

5CP Plunger Pump

Models 5CP2120W
 5CP2140WCS
 5CP2150W

FEATURES

Superior Design

- Triplex plunger design gives smoother liquid flow.
- Hi-Pressure Seals are completely lubricated and cooled by the liquids being pumped.
- Inlet and discharge valve assemblies interchange for easier maintenance.
- Lubricated Lo-Pressure Seals provides double protection against external leakage.
- Oil bath crankcase assures optimum lubrication.
- Close tolerance concentricity of the ceramic plunger maximizes seal life.

Quality Materials

- Precision design 304 stainless steel valves and seats are hardened and polished for ultimate seating and extended valve life.
- Forged brass manifolds for strength and corrosion resistance.
- Special blend W770 manifold offers washout and freeze protection for car wash applications.
- Special concentric, high-density, polished, solid ceramic plungers provide a true wear surface and 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

- Convenient "press-in" style seal case for ease in servicing.
- 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

MODEL 5CP2120W

| | | |
|---------------------|---------------|----------------|
| Flow | 4.0 GPM | (15 L/M) |
| Pressure Range..... | 100-2500 PSI | (7-175 BAR) |
| RPM | 950 RPM | (950 RPM) |
| Bore..... | 0.787" | (20 mm) |
| Stroke | 0.709" | (18 mm) |
| Weight | 19.14 lbs. | (8.7 kg) |

MODEL 5CP2140WCS

| | | |
|---------------------|---------------|----------------|
| Flow | 4.0 GPM | (15 L/M) |
| Pressure Range..... | 100-2500 PSI | (7-175 BAR) |
| RPM | 1725 RPM | (1725 RPM) |
| Bore..... | 0.787" | (20 mm) |
| Stroke | 0.394" | (10 mm) |
| Weight | 19.14 lbs. | (8.7 kg) |

MODEL 5CP2150W

| | | |
|---------------------|---------------|----------------|
| Flow | 5.0 GPM | (19 L/M) |
| Pressure Range..... | 100-2000 PSI | (7-140 BAR) |
| RPM | 1725 RPM | (1725 RPM) |
| Bore..... | 0.787" | (20 mm) |
| Stroke | 0.472" | (12 mm) |
| Weight | 19.14 lbs. | (8.7 kg) |

COMMON SPECIFICATIONS

| | | |
|--|----------------------|----------------------|
| Inlet Pressure Range (950 RPM) | -5 to 60 PSI | (-0.35 to 4 BAR) |
| Inlet Pressure Range (1725 RPM) ...Flooded to 60 PSI | | (Flooded to 4 BAR) |
| Crankcase Capacity | 17 oz. | (0.51 L) |
| Max. 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..... | 0.787" | (20 mm) |
| Dimensions..... | 10.35 x 10.0 x 5.78" | (263 x 254 x 147 mm) |

ELECTRIC HORSEPOWER REQUIREMENTS

| MODEL | FLOW | | PRESSURE | | | | MOTOR PULLEY SIZE | |
|------------------|----------|-----|----------|----------|----------|----------|--|-------------|
| | U.S. GPM | L/M | PSI 1200 | PSI 1500 | PSI 2000 | PSI 2500 | Using 1725 RPM Motor & 8" Std. Pump Pulley | |
| | | | BAR 85 | BAR 105 | BAR 140 | BAR 175 | RPM | Pulley O.D. |
| 2120W | 4.0 | 15 | 3.3 | 4.1 | 5.5 | 6.9 | 950 | 4.3 |
| Alternate | 5.0 | 19 | 4.1 | 5.1 | 6.9 | N/A | 1188 | 5.5 |
| 2140WCS | 4.0 | 15 | 3.3 | 4.1 | 5.5 | 6.9 | 1725 | Direct |
| 2150W | 5.0 | 19 | 4.1 | 5.1 | 6.9 | N/A | 1725 | Direct |

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

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

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

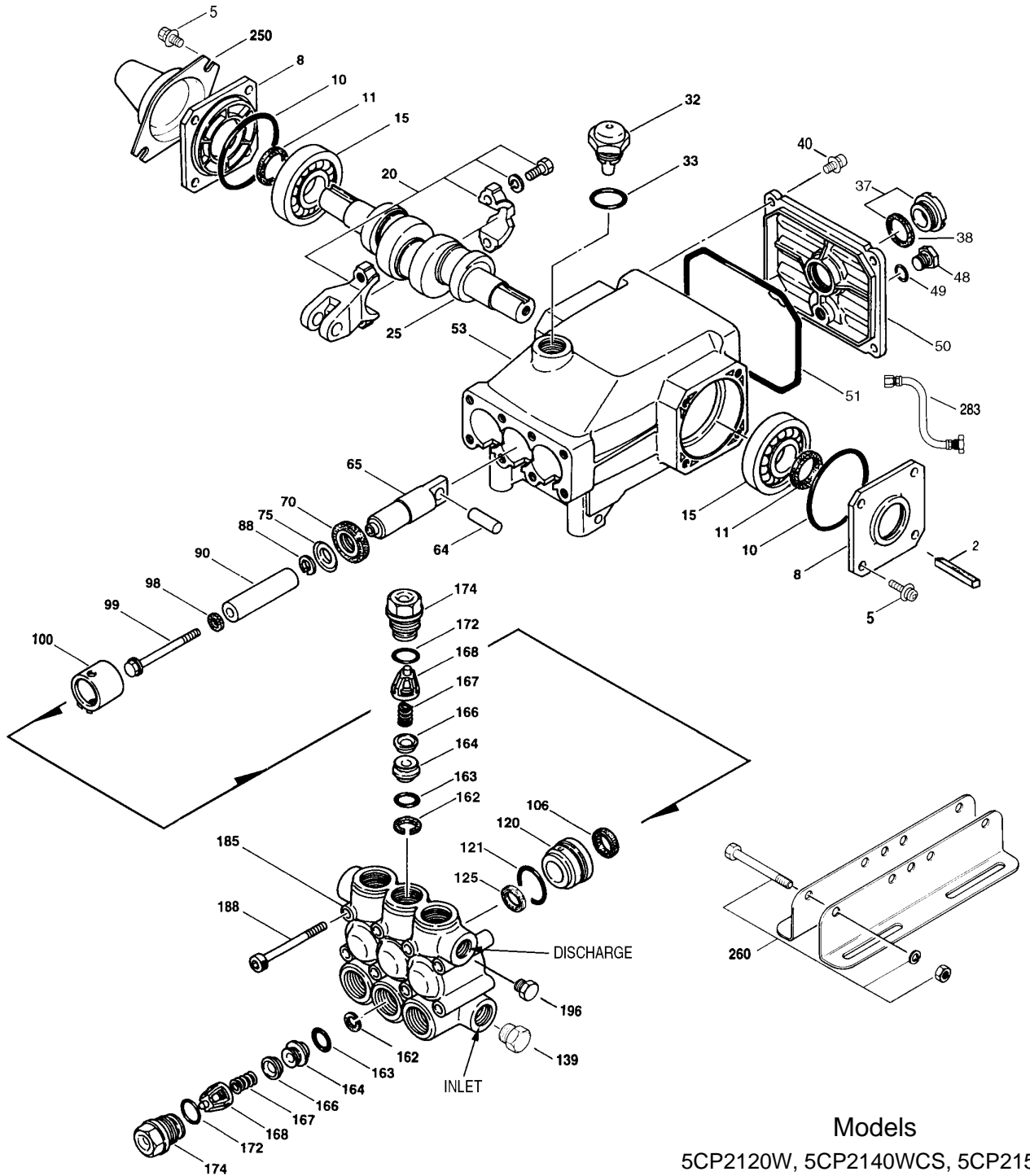
See complete Drive Packages [Incls: Pulleys, Belts, Hubs, Key] Tech Bulletin 003. Refer to pump **Service Manual** for repair procedure, additional technical information and **pump warranty**.

"Customer confidence is our greatest asset"

PARTS LIST

| ITEM | 5CP2120W | | PART NUMBER | | 5CP2140WCS | | 5CP2150W | | DESCRIPTION | QTY |
|------|----------|--------|-------------|--------|------------|--------|----------|--------|---|-----|
| | MATL | | MATL | | MATL | | MATL | | | |
| 2 | 30057 | STL | 30057 | STL | 30057 | STL | 30057 | STL | Key (M6x6x25) | 1 |
| 5 | 96031 | STZP | 96031 | STZP | 96031 | STZP | 96031 | STZP | Screw, Sems HHC (M8x16) | 8 |
| | 126542 | STCP R | 126542 | STCP R | 126542 | STCP R | 126542 | STCP R | Screw, Sems HHC (M8x16) | 8 |
| 8 | 46910 | AL | 46910 | AL | 46910 | AL | 46910 | AL | Cover, Bearing | 2/1 |
| 10 | 14028 | NBR | 14028 | NBR | 14028 | NBR | 14028 | NBR | O-Ring, Bearing Cover - 70D | 2 |
| 11 | 43222 | NBR | 43222 | NBR | 43222 | NBR | 43222 | NBR | Seal, Oil, Crankshaft | 2 |
| 15 | 14480 | STL | 14480 | STL | 14480 | STL | 14480 | STL | Bearing, Ball | 2 |
| 20 | 48742 | TNM | 48742 | TNM | 48742 | TNM | 48742 | TNM | Rod, Connecting Assy [10/01] | 3 |
| 25 | 46928 | FCM | — | — | 46982 | FCM | — | — | Crankshaft, Dual End | 1 |
| | — | — | 48203 | FCM | — | — | — | — | Crankshaft, Single End | 1 |
| 30 | — | — | 48224 | AL | — | — | — | — | Cover, Bearing Blind | 1 |
| 32 | 46798 | — | 46798 | — | 46798 | — | 46798 | — | Cap, Oil Filler, Domed | 1 |
| 33 | 14179 | NBR | 14179 | NBR | 14179 | NBR | 14179 | 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, Oil Gauge - 80D | 1 |
| 40 | 92519 | STZP | 92519 | STZP | 92519 | STZP | 92519 | STZP | Screw, Sems HHC (M6x16) | 4 |
| | 125824 | STCP R | 125824 | STCP R | 125824 | STCP R | 125824 | STCP R | Screw, Sems HHC (M6x16) | 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 | 46940 | AL | 46940 | AL | 46940 | AL | 46940 | AL | Cover, Rear | 1 |
| 51 | 14044 | NBR | 14044 | NBR | 14044 | NBR | 14044 | NBR | O-Ring, Rear Cover | 1 |
| 53 | 48617 | AL | 48617 | AL | 48617 | AL | 48617 | AL | Crankcase | 1 |
| 64 | 46746 | CM | 46746 | CM | 46746 | CM | 46746 | CM | Pin, Crosshead | 3 |
| 65 | 48458 | BBNP | 48458 | BBNP | 48458 | BBNP | 48458 | BBNP | Rod, Plunger | 3 |
| 70 | 46838 | NBR | 46838 | NBR | 46838 | NBR | 46838 | NBR | Seal, Oil, Crankcase - 70D | 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 | 46841 | CC | 46841 | CC | 46841 | CC | 46841 | CC | Plunger (M20x50) | 3 |
| 98 | 46730 | NBR | 46730 | NBR | 46730 | NBR | 46730 | NBR | Washer, Seal - 90D | 3 |
| | 48394 | FPM | 48394 | FPM | 48394 | FPM | 48394 | FPM | Washer, Seal - 90D | 3 |
| | ◆ 48432 | EPDM | ◆ 48432 | EPDM | ◆ 48432 | EPDM | ◆ 48432 | EPDM | Washer, Seal | 3 |
| 99 | † 48201 | SSL | † 48201 | SSL | † 48201 | SSL | † 48201 | SSL | Retainer, Plunger w/Stud (M6) | 3 |
| 100 | 46749 | PVDF | 46749 | PVDF | 46749 | PVDF | 46749 | PVDF | Retainer, Seal | 3 |
| 106 | 43305 | NBR | 43305 | NBR | 43305 | NBR | 43305 | NBR | Seal, LPS w/S-Spg | 3 |
| | 45153 | FPM | 45153 | FPM | 45153 | FPM | 45153 | FPM | Seal, LPS w/SS-Spg | 3 |
| | ◆ 48429 | EPDM | ◆ 48429 | EPDM | ◆ 48429 | EPDM | ◆ 48429 | EPDM | Seal, LPS w/SS-Spg | 3 |
| 120 | 46843 | BB | 46843 | BB | 46843 | BB | 46843 | BB | Case, Seal (Press-in-style) | 3 |
| 121 | 13978 | NBR | 13978 | NBR | 13978 | NBR | 13978 | NBR | O-Ring, Seal Case - 70D | 3 |
| | 14329 | FPM | 14329 | FPM | 14329 | FPM | 14329 | FPM | O-Ring, Seal Case | 3 |
| | ◆ 48904 | EPDM | ◆ 48904 | EPDM | ◆ 48904 | EPDM | ◆ 48904 | EPDM | O-Ring, Seal Case | 3 |
| 125 | 43307 | SNG | 43307 | SNG | 43307 | SNG | 43307 | SNG | Seal, HPS w/S | 3 |
| | 44936 | FPM | 44936 | FPM | 44936 | FPM | 44936 | FPM | Seal, HPS w/SS | 3 |
| | 46667 | HT | 46667 | HT | 46667 | HT | 46667 | HT | Seal, HPS 2-Pc w/S-Support | 3 |
| 139 | 22179 | BBCP | 22179 | BBCP | 22179 | BBCP | 22179 | BBCP | Plug, Inlet (1/2"NPT) | 1 |
| 162 | 48361 | D | 48361 | D | 48361 | D | 48361 | D | Back-up-Ring, Seat | 6 |
| 163 | 43358 | NBR | 43358 | NBR | 43358 | NBR | 43358 | NBR | O-Ring, Seat - 70D | 6 |
| | 44938 | FPM | 44938 | FPM | 44938 | FPM | 44938 | FPM | O-Ring, Seat - 70D | 6 |
| | ◆ 48908 | EPDM | ◆ 48908 | EPDM | ◆ 48908 | EPDM | ◆ 48908 | EPDM | O-Ring, Seat | 6 |
| 164 | 43725 | S | 43725 | S | 43725 | S | 43725 | S | Seat | 6 |
| 166 | 43723 | S | 43723 | S | 43723 | S | 43723 | S | Valve | 6 |
| 167 | 43750 | S | 43750 | S | 43750 | S | 43750 | S | Spring | 6 |
| 168 | 44565 | PVDF | 44565 | PVDF | 44565 | PVDF | 44565 | PVDF | Retainer, Spring | 6 |
| 172 | 17615 | NBR | 17615 | NBR | 17615 | NBR | 17615 | NBR | O-Ring, Valve Plug - 75D | 6 |
| | 15855 | FPM | 15855 | FPM | 15855 | FPM | 15855 | FPM | O-Ring, Valve Plug - 70D | 6 |
| | ◆ 48431 | EPDM | ◆ 48431 | EPDM | ◆ 48431 | EPDM | ◆ 48431 | EPDM | O-Ring, Valve Plug - 75D | 6 |
| 174 | 43849 | BBCP | 43849 | BBCP | 43849 | BBCP | 43849 | BBCP | Plug, Valve | 6 |
| 185 | 48245 | W770 | 48245 | W770 | 48245 | W770 | 48245 | W770 | Manifold, Head - W770 | 1 |
| 188 | 87872 | STZP | 87872 | STZP | 87872 | STZP | 87872 | STZP | Screw, HSH (M8x70) | 8 |
| | 126513 | STCP R | 126513 | STCP R | 126513 | STCP R | 126513 | STCP R | Screw, HSH (M8x70) | 8 |
| 196 | 22187 | BBCP | 22187 | BBCP | 22187 | BBCP | 22187 | BBCP | Plug, Discharge (3/8"NPT) | 1 |
| 250 | 118672 | STCP | 118672 | STCP | 118672 | STCP | 118672 | STCP | Protector, Shaft | 1 |
| 255 | 30243 | STZP | 30243 | STZP | 30243 | STZP | 30243 | STZP | Mount, Direct | 1 |
| 260 | 30611 | STZP | 30611 | STZP | 30611 | STZP | 30611 | STZP | Assembly, Angle Rail - B (Incls: 28499, 30900, 30910, 30920) (Belt Drive Only) | 1 |
| | 30637 | STZP | 30637 | STZP | 30637 | STZP | 30637 | STZP | Mount, Angle Assy-Retro Fit | 1 |
| 265 | 30659 | — | 30659 | — | 30659 | — | 30659 | — | Kit, Complete Mounting (Incls: 30611, 30633, 118672) (Belt Drive Only) | 1 |
| 275 | 30944 | STL | 30944 | STL | 30944 | STL | 30944 | STL | Hub & Key Assy (M20 w/M6 Keyway) [See Drive Packages, Tech Bulletin 003] | 1 |
| 283 | 34334 | — | 34334 | — | 34334 | — | 34334 | — | Kit, Oil Drain | 1 |
| 298 | 34970 | STZP | 34970 | STZP | 34970 | STZP | 34970 | STZP | Clutch, Assy, Single Groove, 20mm, 12VDC | 1 |
| | 34980 | STZP | 34980 | STZP | 34980 | STZP | 34980 | STZP | Clutch, Assy, Dual Groove, 20mm, 12VDC | 1 |
| 299 | 816650 | W770 | 816650 | W770 | 816650 | W770 | 816650 | W770 | Head, Complete | 1 |
| 300 | 33628 | NBR | 33628 | NBR | 33628 | NBR | 33628 | NBR | Kit, Seal (Incls: 98, 106, 121, 125) | 1 |
| | 31628 | FPM | 31628 | FPM | 31628 | FPM | 31628 | FPM | Kit, Seal (Incls: 98, 106, 121, 125) | 1 |
| | ◆ 31648 | EPDM* | ◆ 31648 | EPDM* | ◆ 31648 | EPDM* | ◆ 31648 | EPDM* | Kit, Seal (Incls: 98, 106, 121, 125) | 1 |
| | 31638 | HT | 31638 | HT | 31638 | HT | 31638 | HT | Kit, Seal (Incls: 98, 106, 121, 125) | 1 |

EXPLODED VIEW



Models

5CP2120W, 5CP2140WCS, 5CP2150W

October 2006

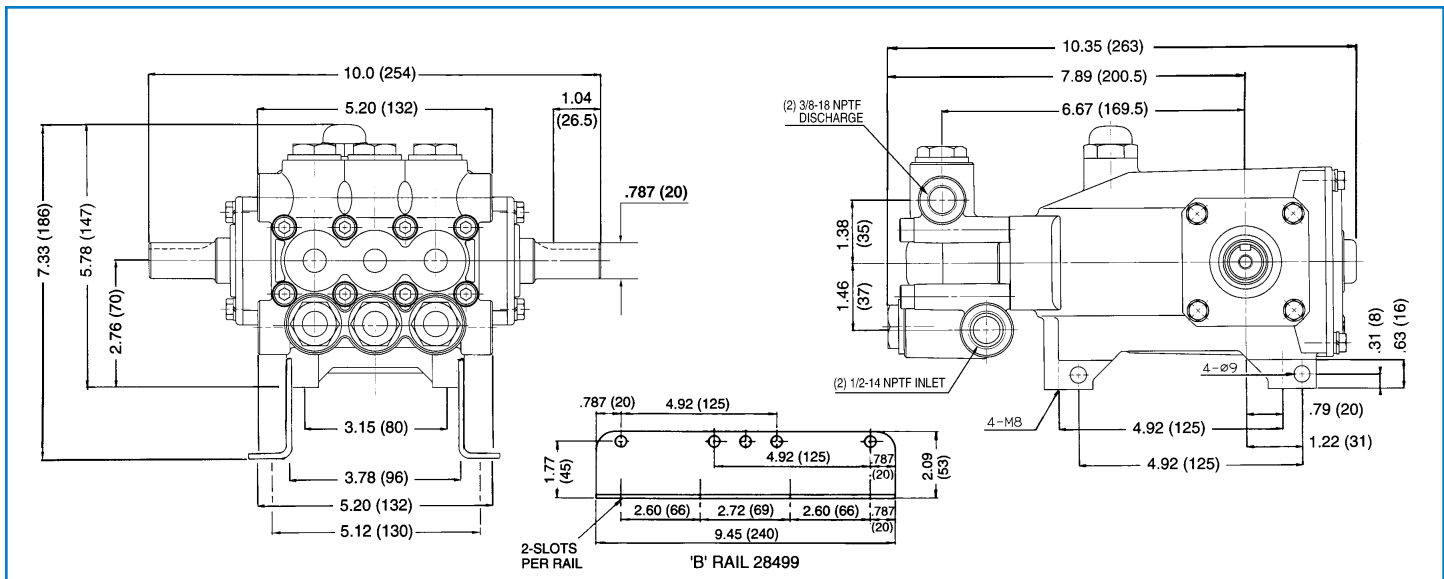
| | 5CP2120W | MATL | 5CP2140WCS | MATL | 5CP2150W | MATL | | |
|-----|-----------------|-------------|-------------------|-------------|-----------------|-------------|---|---|
| 310 | 30821 | NBR | 30821 | NBR | 30821 | NBR | Kit, Valve (Incls: 162,163,164,166,167,168,172) | 2 |
| | 31821 | FPM | 31821 | FPM | 31821 | FPM | Kit, Valve (Incls: 162,163,164,166,167,168,172) | 2 |
| | ◆ 31162 | EPDM | ◆ 31162 | EPDM | ◆ 31162 | EPDM | Kit, Valve (Incls: 162,163,164,166,167,168,172) | 2 |
| 350 | 30696 | STZP | 30696 | STZP | 30696 | STZP | Plier, Reverse | 1 |
| 400 | 7850 | BB | 7850 | BB | 7850 | BB | Modular Unloader (See Individual Data Sheet) | 1 |
| — | — | — | 8026ES-8042ES | — | 8026ES-8042ES | — | BD Motors (See Individual Data Sheet) | 1 |
| — | 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. ◆ Silicone oil/grease required. † Production parts are different than repair parts. R Components comply with RoHS Directive. [] Date of latest production change. W770 effective with 97 production.

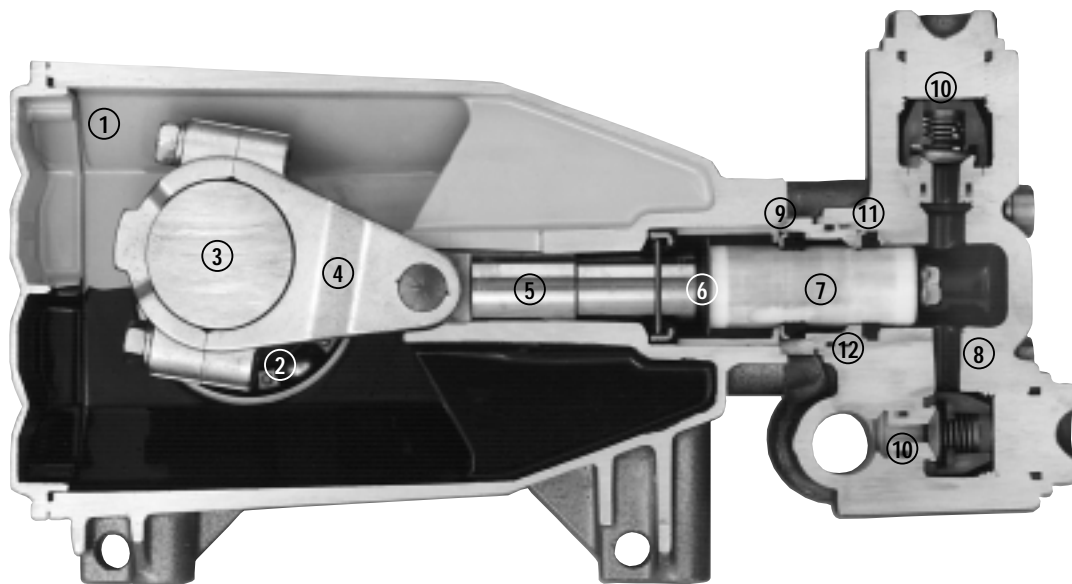
*Review material codes for individual items (HT generally may be used as alternate).

See Tech Bulletins 002, 003, 024, 036, 043, 053, 060, 061, 064, 073, 074, 077, 078 and 083 for additional information.

MATERIAL CODES (Not Part of Part Number): AL=Aluminum BB=Brass BBCP=Brass/Chrome Plated BBNP=Brass/Nickel Plated CC=Ceramic CM=Chrome-moly D=Acetal EPDM=Ethylene Propylene Diene Monomer FBB=Forged Brass FCM=Forged Chrome-moly FPM=Fluorocarbon HS=High Strength HT=Hi-Temp (EPDM Alternative) NBR=Medium Nitrile (Buna-N) PVDF=Polyvinylidene Fluoride S=304SS SNG=Special Blend (Buna) SSL=316SS/Low Carbon STL=Steel W770=Special Alloy STCP=Steel/Chrome Plated STZP=Steel/Zinc Plated TNM=Special High Strength



Models 5CP2120W, 5CP2140WCS, 5CP2150W



- 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 high strength **connecting rods** noted for strength and superior bearing quality.
- 5 The **plunger rods** with hardened surfaces offer wear resistance and Zamak cross-heads for high load capacity.
- 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, solid ceramic **plungers** provide a true wear surface and extended seal life.
- 8 **Manifolds** are a high tensile strength forged 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, ultimate seating and extended life.
- 11 Specially formulated, CAT PUMP exclusive, **Hi-Pressure Seals** offer unmatched performance and seal life.
- 12 Press-in style **seal case** offers alignment and support for seals and "no tools" servicing.

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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