

# BLACKMER V-BELT DRIVE - STYLE VB PUMP MODELS: LGLD3E, CRL3, SGLD3

Parts List with Installation, Operation and Maintenance Instructions

\* Page Numbers 701-F00 and 801-D00 also apply

965103

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**PARTS LIST**

**501-H02\***

Section

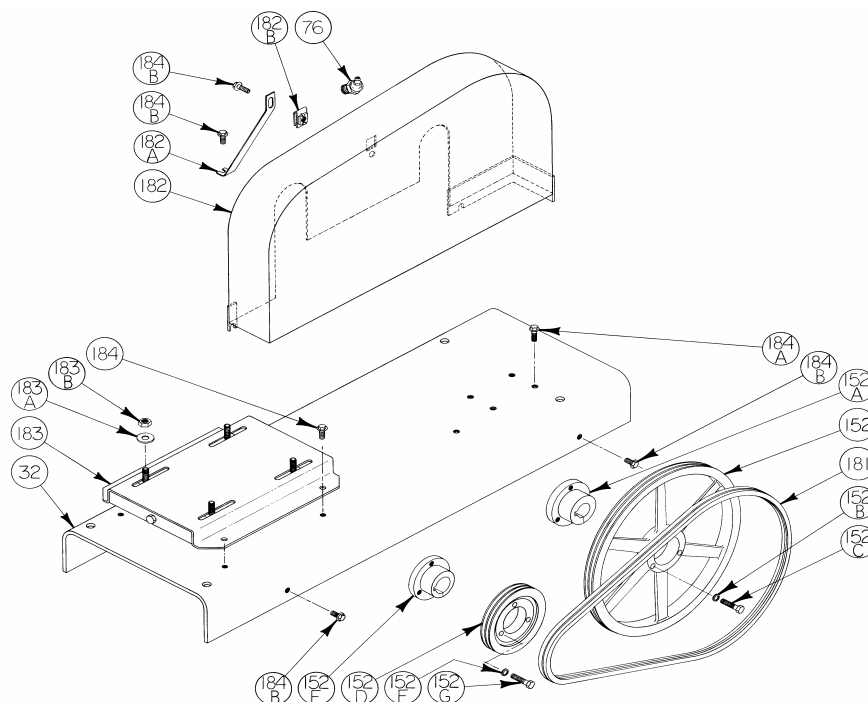
501, 701, 801

Effective

Apr 2008

Replaces

May 2003



## PARTS LIST

| Ref. No. | Description           | Parts Per Pump | Part No.  | Ref. No. | Description                                                | Parts Per Pump | Part No.  |
|----------|-----------------------|----------------|-----------|----------|------------------------------------------------------------|----------------|-----------|
| 32       | Pump Base             | 1              | See Table | 181      | V-Belt                                                     | 2 - 4          | See Table |
| 76       | Grease Fitting        | 1              | 317809    | 182      | V-Belt Guard (3)                                           | 1              | See Table |
| 152      | Pump Sheave           | 1              | See Table | 182A     | V-Belt Guard Brace                                         | 1              | 804076    |
| 152A     | Pump QD Hub Assembly  | 1              | See Table | 182B     | Speed Nut                                                  | 1              | 922407    |
| 152B     | Lockwasher            | 3              | (1)       | 183      | Motor Base Assembly – Includes:<br>183A Washer<br>183B Nut | 1              | See Table |
| 152C     | Capscrew              | 3              | (1)       |          |                                                            | 4              |           |
| 152D     | Motor Sheave          | 1              | See Table |          |                                                            | 4              |           |
| 152E     | Motor QD Hub Assembly | 1              | See Table | 184      | Capscrew - Motor Base                                      | 4              | See Table |
| 152F     | Lockwasher            | 3              | (1)       | 184A     | Capscrew - Pump                                            | 4              | 920951    |
| 152G     | Capscrew              | 3              | (1)       | 184B     | Capscrew - Guard                                           | 4              | 920955    |

(1) Included with QD Hub Assembly.

(3) Consult Factory for ATEX Compliant (Non-Sparking) Guards.

## V-BELT DATA - 3V TYPE BELTS

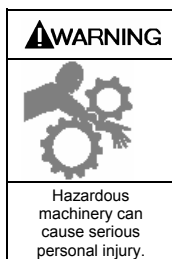
|                                       |                       |                    |         |         |         |         |         |                  |
|---------------------------------------|-----------------------|--------------------|---------|---------|---------|---------|---------|------------------|
| <b>Pump Speed with 1750 RPM Motor</b> | 330                   | 410                | 410     | 515     | 515     | 630     | 630     | 780 <sup>2</sup> |
| <b>Pump Speed with 1450 RPM Motor</b> | 275                   | 340                | 340     | 425     | 425     | 525     | 525     | 650              |
| <b>Speed Ratio</b>                    | 5.26                  | 4.26               | 4.26    | 3.41    | 3.41    | 2.77    | 2.77    | 2.24             |
| <b>Motor Frame Size</b>               | 184T                  | 213T               | 215T    | 213T    | 215T    | 215T    | 254T    | 215T             |
| <b>Ref. No.</b>                       | <b>Part Name</b>      | <b>Part Number</b> |         |         |         |         |         |                  |
| 32                                    | Pump Base             | 901942             | 901942  | 901942  | 901942  | 901942  | 901942  | 901942           |
| 152                                   | Pump Sheave           | 902400             | 902400  | 902400  | 902400  | 902400  | 902400  | 902419           |
| 152A                                  | Pump QD Hub Asy.      | 902450             | 902450  | 902450  | 902450  | 902450  | 902450  | 902450           |
| 152D                                  | Motor Sheave          | 902401             | 902402  | 902402  | 902403  | 902403  | 902404  | 902430           |
| 152E                                  | Motor QD Hub Asy.     | 902451             | 902453  | 902453  | 902453  | 902453  | 902454  | 902453           |
| 181                                   | V-Belt                | 902001*            | 902001* | 902001* | 902001* | 902001* | 902001* | 902002*          |
| 182                                   | V-Belt Guard (3)      | 804061             | 804061  | 804061  | 804061  | 804061  | 804061  | 804061           |
| 183                                   | Motor Base Asy.       | 905082             | 905083  | 905084  | 905083  | 905084  | 905094  | 905084           |
| 184                                   | Capscrew - Motor base | 920957             | 920957  | 920957  | 920957  | 920957  | 920957  | 920959           |

<sup>2</sup> 780 rpm drive should not be used with CRL3 and SGLD3.

\* Two required.

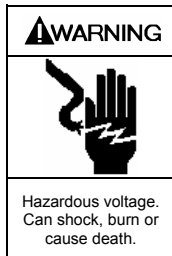
\*\* Four required.

## INSTALLATION AND MAINTENANCE



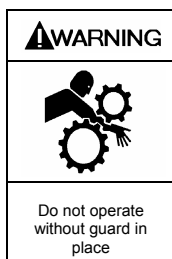
**Failure to disconnect and lockout electrical power or engine drive before attempting maintenance can cause severe personal injury or death**

Hazardous machinery can cause serious personal injury.



**Failure to disconnect and lockout electrical power before attempting maintenance can cause shock, burns or death**

Hazardous voltage. Can shock, burn or cause death.



**Operation without guards in place can cause serious personal injury, major property damage, or death.**

Do not operate without guard in place

**These units must only be installed in systems which have been designed by those qualified to engineer these systems. The system must be in accordance with all applicable regulations and safety codes.**

### ASSEMBLY

Mount the pump and the motor base to the unit base. Mount the motor on the motor base, but do not draw the motor mounting nuts down tight.

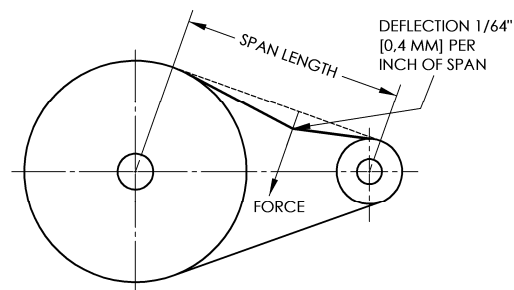
Wipe the cone surface of the pump QD hub and the inside of the pump sheave hub with a clean cloth moistened with a light grade of machine oil. This will allow a more uniform draw and prevent the cone surfaces from "freezing" before being tightened.

With the shaft key in place, align the key seat and slide the QD hub on the shaft, flange end first. Slide the large end of the sheave bore over the taper on the QD hub. Insert the three (3) sheave capscrews through the clearance holes in the sheave, and start them into the tapped holes of the QD hub. Repeat this procedure to assemble the motor QD hub and sheave.

To install the belts, shorten the center distance of the drive by moving the motor towards the pump, until the belts can be put on the sheaves without forcing.

Align the sheaves so that the faces are parallel, then snug up the sheave capscrews.

Measure the span length as shown in Figure 1.



**Figure 1**

Adjust the motor base then apply a force at the center of the belt span, so that the belt is deflected 1/64 inch for every inch of span. For example, the deflection of a 20 inch span would be 20/64 or 5/16 inch. The force required should be within the range given in Table 1. A new set of belts should initially be tensioned to the upper limit. Check again to see that the sheaves are parallel and then tighten the sheave capscrews, the motor mounting nuts and the adjusting screw locknut. Assemble the belt guard and belt guard brace to the unit base.

**DEFLECTION FORCE PER BELT**

| Small Sheave Outside Diameter | Belt Deflection Force Range  |
|-------------------------------|------------------------------|
| 2.5 - 4.5" (63.5 - 114.3 mm)  | 3.0 – 4.75 Lb (1.4 - 2.2 Kg) |
| 4.75 - 7" (120.7 - 177.8 mm)  | 4.0 – 6.0 Lb (1.8 -2.7 Kg)   |

**Table 1**

Check the belt tension after 24 - 48 hours run-in. Recheck the tension periodically, and tighten the belts as required. Avoid over-tightening belts, which can shorten bearing and belt life. Belts should be inspected periodically for signs of excessive wear and replaced if necessary.

For information on system installation and pump maintenance refer to the Installation and Maintenance Instructions provided with the pump.

### DISASSEMBLY

Remove the belt guard and guard brace. Loosen the adjusting screw locknut on the motor base and the motor mounting nuts. Ease the tension on the belts by moving the motor towards the pump to shorten the center distance of the drive. Remove the belts by sliding them over the sheaves. Do not force the belts over the grooves.

To remove the sheave from the hub, first remove the three sheave capscrews, then screw two of them into the threaded holes in the sheave hub. If the cone grip is hard to break loose, tap the end of the shaft or the QD hub with a lead hammer, while maintaining pressure on the screw.

The QD hub should slide smoothly off the shaft. If it is tight on the shaft, pry it loose with a screwdriver or a small wedge placed in the split part of the flange.

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