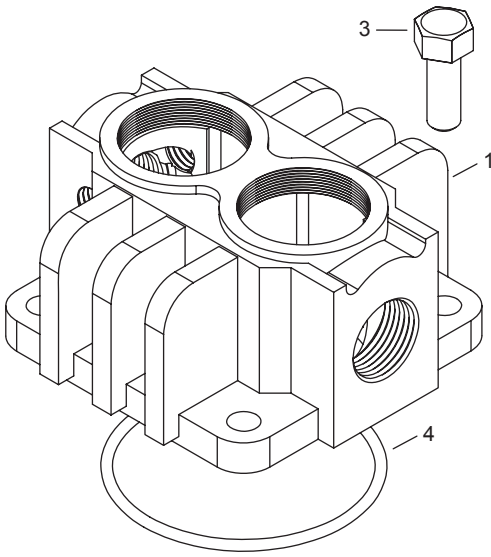
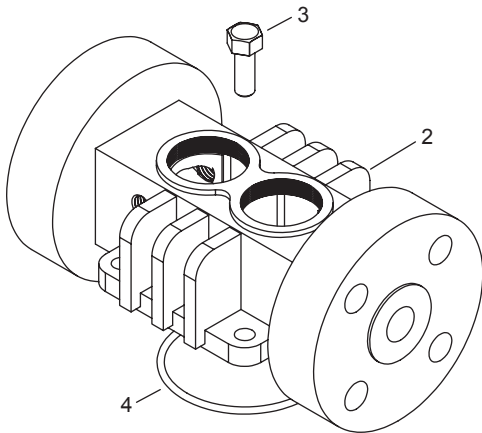


Appendix G—91 and F91 Head and Valve Assembly Details

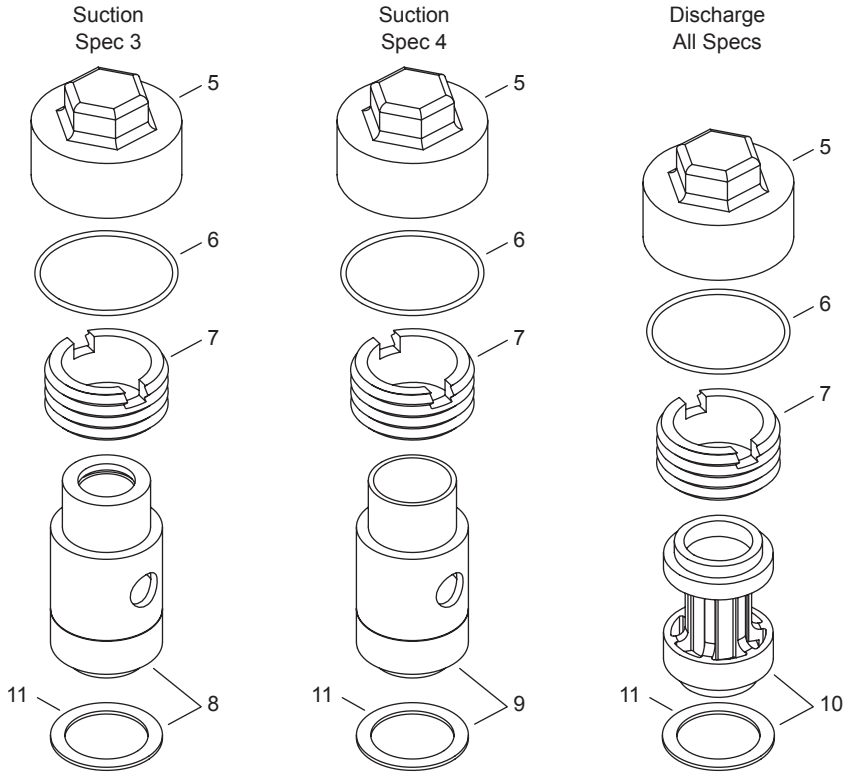
91 Head Assembly



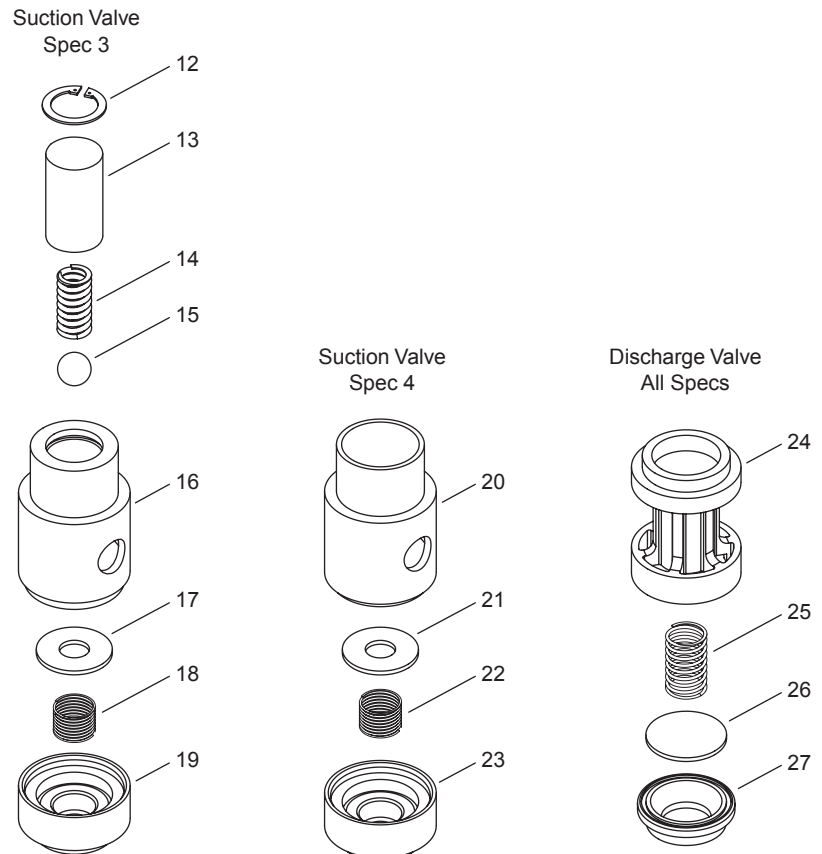
F91 Head Assembly



Valve Holddown Assemblies



Valve Assemblies



Appendix G—91 and F91 Head and Valve Assembly Details

Head and Valve Bill of Materials

Ref No.	Part No.	Description
1.	2374	Head model 91
	2374-X ^a	Head assy. for model 91 (spec 3)
	2374-X1	Head assy. for model 91 (spec 4)
2.	4302	Head model F91 (ANSI flange)
3.	7001-037 NC100A	Bolt, 3/8-16 x 1" Gr.5 hex head
4.	2-235 _c	O-ring
5.	2714-1	Valve cap
6.	2-031 _c	O-ring
7.	2715	Holddown screw
8.	3483-1X	Suction valve assy. (spec 3)
	3483-1X1 ^b	Same as above but with copper gaskets
	3483-1X2 ^b	Same as above but with iron-lead gaskets
9.	3483-X	Suction valve assy. (spec 4)
	3483-X1 ^b	Same as above but with copper gaskets
	3483-X2 ^b	Same as above but with iron-lead gaskets
10.	3485-X	Discharge valve assy. (all specs)
	3485-X1 ^b	Same as above but with copper gaskets
	3485-X2 ^b	Same as above but with iron-lead gaskets
11.	2717	Valve gasket (aluminum)
	2717-1 ^b	Valve gasket (copper)
	2717-2 ^b	Valve gasket (iron-lead)
12.	5000-77	Retainer ring (spec 3)
13.	3977	Suction valve relief housing (spec 3)
14.	1411	Spring (spec 3)
15.	1410	Ball (spec 3)
16.	3483-1	Suction valve seat (spec 3)
17.	3972	Suction valve plate (spec 3)
18.	4009	Suction spring (spec 3)
19.	3484	Suction valve bumper (spec 3)
20.	3483	Suction valve seat (spec 4)
21.	3972	Suction valve plate (spec 4)
22.	4009	Suction spring (spec 4)
23.	3484	Suction valve bumper (spec 4)
24.	3486	Discharge valve bumper
25.	4008	Discharge spring
26.	3973	Discharge valve plate
27.	3485	Discharge valve seat

O-ring Code	
A	Buna-N
B	Neoprene ^{®d}

^a Not shown.

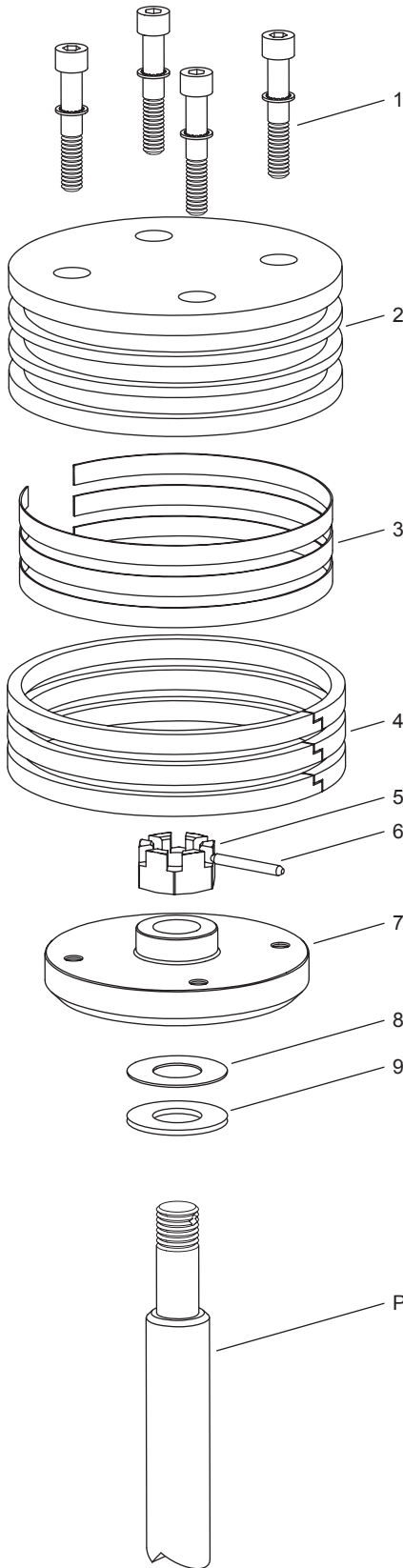
^b Optional

^c _ denotes O-ring code. See O-ring chart to the left for details.

^d Registered trademark of the DuPont company.

CAUTION: Always Relieve Pressure In The Unit Before Attempting Any Repairs.

Appendix G—91 and F91 Piston Assembly Details



**Piston Assembly Number 1983-X Bill of Materials
Piston Diameter 3" (7.62 cm)**

Ref No.	Part No.	Description	Qty
1.	7002-010OC100A	Screw, socket head	4
	7207-010A	Lock washer	4
2.	1983	Head, iron	1
3.	1775	Ring expander	3
4.	1772	Piston ring	3
5.	1482	Locknut	1
6.	1483	Lock pin	1
7.	1984	Piston platform	1
8.	1528	Shim washer, thick	As Req.
	1528-1	Shim washer, thin	
9.	1527	Thrust washer	1

Piston Clearance (Cold)^a

Model	Minimum	Maximum
91	0.020" (0.51 mm)	0.044" (1.12 mm)

^a The distance from the bottom of the head to the top of the piston.

CAUTION: Always Relieve Pressure In The Unit Before Attempting Any Repairs.

Appendix G—91 and F91 Packing Assembly Details

Packing Assembly Bill of Materials

Ref No.	Part No.	Description	Qty
1.	2242	Cylinder	1
2.	2-235_ ^a	O-ring for cylinder	1
3.	5000-137	Retainer ring	1
4.	1012	Washer	1
5.	1628	Packing spring	1
6.	1714	Packing box washer	1
7.	1453-1	Male packing ring	1
8.	1454 ^b	Packing ring	8
9.	1452-1	Female packing ring	1
10.	2240	Crosshead guides	1
11.	1387	Adjusting screw	1
12.	2526	Crankcase gasket	1
13.	1452-1X1	Packing set	1

Assembly Number	Assembly Name
1132-X2	Crosshead - piston-rod assembly
1452-2X1 ^d	Packing set (alloy 50) with 1452-1, 1453-1, 1454-2 (8), 1626, 1714

O-ring Code	
A	Buna-N
B	Neoprene ^{®c}

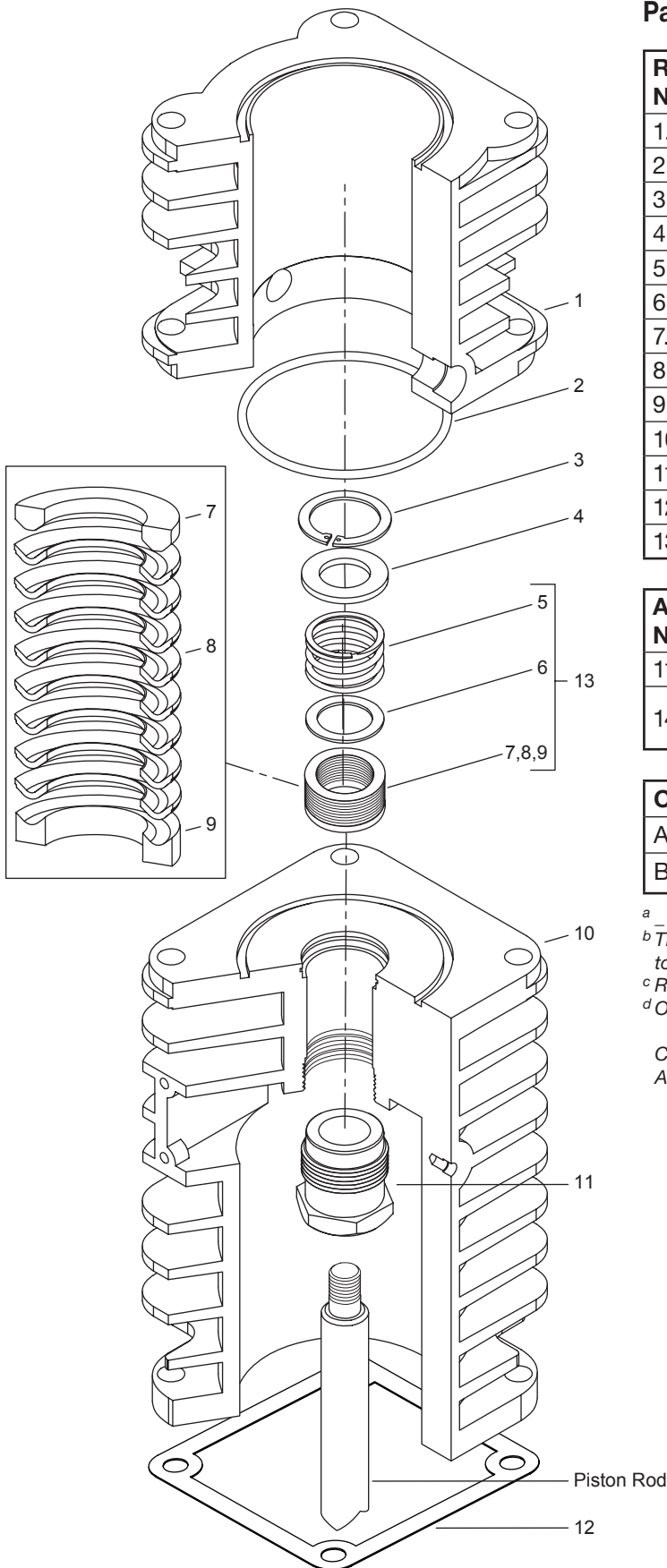
^a _ denotes O-ring code. See O-ring chart above for details.

^b The quantity of 1454 packing rings required will vary due to tolerances. Use cone 4005 for installation of packing.

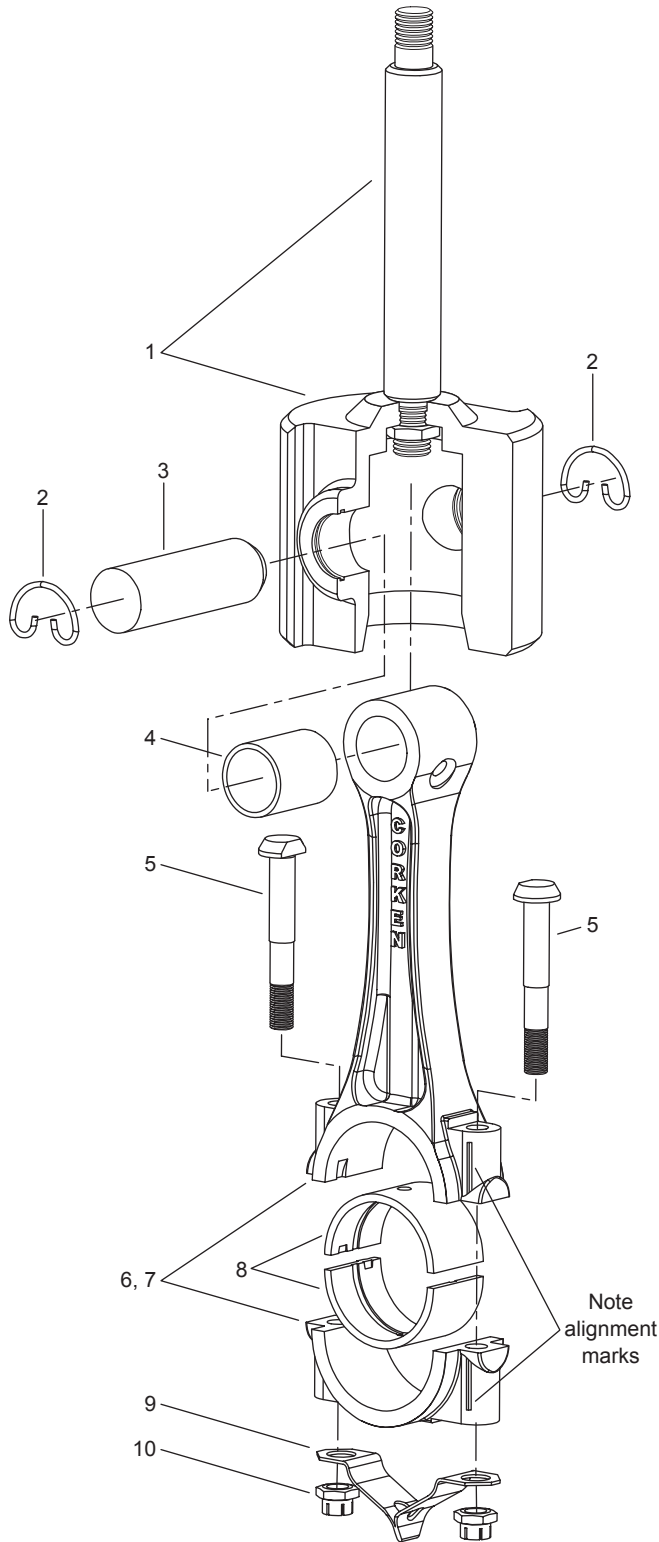
^c Registered trademark of the DuPont company.

^d Optional equipment

CAUTION: Always Relieve Pressure In The Unit Before Attempting Any Repairs.



Appendix G—91 and F91 Connecting Rod Assembly Details



Connecting Rod Assembly Bill of Materials

Ref No.	Part No.	Description
1.	1132-X2	Crosshead assembly
2.	1498	Retainer ring
3.	2505	Wrist pin
4.	1846-X ^{a,b}	Wrist pin bushing
5.	1599 ^b	Bolt
6.	1889-1X	Connecting rod assembly
7.	1889-1 ^b	Connecting rod
8.	1367 ^b	Connecting rod bearing
9.	2011 ^b	Dipper
10.	1600 ^{b,c}	Nut

^a Must be rebored after replacing (0.8754/0.8751 dia.)

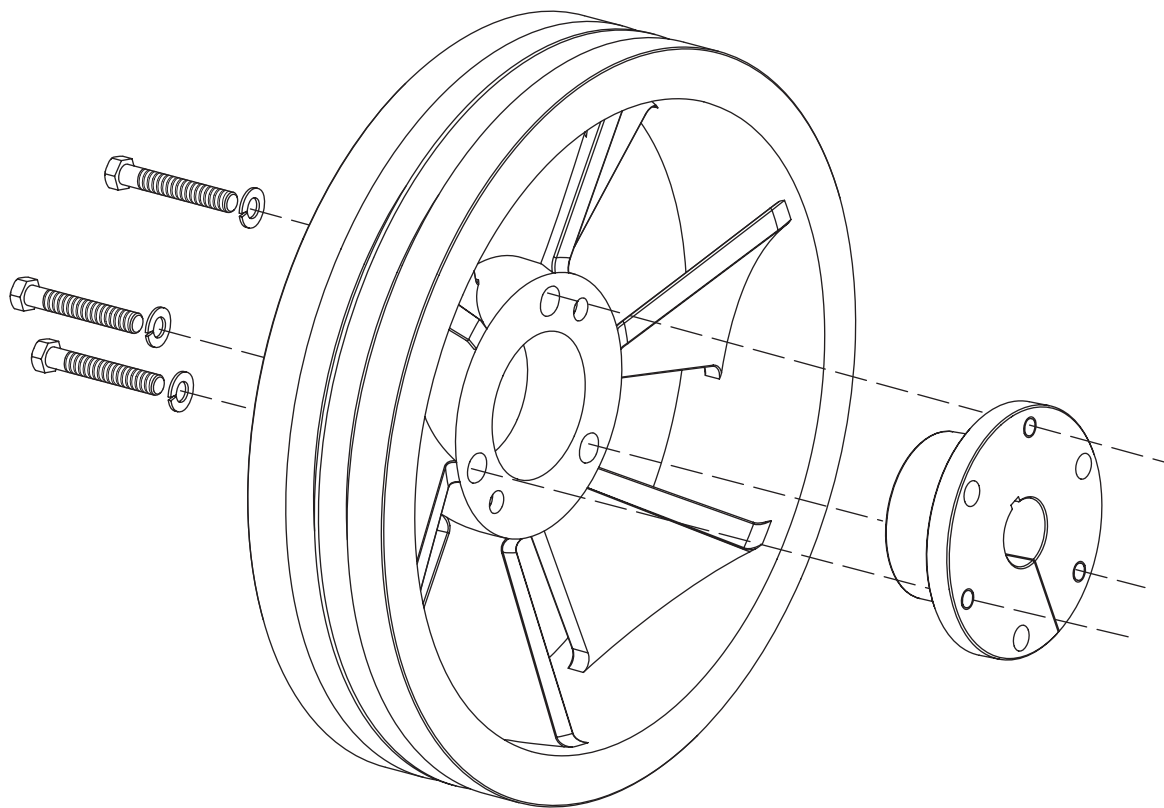
^b Included with connecting rod assembly

^c Torque connecting rod nut to 28 ft. lbs.

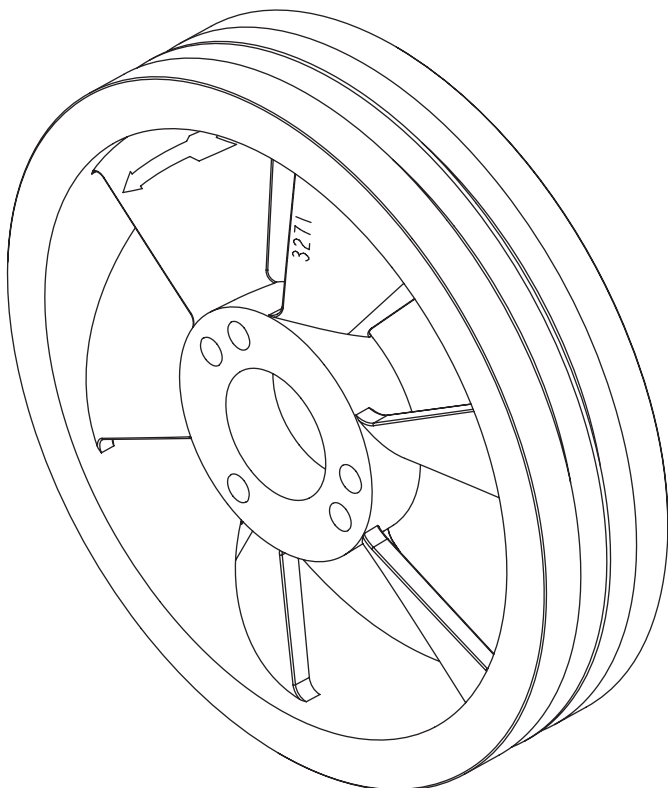
Never attempt to separate the piston rod and crosshead. When repair becomes necessary, the entire crosshead assembly must be replaced.

CAUTION: Always Relieve Pressure In The Unit Before Attempting Any Repairs.

Appendix G—91 and F91 Flywheel Assembly Details



Back Side

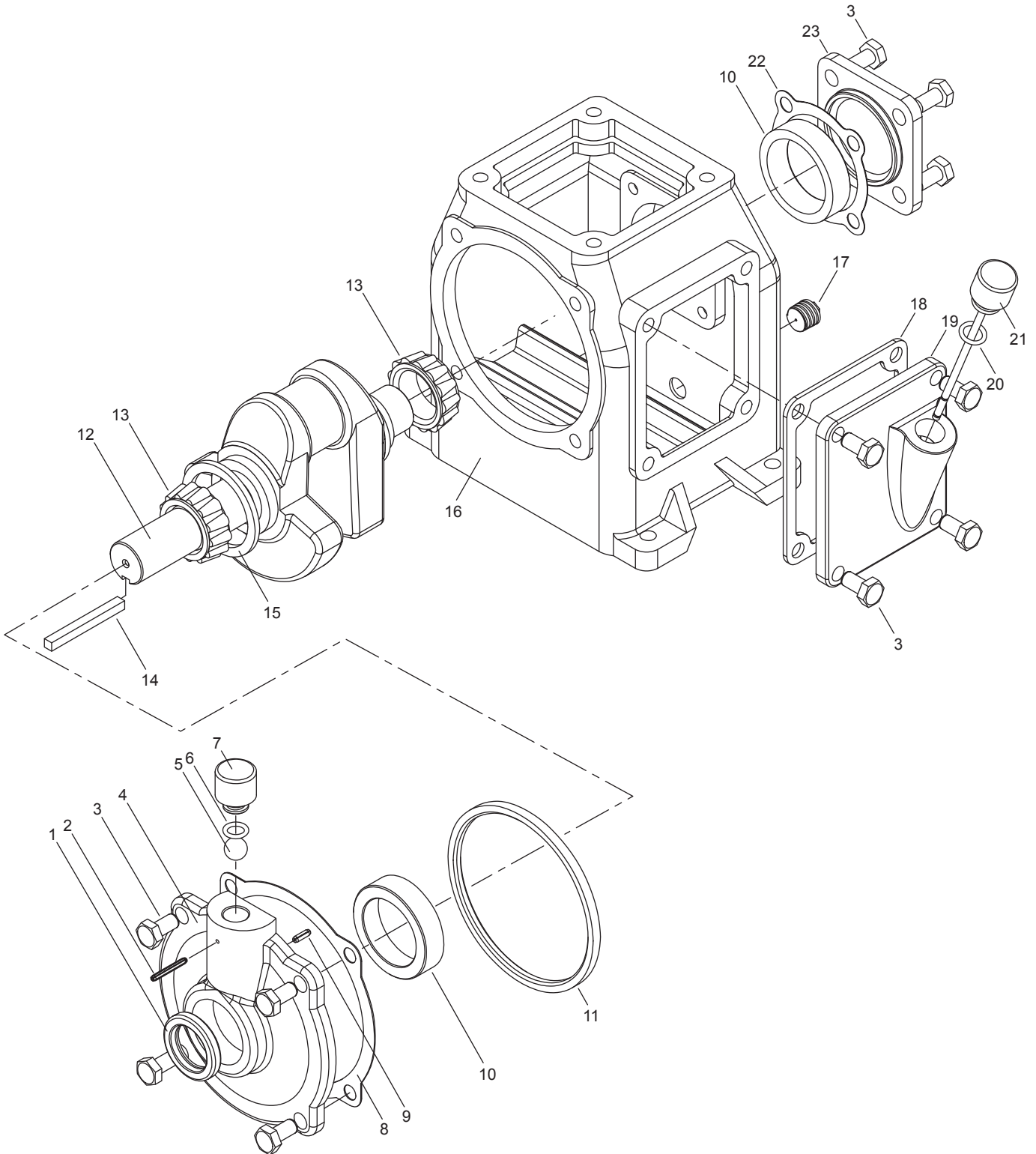


Front Side

Flywheel Assembly Bill of Materials

Assembly Number	Assembly Name
3271-X2	Flywheel assembly (flywheel, hub, and three bolts)
3271	Flywheel: 14" O.D., 2 groove
H SF-1.125	Hub with three bolts and lockwashers

Appendix G—91 and F91 Crankcase Assembly Details



Appendix G—91 and F91 Crankcase Assembly Details

Crankcase Assembly Bill of Materials

Ref No.	Part No.	Description
1.	3259	Oil seal
2.	1483	Roll pin - 1/8 x 1"
3.	7001-037NC075A	Hex head 3/8-16 x 3/4", Gr 5
4.	3260	Bearing carrier
5.	2796	Breather ball
6.	1279-X	O-ring (part of bearing cap assembly)
7.	1279-X	Breather cap assembly (with O-ring - ref. no. 6)
8.	2725	Bearing carrier gasket
9.	1807	Roll pin - 1/8 x 5/8"
10.	2718	Bearing cup
11.	2723	Oil circulating ring
12.	2476	Crankshaft
13.	2719	Bearing cone
14.	2289	Flywheel key
15.	2290	Oil ring retainer washer
16.	2554 ^a	Crankcase
17.	1661	Pipe plug - 3/8 NPT sq. or hex
18.	2729	Inspection plate gasket
19.	2728	Crankcase inspection plate
20.	2-112_ ^c	O-ring
21.	1368-X1	Oil bayonet assembly (with O-ring)
22.	2721	Bearing adjustment shim (0.005)
	2721-1	Bearing adjustment shim (0.007)
	2721-2	Bearing adjustment shim (0.020)
23.	2720	Bearing cap

Other Assemblies

Assembly Number	Assembly Name
2476-X	Crankshaft assembly with 2476, 2290 and 2719
2476-SX ^b	Extended crankshaft assembly with 2719 (2) and 2290, (optional)
3260-X	Bearing carrier assembly with 3260, 2718, 3259, 1279-X, 2-111, 1483, 2796 and 1807
3271-X2 ^b	Flywheel assembly 14" - 2 groove with H SF-1.125 and 3271

O-ring Code	
A	Buna-N
B	Neoprene ^{®c}

^a Crankcase capacity: 0.9 quarts (0.8 liters)

^b Optional

^c _ denotes O-ring code. See O-ring chart above for details.

^d Registered trademark of the DuPont company.

CAUTION: Always Relieve Pressure In The Unit Before Attempting Any Repairs.