautic Pivot Mount	K-31****	2.00 (50.8)	.875 (22.2)	10 (254)	2.54 (16.4)	25.4 (416.3)	17230 (200)
Hynautic Universal Mount	K-8****	2.50 (63.5)	1.00 (25.4)	9.5 (241)	4.12 (26.6)	39.2 (641.9)	26575 (306.0)
Hynautic Universal Mount	K-9****	2.50 (63.5)	1.00 (25.4)	14.5 (368)	4.12 (26.6)	59.8 (979.8)	39850 (460.2)
SEASTAR INBOARD UNITS:							
BA125-6.25ATM	HC5311	1.25 (31.8)	.625 (15.9)	6.25 (159)	0.92 (5.9)	5.8 (94.3)	N/A
BA125-7ATM	HC5312	1.25 (31.7)	.50 (12.7)	7 (178)	1.03 (6.7)	7.2 (118.2)	5025 (57.9)
BA135-7ATM	HC5313	1.375 (34.9)	.625 (15.9)	7 (178)	1.18 (7.6)	8.2 (135.1)	5741 (66.1)
BA150-7ATM	HC5314**	1.50 (38.1)	.625 (15.9)	7 (178)	1.46 (9.4)	10.2 (167.5)	7117 (82.0)
BA150-7TM	HC5318	1.50 (38.1)	.625 (15.9)	7 (178)	1.46 (9.4)	10.2 (167.5)	7117 (82.0)
BA150-9TM	HC5369	1.50 (38.1)	.625 (15.9)	9 (229)	1.46 (9.4)	13.1 (214.7)	9375 (107.7)
BA175-7TM	HC5319	1.75 (44.4)	.75 (19.0)	7 (178)	1.96 (12.7)	13.7 (225.4)	9569 (110.2)
SEASTAR & HYNAUTIC STERN DRIVE UNITS:							
BA150-7EM	HC5326	1.50 (38.1)	.625 (15.9)	7 (178)	1.46 (9.4)	10.2 (167.5)	8853 (102.0)
BA135-8EM	HC5327	1.35 (34.3)	.625 (15.9)	8 (203)	1.12 (7.3)	9.0 (147.4)	6557 (75.5)
125-8EM/-8VEM (rod side)***	HC5328/HC5329	1.25 (31.7)	.50 (12.7)	8 (203)	1.03 (6.7)	8.2 (135.1)	7142 (82.3)
125-8EM/-8VEM (piston-only side)	HC5328/HC5329	1.25 (31.7)	.50 (12.7)	8 (203)	1.23 (7.9)	9.8 (160.8)	8505 (98.0)
BA-125-EMV	HC5330	1.25 (31.7)	.50 (12.7)	8 (203)	1.03 (6.7)	8.2 (135.1)	7142 (82.3)
92-VPS (rod side)***	HC5331	1.25 (31.7)	.50 (12.7)	8 (203)	1.03 (6.7)	8.2 (135.1)	N/A
92-VPS (piston-only side)	HC5331				1.23 (7.9)	9.8 (160.9)	N/A
BA-135-7EM	HC5332	1.375 (34.9)	.625 (15.9)	7 (178)	1.18 (7.6)	8.2 (135.1)	5741 (66.1)
Hynautic Univ. Mt. (rod side)***	K-5****	1.50 (38.1)	.875 (22.2)	9 (229)	1.17 (7.5)	11.9 (194.9)	10790 (124.3)
Hynautic (piston-only side)	K-5****				1.77 (11.5)	15.9 (260.5)	10790 (124.3)
SEASTAR OUTBOARD UNITS:							
PIVOT FRONT MOUNT	HC5345/47/48/58	1.375 (35)	.75 (19.0)	8 (203)	1.04 (6.7)	8.3 (136.7)	N/A
PIVOT FRONT MOUNT (PRO)	HC6345/47/48/58	1.375 (35)	.75 (19.0)	8 (203)	1.04 (6.7)	8.3 (136.7)	N/A
CATAMARAN O/B (FIXED MOUNT)	HC5343	1.262 (32.6)	.75 (19.0)	10 (254)	0.82 (5.3)	8.1 (132.6)	N/A
CATAMARAN O/B (FIXED MOUNT)	HC5374	1.5 (38.1)	.75 (19.0)	10 (254)	1.33 (8.6)	13.3 (217.2)	N/A
SIDE MOUNT (rod side)***	HC5370	1.25 (31.7)	.50 (12.7)	8 (203)	1.03 (6.7)	8.2 (135.2)	N/A
SIDE MOUNT (piston-only side)	HC5370				1.23 (7.9)	9.8 (160.8)	N/A
SPLASHWELL MT. (rod side)***	HC5380***	1.25 (31.7)	.50 (12.7)	9 (228)	1.03 (6.7)	9.3 (152.1)	N/A
SPLASHWELL MT. (piston-only side)	HC5380				1.23 (7.9)	11.0 (180.9)	N/A
FRONT MT.-STD. (OBS.)	HC5340/42	1.262 (32.6)	.75 (19.0)	10 (254)	0.81 (5.2)	8.1 (132.6)	N/A
FRONT MT.-COMPACT (OBS.)	HC5365	1.338 (34.0)	.75 (19.0)	7 (178)	0.97 (6.2)	6.7 (110.6)	N/A
SEASTAR JET DRIVE UNITS:							
BA125-3ATM	HC5303	1.25 (31.8)	.625 (15.9)	3 (76)	0.92 (5.9)	2.8 (45.2)	N/A

Theoretical torque about pivot point at 35 degrees articulation with 1,000 PSI (70 BAR) system pressure, except as noted (****).
*** Also used in some stern drive applications.*
**** These area and volume calculations are for unbalanced cylinders. The piston surface areas/displacements are different on each side of the cylinder, since one end has a rod and piston (less surface area) and the other end has only a piston (more surface area). The lower sets of numbers are for the cylinder side with piston and rod (shaft). The higher sets of numbers are for the piston-only side of the cylinder.*
***** Theoretical torque about pivot point at 35 degrees articulation with 950 PSI (66 BAR) system pressure.*

Power Steering Cylinder Specifications:

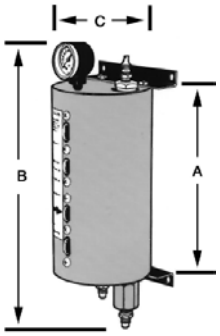
CYLINDER MODEL	PART NUMBER	BORE DIAMETER Inches (mm)	NOMINAL SHAFT DIAMETER Inches (mm)	STROKE Inches (mm)	VOLUME CUBIC IN. (cc)	OUTPUT FORCE Ft.-Lbs. (N)	TORQUE (SEE NOTE) In.-Lb. (Nm)
SINGLE 9" STROKE x1	HC5801-2	2.00 (51)	1.00 (25.4)	9 (229)	21.25 (348)	2,946 (13090)	18,900 (2,130)
SINGLE 11" STROKE x1	HC5803-2	2.00 (51)	1.00 (25.4)	11 (280)	25.9 (425)	2,946 (13090)	23,140 (2,610)
SINGLE 9" STROKE x1	HC5805-2	2.50 (64)	1.00 (25.4)	9 (229)	37.11 (608)	5,154 (22926)	33,065 (3,736)
TWIN 9" STROKE x2	HC5802	2.00 (51)	1.00 (25.4)	9 (229)	42.50 (697)	5,892 (26,190)	37,800 (4,260)
TWIN 11" STROKE x2	HC5804	2.00 (51)	1.00 (25.4)	11 (280)	51.80 (850)	5,892 (26,190)	46,280 (5,220)
TWIN 9" STROKE x2	HC5806	2.50 (64)	1.00 (25.4)	9 (229)	74.33 (1216)	10,308 (45,852)	66,130 (7,472)

NOTE: *Theoretical torque about pivot point at 35 degrees articulation with 1,000 PSI (70 BAR) system pressure.*

Hynautic Reservoir & Relief Valve Specifications:

Reservoirs

Made of T-6061 aluminum, reservoirs are pressure tested for a minimum of 100 hours, and shipped complete with front-reading pressure gauge, fluid level indicator, and return line filter.



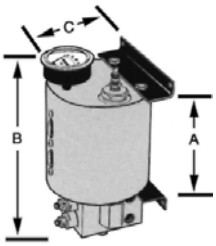
(R-06 shown)

RESERVOIR DIMENSIONS & SPECIFICATIONS:

	DIMENSIONS			SPECIFICATIONS		
Model No.	A	B	C	Capacity (Qt)	Optl.Hand Pump	Special Notes
R-06	9-1/2"	13-5/8"	4-7/8"	2	No	Standard Model
R-07	9-1/2"	14-5/8"	4-7/8"	2	Yes	-
R-11	6"	10-5/8"	4-7/8"	1	Yes	-
R-12	9-1/2"	13-5/8"	4-7/8"	2	No	-

Reservalves

The reservalve combines the function of a reservoir and relief valve into a single component.



(RV-55 shown)

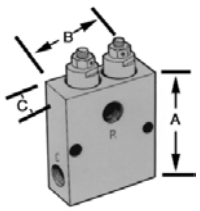
RESERVALVE DIMENSIONS & SPECIFICATIONS:

	DIMENSIONS			SPECIFICATIONS				
Model No.	A	B	C	Capacity (Qt)	Relief Setting (psi)	Optional Gauge Style	Hand Pump	Special Notes
RV-55	6"	9-1/4"	4-7/8"	1	500	Top Read	No	3/8" O.D.Tubing
RV-55P	6"	10-1/4"	4-7/8"	1	500	Top Read	Yes	3/8" O.D.Tubing
RV-57	6"	10-3/8"	4-7/8"	1	500	Top Read	Yes	5/16" O.D.Tubing
RV-60	6"	9-1/4"	4-7/8"	1	950	Top Read	No	5/16", 3/8" I.D. Hose
RV-67	6"	10-1/4"	4-7/8"	1	950	Front Read	Yes	5/16", 3/8" I.D. Hose

The relief portion of the reservalve is factory set at either 500 psi or 950 psi. Made of T-6061 aluminum, the reservalve is complete with front or top-reading gauge, fluid level indicator, and return filter. Relief valve is flow-thru style from either direction to accommodate either portside or starboard mounting.

Relief Valves

These special relief valves are factory set for either 500 psi or 950 psi. They are intended to protect the system's components and assist in purging air.



(MSV-21 shown)

RELIEF VALVE DIMENSIONS & SPECIFICATIONS:

	DIMENSIONS			SPECIFICATIONS		
Model No.	A	B	C	Setting (psi)	Relief Port Size	Special Notes
MSV-19	3-7/8"	2-1/2"	1"	500	1/4-20 NPT	-
MSV-21	3-7/8"	2-1/2"	1"	950	1/4-20 NPT	Standard model

Frequently Asked Questions

1. Why are equidistant wheels suggested for hydraulic steering?

Due to a small amount of internal hydraulic slip, a "master spoke" or "centered" steering wheel can't be maintained with hydraulic steering. For best results, use an equal distance spoke steering wheel.

Do not use a wire coil type trim switch with hydraulic steering. Wire coil can wind up tight around the steering wheel shaft and prevent further steering! Teleflex offers fingertip control with Pro Trim, a column-mounted switch, without the problem of wires wrapping around the steering column. Pro Trim PT1000P controls trim or jackplate only. Pro Trim Dual PT2000P controls both functions.

2. I've just installed a SeaStar steering system and am ready to water test the boat. What should I look for?

Before operating your boat, ensure that the following checklist is carried out:

a. Perform system pressure test by turning helm all the way to hard over and then forcing the helm another 1/4 to 1/2 turn. This should be done in both directions. This will pressurize the system. Any weakness in the system should show up at this time.

b. Confirm that extruded nylon tubing has NOT been substituted for SeaStar Hydraulic Steering Hose.

c. Confirm that there is no interference between the steering cylinder and the transom, splashwell or jackplate or any combination of these parts by performing these steps:

- With engine fully tilted, turn steering from hard over to hard over and confirm that no interference occurs. If you are using a hydraulic jack plate this also must be performed at the top and bottom position of the jack plate. (If interference is present, it must be eliminated with trim limiting switches and/or jack plate lift restrictors. Contact jack plate maker for advice if required.)
- Confirm that the steering cylinder can be stroked fully in both directions as well as full tilt and trim without stretching and/or kinking the hydraulic hoses.
- Make sure hoses are not subjected to chafing or rubbing. Stretched, kinked or chafed hose will fail over time.

Failure to comply with this checklist may result in loss of steering, causing property damage and/or personal injury.

Use only the self-locking fasteners provided; using non-locking fasteners can result in loosening or separation of equipment and loss of steering.

Please read the manuals packed with the product and keep them handy.

3. Is there anything special I need to know about SeaStar hoses and fittings?

When installing Hydraulic Hoses make sure that the bend restrictor is located at the Steering Cylinder.

Use the shortest, most convenient path for routing hoses without exceeding a minimum bend radius of 2-1/2" (6 cm), but provide sufficient hose length to allow full, uninterrupted steering motion including trim and tilt.

Route hydraulic hoses with a gradual rise from SeaStar Helm to Cylinder(s) along gunwale or builder-installed conduit.

Hydraulic hoses must be protected from chafing and should be secured wherever possible. Prevent hoses from hanging free in an area where they could become a safety hazard.

Install hoses in such a way that they will not come in contact with sharp objects such as fasteners or edges.

Leave protective fitting caps on until connection of hose fitting to helm and cylinder is complete.

Prevent mix-up in hose connections by marking one hose on both ends with tape or chalk.

Do not use nylon tubing for outboard steering installations. Use the appropriate type of hose or tubing specified by Teleflex for your type of system.

Use a pipe sealant such as Loctite P.S.T. or equivalent on all pipe threads. Do not use “tape” sealers.

Replacing our Nickel Plated brass fittings with brass or cad plated fittings may cause cylinder threads to corrode.

Refer to SeaStar installation illustrations for the correct connection of hoses from helm pump to cylinder. Note that in dual cylinder installations, hose connections to balanced cylinders are different than unbalanced models.

4. What kind of oil should I use in my SeaStar system?

Recommended oils for your steering system are: SeaStar Fluid, P/N HA5430 (1 quart), HA5440 (1 gallon). The following brands are acceptable: Chevron® Aviation Hydraulic Fluid A, Esso® Univis N15 or J13, Mobil® Aero HFA, Petro Canada Harmony HV115 (in Canada only), Shell® Aero Fluid #41, Texaco® HO15 and other fluids meeting MIL SPEC H-5606-G.

Automatic transmission fluid (Dexron II®) may be used in an emergency. Never use brake fluid. Any non-approved fluid may cause irreparable damage, loss of steering, and cancellation of warranty.

In cases of extreme emergency any nontoxic, nonflammable fluid may provide temporary steering.

Generally, 2 quarts are required for single station, single cylinder filling. Add one quart per additional station or cylinder.

Please note that *SeaStar **Capilano** systems **use Dexron II ATF**, not SeaStar steering fluid.*

5. How do I “check my oil?”

Unscrew the vent cap in your helm (***upper station*** on dual station boats).

***NOTE:** Side mount cylinders are unbalanced. **If you have a side mount cylinder, the oil level in the helm must be set with the cylinder rod fully retracted.** Failing to do so will result in an oil spill at the helm. Turning the wheel to port (left) will retract the cylinder rod).*

Helms mounted with wheel shaft completely horizontal must be filled to bottom of filler hole at all times. Do not allow oil level to drop more than 1/4" (6.3mm). For helms mounted on a 20° angle or with wheel shaft vertical, oil level should be within 1/2" (12.7mm) of hole.

Check oil level periodically. At this time the steering system must be checked for proper connections of hose, tube and fittings, possible leaks, and air removal. To do so, turn steering wheel (any on a multi-station) and pressurize very hard to port. Apply enough force to the wheel to overcome pressure relief valve. You will not harm the helm. While pressure is maintained on steering wheel, check all port (left) fittings and line connections for leaks.

If no leaks are present, the system is ready for use. If leaks are found, correct before using. Failure to correct leaks will lower system oil level and could result in loss of steering.

Repeat procedure by turning wheel to starboard. Watch the oil level in the helm pump when the steering wheel reaches either hard over position. If there is no obvious drop in oil level, air was removed. If there is an obvious drop in oil level, you are compressing air — further filling/purging is required.

(See fill and purge procedure on the following pages.)

6. I am upgrading to SeaStar steering, but have discovered that the new helm won’t cover the holes left by the old one. What should I do?

That depends on what was in the boat originally:

a. **If you are upgrading from Teleflex rotary mechanical steering** (Safe-T, Big-T or rotary NFB), **pre-1991 SeaStar** (with square mounting flange) **or SyTen**, you will need to **purchase a HA5418 Back Plate Kit**. This will cover the old holes and provide extra dash rigidity.

b. **If you are upgrading from Teleflex Rack & Pinion or Morse mechanical steering**, you will have to **enlarge the dash holes** to accommodate the new helm. **You may also need to purchase the HA5405 Backing Ring Kit** to increase dash rigidity.

Frequently Asked Questions, continued:

7. I notice that unbalanced cylinders (like the HC5370 outboard side mount) have a different number of turns to hard over in each direction. Why is this so?

The answer is in the design of an unbalanced cylinder.

When the helm is turned one turn, a certain volume of fluid is pumped into the cylinder.

On one side of an unbalanced cylinder piston is a rod, which reduces the effective cylinder volume.

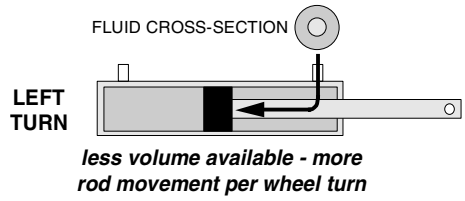
The cylinder area on the other side of the piston has no rod, thus more volume available for fluid pumped in from the helm.

The piston side with the rod will move farther per turn of the wheel (less turns to hard over) because less space is available for the fluid than the side with no rod.

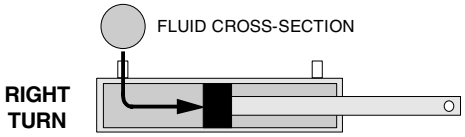
A balanced cylinder has a rod on each side of the piston, so will move equally to either side per wheel turn to that side.

(See diagram.)

UNBALANCED CYLINDER:

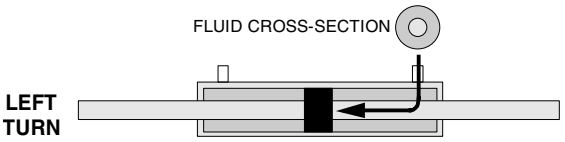


less volume available - more rod movement per wheel turn

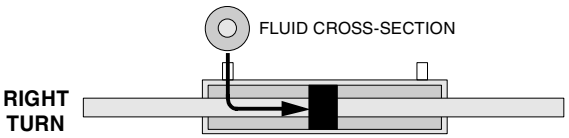


more volume available - less rod movement per wheel turn

BALANCED CYLINDER:



equal volume available - equal rod movement per wheel turn



equal volume available - equal rod movement per wheel turn

Routine Maintenance Tips:

SeaStar steering maintenance requirements will vary, depending on usage of the boat and climate. Bi-annual inspection by a qualified marine mechanic is required.

1. Remove, clean and grease the tilt tube annually with quality marine grease such as OMC® Triple Guard, Quicksilver® Anticorrosion, Yamaha® Marine Grease or equivalent. Lubricate cylinder support rod, support bracket holes and all moving parts.
2. Check the steering fluid level in the helm, it should be maintained at no less than 1/2" below the bottom of the filler cap threads.
3. Replace any hoses showing signs of wear and remove the cause or re-route hoses. Check fittings and seal locations for leaks or damage and service as necessary.
4. If you have installed a jack plate make sure that there isn't any interference between the jack plate and your steering cylinder. If there is interference, it may occur during full tilt. Lift restrictors or a Tilt Stop Switch should be installed. Please consult engine manufacturer.

Failure to comply with maintenance checks may result in loss of steering, causing property damage and/or personal injury.

Oil Level & System Check:

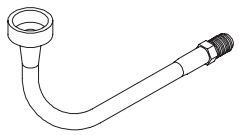
Helm mounted with wheel shaft completely horizontal must be filled to bottom of filler hole at all times. Do not allow oil level to drop more than 1/4" (6.3 mm). Helms mounted on a 20-degree angle or with the wheel shaft vertical should have an oil level within 1/2" (12.7 mm) of hole.

Check oil level periodically. At this time the steering system should be checked for proper connections of hose, tube and fittings, possible leaks, and the need for air removal from the system.

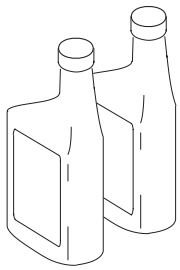
To do so, turn steering wheel (any one on a multi-steering station) and pressurize very hard to port. Apply enough force to the wheel to exceed pressure relief valve pressure. You will not harm the helm or the system. While pressure is maintained on steering wheel, check all port (left) fittings and line connections. Repeat procedure by turning wheel to starboard. Watch the oil level in the helm pump when pressurizing the steering wheel in either hard over positions.

If there is no obvious drop in oil level, air was removed.

SEASTAR HELM FILL KIT HA5438



SEASTAR OIL 1 QT.HA5430
(2 shown)



If there is an obvious drop in oil level, you are compressing air and further filling and purging is required. Follow Steps 1 through 5 as shown on the next page.

If no leaks are obvious, your steering system is ready for use.

If leaks are found, correct before using. Failure to correct a leak can lower the oil level in system, resulting in loss of steering.

SeaStar Fill & Purge Procedure:

READ FIRST: These instructions show how to fill and purge a Single Station Front Mount Cylinder system. The same steps apply to Single Station Side Mount systems, the difference being which bleeder to open and close and the direction the cylinder rod moves. These variations are inset diagrams on the left at each step. For dual station and/or dual cylinder filling and purging instructions, see the bottom of the next page, then proceed with Steps 1 through 5.

This procedure requires two people. One person may not be able to remove all the air from the system, which will mean spongy, unresponsive steering. *(This is the manual air removal procedure; SeaStar Power Purge and Power Purge Jr. bleeding systems make this task much more efficient.)*

During the entire filling procedure, oil ***must*** be visible in the filler tube. ***Do not*** allow the oil level to disappear into the helm— this may introduce air into the system and increase your filling time.

HYDRAULIC OIL REQUIREMENTS: two quart bottles for single station and single cylinder systems. One additional bottle for each additional helm, cylinder, or auto pilot.

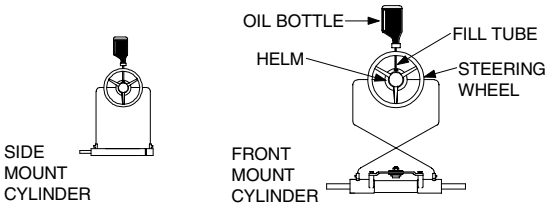
NOTE: *These instructions will result in hydraulic oil flushed in and out of the system. Oil can be re-used if filtered through a fine mesh screen such as the kind used for gasoline. If unable to filter oil, an additional bottle of oil is required. "Bleeder" may refer to cylinders with either bleed tee fittings or bleed screws. If fitted with bleed tee fitting, open bleeder by unscrewing bleed nipple nut two turns. If cylinder is fitted with bleed screws, open bleeder by removing bleed screw completely. Just loosening bleed screw will not cause sufficient oil flow to purge system. (Helm filling can be done faster if oil is poured into the helm prior to connecting filler tube and oil bottle.)*

(continued on next page)

SeaStar Fill & Purge, Single Station - One Cylinder

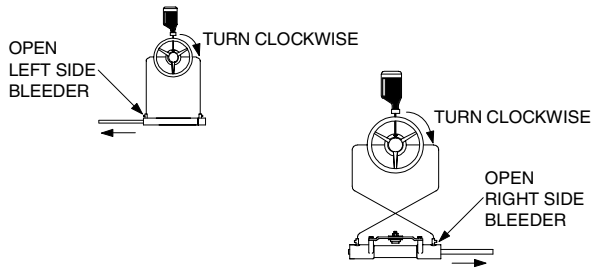
Step 1: Screw the threaded end of the filler tube into the helm filler hole. Remove the cap from the oil bottle and holding upright, screw into the filler tube bottle cap. Turn bottle upside down and poke hole in the bottom of the bottle. Fill the helm pump full of oil ***(oil should always be visible in the filler tube)***. Use the next bottle at any time throughout the procedure when the oil level drops in the filler tube. Do not proceed with Step 2 until helm is full of oil.

STEP 1



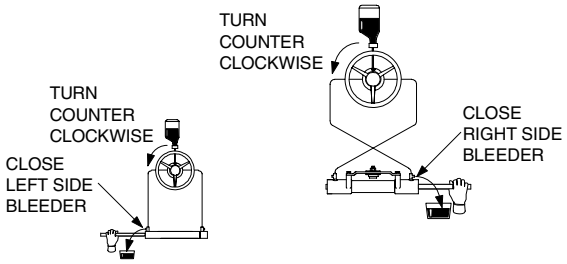
Step 2: Turn the steering wheel clockwise until cylinder rod is fully extended on the right side of the cylinder. Open right side bleeder.

STEP 2



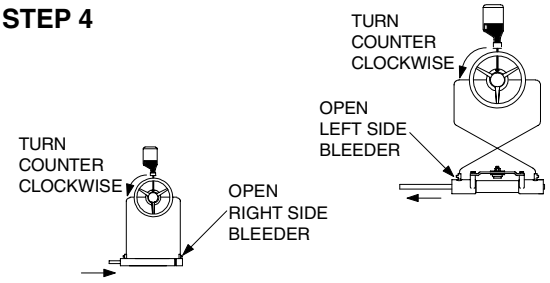
Step 3: Holding the cylinder rod (to prevent it from moving back into the cylinder), turn the steering wheel counterclockwise until a steady stream of air-free oil comes out of the bleeder. (Drain out about 1/2 bottle of oil as required.) ***Use only your hands to restrain the cylinder rod. Do not use vise grips, pliers or other metal tools to stop cylinder rod from moving - these tools can damage the cylinder rod, causing leakage to occur. Ordinary hand strength is sufficient to hold the rod.*** While continuing to turn the wheel, close the right side bleeder and let go of the cylinder rod.

STEP 3



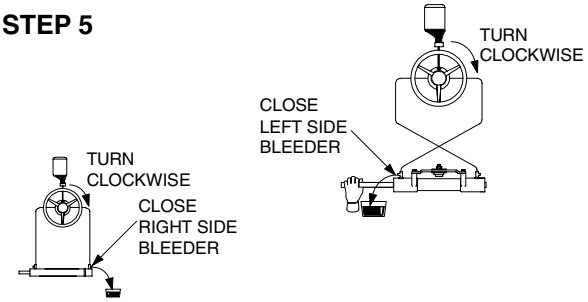
Step 4: Continue turning the steering wheel counterclockwise until the cylinder rod is fully extended to the left. (Steering wheel will come to a stop). Open the left bleeder.

STEP 4



Step 5: Holding the cylinder rod to prevent it from moving back into the cylinder, turn the steering wheel clockwise until a steady stream of air-free oil comes out of bleeder. ***Use only your hands to restrain the cylinder rod.*** While continuing to turn the wheel, close the left side bleeder and let go of the cylinder rod. Fill and purge is now complete. ***When properly bled, the number of steering wheel turns should match those on the SeaStar Ordering Guide (for single cylinder) in the section of this catalog for the cylinder type used.***

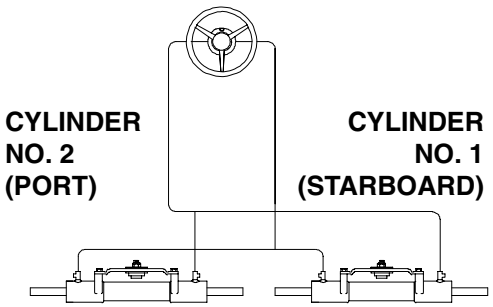
STEP 5



Fill and Purge, Dual Station, Single Cylinder

Perform Steps 1 through 5 at Station No. 1. Then repeat Steps 1 through 5 at Station No. 2. Oil requirements 4-5 bottles.

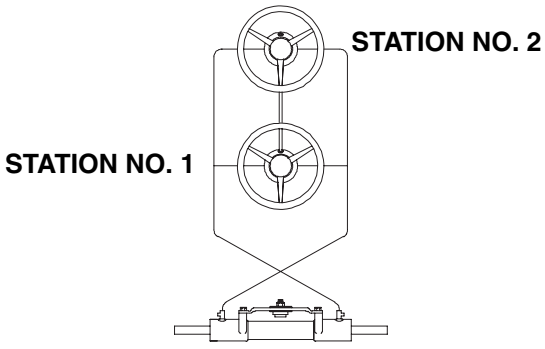
When properly bled, the number of steering wheel turns should match those on the SeaStar Ordering Guide (for single cylinder) in the section of this catalog for the cylinder type used.



Fill and Purge, Single Station, Dual Cylinder

When performing Steps 1 through 5, perform instructions in each step *first* on Cylinder No. 1 *and then* on Cylinder No. 2, before proceeding to the next step. (Perform instructions referring to "right side" of cylinder *first* on Cylinder No. 1 *and then* on Cylinder No. 2.) Oil requirements 4-5 bottles.

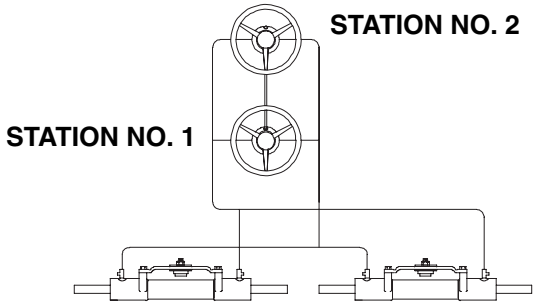
When properly bled, the number of steering wheel turns should match those on the SeaStar Ordering Guide (for dual cylinders) in the section of this catalog for the cylinder type used.



Fill and Purge, Dual Station, Dual Cylinder

Follow same procedure as shown above for single station dual cylinders, beginning at Station No. 1, and repeat entire procedure at Station No. 2.

When properly bled, the number of steering wheel turns should match those on the SeaStar Ordering Guide (for dual cylinders) in the section of this catalog for the cylinder type used.



BayStar™ Capilano™ SeaStar. Hynautic SeaStar PRO. SeaStar. POWER STEERING

U.S./Metric Conversion Chart:

UNIT	X	= UNIT
U.S. TO METRIC:		
Feet	.3048	Meters
Meters	3.2808	Feet
Cubic Inches	16.38	Cubic Centimeters
METRIC TO U.S.:		
Inches	25.4	Millimeters
Millimeters	.0394	Feet
Cubic Centimeters	.06105	Cubic Inches

Hydraulic Steering Troubleshooting Guide

WARNING: Whenever in the following text, a solution calls for removal from vessel and/or dismantling of steering system components, such work must only be carried out by a qualified marine hydraulic mechanic.

Teleflex offers the following as a guide only and is not responsible for any consequences resulting from incorrect dismantling and/or repairs.

SeaStar steering will provide years of safe reliable performance with a minimum of service if properly installed with the correct cylinder.

SeaStar systems have been designed with protection against overpressure situations by a pressure relief valve.

Sometimes when returning the wheel from hard over position, a slight resistance may be felt and a clicking sound heard. This should not be mistaken as a fault — it is a normal situation caused by release of the lockspool.

Most faults occur when the installation instructions are not followed and usually show up immediately upon filling the system.

Below are the most common faults and their likely cause and solution.

1. During filling, the helm becomes completely jammed:

a. Blockage in the line between the helm(s) and the cylinder(s).

SOLUTION: Make certain that hose has not collapsed during installation. If so, the collapsed section must be removed and refitted with a new piece with the aid of tube connectors. Check fittings for incomplete holes. Fittings with incomplete holes, however, are not common.

b. Using unbalanced (side mount) cylinder with SeaStar Pro Helm.

SOLUTION: Use balanced cylinder or Standard SeaStar Helm.

2. System is difficult to fill. Air keeps burping out top of helm even after system appears full:

a. Cylinder(s) has been mounted upside down. This causes air to be trapped in the cylinder(s).
SOLUTION: Mount cylinder(s) correctly, according to cylinder installation instruction. Ports/fittings should always be kept in uppermost position.

b. Air in system.
SOLUTION: Review filling instructions.

c. Bleed fitting leaking.
SOLUTION: Tighten bleed fitting.

d. Coiled hose.
SOLUTION: Uncoil or straighten the hose.

3. Steering is stiff and hard to turn, even when vessel is not moving:

a. Knurled adjusting nut on tilt tube over tightened.

SOLUTION: To test, disconnect cylinder(s) from the tiller arm and turn the steering wheel. If it turns easily, correct above-mentioned problems. Please note that excessively loose connections to tiller arm or tie-bar can also cause mechanical binding.

b. Restrictions in hose, tubing or fittings.

*SOLUTION: Find restriction and correct. **NOTE:** Kinked hose will cause stiff steering and should be replaced.*

c. Cylinder interfering with engine cowling.

SOLUTION: Loosen adjusting nut.

d. Air in oil.

SOLUTION: See filling/purging instructions supplied with helm units.

e. Wrong oil has been used to fill steering system, like ATF (automatic transmission fluid, or any other oil with a high viscosity factor).

SOLUTION: Drain system and fill with one of the recommended oils.

4. One helm unit in system is very bumpy and requires too many turns from hard over to hard over:

a. Dirt in helm pump's inlet check.

SOLUTION: Dismantle check valves, remove contaminant. Refer also to Fault #6.

5. Steering is easy to turn at the dock, but becomes hard to turn when vessel is underway:

a. Steering wheel is too small.

SOLUTION: Fit larger wheel if possible, see installation instructions. If the problem cannot be rectified by the above mentioned solution, proceed with next cause and solution or consult factory.

b. Incorrect setting(s) of engine(s) trim tab(s).

SOLUTION: Adjust tabs. Refer to engine manual.

Tech Support and Instruction Documents can be downloaded as Acrobat® PDF files from our web site: www.teleflexmarine.com

6. Engine drifts to port or starboard while vessel is underway, even when wheel is not being turned:

a. Dirt in check valves.

SOLUTION: Remove check valve plugs. These are the larger plugs on either side on the rear of the helm. Clean ball seats and balls and reassemble.

NOTE: Be prepared to lose a certain amount of oil during this procedure. Have a small can available. Refill & purge the system when check valves have been reassembled.

7. Turning one wheel causes second steering wheel to spin:

a. Dirt in check valves.

SOLUTION: Remove check valve plugs. These are the larger plugs on either side on the rear of the helm. Clean ball seats and balls and reassemble.

NOTE: Be prepared to lose a certain amount of oil during this procedure. Have a small can available. Refill & purge the system when check valves have been reassembled.

8. Seals will sometimes leak if steering system is not vented at uppermost helm:

a. The helm seal is worn out.

SOLUTION: The SeaStar helm has a field replaceable wheel shaft seal which can be readily replaced by removing the steering wheel and seal cover held in place by three small screws. Quad ring #210 is found in SeaStar helm seal kit Part Number HS5151.

NOTE: Seal kits are available for SeaStar cylinders, however, these must only be used by a qualified marine mechanic.

SeaStar Hose/Tubing Selection Guide:

BAYSTAR TUBING (HT44__/HT44__H)
Can be used with all BayStar helms, with appropriate fittings. Kit contains two cut lengths of tubing.

BayStar Tubing Kits:
20' kit (2 x 20' lengths tubing): HT4420/HT4420H
30' kit (2 x 30' lengths tubing): HT4430/HT4430H
(NOTE: BayStar Cylinders with H suffix must use tubing part number with H suffix.)

SEASTAR OUTBOARD HOSE KIT (HO51__*)
Includes two hoses - can be used with all SeaStar systems, except SeaStar PRO, BayStar, Capilano and 3-line inboard systems.

SEASTAR PRO OUTBOARD HOSE KIT (HO57__*)
Includes two hoses - can be used with all SeaStar systems, except BayStar, Capilano and 3-line inboard systems.

SEASTAR BULKHEAD HOSE KITS (HO81__*)
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 systems, except BayStar, Capilano and 3-line inboard.

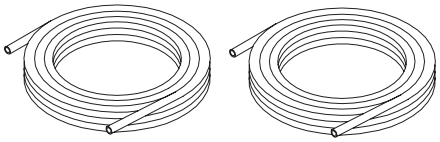
Boxed Hose Sets:
SeaStar Bulkhead Hose Kit (2 hoses): HO81__
SeaStar PRO Bulkhead Hose Kit (2 hoses): HO82__
Bulk-packed Hose Pairs:
SeaStar Bulkhead Hose Kit (2 hoses): HO83__
SeaStar PRO Bulkhead Hose Kit (2 hoses): HO84__

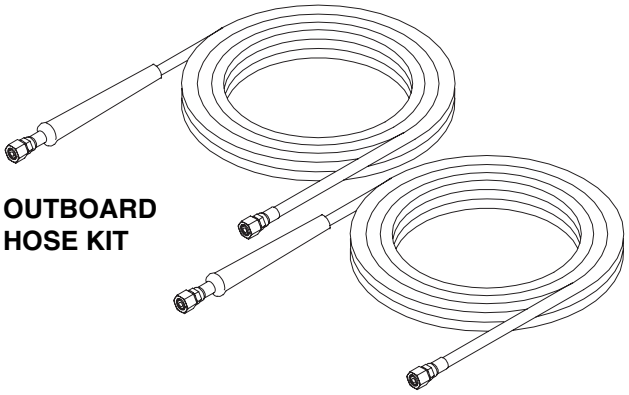
NYLON TUBING (HT5___)
Can be used with SeaStar 1.7 helms on stern drives (except with HC5332 cylinder) and small inboards with fitting kit; do not use on outboard systems.

Part #	Length x OD
HT5092	25' x 3/8"
HT5095	50' x 3/8"
HT5097	75' x 38"
HT5100	100' x 3/8"

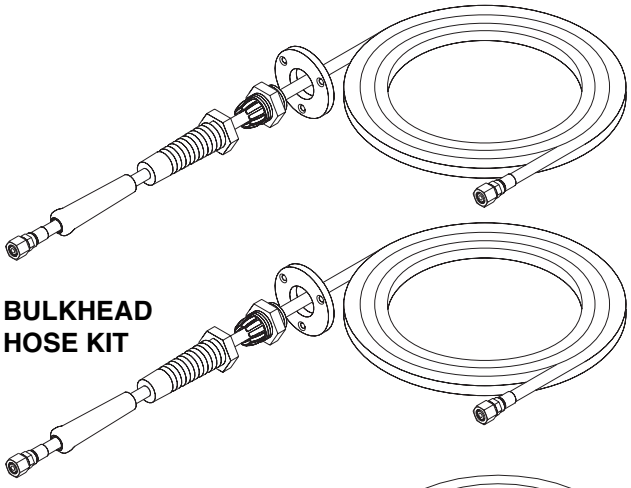
COPPER TUBING
Can be used with all SeaStar systems with fitting kit and flexible cylinder hoses, except stern drives using SeaStar 1.7 helms and/or HC5332 cylinders. Copper tubing is recommended for inboard systems; do not use on outboard systems.

BAYSTAR TUBING KIT



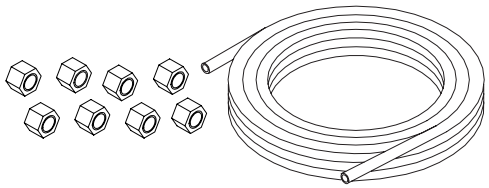


OUTBOARD HOSE KIT

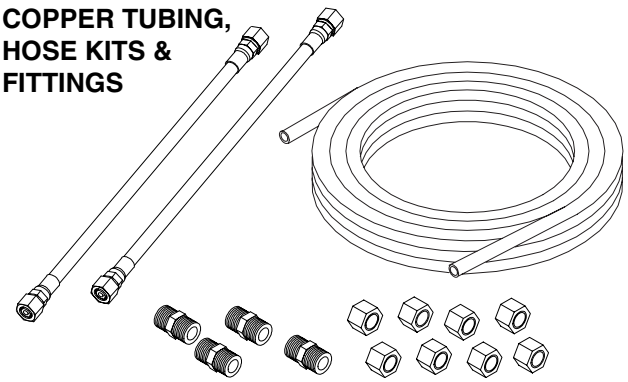


BULKHEAD HOSE KIT

NYLON TUBING & FITTINGS



COPPER TUBING, HOSE KITS & FITTINGS



** SeaStar and SeaStar Pro Hose Kits are available in lengths from 2 foot to 30 foot. 40 foot hose kits are special order only.*

The following chart lists hose or tubing requirements for BayStar, Capilano, SeaStar and Hynautic hydraulic steering systems. Purchase of additional fitting kits may be required for some installations.

STEERING TYPE	PREFERRED HOSE OR TUBING	ALTERNATE HOSE OR TUBING
BAYSTAR OUTBOARD STEERING:		
BayStar systems	BayStar Tubing Kit (HT44__/HT44__H)	NONE – USE BAYSTAR TUBING
SEASTAR OUTBOARD STEERING:		
SeaStar 1.7, 2.0, 2.4 systems	SeaStar Hose Kit (HO51__ or HO81__)	SeaStar PRO Hose Kit (HO57__ or HO82__)
SeaStar PRO systems	SeaStar PRO Hose Kit (HO57__ or HO82__)	NONE – USE ONLY SEASTAR PRO HOSE
SEASTAR STERN DRIVE STEERING:		
SeaStar 1.7 systems	SeaStar Hose Kit (HO51__ or HO81__)	SeaStar PRO Hose Kit (HO57__ or HO82__) *or* 3/8" Diameter Nylon Tubing* (HT5___)
SeaStar 2.0, 2.4 systems	SeaStar Hose Kit (HO51__ or HO81__)	SeaStar PRO Hose Kit (HO57__ or HO82__) *or* 3/8" Diameter Copper Tubing* + Hose Kit HF5508*
SEASTAR INBOARD STEERING: (descriptions of system numbers are in SeaStar Inboard Steering section)		
SeaStar systems #1, #2, #3	3/8" Diameter Nylon Tubing (HT5___)	3/8" Dia. Copper Tubing + Hose Kit HF5508 + Fitting Kit HF5507 *or* SeaStar Hose Kit (HO51__ or HO81__) *or* SeaStar PRO Hose Kit (HO57__ or HO82__)
SeaStar systems #4, #5	3/8" Diameter Copper Tubing + Hose Kit HF5508 + Fitting Kit HF5507	SeaStar Hose Kit (HO51__ or HO81__) *or* SeaStar PRO Hose Kit (HO57__ or HO82__)
SEASTAR CAPILANO & ALL HYNAUTIIC 3-LINE STEERING: (tubing diameter is based on Distance from Cylinder to Farthest Helm)		
When distance is 40 Feet or Less	1/2" O.D. Copper Tubing + Hose Kit HA5731 + Fitting Kit HF5590	1/2" O.D. Hydraulic Hose
When distance is 40 Feet or More	5/8" O.D. Copper Tubing + Hose Kit HA5731	5/8" O.D. Hydraulic Hose

** Except with the HC5332 stern drive cylinder. Use SeaStar hose only.*

Bulkhead Hoses:

Do not mount bulkhead fitting below static float plane of boat. This is not a fluid tight fitting.

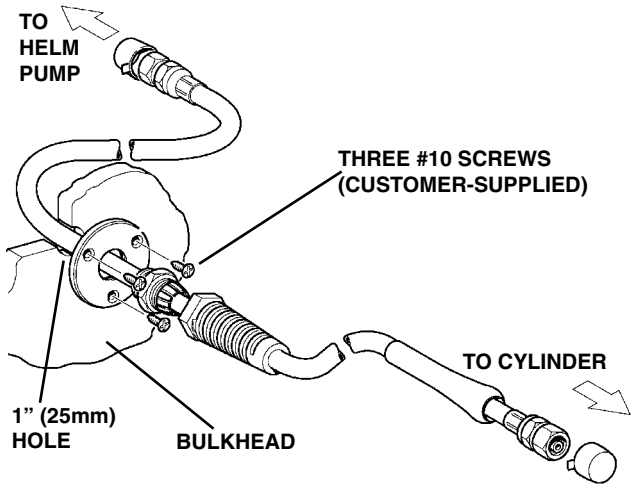
Use only SeaStar or SeaStar PRO outboard hoses with SeaStar outboard systems.

For SeaStar PRO systems, use only SeaStar PRO hoses.

NOTE: #10 screws used to mount bulkhead flanges are customer supplied.

See also *SeaStar Selection Guide* (Document #SL6001) and Document #971715.

BULKHEAD HOSE ASSEMBLY (2 PER KIT)



Hynautic-SeaStar Cross-Reference

This table indicates which SeaStar part numbers have superseded the Hynautic steering items that are no longer available.

When ordering, please refer to the appropriate SeaStar part number for the item in question.

For more specific information, please read the Advisory Notices, which can be viewed, printed and downloaded at www.teleflexmarine.com

Cylinders:

HYNAUTIC CYLINDER #	REPLACED WITH SEASTAR PART #	ADVISORY NOTICE#
K-51	HC5314HY	764626
K-1-B/C	HC5369HY/HYC	764624
K-2-B/C	HC5373HY/HYC	764625
K-3-B/C	HC5802HY/HYC	764615
K-4-B/C	HC5378HY/HYC	764616
K-10	HC5345HY	764612
K-11, K-11S, K-12	HC5380HY	764613
K-13, K-14	HC5370HY	764614

Helms - H-800 Series:

HYNAUTIC HELM #	REPLACED WITH SEASTAR PART #	ADVISORY NOTICE#
H-816	HH5271	764622
H-820	HH5273	764622
H-824	HH5272	764622

Helms - BH-800 Series:

HYNAUTIC HELM #	REPLACED WITH SEASTAR PART #	ADVISORY NOTICE#
BH-816	HH5779	764617 *(Hose MUST be replaced.)*
BH-820	HH5770	764617 *(Hose MUST be replaced.)*
BH-824	HH5772	764617 *(Hose MUST be replaced.)*

Helms - H-100 Series:

HYNAUTIC HELM #	REPLACED WITH SEASTAR PART #	ADVISORY NOTICE#
H-116	HH5260	764618
H-120	HH5261	764618
H-124	HH5262	764618

Helms - H-200 Series:

HYNAUTIC HELM #	REPLACED WITH SEASTAR PART #	ADVISORY NOTICE#
BH-216	HH5741	764619
BH-220	HH5743	764619
BH-224	HH5742	764619

Helms - H-300 Series:

HYNAUTIC HELM #	REPLACED WITH SEASTAR PART #	ADVISORY NOTICE#
H-316	HH5271	764621
H-320	HH5273	764621
H-324	HH5742	764619

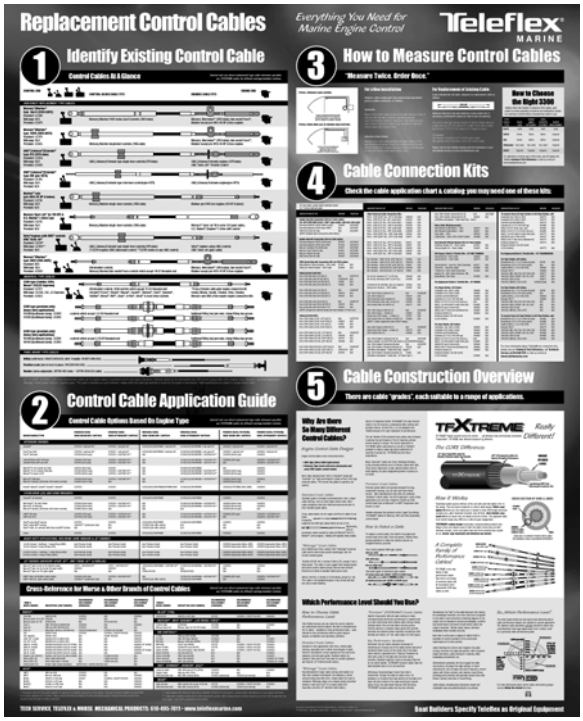
Helms - H-50 Series:

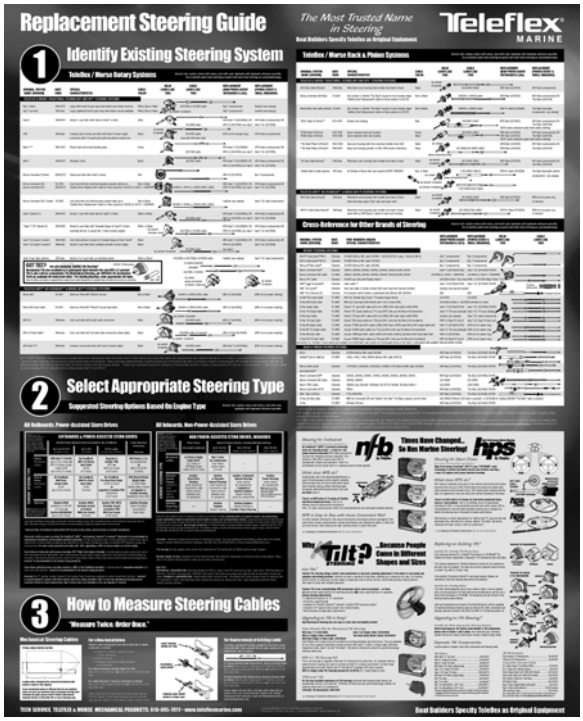
HYNAUTIC HELM #	REPLACED WITH SEASTAR PART #	ADVISORY NOTICE#
BH-50	HH5273	764623
BH-51	HH5272	764623
BH-52	HH5271	764623

Hydraulic Kits & Hose/Tubing:

HYNAUTIC KIT #	REPLACED WITH SEASTAR PART #	ADVISORY NOTICE#
KF-100	HO5035 Single HO5038A Single	764633
All Hynautic Hose/Tube	HO51XX Hose HT5XXX Tube	764632
All Hynautic Steering Kits	Misc. SeaStar Items	764631
All Hynautic Hose/Tube	SeaStar Power Steering System	764630

Tech Reference: Hydraulic Steering





If you're selling Teleflex Marine steering and controls, you'll like these posters.

Packed with useful information, they'll help you identify steering systems, control cables and replacement options at a glance!

Want one?

Contact Teleflex Marine Marketing Services at 217-324-9430 or on-line at www.teleflexmarine.com