



HELM PUMPS

700 SERIES

TYPE N

N MODEL

TYPE L

TYPE T

SEAL KITS

ELECTRICAL



SUMMER EQUIPMENT LTD.
REPLACEMENT PARTS - PRICE LIST

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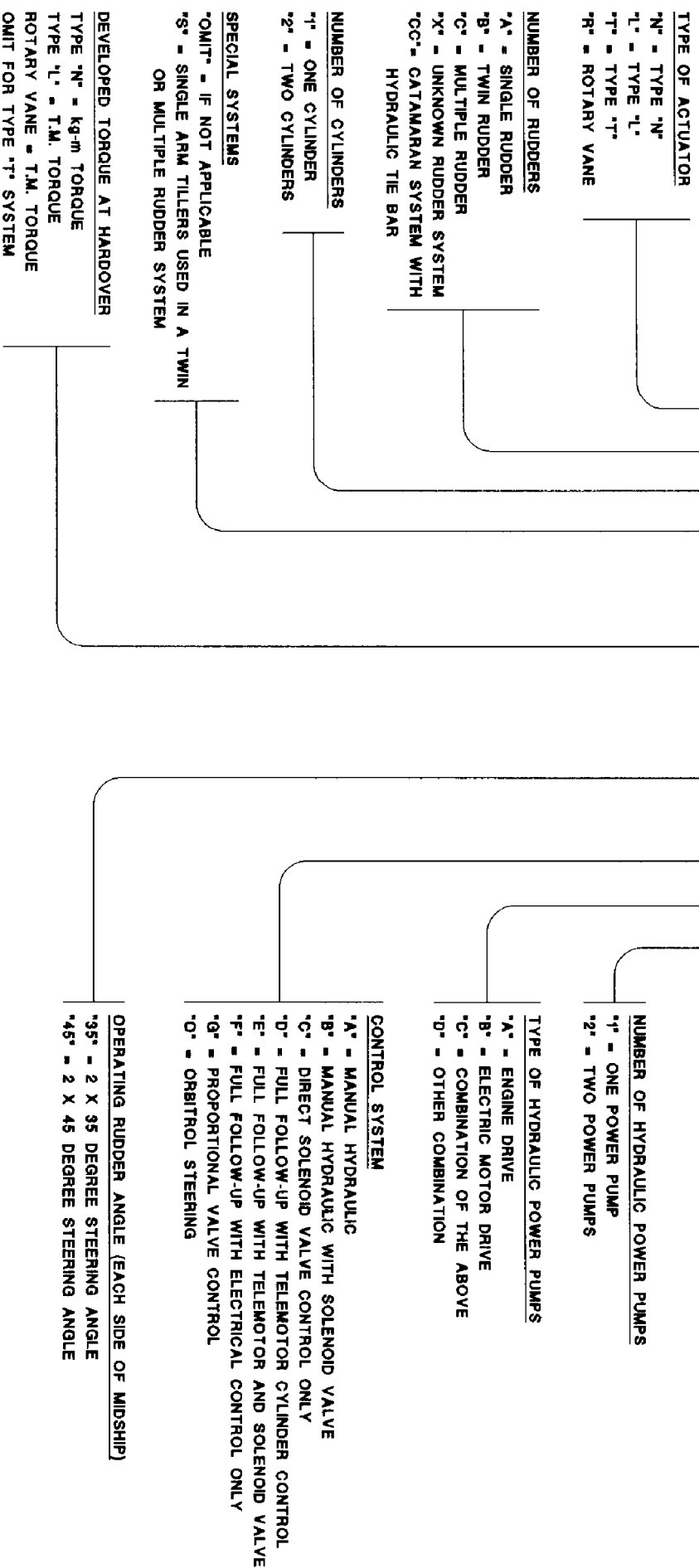
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WAGNER STEERING SYSTEM MODEL CODE DESIGNATIONS

NB2S-1260-35-BA2





WAGNER ENGINEERING Ltd.

<u>UNIT TYPE</u>	<u>MODEL</u>	<u>PAGE #</u>	<u>PART #</u>	<u>DESCRIPTION</u>
HELM PUMP	701 & 702	1-5	10-300012	Gasket
HELM PUMP	B1 & B2	1-7	10-300014	Gasket
HELM PUMP	B3 & B4	1-9	10-300015	Gasket
HELM PUMP	B1, B2, B3 + B4	1-7, 1-9	10-500009	Shaft Seal
HELM PUMP	701 & 702	1-5	10-500013	Shaft seal 19 x 30 x 7mm
CYLINDERS (TYPE 'N')	N80-190, N80-300 & N80-382	3-11	10-800006	Wear strip, cylinder head
CYLINDERS (TYPE "L")	L80-262 & L80-409	5-5	10-800006	Wear strip
CYLINDERS (TYPE "L")	L100-419 & L100-650	5-7	10-800007	Wear strip
CYLINDERS (TYPE "L")	L125-424 & L125-674	5-9	10-800008	Wear strip
CYLINDERS (TYPE 'N')	N50-190 & N50-300	3-9	10-800034	Wear strip, cylinder head
HELM PUMP	B1, B2, B3 + B4	1-7, 1-9	111-0004	Dipstick, Kit
CYLINDERS (700 SERIES)	1¼" x 7", 1¼" x 9" & 1½" x 7"	2-5	111-0005	Tilt Tube Adaptor Kit (13-7/8" rod)
HELM PUMP	B1, B2, B3 + B4	1-7, 1-9	111-0010	Hardware Kit
LOCKVALVES	3/8 (B1 & B2 HELM PUMP)	1-11	11-106006	O-Ring (1) required
LOCKVALVES	1/2 (B3 & B4 HELM PUMP)	1-11	11-106006	O-Ring (1) required
LOCKVALVES	3/8 (B1 & B2 HELM PUMP)	1-11	11-106016	O-Ring (4) required
LOCKVALVES	1/2 (B3 & B4 HELM PUMP)	1-11	11-106016	O-Ring (4) required
CYLINDERS (N MODEL)	N175-750 & N75-1000	4-7	11-206002	U-Cup, piston rod
ACTUATORS (TYPE "T")	T2	6-5	11-206004	U-Cup seal
ACTUATORS (TYPE "T")	T12 & T13	6-15	11-206005	U-Cup seal
ACTUATORS (TYPE "T")	T12B & T13B	6-17	11-206006	U-Cup seal
ACTUATORS (TYPE "T")	T3	6-7	11-206007	U-Cup seal
ACTUATORS (TYPE "T")	T4	6-9	11-206008	U-Cup seal
ACTUATORS (TYPE "T")	T14 & T15	6-19	11-206009	U-Cup seal
ACTUATORS (TYPE "T")	T5, T10 & T11	6-11, 6-13	11-206010	U-Cup seal
ACTUATORS (TYPE "T")	T18 & T19	6-21	11-206011	U-Cup seal
ACTUATORS (TYPE "T")	T20 & T21	6-23	11-206012	U-Cup seal
CYLINDERS (N MODEL)	N175-750 & N75-1000	4-7	11-206013	U-Cup, piston head
CYLINDERS (N MODEL)	N350-1200 & N350-1600	4-11	11-208002	U-cup, piston rod
CYLINDERS (N MODEL)	N400-1500 & N400-2000	4-13	11-208003	U-cup, piston head
CYLINDERS (N MODEL)	N65 & N85	4-5	11-208008	U-Cup, piston rod
CYLINDERS (700 SERIES)	1¼" x 7", 1¼" x 9" & 1½" x 7"	2-5, 2-7	11-208009	U-Cup, rod

<u>UNIT TYPE</u>	<u>MODEL</u>	<u>PAGE #</u>	<u>PART #</u>	<u>DESCRIPTION</u>	
CYLINDERS (N MODEL)	N65 & N85	4-5	11-208015	U-Cup, piston head	
CYLINDERS (N MODEL)	N250-800, N250-1000 & N250-1300	4-9	11-208016	U-cup, piston rod	
CYLINDERS (N MODEL)	N250-800, N250-1000 & N250-1300	4-9	11-208017	U-cup, piston head	
CYLINDERS (N MODEL)	N350-1200 & N350-1600	4-11	11-208018	U-cup, piston head	
CYLINDERS (N MODEL)	N400-1500 & N400-2000	4-13	11-208019	U-cup, piston rod	
ACTUATORS (TYPE "T")	T3	6-7	11-208022	U-Cup scraper	
ACTUATORS (TYPE "T")	T4	6-9	11-208023	U-Cup scraper	
ACTUATORS (TYPE "T")	T5, T10 & T11	6-11, 6-13	11-208024	U-Cup scraper	
ACTUATORS (TYPE "T")	T12 & T13	6-15	11-208025	U-Cup scraper	
ACTUATORS (TYPE "T")	T12B & T13B	6-17	11-208026	U-Cup scraper	
ACTUATORS (TYPE "T")	T14 & T15	6-19	11-208027	U-Cup scraper	
ACTUATORS (TYPE "T")	T18 & T19	6-21	11-208028	U-Cup scraper	
ACTUATORS (TYPE "T")	T20 & T21	6-23	11-208029	U-Cup scraper	
ACTUATORS (TYPE "T")	T2	6-5	11-208032	U-Cup scraper	
CYLINDERS (TYPE 'N')	N50-190 & N50-300	3-9	11-216001	U-Cup, piston rod	
CYLINDERS (TYPE 'N')	N50-190 & N50-300	3-9	11-216002	U-Cup, piston head	
CYLINDERS (TYPE 'N')	N80-190, N80-300 & N80-382	3-11	11-216004	U-Cup, piston rod	
CYLINDERS (TYPE 'N')	N40-120 & N40-190	3-5	11-216006	U-Cup, piston rod	
CYLINDERS (TYPE 'N')	N40-1-120 & N40-1-190	3-7	11-216006	U-Cup, piston rod	
CYLINDERS (TYPE 'N')	N40-120 & N40-190	3-5	11-216007	U-Cup, piston head	
CYLINDERS (TYPE 'N')	N40-1-120 & N40-1-190	3-7	11-216007	U-Cup, piston head	
CYLINDERS (TYPE 'N')	N80-190, N80-300 & N80-382	3-11	11-216008	U-Cup, piston head	
CYLINDERS (TYPE 'N')	N40-1-120 & N40-1-190	3-7	11-606017	Rod wiper	N40-1-120 & N40-1-190
SEAL KIT	700 HELM	1-5	119-0001	Seal Kit, 700 Helm (old style)	1.95 IN ³ /REV
HELM PUMP	701 & 702	1-5	119-0002	Seal kit	701 or 702
SEAL KIT	AW HELM	1-5	119-0003	Seal Kit, AW Helm	1.95 IN ³ /REV
SEAL KIT	A1W HELM	1-5	119-0004	Seal Kit, A1W Helm	3.65 IN ³ /REV
SEAL KIT	A2W HELM	1-5	119-0005	Seal Kit, A2W Helm	5.50 IN ³ /REV
SEAL KIT	CW HELM	1-5	119-0006	Seal Kit, CW Helm	7.80 IN ³ /REV
SEAL KIT	DW HELM	1-5	119-0007	Seal Kit, DW Helm	13.4 IN ³ /REV
HELM PUMP	701 & 702	1-5	119-0008	Seal kit	¼" Lockvalve
LOCKVALVES	3/8 (B1 & B2 HELM PUMP)	1-11	119-0009	Seal Kit	
CYLINDERS (N MODEL)	N65 & N85	4-5	119-0016	Seal kit;	N65 & N85
CYLINDERS (N MODEL)	N175-750 & N75-1000	4-7	119-0017	Seal kit;	N175-750 & N175-1000
CYLINDERS (N MODEL)	N250-800, N250-1000 & N250-1300	4-9	119-0018	Seal kit;	N250-800, N250-1000 & N250-1300

<u>UNIT TYPE</u>	<u>MODEL</u>	<u>PAGE #</u>	<u>PART #</u>	<u>DESCRIPTION</u>	
CYLINDERS (N MODEL)	N350-1200 & N350-1600	4-11	119-0019	Seal kit;	N350-1200 & N350-1600
CYLINDERS (N MODEL)	N400-1500 & N400-2000	4-13	119-0020	Seal kit;	N400-1500 & N400-2000
ACTUATORS (TYPE "T")	T2	6-5	119-0021	Seal kit	Note A
ACTUATORS (TYPE "T")	T3	6-7	119-0022	Seal kit	Note A
ACTUATORS (TYPE "T")	T4	6-9	119-0023	Seal kit	Note A
ACTUATORS (TYPE "T")	T5, T10 & T11	6-11, 6-13	119-0024	Seal kit	T5, T10 & T11 Note A
ACTUATORS (TYPE "T")	T12 & T13	6-15	119-0025	Seal kit	T12 & T13 Note A
ACTUATORS (TYPE "T")	T12B & T13B	6-17	119-0026	Seal kit	T12B & T13B Note A
ACTUATORS (TYPE "T")	T14 & T15	6-19	119-0027	Seal kit	T14 & T15 Note A
ACTUATORS (TYPE "T")	T18 & T19	6-21	119-0028	Seal kit	T18 & T19 Note A
ACTUATORS (TYPE "T")	T20 & T21	6-23	119-0029	Seal kit	T20 & T21 Note A
CYLINDERS (MODEL L)	SEAL KIT	7-1	119-0030	Seal kit, L35-35/17 Cylinders	
CYLINDERS (MODEL L)	SEAL KIT	7-1	119-0031	Seal kit, L40-20/22 Cylinders	
CYLINDERS (MODEL L)	SEAL KIT	7-1	119-0032	Seal kit, L55-21/28 Cylinders	
CYLINDERS (MODEL L)	SEAL KIT	7-1	119-0033	Seal kit, L70-24/32 Cylinders	
FLOW CONTROL VALVES	SEAL KIT	7-3	119-0036	Seal kit, 3/8" Manifold	
FLOW CONTROL VALVES	SEAL KIT	7-3	119-0037	Seal kit, 3/4" Flow Control	
FLOW CONTROL VALVES	SEAL KIT	7-3	119-0038	Seal kit, 1 1/4" Flow Control	
FLOW CONTROL VALVES	SEAL KIT	7-3	119-0039	Seal kit, 1/2" 4-way Control	
FLOW CONTROL VALVES	SEAL KIT	7-3	119-0040	Seal kit, 1" 4-way Control	
FLOW CONTROL VALVES	SEAL KIT	7-3	119-0041	Seal kit, 1 1/2" 4-way Control	
AUTOMATIC CHANGEOVER	SEAL KIT	7-3	119-0043	Seal kit, 1/2" 4-way Valve	
AUTOMATIC CHANGEOVER	SEAL KIT	7-3	119-0044	Seal kit, 3/4" Valve	
AUTOMATIC CHANGEOVER	SEAL KIT	7-3	119-0045	Seal kit, 1 1/2" Valve	
VALVES	SEAL KIT	7-1	119-0052	Seal kit, DG-4V3 Manifold	
VALVES	SEAL KIT	7-1	119-0053	Seal kit, DG-4S4 Manifold	
POWER FOLLOW UP	SEAL KIT	7-3	119-0062	Seal kit, 1/2" Power Follow-Up	
POWER FOLLOW UP	SEAL KIT	7-3	119-0063	Seal kit, 3/4" Power Follow-Up	
CYLINDERS (TELEMOTOR)	SEAL KIT	7-3	119-0068	Seal kit, 3" Cylinder	
CYLINDERS (TELEMOTOR)	SEAL KIT	7-3	119-0069	Seal kit, 3 1/2" Cylinder	
CYLINDERS (TYPE "L")	L80-262 & L80-409	5-5	119-0070	Seal kit;	L80-262 & L80-409 Cylinders Note A
CYLINDERS (TYPE "L")	L100-419 & L100-650	5-7	119-0071	Seal kit,	L100-419 & L100-650 Cylinders Note A
CYLINDERS (TYPE "L")	L125-424 & L125-674	5-9	119-0072	Seal kit,	L125-424 & L125-674 Cylinders Note A
CYLINDERS ("L" SERIES)	SEAL KIT	7-1	119-0073	Seal kit, L160-655/1010 Cylinders	
CYLINDERS ("L" SERIES)	SEAL KIT	7-1	119-0074	Seal kit, L200-655/1047 Cylinders	

<u>UNIT TYPE</u>	<u>MODEL</u>	<u>PAGE #</u>	<u>PART #</u>	<u>DESCRIPTION</u>
CYLINDERS (TYPE 'N')	N40-120 & N40-190	3-5	119-0082	Seal Kit; N40-120 & N40-190
CYLINDERS (TYPE 'N')	N50-190 & N50-300	3-9	119-0083	Seal Kit; N50-190 & N50-300
CYLINDERS (TYPE 'N')	N80-190, N80-300 & N80-382	3-11	119-0084	Seal kit N80-190, N80-300 & N80-382
HELM PUMP	B1, B2, B3 + B4	1-7, 1-9	119-0085	Seal Kit
RELIEF VALVES	SEAL KIT	7-3	119-0086	Seal kit, 3/4" Double Acting Relief Valve
HELM PUMP	B3 & B4	1-9	119-0087	Seal Kit, 3/4" Lockvalve (aluminum, P/N 400-0009)
VALVES	SEAL KIT	7-1	119-0088	Seal kit, uniblock #1
CYLINDERS (700 SERIES)	1 1/4" x 7" & 1 1/4" x 9"	2-5	119-0097	Seal kit, 1 1/4" cylinder x 5/8" rod
CYLINDERS (700 SERIES)	1 1/2" x 7"	2-7	119-0098	Seal kit, 1 1/2" cylinder x 5/8" rod
VALVES	SEAL KIT	7-1	119-0101	Seal kit, uniblock #2
ACCUMOTOR	SEAL KIT	7-3	119-0114	Seal kit, M10 Accumotor seal kit
SEAL KIT	AIXL HELM	1-5	119-0116	Seal Kit, A1XL Helms 3.65 IN ³ /REV
CYLINDERS (700 SERIES)	SEAL KIT	7-1	119-0129	Seal kit, "Brute" steerer
LOCKVALVES	1/2 (B3 & B4 HELM PUMP)	1-11	119-0138	Seal Kit
CYLINDERS ("A" SERIES)	SEAL KIT	7-1	119-0140	Seal kit, A - 1 1/4" x 9" Cylinder
CYLINDERS ("A" SERIES)	SEAL KIT	7-1	119-0141	Seal kit, A - 1 1/2" x 9" Cylinder
CYLINDERS ("A" SERIES)	SEAL KIT	7-1	119-0142	Seal kit, A - 2" x 9" Cylinder
CYLINDERS ("A" SERIES)	SEAL KIT	7-1	119-0143	Seal kit, A - 2 1/2" x 9" Cylinder
CYLINDERS (MODEL L)	SEAL KIT	7-1	119-0145	Seal kit, L3.0 x 10/16 Cylinders
CYLINDERS (MODEL L)	SEAL KIT	7-1	119-0146	Seal kit, L4.0 x 15/23 Cylinders
CYLINDERS (MODEL L)	SEAL KIT	7-1	119-0147	Seal kit, L5.0 x 15/24 Cylinders
CYLINDERS (TYPE 'N')	N40-1-120 & N40-1-190	3-7	119-0153	Seal Kit; N40-1-120 & N40-1-190
SEAL KIT	AX HELM	1-5	119-0157	Seal Kit, AX Helm 1.95 IN ³ /REV
ELECTRONIC PARTS		8-5	125-020	Potentiometer control - Mark 4
ELECTRONIC PARTS		8-5	130-021	Trim pot 10K - RC-5
HELM PUMP	B1 & B2	1-7	170-0024	Porting Block & Lockvalve Adaptor, Kit
ELECTRONIC PARTS		8-5	210-001	Toggle switch DPDT - spring return
ELECTRONIC PARTS		8-5	210-018	Toggle switch DPDT - maintained
HELM PUMP	B1 & B2	1-7	21-100002	Bearing
HELM PUMP	701 & 702	1-5	21-100004	Bearing
HELM PUMP	B1, B2, B3 & B4	1-7, 1-9	21-100006	Bearing
HELM PUMP	B3 & B4	1-9	21-100016	Bearing
ELECTRONIC PARTS		8-5	211-001	Shaft seal 1/4" shaft x 3/8" bushing
ELECTRONIC PARTS		8-5	211-002	Toggle seal
HELM PUMP	B3 & B4	1-9	21-200010	Bearing, shaft

<u>UNIT TYPE</u>	<u>MODEL</u>	<u>PAGE #</u>	<u>PART #</u>	<u>DESCRIPTION</u>	
JOG SWITCH		8-1	212-001	Micro switch	
LOCKVALVES	3/8 (B1 & B2 HELM PUMP)	1-11	21-300001	Ball, check	
LOCKVALVES	3/8 (B1 & B2 HELM PUMP)	1-11	21-300002	Ball, suction	(2) required
LOCKVALVES	1/2 (B3 & B4 HELM PUMP)	1-11	21-300002	Ball, suction	(2) required
HELM PUMP	B1 & B2	1-7	21-300002	Ball, Suction	
HELM PUMP	B3 & B4	1-9	21-300002	Ball, suction	
LOCKVALVES	1/2 (B3 & B4 HELM PUMP)	1-11	21-300004	Ball, check	
HELM PUMP	701 & 702	1-5	21-300004	Ball, suction	
LOCKVALVES	1/2 (B3 & B4 HELM PUMP)	1-11	21-300013	Ball, check	
CYLINDERS (700 SERIES)	1¼" x 7", 1¼" x 9" & 1½" x 7"	2-5, 2-7	21-600002	Rod end,	1/2 NF
SOLENOID CONTROL	FILTER ELEMENT	7-1	251-0004	Filter element, outlet uniblock #1	
SOLENOID CONTROL	FILTER ELEMENT	7-1	251-0005	Filter element, inlet uniblock #1 and #2	
SOLENOID CONTROL	FILTER ELEMENT	7-1	251-0008	Filter element, outlet uniblock #2	
CYLINDERS (TYPE 'N')	N40-120 & N40-190	3-5	290-0004	Tiller bolt	M16
CYLINDERS (TYPE 'N')	N40-1-120 & N40-1-190	3-7	290-0004	Tiller bolt	M16
CYLINDERS (TYPE 'N')	N50-190 & N50-300	3-9	290-0005	Tiller bolt,	M24
CYLINDERS (TYPE 'N')	N80-190, N80-300 & N80-382	3-11	290-0006	Tiller bolt	M36
CYLINDERS (TYPE 'N')	N40-120 & N40-190	3-5	290-0007	Tiller nuts	M16
CYLINDERS (TYPE 'N')	N40-1-120 & N40-1-190	3-7	290-0007	Tiller nuts	M16
CYLINDERS (TYPE 'N')	N50-190 & N50-300	3-9	290-0008	Tiller nuts,	M24
CYLINDERS (TYPE 'N')	N80-190, N80-300 & N80-382	3-11	290-0009	Tiller nuts	M36
HELM PUMP	B1 & B2	1-7	290-0016	Porting Block (¼" NPT)	
LOCKVALVES	3/8 (B1 & B2 HELM PUMP)	1-11	31-100003	Spring	
ACTUATORS (TYPE "T")	T2	6-5	31-100041	Spring coil	
ACTUATORS (TYPE "T")	T3	6-7	31-100042	Spring coil	
ACTUATORS (TYPE "T")	T4	6-9	31-100043	Spring coil	
ACTUATORS (TYPE "T")	T5, T10 & T11	6-11, 6-13	31-100044	Spring coil	
ACTUATORS (TYPE "T")	T12 & T13	6-15	31-100045	Spring coil	
ACTUATORS (TYPE "T")	T12B & T13B	6-17	31-100046	Spring coil	
ACTUATORS (TYPE "T")	T14 & T15	6-19	31-100047	Spring coil	
ACTUATORS (TYPE "T")	T18 & T19	6-21	31-100048	Spring coil	
ACTUATORS (TYPE "T")	T20 & T21	6-23	31-100049	Spring coil	
HELM PUMP	B3 & B4	1-9	31-100055	Spring, pistons	
HELM PUMP	701 & 702	1-5	31-100064	Spring, pistons	
LOCKVALVES	1/2 (B3 & B4 HELM PUMP)	1-11	31-100121	Spring	

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LOCKVALVES	1/2 (B3 & B4 HELM PUMP)	1-11	31-100122	Spring, conical	
HELM PUMP	B1 & B2	1-7	31-100132	Spring, pistons	
HELM PUMP	701	1-5	320-0010	Shaft	701
HELM PUMP	B1 & B2	1-7	320-0065	Front Plate	
HELM PUMP	B1 & B2	1-7	320-0066	Housing	
HELM PUMP	B3 & B4	1-9	320-0075	Shaft	
HELM PUMP	B3 & B4	1-9	320-0076	Front Plate	
HELM PUMP	B3 & B4	1-9	320-0077	Housing	
HELM PUMP	701 & 702	1-5	320-0115	Retainer ring nut	
HELM PUMP	701	1-5	320-0116	Housing	701
HELM PUMP	B1 & B2	1-7	320-0136	Shaft	
HELM PUMP	702	1-5	320-0148	Shaft	702
HELM PUMP	702	1-5	320-0151	Housing	702
HELM PUMP	701 & 702	1-5	320-0189	Shaft bearing, front	
HELM PUMP	701 & 702	1-5	320-0190	Shaft bearing, rear (lockvalve end)	
HELM PUMP	B1 & B2	1-7	320-0210	Bearing Shaft	
HELM PUMP	701 & 702	1-5	400-0001	¼" Lockvalve	
LOCKVALVES	3/8 (B1 & B2 HELM PUMP)	1-11	400-0002	3/8" Lockvalve	
HELM PUMP	B1 & B2	1-7	400-0002	3/8" Lockvalve	
LOCKVALVES	1/2 (B3 & B4 HELM PUMP)	1-11	400-0164	½" Lockvalve (replaces P/N 400-0009)	
HELM PUMP	B3 & B4	1-9	400-0164	½" Lockvalve (replaces P/N 400-0009)	
ELECTRONIC PARTS		8-5	410-001	Lamps 6V - Mark 4 dial drive	
CYLINDERS (TYPE 'N')	N50-190 & N50-300	3-9	41-007005	Flexible hose	
CYLINDERS (N MODEL)	N175-750 & N75-1000	4-7	41-007005	Flexible hose	
CYLINDERS (N MODEL)	N250-800, N250-1000 & N250-1300	4-9	41-007006	Flexible hose	
CYLINDERS (N MODEL)	N350-1200 & N350-1600	4-11	41-007007	Flexible hose	
CYLINDERS (N MODEL)	N400-1500 & N400-2000	4-13	41-007007	Flexible hose	
CYLINDERS (700 SERIES)	1¼" x 7", 1¼" x 9" & 1½" x 7"	2-5, 2-7	41-007025	Flexible Hose	
CYLINDERS (TYPE 'N')	N40-120 & N40-190	3-5	41-007025	Flexible hose	
CYLINDERS (TYPE 'N')	N40-1-120 & N40-1-190	3-7	41-007025	Flexible hose	
CYLINDERS (N MODEL)	N65 & N85	4-5	41-007025	Flexible hose	
CYLINDERS (TYPE 'N')	N80-190, N80-300 & N80-382	3-11	41-007100	Flexible hose	ABS & DNV
CYLINDERS (TYPE "L")	L80-262 & L80-409	5-5	41-007101	Flexible hose	ABS & DNV
CYLINDERS (TYPE "L")	L100-419 & L100-650	5-7	41-007102	Flexible hose	ABS & DNV
CYLINDERS (TYPE "L")	L125-424 & L125-674	5-9	41-007102	Flexible hose	ABS & DNV

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CYLINDERS (TYPE 'N')	N80-190, N80-300 & N80-382	3-11	41-007103	Flexible hose	LRS & BV
CYLINDERS (TYPE "L")	L80-262 & L80-409	5-5	41-007104	Flexible hose	LRS & BV
CYLINDERS (TYPE "L")	L100-419 & L100-650	5-7	41-007105	Flexible hose	LRS & BV
CYLINDERS (TYPE "L")	L125-424 & L125-674	5-9	41-007105	Flexible hose	LRS & BV
HELM PUMP	701 & 702	1-5	41-128003	Plug, plastic	
CYLINDERS (TYPE "L")	L80-262 & L80-409	5-5	41-200001	Grease nipple	
CYLINDERS (TYPE "L")	L100-419 & L100-650	5-7	41-200001	Grease nipple	
CYLINDERS (TYPE "L")	L125-424 & L125-674	5-9	41-200001	Grease nipple	
CYLINDERS (TYPE 'N')	N80-190, N80-300 & N80-382	3-11	41-332018	Elbow fitting	
CYLINDERS (TYPE 'N')	N40-120 & N40-190	3-5	41-332038	Elbow fitting	
CYLINDERS (TYPE 'N')	N40-1-120 & N40-1-190	3-7	41-332038	Elbow fitting	
CYLINDERS (TYPE 'N')	N50-190 & N50-300	3-9	41-332039	Elbow fitting	
LOCKVALVES	3/8 (B1 & B2 HELM PUMP)	1-11	420-0005	Ball Cage	
ELECTRONIC PARTS		8-5	420-001	Fuse 1/2 A	
ELECTRONIC PARTS		8-5	420-004	Fuse 5A	
LOCKVALVES	3/8 (B1 & B2 HELM PUMP)	1-11	420-0140	Ball Seat	
ELECTRONIC PARTS		8-5	450-010	Relay 24V, SPDT - "RC" Pumpset	
ELECTRONIC PARTS		8-5	450-014	Start relay 12V - 2A Pumpset	
ELECTRONIC PARTS		8-5	450-015	Start relay 24V - 2A Pumpset	
ELECTRONIC PARTS		8-5	470-048	Motor brush 12V - 2A Pumpset	
ELECTRONIC PARTS		8-5	470-049	Motor brush 24V & 32V - 2A Pumpset	
HELM PUMP	B1, B2, B3 + B4	1-7, 1-9	51-102007	Brass Key, wheel	
CYLINDERS (N MODEL)	N350-1200 & N350-1600	4-11	51-182002	Cotter pin, mounting pad pin	
CYLINDERS (N MODEL)	N250-800, N250-1000 & N250-1300	4-9	51-182002	Cotter pin, clevis pin	
CYLINDERS (TYPE 'N')	N80-190, N80-300 & N80-382	3-11	51-182004	Cotter pin, rod end	
CYLINDERS (TYPE 'N')	N40-120 & N40-190	3-5	51-182005	Cotter pin, rod end	
CYLINDERS (TYPE 'N')	N40-1-120 & N40-1-190	3-7	51-182005	Cotter pin, rod end	
CYLINDERS (N MODEL)	N65 & N85	4-5	51-182006	Cotter pin, mounting pad pin	
CYLINDERS (N MODEL)	N65 & N85	4-5	51-182006	Cotter pin, clevis pin	
CYLINDERS (N MODEL)	N175-750 & N75-1000	4-7	51-182007	Cotter pin, mounting pad pin	
CYLINDERS (N MODEL)	N175-750 & N75-1000	4-7	51-182007	Cotter pin, clevis pin	
CYLINDERS (N MODEL)	N250-800, N250-1000 & N250-1300	4-9	51-182007	Cotter pin, mounting pad pin	
CYLINDERS (TYPE 'N')	N50-190 & N50-300	3-9	51-182008	Cotter pin, rod end	
CYLINDERS (N MODEL)	N350-1200 & N350-1600	4-11	51-182011	Cotter pin, clevis pin	
CYLINDERS (N MODEL)	N400-1500 & N400-2000	4-13	51-182011	Cotter pin, mounting pad pin	

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CYLINDERS (N MODEL)	N400-1500 & N400-2000	4-13	51-182011	Cotter pin, clevis pin
LOCKVALVES	3/8 (B1 & B2 HELM PUMP)	1-11	51-209002	Capscrew, mounting (2) required
LOCKVALVES	1/2 (B3 & B4 HELM PUMP)	1-11	51-210046	Capscrew, mounting (2) required
HELM PUMP	B3 & B4	1-9	51-210046	Capscrew (2) required
HELM PUMP	701 & 702	1-5	51-279003	Screw, lockvalve mounting
ACTUATORS (TYPE "T")	T5, T10 & T11	6-11, 6-13	51-280002	Stud 3/4 NC
ACTUATORS (TYPE "T")	T2	6-5	51-280003	Stud 1/2 NC
ACTUATORS (TYPE "T")	T3 & T4	6-7, 6-9	51-280004	Stud 5/8 NC
ACTUATORS (TYPE "T")	T12, T13, T12B & T13B	6-15, 6-17	51-280005	Stud 7/8 NC
ACTUATORS (TYPE "T")	T14 & T15	6-19	51-280007	Stud 1" NC
ACTUATORS (TYPE "T")	T18 & T19	6-21	51-280010	Stud 1 1/4 NC
ACTUATORS (TYPE "T")	T20 & T21	6-23	51-280011	Stud 1 1/2 NC
CYLINDERS (TYPE 'N')	N40-120 & N40-190	3-5	51-311004	Clip, rod end
CYLINDERS (TYPE 'N')	N40-1-120 & N40-1-190	3-7	51-311004	Clip, rod end
CYLINDERS (TYPE 'N')	N50-190 & N50-300	3-9	51-311005	Clip, rod end
CYLINDERS (TYPE 'N')	N80-190, N80-300 & N80-382	3-11	51-311006	Clip, rod end
LOCKVALVES	1/2 (B3 & B4 HELM PUMP)	1-11	51-400038	Washer
LOCKVALVES	1/2 (B3 & B4 HELM PUMP)	1-11	51-430005	Lockwasher, mounting (2) required
HELM PUMP	B3 & B4	1-9	51-430005	Capscrew (2) required
ACTUATORS (TYPE "T")	T3, T4	6-7, 6-9	51-500003	Hex nut 5/8 NC
ACTUATORS (TYPE "T")	T2	6-5	51-500005	Nut 1/2 NC
ACTUATORS (TYPE "T")	T5, T10 & T11	6-11, 6-13	51-500006	Nut 3/4 NC
ACTUATORS (TYPE "T")	T12, T13, T12B & T13B	6-15, 6-17	51-500015	Nut 7/8 NC
ACTUATORS (TYPE "T")	T14 & T15	6-19	51-500016	Nut 1" NC
ACTUATORS (TYPE "T")	T18 & T19	6-21	51-500017	Nut 1 1/4 NC
ACTUATORS (TYPE "T")	T20 & T21	6-23	51-500018	Nut 1 1/2 NC
CYLINDERS (700 SERIES)	1 1/4" x 7" & 1 1/4" x 9"	2-5	51-509001	Hex nut, rod end
CYLINDERS (700 SERIES)	1 1/2" x 7"	2-7	51-509001	Hex nut, rod end
UNIVERSAL FOLLOW-UP		8-3	550-004	Swivel assembly
UNIVERSAL FOLLOW-UP		8-3	550-005	Swivel assembly (with brass block)
UNIVERSAL FOLLOW-UP		8-3	550-013	Potentiometer 1K (with gear)
ELECTRONIC PARTS		8-5	600-048	Roll pin S/S 3/32 x 1/2
ELECTRONIC PARTS		8-5	600-052	Roll pin S/S 3/32 x 5/8
ELECTRONIC PARTS		8-5	603-025	Setscrew S/S 4:40 x 1/4
ELECTRONIC PARTS		8-5	603-058	Machine screw S/S 8:32 x 5/8 PH

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ELECTRONIC PARTS		8-5	603-072	Machine screw S/S 10:24 x 1/4 PH	
ELECTRONIC PARTS		8-5	603-081	Machine screw S/S 10:24 x 3/4 FH	
ELECTRONIC PARTS		8-5	603-100	Machine screw S/S 10:24 x 5/8 FH	
ELECTRONIC PARTS		8-5	604-005	Disc lock washer 3/8	
ELECTRONIC PARTS		8-5	604-013	Washer 1/2	
ELECTRONIC PARTS		8-5	604-088	Washer S/S	
ELECTRONIC PARTS		8-7	605-002	Snap ring	
JOG SWITCH		8-1	605-003	Spring	
ELECTRONIC PARTS		8-7	605-010	Spring washer 1/2	
CYLINDERS (TYPE "L")	L80-262	5-5	610-0040	Piston rod & head sub-assembly, L80-262	Note B
CYLINDERS (TYPE "L")	L100-419	5-7	610-0041	Piston rod & head sub-assembly, L100-419	Note B
CYLINDERS (TYPE "L")	L125-424	5-9	610-0042	Piston rod & head sub-assembly, L125-424	Note B
CYLINDERS (TYPE "L")	L80-409	5-5	610-0053	Piston rod & head sub-assembly, L80-409	Note B
CYLINDERS (TYPE "L")	L100-650	5-7	610-0054	Piston rod & head sub-assembly, L100-650	Note B
CYLINDERS (TYPE "L")	L125-674	5-9	610-0055	Piston rod & head sub-assembly, L125-674	Note B
CYLINDERS (TYPE "L")	L80-262 & L80-409	5-5	610-0078	Spherical bearing assembly	
CYLINDERS (TYPE "L")	L100-419 & L100-650	5-7	610-0079	Spherical bearing assembly	
CYLINDERS (TYPE "L")	L125-424 & L125-674	5-9	610-0079	Spherical bearing assembly	
ELECTRONIC PARTS		8-7	610-009	Cable gland M16	
ELECTRONIC PARTS		8-7	610-011	Sealing washer nylon	
ELECTRONIC PARTS		8-7	610-012	Grommet	
ELECTRONIC PARTS		8-7	610-013	Gland plug	
ELECTRONIC PARTS		8-7	610-018	Cable clamp	
UNIVERSAL FOLLOW-UP		8-3	615-005	O-Ring	
JOG SWITCH		8-1	615-010	O-Ring #12	(shaft seal)
UNIVERSAL FOLLOW-UP		8-3	615-010	O-Ring #12	(shaft seal)
JOG SWITCH		8-1	615-011	O-Ring	(bottom plate)
ELECTRONIC PARTS		8-7	617-007	Gasket TS-2 or TS-2R lever	
JOG SWITCH		8-1	617-014	Pressure pad	
CYLINDERS (TYPE "L")	L80-262 & L80-409	5-5	620-0005	Cylinder head	
CYLINDERS (TYPE "L")	L80-262 & L80-409	5-5	620-0006	Rod bushing	Note C
CYLINDERS (TYPE "L")	L80-262 & L80-409	5-5	620-0008	Wiper retainer	
CYLINDERS (TYPE "L")	L80-262 & L80-409	5-5	620-0010	Mechanical stop	
CYLINDERS (TYPE "L")	L80-262 & L80-409	5-5	620-0011	Clevis (rod end)	
CYLINDERS (TYPE "L")	L100-419 & L100-650	5-7	620-0018	Cylinder head	

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CYLINDERS (TYPE "L")	L100-419 & L100-650	5-7	620-0019	Rod bushing	Note C
ELECTRONIC PARTS		8-7	620-002	Knob control pot	
CYLINDERS (TYPE "L")	L100-419 & L100-650	5-7	620-0021	Wiper retainer	
CYLINDERS (TYPE "L")	L100-419 & L100-650	5-7	620-0023	Mechanical stop	
CYLINDERS (TYPE "L")	L100-419 & L100-650	5-7	620-0024	Clevis (rod end)	
CYLINDERS (TYPE "L")	L125-424 & L125-674	5-9	620-0031	Cylinder head	
CYLINDERS (TYPE "L")	L125-424 & L125-674	5-9	620-0032	Rod bushing	Note C
CYLINDERS (TYPE "L")	L125-424 & L125-674	5-9	620-0034	Wiper retainer	
CYLINDERS (TYPE "L")	L125-424 & L125-674	5-9	620-0036	Mechanical stop	
CYLINDERS (TYPE "L")	L125-424 & L125-674	5-9	620-0037	Clevis (rod end)	
CYLINDERS (TYPE "L")	L80-262 & L80-409	5-5	620-0053	Pin, mounting pad	
CYLINDERS (TYPE "L")	L100-419 & L100-650	5-7	620-0054	Pin, mounting pad	
CYLINDERS (TYPE "L")	L125-424 & L125-674	5-9	620-0055	Pin, mounting pad	
JOG SWITCH		8-1	620-008	Knob	
CYLINDERS (TYPE "L")	L125-424 & L125-674	5-9	620-0264	Lock plug, nylon	
CYLINDERS (TYPE "L")	L80-262 & L80-409	5-5	620-0265	Lock plug, nylon	
CYLINDERS (TYPE "L")	L100-419 & L100-650	5-7	620-0265	Lock plug, nylon	
CYLINDERS (TYPE "L")	L80-262 & L80-409	5-5	620-0274	Mounting pad	Note D
CYLINDERS (TYPE "L")	L100-419 & L100-650	5-7	620-0275	Mounting pad	Note D
CYLINDERS (TYPE "L")	L125-424 & L125-674	5-9	620-0276	Mounting pad	Note D
CYLINDERS (TYPE "L")	L80-262 & L80-409	5-5	620-0317	Lock plate	
CYLINDERS (TYPE "L")	L100-419 & L100-650	5-7	620-0318	Lock plate	
CYLINDERS (TYPE "L")	L125-424 & L125-674	5-9	620-0319	Lock plate	
CYLINDERS (TYPE "L")	L80-262 & L80-409	5-5	620-0365	Locking tab	
CYLINDERS (TYPE "L")	L100-419 & L100-650	5-7	620-0365	Locking tab	
CYLINDERS (TYPE "L")	L125-424 & L125-674	5-9	620-0366	Locking tab	
UNIVERSAL FOLLOW-UP		8-3	650-106	Lid	
ELECTRONIC PARTS		8-7	650-107	Gear 62T	
ELECTRONIC PARTS		8-7	650-108	Gear 20T	
JOG SWITCH		8-1	650-120	Bottom plate	
ELECTRONIC PARTS		8-7	650-132	Gear 44T	
ELECTRONIC PARTS		8-7	650-147	Back plate - portable remote	
ELECTRONIC PARTS		8-7	650-155	Cable plug	
UNIVERSAL FOLLOW-UP		8-3	655-105	Housing	
JOG SWITCH		8-1	655-119	Body	

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ELECTRONIC PARTS		8-7	655-146	Housing portable remote
JOG SWITCH		8-1	660-017	Lable hub
ELECTRONIC PARTS		8-7	660-026	Label TS-2
ELECTRONIC PARTS		8-7	670-034	Bracket pot TS-2 or TS-2R
UNIVERSAL FOLLOW-UP		8-3	690-010	Shaft
JOG SWITCH		8-1	690-012	Hub
JOG SWITCH		8-1	690-013	Handle shaft
ELECTRONIC PARTS		8-7	690-014	Hub stop brass
JOG SWITCH		8-1	690-023	Shaft and molded cam
ELECTRONIC PARTS		8-7	690-078	Shaft TS-2 or TS-2R
JOG SWITCH		8-1	690-160	Spring post
ELECTRONIC PARTS		8-7	690-222	Housing bottom TS-2 or TS-2R
ELECTRONIC PARTS		8-7	690-223	Housing top TS-2R
UNIVERSAL FOLLOW-UP		8-3	690-288	Brass arm
UNIVERSAL FOLLOW-UP		8-3	690-462	Connecting rod, 18" brass rod
CYLINDERS (N MODEL)	N65	4-5	700-0011	Cylinder assembly, N65 5.98 cu. in. disp'l
CYLINDERS (N MODEL)	N85	4-5	700-0012	Cylinder assembly, N85 7.82 cu. in. disp'l
CYLINDERS (N MODEL)	N175-750	4-7	700-0013	Cylinder assembly N175-750 (14.78 cu. in. disp'l)
CYLINDERS (N MODEL)	N75-1000	4-7	700-0014	Cylinder assembly N175-1000 (19.70 cu. in. disp'l)
CYLINDERS (N MODEL)	N250-800	4-9	700-0015	Cylinder assembly, N250-800 (32.96 cu. in. disp'l)
CYLINDERS (N MODEL)	N250-1000	4-9	700-0016	Cylinder assembly, N250-1000 (41.20 cu. in. disp'l)
CYLINDERS (N MODEL)	N250-1300	4-9	700-0017	Cylinder assembly, N250-1300 (53.56 cu. in. disp'l)
CYLINDERS (N MODEL)	N350-1200	4-11	700-0018	Cylinder assembly, N350-1200 (94.20 cu. in. disp'l)
CYLINDERS (N MODEL)	N350-1600	4-11	700-0019	Cylinder assembly, N350-1600 (125.6 cu. in. disp'l)
CYLINDERS (N MODEL)	N400-1500	4-13	700-0020	Cylinder assembly, N400-1500 (152.4 cu. in. disp'l)
CYLINDERS (N MODEL)	N400-2000	4-13	700-0021	Cylinder assembly, N400-2000 (203.2 cu. in. disp'l)
ELECTRONIC PARTS		8-7	700-201	Meter movement - 202 RAI
CYLINDERS (TYPE 'N')	N40-120 & N40-190	3-5	710-0002	Trunnion, assembly N40-120 & N40-190
CYLINDERS (TYPE 'N')	N40-120 & N40-190	3-5	710-0003	Rod end, assembly
CYLINDERS (TYPE 'N')	N40-1-120 & N40-1-190	3-7	710-0003	Rod end, assembly
CYLINDERS (TYPE 'N')	N50-190 & N50-300	3-9	710-0005	Trunnion, assembly
CYLINDERS (TYPE 'N')	N50-190 & N50-300	3-9	710-0006	Rod end, assembly
CYLINDERS (TYPE 'N')	N50-190	3-9	710-0007	Piston rod & head sub-assembly, N50-190 (21-7/16" long) Note A+B
CYLINDERS (TYPE 'N')	N50-300	3-9	710-0008	Piston rod & head sub-assembly, N50-300 (30-1/16" LG) Note A+B
CYLINDERS (TYPE 'N')	N80-190, N80-300 & N80-382	3-11	710-0009	Rod end, assembly

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CYLINDERS (TYPE 'N')	N80-190, N80-300 & N80-382	3-11	710-0010	Trunnion, assembly
CYLINDERS (TYPE 'N')	N80-190	3-11	710-0011	Piston rod & head sub-assembly, N80-190 (24½" long) Note A
CYLINDERS (TYPE 'N')	N80-300	3-11	710-0012	Piston rod & head sub-assembly, N80-300 (33-1/8" long) Note A
CYLINDERS (TYPE 'N')	N40-1-120 & N40-1-190	3-7	710-0029	Trunnion, assembly N40-1-120 & N40-1-190
CYLINDERS (TYPE 'N')	N40-120	3-5	710-0031	Piston rod & head sub-assembly, N40-120 (15-7/16" LG) Note A+B
CYLINDERS (TYPE 'N')	N40-1-120	3-7	710-0031	Piston rod & head sub-assembly, N40-1-120 (15-7/16" LG) Note B
CYLINDERS (TYPE 'N')	N40-190	3-5	710-0032	Piston rod & head sub-assembly, N40-190 (21" LG) Note A+B
CYLINDERS (TYPE 'N')	N40-1-190	3-7	710-0032	Piston rod & head sub-assembly, N40-1-190 (21" LG) Note B
CYLINDERS (TYPE 'N')	N80-382	3-11	710-0033	Piston rod & head sub-assembly, N80-382 (39½" long) Note A
CYLINDERS (TYPE 'N')	N40-120 & N40-190	3-5	720-0003	Retainer nut N40-120 & N40-190; (head end)
CYLINDERS (TYPE 'N')	N40-120 & N40-190	3-5	720-0004	Retainer, rod end
CYLINDERS (TYPE 'N')	N40-1-120 & N40-1-190	3-7	720-0004	Retainer, rod end
CYLINDERS (TYPE 'N')	N40-120	3-5	720-0006	Barrel N40-120; (2" O.D. x 9-15/16" long)
CYLINDERS (TYPE 'N')	N50-190 & N50-300	3-9	720-0008	Retainer, rod end
CYLINDERS (TYPE 'N')	N40-120 & N40-190	3-5	720-0009	Trunnion Ball N40-120 & N40-190
CYLINDERS (TYPE 'N')	N40-120 & N40-190	3-5	720-0010	Trunnion
CYLINDERS (TYPE 'N')	N40-1-120 & N40-1-190	3-7	720-0010	Trunnion
CYLINDERS (TYPE 'N')	N80-190, N80-300 & N80-382	3-11	720-0011	Retainer, rod end
CYLINDERS (TYPE 'N')	N40-120 & N40-190	3-5	720-0012	Trunnion nut
CYLINDERS (TYPE 'N')	N40-1-120 & N40-1-190	3-7	720-0012	Trunnion nut
CYLINDERS (TYPE 'N')	N40-120 & N40-190	3-5	720-0013	Swivel ball, rod end
CYLINDERS (TYPE 'N')	N40-1-120 & N40-1-190	3-7	720-0013	Swivel ball, rod end
CYLINDERS (TYPE 'N')	N40-120 & N40-190	3-5	720-0014	Bleed fitting
CYLINDERS (TYPE 'N')	N40-1-120 & N40-1-190	3-7	720-0014	Bleed fitting
CYLINDERS (TYPE 'N')	N50-190 & N50-300	3-9	720-0014	Bleed fitting
CYLINDERS (TYPE 'N')	N40-190	3-5	720-0016	Barrel, N40-190; (2" O.D. x 12-13/16" long)
CYLINDERS (TYPE 'N')	N50-190 & N50-300	3-9	720-0019	Retainer nut, (head end)
CYLINDERS (TYPE 'N')	N50-190 & N50-300	3-9	720-0020	Cylinder end Note C
CYLINDERS (TYPE 'N')	N50-190	3-9	720-0021	Barrel, N50-190; (2-3/8" O.D. x 13-1/16" long)
CYLINDERS (TYPE 'N')	N80-190, N80-300 & N80-382	3-11	720-0023	Bleed fitting
CYLINDERS (TYPE 'N')	N50-190 & N50-300	3-9	720-0024	Trunnion ball
CYLINDERS (TYPE 'N')	N50-190 & N50-300	3-9	720-0027	Trunnion nut
CYLINDERS (TYPE 'N')	N50-190 & N50-300	3-9	720-0028	Swivel ball, rod end
CYLINDERS (TYPE 'N')	N50-300	3-9	720-0031	Barrel, N50-300; (2-3/8" O.D. x 17-3/8" long)
CYLINDERS (TYPE 'N')	N80-190, N80-300 & N80-382	3-11	720-0034	Retainer nut, (head end)

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CYLINDERS (TYPE 'N')	N80-190, N80-300 & N80-382	3-11	720-0036	Cylinder end	Note B
CYLINDERS (TYPE 'N')	N80-190	3-11	720-0037	Barrel	N80-190; (3¾" O.D. x 15-3/8" long)
CYLINDERS (TYPE 'N')	N80-190, N80-300 & N80-382	3-11	720-0040	Cylinder end nut	
CYLINDERS (TYPE 'N')	N80-190, N80-300 & N80-382	3-11	720-0041	Trunnion ball	
CYLINDERS (TYPE 'N')	N80-190, N80-300 & N80-382	3-11	720-0044	Trunnion nut	
CYLINDERS (TYPE 'N')	N80-190, N80-300 & N80-382	3-11	720-0045	Swivel ball, rod end	
CYLINDERS (TYPE 'N')	N80-300	3-11	720-0048	Barrel,	N80-300; (3¾" O.D. x 19-11/16" long)
CYLINDERS (TYPE 'N')	N40-120 & N40-190	3-5	720-0060	Cylinder end,	N40-120 & N40-190 Note C
CYLINDERS (TYPE 'N')	N40-1-120 & N40-1-190	3-7	720-0110	Trunnion ball,	N40-1-120 & N40-1-190
CYLINDERS (TYPE 'N')	N40-1-120 & N40-1-190	3-7	720-0111	Cylinder end,	N40-1-120 & N40-1-190 Note C
CYLINDERS (TYPE 'N')	N40-1-120	3-7	720-0112	Barrel,	N40-1-120; (2" O.D. x 6-3/8" long)
CYLINDERS (TYPE 'N')	N40-1-120 & N40-1-190	3-7	720-0113	Retainer nut,	N40-1-120 & N40-1-190; (head end)
CYLINDERS (TYPE 'N')	N40-1-190	3-7	720-0116	Barrel,	N40-1-190; (2" O.D. x 9-3/16" long)
CYLINDERS (TYPE 'N')	N40-1-120 & N40-1-190	3-7	720-0118	Bearing, rod,	N40-1-120 & N40-1-190
CYLINDERS (TYPE 'N')	N80-382	3-11	720-0122	Barrel,	N80-382; (3¾" O.D. x 22-15/16" long)
CYLINDERS (N MODEL)	N65	4-5	730-0001	Piston rod & head sub-assembly, N65 (5/8" x 18-3/8" long)	Note A
CYLINDERS (N MODEL)	N85	4-5	730-0002	Piston rod & head sub-assembly, N85 (5/8" x 22-3/8" long)	Note A
CYLINDERS (N MODEL)	N175-750	4-7	730-0003	Piston rod & head sub-assembly, N175-750 (¾" x 21-3/8" long)	Note A
CYLINDERS (N MODEL)	N75-1000	4-7	730-0004	Piston rod & head sub-assembly, N175-1000 (¾" x 26-3/8" long)	Note A
CYLINDERS (N MODEL)	N250-800	4-9	730-0005	Piston rod & head sub-assembly, N250-800 (1" x 23½" long)	Note A
CYLINDERS (N MODEL)	N250-1000	4-9	730-0006	Piston rod & head sub-assembly, N250-1000 (1" x 27½" long)	Note A
CYLINDERS (N MODEL)	N250-1300	4-9	730-0007	Piston rod & head sub-assembly, N250-1300 (1" x 33½" long)	Note A
CYLINDERS (N MODEL)	N350-1200	4-11	730-0008	Piston rod & head sub-assembly, N350-1200; (1½" x 33-13/16" long)	Note A
CYLINDERS (N MODEL)	N350-1600	4-11	730-0009	Piston rod & head sub-assembly, N350-1600; (1½" x 41-13/16" long)	Note A
CYLINDERS (N MODEL)	N400-1500	4-13	730-0010	Piston rod & head sub-assembly, N400-1500; (1¾" x 40-7/8" long)	Note A
CYLINDERS (N MODEL)	N400-2000	4-13	730-0011	Piston rod & head sub-assembly, N400-2000; (1¾" x 50-7/8" long)	Note A
CYLINDERS (N MODEL)	N65 & N85	4-5	740-0001	Pin, mounting pad	(½" dia.)
CYLINDERS (N MODEL)	N65	4-5	740-0002	Tail pipe	N65 Note B
CYLINDERS (N MODEL)	N65	4-5	740-0004	Tie rod	N65
CYLINDERS (N MODEL)	N65	4-5	740-0007	Barrel	N65; (1½" O.D. x 8¼" long)
CYLINDERS (N MODEL)	N65 & N85	4-5	740-0008	Cylinder head	Note B
CYLINDERS (N MODEL)	N65 & N85	4-5	740-0009	Clevis	
CYLINDERS (N MODEL)	N65 & N85	4-5	740-0010	Pin, clevis	(5/8" dia.)
CYLINDERS (N MODEL)	N65 & N85	4-5	740-0011	Mounting pad	
CYLINDERS (N MODEL)	N85	4-5	740-0012	Tail pipe,	N85 Note B

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CYLINDERS (N MODEL)	N85	4-5	740-0014	Tie rod,	N85
CYLINDERS (N MODEL)	N85	4-5	740-0015	Barrel,	N85; (1½" O.D. x 10¼" long)
CYLINDERS (N MODEL)	N175-750 & N75-1000	4-7	740-0016	Pin, mounting pad	(¾" dia.)
CYLINDERS (N MODEL)	N175-750	4-7	740-0017	Tail pipe,	N175-750 Note B
CYLINDERS (N MODEL)	N175-750	4-7	740-0019	Tie rod,	N175-750
CYLINDERS (N MODEL)	N175-750	4-7	740-0022	Barrel,	N175-750; (2" O.D. x 9½" long)
CYLINDERS (N MODEL)	N175-750 & N75-1000	4-7	740-0023	Cylinder head	Note B
CYLINDERS (N MODEL)	N175-750 & N75-1000	4-7	740-0024	Clevis	
CYLINDERS (N MODEL)	N175-750 & N75-1000	4-7	740-0025	Pin, clevis	(7/8" dia.)
CYLINDERS (N MODEL)	N175-750 & N75-1000	4-7	740-0026	Mounting pad	
CYLINDERS (N MODEL)	N75-1000	4-7	740-0027	Tail pipe,	N175-1000 Note B
CYLINDERS (N MODEL)	N75-1000	4-7	740-0029	Tie rod,	N175-1000
CYLINDERS (N MODEL)	N75-1000	4-7	740-0030	Barrel,	N175-1000; (2" O.D. x 12" long)
CYLINDERS (N MODEL)	N250-800	4-9	740-0031	Tail pipe,	N250-800 Note B
CYLINDERS (N MODEL)	N250-800, N250-1000 & N250-1300	4-9	740-0032	Pin, mounting pad	(7/8" dia.)
CYLINDERS (N MODEL)	N250-800	4-9	740-0034	Tie rod,	N250-800
CYLINDERS (N MODEL)	N250-800	4-9	740-0037	Barrel,	N250-800 (3" O.D. x 10-3/8" long)
CYLINDERS (N MODEL)	N250-800, N250-1000 & N250-1300	4-9	740-0038	Cylinder head	Note B
CYLINDERS (N MODEL)	N250-800, N250-1000 & N250-1300	4-9	740-0039	Clevis	
CYLINDERS (N MODEL)	N250-800, N250-1000 & N250-1300	4-9	740-0040	Pin, clevis	(1-1/8" dia.)
CYLINDERS (N MODEL)	N250-800, N250-1000 & N250-1300	4-9	740-0041	Mounting pad	
CYLINDERS (N MODEL)	N250-1000	4-9	740-0042	Tail pipe,	N250-1000 Note B
CYLINDERS (N MODEL)	N250-1000	4-9	740-0044	Tie rod,	N250-1000
CYLINDERS (N MODEL)	N250-1000	4-9	740-0045	Barrel,	N250-1000; (3" O.D. x 12-3/8" long)
CYLINDERS (N MODEL)	N250-1300	4-9	740-0046	Tail pipe,	N250-1300 Note B
CYLINDERS (N MODEL)	N250-1300	4-9	740-0048	Barrel,	N250-1300; (3" O.D. x 15-3/8" long)
CYLINDERS (N MODEL)	N250-1300	4-9	740-0049	Tie rod,	N250-1300
CYLINDERS (N MODEL)	N350-1200	4-11	740-0050	Tail pipe,	N350-1200 Note B
CYLINDERS (N MODEL)	N350-1200 & N350-1600	4-11	740-0051	Pin, mounting pad	(1¼" dia.)
CYLINDERS (N MODEL)	N350-1200	4-11	740-0053	Tie rod,	N350-1200
CYLINDERS (N MODEL)	N350-1200	4-11	740-0056	Barrel,	N350-1200 (4¼" O.D. x 15-3/8" long)
CYLINDERS (N MODEL)	N350-1200 & N350-1600	4-11	740-0057	Cylinder head	Note B
CYLINDERS (N MODEL)	N350-1200 & N350-1600	4-11	740-0058	Clevis	
CYLINDERS (N MODEL)	N350-1200 & N350-1600	4-11	740-0059	Pin, clevis	(1¾" dia.)
CYLINDERS (N MODEL)	N350-1200 & N350-1600	4-11	740-0060	Mounting pad	

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CYLINDERS (N MODEL)	N350-1600	4-11	740-0061	Tail pipe,	N350-1600 Note B
CYLINDERS (N MODEL)	N350-1600	4-11	740-0063	Tie rod,	N350-1600
CYLINDERS (N MODEL)	N350-1600	4-11	740-0064	Barrel,	N350-1600 (4¼" O.D. x 19-3/8" long)
CYLINDERS (N MODEL)	N400-1500	4-13	740-0065	Tail pipe,	N400-1500 Note B
CYLINDERS (N MODEL)	N400-1500 & N400-2000	4-13	740-0066	Pin, mounting pad	(1-5/8" dia.)
CYLINDERS (N MODEL)	N400-1500	4-13	740-0068	Tie rod	N400-1500
CYLINDERS (N MODEL)	N400-1500	4-13	740-0071	Barrel,	N400-1500; (4¾" O.D. x 18½" long)
CYLINDERS (N MODEL)	N400-1500 & N400-2000	4-13	740-0072	Cylinder head	Note B
CYLINDERS (N MODEL)	N400-1500 & N400-2000	4-13	740-0073	Clevis	
CYLINDERS (N MODEL)	N400-1500 & N400-2000	4-13	740-0074	Pin, clevis	(2" dia.)
CYLINDERS (N MODEL)	N400-1500 & N400-2000	4-13	740-0075	Mounting pad	
CYLINDERS (N MODEL)	N400-2000	4-13	740-0076	Tail pipe,	N400-2000 Note B
CYLINDERS (N MODEL)	N400-2000	4-13	740-0078	Tie rod	N400-2000
CYLINDERS (N MODEL)	N400-2000	4-13	740-0079	Barrel,	N400-2000; (4¾" O.D. x 23½" long)
JOG SWITCH		8-1	740-010	Spares kit	
ELECTRONIC PARTS		8-7	740-068	Spares kit, 2A - 12VDC Pumpset	
ELECTRONIC PARTS		8-7	740-069	Spares kit, 2A - 24VDC Pumpset	
ELECTRONIC PARTS		8-7	740-070	Spares kit, 2A - 32VDC Pumpset	
UNIVERSAL FOLLOW-UP		8-3	740-200	Spares kit	
CYLINDERS (700 SERIES)	1¼" x 7", 1¼" x 9" & 1½" x 7"	2-5, 2-7	750-0005	Trunnion Assembly, kit	
CYLINDERS (700 SERIES)	1¼" x 7"	2-5	750-0021	Piston rod & head sub-assembly, 1¼" x 7" (5/8" x 18" long)	
CYLINDERS (700 SERIES)	1¼" x 9"	2-5	750-0022	Piston rod & head sub-assembly, 1¼" x 9" (5/8" x 22" long)	
CYLINDERS (700 SERIES)	1½" x 7"	2-7	750-0023	Piston rod & head sub-assembly, 1½" x 7" (5/8" x 18" long)	
CYLINDERS (700 SERIES)	1¼" x 7", 1¼" x 9" & 1½" x 7"	2-5, 2-7	760-0017	Trunnion housing	
CYLINDERS (700 SERIES)	1¼" x 7", 1¼" x 9" & 1½" x 7"	2-5, 2-7	760-0019	Trunnion nut	
CYLINDERS (700 SERIES)	1¼" x 7" & 1¼" x 9"	2-5	760-0029 B	Tail End,	1¼" Seals
CYLINDERS (700 SERIES)	1¼" x 7"	2-5	760-0030	Barrel	1¼" x 7" (1½" O.D. x 7-7/8" long)
CYLINDERS (700 SERIES)	1¼" x 9"	2-5	760-0032	Barrel	1¼" x 9" (1½" O.D. x 9-7/8" long)
CYLINDERS (700 SERIES)	1½" x 7"	2-7	760-0033 B	Tail End,	1½"
CYLINDERS (700 SERIES)	1½" x 7"	2-7	760-0034	Barrel	1½" x 7" (1¾" O.D. x 7-7/8" long)
CYLINDERS (700 SERIES)	1½" x 7"	2-7	760-0035 B	Head End	1½"
CYLINDERS (700 SERIES)	1¼" x 7" & 1¼" x 9"	2-5	760-0043 B	Head End	1¼"
CYLINDERS (700 SERIES)	1¼" x 7", 1¼" x 9" & 1½" x 7"	2-5, 2-7	760-0061	Bleed fitting, flush type	
CYLINDERS (700 SERIES)	1¼" x 7", 1¼" x 9" & 1½" x 7"	2-5, 2-7	760-0063	Bearing, piston rod	
ACTUATORS (TYPE "T")	T2	6-5	810-0001	Fork & cap,	Custom bore

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ACTUATORS (TYPE "T")	T3	6-7	810-0002	Fork & cap, Custom bore
ACTUATORS (TYPE "T")	T4	6-9	810-0003	Fork & cap, Custom bore
ACTUATORS (TYPE "T")	T5	6-11	810-0004	Fork & cap, Custom bore
ACTUATORS (TYPE "T")	T10	6-13	810-0005	Fork & cap, T10 Custom bore
ACTUATORS (TYPE "T")	T11	6-13	810-0006	Fork & cap, T11 Custom bore
ACTUATORS (TYPE "T")	T12 & T12B	6-15, 6-17	810-0007	Fork & cap, T12 Custom bore
ACTUATORS (TYPE "T")	T13 & T13B	6-15, 6-17	810-0008	Fork & cap, T13 Custom bore
ACTUATORS (TYPE "T")	T14	6-19	810-0009	Fork & cap, T14 Custom bore
ACTUATORS (TYPE "T")	T15	6-19	810-0010	Fork & cap, T15 Custom bore
ACTUATORS (TYPE "T")	T2	6-5	810-0015	Housing & cover Note B
ACTUATORS (TYPE "T")	T3	6-7	810-0016	Housing & cover Note B
ACTUATORS (TYPE "T")	T4	6-9	810-0017	Housing & cover Note A
ACTUATORS (TYPE "T")	T5	6-11	810-0018	Housing & cover Note B
ACTUATORS (TYPE "T")	T10	6-13	810-0019	Housing & cover T10 Note D
ACTUATORS (TYPE "T")	T11	6-13	810-0020	Housing & cover T11 Note B
ACTUATORS (TYPE "T")	T12 & T12B	6-15, 6-17	810-0021	Housing & cover T12 Note B
ACTUATORS (TYPE "T")	T13 & T13B	6-15, 6-17	810-0022	Housing & cover T13 Note B
ACTUATORS (TYPE "T")	T14	6-19	810-0023	Housing & cover T14 Note B
ACTUATORS (TYPE "T")	T15	6-19	810-0024	Housing & cover T15 Note B
ACTUATORS (TYPE "T")	T5, T10 & T11	6-11, 6-13	810-0057	Bearing shell with Babbitt, rough machine
ACTUATORS (TYPE "T")	T5, T10 & T11	6-11, 6-13	810-0058	Bearing shell with Babbitt, finish machine
ACTUATORS (TYPE "T")	T2	6-5	810-0067	Fork & cap, Standard bore (1-5/8")
ACTUATORS (TYPE "T")	T3	6-7	810-0068	Fork & cap, Standard bore (2")
ACTUATORS (TYPE "T")	T4	6-9	810-0069	Fork & cap, Standard bore (2")
ACTUATORS (TYPE "T")	T4	6-9	810-0070	Fork & cap, Standard bore (2½")
ACTUATORS (TYPE "T")	T5	6-11	810-0071	Fork & cap, Standard bore (2½")
ACTUATORS (TYPE "T")	T5	6-11	810-0072	Fork & cap, Standard bore (2¾")
ACTUATORS (TYPE "T")	T10	6-13	810-0073	Fork & cap, T10; Standard bore (3")
ACTUATORS (TYPE "T")	T10	6-13	810-0074	Fork & cap, T10; Standard bore (3½")
ACTUATORS (TYPE "T")	T11	6-13	810-0075	Fork & cap, T11; Standard bore (3½")
ACTUATORS (TYPE "T")	T12 & T12B	6-15, 6-17	810-0076	Fork & cap, T12; Standard bore (4")
ACTUATORS (TYPE "T")	T13 & T13B	6-15, 6-17	810-0077	Fork & cap, T13; Standard bore (4")
ACTUATORS (TYPE "T")	T14	6-19	810-0078	Fork & cap, T14; Standard bore (4¾")
ACTUATORS (TYPE "T")	T15	6-19	810-0079	Fork & cap, T15; Standard bore (4¾")
ACTUATORS (TYPE "T")	T2	6-5	820-0002	Piston; (1-5/8" dia. x 16¼" long, 9.8 cu. in. displ'l)

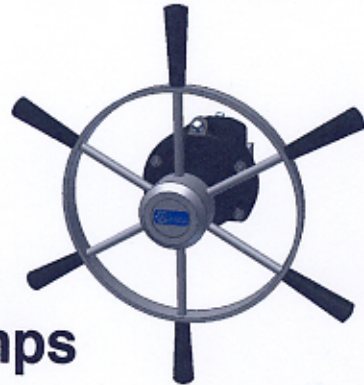
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ACTUATORS (TYPE "T")	T2	6-5	820-0004	Dowel pin	Note E
ACTUATORS (TYPE "T")	T2	6-5	820-0005	Babbitt liner	(1-7/8" O.D.) Note D
ACTUATORS (TYPE "T")	T2	6-5	820-0008	Piston pin	Note F
ACTUATORS (TYPE "T")	T2	6-5	820-0009	Packing ring,	Custom bore
ACTUATORS (TYPE "T")	T2	6-5	820-0011	Bushing, brass	Custom bore
ACTUATORS (TYPE "T")	T2	6-5	820-0014	Ring, bronze	
ACTUATORS (TYPE "T")	T3	6-7	820-0017	Piston; (2-1/8" dia. x 19¼" long, 20.4 cu. in. disp'l)	
ACTUATORS (TYPE "T")	T3	6-7	820-0019	Dowel pin	Note E
ACTUATORS (TYPE "T")	T3	6-7	820-0020	Babbitt liner	(2-3/8" O.D.) Note D
ACTUATORS (TYPE "T")	T3	6-7	820-0023	Piston pin	Note F
ACTUATORS (TYPE "T")	T3	6-7	820-0024	Packing ring,	Custom bore
ACTUATORS (TYPE "T")	T3	6-7	820-0026	Bushing, brass	Custom bore
ACTUATORS (TYPE "T")	T3	6-7	820-0029	Ring, bronze	
ACTUATORS (TYPE "T")	T4	6-9	820-0032	Piston; (2-3/8" dia. x 22¼" long, 30.5 cu. in. disp'l)	
ACTUATORS (TYPE "T")	T4	6-9	820-0034	Dowel pin	Note E
ACTUATORS (TYPE "T")	T4	6-9	820-0035	Babbitt liner	(2-5/8" O.D.) Note D
ACTUATORS (TYPE "T")	T4	6-9	820-0038	Piston pin	Note F
ACTUATORS (TYPE "T")	T4	6-9	820-0044	Ring, bronze	
ACTUATORS (TYPE "T")	T5	6-11	820-0046	Cylinder, flanged	
ACTUATORS (TYPE "T")	T5	6-11	820-0047	Piston, (2¾" dia. X 24" long, 41.6 cu.in. disp'l)	
ACTUATORS (TYPE "T")	T5, T10 & T11	6-11, 6-13	820-0048	Babbitt liner	(3" O.D.) Note D
ACTUATORS (TYPE "T")	T5, T10 & T11	6-11, 6-13	820-0051	Piston pin	Note F
ACTUATORS (TYPE "T")	T10 & T11	6-11, 6-13	820-0057	Ring, bronze	
ACTUATORS (TYPE "T")	T5, T10 & T11	6-11, 6-13	820-0059	Bearing shell, flanged	
ACTUATORS (TYPE "T")	T10 & T11	6-13	820-0060	Cylinder	
ACTUATORS (TYPE "T")	T10 & T11	6-13	820-0061	Piston, (2¾" dia. x 28¼" long, 54.2 cu.in. disp'l)	
ACTUATORS (TYPE "T")	T12 & T13	6-15	820-0072	Piston, (3" dia. x 32¼" long, 76.9 cu.in. disp'l)	
ACTUATORS (TYPE "T")	T12, T13, T12B & T13B	6-15, 6-17	820-0074	Dowel pin	Note E
ACTUATORS (TYPE "T")	T12 & T13	6-15	820-0075	Babbitt liner	(3¼ O.D.) Note D
ACTUATORS (TYPE "T")	T12, T13, T12B & T13B	6-15, 6-17	820-0078	Piston pin	Note F
ACTUATORS (TYPE "T")	T12 & T13	6-15	820-0084	Ring, bronze	
ACTUATORS (TYPE "T")	T12B & T13B	6-17	820-0087	Piston, (3¼" dia. x 32¼" long, 90.3 cu.in. disp'l)	
ACTUATORS (TYPE "T")	T12B & T13B	6-17	820-0090	Babbitt liner	(3½" O.D.) Note D
ACTUATORS (TYPE "T")	T12B & T13B	6-17	820-0091	Ring, bronze	
ACTUATORS (TYPE "T")	T14 & T15	6-19	820-0096	Piston, (3½" dia. x 39¼" long, 125.0 cu.in. disp'l)	

<u>UNIT TYPE</u>	<u>MODEL</u>	<u>PAGE #</u>	<u>PART #</u>	<u>DESCRIPTION</u>	
ACTUATORS (TYPE "T")	T14 & T15	6-19	820-0098	Dowel pin	Note E
ACTUATORS (TYPE "T")	T14 & T15	6-19	820-0099	Babbitt liner	(3¾" O.D.)
ACTUATORS (TYPE "T")	T14 & T15	6-19	820-0102	Piston pin	Note F
ACTUATORS (TYPE "T")	T14 & T15	6-19	820-0108	Ring, bronze	
ACTUATORS (TYPE "T")	T18 & T19	6-21	820-0112	Cylinder	
ACTUATORS (TYPE "T")	T18 & T19	6-21	820-0113	Piston, (4½" dia. x 45¾" long, 245.0 cu.in. disp'l)	
ACTUATORS (TYPE "T")	T18 & T19	6-21	820-0114	Bearing shell	
ACTUATORS (TYPE "T")	T18 & T19	6-21	820-0116	Babbitt liner	(4-7/8" O.D.) Note D
ACTUATORS (TYPE "T")	T18 & T19	6-21	820-0122	Bushing, brass	Custom bore
ACTUATORS (TYPE "T")	T18 & T19	6-21	820-0125	Ring, bronze	
ACTUATORS (TYPE "T")	T20 & T21	6-23	820-0129	Cylinder	
ACTUATORS (TYPE "T")	T20 & T21	6-23	820-0130	Piston, (5" dia. x 63" long, 432.0 cu.in. disp'l)	
ACTUATORS (TYPE "T")	T20 & T21	6-23	820-0131	Bearing shell	
ACTUATORS (TYPE "T")	T20 & T21	6-23	820-0133	Babbitt liner	(5-3/8" O.D.) Note D
ACTUATORS (TYPE "T")	T20 & T21	6-23	820-0139	Bushing, brass	Custom bore
ACTUATORS (TYPE "T")	T20 & T21	6-23	820-0142	Ring, bronze	
ACTUATORS (TYPE "T")	T2	6-5	820-0148	Bushing, brass	Standard bore (1-5/8")
ACTUATORS (TYPE "T")	T3	6-7	820-0149	Bushing, brass	Standard bore (2")
ACTUATORS (TYPE "T")	T4	6-9	820-0150	Bushing, brass	Standard bore (2")
ACTUATORS (TYPE "T")	T4	6-9	820-0151	Packing ring,	Standard bore (2½")
ACTUATORS (TYPE "T")	T5	6-11	820-0152	Bushing, brass	Standard bore (2½")
ACTUATORS (TYPE "T")	T5	6-11	820-0153	Bushing, brass	Standard bore (2¾")
ACTUATORS (TYPE "T")	T10 & T11	6-13	820-0154	Bushing, brass	Standard bore (3")
ACTUATORS (TYPE "T")	T10 & T11	6-13	820-0155	Bushing, brass	Standard bore (3½")
ACTUATORS (TYPE "T")	T12, T13, T12B & T13B	6-15, 6-17	820-0156	Bushing, brass	Standard bore (4")
ACTUATORS (TYPE "T")	T14 & T15	6-19	820-0157	Bushing, brass	Standard bore (4¾")
ACTUATORS (TYPE "T")	T2	6-5	820-0159	Packing ring,	Standard bore (1-5/8")
ACTUATORS (TYPE "T")	T3	6-7	820-0160	Packing ring,	Standard bore (2")
ACTUATORS (TYPE "T")	T4	6-9	820-0161	Bushing, brass	Standard bore (2")
ACTUATORS (TYPE "T")	T4	6-9	820-0162	Packing ring,	Standard bore (2½")
ACTUATORS (TYPE "T")	T5	6-11	820-0163	Packing ring,	Standard bore (2½")
ACTUATORS (TYPE "T")	T5	6-11	820-0164	Packing ring,	Standard bore (2¾")
ACTUATORS (TYPE "T")	T10 & T11	6-13	820-0165	Packing ring,	Standard bore (3")
ACTUATORS (TYPE "T")	T10 & T11	6-13	820-0166	Packing ring,	Standard bore (3½")
ACTUATORS (TYPE "T")	T12, T13, T12B & T13B	6-15, 6-17	820-0167	Packing ring,	Standard bore (4")

<u>UNIT TYPE</u>	<u>MODEL</u>	<u>PAGE #</u>	<u>PART #</u>	<u>DESCRIPTION</u>	
ACTUATORS (TYPE "T")	T14 & T15	6-19	820-0168	Packing ring,	Standard bore (4¾")
ACTUATORS (TYPE "T")	T2	6-5	820-0170	Cylinder, flanged	Note C
ACTUATORS (TYPE "T")	T2	6-5	820-0171	Bearing shell, flanged	Note C
ACTUATORS (TYPE "T")	T3	6-7	820-0172	Cylinder, flanged	Note C
ACTUATORS (TYPE "T")	T3	6-7	820-0173	Bearing shell, flanged	Note C
ACTUATORS (TYPE "T")	T4	6-9	820-0174	Cylinder, flanged	Note C
ACTUATORS (TYPE "T")	T4	6-9	820-0175	Bearing shell, flanged	Note C
ACTUATORS (TYPE "T")	T12 & T13	6-15	820-0176	Cylinder, flanged	Note C
ACTUATORS (TYPE "T")	T12 & T13	6-15	820-0177	Bearing shell, flanged	Note C
ACTUATORS (TYPE "T")	T12B & T13B	6-17	820-0178	Cylinder, flanged	Note C
ACTUATORS (TYPE "T")	T12B & T13B	6-17	820-0179	Bearing shell, flanged	Note C
ACTUATORS (TYPE "T")	T14 & T15	6-19	820-0180	Cylinder, flanged	Note C
ACTUATORS (TYPE "T")	T14 & T15	6-19	820-0181	Bearing shell, flanged	Note C
ACTUATORS (TYPE "T")	T5	6-11	820-0057	Ring, bronze	
HELM PUMP	701 & 702	1-5	91-990002	Bearing Cage	
HELM PUMP	B1 & B2	1-7	91-990003	Bearing cage	
HELM PUMP	B3 & B4	1-9	91-990004	Bearing cage	
LOCKVALVES	3/8 (B1 & B2 HELM PUMP)	1-11	91-990006	Wire ball stop	(2) required
LOCKVALVES	1/2 (B3 & B4 HELM PUMP)	1-11	91-990006	Wire ball stop	(2) required
HELM PUMP	B1, B2, B3 & B4	1-7, 1-9	91-990006	Wire Ball Stop	
CYLINDERS (TYPE 'N')	N50-190 & N50-300	3-9	91-992002	Seal retainer washer	
CYLINDERS (TYPE 'N')	N80-190, N80-300 & N80-382	3-11	91-992003	Seal retainer washer	
CYLINDERS (700 SERIES)	1¼" x 7", 1¼" x 9" & 1½" x 7"	2-5, 2-7	91-998001	Trunnion bearing	
CYLINDERS (TYPE 'N')	N40-120 & N40-190	3-5	91-998003	Trunnion bearing	
CYLINDERS (TYPE 'N')	N40-1-120 & N40-1-190	3-7	91-998003	Trunnion bearing	
CYLINDERS (TYPE 'N')	N50-190 & N50-300	3-9	91-998005	Trunnion bearing	
CYLINDERS (TYPE 'N')	N80-190, N80-300 & N80-382	3-11	91-998007	Trunnion Bearing	
HELM PUMP	701 & 702	1-5	92-991001	Piston insert	
HELM PUMP	701 & 702	1-5	92-991002	Clamp bar, lockvalve	
CYLINDERS (700 SERIES)	1¼" x 7", 1¼" x 9" & 1½" x 7"	2-5, 2-7	92-991003	Split ring, trunnion	
HELM PUMP	B1 & B2	1-7	92-991004	Insert, pistons	
HELM PUMP	B3 & B4	1-9	92-991005	Insert, Pistons	



Marine Steering Systems



Wagner Helm Pumps

With almost 70 years of experience Wagner helm pumps are the benchmark for the industry. Designed for the unforgiving marine workboat environment, these helm pumps are time tested and maintain a flawless reputation.

Wagner helm pumps are high efficiency axial piston pumps with fixed, positive displacements. Pistons are ground, honed and hand assembled for precise fit providing the helmsman with the most accurate steering available.

Why Wagner Helm Pumps?

Unsurpassed Performance:

Wagner Helm pumps provide fast efficient course changes and the ability to accurately hold a heading, through the precision fitted pistons.

Our roller bearing supported shaft creates an extraordinarily smooth operating helm pump, and increases the life span of the pump.

World Class Design:

Wagner Pumps are visually designed to fit into the décor of the most prestigious yachts and still offer the rugged reliability needed for the workboat industry.

All Metal construction baked-on hard powder coat finish, and highly wear resistant ductile iron rotors all work to provide you with an exceptionally tough product. Wagner helm pumps provide years of smooth vibration free operation.

Easy installation:

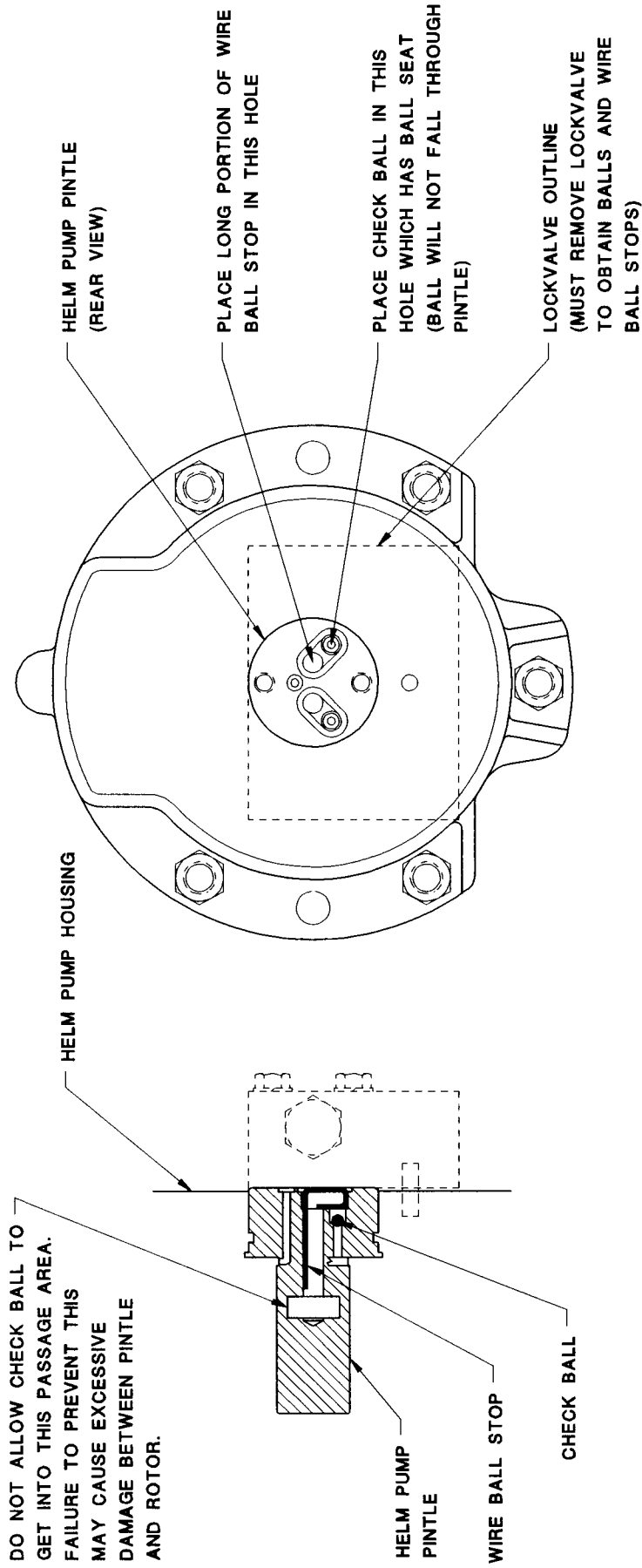
Wagner has a long history of understanding the needs of the marine industry. The ease of installing a Wagner Helm pump fits superbly with this reputation.

Two bolt mounting pattern makes installation easy. Additional steering stations are just "Tee'd into the plumbing with each pump operating independently and with full rudder control.

For sailboats, an optional helm control valve is available to provide the helmsman with "rudder feel."

NOTE:

- 2 ONLY CHECK BALLS REQUIRED PER HELM PUMP
- 2 ONLY WIRE BALL STOPS REQUIRED PER HELM PUMP



Wagner Marine Technologies

Issued June 2003

HELM PUMP SPECIFICATIONS - 700 SERIES							
HELM PUMP MODEL	DISPLACEMENT cu. inch/rev	SHAFT TYPE *	LOCKVALVE		SHIPPING WEIGHT		CARTON SIZE (inches)
			INCLUDED	PORT (NPT)	LBS	KG	
701	1.95	TAPER	YES	1/4	10	4.5	6½ x 6½ x 11
702	1.95	TAPER	YES	1/4	10½	4.7	6½ x 6½ x 11

* 3/4" DIAMETER SHAFT, 1/12 TAPER

RECOMMENDED HYDRAULIC OIL:
ISO Viscosity Grade 10

HELM PUMP SPECIFICATIONS - B SERIES							
HELM PUMP MODEL	DISPLACEMENT cu. inch/rev	SHAFT TYPE **	LOCKVALVE		SHIPPING WEIGHT		CARTON SIZE (inches)
			INCLUDED	PORT (NPT)	LBS	KG	
B1	2.59	1"	YES	3/8	16	7.3	7½ x 7½ x 16
B2	4.02	1"	YES	3/8	16	7.3	7½ x 7½ x 16
B3	6.33	1"	YES	1/2	35	16	10 x 10 x 19
B4	9.89	1"	YES	1/2	35	16	10 x 10 x 19

** STRAIGHT SHAFT WITH 1/4" SQUARE KEY

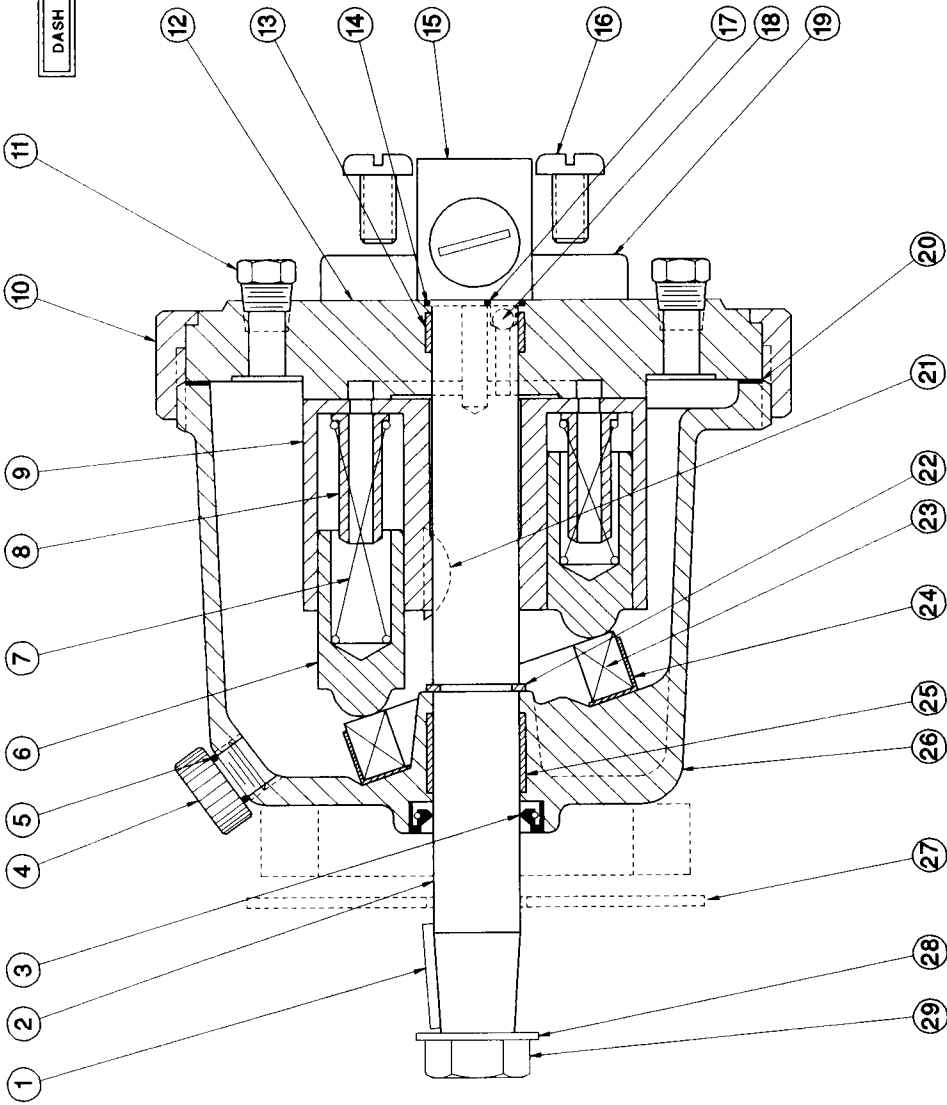
RECOMMENDED HYDRAULIC OIL:
ISO Viscosity Grade 32

7983 PROGRESS WAY • DELTA, BC V4G 1A3 CANADA • PHONE (604) 940-4545 • FAX (604) 940-4566

MANUFACTURER OF



HYDRAULIC STEERING



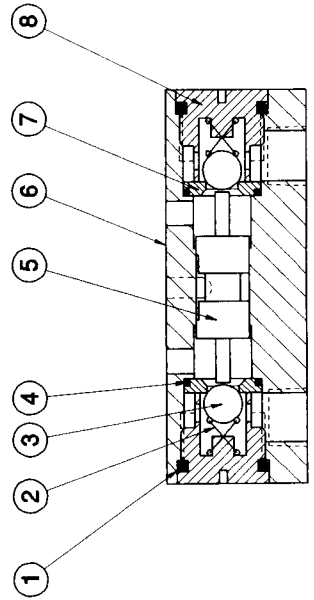
DASH NO.		QTY	ITEM	PART NO.	DESCRIPTION	MAT'L	
-2	-1	1	1	51-100001	SQUARE KEY	BRASS	
		1	2	320-0010	SHAFT (701 HELM PUMP)	BRASS	
		1	2	320-0148	SHAFT (702 HELM PUMP)	BRASS	
		1	3	10-500013	SHAFT SEAL	SYN	
		1	4	41-128003	PLASTIC PLUG	PLAST	
		1	5	11-106111	O-RING	BUNA	
		6	6	320-0012	PISTON	D.I.	
		6	7	31-100064	SPRING	STL	
		6	8	92-991001	PISTON INSERT	ALUM	
		1	9	320-0011	ROTOR	D.I.	
		1	10	320-0115	END NUT	ALUM	
		2	2	41-102007	BRASS PLUG	BRASS	
		1	12	320-0117	BACKPLATE	D.I.	
		1	13	320-0190	BEARING	SYN	
		1	14	11-106018	O-RING	BUNA	
		1	15	400-0001	LOCKVALVE (SEE ASSEMBLY BELOW)	ALUM	
		2	2	51-279003	CAPSCREW	STL	
		2	17	11-106016	O-RING	BUNA	
		2	2	21-300004	CHECK BALL	STL	
		2	2	92-991002	CLAMP BAR	ZN	
		1	1	10-300012	GASKET	CORK	
		1	1	51-110004	WOODRUFF KEY	STL	
		1	1	22	51-300014	SNAP RING	STL
		1	1	23	21-100004	BEARING	STL
		1	1	24	91-990002	BEARING CAGE	STL
		1	1	25	320-0189	BEARING	SYN
		-	1	26	320-0116	HOUSING (701 HELM PUMP)	ALUM
		1	-	26	320-0151	HOUSING (702 HELM PUMP)	ALUM
		1	-	27	320-0150	TRIM PLATE (702 HELM PUMP)	S.S.
		1	1	28	51-409001	WASHER	STL
		1	1	29	51-218001	CAPSCREW	S.S.

MODELS 701 AND 702 HELM PUMP SEAL KIT PART NUMBER: 119-0002

DASH NO.	ASSEMBLY PART NUMBER	DESCRIPTION
-1	300-0007	701 HELM PUMP ASSEMBLY
-2	300-0041	702 HELM PUMP ASSEMBLY

1/4" LOCKVALVE (PART NO: 400-0001)

ITEM	QTY	PART NO.	DESCRIPTION
1	2	11-106114	O-RING
2	2	31-100003	SPRING
3	2	21-300010	CHECK BALL
4	2	11-106015	O-RING
5	1	410-0001	PISTON ASSEMBLY
6	1	420-0003	BODY
7	2	420-0002	BALL SEAT
8	2	420-0004	END INSERT



WAGNER MODELS 701 AND 702 HELM PUMP ASSEMBLY DRAWING



EQUIPMENT LTD.
7888 PROGRESS WAY, DRBTA, B.C. CANADA
PHONE (604) 940-4244 FAX (604) 940-4846
www.summiterequipment.com

MANUFACTURERS OF HYDRAULIC STEERING

DRAWN BY: L.A.M.

SCALE: 1/16" = 1"

DATE: MAY, 1997

REF NO.:

CHECKED BY: M.L.G.

DRAWING NO.

C-3-313

REV.

HELM PUMPS

Model 701 P/N 300-0007 & Model 702 P/N 300-0041

2005 May

<u>ITEM</u>	<u>PART NUMBER</u>	<u>DESCRIPTION</u>
20	10-300012	Gasket
3	10-500013	Shaft seal 19 x 30 x 7mm
23	21-100004	Bearing
18	21-300004	Ball, suction
7	31-100064	Spring, pistons
4	41-128003	Plug, plastic
16	51-279003	Screw, lockvalve mounting
24	91-990002	Bearing Cage
8	92-991001	Piston insert
19	92-991002	Clamp bar, lockvalve
	119-0002	Seal kit 701 or 702
	119-0008	Seal kit ¼" Lockvalve
2	320-0010	Shaft 701
10	320-0115	Retainer ring nut
26	320-0116	Housing 701
	320-0148	Shaft 702
	320-0151	Housing 702
25	320-0189	Shaft bearing, front
13	320-0190	Shaft bearing, rear (lockvalve end)
15	400-0001	¼" Lockvalve

Parts list drawing for Model 701 Helm Pump C-3-313

Recommended Hydraulic Oil: ISO Viscosity Grade 10

HELM PUMPS

Model 700, AW, A1W, A2W, CW, DW, A1XL & AX

119-0001	Seal Kit, 700 Helm (old style)	1.95 IN ³ /REV
119-0003	Seal Kit, AW Helm	1.95 IN ³ /REV
119-0004	Seal Kit, A1W Helm	3.65 IN ³ /REV
119-0005	Seal Kit, A2W Helm	5.50 IN ³ /REV
119-0006	Seal Kit, CW Helm	7.80 IN ³ /REV
119-0007	Seal Kit, DW Helm	13.4 IN ³ /REV
119-0116	Seal Kit, A1XL Helms	3.65 IN ³ /REV
119-0157	Seal Kit, AX Helm	1.95 IN ³ /REV

All Prices in U.S. Dollars - EX Works, Delta, BC Canada

Subject to change without notice

Includes: Brokerage Costs and any Customs Fees (see page iv for details).

Shipping and Handling Extra

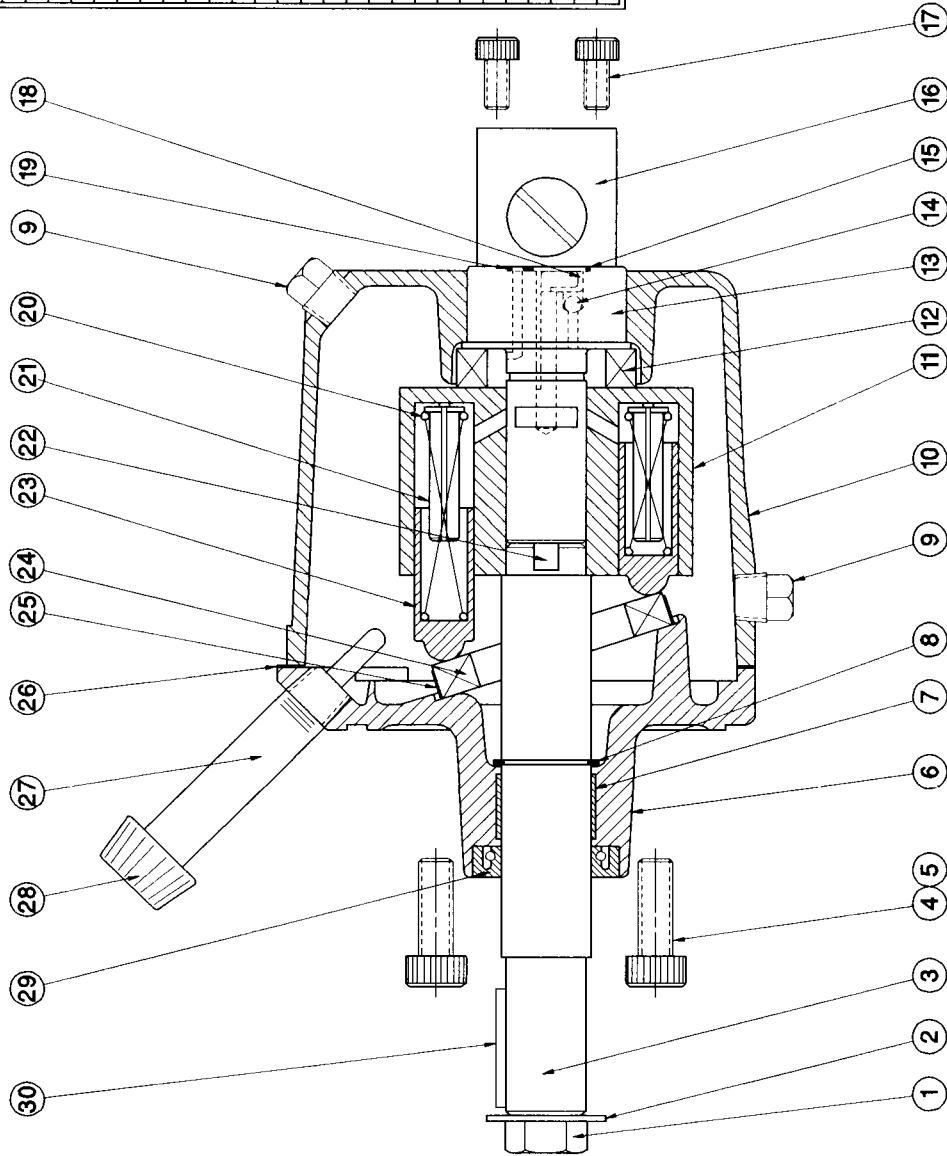
Manufacturer of



HYDRAULIC STEERING

QTY	ITEM	PART NO.	DESCRIPTION	MAT'L
-2	-1			
1	1	51-211011	CAPSCREW	S.S.
1	2	51-401005	WASHER	S.S.
1	3	320-0136	SHAFT	BRASS
4	4	51-209003	CAPSCREW	STL
4	4	51-509009	NUT	STL
1	6	320-0065	FRONT PLATE	ALUM
1	7	320-0210	BEARING	SYN
1	8	51-300003	SNAP RING	STL
2	9	41-192002	PIPE PLUG	BRASS
1	10	320-0066	HOUSING	ALUM
-	11	320-0139	ROTOR	D.I.
1	11	320-0134	ROTOR	D.I.
1	12	21-100006	BEARING	STL
1	13	320-0071	PINTLE	STL
2	14	21-300002	CHECK BALL	STL
2	15	11-106016	O-RING	BUNA
1	16	400-0002	3/8" LOCKVALVE ASSEMBLY	ALUM
2	17	51-209002	CAPSCREW	STL
2	18	91-980006	WIRE BALL STOP	STL
1	19	11-108006	O-RING	BUNA
7	20	31-100132	SPRING	STL
7	21	92-981004	PISTON FILLER	ALUM
1	22	51-100003	KEY (ROUNDED)	STL
-	23	320-0067	PISTON	D.I.
7	23	320-0073	PISTON	D.I.
1	24	21-100002	BEARING	STL
1	25	91-980003	BEARING CAGE	STL
1	26	10-300014	GASKET	CORK
1	27	292-0016	DIPSTICK TUBE	PL
1	28	91-998009	DIPSTICK	PL
1	29	10-500009	SHAFT SEAL	NEO
1	30	51-102007	KEY (RECTANGULAR)	BRASS

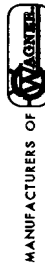
DASH NO.	ASSEMBLY PART NUMBER	DESCRIPTION
-1	300-0008	B1 HELM PUMP ASSEMBLY
-2	300-0009	B2 HELM PUMP ASSEMBLY



WAGNER B1 AND B2 HELM PUMP ASSEMBLY DRAWING



EQUIPMENT LTD.
7983 PROGRESS WAY, DELTA, B.C., CANADA
PHONE (604) 940-4646 FAX (604) 940-4866
www.summerequipment.com



MANUFACTURERS OF HYDRAULIC STEERING

DRAWN BY: L.A.M.
SCALE: 7/8" = 1"
DATE: MARCH, 1997
REF NO.:

CHECKED BY: M.L.G.
DRAWING NO. C-3-314
REV.

B PUMP SEAL KIT PART NUMBER: 119-0065 (ITEMS 15, 19, 26, AND 29)

B1 PUMP HOUSING, PINTLE, & ROTOR SUB-ASSEMBLY PART NUMBER: 310-0021 (ITEMS 10, 11, 12, 13, 20, 21, AND 23)

B2 PUMP HOUSING, PINTLE, & ROTOR SUB-ASSEMBLY PART NUMBER: 310-0022 (ITEMS 10, 11, 12, 13, 20, 21, AND 23)

REFER TO DRAWING C-6-410 FOR THE 3/8" LOCKVALVE ASSEMBLY PART NUMBER: 400-0002 (ITEM 16)

HELM PUMPS

Model **B1** P/N 300-0008 & Model **B2** P/N 300-0009

2005 May

<u>ITEM</u>	<u>PART NUMBER</u>	<u>DESCRIPTION</u>
26	10-300014	Gasket
29	10-500009	Shaft Seal
24	21-100002	Bearing
12	21-100006	Bearing
14	21-300002	Ball, Suction
20	31-100132	Spring, pistons
30	51-102007	Brass Key, wheel
25	91-990003	Bearing cage
18	91-990006	Wire Ball Stop
21	92-991004	Insert, pistons
	111-0004	Dipstick, Kit
	111-0010	Hardware Kit
	119-0085	Seal Kit
	170-0024	Porting Block & Lockvalve Adaptor, Kit
	290-0016	Porting Block (¼" NPT)
6	320-0065	Front Plate
10	320-0066	Housing
3	320-0136	Shaft
7	320-0210	Bearing Shaft
16	400-0002	3/8" Lockvalve

Parts list drawing for Model B1 & B2 Helm Pumps C-3-314
Recommended Hydraulic Oil: ISO Viscosity Grade 32

P.O.R. = Price on Request

All Prices in U.S. Dollars - EX Works, Delta, BC Canada

Subject to change without notice

Includes: Brokerage Costs and any Customs Fees (see page iv for details).

Shipping and Handling Extra

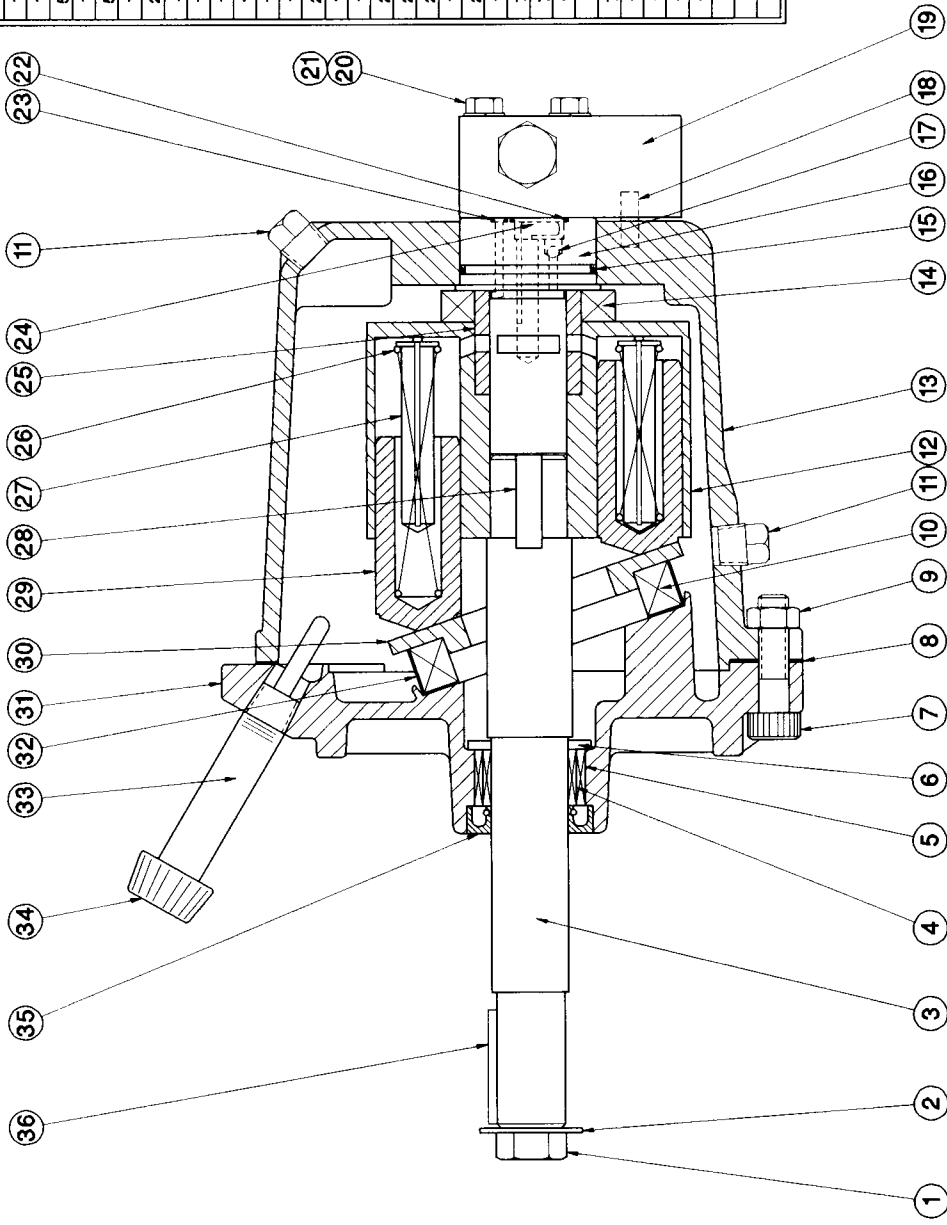
Manufacturer of



HYDRAULIC STEERING

QTY		ITEM	PART NO.	DESCRIPTION	MAT'L
-2	-1				
1	1	1	51-211011	CAPSCREW	S.S.
1	1	2	51-401005	WASHER	S.S.
1	1	3	320-0075	SHAFT	BRASS
1	1	4	21-200009	BEARING INNER RACE	STL
1	1	5	21-200010	BEARING	STL
1	1	6	91-990001	WASHER	STL
5	5	7	51-209004	CAPSCREW	STL
1	1	8	10-300015	GASKET	CORK
5	5	9	51-509009	NUT	STL
1	1	10	21-100016	BEARING	STL
2	2	11	41-132002	PIPE PLUG	BRASS
-	1	12	320-0080	ROTOR	D.I.
1	1	13	320-0086	ROTOR	D.I.
1	1	14	320-0077	HOUSING	ALUM
1	1	15	21-100006	BEARING	STL
1	1	16	11-106133	O-RING	BUNA
1	1	17	320-0081	PINTLE	STL
2	2	18	21-300002	CHECK BALL	STL
1	1	19	51-170018	DOWEL PIN	STL
1	1	20	400-0164	1/2" LOCKVALVE ASSEMBLY	D.I.
2	2	21	51-210046	CAPSCREW	STL
2	2	22	51-430005	LOCKWASHER	STL
2	2	23	11-106006	O-RING	BUNA
2	2	24	91-990006	WIRE BALL STOP	STL
1	1	25	320-0082	ROTOR SLEEVE	D.I.
7	7	26	31-100055	SPRING	STL
7	7	27	92-991005	PISTON INSERT	ALUM
1	1	28	51-102010	KEY	BRASS
-	7	29	320-0078	PISTON	D.I.
7	7	30	320-0085	PISTON	D.I.
1	1	31	320-0083	BEARING PLATE	STL
1	1	32	320-0076	FRONT PLATE	ALUM
1	1	33	91-990004	BEARING CAGE	STL
1	1	34	292-0016	DIPSTICK TUBE	PL
1	1	35	91-998009	DIPSTICK	PL
1	1	36	10-500009	SHAFT SEAL	NEO
1	1	36	51-102007	KEY	BRASS

DASH NO.	ASSEMBLY PART NUMBER	DESCRIPTION
-1	300-0070	B3 HELM PUMP ASSEMBLY
-2	300-0071	B4 HELM PUMP ASSEMBLY



WAGNER B3 AND B4 HELM PUMP ASSEMBLY DRAWING

SUMMER EQUIPMENT LTD.
 793 PROGRESS WAY, DELTA, B.C. CANADA
 PHONE (604) 940-4645 FAX (604) 940-4666
 www.summerequipment.com

MANUFACTURERS OF **WAGNER** HYDRAULIC STEERING

DRAWN BY: L.A.M.
 SCALE: 3/4" = 1"
 DATE: MARCH, 1997
 REF. NO.:

CHECKED BY: M.L.G.

DRAWING NO. **C-3-315**
 REV.

B PUMP SEAL KIT PART NUMBER: 119-0085 (ITEMS 8, 15, 22, 23, 35)

B3 PUMP HOUSING, PINTLE, & ROTOR SUB-ASSEMBLY PART NUMBER: 310-0023 (ITEMS 12, 13, 14, 15, 16, 25, 26, 27, 29)

B4 PUMP HOUSING, PINTLE, & ROTOR SUB-ASSEMBLY PART NUMBER: 310-0024 (ITEMS 12, 13, 14, 15, 16, 25, 26, 27, 29)

REFER TO DRAWING C-6-410 FOR THE 1/2" LOCKVALVE ASSEMBLY PART NUMBER: 400-0164 (ITEM 19)

HELM PUMPS

Model **B3** P/N 300-0010 & Model **B4** P/N 300-0011

2005 May

<u>ITEM</u>	<u>PART NUMBER</u>	<u>DESCRIPTION</u>
8	10-300015	Gasket
35	10-500009	Shaft Seal
14	21-100006	Bearing
10	21-100016	Bearing
5	21-200010	Bearing, shaft
17	21-300002	Ball, suction
26	31-100055	Spring, pistons
36	51-102007	Brass key, wheel
20	51-210046	Capscrew (2) required
21	51-430005	Capscrew (2) required
32	91-990004	Bearing cage
24	91-990006	Wire Ball Stop
27	92-991005	Insert, Pistons
	111-0004	Dipstick, Kit
	111-0010	Hardware Kit
	119-0085	Seal Kit
	119-0087	Seal Kit, 3/4" Lockvalve (aluminum, P/N 400-0009)
3	320-0075	Shaft
31	320-0076	Front Plate
13	320-0077	Housing
19	400-0164	1/2" Lockvalve (replaces P/N 400-0009)

Parts list drawing for Model B3 & B4 Helm Pumps C-3-315
Recommended Hydraulic Oil: ISO Viscosity Grade 32

All Prices in U.S. Dollars - EX Works, Delta, BC Canada

Subject to change without notice

Includes: Brokerage Costs and any Customs Fees (see page iv for details).

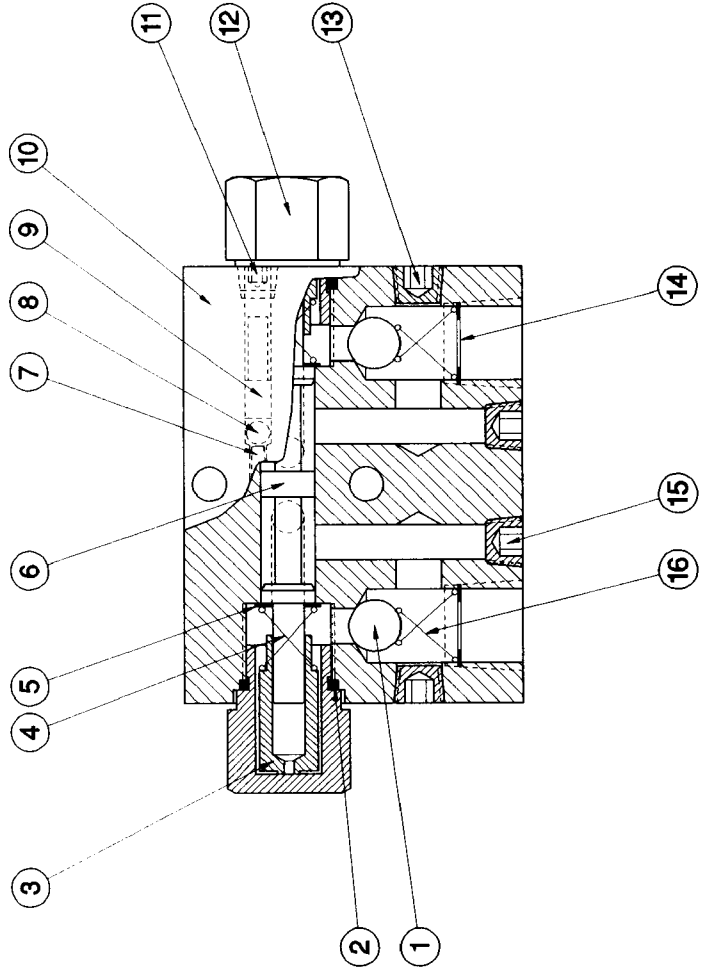
Shipping and Handling Extra

Manufacturer of



HYDRAULIC STEERING

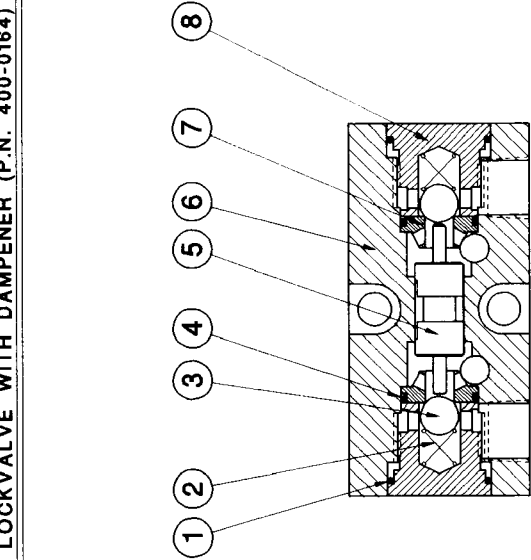
1/2" LOCKVALVE WITH DAMPENER (PART NO: 400-0164)



ITEM	QTY	PART NO.	DESCRIPTION
1	2	21-300013	CHECK BALL
2	2	11-106116	O-RING
3	2	420-0562	SPOOL DAMPNER
4	2	31-100121	SPRING
5	2	51-400038	WASHER
6	1	420-0559	SPOOL
7	1	51-170037	PIN
8	2	21-300004	CHECK BALL
9	2	420-0564	THROTTLE
10	1	420-0560	BODY
11	2	41-110010	PLUG
12	2	420-0561	CAP
13	2	41-110002	PLUG
14	2	7-100053	SPRING HOLDER
15	2	41-110001	PLUG
16	2	31-100122	SPRING (CONICAL)

1/2" LOCKVALVE WITH DAMPENER (P.N. 400-0164)

3/8" LOCKVALVE (PART NO: 400-0002)



ITEM	QTY	PART NO.	DESCRIPTION
1	2	11-106020	O-RING
2	2	31-100003	SPRING
3	2	21-300001	CHECK BALL
4	2	11-106016	O-RING
5	1	410-0001	PISTON ASSEMBLY
6	1	420-0006	BODY
7	2	420-0140	BALLSEAT
8	2	420-0005	BALL CAGE

3/8" LOCKVALVE (P.N. 400-0002)

WAGNER 3/8" AND 1/2" LOCKVALVES ASSEMBLY DRAWING

SUMMER EQUIPMENT LTD.
 24 WEST 4TH AVENUE, VANCOUVER, B.C.
 PHONE (604) 973-4545 FAX (604) 973-2382

MANUFACTURERS OF WAGNER HYDRAULIC STEERING

DRAWN BY: L.A.M. CHECKED BY: M.L.G.
 SCALE: 1" = 1-1/8"
 DATE: MAY, 1997
 REF NO.:

REV. DRAWING NO. **C-6-410**

LOCKVALVES

Model 3/8 P/N 400-0002 (Model B1 & B2 Helm Pump)

2005 May

<u>ITEM</u>	<u>PART NUMBER</u>	<u>DESCRIPTION and QUANTITY</u>
	11-106006	O-Ring (1) required
4	11-106016	O-Ring (4) required
3	21-300001	Ball, check
	21-300002	Ball, suction (2) required
2	31-100003	Spring
	51-209002	Capscrew, mounting (2) required
	91-990006	Wire ball stop (2) required
	119-0009	Seal Kit
	400-0002	3/8" Lockvalve
8	420-0005	Ball Cage
7	420-0140	Ball Seat

Parts list drawing for Model 3/8 Lockvalve C-6-410

LOCKVALVES

Model 1/2 P/N 400-0164 (Model B3 & B4 Helm Pump)

<u>ITEM</u>	<u>PART NUMBER</u>	<u>DESCRIPTION and QUANTITY</u>
	11-106006	O-Ring (1) required
	11-106016	O-Ring (4) required
	21-300002	Ball, suction (2) required
8	21-300004	Ball, check
1	21-300013	Ball, check
4	31-100121	Spring
16	31-100122	Spring, conical
	51-210046	Capscrew, mounting (2) required
5	51-400038	Washer
	51-430005	Lockwasher, mounting (2) required
	91-990006	Wire ball stop (2) required
	119-0138	Seal Kit
	400-0164	1/2" Lockvalve (replaces P/N 400-0009)

Parts list drawing for Model 3/8 Lockvalve C-6-410

All Prices in U.S. Dollars - EX Works, Delta, BC Canada

Subject to change without notice

Includes: Brokerage Costs and any Customs Fees (see page iv for details).

Shipping and Handling Extra

Manufacturer of



HYDRAULIC STEERING



Hydraulic Steering

700 SERIES SYSTEMS

Wagner 700 Series Hydraulic steering systems offer smooth reliable control of power or sail boats from 18 to 40 ft. in length. Ideal for replacement of obsolete or complicated mechanical systems.

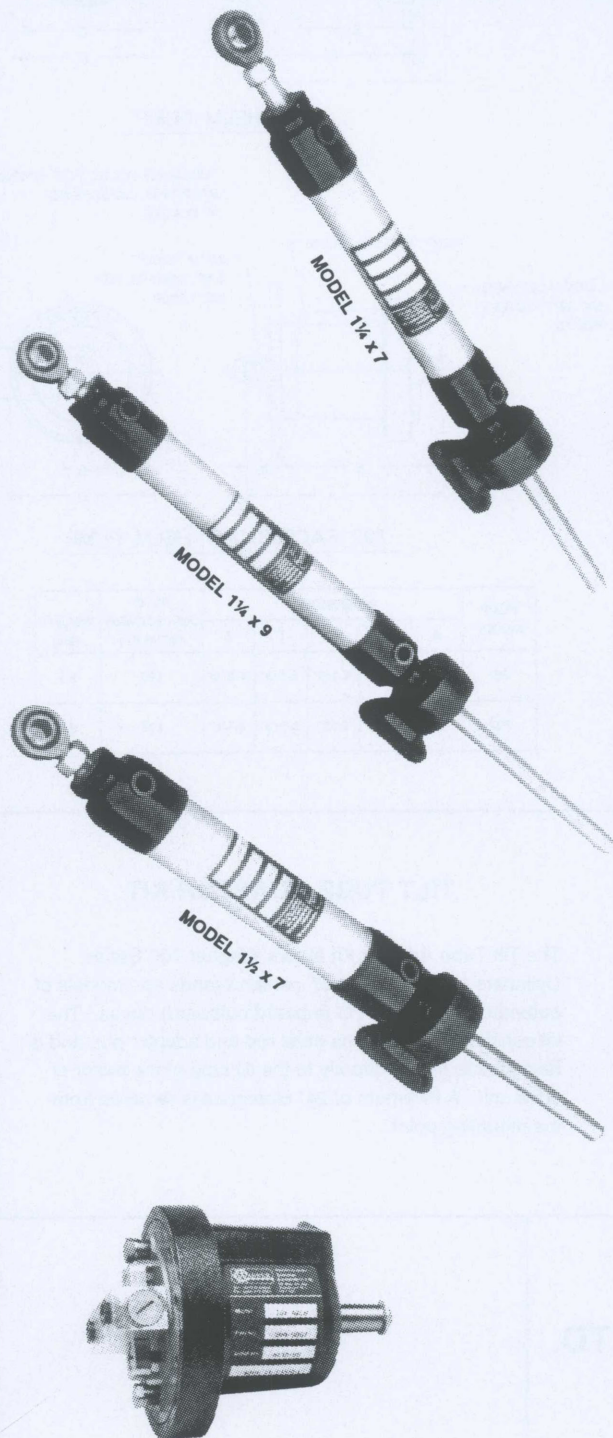
WHY A WAGNER CYLINDER?

- **Strong and compact design.**
700 series systems offer pleasure boaters and yachtsmen the same high quality design and construction found in larger commercial Wagner systems. Cylinders are a double acting, balanced displacement design.
- **Flexibility.**
Standard systems use a 1¼ or 1½ cylinder with a 7" stroke. For outboard and inboard/outboard applications there is a 1¼ cylinder with a 9" stroke.
- **Corrosion free construction.**
Cylinder barrels are manufactured using anodized marine grade aluminum and honed to provide a smooth surface for longer seal life. The piston rods are constructed using stainless steel.
- **Simple installation.**
Self-aligning rod end and trunion mounting pad allow for easy installation and less critical alignment. Bleed fittings installed in the cylinders ensure easy filling of the system.

WHY A WAGNER HELM PUMP?

- **Performance.**
The 701 is a positive displacement axial piston pump based on the same design found in larger Wagner helm pumps. The pistons are ground and honed, then hand assembled for a precise fit resulting in the most efficient manual hydraulic helm pump available.
- **Dependable.**
The pump is a rugged all metal construction with a hard baked-on enamel finish. The brass shaft is supported at both ends for extra strength. A replaceable external shaft seal is used.
- **Multiple steering stations.**
Multiple helm pumps are easily connected. Each pump operates independently and has full rudder control. A lockvalve on each pump prevents the wheels not in use from "motoring" as well as eliminating the wheel effort required to maintain rudder position.
- **Simple installation.**
Pumps have a simple two bolt mounting and may be located in front or behind the dash panel. An optional trim ring provides the perfect finish for a through dash panel mounting.

Wagner 700 Series Systems offer the ideal all-purpose small boat steering.



Wagner Marine Technologies

Issued June 2005

700 SERIES STEERING SYSTEM SPECIFICATIONS											
CYLINDER MODEL	PART NUMBER	BORE	STROKE	DISPLACEMENT		HELM PUMPS		TORQUE			
				in ³	cm ³	MODEL	TURNS	1000 PSI (70 kg/cm ²)	Lbs-Ft	Kg-M	Lbs-Ft
1 1/4" x 7"	700-0026	1 1/4"	7"	6.44	106	701	3 1/4	384	53	269	37
1 1/2" x 7"	700-0028	1 1/2"	7"	10.22	167	701	5 1/4	610	84	427	59
1 1/4" x 9"	700-0030	1 1/4"	9"	8.28	136	701	4 1/4	492	68	344	48

SHIPPING WEIGHT:

- 1 1/4" x 7" Cylinder - 4.5 lbs (2.1 kg)
- 1 1/2" x 7" Cylinder - 5.0 lbs (2.3 kg)
- 1 1/4" x 9" Cylinder - 5.0 lbs (2.3 kg)
- 701 Helm Pump - 10 lbs (4.6 kg)
- 702 Helm Pump - 10.5 lbs (4.8 kg)

CARTON SIZE:

- Cylinder: 3 1/4" x 4 1/2" x 25"
- Helm Pump: 6 1/2" x 6 1/2" x 10 1/2"

RECOMMENDED HYDRAULIC OIL:

ISO Viscosity Grade 10

Typical Brands:

- Gulf Harmony 10
- Shell Tellus 10
- Esso Nuto A10

TORQUE RATINGS:

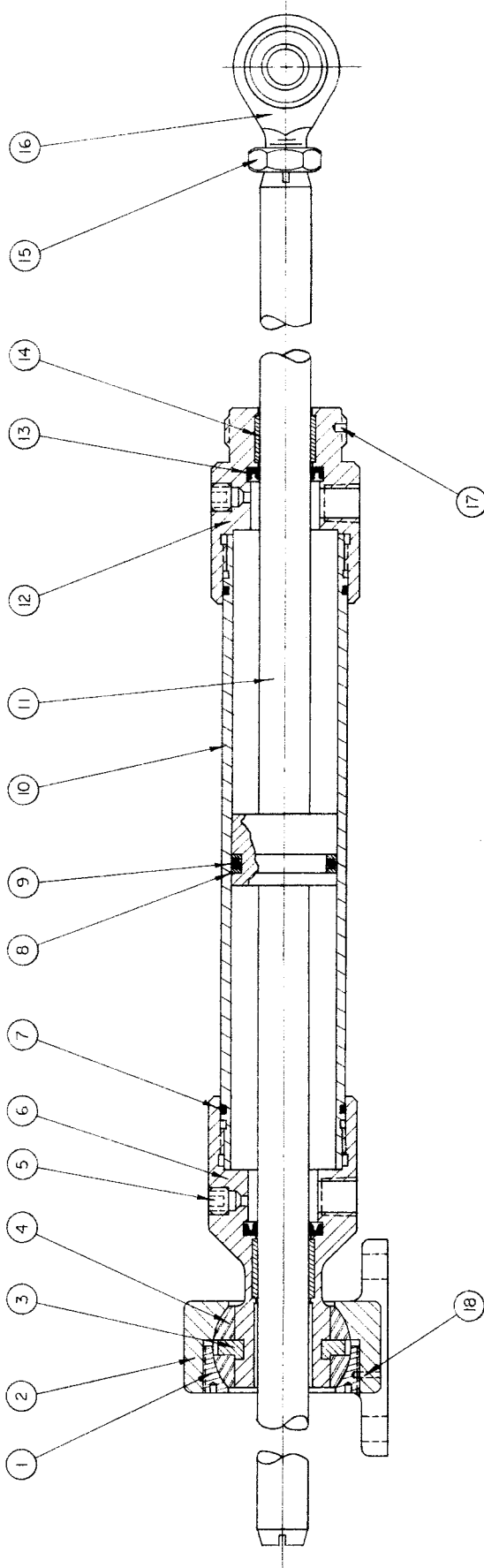
Developed in the Hardover position at 35 degrees.

7983 PROGRESS WAY • DELTA, BC V4G 1A3 CANADA • PHONE (604) 940-4545 • FAX (604) 940-4566



MANUFACTURER OF

HYDRAULIC STEERING



DASH NO.	DESCRIPTION	BORE	STROKE	PART NO.
-1	700 SERIES 1 1/4" X 7" CYLINDER	1 1/4"	7"	700-0026
-2	700 SERIES 1 1/4" X 9" CYLINDER	1 1/4"	9"	700-0030

CYLINDER SEAL KIT PART NUMBER 119-0097

DASH NO.	QTY	ITEM	PART NO.	DESCRIPTION	MAT'L
-1	-2				
	1	1	760-0019	TRUNNION NUT	ALUM.
	1	2	760-0017	TRUNNION HOUSING	ALUM.
	2	3	92-991003	SPLIT RING	ALUM.
	2	4	91-998001	TRUNNION BALL	SYN.
	2	5	760-0061	BLEED FITTING (PLATED)	BRS.
	1	6	760-0029	CYLINDER TAIL	ALUM.
	2	7	11-106028	O-RING	BUNA
	2	8	10-800021	BACK-UP WASHER	SYN.
	1	9	11-106214	O-RING	BUNA
	1	10	760-0030	CYLINDER BARREL (7" STROKE)	ALUM.
	1	10	760-0032	CYLINDER BARREL (9" STROKE)	ALUM.
	1	11	750-0021	PISTON ROD ASSEMBLY (7" STROKE)	S.S.
	1	11	750-0022	PISTON ROD ASSEMBLY (9" STROKE)	S.S.
	1	12	760-0043	CYLINDER HEAD	ALUM.
	2	13	11-208009	U-CUP	DISO.
	2	14	760-0063	ROD BEARING	SYN.
	1	15	51-509001	NUT (PLATED)	STL.
	1	16	21-600002	BALL JOINT END	STL.
	1	17	91-998011	LOCK PLUG	NYLON
	1	18	600-048	SECURING PIN	S.S.

700 SERIES CYLINDER ASSEMBLY
1-1/4" X 7" AND 1-1/4" X 9"



SUMMER EQUIPMENT LTD.
24 WEST 4TH AVENUE, VANCOUVER, B.C.
PHONE (604)-873-4545 FAX (604)-873-2382



MANUFACTURERS OF
HYDRAULIC STEERING

DRAWN BY: B.B.O. CHECKED BY: M.L.G.
SCALE: N.T.S.
DATE: NOV. 1993
REV. C-3-723
REF NO:

CYLINDERS 700 SERIES 1 1/4" x 7" P/N 700-0026 & 1 1/4" x 9" P/N 700-0030

2005 May

<u>ITEM</u>	<u>PART NUMBER</u>	<u>DESCRIPTION, MODEL and DIMENSIONS</u>
13	11-208009	U-Cup, rod
16	21-600002	Rod end, 1/2 NF
	41-007025	Flexible Hose
15	51-509001	Hex nut, rod end
4	91-998001	Trunnion bearing
3	92-991003	Split ring, trunnion
	111-0005	Tilt Tube Adaptor Kit (13-7/8" rod)
	119-0097	Seal kit, 1 1/4" cylinder x 5/8" rod
	750-0005	Trunnion Assembly, kit
11	750-0021	Piston rod & head sub-assembly, 1 1/4" x 7" (5/8" x 18" long)
11	750-0022	Piston rod & head sub-assembly, 1 1/4" x 9" (5/8" x 22" long)
2	760-0017	Trunnion housing
1	760-0019	Trunnion nut
6	760-0029 B	Tail End, 1 1/4" Seals
10	760-0030	Barrel 1 1/4" x 7" (1 1/2" O.D. x 7-7/8" long)
10	760-0032	Barrel 1 1/4" x 9" (1 1/2" O.D. x 9-7/8" long)
12	760-0043 B	Head End 1 1/4"
5	760-0061	Bleed fitting, flush type
14	760-0063	Bearing, piston rod

Parts list drawing for Model 1 1/4" x 7" cylinder C-3-723

All Prices in U.S. Dollars - EX Works, Delta, BC Canada

Subject to change without notice

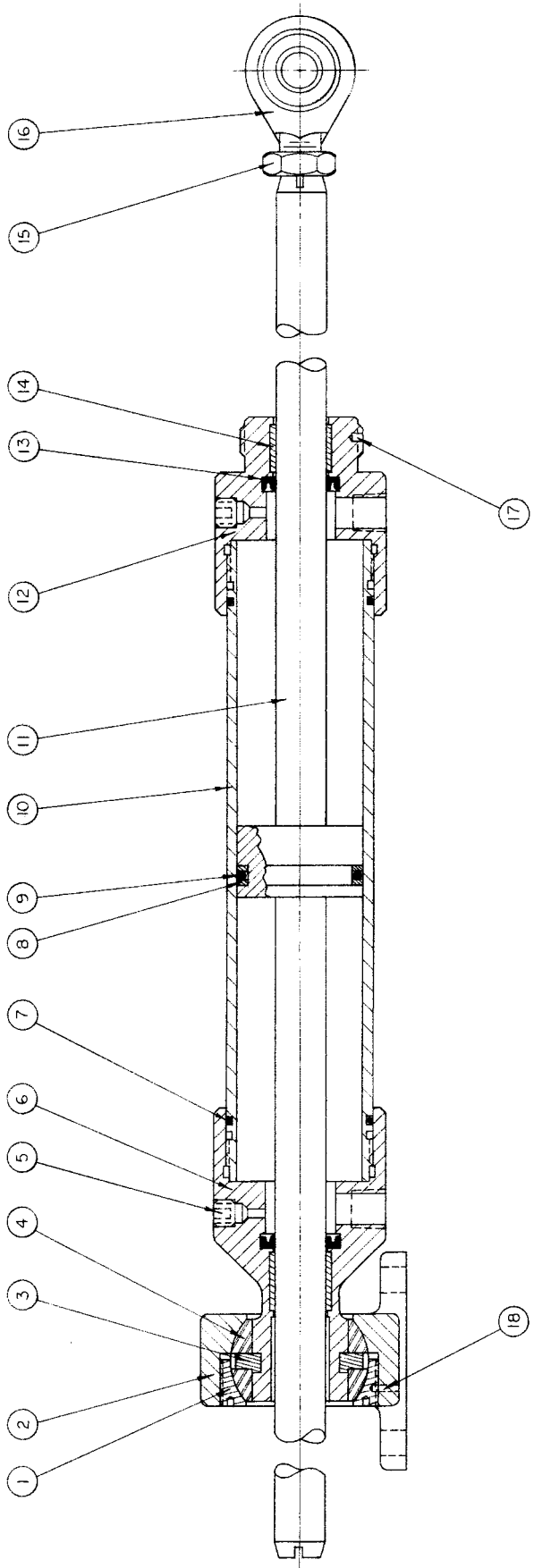
Includes: Brokerage Costs and any Customs Fees (see page iv for details).

Shipping and Handling Extra

Manufacturer of



HYDRAULIC STEERING



DESCRIPTION	BORE	STROKE	PART NO.
700 SERIES 1/2" X 7" CYLINDER	1 1/2"	7"	700-0028

CYLINDER SEAL KIT PART NUMBER 119-0098

QTY	ITEM	PART NO.	DESCRIPTION	MAT'L
1	1	760-0019	TRUNNION NUT	ALUM.
1	2	760-0017	TRUNNION HOUSING	ALUM.
2	3	92-991003	SPLIT RING	ALUM.
2	4	91-998001	TRUNNION BALL	SYN.
2	5	760-0061	BLEED FITTING (PLATED)	BRS.
1	6	760-0033	CYLINDER TAIL	ALUM.
2	7	11-106030	O-RING	BUNA
2	8	10-800022	BACK-UP WASHER	SYN.
1	9	11-106218	O-RING	BUNA
1	10	760-0034	CYLINDER BARREL	ALUM.
1	11	750-0023	PISTON ROD ASSEMBLY	SS
1	12	760-0035	CYLINDER HEAD	ALUM.
2	13	11-208009	U-CUP	DISC.
2	14	760-0063	ROD BEARING	SYN.
1	15	51-509001	NUT (PLATED)	STL.
1	16	21-600002	BALL JOINT END	STL.
1	17	91-998011	LOCK PLUG	NYLON
1	18	600-048	SECURING PIN	SS

700 SERIES CYLINDER ASSEMBLY
1-1/2" X 7"

SUMMER
SUMMER EQUIPMENT LTD.
24 WEST 4TH AVENUE, VANCOUVER, B.C.
PHONE (604)-873-4545 FAX (604)-873-2382

MANUFACTURERS OF **HYDRA-TEC** HYDRAULIC STEERING

DRAWN BY: B.B.O. CHECKED BY: M.L.G.
SCALE: N.T.S.
DATE: NOV. 1993.
REV. DRAWING NO. C-3-724
REF NO.

CYLINDERS 700 SERIES 1½" x 7" P/N 700-0028

2005 May

<u>ITEM</u>	<u>PART NUMBER</u>	<u>DESCRIPTION, MODEL and DIMENSIONS</u>
13	11-208009	U-Cup, rod
16	21-600002	Rod end, 1/2 NF
	41-007025	Flexible Hose
15	51-509001	Hex nut, rod end
4	91-998001	Trunnion bearing
3	92-991003	Split ring, trunnion
	111-0005	Tilt Tube Adaptor Kit (13-7/8" rod)
	119-0098	Seal kit, 1½" cylinder x 5/8" rod
	750-0005	Trunnion Assembly, kit
11	750-0023	Piston rod & head sub-assembly, 1½" x 7" (5/8" x 18" long)
2	760-0017	Trunnion housing
1	760-0019	Trunnion nut
6	760-0033 B	Tail End, 1½"
10	760-0034	Barrel 1½" x 7" (1¾" O.D. x 7-7/8" long)
12	760-0035 B	Head End 1½"
5	760-0061	Bleed fitting, flush type
14	760-0063	Bearing, piston rod

Parts list drawing for Model 1½" x 7" cylinder C-3-724

All Prices in U.S. Dollars - EX Works, Delta, BC Canada Subject to change without notice
 Includes: Brokerage Costs and any Customs Fees (see page iv for details). Shipping and Handling Extra



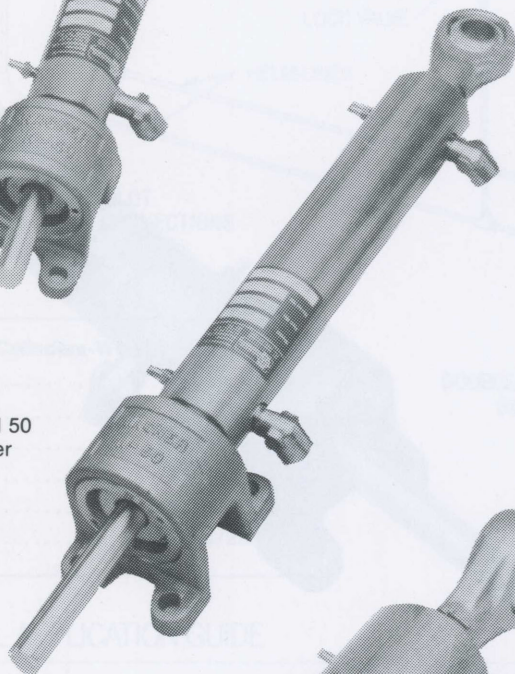


Hydraulic Steering Type N

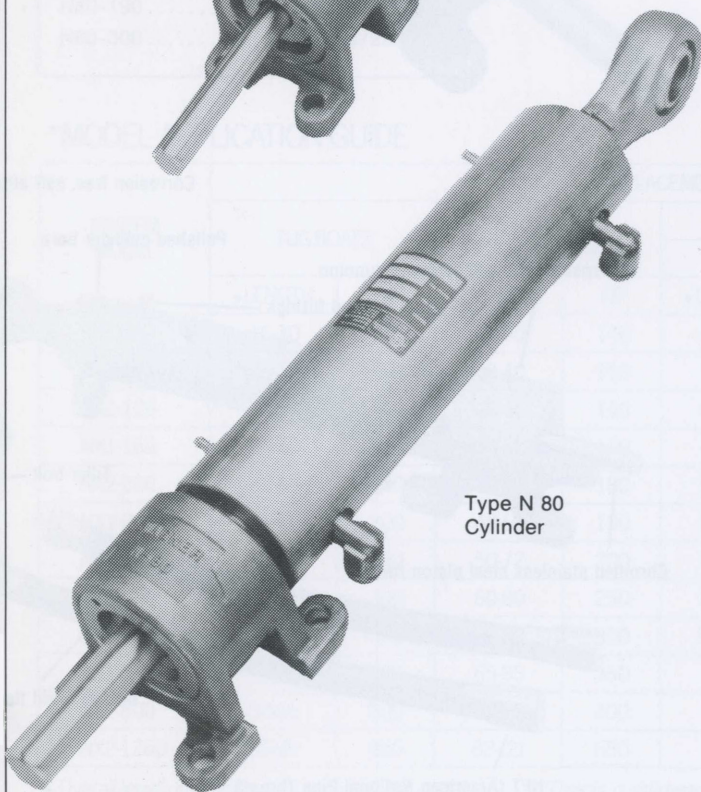
Type N 40
Cylinder



Type N 50
Cylinder



Type N 80
Cylinder



Wagner Type N Hydraulic Steering Systems are exceptionally tough and reliable. They provide long and virtually maintenance-free performance. Type N Hydraulic Steering Systems are available in 12 progressive sizes.

WHY WAGNER STEERING SYSTEMS?

■ **Strong and compact design.**

Larger bore and shorter stroke make cylinders more compact.

■ **Corrosion free construction.**

Cylinders are made of bronze, brass and stainless steel. Cylinder barrels are honed to provide a smooth surface.

■ **Simple installation.**

Self-aligning rod ends and trunnion mounting pads allow for easy installation, less critical alignment. Wagner systems have no pressure tank.

■ **Tiller bolt and flex hoses included.**

Tiller bolts are machined to provide accurate fit and high strength.

Flex hoses are supplied with large diameter ports minimizing hydraulic restrictions.

■ **U-Cups used as dynamic seals.**

Dynamic seals are dual U-cup seals which last much longer and provide better sealing than O-rings.

DEPENDABILITY AND PERFORMANCE

Over five decades of quality performance has made Wagner Hydraulic Steering equipment the standard for dependability and performance.

Today Wagner products are made and distributed by Summer Equipment Ltd. of Vancouver, Canada, a company with over seven decades of experience in the marine field and a reputation for design, engineering and manufacturing excellence.

The Wagner Type N Steering System offers smooth effortless control for all types of vessels.

Wagner Marine Technologies

Issued June 2005

TYPE 'N' STEERING SYSTEM SPECIFICATIONS																	
STEERING CYLINDER			HELM PUMPS			STEERING TORQUES FOR 2 X 35°			STEERING TORQUES FOR 2 X 45°			MAX. RUDDER STOCK DIA.					
MODEL	QTY	DISPLACEMENT		MODEL	WHEEL TURNS	SYSTEM TYPE			SYSTEM TYPE			in.	mm.				
		in ³	cm ³			Lbs-Ft	Kg-M	N-M	Lbs-Ft	Kg-M	N-M						
N40-1-120	1	7.7	127	B1	3.0	Nx1	63-35	456	63	618	Nx1	44-45	318	44	431	1.89	48
N40-1-120	2	15.5	254	B2	3.8	Nx2	126-35	911	126	1240	Nx2	88-45	636	88	863	1.89	48
N40-1-190	1	12.2	200	B1	4.7	Nx1	100-35	723	100	981	Nx1	70-45	506	70	686	2.20	56
N40-1-190	2	24.5	400	B2	6.1	Nx2	200-35	1447	200	1960	Nx2	140-45	1012	140	1372	2.20	56
N50-190	1	19.1	314	B2	4.8	Nx1	160-35	1157	160	1570	Nx1	112-45	810	112	1098	2.56	65
N50-190	2	38.3	628	B3	6.0	Nx2	320-35	2315	320	3140	Nx2	224-45	1620	224	2196	2.56	65
N50-300	1	30.2	495	B3	4.8	Nx1	250-35	1808	250	2450	Nx1	175-45	1266	175	1716	2.95	75
N50-300	2	60.4	990	B3	9.5	Nx2	500-35	3617	500	4910	Nx2	350-45	2532	350	3433	2.95	75
N80-190	1	49.0	802	B3	7.7	Nx1	400-35	2893	400	3920	Nx1	280-45	2025	280	2746	3.46	88
N80-190	2	97.9	1604	B4	9.9	Nx2	800-35	5786	800	7850	Nx2	560-45	4050	560	5492	3.46	88
N80-300	1	77.3	1267	B4	7.8	Nx1	630-35	4557	630	6180	Nx1	441-45	3190	441	4325	3.94	100
N80-300	2	154.6	2534	B4	15.6	Nx2	1260-35	9114	1260	12380	Nx2	882-45	6380	882	8650	3.94	100
N80-382	1	98.4	1613	B4	9.9	Nx1	800-35	5786	800	7845	Nx1	560-45	4050	560	5492	4.72	120
N80-382	2	196.8	3226	B4	19.9	Nx2	1600-35	11573	1600	15690	Nx2	1125-45	8100	1125	10984	4.72	120

RECOMMENDED HYDRAULIC OIL:
ISO Viscosity Grade 32

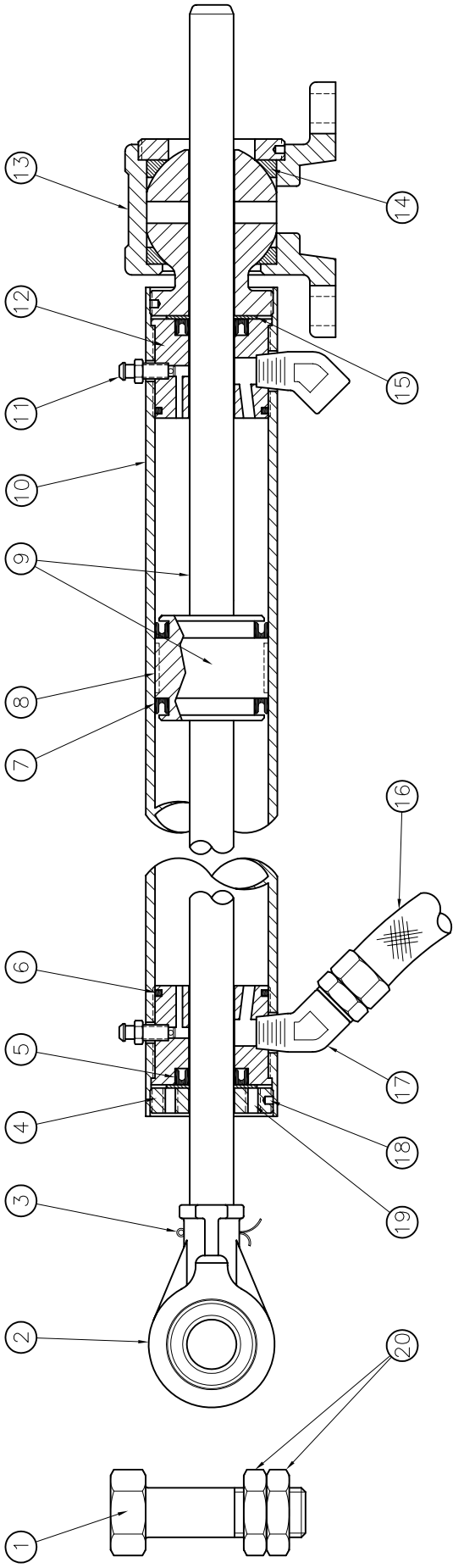
TORQUE RATINGS:
Developed in the Hardover position.

7983 PROGRESS WAY • DELTA, BC V4G 1A3 CANADA • PHONE (604) 940-4545 • FAX (604) 940-4566



MANUFACTURER OF

HYDRAULIC STEERING



DASH NO.	QTY	ITEM	PART NO.	DESCRIPTION	MATL
	-2	-1			
	1	1	290-0004	TILLER BOLT	BR
	1	2	710-0003	CLEVIS ROD END SUB-ASSEMBLY	BR
	1	3	51-182005	COTTER PIN	BR
	1	4	720-0003	RETAINER NUT	BR
	2	5	11-218006	U-CUP	SYN
	2	6	11-106124	O-RING	SYN
	2	7	11-218007	U-CUP	SYN
	1	8	720-0052	PISTON WEAR STRIP (SOME MODELS)	NYLON
	-	9	710-0031	N40-120 PISTON ROD SUB-ASSEMBLY	MISC
	1	-	710-0032	N40-190 PISTON ROD SUB-ASSEMBLY	MISC
	-	10	720-0006	N40-120 CYL BARREL	BR
	1	-	720-0016	N40-190 CYL BARREL	BR
	2	11	720-0014	BLEED FITTING	BR
	2	12	720-0060	CYLINDER END	BR
	1	13	710-0002	TRUNNION ASSEMBLY	MISC
	2	14	91-998003	TRUNNION BEARING	SYN
	2	15	91-992001	WASHER	NYLON
	2	16	41-007025	FLEXIBLE HOSE	MISC
	2	17	41-332038	ELBOW	BR
	3	18	91-998011	LOCK PLUG	NYLON
	2	19	51-611003	SETScrew	S.S.
	2	20	290-0007	TILLER NUT	BR

DASH NO.	ASSEMBLY PART NUMBER	CYLINDER ASSEMBLY
-1	700-0005	N40-120 CYLINDER ASSEMBLY
-2	700-0006	N40-190 CYLINDER ASSEMBLY

N40 CYLINDER SEAL KIT PART NUMBER 119-0082 (ITEMS 5, 6, 7, AND 8)

NOTE:
TRUNNION BEARING (ITEM 14) IS INCLUDED AS PART OF TRUNNION ASSEMBLY (ITEM 13).

WAGNER N40-120 AND N40-190
CYLINDER PARTS LIST

SUMMER
SUMMER EQUIPMENT LTD.
7983 PROGRESS WAY, DELTA, B.C., CANADA
PHONE (604)-940-4545 FAX (604)-940-4566
www.summerequipment.com

MANUFACTURERS OF **WAGNER** HYDRAULIC STEERING

DRAWN BY: P.D.W. CHECKED BY: M.L.G.
SCALE: N.T.S.
DATE: APRIL, 2004
REV. _____
DRAWING NO. _____
REF NO.: _____

C-4-736

CYLINDERS TYPE 'N'

Model **N40-120** P/N 700-0005 & **N40-190** P/N 700-0006

2005 May

<u>ITEM</u>	<u>PART NUMBER</u>	<u>DESCRIPTION, MODEL and DIMENSIONS</u>
8	11-216006	U-Cup, piston rod
10	11-216007	U-Cup, piston head
21	41-007025	Flexible hose
22	41-332038	Elbow fitting
6	51-182005	Cotter pin, rod end
3	51-311004	Clip, rod end
19	91-998003	Trunnion bearing
	119-0082	Seal Kit; N40-120 & N40-190
1	290-0004	Tiller bolt M16
25	290-0007	Tiller nuts M16
	710-0002	Trunnion, assembly N40-120 & N40-190
	710-0003	Rod end, assembly
12	710-0031	Piston rod & head sub-assembly, N40-120 (15-7/16" LG) Note A+B
12	710-0032	Piston rod & head sub-assembly, N40-190 (21" LG) Note A+B
7	720-0003	Retainer nut N40-120 & N40-190; (head end)
4	720-0004	Retainer, rod end
13	720-0006	Barrel N40-120; (2" O.D. x 9-15/16" long)
17	720-0009	Trunnion Ball N40-120 & N40-190
16	720-0010	Trunnion
18	720-0012	Trunnion nut
5	720-0013	Swivel ball, rod end
14	720-0014	Bleed fitting
13	720-0016	Barrel, N40-190; (2" O.D. x 12-13/16" long)
15	720-0060	Cylinder end, N40-120 & N40-190 Note C

Parts list drawing for Model N40-120 & N40-190 cylinders C-4-736
 Refer to instruction sheet 190-0005 for dismantling and re-assembling instructions.

NOTES:

- A Check clearance is 0.008/0.010" between piston wear strip (item #11) and barrel (item #13).
- B Check clearance is 0.020/0.025" between piston O.D. (without the wear strip) and barrel (item #13).
- C Check clearance is 0.002/0.003" between piston rod (item #12) and cylinder end (item #15).

All Prices in U.S. Dollars - EX Works, Delta, BC Canada

Subject to change without notice

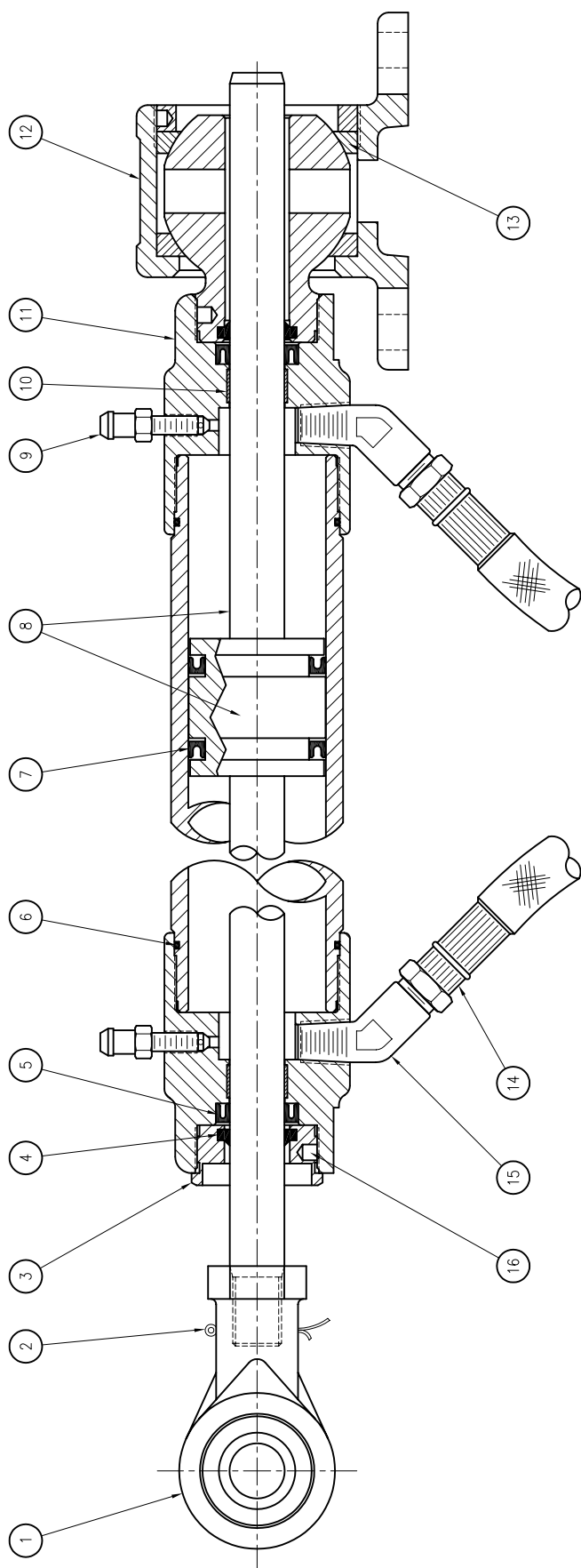
Includes: Brokerage Costs and any Customs Fees (see page iv for details).

Shipping and Handling Extra

Manufacturer of



HYDRAULIC STEERING



DASH NO.	QTY.	ITEM	PART NO.	DESCRIPTION	MAT'L
-2	-1				
	1	1	710-0003	ROD END ASSEMBLY	BRASS
	1	2	51-182005	COTTER PIN	BRASS
	1	3	720-0113	SEAL RETAINING NUT	BRASS
	2	4	11-606017	ROD WIPER	MOLY.
	2	5	11-216006	U-CUP	DISC.
	2	6	11-106031	O-RING	BUNA.
	2	7	11-216007	U-CUP	DISC.
	-	8	710-0031	PISTON ROD ASSEMBLY (120 MM STROKE)	MISC.
	1	-	710-0032	PISTON ROD ASSEMBLY (190 MM STROKE)	MISC.
	2	2	720-0014	BLEED FITTING	BRASS
	2	2	720-0118	ROD BEARING	SYN.
	2	2	720-0111	CYLINDER END TRUNNION ASSEMBLY	BRASS
	1	12	710-0029	TRUNNION ASSEMBLY	MISC.
	1	13	91-998003	TRUNNION BEARING	SYN.
	2	2	41-007025	FLEXIBLE HOSE ASSEMBLY	SYN.
	2	2	41-332038	ELBOW FITTING	BRASS
	3	3	91-998011	LOCK PLUG	NYLON

DASH NO.	ASSEMBLY PART NUMBER	CYLINDER DESCRIPTION
-1	700-0048	N40-1-120 CYLINDER ASSEMBLY
-2	700-0049	N40-1-190 CYLINDER ASSEMBLY

N40-1 CYLINDER SEAL KIT PART NUMBER 119-0153 (ITEMS 4, 5, 6, AND 7)

NOTE:

TRUNNION BEARING (ITEM 13) IS INCLUDED AS PART OF TRUNNION ASSEMBLY (ITEM 12).

WAGNER N40-1-120, N40-1-190, CYLINDER PARTS LIST

SUMMER
 SUMMER EQUIPMENT LTD.
 7983 PROGRESS WAY, DELTA, B.C., CANADA
 PHONE (604)-940-4545 FAX (604)-940-4566
 www.summerequipment.com

MANUFACTURERS OF **WAGNER** HYDRAULIC STEERING

DRAWN BY: P.D.W. CHECKED BY: M.L.G.

SCALE: N.T.S. DRAWING NO. REV.

DATE: DECEMBER, 2003 REF NO.: C-3-721

CYLINDERS TYPE 'N'

Model N40-1-120 P/N 700-0048 & N40-1-190 P/N 700-0049

2005 May

<u>ITEM</u>	<u>PART NUMBER</u>	<u>DESCRIPTION, MODEL and DIMENSIONS</u>
4	11-216006	U-Cup, piston rod
7	11-216007	U-Cup, piston head
3	11-606017	Rod wiper N40-1-120 & N40-1-190
17	41-007025	Flexible hose
15	41-332038	Elbow fitting
13	51-182005	Cotter pin, rod end
	51-311004	Clip, rod end
	91-998003	Trunnion bearing
	119-0153	Seal Kit; N40-1-120 & N40-1-190
16	290-0004	Tiller bolt M16
18	290-0007	Tiller nuts M16
14	710-0003	Rod end, assembly
1	710-0029	Trunnion, assembly N40-1-120 & N40-1-190
9	710-0031	Piston rod & head sub-assembly, N40-1-120 (15-7/16" LG) Note B
9	710-0032	Piston rod & head sub-assembly, N40-1-190 (21" LG) Note B
	720-0004	Retainer, rod end
	720-0010	Trunnion
	720-0012	Trunnion nut
	720-0013	Swivel ball, rod end
11	720-0014	Bleed fitting
	720-0110	Trunnion ball, N40-1-120 & N40-1-190
10	720-0111	Cylinder end, N40-1-120 & N40-1-190 Note C
	720-0112	Barrel, N40-1-120; (2" O.D. x 6-3/8" long)
12	720-0113	Retainer nut, N40-1-120 & N40-1-190; (head end)
8	720-0116	Barrel, N40-1-190; (2" O.D. x 9-3/16" long)
5	720-0118	Bearing, rod, N40-1-120 & N40-1-190

Parts list drawing for Model N40-1-120 & N40-1-190 cylinders C-3-721

Refer to instruction sheet 190-0005 for dismantling and re-assembling instructions.

NOTES:

- B Check clearance is 0.008/0.010" between piston O.D. and barrel (item #13).
- C Check clearance is 0.005/0.006" between piston rod (item #12) and cylinder end (item #15).

All Prices in U.S. Dollars - EX Works, Delta, BC Canada

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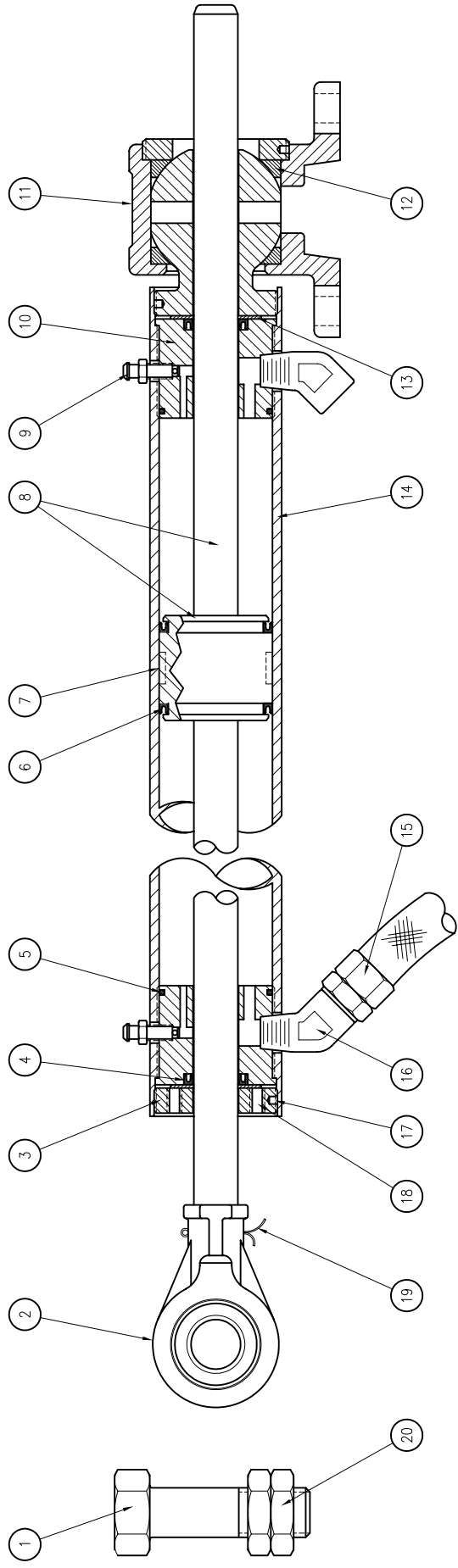
Includes: Brokerage Costs and any Customs Fees (see page iv for details).

Shipping and Handling Extra

Manufacturer of



HYDRAULIC STEERING



DASH NO.	QTY	ITEM	PART NO.	DESCRIPTION	MAT'L
-1	1	1	290-0005	TILLER BOLT	BRASS
-1	1	2	710-0006	CLEVIS ROD END SUB-ASSEMBLY	BRASS
-1	1	3	720-0019	RETAINER NUT	BRASS
-2	2	4	11-216001	U-CUP	DISC.
-2	2	5	11-106131	O-RING	BUNA
-2	2	6	11-216002	U-CUP	DISC.
-1	1	7	10-800034	PISTON WEAR STRIP	NYLON
-1	8	8	710-0011	N50-190 PISTON ROD ASSEMBLY (24.42" LONG)	MISC.
-1	8	9	710-0012	N50-300 PISTON ROD ASSEMBLY (33.09" LONG)	MISC.
-2	2	9	720-0014	BLEED FITTING	BRASS
-2	2	10	720-0020	CYLINDER END TRUNNION ASSEMBLY	BRASS
-1	1	11	710-0005	TRUNNION ASSEMBLY	MISC.
-2	2	12	91-998005	TRUNNION BEARING	SYN.
-2	2	13	91-992002	SEAL RETAINING WASHER	BRASS
-1	14	14	720-0021	N50-190 CYLINDER BARREL (13.07" LONG)	BRASS
-1	14	14	720-0031	N50-300 CYLINDER BARREL (17.40" LONG)	BRASS
-2	2	15	41-007005	FLEXIBLE HOSE ASSEMBLY	SYN.
-2	2	16	41-332039	ELBOW FITTING	BRASS
-3	3	17	91-998011	LOCKING PLUG	NYLON
-2	2	18	51-611003	SETScrew	S.S.
-1	1	19	51-182008	COTTER PIN	BRASS
-2	2	20	290-0008	TILLER NUT	BRASS

DASH NO.	ASSEMBLY PART NUMBER	CYLINDER DESCRIPTION
-1	700-0007	N50-190 CYLINDER ASSEMBLY
-2	700-0008	N50-300 CYLINDER ASSEMBLY

N50 CYLINDER SEAL KIT PART NUMBER 119-0083 (ITEMS 4, 5, 6, AND 7)

NOTE:

TRUNNION BEARING (ITEM 14) IS INCLUDED AS PART OF TRUNNION ASSEMBLY (ITEM 13).

WAGNER N50-190 AND N50-300 CYLINDER PARTS LIST

SUMMER - SUMMER EQUIPMENT LTD.
 7983 PROGRESS WAY, DELTA, B.C., CANADA
 PHONE (604)-940-4545 FAX (604)-940-4566
 www.summerequipment.com

MANUFACTURERS OF **WAGNER** HYDRAULIC STEERING

DRAWN BY: P.D.W. CHECKED BY: M.L.G.
 SCALE: N.T.S.
 DATE: APRIL, 2004
 REF NO.: _____

DRAWING NO. **C-3-738** REV. _____

CYLINDERS TYPE 'N' Model N50-190 P/N 700-0007 & N50-300 P/N 700-0008

2005 May

<u>ITEM</u>	<u>PART NUMBER</u>	<u>DESCRIPTION, MODEL and DIMENSIONS</u>	
11	10-800034	Wear strip, cylinder head	
7	11-216001	U-Cup, piston rod	
10	11-216002	U-Cup, piston head	
23	41-007005	Flexible hose	
24	41-332039	Elbow fitting	
27	51-182008	Cotter pin, rod end	
3	51-311005	Clip, rod end	
19	91-992002	Seal retainer washer	
18	91-998005	Trunnion bearing	
	119-0083	Seal Kit;	N50-190 & N50-300
1	290-0005	Tiller bolt,	M24
28	290-0008	Tiller nuts,	M24
	710-0005	Trunnion, assembly	
	710-0006	Rod end, assembly	
9	710-0007	Piston rod & head sub-assembly, N50-190 (21-7/16" long)	Note A+E
9	710-0008	Piston rod & head sub-assembly, N50-300 (30-1/16" LG)	Note A+B
4	720-0008	Retainer, rod end	
13	720-0014	Bleed fitting	
6	720-0019	Retainer nut,	(head end)
14	720-0020	Cylinder end	Note C
20	720-0021	Barrel,	N50-190; (2-3/8" O.D. x 13-1/16" long) .
16	720-0024	Trunnion ball	
17	720-0027	Trunnion nut	
5	720-0028	Swivel ball, rod end	
20	720-0031	Barrel,	N50-300; (2-3/8" O.D. x 17-3/8" long) . . P.O.R.

Parts list drawing for Model N50-190 & N50-300 cylinders C-3-738

Refer to instruction sheet 190-0005 for dismantling and re-assembling instructions.

NOTES:

- A Check clearance is 0.009/0.012" between piston wear strip (item #11) and barrel (item #13).
- B Check clearance is 0.020/0.025" between piston O.D. (without the wear strip) and barrel (item #13).
- C Check clearance is 0.003/0.004" between piston rod (item #12) and cylinder end (item #15).

All Prices in U.S. Dollars - EX Works, Delta, BC Canada

Subject to change without notice

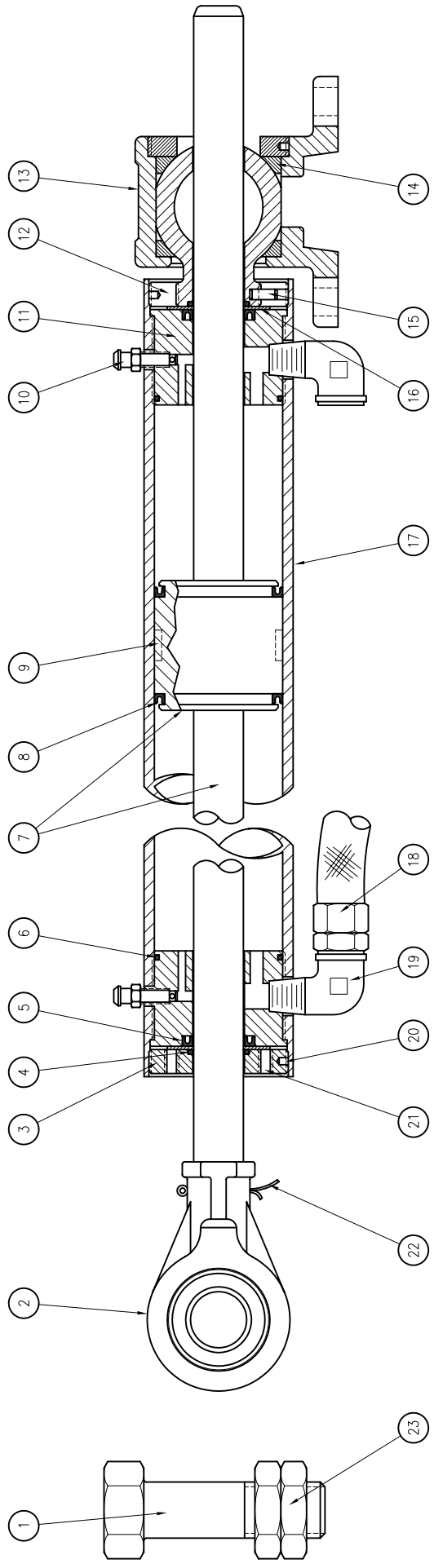
Includes: Brokerage Costs and any Customs Fees (see page iv for details).

Shipping and Handling Extra

Manufacturer of



HYDRAULIC STEERING



DASH NO.	ASSEMBLY PART NUMBER	CYLINDER DESCRIPTION
-1	700-0009	N80-190 CYLINDER ASSEMBLY
-2	700-0010	N80-300 CYLINDER ASSEMBLY
-3	700-0050	N80-382 CYLINDER ASSEMBLY

N80 CYLINDER SEAL KIT PART NUMBER 119-0084 (ITEMS 4, 5, 6, 8, AND 9)

NOTE:

TRUNNION BEARING (ITEM 14) IS INCLUDED AS PART OF TRUNNION ASSEMBLY (ITEM 13).

DASH NO.	QTY			PART NO.	DESCRIPTION	MAT'L
	-3	-2	-1			
1	1	1	1	290-0006	TILLER BOLT	BRASS
1	1	1	1	710-0009	CLEVIS ROD END SUB-ASSEMBLY	BRASS
1	1	1	1	720-0034	RETAINER NUT	BRASS
2	2	2	2	11-106218	O-RING	BUNA
2	2	2	2	11-216004	U-CUP	DISO
2	2	2	2	11-106150	O-RING	BUNA
-	1	1	1	710-0011	N80-190 PISTON ROD ASSEMBLY (24.41" LONG)	MISC.
-	1	1	1	710-0012	N80-300 PISTON ROD ASSEMBLY (33.07" LONG)	MISC.
2	2	2	2	710-0033	N80-382 PISTON ROD ASSEMBLY (39.55" LONG)	MISC.
2	2	2	2	11-216008	U-CUP	DISO
1	1	1	1	10-800006	PISTON WEAR STRIP	NYLON
2	2	2	2	720-0023	BLEED FITTING	BRASS
2	2	2	2	720-0036	CYLINDER END	BRASS
1	1	1	1	720-0040	CYLINDER END NUT	BRASS
1	1	1	1	710-0010	TRUNNION ASSEMBLY	MISC.
2	2	2	2	91-998007	TRUNNION BEARING	SYN.
1	1	1	1	51-170018	DOWEL PIN	STEEL
2	2	2	2	91-992003	SEAL RETAINING WASHER	BRASS
-	1	1	1	720-0037	N80-190 CYLINDER BARREL (15.35" LONG)	BRASS
-	1	1	1	720-0048	N80-300 CYLINDER BARREL (19.69" LONG)	BRASS
1	1	1	1	720-0122	N80-382 CYLINDER BARREL (22.91" LONG)	BRASS
2	2	2	2	41-007006	FLEXIBLE HOSE ASSEMBLY	SYN.
2	2	2	2	41-332018	ELBOW FITTING	BRASS
3	3	3	3	91-998011	LOCKING PLUG	NYLON
2	2	2	2	51-611004	SETSCREW	S.S.
1	1	1	1	51-182004	COTTER PIN	BRASS
2	2	2	2	290-0009	TILLER NUT	BRASS

WAGNER N80-190, N80-300,
AND N80-382 CYLINDER PARTS LIST

SUMMER
SUMMER EQUIPMENT LTD.
7983 PROGRESS WAY, DELTA, B.C., CANADA
PHONE (604)-940-4545, FAX (604)-940-4566
WWW.SUMMEREQUIPMENT.COM

MANUFACTURERS OF **WAGNER** HYDRAULIC STEERING

DRAWN BY: P.D.W. CHECKED BY: M.L.G.
SCALE: N.T.S.
DATE: APRIL, 2004
REV. _____

C-3-737 A

CYLINDERS TYPE "N"

Model N80-190 P/N 700-0009 & N80-300 P/N 700-0010
 Model N80-382 P/N 700-0050

2005 May

<u>ITEM</u>	<u>PART NUMBER</u>	<u>DESCRIPTION, MODEL and DIMENSIONS</u>
12	10-800006	Wear strip, cylinder head
8	11-216004	U-Cup, piston rod
11	11-216008	U-Cup, piston head
26	41-007100	Flexible hose ABS & DNV
27	41-332018	Elbow fitting
30	51-182004	Cotter pin, rod end
3	51-311006	Clip, rod end
23	91-992003	Seal retainer washer
21	91-998007	Trunnion Bearing
	119-0084	Seal kit N80-190, N80-300 & N80-382
1	290-0006	Tiller bolt M36
31	290-0009	Tiller nuts M36
	710-0009	Rod end, assembly
	710-0010	Trunnion, assembly
10	710-0011	Piston rod & head sub-assembly, N80-190 (24½" long) Note A
10	710-0012	Piston rod & head sub-assembly, N80-300 (33-1/8" long) Note A
10	710-0033	Piston rod & head sub-assembly, N80-382 (39½" long) Note A
4	720-0011	Retainer, rod end
15	720-0023	Bleed fitting
6	720-0034	Retainer nut, (head end)
16	720-0036	Cylinder end Note B
24	720-0037	Barrel N80-190; (3¾" O.D. x 15-3/8" long)
17	720-0040	Cylinder end nut
19	720-0041	Trunnion ball
20	720-0044	Trunnion nut
25	720-0045	Swivel ball, rod end
24	720-0048	Barrel, N80-300; (3¾" O.D. x 19-11/16" long)
24	720-0122	Barrel, N80-382; (3¾" O.D. x 22-15/16" long)

Parts list drawing for Model N80-190 and N80-300 Cylinders C-3-737A

Refer to instruction sheet 190-0005 for dismantling and re-assembling instructions.

NOTES:

- A Check clearance is 0.008/0.010" between piston wear strip[(item #11) and barrel (item #13)
- B Check clearance is 0.020/0.025" between piston O.D. (without the wear strip) and barrel (item #13)
- C Check clearance is 0.003/0.004" between piston rod (item #12) and cylinder end (item #15).

All Prices in U.S. Dollars - EX Works, Delta, BC Canada

Subject to change without notice

Includes: Brokerage Costs and any Customs Fees (see page iv for details).

Shipping and Handling Extra

Manufacturer of



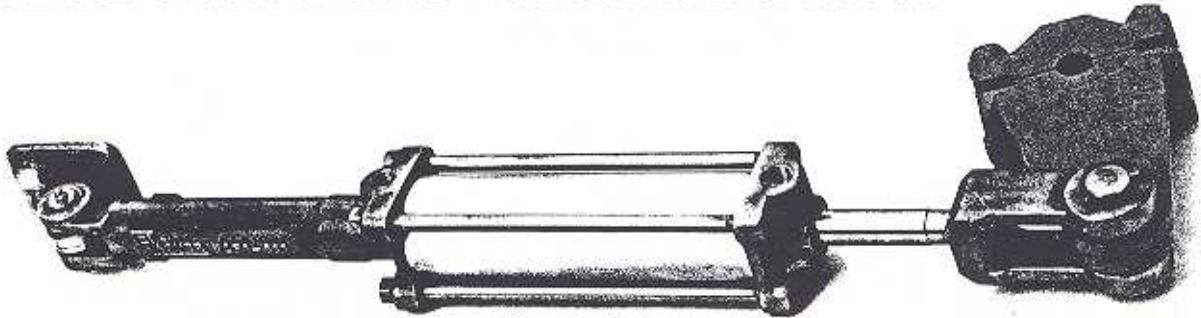
HYDRAULIC STEERING



Hydraulic Steering

PRODUCT UPDATE

N MODEL CYLINDERS - *OBSOLETE OR NOT?*



One of the first brass cylinders Wagner built was the N Model. These cylinders were designed in the early 70's and produced until the early 80's. They were a double acting, balanced displacement, tie rod design, in 11 different sizes. While in production thousands were manufactured and many of these units still remain in service.

Wagner stopped production of these cylinders in the early 80's in favour of the current Type N series. Little effort was made to continue supply of spare parts and by the mid 80's the supply of spares stopped altogether. Customers with N Model cylinders were told they were obsolete and left little choice but to replace the cylinders with units from current production. Typically this involved expensive and time-consuming modification to the vessel due to the different mounting configuration. Summer Equipment believes this type of "decreed obsolescence" is not reasonable. It does not offer the type of after sales service which builds a loyal customer following. Accordingly we wish to advise that we have a complete range of spare parts available in stock of all N Model Cylinders, N65 though to N400. In addition we offer from stock complete replacement cylinders N65 though N350-1600 and can assemble the N400-1500 or N400-2000 cylinders within days.

Charts included with this mailing will allow you to identify the different cylinder and the correct part numbers for spare parts that might be required.

Rather than telling your customers their N Model cylinders are obsolete and parts are not available please give our parts people a call.

Wagner Marine Technologies

7983 PROGRESS WAY · DELTA, B.C. CANADA V4G 1A3 · PHONE: (604) 940-4545 · FAX: (604) 940-4566

NOTES



Manufacturer of WAGNER Engineering Products

Wagner Marine Technologies

Issued June 2005

N MODEL STEERING SYSTEM SPECIFICATIONS													
STEERING CYLINDER			DIMENSIONS (inches)				HELM PUMPS			TORQUES		MAX. RUDDER STOCK DIA.	
MODEL	DISPLACEMENT		BORE	STROKE	ROD DIA.	INLET PORT (NPT)	MODEL	WHEEL TURNS	1,000 PSI (70 kg/cm ²)	Kg-M	in.	mm.	
	in ³	cm ³											Lbs-Ft
N65	5.98	98	1 1/4	6 1/2	5/8	1/4	AW	3.1	355	49	1.62	41	
N85	7.82	128	1 1/4	8 1/2	5/8	1/4	AW	4.0	466	64	1.75	44	
N175-750	14.78	242	1 3/4	7 1/2	3/4	3/8	A1W	4.1	880	121	2.18	55	
N175-1000	19.70	323	1 3/4	10	3/4	3/8	A1W	5.4	1170	161	2.37	60	
N250-800	32.96	540	2 1/2	8	1	1/2	A2W	6.0	1950	269	2.75	70	
N250-1000	41.20	675	2 1/2	10	1	1/2	A2W	7.5	2440	337	3.00	76	
N250-1300	53.56	878	2 1/2	13	1	1/2	CW	6.9	3150	435	3.25	83	
N350-1200	94.20	1544	3 1/2	12	1 1/2	3/4	DW	7.0	5480	756	4.00	102	
N350-1600	125.60	2058	3 1/2	16	1 1/2	3/4	DW	9.4	7420	1024	4.50	114	
N400-1500	152.40	2497	4	15	1 3/4	3/4	DW	11.4	9100	1256	4.75	121	
N400-2000	203.20	3330	4	20	1 3/4	3/4	DW	15.2	12100	1670	5.25	133	

RECOMMENDED HYDRAULIC OIL:

ISO Viscosity Grade 32

TORQUE RATINGS:

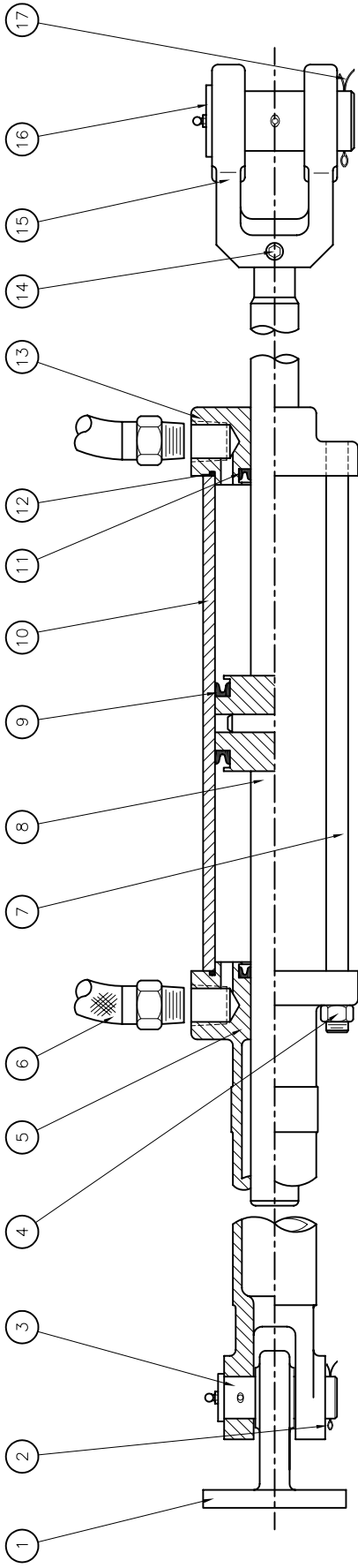
Developed in the Hardover position at 35 degrees.

7983 PROGRESS WAY • DELTA, BC V4G 1A3 CANADA • PHONE (604) 940-4545 • FAX (604) 940-4566



MANUFACTURER OF

HYDRAULIC STEERING



ASSEMBLY NOTES:

1. THE N65, N85, AND N175 CYLINDERS USE INTERNAL SNAP RINGS TO HOLD U-CUPS (ITEM 11) IN PLACE:
N65/N85 - 51-310003
N175 - 51-310004
2. THE CLEVIS (ITEM 15) IS SECURED TO THE PISTON ROD ASSY (ITEM 8) BY MEANS OF EITHER A SETSCREW OR COTTER PIN (ITEM 14). THE N65, N85, AND N175 CYLINDERS UTILIZE A COTTER PIN. THE TIE ROD MATERIAL (ITEM 7) FOR THE N65, N85, AND N175 CYLINDERS IS TO BE STAINLESS STEEL. ALL OTHER CYLINDER TIE RODS ARE TO BE NAVAL BRASS.
3. THE GREASE NIPPLES MOUNTED ON THE FRONT AND REAR PINS (ITEMS 3 AND 16) ARE SUPPLIED ON THE N250 AND LARGER CYLINDERS ONLY. ON THE N65 AND N85 CYLINDERS THE TAIL PIPE (ITEM 5) IS THREADED TO SECURE THE TIE RODS (ITEM 7). THE HEX NUTS (ITEM 4) ARE LOCATED ON THE OPPOSITE END OF THE CYLINDER.

ITEM	DESCRIPTION	N65 700-0011	N65 700-0012	N175-750 700-0013	N175-1000 700-0014	N250-800 700-0015	N250-1000 700-0016	N250-1300 700-0017	N350-1200 700-0018	N350-1600 700-0019	N400-1500 700-0020	N400-2000 700-0021
1	MOUNTING PAD	740-0011		740-0026			740-0041		740-0060		740-0075	
2	COTTER PIN	51-182006		51-182007			51-182007		51-182002		51-182011	
3	MOUNTING PAD PIN	740-0001		740-0016			740-0032		740-0051		740-0066	
4	HEX NUT	51-502001		51-502002			51-502003		51-502004		51-502012	
5	FLEXIBLE HOSE ASSY	740-0002	740-0012	740-0027		740-0031	740-0042	740-0046	740-0050	740-0061	740-0065	740-0076
6	CYLINDER TAIL PIPE	41-007025		41-007005			41-007006		41-007007		41-007007	
7	TIE ROD	740-0004	740-0014	740-0029		740-0034	740-0044	740-0049	740-0053	740-0063	740-0068	740-0078
8	PISTON ROD ASSY	730-0001	730-0002	730-0004		730-0005	730-0006	730-0007	730-0008	730-0009	730-0010	730-0011
9	U-CUP	11-208015		11-206013			11-208017		11-208002		11-208003	
10	CYLINDER BARREL	740-0007	740-0015	740-0022	740-0030	740-0037	740-0045	740-0048	740-0056	740-0064	740-0071	740-0079
11	U-CUP	11-208008		11-206002			11-206001		11-208012		11-208019	
12	O-RING	11-106026		11-106031			11-106144		11-106153		11-106242	
13	CYLINDER HEAD	740-0008		740-0023			740-0038		740-0057		740-0072	
14	SETSCREW/COTTER PIN	51-182002		51-182010			51-611005		51-611006		51-611007	
15	CLEVIS	740-0009		740-0024			740-0039		740-0058		740-0073	
16	FRONT PIN	740-0010		740-0025			740-0040		740-0059		740-0074	
17	COTTER PIN	51-182006		51-182007			51-182002		51-182011		51-182011	

CYLINDER MODEL	ASSEMBLY PART NUMBER	BORE AND STROKE	DISPLACEMENT	ROD DIAMETER
N65	700-0011	1-1/4" x 6-1/2"	5.98 IN ³	5/8"
N85	700-0012	1-1/4" x 8-1/2"	7.82 IN ³	5/8"
N175-750	700-0013	1-3/4" x 7-1/2"	14.78 IN ³	3/4"
N175-1000	700-0014	1-3/4" x 10"	19.70 IN ³	3/4"
N250-800	700-0015	2-1/2" x 8"	32.96 IN ³	1"
N250-1000	700-0016	2-1/2" x 10"	41.20 IN ³	1"
N250-1300	700-0017	2-1/2" x 13"	53.56 IN ³	1"
N350-1200	700-0018	3-1/2" x 12"	94.20 IN ³	1-1/2"
N350-1600	700-0019	3-1/2" x 16"	125.60 IN ³	1-1/2"
N400-1500	700-0020	4" x 15"	152.40 IN ³	1-3/4"
N400-2000	700-0021	4" x 20"	203.20 IN ³	1-3/4"

OLD TYPE N-MODEL CYLINDERS PARTS LIST

SUMMER
 7983 PROGRESS WAY, DELTA, B.C., CANADA
 PHONE (604)-940-4545 FAX (604)-940-4566
 www.summerequipment.com

MANUFACTURERS OF **WAGNER** HYDRAULIC STEERING

DRAWN BY: P.D.W. CHECKED BY: M.L.G.

SCALE: N.T.S. DRAWING NO. REV.

DATE: APRIL, 2004 REF NO.: C-3-727

CYLINDERS - N MODEL Type N65 P/N 700-0011 & N85 P/N 700-0012

2005 May

<u>ITEM</u>	<u>PART NUMBER</u>	<u>DESCRIPTION, MODEL and DIMENSIONS</u>
11	11-208008	U-Cup, piston rod
9	11-208015	U-Cup, piston head
6	41-007025	Flexible hose
2	51-182006	Cotter pin, mounting pad pin
17	51-182006	Cotter pin, clevis pin
	119-0016	Seal kit; N65 & N85
	700-0011	Cylinder assembly, N65 5.98 cu. in. disp'l
	700-0012	Cylinder assembly, N85 7.82 cu. in. disp'l
8	730-0001	Piston rod & head sub-assembly, N65 (5/8" x 18-3/8" long) Note A
8	730-0002	Piston rod & head sub-assembly, N85 (5/8" x 22-3/8" long) Note A
3	740-0001	Pin, mounting pad (1/2" dia.)
5	740-0002	Tail pipe N65 Note B
7	740-0004	Tie rod N65
10	740-0007	Barrel N65; (1 1/2" O.D. x 8 1/4" long)
13	740-0008	Cylinder head Note B
15	740-0009	Clevis
16	740-0010	Pin, clevis (5/8" dia.)
1	740-0011	Mounting pad
5	740-0012	Tail pipe, N85 Note B
7	740-0014	Tie rod, N85
10	740-0015	Barrel, N85; (1 1/2" O.D. x 10 1/4" long)

Parts list drawing for Model N65 & N85 Cylinders C-3-727

NOTES:

- A Check clearance is 0.004/0.005" between piston O.D. and barrel I.D. (item #10).
- B Check clearance is 0.001/0.002" between piston rod (item #12) and cylinder head I.D. (item #13) and tail pipe I.D. (item #5).

All Prices in U.S. Dollars - EX Works, Delta, BC Canada

Subject to change without notice

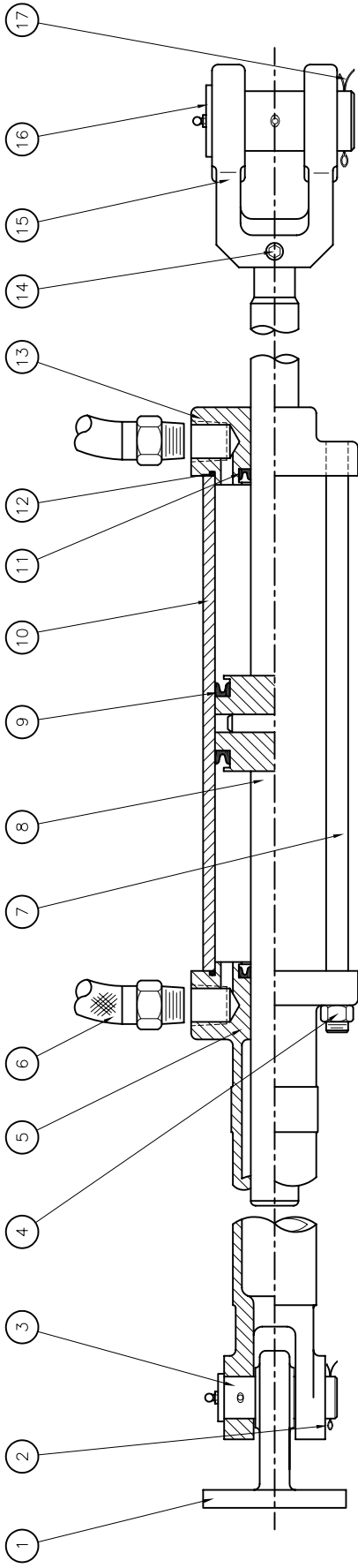
Includes: Brokerage Costs and any Customs Fees (see page iv for details).

Shipping and Handling Extra

Manufacturer of



HYDRAULIC STEERING



ASSEMBLY NOTES:

1. THE N65, N85, AND N175 CYLINDERS USE INTERNAL SNAP RINGS TO HOLD U-CUPS (ITEM 11) IN PLACE:
N65/N85 - 51-310003
N175 - 51-310004
2. THE CLEVIS (ITEM 15) IS SECURED TO THE PISTON ROD ASSY (ITEM 8) BY MEANS OF EITHER A SETSCREW OR COTTER PIN (ITEM 14). THE N65, N85, AND N175 CYLINDERS UTILIZE A COTTER PIN. THE TIE ROD MATERIAL (ITEM 7) FOR THE N65, N85, AND N175 CYLINDERS IS TO BE STAINLESS STEEL. ALL OTHER CYLINDER TIE RODS ARE TO BE NAVAL BRASS.
3. THE GREASE NIPPLES MOUNTED ON THE FRONT AND REAR PINS (ITEMS 3 AND 16) ARE SUPPLIED ON THE N250 AND LARGER CYLINDERS ONLY. ON THE N65 AND N85 CYLINDERS THE TAIL PIPE (ITEM 5) IS THREADED TO SECURE THE TIE RODS (ITEM 7). THE HEX NUTS (ITEM 4) ARE LOCATED ON THE OPPOSITE END OF THE CYLINDER.

ITEM	DESCRIPTION	N65 700-0011	N65 700-0012	N175-750 700-0013	N175-1000 700-0014	N250-800 700-0015	N250-1000 700-0016	N350-1200 700-0018	N350-1600 700-0019	N400-1500 700-0020	N400-2000 700-0021
1	MOUNTING PAD	740-0011		740-0026			740-0041	740-0060		740-0075	
2	COTTER PIN	51-182006		51-182007			51-182007	51-182002		51-182011	
3	MOUNTING PAD PIN	740-0001		740-0016			740-0032	740-0051		740-0066	
4	HEX NUT	51-502001		51-502002			51-502003	51-502004		51-502012	
5	FLEXIBLE HOSE ASSY	740-0002	740-0012	740-0027		740-0031	740-0042	740-0061		740-0065	740-0076
6	CYLINDER TAIL PIPE	41-007025		41-007005			41-007006	41-007007		41-007007	
7	TIE ROD	740-0004	740-0014	740-0029		740-0034	740-0044	740-0063		740-0068	740-0078
8	PISTON ROD ASSY	730-0001	730-0002	730-0004		730-0005	730-0006	730-0007		730-0010	730-0011
9	U-CUP	11-208015		11-206013			11-208017	11-208002		11-208003	
10	CYLINDER BARREL	740-0007	740-0015	740-0022	740-0030	740-0037	740-0045	740-0048		740-0071	740-0079
11	U-CUP	11-208008		11-206002			11-206001	11-208012		11-208019	
12	O-RING	11-106026		11-106031			11-106144	11-106153		11-106242	
13	CYLINDER HEAD	740-0008		740-0023			740-0038	740-0057		740-0072	
14	SETSCREW/COTTER PIN	51-182002		51-182010			51-611005	51-611006		51-611007	
15	CLEVIS	740-0009		740-0024			740-0039	740-0058		740-0073	
16	FRONT PIN	740-0010		740-0025			740-0040	740-0059		740-0074	
17	COTTER PIN	51-182006		51-182007			51-182002	51-182011		51-182011	

CYLINDER MODEL	ASSEMBLY PART NUMBER	BORE AND STROKE	DISPLACEMENT	ROD DIAMETER
N65	700-0011	1-1/4" x 6-1/2"	5.98 IN ³	5/8"
N85	700-0012	1-1/4" x 8-1/2"	7.82 IN ³	5/8"
N175-750	700-0013	1-3/4" x 7-1/2"	14.78 IN ³	3/4"
N175-1000	700-0014	1-3/4" x 10"	19.70 IN ³	3/4"
N250-800	700-0015	2-1/2" x 8"	32.96 IN ³	1"
N250-1000	700-0016	2-1/2" x 10"	41.20 IN ³	1"
N250-1300	700-0017	2-1/2" x 13"	53.56 IN ³	1"
N350-1200	700-0018	3-1/2" x 12"	94.20 IN ³	1-1/2"
N350-1600	700-0019	3-1/2" x 16"	125.60 IN ³	1-1/2"
N400-1500	700-0020	4" x 15"	152.40 IN ³	1-3/4"
N400-2000	700-0021	4" x 20"	203.20 IN ³	1-3/4"

OLD TYPE N-MODEL CYLINDERS PARTS LIST

SUMMER
 7983 PROGRESS WAY, DELTA, B.C., CANADA
 PHONE (604)-940-4545 FAX (604)-940-4566
 www.summerequipment.com

MANUFACTURERS OF **WAGNER** HYDRAULIC STEERING

DRAWN BY: P.D.W. CHECKED BY: M.L.G.

SCALE: N.T.S. DRAWING NO. REV.

DATE: APRIL, 2004 REF NO.: C-3-727

CYLINDERS - N MODEL Type N175-750 P/N 700-0013 & N75-1000 P/N 700-0014

2005 May

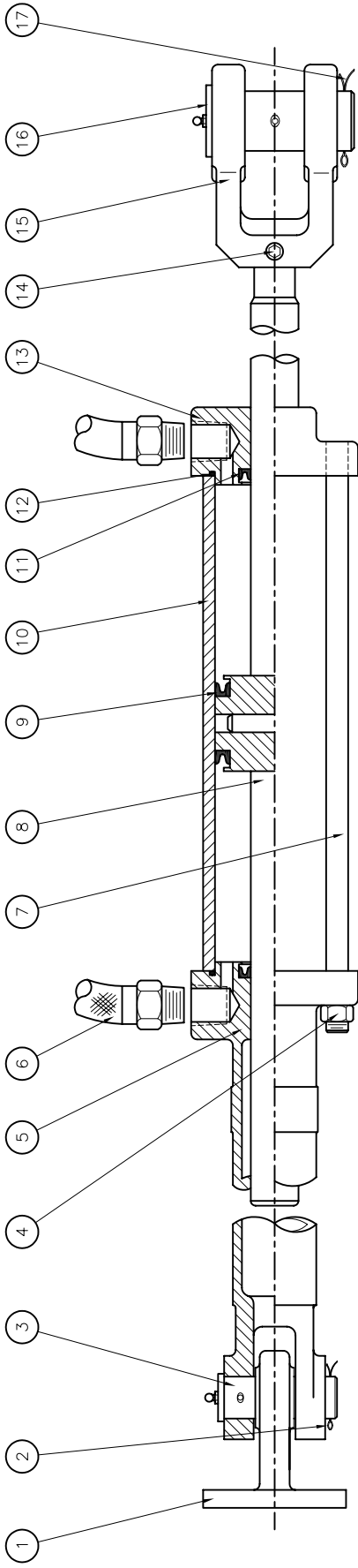
<u>ITEM</u>	<u>PART NUMBER</u>	<u>DESCRIPTION, MODEL and DIMENSIONS</u>
11	11-206002	U-Cup, piston rod
9	11-206013	U-Cup, piston head
6	41-007005	Flexible hose
2	51-182007	Cotter pin, mounting pad pin
17	51-182007	Cotter pin, clevis pin
	119-0017	Seal kit; N175-750 & N175-1000
	700-0013	Cylinder assembly N175-750 (14.78 cu. in. disp'l)
	700-0014	Cylinder assembly N175-1000 (19.70 cu. in. disp'l)
8	730-0003	Piston rod & head sub-assembly, N175-750 (3/4" x 21-3/8" long) Note A . . .
8	730-0004	Piston rod & head sub-assembly, N175-1000 (3/4" x 26-3/8" long) Note A . . .
3	740-0016	Pin, mounting pad (3/4" dia.)
5	740-0017	Tail pipe, N175-750 Note B
7	740-0019	Tie rod, N175-750
10	740-0022	Barrel, N175-750; (2" O.D. x 9 1/2" long)
13	740-0023	Cylinder head Note B
15	740-0024	Clevis
16	740-0025	Pin, clevis (7/8" dia.)
1	740-0026	Mounting pad
5	740-0027	Tail pipe, N175-1000 Note B
7	740-0029	Tie rod, N175-1000
10	740-0030	Barrel, N175-1000; (2" O.D. x 12" long)

Parts list drawing for Model N175-750 & N175-1000 Cylinders C-3-727

NOTES:

- A Check clearance is 0.004/0.005" between piston O.D. and barrel I.D. (item #10).
- B Check clearance is 0.001/0.002" between piston rod (item #12) and cylinder head I.D. (item #13) and tail pipe I.D. (item #5).

All Prices in U.S. Dollars - EX Works, Delta, BC Canada Subject to change without notice
 Includes: Brokerage Costs and any Customs Fees (see page iv for details). Shipping and Handling Extra



ASSEMBLY NOTES:

1. THE N65, N85, AND N175 CYLINDERS USE INTERNAL SNAP RINGS TO HOLD U-CUPS (ITEM 11) IN PLACE:
N65/N85 - 51-310003
N175 - 51-310004
2. THE CLEVIS (ITEM 15) IS SECURED TO THE PISTON ROD ASSY (ITEM 8) BY MEANS OF EITHER A SETSCREW OR COTTER PIN (ITEM 14). THE N65, N85, AND N175 CYLINDERS UTILIZE A COTTER PIN. THE TIE ROD MATERIAL (ITEM 7) FOR THE N65, N85, AND N175 CYLINDERS IS TO BE STAINLESS STEEL. ALL OTHER CYLINDER TIE RODS ARE TO BE NAVAL BRASS.
3. THE GREASE NIPPLES MOUNTED ON THE FRONT AND REAR PINS (ITEMS 3 AND 16) ARE SUPPLIED ON THE N250 AND LARGER CYLINDERS ONLY. ON THE N65 AND N85 CYLINDERS THE TAIL PIPE (ITEM 5) IS THREADED TO SECURE THE TIE RODS (ITEM 7). THE HEX NUTS (ITEM 4) ARE LOCATED ON THE OPPOSITE END OF THE CYLINDER.

ITEM	DESCRIPTION	N65 700-0011	N65 700-0012	N175-750 700-0013	N175-1000 700-0014	N250-800 700-0015	N250-1000 700-0016	N350-1200 700-0018	N350-1600 700-0019	N400-1500 700-0020	N400-2000 700-0021
1	MOUNTING PAD	740-0011		740-0026			740-0041	740-0060		740-0075	
2	COTTER PIN	51-182006		51-182007			51-182007	51-182002		51-182011	
3	MOUNTING PAD PIN	740-0001		740-0016			740-0032	740-0051		740-0066	
4	HEX NUT	51-502001		51-502002			51-502003	51-502004		51-502012	
5	FLEXIBLE HOSE ASS'Y	740-0002	740-0012	740-0017	740-0027	740-0031	740-0042	740-0061		740-0065	740-0076
6	CYLINDER TAIL PIPE	41-007025		41-007005			41-007006	41-007007		41-007007	
7	TIE ROD	740-0004	740-0014	740-0019	740-0029	740-0034	740-0044	740-0063		740-0068	740-0078
8	PISTON ROD ASS'Y	730-0001	730-0002	730-0003	730-0004	730-0005	730-0006	730-0007		730-0010	730-0011
9	U-CUP	11-208015		11-206013			11-208017	11-208002		11-208003	
10	CYLINDER BARREL	740-0007	740-0015	740-0022	740-0030	740-0037	740-0045	740-0048		740-0071	740-0079
11	U-CUP	11-208008		11-206002			11-206001	11-208012		11-208019	
12	O-RING	11-106026		11-106031			11-106144	11-106153		11-106242	
13	CYLINDER HEAD	740-0008		740-0023			740-0038	740-0057		740-0072	
14	SETSCREW/COTTER PIN	51-182002		51-182010			51-611005	51-611006		51-611007	
15	CLEVIS	740-0009		740-0024			740-0039	740-0058		740-0073	
16	FRONT PIN	740-0010		740-0025			740-0040	740-0059		740-0074	
17	COTTER PIN	51-182006		51-182007			51-182002	51-182011		51-182011	

CYLINDER MODEL	ASSEMBLY PART NUMBER	BORE AND STROKE	DISPLACEMENT	ROD DIAMETER
N65	700-0011	1-1/4" x 6-1/2"	5.98 IN ³	5/8"
N85	700-0012	1-1/4" x 8-1/2"	7.82 IN ³	5/8"
N175-750	700-0013	1-3/4" x 7-1/2"	14.78 IN ³	3/4"
N175-1000	700-0014	1-3/4" x 10"	19.70 IN ³	3/4"
N250-800	700-0015	2-1/2" x 8"	32.96 IN ³	1"
N250-1000	700-0016	2-1/2" x 10"	41.20 IN ³	1"
N250-1300	700-0017	2-1/2" x 13"	53.56 IN ³	1"
N350-1200	700-0018	3-1/2" x 12"	94.20 IN ³	1-1/2"
N350-1600	700-0019	3-1/2" x 16"	125.60 IN ³	1-1/2"
N400-1500	700-0020	4" x 15"	152.40 IN ³	1-3/4"
N400-2000	700-0021	4" x 20"	203.20 IN ³	1-3/4"

OLD TYPE N-MODEL CYLINDERS PARTS LIST

SUMMER
 7983 PROGRESS WAY, DELTA, B.C., CANADA
 PHONE (604)-940-4545 FAX (604)-940-4566
 www.summerequipment.com

MANUFACTURERS OF **WAGNER** HYDRAULIC STEERING
 CHECKED BY: M.L.G.

DRAWN BY: P.D.W.
 SCALE: N.T.S.
 DATE: APRIL, 2004
 REF NO.:
 REV. **C-3-727**

CYLINDERS - N MODEL

Type N250-800 P/N 700-0015 & N250-1000 P/N 700-0016
 Type N250-1300 P/N 700-0017

2005 May

<u>ITEM</u>	<u>PART NUMBER</u>	<u>DESCRIPTION, MODEL and DIMENSIONS</u>
11	11-208016	U-cup, piston rod
9	11-208017	U-cup, piston head
6	41-007006	Flexible hose
2	51-182007	Cotter pin, mounting pad pin
17	51-182002	Cotter pin, clevis pin
	119-0018	Seal kit; N250-800, N250-1000 & N250-1300
	700-0015	Cylinder assembly, N250-800 (32.96 cu. in. disp'l)
	700-0016	Cylinder assembly, N250-1000 (41.20 cu. in. disp'l)
	700-0017	Cylinder assembly, N250-1300 (53.56 cu. in. disp'l)
8	730-0005	Piston rod & head sub-assembly, N250-800 (1" x 23½" long) Note A . . .
8	730-0006	Piston rod & head sub-assembly, N250-1000 (1" x 27½" long) Note A
8	730-0007	Piston rod & head sub-assembly, N250-1300 (1" x 33½" long) Note A
5	740-0031	Tail pipe, N250-800 Note B
3	740-0032	Pin, mounting pad (7/8" dia.)
7	740-0034	Tie rod, N250-800
10	740-0037	Barrel, N250-800 (3" O.D. x 10-3/8" long)
13	740-0038	Cylinder head Note B
15	740-0039	Clevis
16	740-0040	Pin, clevis (1-1/8" dia.)
1	740-0041	Mounting pad
5	740-0042	Tail pipe, N250-1000 Note B
7	740-0044	Tie rod, N250-1000
10	740-0045	Barrel, N250-1000; (3" O.D. x 12-3/8" long)
5	740-0046	Tail pipe, N250-1300 Note B
10	740-0048	Barrel, N250-1300; (3" O.D. x 15-3/8" long)
7	740-0049	Tie rod, N250-1300

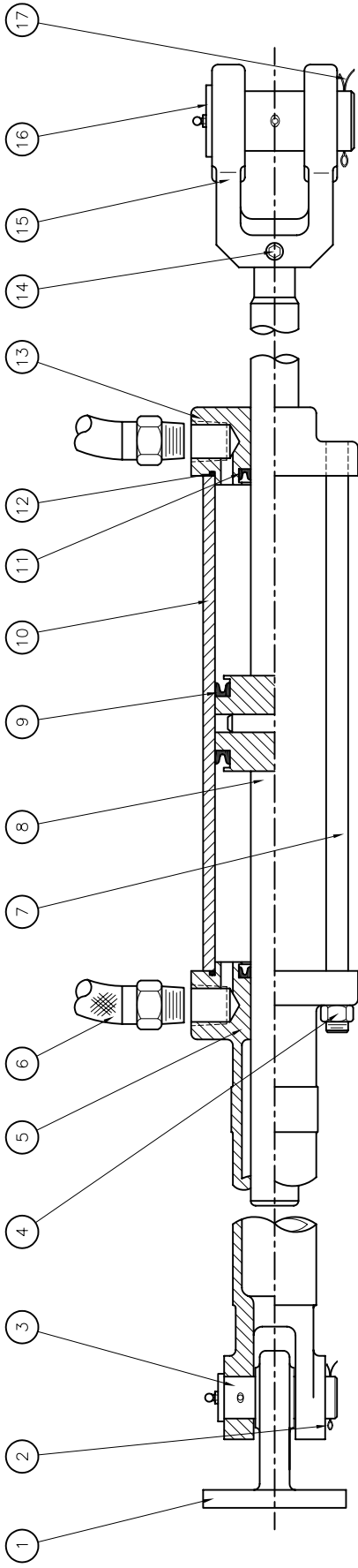
Parts list drawing for Model N250-800, N250-1000 & N250-1300 Cylinders C-3-727

NOTES:

- A Check clearance is 0.004/0.005" between piston O.D. and barrel I.D. (item #10).
- B Check clearance is 0.001/0.002" between piston rod (item #12) and cylinder head I.D. (item #13) and tail pipe I.D. (item #5).

All Prices in U.S. Dollars - EX Works, Delta, BC Canada Subject to change without notice
 Includes: Brokerage Costs and any Customs Fees (see page iv for details). Shipping and Handling Extra





ASSEMBLY NOTES:

1. THE N65, N85, AND N175 CYLINDERS USE INTERNAL SNAP RINGS TO HOLD U-CUPS (ITEM 11) IN PLACE:
N65/N85 - 51-310003
N175 - 51-310004
2. THE CLEVIS (ITEM 15) IS SECURED TO THE PISTON ROD ASSY (ITEM 8) BY MEANS OF EITHER A SETSCREW OR COTTER PIN (ITEM 14). THE N65, N85, AND N175 CYLINDERS UTILIZE A COTTER PIN. THE TIE ROD MATERIAL (ITEM 7) FOR THE N65, N85, AND N175 CYLINDERS IS TO BE STAINLESS STEEL. ALL OTHER CYLINDER TIE RODS ARE TO BE NAVAL BRASS.
3. THE GREASE NIPPLES MOUNTED ON THE FRONT AND REAR PINS (ITEMS 3 AND 16) ARE SUPPLIED ON THE N250 AND LARGER CYLINDERS ONLY. ON THE N65 AND N85 CYLINDERS THE TAIL PIPE (ITEM 5) IS THREADED TO SECURE THE TIE RODS (ITEM 7). THE HEX NUTS (ITEM 4) ARE LOCATED ON THE OPPOSITE END OF THE CYLINDER.

ITEM	DESCRIPTION	N65 700-0011	N65 700-0012	N175-750 700-0013	N175-1000 700-0014	N250-800 700-0015	N250-1000 700-0016	N350-1200 700-0018	N350-1600 700-0019	N400-1500 700-0020	N400-2000 700-0021
1	MOUNTING PAD	740-0011		740-0026			740-0041	740-0060		740-0075	
2	COTTER PIN	51-182006		51-182007			51-182007	51-182002		51-182011	
3	MOUNTING PAD PIN	740-0001		740-0016			740-0032	740-0051		740-0066	
4	HEX NUT	51-502001		51-502002			51-502003	51-502004		51-502012	
5	FLEXIBLE HOSE ASSY	740-0002	740-0012	740-0017	740-0027	740-0031	740-0042	740-0061		740-0065	740-0076
6	CYLINDER TAIL PIPE	41-007025		41-007005			41-007006	41-007007		41-007007	
7	TIE ROD	740-0004	740-0014	740-0019	740-0029	740-0034	740-0044	740-0049		740-0068	740-0078
8	PISTON ROD ASSY	730-0001	730-0002	730-0003	730-0004	730-0005	730-0006	730-0007		730-0010	730-0011
9	U-CUP	11-208015		11-206013			11-208017	11-208002		11-208003	
10	CYLINDER BARREL	740-0007	740-0015	740-0022	740-0030	740-0037	740-0045	740-0048		740-0071	740-0079
11	U-CUP	11-208008		11-206002			11-206001	11-208012		11-208019	
12	O-RING	11-106026		11-106031			11-106144	11-106153		11-106242	
13	CYLINDER HEAD	740-0008		740-0023			740-0038	740-0057		740-0072	
14	SETSCREW/COTTER PIN	51-182002		51-182010			51-611005	51-611006		51-611007	
15	CLEVIS	740-0009		740-0024			740-0039	740-0058		740-0073	
16	FRONT PIN	740-0010		740-0025			740-0040	740-0059		740-0074	
17	COTTER PIN	51-182006		51-182007			51-182002	51-182011		51-182011	

CYLINDER MODEL	ASSEMBLY PART NUMBER	BORE AND STROKE	DISPLACEMENT	ROD DIAMETER
N65	700-0011	1-1/4" x 6-1/2"	5.98 IN ³	5/8"
N85	700-0012	1-1/4" x 8-1/2"	7.82 IN ³	5/8"
N175-750	700-0013	1-3/4" x 7-1/2"	14.78 IN ³	3/4"
N175-1000	700-0014	1-3/4" x 10"	19.70 IN ³	3/4"
N250-800	700-0015	2-1/2" x 8"	32.96 IN ³	1"
N250-1000	700-0016	2-1/2" x 10"	41.20 IN ³	1"
N250-1300	700-0017	2-1/2" x 13"	53.56 IN ³	1"
N350-1200	700-0018	3-1/2" x 12"	94.20 IN ³	1-1/2"
N350-1600	700-0019	3-1/2" x 16"	125.60 IN ³	1-1/2"
N400-1500	700-0020	4" x 15"	152.40 IN ³	1-3/4"
N400-2000	700-0021	4" x 20"	203.20 IN ³	1-3/4"

OLD TYPE N-MODEL CYLINDERS PARTS LIST

SUMMER
 7983 PROGRESS WAY, DELTA, B.C., CANADA
 PHONE (604)-940-4545 FAX (604)-940-4566
 www.summerequipment.com

WAGNER
 MANUFACTURERS OF HYDRAULIC STEERING

DRAWN BY: P.D.W. CHECKED BY: M.L.G.
 SCALE: N.T.S. N.T.S.
 DATE: APRIL, 2004

REV. _____
 DRAWING NO. _____
 REF NO. _____
C-3-727

CYLINDERS - N MODEL Type N350-1200 P/N 700-0018 & N350-1600 P/N 700-0019

2005 May

<u>ITEM</u>	<u>PART NUMBER</u>	<u>DESCRIPTION, MODEL and DIMENSIONS</u>
11	11-208002	U-cup, piston rod
9	11-208018	U-cup, piston head
6	41-007007	Flexible hose
2	51-182002	Cotter pin, mounting pad pin
17	51-182011	Cotter pin, clevis pin
	119-0019	Seal kit; N350-1200 & N350-1600
	700-0018	Cylinder assembly, N350-1200 (94.20 cu. in. disp'l)
	700-0019	Cylinder assembly, N350-1600 (125.6 cu. in. disp'l)
8	730-0008	Piston rod & head sub-assembly, N350-1200; (1½" x 33-13/16" long) Note A
8	730-0009	Piston rod & head sub-assembly, N350-1600; (1½" x 41-13/16" long) Note A
3	740-0050	Tail pipe, N350-1200 Note B
5	740-0051	Pin, mounting pad (1¼" dia.)
7	740-0053	Tie rod, N350-1200
10	740-0056	Barrel, N350-1200 (4¼" O.D. x 15-3/8" long)
13	740-0057	Cylinder head Note B
15	740-0058	Clevis
16	740-0059	Pin, clevis (1¾" dia.)
1	740-0060	Mounting pad
5	740-0061	Tail pipe, N350-1600 Note B
7	740-0063	Tie rod, N350-1600
10	740-0064	Barrel, N350-1600 (4¼" O.D. x 19-3/8" long)

Parts list drawing for Model N350-1200 & N350-1600 Cylinders C-3-727

NOTES:

- A Check clearance is 0.004/0.005" between piston O.D. and barrel I.D. (item #10).
- B Check clearance is 0.002/0.003" between piston rod (item #12) and cylinder head I.D. (item #13) and tail pipe I.D. (item #5).

P.O.R. = Price on Request

All Prices in U.S. Dollars - EX Works, Delta, BC Canada

Subject to change without notice

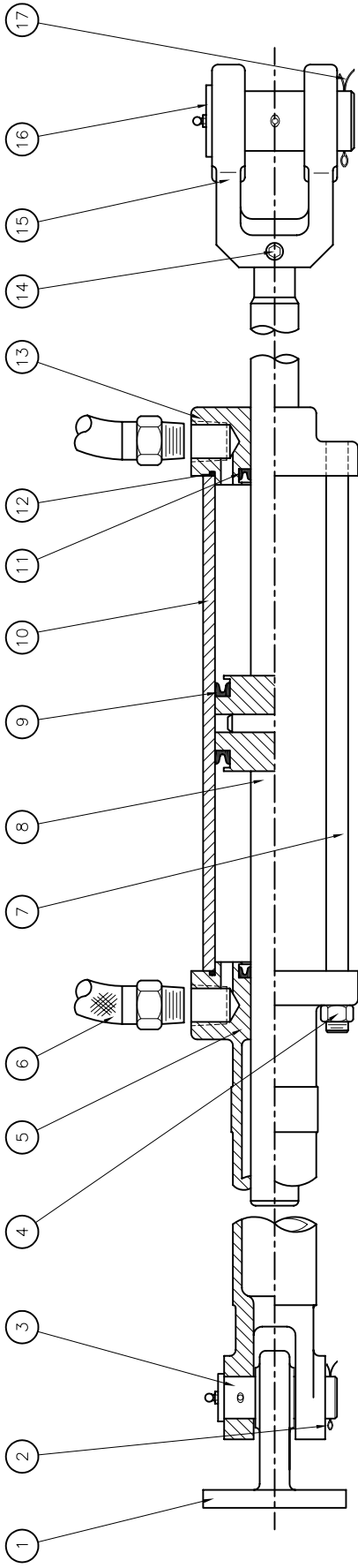
Includes: Brokerage Costs and any Customs Fees (see page iv for details).

Shipping and Handling Extra

Manufacturer of



HYDRAULIC STEERING



ASSEMBLY NOTES:

1. THE N65, N85, AND N175 CYLINDERS USE INTERNAL SNAP RINGS TO HOLD U-CUPS (ITEM 11) IN PLACE:
N65/N85 - 51-310003
N175 - 51-310004
2. THE CLEVIS (ITEM 15) IS SECURED TO THE PISTON ROD ASSY (ITEM 8) BY MEANS OF EITHER A SETSCREW OR COTTER PIN (ITEM 14). THE N65, N85, AND N175 CYLINDERS UTILIZE A COTTER PIN. THE TIE ROD MATERIAL (ITEM 7) FOR THE N65, N85, AND N175 CYLINDERS IS TO BE STAINLESS STEEL. ALL OTHER CYLINDER TIE RODS ARE TO BE NAVAL BRASS.
3. THE GREASE NIPPLES MOUNTED ON THE FRONT AND REAR PINS (ITEMS 3 AND 16) ARE SUPPLIED ON THE N250 AND LARGER CYLINDERS ONLY. ON THE N65 AND N85 CYLINDERS THE TAIL PIPE (ITEM 5) IS THREADED TO SECURE THE TIE RODS (ITEM 7). THE HEX NUTS (ITEM 4) ARE LOCATED ON THE OPPOSITE END OF THE CYLINDER.

ITEM	DESCRIPTION	N65 700-0011	N65 700-0012	N175-750 700-0013	N175-1000 700-0014	N250-800 700-0015	N250-1000 700-0016	N350-1200 700-0018	N350-1600 700-0019	N400-1500 700-0020	N400-2000 700-0021
1	MOUNTING PAD	740-0011		740-0026			740-0041	740-0060		740-0075	
2	COTTER PIN	51-182006		51-182007			51-182007	51-182002		51-182011	
3	MOUNTING PAD PIN	740-0001		740-0016			740-0032	740-0051		740-0066	
4	HEX NUT	51-502001		51-502002			51-502003	51-502004		51-502012	
5	FLEXIBLE HOSE ASS'Y	740-0002	740-0012	740-0017	740-0027	740-0031	740-0042	740-0061		740-0065	740-0076
6	CYLINDER TAIL PIPE	41-007025		41-007005			41-007006	41-007007		41-007007	
7	TIE ROD	740-0004	740-0014	740-0019	740-0029	740-0034	740-0044	740-0063		740-0068	740-0078
8	PISTON ROD ASS'Y	730-0001	730-0002	730-0003	730-0004	730-0005	730-0006	730-0007		730-0010	730-0011
9	U-CUP	11-208015		11-206013			11-208017	11-208002		11-208003	
10	CYLINDER BARREL	740-0007	740-0015	740-0022	740-0030	740-0037	740-0045	740-0048		740-0071	740-0079
11	U-CUP	11-208008		11-206002			11-206001	11-208012		11-208019	
12	O-RING	11-106026		11-106031			11-106144	11-106153		11-106242	
13	CYLINDER HEAD	740-0008		740-0023			740-0038	740-0057		740-0072	
14	SETSCREW/COTTER PIN	51-182002		51-182010			51-611005	51-611006		51-611007	
15	CLEVIS	740-0009		740-0024			740-0039	740-0058		740-0073	
16	FRONT PIN	740-0010		740-0025			740-0040	740-0059		740-0074	
17	COTTER PIN	51-182006		51-182007			51-182002	51-182011		51-182011	

CYLINDER MODEL	ASSEMBLY PART NUMBER	BORE AND STROKE	DISPLACEMENT	ROD DIAMETER
N65	700-0011	1-1/4" x 6-1/2"	5.98 IN ³	5/8"
N85	700-0012	1-1/4" x 8-1/2"	7.82 IN ³	5/8"
N175-750	700-0013	1-3/4" x 7-1/2"	14.78 IN ³	3/4"
N175-1000	700-0014	1-3/4" x 10"	19.70 IN ³	3/4"
N250-800	700-0015	2-1/2" x 8"	32.96 IN ³	1"
N250-1000	700-0016	2-1/2" x 10"	41.20 IN ³	1"
N250-1300	700-0017	2-1/2" x 13"	53.56 IN ³	1"
N350-1200	700-0018	3-1/2" x 12"	94.20 IN ³	1-1/2"
N350-1600	700-0019	3-1/2" x 16"	125.60 IN ³	1-1/2"
N400-1500	700-0020	4" x 15"	152.40 IN ³	1-3/4"
N400-2000	700-0021	4" x 20"	203.20 IN ³	1-3/4"

OLD TYPE N-MODEL CYLINDERS PARTS LIST

SUMMER
 7983 PROGRESS WAY, DELTA, B.C., CANADA
 PHONE (604)-940-4545 FAX (604)-940-4566
 www.summerequipment.com

WAGNER
 MANUFACTURERS OF HYDRAULIC STEERING

DRAWN BY: P.D.W. CHECKED BY: M.L.G.
 SCALE: N.T.S.
 DATE: APRIL, 2004

REV. _____
 DRAWING NO. _____
 REF NO. _____
C-3-727

CYLINDERS - N MODEL Type N400-1500 P/N 700-0020 & N400-2000 P/N 700-0021

2005 May

<u>ITEM</u>	<u>PART NUMBER</u>	<u>DESCRIPTION, MODEL and DIMENSIONS</u>
11	11-208003	U-cup, piston head
9	11-208019	U-cup, piston rod
6	41-007007	Flexible hose
2	51-182011	Cotter pin, mounting pad pin
17	51-182011	Cotter pin, clevis pin
	119-0020	Seal kit; N400-1500 & N400-2000
	700-0020	Cylinder assembly, N400-1500 (152.4 cu. in. disp'l)
	700-0021	Cylinder assembly, N400-2000 (203.2 cu. in. disp'l)
8	730-0010	Piston rod & head sub-assembly, N400-1500; (1¾" x 40-7/8" long) Note A
8	730-0011	Piston rod & head sub-assembly, N400-2000; (1¾" x 50-7/8" long) Note A
5	740-0065	Tail pipe, N400-1500 Note B
3	740-0066	Pin, mounting pad (1-5/8" dia.)
	740-0068	Tie rod N400-1500
10	740-0071	Barrel, N400-1500; (4¾" O.D. x 18½" long)
	740-0072	Cylinder head Note B
15	740-0073	Clevis
16	740-0074	Pin, clevis (2" dia.)
1	740-0075	Mounting pad
5	740-0076	Tail pipe, N400-2000 Note B
	740-0078	Tie rod N400-2000
10	740-0079	Barrel, N400-2000; (4¾" O.D. x 23½" long)

Parts list drawing for Model N400-1500 & N400-2000 Cylinders C-3-727

NOTES:

- A Check clearance is 0.004/0.005" between piston O.D. and barrel I.D. (item #10).
- B Check clearance is 0.002/0.003" between piston rod (item #12) and cylinder head I.D. (item #13) and tail pipe I.D. (item #5).

P.O.R. = Price on Request

All Prices in U.S. Dollars - EX Works, Delta, BC Canada

Subject to change without notice

Includes: Brokerage Costs and any Customs Fees (see page iv for details).

Shipping and Handling Extra

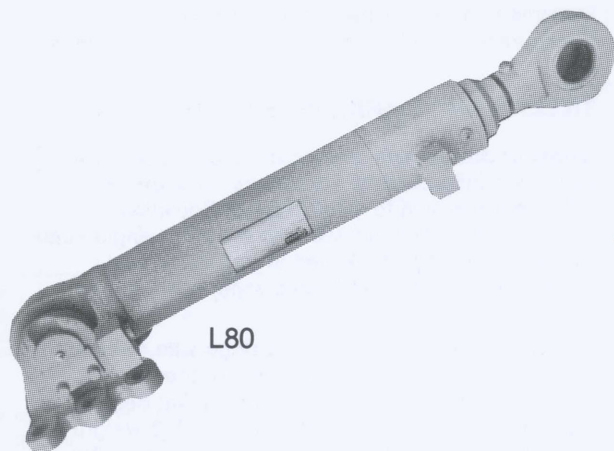
Manufacturer of



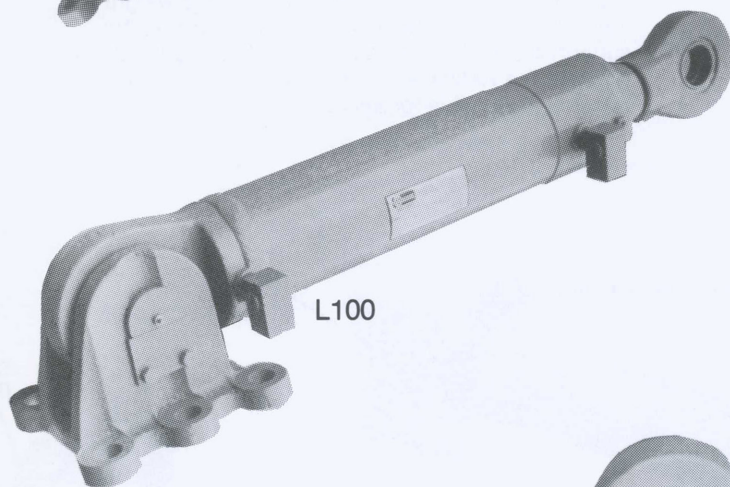
HYDRAULIC STEERING



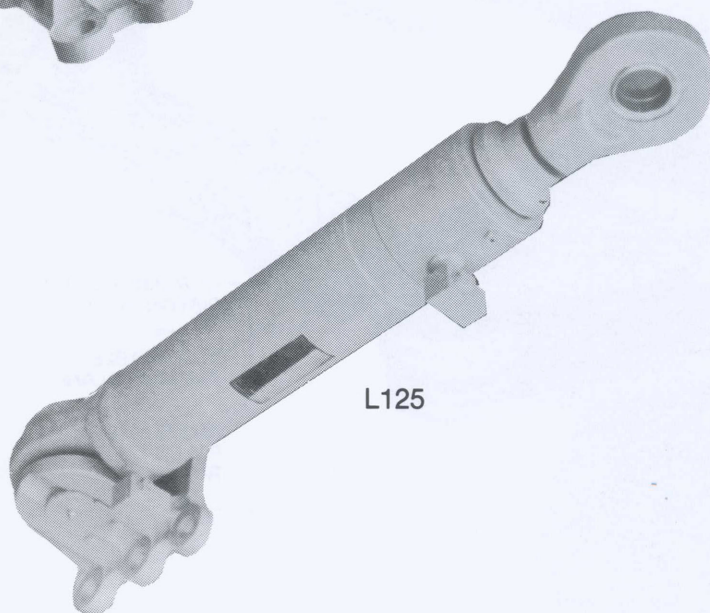
Hydraulic Steering Type L



L80



L100



L125

Wagner Type L Steering Systems are exceptionally tough and reliable. They provide long and virtually maintenance-free performance.

Type L Hydraulic Steering Systems are available in 19 progressive sizes.

WHY WAGNER TYPE L STEERING SYSTEMS?

- Large bore, short stroke cylinders provide strength in a compact design.
- Oversized, bronze rod bearings and externally adjustable rod seals result in extremely long cylinder and seal life.
- Chrome plated, precision ground, piston rods resist scratching and corrosion.
- Extra strong adjustable rudder stops on cylinder rods eliminate the need for external stops.
- Cylinders are fitted with integral shut off valves.
- Cylinders are supplied with self-aligning rod ends and mounting pads, reducing installation costs.
- Cylinders come complete with flexible hoses.
- All cylinders are constructed to comply with Classification Society requirements.

DEPENDABILITY AND PERFORMANCE

Over five decades of quality performance has made Wagner Hydraulic Steering equipment the standard of dependability and performance. Today Wagner products are made and distributed by Summer Equipment Ltd. of Vancouver, Canada, a company with over seven decades of experience in the marine field and a reputation for design, engineering and manufacturing excellence.

Wagner Type L Steering Systems offer smooth, effortless control for all types of vessels.

Wagner Marine Technologies

Issued June 2005

TYPE "L" STEERING SYSTEM SPECIFICATIONS												
STEERING CYLINDER												
MODEL	DISPLACEMENT (hardover)		DISPLACEMENT (emergency)		BORE (mm)	STROKE (mm)	ROD (mm)	INLET PORT (SAE)	DIMENSIONS (inches)		TORQUES	
	in ³	cm ³	Rudder Angle	in ³					cm ³	Angle	Lbs-Ft	T-M
L80-262	134	2,196	2 x 35	60.4	990	2 x 15	80	262	40	3/4 - 16	11,570	1.6
L80-409	212	3,475	2 x 45	78.0	1280	2 x 15	80	409	40	3/4 - 16	12,660	1.75
L80-409	212	3,475	2 x 35	95.6	1570	2 x 15	80	409	40	3/4 - 16	18,080	2.5
L100-419	340	5,575	2 x 45	125.0	2050	2 x 15	100	419	50	1-1/16 - 12	20,250	2.8
L100-419	340	5,575	2 x 35	153.0	2510	2 x 15	100	419	50	1-1/16 - 12	28,930	4.0
L100-650	527	8,640	2 x 45	192.0	3150	2 x 15	100	650	50	1-1/16 - 12	31,830	4.4
L125-424	530	8,640	2 x 35	239.0	3920	2 x 15	125	424	63	1-1/16 - 12	45,570	6.3
L125-674	854	14,000	2 x 45	313.0	5130	2 x 15	125	674	63	1-1/16 - 12	50,630	7.0
L125-674	854	14,000	2 x 35	385.0	6310	2 x 15	125	674	63	1-1/16 - 12	72,330	10.0

CONVERSIONS:

VOLUME = in³ x 16.39 = cm³

TORQUE = T.M. x 7,233 = Lbs-Ft

RECOMMENDED HYDRAULIC OIL:

ISO Viscosity Grade 32

TORQUE RATINGS:

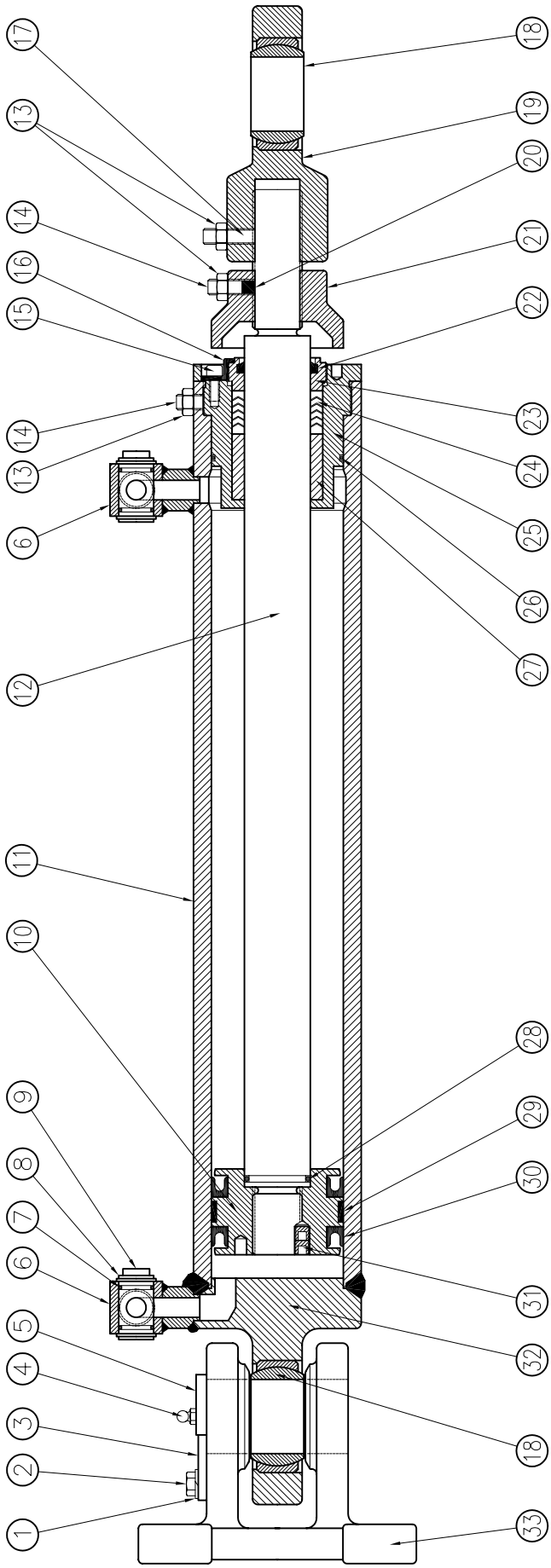
Developed in the Hardover position.

7983 PROGRESS WAY • DELTA, BC V4G 1A3 CANADA • PHONE (604) 940-4545 • FAX (604) 940-4566



MANUFACTURER OF

HYDRAULIC STEERING



DASH NO.	QTY		ITEM	PART NO.	DESCRIPTION	MATL
	-2	-1				
	2	2	1	51-430017	LOCKWASHER	STL
	2	2	2	51-230004	CAPSCREW	STL
	1	1	3	620-0317	LOCKING PLATE	STL
	1	1	4	41-200001	GREASE NIPPLE	S.S.
	1	1	5	620-0053	MOUNTING PAD PIN	STL
	2	2	6	420-0315	SHUT-OFF VALVE BODY	STL
	4	4	7	11-106016	O-RING	SYN
	4	4	8	51-300006	SNAP RING	STL
	2	2	9	420-0316	SHUT-OFF VALVE SPOOL	BRS
	1	1	10	620-0002	PISTON	ALUM
	-	1	11	620-0003	L80-262 CYLINDER BARREL	STL
	1	-	11	620-0012	L80-409 CYLINDER BARREL	STL
	-	1	12	620-0004	L80-262 PISTON ROD (19.88" LONG)	STL
	1	-	12	620-0013	L80-409 PISTON ROD (25.67" LONG)	STL
	3	3	13	51-500024	NUT	STL
	2	2	14	51-610026	SETSCREW	STL
	1	1	15	51-220035	CAPSCREW	STL
	1	1	16	620-0365	LOCKING TAB	STL
	1	1	17	51-610029	SETSCREW	STL
	2	2	18	610-0078	BEARING ASSEMBLY	ALLOY
	1	1	19	620-0011	CLEVIS	D.I.
	1	1	20	620-0265	NYLON LOCK PLUG	NYLON
	1	1	21	620-0010	MECHANICAL STOP	ALUM
	1	1	22	11-606005	ROD WIPER	SYN
	1	1	23	620-0008	WIPER RETAINER	BRS
	1	1	24	11-406013	V-PACKING SET	SYN
	1	1	25	620-0005	CYLINDER HEAD	ALUM
	1	1	26	11-106150	O-RING	SYN
	1	1	27	620-0006	ROD BUSHING	BNZ

DASH NO.	QTY		ITEM	PART NO.	DESCRIPTION	MATL
	-2	-1				
	1	1	28	11-106220	O-RING	SYN
	1	1	29	10-800006	PISTON WEAR STRIP	SYN
	2	2	30	11-216005	U-CUP	SYN
	2	2	31	51-610002	SETSCREW	STL
	1	1	32	620-0001	TAILBLOCK	STL
	1	1	33	620-0274	MOUNTING PAD	D.I.

DASH NO.	ASSEMBLY PART NUMBER	DESCRIPTION	CYLINDER ASSEMBLY
-1	600-0001	L80-262 CYLINDER ASSEMBLY	
-2	600-0002	L80-409 CYLINDER ASSEMBLY	

L80 CYLINDER SEAL KIT PART NO: 119-0070
 (CONSISTS OF ITEMS 7, 22, 24, 26, 29, AND 30)

L80 MOUNTING PAD PIN ASSY PART NO: 610-0026
 (CONSISTS OF ITEMS 3, 4, AND 5)

L80-262 PISTON ROD ASSEMBLY PART NO: 610-0040
 (CONSISTS OF ITEMS 10, 12, 28, AND 31)

L80-409 PISTON ROD ASSEMBLY PART NO: 610-0053
 (CONSISTS OF ITEMS 10, 12, 28, AND 31)

L80-262 BARREL ASSEMBLY PART NO: 610-0013
 (CONSISTS OF ITEMS 6, 11, AND 32)

L80-409 BARREL ASSEMBLY PART NO: 610-0014
 (CONSISTS OF ITEMS 6, 11, AND 32)

**PARTS LIST FOR WAGNER
L80-262 AND L80-409 CYLINDERS**

SUMMER
 7983 PROGRESS WAY, DELTA, B.C., CANADA
 PHONE (604)-940-4945 FAX (604)-940-4566
 www.summerequipment.com

SUMMER EQUIPMENT LTD.

HYDRAULIC STEERING

MANUFACTURERS OF

CHECKED BY: M.L.G.

DRAWN BY: B.B.Q.
 SCALE: N.T.S.
 DATE: AUG, 1998

REV. **C-8-679** A

CYLINDERS - TYPE 'L' Model L80-262 P/N 600-0001 & L80-409 P/R 600-0002

2005 May

<u>ITEM</u>	<u>PART NUMBER</u>	<u>DESCRIPTION and MODEL</u>
29	10-800006	Wear strip
	41-007101	Flexible hose ABS & DNV
	41-007104	Flexible hose LRS & BV
4	41-200001	Grease nipple
	119-0070	Seal kit; L80-262 & L80-409 Cylinders Note A .
	610-0040	Piston rod & head sub-assembly, L80-262 Note B
	610-0053	Piston rod & head sub-assembly, L80-409 Note B
18	610-0078	Spherical bearing assembly
25	620-0005	Cylinder head
27	620-0006	Rod bushing Note C
23	620-0008	Wiper retainer
21	620-0010	Mechanical stop
19	620-0011	Clevis (rod end)
5	620-0053	Pin, mounting pad
20	620-0265	Lock plug, nylon
33	620-0274	Mounting pad Note D
3	620-0317	Lock plate
16	620-0365	Locking tab

Parts list drawing for Model L80-262 & L80-409 Cylinders C-8-679

NOTES

- A Includes items 22, 24, 26 and 30.
- B Check clearance is 0.008/0.020" between wear strip (item 29) and barrel I.D. (item 11).
- C Inside diameter supplied undersized, final fitting by customer. Check clearance 0.001/0.002 between piston rod (item 12) and rod bushing (item 27).
- D Specify left hand or right hand.

P.O.R. = Price on Request

All Prices in U.S. Dollars - EX Works, Delta, BC Canada

Subject to change without notice

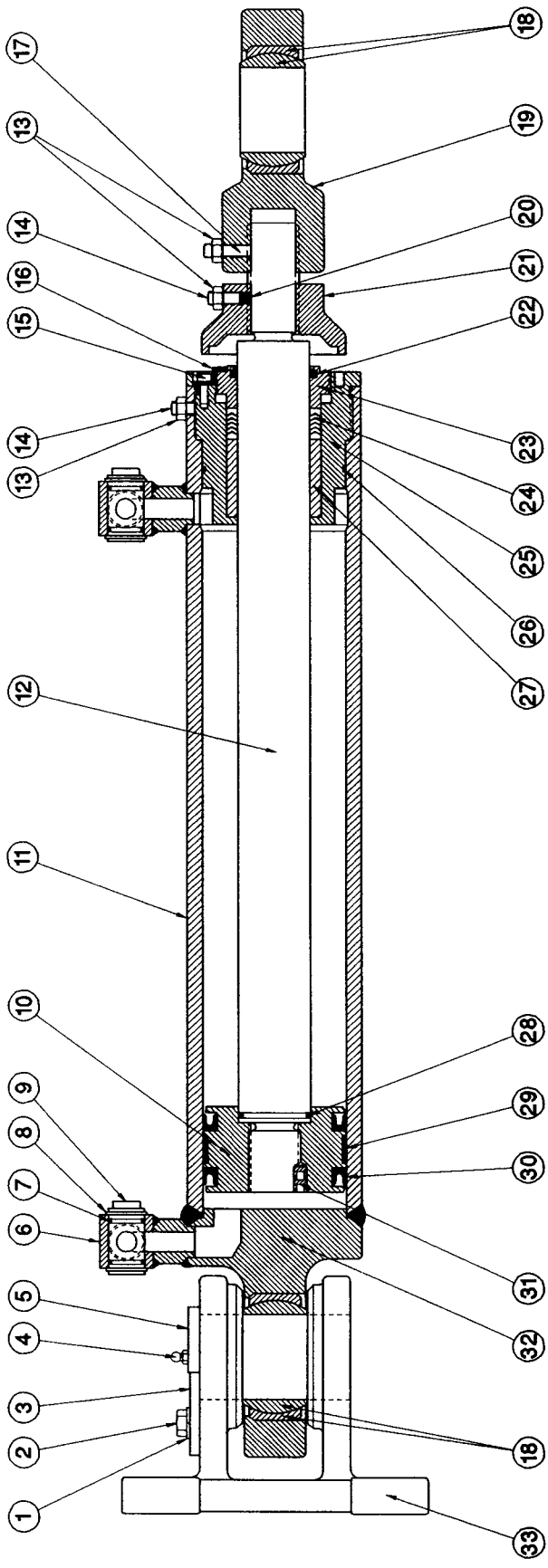
Includes: Brokerage Costs and any Customs Fees (see page iv for details).

Shipping and Handling Extra

Manufacturer of



HYDRAULIC STEERING



DASH NO.		QTY	ITEM	PART NO.	DESCRIPTION	MAT'L
-2	-1	2	1	61-430017	LOCKWASHER	STL
		2	2	61-230004	CAPSCREW	STL
		1	3	620-0318	LOCKING PLATE	STL
		1	4	41-200001	GREASE NIPPLE	S.S.
		1	5	620-0054	MOUNTING PAD PIN	STL
		2	6	420-0311	SHUT-OFF VALVE BODY	STL
		4	7	11-106117	O-RING	SYN
		4	8	61-300001	SNAP RING	STL
		2	9	420-0312	SHUT-OFF VALVE SPOOL	BR5
		1	10	620-0015	PISTON	ALUM
		1	11	620-0016	L100-419 CYLINDER BARREL	STL
		1	11	620-0025	L100-660 CYLINDER BARREL	STL
		1	12	620-0017	L100-419 PISTON ROD (27.40" LONG)	STL
		1	12	620-0026	L100-660 PISTON ROD (36.50" LONG)	STL
		3	13	61-500024	NUT	STL
		2	14	61-610026	SETSCREW	STL
		1	15	61-220005	CAPSCREW	STL
		1	16	620-0365	LOCKING TAB	STL
		1	17	61-610029	SETSCREW	STL
		2	18	610-0078	BEARING ASSEMBLY	ALLOY
		1	19	620-0024	CLEVIS	D.I.
		1	20	620-0265	NYLON LOCK PLUG	NYLON
		1	21	620-0023	MECHANICAL STOP	ALUM
		1	22	11-606004	ROD WIPER	SYN
		1	23	620-0021	WIPER RETAINER	BR5
		1	24	11-406012	V-PACKING SET	SYN
		1	25	620-0018	CYLINDER HEAD	ALUM
		1	26	11-106154	O-RING	SYN
		1	27	620-0019	ROD BUSHING	BNZ

DASH NO.		QTY	ITEM	PART NO.	DESCRIPTION	MAT'L
-2	-1	1	1	11-106224	O-RING	SYN
		1	1	10-600007	PISTON WEAR STRIP	SYN
		2	2	11-216009	U-CUP	SYN
		2	2	51-610002	SETSCREW	STL
		1	1	620-0014	TAILBLOCK	STL
		1	1	620-0275	MOUNTING PAD	D.I.

DASH NO.	ASSEMBLY PART NUMBER	CYLINDER DESCRIPTION
-1	600-0003	L100-419 CYLINDER ASSEMBLY
-2	600-0004	L100-660 CYLINDER ASSEMBLY

L100 CYLINDER SEAL KIT PART NUMBER 119-0071
(CONSISTING OF ITEMS 7, 22, 24, 26, 28, AND 30)

L100 MOUNTING PAD ASSEMBLY PART NUMBER 610-0027
(CONSISTING OF ITEMS 3, 4, AND 5)

L100-419 PISTON ROD ASSEMBLY PART NUMBER 610-0041
(CONSISTING OF ITEMS 10, 12, 26, AND 31)

L100-660 PISTON ROD ASSEMBLY PART NUMBER 610-0054
(CONSISTING OF ITEMS 10, 12, 28, AND 31)

L100-419 BARREL ASSEMBLY PART NUMBER 610-0015
(CONSISTING OF ITEMS 6, 11, AND 32)

L100-660 BARREL ASSEMBLY PART NUMBER 610-0016
(CONSISTING OF ITEMS 6, 11, AND 32)

**PARTS LIST FOR WAGNER
L100-419 AND L100-660 CYLINDERS**

SUMNER
EQUIPMENT LTD.
7145 ROGERS WAY, DELTA, B.C., CANADA
PHONE (604) 941-1401, (403) 460-4864
www.sumnerequipment.com

MANUFACTURERS OF **WAGNER** HYDRAULIC STEERING

DRAWN BY: B.B.G.
SCALE: N.T.S.
DATE: AUGUST, 1998

CHECKED BY: M.L.G.

REV. **A**
DRAWING NO. **C-8-680**
REF NO.:

CYLINDERS - TYPE 'L'

Model L100-419 P/N 600-0003 & L100-650 P/N 600-0004

2005 May

<u>ITEM</u>	<u>PART NUMBER</u>	<u>DESCRIPTION and MODEL</u>
29	10-800007	Wear strip
	41-007102	Flexible hose ABS & DNV
	41-007105	Flexible hose LRS & BV
4	41-200001	Grease nipple
	119-0071	Seal kit, L100-419 & L100-650 Cylinders Note A
	610-0041	Piston rod & head sub-assembly, L100-419 Note B
	610-0054	Piston rod & head sub-assembly, L100-650 Note B
18	610-0079	Spherical bearing assembly
25	620-0018	Cylinder head
27	620-0019	Rod bushing Note C
23	620-0021	Wiper retainer
21	620-0023	Mechanical stop
19	620-0024	Clevis (rod end)
5	620-0054	Pin, mounting pad
20	620-0265	Lock plug, nylon
33	620-0275	Mounting pad Note D
3	620-0318	Lock plate
16	620-0365	Locking tab

Parts list drawing for Model L100-419 & L100-650 Cylinders C-8-680

NOTES

- A Includes items 22, 24, 26 and 30.
- B Check clearance is 0.008/0.020" between wear strip (item 29) and barrel I.D. (item 11).
- C Inside diameter supplied undersized, final fitting by customer. Check clearance 0.001/0.002 between piston rod (item 12) and rod bushing (item 27).
- D Specify left hand or right hand.

P.O.R. = Price on Request

All Prices in U.S. Dollars - EX Works, Delta, BC Canada

Subject to change without notice

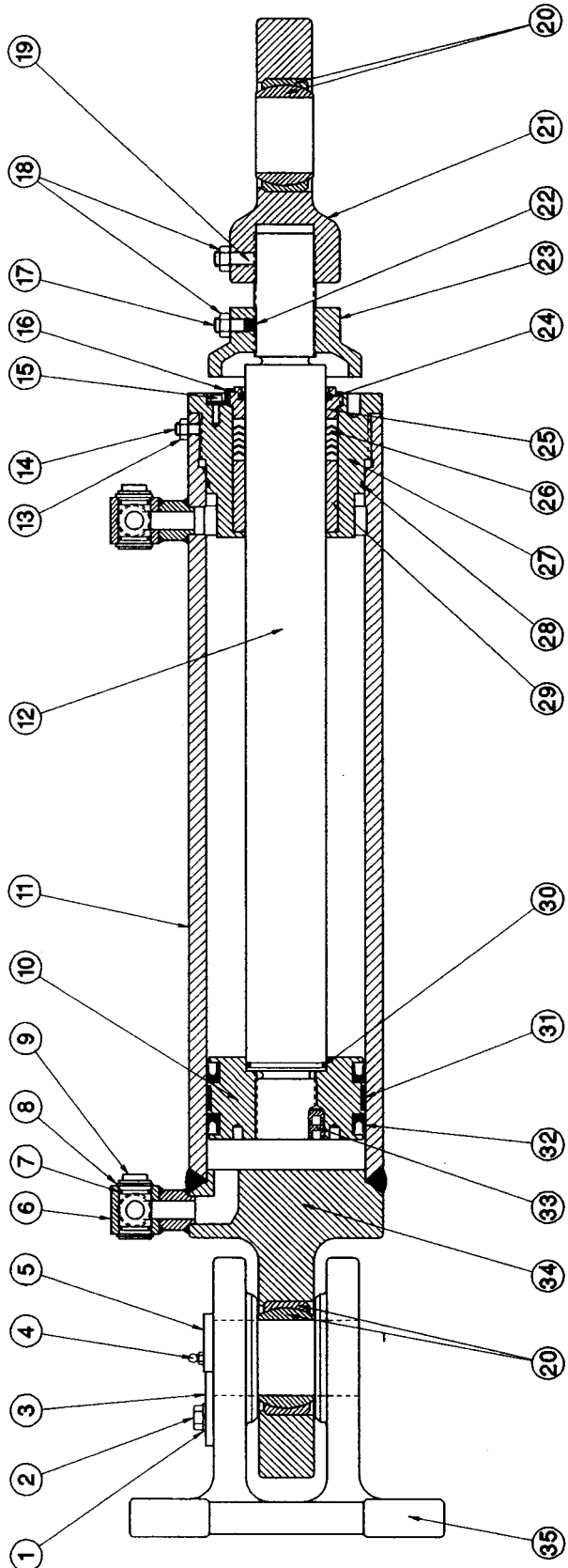
Includes: Brokerage Costs and any Customs Fees (see page iv for details).

Shipping and Handling Extra

Manufacturer of



HYDRAULIC STEERING



DASH NO.	QTY	ITEM	PART NO.	DESCRIPTION	MAT'L
2	2	1	51-430017	LOCKWASHER	STL
2	2	2	51-230004	CAPSCREW	STL
1	1	3	51-230004	LOCKING PLATE	STL
1	1	4	41-200001	GREASE NIPPLE	S.S.
1	1	5	51-200001	MOUNTING PAD PIN	STL
2	2	6	420-0311	SHUT-OFF VALVE BODY	STL
4	4	7	11-106117	O-RING	SYN
4	4	8	51-300001	SNAP RING	STL
2	2	9	420-0312	SHUT-OFF VALVE SPOOL	BR5
1	1	10	51-200001	PISTON	ALUM
1	1	11	51-200001	L125-424 CYLINDER BARREL	STL
1	1	12	51-200001	L125-424 CYLINDER BARREL	STL
1	1	13	51-200001	L125-424 PISTON ROD (28.39" LONG)	STL
1	1	14	51-200001	L125-424 PISTON ROD (38.23" LONG)	STL
1	1	15	51-200001	NUT	STL
1	1	16	51-200001	SETScrew	STL
1	1	17	51-200001	SETScrew	STL
2	2	18	51-500013	NUT	STL
2	2	19	51-500013	SETScrew	STL
2	2	20	610-0079	BEARING ASSEMBLY	ALLOY
1	1	21	610-0037	CLEVIS	D.I.
1	1	22	610-0036	NYLON LOCK PLUG	NYLON
1	1	23	610-0036	MECHANICAL STOP	ALUM
1	1	24	11-500003	ROD WIPER	SYN
1	1	25	610-0034	WIPER RETAINER	BR5
1	1	26	11-408011	V-PACKING SET	SYN
1	1	27	610-0031	CYLINDER HEAD	ALUM
1	1	28	11-106246	O-RING	SYN

DASH NO.	QTY	ITEM	PART NO.	DESCRIPTION	MAT'L
1	1	26	620-0032	ROD BUSHING	BNZ
1	1	30	11-106228	O-RING	SYN
1	1	31	10-800008	PISTON WEAR STRIP	SYN
2	2	32	11-216013	U-CUP	SYN
2	2	33	51-610003	SETScrew	STL
1	1	34	620-0027	TAILBLOCK	STL
1	1	35	620-0276	MOUNTING PAD	D.I.

DASH NO.	ASSEMBLY PART NUMBER	CYLINDER DESCRIPTION
-1	600-0005	L125-424 CYLINDER ASSEMBLY
-2	600-0006	L125-674 CYLINDER ASSEMBLY

L125 CYLINDER SEAL KIT PART NUMBER 119-0072
 (CONSISTING OF ITEMS 7, 24, 26, 28, 31, AND 32)

L125 MOUNTING PAD ASSEMBLY PART NUMBER 610-0028
 (CONSISTING OF ITEMS 3, 4, AND 5)

L125-424 PISTON ROD ASSEMBLY PART NUMBER 610-0042
 (CONSISTING OF ITEMS 10, 12, 30, AND 33)

L125-674 PISTON ROD ASSEMBLY PART NUMBER 610-0055
 (CONSISTING OF ITEMS 10, 12, 30, AND 33)

L125-424 BARREL ASSEMBLY PART NUMBER 610-0017
 (CONSISTING OF ITEMS 6, 11, AND 34)

L125-674 BARREL ASSEMBLY PART NUMBER 610-0018
 (CONSISTING OF ITEMS 6, 11, AND 34)

PARTS LIST FOR WAGNER
 L125-424 AND L125-674 CYLINDERS

SUMNER
 EQUIPMENT LTD.
 7943 ROGERS WAY, DELTA, B.C., CANADA
 PHONE (604) 944-4444
 WWW.SUMNEREQUIPMENT.COM

MANUFACTURERS OF **WAGNER** HYDRAULIC STEERING

CHECKED BY: M.L.G.
 DRAWN BY: B.B.G.
 SCALE: N.T.S.
 DATE: AUGUST, 1998

REV. **A**
 DRAWING NO. **C-8-681**
 REF NO.:

CYLINDERS - TYPE 'L'

Model L125-424 P/N 600-0005 & L125-674 P/N 600-0006

2005 May

<u>ITEM</u>	<u>PART NUMBER</u>	<u>DESCRIPTION and MODEL</u>
29	10-800008	Wear strip
	41-007102	Flexible hose ABS & DNV
	41-007105	Flexible hose LRS & BV
4	41-200001	Grease nipple
	119-0072	Seal kit, L125-424 & L125-674 Cylinders Note A
	610-0042	Piston rod & head sub-assembly, L125-424 Note B
	610-0055	Piston rod & head sub-assembly, L125-674 Note B
20	610-0079	Spherical bearing assembly
27	620-0031	Cylinder head
29	620-0032	Rod bushing Note C
25	620-0034	Wiper retainer
23	620-0036	Mechanical stop
21	620-0037	Clevis (rod end)
5	620-0055	Pin, mounting pad
22	620-0264	Lock plug, nylon
35	620-0276	Mounting pad Note D
3	620-0319	Lock plate
16	620-0366	Locking tab

Parts list drawing for Model L125-424 & L125-674 Cylinders C-8-681

NOTES

- A Includes items 22, 24, 26 and 30.
- B Check clearance is 0.008/0.020" between wear strip (item 29) and barrel I.D. (item 11).
- C Inside diameter supplied undersized, final fitting by customer. Check clearance 0.001/0.002 between piston rod (item 12) and rod bushing (item 27).
- D Specify left hand or right hand.

P.O.R. = Price on Request

All Prices in U.S. Dollars - EX Works, Delta, BC Canada

Subject to change without notice

Includes: Brokerage Costs and any Customs Fees (see page iv for details).

Shipping and Handling Extra

Manufacturer of



HYDRAULIC STEERING



Hydraulic Steering

TYPE T ACTUATORS

Wagner Type T Steering Systems are exceptionally tough and reliable. They provide a proven, trouble free system for all types of commercial vessels. Type T Actuators are available in 17 progressive sizes.

WHY WAGNER T ACTUATORS?

- **Proven Rapson Slide principle**
The ability to generate torque increases with increasing rudder angle. Matching of ram capacity to rudder torque provides effective steering at the least cost.
- **Totally enclosed**
All moving parts are encased in a grease filled, heavy, ductile iron housing and are protected from corrosion and mechanical damage.
- **Simple installation**
The integral tiller simply clamps on to the rudder post and the whole assembly self aligns to it. Alignment with shims and preparation of flat mounting beds are not necessary.
- **Rudder carrier bearing**
Due to construction of the T-ram, the clamp fitted tiller provides an integral rudder carrier bearing when the ram is supported from below.
- **Floating mount**
The mounting of the T-ram allows it to "float" on the rudder stock making it almost impossible to damage the unit should the vessel go aground or hit some obstruction.
- **Custom or standard**
Type T actuators are available in standard rudder stock diameters or can be custom bored and keyed to suit a specific project.

DEPENDABILITY AND PERFORMANCE

Over five decades of quality performance has made Wagner Hydraulic Steering equipment the standard for dependability and performance.

Wagner products are designed and manufactured by Summer Equipment Ltd. of Vancouver, Canada, a company with over seven decades of experience in the marine field.

Wagner Hydraulic Steering Systems offer effortless control for all types of vessels.

Wagner Marine Technologies

Issued June 2005

TYPE "T" STEERING SYSTEM SPECIFICATIONS														
ACTUATOR MODEL	ACTUATOR DISPLACEMENT		INLET PORT (NPT)	SUGGESTED HELM PUMP		STEERING ANGLE DEGREE	TORQUE		RUDDER STOCK DIAMETER				WEIGHT LBS	
	in ³	cm ³		MODEL	WHEEL TURNS		1000 PSI Lbs-Ft	70 kg/cm ² Kg-M	STANDARD INCH	CUSTOM		MAXIMUM		
										MINIMUM	inch			mm
T2	9.8	160	3/8"	B1	3.8	2 x 45	820	115	* 1.625	1-1/4	32	1-3/4	45	85
T3	20	334	3/8"	B2	5.7	2 x 45	1,700	235	* 2.000	1-3/8	35	2	50	100
T4	31	500	3/8"	B2	7.6	2 x 45	2,540	350	* 2.000 or 2.500	1-1/2	38	2-3/4	69	140
T5	42	682	1/2"	B3	6.7	2 x 45	3,470	480	* 2.500 or 2.750	2	51	2-7/8	73	190
T10	54	888	1/2"	B3	8.6	2 x 45	4,520	630	* 3.000 or 3.500	2-3/8	60	3-5/8	92	260
T11	54	888	1/2"	B3	8.6	2 x 35	4,700	650	3.500	2-3/8	60	3-5/8	92	280
T12	77	1260	3/4"	B3	12	2 x 45	6,410	890	4.000	2-7/8	73	4-3/8	111	360
T13	77	1260	3/4"	B3	12	2 x 35	6,670	920	4.000	2-7/8	73	4-3/8	111	390
T12B	90	1480	3/4"	B3	14	2 x 45	7,530	1,040	* 4.000	2-7/8	73	4-3/8	111	500
T13B	90	1480	3/4"	B3	14	2 x 35	7,830	1,080	4.000	2-7/8	73	4-3/8	111	510
T14	125	2050	3/4"	B4	12.6	2 x 45	10,400	1,440	4.750	3-1/2	90	5	127	630
T15	125	2050	3/4"	B4	12.6	2 x 35	10,800	1,490	4.750	3-1/2	90	5	127	650
T18	245	4020	1"	B4	25	2 x 45	20,400	2,820	5.750	3-7/8	99	6	152	1260
T19	245	4020	1"	B4	25	2 x 35	21,200	2,930	5.750	3-7/8	99	6	152	1510
T20	435	7080	1"	B4	44	2 x 45	36,000	4,970	N/A	5-1/4	134	7-1/2	190	1630
T21	435	7080	1"	B4	44	2 x 35	37,500	5,180	N/A	5-1/4	134	7-1/2	190	1810

CONVERSIONS:
2.2 lbs = 1 kg

RECOMMENDED HYDRAULIC OIL:
ISO Viscosity Grade 32

TORQUE RATINGS:
Developed in the Hardover position.

* ACTUATORS IN STOCK

7983 PROGRESS WAY • DELTA, BC V4G 1A3 CANADA • PHONE (604) 940-4545 • FAX (604) 940-4566



MANUFACTURER OF

HYDRAULIC STEERING

QTY	ITEM	PART NO.	DESCRIPTION	MAT'L
3	1	13-701001	FLAX PACKING FILLER	FLAX
1	2	820-0009	PACKING RING	STL
2	3	51-210013	CAPSCREW	STL
1	4	820-0013	COVER	D.I.
4	5	51-210011	CAPSCREW	STL
4	6	600-054	RIVET	STL
1	7	91-703008	LABEL	BR5
1	8	41-200001	GREASE NIPPLE	STL
1	9	41-200003	GREASE NIPPLE	STL
4	10	51-310023	CAPSCREW	STL
4	11	51-430002	LOCKWASHER	STL
1	12	820-0007	CAP	STL
2	13	820-0011	BRASS BUSHING	BR5
1	14	41-190001	PIPE PLUG	STL
1	15	820-0006	HOUSING	D.I.
1	16	820-0008	PISTON PIN	BR5
1	17	820-0012	FORK	STL
1	18	820-0002	PISTON	STL
2	19	820-0005	BABBITT LINER	BABT
2	20	820-0171	FLANGED BEARING SHELL	D.I.
2	21	11-108031	O-RING	SYN
2	22	11-208032	U-CUP	SYN
6	23	820-0014	BRONZE RING	BRN2
2	24	11-208004	U-CUP	SYN
2	25	31-100041	SPRING SPACER	STL
2	26	820-0170	FLANGED CYLINDER	D.I.
2	27	51-280003	CYLINDER STUD	STL
2	28	51-900005	NUT	STL
2	29	41-102007	PIPE PLUG	STL
8	30	51-210011	CAPSCREW	STL
2	31	51-170002	ROLL PIN	STL

T2 FORK AND CAP ASSEMBLY (ITEMS 10, 11, 12, AND 17)
FOR CUSTOM RUDDER STOCK DIAMETERS
PART NUMBER 810-0001

T2 HOUSING AND COVER ASSEMBLY (ITEMS 4, 5, 15, AND 31)
PART NUMBER 810-0015

T2 FLANGED CYLINDER ASSEMBLY (ITEMS 20, AND 26)
PART NUMBER 810-0040

WAGNER PART NUMBER: 800-0001

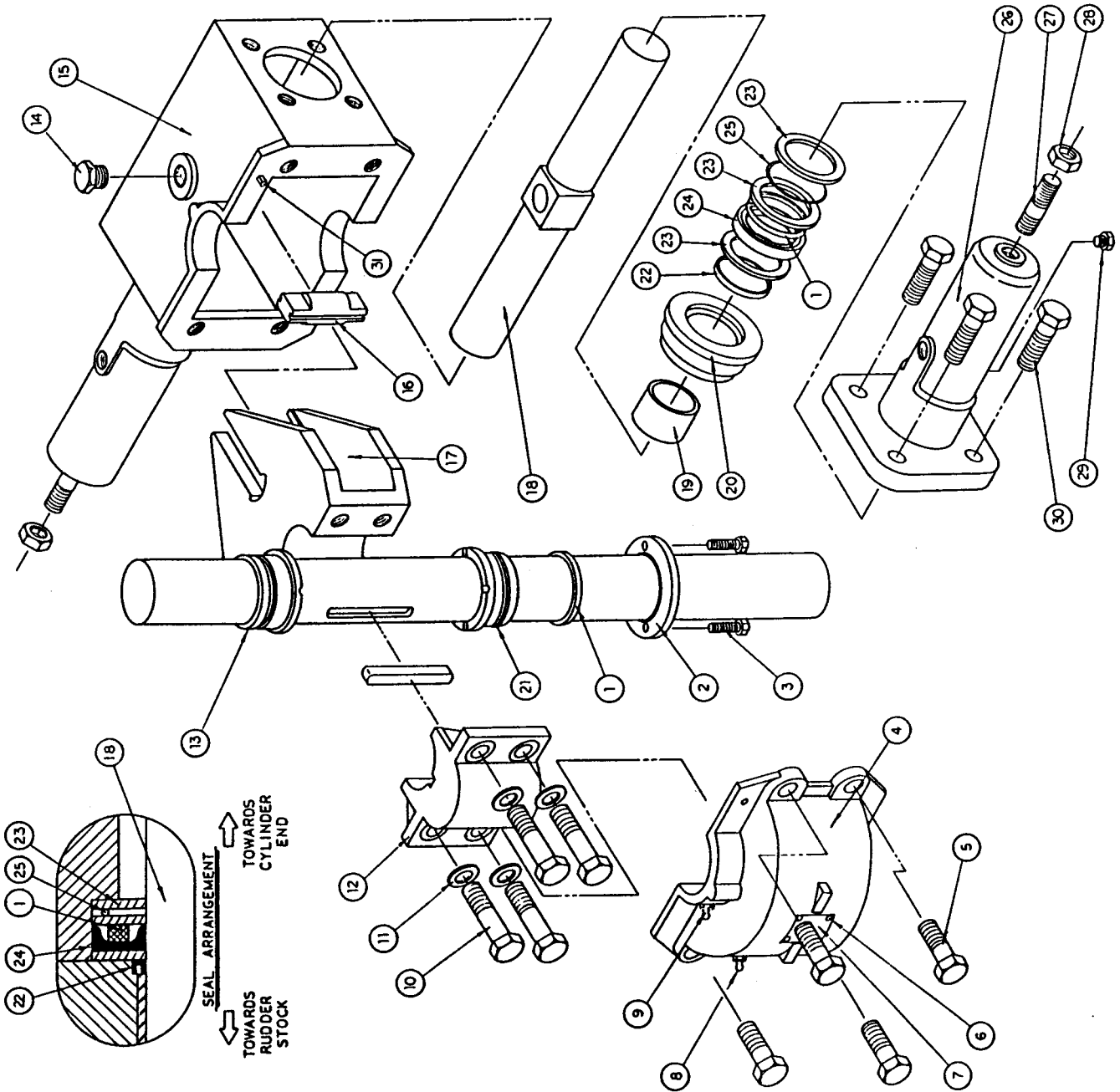
T2 STEERING ACTUATOR ASSEMBLY
(CUSTOM RUDDER STOCK DIAMETER)



EQUIPMENT LTD.
24 WEST 4TH AVENUE, YAMOUVER, N.C.
PHONE (919) 757-2225 FAX (919) 757-2881

MANUFACTURERS OF WAGNER HYDRAULIC STEERING

DRAWN BY: M.L.B.
SCALE: N.T.S.
DATE: JAN 1995
REF NO.:
CHECKED BY: F.J.P.
DRAWING NO. C-4-812
REV.



ACTUATORS - TYPE 'T' Model T2 P/N 800-0001 & T2 P/N 800-0019

2005 May

<u>ITEM</u>	<u>PART NUMBER</u>	<u>DESCRIPTION and MODEL</u>
24	11-206004	U-Cup seal
22	11-208032	U-Cup scraper
25	31-100041	Spring coil
27	51-280003	Stud ½ NC
28	51-500005	Nut ½ NC
	119-0021	Seal kit Note A
12 & 17	810-0001	Fork & cap, Custom bore
4 & 15	810-0015	Housing & cover Note B
12 & 17	810-0067	Fork & cap, Standard bore (1-5/8")
18	820-0002	Piston; (1-5/8" dia. x 16¼" long, 9.8 cu. in. displ'l)
	820-0004	Dowel pin Note E
19	820-0005	Babbitt liner (1-7/8" O.D.) Note D
16	820-0008	Piston pin Note F
2	820-0009	Packing ring, Custom bore
13	820-0011	Bushing, brass Custom bore
23	820-0014	Ring, bronze
13	820-0148	Bushing, brass Standard bore (1-5/8")
2	820-0159	Packing ring, Standard bore (1-5/8")
26	820-0170	Cylinder, flanged Note C
20	820-0171	Bearing shell, flanged Note C

Parts list drawing, T2 custom bore rudder stock C-4-812

NOTES:

- A Includes items 1, 22, 23, 24 & 25.
- B Serial number of Actuator required - if serial number not known, contact Summer Equipment Ltd.
- C "Flanged" design - manufactured since 1990.
- D Inside diameter not machined, final fitting by customer.
- E "Dowel pin" design - manufactured prior to 1989 (not interchangeable with flanged design)
P/N 820-0170 or 820-0171.
- F Across flats supplied oversized, final fitting by customer.

P.O.R. = Price on Request

All Prices in U.S. Dollars - EX Works, Delta, BC Canada

Subject to change without notice

Includes: Brokerage Costs and any Customs Fees (see page iv for details).

Shipping and Handling Extra

Manufacturer of



HYDRAULIC STEERING

QTY	ITEM	PART NO.	DESCRIPTION	MAT'L
3	1	820-0025	FLAX PACKING FILLER	FLAX
1	2	820-0024	PACKING RING	STL
2	3	51-210013	CAPSCREW	STL
1	4	820-0028	COVER	D.I.
4	5	51-210011	CAPSCREW	STL
4	6	800-054	RIVET	STL
1	7	91-703008	LABEL	BR5
1	8	41-200001	GREASE NIPPLE	STL
1	9	41-200003	GREASE NIPPLE	STL
4	10	51-210024	CAPSCREW	STL
4	11	51-430006	LOCKWASHER	STL
1	12	820-0022	CAP	STL
2	13	820-0026	BRASS BUSHING	BR5
1	14	41-130001	PIPE PLUG	STL
1	15	820-0021	HOUSING	D.I.
1	16	820-0023	PISTON PIN	BR5
1	17	820-0027	FORK	STL
1	18	820-0017	PISTON	STL
2	19	820-0020	BABBITT LINER	BABT
2	20	820-0173	FLANGED BEARING SHELL	D.I.
2	21	11-106033	O-RING	SYN
2	22	11-208022	U-CUP	SYN
6	23	820-0029	BRONZE RING	BRNZ
2	24	11-106007	U-CUP	SYN
2	25	31-100042	SPRING SPACER	STL
2	26	820-0172	FLANGED CYLINDER	D.I.
2	27	51-280004	CYLINDER STUD	STL
2	28	51-500003	NUT	STL
2	29	41-102007	PIPE PLUG	STL
8	30	51-210011	CAPSCREW	STL
2	31	51-170016	ROLL PIN	STL

T3 FORK AND CAP ASSEMBLY (ITEMS 10, 11, 12, AND 17)
 FOR CUSTOM RUDDER STOCK DIAMETERS
 PART NUMBER 810-0002

T3 HOUSING AND COVER ASSEMBLY (ITEMS 4, 5, 15, AND 31)
 PART NUMBER 810-0016

T3 FLANGED CYLINDER ASSEMBLY (ITEMS 20, AND 26)
 PART NUMBER 810-0041

WAGNER PART NUMBER: 800-0002

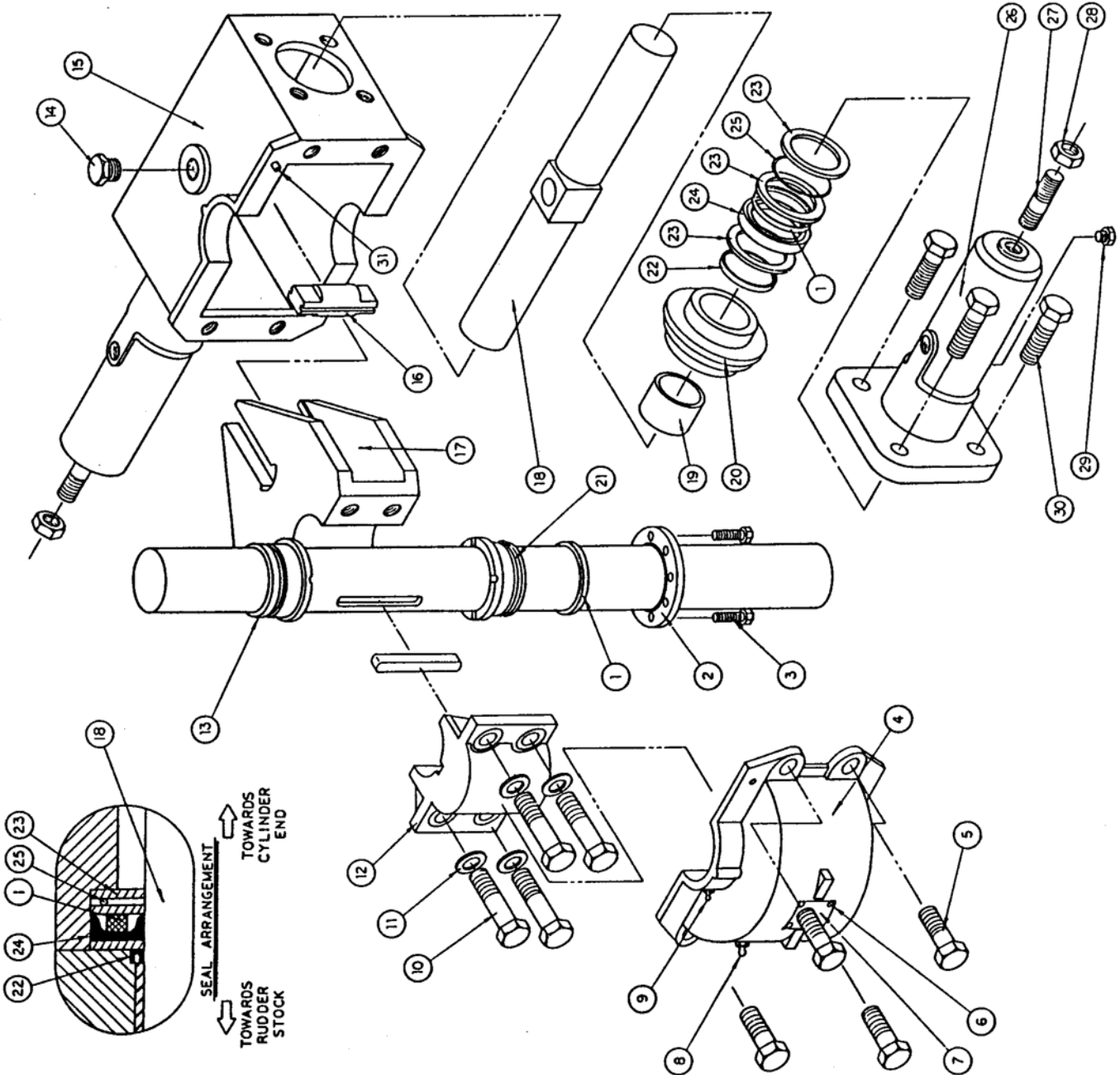
T3 STEERING ACTUATOR ASSEMBLY
 (CUSTOM RUDDER STOCK DIAMETER)



24 WEST 4TH AVENUE, VANCOUVER, B.C.
 PHONE (604) 673-4545 FAX (604) 673-2382

MANUFACTURERS OF WAGNER'S HYDRAULIC STEERING

DRAWN BY: M.L.G. CHECKED BY: F.J.P.
 SCALE: N.T.S.
 DATE: JAN, 1985
 REF NO.:
 DRAWING NO. C-4-814
 REV.



ACTUATORS - TYPE 'T' Model T3 P/N 800-0002 & T3 P/N 800-0020

2005 May

<u>ITEM</u>	<u>PART NUMBER</u>	<u>DESCRIPTION and MODEL</u>
24	11-206007	U-Cup seal
22	11-208022	U-Cup scraper
25	31-100042	Spring coil
27	51-280004	Stud 5/8 NC
28	51-500003	Hex nut 5/8 NC
	119-0022	Seal kit Note A
12 & 17	810-0002	Fork & cap, Custom bore
4 & 15	810-0016	Housing & cover Note B
12 & 17	810-0068	Fork & cap, Standard bore (2")
18	820-0017	Piston; (2-1/8" dia. x 19¼" long, 20.4 cu. in. displ'l)
	820-0019	Dowel pin Note E
19	820-0020	Babbitt liner (2-3/8" O.D.) Note D
16	820-0023	Piston pin Note F
2	820-0024	Packing ring, Custom bore
13	820-0026	Bushing, brass Custom bore
23	820-0029	Ring, bronze
13	820-0149	Bushing, brass Standard bore (2")
2	820-0160	Packing ring, Standard bore (2")
26	820-0172	Cylinder, flanged Note C
20	820-0173	Bearing shell, flanged Note C

Parts list drawing, T3 custom bore rudder stock C-4-814

NOTES:

- A Includes items 1, 22, 23, 24 & 25.
- B Serial number of Actuator required - if serial number not known, contact Summer Equipment Ltd.
- C "Flanged" design - manufactured since 1990.
- D Inside diameter not machined, final fitting by customer.
- E "Dowel pin" design - manufactured prior to 1989 (not interchangeable with flanged design)
P/N 820-0172 or 820-0173.
- F Across flats supplied oversized, final fitting by customer.

P.O.R. = Price on Request

All Prices in U.S. Dollars - EX Works, Delta, BC Canada

Subject to change without notice

Includes: Brokerage Costs and any Customs Fees (see page iv for details).

Shipping and Handling Extra

Manufacturer of



HYDRAULIC STEERING

QTY	ITEM	PART NO.	DESCRIPTION	MAT'L
3	1	820-0040	FLAX PACKING FILLER	FLAX
1	2	820-0038	PACKING RING	STL
4	3	51-210013	CAPSCREW	STL
1	4	820-0043	COVER	D.I.
4	5	51-210015	CAPSCREW	STL
4	6	600-054	RIVET	STL
1	7	91-703008	LABEL	BR3
1	8	41-200001	GREASE NIPPLE	STL
1	9	41-200003	GREASE NIPPLE	STL
4	10	51-210017	CAPSCREW	STL
4	11	51-430007	LOCKWASHER	STL
1	12	820-0037	CAP	STL
2	13	820-0041	BRASS BUSHING	BR3
1	14	41-130001	PIPE PLUG	STL
1	15	820-0036	HOUSING	D.I.
1	16	820-0038	PISTON PIN	BR3
1	17	820-0042	FORK	STL
1	18	820-0032	PISTON	STL
2	19	820-0035	BABBITT LINER	BA8T
2	20	820-0175	FLANGED BEARING SHELL	D.I.
2	21	11-106041	O-RING	SYN
2	22	11-208023	U-CUP	SYN
6	23	820-0044	BRONZE RING	BRNZ
2	24	11-208008	U-CUP	SYN
2	25	51-100043	SPRING SPACER	STL
2	26	820-0174	FLANGED CYLINDER	D.I.
2	27	51-280004	CYLINDER STUD	STL
2	28	51-500003	NUT	STL
2	29	41-102007	PIPE PLUG	STL
6	30	51-210015	CAPSCREW	STL
2	31	51-170021	ROLL PIN	STL

T4 FORK AND CAP ASSEMBLY (ITEMS 10, 11, 12, AND 17)
 FOR CUSTOM RUDDER STOCK DIAMETERS
 PART NUMBER 810-0003

T4 HOUSING AND COVER ASSEMBLY (ITEMS 4, 5, 15, AND 31)
 PART NUMBER 810-0017

T4 FLANGED CYLINDER ASSEMBLY (ITEMS 20, AND 26)
 PART NUMBER 810-0042

WAGNER PART NUMBER: 800-0003

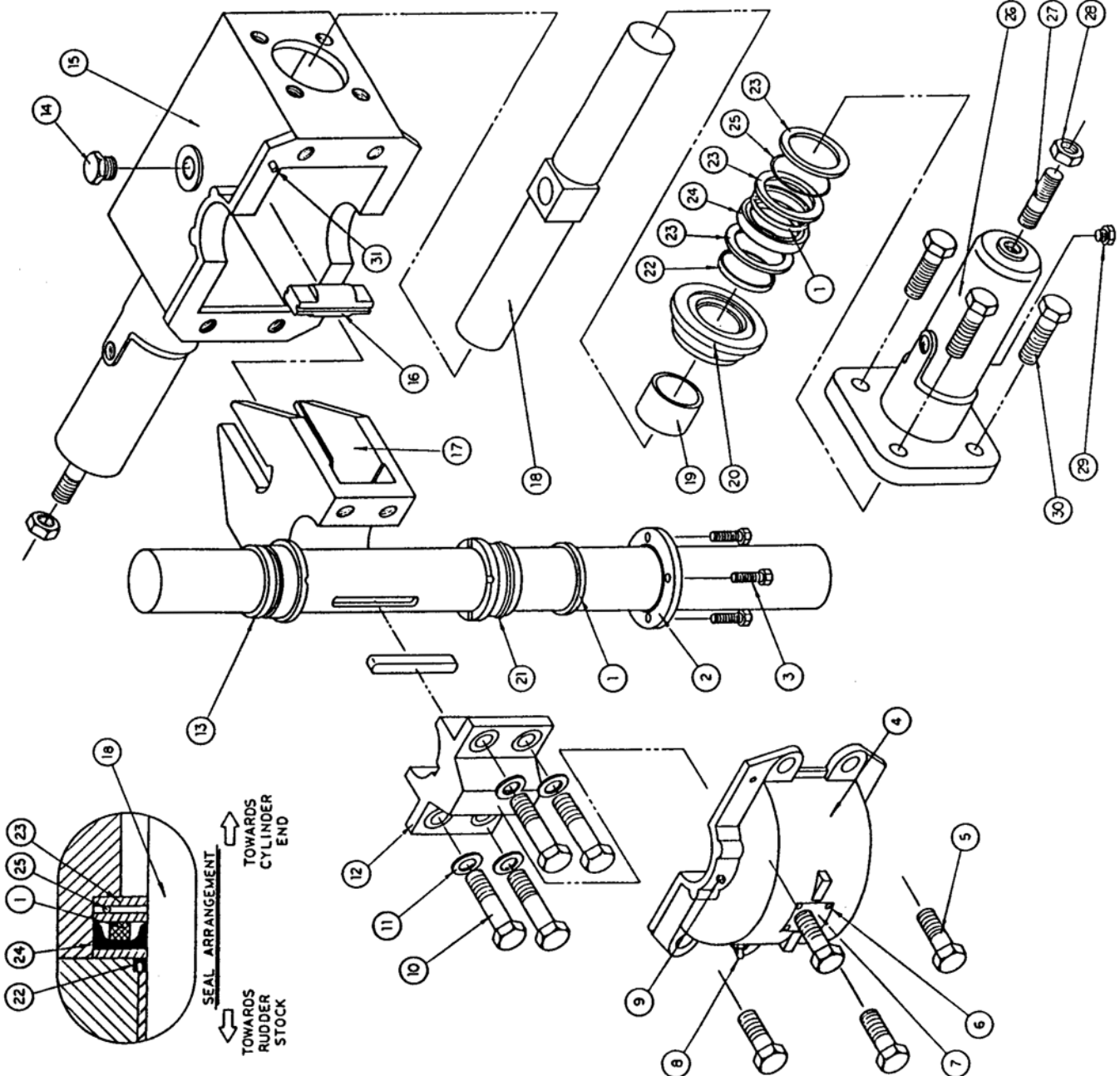
T4 STEERING ACTUATOR ASSEMBLY
 (CUSTOM RUDDER STOCK DIAMETER)



24 WEST 4TH AVENUE, VANCOUVER, B.C.
 PHONE (604) 673-4243 FAX (604) 673-3282

MANUFACTURERS OF WAGNER HYDRAULIC STEERING

DRAWN BY: M.L.G. CHECKED BY: F.J.P.
 SCALE: N.T.S.
 DATE: JAN, 1988
 REF. NO.:
 DRAWING NO. C-4-816
 REV.



ACTUATORS - TYPE 'T' Model T4 P/N 800-0003 & T4 P/N 800-0021
 Model T4 P/N 800-0022

2005 May

<u>ITEM</u>	<u>PART NUMBER</u>	<u>DESCRIPTION and MODEL</u>
24	11-206008	U-Cup seal
22	11-208023	U-Cup scraper
25	31-100043	Spring coil
27	51-280004	Stud 5/8 NC
28	51-500003	Nut 5/8
	119-0023	Seal kit Note A
12 & 17	810-0003	Fork & cap, Custom bore
4 & 15	810-0017	Housing & cover Note A
12 & 17	810-0069	Fork & cap, Standard bore (2")
12 & 17	810-0070	Fork & cap, Standard bore (2½")
18	820-0032	Piston; (2-3/8" dia. x 22¼" long, 30.5 cu. in. displ'l)
	820-0034	Dowel pin Note E
19	820-0035	Babbitt liner (2-5/8" O.D.) Note D
16	820-0038	Piston pin Note F
23	820-0044	Ring, bronze
13	820-0150	Bushing, brass Standard bore (2")
2	820-0151	Packing ring, Standard bore (2½")
13	820-0161	Bushing, brass Standard bore (2")
2	820-0162	Packing ring, Standard bore (2½")
26	820-0174	Cylinder, flanged Note C
20	820-0175	Bearing shell, flanged Note C

Parts list drawing, T4 custom bore rudder stock C-4-816

NOTES:

- A Includes items 1, 22, 23, 24 & 25.
- B Serial number of Actuator required - if serial number not known, contact Summer Equipment Ltd.
- C "Flanged" design - manufactured since 1990.
- D Inside diameter not machined, final fitting by customer.
- E "Dowel pin" design - manufactured prior to 1989 (not interchangeable with flanged design)
 P/N 820-0174 or 820-0175.
- F Across flats supplied oversized, final fitting by customer.

P.O.R. = Price on Request

All Prices in U.S. Dollars - EX Works, Delta, BC Canada

Subject to change without notice

Includes: Brokerage Costs and any Customs Fees (see page iv for details).

Shipping and Handling Extra

Manufacturer of



HYDRAULIC STEERING

QTY	ITEM	PART NO.	DESCRIPTION	MAT'L
3	1	820-0040	FLAX PACKING FILLER	FLAX
1	2	820-0052	PACKING RING	STL
6	3	51-210019	CAPSCREW	STL
1	4	820-0086	COVER	D.I.
4	5	51-210015	CAPSCREW	STL
4	6	800-054	RIVET	STL
1	7	91-703008	LABEL	BR8
1	8	41-200001	GREASE NIPPLE	STL
1	9	41-200003	GREASE NIPPLE	STL
4	10	51-210072	CAPSCREW	STL
4	11	51-430008	LOCKWASHER	STL
1	12	820-0050	CAP	STL
2	13	820-0054	BRASS BUSHING	BR8
1	14	41-130003	PIPE PLUG	STL
1	15	820-0048	HOUSING	D.I.
1	16	820-0051	PISTON PIN	BR8
1	17	820-0055	FORK	STL
1	18	820-0047	PISTON	STL
2	19	820-0048	BABBITT LINER	BABT
2	20	820-0059	FLANGED BEARING SHELL	D.I.
2	21	11-208024	U-CUP	SYN
6	22	820-0057	BRONZE RING	BRNZ
2	23	11-208010	U-CUP	SYN
2	24	31-100044	SPRING SPACER	STL
2	25	820-0046	FLANGED CYLINDER	D.I.
2	26	51-280002	CYLINDER STUD	STL
2	27	51-300008	NUT	STL
2	28	41-102007	PIPE PLUG	STL
6	29	51-210082	CAPSCREW	STL
2	30	11-108041	O-RING	SYN
2	31	51-170015	ROLL PIN	STL

T5 FORK AND CAP ASSEMBLY (ITEMS 10, 11, 12, AND 17)
 FOR CUSTOM RUDDER STOCK DIAMETERS
 PART NUMBER 810-0004

T5 HOUSING AND COVER ASSEMBLY (ITEMS 4, 5, 15, AND 31)
 PART NUMBER 810-0018

T5 FLANGED CYLINDER ASSEMBLY (ITEMS 20, AND 25)
 PART NUMBER 810-0043

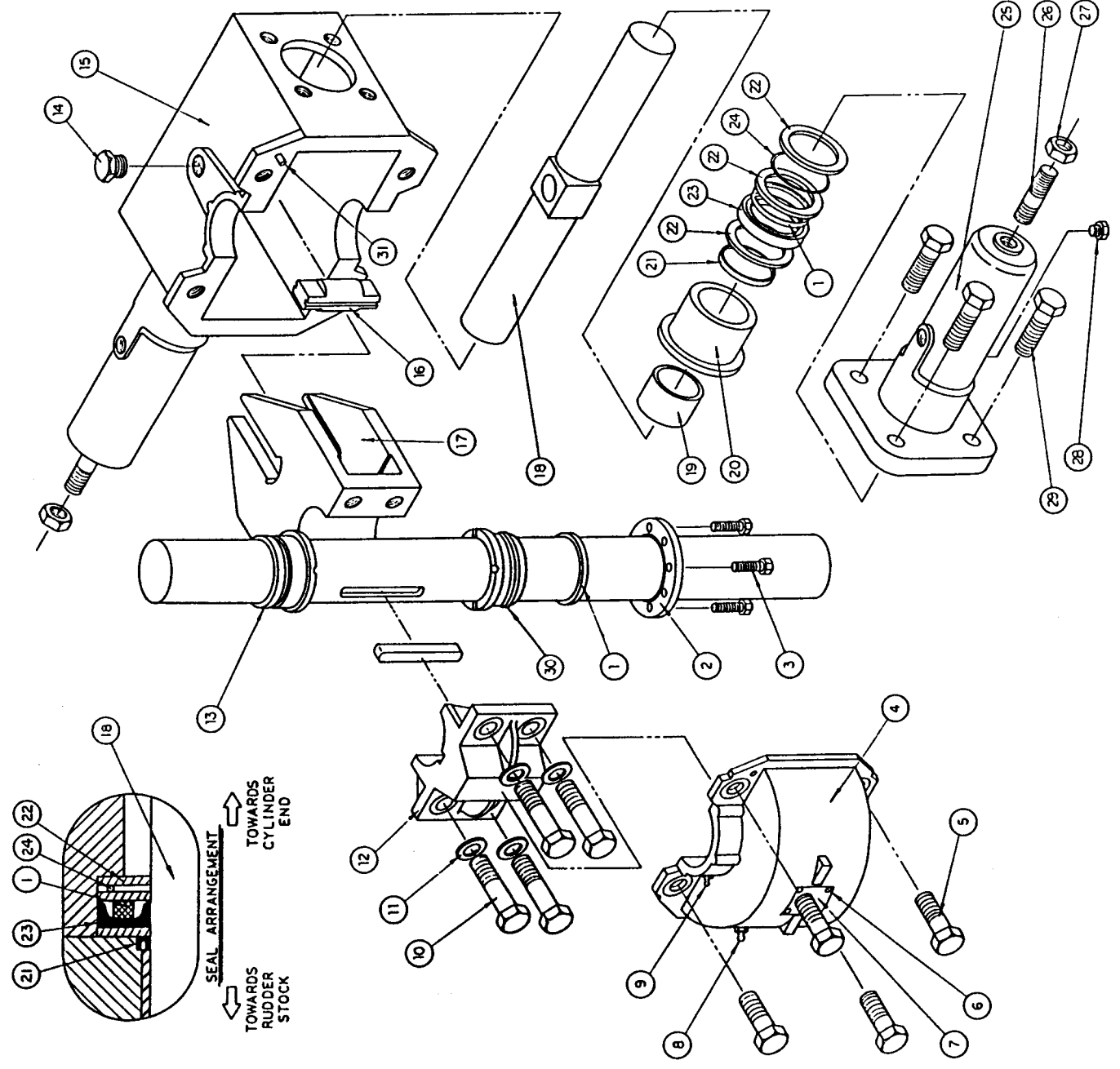
WAGNER PART NUMBER: 800-0004

SUMMER EQUIPMENT LTD.
 24 WEST 4TH AVENUE, VANCOUVER, B.C.
 PHONE (604) 272-4242 FAX (604) 272-2192

MANUFACTURERS OF **WAGNER** HYDRAULIC STEERING

DRAWN BY: M.L.S. CHECKED BY: F.J.P.
 SCALE: N.T.S.
 DATE: JAN. 1985
 REF NO.: REV.

C-4-819



ACTUATORS - TYPE 'T' Model T5 P/N 800-0004 & T5 P/N 800-0023
 Model T5 P/N 800-0024

2005 May

<u>ITEM</u>	<u>PART NUMBER</u>	<u>DESCRIPTION and MODEL</u>
23	11-206010	U-Cup seal
21	11-208024	U-Cup scraper
24	31-100044	Spring coil
26	51-280002	Stud 3/4 NC
27	51-500006	Nut 3/4 NC
	119-0024	Seal kit T5, T10 & T11 Note A
12 & 17	810-0004	Fork & cap, Custom bore
4 & 15	810-0018	Housing & cover Note B
20 & 25	810-0057	Bearing shell with babbitt, rough machine
20 & 25	810-0058	Bearing shell with babbitt, finish machine
12 & 17	810-0071	Fork & cap, Standard bore (2½")
12 & 17	810-0072	Fork & cap, Standard bore (2¾")
25	820-0046	Cylinder, flanged
18	820-0047	Piston, (2¾" dia. X 24" long, 41.6 cu.in. disp'l)
19	820-0048	Babbitt liner (3" O.D.) Note D
16	820-0051	Piston pin Note F
22	820-0057	Ring, bronze
20	820-0059	Bearing shell, flanged
13	820-0152	Bushing, brass Standard bore (2½")
13	820-0153	Bushing, brass Standard bore (2¾")
2	820-0163	Packing ring, Standard bore (2½")
2	820-0164	Packing ring, Standard bore (2¾")

Parts list drawing, T5 custom bore rudder stock C-4-819

NOTES:

- A Includes items 1, 22, 23, 24 & 25.
- B Serial number of Actuator required - if serial number not known, contact Summer Equipment Ltd.
- D Inside diameter not machined, final fitting by customer.
- F Across flats supplied oversized, final fitting by customer.

P.O.R. = Price on Request

All Prices in U.S. Dollars - EX Works, Delta, BC Canada Subject to change without notice
 Includes: Brokerage Costs and any Customs Fees (see page iv for details). Shipping and Handling Extra



QTY	ITEM	PART NO.	DESCRIPTION	MAT'L
1	1	820-0065	FLAX PACKING FILLER	FLAX
1	2	820-0064	PACKING RING	STL
6	3	51-210019	CAPSCREW	STL
1	4	820-0068	COVER	D.I.
4	5	51-210033	CAPSCREW	STL
4	6	600-054	RIVET	STL
1	7	91-703008	LABEL	BR5
1	8	41-200002	GREASE NIPPLE	STL
1	9	41-200003	GREASE NIPPLE	STL
4	10	51-210073	CAPSCREW	STL
4	11	51-430008	LOCKWASHER	STL
1	12	820-0083	CAP	STL
2	13	820-0066	BRASS BUSHING	BR5
1	14	41-130005	PIPE PLUG	STL
1	15	820-0062	HOUSING	D.I.
1	16	820-0051	PISTON PIN	BR5
1	17	820-0087	FORK	STL
1	18	820-0081	PISTON	STL
2	19	820-0048	BABBITT LINER	BBBT
2	20	820-0059	FLANGED BEARING SHELL	D.I.
2	21	11-208024	U-CUP	SYN
6	22	820-0037	BRONZE RING	BRNZ
2	23	11-208010	U-CUP	SYN
2	24	31-100044	SPRING SPACER	STL
2	25	820-0040	FLAX PACKING FILLER	FLAX
2	26	820-0060	FLANGED CYLINDER	D.I.
2	27	51-280002	CYLINDER STUD	STL
2	28	51-500008	NUT	STL
2	29	41-102007	PIPE PLUG	STL
8	30	51-210082	CAPSCREW	STL
2	31	11-106044	O-RING	SYN
2	32	51-170015	ROLL PIN	STL

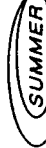
T10 FORK AND CAP ASSEMBLY (ITEMS 10, 11, 12, AND 17)
FOR CUSTOM RUDDER STOCK DIAMETERS
PART NUMBER 810-0005

T10 HOUSING AND COVER ASSEMBLY (ITEMS 4, 5, 15, AND 32)
PART NUMBER 810-0019

T10 FLANGED CYLINDER ASSEMBLY (ITEMS 20, AND 26)
PART NUMBER 810-0044

WAGNER PART NUMBER: 800-0005

T10 STEERING ACTUATOR ASSEMBLY
(CUSTOM RUDDER STOCK DIAMETER)



EQUIPMENT LTD.
32 WEST 4TH AVENUE, WILKINSON, B.C.
PHONE (604) 973-1425 FAX (604) 973-2382

MANUFACTURERS OF WAGNER HYDRAULIC STEERING

DRAWN BY: M.L.G.

SCALE: N.T.S.

DATE: JAN. 1995

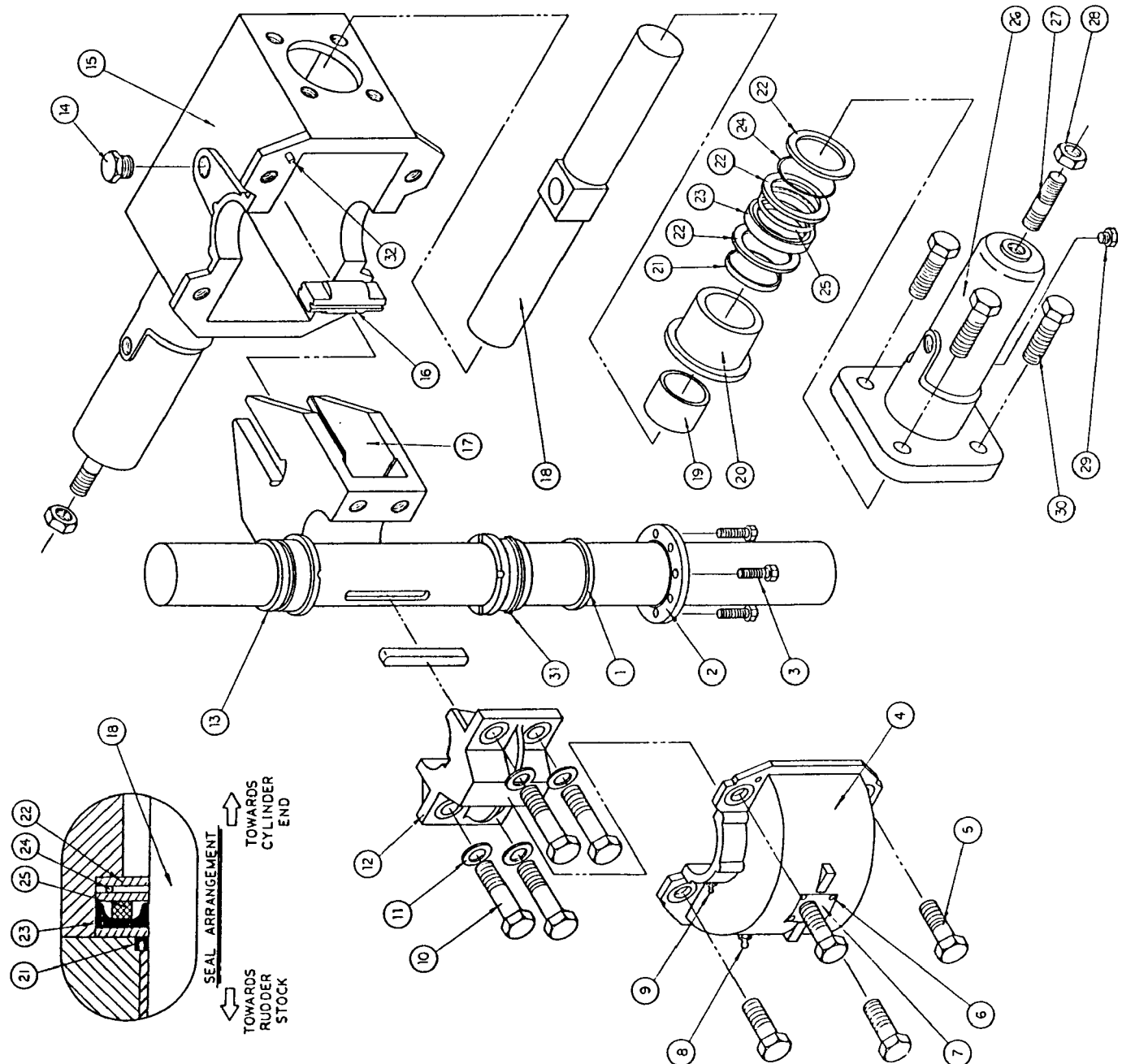
CHECKED BY: E.J.P.

REV.

DRAWING NO.

C-4-822

REF NO.:



ACTUATORS - TYPE 'T' Model T10 P/N 800-0005 & T11 P/N 800-0006
 Model T10 P/N 800-0025 & T11 P/N 800-0026

2005 May

<u>ITEM</u>	<u>PART NUMBER</u>	<u>DESCRIPTION and MODEL</u>
23	11-206010	U-Cup seal
21	11-208024	U-Cup scraper
24	31-100044	Spring coil
27	51-280002	Stud 3/4 NC
28	51-500006	Nut 3/4 NC
	119-0024	Seal kit T5, T10 & T11 Note A
12 & 17	810-0005	Fork & cap, T10 Custom bore
	810-0006	Fork & cap, T11 Custom bore
4 & 15	810-0019	Housing & cover T10 Note D
	810-0020	Housing & cover T11 Note B
	810-0057	Bearing shell with babbitt, rough machine
	810-0058	Bearing shell with babbitt, finish machine
	810-0073	Fork & cap, T10; Standard bore (3")
	810-0074	Fork & cap, T10; Standard bore (3½")
	810-0075	Fork & cap, T11; Standard bore (3½")
19	820-0048	Babbitt liner (3" dia.)
16	820-0051	Piston pin Note F
22	820-0057	Ring, bronze
20	820-0059	Bearing shell,
26	820-0060	Cylinder
18	820-0061	Piston, (2¾" dia. x 28¼" long, 54.2 cu.in. disp'l)
	820-0154	Bushing, brass Standard bore (3")
	820-0155	Bushing, brass Standard bore (3½")
	820-0165	Packing ring, Standard bore (3")
	820-0166	Packing ring, Standard bore (3½")

Parts list drawing, T10 custom bore rudder stock C-4-822

NOTES:

- A Includes items 1, 22, 23, 24 & 25.
- B Serial number of Actuator required - if serial number not known, contact Summer Equipment Ltd.
- D Inside diameter not machined, final fitting by customer.
- F Across flats supplied oversized, final fitting by customer.

P.O.R. = Price on Request

All Prices in U.S. Dollars - EX Works, Delta, BC Canada

Subject to change without notice

Includes: Brokerage Costs and any Customs Fees (see page iv for details).

Shipping and Handling Extra

Manufacturer of



HYDRAULIC STEERING

QTY	ITEM	PART NO.	DESCRIPTION	MAT'L
1	1	820-0080	FLAX PACKING FILLER	FLAX
1	2	820-0078	PACKING RING	STL
8	3	51-210019	CAPSCREW	STL
1	4	820-0083	COVER	D.I.
4	5	51-210083	CAPSCREW	STL
4	6	800-054	RIVET	STL
1	7	91-703008	LABEL	BR8
1	8	41-200002	GREASE NIPPLE	STL
1	9	41-200003	GREASE NIPPLE	STL
4	10	51-210139	CAPSCREW	STL
4	11	51-430009	LOCKWASHER	STL
1	12	820-0077	CAP	STL
2	13	820-0081	BRASS BUSHING	BR8
1	14	41-130005	PIPE PLUG	STL
1	15	820-0076	HOUSING	D.I.
1	16	820-0078	PISTON PIN	BR8
1	17	820-0082	FORK	STL
1	18	820-0072	PISTON	STL
2	19	820-0075	BABBITT LINER	BABT
2	20	820-0177	FLANGED BEARING SHELL	D.I.
2	21	11-100047	O-RING	SYN
2	22	11-208025	U-CUP	SYN
8	23	820-0084	BRONZE RING	BRNZ
2	24	11-208005	U-CUP	SYN
2	25	31-100045	SPRING SPACER	STL
2	26	820-0085	FLAX PACKING FILLER	FLAX
2	27	820-0176	FLANGED CYLINDER	D.I.
2	28	51-280005	CYLINDER STUD	STL
2	29	51-500015	NUT	STL
2	30	41-102007	PIPE PLUG	STL
8	31	51-210073	CAPSCREW	STL
2	32	51-170015	ROLL PIN	STL

T12 FORK AND CAP ASSEMBLY (ITEMS 10, 11, 12, AND 17)
FOR CUSTOM RUDDER STOCK DIAMETERS
PART NUMBER 810-0007

T12 HOUSING AND COVER ASSEMBLY (ITEMS 4, 5, 15, AND 32)
PART NUMBER 810-0021

T12 FLANGED CYLINDER ASSEMBLY (ITEMS 20, AND 27)
PART NUMBER 810-0045

WAGNER PART NUMBER: 800-0007

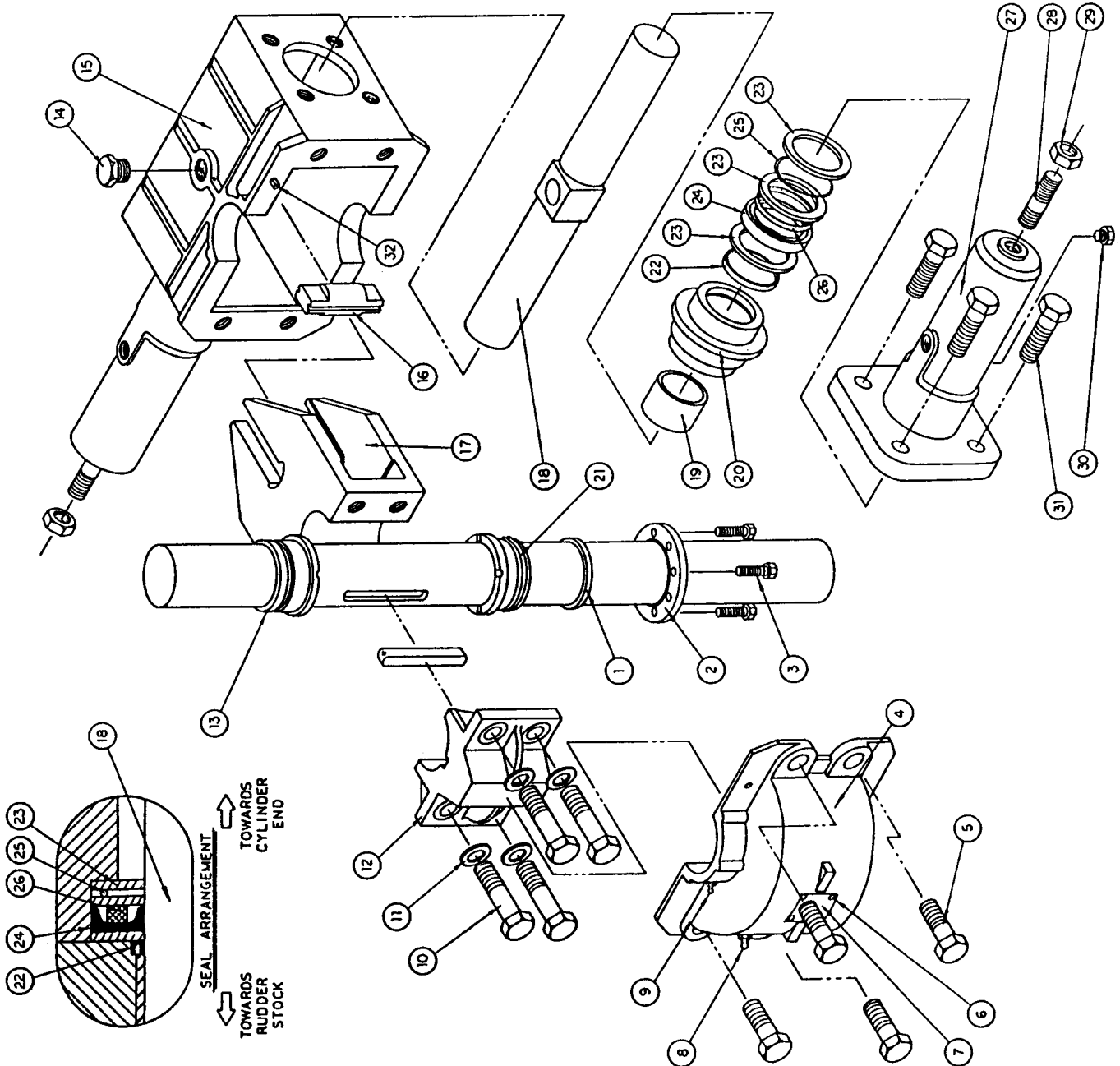
T12 STEERING ACTUATOR ASSEMBLY
(CUSTOM RUDDER STOCK DIAMETER)



24 WEST 4TH AVENUE, VANCOUVER, B.C.
PHONE (604) 973-4145 FAX (604) 973-2182

MANUFACTURERS OF WAGNER HYDRAULIC STEERING

DRAWN BY: M.L.G.
SCALE: N.T.S.
DATE: JAN. 1985
CHECKED BY: F.J.P.
DRAWING NO. C-4-827
REV.



ACTUATORS - TYPE 'T' Model T12 P/N 800-0007 & T13 P/N 800-0009
 Model T12 P/N 800-0028 & T13 P/N 800-0030

2005 May

<u>ITEM</u>	<u>PART NUMBER</u>	<u>DESCRIPTION and MODEL</u>
24	11-206005	U-Cup seal
22	11-208025	U-Cup scraper
25	31-100045	Spring coil
28	51-280005	Stud 7/8 NC
29	51-500015	Nut 7/8 NC
	119-0025	Seal kit T12 & T13 Note A
12 & 17	810-0007	Fork & cap, T12 Custom bore
12 & 17	810-0008	Fork & cap, T13 Custom bore
4 & 15	810-0021	Housing & cover T12 Note B
4 & 15	810-0022	Housing & cover T13 Note B
12 & 17	810-0076	Fork & cap, T12; Standard bore (4")
12 & 17	810-0077	Fork & cap, T13; Standard bore (4")
18	820-0072	Piston, (3" dia. x 3 1/4" long, 76.9 cu.in. disp'l)
	820-0074	Dowel pin Note E
19	820-0075	Babbit liner (3/4 O.D.) Note D
16	820-0078	Piston pin Note F
23	820-0084	Ring, bronze
13	820-0156	Bushing, brass Standard bore (4")
2	820-0167	Packing ring, Standard bore (4")
27	820-0176	Cylinder, flanged Note C
20	820-0177	Bearing shell, flanged Note C

Parts list drawing, T12 custom bore rudder stock C-4-827

NOTES:

- A Includes items 1, 22, 23, 24 & 25.
- B Serial number of Actuator required - if serial number not known, contact Summer Equipment Ltd.
- C "Flanged" design - manufactured since 1990.
- D Inside diameter not machined, final fitting by customer.
- E "Dowel pin" design - manufactured prior to 1989 (not interchangeable with flanged design) P/N 820-0176 or 820-0177.
- F Across flats supplied oversized, final fitting by customer.

P.O.R. = Price on Request

All Prices in U.S. Dollars - EX Works, Delta, BC Canada

Subject to change without notice

Includes: Brokerage Costs and any Customs Fees (see page iv for details).

Shipping and Handling Extra

Manufacturer of



HYDRAULIC STEERING

QTY	ITEM	PART NO.	DESCRIPTION	MAT'L
1	1	820-0080	FLAX PACKING FILLER	FLAX
1	2	820-0079	PACKING RING	STL
6	3	51-210019	CAPSCREW	STL
1	4	820-0083	COVER	D.I.
4	5	51-210083	CAPSCREW	STL
4	6	600-054	RIVET	STL
1	7	91-703008	LABEL	BR5
1	8	41-200002	GREASE NIPPLE	STL
1	9	41-200003	GREASE NIPPLE	STL
4	10	51-210139	CAPSCREW	STL
4	11	51-430009	LOCKWASHER	STL
1	12	820-0077	CAP	STL
2	13	820-0081	BRASS BUSHING	BR5
1	14	41-130005	PIPE PLUG	STL
1	15	820-0076	HOUSING	D.I.
1	16	820-0078	PISTON PIN	BR5
1	17	820-0082	PISTON	STL
1	18	820-0087	PISTON	STL
2	19	820-0090	BABBITT LINER	BABT
2	20	820-0179	FLANGED BEARING SHELL	D.I.
2	21	11-106047	O-RING	SYN
2	22	11-208026	U-CUP	SYN
6	23	820-0091	BRONZE RING	BRNZ
2	24	11-206006	U-CUP	SYN
2	25	31-100048	SPRING SPACER	STL
2	26	820-0085	FLAX PACKING FILLER	FLAX
2	27	820-0178	FLANGED CYLINDER	D.I.
2	28	51-290005	CYLINDER STUD	STL
2	29	51-500015	NUT	STL
2	30	41-102007	PIPE PLUG	STL
8	31	51-210073	CAPSCREW	STL
2	32	51-170015	ROLL PIN	STL

T128 FORK AND CAP ASSEMBLY (ITEMS 10, 11, 12, AND 17)
FOR CUSTOM RUDDER STOCK DIAMETERS
PART NUMBER 810-0007

T128 HOUSING AND COVER ASSEMBLY (ITEMS 4, 5, 15, AND 32)
PART NUMBER 810-0021

T128 FLANGED CYLINDER ASSEMBLY (ITEMS 20, AND 27)
PART NUMBER 810-0046

WAGNER PART NUMBER: 800-0008

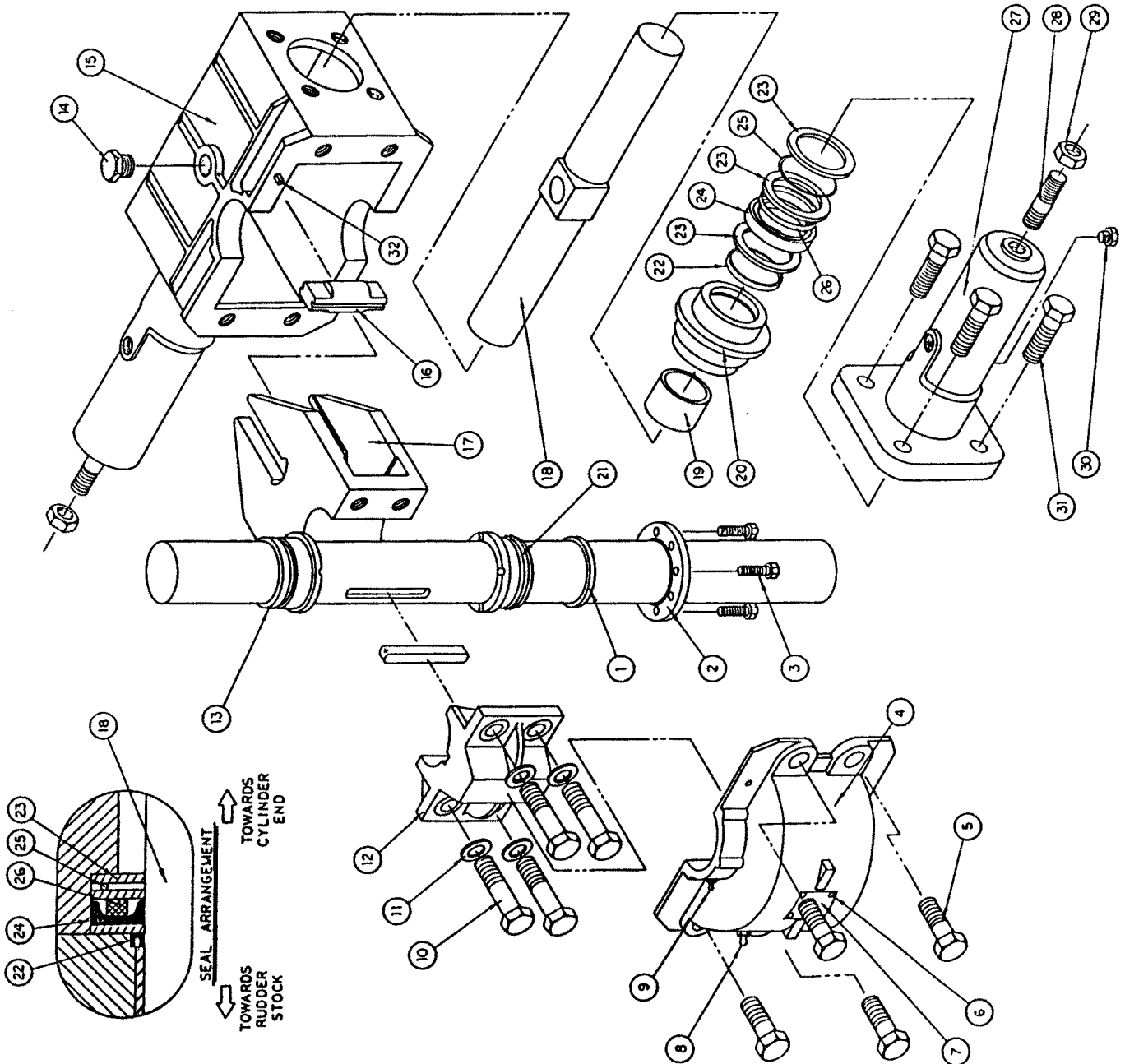
T128 STEERING ACTUATOR ASSEMBLY
(CUSTOM RUDDER STOCK DIAMETER)



EQUIPMENT LTD.
24 WEST 4TH AVENUE, VANCOUVER, B.C.
PHONE (604) 673-4545 FAX (604) 673-1382

MANUFACTURERS OF WAGNER HYDRAULIC STEERING

DRAWN BY: M.L.B.
SCALE: N.T.S.
DATE: JAN. 1989
REF. NO.:
CHECKED BY: F.J.P.
DRAWING NO.:
REV. C-4-828



ACTUATORS - TYPE 'T' Model T12B P/N 800-0008 & T13B P/N 800-0010
 Model T12B P/N 800-0029 & T13B P/N 800-0031

2005 May

<u>ITEM</u>	<u>PART NUMBER</u>	<u>DESCRIPTION and MODEL</u>
24	11-206006	U-Cup seal
22	11-208026	U-Cup scraper
25	31-100046	Spring coil
28	51-280005	Stud 7/8 NC
29	51-500015	Nut 7/8 NC
	119-0026	Seal kit T12B & T13B Note A
12 & 17	810-0007	Fork & cap, T12B Custom bore
12 & 17	810-0008	Fork & cap, T13B Custom bore
4 & 15	810-0021	Housing & cover T12B Note B
4 & 15	810-0022	Housing & cover T13B Note B
12 & 17	810-0076	Fork & cap, T12B; Standard bore (4")
12 & 17	810-0077	Fork & cap, T13B; Standard bore (4")
	820-0074	Dowel pin Note E
16	820-0078	Piston pin Note F
18	820-0087	Piston, (3¼" dia. x 32¼" long, 90.3 cu.in. disp'l)
19	820-0090	Babbit liner (3½" O.D.) Note D
23	820-0091	Ring, bronze
13	820-0156	Bushing, brass Standard bore (4")
2	820-0167	Packing ring, Standard bore (4")
27	820-0178	Cylinder, flanged Note C
20	820-0179	Bearing shell, flanged Note C

Parts list drawing, T12B custom bore rudder stock C-4-828

NOTES:

- A Includes items 1, 22, 23, 24 & 25.
- B Serial number of Actuator required - if serial number not known, contact Summer Equipment Ltd.
- C "Flanged" design - manufactured since 1990.
- D Inside diameter not machined, final fitting by customer.
- E "Dowel pin" design - manufactured prior to 1989 (not interchangeable with flanged design) P/N 820-0178 or 820-0179.
- F Across flats supplied oversized, final fitting by customer.

P.O.R. = Price on Request

All Prices in U.S. Dollars - EX Works, Delta, BC Canada

Subject to change without notice

Includes: Brokerage Costs and any Customs Fees (see page iv for details).

Shipping and Handling Extra

Manufacturer of



HYDRAULIC STEERING

QTY	ITEM	PART NO.	DESCRIPTION	MAT'L
1	1	820-0104	FLAX PACKING FILLER	FLAX
1	2	820-0103	PACKING RING	STL
6	3	51-210018	CAPSCREW	STL
1	4	820-0107	COVER	D.I.
4	5	51-210077	CAPSCREW	STL
4	6	600-054	RIVET	STL
1	7	91-703008	LABEL	BRS
1	8	41-200002	GREASE NIPPLE	STL
1	9	41-200003	GREASE NIPPLE	STL
4	10	51-210112	CAPSCREW	STL
4	11	51-430010	LOCKWASHER	STL
1	12	820-0101	CAP	STL
2	13	820-0105	BRASS BUSHING	BRS
1	14	41-130002	PIPE PLUG	STL
1	15	820-0100	HOUSING	D.I.
1	16	820-0102	PISTON PIN	BRS
1	17	820-0106	FORK	STL
1	18	820-0096	PISTON	STL
2	19	820-0099	SABBITT LINER	BARB
2	20	820-0181	FLANGED BEARING SHELL	D.I.
2	21	11-106180	O-RING	SYN
2	22	11-208027	U-CUP	SYN
8	23	820-0108	BRONZE RING	BRNZ
2	24	11-206008	U-CUP	SYN
2	25	31-100047	SPRING SPACER	STL
2	26	820-0109	FLAX PACKING FILLER	FLAX
2	27	820-0180	FLANGED CYLINDER	D.I.
2	28	51-280007	CYLINDER STUD	STL
2	29	51-500016	NUT	STL
2	30	41-102007	PIPE PLUG	STL
8	31	51-210109	CAPSCREW	STL
2	32	51-170053	ROLL PIN	STL

T14 FORK AND CAP ASSEMBLY (ITEMS 10, 11, 12, AND 17)
FOR CUSTOM RUDDER STOCK DIAMETERS
PART NUMBER 810-0009

T14 HOUSING AND COVER ASSEMBLY (ITEMS 4, 5, 15, AND 32)
PART NUMBER 810-0023

T14 FLANGED CYLINDER ASSEMBLY (ITEMS 20, AND 27)
PART NUMBER 810-0047

WAGNER PART NUMBER: 800-0011

T14 STEERING ACTUATOR ASSEMBLY
(CUSTOM RUDDER STOCK DIAMETER)

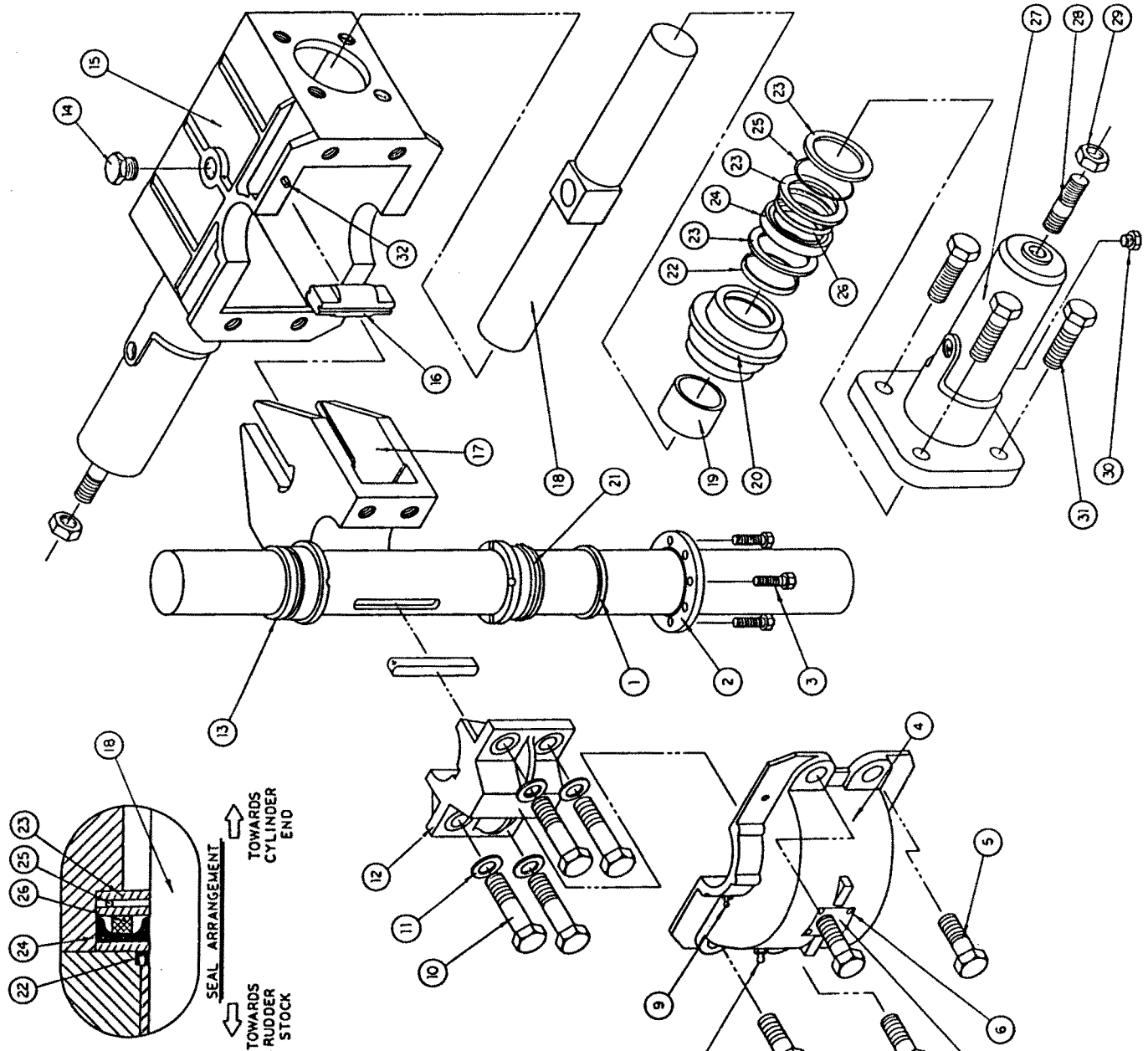


EQUIPMENT LTD.

24 WEST 4TH AVENUE, VANCOUVER, B.C.
PHONE (604) 675-2625 FAX (604) 675-2822

MANUFACTURERS OF WAGNER HYDRAULIC STEERING

DRAWN BY: M.L.G. CHECKED BY: F.J.P.
SCALE: N.I.S.
DATE: JAN. 1985
REF NO.:
DRAWING NO. C-4-831
REV.



ACTUATORS - TYPE 'T' Model T14 P/N 800-0011 & T15 P/N 800-0012
 Model T14 P/N 800-0032 & T15 P/N 800-0033

2005 May

<u>ITEM</u>	<u>PART NUMBER</u>	<u>DESCRIPTION and MODEL</u>
24	11-206009	U-Cup seal
22	11-208027	U-Cup scraper
25	31-100047	Spring coil
28	51-280007	Stud 1" NC
29	51-500016	Nut 1" NC
	119-0027	Seal kit T14 & T15 Note A
12 & 17	810-0009	Fork & cap, T14 Custom bore
12 & 17	810-0010	Fork & cap, T15 Custom bore
4 & 15	810-0023	Housing & cover T14 Note B
4 & 15	810-0024	Housing & cover T15 Note B
12 & 17	810-0078	Fork & cap, T14; Standard bore (4¾")
12 & 17	810-0079	Fork & cap, T15; Standard bore (4¾")
18	820-0096	Piston, (3½" dia. x 39¼" long, 125.0 cu.in. disp'l)
	820-0098	Dowel pin Note E
19	820-0099	Babbit liner (3¾" O.D.)
16	820-0102	Piston pin Note F
23	820-0108	Ring, bronze
2	820-0157	Bushing, brass Standard bore (4¾")
13	820-0168	Packing ring, Standard bore (4¾")
27	820-0180	Cylinder, flanged Note C
20	820-0181	Bearing shell, flanged Note C

Parts list drawing, T14 custom bore rudder stock C-4-831

NOTES:

- A Includes items 1, 22, 23, 24 & 25.
- B Serial number of Actuator required - if serial number not known, contact Summer Equipment Ltd.
- C "Flanged" design - manufactured since 1990.
- D Inside diameter not machined, final fitting by customer.
- E "Dowel pin" design - manufactured prior to 1989 (not interchangeable with flanged design)
 P/N 820-0180 or 820-0181.
- F Across flats supplied oversized, final fitting by customer.

P.O.R. = Price on Request

All Prices in U.S. Dollars - EX Works, Delta, BC Canada

Subject to change without notice

Includes: Brokerage Costs and any Customs Fees (see page iv for details).

Shipping and Handling Extra

Manufacturer of



HYDRAULIC STEERING

ACTUATORS - TYPE 'T' Model T18 P/N 800-0013 & T19 P/N 800-0014
 Model T18 P/N 800-0034 & T19 P/N 800-0035

2005 May

<u>ITEM</u>	<u>PART NUMBER</u>	<u>DESCRIPTION and MODEL</u>
	11-206011	U-Cup seal
	11-208028	U-Cup scraper
	31-100048	Spring coil
	51-280010	Stud 1¼ NC
	51-500017	Nut 1¼ NC
	119-0028	Seal kit T18 & T19 Note A
	820-0112	Cylinder
	820-0113	Piston, (4½" dia. x 45¾" long, 245.0 cu.in. disp'l)
	820-0114	Bearing shell
	820-0116	Babbitt liner (4-7/8" O.D.) Note D
	820-0122	Bushing, brass Custom bore
	820-0125	Ring, bronze

Parts list drawing, T18 and T19 custom bore rudder stock D-874/04

NOTES:

- A Includes items 24, 25, 26, 27 & 28.
- D Inside diameter not machined, final fitting by customer.

P.O.R. = Price on Request

All Prices in U.S. Dollars - EX Works, Delta, BC Canada

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Shipping and Handling Extra

Manufacturer of



HYDRAULIC STEERING

ACTUATORS - TYPE 'T' Model T20 P/N 800-0015 & T21 P/N 800-0016

2005 May

<u>ITEM</u>	<u>PART NUMBER</u>	<u>DESCRIPTION and MODEL</u>
	11-206012	U-Cup seal
	11-208029	U-Cup scraper
	31-100049	Spring coil
	51-280011	Stud 1½ NC
	51-500018	Nut 1½ NC
	119-0029	Seal kit T20 & T21 Note A
	820-0129	Cylinder
	820-0130	Piston, (5" dia. x 63" long, 432.0 cu.in. disp'l)
	820-0131	Bearing shell
	820-0133	Babbitt liner (5-3/8" O.D.) Note D
	820-0139	Bushing, brass Custom bore
	820-0142	Ring, bronze

Parts list drawing, T20 and T21 custom bore rudder stock D-874/04

NOTES:

- A Includes items 24, 25, 26, 27 & 28.
- D Inside diameter not machined, final fitting by customer.

P.O.R. = Price on Request

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Shipping and Handling Extra

Manufacturer of



HYDRAULIC STEERING

2005 May

700 SERIES & "A" SERIES CYLINDERS

119-0140	Seal kit, A - 1¼" x 9" Cylinder
119-0141	Seal kit, A - 1½" x 9" Cylinder
119-0142	Seal kit, A - 2" x 9" Cylinder
119-0143	Seal kit, A - 2½" x 9" Cylinder

TYPE "L" CYLINDERS

119-0073	Seal kit, L160-655/1010 Cylinders
119-0074	Seal kit, L200-655/1047 Cylinders

MODEL L CYLINDERS

119-0030	Seal kit, L35-35/17 Cylinders
119-0031	Seal kit, L40-20/22 Cylinders
119-0032	Seal kit, L55-21/28 Cylinders
119-0033	Seal kit, L70-24/32 Cylinders
119-0145	Seal kit, L3.0 x 10/16 Cylinders
119-0146	Seal kit, L4.0 x 15/23 Cylinders
119-0147	Seal kit, L5.0 x 15/24 Cylinders

VALVES, SOLENOID CONTROL

119-0052	Seal kit, DG-4V3 Manifold
119-0053	Seal kit, DG-4S4 Manifold
119-0088	Seal kit, uniblock #1
119-0101	Seal kit, uniblock #2
251-0004	Filter element, outlet uniblock #1
251-0005	Filter element, inlet uniblock #1 and #2
251-0008	Filter element, outlet uniblock #2

P.O.R. = Price on Request

All Prices in U.S. dollars - EX Works, Delta, BC Canada

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Shipping and Handling Extra

Manufacturer of



HYDRAULIC STEERING

2005 May

HYDRAULIC FULL FOLLOW-UP ACCUMOTORS

119-0062	Seal kit, ½" Power Follow-Up
119-0063	Seal kit, ¾" Power Follow-Up
119-0114	Seal kit, M10 Accumotor seal kit

FLOW CONTROL VALVES

119-0036	Seal kit, 3/8" Manifold
119-0037	Seal kit, ¾" Flow Control
119-0038	Seal kit, 1¼" Flow Control
119-0039	Seal kit, ½" 4-way Control
119-0040	Seal kit, 1" 4-way Control
119-0041	Seal kit, 1½" 4-way Control

AUTOMATIC CHANGEOVERS VALVES

119-0043	Seal kit, ½" 4-way Valve
119-0044	Seal kit, ¾" Valve
119-0045	Seal kit, 1½" Valve

TELEMOTOR CYLINDERS

119-0068	Seal kit, 3" Cylinder
119-0069	Seal kit, 3½" Cylinder

RELIEF VALVES

119-0086	Seal kit, ¾" Double Acting Relief Valve
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P.O.R. = Price on Request

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Shipping and Handling Extra

Manufacturer of



HYDRAULIC STEERING

2005 May

T Actuator Seal Kits

119-0021	Seal Kit T2 Actuator
119-0022	Seal Kit T3 Actuator
119-0023	Seal Kit T4 Actuator
119-0024	Seal Kit T5/ T10 Actuator
119-0025	Seal Kit T12/ T13 Actuator
119-0026	Seal Kit T12B/ T13B Actuator
119-0027	Seal Kit T14/ T15 Actuator

Common Cylinder Seal Kits

119-0016	Seal Kit N65/ 85 Cylinder
119-0017	Seal Kit N175-750/ 1000 Cylinder
119-0018	Seal Kit N250-800/ 1000/ 1300 Cylinder
119-0082	Seal Kit N40-120/ 190 Cylinder
119-0153	Seal Kit N40-1-120/ 190 Cylinder
119-0083	Seal Kit N50-190/ 300 Cylinder
119-0084	Seal Kit N80-190/ 300 Cylinder
119-0097	Seal kit, 700 Series, 1 1/4" X 7" & 9"
119-0098	Seal kit, 700 Series, 1 1/2" X 7" & 9"

Helm Pump Seal Kits

119-0002	Seal Kit 701/ 702 Helm Pump
119-0085	Seal Kit "B" Series Helm Pump
119-0001	Seal Kit 700 Helm Pump

Older Model Helm Pump Seal Kits

119-0003	Seal Kit A-W Helm Pump
119-0004	Seal Kit A1-W Helm Pump
119-0005	Seal Kit A2-W Helm Pump
119-0006	Seal Kit C-W Helm Pump
119-0007	Seal Kit D-W Helm Pump
119-0116	Seal Kit A1X-L Helm Pump
119-0157	Seal Kit AX Helm Pump

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Shipping and Handling Extra

Manufacturer of

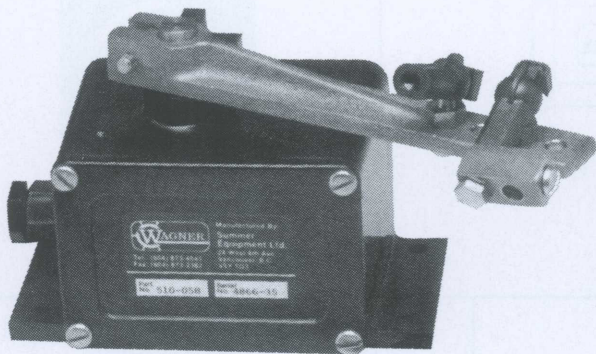


HYDRAULIC STEERING



Hydraulic Steering

150 RUDDER ANGLE INDICATOR



Wagner Model 150 rudder angle indicators show the position of your rudders continuously and accurately, and if required from multiple stations.

Easy to Read

The large 3" (76mm) diameter indicator has easy to read calibrations and pointer set against a matte black background. Red and green arcs clearly identify port and starboard rudder angle. Because the pointer moves in the same manner as the rudder, it shows the precise rudder angle on the indicator dial. The indicator is fitted with internal indirect illumination. An optional remote dimmer allows the operator to select a comfortable level of brightness.

Economical

The Wagner Model 150 System draws less current than a pilot light and may be run off any boat's DC current supply from 12 to 40 volts.

Reliable

Solid state circuitry maintains accurate calibration throughout any voltage variation.

Multiple Stations

Up to 6 stations, including the master station, may be used by simply connecting them in series.

Easy to Install

The model 150 indicator is enclosed in a standard SAE housing. The master station comes complete with 16ft. (5m) of prewired cable and the extra station comes complete with 32ft. (10m) of cable. The front face of the indicator is completely watertight.

Optional Mountings

The standard flush mount is suitable for use in consoles or pedestals in protected areas. An optional bezel ring provides the perfect finish for a through dash panel mounting. For exposed locations a completely waterproof mount is available.

DEPENDABILITY AND PERFORMANCE

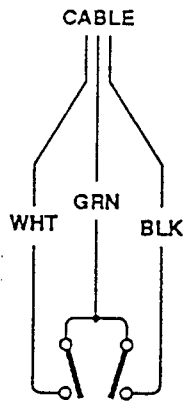
Over five decades of quality performance has made Wagner Hydraulic Steering equipment the standard for dependability and performance.

Wagner products are manufactured by Summer Equipment Ltd. of Vancouver, Canada, a company with over seven decades of experience in the marine field.

Remove the guess work when manoeuvring or docking with this good quality, inexpensive accessory.

Station Jog Switch

Installation Information



SPST 510-031

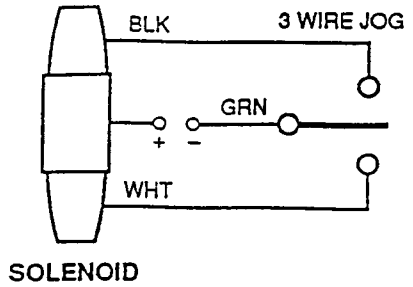


Fig. 2 - Application wiring

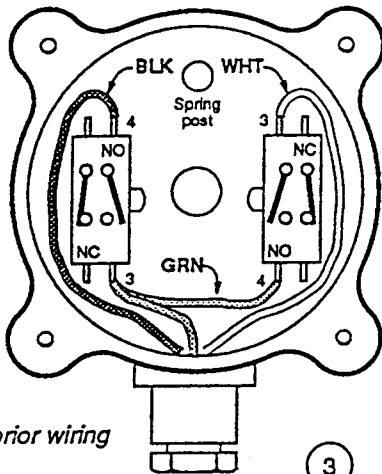


Fig. 2 - Interior wiring

ITM	QTY	PART No	DESCRIPTION
1	1	655-119	BODY
2	1	690-014	HUB (STOP)
3	1	660-017	LABEL
4	2	615-010	O-RING
5	1	690-012	HUB
6	1	690-013	HANDLE
7	1	620-008	KNOB
8	1	690-023	CAM
9	2	212-001	SWITCH
10	2	690-160	SPRING POST
11	4	603-100	SCREW
12	1	615-011	O-RING
13	1	650-120	BOTTOM PLATE
14	1	605-003	SPRING
15	2	617-014	PRESSURE PAD
16	1	650-155	CABLE PLUG
17	1	610-009	GLAND FITTING
18	5'	750-102	CABLE 3 COND
18	5'	750-209	CABLE 7 COND

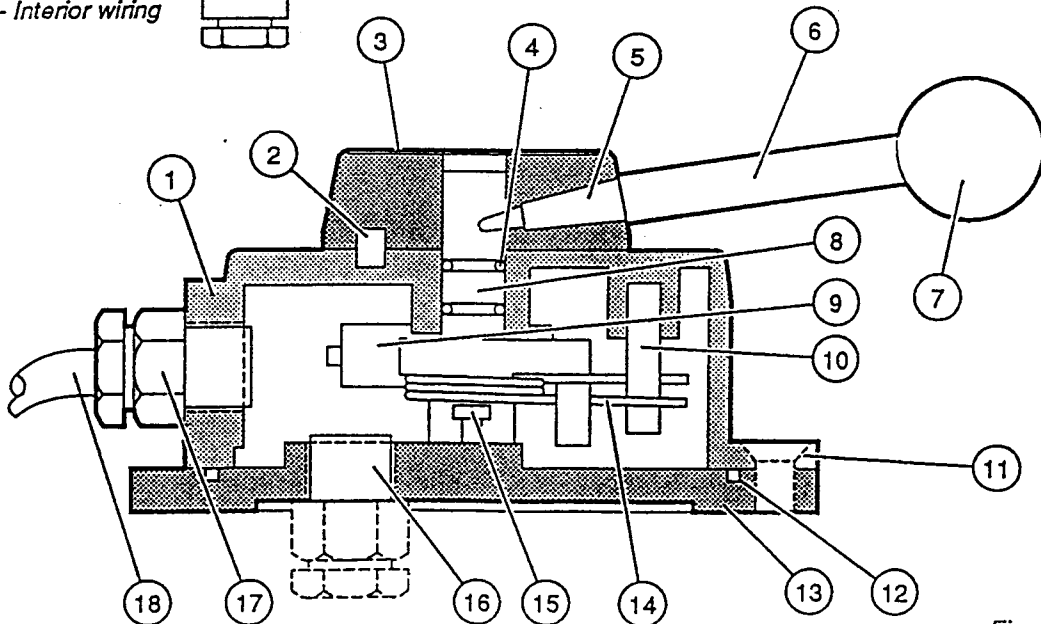


Fig. 3 - Parts List

MANUFACTURED IN CANADA BY



EQUIPMENT LTD.

JOG SWITCH

2005 May

<u>ITEM</u>	<u>PART NUMBER</u>	<u>DESCRIPTION and MODEL</u>
9	212-001	Micro switch
14	605-003	Spring
4	615-010	O-Ring #12 (shaft seal)
12	615-011	O-Ring (bottom plate)
15	617-014	Pressure pad
7	620-008	Knob
13	650-120	Bottom plate
1	655-119	Body
3	660-017	Lable hub
5	690-012	Hub
6	690-013	Handle shaft
8	690-023	Shaft and moulded cam
10	690-160	Spring post
	740-010	Spares kit

All Prices in U.S. Dollars - EX Works, Delta, BC Canada

Subject to change without notice

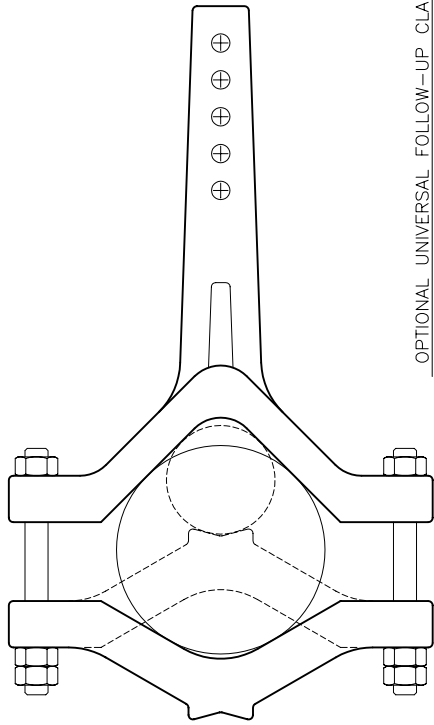
Includes: Brokerage Costs and any Customs Fees (see page iv for details).

Shipping and Handling Extra

Manufacturer of



HYDRAULIC STEERING

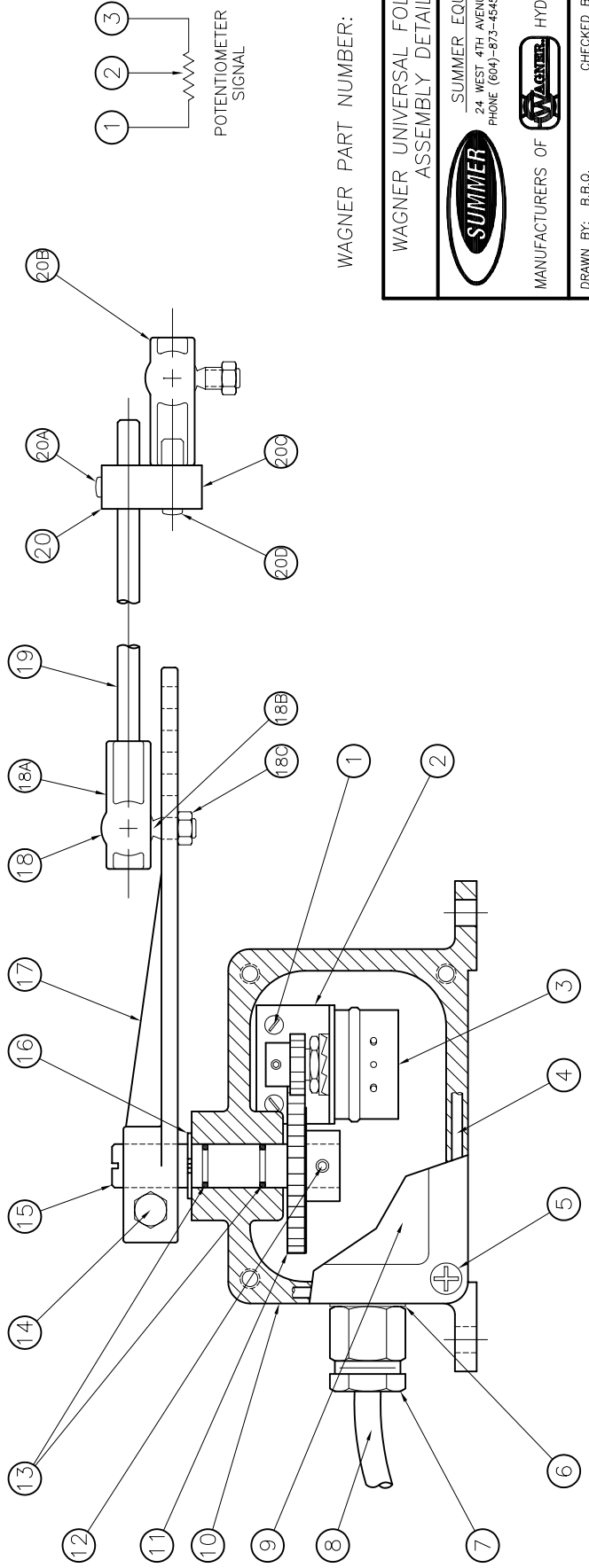


OPTIONAL UNIVERSAL FOLLOW-UP CLAMP

PART NUMBER: 510-191
SCALE: 3/4" = 1"

TO SUIT RUDDER STOCKS BETWEEN 1-1/2" & 4-1/2" IN DIAMETER

QTY	ITEM	PART NO.	DESCRIPTION
2	1	603-072	MACHINE SCREW
1	2	670-022	POT MOUNTING BRACKET
1	3	550-013	POT SUB-ASSY WITH SMALL GEAR (20T)
1	4	615-005	O-RING HOUSING/COVER SEAL
4	5	603-081	MACHINE SCREW
1	6	610-011	NYLON SEALING WASHER
1	7	610-009	CABLE GLAND
50'	8	750-101	CABLE (3 CONDUCTOR)
1	9	650-106	COVER
1	10	655-105	HOUSING
1	11	650-107	LARGE GEAR (62T)
1	12	600-052	ROLL PIN
2	13	615-010	O-RING
1	14	603-114	CAPSCREW
1	15	690-010	SHAFT
1	16	605-002	SNAP RING
1	17	690-288	BRASS FOLLOW-UP ARM
1	18	550-004	FOLLOW-UP SWIVEL SUB-ASSEMBLY
1	18A	600-057	PLASTIC SWIVEL END
1	18B	690-480	BRASS SWIVEL BALL
1	18C	602-012	HEX NUT
1	19	690-462	CONNECTING ROD
1	20	550-005	FOLLOW-UP SWIVEL LINKAGE BLOCK
1	20A	603-075	CAPSCREW
1	20B	550-004	FOLLOW-UP SWIVEL SUB-ASSEMBLY
1	20C	690-481	LINKAGE BLOCK
1	20D	603-181	MACHINE SCREW



WAGNER PART NUMBER: 510-058

WAGNER UNIVERSAL FOLLOW-UP
ASSEMBLY DETAILS



SUMMER EQUIPMENT LTD.
24 WEST 4TH AVENUE, VANCOUVER, B.C.
PHONE (604)-673-4945 FAX (604)-673-2382



MANUFACTURERS OF HYDRAULIC STEERING

DRAWN BY: B.B.Q. CHECKED BY: M.L.G.
SCALE: FULL SIZE
DATE: MARCH, 2005
REV. _____
REF NO.: _____

C-13-172

UNIVERSAL FOLLOW-UP

2005 May

<u>ITEM</u>	<u>PART NUMBER</u>	<u>DESCRIPTION and MODEL</u>
10	550-004	Swivel assembly
11	550-005	Swivel assembly (with brass block)
14	550-013	Potentiometer 1K (with gear)
1	615-005	O-Ring
5	615-010	O-Ring #12 (shaft seal)
15	650-106	Lid
2	655-105	Housing
7	690-010	Shaft
9	690-288	Brass arm
	690-462	Connecting rod, 18" brass rod
	740-200	Spares kit

Parts list drawing, Universal Follow-Up C-7-702B

All Prices in U.S. Dollars - EX Works, Delta, BC Canada

Subject to change without notice

Includes: Brokerage Costs and any Customs Fees (see page iv for details).

Shipping and Handling Extra

Manufacturer of



HYDRAULIC STEERING

ELECTRONIC PARTS

2005 May

DESCRIPTION and MODEL

125-020	Potentiometer control - Mark 4
130-021	Trimpot 10K - RC-5
210-001	Toggle switch DPDT - spring return
210-018	Toggle switch DPDT - maintained
211-001	Shaft seal ¼" shaft x 3/8" bushing
211-002	Toggle seal
410-001	Lamps 6V - Mark 4 dial drive
420-001	Fuse 1/2 A
420-004	Fuse 5A
450-010	Relay 24V, SPDT - "RC" Pumpset
450-014	Start relay 12V - 2A Pumpset
450-015	Start relay 24V - 2A Pumpset
470-048	Motor brush 12V - 2A Pumpset
470-049	Motor brush 24V & 32V - 2A Pumpset
600-048	Roll pin S/S 3/32 x 1/2
600-052	Roll pin S/S 3/32 x 5/8
603-025	Setscrew S/S 4:40 x 1/4
603-058	Machine screw S/S 8:32 x 5/8 PH
603-072	Machine screw S/S 10:24 x 1/4 PH
603-081	Machine screw S/S 10:24 x 3/4 FH
603-100	Machine screw S/S 10:24 x 5/8 FH
604-005	Disc lock washer 3/8
604-013	Washer 1/2
604-088	Washer S/S

All Prices in U.S. Dollars - EX Works, Delta, BC Canada

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Shipping and Handling Extra

Manufacturer of



HYDRAULIC STEERING

ELECTRONIC PARTS (cont'd)

2005 May

DESCRIPTION and MODEL

605-002	Snap ring
605-010	Spring washer 1/2
610-009	Cable gland M16
610-011	Sealing washer nylon
610-012	Grommet
610-013	Gland plug
610-018	Cable clamp
617-007	Gasket TS-2 or TS-2R lever
620-002	Knob control pot
650-107	Gear 62T
650-108	Gear 20T
650-132	Gear 44T
650-147	Back plate - portable remote
650-155	Cable plug
655-146	Housing portable remote
660-026	Label TS-2
670-034	Bracket pot TS-2 or TS-2R
690-014	Hub stop brass
690-078	Shaft TS-2 or TS-2R
690-222	Housing bottom TS-2 or TS-2R
690-223	Housing top TS-2R
700-201	Meter movement - 202 RAI
740-068	Spares kit, 2A - 12VDC Pumpset
740-069	Spares kit, 2A - 24VDC Pumpset
740-070	Spares kit, 2A - 32VDC Pumpset

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Shipping and Handling Extra

Manufacturer of



HYDRAULIC STEERING

