

## 7 Frame Plunger Pump

**Standard Models**

**53, 55**

**Gearbox Models**

**58, 51**

### FEATURES

#### Superior Design

- Triplex plunger design gives smoother fluid flow.
- High pressure seals are completely lubricated and cooled by the fluid being pumped.
- Inlet and discharge valve assemblies interchange for easier maintenance.
- Lubricated low pressure seal provides double protection against external leakage.
- Oil bath crankcase assures optimum lubrication.
- Close tolerance concentricity of the ceramic plunger maximizes seal life.
- Convenient Gearbox Pump version for direct mounting to gas engine.

#### Quality Materials

- All stainless steel valves are heat treated and seats are roller burnished for a positive seal and extended valve life.
- Forged brass manifold for strength and corrosion resistance.
- Special hardened, polished surface of solid ceramic plunger is abrasion resistant and results in extended seal life.
- Specially formulated, CAT PUMP exclusive, Hi-Pressure Seals offer unmatched performance and seal life.
- Diecast aluminum crankcase provides high strength, minimum weight and precision tolerance control.
- Chrome-moly crankshaft gives unmatched strength and surface hardness.
- Oversized crankshaft bearings with greater loading capacity mean longer bearing life.

#### Easy Maintenance

- Wet-end is easily serviced without entering crankcase, requiring less time and effort.
- Valve assemblies are accessible without disturbing piping, for quick service.
- Preset packings mean no packing gland adjustment is necessary, reducing maintenance costs.

**DETERMINING THE PUMP R.P.M.**       $\frac{\text{Rated G.P.M.}}{\text{Rated R.P.M.}} = \frac{\text{"Desired" G.P.M.}}{\text{"Desired" R.P.M.}}$

**DETERMINING THE REQUIRED H.P.**       $\frac{\text{GPM} \times \text{PSI}}{1460} = \text{Electric Brake H. P. Required}$

**DETERMINING MOTOR PULLEY SIZE**       $\frac{\text{Motor Pulley O.D.}}{\text{Pump R.P.M.}} = \frac{\text{Pump Pulley O.D.}}{\text{Motor R.P.M.}}$

Note: Consult engine manufacturer when using gas or diesel engine. Refer to pump Service Manual for important Inlet Condition Check-List, Start-up Procedure, Tech Bulletins and Pump Maintenance information.

### SPECIFICATIONS

#### MODEL 53 Standard

	U.S. Measure	Metric Measure
Volume	5.0 GPM	(19 L/M)
Discharge Pressure	2500 PSI	(175 BAR)
<b>RPM</b>	<b>1100 RPM</b>	<b>(1100 RPM)</b>
Max. Inlet Pressure	-5 to 60 PSI	(0.35 to 4 BAR)
Bore	0.708"	(18 mm)
<b>Stroke</b>	<b>0.945"</b>	<b>(24 mm)</b>

#### MODEL 55 Standard

Volume	5.0 GPM	(19 L/M)
Discharge Pressure	100 to 3000 PSI	(7 to 210 BAR)
<b>RPM</b>	<b>1415 RPM</b>	<b>(1415 RPM)</b>
Max. Inlet Pressure	-5 to 60 PSI	(0.35 to 4 BAR)
Bore	0.630"	(16 mm)
<b>Stroke</b>	<b>0.945"</b>	<b>(24 mm)</b>

#### MODEL 58 — Gearbox 58G1 or 58G118

Volume	5.0 GPM	(19 L/M)
Discharge Pressure	2500 PSI	(175 BAR)
<b>RPM</b>	<b>1570 RPM</b>	<b>(1570 RPM)</b>
Max. Inlet Pressure	Flooded to 60 PSI	(Flooded to 4 BAR)
Bore	0.708"	(18 mm)
<b>Stroke</b>	<b>0.669"</b>	<b>(17 mm)</b>

#### MODEL 51 — Gearbox 51G1 or 51G118

Volume	4.8 GPM	(18 L/M)
Discharge Pressure	100 to 3000 PSI	(7 to 210 BAR)
<b>RPM</b>	<b>1765 RPM</b>	<b>(1765 RPM)</b>
Max. Inlet Pressure	Flooded to 60 PSI	(Flooded to 4 BAR)
Bore	0.630"	(16 mm)
<b>Stroke</b>	<b>0.728"</b>	<b>(18.5 mm)</b>

### COMMON SPECIFICATIONS

Crankcase Capacity	25 oz.	(0.75 L)
Maximum Fluid Temperature	160°F	(71°C)
Inlet Ports (2)	1/2" NPT	(1/2" NPT)
Discharge Ports (2)	3/8" NPT	(3/8" NPT)
Shaft Diameter	0.945"	(24 mm)
Weight	25.5 lbs.	(11.5 kg)
Dimensions	13.6" x 8.23" x 5.87"	(346 x 209 x 149 mm)

### HORSEPOWER REQUIREMENTS

MODEL	FLOW		PRESSURE				MOTOR PULLEY SIZE	
	U.S. GPM	L/M	PSI 1800	PSI 2000	PSI 2500	PSI 3000	Using 1725 RPM Motor & Std. 9.75" Pump Pulley	
			BAR 125	BAR 140	BAR 175	BAR 210	RPM	Pulley O.D.
53	5.0	19	6.2	6.7	8.6	N/A	1100	6.3
	4.5	17	5.6	6.2	7.7	N/A	990	5.6
	4.0	15	4.9	5.5	6.9	N/A	880	5.0
55	5.0	19	6.2	6.9	8.6	10.3	1415	8.0
	4.0	15	4.9	5.5	6.9	8.2	1130	6.4
	3.0	11	3.7	4.2	5.2	6.2	850	5.0
58	5.0	19	6.2	6.7	8.6	N/A	1570	Gearbox
51	4.8	18	5.9	6.6	8.2	9.8	1765	Gearbox

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# PARTS LIST

Item	Part Number				Description	Qty
	Model 51	Model 55	Model 53	Model 58		
2	30067	30067	30067	30067	Key (M8 x 7.5 x 25)	1
5	92519 Z	92519 Z	92519 Z	92519 Z	Screw, Sems Comb Head (M6 x 16)	8
8	43466 A	43466 A	43466 A	43466 A	Bearing Case - O.E.M	1
9	43261	43261	43261	43261	Shim, Bearing Case	1
10	12393 B	12393 B	12393 B	12393 B	O-Ring, Bearing Case	2
11	43222 B	43222 B	43222 B	43222 B	Oil Seal, Crankshaft	1
15	43221	43221	43221	43221	Bearing	2
20	46302	46302	46302	46302	Connecting Rod Assy "H"	3
25	★ 44947	44233	44233	★ 44946	Crankshaft - Single End	1
30	● 44967 A	● 44967 A	● 44967 A	● 44967 A	Blind Shaft Cover	1
32	44666	43211	43211	44666	Oil Filler Cap	1
33	14177 B	14177 B	14177 B	14177 B	O-Ring, Filler Cap	1
37	43987	43987	43987	43987	Oil Gauge, Bubble	1
38	44428 B	44428 B	44428 B	44428 B	Gasket, Flat	1
40	92520 Z	92520 Z	92520 Z	92520 Z	Screw, Sems Comb Head (M6 x 20)	4
48	25625 C	25625 C	25625 C	25625 C	Drain Plug	1
47	25144	25144	25144	25144	Adapter, Drain Plug (1/4" NPT) (For Optional Drain Hose)	1
49	23170 B	23170 B	23170 B	23170 B	O-Ring, Drain Plug	1
50	46509 A	46509 A	46509 A	46509 A	Crankcase Cover - O.E.M	1
51	44836 B	44836 B	44836 B	44836 B	O-Ring, Crankcase Cover	1
53	44555 A	44555 A	44555 A	44555 A	Crankcase (M10)	1
55	46868 S	46868 S	■ 46868 S	■ 46868 S	Stud, Manifold (M10x35)	4
56	43240 P	43240 P	43240	43240	Oil Pan	1
64	43237 S	43237 S	43237 S	43237 S	Pin, Plunger Rod	3
65	44234 SZZ	44234 SZZ	44234 SZZ	44234 SZZ	Plunger Rod, Short - O.E.M.	3
69	43227 S	43227 S	43227 S	43227 S	Washer, Oil Seal	3
70	43228 B	43228 B	43228 B	43228 B	Oil Seal, Crankcase	3
75	43328 S	43328 S	43328 S	43328 S	Barrier Slinger	3
83	45686 P	45686 P	45686 P	45686 P	Seal Retainer - Rear	3
85	43313	43313	43239	43239	Wick - Long Tab	3
86	45687 P	45687 P	45687 P	45687 P	Seal Retainer Adapter	3
88	45697 SS	45697 SS	45697 SS	45697 SS	Washer, Keyhole (M18)	3
90	43311 CC	43311 CC	43232 CC	43232 CC	Plunger	3
95	89649 Z	89649 Z	89649 Z	89649 Z	Stud, Plunger Retainer (M6 x 58) - O.E.M.	3
96	43235 T	43235 T	43235 T	43235 T	Back-up Ring, Plunger Retainer	3
97	17399 B	17399 B	17399 B	17399 B	O-Ring, Plunger Retainer	3
	14160 V	14160 V	14160 V	14160 V	O-Ring, Plunger Retainer	3
98	45891 CU	45891 CU	45891 CU	45891 CU	Gasket Plunger Retainer	3
99	46504 S	46504 S	46504 S	46504 S	Plunger Retainer (M5)	3
106	43316 BTS	43316 BTS	43243 BTS	43243 BTS	Lo-Pressure Seal w/Spring	3
	106660 V	106660 V	44926 VS	44926 VS	Lo-Pressure Seal w/Spring	3
120	45684 BB	45684 BB	45683 BB	45683 BB	Seal Case	3
121	20285 B	20285 B	20285 B	20285 B	O-Ring, Seal Case	3
	11693 V	11693 V	11693 V	11693 V	O-Ring, Seal Case	3
125	—	—	43245 BT	43245 BT	Hi-Pressure Seal	3
	—	—	44925 V	44925 V	Hi-Pressure Seal	3
126	43320 BB	43320 BB	—	—	Female Adapter	3
127	43319 BT	43319 BT	—	—	V-Packing	6
	46287 T	46287 T	—	—	V-Packing	6
128	43318 BB	43318 BB	—	—	Male Adapter	3
139	43448 BB	43448 BB	43448 BB	43448 BB	Plug, Inlet	1
162	43248 T	43248 T	43248 T	43248 T	Back-up Ring, Valve Seat	6
163	43249 B	43249 B	43249 B	43249 B	O-Ring, Valve Seat	6
	44383 V	44383 V	44383 V	44383 V	O-Ring, Valve Seat	6
164	43722 S	43722 S	43722 S	43722 S	Valve Seat - Q.V.	6
	—	—	43825 S	43825 S	Valve Seat - F.V.	6
166	43721 S	43721 S	43721 S	43721 S	Valve - Q.V.	6
	—	—	43824 S	43824 S	Valve - F.V.	6
167	43751 S	43751 S	43751 S	43751 S	Valve Spring - Q.V.	6
	—	—	43823 s	43823 S	Valve Spring - F.V.	6
168	44564 P	44564 P	44564 P	44564 P	Retainer, Valve Spring	6
172	17617 B	17617 B	17617 B	17617 B	O-Ring, Valve Plug	6
	11691 V	11691 V	11691 V	11691 V	O-Ring, Valve Plug	6
174	43850 BB	43850 BB	43850 BB	43850 BB	Valve Plug - O.E.M.	6
185	■ 45549 BB	■ 45549 BB	■ 45419 BB	■ 45419 BB	Manifold Head (M10-F) - O.E.M.	1
194	45550 Z	45550 Z	■ 45550 Z	■ 45550 Z	Nut, Flanged (M10)	4
255	30243	30243	30243	30243	Direct Mount Kit	1
260	30611	30611	30611	30611	Angle Rail Assy B- U.S. (28499,30900,30910,30920)	1
260	—	30645	30645	—	Angle Rail Assy A- U.S.(30635,30900,30910,30920)	1
265	30660	30660	30660	30660	Mounting Kit (30611,30206,33000,30067,43256)	1
269	30206	30206	30206	30206	9.75" Pulley	1
274	33000	33000	33000	33000	Hub (M24)	1
299	—	—	814521 BB	814521 BB	Complete Head - O.E.M.	1
300	30610	30610	30488	30488	Seal Kit (Incls: 85,97,106,121,125,127)	1
310	30820	30820	30820	30820	Valve Kit (Incls: 162-164,166,167,168,172)	1
	—	—	31820	31820	Valve Kit - F.V. (Incls: 162-164,166-168,172)	1
350	30696	30696	30696	30696	Valve Seat Removal Tool	1
351	43257	43257	43257	43257	Seal Case Removal Tool	1
	33005	33005	33005	33005	Seal Case Socket Tool - 1/2" Drive	1
352	44050	44050	44050	44050	Oil Gauge Removal Tool	1
	6565.1	6565.1	6565.1	6565.1	Plunger Pump Service Video - 5, 7, 15 Fr Pumps	1

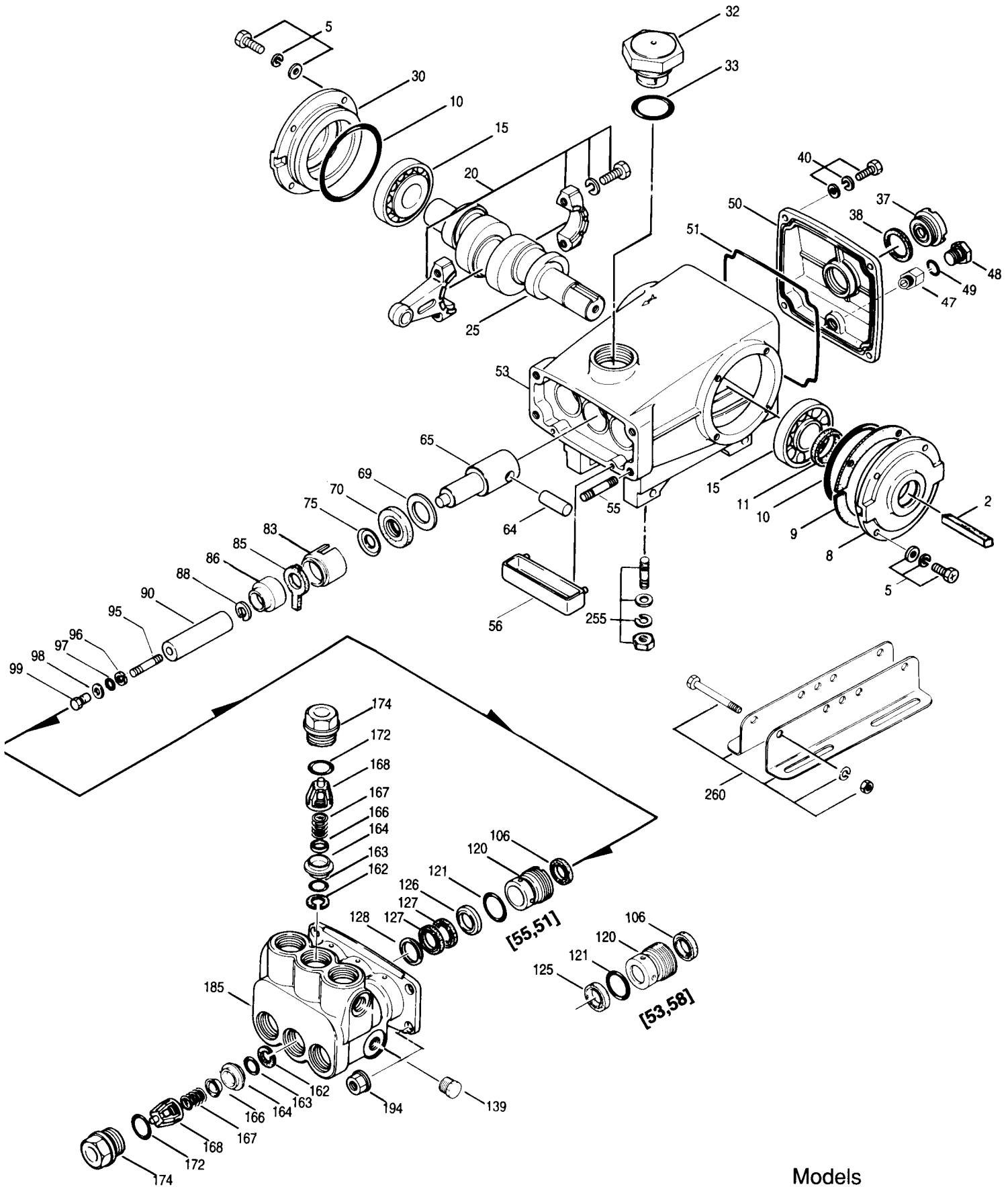
**Bold printed part numbers are standard and unique to a particular pump model. Italics are optional items.**

Refer to Tech Bulletins 24, 43, ●47, ■51 and 54 for additional information. ★ See 8051-8078 Gearbox Specification Sheet for direct drive Gas Engine option.

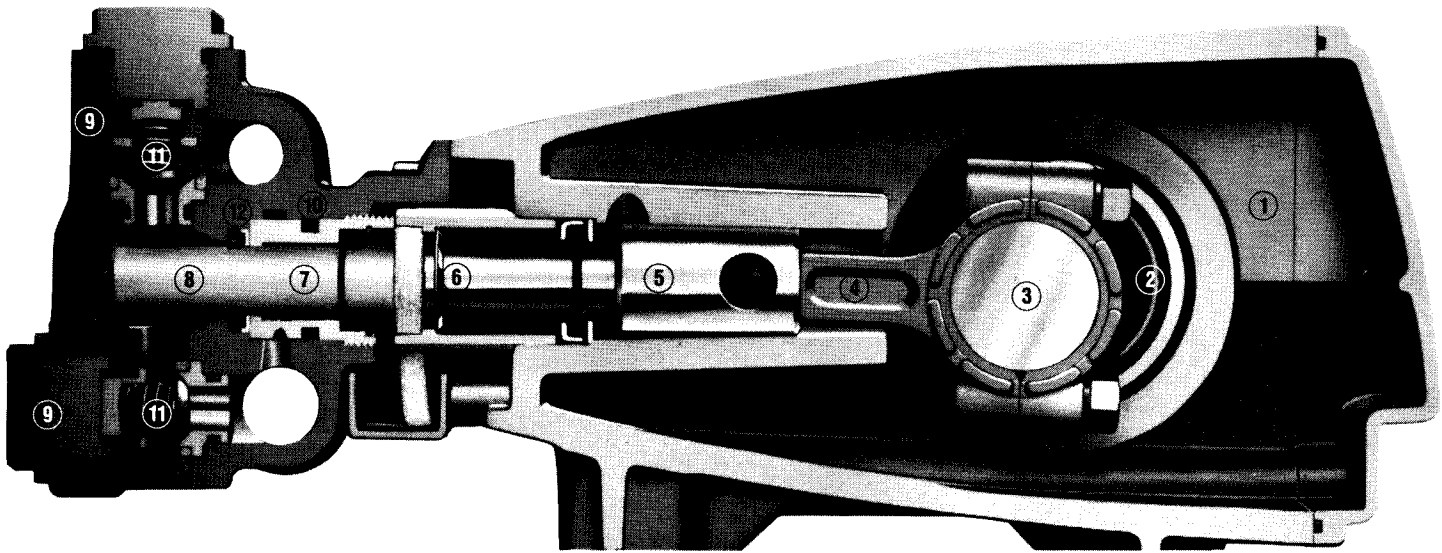
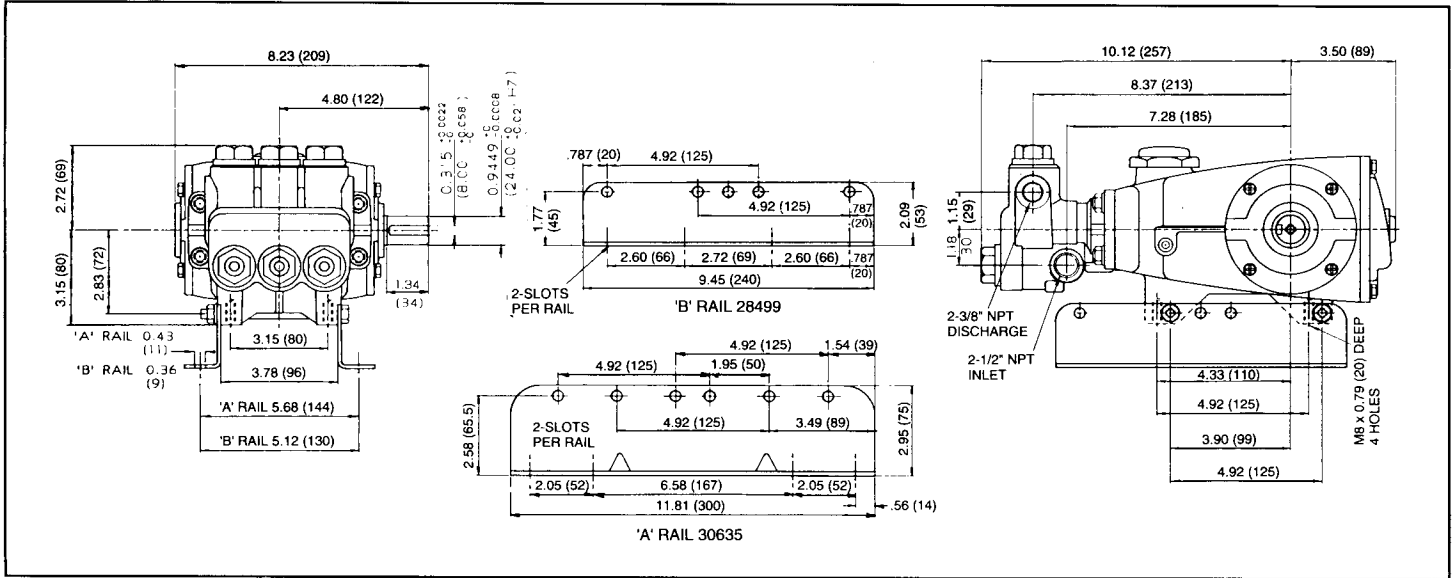
**MATERIAL CODES (Not Part of Part Number) A=Aluminum B=Buna-N BB=Brass**

**C=Chromeplated CC=Ceramic CU=Copper P=PVDF S=304SS SS=316SS T=Teflon V=Viton Z=Zinc Plated ZZ=Zamak**

# EXPLODED VIEW



Models  
51, 53, 55, 58  
February 1996



- 1 Diecast aluminum **crankcase** means high strength, lightweight, and excellent tolerance control.
- 2 Oversized crankshaft **bearings** provide extended bearing life and pump performance.
- 3 Chrome-moly **crankshaft** provides unmatched strength and surface hardness for long life.
- 4 Matched oversized high strength **connecting rods** for superior strength and bearing quality.
- 5 The **plunger rods** are high tensile strength stainless steel with zamak crossheads.
- 6 The stainless steel **slinger** provides back-up protection for the crankcase seal, keeping pumped fluids out of the crankcase.
- 7 Precision-polished solid ceramic **plungers** provide maximum resistance to corrosion and abrasion.
- 8 The close tolerance concentricity of the ceramic **plunger** maximizes seal life.
- 9 **Manifolds** are a high tensile strength forged brass for long term, continuous duty.
- 10 100% wet **seal** design adds to service life by allowing pumped fluids to cool and lubricate on both sides.
- 11 Stainless steel **valves, seats and springs** provide corrosion-resistance, positive seating and long life.
- 12 Specially formulated, CAT PUMP exclusive, **Hi-Pressure Seals** offer unmatched performance and seal life.

Products described herein are covered by one or more of the following U.S. patents 3558244, 3652188, 3809508, 3920356, 3930756 and 5035580

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