

5 Frame Plunger Pump

Standard Models 310 , 340 , 350

W770 Models 310W, 340 W, 350W

Stainless Steel Models 311, 341, 351

Nickel Aluminum Bronze Models 317, 347, 357

FEATURES

Superior Design

- Triplex plunger design gives smoother liquid flow.
- Hi-Pressure Seals are completely lubricated and cooled by the liquid being pumped.
- Inlet and discharge valve assemblies interchange for easier maintenance.
- Lubricated Lo-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 direct drive gearbox or electric motor options.

Quality Materials

- All stainless steel valves are heat treated and seats are roller burnished for a positive seal and extended valve life.
- Forged brass, 316 Stainless Steel, Nickel Aluminum Bronze or special W770 alloy manifolds for strength and corrosion resistance.
- Special concentric, high density, polished, graphite impregnated, solid ceramic plungers are abrasion resistant and result in extended seal life.
- Specially formulated, CAT PUMP exclusive, Hi-Pressure Seals offer 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.

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 $\frac{\text{Motor Pulley O.D.}}{\text{Pump R.P.M.}} = \frac{\text{Pump Pulley O.D.}}{\text{Motor R.P.M.}}$

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

U.S. Measure

Metric Measure

MODEL 310, 310W, 311, 317

Flow 4.0 GPM (15 L/M)
 Pressure Range 100 to 2200 PSI (7 to 155 BAR)
 RPM 950 RPM (950 RPM)
 Max. Inlet Pressure -5 to 60 PSI (-0.35 to 4 BAR)
 Stroke 0.709" (18 mm)

MODEL 340, 340W, 341, 347 Direct Drive or Gearbox

Flow 4.0 GPM (15 L/M)
 Pressure Range 100 to 1800 PSI (7 to 125 BAR)
 RPM 1725 RPM (1725 RPM)
 Max. Inlet Pressure Flooded to 60 PSI (Flooded to 4 BAR)
 Stroke 0.394" (10 mm)

MODEL 350, 350W, 351, 357 Direct Drive or Gearbox

Flow 5.0 GPM (19 L/M)
 Pressure Range 100 to 1500 PSI (7 to 105 BAR)
 RPM 1725 RPM (1725 RPM)
 Max. Inlet Pressure Flooded to 60 PSI (Flooded to 4 BAR)
 Stroke 0.472" (12 mm)

This specification for intermittent, fresh water duty.

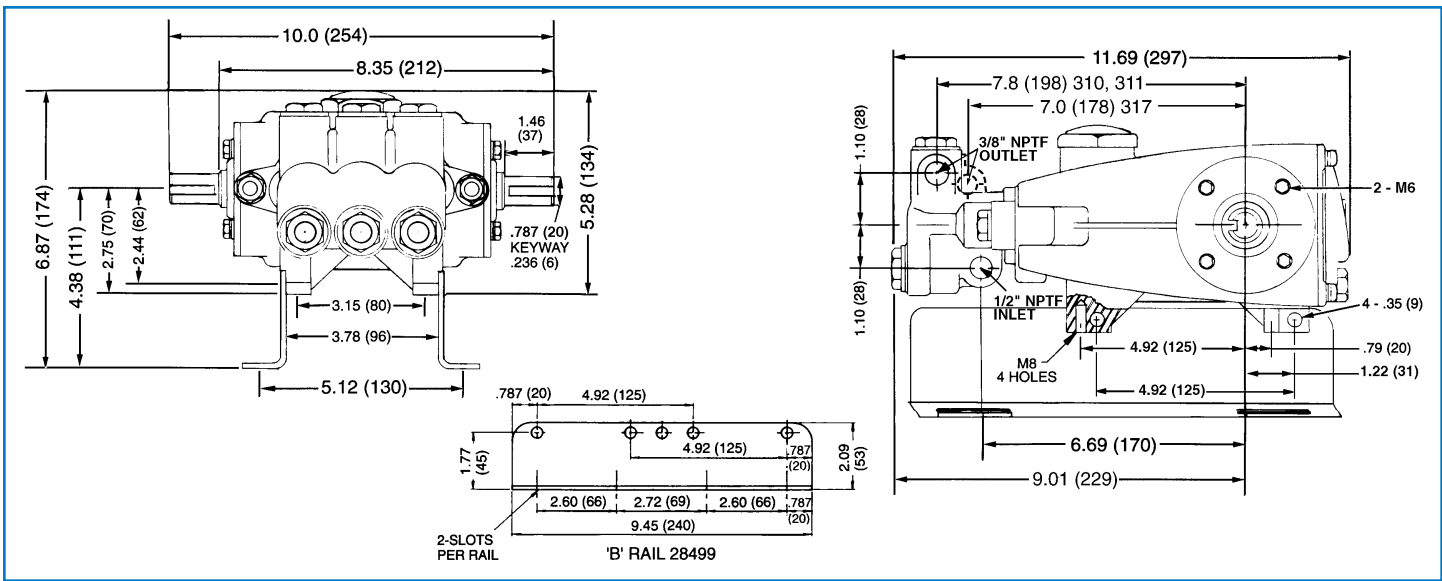
COMMON SPECIFICATIONS

Bore 0.787" (20 mm)
 Crankcase Capacity 18 oz. (0.55 L)
 Maximum Liquid Temperature 160F (71C)
 Inlet Ports (2) 1/2" NPTF (1/2" NPTF)
 Discharge Ports (2) 3/8" NPTF (3/8" NPTF)
 Shaft Diameter 0.787" (20 mm)
 Weight 19.8 lbs. (9 kg)
 Dimensions 11.69 x 10.0 x 5.28" (297x 254 x 134 mm)

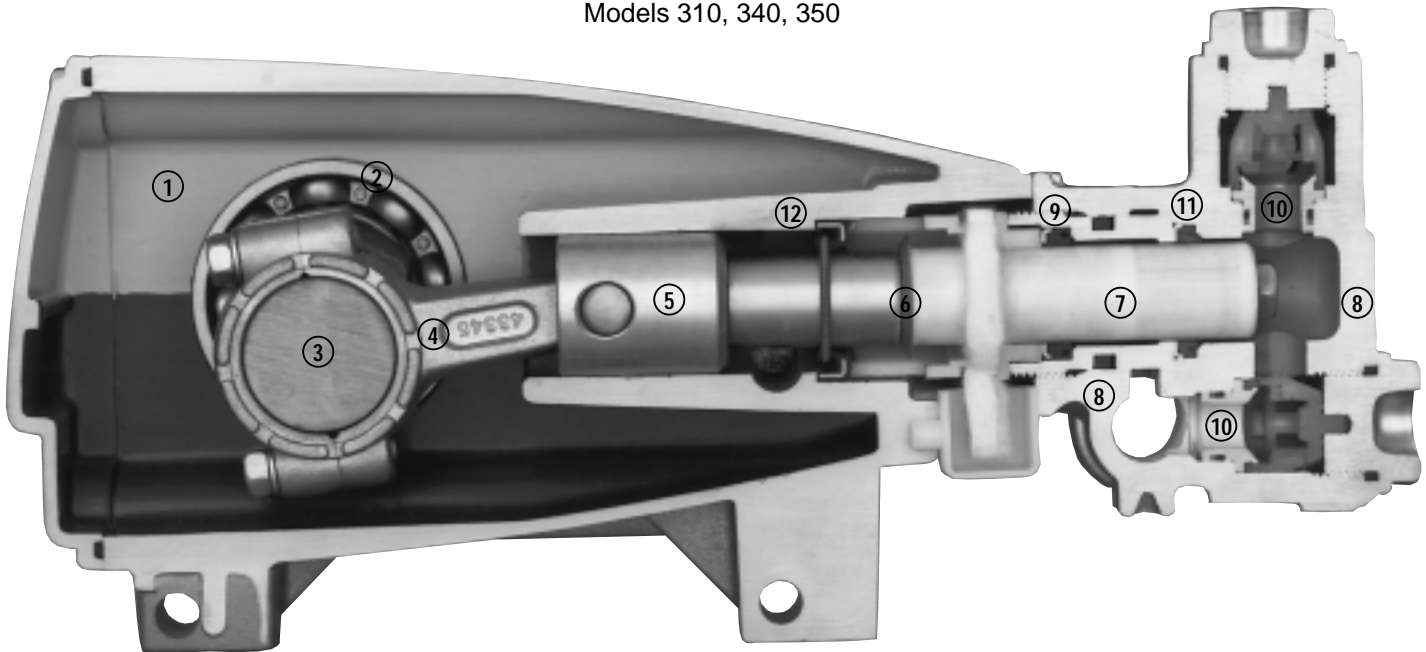
HORSEPOWER REQUIREMENTS

| MODEL | FLOW | | PRESSURE | | | | | MOTOR PULLEY SIZE | |
|-------|----------|------|----------|----------|----------|----------|----------|--|--------------|
| | | | PSI 1200 | PSI 1500 | PSI 1800 | PSI 2000 | PSI 2200 | Using 1725 RPM Motor & Std. 8" Pump Pulley | |
| | U.S. GPM | L/M | BAR 85 | BAR 105 | BAR 125 | BAR 140 | BAR 155 | RPM | Pulley O.D. |
| 310 | 5.0 | 19 | 4.1 | 5.1 | N/A | N/A | N/A | 1190 | 5.5 |
| | 4.0 | 15 | 3.3 | 4.1 | 5.0 | 5.5 | 6.0 | 950 | 4.4 |
| | 3.0 | 11.4 | 2.5 | 3.1 | 3.7 | 4.2 | 4.5 | 713 | 3.3 |
| 340 | 4.0 | 15 | 3.3 | 4.1 | 5.0 | N/A | N/A | 1725 | Direct Drive |
| 350 | 5.0 | 19 | 4.1 | 5.1 | N/A | N/A | N/A | 1725 | Direct Drive |

See complete Drive Packages [Incls: Pulleys, Belts, Hubs, Key] Tech Bulletin 03.



Models 310, 340, 350



- 1 Die cast 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 **connecting rods** are made of Zamak, a material noted for strength and superior 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 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, 316 stainless steel, nickel aluminum bronze or W770 alloy 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, positive seating and long life.
- 11 Specially formulated, CAT PUMP exclusive, **Hi-Pressure Seals** offer unmatched performance and seal life.
- 12 **Crossheads** are 360° supported for uncompromising alignment.

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

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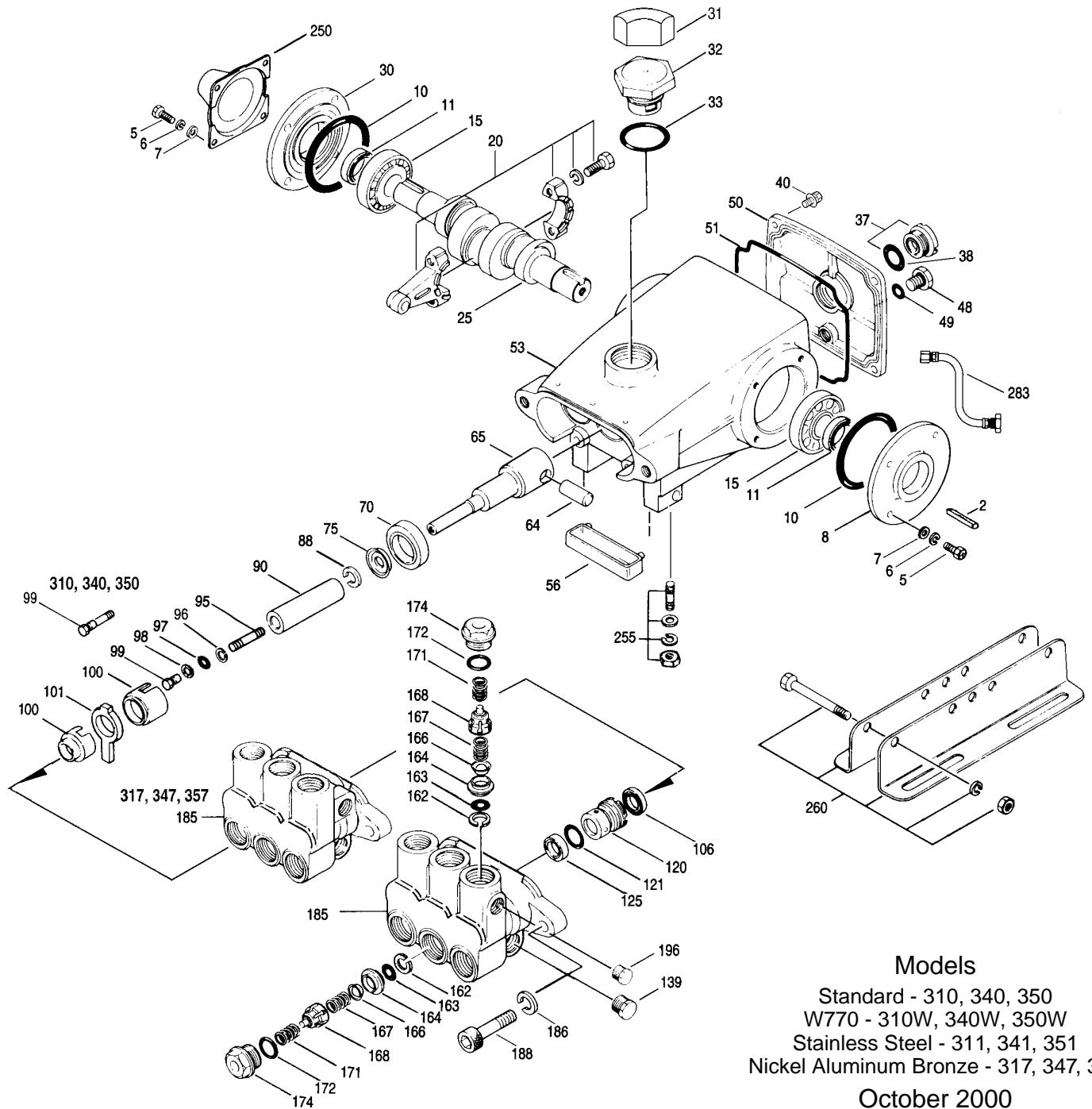
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EXPLODED VIEW



Models

Standard - 310, 340, 350
 W770 - 310W, 340W, 350W
 Stainless Steel - 311, 341, 351
 Nickel Aluminum Bronze - 317, 347, 357

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| | 310 | 310W | 311 | 317 | |
|-------|--------------------|------------------|------------------|-------------------|--|
| | 340 | 340W | 341 | 347 | |
| | 350 MATL | 350W MATL | 351 MATL | 357 MATL | |
| ● 298 | 34962 STZP | 34962 STZP | 34962 STZP | 34962 STZP | Clutch Assy, Single Groove, 20mm, 12VDC |
| ● | 34963 STZP | 34963 STZP | 34963 STZP | 34963 STZP | Clutch Assy, Dual Groove, 20mm, 12VDC |
| ● 299 | 810027 BBCP | 810027W W | 812207 SS | 814559 NAB | Head, Complete |
| 300 | 30623 NBR | 30623 NBR | 34153 NBR | 34153 NBR | Kit, Seal (Incls: 97,101,106,121,125) |
| | 34155 FPM | 34155 FPM | 34155 FPM | 34155 FPM | Kit, Seal (Incls: 97,101,106,121,125) |
| | 33623 HT | 33623 HT | 33623 HT | 33623 HT | Kit, Seal, "Hi-Temp" (Incls: 97,101,106,121,125) |
| 310 | 30821 NBR | 30821 NBR | 31152 NBR | 31152 NBR | Kit, Valve (Incls: 162-164,166-168,172) |
| | 31821 FPM | 31821 FPM | 34152 FPM | 34152 FPM | Kit, Valve (Incls: 162-164,166-168,172) |
| 350 | 30696 STZP | 30696 STZP | 30696 STZP | 30696 STZP | Plier, Reverse |
| 351 | 33004 STZP | 33004 STZP | 33004 STZP | 33004 STZP | Socket, Seal Case (1/2" Drive) |
| | | | | | BD Motors - See Individual Data Sheet |

● Industrial discount. **Bold print part numbers are unique to a particular pump model.** *Italics are optional items.*

See Tech Bulletins 02, 03, 08, 24, 27, 32, 35, 36, 43, 45, 46, 49, 52, 53, 54, 73, 74, 77, 79 and 83 for additional information. Add .3000 to part numbers for Hi-Temp model.
 MATERIAL CODES (Not Part of Part Number): ABS=ABS Plastic AL=Aluminum BB=Brass BBCP=Brass/Chrome Plated CC=Ceramic CM=Chrome-moly
 CU=Copper D=Delrin® FCM=Forged Chrome-moly FPM=Fluorocarbon (Viton®) HT=High Temp (EPDM Alternative) NAB=Nickel Aluminum Bronze
 NBR=Medium Nitrile (Buna-N) POP=Polypropylene PTFE=Pure Teflon® PVDF=Fluoroplastic (High Strength) RTP=Reinforced Composite S=304SS
 SNG=Special Blend (Buna) SS=316SS SSZZ=316SS/Zamak STL=Steel STZP=Steel/Zinc Plated W770=Special Alloy ZZ=Zamak ZZCP=Chrome Plated/Steel - Zamak

PARTS LIST

| ITEM | PART NUMBER | | | | DESCRIPTION | QTY |
|------|-----------------|------------------|-----------------|-----------------|---|-----|
| | 310 | 310W | 311 | 317 | | |
| | 340 | 340W | 341 | 347 | | |
| | 350 MATL | 350W MATL | 351 MATL | 357 MATL | | |
| 2 | 30057 | 30057 | 30057 | 30057 | Key (M6x6x25) | 1 |
| 5 | 92519 | 92519 | 89618 | 89618 | Screw, Sems HHC (M6x16) | 8 |
| 6 | — | — | 15849 | 15849 | Lockwasher (M6) | 8 |
| 7 | — | — | 19933 | 19933 | Washer (M6) | 8 |
| 8 | 43344 | 43344 | 43344 | 43344 | Cover, Bearing | 1/2 |
| 10 | 43343 | 43343 | 43343 | 43343 | O-Ring, Bearing Cover | 2 |
| 11 | 43222 | 43222 | 43222 | 43222 | Seal, Oil, Crankshaft - (310, 350-2) (340-1) | 1/2 |
| 15 | 14480 | 14480 | 14480 | 14480 | Bearing, Ball | 2 |
| 20 | 43345 | 43345 | 43345 | 43345 | Rod, Connecting Assy | 3 |
| 25 | 43342 | 43342 | 43342 | 43342 | Crankshaft, Dual End - 310, 310W, 311, 317 | 1 |
| | 44945 | 44945 | 44945 | 44945 | Crankshaft, Single End - 340, 340W, 341, 347 | 1 |
| | 43838 | 43838 | 43838 | 43838 | Crankshaft, Dual End - 350, 350W, 351, 357 | 1 |
| 30 | 44949 | 44949 | 44949 | 44949 | Cover, Blind Shaft - 340 | 1 |
| 31 | 828710 | 828710 | 828710 | 828710 | Protector, Oil Cap | 1 |
| 32 | 43211 | 43211 | 43211 | 43211 | Cap, Oil Filler | 1 |
| | 44666 | 44666 | 44666 | 44666 | Cap, Oil Filler, Domed - Gearbox Models | 1 |
| 33 | 14177 | 14177 | 14177 | 14177 | O-Ring, Filler Cap - 70D | 1 |
| 37 | 92241 | 92241 | 92241 | 92241 | Gauge, Oil, Bubble w/Gasket | 1 |
| 38 | 44428 | 44428 | 44428 | 44428 | Gasket, Flat, Oil Gauge - 80D | 1 |
| 40 | 92520 | 92520 | 92542 | 92542 | Screw, Sems HHC (M6x20) | 4 |
| 48 | 25625 | 25625 | 25625 | 25625 | Plug, Drain (1/4"x19 BSP) | 1 |
| 49 | 23170 | 23170 | 23170 | 23170 | O-Ring, Drain Plug - 70D | 1 |
| 50 | 43339 | 43339 | 43339 | 43339 | Cover, Rear | 1 |
| 51 | 43340 | 43340 | 43340 | 43340 | O-Ring, Rear Cover | 1 |
| 53 | 43338 | 43338 | 43338 | 43338 | Crankcase | 1 |
| 56 | 43355 | 43355 | 43355 | 43355 | Pan, Oil | 1 |
| 64 | 43351 | 43351 | 43351 | 43351 | Pin, Crosshead | 3 |
| 65 | 43365 | 43365 | 45256 | 45256 | Rod, Plunger | 3 |
| 70 | 43228 | 43228 | 43228 | 43228 | Seal, Oil, Crankcase | 3 |
| 75 | 43328 | 43328 | 43328 | 43328 | Slinger, Barrier | 3 |
| 88 | 45697 | 45697 | 45697 | 45697 | Washer, Keyhole (M18) | 3 |
| 90 | 43367 | 43367 | 43367 | 43367 | Plunger (M20x71) | 3 |
| 95 | — | — | 89653 | 89653 | Stud, Plunger Retainer (M6x58) | 3 |
| 96 | 43235 | 43235 | 43235 | 43235 | Back-up-Ring, Plunger Retainer | 3 |
| 97 | 17399 | 17399 | 17399 | 17399 | O-Ring, Plunger Retainer - 80D | 3 |
| | 14160 | 14160 | 14160 | 14160 | O-Ring, Plunger Retainer - 80D | 3 |
| 98 | 45891 | 45891 | 44041 | 44041 | Gasket | 3 |
| 99 | 104360 | 104360 | 44031 | 44031 | Retainer, Plunger | 3 |
| 100 | 45682 | 45682 | 45682 | 45682 | Retainer, Seal, Adapter - Front | 3 |
| | 45681 | 45681 | 45681 | 45681 | Retainer, Seal - Rear | 3 |
| 101 | 43302 | 43302 | 43302 | 43302 | Wick, Long Tab | 3 |
| 106 | 43305 | 43305 | 44127 | 44127 | Seal, LPS w/S-Spg | 3 |
| | 45153 | 45153 | 45153 | 45153 | Seal, LPS w/SS-Spg | 3 |
| 120 | 45679 | 45679 | 45680 | 45680 | Case, Seal | 3 |
| 121 | 14200 | 14200 | 11719 | 14200 | O-Ring, Seal Case - 70D | 3 |
| | 11719 | 11719 | 14200 | 11719 | O-Ring, Seal Case - 70D | 3 |
| 125 | 43307 | 43307 | 44649 | 44649 | Seal, HPS w/S | 3 |
| | 44936 | 44936 | 44936 | 44936 | Seal, HPS w/SS | 3 |
| | 46667 | 46667 | 46667 | 46667 | Seal, HPS w/S "Hi-Temp" | 3 |
| 139 | 22179 | 22179 | 45156 | 44563 | Plug, Inlet (1/2" NPT) | 1 |
| 162 | 48361 | 48361 | 48361 | 48361 | Back-up-Ring, Seat | 6 |
| 163 | 43358 | 43358 | 43358 | 43358 | O-Ring, Seat - 70D | 6 |
| | 44938 | 44938 | 44938 | 44938 | O-Ring, Seat - 70D | 6 |
| 164 | 43725 | 43725 | 44128 | 44128 | Seat | 6 |
| 166 | 43723 | 43723 | 44057 | 44057 | Valve | 6 |
| 167 | 43750 | 43750 | 44056 | 44056 | Spring, Valve | 6 |
| 168 | 44565 | 44565 | 44565 | 44565 | Retainer, Valve Spring | 6 |
| 171 | — | — | 44832 | 44832 | Spring, Coil | 6 |
| 172 | 17615 | 17615 | 17615 | 17615 | O-Ring, Valve Plug | 6 |
| | 15855 | 15855 | 15855 | 15855 | O-Ring, Valve Plug | 6 |
| 174 | 43849 | 43849 | 45155 | 44833 | Plug, Valve | 6 |
| 185 | 44837 | 46825 | — | — | Manifold Head | 1 |
| | — | — | 45151 | 44124 | Manifold Head | 1 |
| 186 | 12503 | 12503 | 15847 | 15847 | Lockwasher (M10) | 2 |
| 188 | 87931 | 87931 | 87950 | 87950 | Screw (M10x35) | 2 |
| 196 | 43633 | 43633 | — | — | Plug, Discharge (3/8" NPT) | 1 |
| 250 | 118672 | 118672 | 118672 | 118672 | Protector, Shaft (Belt Drive Only) | 1 |
| 255 | 30243 | 30243 | 30243 | 30243 | Mount, Direct (Belt Drive Only) | 1 |
| 260 | 30611 | 30611 | 30611 | 30611 | Mounting, Angle Rail - B (28499,30900,30910,30920) (Belt Drive Only) | 1 |
| 265 | 30659 | 30659 | 30659 | 30659 | Mount, Assy (30611,30633, 30944,118672) (Belt Drive Only) | 1 |
| 270 | 30633 | 30633 | 30633 | 30633 | Assy, Pulley & Key (30058,30057) (Belt Drive Only) | 1 |
| 275 | 30944 | 30944 | 30944 | 30944 | Assy, Hub & Key (M20 w/M6 Keyway) (Belt Drive Only) | 1 |
| | | | | | [See Drive Packages, Tech Bulletin 03] | |
| 283 | 34334 | 34334 | 34334 | 34334 | Kit, Oil Drain | 1 |