



Photo Courtesy of Oceanline Shipyard

Jastram Model B Steering Gear

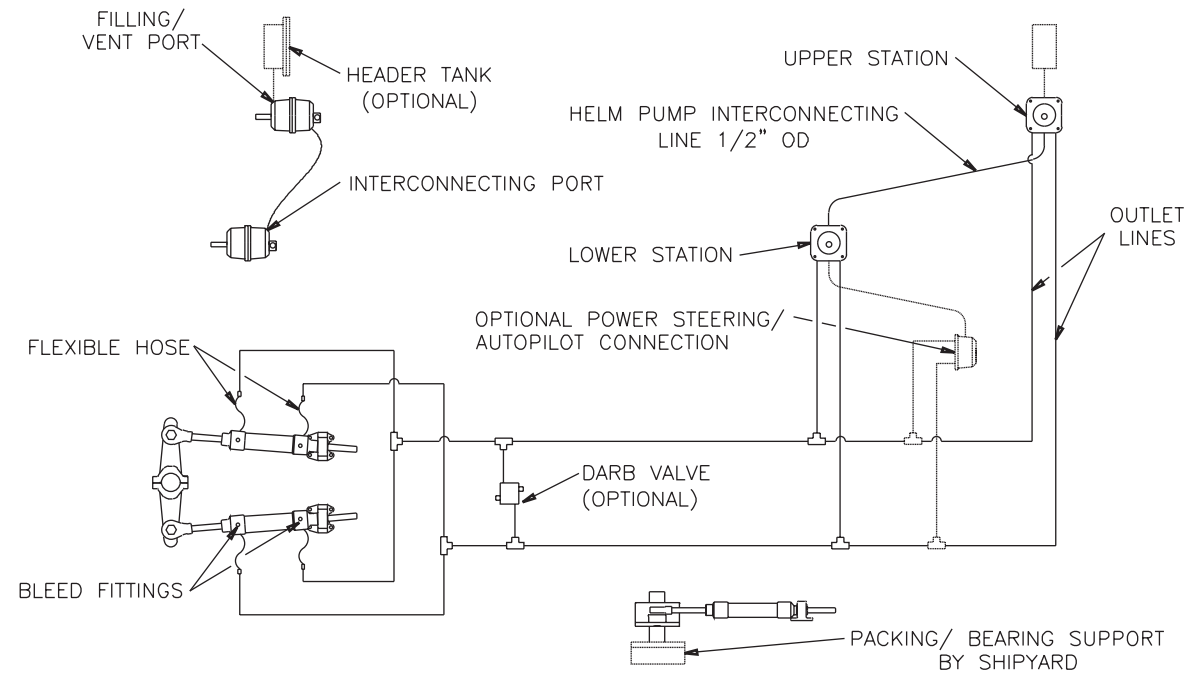
Jastram B Model Actuators are double-acting equal displacement cylinders, which are directly connected to a tiller. When the B Model is actuated it moves the tiller, which in turn moves the rudder.

The actuator sizing is primarily dependent on the maximum rudder torque required. Once the required rudder torque is known the appropriate actuator size can be selected.

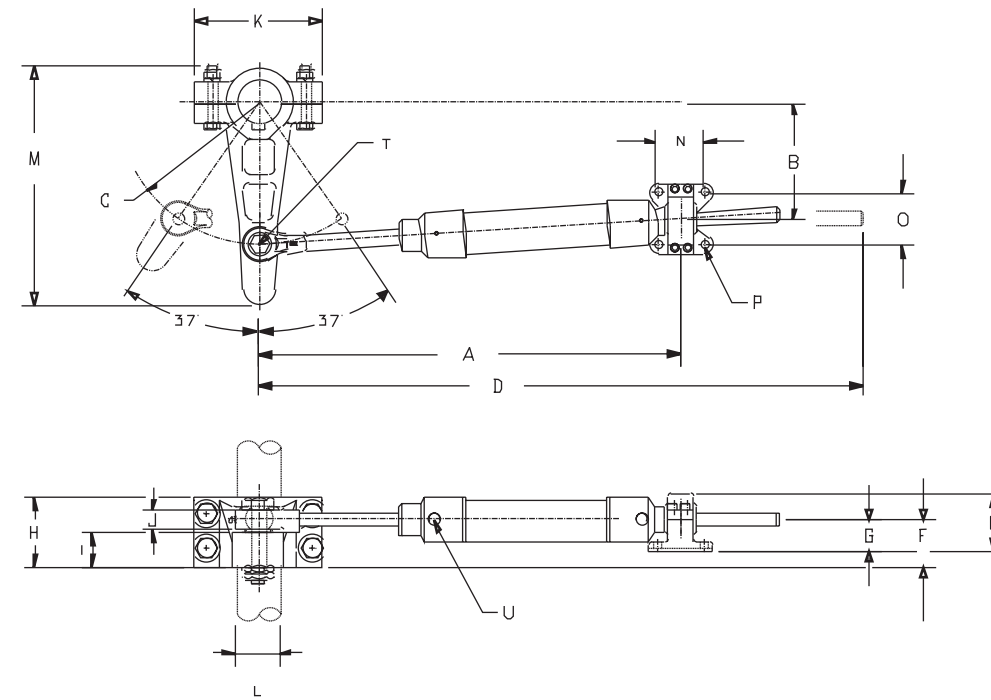
Calculating the rudder torque is complex. An incorrect calculation can result in failure of the steering system. Torque calculations should be confirmed by a naval architect or designer. For more information on actuator sizing please contact your local Jastram distributor.

Type Approved Product; see details on back page

Basic Manual Hydraulic Steering System



B Model Geometry



Actuator & Helm Pump Sizes

Part Number	Actuators		Displacement		Helm Pumps		Torque ~ 2 x 35° @1000 PSI		Max Rudder Stock Dia.	
	B Model	Qty	In ³	cm ³	Model	Wheel Turns	Lbs-Ft	N-M	In	mm
JA-101022-1	B-38-120	1	6.9	113	H20	3 1/2	391	530	1.88	48
	B-38-120	2	13.8	226	H26	5 1/2	783	1,062	1.88	48
JA-101022-2	B-38-190	1	10.9	179	H20	5 1/2	620	841	1.88	48
	B-38-190	2	21.8	358	H36	6	1,239	1,680	1.88	48
JA-101019-1	B-50-190	1	20.2	331	H36	5 1/2	1,145	1,552	1.88	79
	B-50-190	2	40.4	662	H60	6 1/2	2,291	3,106	3.13	79
JA-101019-2	B-50-300	1	31.9	523	H60	5 1/2	1,808	2,451	3.13	79
	B-50-300	2	63.8	1,046	H90	7	3,617	4,904	3.13	79
JA-101020-1	B-76-190	1	43.7	716	H60	7 1/4	2,478	3,360	3.13	79
	B-76-190	2	87.4	1,432	H90	9 3/4	4,956	6,719	3.13	79
JA-101020-4	B-76-230	1	52.9	867	H90	6	3,148	4,268	3.13	79
	B-76-230	2	105.8	1,734	H90	12	6,296	8,536	3.13	79
JA-101020-2	B-76-300	1	68.9	1,129	H90	7 1/2	3,913	5,305	3.13	79
	B-76-300	2	137.8	2,258	H90	15 1/2	7,826	10,611	3.13	79
JA-101020-3	B-76-400	1	93.4	1,531	H90	10 1/2	5,301	7,187	4.13	105
	B-76-400	2	186.9	3,062	H90	20 3/4	10,601	14,373	4.13	105

Items to note on small steering systems:

- Double Acting Relief and Bypass (DARBs) valves are suggested to protect the steering gear
- Header tanks or autofill valves are suggested to prevent the introduction of air or the loss of steering due to low oil levels
- A system pressure of around 500 PSI (35 BAR) is suggested for manual steering systems
- Shut off valves are suggested at each component in the hydraulic circuit
- Tube or pipe sizing is based on the helm pump information, see Jastram H Model Helm Pump Cutsheet for details

Jastram Actuators require the following items for installation:

- Tiller bolts
- Hoses

Jastram Actuators are serviceable. Standard seal kits are available and should be changed regularly:

- JA-950002-1, B-38 seal kit
- JA-950003-1, B-50 seal kit
- JA-950004-1, B-76 seal kit

STEERING SYSTEM SPECIFICATIONS (INCH)

ACTUATOR MODEL	A	B	C	D	E	F	G	H	I	J	K	L ^{*max}	M	N	O	P	T	U
B-38-120	15.89	3.13	3.93	21.46	2.94	1.26	1.81	1.44	0.82	0.69	5.50	1.88	10.13	3.23	1.97	0.39	0.63	SAE
B-38-190	20.02	4.96	6.21	28.46	2.94	1.26	1.81	1.44	0.82	0.69	5.50	1.88	10.13	3.23	1.97	0.39	0.63	-4
B-50-190	21.30	4.96	6.21	29.37	3.38	2.16	1.88	3.00	1.44	1.00	5.81	3.13	14.19	3.54	2.44	0.52	0.88	SAE
B-50-300	27.53	7.84	9.81	40.16	3.38	2.16	1.88	3.00	1.44	1.00	5.81	3.13	14.19	3.54	2.44	0.52	0.88	-6
B-76-190	25.35	4.96	6.21	34.55	4.95	2.94	2.83	3.00	1.44	1.50	5.81	3.13	14.19	4.52	3.74	0.64	1.25	
B-76-230	26.44	6.01	7.52	38.27	4.95	2.94	2.83	3.00	1.44	1.50	5.81	3.13	14.19	4.52	3.74	0.64	1.25	SAE
B-76-300	31.75	7.84	9.81	45.65	4.95	2.94	2.83	3.00	1.44	1.50	5.81	3.13	14.19	4.52	3.74	0.64	1.25	-8
B-76-400	37.84	10.62	13.29	55.75	4.95	2.94	2.83	3.88	1.94	1.50	7.85	4.13	18.70	4.52	3.74	0.64	1.25	

TORQUE RATING IS DETERMINED AT 1000 PSI (69 BAR) AND 35°, MAXIMUM RUDDER ANGLE 37°

STEERING SYSTEM SPECIFICATIONS (METRIC - mm)

ACTUATOR MODEL	A	B	C	D	E	F	G	H	I	J	K	L ^{*max}	M	N	O	P	T	U
B-38-120	404	80	100	545	75	32	46	37	21	17	140	48	257	82	50	10	16	SAE
B-38-190	509	126	158	723	75	32	46	37	21	17	140	48	257	82	50	10	16	-4
B-50-190	541	126	158	746	86	55	48	76	37	25	148	79	360	90	62	13	22	SAE
B-50-300	699	199	249	1020	86	55	48	76	37	25	148	79	360	90	62	13	22	-6
B-76-190	644	126	158	878	126	75	72	76	37	38	148	79	360	115	95	16	32	
B76-230	672	153	191	972	126	75	72	76	37	38	148	79	360	115	95	16	32	SAE
B-76-300	806	199	249	1160	126	75	72	76	37	38	148	79	360	115	95	16	32	-8
B-76-400	961	270	338	1416	126	75	72	98	49	38	198	105	475	115	95	16	32	

TORQUE RATING IS DETERMINED AT 1000 PSI (69 BAR) AND 35°, MAXIMUM RUDDER ANGLE 37°

*Maximum Rudder Stock Diameter

Recommended Oils:

Hydrocarbon based oils ISO grade 32, are recommended for use with the Jastram system.

WARNING: DO NOT USE TRANSMISSION OIL OR BRAKE FLUID

