

DATA SHEET

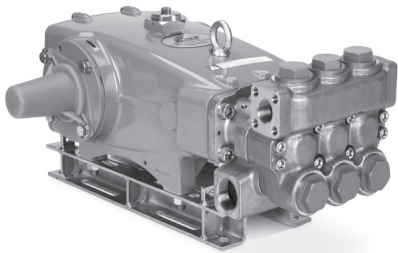
35 FRAME PLUNGER PUMPS



Stainless Steel
3521DHS

Flushed Stainless Steel
3521CHS

**Nickel Aluminum
Bronze**
3527HS



Model 3521DHS Shown
(Shaft protector included, mounting rails sold separately)

FEATURES

- Triplex plunger design ensures high efficiency and low pulsation.
- Advanced connecting rod and plunger rod materials optimize drive-end operation for continuous-duty applications.
- V-packings and low-pressure seals are completely lubricated and cooled by pumped liquid, greatly increasing service life.
- Model 3521C offers an external flush for high-temperature or low-lubricity liquids.
- Pump comes standard with NBR seals. Alternative seal materials are available for higher temperature or chemical compatibility.

| SPECIFICATIONS | U.S. Measure | Metric Measure |
|---|-----------------------|--------------------|
| Flow | 25 gpm | 94.6 lpm |
| Pump Pressure Range | 100–2000 psi | 6.9–138 bar |
| Pump RPM* | 870 rpm | 870 rpm |
| Inlet Pressure Range | Flooded to 70 psi | Flooded to 4.8 bar |
| Max. Liquid Temp. (NBR) | 160° F | 71° C |
| Alternative seals available for higher temperatures up to 200° F | | |
| Bore | 1.260" | 32 mm |
| Stroke | 1.890" | 48 mm |
| Crankcase Capacity | 4.2 qts | 4 l |
| Inlet Ports (2) | 1½" NPT(F) | 1½" NPT (F) |
| Flush Ports (2) "C" | ¼" NPT (F) | ¼" NPT (F) |
| Discharge Ports (2) | 1" NPT (F) | 1" NPT (F) |
| Shaft Diameter | 1.378" | 35 mm |
| Pulley Mounting | Either Side | Either Side |
| Weight | 139 lbs | 63 kg |
| Dimensions | 24.33 x 18.11 x 9.72" | 618 x 460 x 247 mm |

*Pump minimum is 100 RPM.

ALTERNATIVE SEAL CONFIGURATION

| MATERIAL | SUFFIX CODE | MAXIMUM TEMPERATURE | |
|----------|-------------|---------------------|---------|
| NBR | — | 160° F | (71° C) |
| FPM | .0110 | 180° F | (82° C) |
| EPDM | .0220 | 160° F | (71° C) |
| FFKM | .0770 | 200° F | (93° C) |

See **Tech Bulletin 002** for inlet conditions and RPM at higher temperatures.

| | |
|--|---|
| DETERMINING THE PUMP RPM | $\frac{\text{Rated gpm}}{\text{Rated rpm}} = \frac{\text{Desired gpm}}{\text{Desired rpm}}$ |
| DETERMINING THE REQUIRED HP | $\text{hp (Electric Brake)} = \frac{\text{gpm} \times \text{psi}}{1460}$ |
| DETERMINING MOTOR PULLEY SIZE | $\frac{\text{Motor Pulley OD}}{\text{Pump rpm}} = \frac{\text{Pump Pulley OD}}{\text{Motor rpm}}$ |

Refer to pump **Service Manual** for repair procedure and additional technical information.

PARTS LIST

| ITEM | P/N | MATL | P/N | MATL | DESCRIPTION | QTY |
|------|-----------------|--------|----------------|--------|---|-----|
| | 3521DHS, | | 3527DHS | | | |
| | 3521CHS | | | | | |
| 5 | 96049 | S | 96049 | S | Screw, HHC Sems (M10 x 25) (See Tech Bulletins 074) | 8 |
| 8 | 134604 | ALE | 134604 | ALE | Cover, Bearing | 2 |
| 9 | 815279 | FBR | 815279 | FBR | Shim, Split, 2-Piece | 2 |
| 10 | 12398 | NBR | 12398 | NBR | O-Ring, Bearing Cover-70D | 2 |
| 11 | 13296 | NBR | 13296 | NBR | Seal, Oil, Crankshaft | 2 |
| 12 | 855049 | S | 855049 | S | Shim, Split, 2-Piece | 0-2 |
| 15 | 29326 | STL | 29326 | STL | Bearing, Roller | 2 |
| 20 | 126725 | BZ R | 126725 | BZ R | Rod, Connecting Assembly (Includes: 21, 22, 23) (See Tech Bulletin 074) | 3 |
| 21 | 126749 | STCP R | 126749 | STCP R | Washer, Locking | 3 |
| 22 | 126593 | STCP R | 126593 | STCP R | Washer, Flat (M10.5) | 6 |
| 23 | 122045 | STZP | 122045 | STZP | Screw, HH (M10 x 55) | 6 |
| 25 | 29325 | FCM | 29325 | FCM | Crankshaft, Dual End (M48) | 1 |
| 31 | 828710 | PE | 828710 | PE | Protector, Oil Cap with Foam Gasket | 1 |
| 32 | 43211 | ABS | 43211 | ABS | Cap, Oil Filler | 1 |
| 33 | 14177 | NBR | 14177 | NBR | O-Ring, Oil Filler Cap-70D | 1 |
| 34 | 126743 | STCP R | 126743 | STCP R | Bolt, Eye (M12 x 1.75) (For Lifting Pump Only) | 1 |
| 37 | 92241 | PC | 92241 | PC | Gauge, Oil, Bubble with Gasket-80D (See Tech Bulletin 074) | 1 |
| 38 | 44428 | NBR | 44428 | NBR | Gasket, Flat Oil Gauge-80D | 1 |
| 40 | 125753 | S | 125753 | S | Screw, HHC Sems (M8 x 25) (See Tech Bulletin 074) | 8 |
| 48 | 25625 | STCP | 25625 | STCP | Plug, Drain (1/4" x 19 BSP) | 1 |
| 49 | 23170 | NBR | 23170 | NBR | O-Ring, Drain Plug-70D | 1 |
| 50 | 45936 | ALE | 45936 | ALE | Cover, Rear (See Tech Bulletin 118) | 1 |
| 51 | 16612 | NBR | 16612 | NBR | O-Ring, Cover-70D | 1 |
| 53 | 134784 | ALE | 134784 | ALE | Crankcase Assembly (Includes 54) | 1 |
| 54 | 27488 | S | 27488 | S | Pins, Guide | 2 |
| 56 | 27790 | POP | 27790 | POP | Pan, Oil | 1 |
| 59 | 92538 | S | 92538 | S | Screw, HHC Sems (M6 x 16) | 2 |
| 64 | 43864 | CM | 43864 | CM | Pin, Crosshead | 3 |
| 65 | 49166 | SSHB | 49166 | SSHB | Rod, Plunger | 3 |
| 69 | 126587 | STCP R | 126587 | STCP R | Washer, Oil Seal | 3 |
| 70 | 100488 | NBR | 100488 | NBR | Seal, Oil, Crankcase | 3 |
| 75 | 43865 | S | 43865 | S | Slinger, Barrier | 3 |
| 88 | 45676 | S | 45676 | S | Washer, Keyhole (M16) | 3 |
| 90 | 43957 | CC | 43957 | CC | Plunger (M32 x 145) | 3 |
| 95 | 89778 | SS | 89778 | SS | Stud, Plunger Retainer (M10 x 135) | 3 |
| 96 | 20189 | PTFE | 20189 | PTFE | Backup Ring, Plunger Retainer | 3 |
| 97 | 11345 | NBR | 11345 | NBR | O-Ring, Plunger Retainer-70D | 3 |
| 98 | 44085 | SS | 44085 | SS | Gasket, Retainer | 3 |
| 99 | 44084 | SS | 44084 | SS | Retainer, Plunger (M10) (See Tech Bulletin 074) | 3 |
| 100 | 814279 | PVDF | 814279 | PVDF | Retainer, Seal | 3 |
| 101 | 44106 | — | 44106 | — | Wick, Long Tab | 3 |
| 104 | 43875 | NBR | 43875 | NBR | O-Ring, Inlet Adapter-70D | 3 |
| 105 | 45562 | SS | 45562 | SS | Adapter, Inlet | 3 |
| 106 | 44098 | NBR | 44098 | NBR | Seal, Low-Pressure, with SS-Spring | 3 |
| 107 | 44101 | SS | 44101 | SS | Washer | 3 |
| 110 | 45365 | SS | 45124 | NAB | Manifold, Inlet | 1 |
| | 125397 | SS | — | — | Manifold, Inlet, Flushed | 1 |
| 112 | 11379 | NBR | 11379 | NBR | O-Ring, Inlet Manifold-70D | 3 |
| 117 | 44585 | S | 44585 | S | Screw, HSH (M14 x 40) (See Tech Bulletin 074) | 4 |
| 122 | 49782 | SS | 49782 | SS | Spacer (See Tech Bulletin 114) | 3 |
| 123 | 12391 | NBR | 12391 | NBR | O-Ring, V-Packing Cylinder-70D | 3 |
| 124 | 49783 | SS | 49783 | SS | Cylinder, V-Packing | 3 |
| 126 | 48390 | D | 48390 | D | Adapter, Female | 3 |
| 127 | 44608 | STG | 44608 | STG | V-Packing | 6 |
| 128 | 45565 | SS | 45565 | SS | Adapter, Male | 3 |
| 141 | 49743 | SS | 49743 | SS | Spring, Coil | 3 |
| 158 | 48362 | D | 48362 | D | Backup Ring, V-Packing Cylinder | 3 |
| 159 | 48860 | NBR | 48860 | NBR | O-Ring, V-Packing Cylinder-90D | 3 |
| 162 | 48363 | D | 48363 | D | Backup Ring, Valve Seat | 6 |
| 163 | 26142 | NBR | 26142 | NBR | O-Ring, Seat-80D | 6 |
| 164 | 44612 | SS | 44612 | SS | Seat, Stepped | 6 |
| 166 | 44108 | SS | 44108 | SS | Valve | 6 |
| 167 | 44109 | SS | 44109 | SS | Spring | 6 |
| 168 | 44728 | PVDF | 44728 | PVDF | Retainer, Spring | 6 |
| 170 | 44729 | SS | 44729 | PVDF | Washer, Spring Retainer | 6 |
| 171 | 44644 | SS | 44644 | SS | Coil Spring (70 kg), Valve Plug | 6 |
| 172 | 89827 | NBR | 89827 | NBR | O-Ring, Valve Plug-90D | 6 |
| 173 | 48364 | D | 48364 | D | Backup Ring, Valve Plug | 6 |
| 174 | 49300 | SSD | 44643 | NAB | Plug, Valve (See Tech Bulletins 074) | 6 |
| 185 | 49299 | SSD | 49249 | NAB | Manifold, Discharge | 1 |
| 188 | 89981 | S | 89981 | S | Screw, HSH (M12 x 70) (See Tech Bulletin 074) | 8 |
| 250 | 855042 | NY | 855042 | NY | Protector, Shaft with Two (2) Screws, Lockwashers and Washers | 1 |

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

R Components comply with RoHS Directive. For additional technical information see www.catpumps.com/literature/tech-bulletins.

MATERIAL CODES (Not Part of Part Number): ABS=ABS Plastic AL=Aluminum ALE=Aluminum Epoxy BZ=Bronze CC=Ceramic CM=Chrome-Moly D=Acetal

EPDM=Ethylene Propylene Diene Monomer F=Cast Iron FBR=Fiber FCM=Forged Chrome-moly FFKM=Perfluoroelastomer FPM=Fluorocarbon NBR=Medium Nitrile (Buna-N)

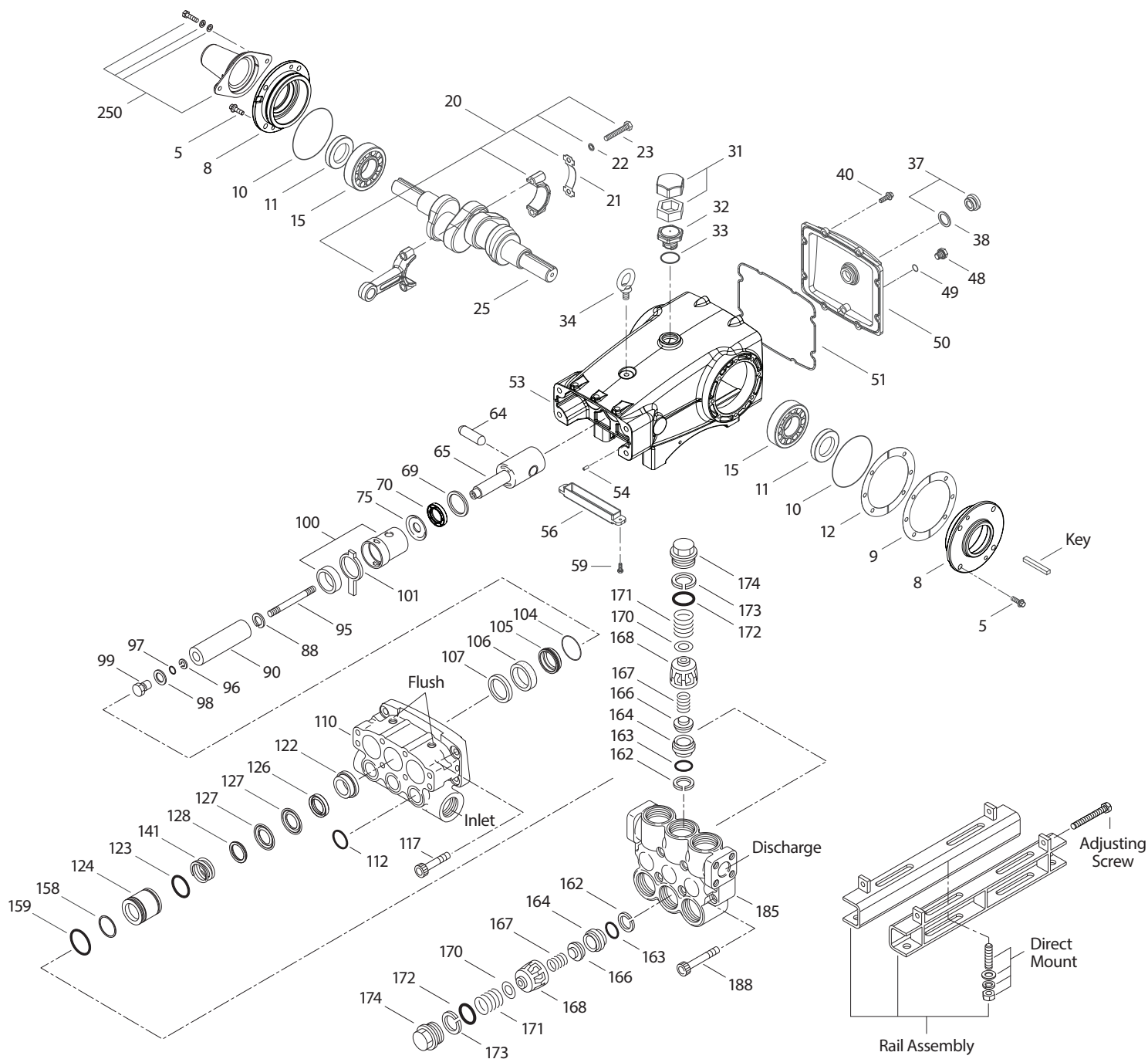
NBR=Silicone Free NY=Nylon PC=Poly Carbonate PE=Polyethylene POP=Polypropylene PTFE=Pure Polytetrafluoroethylene PVDF=Polyvinylidene Fluoride S=304SS

SS=316SS SSD=Duplex Stainless Steel SFG=Special Blend FPM PP=Glass Filled Polypropylene ST 2=Special PTFE 2 STG=Special Blend PTFE White STCP=Steel/Chrome Plated

STL=Steel STZP=Steel/Zinc Plated SSHB=316SS/High Strength Brass SSZ=316SS/Zamak TNM=Special High Strength

Optional Parts and Accessories and Service Parts listed on page 3. Standard and optional Seal Kits and Valve Kits listed on page 4.

EXPLODED VIEW



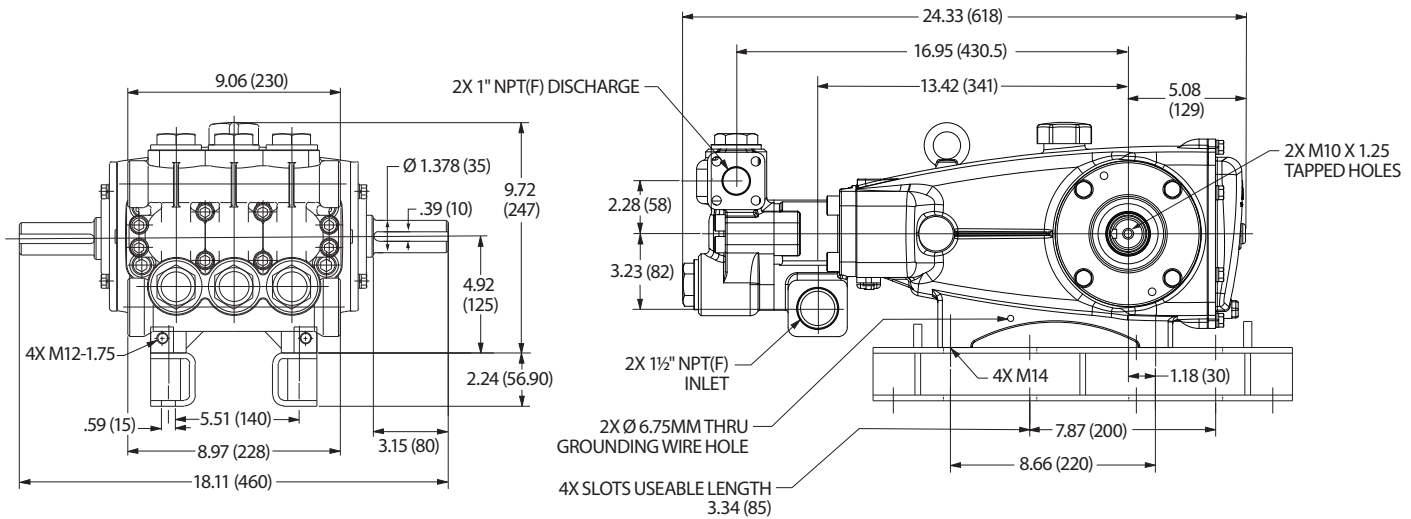
Models
3521DHS, 3521CHS,
3527HS
September 2023

OPTIONAL PARTS AND ACCESSORIES

| PART | DESCRIPTION | QTY |
|--------|---|-----|
| 34021 | Key (M10 x 8 x 70) | 1 |
| 92674 | Mount, Rail Assembly (STZP R) (Includes: 34018) | 1 |
| 34018 | Mount, Direct (STZP R) | 1 |
| 76514 | Mount, Rail Assembly (S) (Includes: 34039) | 1 |
| 34039 | Mount, Direct (S) | 1 |
| 990013 | Hub, "B", 35 mm (STL) (Not Shown) | 1 |
| 80540 | Screwing, Adjusting (M12 x 100) | 2 |
| 30278 | Oiler (1 oz) (Not Shown) | 3 |
| 34314 | Kit, Oil Drain (3/8" x 48") (Not Shown) | 1 |
| 819000 | Assembly, Crankcase, Cast Iron Conversion (Not Shown) | 1 |

SERVICE PARTS

| PART | DESCRIPTION | QTY |
|---------------|---|-----|
| 76841 | Seal Kit - Standard NBR | 1 |
| 34017 | Valve Kit - Standard NBR | 2 |
| 6100 | Oil, Case (12-21 oz bottles) (Fill to Specified Crankcase Capacity Prior to Start-up) | 1 |
| 6124 | Gasket, Liquid (3 oz) | 1 |
| 6139 | Lubricant, Anti-Seize (8 oz) (See Tech Bulletin 095) | 1 |
| 32273 | Crankcase Oil Seal Removal and Installation Kit (Not Shown) (Includes: Oil Seals, Guide Tool, Screws, Washers, Driver) | 1 |
| 30696 | Reverse Pliers (Not Shown) | 1 |
| 818373 | Head, Complete with NBR Seals and O-Rings (Model 3521DHS) | 1 |
| 815438 | Head, Complete with NBR Seals and O-Rings (Model 3527HS) | 1 |



Models 3521DHS, 3521CHS, 3527HS

SEAL KITS One (1) seal kit required per pump

| PUMP MODELS | NBR (STD) | FPM (.0110) | EPDM (.0220) ♦ | FFKM (.0770) |
|--------------------------|---------------|--------------|----------------|----------------|
| 3521DHS, 3521CHS, 3527HS | 76841* | 76842 | 76843 * | 76844 * |

| ITEM (Included in Seal Kits) | DESCRIPTION | | | | QTY | |
|------------------------------|-------------|-------|--------|--------|------------------------------------|---|
| 97 | 11345 | 11375 | 701490 | 702961 | O-Ring, Plunger Retainer | 3 |
| 104 | 43875 | 44826 | 701656 | 702977 | O-Ring, Inlet Adapter | 3 |
| 106 | 44098 | 44827 | 48244 | 76298 | Seal, Low-Pressure, with SS-Spring | 3 |
| 112 | 11379 | 14183 | 701491 | 702705 | O-Ring, Inlet Manifold | 3 |
| 123 | 12391 | 13266 | 701657 | 703481 | O-Ring, V-Packing Cylinder | 3 |
| 127 | 44608 | 44829 | 44608 | 44608 | V-Packing | 6 |
| 158 | 48362 | 48362 | 48362 | 20464 | Backup Ring, V-Packing Cylinder | 3 |
| 159 | 48860 | 20137 | 701492 | 703159 | O-Ring, V-Packing Cylinder | 3 |

♦ Silicone oil/grease required *Review material codes for individual items (STG generally may be used as alternative)

VALVE KITS Two (2) valve kits required per pump

| PUMP MODELS | NBR (STD) | FPM (.0110) | EPDM (.0220) ♦ | FFKM (.0770) |
|--------------------------|--------------|--------------|----------------|--------------|
| 3521DHS, 3521CHS, 3527HS | 34017 | 31955 | 31952 | 76617 |

| ITEM (Included in Valve Kits) | DESCRIPTION | | | | QTY | |
|-------------------------------|-------------|-------|--------|--------|-------------------------|---|
| 162 | 48363 | 48363 | 48363 | 44614 | Backup Ring, Valve Seat | 3 |
| 163 | 26142 | 14330 | 701493 | 702808 | O-Ring, Valve Seat | 3 |
| 164 | 44612 | 44612 | 44612 | 44612 | Seat, Stepped | 3 |
| 166 | 44108 | 44108 | 44108 | 44108 | Valve | 3 |
| 167 | 44109 | 44109 | 44109 | 44109 | Spring | 3 |
| 168 | 44728 | 44728 | 44728 | 44728 | Retainer, Spring | 3 |
| 170 | 44729 | 44729 | 44729 | 44729 | Washer, Spring Retainer | 3 |
| 172 | 89827 | 11747 | 701494 | 703169 | O-Ring, Valve Plug | 3 |
| 173 | 48364 | 48364 | 48364 | 20388 | Backup Ring, Valve Plug | 3 |

♦ Silicone oil/grease required

⚠ CAUTIONS AND WARNINGS

All high-pressure systems require a primary pressure regulating device (e.g. regulator, unloader) and a secondary pressure relief device (e.g. pop-off valve, relief valve). Failure to install such relief devices could result in personal injury or damage to pump or property. Cat Pumps does not assume any liability or responsibility for the operation of a customer's high-pressure system. Read all CAUTIONS and WARNINGS before commencing service or operation of any high-pressure system. The CAUTIONS and WARNINGS are included in each Service Manual and with each Accessory Data sheet. CAUTIONS and WARNINGS can also be viewed online at www.catpumps.com/dynamic-literature/cautions-and-warnings or can be requested directly from Cat Pumps.

WARRANTY

View the Limited Warranty online at www.catpumps.com/literature/cat-pumps-limited-warranty