

## 7 Frame Plunger Pump

Models

56, 57  
59, 60

### FEATURES

#### Superior Design

- Triplex plunger design gives smoother liquid flow.
- V-Packings are completely lubricated and cooled by the liquid being pumped.
- Inlet and discharge valve assemblies interchange for easier maintenance.
- Lubricated Lo-Pressure Seals provide 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

- Precision design 304 stainless steel valves and seats are hardened and polished for ultimate seating and extended valve life.
- Forged brass manifold is strong and corrosion resistant.
- Special concentric, high density, polished, graphite impregnated, solid ceramic plungers are abrasion resistant and result in extended seal life.
- Specially formulated, CAT PUMP exclusive, V-Packings offers unmatched performance and seal life.
- Die cast 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.

#### **⚠ WARNING**

All systems require both a primary pressure regulating device (i.e., regulator, unloader) and a secondary pressure safety relief device (i.e., pop-off valve, safety valve). Failure to install such relief devices could result in personal injury or damage to the pump or to system components. CAT PUMPS does not assume any liability or responsibility for the operation of a customer's high pressure system.

### SPECIFICATIONS

	U.S. Measure	Metric Measure	U.S. Measure	Metric Measure
<b>MODELS</b>	<b>56</b>		<b>56G1*</b>	
Flow .....	5.5 GPM	(21 L/M)	8 GPM	(30 L/M)
Pressure Range .....	100 to 3500 PSI	(7 to 245 BAR)	100 to 1800 PSI	(7 to 125 BAR)
RPM .....	1210 RPM	(1210 RPM)	1760 RPM	(1760 RPM)
Stroke .....	0.945"	(24 mm)	0.945"	(24 mm)
<b>MODEL</b>	<b>57</b>			
Flow .....	4.5 GPM	(17 L/M)		
Pressure Range .....	100 to 4000 PSI	(7 to 275 BAR)		
RPM .....	1285 RPM	(1285 RPM)		
Stroke .....	0.728"	(18.5 mm)		
<b>MODELS</b>	<b>59, 59G1*</b>		<b>60, 60G1*</b>	
Flow .....	5.5 GPM	(21 L/M)	4.5 GPM	(17 L/M)
Pressure Range .....	100 to 3500 PSI	(7 to 245 BAR)	100 to 4000 PSI	(7 to 275 BAR)
RPM .....	1570 RPM	(1570 RPM)	1570 RPM	(1570 RPM)
Stroke .....	0.728"	(18.5 mm)	0.591"	(15 mm)

#### COMMON SPECIFICATIONS

Bore.....	0.708"	(18 mm)
Inlet Pressure Range .....	Flooded to 60 PSI	(Flooded to 4 BAR)
Crankcase Capacity .....	25 oz.	(0.75 L)
Maximum Liquid Temperature .....	160°F	(71°C)
Above 130°F call CAT PUMPS for inlet conditions and elastomer recommendations.		
Inlet Ports (2) .....	1/2" NPTF	(1/2" NPTF)
Discharge Ports (2) .....	3/8" NPTF	(3/8" NPTF)
Shaft Diameter .....	0.945"	(24 mm)
Weight.....	29.25 lbs.	(13.3 kg)
Weight w/Gearbox .....	36.8 lbs.	(16.7 kg)
Dimensions .....	13.93 x 8.2 x 6.41"	(354 x 208 x 163 mm)

\*See Data Sheet 8051-8078 for maximum engine RPM.

### HORSEPOWER REQUIREMENTS

MODEL	FLOW		PRESSURE					MOTOR PULLEY SIZE	
	U.S. GPM	L/M	PSI 1800	PSI 2500	PSI 3000	PSI 3500	PSI 4000	Using 1725 RPM Motor & Std. Pump Pulley	
			BAR 125	BAR 175	BAR 210	BAR 245	BAR 275	RPM	Pulley O.D.
<b>56</b>	5.5	21	6.8	9.4	11.3	13.2	N/A	1210	6.9
Alternate	6.0	23	7.4	10.3	12.4	N/A	N/A	1320	7.5
<b>57</b>	4.5	17	5.6	7.7	9.3	10.8	12.3	1285	7.3
<b>56G1</b>	8.0	30	9.9	N/A	N/A	N/A	N/A	1760	Gearbox
<b>59G1</b>	5.5	21	6.8	9.4	11.3	13.2	N/A	1570	Gearbox
<b>60G1</b>	4.5	17	5.6	7.7	9.3	10.8	12.3	1570	Gearbox

**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.**  $\frac{\text{GPM x PSI}}{1460} = \text{Electric Brake H. P. Required}$

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

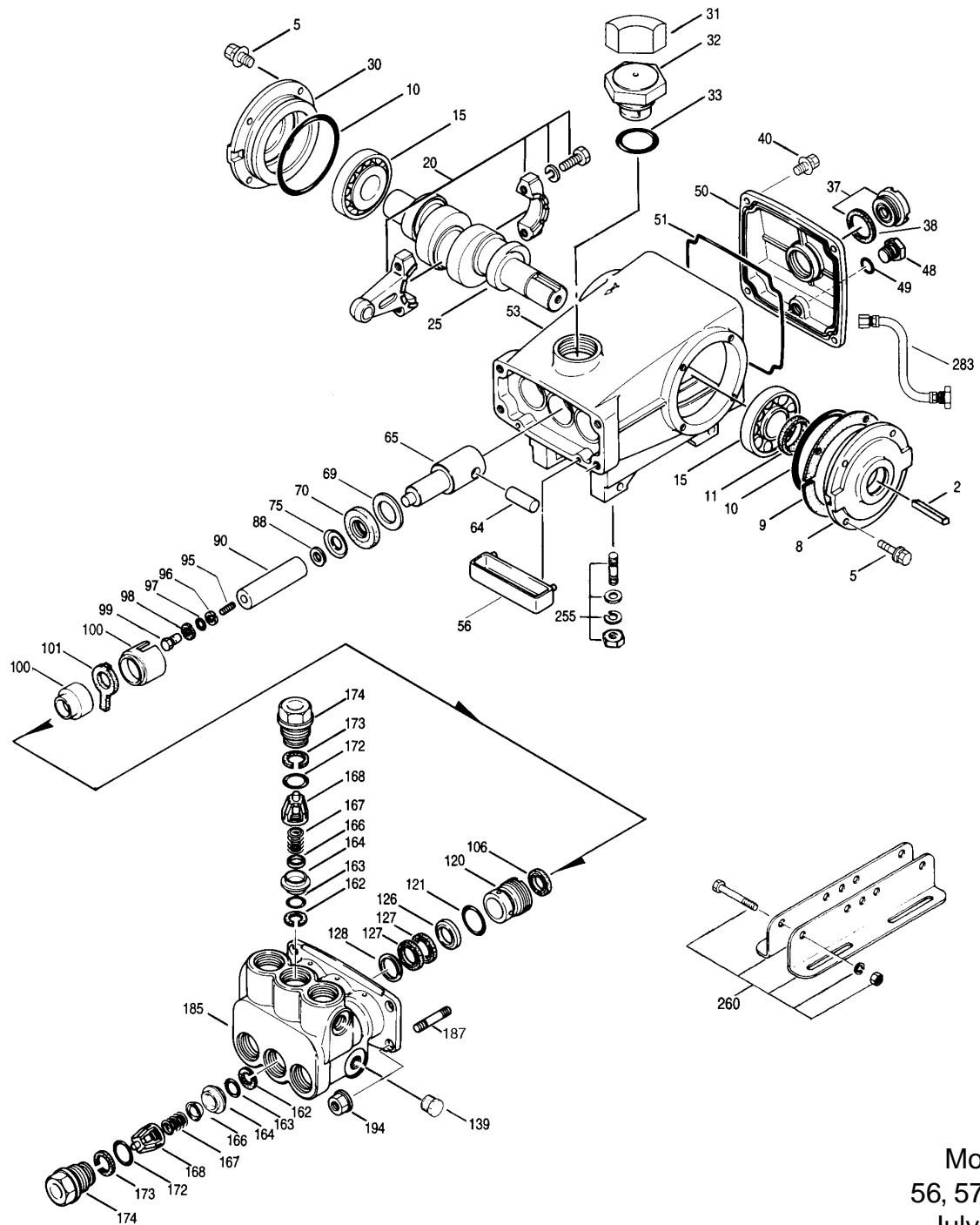
See complete Drive Packages [Incls: Pulleys, Belts, Hubs, Key] Tech Bulletin 003.  
Refer to pump **Service Manual** for repair procedure, additional technical information and **pump warranty**.

*"Customer confidence is our greatest asset"*

# PARTS LIST

ITEM	PART NUMBER								DESCRIPTION	QTY
	56	MATL	57	MATL	59	MATL	60	MATL		
2	30067	STL	30067	STL	30067	STL	30067	STL	Key (M8x7.5x25)	1
5	92519	STZP	92519	STZP	92519	STZP	92519	STZP	Screw, HHC Sems (M6x16)	4/8
8	43466	AL	43466	AL	43466	AL	43466	AL	Cover, Bearing	1
9	43261	FBR	43261	FBR	43261	FBR	43261	FBR	Shim, Split, Bearing Cover	1
10	12393	NBR	12393	NBR	12393	NBR	12393	NBR	O-Ring, Bearing Cover	2
11	43222	NBR	43222	NBR	43222	NBR	43222	NBR	Seal, Oil Crankshaft	1
15	43221	STL	43221	STL	43221	STL	43221	STL	Bearing, Roller	2
20	48863	TNM	48863	TNM	48863	TNM	48863	TNM	Rod, Connecting [6/02]	3
25	43464	FCM	44947	FCM	46131	FCM	44591	FCM	Crankshaft, Single End	1
30	44967	AL	44967	AL	44967	AL	44967	AL	Cover, Bearing, Blind	1
31	828710	—	828710	—	828710	—	828710	—	Protector, Oil Cap	1
32	44666	RTP	44666	RTP	44666	RTP	44666	RTP	Cap, Oil Filler, Domed-Gearbox Models	1
33	14177	NBR	14177	NBR	14177	NBR	14177	NBR	O-Ring, Oil Filler Cap - 70D	1
37	92241	—	92241	—	92241	—	92241	—	Gauge, Oil Bubble w/Gasket - 80D	1
38	44428	NBR	44428	NBR	44428	NBR	44428	NBR	Gasket, Flat Flex, Oil Gauge - 80D	1
40	92520	STZP	92520	STZP	92520	STZP	92520	STZP	Screw, HHC Sems (M6x20)	4
48	25625	STCP	25625	STCP	25625	STCP	25625	STCP	Plug, Drain (1/4"x19BSP)	1
49	23170	NBR	23170	NBR	23170	NBR	23170	NBR	O-Ring, Drain Plug - 70D	1
50	46509	AL	46509	AL	46509	AL	46509	AL	Cover, Rear	1
51	44836	NBR	44836	NBR	44836	NBR	44836	NBR	O-Ring, Rear Cover - 70D	1
53	45361	AL	45361	AL	45361	AL	45361	AL	Crankcase (M10)	1
56	43240	POP	43240	POP	43240	POP	43240	POP	Pan, Oil	1
64	43237	CM	43237	CM	43237	CM	43237	CM	Pin, Crosshead	3
65	48913	HS	48913	HS	48913	HS	48913	HS	Rod, Plunger, Short [4/02]	3
69	43227	STZP	43227	STZP	43227	STZP	43227	STZP	Washer, Oil Seal	3
70	43228	NBR	43228	NBR	43228	NBR	43228	NBR	Seal, Oil, Crankcase	3
75	43328	S	43328	S	43328	S	43328	S	Slinger, Barrier	3
88	45697	S	45697	S	45697	S	45697	S	Washer, Keyhole (M18)	3
90	43232	CC	43232	CC	43232	CC	43232	CC	Plunger (M18x77)	3
95	89649	STZP	89649	STZP	89649	STZP	89649	STZP	Stud, Plunger Retainer (M6x70)	3
96	43235	PTFE	43235	PTFE	43235	PTFE	43235	PTFE	Back-up-Ring, Plunger Retainer	3
97	17399	NBR	17399	NBR	17399	NBR	17399	NBR	O-Ring, Plunger Retainer - 80D	3
	14160	FPM	14160	FPM	14160	FPM	14160	FPM	O-Ring, Plunger Retainer - 80D	3
98	45891	CU	45891	CU	45891	CU	45891	CU	Gasket, Plunger Retainer	3
99	46504	S	46504	S	46504	S	46504	S	Retainer, Plunger (M6)	3
100	45686	PVDF	45686	PVDF	45686	PVDF	45686	PVDF	Retainer, Seal, Rear	3
	45687	PVDF	45687	PVDF	45687	PVDF	45687	PVDF	Retainer, Seal Adapter, Front	3
101	43239	FBR	43239	FBR	43239	FBR	43239	FBR	Wick, Long Tab	3
106	43243	NBR	43243	NBR	43243	NBR	43243	NBR	Seal, LPS w/S-Spg	3
	44926	FPM	44926	FPM	44926	FPM	44926	FPM	Seal, LPS w/SS-Spg	3
120	45685	BB	45685	BB	45685	BB	45685	BB	Case, Seal	3
121	20285	NBR	20285	NBR	20285	NBR	20285	NBR	O-Ring, Seal Case - 70D	3
	11693	FPM	11693	FPM	11693	FPM	11693	FPM	O-Ring, Seal Case	3
126	44550	BB	44550	BB	44550	BB	44550	BB	Adapter, Female	3
127	44549	SNG	44549	SNG	44549	SNG	44549	SNG	V-Packing	6
	45617	SFG	45617	SFG	45617	SFG	45617	SFG	V-Packing	6
	48300	STG	48300	STG	48300	STG	48300	STG	V-Packing	6
128	45618	BB	45618	BB	45618	BB	45618	BB	Adapter, Male	3
139	43448	BB	43448	BB	43448	BB	43448	BB	Plug, Inlet, (1/2" NPT)	1
162	43248	PTFE	43248	PTFE	43248	PTFE	43248	PTFE	Back-up-Ring, Seat	6
163	43249	NBR	43249	NBR	43249	NBR	43249	NBR	O-Ring, Seat - 80D	6
	44383	FPM	44383	FPM	44383	FPM	44383	FPM	O-Ring, Seat - 70D	6
164	43722	S	43722	S	43722	S	43722	S	Seat	6
166	43721	S	43721	S	43721	S	43721	S	Valve	6
167	43751	S	43751	S	43751	S	43751	S	Spring	6
168	44564	PVDF	44564	PVDF	44564	PVDF	44564	PVDF	Retainer, Spring	6
172	14179	NBR	14179	NBR	14179	NBR	14179	NBR	O-Ring, Valve Plug - 70D	6
	15855	FPM	15855	FPM	15855	FPM	15855	FPM	O-Ring, Valve Plug - 70D	6
173	20213	PTFE	20213	PTFE	20213	PTFE	20213	PTFE	Back-up-Ring, Valve Plug	6
174	45939	BB	45939	BB	45939	BB	45939	BB	Plug, Valve, Extended	6
185	45937	FBB	45937	FBB	45937	FBB	45937	FBB	Head, Manifold, (M10)	1
187	46868	S	46868	S	46868	S	46868	S	Stud, Manifold (M10x35)	4
194	45550	STZP	45550	STZP	45550	STZP	45550	STZP	Nut, Hex Flanged (M10)	4
255	30243	STZP	30243	STZP	—	—	—	—	Kit, Direct Mount	1
260	30611	STZP	30611	STZP	—	—	—	—	Assy, Angle Rail, B, U.S. (Incls: 28499,30900,30910,30920)	1
	30645	STZP	30645	STZP	—	—	—	—	Assy, Angle Rail, A, U.S. (Incls: 30635,30900,30910,30920)	1
269	30206	F	30206	F	—	—	—	—	Pulley, (10") AB (See Drive Packages, Tech Bulletin 003)	1
274	33000	STL	33000	STL	—	—	—	—	Hub (M24), H Series (See Drive Packages, Tech Bulletin 003)	1
283	34334	—	34334	—	34334	—	34334	—	Kit, Oil Drain	1
298	34628	STZP	34628	STZP	34628	STZP	34628	STZP	Clutch Assy, Single Groove, 24mm, 12VDC	1
	34630	STZP	34630	STZP	34630	STZP	34630	STZP	Clutch Assy, Dual Groove, 24mm, 12VDC	1
	34959	STZP	34959	STZP	34959	STZP	34959	STZP	Clutch Assy, Eight Groove Poly L, 24mm, 12VDC	1
299	814618	FBB	814618	FBB	814618	FBB	814618	FBB	Head, Complete	1
300	30799	NBR	30799	NBR	30799	NBR	30799	NBR	Kit, Seal (Incls: 97,101,106,121,127)	1
	34237	FPM	34237	FPM	34237	FPM	34237	FPM	Kit, Seal (Incls: 97,101,106,121,127)	1

# EXPLODED VIEW



Models  
56, 57, 59, 60  
July 2004

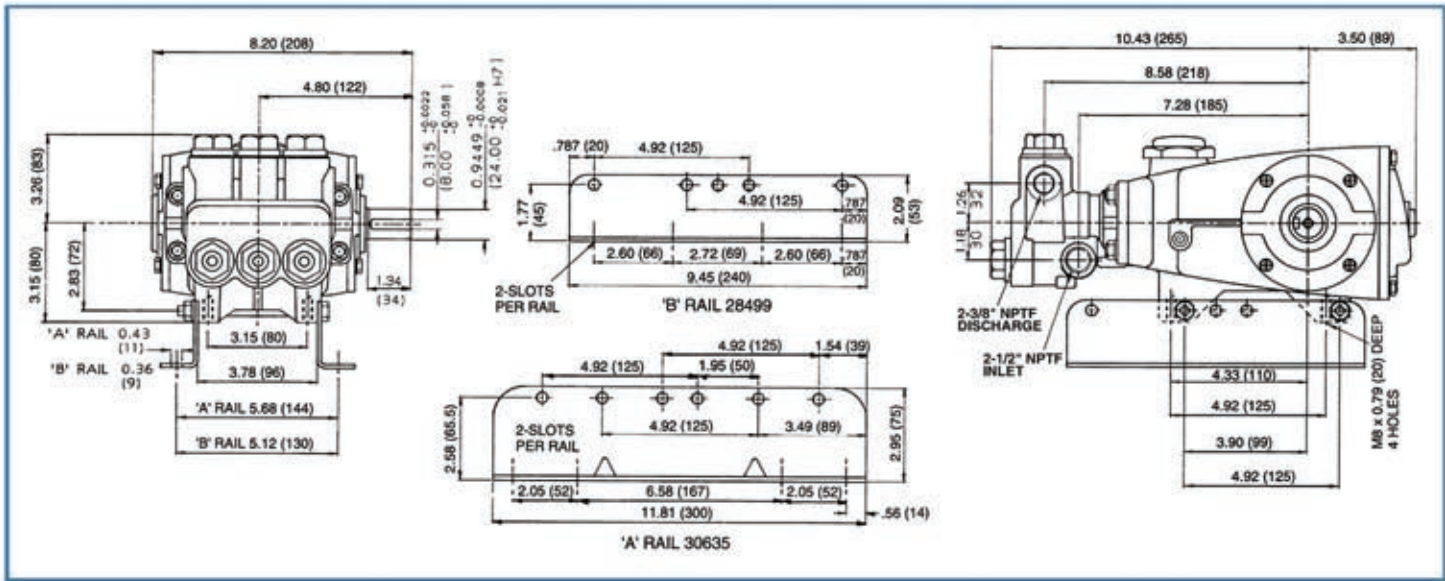
	<b>56</b>	<b>MATL</b>	<b>57</b>	<b>MATL</b>	<b>59</b>	<b>MATL</b>	<b>60</b>	<b>MATL</b>		
310	33820	NBR	33820	NBR	33820	NBR	33820	NBR	Kit, Valve (Incls: 162-168,172,173) [Effect. 8/90]	2
	34238	FPM	34238	FPM	34238	FPM	34238	FPM	Kit, Valve (Incls: 162-168,172,173)	2
350	30696	STZP	30696	STZP	30696	STZP	30696	STZP	Plier, Reverse	1
351	43257	STZP	43257	STZP	43257	STZP	43257	STZP	Tool, Seal Case Removal	1
	33005	STZP	33005	STZP	33005	STZP	33005	STZP	Seal Case Socket, 1/2" Drive	1
352	44050	STZP	44050	STZP	44050	STZP	44050	STZP	Tool, Oil Gauge Removal	1
500	8071	—	—	—	8071	—	8071	—	Gearbox-1" (See individual Data Sheet)	1
	8078	—	—	—	8078	—	8078	—	Gearbox-1-1/8" (See individual Data Sheet)	1
—	6565.1	—	6565.1	—	6565.1	—	6565.1	—	Plunger Pump Service Video - 5, 7, 15 PFR Pumps	1
—	6107	—	6107	—	6107	—	6107	—	Oil, Bottle (21 oz.) ISO 68 Multi-Viscosity Hydraulic (Fill to specified crankcase capacity prior to start-up)	1

**Bold print part numbers are unique to a particular pump model. Italics are optional items. [ ]** Date of latest production change.

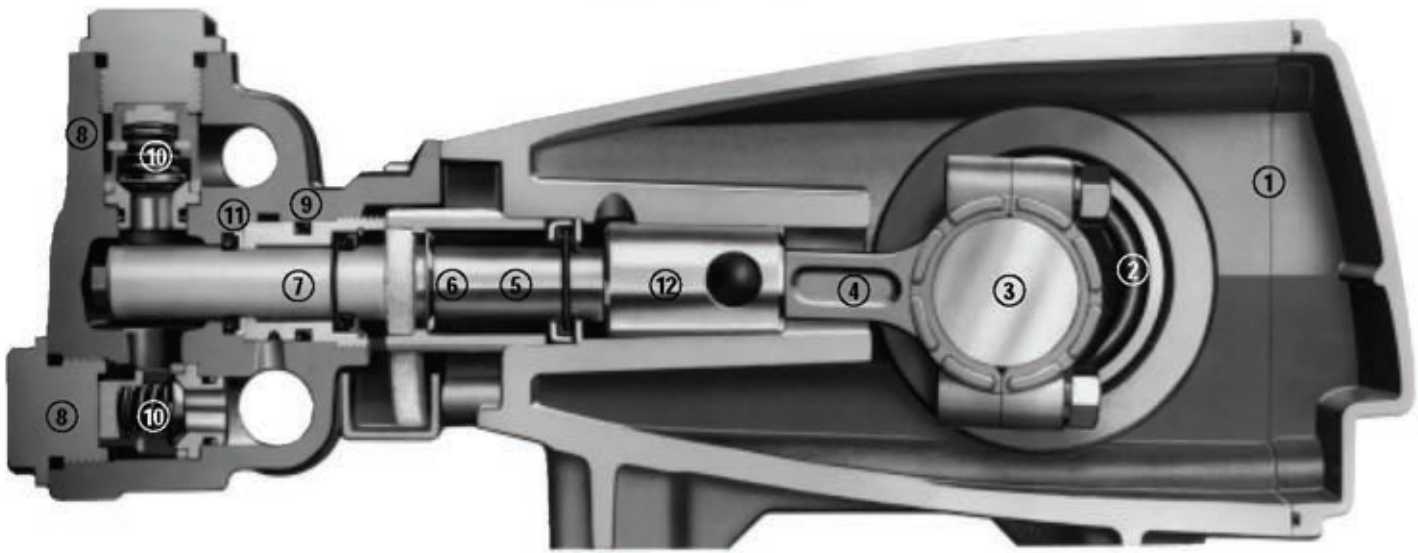
See Tech Bulletins 002, 003, 024, 027, 035, 036, 043, 051, 054, 058, 067, 074, 077 and 083 for additional information.

MATERIAL CODES (Not Part of Part Number): AL=Aluminum BB=Brass CC=Ceramic CM=Chrome-Moly CU=Copper

FBB=Forged Brass FBR=Fiber FCM=Forged Chrome-Moly FPM=Fluorocarbon HS=High Strength NBR=Medium Nitrile (Buna-N) POP=Polypropylene  
PTFE=Pure Polytetrafluoroethylene PVDF=Polyvinylidene Fluoride RTP=Reinforced Composite S=304SS SFG=Special Blend FPM SNG=Special Blend (Buna)  
STCP=Steel/Chrome Plated STG=Special Blend PTFE White STL=Steel STZP=Steel/Zinc Plated



Models 56, 57, 59, 60



- 1 Die cast aluminum **crankcase** means high strength, light weight, 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 TNM **connecting rods** noted for superior tensile strength and bearing quality.
- 5 Special stainless steel **plunger rods** with high strength crossheads for longevity and corrosion resistance.
- 6 The stainless steel **slinger** provides back-up protection for the crankcase seal, keeping pumped liquids out of the crankcase.
- 7 Special concentric, high density, polished, graphite impregnated, solid ceramic **plungers** are abrasion resistant and result in extended seal life.
- 8 **Manifolds** are a high tensile strength forged brass for long term, continuous duty.
- 9 100% **wet seal** design adds to service life by allowing pumped liquids to cool and lubricate on both sides.
- 10 Stainless steel **valves, seats and springs** provide corrosion-resistance, ultimate seating and extended life.
- 11 Specially formulated, CAT PUMP exclusive, **V-Packings** offer unmatched performance and seal life.
- 12 **Crossheads** are 360° supported for uncompromising alignment.

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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