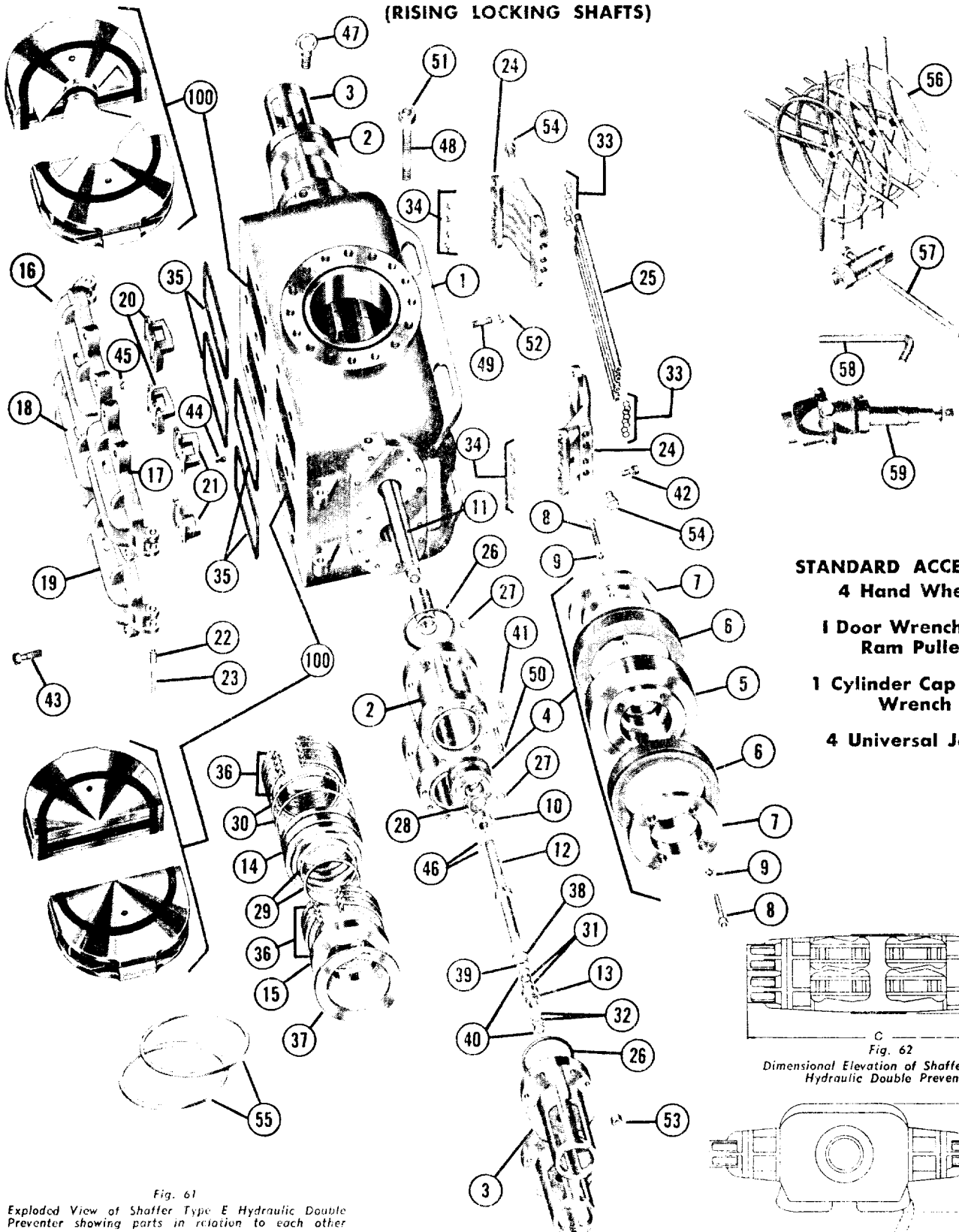



SHAFER TOOL WORKS

SHAFER HYDRAULIC BLOWOUT PREVENTERS (Patented)

TYPE E DOUBLE PREVENTERS (RISING LOCKING SHAFTS)



STANDARD ACCESSORIES

4 Hand Wheels

1 Door Wrench and
Ram Puller

1 Cylinder Cap Screw
Wrench

4 Universal Joints

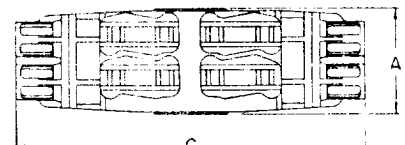


Fig. 62
Dimensional Elevation of Shaffer Type E
Hydraulic Double Preventer

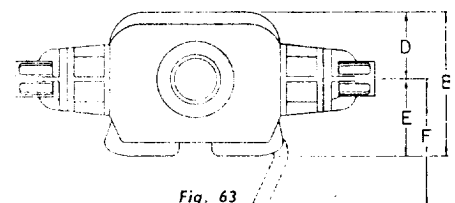


Fig. 63
Dimensional Plan of Shaffer Type E
Hydraulic Double Preventer

Fig. 61
Exploded View of Shaffer Type E Hydraulic Double
Preventer showing parts in relation to each other

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SHAFFER HYDRAULIC BLOWOUT PREVENTERS

(Patented)

TYPE E DOUBLE PREVENTERS PARTS AND SPECIFICATION DATA

Refer to Fig. 61

Item No.	NAME OF PART	No. Req'd.	7 1/2" BORE		9" BORE		11" BORE		13 1/2" BORE		15 1/2" BORE	
			6"	6"	8"	8"	10"	10"	12"	14"	15"	
			3000 PSI W.P.	5000 PSI W.P.	3000 PSI W.P.	5000 PSI W.P.	3000 PSI W.P.	5000 PSI W.P.	3000 PSI W.P.	5000 PSI W.P.	2000 PSI W.P.	
			Rear Outlet 2"-5000 PSI W.P.	Rear Outlet 2"-5000 PSI W.P.	Rear Outlet 2"-5000 PSI W.P.	Rear Outlet 3"-5000 PSI W.P.	Rear Outlet 3"-3000 PSI W.P.	Rear Outlet 3"-5000 PSI W.P.	Rear Outlet 3"-3000 PSI W.P.	Rear Outlet 3"-5000 PSI W.P.	Rear Outlet 3"-2000 PSI W.P.	
	Complete Assembly including Standard Accessories		195500	195600	195700	195800	195900	196100	196200	196400	196600	
1	Body	1	191001	191101	191201	191301	191401	191501	191601	191701	191801	191901
2	Cylinder	2	191002	191102	191202	191302	191402	191502	191602	191702	191802	191902
3	Cylinder Head	2	195501	195601	195701	195801	195901	196101	196201	196401	196601	196801
4	Piston Assembly	2	192006	192007	192008	192009	192010	192011	192012	192013	192014	192015
5	Body Piston	2	192007	192008	192009	192010	192011	192012	192013	192014	192015	192016
6	Rubber Piston	2	115021	115022	115023	115024	115025	115026	115027	115028	115029	115030
7	Retainer Piston Rubber	2	115030	115031	115032	115033	115034	115035	115036	115037	115038	115039
8	Screw Cap Piston Rubber Ret.	2	10003	10003	10003	10003	10003	10003	10003	10003	10003	10003
9	Lockwasher Piston Rubber Ret.	2	25032	25032	25032	25032	25032	25032	25032	25032	25032	25032
10	Locknut Piston	2	192103	192103	192103	192103	192103	192103	192103	192103	192103	192103
11	Shaft Ram	1	193002	193001	193001	193001	193501	193601	193702	193702	193702	193702
12	Shaft Locking	1	115016	115016	115016	115016	115016	115016	115016	115016	115016	115016
13	Bushing Thrust	1	115023	115023	115023	115023	115023	115023	115023	115023	115023	115023
14	Ring Packing Adapter	1	192011	192011	192011	192011	192011	192011	192011	192011	192011	192011
15	Ring Packing Backing	1	115026	115026	115026	115026	115026	115026	115026	115026	115026	115026
16	Door Upper Left	1	194005	194005	194005	194005	194005	194005	194005	194005	194005	194005
17	Door Upper Right	1	194006	194006	194006	194006	194006	194006	194006	194006	194006	194006
18	Door Lower Left	1	194005	194005	194005	194005	194005	194005	194005	194005	194005	194005
19	Door Lower Right	1	194006	194006	194006	194006	194006	194006	194006	194006	194006	194006
20	Guide Assembly Left Door Ram	2	192015	192015	192015	192015	192015	192015	192015	192015	192015	192015
21	Guide Assembly Right Door Ram	2	192028	192028	192028	192028	192028	192028	192028	192028	192028	192028
22	Bushing Hinge	1	192016	192016	192016	192016	192016	192016	192016	192016	192016	192016
23	Pin Hinge	1	192017	192017	192017	192017	192017	192017	192017	192017	192017	192017
24	Manifold	2	194007	194007	194007	194007	194007	194007	194007	194007	194007	194007
25	Pipe Manifold	4	192019	192019	192019	192019	192019	192019	192019	192019	192019	192019
26	O-Ring, Cylinder	2	30007	30007	30007	30007	30007	30007	30007	30007	30007	30007
27	O-Ring, Cylinder Manifold	2	30060	30060	30060	30060	30060	30060	30060	30060	30060	30060
28	O-Ring, Piston	4	30090	30090	30090	30090	30090	30090	30090	30090	30090	30090
29	O-Ring, Packing Adapter Inner	2	30005	30005	30005	30005	30005	30005	30005	30005	30005	30005
30	O-Ring, Packing Adapter Outer	2	30006	30006	30006	30006	30006	30006	30006	30006	30006	30006
31	O-Ring, Thrust Bushing Inner	2	30001	30001	30001	30001	30001	30001	30001	30001	30001	30001
32	O-Ring, Thrust Bushing Outer	2	30002	30002	30002	30002	30002	30002	30002	30002	30002	30002
33	O-Ring, Pipe Manifold	16	30058	30058	30058	30058	30058	30058	30058	30058	30058	30058
34	O-Ring, Manifold	2	30060	30060	30060	30060	30060	30060	30060	30060	30060	30060
35	O-Ring, Door	4	30166	30166	30166	30166	30166	30166	30166	30166	30166	30166
36	Packing Ram Shaft	28	30003	30003	30003	30003	30003	30003	30003	30003	30003	30003
37	Retainer Ram Shaft Packing	4	40723	40723	40723	40723	40723	40723	40723	40723	40723	40723
38	Retainer Thrust Bushing	4	40001	40001	40001	40001	40001	40001	40001	40001	40001	40001
39	Retainer Scraper Ring	4	40000	40000	40000	40000	40000	40000	40000	40000	40000	40000
40	Scraper Ring	2	40002	40002	40002	40002	40002	40002	40002	40002	40002	40002
41	Screw, Cap, Cylinder	28	192072	192072	192072	192072	192072	192072	192072	192072	192072	192072
42	Screw, Cap, Manifold	10	10127	10127	10127	10127	10127	10127	10127	10127	10127	10127
43	Screw, Cap, Door	16 or 24	192012	192012	192012	192012	192012	192012	192012	192012	192012	192012
44	Screw, Cap, Door Ram Guide	16	10108	10108	10108	10108	10108	10108	10108	10108	10108	10108
45	Screw, Set, Door Cap Screw	16 or 24	192021	192021	192021	192021	192021	192021	192021	192021	192021	192021
46	Screw, Set, Piston Locknut	2	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000
47	Bolt Lifting Eye	2	50004	50004	50004	50004	50004	50004	50004	50004	50004	50004
48	Stud Body	2	10401	10401	10401	10401	10401	10401	10401	10401	10401	10401
49	Stud Side Outlet	2	10404	10404	10404	10404	10404	10404	10404	10404	10404	10404
50	Stud Cylinder Head	28	192071	192071	192071	192071	192071	192071	192071	192071	192071	192071
51	Nut Body Stud	2	20003	20011	20011	20012	20011	20014	20011	20016	20019	20019
52	Nut Side Outlet Stud	2	20009	20009	20009	20009	20009	20009	20009	20009	20009	20009
53	Nut Cylinder Head Stud	28	20001	20001	20001	20001	20001	20001	20001	20001	20001	20001
54	Pin Manifold Seal	2	66335	66335	66335	66335	66335	66335	66335	66335	66335	66335
55	Ring A.P.L. Oval	2	50201	50202	50203	50204	50205	50206	50207	50208	50209	50210
56	Handwheel	4	115050	115050	115050	115050	115050	115050	115050	115050	115050	115050
57	Door Wrench and Ram Puller	1	192014	192105	192014	192105	192014	192014	192105	192014	192105	192014
58	Wrench Cylinder Cap Screw	1	50370	50370	50370	50370	50370	50370	50370	50370	50370	50370
59	Universal Joints 2" Pipe	4	202007	202007	202007	202007	202007	202007	202007	202007	202007	202007
60	Universal Joints 2 1/2" Pipe	1	202008	202008	202008	202008	202008	202008	202008	202008	202008	202008

* Number required will be twice the number specified for size of A.P.L. flange.

DIMENSIONAL AND ENGINEERING DATA ON SHAFFER TYPE E HYDRAULIC DOUBLE BLOWOUT PREVENTERS Refer to Dimensional Drawings—Fig. 62 and Fig. 63

Size	Max. Service Pressure Rating, PSI	Test Pressure, PSI	Vertical Bore	Approx. Weight, Lbs.	Ram Size	A Height	B Width	C Length	D Center to Rear	E Center to Front	F Doors Open to Change Rams	Closing Ratio	Opening Ratio	U.S. Gals. Fluid to Close Rams	U.S. Gals. Fluid to Open Rams
6"	3000	6000	7 1/2"	4915	C.S.O. thru 5 1/4" O.D.	25"	27 1/2"	73 1/2"	13"	14 1/2"	24 1/2"	6 to 1	2.57 to 1	2.75	2.3
6"	5000	10000	7 1/2"	5735	C.S.O. thru 5 1/2" O.D.	27 1/2"	31 1/4"	74 1/2"	14"	17 1/4"	25 1/2"	6 to 1	2.57 to 1	2.75	2.3
8"	3000	6000	9"	5525	C.S.O. thru 7" O.D.	25 1/2"	30 1/2"	75"	13 1/4"	16 1/2"	26 1/2"	6 to 1	1.89 to 1	2.75	2.3
8"	5000	10000	9"	6705	C.S.O. thru 7" O.D.	27 1/2"	34"	79"	15 1/4"	18 1/4"	27 1/2"	6 to 1	1.89 to 1	2.75	2.3
10"	3000	6000	11"	6965	C.S.O. thru 8 1/2" O.D.	27 1/2"	34 1/4"	80 1/2"	15 1/2"	18 1/2"	29 1/2"	6 to 1	1.51 to 1	3.25	2.7
10"	5000	10000	11"	9465	C.S.O. thru 9 1/2" O.D.	30 1/2"	38 1/2"	85 1/2"	17 1/2"	21"	31 1/2"	6 to 1	1.55 to 1	3.55	2.9
12"	3000	6000	13 1/2"	10105	C.S.O. thru 10 1/2" O.D.	30"	40 1/2"	94 1/2"	18 1/2"	22"	36 1/2"	6 to 1	1.14 to 1	3.55	2.9
14"	5000	10000	13 1/2"	12245	C.S.O. thru 10 3/4" O.D.	34"	42 1/2"	94 1/2"	19 1/2"	23 1/4"	37 1/2"	6 to 1	1.14 to 1	3.55	2.9
*16"	2000	3000	15 1/2"	8300	C.S.O. thru 13 3/4" O.D.	27 1/2"	37 1/2"	98 1/2"	17 1/2"	20 1/4"	34 1/2"	6 to 1	1.05 to 1	3.65	3.0

*The 16" Shaffer Hydraulic Preventers are furnished with 15 1/2" vertical bore but can be furnished with 16" vertical bore upon special order.

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